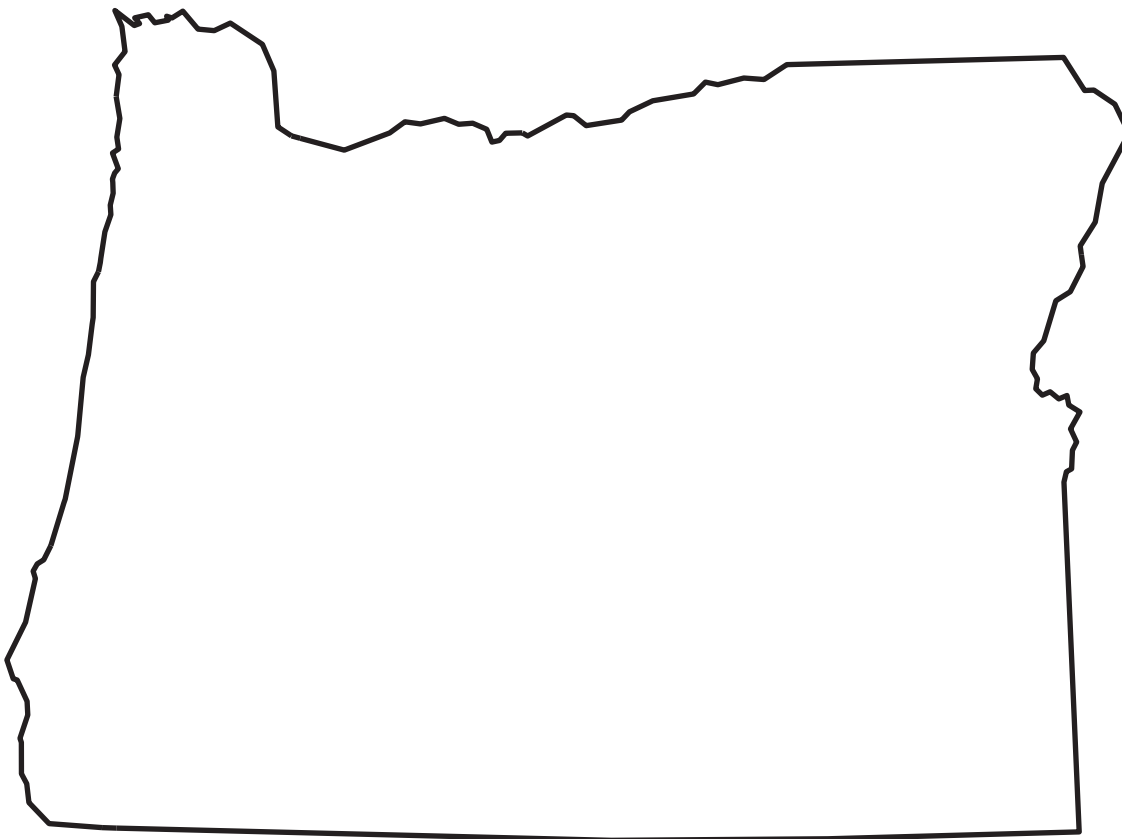


U.S. Department of the Interior  
U.S. Geological Survey

# Water Resources Data Oregon Water Year 2002

By T.A. Herrett, G.W. Hess, J.G. House, G.P. Ruppert, and M.L. Courts

Water-Data Report OR-02-1



Prepared in cooperation with other agencies



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2003

## PREFACE

The annual Oregon hydrologic data report is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each State, Puerto Rico, and the Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by State, local and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey who collected, compiled, analyzed, verified, and organized the data, and who edited and assembled the reports. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete, and adheres to Geological Survey policy and established guidelines, the following individuals contributed significantly to the collection, processing, and tabulation of the data:

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This report was prepared in cooperation with other agencies under the general supervision of Dennis D. Lynch, District Chief, and T. John Conomos, Regional Hydrologist, Western Region.

**REPORT DOCUMENTATION PAGE**Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE September, 2003	3. REPORT TYPE AND DATES COVERED Annual 1 Oct 2001 - 30 Sept 2002	
4. TITLE AND SUBTITLE Water Resources Data Oregon Water Year 2002			5. FUNDING NUMBERS	
6. AUTHOR(S) T.A. Herrett, G.W. Hess, J.G. House, G.P. Ruppert and M.L. Courts				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Divison 10615 S.E. Cherry Blossom Drive Portland, OR 97216			8. PERFORMING ORGANIZATION REPORT NUMBER USGS-WDR-OR-02-1	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) U.S. Geological Survey, Water Resources Divison 10615 S.E. Cherry Blossom Drive Portland, OR 97216			10. SPONSORING / MONITORING AGENCY REPORT NUMBER USGS-WDR-OR-02-1	
11. SUPPLEMENTARY NOTES  Prepared in cooperation with other agencies.				
12a. DISTRIBUTION / AVAILABILITY STATEMENT This report may be purchased from: U.S. Department of Commerce, NTIS 5285 Port Royal Road Springfield, VA 22161			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)  Water resources data for the 2002 water year for Oregon consist of records of stage, discharge, and water quality of streams; stage and contents of lakes and reservoirs and water levels of wells  <ul style="list-style-type: none"> <li>•Water discharge for 181 gaging stations on streams, canals and drains.</li> <li>•Discharge data for 55 partial-record or miscellaneous sites and water quality sampling sites.</li> <li>•Stage and (or) contents for 26 lakes and reservoirs.</li> <li>•Water quality data for 127 streams, canals, lakes and wells.</li> <li>•Water-quality for 2 atmospheric disposition stations.</li> <li>•11 Ground-water sites.</li> </ul> <p>These data represent that part of the National Water Data System operated by the U.S. Geological Survey and cooperating States and Federal agencies in Oregon.</p>				
14. SUBJECT TERMS *Oregon, *Hydrologic data, *Surface water, *Water quality, Gaging stations, Flow rate, Lakes, Reservoirs, Chemical analyses, Sediment, Water temperatures, Turbidity, Sampling sites, Water analyses			15. NUMBER OF PAGES 580	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT Unclassified	

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Letter after station name designates type of data: (c) chemical, including periodic biological, microbiological, sediment, pesticide, and radio-chemical where applicable; (d) discharge; (do) dissolved oxygen; (e) elevation; (g) gage height; (k) specific conductance; (ph) pH; (s) daily suspended sediment; (t) water temperature; (tb) turbidity; and (v) contents.

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## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

The following continuous-record surface-water discharge or stage-only stations (gaging stations) in Oregon have been discontinued. Daily streamflow or stage records were collected and published for the period of record, expressed in water years, shown for each station. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page of this report.

[Letters after station name designate type of data collected: (d) discharge, (e) elevation, (g) gage height]

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
<b>WARNER LAKES BASIN</b>			
Twentymile Creek near Adel (d)	10366000	194	1910-16;1918-19;1921-22;1941-44;1945-91
Deep Creek above Dismal Creek, near Warner Lake (d)	10366500	13.0	1918-19
Dismal Creek above Big Valley, near Warner Lake (d)	10367000	12.5	1913
Dismal Creek near Warner Lake (d)	10367500	14.0	1919
Deep Creek below Dismal Creek, near Warner Lake (d)	10368000	27	1913;1918-19
Deep Creek at Big Valley, near Lakeview (d)	10368500	76	1912-15
Camas Creek near Plush (d)	10369000	32.0	1912
Mud Creek near Plush (d)	10369500	18.0	1912;1915;1928-30
Camas Creek near Lakeview (d)	10370000	63.0	1913-15;1951-73
Crane Creek near Lakeview (d)	10370500	7.00	1914
Drake Creek near Adel (d)	10371000	67.0	1915;1923;1951-64;1966-73
Deep Creek above Adel (d)	10371500	249	1923;1930-91
Givan Canal near Adel (d)	10373000	--	1915
Deep Creek at Adel (d)	10374500	274	1910-16;1918-19;1921-22
Mud Creek Ditch at Adel (d)	10375000	--	1915
Fish Creek near Plush (d)	10376500	38.0	1914
Honey Creek at Chalstrand's ranch, near Plush (d)	10377000	56.0	1911
Snyder Creek near Plush (d)	10377500	--	1911
Twelvemile Creek near Plush (d)	10378000	37.0	1911
Honey Creek near Plush (d)	10378500	170	1911-14;1915;1921;1922; 1930-91
<b>ABERT LAKE BASIN</b>			
Chewaucan River at damsite, near Paisley (d)	10382500	158	1913-16
Chewaucan River near Buck Mountain, near Paisley (d)	10382550	157	1983-86
Chewaucan River below Coffeepot Creek, near Paisley (d)	10382600	216	1983-86
Conn Ditch near Paisley (d)	10383500	--	1915-20
Chewaucan River near Paisley (d)	10384000	275	1912-21;1924-91
Chewaucan River at Paisley (d)	10384100	278	1905-07;1909-12
Smalls Canal at Paisley (d)	10384500	--	1914-21
Jones-Innis-ZX Ditch near Paisley (d)	10385500	--	1915-20
Chewaucan River at narrows, near Paisley (d)	10386000	380	1914-21
Chewaucan River at Hotchkiss Ford, near Paisley (d)	10386500	430	1914-20
Crooked Creek near Valley Falls (d)	10387000	--	1912-13
<b>SUMMER LAKE BASIN</b>			
Ana River plus Summer Lake Canal, near Summer Lake (d)	10388001	--	1930-39;1940-42;1951-91
West Fork Silver Creek near Silver Lake (d)	10389000	27	1919-23;1925-32
Silver Creek plus Silver Lake Ir Canal, near Silver Lake (d)	10390001	180	1905-07;1909-27;1928; 1929-91
Bridge Creek near Silver Lake (d)	10390500	30	1922-23
Buck Creek above Timothy Creek, near Silver Lake (d)	10390800	250	1922-23
Buck Creek near Silver Lake (d)	10391000	290	1905-06;1909-10;1919-21
Duncan Creek near Silver Lake (d)	10392000	58	1922-23
<b>MALHEUR AND HARNEY LAKES BASIN</b>			
Silvies River near Silvies (d)	10392500	510	1904;1909-11;1916;1921-23
Emigrant Creek near Burns (d)	10393000	240	1921
Silvies River near Burns (d)	10393500	934	1903-06;1909-91
Poison Creek near Burns (d)	10394000	81	1921
Prater Creek near Burns (d)	10394500	20	1921-23
East Fork Silvies River near Lawen (d)	10395000	--	1916;1973-77
West Fork Silvies River near Lawen (d)	10395500	--	1916-17;1919;1922; 1973-77
Flood Bypass Silvies River near Burns (d)	10395505	--	1976
Rock Creek near Burns (d)	10395600	--	1976
Mud Creek near Diamond (d)	10396500	30	1911-16;1930
Bridge Creek near Frenchglen (d)	10397000	30.0	1911-16;1930;1938-70

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
MALHEUR AND HARNEY LAKES BASIN-Continued			
Krumbo Creek near Diamond (d)	10397500	37	1911;1930
Donner und Blitzen River near Narrows (d)	10398500	420	1915-20
Kiger Creek near Diamond (d)	10399000	75	1911-13;1916-21;1930; 1941
Cucamonga Creek near Diamond (d)	10399500	15	1916;1930
McCoy Creek near Diamond (d)	10400000	45	1910-11;1914;1916-21; 1930;1941
Riddle Creek near Smith (d)	10400500	60	1911
Riddle Creek near Diamond (d)	10401000	120	1917-21
Donner Und Blitzen River near Voltage (d)	10401500	760	1938-46;1973-77
Malheur Lake near Voltage (e)	10401800	2,150	1976-80;1983-89
Malheur Lake on west side Cole Island dike, at Voltage (e)	10401810	--	1983-84
Malheur Lake at break in Cole Island dike, near Voltage (e)	10401830	2,150	1972-79
Malheur Lake Outlet at Narrows (d)	10402000	2,150	1916;1973-77
Mud Lake Outlet near Narrows (d)	10402500	2,160	1916-18;1921-22
Silver Creek near Riley (d)	10403000	228	1952-80
Silver Creek above Suintex (d)	10403500	260	1904-06;1909-12;1914-23; 1925-26
Chickahominy Creek near Suintex (d)	10404000	90	1917;1922
Rock Quarry Creek near Suintex (d)	10404500	--	1921;1922
Silver Creek below Suintex (d)	10405000	550	1912-13;1921-23
Silver Creek near Narrows (d)	10406000	630	1917;1919-23
CATLOW VALLEY BASIN			
Home Creek near Beckley (Narrows) (d)	10406300	38	1911-12;1915-17;1930
ALVORD LAKE BASIN			
Trout Creek near Denio, NV (d)	10406500	88	1911-12;1922-23;1925-31; 1932-91
Little Cottonwood Creek near Denio, NV (d)	10407000	8	1911-12
GOOSE LAKE (CLOSED BASIN)			
Dog Creek near Lakeview (d)	11338000	27	1912-13
North Drews Canal near Lakeview (d)	11339000	--	1976-81
Drews Creek near Lakeview (d)	11339500	212	1909-81
Cottonwood Creek near Lakeview (d)	11340500	32.9	1909-19;1924-81
Thomas Creek near Lakeview (d)	11341000	30	1912-17;1919;1927-31
LOST RIVER BASIN			
Miller Creek at Gerber Reservoir, near Lorella (d)	11483500	220	1905-08;1925-50
Miller Creek near Lorella (d)	11484000	270	1909-20
Lost River above Olene (d)	11484500	1,410	1915-17
Lost River at Olene (d)	11485000	1,590	1904;1907-12
Lost River Diversion Canal near Olene (d)	11486000	--	1961-68
Lost River at Wilson Bridge, near Olene (d)	11487000	1,620	1912-20
Lost River near Merrill (d)	11487500	1,670	1904-07
Lost River at Merrill (d)	11488000	1,680	1916
KLAMATH RIVER BASIN			
Williamson River below Sheep Creek, near Lenz (d)	11491400	205	1980-91
Williamson River near Silver Lake (d)	11491500	220	1917-18;1920-21
Miller Creek near Crescent (d)	11492000	23.7	1912;1914
Big Springs Creek blw Lenz Ranch, near Lenz (d)	11492400	--	1992-95
Sand Creek near Fort Klamath (d)	11492500	35	1917-22
Scott Creek near Fort Klamath (d)	11493000	10	1917-20
Williamson River near Klamath Agency (d)	11493500	1,290	1955-95
Williamson River above Spring Creek, near Klamath Agency (d)	11494000	1,330	1912-13;1918-25
Williamson River at Chiloquin (d)	11494500	1,400	1911-16;1917
South Fork Sprague River near Bly (d)	11495500	110	1925-26
North Fork Sprague River near Bly (d)	11496500	45	1917-18;1925-26
Fivemile Creek near Bly (d)	11497000	40	1917-20
Sprague River near Beatty (d)	11497500	513	1912-26;1953-91
Sycan River near Silver Lake (d)	11498000	100	1918-20
Sycan River at Sycan Marsh, near Silver Lake (d)	11498100	220	1905
Long Creek near Silver Lake (d)	11498500	40	1918-24;1927-29
Sycan River near Beatty (d)	11499000	540	1912-25
Sycan River below Snake Creek, near Beatty (d)	11499100	568	1980-91
Sprague River near Yainax (d)	11500000	1,270	1904

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
KLAMATH RIVER BASIN-Continued			
Sprague River at Chiloquin (d)	11502000	1,600	1911-19;1923;1925
Anna Creek near Fort Klamath (d)	11503500	40	1923-27
Wood River at Fort Klamath (d)	11504000	90.0	1911-36
Wood River near Fort Klamath (d)	11504100	87.7	1965-67
Crooked Creek near Fort Klamath (d)	11504200	5.68	1965-67
Fourmile Creek near Odessa (d)	11505500	10.6	1912-17
Fourmile Creek near Rocky Point (d)	11505600	105	1965-67
Varney Creek near Rocky Point (d)	11505700 (d)	7.43	1965-67
"A" Canal at Klamath Falls (d)	11507200	--	1911-50;1961-81
Keno Canal at Klamath Falls (d)	11507400	--	1967-83
Diversion from Klamath River to Lost River, near Olene (d)	11508500	--	1931-68
Spencer Creek near Keno (d)	11510000	90	1929-32
Klamath River at Spencer Bridge, near Keno (d)	11510500	4,050	1914-31
Howard Prairie Lake Outlet near Pinehurst (d)	11512920	--	1961-65
Keene Creek near Ashland (d)	11514500	12.1	1917-22;1949-65
Green Springs Powerplant Diversion near Ashland (d)	11516100	--	1961-65
OWYHEE RIVER BASIN			
Jordan Creek at DeLamar Mine, near Jordan Valley (d)	13177985	--	1994-96
Crooked Creek near Rome (d)	13181500	1,700	1950
Owyhee River above Owyhee Reservoir (d)	13182000	10,400	1929-51
Lake Owyhee near Nyssa (e)	13182500	11,160	1933-96
Owyhee River at Owyhee (d)	13184000	11,300	1890-96;1904-16; 1920-29;1980-86
MALHEUR RIVER BASIN			
Malheur River at Jones' Ranch, near Drewsey (d)	13213500	530	1914
Malheur River near Drewsey (d)	13214000	910	1920-23;1926-94
Warm Springs Reservoir near Riverside (e)	13214500	1,100	1920-91
South Fork Malheur River at Riverside (d)	13215500	630	1910-14;1919-20; 1927-29;1938
Malheur River at Riverside (d)	13216000	1,750	1909-15
North Fork Malheur River abv Beulah Reservoir, nr Beulah (d)	13216500	355	1914;1936-94
Beulah Reservoir at Beulah (e)	13217000	440	1936-96
North Fork Malheur River at Foley's Ranch, near Beulah (d)	13218000	470	1909-12;1914
North Fork Malheur River at Juntura (d)	13218500	530	1919-22;1926-32;1935-40
Malheur River near Namorf (d)	13219000	2,590	1913-23;1926-31
Malheur River near Westfall (d)	13219500	2,970	1904-05
Malheur River at Little Valley, near Hope (d)	13220000	3,010	1949-79
Malheur River near Hope (d)	13220500	3,030	1919-49
Malheur River near Little Valley (d)	13221500	3,030	1914
Malheur River at McLaughlin Bridge, near Vale (d)	13223500	3,060	1905-06
Bully Creek near Westfall (d)	13225500	160	1912-13;1923
Cottonwood Creek near Westfall (d)	13226000	82	1922-23
Bully Creek at Warm Springs, near Vale (d)	13226500	539	1903-07;1910-17; 1922-23;1964-86
Bully Creek Reservoir near Vale (e)	13226800	547	1964-96
Bully Creek near Vale (d)	13227000	570	1934-62
Bully Creek at Vale (d)	13227500	620	1904
Malheur River at Vale (d)	13228000	3,880	1890-91;1895-97; 1903-14;1919
Willow Creek near Malheur (d)	13229500	250	1912-15;1921-29
Willow Creek below reservoir, near Malheur (d)	13230500	290	1905-06;1911;1921-29
Cow Creek near Brogan (d)	13231000	75	1912-14
Willow Creek near Brogan (d)	13231500	420	1912-14
Willow Creek at Cole's Ranch, near Brogan (d)	13232000	455	1904-06
Pole Creek near Brogan (d)	13232500	14	1912
Pole Creek below Black Creek feed canal, near Brogan (d)	13233000	14	1913
Malheur River at Halliday Bridge, near Ontario (d)	13233500	4,620	1905
Malheur River near Ontario (d)	13234000	4,680	1904
BURNT RIVER BASIN			
North Fork Burnt River near Whitney (d)	13269300	110	1965-80
North Fork Burnt River at Audrey (d)	13269500	139	1915-16



## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
BURNT RIVER BASIN-Continued			
Middle Fork Burnt River near Audrey (d)	13270000	9.54	1915-16
South Fork Burnt River near Unity (d)	13270500	30.9	1915-16
South Fork Burnt River above Barney Creek, near Unity (d)	13270800	38.5	1963-81
South Fork Burnt River at Hardman Ranch, near Unity (d)	13271000	44.4	1916-20;1938-41
Fleetwood Ditch near Unity (d)	13271500	--	1918-20
Sawmill Creek near Unity (d)	13272000	--	1915
Burnt River near Hereford (d)	13273000	309	1929-97
Burnt River at Bridgeport (d)	13274000	600	1915-16;1931-36
Burnt River near Bridgeport (d)	13274200	650	1957-80
Burnt River near Durkee (d)	13274500	700	1931-38
Burnt River at Huntington (d)	13275000	1,093	1929-32;1957-59;1962-80
POWDER RIVER BASIN			
Powder River near Sumpter (d)	13275300	168	1966-97
Powder River near Baker (d)	13275500	219	1904-14;1929-68
Old Settlers Slough at Baker (d)	13276000	--	1913-14
Baldock Slough at Baker (d)	13276500	--	1913-14
Powder River at Baker City (d)	13277000	352	1972-97
Pine Creek near Baker (d)	13277500	8.8	1913-14;1929-30
Goodrich Creek near Baker (d)	13278000	3.1	1913
Mill Creek near Baker (d)	13279000	3.9	1913-14;1929-30
Marble Creek near Baker (d)	13279500	3.9	1913-14;1929-30
Salmon Creek near Baker (d)	13280000	4.4	1913-14;1929
Willow Creek near Haines (d)	13280500	2.4	1913
Powder River at Haines (d)	13281000	539	1914
Powder River near Haines (d)	13281500	572	1947-53
North Powder River near North Powder (d)	13282000	47.7	1912
Anthony Fork near North Powder (d)	13282500	37	1912
North Powder River at North Powder (d)	13283000	129	1912-14
Wolf Creek at Bauer's Ranch, near North Powder (d)	13283500	30	1913-14
Wolf Creek near North Powder (d)	13284000	32.9	1947-53
Powder River near North Powder (d)	13284500	860	1913-16;1920-25
Thief Valley Reservoir near North Powder (e)	13285000	910	1980-96
Powder River below Thief Valley Reservoir (d)	13285500	910	1910-11;1979-97
Big Creek near Medical Springs (d)	13286000	35.5	1913-14
Goose Creek near Keating (d)	13286500	41.9	1913-14
Powder River near Richland (d)	13286700	1,310	1958-96
Eagle Creek above West Fork, near Baker (d)	13287000	18	1911
West Fork Eagle Creek near Baker (d)	13287500	15	1911
Eagle Creek near Baker (d)	13288000	42	1909-10
Eagle Creek above Skull Creek, near New Bridge (d)	13288200	156	1957-98
Eagle Creek near Newbridge (d)	13288500	170	1910-11;1914
Daly Creek near Richland (d)	13289000	40.5	1913
Powder River near Robinette (d)	13289500	1,660	1929-57
PINE CREEK BASIN			
Pine Creek near Oxbow (d)	13290190	230	1967-95
IMNAHA RIVER BASIN			
Imnaha River above Gumboot Creek (d)	13291000	99.6	1945-53
Big Sheep Creek near Joseph (d)	13291500	12.5	1920
GRANDE RONDE RIVER BASIN			
Meadow Creek near Starkey (d)	13318000	140	1932-35
Meadow Creek below Smith Creek, near Starkey (d)	13318050	33.2	1978-79
Meadow Creek above Bear Creek, near Starkey (d)	13318060	48.2	1978-79
Grande Ronde River near Hilgard (d)	13318500	505	1938-56
Grande Ronde River at Hilgard (d)	13318800	555	1967-81
Grande Ronde River at La Grande (d)	13319000	678	1904-15;1918-23;1926-89
Catherine Creek near Union (d)	13320000	105	1926-96
Little Creek near Union (d)	13321000	30.4	1918
Ladd Creek near Hot Lake (d)	13321500	40	1918
Mill Creek near Cove (d)	13322000	11.6	1918;1920-21
Mill Creek near Summerville (d)	13322500	--	1914-15
Grande Ronde River near Elgin (d)	13323500	1,250	1956-81
Indian Creek near Imbler (d)	13323600	22.0	1938-50
Grande Ronde River at Elgin (d)	13324000	1,400	1903-12;1918-19

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
GRANDE RONDE RIVER BASIN-Continued			
Wallowa Falls powerplant tailrace near Joseph (d)	13324500	--	1925-52;1967-83
East Fork Wallowa River near Joseph (d)	13325000	10.3	1925-52;1967-82
Wallowa River above Wallowa Lake, near Joseph (d)	13325500	43.0	1924-33;1937-38;1940-41
Wallowa Lake near Joseph (g)	13326000	50.8	1904-06;1912-15;1926-91
Joseph powerplant tailrace at Joseph (d)	13326500	--	1951-56
Wallowa River at Joseph (d)	13327500	50.9	1904-07;1908-14;1915; 1927-91
Hurricane Creek near Joseph (d)	13329500	29.6	1915;1924-78
Wallowa River at Wallowa (d)	13329900	--	1976-77
Wallowa River near Wallowa (d)	13331000	520	1904-07
Wallowa River at Minam (d)	13332000	880	1904-14
Grande Ronde River at Rondowa (d)	13332500	2,550	1927-91
Joseph Creek at Chico (d)	13333500	280	1931-33
WALLA WALLA RIVER BASIN			
South Fork Walla Walla River near Milton-Freewater (d)	14010000	63.0	1903;1906-17;1931-91
South Fork Walla Walla River blw PP&L plant, near Milton (d)	14010500	80.0	1904-06;1931-45
North Fork Walla Walla River near Milton-Freewater (d)	14010800	34.4	1970-91
North Fork Walla Walla River near Milton (d)	14011000	43.8	1930-69
Walla Walla River near Milton (d)	14011500	130	1905-06;1918-29
Walla Walla River at Milton (d)	14012000	155	1903-05
Walla Walla River below Freewater (d)	14012500	160	1941-48
COLUMBIA RIVER MAIN STEM			
Columbia River at McNary Dam, near Umatilla (d)	14019200	214,000	1951-81
UMATILLA RIVER BASIN			
North Fork Umatilla River near Gibbon (d)	14019500	31	1912-15;1940-43
Umatilla River at Gibbon (d)	14020500	310	1896-99;1900-01;1902-12
Umatilla River near Cayuse (d)	14020700	384	1969-75
Cottonwood Creek near Mission (d)	14020760	4.01	1992-97
Umatilla River at Pendleton (d)	14021000	637	1891-92;1904-05;1935-89
Umatilla River above McKay Creek, near Pendleton (d)	14022000	700	1921-34
McKay Creek near Pilot Rock (d)	14022500	180	1921;1927-89
McKay Reservoir near Pendleton (g)	14023000	186	1927-92
McKay Creek near Pendleton (d)	14023500	186	1919-23;1925-91
McKay Creek at mouth, near Pendleton (d)	14024000	190	1903-04;1922-24
East Birch Creek near Pilot Rock (d)	14024200	69.7	1968-73
Birch Creek near Pilot Rock (d)	14024500	240	1920-26
Birch Creek at Rieth (d)	14025000	291	1921-23;1927-76
Umatilla River near Yoakum (d)	14025500	1,260	1915-36
Umatilla River at Yoakum (d)	14026000	1,280	1903-91
Butter Creek near Pine City (d)	14032000	291	1928-88
WILLOW CREEK BASIN			
Rhea Creek near Heppner (d)	14034800	120	1960-91
Willow Creek near Morgan (d)	14035000	630	1921;1929-31
Willow Creek above Eightmile Canyon, near Arlington (d)	14035500	680	1905
Willow Creek near Arlington (d)	14036000	850	1906;1961-79
JOHN DAY RIVER BASIN			
John Day River at Blue Mountain Hot Springs, near Prairie City (d)	14036860	not determined	1997-2000
Strawberry Creek above Slide Creek, near Prairie City (d)	14037500	7.00	1931-91
Strawberry Creek near Prairie City (d)	14038000	15	1916-17;1925-30
John Day River at Prairie City (d)	14038500	231	1916-17;1925-68
John Day River near John Day (d)	14038530	386	1969-94
John Day River near Dayville (d)	14039000	960	1909-14;1920-21;1925-26
South Fork John Day River near Dayville (d)	14039500	590	1952-56
South Fork John Day at Dayville (d)	14040000	600	1909-14;1920-21;1925-26
John Day River at Picture Gorge, near Dayville (d)	14040500	1,680	1986-91
Mountain Creek near Mitchell (d)	14040600	20.0	1986-89
Desolation Creek near Dale (d)	14041000	108	1915-17;1949-58
North Fork John Day River near Dale (d)	14041500	525	1930-58
Camas Creek near Lehman (d)	14042000	60.7	1951-70
Camas Creek near Ukiah (d)	14042500	121	1914-17;1920-24;1932-91
Cable Creek near Ukiah (d)	14043000	39	1914-17;1919-24;1932-37; 1939
Snipe Creek near Ukiah (d)	14043560	37.0	1968-73
Fox Creek at gorge, near Fox (d)	14044500	90.2	1931-58

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
JOHN DAY RIVER BASIN-Continued			
Cottonwood Creek near Monument (d)	14045000	210	1926-31
Cottonwood Creek at Monument (d)	14045500	232	1925
John Day River at Clarno (d)	14047000	5,940	1914-15;1920-21
Lone Rock Creek near Lonerock (d)	14047380	69	1966-74;1976-91
Rock Creek above Whyte Park near Condon (d)	14047390	297	1976-89
Rock Creek at Rock Creek (d)	14047500	500	1905;1911
DESCHUTES RIVER BASIN			
Deschutes River above Snow Creek, near La Pine (d)	14049000	109	1922-25
Snow Creek above Crane Prairie, near La Pine (d)	14049500	23.0	1922-25
Deschutes River below Snow Creek, near La Pine (d)	14050000	32	1938-91
Cultus River above Cultus Creek, near La Pine (d)	14050500	16.5	1923-25;1938-91
Cultus Creek abv Crane Prairie Reservoir, nr La Pine(d)	14051000	33.2	1924;1938-91
Cultus River below Cultus Creek, near La Pine (d)	14051500	52.8	1922
Deer Creek above Crane Prairie Reservoir, near La Pine (d)	14052000	21.5	1924;1938-91
Quinn River near La Pine (d)	14052500	--	1922-25;1938-91
Charlton Creek above Crane Prairie Reservoir, nr La Pine(d)	14053000	15.6	1923-24;1938-79
Crane Prairie Reservoir near La Pine (e)	14053500	254	1923-91
Deschutes River blw Crane Prairie Reservoir, nr La Pine (d)	14054000	254	1907-08;1912-17;1922-91
Brown Creek near La Pine (d)	14054500	21.0	1922-25;1938-91
Deschutes River above Davis Creek, near La Pine (d)	14055000	290	1925-32
Odell Creek near Crescent (d)	14055500	39.0	1912-14;1924;1933-76
Deschutes River below Wickiup Reservoir, near La Pine (d)	14056500	483	1938-91
Deschutes River at Pringle Falls, near La Pine (d)	14057000	507	1916-17;1922-60
Fall River near La Pine (d)	14057500	45.1	1938-91
Deschutes River near La Pine (d)	14058000	600	1910-17;1920;1922
Deschutes River near Lava (d)	14058500	659	1905-07;1909-12
Little Deschutes River at Crescent (d)	14059000	109	1905-08;1911-14
Crescent Lake near Crescent (e)	14059500	60.7	1922-91
Crescent Creek at Crescent lake, near Crescent (d)	14060000	60.7	1911;1912-15;1927;1928-91
Crescent Creek below Cold Creek, near Crescent (d)	14060500	77.0	1922-26;1931-32
Big Marsh Creek at Hoey Ranch, near Crescent (d)	14061000	51.5	1912-14;1924;1928-58
Crescent Creek near Crescent (d)	14061500	137	1912-14
Little Deschutes R above Walker Basin intake, nr La Pine(d)	14062000	307	1914-17;1919-26;1931-22
Little Deschutes River near La Pine	14063000	859	1911;1913-20;1924-94
East Lake near La Pine (e)	14063200	7.08	1992-95
Paulina Lake near La Pine (e)	14063250	10.1	1991-95
Paulina Creek near La Pine (d)	14063300	10.1	1982-89;1991-95
Little Deschutes River at Allen's Ranch, near La Pine (d)	14063500	1,020	1905-12;1913-15;1931-32 1943-44
Deschutes River at Benham Falls, near Bend (d)	14064500	1,759	1906-14;1921;1924-91
Deschutes River above Lava Island, near Bend (d)	14065000	1,790	1915-16;1943-50
Arnold Canal near Bend (d)	14065500	--	1913-90
Deschutes River below Lava Island, near Bend (d)	14066000	1,829	1926-65
Central Oregon Canal above Pilot Butte Canal (d)	14066500	--	1933-90
Deschutes County Mnclpl Improvement Dist Canal at Bend (d)	14068500	--	1923-90
North Unit Main Canal near Bend (d)	14069000	--	1946-90
North Canal near Bend (d)	14069500	--	1913-90
Swalley Canal near Bend (d)	14070000	--	1913-90
Deschutes River below Bend (d)	14070500	1,899	1915-91
Bridge Creek near Bend (d)	14070700	6.58	1981-85
Tumalo Creek near Tumalo (d)	14071500	30.9	1906-14
Tumalo Creek near Bend (d)	14073000	47.3	1913-21;1922;1923-87
Deschutes River at Tumalo (d)	14074000	1,983	1910-12;1914-15
Deschutes River at Cline Falls, near Redmond (d)	14074500	2,080	1910-13;1928-46
Deschutes River at Lower Bridge, near Terrebonne (d)	14074630	2,160	1995-97
Snow Creek near Sisters (d)	14074900	1.65	1986-91
Squaw Creek near Sisters (d)	14075000	45.2	1906-18;1919-94
South Fork Beaver Creek near Paulina (d)	14077000	95	1944-53
North Fork Beaver Creek near Paulina (d)	14077500	64.4	1942-54
Beaver Creek near Paulina (d)	14078000	450	1943-75
North Fork Crooked River above Deep Creek (d)	14078500	159	1942-54
North Fork Crooked River below Deep Creek (d)	14079000	264	1947-53
Crooked River atPost (d)	14079500	2,160	1909-11;1940-60;1969-73
Crooked River above Prineville Reservoir, near Post (d)	14079800	2,400	1961-68
Bear Creek at Rickman Ranch, near Roberts (d)	14080000	44	1920-23

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
DESCHUTES RIVER BASIN--Continued			
Bear Creek near Prineville (d)	14080250	205	1976-81
Prineville Reservoir near Prineville (e)	14080400	2,700	1961-91
Crooked River near Prineville (d)	14080500	2,700	1909-14;1941-91
Crooked River at Prineville (d)	14081500	2,820	1914
Marks Creek near Prineville (d)	14082500	61.0	1916
Ochoco Creek above Mill Creek, near Prineville (d)	14083000	200	1918-22;1924-33
Mill Creek near Prineville (d)	14083500	78.8	1916-18;1920-22;1924-33
Ochoco Creek at Elliott Ranch, near Prineville (d)	14085000	300	1909-10;1915-17
Ochoco Creek at Prineville (d)	14085500	358	1912;1914-15
McKay Creek near Prineville (d)	14086000	76.6	1925-32
McKay Creek above Old Dry Creek, near Prineville (d)	14086500	86.2	1918-19;1920
McKay Creek below Old Dry Creek, near Prineville (d)	14087000	103	1915
Crooked River near Terrebonne (d)	14087300	4,240	1968-73
Crooked River near Culver (d)	14087500	4,330	1918-63
Lake Creek near Sisters (d)	14088000	22.2	1912-13;1915-91
Metolius River at Allingham ranger station, near Sisters (d)	14088500	81.5	1911-13;1915-17
First Creek near Sisters (d)	14089000	12.2	1915-17;1924-28
Jack Creek near Sisters (d)	14089500	16.0	1915-16
Canyon Creek near Sisters (d)	14090000	32.5	1915-16
Whitewater River near Grandview (d)	14090500	30.6	1911-13
Metolius River at Riggs Ranch, near Sisters (d)	14092000	347	1909-12
Seekseequa Creek near Warm Springs (d)	14092150	47.3	1987-93
Shitike Creek below Wolford Canyon, near Warm Springs (d)	14092885	75.8	1975-96
Deschutes River at Mecca (d)	14093500	7,940	1911-27
Trout Creek near Antelope (d)	14094000	220	1915-17
Trout Creek near Gateway (d)	14094500	--	1915-16
Hay Creek near Hay Creek (d)	14095000	78	1915-16
Mill Creek at outlet of Olallie Lake (d)	14096000	5.6	1915-16
Mill Creek near Warm Springs (d)	14096500	28.8	1915
Warm Springs River near Warm Springs (d)	14097000	517	1911-19
White River near Government Camp (d)	14097200	40.7	1970-1980
Clear Creek below Clear Lake, near Govt Camp (d)	14097400	8.32	1969-73
Clear Creek near Government Camp (d)	14097500	9.94	1941-41;1947-53
Clear Creek above intake, near Wapinitia (d)	14098000	17.7	1918-21;1934-35
Clear Creek Ditch near Government Camp (d)	14098100	--	1969-73
Clear Creek near Pine Grove (d)	14098600	38.3	1968-73
Gate Creek at Purcell Ranch, near Wamic (d)	14099500	23.9	1921-23
Gate Creek near Wamic (d)	14100000	28.3	1918
White River near Tygh Valley (d)	14100500	221	1911-18
White River below Tygh Valley (d)	14101500	417	1918-90
Deschutes River at Sherars Bridge (d)	14102000	10,200	1923-32
FIFTEENMILE CREEK BASIN			
Fifteenmile Creek near Dufur (d)	14104000	19.6	1918-19
Fifteenmile Creek near Wrentham (d)	14104500	171	1947-53
Eightmile Creek near Boyd (d)	14105000	56	1947-53
Fivemile Creek near The Dalles (d)	14105500	32.4	1926;1928;1930-31;1949-50
MILL CREEK BASIN			
South Fork Mill Creek near The Dalles (d)	14105850	28.0	1961-75
MOSIER CREEK BASIN			
Mosier Creek near Mosier (d)	14113200	41.5	1964-81
HOOD RIVER BASIN			
Dog River near Parkdale (d)	14113400	4.50	1961-71
East Fork Hood River above intake, near Mount Hood (d)	14113500	77.2	1915-22
East Fork Hood River near Mount Hood (d)	14115000	78.8	1913-14
East Fork Hood River near Dee (d)	14115500	108	1917
Clear Branch below Laurance Lake, near Parkdale (d)	14115815	8.62	1987-95
Hood River at Dee (d)	14116000	155	1913-17
Green Point Creek near Dee (d)	14116500	10.0	1919-21
North Fork Green Point Creek near Dee (d)	14117500	7.6	1919;1921
Green Point below North Fork, near Dee (d)	14118000	20.0	1950-54
West Fork Hood River near Dee (d)	14118500	95.6	1914-16;1932-91
Hood River at Winans (d)	14119000	259	1906-07;1910-12;1913
Hood River near Hood River (d)	14121000	329	1913-64

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
COLUMBIA RIVER MAIN STEM			
Columbia River at Stevenson, WA(g)	14128600	239,800	1974-97
Columbia River at Bonneville Dam (g)	14128860	239,900	1981-87
Columbia River near Bonneville (g)	14128890	239,900	1973-81
Columbia River at Warrendale (g)	14128910	240,000	1972-87
Columbia River at Washougal, WA(g)	14129400	240,000	1972-81;1990-93
SANDY RIVER BASIN			
Lost Creek near Brightwood (d)	14130000	11.2	1913-18
Little Zigzag River at Twin Bridges, near Rhododendron (d)	14131000	3.70	1926-36
Zigzag River near Rhododendron (d)	14131400	14.8	1981-93
Zigzag River at Rhododendron (d)	14131500	31.0	1920-21;1926-30
Sandy River above Salmon River, at Brightwood (d)	14133500	117	1910-14;1926-31
Salmon River near Government Camp (d)	14134000	8.00	1910-12;1926-91
Salmon River below Linney Creek (d)	14134500	54.0	1928-50
Salmon River at Welches (d)	14135000	100	1913-14;1920-21;1925-36
Salmon River above Boulder Creek, near Brightwood (d)	14135500	106	1936-52
Bull Run River below Lake Ben Morrow (d)	14139500	74.0	1930-54
Little Sandy River near Marmot (d)	14140500	17.9	1913-19
WILLAMETTE RIVER BASIN			
Middle Fork Willamette River near Oakridge (d)	14144800	258	1959-97
Hills Creek above Hills Creek Reservoir, near Oakridge (d)	14144900	52.7	1959-81
Hills Creek near Oakridge (d)	14145000	59.0	1935-43
Salt Creek near Oakridge (d)	14146000	113	1913-14;1934-51
Salmon Creek near Oakridge (d)	14146500	117	1910;1913-19;1934-85; 1987-94
Gray Creek near Oakridge (d)	14146700	5.06	1979-86
Waldo Lake Outlet near Oakridge (d)	14147000	30.5	1937-53;1970-82;1984
N.Fork of Middle Fork Willamette River, nr Oakridge (d)	14147500	246	1910-16;1936-85;1987-94
Fall Creek near Lowell (d)	14150300	118	1964-1999
Fall Creek above Winberry Creek, near Lowell (d)	14150500	127	1936-43
Little Fall Creek near Fall Creek (d)	14151500	52.5	1936-48
Coast Fork Willamette River at London (d)	14152500	72.1	1936-87
Mosby Creek near Cottage Grove (d)	14156000	85.0	1936-46
Mosby Creek at mouth, near Cottage Grove (d)	14156500	95.3	1947-68;1970-81
Coast Fork Willamette River at Saginaw (d)	14157000	529	1924-26;1928-51
Willamette River at Springfield (d)	14158000	2,030	1912-13;1920-57
McKenzie River near Belknap Springs (d)	14158700	146	1958-62
Smith River near Belknap Springs (d)	14158800	23.7	1958-60
Budworm Creek near Belknap Springs (d)	14158930	3.00	1979-83;1984-86
McKenzie River above Boulder Creek, near Belknap Springs (d)	14158955	--	1983
McKenzie River at McKenzie Bridge (d)	14159000	348	1910-94
Horse Creek near McKenzie Bridge (d)	14159100	149	1963-69
Blue River above Quentin Creek (d)	14161000	11.5	1948-55
Blue River near Blue River (d)	14162000	75.0	1936-64
Gate Creek at Vida (d)	14163000	47.6	1952-57;1967-90
McKenzie River near Springfield (d)	14164000	1,066	1906-15
McKenzie River near Coburg (d)	14165500	1,337	1945-72
Coyote Creek near Crow (d)	14167000	95.1	1941-87
Amazon Creek at Eugene (d)	14169300	3.35	1963-75
Amazon Creek near Eugene (d)	14169500	21.3	1955-68;1980-82
Rock Creek near Philomath (d)	14170500	14.6	1946-52;1975-79
Muddy Creek near Corvallis (d)	14171500	107	1964-68
Calapooia River at Holley (d)	14172000	105	1936-90
Calapooia River at Albany (d)	14173500	372	1941-81
East Humbug Creek near Detroit (d)	14178700	7.32	1978-94
Breitenbush River above French Creek, near Detroit (d)	14179000	106	1933-87
Middle Santiam River near Upper Soda (d)	14185700	74.6	1981-94
Middle Santiam River near Cascadia (d)	14185800	104	1963-81
Packers Gulch near Cascadia (d)	14185880	7.45	1984-86;1988
Middle Santiam River near Foster (d)	14186000	271	1932-47

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
WILLAMETTE RIVER BASIN--Continued			
Middle Santiam River at mouth, near Foster (d)	14186500	287	1951-66
South Santiam River at Foster (d)	14186700	493	1967-73
Wiley Creek at Foster (d)	14187100	62.3	1974-88
Crabtree Creek near Crabtree (d)	14188700	111	1964-70
Thomas Creek near Scio (d)	14188800	109	1963-87
Luckiamute River near Hoskins (d)	14189500	34.3	1935-78
Luckiamute River at Pedee (d)	14190000	115	1940-70
Little Luckiamute River at Falls City (d)	14190100	22.7	1965-71
Rickreall Creek near Dallas (d)	14190700	27.4	1957-78
Mill Creek at Penitentiary Annex, near Salem (d)	14191500	104	1940-56
Mill Creek at Salem (d)	14192000	110	1940-78
South Yamhill River near Willamina (d)	14192500	133	1934-93
Willamina Creek near Willamina (d)	14193000	64.7	1934-91
Mill Creek near Willamina (d)	14193300	27.4	1958-73
South Yamhill River near Whiteson (d)	14194000	502	1940-91
North Yamhill River near Fairdale (d)	14194300	9.03	1959-66;1968-91
Haskins Creek near McMinnville (d)	14195000	6.48	1928-51
North Yamhill River near Pike (d)	14196500	47.8	1940-51
North Yamhill River at Pike (d)	14197000	66.8	1948-73
Willamette River at Wilsonville (d)	14198000	8,400	1948-73
Molalla River above Pine Creek, near Wilhoit (d)	14198500	97.0	1936-93
Molalla River near Molalla (d)	14199000	201	1906-09;1947-51
Silver Creek at Silverton (d)	14200300	47.9	1964-68;1971-79
Pudding River near Mount Angel (d)	14201000	204	1940-66
Butte Creek at Monitor (d)	14201500	58.7	1936;1941-52;1967-85
Pudding River at Aurora (d)	14202000	479	1929-64;1994-97
Tualatin River near Gaston (d)	14202500	48.5	1941-56;1973-76;1979-84
Scoggins Creek above Henry Hagg Lake, near Gaston (d)	14202850	15.9	1973-76
Sain Creek near Gaston (d)	14202920	10.3	1973-76
Henry Hagg Lake near Gaston (e)	14202965	38.7	1976-97
Scoggins Creek near Gaston (d)	14203000	43.3	1941-74
Gales Creek near Glenwood (d)	14203750	7.3	1994-95
Gales Creek near Gales Creek (d)	14204000	33.2	1936-45;1964-70
Gales Creek near Forest Grove (d)	14204500	66.1	1941-56;1971-81
East Fork Dairy Creek at Mountindale (d)	14205500	43.0	1941-51
Dairy Creek near Cornelius (d)	14205800	147	1974-76
McKay Creek near North Plains (d)	14206000	27.6	1941-43;1949-56
McKay Creek near Hillsboro (d)	14206180	61.0	1973-76
Bronson Creek at 185th Ave, near Aloha (d)	14206298	4.15	1995-96
Tualatin River at Farmington (d)	14206500	568	1940-58;1973-76
Oswego Canal near Lake Oswego (d)	14207000	--	1929-91
Clackamas River at Big Bottom (d)	14208000	136	1920-70
Collawash River near Breitenbush (d)	14208300	142	1966-68
Oak Grove Fork at Timothy Meadows (d)	14208500	54.0	1913-14;1916-29
Roaring River near Estacada (d)	14209600	42.4	1966-68
Clackamas River near Clackamas (d,g)	14211000	930	(d)1963-83;(g)1988-89
Willamette River at Portland (d)	14211720	11,100	1973-94
COLUMBIA RIVER MAIN STEM			
Columbia River at Columbia City (g)	14222880	254,000	1971-81
Columbia River at Prescott (d)	14223780	254,200	1968
Columbia River at Longview, WA (g)	14245300	256,700	1984-90
Columbia River at Wauna (g)	14247295	256,900	1971-81
Bear Creek near Svensen (d)	14248700	3.33	1966-75
Youngs River near Astoria (d)	14251500	40.1	1928-58
NESTUCCA RIVER BASIN			
Trask River near Tillamook (d)	14302500	145	1932-55;1962-72
Nestucca River near McMinnville (d)	14303000	12.0	1929-44
Nestucca River near Beaver (d)	14303600	180	1965-91
SILETZ RIVER BASIN			
Sunshine Creek near Valsetz (d)	14304350	6.70	1973-91
Big Rock Creek near Valsetz (d)	14304850	6.90	1986-89

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
YAQUINA RIVER BASIN			
Yaquina River near Chitwood (d)	14306030	71.0	1973-91
Mill Creek near Toledo (d)	14306036	4.18	1961-73
ALSEA RIVER BASIN			
North Fork Beaver Creek near Seal Rock (d)	14306040	10.0	1966-67
North Fork Alsea River at Alsea (d)	14306100	63.0	1958-89
South Fork Alsea River near Alsea (d)	14306200	49.5	1961-63
Fall Creek near Alsea (d)	14306300	29.4	1961-63
Five Rivers near Fisher (d)	14306400	114	1961-63;1968-90
Drift Creek near Salado (d)	14306600	20.5	1959-63;1966-70
Needle Branch near Salado (d)	14306700	.27	1959-73
Flynn Creek near Salado (d)	14306800	.78	1959-73
Deer Creek near Salado (d)	14306810	1.17	1959-73
BIG CREEK BASIN			
Big Creek near Roosevelt Beach (d)	14306900	11.9	1973-91
SIUSLAW RIVER BASIN			
Siuslaw River above Wildcat Creek, at Austa (d)	14307000	267	1932-40
Lake Creek at Triangle Lake (d)	14307500	52.5	1932-55
Lake Creek near Deadwood (d)	14307580	174	1968-89
North Fork Siuslaw River near Minerva (d)	14307645	41.2	1968-85
UMPQUA RIVER BASIN			
Jackson Creek near Tiller (d)	14307700	152	1956-86
Elk Creek near Drew (d)	14308500	54.4	1955-82;1987-2000
South Umpqua River at Days Creek (d)	14308600	641	1975-90
Days Creek at Days Creek (d)	14308700	55.3	1956-72
South Myrtle Creek near Myrtle Creek (d)	14310700	43.9	1956-72
North Myrtle Creek near Myrtle Creek (d)	14311000	54.2	1956-86
Olalla Creek near Tenmile (d)	14311200	61.3	1957-73
Tenmile Creek at Tenmile (d)	14311300	29.6	1968-73
Lookingglass Creek at Brockway (d)	14311500	158	1956-2000
South Fork Deer Creek near Dixonville (d)	14312170	15.2	1990-2000
Deer Creek near Roseburg (d)	14312200	53.2	1956-73
Silent Creek near Diamond Lake (d)	14312400	8.24	1972-77
North Umpqua River at Toketee Falls (d)	14315500	339	1926-45;1947-48
North Umpqua River above Rock Creek, near Glide (d)	14317500	886	1925-45
North Umpqua River below Lemolo Lake, near Toketee Falls (d)	14313501	170	1928-83
Rock Creek near Glide (d)	14317600	97.4	1958-73
Little River at Peel (d)	14318000	177	1955-89
North Umpqua River near Glide (d)'	14318500	1,210	1916-18;1928-38
Sutherlin Creek at Sutherlin (d)	14319200	16.4	1956-67
Gassy Creek near Nonpareil (d)	14319850	9.19	1989-2000
Calapooya Creek at Nonpareil (d)	14319900	88.6	1977-88
Elk Creek near Elkhead (d)	14321400	28.7	1969-72;1987-99
Elk Creek near Drain (d)	14322000	104	1956-73
Umpqua River near Scottsburg (d)	14322900	4,095	1967-69
Smith River near Gardiner (d)	14323100	206	1966-73
Tenmile Creek near Lakeside (d)	14323200	87.0	1958-76
COOS RIVER BASIN			
West Fork Millicoma River near Allegany (d)	14324500	46.9	1955-81
COQUILLE RIVER BASIN			
South Fork Coquille River above Panther Creek, nr Illahe (d)	14324600	31.2	1957-70
South Fork Coquille River near Illahe (d)	14324700	40.6	1957-74
South Fork Coquille River near Powers (d)	14324900	93.2	1957-70
Middle Fork Coquille River near Myrtle Point (d)	14326500	305	1931-46
North Fork Coquille River near Fairview (d)	14326800	73.9	1964-81
North Fork Coquille River near Myrtle Point (d)	14327000	282	1929-46;1964-68

## DISCONTINUED SURFACE-WATER DISCHARGE OR STAGE-ONLY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Period of record
SIXES RIVER BASIN			
Sixes River at Sixes (d)	14327150	116	1968-70
ELK CREEK BASIN			
Elk River near Sixes (d)	14327300	86.1	1968-70
ROGUE RIVER BASIN			
Rogue River above Bybee Creek, near Union Creek (d)	14327500	156	1930-52
Rogue River above Prospect (d)	14328000	312	1909-11;1923-98
Mill Creek near Prospect (d)	14329500	32.0	1926-35
South Fork Rogue River above Imnaha Creek, near Prospect (d)	14330500	52.0	1932-49
Imnaha Creek near Prospect (d)	14331000	26.0	1932-49
Middle Fork Rogue River near Prospect (d)	14333000	56.5	1926-55
Red Blanket Creek near Prospect (d)	14333500	45.5	1926-32;1934-81
South Fork Rogue River south of Prospect (d)	14334700	246	1969-92
Rogue River below South Fork Rogue River, near Prospect (d)	14335000	650	1929-65
Rogue River at McLeod (d)	14335075	697	1978-81
South Fk Big Butte Creek, abv Willow Cr, nr Butte Falls (d)	14335200	67.6	1986-91
South Fork Big Butte Creek near Butte Falls (d)	14335500	138	1911;1915;1918-22;1925-91
Elk Creek near Cascade Gorge	14337800	78.8	1974-2000
West Branch Elk Creek near Trail	14337870	14.2	1974-74;1978-2000
South Fork Little Butte Collect Canal near Pinehurst (d)	14339400	--	1961-65
South Fork Little Butte Creek at Big Elk Ranger Station (d)	14339500	16.6	1927-50
Dead Indian Collect Canal near Pinehurst (d)	14340400	--	1961-65
South Fork Little Butte Creek near Lakecreek (d)	14341500	138	1922-57;1961-82
North Fork Little Butte Creek at Fish Lake, nr Lakecreek(d)	14342500	20.8	1915;1917-89
North Fork Little Butte Creek near Lakecreek (d)	14343000	43.8	1912-13;1917;1923-27; 1929-64;1966-85
N F Little Butte Creek abv Intake Canal, near Lakecreek (d)	14344500	60.4	1918-19;1922-50
Little Butte Creek above Eagle Point (d)	14347000	269	1917-26;1929
Little Butte Creek below Eagle Point (d)	14348000	293	1908-16;1924-26;1946-50
Emigrant Creek near Ashland (d)	14350000	64.3	1920-86
West Fork Ashland Creek near Ashland (d)	14353000	10.5	1925-33;1975-82
East Fork Ashland Creek near Ashland (d)	14353500	8.14	1925-33;1975-82
Evans Creek near Bybee Springs, near Rogue River (d)	14359500	116	1925-27;1951-53
Middle Fork Applegate River near Copper (d)	14361590	50.7	1980-87
Elliott Creek near Copper (d)	14361600	51.8	1978-87
Carberry Creek near Copper (d)	14361700	68.9	1978-87
Applegate River near Ruch (d)	14363000	302	1912-14;1926-53
Powell Creek near Williams (d)	14368500	8.17	1947-58
Slate Creek at Wonder (d)	14370000	31.4	1944-57
Grave Creek at Pease Bridge, near Placer (d)	14371500	22.1	1941-89
Grave Creek near Placer (d)	14372000	45.6	1914;1941-50
East Fork Illinois River near Takilma (d)	14372500	42.3	1926;1927-32;1941-91
Althouse Creek near Holland (d)	14373500	24.3	1947-53
Sucker Creek near Holland (d)	14375000	76.2	1942-65
Sucker Creek below Little Grayback Creek, near Holland (d)	14375100	83.9	1966-91
Elk Creek near O'Brien (d)	14375400	26.6	1986-91
West Fork Illinois River below Rock Creek, near O'Brien (d)	14375500	42.4	1955-85
West Fork Illinois River near O'Brien (d)	14376500	49.7	1947-54
Illinois River at Kerby (d)	14377000	364	1926-61
Deer Creek near Dryden (d)	14377500	22.0	1942-56
Illinois River near Selma (d)	14378000	665	1957-68
Illinois River near Agness (d)	14378200	988	1961-81



## DISCONTINUED SURFACE-WATER QUALITY STATIONS

The following continuous-record water-quality stations in Oregon have been discontinued. Continuous water-quality data were collected and published for the period of record shown for each station. For each station entry, a period of record, expressed in water years, is provided for each type of record listed. Discontinued project stations with less than 3 years of record have not been included. Information regarding these stations may be obtained from the District Office at the address given on the back side of the title page.

[Type of record: do (dissolved oxygen), ph (pH), sed (sediment), sc (specific conductance),  
t (temperature), tb (turbidity)]

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record
THE GREAT BASIN				
MALHEUR AND HARNEY LAKES BASIN				
Donner und Blitzen River near Frenchglen	10396000	200	t, sc	1976-81
OWYHEE RIVER BASIN				
Owyhee River near Rome	13181000	8,000	t	1973-77
Owyhee River at Owyhee	13184000	11,300	t, sc	1980-82
Bully Creek near Vale	13227000	570	t, sed	1959-62
POWDER RIVER BASIN				
Powder River at Baker City	13277000	351	sed	1961
Powder River near Richland	13286700	1,310	t	1960-61
Eagle Creek above Skull Creek near New Bridge	13288200	156	t	1960-61
GRANDE RONDE RIVER BASIN				
Imnaha River at Imnaha	13292000	622	t	1966-68;1977
Meadow Creek below Smith Creek near Starkey	13318050	33.2	t	1978-79
Meadow Creek above Bear Creek near Starkey	13318060	48.2	t	1978-79
Grande Ronde River at La Grande	13319000	678	t	1960-61
Wallowa River at Wallowa	13329900	--	t	1977
Lostine River near Lostine	13330000	70.9	t	1958
Lostine River at Lostine	13330200	--	t	1976-77
Minam River at Minam	13331500	240	t	1966-85
Grande Ronde River at Rondowa	13332500	2,555	t	1960-61
WALLA WALLA RIVER BASIN				
South Fork Walla Walla River near Milton-Freewater	14010000	63	t	1960-61
COLUMBIA RIVER MAIN STEM				
Columbia River at McNary Dam, near Umatilla	14019200	214,000	t sed	1962 1966
Columbia River at Umatilla	14019250	214,000	t	1975-79
UMATILLA RIVER BASIN				
Umatilla River above Meacham Creek near Gibbon	14020000	131	t	1960-80
Umatilla River near Umatilla	14033500	2,290	t	1963-69
WILLOW CREEK RIVER BASIN				
Willow Creek at Heppner	14034500	96.8	t	1963-68; 1972-73
			sed	1963-68
Willow Creek near Arlington	14036000	850	t sed	1963-68 1963-70
JOHN DAY RIVER BASIN				
South Fork John Day River near Dayville	14039500	590	t	1952-56
Desolation Creek near Dale	14041000	108	t	1958
Middle Fork John Day River at Ritter	14044000	515	t	1967-68
North Fork John Day River at Monument	14046000	2,520	t	1967-68
John Day River at McDonald Ferry	14048000	7,580	t	1963-68 1976-81
			sc	1976-81
			sed	1963-70
Columbia River at Biggs Junction	14048330	226,400	t	1975-76
DESCHUTES RIVER BASIN				
Paulina Creek near La Pine	14063300	10.1	sc	1992-95
Deschutes River at Benham Falls, near Bend	14064500	1,759	t	1968-80

WATER RESOURCES DATA FOR OREGON, 2002  
DISCONTINUED SURFACE-WATER QUALITY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record
DESCHUTES RIVER BASIN--Continued				
Deschutes River near Culver	14076500	2,705	t	1955-57;1959-74
Crooked River at Post	14079500	2,160	t, sed	1960-62
Bear Creek near Prineville	14080250	205	t	1976
			sed	1976-80
Crooked River near Prineville	14080500	2,700	t, sed	1959
Crooked River below Opal Springs, near Culver	14087400	4,300	t	1964-74
Crooked River near Culver	14087500	4,330	t	1955-63
Metolius River near Grandview	14091500	316	t	1955-74
Deschutes River near Madras	14092500	7,820	t	1953-56
				1958;1972-88
White River below Tygh Valley	14101500	417	t, sed	1982
			tb	1982-83
Deschutes River at Moody	14103000	10,500	t	1955-58;1962-81
COLUMBIA RIVER MAIN STEM				
Columbia River at The Dalles	14105700	237,000	t	1956-70;1974-76
			sc	1965-85
Columbia River at Warrendale	14128910	240,000	t, sc	1976-92
SANDY RIVER BASIN				
Bear Creek near Rhododendron	14133400	0.36	sc,ph,t,do	1999
COLUMBIA RIVER MAIN STEM--Continued				
Columbia River at Vancouver	14144700	241,000	t	1968-70;1973-79
			sed	1964-69
WILLAMETTE RIVER BASIN				
Middle Fork Willamette River near Oakridge	14144800	258	t	1957-87
Hills Creek above Hills Creek Reservoir, near Oakridge	14144900	52.7	t	1959-81
Middle Fork Willamette River above Salt Creek, near Oakridge	14145500	392	t	1961-97
Middle Fork Willamette River below North Fork, near Oakridge	14148000	924	t	1951-87
Fall Creek near Lowell	14150300	118	t	1964-87
Winberry Creek near Lowell	14150800	43.9	t	1964-81
Fall Creek below Winberry Creek, near Fall Creek	14151000	186	t	1951-97
Coast Fork Willamette River at London	14152500	72.1	t	1961-65;1968-87
Coast Fork Willamette River near Goshen	14157500	642	t	1962-75
McKenzie River below Trail Bridge Dam, near Belknap Springs	14158850	184	t, sc	1977-85
McKenzie River at McKenzie Bridge	14159000	348	t, sc	1977-85
Horse Creek near McKenzie Bridge	14159100	149	t	1963-69;1984
Blue River below Tidbits Creek, near Blue River	14161100	45.8	t	1964-87
Lookout Creek near Blue River	14161500	24.1	t	1952-55;1964-81
Blue River near Blue River	14162000	75	t	1962-64
McKenzie River at Finn Rock	14162400	--	t	1984
McKenzie River near Vida	14162500	930	t	1962-85
			sc	1977-85
Gate Creek at Vida	14163000	47.6	t	1984
McKenzie River at Leaburg Dam	14163100	--	t	1984
McKenzie River below Leaburg Dam, Near Leaburg	14163150	1,030	t	1993
McKenzie River near Springfield	14164000	1,066	t	1984
Walterville Canal near Walterville	14164200	--	t	1984
McKenzie River above Hayden Bridge, at Springfield	14164900	--	t	1984
Mohawk River near Springfield	14165000	177	t	1964-69;1984
McKenzie River near Coburg	14165500	1,337	t	1964-75;1984
Willamette River at Harrisburg	14166000	3,420	sc, do	1970-76
			ph	1970-75
Willamette River above Calapooia River at Albany	14171750	4,460	t	1964-87
North Santiam River at Fisherman's Bend, near Mill City	14181800	--	t	1986
North Santiam River near Jefferson	14184100	736	t	1985-86
South Santiam River below Cascadia	14185000	174	t	1963-63;1967;1970-87

## DISCONTINUED SURFACE-WATER QUALITY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record
WILLAMETTE RIVER BASIN--Continued				
Middle Santiam River near Cascadia	14185800	104	t	1964-79;1981-82
Quartzville Creek near Cascadia	14185900	99.2	t	1964-87
Middle Santiam River at mouth, near Foster	14186500	287	t	1954-64;1966
South Santiam River at Foster	14186700	493	t	1968;1970-73; 1985
Crabtree Creek near Scio	14188750	--	t	1985
Thomas Creek near Scio	14188800	109	t	1963-75
Thomas Creek near Crabtree	14188850	--	t	1986
South Santiam River below Thomas Creek, near Jefferson	14188900	--	t	1986
Santiam River at Jefferson	14189000	1,790	t	1964-65;1967-87
Luckiamute River at Pedee	14190000	115	t	1965-70
Willamette River at Salem	14191000	7,280	t sc	1964-87 1952-60;1965-72 1976-84
Willamina Creek near Willamina	14193000	64.7	t	1964-68
South Yamhill River near Whiteson	14194000	502	t	1964-68
North Yamhill River at Pike	14197000	66.8	t	1964-69
Molalla River above Pine Creek, near Wilhoit	14198500	97	t	1964-69
Molalla River near Canby	14200000	323	t	1964-69
Silver Creek at Silverton	14200300	47.9	t	1964-68
Zollner Creek near Mount Angel	14201300	15.0	sc	1994-97
Pudding River at Aurora	14202000	479	sc,t	1994-97
Tualatin River near Gaston	14202500	48.5	t	1979-84
Tualatin River near Dilley	14203500	125	t	1964-68
Gales Creek near Glenwood	14203750	7.3	t	1994-95
Gales Creek near Gales Creek	14204000	33.2	t	1964-69
Tualatin River at West Linn	14207500	706	t sc	1964-68;1976-81 1976-81
Willamette River at Oregon City	14207700	10,000	t	1963-67
Clackamas River near Clackamas	14211000	930	t	1964-76
Crystal Springs at Bybee Street, Portland	14211542	not det.	t	1999,2000
Crystal Springs at mouth, Portland	14211546	not det.	t	1999,2000
Willamette River above St. Johns Bridge, at Portland	14211805	11,450	t	1972-75
COLUMBIA RIVER MAIN STEM				
Columbia River at Columbia City	14222880	254,000	t	1971
Columbia River near Columbia City	14222890	253,900	t	1969-72
Columbia River at Kalama	14222910	254,000	t	1969-79
Columbia River at Prescott	14223780	254,200	t	1968-69
Columbia River at Rainier	14245295	256,700	t	1972-79
Columbia River at Longview, WA	14245300	256,700	t	1968-72
Columbia River at Wauna	14247295	256,900	t	1972-76
Columbia River at Bradwood	14247400	257,100	t	1977-81
Columbia River at Altoona, WA	14248600	258,000	t	1972-79
Bear Creek near Svenson	14248700	3.33	t	1966-75
PACIFIC SLOPE BASINS IN OREGON				
NEHALEM RIVER BASIN				
Nehalem River near Foss	14301000	667	t sc	1975-81 1981
NESTUCCA RIVER BASIN				
Trask River near Tillamook	14302500	145	t	1962-71
Nestucca River near Beaver	14303600	180	t	1965-87
SILETZ RIVER BASIN				
Big Rock Creek near Valsetz	14304850	6.90	t	1979-85
Siletz River at Siletz	14305500	202	t	1979-85
YAQUINA RIVER BASIN				
Yaquina River near Chitwood	14306030	71	sed	1973-74

WATER RESOURCES DATA FOR OREGON, 2002  
DISCONTINUED SURFACE-WATER QUALITY STATIONS

Station name	Station number	Drainage area (mi <sup>2</sup> )	Type of record	Period of record
ALSEA RIVER BASIN				
North Fork Beaver Creek near Seal Rock	14306040	10	t	1966-67
North Fork Alsea River at Alsea	14306100	63	t	1958-66
South Fork Alsea River near Alsea	14306200	49.5	t	1958-63
Fall Creek near Alsea	14306300	29.4	t	1959
Five Rivers near Fisher	14306400	114	t	1959
Alsea River near Tidewater	14306500	334	t, sc sed	1980-81 1973-74
Drift Creek near Salado	14306600	20.5	t	1959-63;1969-70
Needle branch near Salado	14306700	0.27	t, sed	1959-73
Flynn Creek near Salado	14306800	0.78	t, sed	1959-73
Deer Creek near Salado	14306810	1.17	t, sed	1959-73
SIUSLAW RIVER BASIN				
Siuslaw River near Mapleton	14307620	588	t sc sed	1968-75;1978-81 1978-81 1968-75
UMPQUA RIVER BASIN				
South Umpqua River at Days Creek	14308600	641	t tb sc, ph, do	1971-82;1991-92 1973-82 1991-92
South Umpqua River near Roseburg	14312260	1,798	sc ph do	1971-95 1972-95 1971-95
North Umpqua River above Rock Creek, near Glide	14317500	886	sc,ph,t,do	1992-98
North Umpqua River at Winchester	14319500	1,344	t	1971-91
Umpqua River near Elkton	14321000	3,683	t	1971-92
COOS RIVER BASIN				
West Fork Millicoma River near Allegany	14324500	46.9	t	1973-76
COQUILLE RIVER BASIN				
South Fork Coquille River near Illahe	14324700	40.6	t	1971-74
Rock Creek near Illahe	14324800	--	t	1958
South Fork Coquille River near Powers	14324900	93.2	t	1957-70
SIXES RIVER BASIN				
Sixes River at Sixes	14327150	116	t sed	1968 1968-70
ROGUE RIVER BASIN				
South Fork Rogue River south of Prospect	14334700	246	t sed	1969-92 1977-81
Rogue River at McLeod	14335075	697	sc,ph,t,do. sed,tb	1977-81 1977-2000
Big Butte Creek near McLeod	14337500	245	t tb	1971-2000 2000
Elk Creek near Cascade Gorge	14337800	78.8	t tb	1974-2000 2000
West Branch Elk Creek near Trail	14337870	14.2	temp	1977-2000
Rogue River at Trail	14338100	ND	temp tb	1989-2000 2000
Rogue River at Grants Pass	14361500	2,459	t	1956-58;1974-87
Middle Fork Applegate River near Copper	14361590	50.7	t	1980-87
Elliott Creek near Copper	14361600	51.8	t sed	1978-87 1978-80
Carberry Creek near Copper	14361700	68.9	t sed	1978-87 1981
Rogue River near Merlin	14370400	3,268	t	1975-87
Rogue River at Marial	14372250	3,812	t	1975-87
Illinois River near Selma	14378000	665	t	1962-68

## INTRODUCTION

The Water Resources of the U.S. Geological Survey, in cooperation with state agencies, obtains a large amount of data pertaining to the water resources of Oregon each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the State. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data - Oregon."

This report includes records on both surface and ground water in the State and contains discharge records for 181 streamflow-gaging stations, 47 partial-record or miscellaneous streamflow stations, and 8 crest-stage partial-record streamflow stations; stage only records for 6 gaging stations, stage and content records for 26 lakes and reservoirs; water-quality records for 127 streamflow-gaging stations; 2 atmospheric deposition stations, and 11 ground-water sites.

This series of annual reports for Oregon began with the 1961 water year with a report that contained only data relating to the quantities of surface water. For the 1964 water year, a similar report was introduced that contained only data relating to water quality. Beginning with the 1975 water year, the report format was changed to present, in one or two volumes, data on quantities of surface water, quality of surface and ground water, and ground-water levels. In 1981, the annual report was divided into two volumes: Volume 1 described the activities for Eastern Oregon, while Volume 2 described the activities for Western Oregon. In 1991, the annual report returned to a single volume report.

Prior to introduction of this series and for several water years concurrent with it, water-resources data for Oregon were published in U.S. Geological Survey Water-Supply Papers. Data on stream discharge and stage and on lake or reservoir contents and stage, through September 1960, were published annually under the title "Surface-Water Supply of the United States, Parts 10, 11, 13, and 14." For the 1961 through 1970 water years, the data were published in two 5-year reports. Data on chemical quality, temperature, and suspended sediment for the 1941 through 1970 water years were published annually under the title "Quality of Surface Waters of the United States," and water levels for the 1935 through 1974 water years were published under the

title "Ground-Water Levels in the United States." These Water-Supply Papers may be consulted in the libraries of the principal cities of the United States, or if not out of print, may be purchased from the U.S. Geological Survey, Books and Open-File Reports, Federal Center, Building 41, Box 25425, Denver, CO 80225. For further ordering information, telephone (303) 236-7476.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this report is identified as "U.S. Geological Survey Water-Data Report OR-02-1." For archiving and general distribution, the reports for 1971-74 water years also are identified as water-data reports. These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. For further ordering information, the Customer Inquiries telephone number is (703) 487-4650.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at The address given on back of title page or by telephone (503) 251-3201.

The USGS is continually updating the availability of its information on the internet. Current streamflow conditions (via satellite) for Oregon and other water resource information can be found at the following Universal Resource Locator (URL): <http://oregon.usgs.gov>. Nationwide information on water resources, including real-time and historic streamflow data, water-use data, publications and USGS program activities, can be found at URL: <http://water.usgs.gov>.

## COOPERATION

The U.S. Geological Survey and organizations of the State of Oregon have had cooperative agreements for the systematic collection of surface-water records since 1905. Organizations that supplied data are acknowledged in station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

State of Oregon Water Resources Department  
Clackamas County  
Coos Bay-North Bend Water Board  
Coos County, Board of Commissioners

Douglas County, Natural Resources  
 Multnomah County  
 Division of Public Works  
 Eugene Water and Electric Board  
 City of Albany  
 City of Ashland, Department of Public Works  
 City of Brookings  
 City of Gresham  
 City of Lake Oswego  
 City of McMinnville  
 City of Milwaukie  
 City of Newberg  
 City of Portland, Bureau of Environmental  
 Services  
 City of Portland, Bureau of Water Works  
 City of Salem  
 City of Troutdale, Public Works  
 City of West Linn  
 City of Woodburn  
 Nez Perce Tribe  
 Siuslaw Soil and Water Conservation District  
 The Confederated Tribes of the Umatilla  
 Indian Reservation  
 The Confederated Tribes of the Warm Springs  
 Indian Reservation  
 Tillamook County Performance Partnership  
 Clear Water Services  
 Willowa Soil and Water Conservation

Assistance in the form of funds or services was provided by the Forest Service, U.S. Department of Agriculture; Corps of Engineers, U.S. Army; Bonneville Power Administration, U.S. Department of Energy; Bureau of Land Management, Bureau of Reclamation, Fish and Wildlife Service, National Park Service, U.S. Department of the Interior in collection of records for stage and discharge stations and water-quality stations published in this report.

The following organizations aided in collecting records for stations under Federal Energy Regulatory Commission licenses: Eugene Water & Electric Board; Grayco Resources, Inc.; Idaho Power, PacifiCorp; Portland General Electric Co.

## SUMMARY OF HYDROLOGIC CONDITIONS

### Surface Water

The hydrology of Oregon is influenced by five mountain ranges with the Cascade Range providing a natural division between western and eastern Oregon. These ranges divide the state into drainage basins and greatly affect the distribution of precipitation. Hydrologic patterns are generally uniform from drainage basin to drainage basin throughout western Oregon; whereas in eastern Oregon, hydrologic

patterns vary widely between drainage basins.

Western Oregon, which composes about one-third of the total area of the state, has a climate characterized by moderate temperatures, wet winters, and dry summers. About 80 percent of the precipitation occurs between October and March. Annual precipitation ranges from about 20 inches per year in the lower elevations in the southern part of the area to about 200 inches per year in the Coast and Cascade Ranges. In general, streamflow characteristics are similar, with most of the runoff and flooding on both large and small streams being caused by winter rains. Major floods have occurred when winter rains combine with melting snow.

Eastern Oregon has more complex hydrologic patterns than western Oregon. Precipitation is less than 10 inches per year in the semiarid regions, such as parts of the north-central area, the closed basin in south-central Oregon, and southeastern Oregon. The northeastern part of the state receives as much as 80 inches of precipitation per year, much of it occurring as snowfall. On large streams, flooding can result from winter rains and (or) seasonal snowmelt; in smaller drainage basins, flooding can result from winter rains, seasonal snowmelt, and convection storms. Monthly and annual mean discharges for four representative gages are compared with the 30-year median in figures 3 and 4.

### Surface-water Conditions

Basins throughout Oregon had a mixed recovery in 2002 from the record drought of 2001. By the end of March, as reported by the Natural Resources Conservation Service, the snow water equivalent of the snowpack ranged from a high of 164 percent of average for the Lower Deschutes and Hood River Basins in north-central Oregon to a low of 86 percent of average for the Upper John Day and Malheur Basins located in eastern Oregon. Precipitation across Oregon for the water year, as reported by the State Climatologist, ranged from a high of 101 percent of normal in the North Coast Basins of northwest Oregon to a low of 62 percent of normal in the Harney Basin of south-central Oregon.

The water year began with above average precipitation for the northern 2/3 of Oregon but was dry in the southern part of the state. November was wetter than normal for most of Oregon but streamflow remained below normal for most of the state due to the lingering affects of the 2001 drought.

December and January brought above or near normal precipitation in Oregon except for the Umatilla Basin, which was dryer than normal. The

Umpqua basin received much higher than normal precipitation in December which helped to temporarily boost the streamflow in the basin to above normal levels for the first time in over a year.

February was dry for most of Oregon and the snowpack remained stable through the month. March brought some relief with wetter conditions for some parts of the state, but the lower level snowpack began to melt off in the latter part of the month. Streamflow failed to significantly respond to this low level melt

off due to antecedent dry conditions. In April, higher than normal precipitation and additional snowmelt increased the streamflow to above normal levels in many basins in Oregon. Annual peak flows for most rivers occurred in mid-April.

May through September were much dryer than normal for most of Oregon. Basins that had higher than average snowpack maintained normal levels of streamflow through June but in general streamflow remained below normal through the summer.

Table 1

Table 1. Maximum stage, discharge and recurrence interval for the 2002 water year at selected gaging stations.  
[mi<sup>2</sup>, square miles; ft, feet; ft<sup>3</sup>/s, cubic feet per second; ND, not determined; >, greater than; <, less than.

Station Number	Stream and Location	Drainage Area (mi <sup>2</sup> )	Period of Record	Maximum for Period of Record			Maximum during Water Year			
				Date	Stage (ft)	Discharge (ft <sup>3</sup> /s)	Date	Stage (ft)	Discharge (ft <sup>3</sup> /s)	Estimate of Recurrence interval (years)
10396000	Donner und Blitzen River near Frenchglen	200	1911-2002	04/26/78	7.15	4,270	04/14/02	4.01	831	<2
11502500	Williamson River below Sprague River, near Chiloquin	3,000	1917-2002	01/05/97	10.27	17,100	4/18-19/02	5.23	2,000	<2
13181000	Owyhee River near Rome	8,000	1950-2002	03/18/93	20.11	55,700	04/02/02	9.61	11,300	regulated
13292000	Imnaha River at Imnaha	622	1928-2002	01/01/97	11.44	20,200	04/14/02	4.67	2,360	<2
13333000	Grande Ronde River at Troy	3,275	1944-2002	02/09/96	13.76	51,800	04/14/02	10.44	22,600	5
14033500	Umatilla River near Umatilla	2,290	1904-2002	01/30/65	10.75	19,800	04/15/02	6.21	5,900	regulated
14046500	John Day River at Service Creek	5,090	1925-2002	12/23/64	17.85	40,200	04/15/02	9.98	12,800	2
14120000	Hood River at Tucker Bridge, near Hood River	279	1898-2002	02/07/96	17.11	23,300	04/14/02	9.30	6,250	<2
14137000	Sandy River near Marmot	263	1911-2002	12/22/64	--	61,400	04/14/02	736.16	10,900	<2
14301000	Nehalem River near Foss	667	1940-2002	02/08/96	29.56	70,300	12/16/01	16.55	27,900	2
14305500	Siletz River at Siletz	202	1906-2002	11/26/99	28.62	53,800	01/08/02	15.64	18,200	<2
14316700	Steamboat Creek near Glide	227	1956-2002	12/22/64	25.60	51,000	12/14/01	11.87	12,700	<2
14321000	Umpqua River near Elkton	3,683	1906-2002	12/23/64	51.95	265,000	12/14/01	22.06	65,200	<2
14357500	Bear Creek at Medford	289	1915-2002	01/01/97	14.69	17,600	04/10/02	5.85	1,160	regulated
14361500	Rogue River at Grants Pass	2,459	1939-2002	12/23/64	35.15	152,000	01/08/02	8.92	4,680	regulated
14372300	Rogue River near Agness	3,939	1961-2002	12/23/64	68.03	290,000	12/14/01	11.69	26,800	regulated

NOTE.--The recurrence interval, or return period, of a flood of a given magnitude is the average interval of time within which the given flood will be exceeded once by the annual maximum discharge. The recurrence interval is inversely related to the chance of a specific flood discharge being exceeded by any one year. Thus, a flood with a 50-year recurrence interval would have 1 chance in 50 of being exceeded in any one year. Recurrence intervals are average figures based on historical data; because the occurrence of floods is erratic, the 50-year flood may not necessarily occur in any given 50-year period, or floods of this magnitude may occur several times during that period. A similar relation is true for a flood of any given recurrence interval.



### Ground Water

The seasonal level of the water table reflects natural recharge and discharge, and indirectly reflects long-term climatic trends. Changes in the water table are represented by seasonal averages of measurements made in shallow-aquifer wells.

The relation of seasonal water-table levels during 2002, to the long-term means, or normals, was evaluated for the six wells that comprise the Oregon District portion of the U.S. Geological Survey's Office of Ground Water's Collection of Basic Records (CBR) network of wells. These are wells that show a high correlation to climatic variability.

The normal water level for a season is defined as being within one-half the standard deviation of the seasonal mean for the period of record. The seasons are defined as: FALL, October to December; WINTER, January to March; SPRING, April to June; and SUMMER, July to September.

Trends in ground-water levels in the Oregon Ground-water Climate Response network were mixed throughout the 2002 water year. The water level in the Clackamas County well was below normal during the early part of 2002 before returning to normal in Summer. The water level in the northern Deschutes County well was normal throughout the the entire water year, while the water level in the southern Deschutes County well was normal before declining to below normal in Summer. The Jackson County well was normal in Fall, above normal in Winter, normal again in Spring, and below normal in Summer. The water level in the Linn County well was above normal in Fall, normal in Winter, and below normal Spring and Summer. The water level in the Marion County well was above normal Fall and Winter then normal during Spring and Summer.

### SPECIAL NETWORKS AND PROGRAMS

Hydrologic Benchmark Network is a network of 50 sites in small drainage basins around the country whose purpose is to provide consistent data on the streamflow representative of undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by human activities. At 10 of these sites, water-quality information is being gathered on major ions and nutrients, primarily to assess the effects of acid deposition on stream chemistry. Additional information on the Hydrologic Benchmark Program can be found at <http://water.usgs.gov/hbn/>.

National Stream-Quality Accounting Network (NASQAN) monitors the water quality of large rivers

within the Nation's largest river basins. From 1995 through 1999, a network of approximately 40 stations was operated in the Mississippi, Columbia, Colorado, and Rio Grande basins. For the period 2000 through 2004, sampling was reduced to a few index stations on the Colorado and Columbia so that a network of 5 stations could be implemented on the Yukon River. Samples are collected with sufficient frequency that the flux of a wide range of constituents can be estimated. The objective of NASQAN is to characterize the water quality of these large rivers by measuring concentration and mass transport of a wide range of dissolved and suspended constituents, including nutrients, major ions, dissolved and sediment-bound heavy metals, common pesticides, and inorganic and organic forms of carbon. This information will be used (1) to describe the long-term trends and changes in concentration and transport of these constituents; (2) to test findings of the National Water-Quality Assessment Program (NAWQA); (3) to characterize processes unique to large-river systems such as storage and re-mobilization of sediments and associated contaminants; and (4) to refine existing estimates of off-continent transport of water, sediment, and chemicals for assessing human effects on the world's oceans and for determining global cycles of carbon, nutrients, and other chemicals. Additional information about the NASQAN Program can be found at <http://water.usgs.gov/nasqan/>.

The National Atmospheric Deposition Program/National Trends Network (NADP/NTN) provides continuous measurement and assessment of the chemical constituents in precipitation throughout the United States. As the lead federal agency, the USGS works together with over 100 organizations to provide a long-term, spatial and temporal record of atmospheric deposition generated from a network of 225 precipitation chemistry monitoring sites. This long-term, nationally consistent monitoring program, coupled with ecosystem research, provides critical information toward a national scorecard to evaluate the effectiveness of ongoing and future regulations intended to reduce atmospheric emissions and subsequent impacts to the Nation's land and water resources. Reports and other information on the NADP/NTN Program, as well as all data from the individual sites, can be found at <http://bqs.usgs.gov/acidrain/>.

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, representative part of the Nation's ground- and surface-water resources; provide an improved

understanding of the primary natural and human factors affecting these observed conditions and trends; and provide information that supports development and evaluation of management, regulatory, and monitoring decisions by other agencies.

Assessment activities are being conducted in 59 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Communication and coordination between USGS personnel and other local, State, and federal interests are critical components of the NAWQA Program. Each study unit has a local liaison committee consisting of representatives from key federal, State, and local water resources agencies, Indian nations, and universities in the study unit. Liaison committees typically meet semiannually to discuss their information needs, monitoring plans and progress, desired information products, and opportunities to collaborate efforts among the agencies. Additional information about the NAWQA Program can be found at <http://water.usgs.gov/nawqa/>.

## EXPLANATION OF THE RECORDS

The surface-water records published in this report are for the 2002 water year that began October 1, 2001, and ended September 30, 2002. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, stage and content data for lakes and reservoirs, and water-quality data for surface water. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

### Station Identification Numbers

Each data station in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The two systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for surface-water stations where only miscellaneous measurements are made. Basin designation is based on the Hydrologic Unit Map for Oregon prepared in cooperation with the U.S. Water Resources Council (1974).

#### Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a mainstream station are listed before that station. A station on a tributary that enters between two mainstream stations is listed between them. A similar order is followed in listing stations on first rank, second rank, and other ranks of tributaries. The rank of any tributary with respect to the stream to which it is immediately tributary is indicated by an indentation in the "List of Stations" in the front of this report. Each indentation represents one rank. This downstream order and system of indentation show which stations are on tributaries between any two stations and the rank of the tributary on which each station is situated.

The station-identification number is assigned according to downstream order. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream-order position in a list made up of both types of stations. Gaps are left in the series of numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete eight-digit number for each station, such as 14105700, which appears just to the left of the station name, includes the two-digit Part number "14" plus the six-digit downstream-order number "105700." The Part number designates the major river basin; for example, part "14" refers to the Pacific slope basins in Oregon and lower Columbia River basin.

### Latitude-Longitude System

The identification numbers for wells and miscellaneous surface-water sites are assigned according to the grid system of latitude and longitude (figure 1). The number consists of 15 digits. The first six digits denote the degrees, minutes, and seconds of latitude, the next seven digits denote degrees, minutes, and seconds of longitude, and the last two digits (assigned sequentially) identify the wells or other sites within a one-second grid. This

site-identification number, once assigned, is a pure number, and has no locational significance. In the rare instance where the initial determination of latitude and longitude are found to be in error, the station will retain its initial identification number; however, its true latitude and longitude will be listed in the LOCATION paragraph of the station description.

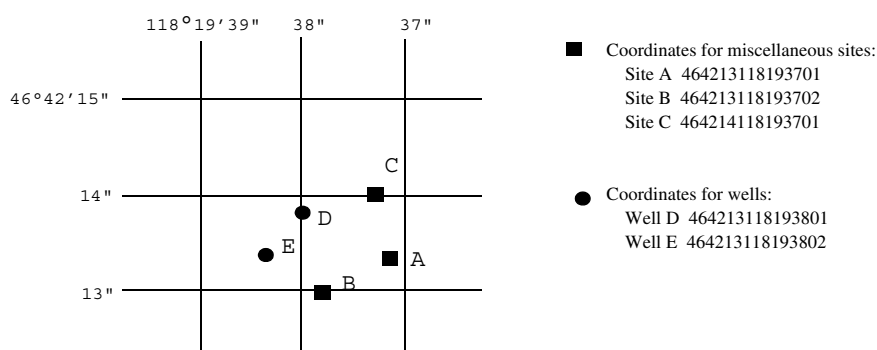


Figure 1. System for numbering wells and miscellaneous sites (latitude and longitude).

### Local Identifier Well-Numbering System

In addition to the latitude-longitude based site identification number, wells in Oregon are assigned local well numbers (figure 2). The State is divided into 36 square mile townships numbered according to their location relative to the east-west Willamette baseline and a north-south Willamette meridian. The position of a township is given by its north-south "Township" position relative to the baseline and its east-west "Range" position relative to the meridian. Each township is divided into 36 sections approximately one-square-mile, (640-acre) in area and numbered from 1 to 36. For example, a well designated as 01S/03E-33DCA is located in Township 1 south, Range 3 east, section 33. The

letters following the section number correspond to the location within the section; the first letter (D) identifies the quarter section (160 acres); the second letter (C) identifies the quarter-quarter section (40 acres); and the third letter (A) identifies the quarter-quarter-quarter section (10-acres). Thus, well 33DCA is located in the NE quarter of the SW quarter of the SE quarter of section 33 (figure 2). When more than one designated well occurs in the quarter-quarter-quarter section, a serial number is included.

### Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for

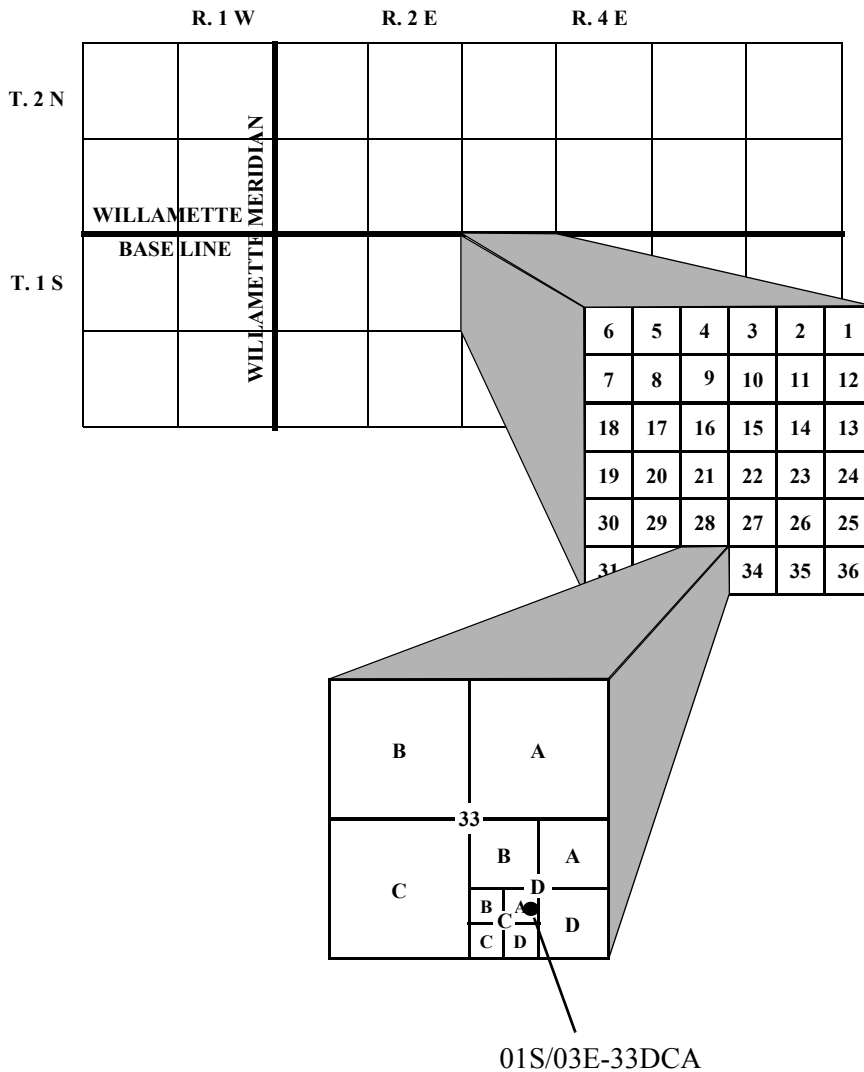


Figure 2. Local identifier well-numbering system.

any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Crest-stage partial records," or "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this report.

#### Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consist of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relations between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relation between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey that are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations (TWRI), Book 3, Chapter A6. These methods are described in standard textbooks, Water-Supply Paper 2175, and the U.S. Geological Survey Techniques of Water Resources Investigations (TWRI's), Book 3, Chapter A1 through A19 and Book 8, Chapters A2 and B2. The methods are consistent with the American Society for Testing and Materials (ASTM) standards and generally follow the standards of the International Organization for Standards (ISO).

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. For some stations, formation of ice in the winter may so obscure the stage-discharge relations that daily mean discharges must be estimated from other information such as temperature and precipitation records, notes of observations, and records for other stations in the same or nearby basins for comparable periods.

At some stream-gaging stations the stage-

discharge relation is affected by the backwater from reservoirs, tributary streams, or other sources. This necessitates the use of the slope method in which the slope or fall in a reach of the stream is a factor in computing discharge. The slope or fall is obtained by means of an auxiliary gage set at some distance from the base gage. At some gaging stations, acoustic velocity meter (AVM) systems are used to compute discharge. The AVM system measures the stream's velocity at one or more paths in the cross section. Coefficients are developed to relate this path velocity to the mean velocity in the cross section. Because the AVM sensors are fixed in position, the adjustment coefficients generally vary with stage. Cross-sectional area curves are developed to relate stage, recorded as noted above, to cross section area. Discharge is computed by multiplying path velocity by the appropriate stage related coefficient and area.

In computing records of lake or reservoir contents, it is necessary to have information available from surveys, curves, or tables that define the relation of stage to content. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly, or yearly changes then are determined. If the stage-content relation changes because of deposition of sediment in a lake or reservoir, periodic resurveys may be necessary to redefine the relation. Discharges over lake or reservoir spillways are computed from stage-discharge relations much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the validity of the recorded gage height is so questionable that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is frozen in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

#### Data Presentation

Streamflow data in this report are presented in a new format that is considerably different from the

format in data reports prior to the 1991 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts, the manuscript or station description; the data table of daily mean values of discharges for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimums, and flow duration. Summary statistics were not included for certain sites where these data would be misleading. Contact the District Office for further information concerning summary statistics for these sites.

#### Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the station description.

**LOCATION.**--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given. River mileages are based on information developed by the Hydraulics and Hydrology Committee of the Pacific Northwest River Basins Commission.

**DRAINAGE AREA.**--Drainage areas are measured using the most accurate maps available. Because the type of maps available varies from one drainage basin to another, the accuracy of drainage areas likewise varies. Drainage areas are updated as better maps become available.

**PERIOD OF RECORD.**--This indicates the period for which there are published records for the

station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

**REVISED RECORDS.**--Published records, because of new information, occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means the instantaneous maximum discharge was revised; "(m)" the instantaneous minimum was revised; and "(P)" the peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

**GAGE.**--The type of gage in current use, the datum of the current gage referred to NGVD of 1929 (see "DEFINITION OF TERMS"), and a condensed history of the types, locations, and datums of previous gages are given under this heading.

**REMARKS.**--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, special methods of computation, conditions that affect natural flow at the station and, possibly, other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

**COOPERATION.**--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

**AVERAGE DISCHARGE.**--The discharge value given is the arithmetic average of the water-year mean discharges. Average discharge is computed only for stations having at least 2 water years of complete record; water years with incomplete record are not included in the computation. The mean-discharge value that uses all published data may differ from that given in the summary statistics data, which is based only on computer-stored data. The summary data does not

include values of monthly or yearly data that were determined by various methods for the series of Water-Supply Papers entitled "Compilation of Records of Surface Water of the United States". The average-discharge value is not computed for stations where diversions, storage, or other water-use practices cause the value to be meaningless. If water projects that significantly alter flow at a station are put into use after the station has been in operation for a period of years, the new average is computed as soon as 2 water years of record have accumulated after the project began.

#### EXTREMES FOR PERIOD OF RECORD.--

Extremes may include maximum and minimum stages and maximum and minimum discharges or content. Unless otherwise qualified, the maximum discharge or content is the instantaneous maximum corresponding to the highest stage that occurred. The highest stage may have been obtained from a graphic or digital recorder, a crest-stage gage, or by direct observation of a nonrecording gage. If the maximum stage did not occur on the same day as the maximum discharge or content, it is given separately. Similarly, the minimum is the instantaneous minimum discharge, unless otherwise qualified, and was determined and is reported in the same manner as the maximum.

**EXTREMES OUTSIDE PERIOD OF RECORD.--**Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

#### EXTREMES FOR CURRENT YEAR.--

Extremes given here are similar to those for the period of record, except the peak discharge listing may include secondary peaks. For stations meeting certain criteria, all peak discharges and stages occurring during the water year and greater than a selected base discharge are presented under this heading. The peaks greater than the base discharge, excluding the highest one, are referred to as secondary peaks. Peak discharges are not published for canals, ditches, drains, or streams for which the peaks are subject to substantial control by man. The time of occurrence for peaks is expressed in 24-hour local standard time. For example, 12:30 a.m. is 0030, and 1:30 p.m. is 1330. The minimum for the current water year appears below the table of peak data.

**REVISIONS.--**If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the Oregon office (address given on the back of the title page of this report) to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

#### Data table of daily mean values

The daily table for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for the month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"), or in inches (line headed "IN."), or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches are omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas. At some stations monthly and (or) yearly observed discharges are adjusted for reservoir storage or diversion, or diversion data or reservoir contents are given. These figures are identified by a symbol and corresponding footnote.

#### Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flows are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEAR \_\_\_\_\_ - \_\_\_\_\_, BY WATER YEAR (WY)," and will list

the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

#### Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly and daily flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS \_\_\_\_\_ - \_\_\_\_\_", will consist of all of the station record within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (See line headings below), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using computerized data for complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify

information presented under the various line headings of the summary statistics table.

**ANNUAL TOTAL.**--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

**ANNUAL MEAN.**--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes. At least 5 complete years of record must be available before this statistic is published for the designated period.

**HIGHEST ANNUAL MEAN.**--The maximum annual mean discharge occurring for the designated period.

**LOWEST ANNUAL MEAN.**--The minimum annual mean discharge occurring for the designated period.

**HIGHEST DAILY MEAN.**--The maximum daily mean discharge for the year or for the designated period.

**LOWEST DAILY MEAN.**--The minimum daily mean discharge for the year or for the designated period.

**ANNUAL 7-DAY MINIMUM.**--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

**ANNUAL RUNOFF.**--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurement in presenting annual runoff data:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to



a depth of 1 foot and is equal to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that is exceeded 10 percent of the time for the designated period.

50 PERCENT EXCEEDS.--The discharge that is exceeded 50 percent of the time for the designated period.

90 PERCENT EXCEEDS.--The discharge that is exceeded 90 percent of the time for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in two tables. The first is a table of annual maximum stage and discharge at crest-stage stations, and the second is a table of discharge measurements at low-flow partial-record stations. The tables of partial-record stations are followed by a listing of discharge measurements made at sites other than continuous-record or partial-record stations. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

#### Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables of annual state data reports are identified either by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated," or by listing the dates of the estimated record in the REMARKS paragraph of the station description.

#### Accuracy of the Records

The accuracy of streamflow records depends

primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements, and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under the "REMARKS" paragraph. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record. Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft<sup>3</sup>/s; the nearest tenth between 1.0 and 10 ft<sup>3</sup>/s; whole numbers between 10 and 1,000 ft<sup>3</sup>/s; and 3 significant figures for more than 1,000 ft<sup>3</sup>/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Discharge at many stations, as indicated by the monthly mean, may not reflect natural runoff because of the effects of diversion, consumption, regulation by storage, increase or decrease in evaporation, or other factors. For such stations, figures of cubic feet per second per square mile and of runoff, in inches, are not published unless satisfactory adjustments can be made for diversions, changes in contents of reservoirs, or other changes incident to use and control. Evaporation from a reservoir is not included in the adjustments for changes in reservoir contents, unless it is so stated. Even at those stations where adjustments are made, large errors in computed runoff may occur if adjustments or losses are large in comparison with the observed discharge.

#### Other Records Available

Monthly records for several ungaged sites are given in a separate section following the gaged sites. The accuracy of records for ungaged sites is generally lower than that for gaged sites, depending on the precision of the computation method and the accuracy of data used in the computations. For most gaging stations, unpublished, detailed information, on file in the Oregon office, includes discharge measurements, gage-height records, and rating tables. Many gaging-station records in Oregon through 1987 have been analyzed to determine several statistical summaries: (1) The number of days in each year that the daily discharge was between selected limits (duration tables); (2) the lowest mean discharge for selected numbers of consecutive days in each year; and (3) the highest

mean discharge for selected numbers of consecutive days in each year.

Other Federal and State agencies have collected discharge data at other sites in Oregon during the current water year. Although these records have not been published by the U.S. Geological Survey, the National Water Data Exchange, NAWDEX, Water Resources Division, U.S. Geological Survey, National Center, Reston, VA 22092, maintains an index of these sites and will furnish information about them.

#### Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

#### Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be one or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently.

#### Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby

surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurements at miscellaneous sites.

#### On-site Measurements and Sample Collection

In obtaining water-quality data, it is important that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, treating the samples to prevent changes in quality pending analysis, and shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. A1, A3, and A4; Book 9, Chap. A1-A9". These methods are consistent with ASTM standards and generally follow ISO standards. Also, detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey Oregon office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see "DEFINITION OF TERMS") are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species

(carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the U.S. Geological Survey office whose address is given on the back of the title page of this report.

#### Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the Oregon office.

#### Sediment

Suspended-sediment concentrations are determined from samples collected by one of the standard sampling techniques discussed in TWRI, Book 3, Chapter C2, "Field methods for measurement of fluvial sediment." Samples are obtained using standard depth- or point-integrating samplers, or by means of an approved pumping sampler. Mean concentrations for the sampled cross section are in turn determined from these samples.

During periods of rapidly changing flow or rapidly changing suspended-sediment concentration, samples may have been collected more frequently (twice daily or, in some instances, hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times

mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, and suspended-sediment loads for other periods of similar discharge. Methods used in the computation of sediment records are described in the TWRI Book 3, Chapters C1 and C3. These methods are consistent with ASTM standards and generally follow ISO standards.

At other stations, suspended-sediment samples were collected periodically. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, periodic measurements of particle-size distributions for the suspended-sediment, bed-load, and bed-material samples are included for stations where samples were obtained to measure this parameter.

#### Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for identification of biological populations, samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratory in Denver, Colorado. Methods used to analyze sediment samples and to compute sediment records are described in the TWRI Book 1, Chapter D2; Book 3, Chapter C2; and Book 5, Chapters A1, A3, A4, and A5. These methods are consistent with ASTM standards and generally follow ISO standards.

In March 1989, the National Water-Quality Laboratory discovered a bias in the turbidimetric method for sulfate analysis, indicating that values below 75 mg/L have a median positive bias of 2 mg/L above the true value for the period between 1982 and 1989. Sulfate values in this report have not been corrected for this bias.

#### Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record,

type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first. Tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

**LOCATION.**--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

**DRAINAGE AREA.**--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

**PERIOD OF RECORD.**--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

**INSTRUMENTATION.**--Information on instrumentation is given only if a water-quality monitor, sediment pumping sampler, or other sampling device is in operation at a station.

**REMARKS.**--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

**COOPERATION.**--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

**EXTREMES.**--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

**REVISIONS.**--If errors in published water-quality records are discovered after publication,

appropriate updates are made in the U.S. Geological Survey's distributed data system, NWIS, and subsequently to its web-based National data system, NWISWeb [<http://water.usgs.gov/nwis/nwis>]. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from NWIS or NWISWeb to ensure the most recent updates. Updates to NWISWeb are currently made on an annual basis.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

#### Remark Codes

The following remark codes may appear with the water-quality data in this report:

<u>PRINTED OUTPUT</u>	<u>REMARK</u>
E	Estimated value
<	Actual value is known to be less than the value shown
K	Results based on colony count outside the acceptance range (non-ideal colony count)
ND	Materials specifically analyzed for but not detected
V	Analyte was detected in both the environmental sample and the associated blanks.

#### Quality-Control Data

Data generated from quality-control (QC) samples are a requisite for evaluating the quality of the sampling and processing techniques as well as data from the actual samples themselves. Without QC data, environmental sample data cannot be adequately interpreted because the errors associated with the sample data are unknown. The various types of QC samples collected by this district are described in the following section. Procedures have been established for the storage of water-quality-control data within the USGS. These procedures allow for storage of all derived QC data and are identified so that they can be related to corresponding environmental samples.

### Blank Sample

Blank samples are collected and analyzed to ensure that environmental samples have not been contaminated by the overall data-collection process. The blank solution used to develop specific types of blank samples is a solution that is free of the analytes of interest. Any measured value signal in a blank sample for an analyte (a specific component measured in a chemical analysis) that was absent in the blank solution is believed to be due to contamination. There are many types of blank samples possible, each designed to segregate a different part of the overall data-collection process. The types of blank samples collected in this district are:

Field blank - a blank solution that is subjected to all aspects of sample collection, field processing preservation, transportation, and laboratory handling as an environmental sample.

Trip blank - a blank solution that is put in the same type of bottle used for an environmental sample and kept with the set of sample bottles before and after sample collection.

Equipment blank - a blank solution that is processed through all equipment used for collecting and processing all environmental sample (similar to a field blank but normally done in the more controlled conditions of the office).

Sampler blank - a blank solution that is poured or pumped through the same field sampler used for collecting an environmental sample.

Filter blank - a blank solution that is filtered in the same manner and through the same filter apparatus used for an environmental sample.

Splitter blank - a blank solution that is mixed and separated using a field splitter in the same manner and through the same apparatus used for an environmental sample.

Preservation blank - a blank solution that is treated with the sampler preservatives used for an environmental sample.

### Reference Samples

Reference material is a solution or material prepared by a laboratory whose composition is certified for one or more properties so that it can be used to assess a measurement method. Samples of reference material are submitted for analysis to ensure that an analytical method is accurate for the

known properties of the reference material. Generally, the selected reference material properties are similar to the environmental sample properties.

### Replicate Samples

Replicate samples are a set of environmental samples collected in a manner such that the samples are thought to be essentially identical in composition. Replicate is the general case for which a duplicate is the special case consisting of two samples. Replicate samples are collected and analyzed to establish the amount of variability in the data contributed by some part of the collection and analytical process. There are many types of replicate samples possible, each of which may yield slightly different results in a dynamic hydrologic setting, such as a flowing stream. The types of replicate samples collected in this district are sequential samples. Sequential samples are a type of replicate sample in which the samples are collected one after the other, typically over a short time.

Split sample - a type of replicate sample in which a sample is split into subsamples contemporaneous in time and space.

### Spike Samples

Spike samples are samples to which known quantities of a solution with one or more well-established analyte concentrations have been added. These samples are analyzed to determine the extent of matrix interference or degradation on the analyte concentration during sample processing and analysis.

### Records of Ground-Water Levels

Water-level records for selected wells are included in this report. These wells are part of the U.S. Geological Survey's nationwide Collection of Basic Records (CBR) network of observation wells. The primary purpose of the network is to monitor the effect of climatic variability on the nation's regional aquifers. Well locations are shown in Figure 36.

Ground-water level records obtained through cooperative efforts of many Federal, State, and local agencies for many observation wells throughout Oregon are not included in this report. These records may be in computer storage, published in reports, or kept in files. Information about the availability of ground-water data may be obtained from the District Chief, Oregon District, U.S. Geological Survey, 10615 S.E. Cherry Blossom Drive, Portland, Oregon 97216.

### Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the

methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

The water-level data tables and hydrographs are published in alphabetical order by county and then in ascending order of latitude within the county. Each well is identified by means of (1) a 15-digit site identification number that is based on the grid system of latitude and longitude, and (2) a local designation based on the official system for the rectangular subdivision of public lands, referenced to the Willamette base line and meridian. Both of these identification number systems are described in the "Station Identification Numbers" section.

Water-level measurements are reported in feet below the land-surface datum (LSD). The land-surface datum is a horizontal plane coincident with land surface at each well. The altitude of the land-surface datum at each well has been estimated from U.S. Geological Survey 7.5 minute quadrangle topographic maps and is relative to the National Geodetic Vertical Datum (NGVD) of 1929.

The measuring point (MP) is reported in feet above the land-surface datum at each well and is the point at which measurements are taken.

Water levels are published to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth or a few hundredths of a foot. For lesser depths to water, the accuracy is greater.

#### Data Presentation

Each well record consists of three parts, a station description, a table of water levels for the entire period of record through the current water year, and a hydrograph of that record. Topical headings of the station description section are explained below.

**WELL NUMBER.**--This entry reports the 15-digit site identification number and the local well number previously mentioned and explained more completely in the section entitled, "Station Identification Numbers" under the headings, "Latitude-Longitude system" and "Local identifier well numbering system".

**LOCATION.**--This paragraph reports the

latitude and longitude (given in degrees, minutes, and seconds); the hydrologic unit number; the distance and direction from a geographic point of reference; and the owner's name.

**AQUIFER.**--This entry designates by name and geologic age the aquifer open to the well.

**WELL CHARACTERISTICS.**--This entry describes the well in terms of depth, diameter, casing depth and (or) screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

**INSTRUMENTATION.**--This paragraph provides information on both the frequency of measurement (periodic or continuous) and the collection method used.

**DATUM.**--This entry describes both the land-surface elevation at the well and the measuring point. The elevation of the land-surface datum is described in feet above the National Geodetic Vertical Datum of 1929 or mean sea level and is reported with a precision respective to the method of determination. The measuring point's physical description and height, in feet, relative to the land-surface datum is also noted.

**REMARKS.**--This entry describes factors that may influence the water level in a well or the measurement of the water level. It may be used to acknowledge the assistance of local observers.

**PERIOD OF RECORD.**--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year.

**EXTREMES FOR PERIOD OF RECORD.**--This entry contains the highest and lowest water levels of the record, with respect to the land-surface datum, and the dates of their occurrence.

**EXTREMES FOR CURRENT YEAR.**--For wells equipped with a recorder, this entry contains the highest and lowest water levels of the year measured by the recorder. Because all values are not published for wells with recorders the extremes may be values not listed in the table following the station description.

A table of water levels follows the station description for each well. Water levels are reported in feet below the land-surface datum. For wells equipped with a recorder a table of the daily means is

given. Missing records are indicated with a triple hyphen (---) in place of the water level.

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean water levels for each month is provided below the mean values table.

Following the tabular summary of water levels is a hydrograph of the measurements. The water levels, in feet below land surface, are on the ordinate (y-axis) which has been reversed to imply depth. The dates, in calendar years, are on the abscissa (x-axis). The hydrograph is provided to aid the reader in better understanding the fluctuations of the water levels seasonally and over time. The first point on these hydrographs is usually the driller's reported static water level. A note on the hydrograph will state the driller's reported water level if it was drilled some years prior to development of the water level record. Also, breaks in the graph line correspond to extended breaks of time in collecting water level measurements at the site.

#### ACCESS TO USGS WATER DATA

The USGS provides near real-time stage and discharge data for many of the gaging stations equipped with the necessary telemetry and historic daily-mean and peak-flow discharge data for most current or discontinued gaging stations through the internet. These data may be accessed at:

<http://water.usgs.gov>

Some water-quality and ground-water data also are available through the internet. In addition, data can be provided in various machine-readable formats on magnetic tape or 3-1/2 inch floppy disk. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division District Offices (see address on the back of the title page).

#### DEFINITION OF TERMS

Specialized technical terms related to streamflow, water-quality, and other hydrologic data, as used in this report, are defined below. Terms such as algae, water level, precipitation are used in their common everyday meanings, definitions of which are given in standard dictionaries. Not all terms defined in this alphabetical list apply to every State. See also table for converting English units to International System (SI) Units on the inside of the back cover.

**Acid neutralizing capacity** (ANC) is the equivalent sum of all bases or base-producing materials, solutes plus particulates, in an aqueous system that can be titrated with acid to an equivalence point. This term designates titration of an "unfiltered" sample (formerly reported as alkalinity).

**Acre-foot** (AC-FT, acre-ft) is a unit of volume, commonly used to measure quantities of water used or stored, equivalent to the volume of water required to cover 1 acre to a depth of 1 foot and equivalent to 43,560 cubic feet, 325,851 gallons, or 1,233 cubic meters. (See also "Annual runoff")

**Adenosine triphosphate** (ATP) is an organic, phosphate-rich compound important in the transfer of energy in organisms. Its central role in living cells makes ATP an excellent indicator of the presence of living material in water. A measurement of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter.

**Algal growth potential** (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present at stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample. (See also "Biomass" and "Dry weight")

**Alkalinity** is the capacity of solutes in an aqueous system to neutralize acid. This term designates titration of a "filtered" sample.

**Annual runoff** is the total quantity of water that is discharged ("runs off") from a drainage basin in a year. Data reports may present annual runoff data as volumes in acre-feet, as discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches.

**Annual 7-day minimum** is the lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values are reported herein for the calendar year and the water year (October 1 through September 30). Most low-flow frequency analyses use a climatic year (April 1-March 31), which tends to prevent the low-flow period from being artificially split between adjacent years. The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day, 10-year low-flow statistic.)

**Aroclor** is the registered trademark for a group of poly-chlorinated biphenyls that were manufactured by the Monsanto Company prior to 1976. Aroclors are assigned specific 4-digit reference numbers dependent upon molecular type and degree of substitution of the biphenyl ring hydrogen atoms by chlorine atoms. The first two digits of a numbered aroclor represent the molecular type, and the last two digits represent the percentage weight of the hydrogen-substituted chlorine.

**Artificial substrate** is a device that is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is collected. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton collection. (See also "Substrate")

**Ash mass** is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500 °C for 1 hour. Ash mass of zooplankton and phytoplankton is expressed in grams per cubic meter ( $\text{g}/\text{m}^3$ ), and periphyton and benthic organisms in grams per square meter ( $\text{g}/\text{m}^2$ ). (See also "Biomass" and "Dry mass")

**Aspect** is the direction toward which a slope faces with respect to the compass.

**Bacteria** are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, whereas others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

**Bankfull stage**, as used in this report, is the stage at which a stream first overflows its natural banks formed by floods with 1- to 3-year recurrence intervals.

**Base discharge** (for peak discharge) is a discharge value, determined for selected stations, above which peak discharge data are published. The base discharge at each station is selected so that an average of about three peak flows per year will be published. (See also "Peak flow")

**Base flow** is sustained flow of a stream in the absence of direct runoff. It includes natural and human-induced streamflows. Natural base flow is sustained largely by ground-water discharge.

**Bedload** is material in transport that is supported primarily by the streambed. In this report, bedload is considered to consist of particles in transit from the bed to an elevation equal to the top of the bedload sampler nozzle (ranging from 0.25 to 0.5 foot) that are retained in the bedload sampler. A sample collected with a pressure-differential bedload sampler also may contain a component of the suspended load.

**Bedload discharge** (tons per day) is the rate of sediment moving as bedload, reported as dry weight, that passes through a cross section in a given time. NOTE: Bedload discharge values in this report may include a component of the suspended-sediment discharge. A correction may be necessary when computing the total sediment discharge by summing the bedload discharge and the suspended-sediment discharge. (See also "Bedload," "Dry weight," "Sediment," and "Suspended-sediment discharge")

**Bed material** is the sediment mixture of which a stream-bed, lake, pond, reservoir, or estuary bottom is composed. (See also "Bedload" and "Sediment")

**Benthic organisms** are the group of organisms inhabiting the bottom of an aquatic environment. They include a number of types of organisms, such as bacteria, fungi, insect larvae and nymphs, snails, clams, and crayfish. They are useful as indicators of water quality.

**Biochemical oxygen demand (BOD)** is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

**Biomass** is the amount of living matter present at any given time, expressed as mass per unit area or volume of habitat.

**Biomass pigment ratio** is an indicator of the total proportion of periphyton that are autotrophic (plants). This is also called the Autotrophic Index.



**Blue-green algae** (*Cyanophyta*) are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample. (See also "Phytoplankton")

**Bottom material** (See "Bed material")

**Bulk electrical conductivity** is the combined electrical conductivity of all material within a doughnut-shaped volume surrounding an induction probe. Bulk conductivity is affected by different physical and chemical properties of the material including the dissolved solids content of the pore water and lithology and porosity of the rock.

**Cells/volume** refers to the number of cells of any organism that is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample volume, and are generally reported as cells or units per milliliter (mL) or liter (L).

**Cells volume** (biovolume) determination is one of several common methods used to estimate biomass of algae in aquatic systems. Cell members of algae are frequently used in aquatic surveys as an indicator of algal production. However, cell numbers alone cannot represent true biomass because of considerable cell-size variation among the algal species. Cell volume ( $\text{mm}^3$ ) is determined by obtaining critical cell measurements or cell dimensions (for example, length, width, height, or radius) for 20 to 50 cells of each important species to obtain an average biovolume per cell. Cells are categorized according to the correspondence of their cellular shape to the nearest geometric solid or combinations of simple solids (for example, spheres, cones, or cylinders). Representative formulae used to compute biovolume are as follows:

$$\text{sphere } \frac{4}{3} \pi r^3 \quad \text{cone } \frac{1}{3} \pi r^2 h \quad \text{cylinder } \pi r^2 h.$$

pi ( $\pi$ ) is the ratio of the circumference to the diameter of a circle;  $\pi = 3.14159\dots$

From cell volume, total algal biomass expressed as biovolume ( $\text{mm}^3/\text{mL}$ ) is thus determined by multiplying the number of cells of a given species by its average cell volume and then summing these volumes for all species.

**Cfs-day** (See "Cubic foot per second-day")

**Channel bars**, as used in this report, are the lowest prominent geomorphic features higher than the channel bed.

**Chemical oxygen demand** (COD) is a measure of the chemically oxidizable material in the water and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with BOD or with carbonaceous organic pollution from sewage or industrial wastes. [See also "Biochemical oxygen demand (BOD)"]

***Clostridium perfringens*** (*C. perfringens*) is a spore-forming bacterium that is common in the feces of human and other warmblooded animals. Clostridial spores are being used experimentally as an indicator of past fecal contamination and presence of microorganisms that are resistant to disinfection and environmental stresses. (See also "Bacteria")

**Coliphages** are viruses that infect and replicate in coliform bacteria. They are indicative of sewage contamination of water and of the survival and transport of viruses in the environment.

**Color unit** is produced by 1 milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

**Confined aquifer** is a term used to describe an aquifer containing water between two relatively impermeable boundaries. The water level in a well tapping a confined aquifer stands above the top of the confined aquifer and can be higher or lower than the water table that may be present in the material above it. In some cases, the water level can rise above the ground surface, yielding a flowing well.

**Contents** is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

**Continuous-record station** is a site where data are collected with sufficient frequency to define daily mean values and variations within a day.

**Control** designates a feature in the channel that physically affects the water-surface elevation and thereby determines the stage-discharge relation at the gage. This feature may be a constriction of the channel, a bedrock outcrop, a gravel bar, an arti-

cial structure, or a uniform cross section over a long reach of the channel.

**Control structure**, as used in this report, is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of saltwater.

**Cubic foot per second (CFS, ft<sup>3</sup>/s)** is the rate of discharge representing a volume of 1 cubic foot passing a given point in 1 second. It is equivalent to approximately 7.48 gallons per second or approximately 449 gallons per minute, or 0.02832 cubic meters per second. The term “second-foot” sometimes is used synonymously with “cubic foot per second” but is now obsolete.

**Cubic foot per second-day (CFS-DAY, Cfs-day, [(ft<sup>3</sup>/s)/d])** is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, 1.98347 acre-feet, 646,317 gallons, or 2,446.6 cubic meters. The daily mean discharges reported in the daily value data tables are numerically equal to the daily volumes in cfs-days, and the totals also represent volumes in cfs-days.

**Cubic foot per second per square mile [CFSM, (ft<sup>3</sup>/s)/mi<sup>2</sup>]** is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area. (See also “Annual runoff”)

**Daily mean suspended-sediment concentration** is the time-weighted concentration of suspended sediment passing a stream cross section during a 24-hour day. (See also “Sediment” and “Suspended-sediment concentration”)

**Daily-record station** is a site where data are collected with sufficient frequency to develop a record of one or more data values per day. The frequency of data collection can range from continuous recording to periodic sample or data collection on a daily or near-daily basis.

**Data collection platform (DCP)** is an electronic instrument that collects, processes, and stores data from various sensors, and transmits the data by satellite data relay, line-of-sight radio, and/or landline telemetry.

**Data logger** is a microprocessor-based data acquisition system designed specifically to acquire, process, and store data. Data are usually downloaded

from onsite data loggers for entry into office data systems.

**Datum** is a surface or point relative to which measurements of height and/or horizontal position are reported. A vertical datum is a horizontal surface used as the zero point for measurements of gage height, stage, or elevation; a horizontal datum is a reference for positions given in terms of latitude-longitude, State Plane coordinates, or UTM coordinates. (See also “Gage datum,” “Land-surface datum,” “National Geodetic Vertical Datum of 1929,” and “North American Vertical Datum of 1988”)

**Diatoms** are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also “Phytoplankton”)

**Diel** is of or pertaining to a 24-hour period of time; a regular daily cycle.

**Discharge, or flow**, is the rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to the volume of water (including, unless otherwise stated, any sediment or other constituents suspended or dissolved in the water) that passes a cross section in a stream channel, canal, pipeline, etc., within a given period of time (cubic feet per second). Discharge also can apply to the rate at which constituents, such as suspended sediment, bedload, and dissolved or suspended chemicals, pass through a cross section, in which cases the quantity is expressed as the mass of constituent that passes the cross section in a given period of time (tons per day).

**Dissolved** refers to that material in a representative water sample that passes through a 0.45-micrometer membrane filter. This is a convenient operational definition used by Federal and State agencies that collect water-quality data. Determinations of “dissolved” constituent concentrations are made on sample water that has been filtered.

**Dissolved oxygen (DO)** is the molecular oxygen (oxygen gas) dissolved in water. The concentration in water is a function of atmospheric pressure, temperature, and dissolved-solids concentration of the water. The ability of water to retain oxygen decreases with increasing temperature or dissolved-solids concentration. Photosynthesis and respiration by plants commonly cause diurnal vari-

ations in dissolved-oxygen concentration in water from some streams.

**Dissolved-solids concentration** in water is the quantity of dissolved material in a sample of water. It is determined either analytically by the “residue-on-evaporation” method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. In the mathematical calculation, the bicarbonate value, in milligrams per liter, is multiplied by 0.4926 to convert it to carbonate. Alternatively, alkalinity concentration (as mg/L CaCO<sub>3</sub>) can be converted to carbonate concentration by multiplying by 0.60.

**Diversity index (H)** (Shannon index) is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$\bar{d} = -\sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n},$$

where  $n_i$  is the number of individuals per taxon,  $n$  is the total number of individuals, and  $s$  is the total number of taxa in the sample of the community. Index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

**Drainage area** of a stream at a specific location is that area upstream from the location, measured in a horizontal plane, that has a common outlet at the site for its surface runoff from precipitation that normally drains by gravity into a stream. Drainage areas given herein include all closed basins, or noncontributing areas, within the area unless otherwise specified.

**Drainage basin** is a part of the Earth’s surface that contains a drainage system with a common outlet for its surface runoff. (See “Drainage area”)

**Dry mass** refers to the mass of residue present after drying in an oven at 105 °C, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass. (See also “Ash mass,” “Biomass,” and “Wet mass”)

**Dry weight** refers to the weight of animal tissue after it has been dried in an oven at 65 °C until a

constant weight is achieved. Dry weight represents total organic and inorganic matter in the tissue. (See also “Wet weight”)

**Embeddedness** is the degree to which gravel-sized and larger particles are surrounded or enclosed by finer-sized particles. (See also “Substrate embeddedness class”)

**Enterococcus bacteria** are commonly found in the feces of humans and other warmblooded animals. Although some strains are ubiquitous and not related to fecal pollution, the presence of enterococci in water is an indication of fecal pollution and the possible presence of enteric pathogens. Enterococcus bacteria are those bacteria that produce pink to red colonies with black or reddish-brown precipitate after incubation at 41 °C on mE agar (nutrient medium for bacterial growth) and subsequent transfer to EIA medium. Enterococci include *Streptococcus faecalis*, *Streptococcus faecium*, *Streptococcus avium*, and their variants. (See also “Bacteria”)

**EPT Index** is the total number of distinct taxa within the insect orders Ephemeroptera, Plecoptera, and Trichoptera. This index summarizes the taxa richness within the aquatic insects that are generally considered pollution sensitive; the index usually decreases with pollution.

**Escherichia coli** (*E. coli*) are bacteria present in the intestine and feces of warmblooded animals. *E. coli* are a member species of the fecal coliform group of indicator bacteria. In the laboratory, they are defined as those bacteria that produce yellow or yellow-brown colonies on a filter pad saturated with urea substrate broth after primary culturing for 22 to 24 hours at 44.5 °C on mTEC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also “Bacteria”)

**Estimated (E) concentration value** is reported when an analyte is detected and all criteria for a positive result are met. If the concentration is less than the method detection limit (MDL), an ‘E’ code will be reported with the value. If the analyte is qualitatively identified as present, but the quantitative determination is substantially more uncertain, the National Water Quality Laboratory will identify the result with an ‘E’ code even though the measured value is greater than the MDL. A value reported with an ‘E’ code should be used with caution. When no analyte is detected in a sample, the

default reporting value is the MDL preceded by a less than sign (<).

**Euglenoids** (*Euglenophyta*) are a group of algae that are usually free-swimming and rarely creeping. They have the ability to grow either photosynthetically in the light or heterotrophically in the dark. (See also “Phytoplankton”)

**Extractable organic halides** (EOX) are organic compounds that contain halogen atoms such as chlorine. These organic compounds are semivolatile and extractable by ethyl acetate from air-dried streambed sediment. The ethyl acetate extract is combusted, and the concentration is determined by microcoulometric determination of the halides formed. The concentration is reported as micrograms of chlorine per gram of the dry weight of the streambed sediment.

**Fecal coliform bacteria** are present in the intestines or feces of warmblooded animals. They often are used as indicators of the sanitary quality of the water. In the laboratory, they are defined as all organisms that produce blue colonies within 24 hours when incubated at  $44.5 \times C$  plus or minus  $0.2 \times C$  on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also “Bacteria”)

**Fecal streptococcal bacteria** are present in the intestines of warmblooded animals and are ubiquitous in the environment. They are characterized as gram-positive, cocci bacteria that are capable of growth in brain-heart infusion broth. In the laboratory, they are defined as all the organisms that produce red or pink colonies within 48 hours at  $35 \times C$  plus or minus  $1.0 \times C$  on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample. (See also “Bacteria”)

**Fire algae** (*Pyrrhophyta*) are free-swimming unicells characterized by a red pigment spot. (See also “Phytoplankton”)

**Flow-duration percentiles** are values on a scale of 100 that indicate the percentage of time for which a flow is not exceeded. For example, the 90th percentile of river flow is greater than or equal to 90 percent of all recorded flow rates.

**Gage datum** is a horizontal surface used as a zero point for measurement of stage or gage height.

This surface usually is located slightly below the lowest point of the stream bottom such that the gage height is usually slightly greater than the maximum depth of water. Because the gage datum itself is not an actual physical object, the datum usually is defined by specifying the elevations of permanent reference marks such as bridge abutments and survey monuments, and the gage is set to agree with the reference marks. Gage datum is a local datum that is maintained independently of any national geodetic datum. However, if the elevation of the gage datum relative to the national datum (North American Vertical Datum of 1988 or National Geodetic Vertical Datum of 1929) has been determined, then the gage readings can be converted to elevations above the national datum by adding the elevation of the gage datum to the gage reading.

**Gage height** (G.H.) is the water-surface elevation, in feet above the gage datum. If the water surface is below the gage datum, the gage height is negative. Gage height often is used interchangeably with the more general term “stage,” although gage height is more appropriate when used in reference to a reading on a gage.

**Gage values** are values that are recorded, transmitted, and/or computed from a gaging station. Gage values typically are collected at 5-, 15-, or 30-minute intervals.

**Gaging station** is a site on a stream, canal, lake, or reservoir where systematic observations of stage, discharge, or other hydrologic data are obtained.

**Gas chromatography/flame ionization detector** (GC/FID) is a laboratory analytical method used as a screening technique for semivolatile organic compounds that are extractable from water in methylene chloride.

**Geomorphic channel units**, as used in this report, are fluvial geomorphic descriptors of channel shape and stream velocity. Pools, riffles, and runs are types of geomorphic channel units considered for National Water-Quality Assessment (NAWQA) Program habitat sampling.

**Green algae** have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating “moss” in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample. (See also “Phytoplankton”)

**Habitat**, as used in this report, includes all nonliving (physical) aspects of the aquatic ecosystem, although living components like aquatic macrophytes and riparian vegetation also are usually included. Measurements of habitat are typically made over a wider geographic scale than are measurements of species distribution.

**Habitat quality index** is the qualitative description (level 1) of instream habitat and riparian conditions surrounding the reach sampled. Scores range from 0 to 100 percent with higher scores indicative of desirable habitat conditions for aquatic life. Index only applicable to wadable streams.

**Hardness** of water is a physical-chemical characteristic that commonly is recognized by the increased quantity of soap required to produce lather. It is computed as the sum of equivalents of polyvalent cations (primarily calcium and magnesium) and is expressed as the equivalent concentration of calcium carbonate ( $\text{CaCO}_3$ ).

**High tide** is the maximum height reached by each rising tide. The high-high and low-high tides are the higher and lower of the two high tides, respectively, of each tidal day. *See NOAA web site: <http://www.co-ops.nos.noaa.gov/tideglos.html>*

**Hilsenhoff's Biotic Index (HBI)** is an indicator of organic pollution that uses tolerance values to weight taxa abundances; usually increases with pollution. It is calculated as follows:

$$HBI = \text{sum} \frac{(n)(a)}{N},$$

where  $n$  is the number of individuals of each taxon,  $a$  is the tolerance value of each taxon, and  $N$  is the total number of organisms in the sample.

**Horizontal datum** (See "Datum")

**Hydrologic index stations** referred to in this report are continuous-record gaging stations that have been selected as representative of streamflow patterns for their respective regions. Station locations are shown on index maps.

**Hydrologic unit** is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as defined by the former Office of Water Data Coordination and delineated on the

State Hydrologic Unit Maps by the USGS. Each hydrologic unit is identified by an 8-digit number.

**Inch (IN., in.)**, as used in this report, refers to the depth to which the drainage area would be covered with water if all of the runoff for a given time period were uniformly distributed on it. (See also "Annual runoff")

**Instantaneous discharge** is the discharge at a particular instant of time. (See also "Discharge")

**Island**, as used in this report, is a mid-channel bar that has permanent woody vegetation, is flooded once a year on average, and remains stable except during large flood events.

**Laboratory reporting level (LRL)** is generally equal to twice the yearly determined long-term method detection level (LT-MDL). The LRL controls false negative error. The probability of falsely reporting a nondetection for a sample that contained an analyte at a concentration equal to or greater than the LRL is predicted to be less than or equal to 1 percent. The value of the LRL will be reported with a "less than" (<) remark code for samples in which the analyte was not detected. The National Water Quality Laboratory (NWQL) collects quality-control data from selected analytical methods on a continuing basis to determine LT-MDLs and to establish LRLs. These values are reevaluated annually on the basis of the most current quality-control data and, therefore, may change. [Note: In several previous NWQL documents (NWQL Technical Memorandum 98.07, 1998), the LRL was called the nondetection value or NDV—a term that is no longer used.]

**Land-surface datum (lsd)** is a datum plane that is approximately at land surface at each ground-water observation well.

**Latent heat flux** (often used interchangeably with latent heat-flux density) is the amount of heat energy that converts water from liquid to vapor (evaporation) or from vapor to liquid (condensation) across a specified cross-sectional area per unit time. Usually expressed in watts per square meter.

**Light-attenuation coefficient**, also known as the extinction coefficient, is a measure of water clarity. Light is attenuated according to the Lambert-Beer equation:

$$I = I_o e^{-\lambda L} ,$$

where  $I_o$  is the source light intensity,  $I$  is the light intensity at length  $L$  (in meters) from the source,  $\lambda$  is the light-attenuation coefficient, and  $e$  is the base of the natural logarithm. The light-attenuation coefficient is defined as

$$\lambda = -\frac{1}{L} \log_e \frac{I}{I_o} .$$

**Lipid** is any one of a family of compounds that are insoluble in water and that make up one of the principal components of living cells. Lipids include fats, oils, waxes, and steroids. Many environmental contaminants such as organochlorine pesticides are lipophilic.

**Long-term method detection level (LT-MDL)** is a detection level derived by determining the standard deviation of a minimum of 24 method detection limit (MDL) spike sample measurements over an extended period of time. LT-MDL data are collected on a continuous basis to assess year-to-year variations in the LT-MDL. The LT-MDL controls false positive error. The chance of falsely reporting a concentration at or greater than the LT-MDL for a sample that did not contain the analyte is predicted to be less than or equal to 1 percent.

**Low tide** is the minimum height reached by each falling tide. The high-low and low-low tides are the higher and lower of the two low tides, respectively, of each tidal day. *See NOAA web site:*  
<http://www.co-ops.nos.noaa.gov/tideglos.html>

**Macrophytes** are the macroscopic plants in the aquatic environment. The most common macrophytes are the rooted vascular plants that usually are arranged in zones in aquatic ecosystems and restricted in the area by the extent of illumination through the water and sediment deposition along the shoreline.

**Mean concentration of suspended sediment** (Daily mean suspended-sediment concentration) is the time-weighted concentration of suspended sediment passing a stream cross section during a given time period. (See also “Daily mean suspended-sediment concentration” and “Suspended-sediment concentration”)

**Mean discharge** (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period. (See also “Discharge”)

**Mean high or low tide** is the average of all high or low tides, respectively, over a specific period.

**Mean sea level** is a local tidal datum. It is the arithmetic mean of hourly heights observed over the National Tidal Datum Epoch. Shorter series are specified in the name; for example, monthly mean sea level and yearly mean sea level. In order that they may be recovered when needed, such datums are referenced to fixed points known as benchmarks. (See also “Datum”)

**Measuring point** (MP) is an arbitrary permanent reference point from which the distance to water surface in a well is measured to obtain water level.

**Membrane filter** is a thin microporous material of specific pore size used to filter bacteria, algae, and other very small particles from water.

**Metamorphic stage** refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

**Method detection limit** (MDL) is the minimum concentration of a substance that can be measured and reported with 99-percent confidence that the analyte concentration is greater than zero. It is determined from the analysis of a sample in a given matrix containing the analyte. At the MDL concentration, the risk of a false positive is predicted to be less than or equal to 1 percent.

**Methylene blue active substances** (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

**Micrograms per gram** (UG/G, mg/g) is a unit expressing the concentration of a chemical constituent as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

**Micrograms per kilogram** (UG/KG, mg/kg) is a unit expressing the concentration of a chemical

constituent as the mass (micrograms) of the constituent per unit mass (kilogram) of the material analyzed. One microgram per kilogram is equivalent to 1 part per billion.

**Micrograms per liter** (UG/L, mg/L) is a unit expressing the concentration of chemical constituents in water as mass (micrograms) of constituent per unit volume (liter) of water. One thousand micrograms per liter is equivalent to 1 milligram per liter. One microgram per liter is equivalent to 1 part per billion.

**Microsiemens per centimeter** (US/CM, mS/cm) is a unit expressing the amount of electrical conductivity of a solution as measured between opposite faces of a centimeter cube of solution at a specified temperature. Siemens is the International System of Units nomenclature. It is synonymous with mhos and is the reciprocal of resistance in ohms.

**Milligrams per liter** (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in water as the mass (milligrams) of constituent per unit volume (liter) of water. Concentration of suspended sediment also is expressed in milligrams per liter and is based on the mass of dry sediment per liter of water-sediment mixture.

**Minimum reporting level** (MRL) is the smallest measured concentration of a constituent that may be reliably reported by using a given analytical method.

**Miscellaneous site**, miscellaneous station, or miscellaneous sampling site is a site where stream-flow, sediment, and/or water-quality data or water-quality or sediment samples are collected once, or more often on a random or discontinuous basis to provide better areal coverage for defining hydrologic and water-quality conditions over a broad area in a river basin.

**Most probable number** (MPN) is an index of the number of coliform bacteria that, more probably than any other number, would give the results shown by the laboratory examination; it is not an actual enumeration. MPN is determined from the distribution of gas-positive cultures among multiple inoculated tubes.

**Multiple-plate samplers** are artificial substrates of known surface area used for obtaining benthic invertebrate samples. They consist of a series of spaced, hardboard plates on an eyebolt.

**Nanograms per liter** (NG/L, ng/L) is a unit expressing the concentration of chemical constituents in solution as mass (nanograms) of solute per unit volume (liter) of water. One million nanograms per liter is equivalent to 1 milligram per liter.

**National Geodetic Vertical Datum of 1929** (NGVD of 1929) is a fixed reference adopted as a standard geodetic datum for elevations determined by leveling. It was formerly called "Sea Level Datum of 1929" or "mean sea level." Although the datum was derived from the mean sea level at 26 tide stations, it does not necessarily represent local mean sea level at any particular place.

*See NOAA website: <http://www.ngs.noaa.gov/faq.shtml#WhatVD29VD88> (See "North American Vertical Datum of 1988")*

**Natural substrate** refers to any naturally occurring immersed or submersed solid surface, such as a rock or tree, upon which an organism lives. (See also "Substrate")

**Nekton** are the consumers in the aquatic environment and consist of large free-swimming organisms that are capable of sustained, directed mobility.

**Nephelometric turbidity unit** (NTU) is the measurement for reporting turbidity that is based on use of a standard suspension of formazin. Turbidity measured in NTU uses nephelometric methods that depend on passing specific light of a specific wavelength through the sample.

**North American Vertical Datum of 1988** (NAVD 1988) is a fixed reference adopted as the official civilian vertical datum for elevations determined by Federal surveying and mapping activities in the United States. This datum was established in 1991 by minimum-constraint adjustment of the Canadian, Mexican, and United States first-order terrestrial leveling networks.

**Open or screened interval** is the length of unscreened opening or of well screen through which water enters a well, in feet below land surface.

**Organic carbon** (OC) is a measure of organic matter present in aqueous solution, suspension, or bottom sediment. May be reported as dissolved organic carbon (DOC), particulate organic carbon (POC), or total organic carbon (TOC).

**Organic mass or volatile mass** of a living substance is the difference between the dry mass and ash mass and represents the actual mass of the living matter. Organic mass is expressed in the same units as for ash mass and dry mass. (See also “Ash mass,” “Biomass,” and “Dry mass”)

**Organism count/area** refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square meter (m<sup>2</sup>), acre, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

**Organism count/volume** refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliter (mL) or liter (L). Numbers of planktonic organisms can be expressed in these terms.

**Organochlorine compounds** are any chemicals that contain carbon and chlorine. Organochlorine compounds that are important in investigations of water, sediment, and biological quality include certain pesticides and industrial compounds.

**Parameter code** is a 5-digit number used in the USGS computerized data system, National Water Information System (NWIS), to uniquely identify a specific constituent or property.

**Partial-record station** is a site where discrete measurements of one or more hydrologic parameters are obtained over a period of time without continuous data being recorded or computed. A common example is a crest-stage gage partial-record station at which only peak stages and flows are recorded.

**Particle size** is the diameter, in millimeters (mm), of a particle determined by sieve or sedimentation methods. The sedimentation method utilizes the principle of Stokes law to calculate sediment particle sizes. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube, sedi-graph) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

**Particle-size classification**, as used in this report, agrees with the recommendation made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay	>0.00024 - 0.004	Sedimentation
Silt	>0.004 - 0.062	Sedimentation
Sand	>0.062 - 2.0	Sedimenta-
		tion/sieve
Gravel	>2.0 - 64.0	Sieve
Cobble	>64 - 256	Manual mea-
		surement
Boulder	>256	Manual mea-
		surement

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. For the sedimentation method, most of the organic matter is removed, and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

**Peak flow (peak stage)** is an instantaneous local maximum value in the continuous time series of streamflows or stages, preceded by a period of increasing values and followed by a period of decreasing values. Several peak values ordinarily occur in a year. The maximum peak value in a year is called the annual peak; peaks lower than the annual peak are called secondary peaks. Occasionally, the annual peak may not be the maximum value for the year; in such cases, the maximum value occurs at midnight at the beginning or end of the year, on the recession from or rise toward a higher peak in the adjoining year. If values are recorded at a discrete series of times, the peak recorded value may be taken as an approximation of the true peak, which may occur between the recording instants. If the values are recorded with finite precision, a sequence of equal recorded values may occur at the peak; in this case, the first value is taken as the peak.

**Percent composition or percent of total** is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, weight, mass, or volume.

**Percent shading** is a measure of the amount of sunlight potentially reaching the stream. A clinometer is used to measure left and right bank canopy angles. These values are added together, divided by 180, and multiplied by 100 to compute percentage of shade.

**Periodic-record station** is a site where stage, discharge, sediment, chemical, physical, or other



hydrologic measurements are made one or more times during a year but at a frequency insufficient to develop a daily record.

**Periphyton** is the assemblage of microorganisms attached to and living upon submerged solid surfaces. Although primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton are useful indicators of water quality.

**Pesticides** are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

**pH** of water is the negative logarithm of the hydrogen-ion activity. Solutions with pH less than 7.0 standard units are termed "acidic," and solutions with a pH greater than 7.0 are termed "basic." Solutions with a pH of 7.0 are neutral. The presence and concentration of many dissolved chemical constituents found in water are affected, in part, by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms also are affected, in part, by the hydrogen-ion activity of water.

**Phytoplankton** is the plant part of the plankton. They are usually microscopic, and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment and commonly are known as algae. (See also "Plankton")

**Picocurie** (PC, pCi) is one trillionth ( $1 \times 10^{-12}$ ) of the amount of radioactive nuclide represented by a curie (Ci). A curie is the quantity of radioactive nuclide that yields  $3.7 \times 10^{10}$  radioactive disintegrations per second (dps). A picocurie yields 0.037 dps, or 2.22 dpm (disintegrations per minute).

**Plankton** is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers. Concentrations are expressed as a number of cells per milliliter (cells/mL) of sample.

**Polychlorinated biphenyls** (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

**Polychlorinated naphthalenes** (PCNs) are industrial chemicals that are mixtures of chlorinated naphthalene compounds. They have properties and applications similar to polychlorinated biphenyls (PCBs) and have been identified in commercial PCB preparations.

**Pool**, as used in this report, is a small part of a stream reach with little velocity, commonly with water deeper than surrounding areas.

**Primary productivity** is a measure of the rate at which new organic matter is formed and accumulated through photo-synthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated (carbon method) by the plants.

**Primary productivity (carbon method)** is expressed as milligrams of carbon per area per unit time [ $\text{mg C}/(\text{m}^2/\text{time})$ ] for periphyton and macrophytes or per volume [ $\text{mg C}/(\text{m}^3/\text{time})$ ] for phytoplankton. The carbon method defines the amount of carbon dioxide consumed as measured by radioactive carbon (carbon-14). The carbon-14 method is of greater sensitivity than the oxygen light and dark bottle method and is preferred for use with unenriched water samples. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

**Primary productivity (oxygen method)** is expressed as milligrams of oxygen per area per unit time [ $\text{mg O}/(\text{m}^2/\text{time})$ ] for periphyton and macrophytes or per volume [ $\text{mg O}/(\text{m}^3/\text{time})$ ] for phytoplankton. The oxygen method defines production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period. (See also "Primary productivity")

**Radioisotopes** are isotopic forms of elements that exhibit radioactivity. Isotopes are varieties of a

chemical element that differ in atomic weight but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus; for example, ordinary chlorine is a mixture of isotopes having atomic weights of 35 and 37, and the natural mixture has an atomic weight of about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron. There are 275 isotopes of the 81 stable elements, in addition to more than 800 radioactive isotopes.

**Reach**, as used in this report, is a length of stream that is chosen to represent a uniform set of physical, chemical, and biological conditions within a segment. It is the principal sampling unit for collecting physical, chemical, and biological data.

**Recoverable from bed (bottom) material** is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. (See also "Bed material")

**Recurrence interval**, also referred to as return period, is the average time, usually expressed in years, between occurrences of hydrologic events of a specified type (such as exceedances of a specified high flow or nonexceedance of a specified low flow). The terms "return period" and "recurrence interval" do not imply regular cyclic occurrence. The actual times between occurrences vary randomly, with most of the times being less than the average and a few being substantially greater than the average. For example, the 100-year flood is the flow rate that is exceeded by the annual maximum peak flow at intervals whose average length is 100 years (that is, once in 100 years, on average); almost two-thirds of all exceedances of the 100-year flood occur less than 100 years after the previous exceedance, half occur less than 70 years after the previous exceedance, and about one-eighth occur more than 200 years after the previous

exceedance. Similarly, the 7-day, 10-year low flow ( $7Q_{10}$ ) is the flow rate below which the annual minimum 7-day-mean flow dips at intervals whose average length is 10 years (that is, once in 10 years, on average); almost two-thirds of the nonexceedances of the  $7Q_{10}$  occur less than 10 years after the previous nonexceedance, half occur less than 7 years after, and about one-eighth occur more than 20 years after the previous nonexceedance. The recurrence interval for annual events is the reciprocal of the annual probability of occurrence. Thus, the 100-year flood has a 1-percent chance of being exceeded by the maximum peak flow in any year, and there is a 10-percent chance in any year that the annual minimum 7-day-mean flow will be less than the  $7Q_{10}$ .

**Replicate samples** are a group of samples collected in a manner such that the samples are thought to be essentially identical in composition.

**Return period** (See "Recurrence interval")

**Riffle**, as used in this report, is a shallow part of the stream where water flows swiftly over completely or partially submerged obstructions to produce surface agitation.

**River mileage** is the curvilinear distance, in miles, measured upstream from the mouth along the meandering path of a stream channel in accordance with Bulletin No. 14 (October 1968) of the Water Resources Council and typically is used to denote location along a river.

**Run**, as used in this report, is a relatively shallow part of a stream with moderate velocity and little or no surface turbulence.

**Runoff** is the quantity of water that is discharged ("runs off") from a drainage basin during a given time period. Runoff data may be presented as volumes in acre-feet, as mean discharges per unit of drainage area in cubic feet per second per square mile, or as depths of water on the drainage basin in inches. (See also "Annual runoff")

**Sea level**, as used in this report, refers to one of the two commonly used national vertical datums (NGVD 1929 or NAVD 1988). See separate entries for definitions of these datums.

**Sediment** is solid material that originates mostly from disintegrated rocks; when transported by, suspended in, or deposited from water, it is referred to as "fluvial sediment." Sediment includes chemical

and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are affected by environmental and land-use factors. Some major factors are topography, soil characteristics, land cover, and depth and intensity of pre-cipitation.

**Sensible heat flux** (often used interchangeably with latent sensible heat-flux density) is the amount of heat energy that moves by turbulent transport through the air across a specified cross-sectional area per unit time and goes to heating (cooling) the air. Usually expressed in watts per square meter.

**Seven-day, 10-year low flow** ( $7Q_{10}$ ) is the discharge below which the annual 7-day minimum flow falls in 1 year out of 10 on the long-term average. The recurrence interval of the  $7Q_{10}$  is 10 years; the chance that the annual 7-day minimum flow will be less than the  $7Q_{10}$  is 10 percent in any given year. (See also "Annual 7-day minimum" and "Recurrence interval")

**Shelves**, as used in this report, are streambank features extending nearly horizontally from the flood plain to the lower limit of persistent woody vegetation.

**Sodium adsorption ratio** (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Sodium hazard in water is an index that can be used to evaluate the suitability of water for irrigating crops.

**Soil heat flux** (often used interchangeably with soil heat-flux density) is the amount of heat energy that moves by conduction across a specified cross-sectional area of soil per unit time and goes to heating (or cooling) the soil. Usually expressed in watts per square meter.

**Soil-water content** is the water lost from the soil upon drying to constant mass at  $105 \times C$ ; expressed either as mass of water per unit mass of dry soil or as the volume of water per unit bulk volume of soil.

**Specific electrical conductance (conductivity)** is a measure of the capacity of water (or other media) to conduct an electrical current. It is expressed in microsiemens per centimeter at  $25 \times C$ . Specific electrical conductance is a function of the types and quantity of dissolved substances in water and can be used for approximating the dissolved-solids

content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is from 55 to 75 percent of the specific conductance (in microsiemens). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

**Stable isotope ratio** (per MIL) is a unit expressing the ratio of the abundance of two radioactive isotopes. Isotope ratios are used in hydrologic studies to determine the age or source of specific water, to evaluate mixing of different water, as an aid in determining reaction rates, and other chemical or hydrologic processes.

**Stage** (See "Gage height")

**Stage-discharge relation** is the relation between the water-surface elevation, termed stage (gage height), and the volume of water flowing in a channel per unit time.

**Streamflow** is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

**Substrate** is the physical surface upon which an organism lives.

**Substrate embeddedness class** is a visual estimate of riffle streambed substrate larger than gravel that is surrounded or covered by fine sediment (<2mm, sand or finer). Below are the class categories expressed as the percentage covered by fine sediment:

0	no gravel or larger substrate percent	3	26-50 percent
1	> 75 percent	4	5-25 percent
2	51-75 percent	5	< 5 percent

**Surface area of a lake** is that area (acres) encompassed by the boundary of the lake as shown on USGS topographic maps, or other available maps or photographs. Because surface area changes with lake stage, surface areas listed in this report represent those determined for the stage at the time the maps or photographs were obtained.

**Surficial bed material** is the upper surface (0.1 to 0.2 foot) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

**Suspended** (as used in tables of chemical analyses) refers to the amount (concentration) of undissolved material in a water-sediment mixture. It is defined operationally as the material retained on a 0.45-micrometer filter.

**Suspended, recoverable** is the amount of a given constituent that is in solution after the part of a representative suspended water-sediment sample that is retained on a 0.45-micrometer membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the “total” amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results. Determinations of “suspended, recoverable” constituents are made either by directly analyzing the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total recoverable concentrations of the constituent. (See also “Suspended”)

**Suspended sediment** is the sediment maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid. (See also “Sediment”)

**Suspended-sediment concentration** is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 foot above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L). The analytical technique uses the mass of all of the sediment and the net weight of the water-sediment mixture in a sample to compute the suspended-sediment concentration. (See also “Sediment” and “Suspended sediment”)

**Suspended-sediment discharge** (tons/d) is the rate of sediment transport, as measured by dry mass or volume, that passes a cross section in a given time. It is calculated in units of tons per day as follows: concentration (mg/L) x discharge (ft<sup>3</sup>/s) x 0.0027. (See also “Sediment,” “Suspended sediment,” and “Suspended-sediment concentration”)

**Suspended-sediment load** is a general term that refers to a given characteristic of the material in suspension that passes a point during a specified period of time. The term needs to be qualified, such as “annual suspended-sediment load” or “sand-size suspended-sediment load,” and so on. It is not synonymous with either suspended-sediment discharge or concentration. (See also “Sediment”)

**Suspended, total** is the total amount of a given constituent in the part of a water-sediment sample that is retained on a 0.45-micrometer membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. Knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as “suspended, total.” Determinations of “suspended, total” constituents are made either by directly analyzing portions of the suspended material collected on the filter or, more commonly, by difference, on the basis of determinations of (1) dissolved and (2) total concentrations of the constituent. (See also “Suspended”)

**Suspended solids, total residue at 105 °C concentration** is the concentration of inorganic and organic material retained on a filter, expressed as milligrams of dry material per liter of water (mg/L). An aliquot of the sample is used for this analysis.

**Synoptic studies** are short-term investigations of specific water-quality conditions during selected seasonal or hydro-logic periods to provide improved spatial resolution for critical water-quality conditions. For the period and conditions sampled, they assess the spatial distribution of selected water-quality conditions in relation to causative factors, such as land use and contaminant sources.

**Taxa (Species) richness** is the number of species (taxa) present in a defined area or sampling unit.

**Taxonomy** is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchical scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, *Hexagenia limbata*, is the following:

Kingdom:	Animal
Phylum:	Arthropoda

Class:	Insecta
Order:	Ephemeroptera
Family:	Ephemeridae
Genus:	<i>Hexagenia</i>
Species:	<i>Hexagenia limbata</i>

**Thalweg** is the line formed by connecting points of minimum streambed elevation (deepest part of the channel).

**Thermograph** is an instrument that continuously records variations of temperature on a chart. The more general term “temperature recorder” is used in the table descriptions and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

**Time-weighted average** is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water resulting from the mixing of flow proportionally to the duration of the concentration.

**Tons per acre-foot** (T/acre-ft) is the dry mass (tons) of a constituent per unit volume (acre-foot) of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter, by 0.00136.

**Tons per day** (T/DAY, tons/d) is a common chemical or sediment discharge unit. It is the quantity of a substance in solution, in suspension, or as bedload that passes a stream section during a 24-hour period. It is equivalent to 2,000 pounds per day, or 0.9072 metric tons per day.

**Total** is the amount of a given constituent in a representative whole-water (unfiltered) sample, regardless of the constituent’s physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as “total.” (Note that the word “total” does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined at least 95 percent of the constituent in the sample.)

**Total coliform bacteria** are a particular group of bacteria that are used as indicators of possible sewage pollution. This group includes coliforms that inhabit the intestine of warmblooded animals and those that inhabit soils. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria that ferment lactose with gas formation within 48 hours at 35 °C. In the laboratory, these bacteria are defined as all the organisms that produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35 °C plus or minus 1.0 °C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 milliliters of sample. (See also “Bacteria”)

**Total discharge** is the quantity of a given constituent, measured as dry mass or volume, that passes a stream cross section per unit of time. When referring to constituents other than water, this term needs to be qualified, such as “total sediment discharge,” “total chloride discharge,” and so on.

**Total in bottom material** is the amount of a given constituent in a representative sample of bottom material. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as “total in bottom material.”

**Total length** (fish) is the straight-line distance from the anterior point of a fish specimen’s snout, with the mouth closed, to the posterior end of the caudal (tail) fin, with the lobes of the caudal fin squeezed together.

**Total load** refers to all of a constituent in transport. When referring to sediment, it includes suspended load plus bed load.

**Total organism count** is the number of organisms collected and enumerated in any particular sample. (See also “Organism count/volume”)

**Total recoverable** is the amount of a given constituent in a whole-water sample after a sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the “total” amount (that

is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data for whole-water samples, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures may produce different analytical results.

**Total sediment discharge** is the mass of suspended-sediment plus bed-load transport, measured as dry weight, that passes a cross section in a given time. It is a rate and is reported as tons per day. (See also “Bedload,” “Bedload discharge,” “Sediment,” “Suspended sediment,” and “Suspended-sediment concentration”)

**Total sediment load** or **total load** is the sediment in transport as bedload and suspended-sediment load. The term may be qualified, such as “annual suspended-sediment load” or “sand-size suspended-sediment load,” and so on. It differs from total sediment discharge in that load refers to the material, whereas discharge refers to the quantity of material, expressed in units of mass per unit time. (See also “Sediment,” “Suspended-sediment load,” and “Total load”)

**Transect**, as used in this report, is a line across a stream perpendicular to the flow and along which measurements are taken, so that morphological and flow characteristics along the line are described from bank to bank. Unlike a cross section, no attempt is made to determine known elevation points along the line.

**Turbidity** is the reduction in the transparency of a solution due to the presence of suspended and some dissolved substances. The measurement technique records the collective optical properties of the solution that cause light to be scattered and attenuated rather than transmitted in straight lines; the higher the intensity of scattered or attenuated light, the higher the value of the turbidity. Turbidity is expressed in nephelometric turbidity units (NTU). Depending on the method used, the turbidity units as NTU can be defined as the intensity of light of a specified wavelength scattered or attenuated by suspended particles or absorbed at a method specified angle, usually 90 degrees, from the path of the incident light. Currently approved methods for the measurement of turbidity in the USGS include those that conform to U.S. EPA Method 180.1, ASTM D1889-00, and ISO 7027. Measurements of turbidity by these different methods and different instruments are unlikely to yield equivalent values.

**Ultraviolet (UV) absorbance (absorption)** at 254 or 280 nanometers is a measure of the aggregate concentration of the mixture of UV absorbing organic materials dissolved in the analyzed water, such as lignin, tannin, humic substances, and various aromatic compounds. UV absorbance (absorption) at 254 or 280 nanometers is measured in UV absorption units per centimeter of pathlength of UV light through a sample.

**Unconfined aquifer** is an aquifer whose upper surface is a water table free to fluctuate under atmospheric pressure. (See “Water-table aquifer”)

**Vertical datum** (See “Datum”)

**Volatile organic compounds (VOCs)** are organic compounds that can be isolated from the water phase of a sample by purging the water sample with inert gas, such as helium, and subsequently analyzed by gas chromatography. Many VOCs are human-made chemicals that are used and produced in the manufacture of paints, adhesives, petroleum products, pharmaceuticals, and refrigerants. They are often components of fuels, solvents, hydraulic fluids, paint thinners, and dry cleaning agents commonly used in urban settings. VOC contamination of drinking-water supplies is a human health concern because many are toxic and are known or suspected human carcinogens.

**Water table** is that surface in a ground-water body at which the water pressure is equal to the atmospheric pressure.

**Water-table aquifer** is an unconfined aquifer within which the water table is found.

**Water year** in USGS reports dealing with surface-water supply is the 12-month period October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 2002, is called the “2002 water year.”

**WDR** is used as an abbreviation for “Water-Data Report” in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports. (WRD was used as an abbreviation for “Water-Resources Data” in reports published prior to 1976.)

**Weighted average** is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by

the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

**Wet mass** is the mass of living matter plus contained water. (See also “Biomass” and “Dry mass”)

**Wet weight** refers to the weight of animal tissue or other substance including its contained water. (See also “Dry weight”)

**WSP** is used as an acronym for “Water-Supply Paper” in reference to previously published reports.

**Zooplankton** is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and often are large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers. (See also “Plankton”)

## PUBLICATIONS ON TECHNIQUES OF WATER-RESOURCES INVESTIGATIONS

The USGS publishes a series of manuals titled the "Techniques of Water-Resources Investigations" (TWRI) that describe procedures for planning and conducting specialized work in water-resources investigations. The material in these manuals is grouped under major subject headings called books and is further divided into sections and chapters. For example, section A of book 3 (Applications of Hydraulics) pertains to surface water. Each chapter then is limited to a narrow field of the section subject matter. This publication format permits flexibility when revision or printing is required.

Manuals in the TWRI series, which are listed below, are available online at <http://water.usgs.gov/pubs/twri/>. Printed copies are available for sale from the USGS, Information Services, Box 25286, Federal Center, Denver, Colorado 80225 (an authorized agent of the Superintendent of Documents, Government Printing Office). Please telephone "1-888-ASK-USGS" for current prices, and refer to the title, book number, section number, chapter number, and mention the "U.S. Geological Survey Techniques of Water-Resources Investigations." Other products can be viewed online at <http://www.usgs.gov/sales.html>, or ordered by telephone or by FAX to (303)236-4693. Order forms for FAX requests are available online at <http://mac.usgs.gov/isb/pubs/forms/>. Prepayment by major credit card or by a check or money order payable to the "U.S. Geological Survey" is required.

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#### Section D. Water Quality

- 1-D1. *Water temperature—influential factors, field measurement, and data presentation*, by H.H. Stevens, Jr., J.F. Ficke, and G. F. Smoot: USGS–TWRI book 1, chap. D1. 1975. 65 p.
- 1-D2. *Guidelines for collection and field analysis of ground-water samples for selected unstable constituents*, by W.W. Wood: USGS–TWRI book 1, chap. D2. 1976. 24 p.

### Book 2. Collection of Environmental Data

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- 2-D1. *Application of surface geophysics to ground-water investigations*, by A.A. R. Zohdy, G.P. Eaton, and D.R. Mabey: USGS–TWRI book 2, chap. D1. 1974. 116 p.

- 2-D2. *Application of seismic-refraction techniques to hydrologic studies*, by F.P. Haeni: USGS–TWRI book 2, chap. D2. 1988. 86 p.

#### Section E. Subsurface Geophysical Methods

- 2-E1. *Application of borehole geophysics to water-resources investigations*, by W.S. Keys and L.M. MacCary: USGS–TWRI book 2, chap. E1. 1971. 126 p.
- 2-E2. *Borehole geophysics applied to ground-water investigations*, by W.S. Keys: USGS–TWRI book 2, chap. E2. 1990. 150 p.

#### Section F. Drilling and Sampling Methods

- 2-F1. *Application of drilling, coring, and sampling techniques to test holes and wells*, by Eugene Shuter and W.E. Teasdale: USGS–TWRI book 2, chap. F1. 1989. 97 p.

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- 3-A9. *Measurement of time of travel in streams by dye tracing*, by F.A. Kilpatrick and J.F. Wilson, Jr.: USGS–TWRI book 3, chap. A9. 1989. 27 p.



- 3-A10. *Discharge ratings at gaging stations*, by E.J. Kennedy: USGS–TWRI book 3, chap. A10. 1984. 59 p.
- 3-A11. *Measurement of discharge by the moving-boat method*, by G.F. Smoot and C.E. Novak: USGS–TWRI book 3, chap. A11. 1969. 22 p.
- 3-A12. *Fluorometric procedures for dye tracing*, Revised, by J.F. Wilson, Jr., E.D. Cobb, and F.A. Kilpatrick: USGS–TWRI book 3, chap. A12. 1986. 34 p.
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- 3-A21. *Stream-gaging cableways*, by C. Russell Wagner: USGS–TWRI book 3, chap. A21. 1995. 56 p.
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- 3-B3. *Type curves for selected problems of flow to wells in confined aquifers*, by J.E. Reed: USGS–TWRI book 3, chap. B3. 1980. 106 p.
- 3-B4. *Regression modeling of ground-water flow*, by R.L. Cooley and R.L. Naff: USGS–TWRI book 3, chap. B4. 1990. 232 p.
- 3-B4. *Supplement 1. Regression modeling of ground-water flow --Modifications to the computer code for nonlinear regression solution of steady-state ground-water flow problems*, by R.L. Cooley: USGS–TWRI book 3, chap. B4. 1993. 8 p.
- 3-B5. *Definition of boundary and initial conditions in the analysis of saturated ground-water flow systems—An introduction*, by O.L. Franke, T.E. Reilly, and G.D. Bennett: USGS–TWRI book 3, chap. B5. 1987. 15 p.
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- 3-B8. *System and boundary conceptualization in ground-water systems with uniform flow*, by T.E. Reilly: USGS–TWRI book 3, chap. B8. 2001. 29p.
- Section C. Sedimentation and Erosion Techniques**
- 3-C1. *Fluvial sediment concepts*, by H.P. Guy: USGS–TWRI book 3, chap. C1. 1970. 55 p.
- 3-C2. *Field methods for measurement of fluvial sediment*, by T.K. Edwards and G.D. Glysson: USGS–TWRI book 3, chap. C2. 1999. 89 p.
- 3-C3. *Computation of fluvial-sediment discharge*, by George Porterfield: USGS–TWRI book 3, chap. C3. 1972. 66 p.
- Book 4. Hydrologic Analysis and Interpretation**
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- 4-A1. *Some statistical tools in hydrology*, by H.C. Riggs: USGS–TWRI book 4, chap. A1. 1968. 39 p.

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- 4-A2. *Frequency curves*, by H.C. Riggs: USGS-TWRI book 4, chap. A2. 1968. 15 p.
- 4-A3. Statistical methods in water resources, by D.R. Helsel and R.M. Hirsch: USGS-TWRI book 4, chap. A3. 1991. Available only online at <http://water.usgs.gov/pubs/twri/twri4a3/>. (Accessed August 30, 2002.)

**Section B. Surface Water**

- 4-B1. *Low-flow investigations*, by H.C. Riggs: USGS-TWRI book 4, chap. B1. 1972. 18 p.
- 4-B2. *Storage analyses for water supply*, by H.C. Riggs and C.H. Hardison: USGS-TWRI book 4, chap. B2. 1973. 20 p.
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- 5-A1. *Methods for determination of inorganic substances in water and fluvial sediments*, by M.J. Fishman and L.C. Friedman, editors: USGS-TWRI book 5, chap. A1. 1989. 545 p.
- 5-A2. *Determination of minor elements in water by emission spectroscopy*, by P.R. Barnett and E.C. Mallory, Jr.: USGS-TWRI book 5, chap. A2. 1971. 31 p.
- 5-A3. *Methods for the determination of organic substances in water and fluvial sediments*, edited by R.L. Wershaw, M.J. Fishman, R.R. Grabbe, and L.E. Lowe: USGS-TWRI book 5, chap. A3. 1987. 80 p.
- 5-A4. *Methods for collection and analysis of aquatic biological and microbiological samples*, by L.J. Britton and P.E. Greeson, editors: USGS-TWRI book 5, chap. A4. 1989. 363 p.
- 5-A5. *Methods for determination of radioactive substances in water and fluvial sediments*, by L.L. Thatcher, V.J. Janzer, and K.W.

Edwards: USGS-TWRI book 5, chap. A5. 1977. 95 p.

- 5-A6. *Quality assurance practices for the chemical and biological analyses of water and fluvial sediments*, by L.C. Friedman and D.E. Erdmann: USGS-TWRI book 5, chap. A6. 1982. 181 p.

**Section C. Sediment Analysis**

- 5-C1. *Laboratory theory and methods for sediment analysis*, by H.P. Guy: USGS-TWRI book 5, chap. C1. 1969. 58 p.

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- 6-A1. *A modular three-dimensional finite-difference ground-water flow model*, by M.G. McDonald and A.W. Harbaugh: USGS-TWRI book 6, chap. A1. 1988. 586 p.
- 6-A2. *Documentation of a computer program to simulate aquifer-system compaction using the modular finite-difference ground-water flow model*, by S.A. Leake and D.E. Prudic: USGS-TWRI book 6, chap. A2. 1991. 68 p.
- 6-A3. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 1: Model Description and User's Manual*, by L.J. Torak: USGS-TWRI book 6, chap. A3. 1993. 136 p.
- 6-A4. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 2: Derivation of finite-element equations and comparisons with analytical solutions*, by R.L. Cooley: USGS-TWRI book 6, chap. A4. 1992. 108 p.
- 6-A5. *A modular finite-element model (MODFE) for areal and axisymmetric ground-water-flow problems, Part 3: Design philosophy and programming details*, by L.J. Torak: USGS-TWRI book 6, chap. A5, 1993. 243 p.
- 6-A6. *A coupled surface-water and ground-water flow model (MODBRANCH) for simulation of stream-aquifer interaction*, by E.D. Swain and E.J. Wexler. 1996. 125 p.
- 6-A7. *User's guide to SEAWAT: A computer program for simulation of three-dimensional variable-density ground-water flow*, by Weixing Guo and C.D. Langevin: USGS-TWRI book 6, chap. A7, 2002, 77p.

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- 7-C1. *Finite difference model for aquifer simulation in two dimensions with results of numerical experiments*, by P.C. Trescott, G.F. Pinder, and S.P. Larson: USGS-TWRI book 7, chap. C1. 1976. 116 p.
- 7-C2. *Computer model of two-dimensional solute transport and dispersion in ground water*, by L.F. Konikow and J.D. Bredehoeft: USGS-TWRI book 7, chap. C2. 1978. 90 p.
- 7-C3. *A model for simulation of flow in singular and interconnected channels*, by R.W. Schaffranek, R.A. Baltzer, and D.E. Goldberg: USGS-TWRI book 7, chap. C3. 1981. 110 p.

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- 8-A2. *Installation and service manual for U.S. Geological Survey manometers*, by J.D. Craig: USGS-TWRI book 8, chap. A2. 1983. 57 p.

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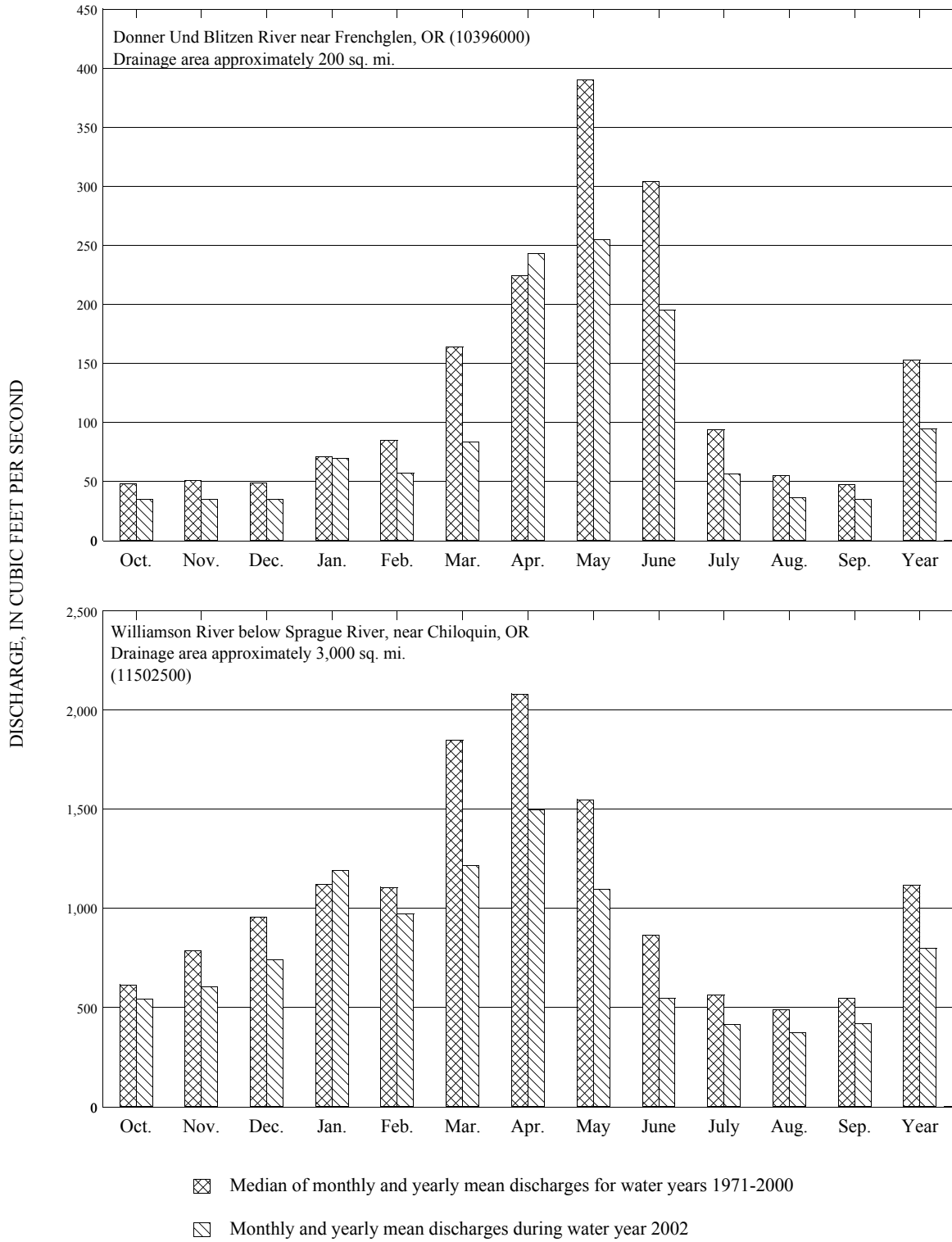
**Book 9. Handbooks for Water-Resources Investigations**

**Section A. National Field Manual for the Collection of Water-Quality Data**

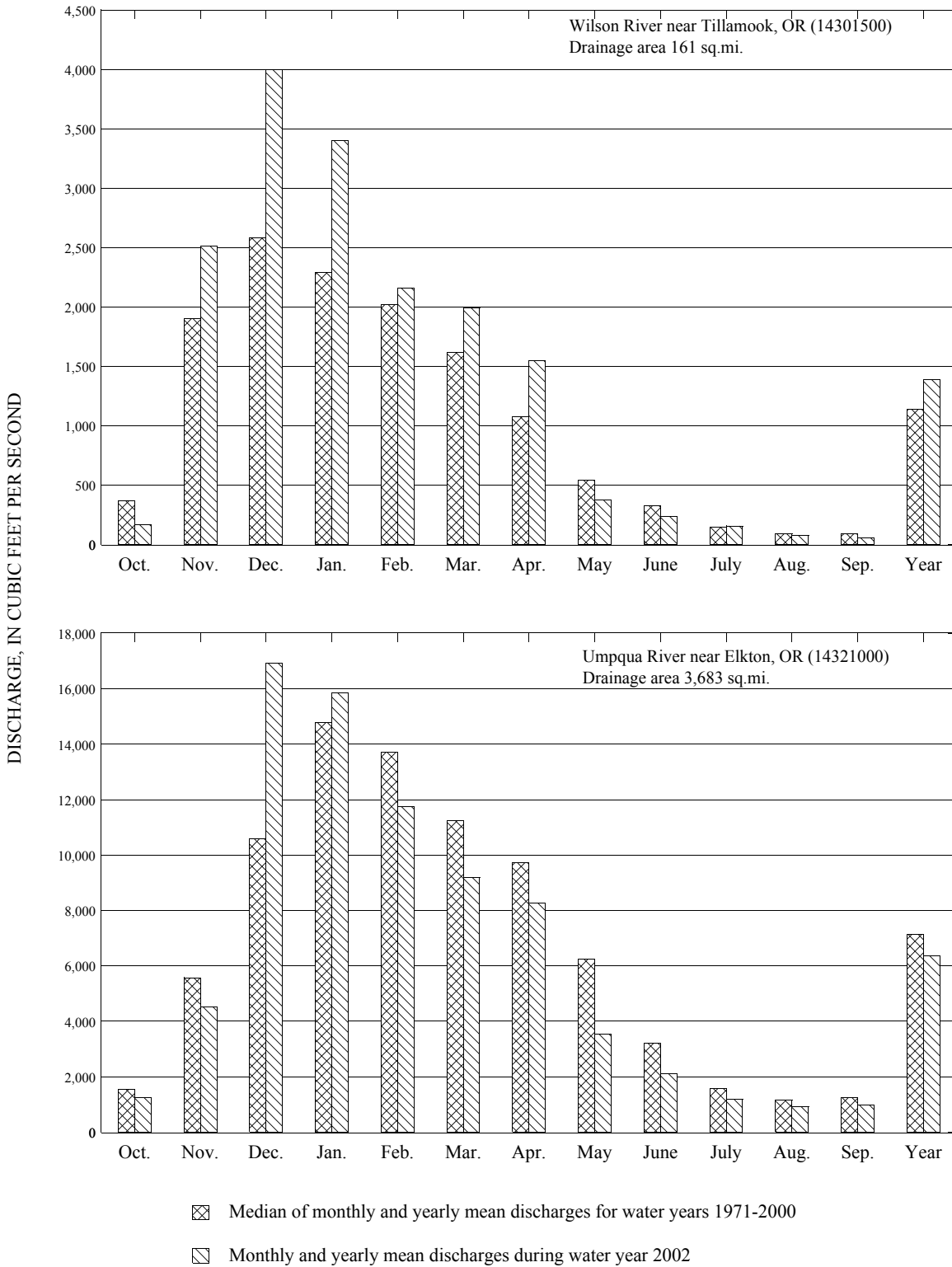
- 9-A1. *National Field Manual for the Collection of Water-Quality Data: Preparations for Water Sampling*, by F.D. Wilde, D.B.

Radtke, J. Gibs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A1. 1998. 47 p.

- 9-A2. *National Field Manual for the Collection of Water-Quality Data: Selection of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A2. 1998. 94 p.
- 9-A3. *National Field Manual for the Collection of Water-Quality Data: Cleaning of Equipment for Water Sampling*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A3. 1998. 75 p.
- 9-A4. *National Field Manual for the Collection of Water-Quality Data*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A4. 1999. 156 p.
- 9-A5. *National Field Manual for the Collection of Water-Quality Data: Processing of Water Samples*, edited by F.D. Wilde, D.B. Radtke, Jacob Gibs, and R.T. Iwatsubo: USGS-TWRI book 9, chap. A5. 1999. 149 p.
- 9-A6. *National Field Manual for the Collection of Water-Quality Data: Field Measurements*, edited by F.D. Wilde and D.B. Radtke: USGS-TWRI book 9, chap. A6. 1998. Variousy paginated.
- 9-A7. *National Field Manual for the Collection of Water-Quality Data: Biological Indicators*, edited by D.N. Myers and F.D. Wilde: USGS-TWRI book 9, chap. A7. 1997 and 1999. Variousy paginated.
- 9-A8. *National Field Manual for the Collection of Water-Quality Data: Bottom-material samples*, by D.B. Radtke: USGS-TWRI book 9, chap. A8. 1998. 48 pages.
- 9-A9. *National Field Manual for the Collection of Water-Quality Data: Safety in Field Activities*, by S.L. Lane and R.G. Fay: USGS-TWRI book 9, chap. A9. 1998. 60 p.



**Figure 3.** Discharge during 2002 water year compared with median discharge for period 1971-2000 for two representative gaging stations in Eastern Oregon.



**Figure 4.** Discharge during 2002 water year compared with median discharge for period 1971-2000 for two representative gaging stations in Western Oregon.



**SURFACE-WATER-DISCHARGE AND SURFACE-WATER-QUALITY RECORDS****Remarks Codes**

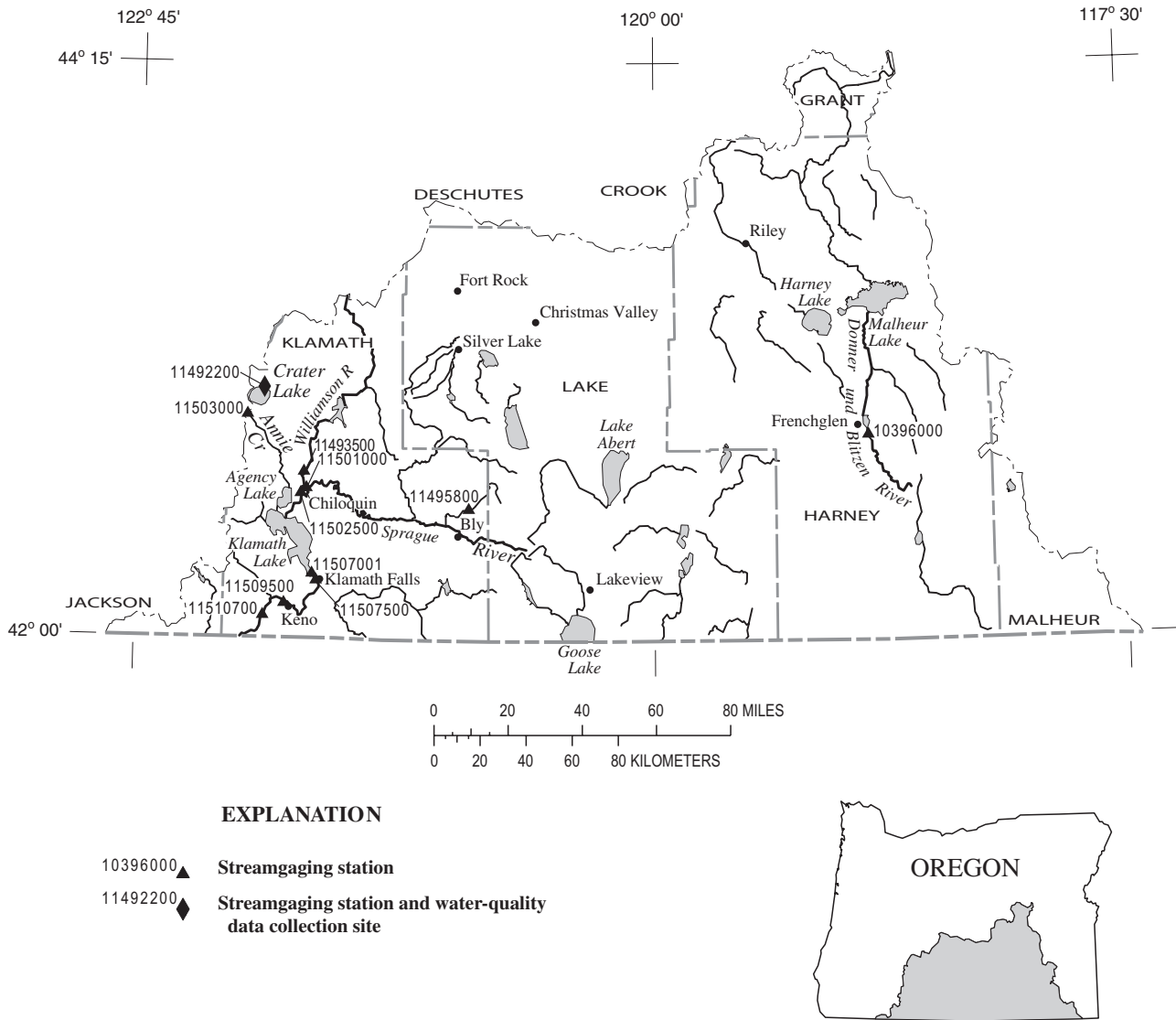
The following remark codes may appear with the water-quality data in this section:

<b>PRINT OUTPUT</b>	<b>REMARK</b>
<b>E</b>	<b>Value is estimated.</b>
<b>&gt;</b>	<b>Actual value is known to be greater than the value shown.</b>
<b>&lt;</b>	<b>Actual value is known to be less than the value shown.</b>
<b>M</b>	<b>Presence of material verified, but not quantified.</b>
<b>N</b>	<b>Presumptive evidence of presence of material.</b>
<b>U</b>	<b>Material specifically analyzed for, but not detected.</b>
<b>A</b>	<b>Value is an average.</b>
<b>V</b>	<b>Analyte was detected in both the environmental sample and the associated blanks</b>
<b>S</b>	<b>Most probable value.</b>



**Figure 5.** Location map of major drainage basins in Oregon.





**Figure 6.** Location of surface-water and water-quality stations in The Great Basin and the Klamath River Basin.



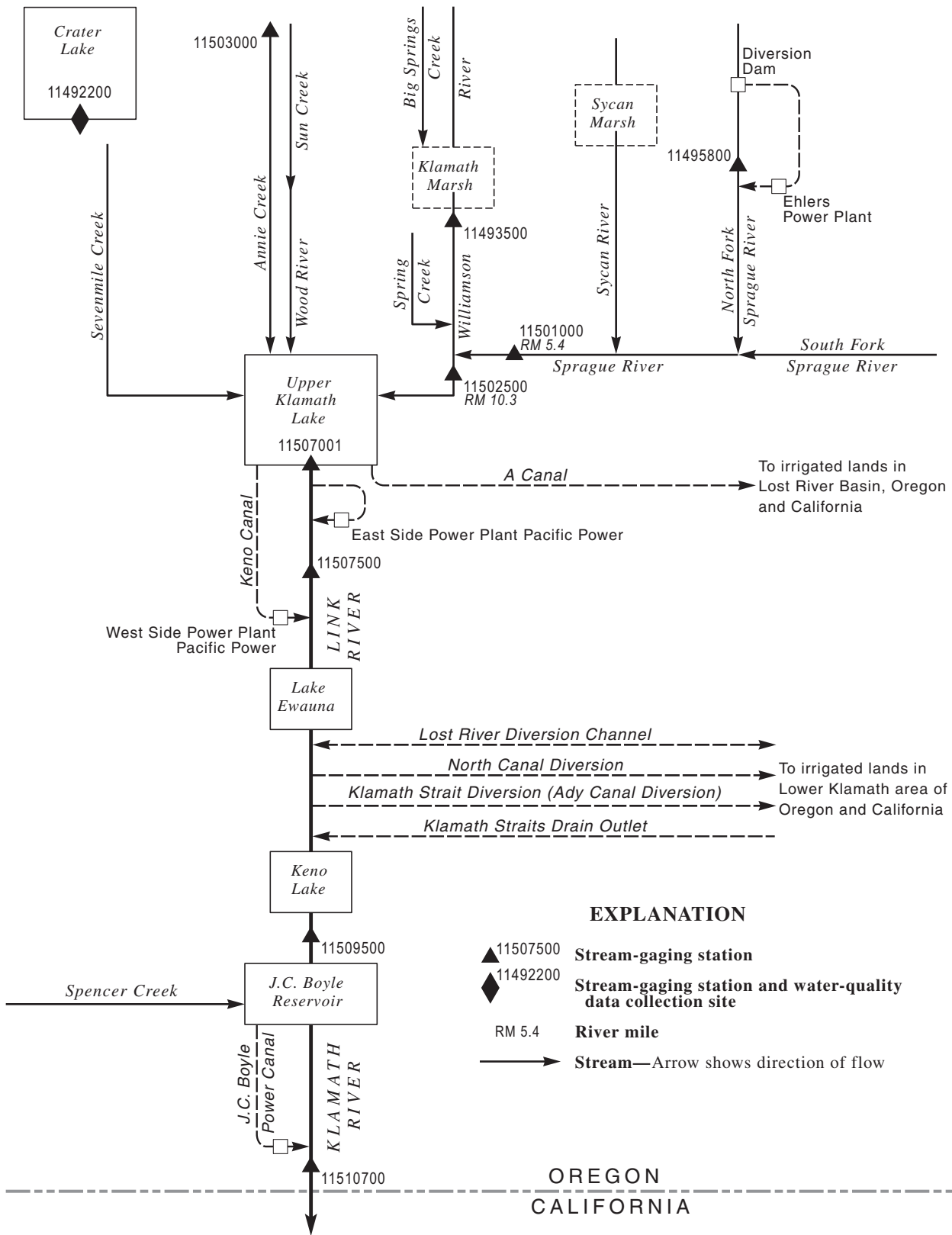


Figure 7. Schematic diagram showing gaging stations and major diversions in the Klamath Basin in Oregon.



KLAMATH RIVER BASIN

11492200 CRATER LAKE NEAR CRATER LAKE, OR

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1963 to current year.

INSTRUMENTATION.--Temperature recorder from October 1963 to current year. Elevation of probe is approximately 6,140 ft above sea level.

REMARKS.--Records good. Records represent water temperature at the probe and are not necessarily representative of the entire lake.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum 18.5°C Aug. 9, 10, 1978, several days in July and August, 1994, Aug. 14-16, 1998, July 14, 2002; minimum recorded, 0.5°C on several days in 1969, but may have been as low or lower during period of missing record Oct. 29, 1985 to July 1, 1986.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 18.5°C July 14; minimum, 2.9°C Feb. 9.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.3	13.1	13.2	9.1	9.0	9.1	5.8	5.6	5.7	4.2	4.1	4.2
2	13.2	12.9	13.1	9.1	8.9	9.0	5.7	5.5	5.6	4.2	4.1	4.2
3	13.4	13.1	13.2	9.1	8.9	9.0	5.5	5.4	5.5	4.2	4.1	4.1
4	13.6	13.1	13.3	9.1	8.9	9.0	5.4	5.3	5.4	4.2	4.0	4.1
5	13.5	13.2	13.3	9.0	8.8	8.9	5.3	5.2	5.2	4.2	4.1	4.1
6	13.3	13.0	13.1	8.9	8.7	8.8	5.2	5.0	5.1	4.1	4.1	4.1
7	13.3	12.9	13.1	8.7	8.5	8.7	---	---	---	4.1	4.1	4.1
8	12.9	12.6	12.8	8.7	8.6	8.6	---	---	---	4.2	4.1	4.1
9	12.7	12.4	12.6	8.6	8.5	8.6	5.0	4.9	5.0	4.2	4.1	4.1
10	12.6	12.1	12.3	8.6	8.4	8.5	4.9	4.7	4.8	4.1	4.1	4.1
11	12.1	11.8	12.0	8.5	8.4	8.5	4.8	4.6	4.7	4.1	4.0	4.1
12	12.0	11.7	11.9	8.4	8.3	8.4	4.8	4.6	4.7	4.1	4.0	4.1
13	11.9	11.6	11.8	8.3	8.2	8.2	4.7	4.5	4.7	4.0	4.0	4.0
14	11.9	11.5	11.7	8.2	8.1	8.2	4.6	4.5	4.6	4.0	3.7	3.8
15	11.7	11.4	11.6	8.1	8.0	8.1	4.7	4.6	4.6	3.8	3.7	3.7
16	11.5	11.2	11.4	8.0	7.9	8.0	4.7	4.5	4.6	4.0	3.7	3.8
17	11.3	11.0	11.2	8.0	7.8	7.9	4.6	4.4	4.5	3.9	3.7	3.8
18	11.2	11.0	11.1	7.8	7.7	7.7	4.6	4.4	4.5	3.9	3.6	3.7
19	11.2	11.0	11.1	7.7	7.5	7.6	4.5	4.4	4.4	4.0	3.7	3.9
20	11.2	11.0	11.1	7.5	7.3	7.4	4.5	4.3	4.4	4.1	4.0	4.0
21	11.1	10.9	11.0	7.3	7.1	7.2	4.5	4.3	4.4	4.0	3.8	3.9
22	10.9	10.7	10.8	7.1	6.8	6.9	4.3	4.2	4.3	3.9	3.8	3.9
23	10.7	10.3	10.5	6.9	6.7	6.8	4.3	4.2	4.3	3.9	3.8	3.9
24	10.3	10.0	10.2	6.7	6.5	6.6	4.3	4.1	4.2	3.9	3.6	3.7
25	10.3	10.0	10.1	6.5	6.3	6.4	4.2	4.1	4.2	3.8	3.7	3.7
26	10.2	10.0	10.1	6.5	6.3	6.4	4.3	4.1	4.2	3.8	3.6	3.8
27	10.1	9.9	10	6.3	6.2	6.3	4.3	4.2	4.2	3.9	3.6	3.7
28	9.9	9.8	9.9	6.2	6.0	6.1	4.2	4.1	4.2	3.9	3.6	3.7
29	9.9	9.7	9.7	6.1	5.9	6.0	4.3	4.1	4.2	3.6	3.4	3.5
30	9.7	9.4	9.6	5.9	5.8	5.9	4.3	4.1	4.2	3.6	3.1	3.4
31	9.4	9.1	9.3	---	---	---	4.4	4.1	4.2	3.7	3.5	3.6
MONTH	13.6	9.1	11.5	9.1	5.8	7.8	---	---	---	4.2	3.1	3.9

## KLAMATH RIVER BASIN

11492200 CRATER LAKE NEAR CRATER LAKE, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.9	3.5	3.7	3.7	3.1	3.4	4.4	3.8	4.1	4.5	4.2	4.3
2	3.5	3.1	3.2	3.8	3.3	3.5	4.4	3.7	4.1	4.6	4.3	4.4
3	3.4	3.0	3.2	3.9	3.3	3.6	4.4	3.8	4.1	4.6	4.2	4.4
4	3.7	3.2	3.4	4.0	3.4	3.6	4.4	3.9	4.1	4.7	4.4	4.6
5	3.4	3.2	3.3	3.6	3.4	3.5	4.2	3.8	4.0	4.6	4.2	4.4
6	3.4	3.1	3.3	3.6	3.5	3.5	4.3	3.7	4.0	4.8	4.3	4.5
7	3.3	3.2	3.2	3.5	3.4	3.5	4.3	3.7	4.0	4.7	4.2	4.4
8	3.4	3.1	3.3	3.9	3.4	3.6	4.4	3.9	4.2	4.8	4.4	4.6
9	3.4	2.9	3.2	3.5	3.3	3.4	4.1	3.8	3.9	4.8	4.6	4.7
10	3.4	3.1	3.2	3.4	3.3	3.3	4.2	3.8	3.9	4.7	4.5	4.6
11	3.5	3.2	3.3	3.4	3.3	3.3	3.9	3.8	3.9	4.7	4.4	4.5
12	3.4	3.1	3.2	3.4	3.3	3.3	4.2	3.8	4.0	4.8	4.6	4.7
13	3.8	3.2	3.5	3.4	3.3	3.4	4.0	3.8	3.9	4.8	4.5	4.7
14	3.6	3.3	3.4	3.5	3.3	3.4	4.1	3.8	3.9	4.9	4.5	4.7
15	3.5	3.3	3.4	3.8	3.4	3.5	4.0	3.7	3.9	5.1	4.9	4.9
16	3.5	3.4	3.4	3.4	3.3	3.4	4.0	3.9	3.9	5.0	4.7	4.9
17	3.5	3.4	3.4	3.6	3.2	3.3	4.1	3.8	4.0	5.0	4.7	4.8
18	3.7	3.4	3.5	3.5	3.1	3.2	3.9	3.8	3.9	5.4	5.0	5.1
19	3.5	3.4	3.4	3.5	3.1	3.3	4.4	3.7	4.0	5.7	5.3	5.5
20	3.6	3.3	3.4	3.4	3.2	3.3	4.5	4.0	4.3	5.7	5.4	5.5
21	3.6	3.4	3.5	3.2	3.1	3.2	4.5	4.2	4.4	5.4	5.0	5.2
22	3.6	3.4	3.4	3.3	3.1	3.2	4.5	4.2	4.4	5.1	4.9	5.0
23	3.4	3.4	3.4	3.6	3.2	3.4	4.5	4.3	4.4	5.4	5.0	5.2
24	3.7	3.3	3.5	3.7	3.3	3.5	4.4	4.2	4.3	5.5	5.1	5.3
25	3.9	3.4	3.7	3.7	3.4	3.5	4.6	4.2	4.4	5.7	5.3	5.5
26	4.2	3.5	3.8	3.9	3.4	3.6	4.5	4.1	4.4	6.2	5.4	5.8
27	4.1	3.6	3.8	4.1	3.4	3.7	4.5	4.0	4.2	6.9	5.4	6.2
28	3.8	3.1	3.5	3.9	3.3	3.6	4.4	3.9	4.2	7.3	6.8	7.1
29	---	---	---	4.2	3.6	3.9	4.4	4.1	4.3	7.5	6.5	6.9
30	---	---	---	4.4	3.7	4.0	4.5	4.2	4.3	6.5	6.3	6.4
31	---	---	---	4.4	3.7	4.0	---	---	---	7.0	6.4	6.7
MONTH	4.2	2.9	3.4	4.4	3.1	3.5	4.6	3.7	4.1	7.5	4.2	5.1
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.9	6.7	7.4	13.1	12.3	12.8	17.7	17.5	17.6	15.9	15.8	15.9
2	7.5	6.7	7.1	12.5	11.7	12.1	18.2	17.1	17.6	16.1	15.8	15.9
3	6.8	6.3	6.6	14.2	12.2	13.5	17.7	17.3	17.4	16.1	15.7	15.9
4	8.3	6.7	7.3	13.8	12.9	13.3	17.3	16.4	16.8	16.0	15.5	15.8
5	9.2	8.3	8.7	13.4	12.6	12.9	16.4	15.7	16.1	15.5	15.0	15.3
6	8.9	7.8	8.4	13.7	12.7	13.2	15.9	15.4	15.7	15.0	14.7	14.8
7	8.6	6.8	7.9	14.3	13.2	13.8	15.6	15.3	15.4	14.7	14.4	14.6
8	8.0	7.4	7.7	14.6	13.8	14.3	15.8	15.4	15.6	14.5	14.3	14.4
9	8.0	6.6	7.4	14.1	13.6	13.9	15.8	15.5	15.6	14.6	14.3	14.4
10	8.0	6.7	7.4	14.1	13.6	13.8	16.2	15.3	15.8	14.6	14.3	14.4
11	8.2	7.4	7.8	14.6	13.8	14.3	16.4	16.0	16.2	14.6	14.4	14.5
12	8.3	7.7	8.0	14.7	14.1	14.4	16.5	15.8	16.1	14.7	14.4	14.6
13	8.4	7.9	8.1	15.6	14.2	14.8	16.6	16.2	16.4	15.2	14.5	14.8
14	8.8	7.7	8.3	18.5	15.0	17.0	16.5	16.2	16.4	15.2	15.0	15.1
15	9.6	8.3	9.0	17.7	14.7	16.2	17.4	16.2	17.0	15.1	14.8	14.9
16	11.9	9.6	11.1	16.8	14.8	16.1	17.3	16.9	17.1	14.8	14.2	14.5
17	11.1	9.9	10.6	17.1	16.2	16.7	17.7	16.6	17.2	14.3	14.1	14.2
18	9.9	9.4	9.7	17.8	16.2	17.1	16.7	16.2	16.5	14.2	14.0	14.1
19	10.0	9.3	9.8	18.1	17.0	17.7	16.8	16.5	16.7	14.1	13.7	13.9
20	9.9	9.3	9.6	17.5	16.6	17.0	16.6	16.1	16.3	14.0	13.6	13.8
21	9.8	9.3	9.6	17.1	16.3	16.8	16.4	15.9	16.2	13.8	13.3	13.5
22	10.1	8.4	9.5	17.0	16.8	16.9	16.4	16.0	16.2	14.1	13.6	13.8
23	11.5	10.1	10.9	17.8	16.5	17.1	16.1	15.8	15.9	13.9	13.7	13.8
24	11.3	10.6	11.0	17.7	16.3	17.2	16.0	15.7	15.9	13.9	13.6	13.7
25	11.6	10.7	11.2	17.1	16.4	16.7	15.9	15.5	15.7	13.9	13.6	13.8
26	11.7	10.4	11.2	17.7	17.0	17.3	16.0	15.5	15.7	13.8	13.5	13.6
27	13.9	11.0	12.7	17.5	16.3	17.0	15.9	15.5	15.7	13.9	13.4	13.6
28	14.2	12.8	13.9	17.2	15.6	16.6	15.8	15.4	15.6	13.6	13.2	13.4
29	13.9	12.7	13.3	16.8	16.0	16.4	15.9	15.6	15.8	13.4	12.8	13.1
30	13.3	12.3	12.9	17.7	16.4	17.1	15.9	15.4	15.6	12.8	12.5	12.7
31	---	---	---	17.9	17.2	17.5	16.0	15.5	15.8	---	---	---
MONTH	14.2	6.3	9.5	18.5	11.7	15.5	18.2	15.3	16.2	16.1	12.5	14.4

11493500 WILLIAMSON RIVER NEAR KLAMATH AGENCY, OR

LOCATION.--Lat 42°44'25", long 121°50'00", in NW 1/4 SW 1/4 sec.1, T.33 S., R.7 E., Klamath County, Hydrologic Unit 18010201, on right bank 250 ft downstream from highway bridge, 0.6 mi southwest of railroad station at Kirk, 10 mi upstream from Spring Creek, and 10 mi northeast of Klamath Agency.

DRAINAGE AREA.--1,290 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--March 1908 to January 1909, April 1909 to June 1910, October 1954 to September 1995, October 1998 to current year. Monthly discharge only June 1910, published in WSP 1315-B.

REVISED RECORDS.--WSP 1565: 1908-9.

GAGE.--Water-stage recorder. Datum of gage is 4,483.16 ft above NGVD of 1929. Mar. 25, 1908, to June 30, 1910, nonrecording gage or water-stage recorder at two sites about 0.5 mi upstream at different datums. Oct. 1, 1954, to Sept. 30, 1955, water-stage recorder at present site at datum 2.05 ft higher.

REMARKS.--Records fair. Flow affected by natural storage in Klamath Marsh. Small diversions upstream from station for irrigation in vicinity of marsh.

AVERAGE DISCHARGE.--45 years (water years 1955-95, 1999-2002), 183 ft<sup>3</sup>/s, 132,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 1,590 ft<sup>3</sup>/s Mar. 13, 1910, gage height, 3.7 ft, site and datum then in use, from rating curve extended above 800 ft<sup>3</sup>/s; maximum gage height, 5.75 ft Mar. 3, 1958; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 426 ft<sup>3</sup>/s Mar. 9, gage height, 4.65 ft; minimum discharge, no flow Oct. 1 to Nov. 23, July 12 to Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.0	0.0	e72	130	249	263	356	186	25	5.1	0.0	0.0
2	0.0	0.0	e75	143	247	286	347	177	26	4.5	0.0	0.0
3	0.0	0.0	e78	152	238	323	337	173	23	3.8	0.0	0.0
4	0.0	0.0	e80	163	236	355	326	165	22	3.6	0.0	0.0
5	0.0	0.0	e82	172	232	369	307	151	18	3.5	0.0	0.0
6	0.0	0.0	e85	190	231	390	301	146	19	2.9	0.0	0.0
7	0.0	0.0	e90	206	223	412	300	152	18	1.9	0.0	0.0
8	0.0	0.0	e95	223	219	416	293	145	19	1.6	0.0	0.0
9	0.0	0.0	e97	241	217	419	285	127	18	1.4	0.0	0.0
10	0.0	0.0	e97	261	214	406	281	115	17	0.51	0.0	0.0
11	0.0	0.0	e97	280	214	399	275	99	16	0.15	0.0	0.0
12	0.0	0.0	e97	293	213	397	271	85	14	0.0	0.0	0.0
13	0.0	0.0	e96	306	207	405	262	73	12	0.0	0.0	0.0
14	0.0	0.0	e96	315	203	418	251	69	11	0.0	0.0	0.0
15	0.0	0.0	e96	317	200	417	255	58	11	0.0	0.0	0.0
16	0.0	0.0	e98	320	192	398	246	47	9.3	0.0	0.0	0.0
17	0.0	0.0	e100	326	187	395	241	40	9.2	0.0	0.0	0.0
18	0.0	0.0	e102	324	183	380	246	36	7.9	0.0	0.0	0.0
19	0.0	0.0	e102	318	179	354	243	36	9.3	0.0	0.0	0.0
20	0.0	0.0	e102	315	176	360	235	34	8.8	0.0	0.0	0.0
21	0.0	0.0	e103	312	174	378	229	32	9.9	0.0	0.0	0.0
22	0.0	0.0	e102	303	168	376	226	33	8.3	0.0	0.0	0.0
23	0.0	0.0	e102	299	169	377	223	33	8.5	0.0	0.0	0.0
24	0.0	10	e102	299	176	383	217	31	8.4	0.0	0.0	0.0
25	0.0	24	e102	299	183	387	212	29	8.5	0.0	0.0	0.0
26	0.0	40	e103	296	195	385	203	27	7.2	0.0	0.0	0.0
27	0.0	51	e105	286	213	383	197	26	5.7	0.0	0.0	0.0
28	0.0	63	e107	288	236	382	194	26	4.9	0.0	0.0	0.0
29	0.0	65	e109	290	---	375	190	24	4.5	0.0	0.0	0.0
30	0.0	71	---	278	---	364	183	25	4.4	0.0	0.0	0.0
31	0.0	---	122	262	---	359	---	24	---	0.0	0.0	---
TOTAL	0.0	324.0	3008	8207	5774	11711	7732	2424	383.8	28.96	0.0	0.0
MEAN	0.000	10.8	97.0	265	206	378	258	78.2	12.8	0.93	0.000	0.000
MAX	0.00	71	122	326	249	419	356	186	26	5.1	0.00	0.00
MIN	0.00	0.00	72	130	168	263	183	24	4.4	0.00	0.00	0.00
AC-FT	0.00	643	5970	16280	11450	23230	15340	4810	761	57	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1955 - 2002, BY WATER YEAR (WY)

MEAN	41.2	117	217	224	290	429	441	258	122	43.9	14.3	12.6
MAX	255	391	580	730	799	1039	1081	952	531	332	146	95.8
(WY)	1958	1957	1956	1956	1965	1986	1956	1956	1956	1958	1958	1958
MIN	0.000	0.000	0.000	0.000	0.000	58.6	22.3	7.35	0.000	0.000	0.000	0.000
(WY)	1962	1965	1991	1992	1993	1994	1992	1992	1992	1981	1961	1960

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1955 - 2002
ANNUAL TOTAL	39364.35	39592.76	
ANNUAL MEAN	108	108	183
HIGHEST ANNUAL MEAN			468
LOWEST ANNUAL MEAN			7.84
HIGHEST DAILY MEAN	409	Mar 23	1250
LOWEST DAILY MEAN	0.00	Jul 21	0.00
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 21	0.00
ANNUAL RUNOFF (AC-FT)	78080	78530	132900
10 PERCENT EXCEEDS	307	319	479
50 PERCENT EXCEEDS	77	26	109
90 PERCENT EXCEEDS	0.00	0.00	0.00

e Estimated

11495800 NORTH FORK SPRAGUE RIVER AT POWERPLANT, NEAR BLY, OR

LOCATION.--Lat 42°30'06", long 120°59'13", in SW 1/4 SE 1/4 sec.30, T.35 S., R.15 E., Klamath County, Hydrologic Unit 18010202, at powerplant 0.1 mi upstream from Yaden Creek, and 7.6 mi northeast of Bly.

DRAINAGE AREA.--77.7 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1993 to current year.

GAGE.--Water-stage record. Elevation of gage is 4,750 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. All records given herein do not include flow diverted through powerplant.

AVERAGE DISCHARGE.--9 years (water years 1994-2002), 71.7 ft<sup>3</sup>/s, 51,970 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,180 ft<sup>3</sup>/s Apr. 24, 1996, gage height, 7.12 ft; minimum discharge, 12 ft<sup>3</sup>/s Dec. 10, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 737 ft<sup>3</sup>/s Apr. 14, gage height, 6.84 ft; minimum discharge, 19 ft<sup>3</sup>/s Jan. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	34	34	40	38	36	34	174	53	32	40	35
2	30	33	30	37	36	37	38	224	44	34	40	35
3	30	32	31	30	35	37	52	165	34	37	40	35
4	31	32	33	34	35	38	77	161	31	36	41	35
5	30	32	34	36	34	39	76	172	34	36	41	35
6	30	32	32	34	33	39	167	179	33	37	41	35
7	31	32	30	32	34	37	118	212	32	37	40	35
8	31	32	33	32	33	36	94	144	32	36	40	35
9	31	32	34	32	33	36	210	136	32	37	39	35
10	31	33	34	32	34	35	224	126	32	37	39	34
11	33	33	34	32	34	39	224	108	32	38	36	34
12	32	33	35	32	35	42	251	107	31	40	31	34
13	32	34	35	32	34	39	262	112	27	44	32	34
14	32	33	34	33	34	38	584	115	36	42	32	34
15	31	32	29	33	34	37	396	112	38	41	32	34
16	31	33	34	34	34	38	290	106	33	43	34	34
17	31	33	34	38	35	34	232	107	32	42	34	36
18	31	32	32	37	34	37	155	110	32	42	34	37
19	32	33	33	36	34	40	123	112	32	43	34	35
20	31	37	33	37	35	35	112	107	32	42	34	35
21	31	46	34	36	36	32	112	98	33	43	34	35
22	32	41	34	32	38	32	120	90	33	46	36	34
23	34	35	33	36	41	32	120	73	33	47	37	34
24	32	31	33	36	40	32	116	66	33	44	37	34
25	32	28	35	36	37	32	130	62	33	43	36	34
26	32	35	34	34	38	32	134	61	33	43	36	34
27	32	32	34	34	38	32	121	63	33	42	36	34
28	32	34	34	36	38	32	109	60	33	42	36	35
29	32	29	35	38	---	33	118	49	33	42	36	34
30	36	29	36	40	---	33	143	53	32	42	36	34
31	36	---	39	41	---	33	---	52	---	41	35	---
TOTAL	982	997	1039	1082	994	1104	4942	3516	1011	1251	1129	1038
MEAN	31.7	33.2	33.5	34.9	35.5	35.6	165	113	33.7	40.4	36.4	34.6
MAX	36	46	39	41	41	42	584	224	53	47	41	37
MIN	30	28	29	30	33	32	34	49	27	32	31	34
AC-FT	1950	1980	2060	2150	1970	2190	9800	6970	2010	2480	2240	2060

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2002, BY WATER YEAR (WY)

	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	36.4	40.4	42.9	54.9	42.7	52.4	149	225	110
MAX	51.2	75.7	81.4	211	83.1	91.4	271	425	253
(WY)	1997	1997	1996	1997	1996	1998	2000	1999	1998
MIN	27.5	29.5	29.7	32.4	30.3	33.5	37.7	41.6	33.7
(WY)	2001	1995	2000	2000	1999	1999	2001	2001	2002

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1994 - 2002
ANNUAL TOTAL	13143	19085	
ANNUAL MEAN	36.0	52.3	71.7
HIGHEST ANNUAL MEAN			93.4
LOWEST ANNUAL MEAN			36.8
HIGHEST DAILY MEAN	127	May 15	735
LOWEST DAILY MEAN	26	Apr 3	16
ANNUAL SEVEN-DAY MINIMUM	29	Aug 11	22
ANNUAL RUNOFF (AC-FT)	26070	37860	51970
10 PERCENT EXCEEDS	42	112	182
50 PERCENT EXCEEDS	35	35	36
90 PERCENT EXCEEDS	30	32	29



11501000 SPRAGUE RIVER NEAR CHILOQUIN, OR

LOCATION.--Lat 42°35'05", long 121°50'55", in NE 1/4 NW 1/4 sec.35, T.34 S., R.7 E., Klamath County, Hydrologic Unit 18010202, on right bank 1.0 mi northeast of Chiloquin, 4.6 mi upstream from Modoc Point Canal intake, and at mile 5.4.

DRAINAGE AREA.--1,580 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--July to October 1920, March 1921 to current year. Monthly discharge only July 1920, published in WSP 1315-B. Prior to October 1931, published as "at McCready Ranch, near Chiloquin."

REVISED RECORDS.--WSP 591: 1922(M). WSP 1011: 1943(M). WSP 1565: 1921-22.

GAGE.--Water-stage recorder. Datum of gage is 4,202.43 ft above NGVD of 1929. Prior to Oct. 1, 1931, nonrecording gage at site 12 mi upstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Minor regulation from irrigation diversions upstream from station.

AVERAGE DISCHARGE.--81 years (water years 1922-2002), 583 ft<sup>3</sup>/s, 422,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 14,900 ft<sup>3</sup>/s Dec. 26, 1964, gage height, 10.37 ft; minimum daily discharge, 50 ft<sup>3</sup>/s May 26, 1926.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,470 ft<sup>3</sup>/s Apr. 19, gage height, 3.56 ft; minimum discharge, 86 ft<sup>3</sup>/s Aug. 23, 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	234	287	308	520	337	550	627	844	446	203	110	99
2	226	281	306	759	288	511	631	997	443	210	108	98
3	208	273	316	1020	313	462	646	1190	429	216	95	102
4	194	266	317	1240	305	429	673	1330	423	227	94	101
5	191	265	323	1420	300	414	704	1370	399	217	94	93
6	191	265	335	1280	297	410	725	1260	378	197	97	92
7	194	264	338	896	302	430	751	1100	328	188	107	105
8	201	264	364	889	321	463	795	1000	318	188	108	111
9	220	264	379	1030	336	506	825	940	321	166	104	107
10	234	266	364	1040	328	470	846	883	318	157	97	120
11	246	273	339	898	309	440	868	832	330	146	96	138
12	254	278	349	721	311	442	937	788	331	143	95	145
13	256	283	352	615	318	448	1000	748	315	145	104	140
14	249	283	347	545	322	613	1050	708	309	144	105	134
15	252	286	329	478	325	659	1070	679	294	135	98	121
16	245	290	350	426	326	549	1110	656	299	140	96	118
17	243	284	332	386	328	502	1260	632	283	147	96	123
18	251	283	334	356	339	468	1430	581	249	143	92	124
19	252	283	343	354	354	441	1450	560	243	136	95	130
20	255	286	343	340	392	408	1380	565	237	140	101	155
21	256	296	344	346	470	419	1270	594	235	148	107	165
22	259	323	346	327	650	429	1130	610	226	147	103	160
23	256	346	337	337	711	477	1000	613	233	162	89	158
24	251	365	327	324	672	525	898	604	267	161	96	151
25	256	342	315	344	733	563	837	570	284	153	88	153
26	256	320	298	329	756	589	786	538	272	146	98	159
27	250	311	299	325	649	574	748	509	232	132	104	159
28	256	306	322	312	592	571	748	457	206	118	109	173
29	266	293	327	343	---	580	741	443	200	108	111	176
30	284	293	346	380	---	584	761	431	207	108	109	169
31	282	---	414	400	---	608	---	435	---	106	106	---
TOTAL	7468	8719	10443	18980	11684	15534	27697	23467	9055	4877	3112	3979
MEAN	241	291	337	612	417	501	923	757	302	157	100	133
MAX	284	365	414	1420	756	659	1450	1370	446	227	111	176
MIN	191	264	298	312	288	408	627	431	200	106	88	92
AC-FT	14810	17290	20710	37650	23180	30810	54940	46550	17960	9670	6170	7890

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1921 - 2002, BY WATER YEAR (WY)

	294	344	466	542	691	944	1268	1142	611	278	216	235
MEAN	294	344	466	542	691	944	1268	1142	611	278	216	235
MAX	848	789	2853	3017	2877	2904	4250	3211	1762	560	405	374
(WY)	1963	1974	1965	1997	1996	1972	1956	1983	1983	1956	1956	1956
MIN	183	218	215	196	223	286	263	119	93.8	85.1	76.9	125
(WY)	1934	1995	1933	1937	1933	1992	1977	1992	1994	1992	1992	1992

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1921 - 2002

ANNUAL TOTAL	102066	145015	
ANNUAL MEAN	280	397	583
HIGHEST ANNUAL MEAN			1395
LOWEST ANNUAL MEAN			199
HIGHEST DAILY MEAN	586	Mar 28	1450
LOWEST DAILY MEAN	104	Sep 7	88
ANNUAL SEVEN-DAY MINIMUM	116	Sep 5	97
ANNUAL RUNOFF (AC-FT)	202400	287600	422600
10 PERCENT EXCEEDS	406	828	1310
50 PERCENT EXCEEDS	284	318	345
90 PERCENT EXCEEDS	143	108	199

11502500 WILLIAMSON RIVER BELOW SPRAGUE RIVER, NEAR CHILOQUIN, OR

LOCATION.--Lat 42°33'54", long 121°52'42", in NE 1/4 SE 1/4 sec.4, T.35 S., R.7 E., Klamath County, Hydrologic Unit 18010201, on right bank 0.8 mi downstream from Sprague River and 1.2 mi southwest of Chiloquin, and at mile 10.3.

DRAINAGE AREA.--3,000 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1917 to current year. Monthly discharge only for October 1922 to August 1923 published in WSP 1315-B.

REVISED RECORDS.--WSP 981: 1938(M). WSP 1565: 1920(M), 1927(M), 1938.

GAGE.--Water-stage recorder. Datum of gage is 4,148.50 ft above NGVD of 1929. September 1, 1923 to July 12, 1991 at site 0.6 mi upstream at datum 7.05 ft higher. Prior to Sept. 1, 1923, at different datum.

REMARKS.--No estimated daily discharges. Records good. Some regulation by diversion dams and logpond operations on Sprague River. Diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--84 years (water years 1918-22, 1924-2002), 1,046 ft<sup>3</sup>/s, 757,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft<sup>3</sup>/s Jan. 5, 1997, gage height, 10.27 ft; minimum discharge, 285 ft<sup>3</sup>/s Aug. 6, 8, 9, 1994.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,000 ft<sup>3</sup>/s Apr. 18, 19, gage height, 5.23 ft; minimum discharge, 354 ft<sup>3</sup>/s Aug. 16-19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	524	592	688	949	925	1190	1320	1300	718	434	373	389
2	517	589	692	1200	886	1160	1320	1440	705	438	377	384
3	502	581	699	1460	891	1120	1330	1610	692	444	363	391
4	486	573	700	1680	872	1100	1350	1750	682	448	362	392
5	485	570	720	1870	859	1100	1360	1790	660	445	363	379
6	487	573	736	1810	850	1110	1370	1680	632	431	364	381
7	492	569	734	1450	860	1140	1380	1520	589	423	376	387
8	501	568	754	1440	873	1180	1420	1430	571	424	379	400
9	518	572	779	1590	876	1230	1450	1350	573	409	378	394
10	534	573	764	1630	870	1200	1460	1270	569	398	371	403
11	548	581	744	1520	845	1170	1470	1200	572	389	368	424
12	556	591	703	1370	842	1170	1520	1140	574	377	368	434
13	561	595	756	1270	849	1170	1580	1090	561	384	373	434
14	553	592	770	1210	845	1340	1620	1040	552	389	380	428
15	555	592	738	1140	848	1410	1630	1000	563	385	370	414
16	548	601	763	1090	846	1310	1660	968	557	390	364	407
17	540	592	749	1050	847	1250	1790	941	535	403	364	418
18	549	586	749	1010	854	1210	1950	892	504	403	359	416
19	551	590	760	1010	879	1170	1990	867	486	399	360	420
20	555	596	757	996	929	1130	1920	865	479	401	370	441
21	556	616	754	1010	999	1140	1800	881	471	415	379	454
22	562	637	757	972	1190	1150	1660	895	464	420	379	451
23	562	647	748	971	1300	1200	1530	900	467	440	364	447
24	554	677	733	945	1250	1200	1430	891	485	443	370	441
25	558	665	725	979	1310	1290	1370	859	498	460	368	439
26	563	649	707	959	1360	1320	1300	825	492	466	373	442
27	557	651	705	941	1270	1300	1250	802	467	408	383	443
28	560	674	733	855	1220	1290	1240	749	441	392	392	454
29	570	662	742	835	---	1300	1220	727	432	380	401	464
30	600	660	765	856	---	1300	1230	707	434	381	401	456
31	591	---	840	878	---	1310	---	702	---	375	395	---
TOTAL	16795	18214	22964	36946	27245	37710	44920	34081	16425	12794	11587	12627
MEAN	542	607	741	1192	973	1216	1497	1099	548	413	374	421
MAX	600	677	840	1870	1360	1410	1990	1790	718	466	401	464
MIN	485	568	688	835	842	1100	1220	702	432	375	359	379
AC-FT	33310	36130	45550	73280	54040	74800	89100	67600	32580	25380	22980	25050

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1918 - 2002, BY WATER YEAR (WY)

	651	758	942	1021	1243	1617	1973	1657	1003	606	534	561
MEAN	651	758	942	1021	1243	1617	1973	1657	1003	606	534	561
MAX	1237	1345	3682	4067	3846	4256	5488	4376	2658	1278	934	872
(WY)	1963	1974	1965	1997	1958	1972	1952	1956	1953	1958	1958	1958
MIN	488	530	545	524	547	619	583	391	338	311	304	382
(WY)	1993	1995	1993	1937	1933	1992	1992	1992	1992	1994	1994	1994

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1918 - 2002

ANNUAL TOTAL	243999	292308		
ANNUAL MEAN	668	801		
HIGHEST ANNUAL MEAN			1046	
LOWEST ANNUAL MEAN			2187	1956
HIGHEST DAILY MEAN			483	1992
LOWEST DAILY MEAN	1280	Mar 28	1990	Apr 19
ANNUAL SEVEN-DAY MINIMUM	367	Aug 8	359	Aug 18
ANNUAL RUNOFF (AC-FT)	484000	Aug 18	367	Aug 15
10 PERCENT EXCEEDS	985		1370	1990
50 PERCENT EXCEEDS	637		692	750
90 PERCENT EXCEEDS	405		386	503

11503000 ANNIE SPRING NEAR CRATER LAKE, OR

LOCATION.--Lat 42°52'18", long 122°10'04", unsurveyed, Klamath County, Hydrologic Unit 18010203, in Crater Lake National Park, at highway bridge 0.1 mi downstream from source.

DRAINAGE AREA.--Indeterminate, normal flow is entirely from Annie Spring.

PERIOD OF RECORD.--June 1977 to current year. Discharge measurement and fragmentary gage-height record August to October 1913. Discharge measurements only Oct. 11, 1967, June 26, Sept. 13, 1968.

GAGE.--Water-stage recorder and V-notch sharp-crested weir. Datum of gage is 5,982.65 ft above NGVD of 1929 (National Park Service bench mark).

REMARKS.--Records poor. Fluctuations caused by pumps 0.1 mi upstream. Diversion for domestic use by National Park Service 0.1 mi upstream.

COOPERATION.--Records of diversion by pumping furnished by National Park Service.

AVERAGE DISCHARGE.--25 years (water years 1978-2002), 2.85 ft<sup>3</sup>/s, 2,060 acre-ft/yr, adjusted for diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18 ft<sup>3</sup>/s July 6, 1984, gage height, 1.56 ft; minimum daily discharge, 0.28 ft<sup>3</sup>/s Mar. 2-5, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6.8 ft<sup>3</sup>/s June 21-25, gage height, 3.34 ft; minimum daily discharge, 0.23 ft<sup>3</sup>/s Mar. 14, 16-31, Apr. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.58	1.1	0.46	0.37	0.30	0.26	0.23	e1.6	4.8	6.5	2.9	1.7
2	0.57	1.1	0.46	0.35	0.30	0.26	0.25	e1.6	5.3	6.4	2.8	1.8
3	0.61	1.1	0.46	0.35	0.30	0.26	0.25	e1.7	5.8	6.3	2.8	1.8
4	0.56	1.1	0.46	0.35	0.30	0.26	0.27	e1.7	5.9	6.2	2.7	1.7
5	0.54	1.1	0.46	0.35	0.30	0.26	0.30	e1.8	6.0	6.2	2.7	1.8
6	0.56	1.0	0.46	0.35	0.30	0.26	0.30	e1.7	6.0	6.0	2.6	1.8
7	0.54	0.61	0.42	0.35	0.30	0.26	0.32	e1.8	6.1	5.6	2.6	1.7
8	0.56	0.38	0.46	0.35	0.29	0.25	0.33	e1.8	6.2	5.5	2.5	1.7
9	0.54	0.38	0.46	0.35	0.29	0.26	0.40	e1.8	6.2	5.2	2.5	1.7
10	0.53	0.38	0.42	0.35	0.29	0.26	0.42	e1.8	6.3	5.0	2.4	1.7
11	0.52	0.40	0.42	0.33	0.29	0.25	0.44	e1.8	6.3	4.9	2.4	1.6
12	0.52	0.40	0.42	0.33	0.29	0.26	0.44	e1.7	6.2	4.7	2.4	1.6
13	0.52	0.42	0.42	0.33	0.29	0.25	0.52	e1.9	6.2	4.5	2.3	1.6
14	0.50	0.42	0.42	0.33	0.27	0.23	1.3	e1.9	6.2	4.4	2.3	1.6
15	0.51	0.42	0.42	0.33	0.27	0.25	1.5	e2.0	6.2	4.3	2.2	1.6
16	0.50	0.42	0.38	0.33	0.27	0.23	1.7	e2.1	6.3	4.2	2.3	1.6
17	0.50	0.42	0.38	0.33	0.27	0.23	1.8	e2.2	6.3	4.0	2.2	1.6
18	0.50	0.42	0.38	0.33	0.27	0.23	1.9	e2.3	6.3	3.9	2.2	1.6
19	0.49	0.42	0.38	0.33	0.27	0.23	1.8	e2.5	6.3	3.8	2.1	1.5
20	0.50	0.42	0.38	0.32	0.27	0.23	1.8	e2.5	6.4	3.7	2.1	1.5
21	0.50	0.42	0.38	0.32	0.27	0.23	1.7	e2.7	6.5	3.6	2.1	1.5
22	0.50	0.44	0.40	0.32	0.27	0.23	1.7	e2.8	6.8	3.5	2.1	1.5
23	0.58	0.44	0.40	0.32	0.27	0.23	e1.5	e2.9	6.8	3.5	2.0	1.5
24	0.58	0.44	0.40	0.33	0.27	0.23	e1.5	e3.0	6.8	3.4	2.0	1.5
25	0.56	0.44	0.40	0.33	0.27	0.23	e1.6	e3.1	6.8	3.4	2.0	1.5
26	0.56	0.44	0.40	0.32	0.27	0.23	e1.6	3.1	6.6	3.2	2.0	1.5
27	0.56	0.44	0.37	0.33	0.26	0.23	e1.6	3.3	6.6	3.2	1.9	1.4
28	0.56	0.44	0.37	0.32	0.26	0.23	e1.6	3.4	6.6	3.1	1.9	1.4
29	0.56	0.44	0.37	0.30	---	0.23	e1.6	3.6	6.6	3.0	1.9	1.4
30	0.75	0.46	0.37	0.32	---	0.23	e1.6	4.0	6.6	3.0	1.9	1.4
31	1.2	---	0.37	0.30	---	0.23	---	4.4	---	2.9	1.8	---
TOTAL	17.56	16.81	12.75	10.32	7.87	7.51	32.27	74.5	188.0	137.1	70.6	47.8
MEAN	0.57	0.56	0.41	0.33	0.28	0.24	1.08	2.40	6.27	4.42	2.28	1.59
MAX	1.2	1.1	0.46	0.37	0.30	0.26	1.9	4.4	6.8	6.5	2.9	1.8
MIN	0.49	0.38	0.37	0.30	0.26	0.23	0.23	1.6	4.8	2.9	1.8	1.4
AC-FT	35	33	25	20	16	15	64	148	373	272	140	95
MEAN†	0.60	0.57	0.42	0.34	0.29	0.27	1.09	2.44	6.34	4.54	2.38	1.68
AC-FT†	37	34	26	21	16	16	65	150	377	279	146	100

CAL YR 2001	TOTAL 369.97	MEAN 1.01	MAX 3.1	MIN 0.37	AC-FT 734	MEAN† 1.06	AC-FT† 766
WTR YR 2002	TOTAL 623.09	MEAN 1.71	MAX 6.8	MIN 0.23	AC-FT 1240	MEAN† 1.75	AC-FT† 1268

e Estimated  
† Adjusted for diversion by pumping.

## 11507001 UPPER KLAMATH LAKE NEAR KLAMATH FALLS, OR

LOCATION.--Lat 42°15'00", long 121°48'55", in NW 1/4 SW 1/4 sec.19, T.38 S., R.9 E., Klamath County, Hydrologic Unit 18010203, at southeast end of lake, 1.4 mi upstream from outlet and 2.5 mi northwest of Main Street Bridge at Klamath Falls.

DRAINAGE AREA.--3,810 mi<sup>2</sup>, approximately, including 26.2 mi<sup>2</sup> in closed basin of Crater Lake.

PERIOD OF RECORD.--May 1904 to September 1922 (gage heights only), October 1922 to current year. Monthend contents only October 1923 to September 1927, published in WSP 1315-B.

GAGE.--Water-stage recorder. Datum of gage is 4,098.22 ft above NGVD of 1929, or 4,100.00 ft above Bureau of Reclamation datum. Gage readings have been reduced to elevations above Bureau of Reclamation datum. See WSP 1735 for history of changes prior to Nov. 10, 1923. Since Oct. 1, 1974, supplementary water-stage recorders at sites 7 mi north and 21 mi northwest at same datum (water-surface transfer by Pacific Power and Light Co.).

REMARKS.--Reservoir is formed by concrete dam at outlet of natural lake, completed in 1921, replacing a temporary dam built in 1919; controlled storage began Apr. 15, 1919. Capacity, 523,700 acre-ft between elevations 4,136.0 ft and 4,143.3 ft. Dead storage below elevation 4,136.0 ft is 211,300 acre-ft. Stored water may be diverted through "A" Canal for irrigation on land under Klamath project of Bureau of Reclamation, or released to Link River through dam or powerplants at Klamath Falls. Contents given herein represent those above elevation 4,136.0 ft. Prior to Oct. 1, 1973, contents given represented those above elevation 4,135.0 ft. Prior to Sept. 30, 1974, contents at end of month obtained by averaging elevations for last 3 days of month and first 3 days of following month to compensate for wind effect. Since Oct. 1, 1974, daily elevations are weighted mean of elevations at base and supplementary gages; contents at end of month are obtained from weighted midnight elevations of base and supplementary gages.

COOPERATION.--Capacity table furnished by Bureau of Reclamation, Klamath Project.

EXTREMES FOR PERIOD OF RECORD.--Maximum elevation, 4,144.98 ft about Apr. 20, 1904, from high-water marks; minimum recorded, 4,135.55 ft Oct. 30, 1944.

EXTREMES FOR CURRENT YEAR.--Maximum weighted daily elevation, 4,143.17 ft May 7; minimum weighted daily, 4,138.58 ft Sept. 30.

## Capacity table (elevation, in feet, and contents, in acre-feet)

4,136	0	4,139	193,700	4,142	414,400
4,137	61,300	4,140	262,600	4,143	498,300
4,138	127,000	4,141	335,400	4,143.3	523,700

ELEVATION, in FT (USBR DATUM), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4139.59	4139.63	4140.18	4141.20	4141.86	4142.39	4142.79	4143.06	4142.74	4141.58	4140.07	4139.03
2	4139.61	4139.65	4140.28	4141.27	4141.86	4142.39	4142.80	4143.08	4142.72	4141.54	4140.02	4139.01
3	4139.62	4139.66	4140.32	4141.34	4141.86	4142.38	4142.82	4143.10	4142.68	4141.47	4139.98	4138.97
4	4139.63	4139.67	4140.32	4141.41	4141.86	4142.36	4142.82	4143.12	4142.64	4141.42	4139.92	4138.95
5	4139.64	4139.69	4140.38	4141.43	4141.87	4142.35	4142.82	4143.13	4142.63	4141.37	4139.90	4138.94
6	4139.62	4139.70	4140.31	4141.48	4141.87	4142.37	4142.87	4143.14	4142.62	4141.31	4139.86	4138.92
7	4139.61	4139.70	4140.51	4141.54	4141.89	4142.45	4142.87	4143.17	4142.60	4141.25	4139.82	4138.88
8	4139.62	4139.69	4140.54	4141.60	4141.92	4142.43	4142.88	4143.14	4142.53	4141.19	4139.78	4138.85
9	4139.60	4139.70	4140.59	4141.65	4141.94	4142.39	4142.88	4143.14	4142.49	4141.15	4139.75	4138.84
10	4139.58	4139.70	4140.60	4141.69	4141.94	4142.42	4142.92	4143.13	4142.44	4141.09	4139.69	4138.83
11	4139.59	4139.67	4140.63	4141.71	4141.95	4142.43	4142.93	4143.09	4142.42	4141.03	4139.67	4138.82
12	4139.56	4139.68	4140.65	4141.73	4141.96	4142.50	4142.94	4143.06	4142.40	4140.97	4139.64	4138.80
13	4139.57	4139.73	4140.66	4141.75	4141.96	4142.51	4142.95	4143.06	4142.37	4140.93	4139.63	4138.78
14	4139.58	4139.76	4140.79	4141.78	4141.98	4142.53	4143.04	4143.04	4142.33	4140.87	4139.59	4138.76
15	4139.58	4139.78	4140.80	4141.79	4141.98	4142.52	4143.08	4143.02	4142.30	4140.82	4139.55	4138.76
16	4139.58	4139.80	4140.82	4141.77	4142.00	4142.52	4143.02	4142.98	4142.26	4140.76	4139.52	4138.75
17	4139.64	4139.84	4140.92	4141.79	4142.03	4142.58	4143.08	4142.96	4142.19	4140.70	4139.48	4138.73
18	4139.58	4139.86	4140.89	4141.77	4142.04	4142.54	4143.12	4142.90	4142.19	4140.65	4139.44	4138.74
19	4139.58	4139.79	4140.89	4141.79	4142.07	4142.56	4143.13	4142.83	4142.16	4140.60	4139.40	4138.72
20	4139.59	4139.86	4140.92	4141.76	4142.15	4142.57	4143.13	4142.84	4142.12	4140.54	4139.36	4138.72
21	4139.59	4139.92	4140.93	4141.81	4142.20	4142.59	4143.15	4142.87	4142.06	4140.50	4139.31	4138.73
22	4139.56	4139.92	4140.94	4141.83	4142.22	4142.58	4143.16	4142.87	4142.00	4140.45	4139.29	4138.70
23	4139.63	4140.03	4140.97	4141.84	4142.27	4142.63	4143.16	4142.85	4141.96	4140.40	4139.26	4138.69
24	4139.61	4140.09	4140.99	4141.84	4142.32	4142.68	4143.15	4142.83	4141.92	4140.37	4139.22	4138.68
25	4139.60	4140.12	4141.00	4141.85	4142.38	4142.70	4143.12	4142.82	4141.90	4140.33	4139.20	4138.68
26	4139.61	4140.16	4141.00	4141.87	4142.38	4142.72	4143.10	4142.82	4141.86	4140.29	4139.17	4138.66
27	4139.60	4140.18	4140.99	4141.87	4142.38	4142.74	4143.06	4142.77	4141.80	4140.26	4139.15	4138.66
28	4139.61	4140.12	4141.02	4141.87	4142.41	4142.74	4143.00	4142.76	4141.72	4140.22	4139.14	4138.62
29	4139.60	4140.24	4141.06	4141.86	--	4142.76	4143.01	4142.76	4141.66	4140.17	4139.10	4138.60
30	4139.61	4140.22	4141.09	4141.85	--	4142.77	4143.03	4142.77	4141.62	4140.14	4139.08	4138.58
31	4139.59	--	4141.16	4141.85	--	4142.78	--	4142.74	--	4140.10	4139.05	--
MEAN	4139.60	4139.85	4140.75	4141.70	4142.06	4142.54	4142.99	4142.96	4142.24	4140.79	4139.52	4138.78
MAX	4139.64	4140.24	4141.16	4141.87	4142.41	4142.78	4143.16	4143.17	4142.74	4141.58	4140.07	4139.03
MIN	4139.56	4139.63	4140.18	4141.20	4141.86	4142.35	4142.79	4142.74	4141.62	4140.10	4139.05	4138.58
(†)	235400	271800	348400	402100	446800	480400	505900	473700	382000	271100	204600	164200
(‡)	+1400	+36400	-76600	+53700	+44700	+33600	+25500	-32200	-91700	-110900	-66500	-40400

CAL YR 2001 MEAN 4141.22 MAX 4143.15 MIN 4139.53 AC-FT† +20500  
WTR YR 2002 MEAN 4141.14 MAX 4143.17 MIN 4138.58 AC-FT‡ -40400

† Contents, in acre-feet, on last day of month.  
‡ Change in contents, in acre-feet.

KLAMATH RIVER BASIN

11507500 LINK RIVER AT KLAMATH FALLS, OR

LOCATION.--Lat 42°13'25", long 121°47'35", in SW 1/4 NW 1/4 sec.32, T.38 S., R.9 E., Klamath County, Hydrologic Unit 18010204, on right bank 600 ft upstream from outlet of Keno Canal and 0.4 mi upstream from Main Street Bridge at Klamath Falls.

DRAINAGE AREA.--3,810 mi<sup>2</sup>, approximately, including 26.2 mi<sup>2</sup> in closed basin of Crater Lake.

PERIOD OF RECORD.--May 1904 to current year. Records since October 1983 equivalent to earlier records if flow in Keno Canal is added to flow past station.

GAGE.--Water-stage recorder. Datum of gage is 4,083.71 ft above NGVD of 1929, or 4,085.50 ft above Bureau of Reclamation datum. Prior to Sept. 14, 1912, water-stage recorder or nonrecording gages at several sites within 0.5 mi of present site at various datums. Sept. 14, 1912, to Nov. 23, 1923, at site 600 ft downstream at datum 5.42 ft lower. Nov. 24, 1923, to Nov. 15, 1961, at site on left bank at present datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1919 by Upper Klamath Lake (station 11507001). Large diurnal fluctuation caused by powerplant upstream from station. Water diverted upstream from station by main or "A" Canal of Klamath project. Many other diversions upstream from lake. All records presented herein do not include flow in Keno Canal which, since September 1908, has diverted from Upper Klamath Lake at Link River Dam for power generation, and returns flow to Link River downstream from station.

AVERAGE DISCHARGE.--79 years (water years 1905-83), 1,593 ft<sup>3</sup>/s, 1,154,000 acre-ft/yr, not adjusted for "A" Canal. 19 years (water years 1984-2002), 1,262 ft<sup>3</sup>/s, 914,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,400 ft<sup>3</sup>/s May 12, 1904, gage height at Main Street Bridge, 7.30 ft, datum then in use, from floodmarks; minimum daily discharge, 17 ft<sup>3</sup>/s Dec. 13, 1937.

EXTREMES FOR CURRENT YEAR.-- Maximum discharge, 1,940 ft<sup>3</sup>/s Feb. 25, gage height, 2.51 ft; minimum, 303 ft<sup>3</sup>/s Aug. 27-29, result of regulation from Upper Klamath Lake.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	640	776	727	528	1280	1720	1200	905	1170	1050	765	428
2	631	638	722	533	1270	1740	1050	590	1390	1400	854	411
3	615	494	887	536	1180	1730	1100	596	970	1250	748	408
4	611	496	1150	680	1200	1620	702	623	598	1370	769	530
5	738	543	1070	1120	1150	1320	531	855	845	1260	795	753
6	915	795	657	1190	1100	1150	592	833	879	1250	588	576
7	821	813	376	1300	1060	1390	535	1260	827	1210	638	426
8	944	785	361	1190	922	1150	583	1120	725	1390	724	430
9	1060	794	366	1230	957	1250	940	1040	877	1300	667	411
10	1060	613	522	1260	970	1320	1120	1310	670	1440	707	393
11	1130	511	443	1170	913	1270	998	1170	758	1350	604	533
12	1140	512	765	1070	922	1290	941	1250	722	1250	577	405
13	1250	592	854	1080	864	1300	843	1400	843	1100	569	408
14	1320	718	665	1170	755	1530	832	1570	735	1130	617	381
15	1060	802	885	1450	661	1530	897	1360	821	1050	589	373
16	807	756	1090	1450	686	1560	948	1070	790	1050	767	374
17	801	512	986	1570	643	1750	802	1090	996	1160	818	374
18	684	492	997	1460	562	1370	960	1650	892	887	670	374
19	608	490	768	1300	643	1170	939	1580	1160	1090	634	374
20	549	495	754	1400	649	1060	645	1070	1150	937	516	373
21	543	488	754	1490	530	1050	866	777	1250	808	627	372
22	535	400	723	1630	696	1140	1410	785	1290	704	529	367
23	553	644	763	881	787	708	1620	907	1100	1030	462	366
24	716	389	778	1060	945	542	1610	866	1120	847	453	365
25	782	530	821	1210	1370	781	1620	840	1300	947	454	367
26	742	663	794	1230	1690	1230	1730	944	1430	780	401	502
27	780	717	689	1180	1720	1290	1710	849	1570	705	326	769
28	767	747	797	1560	1650	1350	1590	883	1540	660	278	613
29	1080	615	654	1680	---	1230	1630	875	1370	659	324	562
30	1400	750	589	1380	---	1270	1190	959	1100	799	488	538
31	1180	---	530	1290	---	1250	---	1270	---	793	471	---
TOTAL	26462	18570	22937	37278	27775	40061	32134	32297	30888	32656	18429	13556
MEAN	854	619	740	1203	992	1292	1071	1042	1030	1053	594	452
MAX	1400	813	1150	1680	1720	1750	1730	1650	1570	1440	854	769
MIN	535	389	361	528	530	542	531	590	598	659	278	365
AC-FT	52490	36830	45500	73940	55090	79460	63740	64060	61270	64770	36550	26890

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	954	1108	1311	1475	1580	1995	1844	1421	1103	843	803	729							
MAX	2125	3739	4075	5832	4797	5261	3801	3338	1998	1197	1264	1205							
(WY)	1985	1985	1984	1997	1996	1986	1993	1998	1998	1999	2001	1996							
MIN	606	434	451	372	214	119	342	286	648	543	551	268							
(WY)	1990	1992	1995	1995	1994	1992	1991	1991	1990	1987	1991	2000							

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1984 - 2002

ANNUAL TOTAL	332691	333043	
ANNUAL MEAN	911	912	1262
HIGHEST ANNUAL MEAN			2200
LOWEST ANNUAL MEAN			547
HIGHEST DAILY MEAN	1820	1750	6920
LOWEST DAILY MEAN	361	278	95
ANNUAL SEVEN-DAY MINIMUM	485	369	96
ANNUAL RUNOFF (AC-FT)	659900	660600	914400
10 PERCENT EXCEEDS	1480	1400	2630
50 PERCENT EXCEEDS	785	843	920
90 PERCENT EXCEEDS	543	488	419

## 11509500 KLAMATH RIVER AT KENO, OR

LOCATION.--Lat 42°08'00", long 121°57'40", in NW 1/4 SE 1/4 sec.35, T.39 S., R.7 E., Klamath County, Hydrologic Unit 18010206, on left bank 1.7 mi northwest of Keno and 4.5 mi upstream from Spencer Creek, and at mile 231.9.

DRAINAGE AREA.--3,920 mi<sup>2</sup>, approximately (not including Lost River or Lower Klamath Lake basins).

PERIOD OR RECORD.--June 1904 to December 1913, October 1929 to current year. Monthly discharge only October to December 1929, published in WSP 1315-B.

GAGE.--Water-stage recorder. Datum of gage is 3,961 ft above NGVD of 1929 (from river-profile survey). See WSP 1735 for history of changes prior to Nov. 6, 1954.

REMARKS.--Records good. Flow regulated since 1919 by Upper Klamath Lake (station 11507001). Fluctuation by Keno powerplant 0.9 mi upstream. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--82 years (water years 1905-13, 1930-2002), 1,638 ft<sup>3</sup>/s, 1,186,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,300 ft<sup>3</sup>/s Feb. 28, 1986, gage height, 12.82 ft, caused by regulation from Keno powerplant 0.9 mi upstream; minimum discharge, 26 ft<sup>3</sup>/s Sept. 23, 1956; minimum daily, 60 ft<sup>3</sup>/s May 19, 1934.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 15.3 ft, from floodmark (original datum), about May 10, 1904, discharge, 9,250 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,430 ft<sup>3</sup>/s Mar. 4, gage height, 7.41 ft; minimum discharge, 255 ft<sup>3</sup>/s Sept. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	594	1020	1020	1370	1550	2380	1430	1190	903	549	473	358
2	593	867	1020	1400	1490	2380	1240	e831	902	561	477	401
3	584	727	1060	1780	1490	2380	1050	e883	634	559	399	419
4	580	727	1260	1220	1490	2240	868	e940	626	554	402	351
5	744	873	1370	1010	1490	1950	850	e902	616	562	404	349
6	779	1020	1180	1010	1360	1940	839	e947	573	572	405	351
7	832	1020	776	1010	1270	1920	836	e996	551	571	404	372
8	985	1020	758	1010	1240	1920	967	1040	551	573	405	493
9	1020	1010	758	1010	1220	1910	1210	1060	551	570	366	610
10	1070	824	741	e942	1210	1920	1220	1270	554	564	344	536
11	1080	745	733	e977	1200	1910	1180	1280	557	572	344	399
12	1080	738	733	e1010	1190	1910	1090	1310	557	569	344	448
13	1230	935	746	e1010	1190	1920	1060	1310	490	568	343	438
14	1180	1010	846	e978	1180	1930	1040	1310	449	555	344	454
15	996	1010	724	e955	1180	1930	1020	1090	464	482	345	450
16	785	1010	723	e955	1180	1930	1010	881	463	404	343	451
17	786	762	724	e920	1180	1930	1090	929	487	403	343	450
18	787	752	724	e1010	1180	1700	1000	1220	649	465	345	453
19	786	747	734	e1090	1170	1430	883	1110	684	559	345	454
20	784	747	738	e1050	1170	1360	805	897	716	559	348	454
21	784	755	742	e1010	1590	1360	974	900	713	507	346	456
22	784	771	742	e1110	1560	1360	1320	898	716	402	345	462
23	799	963	742	e1200	1570	917	1490	899	716	401	407	466
24	917	785	741	e1030	1560	789	1490	900	717	402	451	459
25	982	784	742	1150	1930	1160	1480	899	715	451	451	575
26	977	928	742	1200	2390	1290	1480	898	715	490	451	592
27	974	1030	741	1200	2390	1370	1510	899	715	489	423	602
28	975	1030	738	1520	2390	1420	1550	900	635	490	338	613
29	1310	1020	742	1630	---	1420	1550	897	497	488	336	623
30	1570	1020	742	1630	---	1420	1560	898	499	486	347	628
31	1420	---	976	1620	---	1420	---	900	---	488	354	---
TOTAL	28767	26650	25758	36017	41010	52816	35092	31284	18615	15865	11772	14167
MEAN	928	888	831	1162	1465	1704	1170	1009	620	512	380	472
MAX	1570	1030	1370	1780	2390	2380	1560	1310	903	573	477	628
MIN	580	727	723	920	1170	789	805	831	449	401	336	349
AC-FT	57060	52860	51090	71440	81340	104800	69600	62050	36920	31470	23350	28100

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1905 - 2002, BY WATER YEAR (WY)

	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	1374	1621	1871	2022	2198	2588	2297	1760	1098	797	917	1145																																																																																						
MAX	3055	4673	5732	7702	7564	8197	6594	5258	3713	2748	1898	2214																																																																																						
(WY)	1957	1985	1984	1965	1965	1972	1956	1906	1906	1906	1958	1943																																																																																						
MIN	564	290	391	542	254	215	166	109	97.6	114	146	246																																																																																						
(WY)	1982	1935	1935	1935	1992	1992	1931	1931	1931	1931	1992	1992																																																																																						

## SUMMARY STATISTICS

## FOR 2001 CALENDAR YEAR

## FOR 2002 WATER YEAR

## WATER YEARS 1905 - 2002

ANNUAL TOTAL	354267	337813		
ANNUAL MEAN	971	926		
HIGHEST ANNUAL MEAN			1638	
LOWEST ANNUAL MEAN			3582	1956
HIGHEST DAILY MEAN			340	1992
LOWEST DAILY MEAN	1840	Jun 6	2390	Feb 26
ANNUAL SEVEN-DAY MINIMUM	477	Jan 12	336	Aug 29
ANNUAL RUNOFF (AC-FT)	594	Sep 28	344	Aug 11
10 PERCENT EXCEEDS	702700		670100	1186000
50 PERCENT EXCEEDS	1480		1510	3200
90 PERCENT EXCEEDS	846		883	1250
90 PERCENT EXCEEDS	646		406	418

e Estimated







12472800 COLUMBIA RIVER BELOW PRIEST RAPIDS DAM, WA

LOCATION.--Lat 46°37'44", long 119°51'49", in SE 1/4 NW 1/4 sec.7, T.13 N., R.24 E., Grant County, Hydrologic Unit 17020016, on left bank 2.6 mi downstream from Priest Rapids Dam, 14.7 mi south of Beverly, and at mile 394.5.

DRAINAGE AREA.--96,000 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--January 1917 to current year. January 1917 to September 1930, at site 3.4 mi downstream, published as "at Vernita." October 1930 to July 27, 1959, at site 46.5 mi upstream, published as "at Trinidad."

REVISED RECORDS.--WSP 1933: Drainage area. WDR WA-82-2: 1965(m), 1971(m).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Oct. 1, 1930, nonrecording gages at site 3.4 mi downstream at datum 388.7 ft above sea level. Oct. 1, 1930, to July 27, 1959, water-stage recorder at site 46.5 mi upstream at datum 499.3 ft above sea level (river-profile survey).

REMARKS.--No estimated daily discharges. Records good. Diversions for irrigation of about 600,000 acres upstream from station. Flow regulated by 10 major reservoirs and numerous smaller reservoirs and powerplants. U.S. Geological Survey satellite telemeter at station. Water temperatures March 1980 to April 1993. Temperature records for site "at Vernita Bridge, near Priest Rapids Dam" (station 12472900) for period July 1974 to September 1980 are equivalent.

AVERAGE DISCHARGE.--85 years (water years 1918-2002), 119,400 ft<sup>3</sup>/s, 86,490,000 acre-ft/yr, unadjusted. 43 years (water years 1960-2002), 119,600 ft<sup>3</sup>/s, 86,660,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 692,600 ft<sup>3</sup>/s June 12, 1948, gage height, 59.35 ft, site and datum then in use; minimum discharge, 4,120 ft<sup>3</sup>/s Feb. 10, 1932, due to construction at Rock Island Dam, site and datum then in use; minimum daily discharge prior to construction of Rock Island Dam (1932), 22,000 ft<sup>3</sup>/s Feb. 1-7, 1930, site and datum then in use; minimum daily discharge after completion of Rock Island Dam (1932), 20,000 ft<sup>3</sup>/s Jan. 31 to Feb. 10, 1937, site and datum then in use; minimum discharge since completion of Priest Rapids Dam (1959), 16,300 ft<sup>3</sup>/s Nov. 7, 1998, due to emergency flow reduction at Priest Rapids Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a discharge of about 740,000 ft<sup>3</sup>/s, based on a rating extension for a Weather Bureau gage at Wenatchee.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 318,000 ft<sup>3</sup>/s July 1, elevation, 418.11 ft; minimum discharge, 36,400 ft<sup>3</sup>/s Nov. 18, elevation, 396.40 ft; minimum daily discharge, 39,900 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79600	61900	75500	92800	128000	85100	53300	140000	191000	249000	113000	59200
2	63100	53500	54700	87700	94300	88800	50300	137000	138000	270000	129000	67100
3	55000	47600	68800	119000	86800	74800	55100	134000	191000	258000	108000	88000
4	59000	43700	110000	121000	108000	64000	62300	148000	249000	235000	89700	77700
5	61300	70400	95900	101000	113000	75800	62600	101000	252000	195000	103000	83200
6	39900	75800	88700	92000	106000	80300	52000	163000	236000	197000	94400	67700
7	42700	89300	75100	78800	109000	88900	50000	168000	245000	208000	118000	63500
8	60100	86500	68800	76500	112000	113000	50600	143000	254000	185000	128000	47000
9	66700	85800	53100	87500	101000	76200	56700	139000	208000	135000	114000	79600
10	80000	48200	87100	76300	88000	73000	80200	148000	230000	178000	110000	84400
11	61100	44300	114000	72100	109000	72000	74300	122000	224000	226000	103000	66700
12	70200	68400	93900	85100	125000	95600	133000	114000	231000	195000	94000	63500
13	48400	86700	107000	70500	132000	91000	112000	157000	200000	218000	114000	69700
14	51100	70600	90100	93500	97500	73800	104000	139000	197000	207000	113000	79900
15	69200	71200	75400	129000	111000	69600	144000	119000	208000	150000	120000	52500
16	71400	86900	72600	116000	107000	80400	181000	137000	192000	195000	110000	59600
17	101000	74400	79200	104000	81200	74700	194000	139000	200000	219000	78300	79600
18	69700	68900	95000	121000	93600	88800	211000	121000	219000	165000	81900	67500
19	49500	68300	102000	97000	109000	84300	175000	131000	250000	192000	117000	99400
20	43800	91100	119000	103000	93400	95100	189000	140000	267000	184000	122000	94300
21	43300	88500	106000	89100	97900	78000	170000	143000	252000	188000	112000	97800
22	69200	80800	92700	121000	83200	88400	196000	135000	216000	152000	124000	84400
23	84500	67900	87100	128000	80700	54500	185000	163000	210000	179000	130000	89800
24	66900	87300	75900	105000	83600	50800	164000	154000	189000	151000	109000	97000
25	60200	68600	75300	94900	92200	50600	166000	144000	191000	159000	81400	107000
26	71300	94900	90100	100000	88900	50400	160000	135000	218000	125000	96000	98500
27	62700	112000	114000	80000	99400	51300	115000	171000	244000	104000	122000	67600
28	47800	115000	96100	102000	95800	51200	117000	179000	261000	110000	113000	55900
29	63000	106000	86600	124000	---	53800	149000	156000	242000	133000	117000	55700
30	56400	94400	73300	125000	---	54100	169000	179000	200000	128000	89100	67100
31	71700	---	70900	138000	---	53600	---	165000	---	139000	112000	---
TOTAL	1939800	2308900	2693900	3130800	2826500	2281900	3681400	4464000	6605000	5629000	3365800	2275800
MEAN	62570	76960	86900	101000	100900	73610	122700	144000	220200	181600	108600	75860
MAX	101000	115000	119000	138000	132000	113000	211000	179000	267000	270000	130000	107000
MIN	39900	43700	53100	70500	80700	50400	50000	101000	138000	104000	78300	47000
AC-FT	3848000	4580000	5343000	6210000	5606000	4526000	7302000	8854000	13100000	11170000	6676000	4514000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1918 - 2002, BY WATER YEAR (WY)

MEAN	72040	73200	77420	80310	81570	82390	104200	192300	266800	197900	120400	82300
MAX	119800	121200	163800	168400	195000	201800	196500	348500	590700	385400	192000	131700
(WY)	1928	1991	1996	1996	1996	1983	1934	1934	1948	1950	1920	1927
MIN	45950	32290	26840	21710	20900	26500	37160	61840	78810	56650	66740	60050
(WY)	1932	1937	1937	1937	1937	1937	1944	2001	1977	2001	1985	1994

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1918 - 2002
ANNUAL TOTAL	27625500	41202800	
ANNUAL MEAN	75690	112900	119400
HIGHEST ANNUAL MEAN			165600
LOWEST ANNUAL MEAN			78070
HIGHEST DAILY MEAN	135000	Jan 3	690000
LOWEST DAILY MEAN	36800	Jul 29	20000
ANNUAL SEVEN-DAY MINIMUM	44600	May 14	20100
ANNUAL RUNOFF (AC-FT)	54800000		86490000
10 PERCENT EXCEEDS	106000		231000
50 PERCENT EXCEEDS	70500		93800
90 PERCENT EXCEEDS	50400		46500



Figure 8. Location of surface-water stations in the Owyhee and Malheur River Basins.

OWYHEE RIVER BASIN

63

13181000 OWYHEE RIVER NEAR ROME, OR

LOCATION.--Lat 42°52'02", long 117°38'52", in SE 1/4 NE 1/4 sec.14, T.31 S., R.41 E., Malheur County, Hydrologic Unit 17050107, on right bank 0.5 mi downstream from Jordan Creek, 2.6 mi north of Rome, and at mile 122.4.

DRAINAGE AREA.--About 8,000 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1949 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,344.20 ft above NGVD of 1929. Prior to Feb 10, 1960, at datum 0.24 ft lower.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Antelope Reservoir, capacity, 70,000 acre-ft, increased in 1970, and Wild Horse Reservoir, capacity, 32,690 acre-ft, and numerous small reservoirs. Diversions upstream from station for irrigation. Continuous water-quality records for the period October 1972 to June 1977 have been collected at this location. U. S. Bureau of Reclamation satellite telemeter at station.

AVERAGE DISCHARGE.--53 years (water years 1950-2002), 944 ft<sup>3</sup>/s, 683,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 55,700 ft<sup>3</sup>/s Mar. 18, 1993, gage height, 20.11 ft; minimum discharge, 42 ft<sup>3</sup>/s Aug. 12, 1954, July 28, Aug. 5, 1961, July 31, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,300 ft<sup>3</sup>/s Apr. 2, gage height, 9.61 ft; minimum daily discharge, 69 ft<sup>3</sup>/s Aug. 23.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	87	105	161	179	184	533	6870	871	371	190	139	80
2	86	105	143	191	197	450	8150	868	357	186	136	79
3	91	103	146	207	197	382	7560	897	404	180	132	82
4	90	103	159	282	188	351	6510	1110	400	179	134	81
5	84	104	154	301	177	315	6390	1060	387	171	130	77
6	81	106	156	305	175	306	6520	929	470	160	130	75
7	81	110	165	539	178	365	5940	869	440	159	126	75
8	81	108	165	826	184	1350	4540	812	393	159	126	78
9	82	107	160	775	191	1120	3400	779	351	136	125	78
10	82	105	170	881	183	800	2930	747	362	127	132	82
11	77	105	163	838	185	682	2980	715	355	119	136	83
12	79	108	165	704	188	889	2770	676	331	110	120	85
13	80	111	164	603	182	1610	2380	650	322	105	107	90
14	83	112	167	514	183	2280	2280	624	326	112	100	92
15	98	112	174	438	189	1680	2460	584	327	120	94	90
16	90	113	146	384	182	1230	2760	551	307	123	86	87
17	85	117	164	312	193	966	2250	489	290	115	83	90
18	86	119	175	302	192	776	1920	458	274	109	83	92
19	93	118	168	282	202	662	1760	442	251	113	81	89
20	93	114	174	226	216	595	1640	422	236	125	75	91
21	92	111	175	241	410	598	1550	428	227	134	72	94
22	94	110	173	252	745	1210	1380	504	213	166	71	94
23	97	117	161	224	1130	2730	1240	490	205	160	69	94
24	101	130	193	215	1390	3770	1070	524	204	157	77	97
25	101	142	175	215	1460	3870	1010	628	194	159	95	108
26	101	142	136	222	1160	3440	888	621	189	148	86	109
27	101	142	132	234	849	3950	783	554	192	143	84	110
28	102	149	147	221	653	4730	766	488	192	138	83	113
29	103	148	174	193	---	5530	748	450	190	135	85	110
30	104	118	171	153	---	6140	806	415	188	135	86	106
31	105	---	168	181	---	6480	---	395	---	145	89	---
TOTAL	2810	3494	5044	11440	11563	59790	92251	20050	8948	4418	3172	2711
MEAN	90.65	116.5	162.7	369.0	413.0	1929	3075	646.8	298.3	142.5	102.3	90.37
MAX	105	149	193	881	1460	6480	8150	1110	470	190	139	113
MIN	77	103	132	153	175	306	748	395	188	105	69	75
AC-FT	5570	6930	10000	22690	22940	118600	183000	39770	17750	8760	6290	5380

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1950 - 2002, BY WATER YEAR (WY)

	1950	1955	1965	1975	1985	1995	2000	2001	2002	1950-2002		
MEAN	162.0	213.1	378.6	674.5	1222	2494	2876	1964	878.5	254.2	151.5	137.5
MAX	442	593	2898	4461	8820	9404	16960	10470	4870	1035	452	361
(WY)	1976	1971	1965	1971	1986	1972	1952	1984	1984	1984	1984	1984
MIN	85.3	107	104	114	129	233	144	86.5	89.6	61.2	56.0	62.5
(WY)	1955	1955	1955	1955	1955	1977	1992	1992	1992	1968	1992	1955

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1950 - 2002
ANNUAL TOTAL	147957	225691	
ANNUAL MEAN	405.4	618.3	944.1
HIGHEST ANNUAL MEAN			3400
LOWEST ANNUAL MEAN			162
HIGHEST DAILY MEAN	7050	Mar 22	46900
LOWEST DAILY MEAN	57	Aug 30	44
ANNUAL SEVEN-DAY MINIMUM	60	Aug 25	47
ANNUAL RUNOFF (AC-FT)	293500		683900
10 PERCENT EXCEEDS	1120		2500
50 PERCENT EXCEEDS	165		232
90 PERCENT EXCEEDS	77		107

OWYHEE RIVER BASIN

13183000 OWYHEE RIVER BELOW OWYHEE DAM, OR

LOCATION.--Lat 43°39'17", long 117°15'16", in SE 1/4 sec.18, T.22 S., R.45 E.,Malheur County, Hydrologic Unit 17050110, on left bank 0.8 mi downstream from Owyhee Dam, 20 mi southwest of Nyssa, and at mile 27.3.

DRAINAGE AREA.--11,160 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--February 1929 to current year.

REVISED RECORDS.--WSP 983: 1941-42. WSP 1397: 1930, 1933, 1946.

GAGE.--Water-stage recorder. Datum of gage is 2,343.67 ft above NGVD of 1929 (levels by Bureau of Reclamation).

REMARKS.--Records good. Flow regulated since October 1932 by Lake Owyhee (station 13182500), and by many smaller reservoirs. Diversion of up to 457,000 acre-ft from Lake Owyhee during the year for irrigation of lands downstream from station and outside the basin. Many smaller diversions upstream from Lake Owyhee for irrigation upstream from station. Computation of monthly and annual adjusted flows discontinued in 1991.

AVERAGE DISCHARGE.--70 years (water years 1933-2002), 412 ft<sup>3</sup>/s, 298,700 acre-ft/yr, not adjusted for storage or diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,900 ft<sup>3</sup>/s Apr. 15, 1952, gage height, 15.70 ft; no flow for part of Aug. 8, 9, 1932, when temporary diversion tunnel at Owyhee Dam was closed.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 211 ft<sup>3</sup>/s Apr. 9; minimum daily discharge, 7.7 ft<sup>3</sup>/s Oct. 20.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	192	8.2	11	13	13	13	10	198	188	191	198	197
2	191	8.4	11	12	12	13	10	198	188	191	199	194
3	189	8.6	11	12	13	13	11	195	188	192	198	189
4	188	8.8	11	12	12	13	11	195	188	192	198	192
5	187	9.3	11	13	12	13	11	197	188	192	198	193
6	186	9.7	11	13	12	14	12	197	188	192	197	194
7	186	9.0	11	12	12	14	13	197	188	192	197	183
8	186	8.2	11	13	12	13	160	193	188	192	197	191
9	186	8.6	11	13	12	13	211	194	188	192	196	190
10	186	9.1	11	13	12	13	208	194	188	192	197	189
11	187	9.4	11	13	12	11	206	194	188	192	198	189
12	186	9.2	11	13	11	11	206	195	188	192	198	190
13	186	8.2	12	11	11	11	206	194	188	192	197	189
14	186	8.8	12	13	11	11	204	194	188	193	197	189
15	185	8.8	12	14	11	11	204	195	188	192	198	189
16	185	9.1	12	14	11	11	202	197	189	192	199	188
17	186	9.4	12	14	11	11	201	194	189	192	200	189
18	183	9.4	13	14	11	11	200	194	188	192	201	189
19	74	9.6	12	14	e11	11	199	193	189	192	200	188
20	7.7	9.6	12	14	e11	11	199	192	189	192	199	188
21	8.2	9.8	12	14	e11	12	199	192	190	192	199	188
22	8.7	9.6	12	14	e11	12	199	191	189	187	198	188
23	8.5	9.5	12	14	e12	12	200	191	190	192	197	184
24	8.5	9.8	12	15	e12	11	199	192	190	192	197	188
25	8.7	9.1	12	15	12	11	199	192	190	193	197	188
26	8.8	9.2	13	15	12	11	198	192	190	196	197	188
27	8.9	9.6	14	14	13	11	199	192	190	197	197	188
28	8.6	10	14	15	13	10	198	192	190	199	197	188
29	8.4	10	13	14	---	11	198	192	190	198	197	188
30	8.5	10	13	13	---	11	197	191	191	198	197	188
31	8.1	---	13	13	---	11	---	189	---	198	197	---
TOTAL	3536.6	276.0	369	416	329	365	4670	6006	5664	5981	6132	5676
MEAN	114.1	9.200	11.90	13.42	11.75	11.77	155.7	193.7	188.8	192.9	197.8	189.2
MAX	192	10	14	15	13	14	211	198	191	199	201	197
MIN	7.7	8.2	11	11	11	10	10	189	188	187	196	183
AC-FT	7010	547	732	825	653	724	9260	11910	11230	11860	12160	11260

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2002, BY WATER YEAR (WY)

	MEAN	9.785	24.07	144.2	389.2	1038	1645	847.2	332.4	174.2	156.2	130.8
MAX	242	196	703	2751	5198	7799	12790	8565	3246	618	312	248
(WY)	1986	1933	1985	1971	1986	1972	1984	1984	1984	1933	1933	1933
MIN	2.80	1.00	1.31	1.17	1.13	1.66	28.2	39.5	45.8	44.3	22.4	8.00
(WY)	1955	1953	1993	1993	1993	1992	1955	1955	1948	1948	1948	1948

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1933 - 2002
ANNUAL TOTAL	39400.6	39420.6	
ANNUAL MEAN	107.9	108.0	412.3
HIGHEST ANNUAL MEAN			2991 1984
LOWEST ANNUAL MEAN			22.3 1948
HIGHEST DAILY MEAN	204	Jun 11	21800 Apr 16 1952
LOWEST DAILY MEAN	7.7	Oct 20	1.0 Oct 18 1952
ANNUAL SEVEN-DAY MINIMUM	8.4	Oct 28	1.0 Oct 18 1952
ANNUAL RUNOFF (AC-FT)	78150	78190	298700
10 PERCENT EXCEEDS	201	198	618
50 PERCENT EXCEEDS	186	186	85
90 PERCENT EXCEEDS	9.7	9.7	2.7

e Estimated

## 13213100 SNAKE RIVER AT NYSSA, OR

LOCATION.--Lat 43°52'34", long 116°58'53", in NW 1/4 SW 1/4 NE 1/4 sec.7, T.6 N., R.5 W., Canyon County, Hydrologic Unit 17050115, on right bank, 300 upstream from U.S. Highway 20-26 bridge at Nyssa, 2.3 mi downstream from Boise River and at mile 385.2.

DRAINAGE AREA.--58,700 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--November 1974 to September 1986, February 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,170 ft above NGVD of 1929, from topographic map. Prior to 1989, station located on left bank, in Oregon.

REMARKS.--Records good. Station equipment includes satellite telemetry. Flow regulated by many reservoirs upstream from station.

AVERAGE DISCHARGE.--25 years (water years 1976-86, 1989-2002), 14,130 ft<sup>3</sup>/s, 10,240,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 57,900 ft<sup>3</sup>/s Apr. 19, 1984, gage height, 13.34 ft; minimum discharge, 4,110 ft<sup>3</sup>/s June 7, 1992, gage height, 4.32 ft.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 10,100 ft<sup>3</sup>/s Mar. 26; minimum daily discharge, 5,040 ft<sup>3</sup>/s June 30.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8330	8700	8670	8380	8210	8010	8490	6770	7480	5200	6110	7320
2	8420	8780	8960	8360	8250	7940	8200	7190	7720	5260	6040	7610
3	8180	8620	8680	8650	8170	7990	8440	6830	7680	5320	6040	7780
4	8210	8700	8420	8570	8060	8170	8480	6740	7590	5420	6460	7690
5	8210	8820	8840	8460	7940	7930	8420	7060	7480	5340	6330	7550
6	8510	8950	9020	8630	8240	8210	8370	7840	7930	5470	6350	7300
7	8360	8620	9060	8730	8150	8000	7660	7580	7520	5520	6230	7690
8	8500	8600	8640	8750	8030	8090	7490	7370	7450	5610	6470	7770
9	8660	8650	9090	8710	7730	9310	8170	7450	7640	5460	6420	7830
10	8490	8950	8710	8530	7760	9950	8220	7690	7840	5420	6810	8330
11	8490	8890	8610	8740	8460	8490	8360	7550	7790	5440	6580	8590
12	9150	8780	8800	8860	8000	7970	7780	7960	7650	5320	6680	8510
13	8860	9060	8620	8630	8030	8380	8030	8090	7470	5390	6350	8470
14	9100	9240	9240	8380	8010	8140	7900	7400	7270	5610	6440	8010
15	9350	8820	8920	8180	8120	8780	8590	7340	7150	5800	6710	8090
16	9840	8950	8640	8760	8040	8810	8090	7350	6880	5720	6530	8530
17	9860	9260	8830	8340	7930	8640	7920	7090	6690	5710	6470	8380
18	9270	9140	8910	8430	8000	8170	8290	7090	6170	5840	6090	8530
19	9240	8360	8640	8080	7900	8570	7990	7360	5590	6030	6230	8670
20	9000	8970	8560	8250	8300	8240	8600	7230	5540	6460	6740	8720
21	8760	8860	8510	8540	8140	8390	8190	e7400	5530	6620	6550	8500
22	8730	9100	9000	8160	8540	8250	8160	e7600	5760	6580	6150	8560
23	8690	8790	8270	8050	8670	8520	7770	7770	6250	6760	6170	9000
24	8170	8740	8840	8400	8720	8800	7110	8160	6390	6900	6680	8660
25	8850	9650	8150	8400	8540	9490	6990	8120	e5800	6770	6960	8730
26	8910	8840	8690	8340	8420	10100	7210	8170	e5700	6490	7180	8940
27	8540	8600	8620	8340	9480	9510	7020	8140	e5700	6290	6740	8540
28	8690	8870	8620	8200	8100	8170	7040	8190	5570	6290	6940	8440
29	8600	9300	8230	8440	---	8480	7060	7710	5090	6420	7270	8480
30	8630	9040	8100	8200	---	8560	6910	7520	5040	6190	7550	8490
31	8850	---	8760	8530	---	8410	---	7460	---	5940	7300	---
TOTAL	271450	266650	269650	262020	229940	264470	236950	233220	201360	182590	203570	247710
MEAN	8756	8888	8698	8452	8212	8531	7898	7523	6712	5890	6567	8257
MAX	9860	9650	9240	8860	9480	10100	8600	8190	7930	6900	7550	9000
MIN	8170	8360	8100	8050	7730	7930	6910	6740	5040	5200	6040	7300
AC-FT	538400	528900	534900	519700	456100	524600	470000	462600	399400	362200	403800	491300

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	12260	12790	13270	14460	15460	17960	20350	19200	16470	8808	8702	10630																
MAX	21360	24660	24320	30290	38580	40010	43970	49060	41100	16480	12620	17110																
(WY)	1985	1985	1984	1984	1997	1986	1984	1984	1984	1983	1997	1997																
MIN	8102	8888	8698	8452	8212	8018	6033	5367	5223	5546	5075	6664																
(WY)	1993	2002	2002	2002	2002	1992	1992	1992	1992	1992	1992	1992																

## SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1976 - 2002
ANNUAL TOTAL	2903000	2869580	
ANNUAL MEAN	7953	7862	14130
HIGHEST ANNUAL MEAN			26260
LOWEST ANNUAL MEAN			7365
HIGHEST DAILY MEAN	10500	10100	57400
LOWEST DAILY MEAN	5630	5040	4240
ANNUAL SEVEN-DAY MINIMUM	5750	5240	4520
ANNUAL RUNOFF (AC-FT)	5758000	5692000	10240000
10 PERCENT EXCEEDS	9040	8910	26100
50 PERCENT EXCEEDS	8310	8170	10900
90 PERCENT EXCEEDS	6330	6170	7230

e Estimated

## MALHEUR RIVER BASIN

13215000 MALHEUR RIVER BELOW WARMSPRINGS RESERVOIR, NEAR RIVERSIDE, OR

LOCATION.--Lat 43°34'29", long 118°12'31", on line between NW 1/4 SW 1/4 and SW 1/4 NW 1/4 sec.17, T.23 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank 0.9 mi downstream from Warm Springs Dam, 3.0 mi upstream from South Fork, 4.0 mi northwest of Riverside, and at mile 113.

DRAINAGE AREA.--1,100 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--January 1906 to March 1907 and December 1908 (gage heights only), January 1909 to September 1910, December 1914 to July 1917, March 1919 to current year. Monthly discharge only for some periods, published in WSP 1317. Figures of discharge for January 1906 to March 1907, published in WSP 272 and 370, have been found to be unreliable and should not be used. Published as Middle Fork of Malheur River at Riverside 1906-7, as Middle Fork of Malheur River above South Fork, at Riverside 1909-10, as Malheur River above South Fork, at Riverside in WSP 370, 1906-10, and as Malheur River at Warm Springs reservoir site, near Riverside 1914-17.

REVISED RECORDS.--WSP 833: 1936. WSP 1063: 1942-45. WSP 1397: 1909-10, 1917. WSP 1447: 1955. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Elevation of gage is 3,305 ft above NGVD of 1929, by barometer. See WSP 1317 or 1737 for history of changes prior to Sept. 29, 1949.

REMARKS.--Records good except for those below 40 ft<sup>3</sup>/s, which are poor. Flow completely regulated since November 1919 by Warm Springs Reservoir (station 13214500). Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--83 years (water years 1920-2002), 190 ft<sup>3</sup>/s, 137,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge observed, 7,200 ft<sup>3</sup>/s Mar. 1, 1910, gage height, 10.7 ft, site and datum then in use, from rating curve extended above 820 ft<sup>3</sup>/s; maximum discharge since storage began November 1919, 3,150 ft<sup>3</sup>/s Mar. 22, 1984, gage height, 9.70 ft, from floodmark; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 657 ft<sup>3</sup>/s Apr. 23, gage height, 5.31 ft; minimum discharge, no flow many days.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	19	0.00	0.04	0.09	0.09	0.08	0.04	482	281	395	402	2.2
2	14	0.00	0.05	0.10	0.09	0.08	0.03	504	284	395	391	2.3
3	11	0.00	0.04	0.09	0.09	0.08	0.03	502	280	393	403	2.1
4	13	0.00	0.04	0.09	0.08	0.08	0.02	512	304	394	397	1.9
5	14	0.00	0.05	0.09	0.07	0.08	0.02	517	306	381	355	1.6
6	7.1	0.00	0.05	0.10	0.06	0.08	0.02	516	310	382	277	1.6
7	0.13	0.00	0.05	0.10	0.06	0.09	0.01	500	315	383	200	1.8
8	0.07	0.00	0.05	0.10	0.06	0.09	0.00	490	314	372	99	2.3
9	0.05	0.00	0.05	0.10	0.06	0.09	0.00	488	311	383	41	2.6
10	0.04	0.00	0.05	0.10	0.06	0.09	0.02	487	313	397	18	3.3
11	0.05	0.00	0.06	0.10	0.06	0.09	0.02	471	315	398	9.5	3.8
12	0.04	0.00	0.06	0.10	0.06	0.09	0.02	461	314	395	5.5	4.1
13	0.03	0.00	0.06	0.10	0.06	0.08	0.02	457	311	403	3.7	4.7
14	0.02	0.00	0.06	0.10	0.07	0.08	0.02	457	307	405	2.7	4.1
15	0.02	0.00	0.06	0.10	0.09	0.08	0.02	390	318	405	2.0	3.6
16	0.00	0.00	0.07	0.09	0.09	0.08	0.02	355	323	401	1.5	3.6
17	0.00	0.00	0.07	0.09	0.09	0.08	0.02	351	325	397	1.3	4.0
18	0.00	0.01	0.07	0.09	0.09	0.08	0.02	351	324	395	2.2	4.3
19	0.00	0.01	0.07	0.10	0.09	0.08	0.02	351	323	393	3.5	3.9
20	0.00	0.02	0.07	0.09	0.09	0.08	0.02	350	323	391	4.4	4.9
21	0.00	0.02	0.07	0.10	0.09	0.08	0.02	334	336	388	4.2	7.5
22	0.00	0.03	0.07	0.09	0.09	0.07	0.02	322	346	397	3.6	9.1
23	0.00	0.02	0.07	0.09	0.09	0.07	261	312	347	399	3.1	9.6
24	0.00	0.03	0.07	0.09	0.08	0.07	416	302	347	400	2.9	10
25	0.00	0.04	0.07	0.10	0.07	0.06	414	296	347	396	2.4	10
26	0.00	0.02	0.08	0.10	0.08	0.06	410	298	363	397	2.4	12
27	0.00	0.03	0.07	0.09	0.08	0.05	408	300	386	393	1.7	13
28	0.00	0.04	0.08	0.09	0.08	0.04	407	300	390	386	1.5	15
29	0.00	0.04	0.08	0.09	---	0.04	406	285	396	388	1.5	14
30	0.00	0.04	0.09	0.09	---	0.04	420	283	397	398	1.6	15
31	0.00	---	0.09	0.09	---	0.04	---	272	---	401	1.6	---
TOTAL	78.55	0.35	1.96	2.94	2.17	2.28	3142.43	12296	9856	12201	2645.8	177.9
MEAN	2.534	0.012	0.063	0.095	0.077	0.074	104.7	396.6	328.5	393.6	85.35	5.930
MAX	19	0.04	0.09	0.10	0.09	0.09	420	517	397	405	403	15
MIN	0.00	0.00	0.04	0.09	0.06	0.04	0.00	272	280	372	1.3	1.6
AC-FT	156	0.7	3.9	5.8	4.3	4.5	6230	24390	19550	24200	5250	353

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2002, BY WATER YEAR (WY)

	35.61	0.769	6.950	18.32	38.56	85.92	321.6	427.7	348.3	434.8	354.1	198.3
MEAN	35.61	0.769	6.950	18.32	38.56	85.92	321.6	427.7	348.3	434.8	354.1	198.3
MAX	138	19.8	323	452	763	1440	1603	1162	570	677	575	398
(WY)	1953	1920	1984	1971	1983	1984	1958	2000	1945	1946	1999	1999
MIN	0.000	0.000	0.000	0.000	0.000	0.000	0.000	31.4	92.0	30.3	0.041	0.000
(WY)	1934	1933	1933	1933	1933	1933	1935	1932	1942	1992	1988	1988

## SUMMARY STATISTICS

## FOR 2001 CALENDAR YEAR

## FOR 2002 WATER YEAR

## WATER YEARS 1920 - 2002

ANNUAL TOTAL	45687.53	40407.38	
ANNUAL MEAN	125.2	110.7	190.1
HIGHEST ANNUAL MEAN			566
LOWEST ANNUAL MEAN			46.8
HIGHEST DAILY MEAN	538	May 12	3030
LOWEST DAILY MEAN	0.00	Jan 1	0.00
ANNUAL SEVEN-DAY MINIMUM	0.00	Jan 1	0.00
ANNUAL RUNOFF (AC-FT)	90620	80150	137700
10 PERCENT EXCEEDS	439	397	505
50 PERCENT EXCEEDS	0.17	0.10	3.8
90 PERCENT EXCEEDS	0.00	0.01	0.00

MALHEUR RIVER BASIN

13217500 NORTH FORK MALHEUR RIVER AT BEULAH, OR

LOCATION.--Lat 43°54'28", long 118°09'08", in NW 1/4 NE 1/4 sec.22, T.19 S., R.37 E., Malheur County, Hydrologic Unit 17050116, on left bank at Beulah, 0.3 mi downstream from Agency Valley Dam, 12 mi northwest of Juntura, and at mile 14.5.

DRAINAGE AREA.--440 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1926 to current year. Published as "near Beulah" June 1926 to September 1935.

REVISED RECORDS.--WSP 1397: 1927-32, 1934, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,261.20 ft above NGVD of 1929. Prior to Apr. 25, 1926, water-stage recorder at site 1 mi downstream at different datum. Apr. 25, 1936, to Sept. 30, 1949, nonrecording gage at site 20 ft downstream at datum 1.0 ft higher. Oct. 1, 1949, to June 30, 1964, at present site at datum 1.0 ft higher.

REMARKS.--Records good except those below 20 ft<sup>3</sup>/s and estimated daily discharges, which are poor. Flow regulated since 1935 by Beulah Reservoir (station 13217000). Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--67 years (water years 1936-2002), 144 ft<sup>3</sup>/s, 104,500 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,000 ft<sup>3</sup>/s May 7, 1942, gage height, 9.4 ft, present datum, from floodmark, caused by failure of gates at Agency Valley Dam, from rating curve extended above 1,100 ft<sup>3</sup>/s on basis of computation of peak flow over dam; no flow at times.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 440 ft<sup>3</sup>/s Aug. 7, gage height, 3.56 ft; minimum daily discharge, 0.02 Dec. 13, 14, 18-31, Jan. 1-7, 16-28.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	25	e0.09	e0.05	e0.02	e0.03	e0.05	e0.07	213	327	354	345	43
2	19	e0.08	e0.04	e0.02	e0.03	e0.05	e0.07	309	326	353	354	41
3	22	e0.08	e0.04	e0.02	e0.03	e0.05	0.49	346	318	351	376	40
4	23	e0.08	e0.04	e0.02	e0.03	e0.05	2.7	338	295	349	379	39
5	24	e0.08	e0.04	e0.02	e0.03	e0.05	3.3	322	273	347	396	37
6	24	e0.07	e0.03	e0.02	e0.03	e0.05	3.6	298	269	346	417	40
7	24	e0.07	e0.03	e0.02	e0.03	e0.06	7.2	302	285	344	431	43
8	19	e0.07	e0.04	e0.03	e0.03	e0.07	8.1	301	296	332	413	41
9	11	e0.07	e0.04	e0.05	e0.03	e0.07	4.2	311	296	321	375	40
10	11	e0.06	e0.03	e0.05	e0.03	e0.07	7.4	315	289	325	314	40
11	12	e0.06	e0.03	e0.05	e0.03	e0.07	10	315	284	354	100	39
12	13	e0.06	e0.03	e0.03	e0.03	e0.07	15	315	287	358	47	37
13	13	e0.06	e0.02	e0.03	e0.03	e0.07	24	308	299	361	36	37
14	13	e0.06	e0.02	e0.03	e0.03	e0.07	28	291	302	361	38	38
15	13	e0.05	e0.03	e0.03	e0.03	e0.07	23	351	302	351	34	40
16	7.4	e0.05	e0.03	e0.02	e0.03	e0.07	28	379	301	346	38	40
17	3.8	e0.05	e0.03	e0.02	e0.03	e0.07	32	374	299	336	39	41
18	4.3	e0.05	e0.02	e0.02	e0.03	e0.07	34	370	314	330	41	43
19	4.8	e0.04	e0.02	e0.02	e0.03	e0.07	32	369	321	329	40	41
20	4.6	e0.04	e0.02	e0.02	e0.04	e0.08	33	369	321	322	40	40
21	0.99	e0.04	e0.02	e0.02	e0.04	e0.08	42	369	347	318	41	40
22	0.15	e0.05	e0.02	e0.02	e0.05	e0.08	60	347	356	324	43	40
23	e0.10	e0.06	e0.02	e0.02	e0.05	e0.08	130	325	356	335	44	40
24	e0.10	e0.06	e0.02	e0.02	e0.05	e0.08	173	311	327	340	46	43
25	e0.10	e0.05	e0.02	e0.02	e0.05	e0.08	148	291	322	337	42	41
26	e0.10	e0.05	e0.02	e0.02	e0.05	e0.08	121	284	327	333	42	41
27	e0.10	e0.05	e0.02	e0.02	e0.06	e0.08	110	284	326	330	42	42
28	e0.10	e0.05	e0.02	e0.02	e0.05	e0.07	108	284	348	327	45	41
29	e0.10	e0.05	e0.02	e0.03	---	e0.07	115	283	357	344	43	41
30	e0.10	e0.05	e0.02	e0.03	---	e0.07	152	293	356	347	43	42
31	e0.09	---	e0.02	e0.03	---	e0.07	---	298	---	342	47	---
TOTAL	292.93	1.78	0.85	0.79	1.01	2.12	1455.13	9865	9426	10547	4731	1211
MEAN	9.449	0.059	0.027	0.025	0.036	0.068	48.50	318.2	314.2	340.2	152.6	40.37
MAX	25	0.09	0.05	0.05	0.06	0.08	173	379	357	361	431	43
MIN	0.09	0.04	0.02	0.02	0.03	0.05	0.07	213	269	318	34	37
AC-FT	581	3.5	1.7	1.6	2.0	4.2	2890	19570	18700	20920	9380	2400

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2002, BY WATER YEAR (WY)

	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	36.51	0.974	1.633	10.38	29.29	87.24	297.0	354.8	284.5	276.3	215.5	134.3																																																							
MAX	134	35.5	62.7	287	478	936	856	810	510	402	399	341																																																							
(WY)	1954	1936	1943	1943	1965	1983	1958	1983	1974	1979	1980	1945																																																							
MIN	0.086	0.000	0.000	0.000	0.000	0.000	2.29	120	53.7	39.5	30.4	31.9																																																							
(WY)	1974	1938	1938	1936	1938	1938	1981	1977	1939	1992	1992	1961																																																							

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1936 - 2002
ANNUAL TOTAL	29835.69	37534.61	
ANNUAL MEAN	81.74	102.8	144.3
HIGHEST ANNUAL MEAN			335
LOWEST ANNUAL MEAN			54.6
HIGHEST DAILY MEAN	389	Aug 8	3700
LOWEST DAILY MEAN	0.00	Jan 16	0.00
ANNUAL SEVEN-DAY MINIMUM	0.02	Dec 18	0.00
ANNUAL RUNOFF (AC-FT)	59180	74450	104500
10 PERCENT EXCEEDS	274	345	365
50 PERCENT EXCEEDS	4.3	13	46
90 PERCENT EXCEEDS	0.04	0.03	0.10

e Estimated

13233300 MALHEUR RIVER BELOW NEVADA DAM, NEAR VALE, OR

LOCATION.--Lat 43°59'20", long 117°13'10", in NE 1/4 SW 1/4 sec.21, T.18 S., R.45 E., Malheur County, Hydrologic Unit 17050117, on right bank, 510 ft downstream from dam and headgates of Nevada Canal, and 1.5 mi northeast of Vale.

DRAINAGE AREA.--3,880 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1926 to September 1934, April 1936 to March 1942, March 1944 to September 1954, October 1993 to current year. Monthly discharge only for some periods, published in WSP 1317.

GAGE.--Water-stage recorder. Elevation of gage is 2,220 ft above NGVD of 1929, from topographic map. Prior to Nov. 17, 1930, at datum 1.00 ft higher.

REMARKS.--Records good except for the period Dec. 6 to Feb. 25 and estimated daily discharges, which are fair. Many diversions for irrigation upstream from station. Since March 1930, Vale-Oregon Canal has diverted in sec.31 T.20 S., R.41 E., for irrigation upstream from station and on Willow Creek, a tributary which enters partly above and partly below station. Gilleman-Frohman Canal diverts on left bank in sec.8 T.19 S., R.44 E., for irrigation above and below station. Nevada Canal diverts on right bank 300 ft above station for irrigation below station. Flow regulated by Warm Springs Reservoir and, since December 1935, by Beulah Reservoir.

AVERAGE DISCHARGE.--9 years (water years 1994-2002), 269 ft<sup>3</sup>/s, 194,800 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,530 ft<sup>3</sup>/s Feb. 28, 1940, gage height, 8.88 ft; no flow at times.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 24, 1957 reached a stage of 14.6 ft, discharge 21,000 ft<sup>3</sup>/s. Flood of Mar. 19, 1993 reached a stage of 13.31 ft, discharge 16,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 175 ft<sup>3</sup>/s Mar. 14; minimum daily discharge, 2.8 ft<sup>3</sup>/s Sept. 14.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.2	74	70	73	87	85	48	3.2	7.3	14	5.3	4.4
2	10	72	73	76	89	79	56	4.1	5.3	16	12	4.3
3	13	67	78	76	80	76	56	2.9	43	6.7	e9.6	5.2
4	14	65	78	76	79	76	31	30	50	11	e13	5.8
5	14	74	76	76	76	76	7.0	63	26	20	e17	6.2
6	15	83	77	77	77	76	7.6	57	20	19	e20	6.2
7	16	79	78	80	93	76	4.8	37	10	25	14	5.8
8	18	79	73	80	107	76	3.6	20	8.1	37	9.5	5.3
9	21	79	73	79	114	82	4.0	3.7	16	19	5.8	5.4
10	20	77	72	80	105	79	25	3.0	25	11	7.0	5.4
11	20	78	73	107	107	77	40	5.1	46	6.6	9.1	4.9
12	17	76	74	128	107	82	39	7.9	16	5.8	10	3.2
13	17	78	74	126	102	169	38	7.3	7.9	7.7	8.0	3.0
14	17	85	76	120	103	175	42	3.2	9.2	13	7.9	2.8
15	22	84	74	111	100	133	53	3.8	7.3	13	7.1	3.0
16	29	79	73	101	87	117	66	6.3	8.0	13	5.4	3.2
17	41	76	73	96	83	101	90	4.7	9.5	11	5.3	3.2
18	34	76	73	93	82	92	108	5.8	7.3	4.2	5.3	3.2
19	34	76	72	92	86	90	106	7.1	7.8	6.2	5.4	3.2
20	31	76	72	93	90	90	55	5.4	12	12	4.7	3.2
21	22	76	72	90	90	93	52	20	6.9	32	4.3	3.2
22	20	80	72	86	91	100	53	33	5.3	48	4.2	3.6
23	31	76	73	80	99	152	49	33	16	24	4.0	3.9
24	28	78	73	87	128	150	29	36	31	21	4.0	3.7
25	19	84	72	82	163	142	16	33	15	32	3.9	3.6
26	17	79	72	86	158	121	65	32	7.1	33	3.8	3.5
27	16	77	73	88	118	125	66	23	6.4	31	3.8	3.6
28	15	75	73	83	96	110	31	19	6.7	22	4.3	3.6
29	47	74	73	76	---	98	17	12	10	19	4.4	4.0
30	56	73	73	77	---	92	7.9	9.5	11	13	4.4	4.0
31	71	---	73	84	---	90	---	4.2	---	5.0	4.8	---
TOTAL	752.2	2305	2281	2759	2797	3180	1265.9	535.2	457.1	551.2	227.3	123.6
MEAN	24.26	76.83	73.58	89.00	99.89	102.6	42.20	17.26	15.24	17.78	7.332	4.120
MAX	71	85	78	128	163	175	108	63	50	48	20	6.2
MIN	7.2	65	70	73	76	76	3.6	2.9	5.3	4.2	3.8	2.8
AC-FT	1490	4570	4520	5470	5550	6310	2510	1060	907	1090	451	245

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2002, BY WATER YEAR (WY)

	1994	1995	1996	1997	1998	1999	2000	2001	2002			
MEAN	164.0	143.1	145.7	318.0	483.7	596.3	592.4	288.9	161.6	104.7	102.2	144.8
MAX	228	175	314	1589	1322	1881	1695	988	541	179	220	300
(WY)	2000	2001	1997	1997	1997	1999	1999	1998	1998	1998	1999	1998
MIN	24.3	76.8	73.6	89.0	94.2	65.9	41.5	17.3	15.2	17.8	7.33	2.87
(WY)	2002	2002	2002	2002	1994	1994	1994	2002	2002	2002	2002	2001

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1994 - 2002	
ANNUAL TOTAL	23346.98		17234.5			
ANNUAL MEAN	63.96		47.22		268.9	
HIGHEST ANNUAL MEAN					535	
LOWEST ANNUAL MEAN					47.2	
HIGHEST DAILY MEAN	476		175		6230	
LOWEST DAILY MEAN	0.53		2.8		0.53	
ANNUAL SEVEN-DAY MINIMUM	0.89		3.1		0.89	
ANNUAL RUNOFF (AC-FT)	46310		34180		194800	
10 PERCENT EXCEEDS	130		94		654	
50 PERCENT EXCEEDS	54		34		148	
90 PERCENT EXCEEDS	3.7		4.3		21	

e Estimated



118° 45'  
46° 00'

116° 30'



0 10 20 30 40 MILES  
 0 10 20 30 40 KILOMETERS

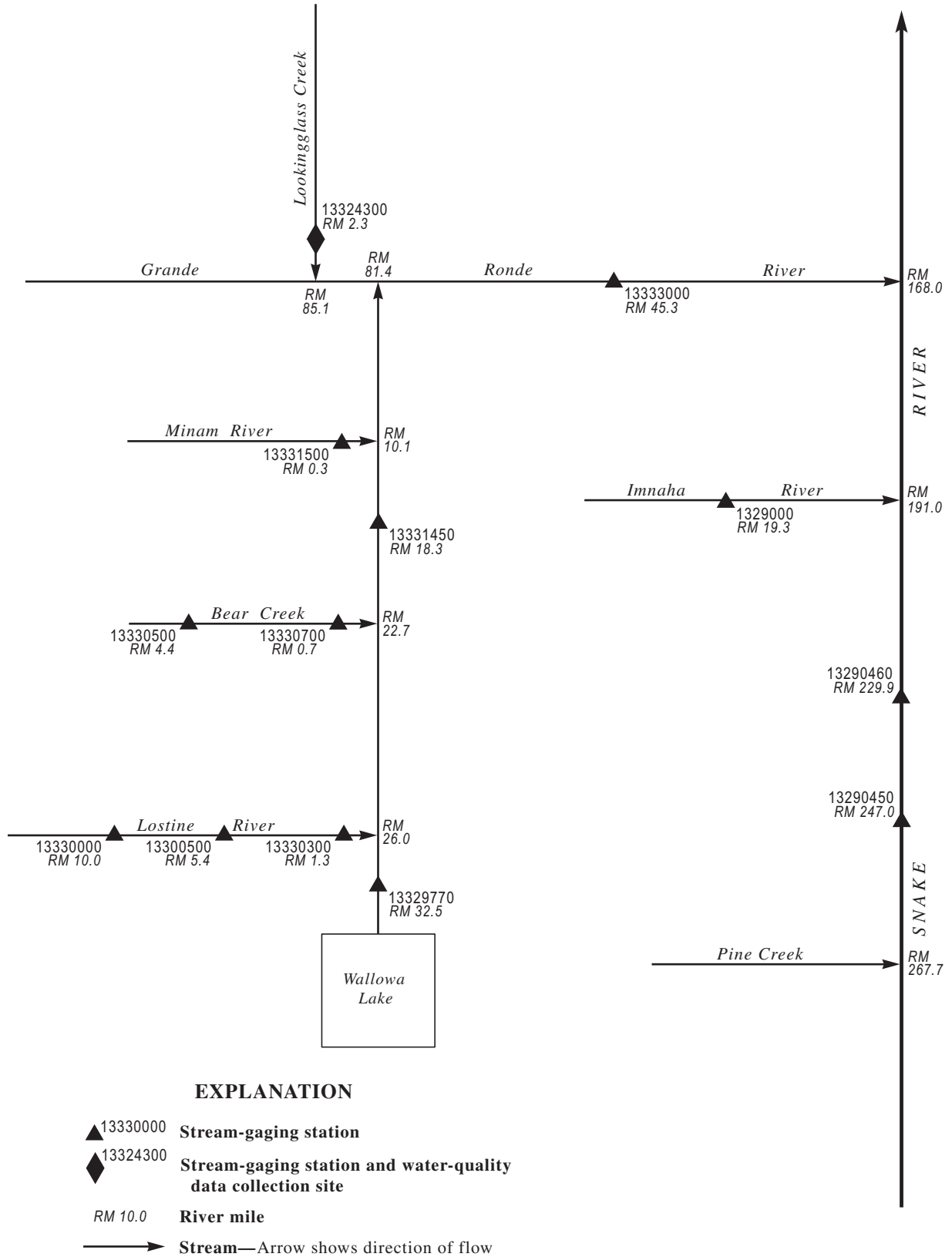
44° 00'

**EXPLANATION**

- 13285500 ▲ Stream-gaging station
- 13324300 ◆ Stream-gaging station and water-quality data collection site



**Figure 9.** Location of surface-water and water-quality stations in the Powder River, Snake River Main Stem, Pine Creek, Imnaha River, and Grande Ronde River Basins.



**Figure 10.** Schematic diagram showing gaging stations in the Imhaha and Grande Ronde River Basins, and Snake River Main Stem.

13290450 SNAKE RIVER AT HELLS CANYON DAM, IDAHO-OREGON STATE LINE

LOCATION.--Lat 45°15'05", long 116°41'50", in SE 1/4 SE 1/4 sec.33, T.3 S., R.49 E., unsurveyed (Willamette meridian), Wallowa County, Wallowa-Whitman National Forest, Hydrologic Unit 17050201, on left bank, 0.2 mi upstream from Hells Canyon Creek, 0.4 mi downstream from Deep Creek, 0.6 mi downstream from Hells Canyon Dam, 15.5 mi northeast of Homestead, Oregon, and at mile 247.0.

DRAINAGE AREA.--73,300 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--July 1965 to current year.

REVISED RECORDS.--WDR ID-78-2: 1969-70, 1972-76, WDR ID-79-2: 1972-73(m).

GAGE.--Water-stage recorder. Datum of gage is 1,400 ft above NGVD of 1929 (levels by Idaho Power Company).

REMARKS.--Station equipment includes satellite telemetry. Flow regulated by many reservoirs upstream from station, with a total usable capacity of more than 10,000,000 acre-feet, the most effective of which is Brownlee Reservoir, 38 mi upstream. Diurnal fluctuations caused by Hells Canyon powerplant. Diversions upstream from station for irrigation of about 3,820,000 acres, of which 742,000 acres are irrigated by withdrawals from ground water (1966 determination).

AVERAGE DISCHARGE.--47 years (water years 1966-2002), 20,390 ft<sup>3</sup>/s, 14,770,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 103,000 ft<sup>3</sup>/s Jan. 2, 1997, gage height, 86.17 ft; minimum discharge, 1,580 ft<sup>3</sup>/s Mar. 19, 1967, gage height, 59.9 ft; minimum daily discharge, 4,360 ft<sup>3</sup>/s May 8, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,200 ft<sup>3</sup>/s Apr. 19, gage height, 71.76 ft; minimum discharge, 5,060 ft<sup>3</sup>/s Oct. 1, gage height, 62.72 ft.

COOPERATION.--Discharge records furnished by Idaho Power and reviewed by U.S. Geological Survey beginning April 2001.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

Table with 13 columns (DAY, OCT, NOV, DEC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP) and 32 rows of daily mean discharge data in CFS.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2002, BY WATER YEAR (WY)

Summary table with 13 columns (MEAN, MAX, (WY), MIN, (WY)) and 5 rows showing monthly mean discharge statistics for water years 1966-2002.

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1966 - 2002

Summary statistics table with 4 columns and 11 rows showing annual totals, means, and extremes for 2001, 2002, and the 1966-2002 period.

## SNAKE RIVER MAIN STEM

13290460 SNAKE RIVER AT JOHNSON BAR, ID

LOCATION.--Lat 45°27'50", long 116°33'16", in SE 1/4 NE 1/4 sec.22, T.1 S., R.50 E., (Willamette meridian), Wallowa County, Hydrologic Unit 17060101, Hells Canyon National Recreation Area, on left bank opposite lower end of Johnson Bar, 0.5 mi upstream from mouth of Sheep Creek, and at mile 229.9.

DRAINAGE AREA.--73,400 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--July 1959 to September 1992 (gage heights only), October 1992 to September 1995 (discharge), October 1995 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 1,226.341 ft above NGVD of 1929 (levels by Corps of Engineers.)

REMARKS.--Station equipment includes satellite telemetry. Diurnal fluctuations in stage are caused by Hells Canyon Powerplant. Records for years prior to the 1991 water year were not published, but are available from the Boise, Idaho Field Office.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 10.37 ft Apr. 18; minimum recorded gage height, 3.85 ft Oct. 1.

COOPERATION.--Gage-height records furnished by Idaho Power and reviewed by U.S. Geological Survey beginning April 2001.

GAGE HEIGHT, in FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.58	5.32	5.35	5.35	8.25	6.50	9.72	5.40	7.82	5.10	4.73	4.89
2	6.35	5.32	5.36	6.51	8.15	5.75	8.71	6.19	8.01	5.40	4.83	5.49
3	5.77	5.31	5.34	6.54	7.52	5.81	6.28	7.23	7.84	6.38	4.82	6.67
4	6.33	5.33	5.34	7.44	8.83	6.81	5.43	5.51	8.31	5.06	4.92	6.52
5	5.79	5.33	5.32	7.40	8.63	5.94	7.46	5.43	7.92	4.91	5.28	6.38
6	5.26	5.30	5.35	6.59	7.99	5.39	8.08	6.72	7.46	5.04	4.86	5.47
7	5.88	5.29	5.36	7.88	7.47	7.29	7.29	6.49	7.33	5.12	5.24	4.79
8	5.38	5.29	5.39	7.87	5.69	6.59	8.03	6.22	7.11	4.84	4.85	5.02
9	5.07	5.30	5.38	7.76	5.33	5.52	7.85	5.96	6.83	4.76	5.67	5.14
10	5.07	5.31	5.34	7.42	5.69	5.82	7.41	6.15	7.53	5.36	6.33	5.17
11	5.08	5.34	5.33	7.14	7.16	7.35	5.80	5.67	6.85	5.81	5.89	6.25
12	5.08	5.33	5.87	6.45	8.40	7.44	5.47	5.38	6.76	5.71	6.21	6.98
13	5.08	5.33	7.02	5.48	8.65	7.11	5.48	6.60	6.61	6.34	6.93	7.63
14	5.07	5.33	6.15	6.89	7.36	7.38	5.54	6.20	6.26	5.11	7.49	6.30
15	5.07	5.32	6.20	7.56	7.00	7.09	7.40	5.67	6.27	5.25	7.32	6.90
16	5.07	5.31	5.95	7.83	5.64	6.33	8.09	5.33	6.39	5.53	7.33	6.85
17	5.09	5.31	7.47	8.03	5.73	5.56	9.17	5.21	6.30	6.00	6.93	6.88
18	5.07	5.31	7.87	7.54	6.10	7.88	9.25	5.20	6.57	5.28	5.84	6.11
19	5.05	5.31	6.95	5.86	5.74	7.61	8.99	5.49	6.40	4.72	6.87	6.60
20	5.06	5.32	6.07	5.96	5.37	6.90	8.40	6.00	5.90	4.81	6.20	6.34
21	5.05	5.34	6.45	7.48	5.38	6.04	6.81	6.34	6.04	4.69	5.92	5.72
22	5.11	5.34	6.07	8.61	5.45	6.89	9.05	6.62	6.04	4.78	6.48	5.92
23	5.18	5.34	5.52	8.01	5.37	6.45	9.19	7.60	6.25	5.44	6.60	6.56
24	5.12	5.35	6.83	8.09	5.37	7.51	8.01	8.19	6.75	5.71	6.10	7.12
25	5.11	5.36	5.48	7.81	6.69	8.19	7.03	6.58	7.02	5.10	5.60	7.07
26	5.15	5.32	6.06	6.96	6.91	9.20	5.48	6.56	6.40	4.70	6.78	6.34
27	5.17	5.34	6.21	5.80	6.58	9.39	5.44	7.28	6.29	4.74	5.93	6.70
28	5.18	5.33	5.53	7.38	5.68	9.68	5.43	8.23	7.34	4.75	6.73	7.16
29	5.25	5.32	5.36	8.40	---	9.82	5.42	7.42	5.91	4.78	7.56	6.57
30	5.31	5.34	5.35	8.04	---	9.52	5.42	7.71	5.16	5.40	6.55	7.98
31	5.32	---	5.34	7.58	---	10.07	---	8.47	---	4.99	5.06	---
MEAN	5.30	5.32	5.89	7.21	6.72	7.19	7.24	6.42	6.79	5.21	6.06	6.32
MAX	6.35	5.36	7.87	8.61	8.83	10.07	9.72	8.47	8.31	6.38	7.56	7.98
MIN	5.05	5.29	5.32	5.35	5.33	5.39	5.42	5.20	5.16	4.69	4.73	4.79

WTR YR 2002 MEAN 6.30 MAX 10.07 MIN 4.69



## GRANDE RONDE RIVER BASIN

13324300 LOOKINGGLASS CREEK NEAR LOOKING GLASS, OR

LOCATION.--Lat 45°43'55", long 117°51'50", in NW 1/4 NW 1/4 sec.19, T.3 N., R.40 E., Union County, Hydrologic Unit 17060104, on left bank at Oregon State Fish and Wildlife Service fish hatchery, 310 ft upstream from Jarboe Creek, 2.3 mi northwest of Looking Glass, and at mile 2.3.

DRAINAGE AREA.--78.3 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1982 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,530 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for discharges greater than 200 ft<sup>3</sup>/s, which are poor. Records include a diversion by the fish hatchery 0.3 mi upstream from station of up to 50 ft<sup>3</sup>/s that is returned through the fish ladder to the gage pool.

AVERAGE DISCHARGE.--20 years (water years 1983-2002), 139 ft<sup>3</sup>/s, 100,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,120 ft<sup>3</sup>/s Feb. 9, 1996, gage height, 7.41 ft, from rating curve extended above 1,000 ft<sup>3</sup>/s; minimum discharge, 25 ft<sup>3</sup>/s Oct. 11, 1983, result of regulation at fish hatchery upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 380 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	0630	*955	*6.67	May 20	0230	689	6.08
May 2	unknown	unknown	unknown	May 29	1700	723	6.16

Minimum daily discharge, 45 ft<sup>3</sup>/s Sept. 9.DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	56	60	60	55	60	73	210	e560	500	119	52	46
2	58	58	59	58	59	69	188	e620	469	105	51	47
3	58	56	60	59	58	66	194	e580	427	96	51	46
4	57	55	59	58	57	65	211	e550	425	95	51	46
5	58	53	59	57	57	68	244	e520	413	94	53	47
6	58	52	60	62	57	79	292	e460	380	99	54	47
7	58	52	59	104	58	83	321	e400	328	95	54	48
8	60	52	58	159	59	78	313	e360	299	90	53	47
9	60	52	58	138	57	75	340	327	307	87	52	45
10	57	52	58	107	56	73	429	308	281	83	52	47
11	67	53	57	91	56	85	454	318	250	79	52	48
12	55	52	57	84	56	155	511	364	253	76	51	48
13	54	53	62	79	57	152	576	398	255	75	50	48
14	55	56	67	75	57	120	858	433	250	69	50	48
15	54	55	63	72	57	96	685	441	255	66	49	48
16	53	54	61	70	58	82	534	463	243	65	48	48
17	53	55	61	68	59	80	457	469	232	62	48	52
18	52	54	61	67	61	82	420	499	302	60	48	53
19	52	53	63	67	63	90	378	570	247	61	48	51
20	53	55	61	69	64	90	355	658	205	58	48	50
21	53	65	59	68	69	92	352	585	202	57	49	50
22	62	81	58	67	75	100	393	508	176	55	50	50
23	64	94	56	65	98	117	406	528	177	55	49	50
24	54	70	55	64	161	137	377	489	156	55	48	51
25	52	66	55	66	120	164	384	512	144	55	47	49
26	51	62	55	65	99	174	423	511	151	55	50	50
27	51	59	55	63	86	182	397	573	137	54	49	50
28	52	58	56	e63	79	174	395	617	123	54	48	50
29	51	62	55	e62	---	168	e460	662	125	54	48	51
30	56	61	55	62	---	178	e520	582	115	53	48	53
31	77	---	55	61	---	205	---	512	---	52	47	---
TOTAL	1751	1760	1817	2305	1953	3452	12077	15377	7827	2233	1548	1464
MEAN	56.5	58.7	58.6	74.4	69.8	111	403	496	261	72.0	49.9	48.8
MAX	77	94	67	159	161	205	858	662	500	119	54	53
MIN	51	52	55	55	56	65	188	308	115	52	47	45
AC-FT	3470	3490	3600	4570	3870	6850	23950	30500	15520	4430	3070	2900

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2002, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	53.6	71.6	82.0	87.0	132	193	333	371	166	68.1	53.5	52.2								
MAX	66.7	167	288	213	483	431	564	608	425	117	65.3	61.9								
(WY)	1986	1996	1996	1997	1996	1997	1997	1997	1984	1984	1985	1984								
MIN	45.2	46.8	53.2	51.0	54.4	83.3	183	114	57.4	47.0	37.1	40.1								
(WY)	1995	1988	1988	2001	2001	1985	2001	1992	1992	1994	1994	1994								

## SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1983 - 2002

ANNUAL TOTAL	33939	53564																		
ANNUAL MEAN	93.0	147																		
HIGHEST ANNUAL MEAN																				
LOWEST ANNUAL MEAN																				
HIGHEST DAILY MEAN	466	May 15	858	Apr 14	1740	Feb 9	1996													
LOWEST DAILY MEAN	44	Jan 28	45	Sep 9	35	Oct 11	1983													
ANNUAL SEVEN-DAY MINIMUM	47	Jan 24	47	Aug 31	35	Aug 16	1994													
ANNUAL RUNOFF (AC-FT)	67320	106200	100300																	
10 PERCENT EXCEEDS	175	428	336																	
50 PERCENT EXCEEDS	57	62	70																	
90 PERCENT EXCEEDS	51	50	50																	

e Estimated

13324300 LOOKINGGLASS CREEK NEAR LOOKING GLASS, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--May 1999 to current year.

PERIOD OF DAILY RECORD.--May 1999 to current year.

INSTRUMENTATION.--Temperature recorder since May 1999.

REMARKS.--Records poor.

EXTREMES FOR PERIOD OF DAILY RECORD.--Maximum recorded, 20.0°C Aug. 24, 1999; minimum recorded, 0.0°C Dec. 15, 2000, Jan. 27, Feb. 8, 2001, Nov. 28, Dec. 24, 2001, Jan. 28, 29, Feb. 5, 2002.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 19.2°C July 29; minimum, 0.0°C Nov. 28, Dec. 24, Jan. 28, 29, Feb. 5.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.7	5.0	7.7	6.5	5.1	5.9	4.1	2.0	3.2	4.8	3.8	4.2
2	10.3	5.2	7.6	7.3	4.8	6.2	3.6	2.4	3.1	4.5	4.0	4.2
3	9.5	4.5	6.9	6.3	4.1	5.0	3.8	2.3	3.3	4.7	3.0	3.8
4	9.3	4.2	6.6	6.4	3.6	4.7	3.6	1.4	2.5	4.8	3.2	3.9
5	8.5	3.5	5.9	6.5	3.6	4.9	3.2	1.0	2.2	4.2	2.8	3.5
6	9.0	3.7	6.3	4.4	2.6	3.5	4.0	0.7	2.6	4.5	3.2	3.9
7	7.6	4.2	6.1	4.0	1.5	2.7	3.6	2.1	3.2	4.6	4.0	4.3
8	8.3	5.3	6.5	4.5	1.2	2.8	3.9	2.0	3.0	4.4	3.6	4.0
9	8.0	4.3	6.2	4.9	2.3	3.4	3.9	2.7	3.5	4.1	3.1	3.7
10	6.8	3.0	5.0	4.7	1.9	3.2	3.5	1.8	2.6	4.3	2.7	3.4
11	7.9	5.0	6.3	5.1	2.2	3.6	3.4	2.3	2.9	4.8	3.7	4.1
12	7.0	4.7	5.9	6.2	3.3	4.7	3.5	1.4	2.8	4.4	3.6	4.0
13	8.9	5.9	7.3	6.9	4.3	5.6	3.9	0.7	1.7	3.9	2.8	3.4
14	9.0	5.2	7.1	7.2	5.2	6.2	3.4	1.9	2.8	3.5	2.4	2.9
15	7.9	3.9	5.7	7.2	4.4	5.8	3.5	2.0	2.6	3.2	2.1	2.7
16	8.6	4.5	6.4	7.2	5.9	6.5	3.4	2.4	2.8	3.3	1.2	2.4
17	7.4	3.7	5.9	6.5	4.4	5.8	3.9	1.1	3.0	3.6	1.8	2.6
18	6.9	2.8	4.8	6.0	3.6	4.9	2.6	0.3	1.4	3.4	1.6	2.5
19	8.9	4.7	6.4	6.3	3.2	4.8	3.0	1.6	2.3	3.7	0.9	2.5
20	8.0	4.5	6.5	6.4	4.4	5.6	4.1	2.3	3.2	2.7	0.5	1.9
21	6.9	3.6	5.3	6.3	5.1	5.7	4.3	2.3	3.3	3.9	1.4	2.6
22	7.1	6.0	6.5	6.0	4.8	5.3	3.2	1.6	2.4	2.3	1.6	1.9
23	6.3	4.5	5.5	5.2	3.2	4.4	2.6	0.4	1.7	3.4	1.6	2.5
24	6.2	3.6	4.7	4.0	2.4	3.3	2.4	0.0	1.2	3.5	2.4	3.0
25	6.3	3.9	4.9	4.1	3.2	3.6	2.7	1.5	2.1	4.1	2.3	3.1
26	7.0	2.8	4.7	4.9	3.1	3.9	2.9	0.6	1.8	3.8	1.9	3.2
27	6.5	3.2	5.0	3.6	1.6	2.8	2.7	0.3	1.5	3.0	0.3	1.7
28	6.6	5.0	5.8	1.9	0.0	0.8	3.8	0.6	2.3	1.6	0.0	0.4
29	6.7	4.8	5.8	3.6	1.7	3.0	3.8	3.0	3.3	0.9	0.0	0.3
30	7.3	6.0	6.6	3.6	1.9	2.8	4.2	2.8	3.5	2.4	0.6	1.4
31	6.9	6.0	6.4	---	---	---	4.5	3.5	4.0	3.1	1.8	2.3
MONTH	10.7	2.8	6.1	7.3	0.0	4.4	4.5	0.0	2.6	4.8	0.0	2.9

## GRANDE RONDE RIVER BASIN

13324300 LOOKINGGLASS CREEK NEAR LOOKING GLASS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.2	1.9	2.4	5.0	1.0	2.7	5.5	3.7	4.6	---	---	---
2	3.4	1.2	2.4	4.7	0.8	2.6	7.5	3.9	5.3	---	---	---
3	3.3	0.3	1.8	4.8	0.8	2.6	8.5	3.1	5.1	---	---	---
4	2.5	0.7	1.4	5.8	1.5	3.4	8.9	3.2	5.3	---	---	---
5	3.1	0.0	1.5	5.1	2.4	3.8	6.8	3.5	4.8	---	---	---
6	4.1	0.7	2.4	5.3	3.5	4.2	7.1	4.3	5.2	---	---	---
7	4.5	3.1	3.7	4.8	2.0	3.5	6.1	3.9	4.7	---	---	---
8	4.4	2.7	3.5	4.8	1.8	2.9	8.1	3.2	5.1	7.6	---	---
9	4.4	1.4	2.8	5.1	2.3	3.5	5.5	3.9	4.7	7.1	3.9	5.4
10	4.6	1.3	2.8	7.0	2.9	4.6	6.2	3.6	4.6	7.2	4.0	5.5
11	4.6	1.7	3.4	5.8	4.1	4.7	6.6	3.7	4.9	9.6	3.7	6.3
12	3.8	0.2	1.8	6.5	3.5	4.5	6.3	4.0	4.8	10.2	4.1	6.7
13	4.0	0.9	2.3	5.7	2.4	4.1	6.1	3.8	4.6	9.2	4.6	6.5
14	3.9	0.7	2.2	6.2	2.6	4.2	4.5	2.9	3.7	9.4	4.8	6.5
15	3.8	0.4	2.0	5.6	2.8	3.9	4.9	3.2	3.8	8.7	4.5	6.2
16	5.1	1.5	3.1	5.3	2.8	3.7	5.0	3.7	4.2	9.9	4.0	6.4
17	5.0	1.7	3.3	5.7	2.0	3.4	6.9	3.5	4.6	8.6	4.9	6.3
18	5.8	3.0	4.2	4.6	1.4	2.7	5.3	3.5	4.4	10.1	5.1	7.1
19	4.9	3.0	4.0	4.1	2.3	3.2	7.8	3.4	5.0	9.4	5.2	7.1
20	5.8	3.0	4.3	6.4	3.5	4.7	6.4	3.1	4.6	6.6	5.1	5.8
21	4.8	2.6	3.8	8.1	3.5	5.2	7.8	3.4	5.2	6.6	4.8	5.6
22	6.0	3.8	4.6	7.5	3.5	5.2	8.5	3.9	5.6	6.6	5.2	5.8
23	5.5	3.7	4.5	5.4	3.7	4.4	6.0	3.2	4.3	7.8	5.3	6.2
24	4.2	1.8	3.4	6.0	4.0	4.8	7.5	2.4	4.5	9.4	4.6	6.8
25	4.0	0.9	2.2	6.7	3.9	5.0	8.1	3.3	5.2	9.0	5.4	7.2
26	4.2	1.2	2.5	7.4	3.3	4.9	7.7	3.0	5.0	8.9	6.1	7.3
27	4.7	0.9	2.6	6.6	3.9	4.9	7.0	4.0	5.1	9.9	6.1	7.7
28	4.6	1.8	3.2	6.2	4.2	4.7	8.0	3.3	5.2	10.1	6.8	8.1
29	---	---	---	7.7	4.2	5.4	---	3.3	---	10.5	7.1	8.6
30	---	---	---	8.6	4.0	5.6	---	---	---	9.1	7.4	8.2
31	---	---	---	8.5	3.4	5.3	---	---	---	10.8	6.1	8.3
MONTH	6.0	0.0	2.9	8.6	0.8	4.1	---	---	---	---	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	8.6	7.3	7.9	14.8	10.6	12.6	17.1	8.8	12.8	14.6	9.0	11.7
2	11.3	7.2	9.0	14.9	9.8	12.3	16.7	9.5	12.8	15.4	8.5	11.8
3	11.1	6.8	8.9	14.4	11.2	12.8	16.0	8.0	12.0	15.3	9.6	12.2
4	11.2	8.0	9.4	13.2	10.6	12.1	13.7	10.3	11.8	13.0	8.5	10.7
5	12.1	8.3	9.9	14.6	9.8	12.1	14.6	8.7	11.5	12.1	8.8	10.1
6	11.1	7.6	9.2	15.4	10.7	13.0	14.7	9.6	11.8	11.8	7.7	9.7
7	9.1	6.4	7.8	15.7	11.6	13.7	14.8	7.6	11.2	11.5	7.1	9.4
8	7.5	6.1	6.9	15.7	12.4	14.0	15.1	7.8	11.4	12.0	5.9	9.0
9	7.9	6.3	7.1	15.8	10.7	13.3	16.4	8.3	12.2	13.1	6.2	9.4
10	9.2	7.1	8.0	16.9	11.4	14.1	17.1	9.0	12.9	13.7	6.9	10.1
11	10.4	7.1	8.7	18.0	12.4	15.1	16.4	9.8	12.9	14.0	6.9	10.2
12	12.3	7.5	9.7	18.4	13.2	15.8	16.5	8.9	12.6	14.2	7.2	10.5
13	13.5	8.5	10.8	---	---	---	17.2	9.1	13.0	14.1	7.2	10.3
14	12.7	9.7	11.1	---	---	---	17.1	8.9	12.9	13.7	7.1	10.3
15	14.6	9.9	12.1	---	---	---	17.1	9.7	13.1	12.3	8.0	10.1
16	14.1	10.6	12.3	---	---	---	16.1	9.3	12.4	11.5	8.7	9.9
17	11.9	9.7	10.7	---	---	---	15.5	7.8	11.6	10.5	8.3	9.4
18	11.4	9.7	10.4	---	---	---	15.9	8.6	12.1	12.0	6.5	9.0
19	12.6	8.7	10.5	---	---	---	15.8	8.5	12.0	12.4	6.1	9.1
20	13.4	8.7	10.9	---	---	---	15.6	9.0	12.2	12.5	7.2	9.7
21	13.0	9.8	11.4	---	---	---	11.6	9.4	10.4	10.8	5.1	7.9
22	14.6	10.2	12.2	---	---	---	13.6	8.9	10.8	11.3	5.1	8.2
23	14.5	10.9	12.6	---	---	---	15.5	8.4	11.8	11.7	5.7	8.6
24	15.0	11.2	13.0	---	---	---	15.1	8.9	11.8	11.8	5.6	8.5
25	15.6	11.0	13.3	---	---	---	15.6	8.5	11.8	11.2	5.6	8.2
26	16.2	12.1	14.1	---	---	---	13.2	9.9	11.3	10.6	5.2	7.9
27	16.5	13.6	15.0	---	---	---	15.9	9.3	12.3	10.3	7.3	8.7
28	15.4	13.1	14.3	---	---	---	16.0	9.3	12.5	10.7	5.8	8.1
29	15.2	12.5	13.7	19.2	---	---	15.3	10.2	12.6	8.4	6.4	7.4
30	14.8	11.3	13.0	18.9	10.8	14.6	14.5	9.2	11.7	9.4	6.2	7.5
31	---	---	---	17.0	9.9	13.3	15.4	8.8	11.9	---	---	---
MONTH	16.5	6.1	10.8	---	---	---	17.2	7.6	12.1	15.4	5.1	9.5



13329770 WALLOWA RIVER ABOVE CROSS COUNTRY CANAL, NEAR ENTERPRISE, OR

LOCATION.--Lat 45°29'18", long 117°24'10", in SW 1/4 SE 1/4 sec.11, T.1 S., R.43 E., Wallowa County, Hydrologic Unit 17060105, on left bank 300 ft upstream from Cross Country canal, 6 mi northwest of Enterprise, and at mile 32.5.

DRAINAGE AREA.--272 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,330 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Regulation by Wallowa Lake. Many diversions for irrigation upstream from gage. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Gage height record was collected and discharge measurements made by the Wallowa County Soil and Water Conservation District. Records were provided by the State of Oregon Water Resources Department. Discharge measurements and records were reviewed by the U.S. Geological Survey.

AVERAGE DISCHARGE.--7 years (water years 1996-2002), 269 ft<sup>3</sup>/s, 194,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,590 ft<sup>3</sup>/s July 9, 1997, gage height, 4.17 ft; maximum gage height, 4.27 ft May 16, 1997; minimum discharge, 92 ft<sup>3</sup>/s Sept. 5, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0345	*525	*2.67				
Minimum discharge, 100 ft <sup>3</sup> /s May 12, 13.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	121	179	142	135	136	136	196	161	326	362	135	200
2	120	170	141	137	137	133	194	163	322	342	131	199
3	121	166	143	143	135	132	185	164	279	333	129	200
4	120	164	142	138	137	136	187	160	282	323	131	192
5	121	161	142	140	144	137	193	163	292	306	162	193
6	122	160	144	142	136	147	191	159	314	291	158	198
7	124	157	143	189	139	151	198	155	288	309	159	199
8	130	154	142	247	138	137	178	153	258	352	151	203
9	131	155	143	176	135	137	177	148	270	314	153	206
10	132	154	139	162	135	140	190	138	276	295	145	209
11	168	155	142	160	135	163	182	114	237	281	143	209
12	152	155	142	161	127	186	178	110	198	261	133	208
13	155	158	147	157	131	156	183	109	187	251	127	198
14	150	160	156	154	132	151	298	118	236	263	119	185
15	149	156	145	150	127	148	287	125	290	236	118	183
16	144	154	147	149	131	145	248	121	364	219	117	177
17	141	156	151	149	134	143	232	131	365	208	114	195
18	141	154	141	147	138	139	227	144	391	204	115	187
19	143	152	145	148	140	145	215	218	364	211	114	176
20	143	152	145	149	142	150	201	352	330	197	127	170
21	141	154	144	151	144	153	191	332	330	189	183	165
22	147	153	135	147	154	154	183	248	342	185	203	163
23	167	152	128	147	159	167	175	203	368	178	196	160
24	154	148	e118	149	156	209	170	183	393	176	190	145
25	152	150	120	154	141	221	164	164	387	177	195	145
26	151	150	120	156	138	207	161	164	380	170	198	144
27	151	144	e119	147	141	201	177	228	383	160	194	146
28	158	140	e125	e139	140	184	174	312	374	161	197	150
29	161	142	e132	e124	---	179	164	415	372	154	197	152
30	185	142	e129	e124	---	182	163	456	377	147	204	160
31	207	---	e131	129	---	189	---	370	---	139	205	---
TOTAL	4502	4647	4283	4700	3882	4958	5862	6181	9575	7394	4843	5417
MEAN	145	155	138	152	139	160	195	199	319	239	156	181
MAX	207	179	156	247	159	221	298	456	393	362	205	209
MIN	120	140	118	124	127	132	161	109	187	139	114	144
AC-FT	8930	9220	8500	9320	7700	9830	11630	12260	18990	14670	9610	10740

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

	1996	1997	1998	1999	2000	2001	2002
MEAN	221	213	210	198	206	223	245
MAX	294	272	356	233	297	323	339
(WY)	1998	1996	1996	1997	1996	1997	1997
MIN	145	155	138	152	139	160	186
(WY)	2002	2002	2002	2002	2002	2002	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1996 - 2002

ANNUAL TOTAL	60421	66244					
ANNUAL MEAN	166	181					
HIGHEST ANNUAL MEAN							269
LOWEST ANNUAL MEAN							358
HIGHEST DAILY MEAN	369	May 15	456	May 30	1140	May 16 1997	179
LOWEST DAILY MEAN	98	Sep 5	109	May 13	98	Sep 5 2001	1996
ANNUAL SEVEN-DAY MINIMUM	103	Sep 3	118	Aug 13	103	Sep 3 2001	2001
ANNUAL RUNOFF (AC-FT)	119800		131400		194700		
10 PERCENT EXCEEDS	202		290		449		
50 PERCENT EXCEEDS	166		156		217		
90 PERCENT EXCEEDS	112		131		154		

e Estimated

## GRANDE RONDE RIVER BASIN

13330000 LOSTINE RIVER NEAR LOSTINE, OR

LOCATION.--Lat 45°26'20", long 117°25'35", in NW 1/4 sec.34, T.1 S., R.43 E., Wallowa County, Hydrologic Unit 17060105, on left bank, 3.5 mi south of Lostine, and at mile 10.0.

DRAINAGE AREA.--70.9 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1912 to March 1914, April to September 1915, July 1925 to September 1991, April 1995 to current year. Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1913, 1942. WSP 1737: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,650 ft above NGVD of 1929, by barometer. See WSP 1317 or 1737 for history of changes prior to Dec. 16, 1953. Dec. 16, 1953 to Aug. 23 1977, at datum 1.04 ft higher.

REMARKS.--Records good except those for the periods Dec. 17-25, Feb. 9 to Mar. 5, which are fair, and for estimated daily discharges, which are poor. Minam Lake, capacity 440 acre-ft, has stored and diverted flow from Minam River since 1917 for irrigation in Lostine River basin. Diversions for irrigation upstream from station. Continuous water-quality records for the period October 1957 to September 1958 have been collected at this location. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Gage height record was collected and discharge measurements made by the Wallowa County Soil and Water Conservation District. Records were provided by the State of Oregon Water Resources Department. Discharge measurements and records were reviewed by the U.S. Geological Survey.

AVERAGE DISCHARGE.--73 years (water years 1913,1926-91, 1996-2002), 192 ft<sup>3</sup>/s, 139,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,550 ft<sup>3</sup>/s June 16, 1974, gage height, 8.59 ft, present datum; minimum discharge, 7.5 ft<sup>3</sup>/s Mar. 2, 1966, result of freezeup; minimum daily, 10 ft<sup>3</sup>/s Nov. 28-30, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 29	2300	*1,660	*7.55	June 27	2130	1,450	7.08
June 16	2245	1,450	7.09				

Minimum discharge, 19 ft<sup>3</sup>/s Jan. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	105	e51	35	38	e34	58	208	968	766	106	51
2	21	89	e51	36	34	35	63	245	907	645	100	49
3	21	80	e50	38	33	35	65	279	814	616	95	47
4	21	75	e48	36	33	37	70	271	826	576	93	49
5	21	71	e48	37	33	36	83	270	916	514	108	47
6	21	68	e48	40	34	e34	105	247	986	511	96	47
7	21	60	e48	91	36	e35	118	227	844	561	89	48
8	22	58	e47	91	37	35	113	209	668	617	84	46
9	24	57	e48	75	35	36	119	192	547	510	79	44
10	23	54	e47	67	36	36	134	179	464	468	75	42
11	44	52	e48	63	36	40	133	168	405	478	71	40
12	33	51	e46	61	31	46	145	173	396	475	69	38
13	49	52	e49	59	e30	41	202	209	452	459	66	37
14	47	65	e55	57	e31	38	544	266	624	442	63	36
15	49	64	e47	55	31	37	451	289	884	392	60	35
16	37	58	e47	54	35	37	339	282	1170	354	58	34
17	35	59	48	53	35	35	280	321	1160	322	57	46
18	32	56	36	50	34	35	240	381	1110	298	55	53
19	31	54	47	52	34	38	211	578	820	279	53	42
20	32	54	43	50	34	37	193	790	725	245	53	38
21	32	58	41	51	34	38	179	617	756	216	62	36
22	37	60	27	48	38	40	170	485	826	199	70	35
23	75	56	e25	47	43	46	170	405	905	185	65	34
24	49	55	e26	49	43	54	161	357	993	176	64	33
25	44	55	26	52	32	54	160	349	1090	166	63	32
26	41	52	31	50	e32	51	167	390	1180	155	63	31
27	41	41	31	42	e31	53	168	542	1290	145	59	30
28	45	44	34	25	e32	51	162	848	1170	134	57	31
29	46	52	33	32	---	50	167	1290	1240	126	56	31
30	111	e51	31	35	---	50	188	1410	968	121	55	36
31	157	---	34	41	---	53	---	1120	---	115	53	---
TOTAL	1284	1806	1291	1572	965	1277	5358	13597	26104	11266	2197	1198
MEAN	41.4	60.2	41.6	50.7	34.5	41.2	179	439	870	363	70.9	39.9
MAX	157	105	55	91	43	54	544	1410	1290	766	108	53
MIN	21	41	25	25	30	34	58	168	396	115	53	30
AC-FT	2550	3580	2560	3120	1910	2530	10630	26970	51780	22350	4360	2380

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1926 - 2002, BY WATER YEAR (WY)

	56.4	64.6	59.2	50.2	48.0	55.5	160	511	783	384	86.1	49.7
MEAN	56.4	64.6	59.2	50.2	48.0	55.5	160	511	783	384	86.1	49.7
MAX	291	226	212	158	191	169	393	909	1374	913	180	104
(WY)	1960	1928	1959	1974	1996	1986	1934	1928	1974	1975	1943	1978
MIN	18.0	14.7	15.3	15.0	14.8	16.3	35.7	203	332	59.7	30.6	23.0
(WY)	1937	1937	1937	1937	1937	1955	1975	1977	1926	1977	1931	1931

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1926 - 2002

ANNUAL TOTAL	43023	67915										
ANNUAL MEAN	118	186								192		
HIGHEST ANNUAL MEAN										288		1974
LOWEST ANNUAL MEAN										90.9		1977
HIGHEST DAILY MEAN				939	May 25	1410	May 30	2290	Jun 17	1974		
LOWEST DAILY MEAN				19	Jan 28	21	Oct 2	10	Nov 28	1936		
ANNUAL SEVEN-DAY MINIMUM				21	Oct 1	21	Oct 1	11	Nov 26	1936		
ANNUAL RUNOFF (AC-FT)	85340					134700			139400			
10 PERCENT EXCEEDS	340					577			596			
50 PERCENT EXCEEDS	49					54			63			
90 PERCENT EXCEEDS	24					33			28			

e Estimated

GRANDE RONDE RIVER BASIN

13330050 LOSTINE RIVER AT CAUDLE LANE, AT LOSTINE, OR

LOCATION.--Lat 45°29'22", long 117°26'08", in NW 1/4 SW 1/4 sec.10, T.1 S., R.43 E., Wallowa County, Hydrologic Unit 17060105, on left bank, 500 ft downstream from bridge at Caudle Lane, at Lostine, and at mile 5.4.

DRAINAGE AREA.--81.1 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,360 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for the periods Dec. 18 to Mar. 18, Apr. 24 to May 1, Aug. 19-26, which are fair, and estimated daily discharges, which are poor. Minam Lake, capacity 400 acre-ft, has stored and diverted flow from Minam River since 1917 for irrigation in Lostine River basin. Many diversions for irrigation upstream from station.

COOPERATION.--Gage height record was collected and discharge measurements made by the Wallowa County Soil and Water Conservation District. Records were provided by the State of Oregon Water Resources Department. Discharge measurements and records were reviewed by the U.S. Geological Survey.

AVERAGE DISCHARGE.--7 years (water years 1996-2002), 176 ft<sup>3</sup>/s, 127,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,100 ft<sup>3</sup>/s June 1, 1997, gage height, 6.73 ft; maximum gage height, 7.28 ft June 16, 1999, from high-water mark; minimum discharge, 5.2 ft<sup>3</sup>/s Aug. 20, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0045	*1,510	*7.08	June 27	2145	1,300	6.95

Minimum discharge, 6.1 ft<sup>3</sup>/s Oct. 2-4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.5	81	47	36	e39	e32	44	194	895	762	43	20
2	6.3	68	46	37	e36	e33	48	231	829	663	40	19
3	6.3	63	45	39	e34	33	50	267	774	633	36	19
4	6.3	60	44	39	e34	35	54	260	774	598	36	20
5	6.5	58	44	38	e34	33	63	262	846	534	47	20
6	6.4	56	45	40	e36	e32	79	239	895	518	39	19
7	6.5	50	45	77	e38	e33	91	218	791	567	35	19
8	6.7	48	44	83	41	33	90	197	665	623	35	19
9	7.1	48	44	73	39	34	98	182	559	521	32	17
10	7.0	46	42	66	39	33	112	167	478	474	28	16
11	17	44	44	63	38	35	116	143	413	479	25	15
12	15	44	42	61	36	41	127	127	402	466	23	14
13	23	44	48	59	e33	37	177	155	474	436	21	14
14	22	53	54	58	e34	35	544	203	658	409	18	13
15	28	54	49	56	35	34	459	208	862	351	12	13
16	25	50	47	56	38	34	332	189	1090	296	10	12
17	25	50	47	54	35	33	274	219	1090	252	8.3	12
18	24	48	e35	54	35	34	230	290	1080	217	7.8	15
19	22	47	e46	53	35	35	200	508	845	195	9.6	12
20	20	47	43	52	34	35	181	726	751	149	11	11
21	20	50	42	52	34	35	164	597	783	110	20	11
22	25	52	e28	e50	36	36	158	461	838	87	23	11
23	53	50	e26	e49	39	39	156	376	901	75	22	11
24	37	48	e27	50	40	44	145	320	968	71	20	10
25	33	50	e27	52	e31	44	148	308	1040	69	19	11
26	32	48	e32	51	e31	41	158	355	1100	66	21	11
27	33	e39	e32	e44	e30	41	162	516	1160	61	21	13
28	37	e42	e35	e29	e31	40	154	785	1020	52	22	15
29	38	48	e34	e34	---	40	160	1080	1070	43	22	15
30	73	48	e32	e37	---	39	181	1210	923	39	23	19
31	121	---	e35	e42	---	41	---	1010	---	43	22	---
TOTAL	788.6	1534	1251	1584	995	1124	4955	12003	24974	9859	751.7	446
MEAN	25.4	51.1	40.4	51.1	35.5	36.3	165	387	832	318	24.2	14.9
MAX	121	81	54	83	41	44	544	1210	1160	762	47	20
MIN	6.3	39	26	29	30	32	44	127	402	39	7.8	10
AC-FT	1560	3040	2480	3140	1970	2230	9830	23810	49540	19560	1490	885

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
MEAN	42.3	70.2	65.1	57.9	63.7	65.5	147	433	699	382	58.0	23.9
MAX	66.5	172	170	118	166	118	193	533	1000	784	149	40.7
(WY)	2001	1996	1996	1997	1996	1996	2000	1997	1997	1999	1999	2000
MIN	23.0	36.9	35.5	29.0	24.9	36.3	87.5	313	238	52.6	9.55	6.55
(WY)	2000	1999	2001	2001	2001	2002	2001	1996	2001	2001	2001	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1996 - 2002

ANNUAL TOTAL	32053.1	60265.3		
ANNUAL MEAN	87.8	165		176
HIGHEST ANNUAL MEAN				235
LOWEST ANNUAL MEAN				90.7
HIGHEST DAILY MEAN	826	May 25	1210	May 30
LOWEST DAILY MEAN	5.8	Sep 29	6.3	Oct 2
ANNUAL SEVEN-DAY MINIMUM	6.0	Sep 24	6.4	Oct 1
ANNUAL RUNOFF (AC-FT)	63580		119500	127400
10 PERCENT EXCEEDS	242		579	550
50 PERCENT EXCEEDS	35		44	57
90 PERCENT EXCEEDS	7.1		16	24

e Estimated

13330300 LOSTINE RIVER AT BAKER ROAD, NEAR LOSTINE, OR

LOCATION.--Lat 45°32'14", long 117°28'43", in NW 1/4 SW 1/4 sec.29, T.1 N., R.42 E., Wallowa County, Hydrologic Unit 17060105, on left bank, 300 ft upstream from bridge at Baker road, 4 mi northwest of Lostine, and at mile 1.3.

DRAINAGE AREA.--90.9 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 3,050 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those for the period Feb. 1 to Mar. 19, which are fair and estimated daily discharges, which are poor. Minam Lake, capacity 440 acre-ft, has stored and diverted flow from Minam River since 1917 for irrigation in Lostine River basin. Many diversions for irrigation upstream from gage. U.S. Geological Survey satellite telemetry at station.

COOPERATION.--Gage height record was collected and discharge measurements made by the Wallowa County Soil and Water Conservation District. Records were provided by the State of Oregon Water Resources Department. Discharge measurements and records were reviewed by the U.S. Geological Survey.

AVERAGE DISCHARGE.--7 years (water years 1996-2002), 181 ft<sup>3</sup>/s, 131,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,970 ft<sup>3</sup>/s June 9, 1996, gage height, 6.88 ft; minimum discharge, 6.3 ft<sup>3</sup>/s Aug. 22, 1995.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0215	*1,670	*6.17	June 27	0215	1,470	5.97
June 16	2330	1,470	5.97				

Minimum discharge, 25 ft<sup>3</sup>/s Aug. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	129	71	48	42	38	52	202	888	718	34	98
2	34	110	72	49	41	39	59	229	811	595	27	93
3	34	102	71	51	40	38	61	263	705	563	36	82
4	31	98	70	48	38	39	64	258	712	529	41	70
5	31	95	72	48	e38	38	76	260	783	458	46	56
6	32	92	74	49	e39	e37	94	239	884	435	52	57
7	32	e83	73	87	40	e36	109	219	776	483	52	60
8	35	e78	71	99	42	35	105	202	621	543	75	64
9	35	75	71	82	42	37	109	185	507	442	77	70
10	36	72	64	73	43	37	126	162	444	377	73	72
11	55	70	72	69	39	39	129	143	369	369	71	77
12	51	69	70	68	37	49	142	124	347	363	59	83
13	60	71	77	65	e36	43	177	129	387	345	56	76
14	60	82	89	63	e38	40	488	170	562	319	56	73
15	68	88	73	61	39	39	434	170	824	289	51	69
16	67	81	73	58	41	38	317	142	1130	260	54	66
17	67	81	76	58	36	37	257	159	1190	229	50	65
18	64	79	63	56	36	37	221	201	1160	185	48	50
19	65	77	70	57	36	40	195	380	868	126	41	36
20	63	77	68	55	36	39	179	621	719	96	41	33
21	62	81	68	57	35	39	166	493	742	68	60	33
22	66	83	54	54	38	41	157	373	778	55	72	31
23	106	82	50	52	43	45	156	298	866	50	76	32
24	85	77	e44	54	46	56	147	237	966	55	76	33
25	78	79	44	57	39	55	146	218	1080	52	97	35
26	78	76	47	57	e37	50	154	255	1200	39	90	38
27	78	67	49	e47	e36	50	159	386	1300	46	89	61
28	86	66	52	e34	e37	49	171	656	1190	44	94	51
29	89	71	52	e38	---	47	172	1150	1240	40	95	61
30	131	71	45	e40	---	46	190	1400	975	33	102	109
31	202	---	47	e45	---	47	---	1080	---	37	102	---
TOTAL	2025	2462	1992	1779	1090	1300	5012	11004	25024	8243	1993	1834
MEAN	65.3	82.1	64.3	57.4	38.9	41.9	167	355	834	266	64.3	61.1
MAX	202	129	89	99	46	56	488	1400	1300	718	102	109
MIN	31	66	44	34	35	35	52	124	347	33	27	31
AC-FT	4020	4880	3950	3530	2160	2580	9940	21830	49640	16350	3950	3640

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

	73.8	95.4	82.2	65.8	71.8	64.7	168	452	674	308	66.0	53.0
MEAN	73.8	95.4	82.2	65.8	71.8	64.7	168	452	674	308	66.0	53.0
MAX	103	243	218	148	198	96.1	254	586	887	479	107	97.2
(WY)	2001	1996	1996	1997	1996	1996	2000	1997	1997	1996	1999	2000
MIN	58.7	48.4	37.6	29.0	24.6	41.9	104	308	252	71.3	25.9	22.4
(WY)	1997	1999	2001	2001	2001	2001	2001	1999	2001	2001	2001	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1996 - 2002

ANNUAL TOTAL	38964	63758	
ANNUAL MEAN	107	175	
HIGHEST ANNUAL MEAN			181
LOWEST ANNUAL MEAN			251
HIGHEST DAILY MEAN	915	May 25	1400
LOWEST DAILY MEAN	11	Sep 25	27
ANNUAL SEVEN-DAY MINIMUM	14	Aug 10	33
ANNUAL RUNOFF (AC-FT)	77290		126500
10 PERCENT EXCEEDS	266		499
50 PERCENT EXCEEDS	55		71
90 PERCENT EXCEEDS	23		37
			131300
			510
			76
			34

e Estimated

13330500 BEAR CREEK NEAR WALLOWA, OR

LOCATION.--Lat 45°31'37", long 117°33'05", in NW 1/4 NE 1/4 sec.34, T.1 N., R.42 E., Wallowa County, Hydrologic Unit 17060105, on left bank, at private road bridge, 3.0 mi southwest of Wallowa, and at mile 4.4.

DRAINAGE AREA.--68 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--April to September 1915, April 1924 to September 1985, April 1995 to current year. Monthly discharge only for some periods, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1915, 1927, 1929-30, 1932, 1936-40, 1945, 1949. sea level

GAGE.--Water-stage recorder. Elevation of gage is 3,250 ft above NGVD of 1929, by barometer. Apr. 13 to Sept. 16, 1915, nonrecording gage at site 1.0 mi upstream at different datum. Apr. 22, 1924 to Nov. 2, 1931, water-stage recorder at site 1.5 mi upstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are poor. No regulation. Diversions for irrigation upstream from station. Water for irrigation in Lostine River basin diverted from Little Bear Creek, a tributary upstream from station, in sec.32, T.1 S., R.43 E. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Gage height record was collected and discharge measurements made by the Wallowa County Soil and Water Conservation District. Records were provided by the State of Oregon Water Resources Department. Discharge measurements and records were reviewed by the U.S. Geological Survey.

AVERAGE DISCHARGE.--68 years (water years 1925-85, 1996-2002), 114 ft<sup>3</sup>/s, 82,890 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,730 ft<sup>3</sup>/s June 15, 1974, gage height, 3.58 ft; maximum gage height, 5.38 ft Jan. 24, 1984 (result of ice jam); minimum daily discharge, 3 ft<sup>3</sup>/s Jan. 20, Feb. 1, 1937.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	1445	719	3.38	May 29	2300	*1,130	*3.77
May 20	1100	638	3.29	June 16	2100	758	3.42

Minimum discharge, 8.2 ft<sup>3</sup>/s part or all of each day Oct. 2-7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.5	53	24	e22	e38	e31	90	188	602	295	23	13
2	8.3	45	23	e21	e39	e33	100	224	580	257	22	12
3	8.2	41	23	e20	e38	e35	102	257	522	239	21	12
4	8.2	37	23	e20	e36	e37	106	246	521	214	21	12
5	8.3	35	23	e22	e33	36	124	236	560	185	25	12
6	8.4	33	24	23	e34	e34	153	209	571	178	24	12
7	8.3	29	22	68	e32	e32	162	185	483	182	21	12
8	8.8	27	e21	114	e33	e33	153	162	383	175	20	12
9	9.3	27	23	104	e32	37	155	146	305	146	20	11
10	8.9	25	24	91	e30	35	171	132	262	129	19	11
11	19	23	e23	81	e32	37	176	121	241	121	18	11
12	11	23	e22	74	e31	e35	194	125	244	114	17	10
13	11	23	e23	68	e29	e33	261	164	291	103	17	10
14	11	28	e23	63	e31	e31	597	223	417	92	16	10
15	11	e30	e21	58	e32	e31	582	246	541	81	16	9.9
16	10	e26	e23	54	e32	e32	407	237	639	72	15	9.8
17	10	e27	e22	50	e33	e36	302	263	569	65	15	13
18	10	e26	e21	47	e27	40	243	315	575	58	14	13
19	10	e25	e23	45	e27	40	204	472	464	54	14	11
20	10	24	e24	44	28	39	176	605	409	50	14	11
21	11	28	e20	42	29	40	156	476	414	45	18	11
22	13	30	e21	40	33	43	143	351	437	41	15	11
23	26	29	e16	39	e45	57	143	283	449	39	15	10
24	16	26	e16	37	e45	95	134	248	453	36	15	10
25	15	27	e17	38	e41	110	133	246	462	33	15	10
26	15	25	e16	38	e36	100	143	287	472	31	18	9.9
27	15	22	e19	e36	e31	96	143	403	499	30	15	9.9
28	17	24	e21	e34	e31	91	135	618	434	28	14	10
29	17	e22	e22	e35	---	84	139	806	434	26	15	10
30	31	e25	e21	e36	---	79	166	765	352	25	14	12
31	67	---	e23	e37	---	80	---	675	---	24	13	---
TOTAL	441.2	865	667	1501	938	1572	5893	9914	13585	3168	539	331.5
MEAN	14.2	28.8	21.5	48.4	33.5	50.7	196	320	453	102	17.4	11.1
MAX	67	53	24	114	45	110	597	806	639	295	25	13
MIN	8.2	22	16	20	27	31	90	121	241	24	13	9.8
AC-FT	875	1720	1320	2980	1860	3120	11690	19660	26950	6280	1070	658

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1925 - 2002, BY WATER YEAR (WY)

	25.2	40.9	50.2	44.7	48.4	66.6	170	372	398	119	20.2	15.7
MEAN	25.2	40.9	50.2	44.7	48.4	66.6	170	372	398	119	20.2	15.7
MAX	160	220	195	141	192	186	422	682	869	388	37.5	44.2
(WY)	1928	1928	1996	1984	1996	1972	1936	1928	1974	1943	1975	1941
MIN	7.58	8.20	7.29	5.16	4.46	11.1	49.6	138	112	18.6	8.10	6.33
(WY)	1936	1953	1937	1937	1937	1977	1975	1977	1926	1977	1940	1935

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1925 - 2002	
ANNUAL TOTAL	25504.1		39414.7			
ANNUAL MEAN	69.9		108		114	
HIGHEST ANNUAL MEAN					178	
LOWEST ANNUAL MEAN					46.2	
HIGHEST DAILY MEAN	699	May 15	806	May 29	1480	Jun 17 1974
LOWEST DAILY MEAN	8.0	Feb 14	8.2	Oct 3	3.0	Jan 20 1937
ANNUAL SEVEN-DAY MINIMUM	8.2	Sep 19	8.3	Oct 1	3.9	Jan 19 1937
ANNUAL RUNOFF (AC-FT)	50590		78180		82890	
10 PERCENT EXCEEDS	240		351		348	
50 PERCENT EXCEEDS	22		33		42	
90 PERCENT EXCEEDS	9.1		11		11	

e Estimated

GRANDE RONDE RIVER BASIN

13330700 BEAR CREEK AT WALLOWA, OR

LOCATION.--Lat 45°34'50", long 117°32'21", in NW 1/4 SW 1/4 sec.11, T.1 N., R.42 E., Wallowa County, Hydrologic Unit 17060105, on right bank, 5 ft upstream from bridge crossing, 0.5 mi northwest of Wallowa, and at mile 0.7.

DRAINAGE AREA.--72.8.

PERIOD OF RECORD.--May 1995 to curent year.

GAGE.--Water-stage recorder. Elevation of gage is 2,900 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are poor. No regulation. Many diversions for irrigation upstream from station. Water for irrigation in the Lostine River basin is diverted from Little Bear Creek, a tributary upstream from station.

COOPERATION.--Gage height record was collected and discharge measurements made by the Wallowa County Soil and Water Conservation District. Records were provided by the State of Oregon Water Resources Department. Discharge measurements and records were reviewed by the U.S. Geological Survey.

AVERAGE DISCHARGE.--7 years (water years 1996-2002), 111 ft<sup>3</sup>/s, 80,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,410 ft<sup>3</sup>/s May 16, 1997, June 15, 1999; maximum gage height, 6.53 ft, June 15, 1999; minimum discharge, 1.6 ft<sup>3</sup>/s Aug. 19, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	unknown	unknown	unknown	June 16	1930	772	6.05
May 29	unknown	*unknown	*unknown				

Minimum discharge, 1.6 ft<sup>3</sup>/s Aug. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	50	19	18	e29	e25	86	178	549	305	3.1	2.9
2	2.6	41	18	18	e30	e27	98	225	536	246	3.0	2.7
3	2.7	37	18	17	31	e29	99	264	503	226	3.1	2.8
4	3.2	34	19	15	e29	e31	102	249	515	192	3.1	2.5
5	3.3	32	19	15	e27	28	120	239	533	164	3.9	2.5
6	3.4	30	22	16	e28	e27	158	206	518	155	4.0	2.8
7	3.4	26	18	49	e27	e26	171	174	437	159	3.9	2.9
8	3.6	22	e17	100	e27	e27	160	146	360	158	4.0	2.8
9	4.2	20	20	94	e26	32	165	121	294	121	4.1	2.7
10	4.2	18	20	80	e25	29	187	107	251	101	2.8	2.6
11	10	17	20	68	25	32	195	92	228	91	2.2	2.6
12	5.6	17	19	61	e24	e30	222	95	237	82	2.2	2.6
13	5.2	16	e20	55	e23	e28	322	134	288	72	3.4	2.5
14	5.1	19	e20	50	e25	e25	e735	208	398	63	5.7	2.5
15	5.1	22	e18	46	e26	e25	e700	250	513	55	2.9	2.4
16	4.5	19	e20	44	e26	e26	494	241	608	51	2.5	2.4
17	4.3	19	e19	40	e27	e30	384	274	553	46	2.2	2.6
18	4.9	18	e18	38	e21	e35	303	346	575	39	1.8	2.7
19	4.1	17	e19	35	e21	35	239	524	465	36	1.8	2.4
20	4.5	17	e21	33	e22	35	200	721	408	31	1.8	2.3
21	5.4	21	e17	33	e23	35	172	542	425	28	2.2	2.4
22	8	23	19	35	25	39	147	410	460	26	2.3	2.6
23	17	23	14	33	41	52	135	314	471	26	2.2	2.5
24	10	19	e14	28	e46	99	124	257	488	27	4.5	2.3
25	9.0	20	e15	30	e38	122	123	251	505	22	5.0	2.0
26	8.6	18	e14	30	e30	107	133	305	514	19	4.0	1.9
27	8.2	16	16	30	e25	100	133	426	544	15	3.6	1.9
28	9.7	18	19	e27	e25	93	123	e680	461	11	3.7	1.9
29	9.5	e17	e20	e26	---	84	127	e920	471	9.8	3.6	1.9
30	19	e20	e18	e27	---	76	153	e860	375	8.5	4.0	2.4
31	64	---	19	e28	---	76	---	634	---	6.3	3.9	---
TOTAL	255.1	686	569	1219	772	1465	6510	10393	13483	2591.6	100.5	74.0
MEAN	8.23	22.9	18.4	39.3	27.6	47.3	217	335	449	83.6	3.24	2.47
MAX	64	50	22	100	46	122	735	920	608	305	5.7	2.9
MIN	2.6	16	14	15	21	25	86	92	228	6.3	1.8	1.9
AC-FT	506	1360	1130	2420	1530	2910	12910	20610	26740	5140	199	147
CFSM	0.11	0.31	0.25	0.54	0.38	0.65	2.98	4.61	6.17	1.15	0.04	0.03
IN.	0.13	0.35	0.29	0.62	0.39	0.75	3.33	5.31	6.89	1.32	0.05	0.04

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

	1996	1997	1998	1999	2000	2001	2002
MEAN	16.4	52.3	63.5	49.3	63.8	73.2	178
MAX	33.0	164	202	114	224	100	254
(WY)	1996	1996	1996	1997	1997	2000	1997
MIN	6.34	15.8	11.7	10.8	9.40	37.4	119
(WY)	1999	2001	2001	2001	2001	2001	1998

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1996 - 2002

ANNUAL TOTAL	23764.6	38118.2	
ANNUAL MEAN	65.1	104	111
HIGHEST ANNUAL MEAN			149
LOWEST ANNUAL MEAN			65.6
HIGHEST DAILY MEAN	895	May 15	1080
LOWEST DAILY MEAN	2.5	Sep 8	1.8
ANNUAL SEVEN-DAY MINIMUM	2.7	Sep 7	2.0
ANNUAL RUNOFF (AC-FT)	47140		80200
ANNUAL RUNOFF (CFSM)	0.89		1.52
ANNUAL RUNOFF (INCHES)	12.14		20.66
10 PERCENT EXCEEDS	225		379
50 PERCENT EXCEEDS	15		27
90 PERCENT EXCEEDS	3.6		2.7

e Estimated

13331450 WALLOWA RIVER BELOW WATER CANYON, NEAR WALLOWA, OR

LOCATION.--Lat 45°36'30", long 117°36'55", in NW 1/4 SW 1/4 sec.31, T.2 N., R.42 E., Wallowa County, Hydrologic Unit 17060105, on left bank, 160 ft upstream from bridge, approximately 6 mi east of Wallowa, and at mile 18.3.

DRAINAGE AREA.--628 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,760 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated by Wallowa Lake. Many diversions for irrigation upstream from station.

COOPERATION.--Gage height record was collected and discharge measurements made by the Wallowa County Soil and Water Conservation District. Records were provided by the State of Oregon Water Resources Department. Discharge measurements and records were reviewed by the U.S. Geological Survey.

AVERAGE DISCHARGE.--7 years (water years 1996-2002), 663 ft<sup>3</sup>/s, 480,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,640 ft<sup>3</sup>/s Feb 9, 1996, gage height, 4.76 ft; minimum discharge, 102 ft<sup>3</sup>/s July 29, 1998.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
May 30	0145	*2,960	*3.62	No other peak greater than base discharge.			
Minimum discharge, 145 ft <sup>3</sup> /s Aug. 20							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	233	401	292	245	324	340	789	583	1840	1400	208	279
2	224	353	292	250	322	328	742	643	1740	1190	160	277
3	213	335	291	262	303	320	719	726	1530	1090	169	267
4	203	334	282	253	295	330	732	708	1490	1050	192	246
5	214	336	284	253	286	326	769	697	1630	958	230	231
6	221	329	296	257	289	361	815	638	1750	907	248	251
7	209	319	293	344	301	424	854	590	1530	948	260	254
8	217	309	284	517	304	363	807	544	1260	1040	275	262
9	221	311	280	470	292	355	834	489	1070	896	276	274
10	226	307	266	423	287	355	991	448	996	790	263	273
11	307	304	271	406	287	411	967	404	862	782	249	278
12	272	301	266	401	271	608	988	369	815	769	225	276
13	266	298	284	395	275	494	1090	384	860	750	205	251
14	260	316	327	378	280	446	1970	467	1140	717	211	235
15	267	315	292	359	269	430	1710	478	1510	635	195	229
16	264	301	289	345	279	439	1280	433	1910	551	193	226
17	255	292	301	338	286	428	1070	461	1980	537	181	245
18	252	282	268	328	289	413	925	571	2010	494	155	230
19	251	295	282	325	300	442	820	923	1650	436	155	204
20	247	313	275	325	312	471	745	1410	1400	393	152	191
21	247	331	271	347	320	488	680	1230	1420	349	221	203
22	262	335	250	325	335	519	632	953	1470	339	256	190
23	316	338	233	312	415	601	604	770	1570	336	267	203
24	288	316	218	310	477	1010	567	635	1690	323	246	206
25	271	320	225	330	398	1110	548	583	1800	320	259	196
26	266	310	226	348	379	891	551	649	1890	284	252	199
27	263	294	224	313	369	827	561	893	2080	274	252	214
28	278	289	232	270	362	756	539	1410	1970	283	270	212
29	282	298	242	283	---	718	524	2170	2040	274	282	222
30	323	297	238	313	---	737	560	2590	1750	266	289	284
31	473	---	240	321	---	775	---	2080	---	244	288	---
TOTAL	8091	9479	8314	10346	8906	16516	25383	25929	46653	19625	7084	7108
MEAN	261	316	268	334	318	533	846	836	1555	633	229	237
MAX	473	401	327	517	477	1110	1970	2590	2080	1400	289	284
MIN	203	282	218	245	269	320	524	369	815	244	152	190
AC-FT	16050	18800	16490	20520	17670	32760	50350	51430	92540	38930	14050	14100

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

	1996	1997	1998	1999	2000	2001	2002
MEAN	354	428	447	420	509	596	781
MAX	436	743	864	747	1124	830	1122
(WY)	1998	1996	1996	1997	1996	1997	1997
MIN	261	316	268	239	227	409	552
(WY)	2002	2002	2002	2001	2001	2001	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1996 - 2002

ANNUAL TOTAL	137353	193434		
ANNUAL MEAN	376	530	663	
HIGHEST ANNUAL MEAN			952	1997
LOWEST ANNUAL MEAN			395	2001
HIGHEST DAILY MEAN	1840	May 15	2590	May 30
LOWEST DAILY MEAN	115	Aug 22	152	Aug 20
ANNUAL SEVEN-DAY MINIMUM	123	Aug 21	177	Aug 14
ANNUAL RUNOFF (AC-FT)	272400		383700	480300
10 PERCENT EXCEEDS	684		1120	1520
50 PERCENT EXCEEDS	271		323	436
90 PERCENT EXCEEDS	166		226	249

## GRANDE RONDE RIVER BASIN

13331500 MINAM RIVER AT MINAM, OR  
(Hydrologic bench-mark station)

LOCATION.--Lat 45°37'12", long 117°43'32", in SW 1/4 SW 1/4 sec.29, T.2 N., R.41 E., Wallowa County, Hydrologic Unit 17060105, on left bank 2.3 mi downstream from Squaw Creek, 0.3 mi west of Minam, and at mile 0.3.

DRAINAGE AREA.--240 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1912 to March 1914, September 1965 to current year. Monthly discharge only for some periods, published in WSP 1317.

GAGE.--Water-stage recorder. Datum of gage is 2,540.48 ft above NGVD of 1929. June 1912 to March 1914, nonrecording gage at approximately same site at different datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No regulation. Minam Lake, capacity 440 acre-ft, has stored and diverted flow from Minam River since 1917 for irrigation in Lostine River basin. Continuous water temperature October 1965 to September 1985. Chemical analysis water years 1966 to 1995.

AVERAGE DISCHARGE.--38 years (water years 1913, 1966-2002), 456 ft<sup>3</sup>/s, 25.83 in/yr, 330,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,260 ft<sup>3</sup>/s June 16, 1974, gage height, 6.89 ft; maximum gage height, 7.3 ft May 28, 1913, datum then in use; minimum discharge, 10 ft<sup>3</sup>/s Dec. 6, 1972, Jan. 10, 1973, result of freezeup.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,450 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	1330	2,230	3.72	May 30	0130	*3,660	*4.84
May 20	0800	1,930	3.43	June 17	0000	3,040	4.39

Minimum discharge, 46 ft<sup>3</sup>/s Oct. 5-11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	183	111	e80	e110	e155	363	711	2560	1370	e185	e135
2	48	150	106	e78	e105	e140	373	816	2430	1150	e180	e128
3	48	133	110	e84	e103	e130	354	917	2240	1050	e180	e125
4	48	121	100	e82	e100	159	360	861	2220	987	e175	e120
5	47	114	103	96	e95	151	414	842	2330	868	e175	e110
6	46	109	108	101	e95	157	506	751	2400	810	e180	e105
7	46	104	104	275	e100	168	507	681	2110	826	e190	e120
8	46	97	103	509	127	151	458	615	1750	867	e200	e135
9	46	e93	107	407	122	155	469	567	1470	763	e180	e120
10	46	e91	90	299	125	157	584	528	1280	662	e175	e110
11	70	e90	98	250	115	171	638	499	1140	629	e165	e100
12	81	89	102	217	110	215	700	532	1110	607	e160	e96
13	76	89	112	200	122	234	894	672	1220	574	e155	e93
14	87	114	148	182	134	234	1840	858	1550	551	e150	e90
15	94	147	138	170	124	218	1580	909	1990	501	e145	e87
16	73	117	137	156	131	206	1160	874	2570	452	e140	e85
17	65	113	143	157	136	194	948	973	2600	411	e135	e120
18	62	109	117	147	125	176	797	1090	2500	380	e132	e130
19	59	103	152	144	131	190	687	1450	2050	360	e130	e115
20	59	101	131	139	132	202	607	1900	1780	336	e130	e100
21	59	116	119	138	132	199	556	1630	1750	302	e155	e93
22	69	125	96	139	161	211	533	1370	1810	281	e195	e90
23	156	140	e82	133	288	267	556	1180	1930	265	e170	e100
24	105	118	e65	136	384	502	518	1060	1960	250	e150	e97
25	82	122	e69	146	292	609	511	1060	2070	237	e145	e92
26	76	114	e75	154	239	486	546	1160	2150	226	e142	e89
27	73	100	e83	133	e195	434	545	1430	2320	218	e125	e86
28	76	67	e90	e73	e170	391	517	1870	2080	206	e140	e86
29	76	112	e82	e90	---	345	537	2610	1990	198	e125	e86
30	87	119	e75	e101	---	316	630	3360	1660	192	e145	e100
31	262	---	e81	e108	---	322	---	2860	---	e190	e140	---
TOTAL	2316	3400	3237	5124	4203	7645	19688	36636	59020	16719	4894	3143
MEAN	74.7	113	104	165	150	247	656	1182	1967	539	158	105
MAX	262	183	152	509	384	609	1840	3360	2600	1370	200	135
MIN	46	67	65	73	95	130	354	499	1110	190	125	85
AC-FT	4590	6740	6420	10160	8340	15160	39050	72670	117100	33160	9710	6230
CFSM	0.31	0.47	0.44	0.69	0.63	1.03	2.73	4.92	8.20	2.25	0.66	0.44
IN.	0.36	0.53	0.50	0.79	0.65	1.18	3.05	5.68	9.15	2.59	0.76	0.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 2002, BY WATER YEAR (WY)

	95.2	151	190	202	257	318	545	1306	1555	614	152	95.8
MEAN	95.2	151	190	202	257	318	545	1306	1555	614	152	95.8
MAX	173	508	765	470	977	697	888	2016	3125	1392	257	180
(WY)	1969	1996	1996	1997	1996	1986	1913	1971	1974	1975	1974	1978
MIN	38.1	56.1	62.4	59.6	56.9	66.7	235	484	494	125	72.6	45.9
(WY)	1988	1994	1979	1977	1977	1977	1967	1977	1992	1977	1966	1987

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1913 - 2002

ANNUAL TOTAL	95190	166025	
ANNUAL MEAN	261	455	456
HIGHEST ANNUAL MEAN			713
LOWEST ANNUAL MEAN			189
HIGHEST DAILY MEAN	2080	May 15	3360
LOWEST DAILY MEAN	46	Oct 6	46
ANNUAL SEVEN-DAY MINIMUM	46	Oct 4	46
ANNUAL RUNOFF (AC-FT)	188800		329300
ANNUAL RUNOFF (CFSM)	1.09		1.90
ANNUAL RUNOFF (INCHES)	14.75		25.73
10 PERCENT EXCEEDS	726		1390
50 PERCENT EXCEEDS	110		155
90 PERCENT EXCEEDS	53		82

e Estimated



13333000 GRANDE RONDE RIVER AT TROY, OR

LOCATION.--Lat 45°56'45", long 117°27'00", in NE 1/4 NW 1/4 sec.4, T.5 N., R.43 E., Wallowa County, Hydrologic Unit 17060106, on left bank, on upstream side of bridge at Troy, 100 ft downstream from Wenaha River, and at mile 45.3.

DRAINAGE AREA.--3,275 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1944 to current year. Monthly discharge only August 1944, published in WSP 1317.

REVISED RECORDS.--WSP 1397: 1946(M), 1948-50.

GAGE.--Water-stage recorder. Datum of gage is 1,585.98 ft above NGVD of 1929. Aug. 17, 1944, to Sept. 30, 1949, nonrecording gage at datum 10.85 ft lower. Oct. 1, 1949, to Sept. 5, 1963, water-stage recorder at datum 1.15 ft higher. Sept. 6, 1963 to Oct. 19, 1994, water-stage recorder at site 500 ft downstream, at present datum.

REMARKS.--No estimated daily discharges. Records fair. Flow slightly regulated by Wallowa Lake and small reservoirs. Diversions for irrigation upstream from station, chiefly in vicinity of LaGrande, Enterprise, and Wallowa; transbasin diversions for irrigation from Big Sheep Creek and tributaries in Imnaha River Basin to Wallowa River Basin, and from South Fork Catherine Creek to the Powder River Basin. U.S. Geological Survey satellite telemeter and National Weather Service telemeter at station.

AVERAGE DISCHARGE.--58 years (water years 1945-2002), 3,068 ft<sup>3</sup>/s, 2,222,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 51,800 ft<sup>3</sup>/s Feb. 9, 1996, gage height, 13.76 ft, from rating curve extended above 20,000 ft<sup>3</sup>; minimum discharge, 321 ft<sup>3</sup>/s Nov. 25, 1993; result of freezeup, but may have been less during period of ice effect that day.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 9,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	1730	*22,600	*10.44	May 30	1030	11,200	8.01

Minimum discharge, 438 ft<sup>3</sup>/s Oct. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	443	1200	922	902	1300	2020	6390	6280	8530	4000	644	622
2	460	1020	894	903	1240	1820	6100	6770	8140	3340	619	614
3	480	971	923	991	1220	1670	5870	6970	7430	2950	591	615
4	481	900	922	1020	1180	1620	5950	6710	7010	2790	599	604
5	480	852	930	1010	1130	1600	6440	6340	7000	2550	626	585
6	489	824	939	1020	1130	1660	7150	5780	7070	2360	695	572
7	485	800	957	1470	1170	2150	7560	5260	6550	2300	685	580
8	492	773	939	3480	1210	2100	7320	4760	5660	2430	690	586
9	517	761	945	3960	1170	1940	7260	4210	4950	2330	691	589
10	524	750	911	3100	1160	1860	8390	3790	4610	2030	667	593
11	679	736	888	2570	1180	2030	9080	3500	4180	1860	646	595
12	714	740	888	2300	1150	4210	10300	3460	3910	1750	634	596
13	622	738	982	2190	1140	4310	11600	3730	3850	1680	613	585
14	638	833	1240	2040	1180	3670	19100	4370	4250	1640	593	557
15	636	907	1330	1880	1190	3170	17200	4660	5040	1530	590	540
16	638	866	1220	1730	1200	2850	13300	4620	6040	1410	572	536
17	607	843	1220	1620	1270	2610	10900	4740	6620	1290	568	554
18	591	834	1220	1540	1320	2370	9260	4930	6390	1210	549	596
19	586	805	1110	1510	1410	2340	8020	6050	6160	1090	526	584
20	584	796	1100	1460	1600	2730	7270	8130	5200	1040	535	537
21	578	883	1070	1510	1700	3020	6650	7960	4890	967	541	520
22	620	990	1050	1500	2010	3170	6540	6670	4810	895	621	525
23	784	1450	923	1430	2680	3480	6680	5860	4880	868	641	517
24	835	1230	880	1390	3900	4970	6030	5230	4970	844	631	524
25	705	1100	934	1480	3550	6640	5750	4920	5160	835	615	519
26	690	1020	1080	1600	2830	6330	5750	4970	5230	790	634	502
27	674	958	1040	1580	2420	6250	5730	5610	5540	745	631	503
28	692	976	1030	1400	2220	5810	5630	7200	5450	724	623	519
29	684	926	979	1240	---	5310	5670	8970	5160	714	627	514
30	712	876	918	1330	---	5250	5870	10700	4850	703	634	546
31	1120	---	888	1310	---	5710	---	9510	---	667	631	---
TOTAL	19240	27358	31272	52466	45860	104670	244760	182660	169530	50332	19162	16829
MEAN	621	912	1009	1692	1638	3376	8159	5892	5651	1624	618	561
MAX	1120	1450	1330	3960	3900	6640	19100	10700	8530	4000	695	622
MIN	443	736	880	902	1130	1600	5630	3460	3850	667	526	502
AC-FT	38160	54260	62030	104100	90960	207600	485500	362300	336300	99830	38010	33380

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2002, BY WATER YEAR (WY)

	877	1239	1984	2189	3193	4300	6333	7351	5652	2155	842	764
MEAN	877	1239	1984	2189	3193	4300	6333	7351	5652	2155	842	764
MAX	2559	3766	7212	6280	14390	11520	11390	13820	11610	4951	1385	1291
(WY)	1960	1996	1996	1974	1996	1972	1997	1948	1974	1975	1984	1984
MIN	528	618	685	702	769	888	2257	2368	1501	520	438	409
(WY)	1988	1988	1945	1979	1977	1977	1968	1977	1992	1977	1992	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1945 - 2002

ANNUAL TOTAL	582663	964139	
ANNUAL MEAN	1596	2641	3068
HIGHEST ANNUAL MEAN			5253
LOWEST ANNUAL MEAN			1136
HIGHEST DAILY MEAN	7460	May 15	19100
LOWEST DAILY MEAN	385	Sep 1	443
ANNUAL SEVEN-DAY MINIMUM	389	Sep 7	474
ANNUAL RUNOFF (AC-FT)	1156000		1912000
10 PERCENT EXCEEDS	4180		6540
50 PERCENT EXCEEDS	894		1220
90 PERCENT EXCEEDS	434		585

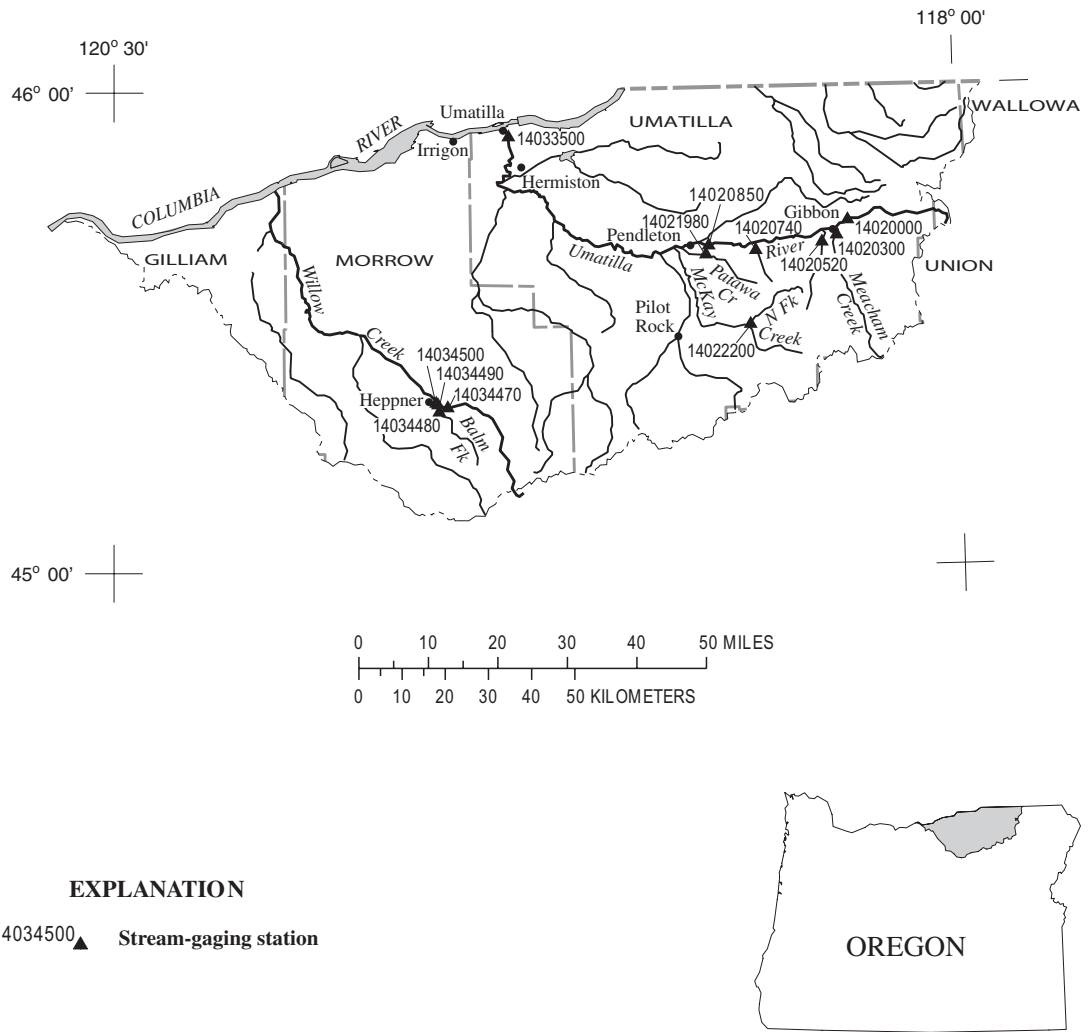
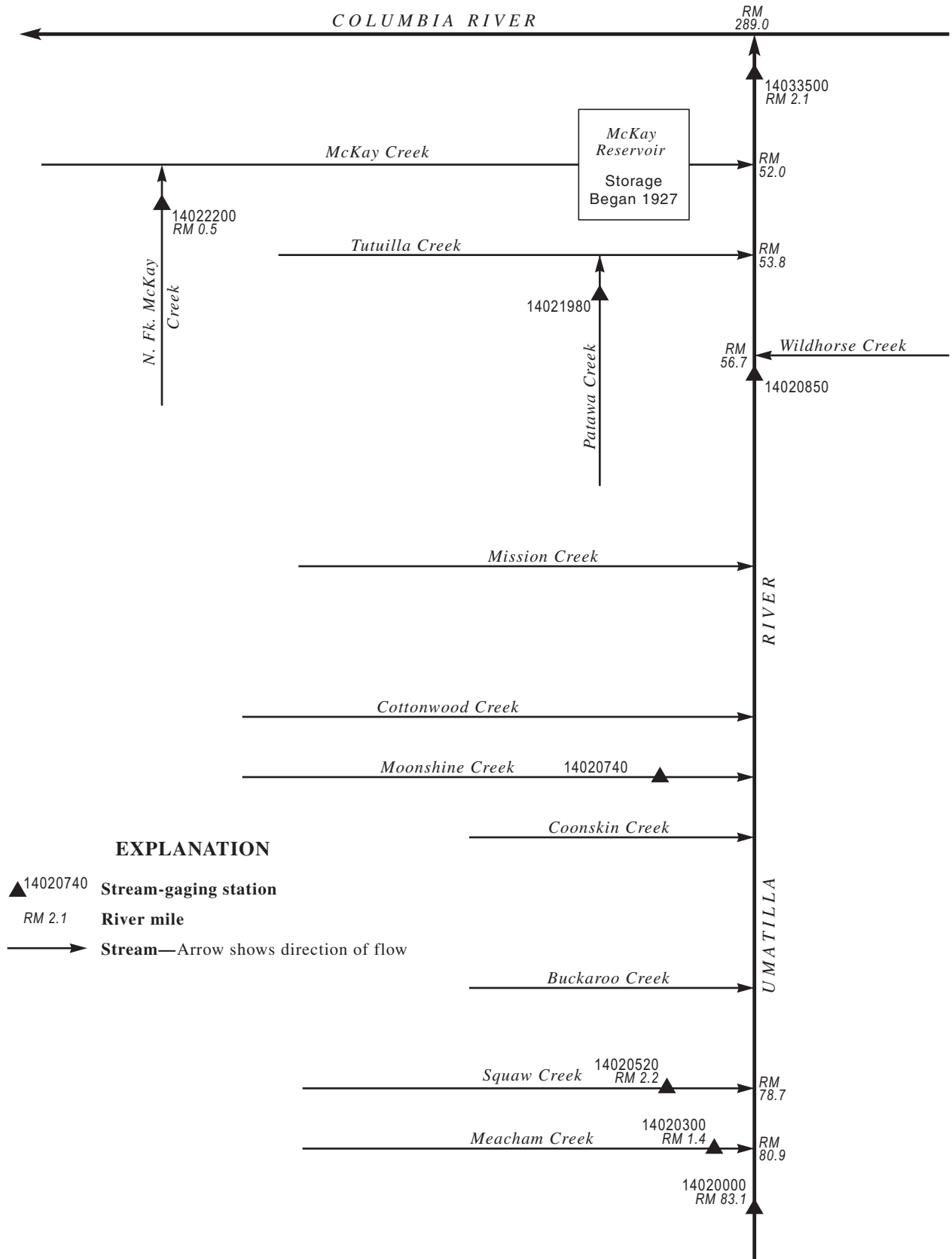


Figure 11. Location of surface-water stations in the Umatilla and Willow Creek Basins.



**Figure 12.** Schematic diagram showing gaging stations in the Umatilla River Basin.

UMATILLA RIVER BASIN

14020000 UMATILLA RIVER ABOVE MEACHAM CREEK, NEAR GIBBON, OR

LOCATION.--Lat 45°43'11", long 118°19'20", in SE 1/4 SW 1/4 sec.21, T.3 N., R.36 E., Umatilla County, Hydrologic Unit 17070103, Umatilla Indian Reservation, on right bank 0.8 mi downstream from Ryan Creek, 2.2 mi upstream from Meacham Creek, 2.5 mi northeast of Gibbon, and at mile 83.1.

DRAINAGE AREA.--131 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1933 to current year.

REVISED RECORDS.--WSP 1935: 1946-48(M), 1950(M), 1953(M), 1956-59(M), drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,854.81 ft above NGVD of 1929. Prior to June 27, 1939, at site 1 mi downstream at datum 43.94 ft lower.

REMARKS.--Records good. No regulation or diversion upstream from station. Continuous water-quality records for the period June 1959 to September 1980 have been collected at this location. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--69 years (water years 1934-2002), 227 ft<sup>3</sup>/s, 23.49 in/yr, 164,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,220 ft<sup>3</sup>/s Nov. 28, 1995, gage height, 9.40 ft (high-water mark), from rating curve extended above 3,500 ft<sup>3</sup>/s; maximum gage height, 9.50 ft Jan. 29, 1965; minimum discharge, 16 ft<sup>3</sup>/s Nov. 9, 1965, momentary regulation from unknown source.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 24	0215	1,840	6.10	Apr. 14	0815	*3,500	*7.52
Minimum discharge, 38 ft <sup>3</sup> /s Aug. 15, 17, 25, 26, Aug. 29 to Sept. 5, 9-16.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44	71	121	89	124	238	e600	628	327	77	45	39
2	44	64	131	103	115	206	481	677	294	75	45	39
3	44	60	145	153	111	182	424	677	268	72	45	40
4	44	58	142	177	107	170	438	570	246	70	45	40
5	44	57	132	169	106	165	556	500	230	69	46	40
6	45	55	129	175	107	175	735	425	211	67	46	40
7	45	55	148	464	113	184	722	381	193	67	45	41
8	46	54	155	884	131	184	638	335	183	70	44	40
9	46	52	148	664	132	177	659	318	178	65	44	40
10	46	52	135	435	131	172	986	304	190	62	43	40
11	66	52	128	320	131	181	1080	302	166	60	43	40
12	53	52	118	268	130	390	1400	338	153	58	42	40
13	49	53	205	237	131	456	1520	418	144	57	42	40
14	48	72	450	213	136	379	2690	462	137	58	42	39
15	48	68	304	188	141	320	1700	457	129	56	41	39
16	47	65	233	168	147	289	1030	e410	121	55	41	40
17	47	77	215	154	150	260	749	e390	115	54	41	46
18	48	78	198	143	161	232	584	e420	161	53	41	45
19	48	73	175	139	187	231	488	e460	141	53	41	42
20	48	73	159	132	217	257	448	e500	123	52	42	41
21	49	97	147	139	255	268	433	e460	114	51	43	41
22	62	148	136	137	382	258	483	e430	109	50	44	41
23	69	295	126	129	903	260	551	416	103	49	42	41
24	56	196	116	126	1430	646	464	395	98	49	41	41
25	52	160	111	179	702	1160	461	383	92	49	40	41
26	50	134	106	227	453	790	493	390	88	48	42	41
27	50	123	103	198	339	e660	501	413	86	47	43	41
28	54	121	102	174	282	e600	472	481	82	47	41	42
29	53	121	96	e155	---	e550	522	466	88	46	40	43
30	59	121	93	e140	---	e600	593	422	81	46	40	44
31	91	---	91	131	---	e660	---	363	---	45	40	---
TOTAL	1595	2757	4798	7010	7454	11300	22901	13591	4651	1777	1320	1227
MEAN	51.5	91.9	155	226	266	365	763	438	155	57.3	42.6	40.9
MAX	91	295	450	884	1430	1160	2690	677	327	77	46	46
MIN	44	52	91	89	106	165	424	302	81	45	40	39
AC-FT	3160	5470	9520	13900	14790	22410	45420	26960	9230	3520	2620	2430
CFSM	0.39	0.70	1.18	1.73	2.03	2.78	5.83	3.35	1.18	0.44	0.33	0.31
IN.	0.45	0.78	1.36	1.99	2.12	3.21	6.50	3.86	1.32	0.50	0.37	0.35

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1934 - 2002, BY WATER YEAR (WY)

	57.4	129	236	263	328	392	539	442	184	64.1	47.0	46.7
MEAN	57.4	129	236	263	328	392	539	442	184	64.1	47.0	46.7
MAX	169	405	716	656	1074	989	885	1135	591	110	63.4	81.6
(WY)	1952	1948	1976	1965	1996	1972	1974	1948	1974	1948	1975	1959
MIN	39.1	40.2	44.4	45.7	71.8	189	162	67.0	49.4	39.5	36.9	34.9
(WY)	1936	1936	1966	1937	1977	1955	1941	1934	1992	1934	1939	1935

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1934 - 2002

ANNUAL TOTAL	57934	80381	
ANNUAL MEAN	159	220	
HIGHEST ANNUAL MEAN			227
LOWEST ANNUAL MEAN			415
HIGHEST DAILY MEAN	850	Apr 27	2690
LOWEST DAILY MEAN	39	Aug 17	39
ANNUAL SEVEN-DAY MINIMUM	40	Aug 14	40
ANNUAL RUNOFF (AC-FT)	114900		159400
ANNUAL RUNOFF (CFSM)	1.21		1.68
ANNUAL RUNOFF (INCHES)	16.45		22.83
10 PERCENT EXCEEDS	421		500
50 PERCENT EXCEEDS	98		128
90 PERCENT EXCEEDS	42		42

e Estimated

UMATILLA RIVER BASIN

14020300 MEACHAM CREEK AT GIBBON, OR

LOCATION.--Lat 45°41'20", long 118°21'20", in SE 1/4 SE 1/4 sec.31, T.3 N., R.36 E., Umatilla County, Hydrologic Unit 17070103, on left bank 250 ft downstream from Union Pacific railroad bridge, 0.9 mi southeast of Gibbon, and at mile 1.4.

DRAINAGE AREA.--176 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,803.05 ft above NGVD of 1929.

REMARKS.--Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--27 years (water years 1976-2002), 203 ft<sup>3</sup>/s, 15.66 in/yr, 147,000 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,930 ft<sup>3</sup>/s Nov. 28, 1995, gage height, 7.67 ft, from rating curve extended above 4,600 ft<sup>3</sup>/s; maximum gage height, 8.16 ft, from floodmark; minimum discharge, 6.6 ft<sup>3</sup>/s Aug. 29, 1984.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Jan. 25, 1975, reached a stage of 7.21 ft, from floodmark, discharge, about 8,200 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	1100	*2,700	*5.68	No other peak greater than base discharge.			
Minimum discharge, 7.2 ft <sup>3</sup> /s Sept. 24.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	22	75	64	114	314	1010	362	134	27	12	9.0
2	10	e20	78	66	105	265	853	383	121	26	12	9.1
3	10	e19	86	84	100	227	762	389	110	24	11	9.7
4	10	e18	91	110	93	205	823	307	101	22	11	9.8
5	10	e16	90	127	91	190	1020	265	92	22	11	9.4
6	10	e14	92	133	92	195	1230	229	84	21	11	9.6
7	10	e13	100	298	97	218	1140	206	77	21	11	9.7
8	11	e12	106	707	108	226	1070	186	72	21	10	9.7
9	11	e11	107	700	111	219	1070	172	74	20	10	9.4
10	11	e10	102	496	109	210	1420	163	90	20	10	8.7
11	15	e9.8	97	379	111	222	1510	160	80	19	9.8	8.4
12	13	e9.6	89	308	108	385	1620	160	71	18	9.2	8.3
13	12	e9.4	143	271	108	521	1630	189	65	17	9.0	8.2
14	13	e10	367	241	109	476	2250	214	60	18	8.6	8.1
15	13	e13	302	207	116	412	1720	207	55	17	8.3	8.1
16	13	19	231	176	126	364	1230	203	50	17	8.2	8.5
17	13	24	197	153	133	321	923	193	47	16	8.3	11
18	14	24	173	139	140	278	699	198	62	16	8.3	10
19	13	24	155	136	167	267	543	216	66	15	8.4	9.2
20	13	25	139	130	191	274	471	235	61	15	8.5	8.8
21	14	30	128	129	216	295	430	203	50	14	9.1	9.1
22	17	37	119	128	316	303	443	173	46	14	9.5	9.2
23	17	96	107	117	687	327	485	157	43	13	8.9	9.2
24	16	113	95	110	1430	542	408	147	39	13	8.5	9.2
25	16	100	87	174	901	1070	366	144	37	13	8.7	8.4
26	15	90	83	220	603	972	364	148	34	13	9.2	9.1
27	16	82	79	193	460	889	358	158	31	13	9.9	9.1
28	17	82	78	157	380	782	324	183	30	13	9.3	9.3
29	17	77	73	139	---	687	322	179	31	12	8.9	9.7
30	19	75	69	135	---	702	353	167	29	12	9.0	11
31	26	---	67	124	---	858	---	148	---	12	9.1	---
TOTAL	425	1104.8	3805	6551	7322	13216	26847	6444	1942	534	295.7	276.0
MEAN	13.7	36.8	123	211	262	426	895	208	64.7	17.2	9.54	9.20
MAX	26	113	367	707	1430	1070	2250	389	134	27	12	11
MIN	10	9.4	67	64	91	190	322	144	29	12	8.2	8.1
AC-FT	843	2190	7550	12990	14520	26210	53250	12780	3850	1060	587	547
CFSM	0.08	0.21	0.70	1.20	1.49	2.42	5.08	1.18	0.37	0.10	0.05	0.05
IN.	0.09	0.23	0.80	1.38	1.55	2.79	5.67	1.36	0.41	0.11	0.06	0.06

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2002, BY WATER YEAR (WY)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	16.2	79.8	204	241	390	507	555	311	98.2	23.8	12.5	12.0															
MAX	28.8	323	582	583	1074	1016	956	668	354	52.2	20.7	16.7															
(WY)	2001	1996	1976	1997	1996	1997	1985	1991	1984	1984	1993	1978															
MIN	8.48	11.2	18.0	22.2	27.1	134	228	58.3	21.7	13.2	8.48	8.95															
(WY)	1988	1988	1977	1977	1977	1977	1986	1992	1992	1977	1986	2001															

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1976 - 2002
ANNUAL TOTAL	47661.5	68762.5	
ANNUAL MEAN	131	188	203
HIGHEST ANNUAL MEAN			352
LOWEST ANNUAL MEAN			66.2
HIGHEST DAILY MEAN	783	Mar 25	2250
LOWEST DAILY MEAN	8.3	Sep 5	8.1
ANNUAL SEVEN-DAY MINIMUM	8.4	Sep 12	8.3
ANNUAL RUNOFF (AC-FT)	94540	136400	147000
ANNUAL RUNOFF (CFSM)	0.74	1.07	1.15
ANNUAL RUNOFF (INCHES)	10.07	14.53	15.66
10 PERCENT EXCEEDS	467	480	552
50 PERCENT EXCEEDS	70	84	72
90 PERCENT EXCEEDS	9.1	9.3	11

e Estimated

UMATILLA RIVER BASIN

14020520 SQUAW CREEK NEAR GIBBON, OR

LOCATION.--Lat 45°40'22", long 118°24'00", in NW 1/4 NE 1/4 sec.11, T.2 N., R.35 E., Umatilla County, Hydrologic Unit 17070103, on right bank, 2 mi southwest of townsite of Gibbon, and at mile 2.2.

DRAINAGE AREA.--32.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,850 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--4 years (water years 1999-2002), 28.9 ft<sup>3</sup>/s, 12.04 in/yr, 20,930 acre-ft/yr

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 900 ft<sup>3</sup>/s Dec. 30, 1998, gage height, 3.71 ft, from highwater mark, from rating curve extended above 300 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 0.55 ft<sup>3</sup>/s Aug. 11, 2001, Aug. 13-18, Sept. 13-15, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 370 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 24	0230	*622	*3.19	Mar. 24	2000	479	2.85
Minimum discharge, 0.55 ft <sup>3</sup> /s Aug. 13-18, Sept. 13-15.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	6.1	23	6.8	17	54	120	16	4.2	e1.3	0.80	0.77
2	1.4	5.2	23	8.7	15	46	101	15	3.3	e1.3	0.79	0.77
3	1.4	4.6	26	18	15	39	85	13	3.1	e1.3	0.81	0.84
4	1.4	4.3	27	30	13	35	82	13	3.0	e1.3	0.94	0.88
5	1.4	4.1	24	29	13	33	100	13	2.9	e1.2	1.0	0.88
6	1.4	3.9	26	38	14	34	113	12	2.6	e1.2	0.97	e0.90
7	1.5	3.7	37	172	15	36	100	11	2.5	e1.2	0.96	e0.90
8	1.7	3.6	38	187	18	36	89	11	2.6	e1.2	0.92	e0.89
9	1.7	3.5	32	126	18	35	96	10	3.9	e1.2	0.84	e0.86
10	1.9	3.4	27	80	18	34	153	9.5	5.0	e1.2	0.81	e0.82
11	2.9	3.3	24	56	17	40	148	8.3	4.0	e1.1	0.79	e0.79
12	2.3	3.1	19	44	16	107	147	7.6	3.3	e1.0	0.78	0.72
13	2.1	3.2	63	36	15	121	133	8.0	3.0	e1.0	0.75	0.71
14	2.1	5.2	142	30	15	103	208	7.2	2.6	e1.0	0.72	0.68
15	2.1	6.7	75	24	14	85	169	6.8	2.3	e1.0	0.70	0.64
16	2.0	6.5	48	20	14	71	125	6.5	2.1	e0.98	0.70	0.74
17	2.0	7.8	40	17	14	61	95	6.4	2.0	e0.98	0.69	1.1
18	2.2	8.2	36	14	15	53	76	6.5	5.0	e0.98	0.71	1.1
19	2.3	7.7	29	14	18	57	64	6.0	5.0	e0.96	0.77	0.98
20	2.2	7.8	24	14	21	73	54	6.5	3.7	e0.96	0.81	0.92
21	2.4	16	21	16	30	75	47	6.9	3.2	e0.96	0.96	0.91
22	3.7	41	18	17	76	68	42	6.7	2.5	e0.94	0.99	0.90
23	3.6	101	16	15	281	73	38	6.1	2.2	e0.94	0.87	0.87
24	3.0	47	14	15	371	242	32	5.2	2.0	e0.94	0.82	0.88
25	2.8	32	13	62	180	320	29	4.6	1.8	0.94	0.80	0.90
26	2.6	28	12	84	124	212	27	4.6	e1.6	0.90	0.83	0.80
27	2.7	27	10	55	88	176	24	4.7	e1.5	0.90	0.87	0.88
28	3.1	27	9.2	39	69	141	21	6.2	e1.5	0.88	0.82	0.90
29	3.2	24	8.3	29	---	119	18	5.2	e1.6	0.84	0.75	1.1
30	3.9	23	7.9	24	---	111	18	4.6	e1.4	0.82	0.76	1.4
31	7.7	---	7.3	20	---	117	---	4.2	---	0.81	0.77	---
TOTAL	76.1	467.9	919.7	1340.5	1534	2807	2554	252.3	85.4	32.23	25.50	26.43
MEAN	2.45	15.6	29.7	43.2	54.8	90.5	85.1	8.14	2.85	1.04	0.82	0.88
MAX	7.7	101	142	187	371	320	208	16	5.0	1.3	1.0	1.4
MIN	1.4	3.1	7.3	6.8	13	33	18	4.2	1.4	0.81	0.69	0.64
AC-FT	151	928	1820	2660	3040	5570	5070	500	169	64	51	52
CFSM	0.08	0.48	0.91	1.33	1.68	2.78	2.61	0.25	0.09	0.03	0.03	0.03
IN.	0.09	0.53	1.05	1.53	1.75	3.20	2.91	0.29	0.10	0.04	0.03	0.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2002, BY WATER YEAR (WY)

	3.39	17.2	52.3	44.0	60.8	94.1	54.5	13.4	5.01	1.34	0.98	1.21
MEAN	3.39	17.2	52.3	44.0	60.8	94.1	54.5	13.4	5.01	1.34	0.98	1.21
MAX	7.55	20.5	88.9	76.7	98.1	144	85.1	20.7	11.2	1.67	1.09	1.91
(WY)	2001	1999	1999	1999	2000	2000	2002	1999	2000	2000	1999	2000
MIN	1.14	15.6	21.9	17.2	24.9	57.3	34.6	8.14	2.62	1.04	0.82	0.88
(WY)	2000	2002	2001	2001	2001	2001	2000	2002	2002	2002	2002	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1999 - 2002

ANNUAL TOTAL	6987.76	10121.06	
ANNUAL MEAN	19.1	27.7	28.9
HIGHEST ANNUAL MEAN			35.5
LOWEST ANNUAL MEAN			19.0
HIGHEST DAILY MEAN	142	Dec 14	371
LOWEST DAILY MEAN	0.86	Sep 4	0.64
ANNUAL SEVEN-DAY MINIMUM	0.92	Aug 30	0.72
ANNUAL RUNOFF (AC-FT)	13860	20080	20930
ANNUAL RUNOFF (CFSM)	0.59	0.85	0.89
ANNUAL RUNOFF (INCHES)	7.97	11.55	12.04
10 PERCENT EXCEEDS	63	86	76
50 PERCENT EXCEEDS	7.7	6.7	9.8
90 PERCENT EXCEEDS	1.00	0.85	0.97

e Estimated

14020740 MOONSHINE CREEK NEAR MISSION, OR

LOCATION.--Lat 45°39'36", long 118°33'55" (revised), in NW 1/4 NE 1/4 sec.16, T.2 N., R.34 E., Umatilla County, Hydrologic Unit 17070103, Umatilla Indian Reservation, on left bank, 60 ft upstream from county road crossing, 5.7 mi west of Mission, and at mile 1.1.

DRAINAGE AREA.--4.62 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1991 to current year.

REVISED RECORDS.--WDR OR-93-1: 1992(M); WDR OR-94-1: 1993.

GAGE.--Water-stage recorder. Elevation of gage is 1,600 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. No known regulation.

AVERAGE DISCHARGE.--11 years (water years 1992-2002), 3.07 ft<sup>3</sup>/s, 2,220 acre-ft per year.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 247 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 6.67 ft, from rating curve extended above 75 ft<sup>3</sup>/s; no flow part of or all of each day Oct. 1-14, 1992, Sept. 6-10, 1993, Oct. 2, 15-19, 1993.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 30 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 24	unknown	*83	a*6.00	Mar. 25	1615	36	5.62

Minimum discharge, 0.05 ft<sup>3</sup>/s part or all of each day Sept. 13, 14, 28-30.  
a From floodmark.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.19	0.40	2.6	0.97	3.1	e7.0	7.2	1.7	0.48	0.17	0.07	0.06
2	0.19	0.40	2.6	1.2	3.0	e6.0	6.4	1.6	0.45	0.17	0.07	0.06
3	0.19	0.36	2.4	1.7	2.9	e5.5	5.4	1.5	0.43	0.17	0.07	0.06
4	0.19	0.39	2.0	2.2	2.7	e5.0	4.9	1.5	0.39	0.17	0.07	0.06
5	0.19	0.40	1.8	2.3	2.5	e4.8	4.6	1.5	0.36	0.15	0.07	0.06
6	0.18	0.40	1.8	2.4	2.4	e5.0	4.2	1.5	0.36	0.14	0.07	0.07
7	0.19	0.40	2.2	3.8	2.5	e5.2	3.7	1.4	0.34	0.14	0.07	0.07
8	0.19	0.40	2.3	6.4	2.9	e5.4	3.3	1.4	0.32	0.14	0.07	0.07
9	0.19	0.41	2.2	4.9	2.9	e5.1	3.4	1.3	0.33	0.14	0.07	0.07
10	0.21	0.45	2.1	4.1	2.9	e5.1	4.7	1.2	0.32	0.14	0.07	0.07
11	0.24	0.45	2.1	3.6	2.7	e5.5	4.7	1.2	0.31	0.13	0.07	0.07
12	0.22	0.45	2.0	3.3	2.5	e8.0	4.9	1.1	0.29	0.12	0.07	0.07
13	0.22	0.46	5.9	3.1	2.4	e10	4.8	1.0	0.29	0.12	0.07	0.06
14	0.22	0.50	7.0	2.8	2.1	e8.5	14	1.0	0.28	0.12	0.07	0.06
15	0.24	0.50	4.1	2.4	2.0	e7.7	12	e0.90	0.25	0.12	0.07	0.06
16	0.25	0.50	3.4	2.2	1.9	e7.0	9.5	e0.90	0.24	0.11	0.07	0.06
17	0.25	0.51	3.1	2.0	1.8	e6.2	8.1	e0.80	0.22	0.10	0.07	0.06
18	0.25	0.50	3.0	1.8	1.8	e6.2	6.9	e0.80	0.27	0.10	0.07	0.06
19	0.25	0.50	2.6	2.9	2.1	e6.5	6.0	e0.70	0.24	0.10	0.07	0.06
20	0.27	0.55	2.4	3.0	2.4	e6.7	5.1	e0.70	0.23	0.09	0.07	0.06
21	0.29	0.56	2.1	3.2	3.2	e7.0	4.6	e0.60	0.22	0.09	0.07	0.06
22	0.34	0.67	1.9	3.1	5.1	e8.0	3.8	0.61	0.22	0.09	0.07	0.06
23	0.34	2.3	1.7	2.7	e28	e13	3.3	0.61	0.22	0.09	0.07	0.06
24	0.35	2.1	1.6	2.6	e34	e24	2.8	0.58	0.21	0.09	0.06	0.06
25	0.36	2.7	1.4	3.8	e17	e29	2.6	0.55	0.20	0.09	0.06	0.06
26	0.36	2.8	1.3	4.7	e12	24	2.5	0.53	0.19	0.08	0.06	0.06
27	0.37	2.7	1.2	4.4	e10	17	2.4	0.50	0.18	0.09	0.06	0.06
28	0.36	2.7	1.1	4.0	e8.0	13	2.2	0.50	0.17	0.09	0.06	0.06
29	0.36	2.5	1.0	3.5	---	11	2.0	0.50	0.18	0.07	0.06	0.05
30	0.42	2.7	1.0	3.2	---	9.3	1.9	0.50	0.17	0.07	0.06	0.06
31	0.42	---	0.97	3.1	---	8.3	---	0.48	---	0.07	0.06	---
TOTAL	8.29	30.66	72.87	95.37	166.8	290.0	151.9	29.66	8.36	3.56	2.09	1.86
MEAN	0.27	1.02	2.35	3.08	5.96	9.35	5.06	0.96	0.28	0.11	0.067	0.062
MAX	0.42	2.8	7.0	6.4	34	29	14	1.7	0.48	0.17	0.07	0.07
MIN	0.18	0.36	0.97	0.97	1.8	4.8	1.9	0.48	0.17	0.07	0.06	0.05
AC-FT	16	61	145	189	331	575	301	59	17	7.1	4.1	3.7

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2002, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
MEAN	0.18	1.88	5.09	5.94	7.43	8.15	4.31	3.21	0.54	0.13	0.094	0.072
MAX	0.58	4.46	14.2	9.67	25.1	15.4	9.35	12.6	1.39	0.23	0.19	0.15
(WY)	2001	1992	1997	1996	2000	2001	1995	2000	2000	1995	2001	
MIN	0.000	0.22	0.48	1.93	1.90	2.41	0.58	0.13	0.000	0.002	0.001	0.000
(WY)	1992	2000	1994	1992	1994	1992	1992	1992	1992	1992	1992	1992

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1992 - 2002

ANNUAL TOTAL	854.99	861.42	
ANNUAL MEAN	2.34	2.36	
HIGHEST ANNUAL MEAN			3.07
LOWEST ANNUAL MEAN			4.95
HIGHEST DAILY MEAN	26	Apr 12	34
LOWEST DAILY MEAN	0.12	Jul 23	0.05
ANNUAL SEVEN-DAY MINIMUM	0.13	Jul 21	0.06
ANNUAL RUNOFF (AC-FT)	1700		1710
10 PERCENT EXCEEDS	5.6		6.1
50 PERCENT EXCEEDS	0.67		0.60
90 PERCENT EXCEEDS	0.14		0.07

e Estimated

UMATILLA RIVER BASIN

14020850 UMATILLA RIVER AT WEST RESERVATION BOUNDARY, NEAR PENDLETON, OR

LOCATION.--Lat 45°40'18", long 118°44'08", in NE 1/4 NW 1/4 sec.7, T.2 N., R.33 E., Umatilla County, Hydrologic Unit 17070103, on left bank, 0.5 mi east of west line of boundary for Umatilla Indian Reservarion, 1.6 mi upstream from Wildhorse Creek, 2.5 mi east of Post Office in Pendleton, and at mile 58.3.

DRAINAGE AREA.--440 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1995 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,130 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. No known regulation. Many diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--7 years (water years 1996-2002), 556 ft<sup>3</sup>/s, 403,000 acre-ft.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,700 ft<sup>3</sup>/s Feb. 9, 1996, gage height, 11.64 ft; minimum discharge, 34 ft<sup>3</sup>/s Aug. 16-18, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 24	0900	4,630	7.48	Apr. 14	1430	*7,520	*9.04
Mar. 25	0800	3,670	6.92				

Minimum discharge, 34 ft<sup>3</sup>/s Aug. 16-18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	43	85	308	223	339	685	1780	1090	525	105	42	38
2	42	76	316	231	315	608	1540	1160	472	100	41	38
3	42	70	338	294	302	526	1320	1210	423	93	42	38
4	42	67	357	384	288	480	1330	1050	381	89	42	41
5	43	65	350	415	281	445	1630	932	348	87	44	41
6	43	62	337	414	281	448	2100	801	322	84	43	41
7	44	62	375	775	289	481	2030	711	293	82	43	42
8	45	61	402	1730	323	493	1850	629	274	85	43	42
9	45	59	400	1750	341	478	1780	584	274	83	41	41
10	45	57	379	1220	335	456	2430	550	297	78	40	40
11	54	56	360	912	333	462	2930	527	267	75	39	39
12	56	56	336	741	326	773	3280	548	228	67	38	38
13	50	55	381	642	319	1170	3590	643	209	59	38	38
14	47	62	1070	571	320	1070	5610	749	196	58	36	39
15	48	70	902	508	324	943	4680	755	184	56	35	39
16	47	69	696	448	333	829	2830	736	172	53	35	40
17	47	83	601	408	345	726	2000	715	163	50	35	44
18	47	93	560	366	361	653	1570	717	195	49	35	47
19	47	96	500	358	402	623	1280	803	223	49	36	44
20	47	98	449	344	469	674	1150	939	191	49	37	40
21	47	120	411	346	521	690	1060	831	171	48	39	40
22	55	165	383	352	733	695	1070	701	157	46	42	40
23	65	468	354	335	1620	717	1180	637	147	46	41	40
24	61	467	329	318	3910	1450	1050	600	139	45	40	39
25	55	399	303	419	2330	3260	975	584	128	45	39	39
26	52	356	284	631	1470	2460	989	576	120	45	39	40
27	52	323	271	574	1050	2020	1000	621	114	43	42	41
28	55	320	268	494	839	1700	933	720	111	43	41	42
29	56	313	253	430	---	1410	946	732	119	43	38	42
30	59	311	240	399	---	1320	1040	686	117	42	37	43
31	80	---	231	361	---	1470	---	586	---	42	38	---
TOTAL	1561	4644	12744	17393	19099	30215	56953	23123	6960	1939	1221	1216
MEAN	50.4	155	411	561	682	975	1898	746	232	62.5	39.4	40.5
MAX	80	468	1070	1750	3910	3260	5610	1210	525	105	44	47
MIN	42	55	231	223	281	445	933	527	111	42	35	38
AC-FT	3100	9210	25280	34500	37880	59930	113000	45860	13810	3850	2420	2410

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1996 - 2002, BY WATER YEAR (WY)

	1996	1997	1998	1999	2000	2001	2002
MEAN	67.1	305	696	778	1081	1244	1347
MAX	101	717	1186	1360	2801	1971	1898
(WY)	2001	1996	1997	1997	1996	2002	1998
MIN	50.4	155	245	246	339	871	693
(WY)	2002	2002	2001	2001	2001	2001	1998

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1996 - 2002
ANNUAL TOTAL	128269	177068	
ANNUAL MEAN	351	485	556
HIGHEST ANNUAL MEAN			777
LOWEST ANNUAL MEAN			343
HIGHEST DAILY MEAN	1650	Apr 28	5610
LOWEST DAILY MEAN	39	Aug 20	35
ANNUAL SEVEN-DAY MINIMUM	39	Sep 9	36
ANNUAL RUNOFF (AC-FT)	254400		351200
10 PERCENT EXCEEDS	1080		1170
50 PERCENT EXCEEDS	218		302
90 PERCENT EXCEEDS	40		41



14021980 PATAWA CREEK AT WEST RESERVATION BOUNDARY, NEAR PENDLETON, OR

LOCATION.--Lat 45°39'11", long 118°44'39", in NW 1/4 SW 1/4 sec. 18, T.2 N., R.33 E., Umatilla County, Hydrologic Unit 17070103, Umatilla Indian Reservation, on right bank, at downstream side of county road crossing, 2 mi southwest of Pendleton City Hall, and at mile 2.9.

DRAINAGE AREA.--30 mi<sup>2</sup>, excludes about 1 mi<sup>2</sup> in upper basin where water has been diverted directly to the Umatilla River.

PERIOD OF RECORD.--December 1973 to April 1975 (discharge measurements only), October 1991 to current year.

REVISED RECORDS.--WDR OR-94-1: 1993 (M).

GAGE.--Water-stage recorder. Elevation of gage is 1,220 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. No known regulation.

AVERAGE DISCHARGE.--11 years (water years 1992-2002), 5.28 ft<sup>3</sup>/s, 3,830 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge 378 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 7.94 ft; minimum discharge, 0.01 ft<sup>3</sup>/s July 22, 23, 27, 28, July 30 to Aug. 1, 1999.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 57 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Mar. 24	2100	*74	*5.33	No other peak greater than base discharge.			
Minimum daily discharge, 0.06 ft <sup>3</sup> /s Oct. 2-8.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.07	e0.12	e0.42	0.41	1.4	3.7	4.9	1.4	0.59	0.21	0.26	0.25
2	0.06	e0.12	e0.40	0.41	1.4	3.1	4.1	1.2	0.52	0.21	0.20	0.21
3	0.06	e0.12	e0.36	0.39	1.4	2.7	3.6	1.2	0.47	0.22	0.19	0.20
4	0.06	e0.12	e0.32	0.38	1.4	2.5	3.1	1.1	0.44	0.22	0.17	0.19
5	0.06	e0.12	e0.30	0.40	1.4	2.2	2.8	1.1	0.40	0.22	0.15	0.17
6	e0.06	e0.12	e0.28	0.41	1.4	2.4	2.5	1.1	0.40	0.22	0.16	0.14
7	e0.06	e0.12	0.27	0.40	1.3	2.5	2.3	1.0	0.40	0.23	0.16	0.19
8	e0.06	e0.12	0.28	0.40	2.2	2.2	2.1	0.95	0.39	0.22	0.13	0.25
9	e0.07	e0.13	0.28	0.42	2.6	2.3	2.0	0.93	0.45	0.21	0.12	0.22
10	e0.07	e0.14	0.30	0.40	2.5	2.2	2.9	0.93	0.44	0.23	0.14	0.21
11	e0.07	e0.14	0.31	0.40	2.2	2.1	2.8	0.87	0.41	0.22	0.15	0.19
12	e0.07	e0.14	0.33	0.39	2.1	3.3	3.3	0.84	0.41	0.23	0.17	0.18
13	e0.07	e0.14	0.33	0.39	2.0	5.5	3.4	0.82	0.39	0.22	0.22	0.17
14	e0.07	e0.15	0.33	0.44	1.7	5.4	6.9	0.79	0.39	0.21	0.21	0.15
15	e0.07	e0.15	0.41	0.41	1.6	5.4	6.6	0.76	0.37	0.21	0.24	0.15
16	e0.08	e0.16	0.29	0.41	1.4	5.7	6.0	0.75	0.36	0.22	0.28	0.15
17	e0.08	e0.16	0.28	0.40	1.3	6.1	5.6	0.81	0.35	0.21	0.25	0.22
18	e0.09	e0.16	0.27	0.40	1.3	6.0	5.2	0.77	0.38	e0.22	0.27	0.17
19	e0.09	e0.16	0.30	0.43	1.2	6.7	4.6	0.74	0.31	e0.21	0.29	0.16
20	e0.10	e0.17	0.35	0.41	1.3	12	4.2	0.74	0.27	0.23	0.34	0.15
21	e0.10	e0.18	0.35	0.40	1.4	13	3.8	0.73	0.26	0.23	0.38	0.14
22	e0.10	e0.24	0.38	0.39	2.2	13	3.3	0.73	0.26	0.26	0.38	0.16
23	e0.10	e0.38	0.40	0.40	5.6	13	3.0	0.71	0.26	0.30	0.41	0.17
24	e0.11	e0.36	0.42	0.41	13	26	2.6	0.71	0.26	0.32	0.42	0.16
25	e0.11	e0.46	0.41	0.46	8.5	40	2.3	0.73	0.25	0.33	0.41	0.16
26	e0.11	e0.47	0.34	1.9	6.4	20	2.2	0.73	0.25	0.34	0.39	0.15
27	e0.11	e0.46	0.36	2.3	5.2	14	2.0	0.73	0.24	0.25	0.36	0.14
28	e0.11	e0.44	0.36	2.1	4.4	10	1.9	0.76	0.23	0.26	0.34	0.12
29	e0.12	e0.42	0.34	1.8	---	8.1	1.7	0.69	0.25	0.27	0.31	0.11
30	e0.12	e0.44	0.37	1.8	---	6.6	1.5	0.66	0.22	0.24	0.30	0.11
31	e0.12	---	0.40	1.5	---	5.6	---	0.64	---	0.28	0.28	---
TOTAL	2.63	6.61	10.54	21.56	79.8	253.3	103.2	26.62	10.62	7.45	8.08	5.14
MEAN	0.085	0.22	0.34	0.70	2.85	8.17	3.44	0.86	0.35	0.24	0.26	0.17
MAX	0.12	0.47	0.42	2.3	13	40	6.9	1.4	0.59	0.34	0.42	0.25
MIN	0.06	0.12	0.27	0.38	1.2	2.1	1.5	0.64	0.22	0.21	0.12	0.11
AC-FT	5.2	13	21	43	158	502	205	53	21	15	16	10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2002, BY WATER YEAR (WY)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
MEAN	0.52	1.94	4.67	9.37	11.2	14.2	9.77	8.72	1.68	0.71	0.51	0.43
MAX	1.10	5.88	14.5	21.8	34.6	26.7	24.2	37.0	3.67	1.45	0.98	0.89
(WY)	2001	1992	1997	1997	1996	1997	2001	1995	1998	1997	1997	1993
MIN	0.085	0.22	0.34	0.70	2.84	5.19	1.81	0.86	0.35	0.22	0.13	0.17
(WY)	2002	2002	2002	2002	1992	1992	1992	2002	2002	1992	1999	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1992 - 2002

ANNUAL TOTAL	1536.03	535.55	
ANNUAL MEAN	4.21	1.47	
HIGHEST ANNUAL MEAN			5.28
LOWEST ANNUAL MEAN			10.6
HIGHEST DAILY MEAN			1.47
LOWEST DAILY MEAN			218
ANNUAL SEVEN-DAY MINIMUM			0.03
ANNUAL RUNOFF (AC-FT)	3050	1060	0.04
10 PERCENT EXCEEDS	11	3.6	14
50 PERCENT EXCEEDS	0.63	0.38	1.4
90 PERCENT EXCEEDS	0.12	0.12	0.23

e Estimated

UMATILLA RIVER BASIN

14022200 NORTH FORK MCKAY CREEK NEAR PILOT ROCK, OR

LOCATION.--Lat 45°30'24", long 118°36'57", in NE 1/4 SE 1/4 sec.1, T.1 S., R.33 E., Umatilla County, Hydrologic Unit 17070103, Umatilla Indian Reservation, on left bank 10 mi northeast of Pilot Rock and at mile 0.5.

DRAINAGE AREA.--48.6 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1973 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,870 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good. No regulation. Minor diversion upstream from station.

AVERAGE DISCHARGE.--29 years (water years 1974-2002), 42.7 ft<sup>3</sup>/s, 30,950 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,980 ft<sup>3</sup>/s Jan. 25, 1975, gage height, 8.48 ft, from floodmark, from rating curve extended above 150 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 0.22 ft<sup>3</sup>/s June 26, 1985 (result of temporary construction upstream).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 290 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Feb. 23	1730	*830	*5.02	Mar. 24	2000	705	4.58

Minimum discharge, 0.67 ft<sup>3</sup>/s Aug. 14-18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	9.2	28	11	35	80	151	21	5.9	3.2	0.82	0.81
2	1.3	7.9	31	12	32	67	128	19	5.7	2.8	0.81	0.82
3	1.3	7.1	29	17	32	57	114	17	5.2	2.5	0.82	0.85
4	1.3	6.4	25	22	31	50	110	15	5.0	2.4	0.87	0.89
5	1.4	6.1	22	24	32	47	115	17	4.7	2.2	0.95	0.91
6	1.4	5.7	21	29	33	50	117	16	4.5	2.0	0.96	0.93
7	1.4	5.2	22	91	36	52	109	15	4.3	2.0	0.95	0.93
8	1.5	4.9	22	139	50	48	99	14	4.3	2.0	0.89	1.0
9	1.6	4.6	22	107	47	45	108	13	6.0	1.8	0.88	0.99
10	1.7	4.5	21	79	45	42	162	12	7.4	1.7	0.81	0.91
11	2.5	4.3	20	64	41	47	154	11	5.5	1.7	0.81	0.80
12	2.1	4.1	19	56	38	91	166	10	4.7	1.6	0.80	0.80
13	1.9	4.3	43	48	36	98	145	9.4	4.2	1.5	0.79	0.79
14	1.9	20	99	42	33	90	193	8.8	3.9	1.5	0.74	0.79
15	1.9	22	64	36	32	82	162	7.9	3.7	1.4	0.73	0.80
16	1.8	18	47	32	32	77	133	7.2	3.5	1.3	0.73	0.86
17	1.9	31	41	29	32	73	114	6.9	3.5	1.3	0.72	1.4
18	2.0	33	35	27	33	68	97	6.8	13	1.3	0.73	1.4
19	2.0	27	30	27	38	81	84	6.6	9.7	1.3	0.75	1.1
20	2.0	23	27	27	42	108	74	7.8	6.9	1.2	0.80	1.0
21	2.3	33	24	33	59	108	65	9.4	5.9	1.2	0.91	0.95
22	3.5	38	22	33	114	96	57	8.7	5.1	1.1	0.96	0.92
23	3.4	55	20	30	444	96	49	7.6	4.7	1.1	0.93	0.91
24	3.0	39	18	30	486	337	43	6.8	4.5	1.0	0.89	0.91
25	2.8	35	e16	66	244	457	39	6.1	4.0	0.98	0.88	0.93
26	2.6	30	e15	97	172	311	35	5.9	3.7	0.98	0.87	0.94
27	2.6	29	e14	75	125	245	34	6.0	3.6	0.94	0.89	1.00
28	3.0	30	e13	e55	98	199	31	9.6	3.4	0.91	0.88	1.1
29	2.9	29	e12	e45	---	170	27	7.9	4.0	0.89	0.81	1.2
30	3.8	29	11	e40	---	158	24	6.8	3.8	0.87	0.81	1.4
31	12	---	11	38	---	158	---	6.1	---	0.84	0.80	---
TOTAL	76.1	595.3	844	1461	2472	3688	2939	322.3	154.3	47.51	25.99	29.04
MEAN	2.45	19.8	27.2	47.1	88.3	119	98.0	10.4	5.14	1.53	0.84	0.97
MAX	12	55	99	139	486	457	193	21	13	3.2	0.96	1.4
MIN	1.3	4.1	11	11	31	42	24	5.9	3.4	0.84	0.72	0.79
AC-FT	151	1180	1670	2900	4900	7320	5830	639	306	94	52	58

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 2002, BY WATER YEAR (WY)

	3.12	22.9	55.6	74.9	94.2	117	83.6	46.3	14.0	2.25	1.09	1.22
MEAN	3.12	22.9	55.6	74.9	94.2	117	83.6	46.3	14.0	2.25	1.09	1.22
MAX	22.6	74.6	197	170	225	223	200	154	60.4	4.97	2.77	2.74
(WY)	2001	1992	1974	1976	1996	1984	1974	1995	1984	1991	1993	1977
MIN	0.89	1.30	3.11	5.01	4.39	29.3	16.2	5.08	2.26	0.73	0.53	0.78
(WY)	1999	1988	1977	1977	1977	1992	1992	1992	1992	1985	1998	1987

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1974 - 2002

ANNUAL TOTAL	12834.65	12654.54	
ANNUAL MEAN	35.2	34.7	42.7
HIGHEST ANNUAL MEAN			72.5
LOWEST ANNUAL MEAN			10.7
HIGHEST DAILY MEAN	233	Apr 12	486
LOWEST DAILY MEAN	0.74	Aug 15	0.72
ANNUAL SEVEN-DAY MINIMUM	0.76	Aug 12	0.74
ANNUAL RUNOFF (AC-FT)	25460		25100
10 PERCENT EXCEEDS	112		98
50 PERCENT EXCEEDS	14		9.7
90 PERCENT EXCEEDS	0.89		0.89
			30950
			121
			12
			1.0

e Estimated





14034480 BALM FORK NEAR HEPPNER, OR

LOCATION.--Lat 45°19'56", long 119°32'24", in NW 1/4 SE 1/4 sec.2, T.3 S., R.26 E., Morrow County, Hydrologic Unit 17070104, on right bank, 0.7 mi upstream from bridge on Willow Creek Road, 1.0 mi southeast of Heppner, 1.2 mi upstream from Willow Creek dam, and at mile 1.1.

DRAINAGE AREA.--26.3 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1982 to current year.

REVISED RECORDS.--WDR OR-83-1: Drainage area. WDR OR-88-1: 1987(M).

GAGE.--Water-stage recorder. Concrete control since Aug. 24, 1982. Datum of gage is 2,101.52 ft above NGVD of 1929 (Corps of Engineers bench mark).

REMARKS.--Records poor. Diversion for irrigation of about 170 acres upstream from station. Chemical analysis May 1985 to September 1987.

AVERAGE DISCHARGE.--20 years (water years 1983-2002), 2.62 ft<sup>3</sup>/s, 1,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 190 ft<sup>3</sup>/s Mar. 4, 1983, gage height, 4.90 ft, from rating curve extended above 82 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; maximum gage height, 5.12 ft Dec. 29, 1996; no flow for part or all of several days in 1982, 1990, 1991, 1992, 2001, part of or all of each day Oct. 9, 2001 to Jan. 28, 2002, July 21 to Sept. 30, 2002.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, about 36,000 ft<sup>3</sup>/s June 14, 1903, by computation of slope-area measurement (see WSP 96).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 60 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 3	0700	*0.81	*2.88				

Minimum discharge, no flow part of or all of each day Oct. 9 to Jan. 28, July 21 to Sept. 30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.03	0.00	0.00	0.00	0.04	0.39	0.54	0.35	0.09	0.07	e0.00	0.00
2	0.03	0.00	0.00	0.00	0.04	0.31	0.65	0.33	0.09	0.07	e0.00	0.00
3	0.02	0.00	0.00	0.00	0.05	0.21	0.59	0.29	0.08	0.06	e0.00	0.00
4	0.02	0.00	0.00	0.00	0.05	0.24	0.35	0.27	0.07	0.06	e0.00	0.00
5	0.01	0.00	0.00	0.00	0.07	0.27	0.26	0.27	0.07	0.05	e0.00	0.00
6	0.01	0.00	0.00	0.00	0.08	0.31	0.21	0.29	0.06	0.05	e0.00	0.00
7	0.01	0.00	0.00	0.00	0.09	0.30	0.18	0.28	0.06	0.05	0.00	0.00
8	0.01	0.00	0.00	0.00	0.09	0.31	0.16	0.24	0.07	0.04	0.00	0.00
9	0.00	0.00	0.00	0.00	0.09	0.32	0.17	0.22	0.09	0.04	0.00	0.00
10	0.00	0.00	0.00	0.00	0.11	0.29	0.17	0.23	0.09	0.04	0.00	0.00
11	0.01	0.00	0.00	0.00	0.11	0.27	0.21	0.21	0.12	0.04	0.00	0.00
12	0.00	0.00	0.00	0.00	0.12	0.31	0.26	0.21	0.11	0.04	0.00	0.00
13	0.00	0.00	0.00	0.00	0.11	0.31	0.25	0.19	0.11	0.03	0.00	0.00
14	0.00	0.00	0.00	0.00	0.11	0.31	0.32	0.19	0.11	0.03	0.00	0.00
15	0.00	0.00	0.00	0.00	0.13	0.33	0.26	0.19	0.11	0.03	0.00	0.00
16	0.00	0.00	0.00	0.00	0.14	0.35	0.25	0.18	0.11	0.02	0.00	0.00
17	0.00	0.00	0.00	0.00	0.15	0.35	0.25	0.16	0.12	0.02	0.00	0.00
18	0.00	0.00	0.00	0.00	0.16	0.36	0.25	0.15	0.17	0.01	0.00	0.00
19	0.00	0.00	0.00	0.00	0.16	0.36	0.22	0.14	0.17	0.01	0.00	0.00
20	0.00	0.00	0.00	0.00	0.25	0.36	0.19	0.14	0.22	0.01	0.00	0.00
21	0.00	0.00	0.00	0.00	0.30	0.36	0.18	0.13	0.28	0.01	0.00	0.00
22	0.00	0.00	0.00	0.00	0.30	0.37	0.17	0.13	0.21	0.01	0.00	0.00
23	0.00	0.00	0.00	0.00	0.38	0.32	0.21	0.13	0.17	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.33	0.27	0.23	0.12	0.14	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.34	0.26	0.23	0.11	0.12	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00	0.37	0.28	0.25	0.11	0.12	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.39	0.30	0.27	0.12	0.11	0.00	0.00	0.00
28	0.00	0.00	0.00	0.01	0.41	0.35	0.30	0.12	0.11	0.00	0.00	0.00
29	0.00	0.00	0.00	0.01	---	0.40	0.33	0.10	0.10	0.00	0.00	0.00
30	0.00	0.00	0.00	0.02	---	0.42	0.33	0.10	0.09	e0.00	0.00	0.00
31	0.00	---	0.00	0.03	---	0.44	---	0.09	---	e0.00	0.00	---
TOTAL	0.15	0.00	0.00	0.07	4.97	10.03	8.24	5.79	3.57	0.79	0.00	0.00
MEAN	0.005	0.000	0.000	0.002	0.18	0.32	0.27	0.19	0.12	0.025	0.000	0.000
MAX	0.03	0.00	0.00	0.03	0.41	0.44	0.65	0.35	0.28	0.07	0.00	0.00
MIN	0.00	0.00	0.00	0.00	0.04	0.21	0.16	0.09	0.06	0.00	0.00	0.00
AC-FT	0.3	0.00	0.00	0.1	9.9	20	16	11	7.1	1.6	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2002, BY WATER YEAR (WY)

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
MEAN	0.32	0.87	2.44	3.32	5.69	8.37	4.39	3.93	1.57	0.37	0.14	0.18									
MAX	1.53	3.97	20.1	12.3	19.2	21.0	16.4	13.0	5.95	1.24	0.51	1.02									
(WY)	1985	1997	1997	1997	1996	1993	1984	1995	1998	1993	1984	1984									
MIN	0.000	0.000	0.000	0.002	0.18	0.32	0.27	0.19	0.077	0.025	0.000	0.000									
(WY)	1992	2002	2002	2002	2002	2002	2002	2002	1992	2002	2002	2002									

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1983 - 2002

ANNUAL TOTAL	243.34	33.61		
ANNUAL MEAN	0.67	0.092	2.62	
HIGHEST ANNUAL MEAN			6.23	1997
LOWEST ANNUAL MEAN			0.092	2002
HIGHEST DAILY MEAN	6.3	Apr 21	80	Feb 22 1986
LOWEST DAILY MEAN	0.00	Aug 17	0.00	Oct 9 1990
ANNUAL SEVEN-DAY MINIMUM	0.00	Sep 3	0.00	Oct 12 1991
ANNUAL RUNOFF (AC-FT)	483	67	1900	
10 PERCENT EXCEEDS	1.9	0.30	7.3	
50 PERCENT EXCEEDS	0.08	0.01	0.72	
90 PERCENT EXCEEDS	0.00	0.00	0.03	

e Estimated

## WILLOW CREEK BASIN

14034490 WILLOW CREEK LAKE AT HEPNER, OR

LOCATION.--Lat 45°20'50", long 119°32'37", in NW 1/4 SE 1/4 sec.35, T.2 S., R.26 E., Morrow County, Hydrologic Unit 17070104, U.S. Corps of Engineers land, on top left side of spillway on dam on Willow Creek, 2,000 ft upstream from Court Street bridge and at mile 52.4.

DRAINAGE AREA.--96.6 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers). Prior to Dec. 22, 1983, nonrecording gage at nearby site at present datum. U.S. Geological Survey satellite telemeter at station.

REMARKS.--Lake is formed behind roller-compacted, concrete dam; storage began Feb. 16, 1983. Capacity, 14,020 acre-ft between elevations 2,000.0 ft, sill of outlet gates, and 2,113.5 ft, crest of spillway. Average minimum lake elevation 2,047.0 ft, storing 2,540 acre-ft. Dead storage, 73 acre-ft below elevation 2,000.0 ft. Reservoir used for flood control. Figures given herein represent total contents. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 7,340 acre-ft May 8, 1995, elevation, 2,083.06 ft; no usable contents at times.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 5,450 acre-ft Oct. 1, elevation, 2,071.21 ft; minimum contents, 4,240 acre-ft Dec. 26-31, elevation, 2,062.33 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

2,050	2,840	2,060	3,950	2,070	5,280	2,080	6,820
2,055	3,370	2,065	4,590	2,075	6,020		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2071.15	2070.24	2062.72	2062.35	2063.31	2064.23	2068.59	2069.61	2070.60	2070.43	2068.91	2067.17
2	2071.10	2070.24	2062.60	2062.38	2063.33	2064.12	2068.77	2069.58	2070.59	2070.40	2068.83	2067.11
3	2071.05	2070.24	2062.48	2062.45	2063.27	2064.01	2068.93	2069.54	2070.58	2070.36	2068.77	2067.06
4	2071.00	2070.23	2062.44	2062.50	2063.25	2064.04	2069.08	2069.53	2070.56	2070.34	2068.70	2067.00
5	2070.95	2070.21	2062.41	2062.59	2063.23	2064.16	2069.21	2069.51	2070.53	2070.32	2068.64	2066.93
6	2070.90	2070.19	2062.39	2062.64	2063.22	2064.30	2069.39	2069.51	2070.50	2070.30	2068.57	2066.88
7	2070.85	2070.17	2062.40	2062.73	2063.22	2064.46	2069.55	2069.56	2070.46	2070.28	2068.52	2066.82
8	2070.80	2069.89	2062.37	2062.95	2063.25	2064.58	2069.71	2069.64	2070.44	2070.24	2068.48	2066.78
9	2070.75	2069.54	2062.34	2063.10	2063.26	2064.71	2069.87	2069.67	2070.48	2070.21	2068.44	2066.74
10	2070.73	2069.18	2062.35	2063.22	2063.28	2064.83	2069.99	2069.73	2070.51	2070.19	2068.38	2066.68
11	2070.69	2068.83	2062.35	2063.31	2063.27	2064.95	2070.14	2069.78	2070.55	2070.15	2068.34	2066.60
12	2070.68	2068.47	2062.36	2063.39	2063.26	2065.13	2070.21	2069.82	2070.58	2070.12	2068.29	2066.53
13	2070.64	2068.14	2062.36	2063.46	2063.26	2065.29	2070.18	2069.84	2070.64	2070.05	2068.23	2066.45
14	2070.61	2067.78	2062.38	2063.49	2063.26	2065.46	2070.27	2069.87	2070.66	2069.99	2068.17	2066.37
15	2070.58	2067.42	2062.40	2063.48	2063.25	2065.60	2070.34	2069.89	2070.67	2069.93	2068.11	2066.28
16	2070.54	2067.09	2062.42	2063.49	2063.25	2065.77	2070.34	2069.91	2070.65	2069.88	2068.05	2066.20
17	2070.50	2066.75	2062.40	2063.50	2063.26	2065.91	2070.29	2069.94	2070.67	2069.82	2067.97	2066.13
18	2070.46	2066.42	2062.41	2063.52	2063.26	2066.06	2070.23	2069.97	2070.74	2069.76	2067.92	2066.07
19	2070.43	2066.09	2062.42	2063.51	2063.25	2066.21	2070.19	2070.03	2070.77	2069.69	2067.86	2066.02
20	2070.40	2065.76	2062.43	2063.50	2063.27	2066.34	2070.10	2070.10	2070.78	2069.64	2067.80	2065.95
21	2070.38	2065.45	2062.41	2063.49	2063.27	2066.52	2069.96	2070.15	2070.78	2069.60	2067.75	2065.89
22	2070.37	2065.09	2062.40	2063.47	2063.33	2066.70	2069.87	2070.19	2070.77	2069.55	2067.70	2065.84
23	2070.36	2064.75	2062.40	2063.47	2063.59	2066.88	2069.80	2070.24	2070.77	2069.49	2067.65	2065.78
24	2070.33	2064.41	2062.38	2063.47	2063.87	2067.06	2069.76	2070.30	2070.75	2069.44	2067.60	2065.73
25	2070.30	2064.07	2062.35	2063.46	2064.02	2067.23	2069.69	2070.34	2070.72	2069.38	2067.54	2065.68
26	2070.27	2063.73	2062.33	2063.48	2064.18	2067.43	2069.62	2070.37	2070.68	2069.29	2067.49	2065.62
27	2070.24	2063.39	2062.33	2063.42	2064.32	2067.61	2069.67	2070.45	2070.63	2069.23	2067.45	2065.57
28	2070.21	2063.19	2062.33	2063.36	2064.34	2067.77	2069.68	2070.55	2070.59	2069.17	2067.39	2065.53
29	2070.20	2062.99	2062.33	2063.33	---	2067.95	2069.65	2070.60	2070.54	2069.10	2067.33	2065.46
30	2070.21	2062.89	2062.33	2063.32	---	2068.14	2069.62	2070.63	2070.49	2069.03	2067.27	2065.41
31	2070.23	---	2062.34	2063.32	---	2068.36	---	2070.62	---	2068.97	2067.22	---
MAX	2071.15	2070.24	2062.72	2063.52	2064.34	2068.36	2070.34	2070.63	2070.78	2070.43	2068.91	2067.17
MIN	2070.20	2062.89	2062.33	2062.35	2063.22	2064.01	2068.59	2069.51	2070.44	2068.97	2067.22	2065.41
(†)	5310	4310	4240	4370	4500	5040	5220	5360	5340	5130	4880	4640
(‡)	-140	-1000	-70	+130	+130	+540	+180	+140	-20	-210	-250	-240

CAL YR 2001 MAX 2077.71 MIN 2062.33 AC-FT† 4370  
WTR YR 2002 MAX 2071.15 MIN 2062.33 AC-FT† 5450

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.



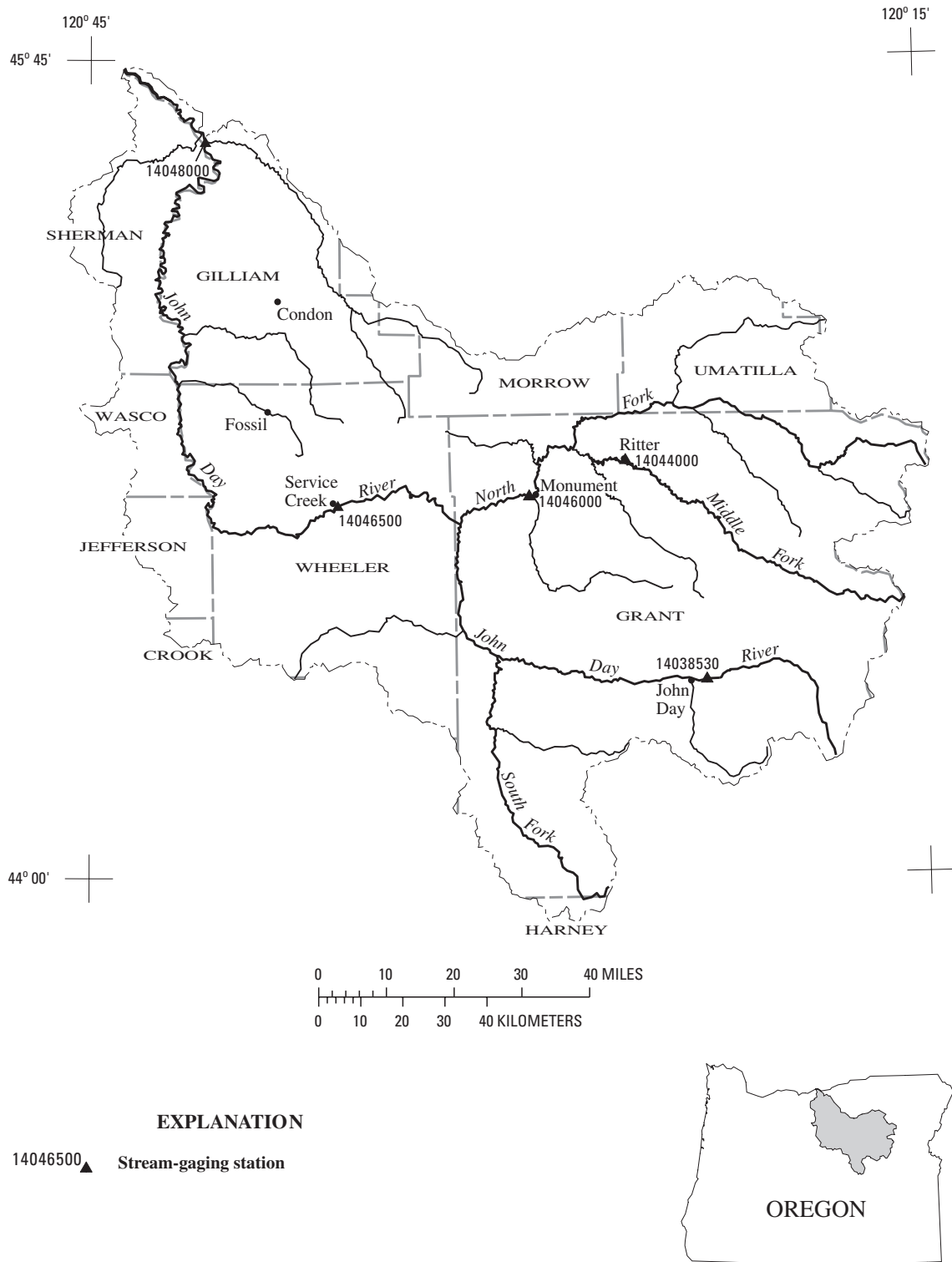


Figure 13. Location of surface-water and water-quality stations in the John Day River Basin.



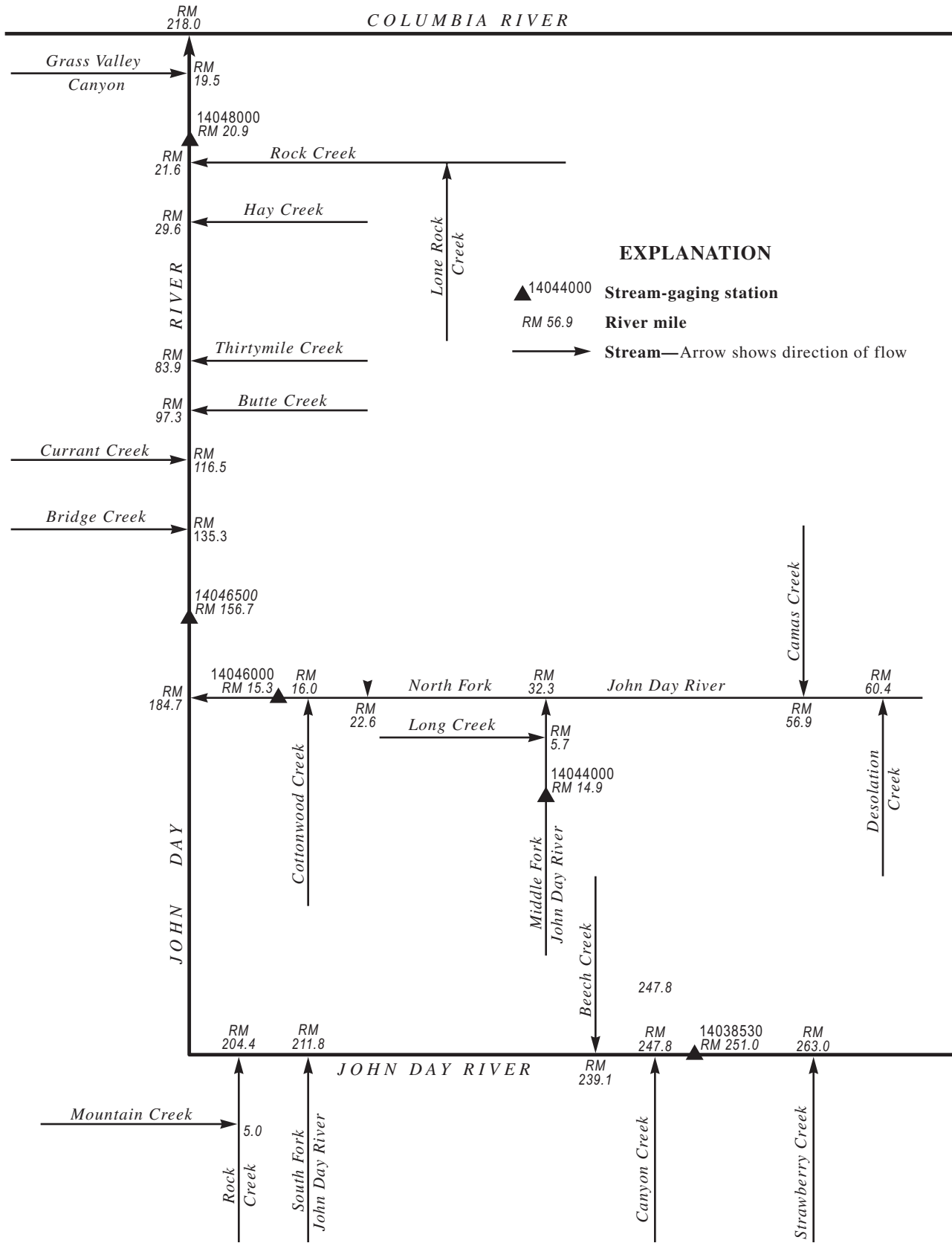


Figure 14. Schematic diagram showing gaging stations in the John Day River Basin.

JOHN DAY RIVER BASIN

14038530 JOHN DAY RIVER NEAR JOHN DAY, OR

LOCATION.--Lat 44°25'07", long 118°54'19", in SW 1/4 SE 1/4 sec.19, T.13 S., R.32 E., Grant County, Hydrologic Unit 17070101, on left bank 1,200 ft downstream from Dog Creek, 2.5 mi east of John Day, and at mile 250.8.

DRAINAGE AREA.--386 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1968 to September 1994, May 1996 to current year.

GAGE.--Water-stage recorder. Datum of gage is 3,130.56 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good except those below 10 ft<sup>3</sup>/s, which are poor. No regulation upstream. Many diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--32 years (water years 1969-94, 1997-2002), 201 ft<sup>3</sup>/s, 145,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,830 ft<sup>3</sup>/s June 9, 1969, gage height, 10.80 ft, from floodmark; minimum discharge, 3.5 ft<sup>3</sup>/s Aug. 26-28, 1969.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	2100	*773	*5.66				
Minimum discharge, 6.5 ft <sup>3</sup> /s Aug. 20, 21.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	79	102	111	110	119	121	233	201	335	54	29	23
2	86	100	112	134	109	119	250	207	330	52	29	25
3	87	97	111	170	108	118	247	228	267	51	27	26
4	87	94	106	148	104	121	253	229	233	52	24	26
5	86	94	109	135	106	122	281	224	212	54	28	23
6	85	94	121	164	111	133	322	215	201	53	28	24
7	87	94	131	250	118	146	317	202	195	49	28	28
8	90	93	116	240	153	132	295	195	188	47	28	31
9	91	92	115	201	127	127	330	171	217	48	28	34
10	90	92	110	173	119	127	393	155	235	45	24	34
11	113	92	114	159	121	129	391	141	194	42	23	29
12	99	92	111	150	116	138	399	117	164	39	22	27
13	93	94	116	141	117	140	429	110	142	32	23	26
14	90	111	148	136	116	137	685	117	121	31	19	28
15	90	108	126	129	113	134	711	118	120	30	14	28
16	89	100	123	122	114	133	573	119	117	33	13	29
17	88	103	142	125	121	134	482	110	107	35	12	38
18	87	100	130	120	133	126	406	125	151	35	11	45
19	87	98	125	123	144	147	355	154	133	36	11	44
20	86	98	123	121	150	166	321	226	118	41	9.7	43
21	86	125	117	126	148	172	292	240	116	38	9.0	43
22	90	129	108	118	168	173	266	213	106	36	11	44
23	111	120	114	117	186	211	259	175	90	39	14	44
24	95	112	101	115	176	211	245	148	82	36	14	43
25	93	113	93	126	144	193	234	148	68	34	13	41
26	91	109	112	136	143	190	232	173	57	34	12	42
27	90	103	112	118	136	196	232	203	61	31	15	42
28	92	105	111	84	136	194	219	234	57	32	19	48
29	91	110	107	86	---	198	208	299	58	32	21	63
30	99	108	107	126	---	201	203	332	56	31	19	74
31	112	---	108	127	---	217	---	329	---	29	22	---
TOTAL	2840	3082	3590	4330	3656	4806	10063	5858	4531	1231	599.7	1095
MEAN	91.6	103	116	140	131	155	335	189	151	39.7	19.3	36.5
MAX	113	129	148	250	186	217	711	332	335	54	29	74
MIN	79	92	93	84	104	118	203	110	56	29	9.0	23
AC-FT	5630	6110	7120	8590	7250	9530	19960	11620	8990	2440	1190	2170

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2002, BY WATER YEAR (WY)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002			
MEAN	95.8	126	160	205	226	310	340	427	316	107	42.1	55.1																									
MAX	156	244	435	613	689	746	718	845	810	314	116	145																									
(WY)	1983	1974	1997	1997	1982	1984	1984	1984	1982	1982	1984	1984																									
MIN	65.8	87.5	90.0	88.1	88.8	88.6	88.1	85.4	53.9	25.9	10.4	24.2																									
(WY)	1989	1979	1989	1977	1977	1977	1977	1992	1992	1973	1973	1990																									

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1969 - 2002

ANNUAL TOTAL	40055.3	45681.7	
ANNUAL MEAN	110	125	201
HIGHEST ANNUAL MEAN			393
LOWEST ANNUAL MEAN			73.5
HIGHEST DAILY MEAN	428	711	2640
LOWEST DAILY MEAN	5.7	9.0	3.5
ANNUAL SEVEN-DAY MINIMUM	7.3	11	4.3
ANNUAL RUNOFF (AC-FT)	79450	90610	145500
10 PERCENT EXCEEDS	206	233	450
50 PERCENT EXCEEDS	104	112	129
90 PERCENT EXCEEDS	30	28	39

14044000 MIDDLE FORK JOHN DAY RIVER AT RITTER, OR

LOCATION.--Lat 44°53'20", long 119°08'25", in SW 1/4 NW 1/4 sec.8, T.8 S., R.30 E., Grant County, Hydrologic Unit 17070203, on left bank 0.2 mi south of Ritter, 0.8 mi downstream from Twelvemile Creek, and at mile 14.9.

DRAINAGE AREA.--515 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1929 to current year.

REVISED RECORDS.--WSP 739: 1931. WSP 1218: 1950. WSP 1448: 1930-32, 1937, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,544.56 ft above NGVD of 1929.

REMARKS.--Records good except those for the period Dec. 1 to Mar. 5 which are fair, and estimated daily discharges, which are poor. No regulation. Diversions for irrigation upstream from station. Continuous water-quality records for the period July 1966 to September 1968 have been collected at this location.

AVERAGE DISCHARGE.--73 years (water years 1930-2002), 256 ft<sup>3</sup>/s, 185,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,730 ft<sup>3</sup>/s Jan. 30, 1965, gage height, 8.39 ft, from rating curve extended above 2,200 ft<sup>3</sup>/s; maximum gage height, 9.13 ft Feb. 1, 1963, ice jam; minimum discharge, 0.90 ft<sup>3</sup>/s Aug. 19, 20, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	1600	*2,440	*6.25				
Minimum daily discharge, 20 ft <sup>3</sup> /s Nov. 28.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	58	53	e65	e76	119	812	624	410	77	30	30
2	28	52	45	66	e70	106	892	657	376	73	30	28
3	28	47	51	66	e68	105	776	687	336	69	30	28
4	27	44	41	62	e66	110	780	613	309	66	31	26
5	28	42	50	58	e64	113	875	583	293	64	33	26
6	28	41	52	63	e66	125	997	522	274	62	35	27
7	28	40	56	160	e70	204	913	494	245	60	34	29
8	29	39	48	233	e74	173	820	457	221	58	33	30
9	30	37	53	166	e74	141	867	420	224	55	32	30
10	30	39	45	116	e72	140	1330	380	245	52	30	29
11	39	39	50	106	e64	151	1310	362	234	50	30	27
12	53	39	52	96	e66	278	1240	368	199	47	28	26
13	40	40	54	90	e66	283	1330	412	180	47	27	26
14	36	43	70	79	e64	233	2220	431	167	48	27	23
15	34	55	67	71	e68	197	2200	438	162	46	26	23
16	33	49	64	66	74	181	1520	436	152	44	26	24
17	33	48	66	69	82	166	1140	442	143	44	26	28
18	33	49	52	72	98	138	890	454	191	42	25	37
19	33	45	48	73	118	163	754	468	181	41	25	36
20	33	44	e76	69	126	183	660	544	147	41	26	31
21	33	46	e40	73	130	216	594	483	132	40	27	29
22	38	56	e38	66	188	286	569	442	124	39	30	28
23	55	59	e36	67	335	465	586	388	115	40	31	28
24	55	54	e30	68	348	498	555	358	108	39	33	28
25	43	50	e28	72	200	447	553	349	100	37	33	28
26	40	49	e40	82	162	514	576	356	94	37	36	27
27	39	43	e50	e50	153	612	590	392	96	37	38	28
28	40	e20	e62	e46	153	575	559	430	88	35	33	29
29	40	e30	e60	e50	---	613	552	467	85	34	35	30
30	43	e50	e64	e70	---	652	589	497	81	32	31	32
31	53	---	63	e82	---	747	---	444	---	31	30	---
TOTAL	1132	1347	1604	2572	3195	8934	28049	14398	5712	1487	941	851
MEAN	36.5	44.9	51.7	83.0	114	288	935	464	190	48.0	30.4	28.4
MAX	55	59	76	233	348	747	2220	687	410	77	38	37
MIN	27	20	28	46	64	105	552	349	81	31	25	23
AC-FT	2250	2670	3180	5100	6340	17720	55640	28560	11330	2950	1870	1690

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)

	44.4	73.5	129	164	247	471	750	705	346	80.2	32.5	32.3
MEAN	44.4	73.5	129	164	247	471	750	705	346	80.2	32.5	32.3
MAX	99.5	231	482	727	1073	1214	1426	1457	1127	285	98.4	108
(WY)	1983	1974	1956	1997	1996	1972	1984	1984	1984	1984	1984	1984
MIN	17.4	20.2	29.0	23.4	31.3	69.8	175	79.2	56.6	17.4	3.75	10.0
(WY)	1937	1937	1933	1937	1937	1977	1968	1934	1992	1973	1966	1935

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1930 - 2002

ANNUAL TOTAL	46206	70222										
ANNUAL MEAN	127	192								256		
HIGHEST ANNUAL MEAN										538		1984
LOWEST ANNUAL MEAN										85.1		1977
HIGHEST DAILY MEAN			895	Apr 28		2220	Apr 14	4360	Jan 30	1965		
LOWEST DAILY MEAN			20	Aug 28		20	Nov 28	0.90	Aug 20	1966		
ANNUAL SEVEN-DAY MINIMUM			20	Aug 30		25	Sep 11	1.1	Aug 19	1966		
ANNUAL RUNOFF (AC-FT)	91650					139300			185300			
10 PERCENT EXCEEDS	386					563			724			
50 PERCENT EXCEEDS	56					64			90			
90 PERCENT EXCEEDS	26					29			26			

e Estimated

14046000 NORTH FORK JOHN DAY RIVER AT MONUMENT, OR

LOCATION.--Lat 44°48'50", long 119°25'50", in SE 1/4 sec.2, T.9 S., R.27 E., Grant County, Hydrologic Unit 17070202, on right bank just downstream from entrance to canyon, 0.7 mi downstream from Cottonwood Creek, 0.8 mi west of Monument, and at mile 15.3.

DRAINAGE AREA.--2,520 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--March 1925 to current year. Monthly discharge only for some periods 1925-28, published in WSP 1318.

REVISED RECORDS.--WSP 754: 1932(M). WSP 1448: 1927, 1931(M), 1949.

GAGE.--Water-stage recorder. Datum of gage is 1,959.64 ft above NGVD of 1929. Prior to Nov. 24, 1925, nonrecording gage and Nov. 24, 1925, to Oct. 16, 1928, water-stage recorder at datum 1.10 ft higher. Oct. 17, 1928, to Sept. 30, 1930, water-stage recorder at datum 1.00 ft higher.

REMARKS.--No estimated daily discharges. Records good except those for the period Nov. 12 through Feb. 28, which are fair. Very slight regulation by small reservoirs upstream. Many small diversions for irrigation upstream from station. Continuous water-quality records for the period July 1966 to September 1968 have been collected at this location. National Weather Service gage-height telemeter at station.

AVERAGE DISCHARGE.--74 years (water years 1929-2002), 1,295 ft<sup>3</sup>/s, 938,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 33,400 ft<sup>3</sup>/s Jan. 30, 1965, gage height, 18.45 ft, from rating curve extended above 17,000 ft<sup>3</sup>/s; minimum discharge, 6 ft<sup>3</sup>/s sometime during period Nov. 2-13, 1936 (result of freezeup); minimum daily, 17 ft<sup>3</sup>/s Dec. 12, 1932.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	2330	*10,300	*10.14	No other peak greater than base discharge.			
Minimum discharge, 56 ft <sup>3</sup> /s Aug. 18-20.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	272	235	369	476	865	4040	3040	1900	372	92	82
2	84	251	229	393	461	774	4290	3240	1770	345	90	79
3	81	216	210	695	418	700	3830	3450	1570	319	86	75
4	80	191	222	705	399	688	3820	3140	1450	295	83	73
5	78	176	193	614	380	715	4320	2890	1370	281	87	71
6	78	166	234	609	374	732	4920	2600	1310	267	90	69
7	78	159	283	1540	414	1070	4690	2360	1210	250	99	71
8	80	147	263	2700	447	990	4240	2170	1090	240	96	75
9	82	128	254	2120	455	861	4250	1950	1050	232	92	78
10	85	134	256	1450	440	818	5380	1780	1190	219	86	79
11	108	141	244	1160	436	827	5730	1650	1290	203	80	77
12	131	139	260	1030	378	1460	5660	1640	1090	187	77	74
13	188	146	278	919	383	1800	6080	1800	965	175	72	70
14	141	154	606	805	386	1500	8600	2060	902	176	68	68
15	123	169	621	685	378	1300	9120	2150	889	174	63	63
16	116	210	542	593	392	1180	6600	2120	870	169	63	62
17	109	201	713	542	417	1090	5100	2130	832	159	61	70
18	105	196	788	553	454	974	4140	2160	881	156	58	78
19	102	193	551	538	530	968	3450	2250	1040	148	57	103
20	100	177	526	518	648	1030	3010	2570	842	142	58	106
21	101	201	518	521	670	1210	2710	2430	733	144	63	93
22	110	234	405	487	953	1260	2610	2170	674	134	65	86
23	140	248	301	441	1900	1560	2760	1850	628	127	75	82
24	252	244	279	447	2680	1910	2670	1650	581	125	92	81
25	219	222	249	458	1590	1940	2640	1580	537	124	86	78
26	167	201	209	534	1270	2240	2770	1590	494	119	94	77
27	150	200	269	497	1160	2650	2900	1780	471	117	94	76
28	148	173	322	315	1090	2660	2780	2050	458	115	114	77
29	154	113	378	266	---	2850	2620	2220	421	106	97	80
30	171	136	354	288	---	3060	2790	2400	402	101	98	87
31	188	---	379	429	---	3570	---	2140	---	96	90	---
TOTAL	3838	5538	11171	23221	19979	45252	128520	69010	28910	5817	2526	2340
MEAN	124	185	360	749	714	1460	4284	2226	964	188	81.5	78.0
MAX	252	272	788	2700	2680	3570	9120	3450	1900	372	114	106
MIN	78	113	193	266	374	688	2610	1580	402	96	57	62
AC-FT	7610	10980	22160	46060	39630	89760	254900	136900	57340	11540	5010	4640

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2002, BY WATER YEAR (WY)

	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	161	316	721	948	1455	2460	3641	3580	1657	379	133	121	420	1621	3374	4126	6103	6456	6695	8794	5227	1211	345	423	1983	1974	1965	1965	1996	1983	1943	1948	1948	1982	1984	1984	58.5	64.5	96.6	75.8	134	345	822	378	259	97.4	36.6	45.2	1937	1937	1937	1937	1929	1977	1968	1934	1992	1973	1931	1934														
MIN (WY)	1983	1974	1965	1965	1996	1983	1943	1948	1948	1982	1984	1984	58.5	64.5	96.6	75.8	134	345	822	378	259	97.4	36.6	45.2	1937	1937	1937	1937	1929	1977	1968	1934	1992	1973	1931	1934																																						
MAX (WY)	1937	1937	1937	1937	1929	1977	1968	1934	1992	1973	1931	1934																																																														

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1929 - 2002

ANNUAL TOTAL	229175	346122	
ANNUAL MEAN	628	948	1295
HIGHEST ANNUAL MEAN			2608
LOWEST ANNUAL MEAN			441
HIGHEST DAILY MEAN	5160	9120	31900
LOWEST DAILY MEAN	41	57	17
ANNUAL SEVEN-DAY MINIMUM	45	60	29
ANNUAL RUNOFF (AC-FT)	454600	686500	938100
10 PERCENT EXCEEDS	2080	2670	3720
50 PERCENT EXCEEDS	239	380	422
90 PERCENT EXCEEDS	71	80	98

14046500 JOHN DAY RIVER AT SERVICE CREEK, OR

LOCATION.--Lat 44°47'38", long 120°00'20", in NW 1/4 NE 1/4 sec.18, T.9 S., R.23 E., Wheeler County, Hydrologic Unit 17070204, on left bank 0.2 mi downstream from bridge on State Highway 207, 0.8 mi downstream from Service Creek, 0.5 mi southwest of town of Service Creek, and at mile 156.7.

DRAINAGE AREA.--5,090 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--March 1925 to September 1926, October 1929 to current year. Monthly discharge only March 1925 to September 1926, published in WSP 1318.

GAGE.--Water-stage recorder. Datum of gage is 1,632.42 ft above NGVD of 1929. See WSP 1738 for history of changes prior to Feb. 24, 1957.

REMARKS.--Records good. Slight regulation by several small reservoirs upstream from station. Many small diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--73 years (water years 1930-2002), 1,935 ft<sup>3</sup>/s, 1,402,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 40,200 ft<sup>3</sup>/s Dec. 23, 1964, gage height, 17.85 ft, from rating curve extended above 14,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 6.0 ft<sup>3</sup>/s Aug. 23, 24, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 15	0630	*12,800	*9.98	No other peak greater than base discharge.			
Minimum discharge, 41 ft <sup>3</sup> /s part or all of each day Aug. 21, 22.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123	413	388	689	829	1510	4920	3600	2440	454	82	86
2	134	491	476	715	851	1240	5330	3790	2300	418	79	85
3	138	454	477	1130	781	1170	5160	4000	2120	378	78	83
4	161	418	462	1440	739	1120	4910	3960	1880	348	77	79
5	188	393	470	1220	688	1150	5270	3560	1720	322	75	74
6	189	373	466	1120	685	1190	5930	3330	1620	304	75	76
7	194	362	534	1640	746	1310	6130	2980	1550	290	75	74
8	198	356	586	3840	798	1620	5650	2770	1410	276	76	71
9	202	344	542	3550	861	1400	5340	2510	1330	257	79	75
10	213	324	547	2510	835	1280	6140	2290	1420	241	e74	81
11	239	327	548	1920	808	1280	7100	2100	1620	224	e70	90
12	253	335	540	1670	801	1490	7000	1970	1530	199	e66	93
13	288	335	568	1530	735	2410	7230	2000	1320	179	e62	88
14	345	345	652	1380	758	2180	8790	2240	1190	167	e58	82
15	311	359	1080	1240	747	1900	12200	2410	1110	161	e54	81
16	290	391	941	1100	735	1740	9340	2410	1070	163	e52	79
17	278	431	927	1020	763	1630	7210	2380	1040	158	e50	74
18	269	413	1250	987	800	1500	5980	2420	1010	141	e52	81
19	266	412	1070	978	866	1380	5060	2470	1140	140	e48	90
20	265	407	912	956	981	1490	4420	2700	1140	134	e44	100
21	267	406	897	941	1100	1600	3970	3040	972	124	42	119
22	272	445	838	955	1180	1800	3630	2760	875	121	41	113
23	285	491	694	877	1970	1950	3560	2420	823	119	47	104
24	311	505	608	841	3460	2550	3630	2090	775	115	54	100
25	445	501	535	854	2750	2690	3410	1910	706	113	79	92
26	402	465	505	897	1910	2880	3450	1870	633	107	106	89
27	354	443	516	966	1750	3320	3630	1960	602	105	109	86
28	335	438	598	815	1590	3590	3650	2300	550	107	102	82
29	336	417	631	585	---	3670	3370	2510	529	102	100	83
30	360	356	669	569	---	3950	3350	2790	482	99	100	88
31	383	---	664	669	---	4330	---	2750	---	89	89	---
TOTAL	8294	12150	20591	39604	31517	62320	164760	82290	36907	6155	2195	2598
MEAN	268	405	664	1278	1126	2010	5492	2655	1230	199	70.8	86.6
MAX	445	505	1250	3840	3460	4330	12200	4000	2440	454	109	119
MIN	123	324	388	569	685	1120	3350	1870	482	89	41	71
AC-FT	16450	24100	40840	78550	62510	123600	326800	163200	73210	12210	4350	5150

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)

	330	594	1202	1590	2359	3750	5232	4901	2391	565	181	183
MEAN	330	594	1202	1590	2359	3750	5232	4901	2391	565	181	183
MAX	811	2284	5540	6553	8239	9773	10280	12050	8327	1850	594	862
(WY)	1985	1974	1965	1997	1996	1983	1984	1948	1948	1982	1984	1984
MIN	70.5	152	216	195	358	597	1010	491	302	90.6	15.2	31.4
(WY)	1937	1937	1936	1937	1937	1977	1968	1934	1992	1973	1973	1935

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1930 - 2002

ANNUAL TOTAL	323664	469381	
ANNUAL MEAN	887	1286	1935
HIGHEST ANNUAL MEAN			4116
LOWEST ANNUAL MEAN			619
HIGHEST DAILY MEAN	6190	Apr 28	12200
LOWEST DAILY MEAN	50	Sep 1	41
ANNUAL SEVEN-DAY MINIMUM	50	Aug 31	46
ANNUAL RUNOFF (AC-FT)	6420000		9310000
10 PERCENT EXCEEDS	2770		3550
50 PERCENT EXCEEDS	469		669
90 PERCENT EXCEEDS	82		82
			14020000
			5380
			746
			134

e Estimated

14048000 JOHN DAY RIVER AT MCDONALD FERRY, OR

LOCATION.--Lat 45°35'16", long 120°24'30", in NE 1/4 NW 1/4 sec.11, T.1 N., R.19 E., Sherman County, Hydrologic Unit 17070204, on left bank at McDonald Ferry, 0.8 mi downstream from Rock Creek, 10 mi east of Klondike, and at mile 20.9.

GAGE AREA.--7,580 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--December 1904 to September 1996, October 1997 to current year. Prior to Oct. 1, 1930, published as "at McDonald."

REVISED RECORDS.--WSP 1094: 1894(M), 1932(M). WSP 1448: 1908-9, 1912, 1916, 1920(M), 1922, 1932.

GAGE.--Water-stage recorder. Datum of gage is 392.27 ft above NGVD of 1929. Prior to Aug. 30, 1930, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good except those below 60 ft<sup>3</sup>/s, which are fair. No regulation. Many diversions for irrigation upstream from station. Additional water-quality data available for this site. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--96 years (water years 1906-96, 1998-2002), 2,072 ft<sup>3</sup>/s, 1,501,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 42,800 ft<sup>3</sup>/s Dec. 24, 1964, gage height, 13.59 ft, from floodmark, from rating curve extended above 11,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; no flow for part of Sept. 2, 1966, Aug. 15 to Sept. 16, 1973, Aug. 13, 14, 19-25, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of 1894 reached a stage of 12.8 ft, from floodmarks, discharge, 39,100 ft<sup>3</sup>/s, from rating curve extended above 22,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,900 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 16	0545	*12,200	*8.27	No other peak greater than base discharge.			
Minimum discharge, 22 ft <sup>3</sup> /s Aug. 25-27.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	97	364	435	662	627	1800	4260	3360	2910	517	83	71
2	101	378	400	678	684	1690	4800	3560	2600	485	76	73
3	109	391	370	695	838	1500	5220	3710	2400	449	70	66
4	125	437	439	746	855	1340	5150	3910	2270	424	68	74
5	138	460	469	1330	792	1280	4880	3970	2020	394	62	73
6	148	430	466	1440	754	1270	5160	3640	1820	371	60	71
7	160	404	484	1360	723	1290	5740	3440	1700	347	59	69
8	187	386	492	1560	720	1330	6010	3100	1640	321	61	65
9	203	375	528	3460	768	1590	5600	2870	1590	308	59	62
10	210	364	566	3840	818	1610	5300	2630	1490	289	52	64
11	224	360	571	2940	892	1470	5960	2410	1440	262	47	66
12	224	345	563	2270	847	1390	6900	2210	1560	246	45	68
13	232	334	588	1920	825	1450	6830	2060	1640	225	41	63
14	250	344	570	1740	812	2150	7050	2010	1450	208	43	58
15	264	343	697	1590	753	2420	8640	2130	1290	194	53	57
16	299	354	704	1450	766	2130	11500	2350	1190	179	51	59
17	335	378	1070	1310	761	1930	8950	2420	1110	174	46	72
18	316	380	929	1200	751	1810	7170	2370	1070	153	42	73
19	298	418	976	1090	775	1700	6020	2400	1010	144	37	68
20	292	436	1280	1060	829	1580	5160	2510	968	151	32	67
21	287	422	1050	1030	886	1560	4550	2650	1180	148	28	71
22	291	426	905	1010	1050	1650	4100	3130	1080	133	29	72
23	289	414	892	989	1210	1860	3760	2890	909	123	34	67
24	280	419	829	982	1540	1950	3630	2630	823	125	33	65
25	284	470	710	901	3170	2390	3710	2300	771	137	28	77
26	292	485	634	875	3140	2770	3510	2090	716	106	25	99
27	338	489	576	903	2220	2880	3500	2000	664	104	28	92
28	422	502	551	944	1930	3290	3660	2090	615	100	29	85
29	383	474	522	979	---	3670	3710	2320	599	91	27	78
30	374	445	589	756	---	3710	3470	2540	555	82	29	74
31	366	---	628	669	---	3950	---	2750	---	86	60	---
TOTAL	7818	12227	20483	42379	30736	62410	163900	84450	41080	7076	1437	2119
MEAN	252	408	661	1367	1098	2013	5463	2724	1369	228	46.4	70.6
MAX	422	502	1280	3840	3170	3950	11500	3970	2910	517	83	99
MIN	97	334	370	662	627	1270	3470	2000	555	82	25	57
AC-FT	15510	24250	40630	84060	60960	123800	325100	167500	81480	14040	2850	4200

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1906 - 2002, BY WATER YEAR (WY)

	331	607	1182	1652	2633	4010	5640	5172	2681	651	194	182
MEAN	331	607	1182	1652	2633	4010	5640	5172	2681	651	194	182
MAX	892	2310	7030	6402	9736	11450	11900	13180	9531	2131	700	923
(WY)	1985	1974	1965	1965	1996	1983	1984	1917	1948	1984	1984	1984
MIN	59.9	157	221	217	374	557	964	533	285	88.0	5.70	23.8
(WY)	1937	1937	1937	1937	1933	1937	1968	1934	1992	1926	1973	1934

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1906 - 2002

ANNUAL TOTAL	334999	476115	
ANNUAL MEAN	918	1304	
HIGHEST ANNUAL MEAN			2072
LOWEST ANNUAL MEAN			4724
HIGHEST DAILY MEAN	6130	Apr 29	11500
LOWEST DAILY MEAN	34	Sep 12	25
ANNUAL SEVEN-DAY MINIMUM	37	Sep 6	28
ANNUAL RUNOFF (AC-FT)	664500	944400	1501000
10 PERCENT EXCEEDS	2870	3530	5800
50 PERCENT EXCEEDS	489	695	787
90 PERCENT EXCEEDS	69	66	141

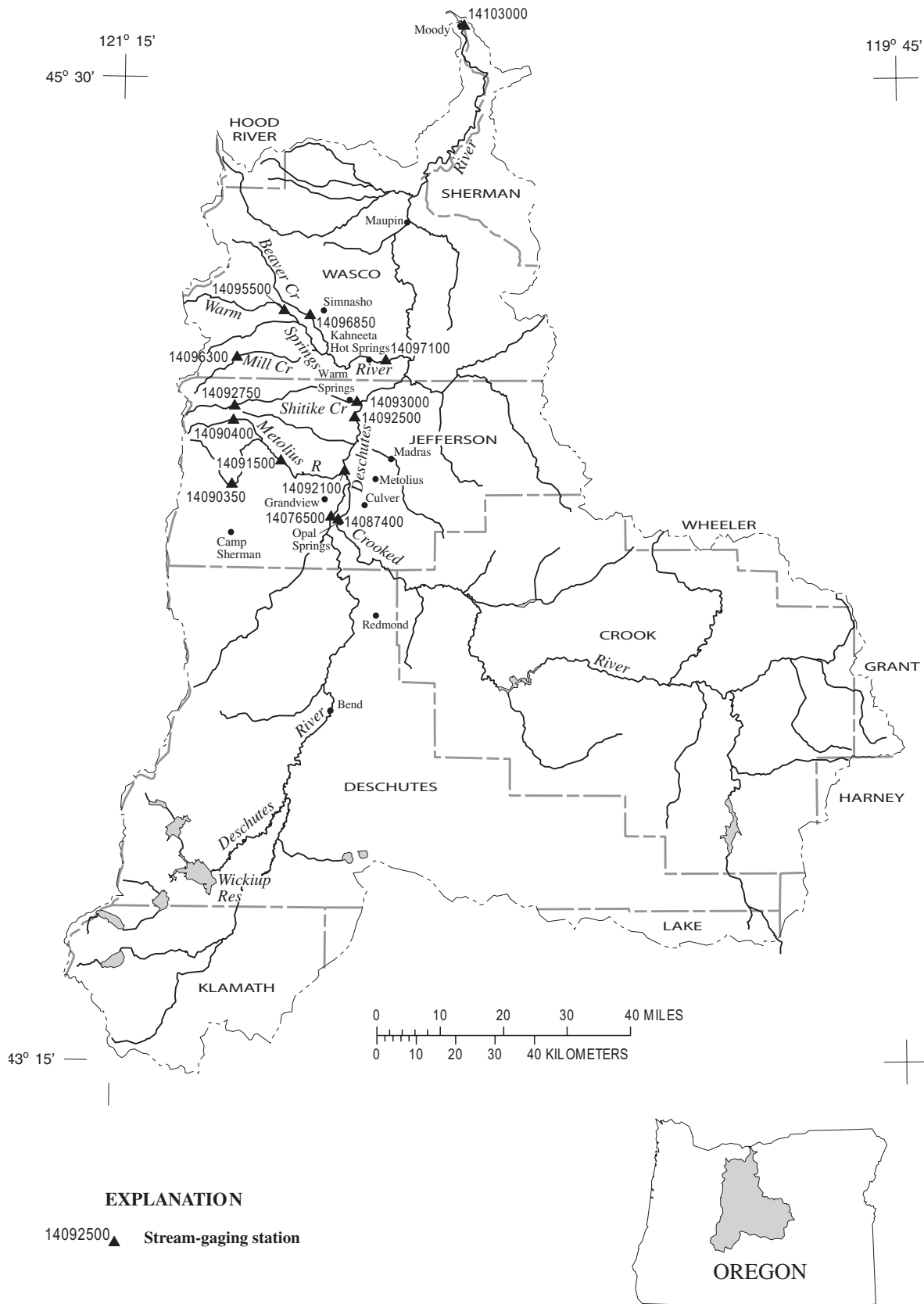
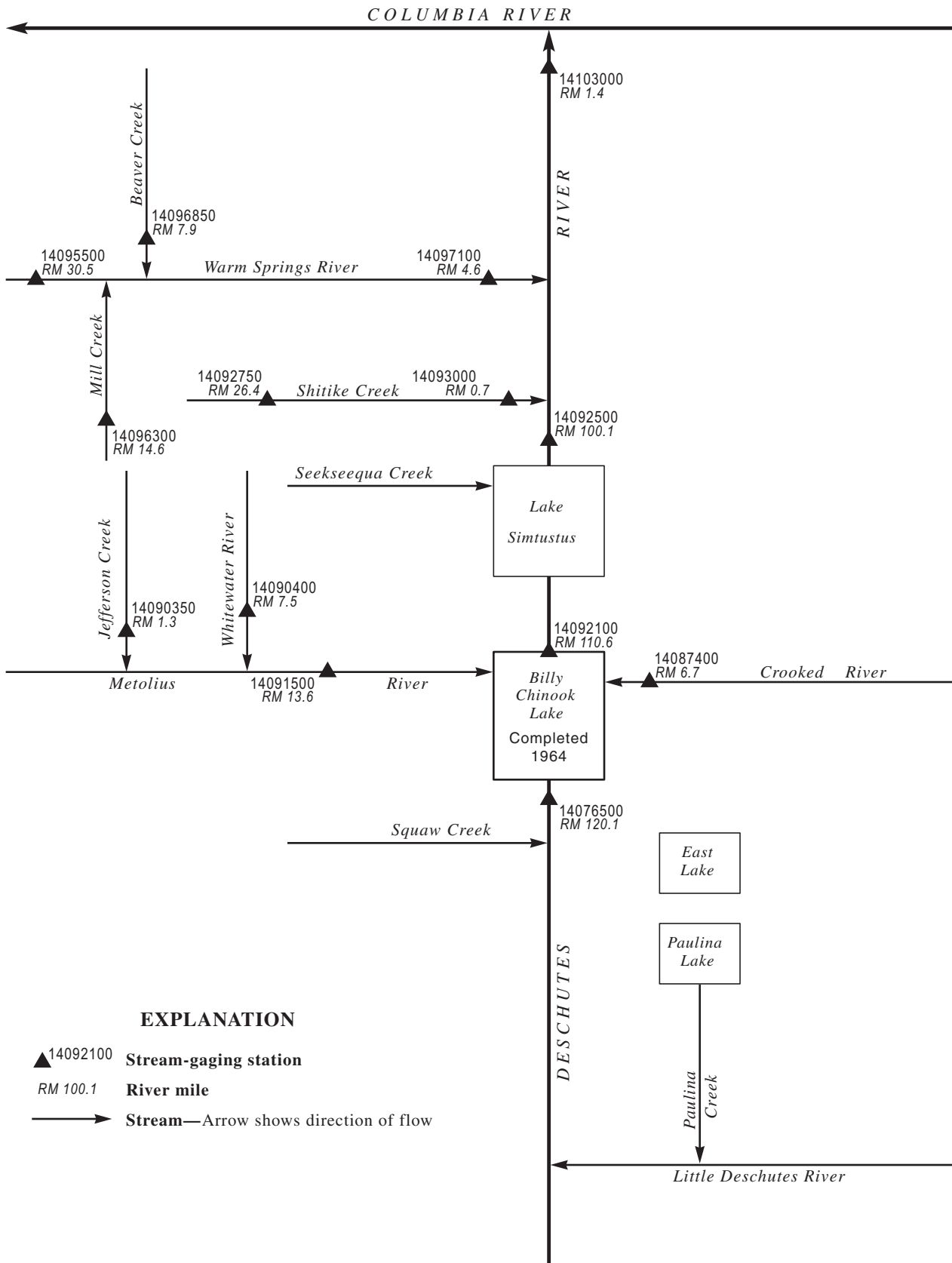


Figure 15. Location of surface-water and water-quality stations in the Deschutes River Basin.



**Figure 16.** Schematic diagram showing gaging stations in the Deschutes River Basin.



DESCHUTES RIVER BASIN

14076500 DESCHUTES RIVER NEAR CULVER, OR

LOCATION.--Lat 44°29'56", long 121°19'12", in NW 1/4 SE 1/4 sec.29, T.12 S., R.12 E., Jefferson County, Hydrologic Unit 17070301, on right bank 2.5 mi downstream from Squaw Creek, 6.0 mi southwest of Culver, and at mile 120.1.

DRAINAGE AREA.--2,705 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1952 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,980 ft above NGVD of 1929 (river-profile survey). July 14, 1952, to Sept. 30, 1961, at site 4.1 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by Crescent Lake and Crane Prairie and Wickiup Reservoirs. Many diversions for irrigation upstream from station. Continuous water-quality records for the period October 1954 to September 1957 and January 1959 to September 1974 have been collected at this location.

AVERAGE DISCHARGE.--50 years (water years 1953-2002), 924 ft<sup>3</sup>/s, 669,400 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,680 ft<sup>3</sup>/s Dec. 24, 1964, gage height, 10.00 ft, from rating curve extended above 3,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 418 ft<sup>3</sup>/s July 7, 8, 1964.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,300 ft<sup>3</sup>/s Apr. 8, gage height, 4.08 ft; minimum discharge, 459 ft<sup>3</sup>/s July 28-30, Aug. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	504	1050	1010	1050	988	1050	1060	478	759	577	463	472
2	504	1030	1010	1080	978	1050	1080	479	686	526	464	472
3	502	1010	1030	1100	1010	1040	1060	480	647	503	465	470
4	503	1000	1040	1090	1010	1040	1010	480	596	499	469	469
5	504	998	1040	1080	968	990	1030	473	631	488	471	470
6	505	962	1050	1120	963	988	1100	471	717	485	472	470
7	507	949	1070	1180	973	1030	1200	469	651	480	472	470
8	509	945	1060	1230	983	1040	1260	465	591	480	471	471
9	508	949	1030	1200	1010	1050	824	465	545	476	469	472
10	509	978	1030	1170	1010	1050	930	465	513	470	472	473
11	520	986	835	1150	1020	1040	763	464	505	471	472	467
12	530	986	791	1140	834	1050	719	465	515	481	472	471
13	652	992	762	1170	771	1050	742	464	534	487	470	470
14	636	840	842	1150	763	1050	998	464	585	490	468	470
15	565	767	1050	783	779	1060	1090	461	678	489	469	470
16	692	766	1090	701	969	1060	874	462	694	474	467	471
17	755	862	1100	693	1010	1050	789	466	680	472	468	477
18	711	904	878	926	996	1040	693	475	843	471	470	483
19	767	815	856	1070	799	709	658	479	822	475	470	484
20	952	837	866	1070	800	614	625	476	649	473	470	509
21	958	861	964	1080	815	607	591	473	606	470	468	539
22	960	1060	1070	1070	833	631	632	469	608	466	470	530
23	1090	1050	1060	1060	1040	970	622	465	625	468	466	513
24	1000	1060	1050	1050	1070	1040	563	465	636	467	468	495
25	980	1070	1030	1050	1070	1030	522	464	604	466	480	493
26	961	1060	1030	1070	1070	1030	511	468	596	465	474	485
27	948	1020	1050	1040	1070	1030	505	500	629	465	476	475
28	945	1040	1040	1010	1070	1030	493	559	628	462	471	479
29	947	1020	1040	982	---	1040	486	724	649	463	474	505
30	982	960	1040	997	---	1050	478	1040	688	462	483	507
31	1050	---	1040	1020	---	1050	---	916	---	465	472	---
TOTAL	22656	28827	30854	32582	26672	30559	23908	15944	19110	14886	14586	14502
MEAN	731	961	995	1051	953	986	797	514	637	480	471	483
MAX	1090	1070	1100	1230	1070	1060	1260	1040	843	577	483	539
MIN	502	766	762	693	763	607	478	461	505	462	463	467
AC-FT	44940	57180	61200	64630	52900	60610	47420	31620	37900	29530	28930	28760

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2002, BY WATER YEAR (WY)

	751	1169	1281	1349	1410	1371	883	607	643	557	534	563
MEAN	751	1169	1281	1349	1410	1371	883	607	643	557	534	563
MAX	1598	1894	2130	2760	2679	2360	1799	1228	1053	960	852	997
(WY)	1998	1998	1985	1997	1997	1972	1984	1956	1999	1999	1999	1997
MIN	470	783	813	853	892	839	510	457	455	430	441	455
(WY)	1964	1995	1995	1995	1993	1964	1968	1964	1964	1964	1964	1963

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1953 - 2002

ANNUAL TOTAL	292875	275086	
ANNUAL MEAN	802	754	924
HIGHEST ANNUAL MEAN			1461
LOWEST ANNUAL MEAN			677
HIGHEST DAILY MEAN	1390	Apr 2	1260
LOWEST DAILY MEAN	499	Sep 12	461
ANNUAL SEVEN-DAY MINIMUM	500	Sep 8	463
ANNUAL RUNOFF (AC-FT)	580900		545600
10 PERCENT EXCEEDS	1250		1060
50 PERCENT EXCEEDS	652		717
90 PERCENT EXCEEDS	504		469
			669400
			1640
			779
			490
			1997
			1964
			1964
			1964
			1964
			1964



DESCHUTES RIVER BASIN

14090350 JEFFERSON CREEK NEAR CAMP SHERMAN, OR

LOCATION.--Lat 44°34'18", long 121°38'17", in SW 1/4 SE 1/4 sec.34, T.11 S., R.9 E., Jefferson County, Hydrologic Unit 17070301, Warm Springs Indian Reservation, on left bank 100 ft upstream from bridge, 7.6 mi north of Camp Sherman, and at mile 1.3.

DRAINAGE AREA.--27.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,780 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--19 years (water years 1984-2002), 94.1 ft<sup>3</sup>/s, 46.00 in/yr, 68,190 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 908 ft<sup>3</sup>/s Nov. 25, 1999, gage height, 4.38 ft, from high-water mark, not including approximately 400 ft<sup>3</sup>/s which flowed out of the channel 150 ft upstream of gage and flowed into Candle Creek; minimum daily discharge, 36 ft<sup>3</sup>/s Dec. 22, 1990, but could have been lower during period of ice effect Dec. 19-25, 1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	0600	*353	*2.85	June 18	0900	296	2.65
May 29	1930	246	2.48	June 29	0930	231	2.43

Minimum discharge, 51 ft<sup>3</sup>/s Oct. 8, 20, 21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	55	99	64	60	62	e60	59	91	155	160	117	93
2	55	79	63	62	61	e60	62	100	153	154	116	94
3	55	69	60	61	61	e55	62	103	146	152	115	93
4	55	64	59	59	60	57	64	96	157	148	113	e90
5	54	63	58	58	60	57	67	94	181	145	111	89
6	54	61	64	77	59	59	71	90	167	147	110	e90
7	53	59	62	111	60	58	71	87	145	151	109	e90
8	53	59	59	141	59	57	70	85	131	152	e110	e90
9	53	58	57	99	58	57	77	85	124	146	109	88
10	56	57	56	84	58	56	93	85	130	148	109	89
11	73	56	55	78	57	61	91	86	139	152	109	89
12	56	57	55	77	57	66	118	91	146	151	108	89
13	57	68	78	74	56	62	146	97	158	155	108	88
14	55	89	85	73	55	60	268	96	179	154	107	87
15	54	67	73	70	55	59	159	98	179	144	108	87
16	53	73	88	69	55	59	115	99	174	142	106	86
17	53	65	91	69	55	59	100	107	170	142	104	93
18	52	61	79	68	55	e60	92	112	236	141	104	87
19	52	65	73	68	56	59	87	109	168	137	102	87
20	52	72	69	68	55	58	85	108	160	133	101	85
21	52	76	67	69	60	57	85	105	163	131	100	e85
22	84	97	65	68	68	57	86	102	168	130	99	e85
23	79	78	64	68	69	57	88	101	177	129	100	e85
24	58	71	63	67	64	56	85	104	169	129	101	82
25	58	66	62	70	61	56	85	109	165	127	98	83
26	58	62	62	68	60	56	88	125	175	126	97	e85
27	58	60	62	66	59	56	87	136	184	123	97	82
28	55	72	62	65	59	56	83	158	175	122	99	e80
29	59	72	60	e65	---	56	84	219	211	125	97	83
30	92	64	59	63	---	56	88	197	176	122	95	88
31	149	---	59	63	---	58	---	168	---	119	93	---
TOTAL	1902	2059	2033	2258	1654	1800	2816	3443	4961	4337	3252	2622
MEAN	61.4	68.6	65.6	72.8	59.1	58.1	93.9	111	165	140	105	87.4
MAX	149	99	91	141	69	66	268	219	236	160	117	94
MIN	52	56	55	58	55	55	59	85	124	119	93	80
AC-FT	3770	4080	4030	4480	3280	3570	5590	6830	9840	8600	6450	5200
CFSM	2.21	2.47	2.36	2.62	2.12	2.09	3.38	4.00	5.95	5.03	3.77	3.14
IN.	2.55	2.76	2.72	3.02	2.21	2.41	3.77	4.61	6.64	5.80	4.35	3.51

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	77.3	84.6	80.6	82.8	87.7	83.2	93.8	118	131	113	95.0	81.6
MEAN	77.3	84.6	80.6	82.8	87.7	83.2	93.8	118	131	113	95.0	81.6
MAX	124	131	155	160	244	148	135	179	191	189	169	124
(WY)	1998	1996	1996	1997	1996	1996	1996	1997	1999	1999	1999	1999
MIN	55.5	59.3	58.6	55.5	50.6	55.5	59.8	83.3	80.0	70.5	62.0	56.8
(WY)	1993	1988	1993	2001	1989	2001	2001	1991	1992	1992	1994	1994

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1984 - 2002

ANNUAL TOTAL	24409	33137	
ANNUAL MEAN	66.9	90.8	
HIGHEST ANNUAL MEAN			94.1
LOWEST ANNUAL MEAN			137
HIGHEST DAILY MEAN	164	May 16	268
LOWEST DAILY MEAN	47	Mar 10	52
ANNUAL SEVEN-DAY MINIMUM	47	Mar 10	53
ANNUAL RUNOFF (AC-FT)	48420	65730	68190
ANNUAL RUNOFF (CFSM)	2.41	3.27	3.39
ANNUAL RUNOFF (INCHES)	32.66	44.34	46.00
10 PERCENT EXCEEDS	85	151	140
50 PERCENT EXCEEDS	62	83	86
90 PERCENT EXCEEDS	51	56	59

e Estimated

DESCHUTES RIVER BASIN

14090400 WHITEWATER RIVER NEAR CAMP SHERMAN, OR

LOCATION.--Lat 44°43'09", long 121°38'21" (revised), in SW 1/4 NW 1/4 sec.11, T.10 S., R.9 E., Jefferson County, Hydrologic Unit 17070301, Warm Springs Indian Reservation, on left bank 300 ft upstream from road J-100 bridge, 18 mi north of Camp Sherman, and at mile 7.5.

DRAINAGE AREA.--22.8 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1982 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,240 ft above NGVD of 1929, from topographic map. July 1982 to Feb. 7, 1996, at comparable site 1/4 mi downstream, at different datum. Feb. 8, 1996 to Sept. 30, 2001, at comparable site 300 ft downstream, at different datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--20 years (water years 1983-2002), 85.6 ft<sup>3</sup>/s, 50.99 in/yr, 61,990 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,320 ft<sup>3</sup>/s Feb. 7, 1996, from slope-area measurement of peak flow, gage height, unknown; maximum gage height, 8.30 ft Feb. 9, 1996, from outside highwater mark caused by debris, channel fill, and channel reconfiguration, datum then in use; minimum daily discharge, 28 ft<sup>3</sup>/s Dec. 22, 1990, but could be less because of ice effect.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 220 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 8	0500	260	5.94	June 5	2030	234	5.87
Apr. 14	0600	*546	*6.48	June 18	0800	264	5.95
May 29	2030	264	5.95	June 29	0930	277	5.98

Minimum discharge, 35 ft<sup>3</sup>/s Oct. 9, 10, 17-21.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	67	66	58	61	58	59	102	163	146	91	76
2	46	55	61	63	60	57	62	111	161	135	89	82
3	47	49	58	59	58	56	63	115	153	130	84	73
4	45	46	57	56	57	56	65	109	156	124	79	64
5	43	46	56	56	56	56	70	107	183	119	74	60
6	42	44	71	88	56	62	75	102	177	120	71	56
7	39	42	65	153	57	58	77	98	148	126	69	53
8	38	41	59	207	55	56	77	93	132	130	71	52
9	36	41	55	146	53	55	88	90	123	124	75	55
10	45	40	54	126	53	55	107	87	120	131	80	59
11	65	40	53	115	52	71	105	85	125	135	81	62
12	41	40	51	112	51	76	119	86	131	134	83	64
13	48	57	92	104	51	65	168	92	141	147	84	65
14	44	70	93	99	50	61	384	93	156	149	90	64
15	41	56	72	93	50	60	246	94	161	128	91	62
16	41	60	93	89	49	60	203	95	159	124	86	60
17	37	52	97	86	49	58	176	102	159	126	80	71
18	36	48	83	82	49	57	157	107	219	124	76	60
19	37	58	78	80	51	58	143	107	164	120	74	61
20	37	63	75	79	50	57	134	107	150	110	71	57
21	36	63	71	77	53	55	128	104	152	107	68	53
22	78	98	68	74	62	55	122	99	154	106	68	53
23	61	72	66	70	68	55	120	97	164	110	70	54
24	41	63	64	71	65	54	114	98	158	111	72	54
25	41	59	63	85	62	54	111	103	152	110	72	53
26	41	55	61	75	62	54	111	116	163	112	71	50
27	41	53	60	69	61	53	106	127	180	104	74	49
28	38	76	59	67	59	54	101	153	178	106	79	49
29	42	75	57	65	---	54	99	210	235	117	78	48
30	81	64	56	63	---	55	100	201	172	108	73	50
31	96	---	55	62	---	56	---	177	---	98	68	---
TOTAL	1452	1693	2069	2729	1560	1791	3690	3467	4789	3771	2392	1769
MEAN	46.8	56.4	66.7	88.0	55.7	57.8	123	112	160	122	77.2	59.0
MAX	96	98	97	207	68	76	384	210	235	149	91	82
MIN	36	40	51	56	49	53	59	85	120	98	68	48
AC-FT	2880	3360	4100	5410	3090	3550	7320	6880	9500	7480	4740	3510
CFSM	2.05	2.48	2.93	3.86	2.44	2.53	5.39	4.91	7.00	5.34	3.38	2.59
IN.	2.37	2.76	3.38	4.45	2.55	2.92	6.02	5.66	7.81	6.15	3.90	2.89

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2002, BY WATER YEAR (WY)

	53.3	68.7	74.1	79.3	88.5	79.7	94.5	113	124	105	83.9	62.6
MEAN	53.3	68.7	74.1	79.3	88.5	79.7	94.5	113	124	105	83.9	62.6
MAX	93.4	124	174	220	329	147	148	188	206	155	163	96.6
(WY)	1998	2000	1996	1997	1996	1997	1997	1997	1999	1999	1999	1997
MIN	36.0	34.7	45.5	38.4	37.1	48.7	50.3	64.5	60.7	54.0	54.8	42.2
(WY)	1993	1994	1994	1993	1994	2001	1991	1991	1992	1992	1994	1994

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1983 - 2002

ANNUAL TOTAL	21589	31172	
ANNUAL MEAN	59.1	85.4	85.6
HIGHEST ANNUAL MEAN			142
LOWEST ANNUAL MEAN			54.0
HIGHEST DAILY MEAN	113	May 24	1400
LOWEST DAILY MEAN	36	Oct 9	28
ANNUAL SEVEN-DAY MINIMUM	38	Oct 15	31
ANNUAL RUNOFF (AC-FT)	42820	61830	61990
ANNUAL RUNOFF (CFSM)	2.59	3.75	3.75
ANNUAL RUNOFF (INCHES)	35.22	50.86	50.99
10 PERCENT EXCEEDS	78	148	139
50 PERCENT EXCEEDS	56	71	74
90 PERCENT EXCEEDS	41	48	44

## DESCHUTES RIVER BASIN

113

14091500 METOLIUS RIVER NEAR GRANDVIEW, OR

LOCATION.--Lat 44°37'33", long 121°28'55", in SE 1/4 SW 1/4 sec.12, T.11 S., R.10 E., Jefferson County, Hydrologic Unit 17070301, Deschutes National Forest, on right bank 1.0 mi upstream from maximum controlled pool of Lake Billy Chinook, 9 mi northwest of Grandview, and at mile 13.6.

DRAINAGE AREA.--316 mi<sup>2</sup>, at cableway 1.0 mi downstream, where all discharge measurements are made. Hydrologic drainage boundary uncertain because of interbasin ground-water exchange.

PERIOD OF RECORD.--April 1910 to February 1912 (gage heights and discharge measurements only), March 1912 to December 1913, October 1921 to current year. Published as "at Hubbard's ranch, near Sisters" 1910, and as "at Hubbard's ranch, near Grandview" 1910-13.

REVISED RECORDS.--WSP 1448: 1913.

GAGE.--Water-stage recorder. Datum of gage is 1,974.36 ft above NGVD of 1929 (levels by Portland General Electric Co.). Prior to Dec. 31, 1913, nonrecording gage at site 2.3 mi upstream at different datum. Oct. 1, 1921, to May 3, 1949, nonrecording gage and May 4, 1949, to June 18, 1963, water-stage recorder at site 2.7 mi downstream at datum 64 ft lower.

REMARKS.--Records good. No regulation. Many small diversions for irrigation upstream from station. Stream is spring fed. Records herein are for measuring site. Continuous water-quality records for the period October 1954 to September 1974 have been collected at this location.

AVERAGE DISCHARGE.--82 years (water years 1913, 1922-2002), 1,498 ft<sup>3</sup>/s, 1,085,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,430 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 7.38 ft; minimum discharge, 1,080 ft<sup>3</sup>/s Feb. 17, 1932, Oct. 2-31, Nov. 6, 7, 10-14, 1942.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,810 ft<sup>3</sup>/s Apr. 14, gage height, 2.74 ft; minimum discharge, 1,290 ft<sup>3</sup>/s Oct. 7-10, 15.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1320	1400	1430	1380	1400	1390	1420	1720	1860	1710	1500	1420
2	1310	1370	1430	1400	1380	1380	1440	1750	1840	1680	1500	1430
3	1310	1350	1390	1390	1360	1370	1450	1770	1820	1660	1490	1420
4	1310	1330	1390	1370	1350	1370	1470	1750	1820	1640	1480	1410
5	1300	1330	1390	1360	1340	1360	1480	1740	1890	1630	1470	1400
6	1300	1330	1470	1440	1350	1380	1510	1730	1890	1620	1460	1390
7	1300	1320	1460	1620	1390	1420	1530	1710	1790	1640	1460	1380
8	1300	1320	1410	e1800	1390	1390	1550	1690	1710	1640	1450	1380
9	1300	1320	1390	e1750	1360	1370	1570	1670	1670	1620	1460	1380
10	1300	1320	1380	1660	1340	1370	e1750	1660	1660	1620	1460	1380
11	1360	1320	1370	1620	1340	1380	e1750	1640	1660	1630	1460	1390
12	1310	1320	1360	1610	1330	e1550	1820	1640	1650	1630	1460	1390
13	1320	1340	1460	1570	1320	e1550	1930	1660	1670	1640	1460	1390
14	1310	1410	1640	1540	1320	e1500	2630	1660	1730	1660	1470	1390
15	1300	1350	1520	1500	1310	e1500	e2500	1660	1770	1610	1470	1390
16	1300	1370	1560	1480	1310	e1500	e2300	1660	1750	1600	1460	1390
17	1300	1350	1640	1470	1310	1470	e2200	1680	1740	1600	1450	1410
18	1310	1340	1580	1450	1310	1450	e2050	1710	1920	1600	1440	1390
19	1320	1360	1550	1440	1310	1450	e1950	1710	1780	1580	1440	1390
20	1320	1390	1540	1470	1320	1430	1890	1700	1720	1570	1440	1380
21	1320	1400	1500	1530	1320	1420	1860	1680	1720	1560	1430	1370
22	1370	1520	1470	1480	1370	1420	1830	1670	1720	1550	1430	1370
23	1440	1460	1450	1450	1430	1410	1810	1650	1750	1560	1430	1370
24	1340	1420	1420	1440	1450	1410	1780	1640	1740	1560	1440	1370
25	1330	1400	1410	1570	1440	1400	1770	1630	1710	1550	1430	1370
26	1330	1380	1400	1580	1420	1390	1770	1670	1730	1550	1420	1360
27	1330	1350	1400	1510	1410	1400	1760	1710	1780	1540	1420	1360
28	1320	1420	1390	1470	1410	1400	1730	1800	1780	1530	1430	1360
29	1330	1450	1380	1440	---	1400	1720	1960	1870	1550	1430	1360
30	1390	1400	1370	1420	---	1410	1720	2000	1790	1540	1420	1380
31	1490	---	1370	1410	---	1410	---	1920	---	1520	1410	---
TOTAL	41190	41140	44920	46620	38090	44050	53940	53240	52930	49590	44970	41570
MEAN	1329	1371	1449	1504	1360	1421	1798	1717	1764	1600	1451	1386
MAX	1490	1520	1640	1800	1450	1550	2630	2000	1920	1710	1500	1430
MIN	1300	1320	1360	1360	1310	1360	1420	1630	1650	1520	1410	1360
AC-FT	81700	81600	89100	92470	75550	87370	107000	105600	105000	98360	89200	82450

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 2002, BY WATER YEAR (WY)

MEAN	1351	1400	1489	1524	1571	1543	1559	1612	1632	1519	1420	1369
MAX	1690	1816	2454	2512	2997	2504	2040	2099	2163	1995	1854	1678
(WY)	1998	1922	1965	1997	1996	1972	1997	1997	1999	1999	1999	1999
MIN	1081	1140	1110	1154	1148	1157	1162	1244	1196	1173	1136	1103
(WY)	1943	1940	1945	1979	1941	1941	1941	1941	1941	1941	1931	1942

## SUMMARY STATISTICS

## FOR 2001 CALENDAR YEAR

## FOR 2002 WATER YEAR

## WATER YEARS 1913 - 2002

ANNUAL TOTAL	513670	552250	
ANNUAL MEAN	1407	1513	1498
HIGHEST ANNUAL MEAN			1949
LOWEST ANNUAL MEAN			1167
HIGHEST DAILY MEAN	1850	May 16	2630
LOWEST DAILY MEAN	1300	Oct 5	1300
ANNUAL SEVEN-DAY MINIMUM	1300	Oct 4	1300
ANNUAL RUNOFF (AC-FT)	1019000		1095000
10 PERCENT EXCEEDS	1510		1750
50 PERCENT EXCEEDS	1390		1450
90 PERCENT EXCEEDS	1330		1330
			1230

e Estimated

## DESCHUTES RIVER BASIN

14092100 LAKE BILLY CHINOOK NEAR METOLIUS, OR

LOCATION.--Lat 44°36'14", long 121°16'40", in SW 1/4 NE 1/4 sec.22, T.11 S., R.12 E., Jefferson County, Hydrologic Unit 17070301, Warm Springs Indian Reservation, near left end of Round Butte Dam on Deschutes River, 5.0 mi west of Metolius, and at mile 110.6.

DRAINAGE AREA.--7,490 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--January 1964 to current year.

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929 (levels by Portland General Electric Co.).

REMARKS.--Reservoir is formed by rock fill dam completed in June 1964 by Portland General Electric Co.; storage began Jan. 2, 1964. Total capacity is 534,700 acre-ft at elevation 1,945.0 ft proposed upper limit of operation, and usable capacity is 273,900 acre-ft between elevations 1,860.0 ft, proposed lower limit of operation, and 1,945.0 ft. Reservoir used for power generation under FERC license 2030. Figures given herein represent total contents.

COOPERATION.--Gage readings and capacity tables furnished by Portland General Electric Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 538,700 acre-ft July 15, 16, 1972, elevation, 1,946.00 ft; minimum contents observed since first filling, 431,100 acre-ft Feb. 13, 1972, elevation, 1,917.13 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 534,700 acre-ft June 4, elevation, 1,944.98 ft; minimum contents observed, 503,100 acre-ft Feb. 15, elevation, 1,936.80 ft.

## MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30.....	1,944.14	531,300	--
Oct. 31.....	1,944.39	532,300	+1,000
Nov. 30.....	1,943.61	529,200	-3,100
Dec. 31.....	1,942.49	524,900	-4,300
CAL YR 2001.....	--	--	+4,100
Jan. 31.....	1,939.47	513,300	-11,600
Feb. 28.....	1,938.29	508,800	-4,500
Mar. 31.....	1,940.32	516,500	+7,700
Apr. 30.....	1,943.34	528,200	+11,700
May 31.....	1,944.56	533,000	+4,800
June 30.....	1,944.55	533,000	0
July 31.....	1,944.39	532,300	-700
Aug. 31.....	1,944.24	531,700	-600
Sept.30.....	1,944.33	532,100	+400
WTR YR 2002.....	--	--	+800



DESCHUTES RIVER BASIN

14092750 SHITIKE CREEK AT PETERS PASTURE, NEAR WARM SPRINGS, OR

LOCATION.--Lat 44°45'02", long 121°37'56", in NW 1/4 NE 1/4 sec.35, T.9 S., R.9 E., Jefferson County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on left bank 0.5 mi downstream from Peters Pasture, and 18 mi west of town of Warm Springs, and at mile 26.4.

DRAINAGE AREA.--22.9 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1982 to current year.

REVISED RECORDS.--WDR OR-96-1: 1983, 1985, 1986, 1988, 1990, 1995.

GAGE.--Water-stage recorder. Elevation of gage is 3,580 ft, from topographic map.

REMARKS.--Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--20 years (water years 1983-2002), 78.9 ft<sup>3</sup>/s, 46.79 in/yr, 57,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,430 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 6.66 ft, from rating curve extended above 800 ft<sup>3</sup>/s on basis of slope area measurement of peak flow; minimum discharge, 17 ft<sup>3</sup>/s Dec. 22, 1990.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	1000	*845	*3.49				
Minimum discharge, 20 ft <sup>3</sup> /s, Oct. 2-10.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22	87	71	47	48	54	57	90	193	122	53	34
2	21	68	64	51	46	52	63	107	179	109	52	33
3	21	52	59	52	45	50	65	127	164	103	51	33
4	21	44	55	51	44	49	67	114	164	95	50	33
5	21	42	53	51	43	48	73	107	207	90	50	33
6	21	39	65	63	43	51	83	99	198	89	49	33
7	21	36	66	144	e45	51	92	90	153	96	48	33
8	21	34	59	337	42	49	93	83	123	100	47	32
9	21	33	55	256	40	47	102	77	107	89	46	32
10	21	32	52	178	40	47	167	73	100	90	45	31
11	33	31	50	140	39	57	176	70	112	95	44	31
12	29	31	48	121	38	81	220	70	121	94	43	30
13	27	34	71	104	38	71	307	77	138	97	43	30
14	25	62	127	94	38	66	720	84	167	94	42	29
15	25	49	106	85	37	63	462	88	177	78	42	29
16	24	55	125	78	37	61	294	89	165	74	41	29
17	23	49	161	73	37	58	210	96	154	75	40	32
18	23	45	131	68	37	55	161	111	254	e75	40	32
19	23	48	108	66	39	54	135	112	171	e70	40	30
20	22	59	93	65	38	52	119	113	140	e70	40	29
21	22	66	82	62	40	50	110	108	135	e65	40	29
22	46	105	74	60	e55	49	104	101	139	64	39	28
23	74	95	68	58	66	47	102	94	155	64	39	28
24	40	77	63	59	69	47	96	94	142	64	39	27
25	35	66	59	67	65	46	93	99	130	62	38	27
26	33	58	56	62	62	46	92	123	139	61	37	27
27	33	53	54	58	59	47	92	145	161	59	36	26
28	33	67	52	55	57	47	87	186	144	57	36	26
29	32	82	50	52	---	48	84	298	197	57	35	27
30	66	72	48	50	---	50	85	295	148	55	35	33
31	131	---	47	49	---	53	---	231	---	54	34	---
TOTAL	1010	1671	2272	2756	1287	1646	4611	3651	4677	2467	1314	906
MEAN	32.6	55.7	73.3	88.9	46.0	53.1	154	118	156	79.6	42.4	30.2
MAX	131	105	161	337	69	81	720	298	254	122	53	34
MIN	21	31	47	47	37	46	57	70	100	54	34	26
AC-FT	2000	3310	4510	5470	2550	3260	9150	7240	9280	4890	2610	1800
CFSM	1.42	2.43	3.20	3.88	2.01	2.32	6.71	5.14	6.81	3.48	1.85	1.32
IN.	1.64	2.71	3.69	4.48	2.09	2.67	7.49	5.93	7.60	4.01	2.13	1.47

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2002, BY WATER YEAR (WY)

	39.9	71.2	78.0	82.1	95.3	84.8	103	124	115	72.9	46.4	35.2
MEAN	39.9	71.2	78.0	82.1	95.3	84.8	103	124	115	72.9	46.4	35.2
MAX	98.8	175	205	218	363	166	154	207	217	142	96.3	59.7
(WY)	1998	1996	1996	1997	1996	1986	2002	1997	1999	1999	1999	1999
MIN	20.3	23.4	34.0	33.5	28.2	41.4	50.4	69.4	41.7	33.4	24.5	20.1
(WY)	1988	1994	2001	2001	1994	1985	1991	1991	1992	1992	1992	1994

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1983 - 2002

ANNUAL TOTAL	18073	28268	
ANNUAL MEAN	49.5	77.4	78.9
HIGHEST ANNUAL MEAN			136
LOWEST ANNUAL MEAN			43.2
HIGHEST DAILY MEAN	241	May 16	720
LOWEST DAILY MEAN	21	Sep 17	21
ANNUAL SEVEN-DAY MINIMUM	21	Sep 17	21
ANNUAL RUNOFF (AC-FT)	35850	56070	57140
ANNUAL RUNOFF (CFSM)	2.16	3.38	3.44
ANNUAL RUNOFF (INCHES)	29.36	45.92	46.79
10 PERCENT EXCEEDS	85	144	144
50 PERCENT EXCEEDS	38	58	60
90 PERCENT EXCEEDS	23	31	29

e Estimated



14093000 SHITIKE CREEK NEAR WARM SPRINGS, OR

LOCATION.--Lat 44°45'41", long 121°14'25", in NE 1/4 NE 1/4, sec.25, T.9 S., R.12 E., Jefferson County, Hydrologic Unit 17070306, Warm Springs Indian Reservation on left bank 1.5 mi east of Warm Springs, and at mile 0.7.

DRAINAGE AREA.--104 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1911 to October 1916, April 1923 to September 1928, October 1972 to September 1974. October 1996 to current year. Records for October 1974 to September 1996 (see station 14092885) at site upstream not equivalent owing to difference in drainage area.

REVISED RECORDS.--WSP 1318: 1911-12, 1916, 1927.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,380 ft above NGVD of 1929, from topographic map. Prior to September 1928 non-recording gage 1.3 mi upstream, October 1972 to September 1974 water-stage recorder 0.4 mi downstream.

REMARKS.--Records fair. No regulation. Some diversions for irrigation and municipal use.

AVERAGE DISCHARGE.--18 years (water years 1912-16, 1924-28, 1973-74, 1997-2002), 114 ft<sup>3</sup>/s, 14.89 in/yr, 82,550 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,000 ft<sup>3</sup>/s Jan. 15, 1974, gage height, 4.36 ft; minimum daily discharge, 20 ft<sup>3</sup>/s Dec. 8-15, 1972.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 7, 1996 reached a stage of 12.4 ft, information supplied by local resident, discharge about 4,400 ft<sup>3</sup>/s, from rating curve extended above 900 ft<sup>3</sup>/s on basis of runoff comparisons with nearby stations.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Oct. 31	0830	416	4.88	Apr. 14	1530	*1,140	*7.20

Minimum discharge, 33 ft<sup>3</sup>/s Oct. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	35	157	95	72	81	95	105	118	239	162	66	46
2	35	131	e95	77	79	92	113	130	225	145	64	46
3	34	e100	e85	79	77	89	116	156	205	133	64	47
4	34	e85	78	78	75	87	119	151	191	124	63	47
5	34	e75	75	76	74	87	122	138	217	114	64	46
6	34	e70	86	102	73	89	128	136	230	107	64	47
7	35	e65	96	153	76	95	139	130	194	114	63	46
8	36	e62	85	260	75	92	145	119	167	125	60	46
9	36	e60	80	251	72	90	148	113	145	115	58	45
10	37	e58	76	201	71	89	202	105	130	111	57	43
11	45	57	73	170	71	91	218	100	139	114	56	43
12	46	57	70	153	69	134	238	98	149	117	55	42
13	42	58	73	139	69	128	289	104	163	114	55	41
14	41	89	133	128	68	121	797	114	184	120	54	41
15	40	92	124	119	67	115	e700	119	197	106	53	41
16	41	84	124	112	67	112	e430	121	192	95	51	42
17	e40	77	159	108	67	108	e280	123	184	95	51	43
18	e40	e70	146	101	67	105	e220	137	242	94	51	45
19	e40	70	128	98	68	104	e195	143	220	89	51	44
20	40	80	119	96	70	101	e180	150	178	86	52	43
21	e40	86	108	99	70	99	e165	146	164	80	54	42
22	42	103	100	93	79	95	e140	138	164	80	52	41
23	118	e120	94	90	104	93	139	130	175	80	51	41
24	e70	101	89	89	116	91	135	123	173	83	52	40
25	59	e90	85	102	113	92	128	125	159	78	52	40
26	55	e80	81	102	108	91	125	146	161	75	51	40
27	54	e75	79	94	103	92	123	171	182	74	51	40
28	58	82	78	91	100	93	119	196	176	71	50	40
29	59	e100	75	91	---	95	114	260	197	70	49	40
30	67	e95	73	85	---	96	114	315	194	69	47	45
31	210	---	72	83	---	99	---	271	---	68	46	---
TOTAL	1597	2529	2934	3592	2229	3060	6186	4526	5536	3108	1707	1293
MEAN	51.5	84.3	94.6	116	79.6	98.7	206	146	185	100	55.1	43.1
MAX	210	157	159	260	116	134	797	315	242	162	66	47
MIN	34	57	70	72	67	87	105	98	130	68	46	40
AC-FT	3170	5020	5820	7120	4420	6070	12270	8980	10980	6160	3390	2560
CFSM	0.50	0.81	0.91	1.11	0.77	0.95	1.98	1.40	1.77	0.96	0.53	0.41
IN.	0.57	0.90	1.05	1.28	0.80	1.09	2.21	1.62	1.98	1.11	0.61	0.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 2002, BY WATER YEAR (WY)

	65.1	97.3	116	141	132	124	140	164	155	105	69.1	59.7
MEAN	65.1	97.3	116	141	132	124	140	164	155	105	69.1	59.7
MAX	109	167	283	432	261	222	206	238	315	213	127	87.7
(WY)	1998	1928	1997	1974	1916	1997	2002	1974	1916	1999	1999	1997
MIN	41.5	50.1	49.8	48.8	51.6	64.7	66.4	86.2	68.9	46.7	36.2	35.3
(WY)	1916	1926	2001	2001	2001	1973	1973	1973	1924	1924	1924	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1912 - 2002

ANNUAL TOTAL	24802	38297	
ANNUAL MEAN	68.0	105	114
HIGHEST ANNUAL MEAN			187
LOWEST ANNUAL MEAN			62.0
HIGHEST DAILY MEAN	281	797	2300
LOWEST DAILY MEAN	34	34	20
ANNUAL SEVEN-DAY MINIMUM	34	34	20
ANNUAL RUNOFF (AC-FT)	49190	75960	82550
ANNUAL RUNOFF (CFSM)	0.65	1.01	1.10
ANNUAL RUNOFF (INCHES)	8.87	13.70	14.89
10 PERCENT EXCEEDS	112	177	197
50 PERCENT EXCEEDS	55	91	91
90 PERCENT EXCEEDS	37	43	50

e Estimated



14096300 MILL CREEK NEAR BADGER BUTTE, NEAR WARM SPRINGS, OR

LOCATION.--Lat 44°51'42", long 121°37'35", in SW 1/4 sec.23, T.8 S., R.9 E., Wasco County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on right bank 200 ft upstream from bridge on road B241, 3.4 mi upstream from headworks of Mill Creek Canal, 19.3 mi northwest of Warm Springs, and at mile 14.6.

DRAINAGE AREA.--26.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 3,380 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records poor except those for the period Aug. 28 to Sept. 30, which are good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--19 years (water years 1984-2002), 69.5 ft<sup>3</sup>/s, 35.23 in/yr, 50,350 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,300 ft<sup>3</sup>/s Feb. 7, 1996, from rating curve extended above 800 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow, gage height, 8.42; maximum gage height, 9.49 ft, Feb. 7, 1996, from high-water mark on crest-stage gage; minimum discharge recorded, 23 ft<sup>3</sup>/s Feb. 15, 25, 1993, but may have been lower during period of estimated record.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 13	2330	215	5.78	Apr. 14	0630	*537	*6.52
Jan. 8	1300	321	5.99				

Minimum discharge, 31 ft<sup>3</sup>/s Oct. 1-5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	34	82	88	44	59	60	71	101	129	71	44	40
2	33	76	82	46	57	59	77	114	119	68	44	39
3	33	64	73	48	56	56	76	124	110	65	43	40
4	33	57	68	46	53	56	79	113	104	61	44	40
5	34	53	68	47	52	56	86	107	104	58	43	40
6	35	50	92	67	50	67	96	103	105	56	43	40
7	34	48	88	110	52	71	104	94	101	56	43	41
8	35	47	73	264	53	64	103	87	94	55	44	41
9	35	46	64	203	49	61	115	84	88	53	44	40
10	36	45	58	155	53	61	176	81	83	52	44	40
11	52	46	56	131	52	89	161	81	78	51	43	40
12	42	48	52	120	50	132	174	85	77	49	43	40
13	39	56	100	107	49	100	217	96	78	49	43	39
14	38	74	149	95	48	89	439	98	82	47	42	39
15	38	62	107	85	48	80	284	98	87	48	41	39
16	37	65	128	78	47	75	200	100	87	47	41	40
17	38	65	149	75	47	70	160	101	88	46	42	42
18	37	62	115	71	48	65	135	111	99	45	41	42
19	37	65	99	69	53	64	119	110	104	45	42	40
20	38	72	88	69	53	59	108	109	97	45	43	40
21	38	93	77	70	57	58	102	106	89	45	43	40
22	53	151	67	82	73	56	103	102	84	45	42	40
23	73	134	61	88	88	54	104	97	80	45	43	40
24	52	104	56	80	89	53	100	96	77	46	43	40
25	46	86	53	99	78	54	98	97	75	45	43	40
26	43	72	50	91	70	54	101	102	73	45	42	40
27	43	59	48	83	66	55	100	108	70	44	42	40
28	44	75	50	74	64	55	93	111	69	43	40	40
29	44	101	47	70	---	58	90	128	72	43	40	41
30	57	83	45	64	---	61	95	151	73	43	40	48
31	74	---	45	60	---	65	---	144	---	43	40	---
TOTAL	1305	2141	2396	2791	1614	2057	3966	3239	2676	1554	1315	1211
MEAN	42.1	71.4	77.3	90.0	57.6	66.4	132	104	89.2	50.1	42.4	40.4
MAX	74	151	149	264	89	132	439	151	129	71	44	48
MIN	33	45	45	44	47	53	71	81	69	43	40	39
AC-FT	2590	4250	4750	5540	3200	4080	7870	6420	5310	3080	2610	2400
CFSM	1.57	2.66	2.88	3.36	2.15	2.48	4.93	3.90	3.33	1.87	1.58	1.51
IN.	1.81	2.97	3.33	3.87	2.24	2.86	5.51	4.50	3.71	2.16	1.83	1.68

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
MEAN	45.6	71.0	79.0	80.6	87.4	78.0	90.5	95.4	75.3	49.2	42.3	41.2								
MAX	84.6	136	203	162	275	123	132	141	151	87.9	63.3	64.9								
(WY)	1998	1996	1996	1996	1996	1997	2002	1997	1999	1999	1999	1997								
MIN	30.0	38.2	44.1	43.8	40.0	58.1	62.4	43.7	33.3	34.2	31.1	28.2								
(WY)	1993	1988	1994	1992	1993	1994	1991	1992	1992	1994	1992	1995								

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1984 - 2002

ANNUAL TOTAL	20495	26265		
ANNUAL MEAN	56.2	72.0	69.5	
HIGHEST ANNUAL MEAN			114	1996
LOWEST ANNUAL MEAN			46.5	1994
HIGHEST DAILY MEAN	226	439	1060	Feb 7 1996
LOWEST DAILY MEAN	32	33	25	Sep 21 1995
ANNUAL SEVEN-DAY MINIMUM	33	34	25	Sep 20 1995
ANNUAL RUNOFF (AC-FT)	40650	52100	50350	
ANNUAL RUNOFF (CFSM)	2.10	2.69	2.59	
ANNUAL RUNOFF (INCHES)	28.45	36.46	35.23	
10 PERCENT EXCEEDS	91	109	110	
50 PERCENT EXCEEDS	47	61	59	
90 PERCENT EXCEEDS	35	40	36	

DESCHUTES RIVER BASIN

14096850 BEAVER CREEK BELOW QUARTZ CREEK, NEAR SIMNASHO, OR

LOCATION.--Lat 44°57'32", long 121°23'35", in NE 1/4 SW 1/4 sec.14, T.7 S., R.11 E., Wasco County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on right bank 600 ft downstream from culvert on Warm Springs Reservation Highway 9, 200 ft downstream from Quartz Creek, and 2.4 mi west of Simnasho, and at mile 7.92.

DRAINAGE AREA.--145 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1983 to current year.

REVISED RECORDS.--WDR OR-96-1: 1986.

GAGE.--Water-stage recorder. Elevation of gage is 2,260 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversions upstream from station.

AVERAGE DISCHARGE.--19 years (water years 1984-2002), 86.0 ft<sup>3</sup>/s, 8.06 in/yr, 62,320 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,760 ft<sup>3</sup>/s, Feb. 7, 1996, gage height, 10.57 ft; minimum discharge, 4.5 ft<sup>3</sup>/s Jan. 7, 1991.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 7	0300	*483	*3.93				
Minimum discharge, 35 ft <sup>3</sup> /s Sept. 11-30.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	37	41	61	55	91	103	116	117	91	46	37	36
2	37	41	73	59	88	95	126	125	87	45	37	36
3	37	40	53	67	84	90	127	137	85	44	37	36
4	37	40	48	66	78	87	125	133	81	44	37	36
5	37	39	46	62	75	86	125	126	80	44	37	36
6	37	39	81	195	73	96	132	123	77	43	37	36
7	37	39	93	442	83	112	141	117	74	43	37	36
8	37	39	73	334	98	101	144	109	71	43	37	36
9	37	39	63	228	94	95	146	104	69	43	37	36
10	37	39	56	171	87	92	163	100	67	42	37	36
11	38	39	53	144	92	95	177	96	65	42	37	36
12	40	39	51	131	78	174	187	95	63	42	37	35
13	39	39	75	128	73	180	204	95	61	41	37	35
14	39	40	244	116	72	158	304	95	60	40	37	35
15	39	40	141	100	70	144	339	95	59	40	36	35
16	39	39	122	92	69	136	273	95	57	40	36	35
17	38	39	158	87	69	126	226	95	56	40	36	35
18	37	39	130	84	70	117	191	98	58	40	36	35
19	37	39	105	81	80	116	169	99	58	40	36	35
20	37	39	93	86	89	115	155	99	55	40	36	35
21	37	41	82	133	90	106	146	99	52	40	36	35
22	38	51	75	123	119	100	141	98	52	40	36	35
23	44	66	70	106	154	99	137	94	50	40	36	35
24	42	50	65	113	167	97	132	92	49	39	36	35
25	40	45	63	273	151	95	127	92	48	39	36	35
26	40	42	60	215	133	95	124	92	47	39	36	35
27	40	40	59	142	121	95	124	92	47	39	36	35
28	40	41	56	120	115	97	120	95	47	39	36	35
29	40	48	57	98	---	100	116	98	47	39	36	35
30	40	51	55	97	---	103	114	98	47	39	36	36
31	41	---	55	91	---	109	---	94	---	38	36	---
TOTAL	1195	1263	2516	4239	2663	3414	4851	3197	1860	1273	1130	1062
MEAN	38.55	42.10	81.16	136.7	95.11	110.1	161.7	103.1	62.00	41.06	36.45	35.40
MAX	44	66	244	442	167	180	339	137	91	46	37	36
MIN	37	39	46	55	69	86	114	92	47	38	36	35
AC-FT	2370	2510	4990	8410	5280	6770	9620	6340	3690	2520	2240	2110
CFSM	0.27	0.29	0.56	0.94	0.66	0.76	1.12	0.71	0.43	0.28	0.25	0.24
IN.	0.31	0.32	0.65	1.09	0.68	0.88	1.24	0.82	0.48	0.33	0.29	0.27

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	38.88	50.29	80.15	126.3	201.3	157.3	122.4	87.17	58.19	42.40	38.34	37.36							
MAX	47.7	104	315	479	646	305	188	132	95.5	54.1	47.4	44.4							
(WY)	1998	1985	1997	1997	1996	1986	2000	1999	1993	1999	1999	1999							
MIN	33.1	35.6	40.0	42.3	42.7	53.0	60.8	44.6	36.6	32.3	30.5	30.4							
(WY)	1995	1988	1986	2001	1994	2001	1994	1994	1994	1994	1994	1994							

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1984 - 2002

ANNUAL TOTAL	17697	28663	
ANNUAL MEAN	48.48	78.53	86.02
HIGHEST ANNUAL MEAN			166
LOWEST ANNUAL MEAN			41.6
HIGHEST DAILY MEAN	244	Dec 14	442
LOWEST DAILY MEAN	37	Sep 10	35
ANNUAL SEVEN-DAY MINIMUM	37	Sep 10	35
ANNUAL RUNOFF (AC-FT)	35100	56850	62320
ANNUAL RUNOFF (CFSM)	0.33	0.54	0.59
ANNUAL RUNOFF (INCHES)	4.54	7.35	8.06
10 PERCENT EXCEEDS	65	137	166
50 PERCENT EXCEEDS	43	60	49
90 PERCENT EXCEEDS	38	36	36

DESCHUTES RIVER BASIN

14097100 WARM SPRINGS RIVER NEAR KAHNEETA HOT SPRINGS, OR

LOCATION.--Lat 44°51'24", long 121°08'55", in SE 1/4 SW 1/4 sec.23, T.8 S., R.13 E., Wasco County, Hydrologic Unit 17070306, Warm Springs Indian Reservation, on right bank 25 ft upstream from bridge, 2.5 mi east of Kahneeta Hot Springs, and at mile 4.6.

DRAINAGE AREA.--526 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1972 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,394.96 ft above NGVD 1929.

REMARKS.--Records good. No regulation. Small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--30 years (water years 1973-2002), 447 ft<sup>3</sup>/s, 11.54 in/yr, 323,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,600 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 14.32 ft, from inside highwater mark and slope-area computation; minimum discharge, 149 ft<sup>3</sup>/s Dec. 20, 1990, but may have been less during period of ice effect Dec. 20, 1990 to Jan. 10, 1991.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	2200	*1,960	*4.76	No other peak greater than base discharge.			
Minimum discharge, 223 ft <sup>3</sup> /s Oct. 3-5.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	232	283	375	323	423	465	520	657	636	324	262	246
2	231	283	443	341	412	443	554	689	604	316	261	246
3	229	267	355	364	400	425	573	740	578	311	262	246
4	229	256	321	361	382	417	575	733	554	309	263	247
5	229	250	315	343	371	413	589	701	535	305	264	247
6	229	241	417	480	369	431	619	688	529	301	266	248
7	231	238	598	1160	383	504	662	660	515	300	265	250
8	232	237	423	1010	405	467	686	622	498	300	261	249
9	233	237	368	960	417	444	693	594	480	293	255	248
10	234	238	338	774	390	435	822	574	461	291	255	246
11	254	237	324	678	404	437	903	558	440	288	253	246
12	259	238	314	617	375	718	932	550	426	285	252	245
13	244	241	328	603	357	784	1010	564	414	282	252	244
14	239	262	797	552	356	703	1580	584	410	278	250	244
15	238	263	653	505	346	647	1750	581	408	277	249	244
16	237	263	567	463	348	610	1380	581	402	276	247	244
17	235	263	672	461	345	581	1170	583	392	275	247	248
18	230	255	631	435	347	543	1000	605	409	274	248	249
19	232	259	543	426	360	527	890	617	428	273	249	246
20	232	273	496	421	394	520	818	619	405	273	249	244
21	232	293	451	609	388	493	763	617	384	271	251	242
22	237	340	416	547	436	475	740	606	371	270	252	242
23	287	464	392	500	526	466	739	587	357	271	252	244
24	281	366	371	485	597	458	724	574	348	280	253	243
25	247	330	356	724	578	454	700	570	340	274	252	243
26	240	307	344	742	539	451	692	575	333	269	250	242
27	239	280	335	572	512	456	694	591	328	267	250	244
28	238	300	322	509	494	459	675	613	325	265	249	243
29	239	360	330	440	---	470	646	633	328	265	248	243
30	249	368	321	455	---	482	643	675	330	264	246	250
31	271	---	322	427	---	500	---	665	---	263	246	---
TOTAL	7469	8492	13238	17287	11654	15678	24742	19206	12968	8790	7859	7363
MEAN	241	283	427	558	416	506	825	620	432	284	254	245
MAX	287	464	797	1160	597	784	1750	740	636	324	266	250
MIN	229	237	314	323	345	413	520	550	325	263	246	242
AC-FT	14810	16840	26260	34290	23120	31100	49080	38100	25720	17430	15590	14600
CFSM	0.46	0.54	0.81	1.06	0.79	0.96	1.57	1.18	0.82	0.54	0.48	0.47
IN.	0.53	0.60	0.94	1.22	0.82	1.11	1.75	1.36	0.92	0.62	0.56	0.52

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 2002, BY WATER YEAR (WY)

	263	324	493	589	760	647	590	527	390	285	260	254
MEAN	263	324	493	589	760	647	590	527	390	285	260	254
MAX	358	570	1216	1773	2894	1285	956	848	803	407	344	334
(WY)	1998	1985	1997	1997	1996	1986	1997	1997	1974	1999	1999	1997
MIN	211	229	242	201	239	274	278	278	235	198	196	197
(WY)	1993	1994	1994	1979	1994	1977	1977	1977	1994	1994	1994	1994

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1973 - 2002

ANNUAL TOTAL		109335		154746								
ANNUAL MEAN		300		424					447			
HIGHEST ANNUAL MEAN									786			1997
LOWEST ANNUAL MEAN									246			1994
HIGHEST DAILY MEAN			797	Dec 14		1750	Apr 15		15800	Feb 7	1996	
LOWEST DAILY MEAN			228	Sep 18		229	Oct 3		160	Jan 1	1979	
ANNUAL SEVEN-DAY MINIMUM			229	Sep 17		230	Oct 1		174	Dec 31	1978	
ANNUAL RUNOFF (AC-FT)		216900		306900					323600			
ANNUAL RUNOFF (CFSM)		0.57		0.81					0.85			
ANNUAL RUNOFF (INCHES)		7.73		10.94					11.54			
10 PERCENT EXCEEDS		393		676					749			
50 PERCENT EXCEEDS		283		361					323			
90 PERCENT EXCEEDS		233		243					230			

14103000 DESCHUTES RIVER AT MOODY, NEAR BIGGS, OR

LOCATION.--Lat 45°37'20", long 120°54'05", in SW 1/4 SE 1/4 sec.26, T.2 N., R.15 E., Sherman County, Hydrologic Unit 17070306, on right bank at Moody, 4.0 mi southwest of Biggs, and at mile 1.4.

DRAINAGE AREA.--10,500 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1897 to December 1899 (published as "near Moro"), July 1906 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 754: Drainage area. WDR OR-96-1: 1965(M).

GAGE.--Water-stage recorder. Datum of gage is 167.54 ft above NGVD of 1929. Oct. 19, 1897, to Dec. 31, 1899, nonrecording gage at site 10 mi upstream at different datum. July 22, 1906, to July 18, 1930, nonrecording gage at site 300 ft downstream at datum 0.50 ft lower.

REMARKS.--Records good. Some fluctuation caused by regulation at Lake Simtustus since 1957. Some winter and spring runoff stored in Ochoco Reservoir, capacity, 46,420 acre-ft, in Crescent Lake, Crane Prairie, and Wickiup Reservoirs, combined capacity, 323,390 acre-ft, and since 1960, in Prineville Reservoir, and since 1964 in Lake Billy Chinook (station 14092100). Large diversions in upper river basin for irrigation. Water-quality records for periods 1911-12, 1953-58, 1962-90, have been collected at this location. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--52 years (water years 1898, 1899, 1907-1956), 5,851 ft<sup>3</sup>/s, 4,239,000 acre-ft/yr.  
46 years (water years 1957-2002), 5,815 ft<sup>3</sup>/s, 4,213,000 acre-ft/yr, regulated.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,300 ft<sup>3</sup>/s Feb. 8, 1996, gage height, 12.08 ft, from rating curve extended above 47,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 2,400 ft<sup>3</sup>/s Dec. 5, 1957.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,460 ft<sup>3</sup>/s Apr. 15, gage height, 3.96 ft; minimum discharge, 4,010 ft<sup>3</sup>/s Oct. 2-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4050	4840	5830	5250	5790	5390	5130	5490	6830	5270	4240	4380
2	4050	4890	5590	5410	5740	5420	5210	5590	6490	5180	4230	4380
3	4040	4850	5560	5600	5690	5340	5290	5740	6240	5030	4230	4380
4	4030	4840	5370	5600	5660	5220	5300	5760	5970	4950	4230	4380
5	4040	4900	5210	5570	5620	5450	5330	5680	5940	4750	4240	4350
6	4040	4890	5100	5650	5610	5480	5410	5630	5980	4740	4240	4270
7	4070	4820	5610	7690	5630	5550	5510	5550	5890	4710	4230	4280
8	4080	4670	5470	7890	5720	5550	5620	5450	5750	4740	4220	4270
9	4100	4560	5310	8000	5680	5200	5640	5350	5650	4700	4210	4170
10	4130	4550	5170	7600	5280	4970	5760	5310	5460	4570	4220	4190
11	4260	4550	5070	7130	5220	4960	6130	5220	5300	4540	4300	4170
12	4350	4540	4900	6780	5120	5210	6300	5100	5250	4520	4320	4170
13	4520	4550	4820	6620	5070	5690	6500	5120	5240	4520	4310	4170
14	4480	4570	5450	6160	4990	5560	7710	5170	5200	4640	4280	4160
15	4470	4650	5940	6020	4770	5430	9180	5190	5260	4640	4270	4170
16	4460	4630	5480	5820	4650	5350	8830	5190	5330	4600	4270	4170
17	4440	4660	5840	5490	4640	5270	8320	5220	5330	4590	4260	4190
18	4400	4600	6130	5110	4680	5200	7480	5270	5500	4600	4270	4210
19	4400	4580	6200	5110	4920	5150	6960	5330	5820	4570	4260	4300
20	4400	4600	5900	5290	4950	5140	6560	5400	5780	4580	4270	4290
21	4530	4630	5540	5480	4950	5090	6200	5440	5610	4580	4280	4280
22	4640	4750	5330	5640	4900	5060	6010	5390	5330	4550	4270	4300
23	4740	5190	5260	5540	5140	5040	5960	5350	5220	4460	4270	4400
24	4870	e5300	5200	5480	5360	5010	5890	5300	5120	4440	4260	4420
25	4850	e5300	5110	5600	5430	5000	5720	5270	5110	4440	4150	4410
26	4780	e5300	4980	6230	5320	4990	5680	5330	5150	4420	4200	4410
27	4780	5310	5000	6320	5230	4980	5670	5440	5130	4410	4390	4420
28	4740	5470	5230	6130	5220	5010	5660	5560	5170	4400	4390	4430
29	4650	5640	5270	6000	---	5030	5610	5790	5180	4380	4380	4430
30	4700	6040	5260	5930	---	5060	5550	6290	5220	4280	4370	4440
31	4730	---	5250	5880	---	5090	---	6740	---	4260	4370	---
TOTAL	136820	146670	167380	188020	146980	161890	186120	169660	166450	143060	132430	128990
MEAN	4414	4889	5399	6065	5249	5222	6204	5473	5548	4615	4272	4300
MAX	4870	6040	6200	8000	5790	5690	9180	6740	6830	5270	4390	4440
MIN	4030	4540	4820	5110	4640	4960	5130	5100	5110	4260	4150	4160
AC-FT	271400	290900	332000	372900	291500	321100	369200	336500	330200	283800	262700	255900

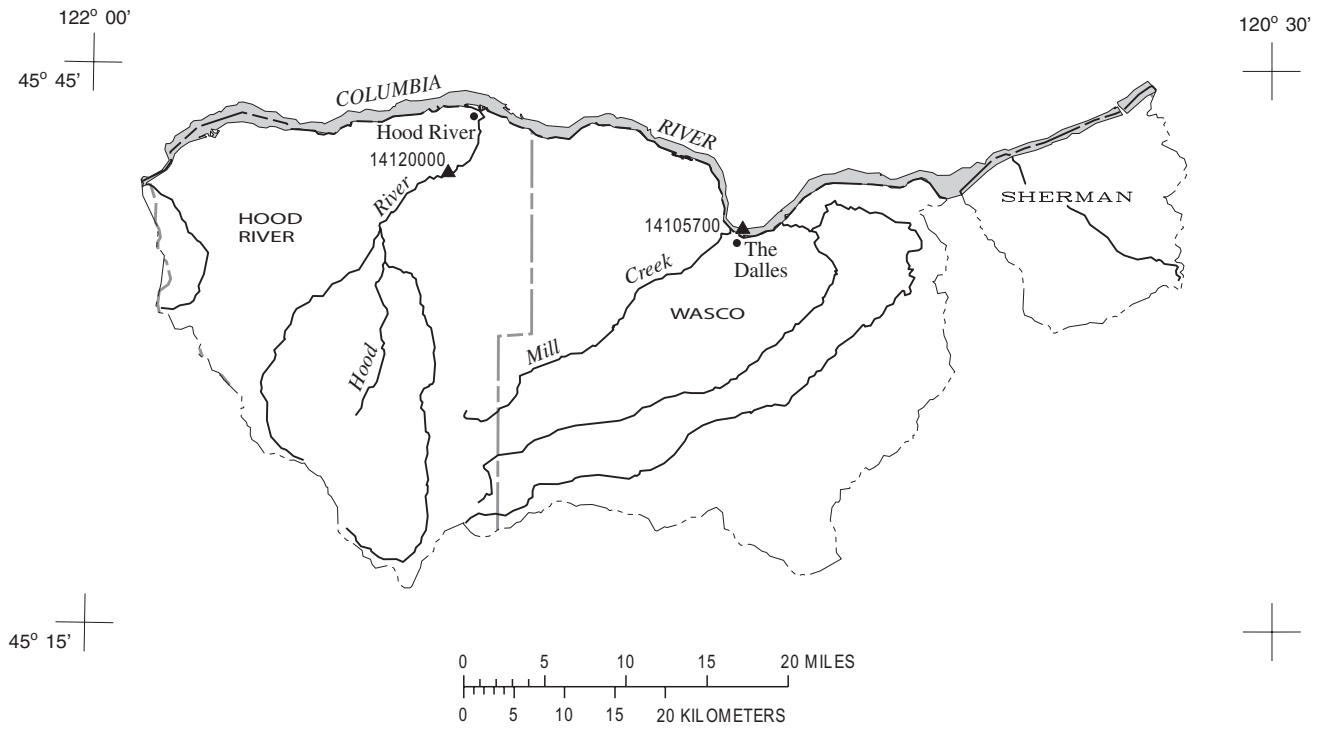
STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1957 - 2002, BY WATER YEAR (WY)

	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	4753	5458	6422	6951	7541	7251	6791	5929	5301	4622	4422	4458																																		
MAX	5860	7814	13150	14980	16980	13580	10930	8267	7643	5917	5359	5285																																		
(WY)	1998	1985	1965	1997	1996	1972	1984	1984	1974	1974	1976	1997																																		
MIN	3385	3910	4446	4378	4021	4192	4467	4141	3988	3597	3411	3394																																		
(WY)	1965	1965	1994	1964	1964	1964	1977	1977	1994	1964	1964	1964																																		

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1957 - 2002

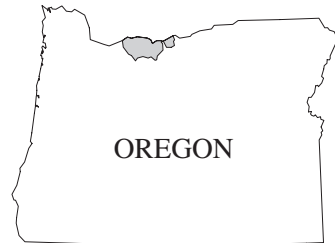
ANNUAL TOTAL	1727470	1874470	
ANNUAL MEAN	4733	5136	5815
HIGHEST ANNUAL MEAN			7969
LOWEST ANNUAL MEAN			4290
HIGHEST DAILY MEAN	6200	Dec 19	9180
LOWEST DAILY MEAN	3990	Sep 9	4030
ANNUAL SEVEN-DAY MINIMUM	3990	Sep 9	4050
ANNUAL RUNOFF (AC-FT)	3426000	3718000	4213000
10 PERCENT EXCEEDS	5310	5950	8110
50 PERCENT EXCEEDS	4720	5140	5190
90 PERCENT EXCEEDS	4060	4260	4210

e Estimated

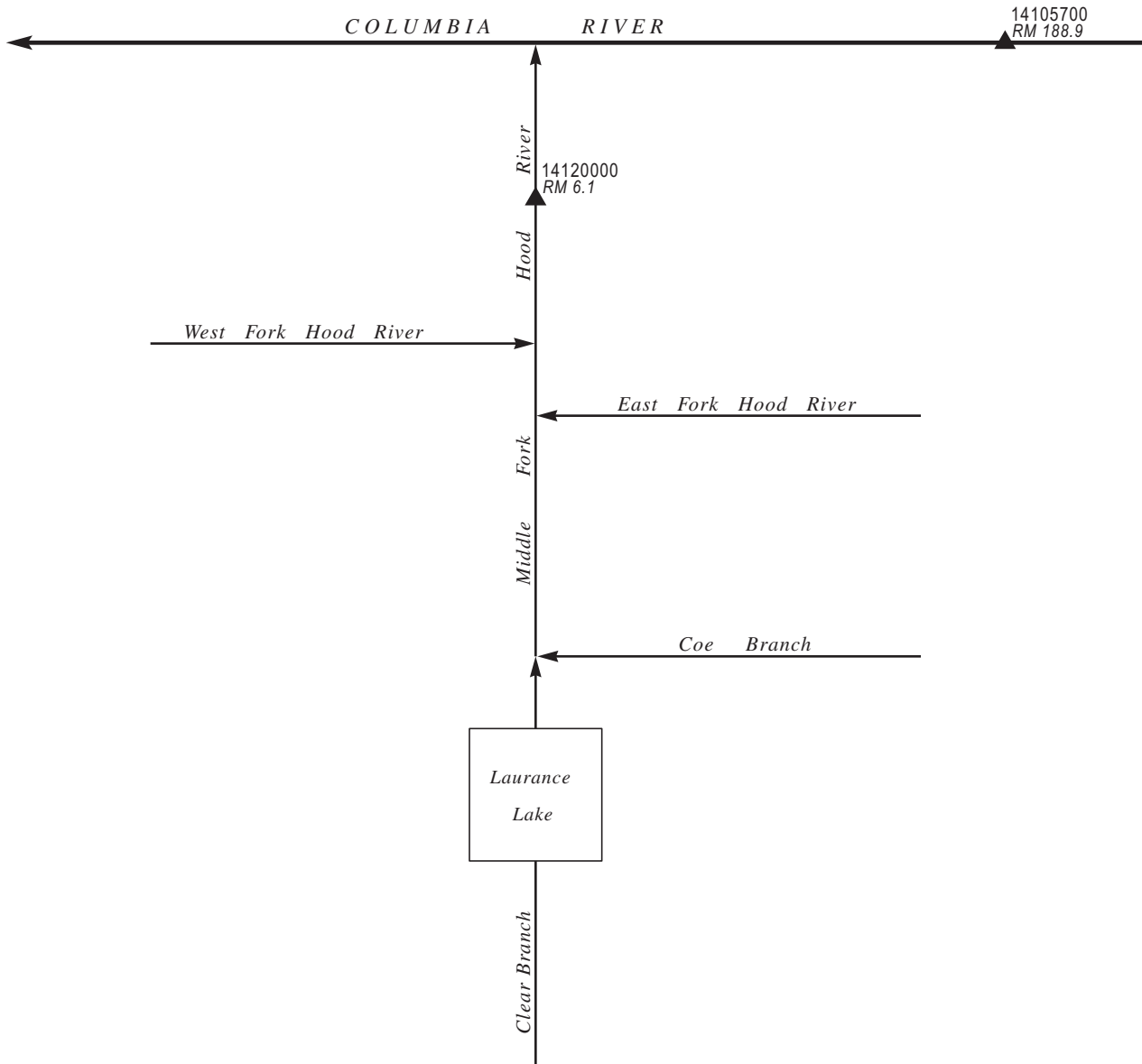


**EXPLANATION**

14105700 ▲ Stream-gaging station



**Figure 17.** Location of surface-water stations in the Columbia River between the Deschutes River and Bonneville Dam and in the Hood River Basin.



**EXPLANATION**

▲14105700 **Stream-gaging station**

RM 6.1 **River mile**

→ **Stream**—Arrow shows direction of flow

**Figure 18.** Schematic diagram showing gaging stations in the Columbia River between the Deschutes River and Bonneville Dam and in the Hood River Basin.



## 14105700 COLUMBIA RIVER AT THE DALLES, OR

LOCATION.--Lat 45°36'27", long 121°10'20", in SW 1/4 SW 1/4 sec.34, T.2 N., R.13 E., Wasco County, Hydrologic Unit 17070105, Corps of Engineers land, on left bank 0.3 mi downstream from Mill Creek, 2.6 mi downstream from The Dalles Dam, and at mile 188.9.

DRAINAGE AREA.--237,000 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1857 to September 1877 (annual maximum only, at Lower Cascades Landing, published in WSP 1318), June 1878 to current year. Published as "near The Dalles" 1936-56.

REVISED RECORDS.--WSP 534: 1920(m). SP 1094: 1894. WSP 1248: 1866, 1888, 1899, 1909. WSP 1518: 1876(M).

GAGE.--Ultrasonic velocity meter (UVM) with water-stage and velocity-index recorder. Datum of gage is NGVD of 1929. See WSP 1738 for history of changes prior to Mar. 16, 1957. Mar. 16, 1957, to Sept 30, 1968, water-stage recorder at site 0.4 mi upstream at same datum.

REMARKS.--Records good. Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant and gates at The Dalles Dam. Many diversions for irrigation upstream from station. Continuous water-quality records for the period October 1957 to February 1985 have been collected at this location.

AVERAGE DISCHARGE.--124 years (water years 1879-2002), 191,200 ft<sup>3</sup>/s, 138,500,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (since 1858), 1,240,000 ft<sup>3</sup>/s June 6, 1894, elevation, 106.5 ft; minimum discharge (since 1878), 12,100 ft<sup>3</sup>/s Apr. 16, 1968 (due to closure of John Day dam, recorded by UVM).

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 377,000 ft<sup>3</sup>/s June 6; maximum elevation, 82.95 ft June 5; minimum daily discharge, 64,800 ft<sup>3</sup>/s Oct. 13.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94000	97700	110000	120000	173000	143000	158000	215000	351000	315000	169000	117000
2	107000	93400	106000	116000	147000	133000	177000	200000	320000	318000	159000	103000
3	86100	87100	96500	115000	125000	104000	147000	249000	306000	307000	172000	103000
4	72400	86000	116000	e125000	161000	125000	139000	235000	331000	319000	144000	126000
5	85600	82400	124000	e140000	154000	116000	135000	221000	367000	266000	164000	113000
6	74800	116000	111000	e135000	157000	124000	120000	219000	377000	264000	160000	118000
7	69500	115000	106000	e130000	161000	131000	114000	240000	340000	239000	155000	95100
8	72100	124000	116000	e105000	165000	115000	170000	257000	371000	228000	172000	79400
9	79500	114000	96700	151000	168000	128000	e155000	215000	334000	216000	174000	89000
10	97200	100000	117000	157000	124000	91300	178000	191000	293000	211000	143000	114000
11	81100	79500	127000	135000	145000	113000	190000	209000	351000	238000	153000	115000
12	84100	96200	132000	115000	168000	132000	184000	183000	298000	257000	155000	83100
13	64800	105000	e125000	115000	144000	169000	216000	211000	314000	249000	163000	84700
14	68800	98400	119000	130000	184000	141000	212000	e205000	274000	240000	152000	112000
15	101000	90000	118000	165000	159000	152000	269000	212000	290000	249000	163000	86700
16	87000	98000	101000	190000	126000	140000	346000	191000	256000	191000	162000	74300
17	114000	111000	110000	161000	114000	118000	350000	229000	303000	252000	133000	105000
18	113000	93400	151000	158000	130000	131000	322000	206000	305000	243000	127000	114000
19	85800	109000	136000	112000	134000	129000	296000	220000	348000	220000	140000	113000
20	76800	112000	148000	135000	151000	e115000	277000	224000	368000	212000	151000	123000
21	75400	119000	154000	136000	144000	e145000	287000	260000	358000	222000	163000	116000
22	79100	99900	137000	135000	132000	132000	255000	278000	319000	241000	159000	104000
23	88200	98300	131000	174000	105000	114000	e280000	265000	295000	195000	139000	139000
24	110000	120000	119000	171000	124000	83300	267000	283000	327000	202000	150000	110000
25	84400	112000	127000	128000	155000	143000	244000	251000	284000	185000	123000	124000
26	89800	116000	125000	152000	165000	125000	225000	238000	283000	154000	138000	127000
27	89400	132000	140000	122000	149000	125000	235000	237000	313000	156000	145000	126000
28	90500	150000	127000	144000	159000	122000	179000	283000	329000	147000	147000	86200
29	91400	123000	117000	164000	---	135000	215000	309000	361000	179000	130000	75600
30	91500	133000	118000	167000	---	140000	234000	294000	297000	188000	133000	102000
31	91600	---	119000	171000	---	121000	---	303000	---	165000	145000	---
TOTAL	2695900	3211300	3780200	4374000	4123000	3935600	6576000	7333000	9663000	7068000	4683000	3178100
MEAN	86960	107000	121900	141100	147200	127000	219200	236500	322100	228000	151100	105900
MAX	114000	150000	154000	190000	184000	169000	350000	309000	377000	319000	174000	139000
MIN	64800	79500	96500	105000	105000	83300	114000	183000	256000	147000	123000	74300
AC-FT	5347000	6370000	7498000	8676000	8178000	7806000	13040000	14550000	19170000	14020000	9289000	6304000

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1879 - 2002, BY WATER YEAR (WY)

	MEAN	1879	1880	1881	1882	1883	1884	1885	1886	1887	1888	1889	1890
MEAN	104500	108200	116100	119200	129100	147000	204300	338300	435900	297800	172200	119900	
MAX	174800	200800	258300	275000	340400	345000	386400	624400	1002000	793300	385700	198200	
(WY)	1960	1928	1996	1997	1996	1983	1881	1897	1894	1880	1880	1880	
MIN	69430	57830	52380	42430	51420	69820	98350	136100	123700	86780	91970	75760	
(WY)	1930	1937	1937	1937	1937	1937	1944	1977	1977	2001	1994	1994	

## SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1879 - 2002

	2001 CALENDAR YEAR	2002 WATER YEAR	1879 - 2002
ANNUAL TOTAL	40919600	60621100	
ANNUAL MEAN	112100	166100	191200
HIGHEST ANNUAL MEAN			313600
LOWEST ANNUAL MEAN			117600
HIGHEST DAILY MEAN	173000	May 17	377000
LOWEST DAILY MEAN	62800	Sep 16	64800
ANNUAL SEVEN-DAY MINIMUM	76000	Sep 15	77100
ANNUAL RUNOFF (AC-FT)	81160000	120200000	138500000
10 PERCENT EXCEEDS	140000	291000	381000
50 PERCENT EXCEEDS	115000	141000	142000
90 PERCENT EXCEEDS	80000	91400	80600

e Estimated

14120000 HOOD RIVER AT TUCKER BRIDGE, NEAR HOOD RIVER, OR

LOCATION.--Lat 45°39'20", long 121°32'50", in SE 1/4 sec.15, T.2 N., R.10 E., Hood River County, Hydrologic Unit 17070105, on right bank 25 ft downstream from Tucker Bridge, 0.5 mi upstream from Odell Creek, 4.0 mi, southwest of town of Hood River, and at mile 6.1.

DRAINAGE AREA.--279 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1897 to December 1899, September 1913 to September 1914, August 1915 to September 1917, January 1965 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1318: 1899. WSP 1935: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 383.2 ft above NGVD of 1929 (Oregon State Highway Department bench mark). Prior to July 23, 1915, nonrecording gage at bridge at various datums. July 23 to Dec. 21, 1915, water-stage recorder at site 0.8 mi upstream at different datum. January 1916 to September 1917, nonrecording gage at bridge at different datum. Jan. 16 to July 23, 1965, nonrecording gage at bridge.

REMARKS.--No estimated daily discharges. Records good except for the periods Oct. 23-25, Nov. 3, which are poor. Some daily fluctuation possibly caused by diversion dam upstream from station and sawmill at Dee. Diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1898-99, 1914, 1916-17, 1966-2002), 1,015 ft<sup>3</sup>/s, 735,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,300 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 17.11 ft, from rating curve extended above 8,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge recorded, 136 ft<sup>3</sup>/s Sept. 16, 1915, caused by temporary storage behind dam at Dee.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1964, reached a stage of 20.6 ft, present datum, discharge, 33,200 ft<sup>3</sup>/s, from rating curve extended above 1,500 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 13	2330	4,950	8.36	Apr. 14	0530	*6,250	*9.30

Minimum discharge, 213 ft<sup>3</sup>/s Sept. 9.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

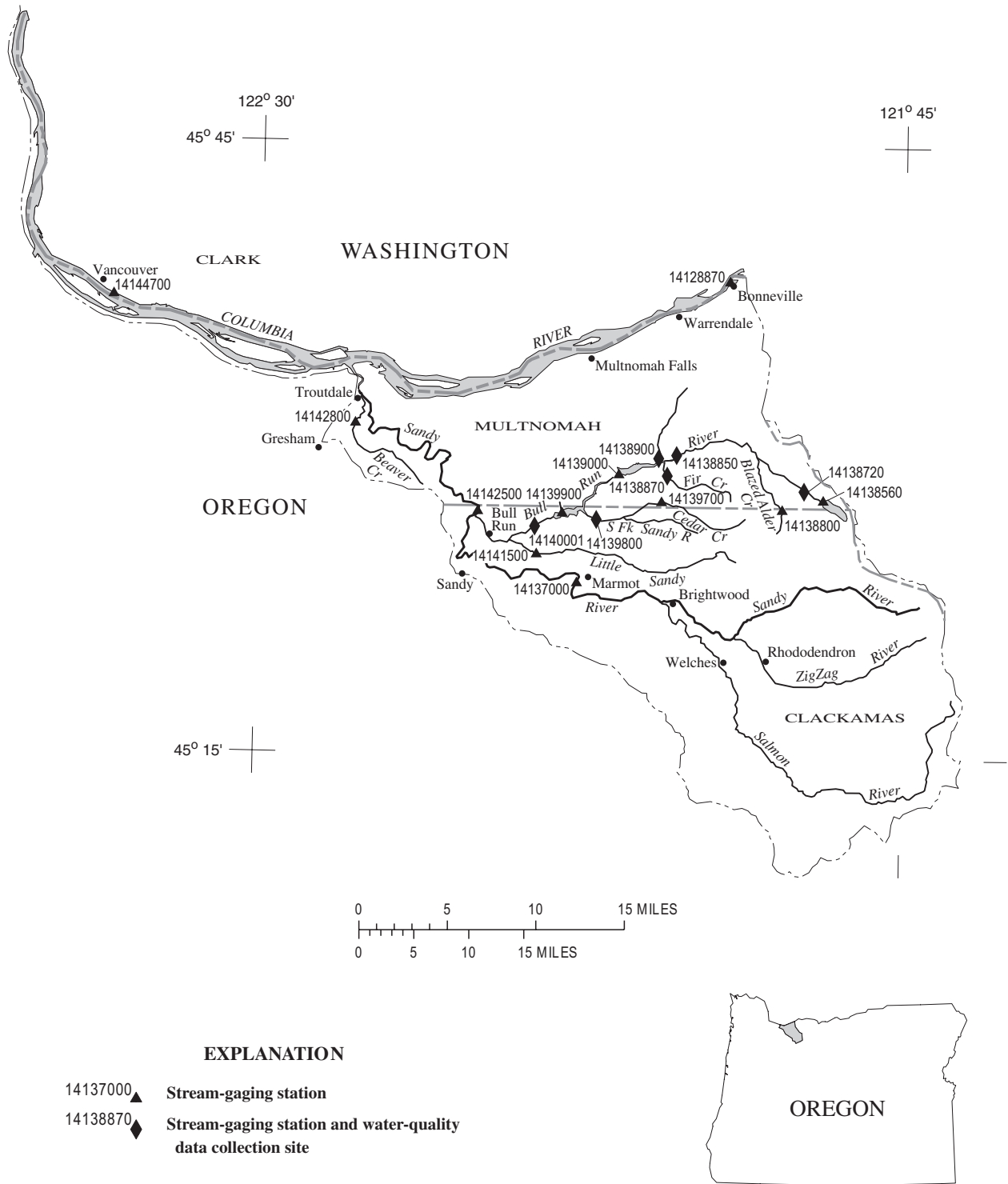
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	236	971	1310	662	957	914	918	1140	1460	861	370	304
2	245	964	1490	730	894	855	932	1250	1360	771	368	340
3	241	728	1080	699	871	813	912	1250	1270	726	347	331
4	250	545	904	684	831	785	913	1140	1240	665	342	276
5	236	502	815	655	804	791	966	1130	1400	616	323	250
6	241	449	1250	919	799	941	1080	1120	1360	615	305	245
7	240	403	1510	2330	972	886	1210	1030	1130	655	293	232
8	244	373	1120	3410	1080	809	1210	952	999	725	294	223
9	254	362	964	2500	994	766	1240	914	910	636	307	225
10	252	345	847	1870	922	786	1860	872	908	657	342	242
11	472	331	799	1540	885	1690	2000	861	930	688	350	275
12	325	330	743	1740	833	2760	2280	918	979	672	334	285
13	366	456	2360	1660	798	1900	2530	1020	1090	701	368	278
14	377	1250	3410	1400	760	1510	4860	1080	1200	705	367	286
15	393	777	2010	1230	726	1310	2940	1070	1210	590	363	276
16	377	714	2860	1110	700	1190	2250	1040	1150	547	342	268
17	358	639	2920	1030	680	1070	1820	1090	1060	570	307	342
18	338	555	2090	962	672	995	1530	1140	1410	568	297	288
19	342	625	1660	983	786	1230	1360	1150	1110	554	290	284
20	323	692	1420	1250	833	1230	1270	1170	986	496	284	285
21	256	768	1210	1580	1040	1090	1210	1160	957	475	270	264
22	528	1490	1080	1250	1620	1010	1180	1220	974	492	284	259
23	1050	1710	965	1120	2070	956	1150	1170	958	544	280	267
24	606	1160	887	1260	2010	923	1080	1120	904	541	285	275
25	451	894	827	2550	1480	905	1060	1120	858	527	286	273
26	394	756	778	2020	1230	903	1060	1220	900	522	296	269
27	372	652	744	1550	1090	930	1040	1310	946	494	308	265
28	344	698	734	1290	995	901	1000	1570	945	457	339	265
29	333	1030	692	1140	---	890	1010	2130	1440	551	347	274
30	658	927	664	1040	---	871	1060	1960	1060	507	320	407
31	1280	---	649	1000	---	890	---	1660	---	435	274	---
TOTAL	12382	22096	40792	43164	28332	33500	44931	36977	33104	18563	9882	8353
MEAN	399	737	1316	1392	1012	1081	1498	1193	1103	599	319	278
MAX	1280	1710	3410	3410	2070	2760	4860	2130	1460	861	370	407
MIN	236	330	649	655	672	766	912	861	858	435	270	223
AC-FT	24560	43830	80910	85620	56200	66450	89120	73340	65660	36820	19600	16570

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 2002, BY WATER YEAR (WY)

	484	1041	1450	1559	1575	1342	1318	1215	934	586	397	369
MEAN	484	1041	1450	1559	1575	1342	1318	1215	934	586	397	369
MAX	996	2546	4109	3313	4217	2915	2358	2418	2439	1687	1088	804
(WY)	1998	1996	1978	1974	1996	1972	1916	1969	1899	1899	1899	1899
MIN	218	282	438	363	430	681	704	532	278	229	209	188
(WY)	1988	1988	1977	1979	1977	1977	1973	1992	1992	1992	1992	1994

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1898 - 2002

ANNUAL TOTAL	222947	332076	
ANNUAL MEAN	611	910	1015
HIGHEST ANNUAL MEAN			1664
LOWEST ANNUAL MEAN			465
HIGHEST DAILY MEAN	3410	Dec 14	4860
LOWEST DAILY MEAN	180	Sep 10	223
ANNUAL SEVEN-DAY MINIMUM	189	Sep 6	241
ANNUAL RUNOFF (AC-FT)	442200	658700	735500
10 PERCENT EXCEEDS	1120	1540	1900
50 PERCENT EXCEEDS	491	885	780
90 PERCENT EXCEEDS	241	284	311



**Figure 19.** Location of surface-water and water-quality stations in the Columbia River between Bonneville Dam and confluence with the Willamette river and the Sandy River Basin.

14128870 COLUMBIA RIVER BELOW BONNEVILLE DAM, OR

LOCATION.--Lat 45°38'00", long 121°57'33", in sec.21, T.2 N., R.7 E., Multnomah County, Hydrologic Unit 17080001, on left bank 0.9 mi downstream from Bonneville Dam left bank powerhouse, 50 ft upstream from Tanner Creek, and at mile 144.5.

DRAINAGE AREA.--239,900 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--May 1981 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to August 15, 1990, at a site 0.5 mi upstream at the same datum.

REMARKS.--Flow regulated by many reservoirs upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 35.11 ft Feb. 9, 1996; minimum, 6.14 ft July 15, 16, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 27.79 ft June 6; minimum, 6.20 ft Oct. 9.

## GAGE HEIGHT, in FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	10.69	6.75	8.38	10.26	8.83	9.50	17.34	11.70	13.80	11.98	11.36	11.68
2	11.36	7.61	9.31	10.37	8.25	9.50	17.14	11.45	13.80	12.22	11.54	11.77
3	10.54	7.74	8.78	9.77	8.10	8.89	16.77	11.59	13.58	11.96	11.57	11.73
4	8.27	6.58	7.32	9.89	7.03	8.23	15.79	11.26	13.11	12.07	11.45	11.67
5	9.26	6.32	7.35	10.55	7.49	8.58	17.22	11.42	13.37	13.31	11.54	12.26
6	9.47	7.06	7.81	11.24	9.59	10.23	16.57	11.47	13.25	13.42	11.54	12.41
7	8.57	6.60	7.39	11.41	9.47	10.32	14.72	11.50	12.65	14.80	12.41	14.02
8	8.01	6.35	6.96	12.73	9.38	10.73	13.52	11.50	12.20	15.33	13.94	14.57
9	7.97	6.20	6.85	12.87	9.67	10.96	13.27	11.37	11.90	18.09	14.50	15.80
10	9.85	6.66	8.15	11.34	7.65	9.23	13.78	11.50	12.19	18.11	15.54	16.82
11	10.03	7.58	8.60	8.66	7.35	7.88	15.41	11.51	12.70	15.85	13.62	14.78
12	8.82	7.31	7.96	10.70	7.39	9.24	16.19	11.43	13.38	13.95	12.75	13.35
13	8.04	6.49	7.28	10.27	8.61	9.52	17.31	11.44	13.28	15.24	13.42	14.02
14	8.87	6.53	7.58	12.92	8.88	10.79	17.19	12.08	14.40	15.03	12.10	13.37
15	10.75	7.91	9.19	12.01	9.56	10.71	16.91	12.02	14.46	17.53	11.45	13.30
16	10.51	7.47	9.19	11.39	9.64	10.32	18.00	11.56	13.88	18.31	15.90	17.15
17	13.68	9.08	10.59	13.02	9.51	10.91	18.55	12.15	14.82	17.55	13.78	15.87
18	13.16	9.94	11.05	12.94	9.51	10.67	19.27	12.33	16.72	16.10	12.36	15.02
19	11.25	7.86	9.32	11.23	8.19	9.51	18.78	12.96	16.22	14.52	11.82	13.14
20	8.93	6.96	7.96	11.70	9.80	11.01	18.30	11.68	14.43	15.40	11.66	12.93
21	8.41	6.51	7.31	11.56	10.89	11.26	18.82	13.21	16.49	15.47	12.02	14.07
22	8.86	6.54	7.41	11.71	11.12	11.33	18.63	11.47	13.94	15.59	11.87	13.99
23	9.05	7.38	8.05	11.57	11.05	11.24	16.55	11.47	13.41	16.81	14.04	15.67
24	10.12	7.42	9.23	13.19	11.09	11.88	13.82	11.53	11.82	17.43	14.19	16.21
25	9.70	7.29	8.09	12.81	11.02	11.66	11.84	11.55	11.70	16.22	11.52	13.48
26	9.88	6.67	7.83	13.01	11.01	11.70	13.52	11.28	11.75	17.37	13.37	16.02
27	9.63	7.62	8.63	16.31	11.01	12.77	12.02	11.37	11.70	16.33	13.82	14.64
28	9.58	7.60	8.53	15.94	11.07	13.16	13.05	11.38	11.84	16.68	13.55	15.26
29	10.01	9.01	9.46	17.19	11.45	13.84	12.18	11.54	11.74	18.26	13.73	16.42
30	9.97	8.02	9.03	17.50	11.46	13.92	12.07	11.48	11.73	18.09	14.06	16.67
31	9.47	7.36	8.39	---	---	---	12.01	11.31	11.67	18.13	13.65	16.27
MONTH	13.68	6.20	8.35	17.50	7.03	10.65	19.27	11.26	13.29	18.31	11.36	14.33



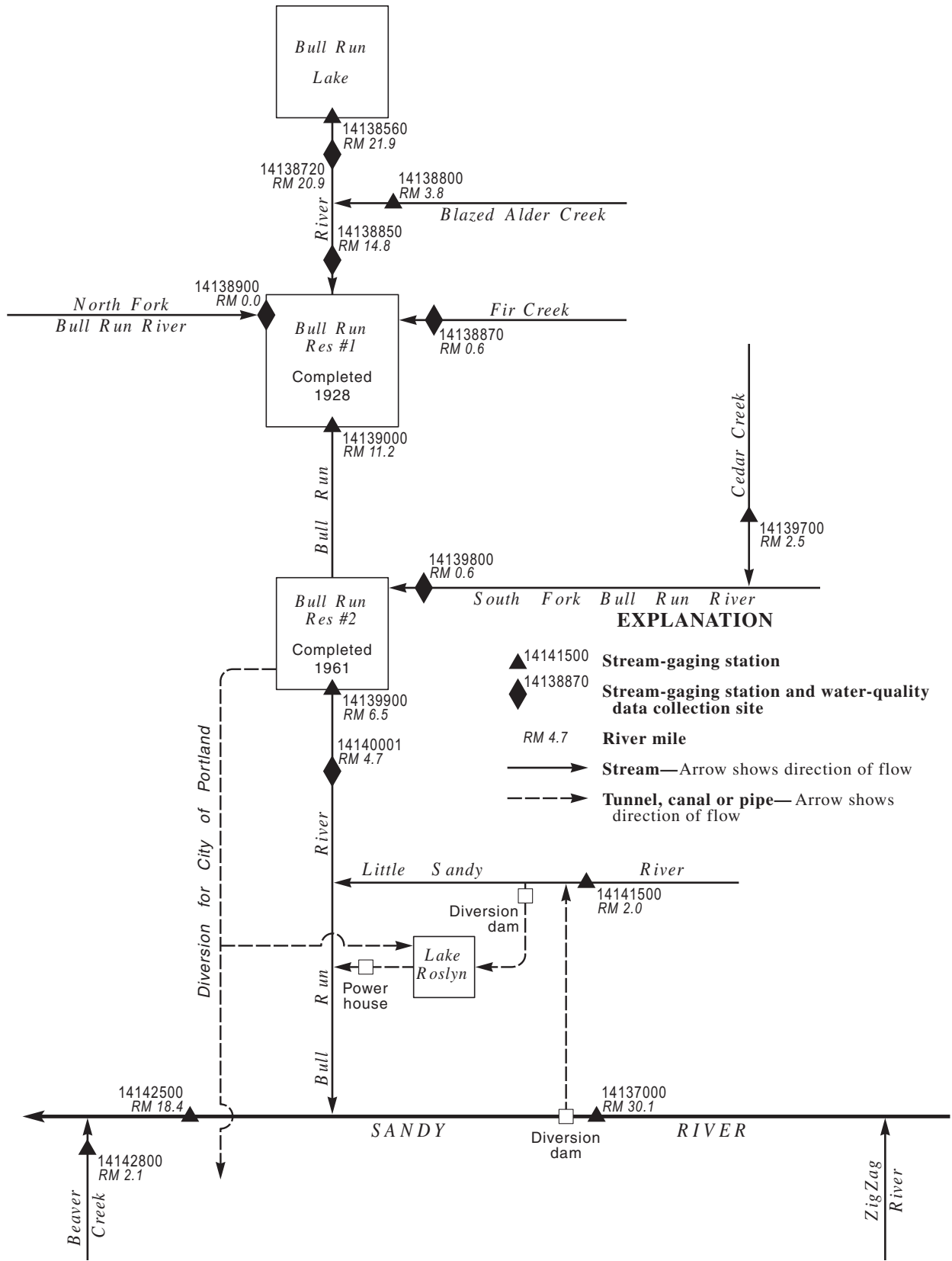


Figure 20. Schematic diagram showing gaging stations and diversions in the Sandy River Basin.

SANDY RIVER BASIN

14137000 SANDY RIVER NEAR MARMOT, OR

LOCATION.--Lat 45°23'56", long 122°07'38", in NW 1/4 sec.18, T.2 S., R.6 E., Clackamas County, Hydrologic Unit 17080001, on right bank 0.6 mi west/northwest of Marmot, 0.3 mi upstream from Marmot Dam of Portland General Electric Co., 7.2 mi downstream from Salmon River, and at mile 30.3.

DRAINAGE AREA.--263 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1911 to current year. Monthly discharges only, January to September 1916, October 1918 to June 1919, published in WSP 1318. Published as "at Marmot" October 1912 to September 1913. Records for January 1916 to June 1919, published as "below dam, near Marmot," obtained by combining records for Sandy River below dam, near Marmot, with records for Sandy River Canal near Marmot.

REVISED RECORDS.--WSP 594: Drainage area. WSP 1288: 1912(M), 1915, 1922, 1924, 1934(M). WSP 1318: 1932(M), WDR OR-97-1: Drainage Area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Portland General Electric). Aug. 15, 1911, to Dec. 20, 1915, and July 2, 1919, to Oct. 19, 1933, nonrecording gage at site 1.5 mi upstream at different datum. Oct. 20, 1933, to Sept. 30, 1958, water-stage recorder at site 1.1 mi upstream at different datum. Sept. 30, 1958 to Mar. 11, 1997, water-stage recorder at site 0.6 mi upstream, at different datum.

REMARKS.--Records poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--89 years (water years 1912-15, 1917-18, 1920-2002), 1,350 ft<sup>3</sup>/s, 69.77 in/yr, 978,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 61,400 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 17.05 ft, site and datum then in use, from rating curve extended above 7,000 ft<sup>3</sup>/s; maximum gage height, 20.40 ft, Feb. 7, 1996, site and datum then in use; minimum, 190 ft<sup>3</sup>/s Oct. 13, 1994.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 7,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0300	7,750	735.01	Apr. 14	0600	*10,900	*736.16

Minimum daily discharge, 264 ft<sup>3</sup>/s Oct. 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	269	2130	2640	951	1100	1160	1320	1560	2070	1040	470	417
2	271	2040	2890	1080	1050	1060	1360	1640	1940	940	462	421
3	264	1410	2320	1070	1050	981	1370	1710	1840	875	449	421
4	283	1090	1920	1030	1040	949	1490	1590	1770	810	455	422
5	281	1040	1700	1010	1020	954	1770	1560	1900	780	444	416
6	286	912	3190	1530	1030	1480	1860	1590	1860	773	425	415
7	280	829	4510	2700	1380	1520	2160	1470	1650	785	419	412
8	303	777	3000	4330	1780	1270	2110	1360	1500	806	e410	413
9	316	735	2470	3210	1580	1130	2120	1310	1420	748	426	416
10	313	706	2120	2270	1390	1080	3050	1220	1340	782	436	408
11	818	686	2040	1870	1360	2100	3290	1190	1360	767	429	434
12	446	700	1910	2090	1190	4290	3480	1290	1440	733	423	440
13	478	975	4600	2120	1070	2580	3760	1530	1580	745	433	438
14	462	2680	5980	1770	1010	2050	8180	1580	1710	709	428	428
15	443	1520	3460	1520	978	1750	4700	1580	1640	644	412	416
16	473	1330	4830	1370	971	1580	3270	1540	1510	623	398	410
17	462	1410	5000	1250	986	1420	2620	1620	1430	631	398	428
18	423	1170	3310	1200	1000	1280	2200	1700	1900	617	393	446
19	404	1060	2510	1250	1210	1810	1940	1730	1570	604	386	441
20	405	1060	2070	1710	1380	1880	1770	1790	1400	579	389	437
21	403	1110	1730	2310	1590	1690	1670	1830	1350	568	395	424
22	1110	2660	1490	1720	2180	1500	1590	2060	1330	573	395	415
23	2470	4010	1290	1460	3060	1370	1550	2010	1270	583	394	406
24	1450	2380	1160	1520	3160	1380	1470	1880	1180	554	401	400
25	970	1740	1100	3380	2110	1380	1450	1850	1110	549	399	397
26	838	1370	1030	2630	1670	1360	1460	1950	1150	557	408	393
27	762	1130	999	1930	1420	1440	1500	2060	1140	546	412	388
28	724	2030	994	1570	1250	1400	1430	2210	1080	522	425	378
29	683	3260	949	1340	---	1350	1450	2800	1620	550	431	369
30	1070	2500	913	1180	---	1280	1540	2610	1230	523	426	359
31	2460	---	924	1140	---	1290	---	2310	---	e490	422	---
TOTAL	20620	46450	75049	55511	40015	47764	68930	54130	45290	21006	12993	12428
MEAN	665	1548	2421	1791	1429	1541	2298	1746	1510	678	419	414
MAX	2470	4010	5980	4330	3160	4290	8180	2800	2070	1040	470	446
MIN	264	686	913	951	971	949	1320	1190	1080	490	386	359
AC-FT	40900	92130	148900	110100	79370	94740	136700	107400	89830	41670	25770	24650
CFSM	2.53	5.89	9.21	6.81	5.43	5.86	8.74	6.64	5.74	2.58	1.59	1.58
IN.	2.92	6.57	10.62	7.85	5.66	6.76	9.75	7.66	6.41	2.97	1.84	1.76

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1912 - 2002, BY WATER YEAR (WY)

	654	1605	2095	2011	1871	1647	1870	1800	1221	644	428	414
MEAN	654	1605	2095	2011	1871	1647	1870	1800	1221	644	428	414
MAX	2168	4777	6278	4752	4971	3983	3134	3443	3457	1385	663	1056
(WY)	1960	1996	1965	1953	1996	1972	1962	1949	1917	1917	1974	1959
MIN	239	236	445	498	464	631	658	743	420	354	268	244
(WY)	1988	1937	1977	1937	1977	1941	1941	1992	1992	1992	1940	1994

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1912 - 2002

ANNUAL TOTAL		352408		500186								
ANNUAL MEAN		966		1370						1350		
HIGHEST ANNUAL MEAN										2018		1996
LOWEST ANNUAL MEAN										766		1977
HIGHEST DAILY MEAN			5980	Dec 14		8180	Apr 14		41400	Dec 22	1964	
LOWEST DAILY MEAN			244	Sep 29		264	Oct 3		193	Oct 13	1994	
ANNUAL SEVEN-DAY MINIMUM			252	Sep 16		276	Oct 1		196	Oct 7	1994	
ANNUAL RUNOFF (AC-FT)		699000		992100					978400			
ANNUAL RUNOFF (CFSM)		3.67		5.21					5.13			
ANNUAL RUNOFF (INCHES)		49.85		70.75					69.77			
10 PERCENT EXCEEDS		2090		2480					2620			
50 PERCENT EXCEEDS		735		1250					998			
90 PERCENT EXCEEDS		294		412					352			

e Estimated

## SANDY RIVER BASIN

14138560 BULL RUN LAKE NEAR BRIGHTWOOD, OR

LOCATION.--Lat 45°27'40", long 121°50'37", in SE 1/4 SE 1/4 sec.20, T.1 S., R.8 E., Multnomah County, Hydrologic Unit 17080001, in Mount Hood National Forest, in main cabin on northwest side of Bull Run Lake, near outlet structure, 10.7 mi northeast of Brightwood, and at mile 21.9.

DRAINAGE AREA.--3.5 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1992 to current year.

REVISED RECORDS.--WDR OR-95-1: 1993, 1994.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929, Portland Water Bureau datum.

REMARKS.--Bull Run Lake was formed by natural processes, including a large landslide. A temporary log crib dam was constructed in 1917 to increase the capacity of the lake. In 1920 the log crib dam was reconstructed. A concrete dam and improved outlet valve were constructed in 1958. A lower outlet and tunnel was constructed in 1961. Portland Water Bureau releases water from the lake to augment streamflows during periods of low flow.

COOPERATION.--Capacity table provided by Portland Water Bureau, extended above 3,180 ft by U.S. Geological Survey, Oct. 1, 1996.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 48,340 acre-ft Feb. 9, 1996, elevation, 3,185.02 ft; minimum contents observed, 31,080 acre-ft Oct. 29, 1992, elevation, 3,143.97 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 44,550 acre-ft June 30, elevation, 3,176.60 ft; minimum contents, 36,650 acre-ft Oct. 21, elevation, 3,158.23 ft.

## Capacity Table (elevation, in feet and contents, in acre-feet)

2,905	0	3,140	29,510
2,940	229	3,150	33,410
2,980	1,270	3,160	37,380
3,020	3,740	3,180	46,080
3,060	8,880	3,186	48,780
3,100	17,280		

GAGE HEIGHT, in FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3159.31	3159.51	3162.62	3165.81	3168.06	3167.67	3168.03	3171.37	3174.18	3176.56	3173.34	3169.85
2	3159.23	3159.64	3162.67	3165.76	3167.98	3167.61	3167.98	3171.40	3174.29	3176.51	3173.22	3169.73
3	3159.14	3159.67	3162.74	3165.75	3167.95	3167.57	3167.95	3171.42	3174.38	3176.44	3173.10	3169.63
4	3159.00	3159.70	3162.91	3165.71	3167.87	3167.53	3167.92	3171.42	3174.50	3176.38	3173.01	3169.51
5	3158.95	3159.73	3163.03	3165.71	3167.81	3167.52	3167.92	3171.51	3174.69	3176.30	3172.88	3169.39
6	3158.87	3159.70	3163.28	3165.93	3167.81	3167.61	3167.99	3171.56	3174.78	3176.22	3172.76	3169.29
7	3158.80	3159.67	3163.32	3166.38	3167.85	3167.58	3168.11	3171.57	3174.85	3176.15	3172.65	3169.18
8	3158.77	3159.63	3163.38	3166.91	3167.89	3167.57	3168.17	3171.54	3174.89	3176.08	3172.54	3169.07
9	3158.69	3159.59	3163.38	3167.12	3167.82	3167.52	3168.31	3171.51	3174.91	3175.99	3172.43	3168.97
10	3158.79	3159.55	3163.46	3167.20	3167.76	3167.56	3168.64	3171.47	3174.93	3175.91	3172.31	3168.87
11	3158.78	3159.49	3163.49	3167.21	3167.71	3167.93	3168.97	3171.44	3174.99	3175.79	3172.20	3168.77
12	3158.77	3159.48	3163.58	3167.39	3167.62	3168.16	3169.35	3171.44	3175.09	3175.70	3172.07	3168.66
13	3158.68	3159.92	3164.27	3167.44	3167.53	3168.32	3170.01	3171.51	3175.22	3175.58	3171.96	3168.56
14	3158.68	3160.22	3164.80	3167.47	3167.49	3168.38	3171.07	3171.58	3175.38	3175.47	3171.84	3168.46
15	3158.60	3160.38	3164.98	3167.44	3167.39	3168.41	3171.40	3171.62	3175.50	3175.36	3171.73	3168.35
16	3158.56	3160.49	3165.58	3167.45	3167.30	3168.43	3171.56	3171.65	3175.57	3175.25	3171.60	3168.29
17	3158.49	3160.52	3165.88	3167.42	3167.23	3168.42	3171.63	3171.72	3175.75	3175.13	3171.47	3168.24
18	3158.42	3160.55	3166.04	3167.44	3167.15	3168.47	3171.64	3171.78	3175.98	3175.02	3171.37	3168.14
19	3158.35	3160.63	3166.09	3167.49	3167.18	3168.56	3171.63	3171.92	3176.07	3174.89	3171.25	3168.05
20	3158.28	3160.67	3166.15	3167.78	3167.11	3168.49	3171.62	3172.00	3176.12	3174.78	3171.14	3167.95
21	3158.28	3160.79	3166.15	3167.85	3167.19	3168.49	3171.59	3172.11	3176.18	3174.67	3171.03	3167.87
22	3158.60	3161.37	3166.14	3167.91	3167.24	3168.43	3171.56	3172.25	3176.24	3174.55	3170.92	3167.74
23	3158.80	3161.62	3166.10	3167.94	3167.58	3168.38	3171.53	3172.35	3176.27	3174.43	3170.81	3167.61
24	3158.79	3161.73	3166.07	3168.07	3167.73	3168.36	3171.49	3172.42	3176.28	3174.31	3170.71	3167.52
25	3158.79	3161.80	3166.01	3168.30	3167.77	3168.31	3171.46	3172.52	3176.30	3174.19	3170.60	3167.41
26	3158.75	3161.83	3165.93	3168.32	3167.76	3168.30	3171.45	3172.66	3176.31	3174.07	3170.49	3167.30
27	3158.73	3161.82	3165.94	3168.29	3167.73	3168.26	3171.43	3172.86	3176.28	3173.95	3170.38	3167.21
28	3158.67	3162.11	3165.92	3168.23	3167.71	3168.22	3171.40	3173.17	3176.44	3173.83	3170.29	3167.11
29	3158.66	3162.27	3165.86	3168.17	--	3168.16	3171.37	3173.60	3176.59	3173.71	3170.17	3167.15
30	3158.94	3162.35	3165.81	3168.11	--	3168.12	3171.36	3173.85	3176.59	3173.58	3170.05	3167.13
31	3159.31	--	3165.80	3168.12	--	3168.07	--	3174.04	--	3173.47	3169.96	--
MAX	3159.31	3162.35	3166.15	3168.32	3168.06	3168.56	3171.64	3174.04	3176.59	3176.56	3173.34	3169.85
MIN	3158.28	3159.48	3162.62	3165.71	3167.11	3167.52	3167.92	3171.37	3174.18	3173.47	3169.96	3167.11
(†)	37100	38360	39820	40820	40640	40800	42230	43410	44550	43160	41620	40390
(‡)	-30	+1260	+1460	+1000	-180	+160	+1430	+1180	+1140	-1390	-1540	-1230

CAL YR 2001 MAX 3166.15 MIN 59.39 AC-FT† +1440  
WTR YR 2002 MAX 3176.59 MIN 3158.28 AC-FT† +3260

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.



14138720 BULL RUN RIVER AT LOWER FLUME, NEAR BRIGHTWOOD, OR

LOCATION.--(revised)Lat 45°28'16", long 121°51'51", in SE 1/4 NE 1/4 sec.19, T.1 S., R.8 E., Multnomah County, Hydrologic Unit 17080001, at flume, 1.0 mi downstream from outlet structure at Bull Run Lake, 10.4 mi northeast of Brightwood, and at mile 20.9.

DRAINAGE AREA.--5.08 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,840 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Regulation at times by Bull Run Lake. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--10 years (water years 1993-2002), 26.4 ft<sup>3</sup>/s, 19,120 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD;--Maximum discharge, 148 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 3.05 ft, from rating curve extended above 63 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 8.2 ft<sup>3</sup>/s Oct. 28, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 60 ft<sup>3</sup>/s Apr. 14, gage height, 2.38 ft; minimum discharge, 12 ft<sup>3</sup>/s Oct. 1-22, 28-30.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	16	23	23	23	24	24	30	38	32	25	20
2	12	16	24	23	23	23	24	30	39	32	24	20
3	12	16	23	23	23	23	24	30	39	32	24	20
4	12	15	22	22	23	23	24	30	39	31	24	20
5	12	15	22	22	22	23	25	30	38	31	24	20
6	12	14	23	23	22	23	25	30	38	31	24	20
7	12	14	24	28	22	23	26	29	38	30	23	19
8	12	14	24	33	22	23	27	29	37	30	23	19
9	12	14	23	33	22	23	27	29	37	30	23	19
10	12	14	23	31	21	22	30	28	36	30	23	19
11	13	14	23	29	21	26	32	28	35	29	23	19
12	12	14	22	29	21	32	35	28	35	29	23	19
13	12	15	29	29	21	29	38	29	35	29	23	19
14	12	19	34	29	21	28	54	29	35	29	23	19
15	12	18	31	28	20	27	46	30	35	28	22	19
16	12	17	34	28	20	26	43	30	34	28	22	19
17	12	17	35	28	20	26	42	30	34	28	22	19
18	12	17	33	27	20	25	41	31	35	28	22	19
19	12	17	32	27	20	25	40	31	34	27	22	19
20	12	17	31	27	20	25	39	31	34	27	22	18
21	12	17	30	27	22	25	37	32	34	27	22	18
22	13	20	30	26	24	25	36	32	34	27	22	18
23	14	23	28	26	27	25	35	32	34	27	21	18
24	13	22	28	25	29	24	34	33	33	26	21	18
25	13	22	27	26	27	24	33	33	33	26	21	18
26	13	21	26	26	26	24	32	33	33	26	21	18
27	13	20	25	25	25	24	32	33	32	26	21	18
28	13	21	25	25	24	24	31	34	32	25	21	18
29	12	23	25	24	---	24	31	37	33	25	20	18
30	13	23	24	24	---	23	30	39	32	25	20	18
31	16	---	23	24	---	24	---	38	---	25	20	---
TOTAL	386	525	826	820	631	765	997	968	1055	876	691	565
MEAN	12.5	17.5	26.6	26.5	22.5	24.7	33.2	31.2	35.2	28.3	22.3	18.8
MAX	16	23	35	33	29	32	54	39	39	32	25	20
MIN	12	14	22	22	20	22	24	28	32	25	20	18
AC-FT	766	1040	1640	1630	1250	1520	1980	1920	2090	1740	1370	1120

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2002, BY WATER YEAR (WY)

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002		
MEAN	15.8	21.4	29.2	32.3	30.4	31.2	31.8	33.7	29.1	22.5	20.7	19.0
MAX	22.8	37.0	49.1	67.3	55.8	62.7	57.6	67.0	42.7	28.3	40.0	32.4
(WY)	2000	1996	1996	1996	1996	1997	1997	1997	1999	2002	2000	2000
MIN	10.5	11.9	16.4	15.3	15.6	18.2	21.5	21.2	18.5	16.2	13.4	11.6
(WY)	1993	1994	1993	1993	1993	2001	2001	1994	1994	1994	1994	1994

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1993 - 2002

ANNUAL TOTAL	6640	9105	
ANNUAL MEAN	18.2	24.9	26.4
HIGHEST ANNUAL MEAN			37.5
LOWEST ANNUAL MEAN			17.4
HIGHEST DAILY MEAN	35	Dec 17	54
LOWEST DAILY MEAN	12	Sep 28	12
ANNUAL SEVEN-DAY MINIMUM	12	Sep 28	12
ANNUAL RUNOFF (AC-FT)	13170	18060	19120
10 PERCENT EXCEEDS	24	34	40
50 PERCENT EXCEEDS	17	24	24
90 PERCENT EXCEEDS	13	14	14

14138720 BULL RUN RIVER AT LOWER FLUME, NEAR BRIGHTWOOD, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: April 1996 to current year.  
 WATER TEMPERATURE: October 1995 to current year.

INSTRUMENTATION.--Water-quality monitor and data logger.

REMARKS.--Specific conductance and water temperature records excellent.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 32 microsiemens Oct. 10-16, 1996, but may have been higher during period of missing record; minimum, 18 microsiemens Dec. 27, 1998.  
 WATER TEMPERATURE: Maximum 9.0°C several days in September, 2000; minimum, 3.0°C Feb. 6, 1996.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 31 microsiemens June 16; minimum, 22 microsiemens Apr. 14.  
 WATER TEMPERATURE: Maximum, 6.7°C several days in October and November; minimum, 3.8°C Apr. 14.

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	28	27	28	29	29	29	29	28	28	30	30	30
2	28	27	28	29	29	29	29	28	29	30	30	30
3	28	27	28	29	29	29	30	27	29	30	30	30
4	28	28	28	29	29	29	30	28	29	30	30	30
5	28	28	28	29	29	29	30	28	30	30	30	30
6	28	28	28	29	28	29	30	28	29	30	30	30
7	28	27	28	29	28	29	30	28	30	30	29	29
8	28	27	28	29	28	28	30	30	30	29	28	29
9	28	27	27	29	28	28	30	30	30	30	29	29
10	28	27	27	29	28	28	30	30	30	30	29	30
11	29	28	29	29	28	28	30	30	30	30	30	30
12	28	28	28	29	28	28	30	29	30	30	29	30
13	28	28	28	29	28	28	30	26	28	30	30	30
14	29	28	28	29	28	29	29	27	29	30	30	30
15	29	28	28	29	29	29	30	29	29	30	30	30
16	29	28	29	29	29	29	30	29	29	30	30	30
17	29	28	28	29	29	29	29	29	29	30	30	30
18	29	28	28	29	29	29	30	29	30	30	30	30
19	28	28	28	29	29	29	30	30	30	30	30	30
20	28	28	28	29	29	29	30	30	30	30	30	30
21	28	28	28	29	29	29	30	30	30	30	30	30
22	30	28	28	29	28	29	30	30	30	30	30	30
23	30	29	29	29	28	29	30	30	30	30	30	30
24	29	28	28	29	29	29	30	30	30	30	30	30
25	28	28	28	29	29	29	30	30	30	30	30	30
26	28	28	28	29	29	29	30	30	30	30	30	30
27	28	28	28	29	28	29	30	30	30	30	30	30
28	28	28	28	29	28	28	30	30	30	30	30	30
29	28	28	28	29	28	28	30	30	30	30	30	30
30	29	28	28	29	28	29	30	30	30	30	30	30
31	29	28	29	---	---	---	30	30	30	30	30	30
MONTH	30	27	28	29	28	29	30	26	30	30	28	30
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	30	30	30	30	29	29	30	29	29	29	28	29
2	30	30	30	29	29	29	30	29	29	29	28	29
3	30	30	30	30	29	29	30	29	29	29	28	29
4	30	30	30	30	29	29	30	28	29	29	28	29
5	30	30	30	30	29	29	29	28	28	29	28	29
6	30	30	30	30	29	29	28	28	28	29	28	29
7	30	30	30	29	29	29	28	28	28	29	28	29
8	30	30	30	29	29	29	28	28	28	29	28	29
9	30	30	30	29	29	29	28	28	28	29	28	29
10	30	30	30	29	29	29	28	28	28	29	28	29
11	30	30	30	29	27	29	28	27	28	29	28	28
12	30	30	30	29	28	29	28	27	27	29	28	28
13	30	29	30	29	29	29	28	23	27	29	28	28
14	30	29	30	29	29	29	27	22	25	29	28	28
15	30	30	30	29	29	29	28	27	28	29	28	28
16	30	30	30	29	29	29	28	28	28	28	28	28
17	30	30	30	30	29	29	29	28	29	28	28	28
18	30	30	30	30	29	29	29	28	29	29	28	28
19	30	30	30	30	29	29	29	28	29	29	28	28
20	30	29	30	30	29	29	29	28	29	29	28	28
21	30	29	29	29	29	29	29	29	29	29	28	28
22	30	29	29	30	29	29	29	29	29	29	28	28
23	30	29	29	30	29	29	29	29	29	28	28	28
24	29	29	29	30	29	29	29	29	29	28	28	28
25	30	29	29	29	29	29	29	29	29	28	28	28
26	30	29	29	29	29	29	29	29	29	29	28	28
27	30	29	29	29	29	29	29	29	29	29	28	28
28	30	29	29	29	29	29	29	28	29	29	28	28
29	---	---	---	29	29	29	29	28	29	28	28	28
30	---	---	---	29	29	29	29	29	29	28	28	28
31	---	---	---	29	29	29	---	---	---	28	28	28
MONTH	30	29	30	30	27	29	30	22	28	29	28	28

14138720 BULL RUN RIVER AT LOWER FLUME, NEAR BRIGHTWOOD, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	28	28	28	28	27	28	28	28	28	27	27	27
2	28	28	28	28	27	28	28	28	28	27	27	27
3	28	28	28	28	27	28	28	28	28	27	27	27
4	28	28	28	28	27	28	28	28	28	27	27	27
5	29	28	28	28	27	28	28	27	28	27	27	27
6	29	28	28	28	27	28	28	28	28	27	27	27
7	29	28	28	28	28	28	28	27	28	27	27	27
8	29	28	28	28	27	28	28	28	28	27	27	27
9	29	28	28	28	28	28	28	28	28	27	27	27
10	29	28	28	28	28	28	28	28	28	27	27	27
11	29	28	29	28	28	28	28	28	28	27	27	27
12	29	28	29	28	28	28	28	28	28	27	27	27
13	29	29	29	28	28	28	28	28	28	27	27	27
14	29	29	29	28	28	28	28	28	28	27	27	27
15	29	29	29	28	28	28	28	28	28	27	27	27
16	31	29	29	28	28	28	28	28	28	27	27	27
17	29	28	29	28	28	28	28	28	28	27	27	27
18	29	28	29	28	28	28	28	28	28	27	27	27
19	29	28	28	28	28	28	28	28	28	27	27	27
20	29	28	29	28	28	28	28	28	28	27	27	27
21	29	28	29	28	28	28	28	28	28	27	27	27
22	29	29	29	28	28	28	28	28	28	27	27	27
23	29	28	29	28	28	28	28	28	28	27	27	27
24	29	28	29	28	28	28	28	28	28	27	27	27
25	30	28	29	28	28	28	28	28	28	27	27	27
26	29	28	29	28	28	28	28	27	28	27	27	27
27	29	29	29	28	28	28	27	27	27	27	27	27
28	29	28	29	28	28	28	27	27	27	27	27	27
29	29	28	28	28	28	28	27	27	27	27	27	27
30	29	28	28	28	28	28	27	27	27	27	27	27
31	---	---	---	29	28	28	27	27	27	---	---	---
MONTH	31	28	29	29	27	28	28	27	28	27	27	27
YEAR	31	22	29									

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	6.5	6.4	6.5	6.7	6.6	6.6	6.1	6.0	6.1	6.0	5.9	5.9
2	6.5	6.4	6.4	6.7	6.6	6.6	6.1	6.0	6.1	6.1	5.9	5.9
3	6.6	6.4	6.6	6.6	6.6	6.6	6.1	6.0	6.1	6.1	6.0	6.0
4	6.6	6.5	6.6	6.6	6.5	6.6	6.1	5.8	6.0	6.1	6.0	6.0
5	6.6	6.5	6.5	6.6	6.5	6.6	6.1	5.5	6.1	6.1	6.0	6.0
6	6.6	6.5	6.6	6.6	6.4	6.5	6.1	6.0	6.1	6.1	5.9	6.0
7	6.6	6.5	6.5	6.5	6.4	6.4	6.0	6.0	6.0	5.9	5.7	5.8
8	6.6	6.5	6.5	6.5	6.4	6.4	6.1	6.0	6.0	5.8	5.5	5.6
9	6.6	6.5	6.5	6.5	6.4	6.5	6.1	5.9	6.0	5.7	5.6	5.7
10	6.6	6.5	6.5	6.5	6.4	6.4	6.0	5.9	5.9	5.8	5.7	5.8
11	6.6	6.5	6.6	6.5	6.4	6.4	6.0	5.8	6.0	5.9	5.8	5.9
12	6.6	6.5	6.6	6.5	6.4	6.4	6.0	5.9	6.0	5.9	5.8	5.9
13	6.6	6.5	6.6	6.5	6.4	6.5	6.0	5.1	5.7	6.0	5.8	5.9
14	6.6	6.5	6.6	6.6	6.5	6.5	5.7	5.4	5.6	6.0	5.9	6.0
15	6.6	6.5	6.6	6.5	6.5	6.5	5.8	5.7	5.7	6.0	6.0	6.0
16	6.6	6.5	6.6	6.5	6.4	6.5	5.8	5.4	5.6	6.1	6.0	6.0
17	6.6	6.5	6.6	6.5	6.3	6.4	5.7	5.5	5.6	6.2	6.0	6.2
18	6.6	6.5	6.6	6.4	6.3	6.3	5.7	5.6	5.7	6.2	6.1	6.2
19	6.6	6.5	6.6	6.4	6.3	6.3	5.8	5.7	5.8	6.2	6.1	6.2
20	6.6	6.5	6.6	6.4	6.3	6.3	5.9	5.7	5.8	6.2	6.1	6.2
21	6.6	6.5	6.6	6.4	6.3	6.3	5.8	5.7	5.8	6.2	6.1	6.1
22	6.7	6.5	6.6	6.4	6.3	6.3	5.9	5.8	5.8	6.2	6.1	6.2
23	6.7	6.6	6.7	6.4	6.3	6.3	5.9	5.8	5.9	6.2	6.1	6.2
24	6.7	6.6	6.6	6.3	6.3	6.3	5.9	5.8	5.9	6.2	6.1	6.2
25	6.6	6.6	6.6	6.3	6.2	6.3	5.9	5.9	5.9	6.2	6.0	6.1
26	6.6	6.6	6.6	6.3	6.2	6.3	5.9	5.9	5.9	6.2	6.0	6.1
27	6.6	6.5	6.6	6.3	6.2	6.3	5.9	5.8	5.9	6.2	6.1	6.2
28	6.6	6.5	6.6	6.3	6.0	6.2	6.0	5.9	5.9	6.2	6.1	6.2
29	6.6	6.5	6.6	6.2	6.0	6.1	5.9	5.9	5.9	6.2	6.1	6.2
30	6.7	6.5	6.6	6.2	6.1	6.1	6.0	5.9	5.9	6.3	6.0	6.2
31	6.7	6.6	6.7	---	---	---	6.0	5.9	5.9	6.4	6.2	6.3
MONTH	6.7	6.4	6.6	6.7	6.0	6.4	6.1	5.1	5.9	6.4	5.5	6.0



14138800 BLAZED ALDER CREEK NEAR RHODODENDRON, OR

LOCATION.--Lat 45°27'10", long 121°53'23", in NW 1/4 SE 1/4 sec.25, T.1 S., R.7 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank 600 ft downstream from the confluence of Bedrock and Hickman Creeks and 8.6 mi north of Rhododendron, and at mile 3.78.

DRAINAGE AREA.--8.17 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1963 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,540 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--39 years (water years 1964-2002), 58.2 ft<sup>3</sup>/s, 96.73 in/yr, 42,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,610 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 8.25 ft, from rating curve extended above 330 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum discharge, 1.1 ft<sup>3</sup>/s Sept. 24, 25, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	2000	581	3.95	Apr. 14	0200	*1,100	*5.20
Dec. 13	1930	563	3.90				

Minimum discharge, 1.4 ft<sup>3</sup>/s Oct. 2-5, Sept. 13-15, 27-29.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.6	170	150	28	21	34	47	71	104	37	e4.8	2.1
2	1.6	156	135	39	19	29	50	76	92	e32	e4.6	1.9
3	1.4	87	79	41	19	26	52	78	83	e28	e4.4	1.9
4	1.4	54	54	42	20	24	60	67	82	e25	e4.4	1.9
5	1.5	50	43	41	18	26	83	76	98	e23	e4.6	1.9
6	1.6	37	173	132	20	56	113	80	86	e21	e4.2	1.8
7	1.6	29	178	283	39	51	157	63	66	e19	e3.8	1.8
8	3.0	24	97	374	38	40	133	52	55	e20	e3.6	1.8
9	2.7	19	70	193	32	33	129	46	48	e18	e3.4	1.8
10	9.3	17	53	110	28	37	284	40	49	e16	e3.4	1.7
11	21	15	44	75	28	201	264	41	54	e15	e3.4	1.6
12	7.9	15	51	131	25	265	278	54	63	e14	e3.2	1.6
13	12	103	355	120	23	122	314	84	72	e13	e3.2	1.6
14	13	234	309	77	20	75	655	104	72	e12	e3.2	1.5
15	9.8	115	140	54	19	55	204	93	62	e11	e3.2	1.5
16	7.6	97	343	43	18	46	121	81	54	e10	e3.2	2.0
17	7.3	82	257	36	17	38	85	90	54	e9.5	e3.0	6.5
18	5.9	56	138	32	19	33	65	93	106	e9.0	e3.0	2.8
19	5.2	49	93	34	33	71	54	98	71	e8.5	e3.0	2.1
20	4.8	53	63	74	38	69	48	99	57	e8.0	e3.0	1.9
21	5.8	70	47	75	77	53	45	95	50	e7.5	e2.8	1.8
22	94	293	39	45	132	43	43	127	46	e7.0	e2.8	1.7
23	178	255	32	36	280	38	44	110	41	e6.5	e2.8	1.6
24	87	114	28	53	245	39	43	94	37	e6.0	e2.6	1.6
25	46	70	24	155	115	41	45	97	33	e6.0	e2.6	1.6
26	32	50	22	79	69	40	49	111	32	e6.5	e2.6	1.6
27	24	39	20	48	51	48	54	120	30	e6.0	2.5	1.6
28	20	131	26	36	41	48	52	145	31	e5.5	2.3	1.4
29	18	187	23	29	---	48	55	220	76	e5.5	2.1	3.7
30	94	117	20	25	---	45	67	157	47	e5.0	2.1	13
31	258	---	21	23	---	45	---	124	---	e5.0	2.1	---
TOTAL	977.0	2788	3127	2563	1504	1819	3693	2886	1851	415.5	99.9	71.3
MEAN	31.52	92.93	100.9	82.68	53.71	58.68	123.1	93.10	61.70	13.40	3.223	2.377
MAX	258	293	355	374	280	265	655	220	106	37	4.8	13
MIN	1.4	15	20	23	17	24	43	40	30	5.0	2.1	1.4
AC-FT	1940	5530	6200	5080	2980	3610	7330	5720	3670	824	198	141
CFSM	3.86	11.4	12.3	10.1	6.57	7.18	15.1	11.4	7.55	1.64	0.39	0.29
IN.	4.45	12.69	14.24	11.67	6.85	8.28	16.82	13.14	8.43	1.89	0.45	0.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY)

	30.96	90.36	106.7	101.2	83.50	68.28	79.78	73.31	39.22	11.04	5.372	10.08
MEAN	30.96	90.36	106.7	101.2	83.50	68.28	79.78	73.31	39.22	11.04	5.372	10.08
MAX	82.5	218	288	207	221	167	150	165	115	35.4	27.6	35.5
(WY)	1968	1996	1965	1974	1996	1972	1990	1969	1964	1983	1968	1977
MIN	1.57	12.5	22.6	19.2	17.5	17.7	33.1	18.1	4.74	3.95	2.32	1.67
(WY)	1988	1994	1977	1985	1969	1992	1983	1992	1992	1992	2000	1991

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1964 - 2002

ANNUAL TOTAL	16443.1	21794.7	
ANNUAL MEAN	45.05	59.71	58.16
HIGHEST ANNUAL MEAN			88.1
LOWEST ANNUAL MEAN			33.5
HIGHEST DAILY MEAN	355	Dec 13	655
LOWEST DAILY MEAN	1.1	Sep 24	1.4
ANNUAL SEVEN-DAY MINIMUM	1.4	Sep 18	1.5
ANNUAL RUNOFF (AC-FT)	32610		43230
ANNUAL RUNOFF (CFSM)	5.51		7.31
ANNUAL RUNOFF (INCHES)	74.87		99.24
10 PERCENT EXCEEDS	115		134
50 PERCENT EXCEEDS	23		40
90 PERCENT EXCEEDS	2.7		2.2
			7.12
			96.73
			132
			31
			3.4

e Estimated

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OR

LOCATION.--Lat 45°29'54", long 122°00'40", near center of sec.12, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank 1.2 mi upstream from North Fork, 7.0 mi southeast of Multnomah Falls, and at mile 14.8.

DRAINAGE AREA.--47.9 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1966 to current year.

REVISED RECORDS.--WDR OR-91-1: 1990.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,080 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Regulation at times since 1915 by Bull Run Lake, usable capacity, 12,270 acre-ft. No diversion upstream from station.

AVERAGE DISCHARGE.--36 years (water years 1967-2002), 410 ft<sup>3</sup>/s, 116.22 in/yr, 296,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,800 ft<sup>3</sup>/s Nov. 25, 1999, gage height, 14.46 ft; minimum discharge, 30 ft<sup>3</sup>/s Oct. 28-31, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	2130	3,850	8.90	Mar. 11	2130	4,240	9.28
Dec. 13	2130	5,050	9.75	Apr. 14	0230	*6,630	*10.70

Minimum discharge, 33 ft<sup>3</sup>/s Oct. 4-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	36	1040	1220	235	165	239	332	396	530	355	71	49
2	36	1130	1120	324	155	211	335	405	462	301	69	48
3	35	631	694	325	176	189	343	407	427	267	68	49
4	34	420	501	328	186	179	388	371	411	237	69	48
5	34	405	398	295	174	201	471	402	477	211	72	47
6	34	312	1030	753	190	424	614	429	448	193	70	47
7	35	252	1110	1690	367	363	860	367	376	182	67	47
8	45	214	672	2240	403	284	710	325	333	189	65	47
9	44	183	593	1040	333	243	703	304	303	169	63	46
10	99	159	462	607	262	264	1490	277	299	156	62	46
11	224	140	428	446	250	1600	1420	279	304	148	61	45
12	94	146	452	731	215	1800	1670	328	334	140	61	45
13	153	671	2920	660	192	757	1750	423	372	133	59	44
14	192	1550	2430	456	171	502	4020	483	375	125	58	44
15	141	755	954	350	163	382	1360	447	344	119	57	44
16	102	698	2620	288	160	320	893	414	314	113	56	48
17	96	585	1820	246	159	265	651	439	315	108	55	77
18	79	434	905	229	197	234	496	442	591	103	55	54
19	72	404	667	261	374	457	427	446	424	100	55	48
20	67	418	489	502	390	494	384	450	347	97	55	47
21	75	494	389	603	710	388	361	450	311	93	55	45
22	571	1820	321	349	958	314	337	603	292	89	55	44
23	1000	1640	270	274	1920	271	332	527	270	87	53	44
24	560	740	235	387	1470	348	319	467	250	84	53	43
25	345	505	202	1240	643	360	324	458	232	82	53	43
26	259	414	176	566	423	337	335	486	222	81	53	42
27	215	339	159	357	331	370	362	514	213	80	53	42
28	190	957	217	269	277	372	347	727	237	78	51	42
29	170	1480	189	222	---	363	358	1300	794	76	50	49
30	611	881	167	196	---	333	393	913	452	74	50	142
31	1640	---	173	181	---	331	---	665	---	73	49	---
TOTAL	7288	19817	23983	16650	11414	13195	22785	14944	11059	4343	1823	1506
MEAN	235	661	774	537	408	426	760	482	369	140	58.8	50.2
MAX	1640	1820	2920	2240	1920	1800	4020	1300	794	355	72	142
MIN	34	140	159	181	155	179	319	277	213	73	49	42
AC-FT	14460	39310	47570	33030	22640	26170	45190	29640	21940	8610	3620	2990
CFSM	4.91	13.8	16.2	11.2	8.51	8.89	15.9	10.1	7.70	2.92	1.23	1.05
IN.	5.66	15.39	18.63	12.93	8.86	10.25	17.70	11.61	8.59	3.37	1.42	1.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2002, BY WATER YEAR (WY)

	244	618	722	679	608	502	517	441	285	116	81.1	117
MEAN	244	618	722	679	608	502	517	441	285	116	81.1	117
MAX	535	1325	1434	1238	1216	1120	834	885	699	292	231	294
(WY)	1968	1996	1978	1975	1996	1972	1993	1969	1974	1983	1968	1977
MIN	36.5	72.4	193	177	167	148	242	150	54.8	54.0	43.7	39.9
(WY)	1988	1994	1977	1985	1993	1992	1967	1992	1992	1977	1967	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1967 - 2002

ANNUAL TOTAL	117219	148807	
ANNUAL MEAN	321	408	410
HIGHEST ANNUAL MEAN			643
LOWEST ANNUAL MEAN			249
HIGHEST DAILY MEAN	2920	4020	11900
LOWEST DAILY MEAN	34	34	30
ANNUAL SEVEN-DAY MINIMUM	35	35	31
ANNUAL RUNOFF (AC-FT)	232500	295200	296800
ANNUAL RUNOFF (CFSM)	6.70	8.51	8.55
ANNUAL RUNOFF (INCHES)	91.03	115.57	116.22
10 PERCENT EXCEEDS	732	898	864
50 PERCENT EXCEEDS	209	311	261
90 PERCENT EXCEEDS	44	49	59

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1977 to current year.  
 pH: August 1990 to September 1992.  
 WATER TEMPERATURE: October 1977 to current year.  
 TURBIDITY: August 1990 to July 1994.  
 SUSPENDED SEDIMENT DISCHARGE: October 1977 to September 1986.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Records excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 44 microsiemens Sept. 17, 1988; minimum recorded, 9 microsiemens Jan. 23, 1982, Feb. 23, 1986, Dec. 4, 1989, Apr. 14, 2002.  
 pH: Maximum recorded, 8.1 units Aug. 30, Sept. 1, 1990; minimum recorded, 5.7 units Jan. 18, 1991.  
 WATER TEMPERATURE: Maximum, 18.0°C June 22-25, 1992, July 23, 1994; minimum, 0.0°C on many days during winter periods.  
 TURBIDITY: Maximum recorded, 44 NTU Jan. 15, 1991; minimum recorded, 0.08 NTU Aug. 30, 31, 1992.  
 SEDIMENT CONCENTRATION: Maximum daily, 290 mg/L Dec. 2, 1977; minimum, 0 mg/L on many days.  
 SEDIMENT DISCHARGE: Maximum daily, 5,930 tons Dec. 2, 1977; minimum, 0 tons on many days.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 32 microsiemens Sept. 10, 15; minimum recorded, 9 microsiemens Apr. 14.  
 WATER TEMPERATURE: Maximum, 16.5°C July 24; minimum, 1.1°C Jan. 29.

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	29	28	28	18	17	17	17	15	16	21	18	20
2	29	28	28	18	17	17	17	15	16	18	18	18
3	29	28	28	19	18	18	18	17	17	19	18	19
4	29	28	28	19	18	19	18	18	18	18	18	18
5	28	28	28	19	18	19	19	18	18	19	18	19
6	29	28	28	19	19	19	19	16	18	18	16	17
7	28	28	28	20	19	20	17	16	17	16	15	16
8	28	28	28	20	20	20	18	17	17	16	15	15
9	28	28	28	24	20	22	18	17	18	17	16	16
10	28	24	27	25	21	23	19	18	18	18	17	17
11	25	24	24	25	21	22	19	18	19	18	17	18
12	25	24	25	25	21	22	19	17	19	19	17	18
13	25	23	24	26	16	23	17	14	15	19	17	18
14	24	21	23	17	16	17	17	14	16	19	17	18
15	23	22	23	18	17	18	17	16	17	19	18	18
16	24	23	24	20	17	18	17	15	16	21	18	20
17	24	23	24	24	18	21	17	15	16	21	20	20
18	24	23	24	22	19	20	17	17	17	24	20	22
19	25	24	24	24	18	20	18	17	18	23	20	21
20	25	24	25	24	18	21	19	18	18	24	16	20
21	25	24	25	24	19	20	19	18	19	22	19	21
22	25	19	21	23	15	19	19	19	19	20	18	19
23	20	18	19	20	15	17	20	19	20	20	18	19
24	20	18	19	21	17	18	20	20	20	20	17	18
25	20	19	19	23	18	19	20	20	20	17	15	16
26	20	19	20	23	18	19	21	20	21	18	16	17
27	21	20	20	24	18	19	21	20	21	18	18	18
28	20	20	20	19	16	17	21	20	20	19	18	18
29	21	20	21	16	15	16	20	20	20	19	19	19
30	21	18	20	17	16	17	21	20	20	19	19	19
31	18	17	17	---	---	---	21	20	20	19	19	19
MONTH	29	17	24	26	15	19	21	14	18	24	15	18
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	20	19	19	20	20	20	20	19	19	19	19	19
2	20	19	20	21	20	20	20	19	19	19	19	19
3	20	19	19	21	20	21	20	19	19	19	18	19
4	20	19	19	21	20	21	20	19	19	19	19	19
5	20	19	20	21	20	21	19	18	19	19	18	19
6	20	19	20	20	18	19	24	18	19	19	18	18
7	19	18	18	19	18	19	18	17	18	19	19	19
8	18	17	18	20	19	19	18	18	18	20	19	19
9	18	18	18	20	19	20	18	17	18	20	19	19
10	19	18	18	20	19	20	18	16	17	20	19	20
11	19	18	19	19	15	17	17	16	17	20	20	20
12	21	19	20	17	15	16	17	16	16	20	19	20
13	23	20	21	18	17	17	17	15	17	19	18	19
14	22	20	21	19	18	18	16	9	14	19	18	18
15	26	20	24	19	19	19	17	16	17	19	18	18
16	27	20	23	20	19	19	18	17	18	19	18	19
17	24	20	21	20	19	20	18	18	18	19	18	18
18	20	19	20	20	20	20	19	18	19	18	18	18
19	19	17	18	20	18	19	19	19	19	19	18	18
20	21	18	18	19	18	18	20	19	19	19	18	18
21	21	17	19	19	18	19	20	19	19	19	18	18
22	19	16	17	19	19	19	20	19	20	18	17	18
23	17	15	16	20	19	19	20	19	20	18	18	18
24	17	15	16	20	19	19	20	19	20	19	18	18
25	17	16	17	19	19	19	20	19	20	19	18	18
26	19	17	19	19	19	19	20	19	19	18	18	18
27	19	19	19	19	19	19	19	19	19	18	18	18
28	20	19	20	19	19	19	20	19	19	18	17	17
29	---	---	---	19	19	19	19	19	19	17	16	16
30	---	---	---	20	19	19	19	19	19	17	16	17
31	---	---	---	19	19	19	---	---	---	18	17	18
MONTH	27	15	19	21	15	19	24	9	18	20	16	18

## SANDY RIVER BASIN

14138850 BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	18	18	18	20	19	20	29	26	27	30	29	29
2	19	18	18	21	20	20	27	26	26	30	29	29
3	19	18	19	22	20	21	28	26	27	29	28	29
4	19	18	19	22	21	21	27	26	26	30	28	29
5	19	18	18	22	21	21	27	26	26	30	29	29
6	19	18	18	22	22	22	27	26	26	30	29	29
7	19	19	19	23	22	22	28	26	27	30	28	29
8	19	19	19	22	21	22	28	26	27	30	28	29
9	20	19	20	23	22	22	29	27	28	30	29	29
10	20	19	20	23	22	23	29	28	29	32	29	30
11	20	19	20	24	23	23	29	28	28	31	29	30
12	20	19	19	24	23	23	29	28	29	31	29	30
13	19	18	19	24	23	24	30	28	29	30	29	30
14	19	18	18	24	23	23	30	29	29	31	29	30
15	19	18	19	24	23	24	29	29	29	32	29	30
16	20	19	19	25	24	24	29	28	29	30	29	29
17	20	19	20	25	24	25	29	28	29	31	28	29
18	19	17	18	25	24	25	29	28	28	30	28	29
19	19	18	18	25	24	25	29	27	28	30	29	30
20	19	19	19	26	24	25	28	27	28	29	26	27
21	20	19	19	26	25	25	28	27	28	29	26	27
22	20	19	20	26	25	26	29	27	28	29	26	27
23	20	20	20	27	25	26	29	27	28	29	26	27
24	21	20	20	26	25	26	29	28	29	29	26	27
25	21	20	21	26	26	26	29	28	29	30	26	27
26	21	20	21	26	25	26	29	28	29	30	26	27
27	21	20	21	26	25	26	29	28	29	29	26	27
28	21	20	21	27	26	26	30	29	29	29	26	27
29	20	17	18	27	26	26	30	28	29	29	26	27
30	19	18	19	27	26	26	29	28	29	26	24	25
31	---	---	---	29	26	27	29	28	29	---	---	---
MONTH	21	17	19	29	19	24	30	26	28	32	24	28
YEAR	32	9	21									

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.3	9.9	10.1	8.4	7.9	8.1	5.6	5.0	5.4	3.5	3.2	3.3
2	10.3	9.9	10.0	8.8	8.0	8.6	5.3	4.7	5.1	4.1	3.5	3.8
3	9.9	9.1	9.4	8.4	7.5	8.0	5.0	4.5	4.7	4.1	3.6	3.8
4	9.7	8.9	9.3	8.1	7.3	7.8	4.5	1.9	3.3	4.1	3.5	3.8
5	9.7	9.3	9.4	8.0	6.8	7.7	3.4	1.5	2.6	4.4	3.8	4.1
6	9.7	9.3	9.4	6.8	5.7	6.2	4.2	3.3	3.6	4.7	4.2	4.4
7	9.3	8.7	8.8	5.7	4.8	5.1	4.7	4.2	4.5	5.1	4.6	4.7
8	9.1	8.7	8.8	5.7	4.9	5.3	4.8	4.3	4.6	5.1	4.6	4.8
9	8.9	8.5	8.8	6.3	5.1	5.5	4.5	4.2	4.4	4.7	4.1	4.4
10	8.5	7.8	8.0	7.0	6.1	6.5	4.2	3.3	3.6	4.9	4.1	4.4
11	8.7	8.3	8.6	7.0	6.4	6.7	3.9	3.6	3.7	4.9	4.2	4.5
12	8.3	7.8	7.9	7.9	7.0	7.3	4.3	3.9	4.1	4.7	3.9	4.4
13	9.2	8.1	8.8	8.4	7.7	8.0	4.8	4.3	4.5	3.9	3.6	3.8
14	9.8	9.0	9.4	9.0	8.4	8.8	4.3	3.3	3.8	3.9	3.3	3.7
15	9.4	8.6	9.0	8.6	8.2	8.5	4.0	3.4	3.8	3.8	3.2	3.5
16	9.2	8.6	8.8	8.2	7.9	8.2	4.8	4.0	4.5	3.2	2.0	2.7
17	8.8	8.0	8.4	7.9	6.4	7.1	4.8	4.2	4.4	2.7	2.3	2.5
18	8.0	6.8	7.1	6.5	6.3	6.4	4.3	4.0	4.2	2.7	2.4	2.6
19	7.9	6.6	7.1	7.0	6.3	6.6	4.5	4.0	4.4	2.7	2.1	2.4
20	7.9	7.3	7.7	7.2	6.9	7.1	4.3	4.2	4.3	2.7	1.6	2.3
21	7.3	6.8	7.0	7.2	6.7	7.0	4.3	3.9	4.2	3.0	1.7	2.6
22	9.0	7.1	8.2	7.2	6.7	7.0	3.9	3.4	3.6	2.1	1.6	1.9
23	8.4	7.3	7.7	6.9	6.2	6.5	3.5	3.0	3.2	2.4	1.9	2.2
24	7.3	6.6	7.0	6.2	5.3	5.8	3.2	2.7	3.0	2.9	2.1	2.6
25	8.1	7.1	7.5	5.3	4.5	4.9	2.9	2.4	2.7	3.0	2.3	2.6
26	8.2	7.3	7.7	5.1	4.7	4.9	2.6	2.1	2.3	2.9	2.1	2.5
27	8.1	7.1	7.8	5.0	4.3	4.6	2.4	2.1	2.3	2.6	1.8	2.3
28	7.1	5.6	6.2	5.3	3.4	4.3	3.2	2.1	2.6	2.6	2.0	2.3
29	7.3	6.1	6.7	5.5	4.7	5.1	2.9	2.3	2.6	2.0	1.1	1.5
30	8.6	7.3	8.0	5.1	4.5	4.8	3.2	2.7	2.9	1.8	1.5	1.6
31	8.6	8.1	8.2	---	---	---	3.6	3.2	3.4	2.3	1.4	1.8
MONTH	10.3	5.6	8.3	9.0	3.4	6.6	5.6	1.5	3.8	5.1	1.1	3.2







14138870 FIR CREEK NEAR BRIGHTWOOD, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1977 to current year.  
 pH: August 1990 to September 1992.  
 WATER TEMPERATURE: October 1977 to current year.  
 TURBIDITY: August 1990 to September 1994.  
 SUSPENDED SEDIMENT DISCHARGE: October 1977 to September 1986.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Specific conductance record excellent. Water temperature record good. Turbidity data prior to October 1990 are available in the files of the Portland field office.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 49 microsiemens May 6, 1988, Aug. 13, 1990; minimum, 7 microsiemens Nov. 30, 1994.  
 pH: Maximum recorded, 7.7 units Sept. 13, 1990, but may have been higher during periods of missing record; minimum recorded, 6.0 units Sept. 5, 6, 8, 1991, but may have been lower during periods of missing record.  
 WATER TEMPERATURE: Maximum recorded, 16.0°C Sept. 1, 1987, June 23, 24, July 18, 19, 1992; minimum recorded, 0.0°C on several days during winter periods most years.  
 TURBIDITY: Maximum recorded, 11 NTU Nov. 25, 1991; minimum recorded, 0.04 NTU Feb. 15, 16, 1993.  
 SEDIMENT CONCENTRATION: Maximum, 200 mg/L Jan. 23, Feb. 20, 1982; minimum, 0 mg/L on many days.  
 SEDIMENT DISCHARGE: Maximum, 345 tons Dec. 2, 1977; minimum, 0 tons on many days.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 29 microsiemens Aug. 28 29, Sept. 12, 14, 19, 20; minimum, 14 microsiemens Apr. 14.  
 WATER TEMPERATURE: Maximum, 13.9°C July 23, 24; minimum, 2.4°C Jan. 31.

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	27	26	27	18	18	18	18	17	18	22	19	20
2	27	26	26	19	18	18	19	18	19	19	19	19
3	26	26	26	19	19	19	20	19	19	20	19	19
4	26	26	26	20	19	20	20	20	20	20	19	20
5	26	26	26	20	19	20	21	20	20	20	20	20
6	26	26	26	20	20	20	21	18	19	20	17	18
7	26	25	26	20	20	20	19	18	19	17	16	17
8	26	25	26	21	20	20	20	19	20	17	16	16
9	26	25	25	21	21	21	20	19	20	18	17	18
10	26	24	25	21	21	21	21	20	20	19	18	19
11	26	25	25	22	21	22	21	20	20	20	19	20
12	25	24	24	22	21	22	21	19	20	20	18	19
13	24	23	23	22	17	20	19	15	17	19	18	19
14	24	22	23	19	17	18	18	15	17	20	19	19
15	23	22	22	19	18	19	19	18	19	20	20	20
16	23	22	22	19	18	19	19	17	17	21	20	20
17	22	22	22	19	18	19	19	17	18	21	21	21
18	23	22	22	20	19	19	19	19	19	21	21	21
19	23	22	23	20	19	20	20	19	20	21	20	21
20	23	22	23	20	19	20	21	20	20	21	18	20
21	23	22	22	19	19	19	21	21	21	20	19	19
22	22	20	21	19	15	17	22	21	21	20	20	20
23	20	19	19	18	16	17	22	21	21	21	20	21
24	19	19	19	19	18	18	22	22	22	21	19	20
25	20	19	20	19	19	19	22	22	22	19	17	18
26	21	20	20	20	19	20	22	22	22	19	18	19
27	21	20	20	20	20	20	22	22	22	20	19	20
28	21	20	21	20	16	18	22	21	21	21	20	20
29	22	21	21	17	16	17	22	21	21	21	20	21
30	22	19	21	18	17	18	22	21	22	21	21	21
31	19	17	18	---	---	---	22	21	22	21	21	21
MONTH	27	17	23	22	15	19	22	15	20	22	16	20
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	21	21	21	21	20	21	20	20	20	20	20	20
2	22	21	21	21	21	21	20	20	20	20	19	20
3	21	21	21	21	21	21	20	20	20	20	19	19
4	21	21	21	22	21	21	20	19	20	20	19	20
5	21	21	21	22	21	21	19	19	19	20	19	20
6	21	20	21	21	19	20	19	18	19	20	19	19
7	20	19	20	20	19	19	18	17	18	20	19	20
8	20	19	19	20	20	20	18	18	18	20	20	20
9	20	20	20	21	20	20	19	18	18	21	20	20
10	20	20	20	21	20	20	18	16	17	21	20	20
11	21	20	20	20	15	18	17	16	17	21	20	21
12	21	20	21	18	16	17	17	16	16	20	19	20
13	21	21	21	19	18	18	17	15	17	20	19	19
14	21	21	21	19	19	19	17	14	15	19	19	19
15	21	21	21	20	19	19	18	17	18	19	19	19
16	21	21	21	20	20	20	19	18	19	19	19	19
17	21	21	21	21	20	20	20	19	19	19	18	19
18	21	21	21	21	20	21	20	20	20	19	18	19
19	21	19	20	20	19	19	21	20	20	19	18	19
20	20	19	20	19	19	19	21	20	20	19	18	18
21	20	18	19	20	19	19	21	20	21	19	18	18
22	18	18	18	20	20	20	21	21	21	18	17	18
23	18	16	17	20	20	20	21	20	21	18	18	18
24	18	16	17	20	20	20	21	20	21	19	18	18
25	19	18	18	20	19	20	21	20	21	19	18	18
26	20	19	19	20	20	20	21	20	21	19	18	18
27	20	19	20	20	20	20	21	20	20	18	18	18
28	21	20	20	20	20	20	21	20	20	18	17	17
29	---	---	---	20	19	20	20	20	20	17	16	16
30	---	---	---	20	20	20	20	20	20	17	16	17
31	---	---	---	20	20	20	---	---	---	18	17	17
MONTH	22	16	20	22	15	20	21	14	19	21	16	19

## SANDY RIVER BASIN

14138870 FIR CREEK NEAR BRIGHTWOOD, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	18	18	18	20	19	20	26	25	26	28	27	28
2	19	18	18	21	20	20	26	25	26	28	28	28
3	19	18	19	21	20	21	26	25	26	28	27	28
4	19	19	19	21	20	21	26	25	26	28	27	27
5	20	18	19	22	21	21	26	25	26	28	27	27
6	19	18	18	22	22	22	26	25	26	28	27	27
7	19	18	19	23	22	22	26	26	26	28	27	27
8	20	19	19	23	21	22	27	26	26	28	27	27
9	21	19	20	23	22	22	27	26	27	28	27	28
10	21	20	20	24	23	23	28	26	27	28	28	28
11	21	20	20	24	23	23	27	26	27	28	28	28
12	21	20	20	25	23	24	27	27	27	29	28	28
13	20	19	19	24	23	24	28	27	27	28	28	28
14	20	19	19	24	23	23	28	27	28	29	28	28
15	20	19	19	24	23	24	28	27	27	28	27	28
16	20	19	19	25	24	24	28	27	27	28	28	28
17	20	19	20	25	24	24	28	27	27	28	27	28
18	19	18	18	25	24	24	27	27	27	28	28	28
19	19	18	19	25	24	24	28	27	27	29	28	28
20	20	19	19	25	24	25	28	27	27	29	28	28
21	21	19	20	25	25	25	27	27	27	28	27	28
22	20	19	20	26	25	25	28	27	27	28	28	28
23	21	19	20	26	25	26	28	27	28	28	28	28
24	21	20	20	26	25	26	28	27	28	28	28	28
25	21	20	21	26	25	25	28	27	28	28	28	28
26	21	20	21	26	25	25	28	27	28	28	27	28
27	21	21	21	26	25	25	28	28	28	28	27	28
28	21	20	21	26	25	25	29	28	28	28	27	28
29	20	17	18	26	26	26	29	28	28	28	27	28
30	20	19	19	26	25	26	28	27	27	28	27	27
31	---	---	---	26	25	26	28	27	28	---	---	---
MONTH	21	17	19	26	19	24	29	25	27	29	27	28
YEAR	29	14	21									

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	10.5	9.7	10.2	8.0	7.8	7.9	5.8	5.0	5.7	4.1	3.8	4.0
2	10.3	9.7	10.1	8.4	8.0	8.2	5.8	5.2	5.7	4.6	4.0	4.3
3	9.9	9.1	9.5	8.0	7.8	7.9	5.5	5.0	5.4	4.6	4.3	4.4
4	9.9	9.5	9.6	7.8	7.5	7.7	5.0	3.6	4.5	4.6	4.1	4.4
5	9.7	9.3	9.6	7.8	6.8	7.5	4.4	2.9	4.0	4.9	4.4	4.7
6	9.9	9.3	9.6	6.8	6.1	6.5	4.7	4.1	4.4	4.8	4.6	4.6
7	9.3	8.8	9.1	6.1	5.6	5.8	5.2	4.7	5.1	5.1	4.6	4.7
8	9.1	8.8	9.1	6.3	5.6	6.0	5.3	5.2	5.2	4.9	4.8	4.8
9	8.8	8.2	8.6	6.5	5.9	6.2	5.2	4.7	5.1	4.9	4.4	4.7
10	8.4	7.8	8.0	7.0	6.5	6.8	4.7	4.2	4.6	5.1	4.6	4.9
11	8.6	8.0	8.4	7.4	6.8	7.1	4.9	4.4	4.6	5.2	4.8	5.0
12	8.2	7.8	8.0	7.7	7.2	7.5	5.2	4.9	5.0	5.2	4.1	4.7
13	8.6	8.2	8.4	8.1	7.6	7.7	4.9	4.4	4.6	4.3	4.0	4.2
14	9.1	8.6	8.8	8.5	8.1	8.3	4.7	4.1	4.4	4.3	3.8	4.1
15	8.8	8.4	8.6	8.3	7.9	8.1	4.9	4.4	4.6	4.1	3.8	4.0
16	9.0	8.4	8.6	7.9	7.6	7.8	5.2	4.5	4.8	3.8	2.8	3.4
17	8.4	7.5	8.0	7.6	6.5	7.0	5.2	4.7	4.9	3.5	3.2	3.4
18	7.5	6.8	7.0	6.7	6.3	6.5	5.0	4.7	4.9	3.5	3.2	3.4
19	7.8	6.8	7.3	7.4	6.5	7.0	5.2	4.9	5.1	3.7	3.2	3.4
20	7.8	6.9	7.5	7.4	7.0	7.2	5.0	5.0	5.0	3.7	3.1	3.4
21	7.3	6.6	6.9	7.2	6.9	7.0	5.0	4.5	4.9	4.1	3.1	3.7
22	8.4	7.3	7.8	7.2	6.7	6.9	4.5	4.4	4.5	3.5	2.8	3.3
23	8.0	7.1	7.5	6.9	6.5	6.7	4.4	4.0	4.2	3.7	3.2	3.4
24	7.1	6.6	6.9	6.5	5.8	6.2	4.0	3.7	3.9	4.0	3.4	3.7
25	7.7	7.1	7.4	5.8	5.3	5.5	3.8	3.5	3.7	4.0	3.2	3.7
26	7.8	7.5	7.6	5.7	5.3	5.5	3.7	3.4	3.5	4.0	3.4	3.8
27	7.8	6.9	7.6	5.3	5.0	5.2	3.5	3.4	3.5	3.7	3.1	3.5
28	6.9	5.8	6.2	5.7	3.9	4.8	4.0	3.5	3.7	3.5	3.1	3.4
29	7.1	6.3	6.8	5.7	4.9	5.5	3.7	3.4	3.5	3.1	2.6	2.8
30	8.2	7.1	7.7	5.7	5.0	5.5	3.8	3.5	3.7	3.2	2.9	3.0
31	8.2	7.8	7.9	---	---	---	4.3	3.8	4.0	3.2	2.4	2.9
MONTH	10.5	5.8	8.2	8.5	3.9	6.8	5.8	2.9	4.5	5.2	2.4	3.9



## SANDY RIVER BASIN

14138900 NORTH FORK BULL RUN RIVER NEAR MULTNOMAH FALLS, OR

LOCATION.--Lat 45°29'40", long 122°02'05", near line between SE 1/4 and SW 1/4 sec.11, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, Mount Hood National Forest, on left bank 7.0 mi southeast of Multnomah Falls and at mouth.

DRAINAGE AREA.--8.32 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1965 to current year.

REVISED RECORDS.--WDR OR-91-1: 1976.

GAGE.--Water-stage recorder. Elevation of gage is 1,060 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1978, and from June 13, 1989 to July 1990 (during bridge construction), at site 700 ft upstream at datum 18.7 ft higher. From Oct. 1, 1978 to June 13, 1989, and July 1990 to present, site located 5 ft upstream from bridge, on left bank wing wall.

REMARKS.--No estimated daily discharges. Records fair. Regulation at times since 1958 by North Fork Reservoir, capacity, about 1,030 acre-ft. No diversion upstream from station.

AVERAGE DISCHARGE.--37 years (water years 1966-2002), 73.7 ft<sup>3</sup>/s, 120.27 in/yr, 53,360 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,700 ft<sup>3</sup>/s, probably affected by surge from release of water temporarily impounded by landslide upstream from station, Jan. 20, 1972, gage height, 9.89 ft, from floodmark, from rating curve extended above 850 ft<sup>3</sup>/s on basis of estimate of peak flow from slope-area survey; minimum discharge, 8.6 ft<sup>3</sup>/s Oct. 19-29, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 13	2100	757	5.07	Apr. 14	0330	*977	*5.51

Minimum discharge, 10 ft<sup>3</sup>/s Oct. 2-6, Sept. 12-15, 22-29.DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11	187	258	91	71	54	62	66	102	63	15	12
2	11	239	242	112	68	47	62	68	88	53	15	11
3	11	129	166	99	74	44	63	66	78	46	15	12
4	11	92	123	94	74	42	70	62	74	43	15	11
5	11	94	101	90	70	45	79	76	86	39	15	11
6	11	73	233	191	74	112	99	75	78	36	15	11
7	11	62	230	306	108	82	153	63	68	34	15	11
8	16	55	153	387	116	61	123	60	63	37	15	11
9	15	50	138	225	100	52	143	56	58	31	14	11
10	31	46	110	147	85	57	312	52	58	28	14	11
11	50	43	110	116	81	248	289	57	54	26	14	11
12	26	46	118	177	73	312	308	68	56	25	14	11
13	38	137	521	145	68	175	361	72	62	24	13	11
14	42	212	422	113	63	117	616	77	64	23	13	11
15	32	136	234	95	62	87	264	72	60	22	13	11
16	26	135	544	84	61	71	189	71	55	22	13	12
17	26	112	358	75	62	60	134	78	70	21	13	16
18	22	88	213	75	70	53	104	75	144	20	13	12
19	20	98	159	93	106	150	89	74	90	20	13	11
20	19	99	122	148	103	141	80	75	70	19	13	11
21	22	107	102	167	180	93	70	76	61	19	13	11
22	94	333	88	103	224	70	65	97	55	18	13	11
23	155	318	77	88	383	62	61	84	50	18	13	10
24	92	170	70	129	300	85	60	78	46	17	13	10
25	63	117	65	290	157	85	60	77	42	17	12	10
26	51	97	60	169	101	73	61	79	39	17	13	10
27	46	83	58	114	77	74	70	85	38	17	13	10
28	44	218	87	92	63	71	65	141	51	17	12	10
29	44	338	71	79	---	67	67	249	188	16	12	13
30	162	206	64	72	---	63	68	174	83	16	12	25
31	284	---	67	71	---	62	---	129	---	16	12	---
TOTAL	1497	4120	5364	4237	3074	2815	4247	2632	2131	820	418	349
MEAN	48.29	137.3	173.0	136.7	109.8	90.81	141.6	84.90	71.03	26.45	13.48	11.63
MAX	284	338	544	387	383	312	616	249	188	63	15	25
MIN	11	43	58	71	61	42	60	52	38	16	12	10
AC-FT	2970	8170	10640	8400	6100	5580	8420	5220	4230	1630	829	692
CFSM	5.80	16.5	20.8	16.4	13.2	10.9	17.0	10.2	8.54	3.18	1.62	1.40
IN.	6.69	18.42	23.98	18.94	13.74	12.59	18.99	11.77	9.53	3.67	1.87	1.56

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2002, BY WATER YEAR (WY)

	MEAN	43.62	108.2	132.3	128.2	109.2	88.54	88.37	73.71	48.77	24.87	17.22	23.08
MAX	95.9	222	285	309	231	200	147	137	111	62.7	35.2	54.4	
(WY)	1998	1996	1976	1975	1996	1972	1993	1974	1983	1968	1977		
MIN	9.08	16.9	33.4	32.1	35.2	28.8	49.5	28.3	14.6	12.6	10.6	10.9	
(WY)	1988	1994	1977	1979	1993	1992	1967	1992	1992	1992	1994	1987	

## SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1966 - 2002

ANNUAL TOTAL	22588.2	31704	
ANNUAL MEAN	61.89	86.86	73.65
HIGHEST ANNUAL MEAN			121
LOWEST ANNUAL MEAN			44.3
HIGHEST DAILY MEAN	544	Dec 16	616
LOWEST DAILY MEAN	9.7	Sep 24	10
ANNUAL SEVEN-DAY MINIMUM	9.9	Sep 18	10
ANNUAL RUNOFF (AC-FT)	44800	Sep 18	62880
ANNUAL RUNOFF (CFSM)	7.44		10.4
ANNUAL RUNOFF (INCHES)	101.00		141.75
10 PERCENT EXCEEDS	153		152
50 PERCENT EXCEEDS	36		48
90 PERCENT EXCEEDS	12		14

14138900 NORTH FORK BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1978 to current year.  
 pH: October 1980 to September 1981, August 1990 to September 1992.  
 WATER TEMPERATURE: October 1978 to current year.  
 TURBIDITY: August 1990 to September 1994.  
 SUSPENDED SEDIMENT DISCHARGE: October 1978 to September 1986.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Turbidity data prior to October 1990 are available in the files of the Portland field office.  
 SPECIFIC CONDUCTANCE: Records good.  
 WATER TEMPERATURE: Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 103 microsiemens Jan. 13, 1981 (cement spill); minimum, 7 microsiemens Jan. 31, 1995, Feb. 19, 1995.  
 pH: Maximum recorded, 9.8 units Jan. 13, 1981 (cement spill); minimum recorded, 6.3 units June 19, 1981.  
 WATER TEMPERATURE: Maximum, 15.0°C July 28, 1998; minimum, 0.0°C on several days during winter periods.  
 TURBIDITY: Maximum recorded, 25 NTU Nov. 24, 1990; minimum recorded, 0.06 NTU Sept. 7, 13, 14, 1992.  
 SEDIMENT CONCENTRATION: Maximum daily, 205 mg/L Dec. 25, 1980; minimum, 0 mg/L on many days.  
 SEDIMENT DISCHARGE: Maximum daily, 765 tons Feb. 23, 1986; minimum, 0 tons on many days.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 43 microsiemens Sept. 24-26; minimum, 12 microsiemens Nov. 22, Jan. 8.  
 WATER TEMPERATURE: Maximum recorded, 14.0°C July 12; minimum, 1.5°C Mar. 17.

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	40	39	39	20	18	19	20	19	20	23	18	21
2	40	39	40	18	17	18	20	19	20	19	18	18
3	40	39	40	20	18	19	21	20	20	19	18	19
4	40	39	40	21	20	21	21	21	21	20	19	19
5	40	39	39	21	20	21	23	21	22	20	19	20
6	40	39	40	22	21	22	22	20	21	19	16	17
7	40	39	39	23	22	23	20	20	20	16	14	15
8	39	37	38	24	22	23	20	20	20	14	12	13
9	38	37	38	24	23	24	21	20	20	15	14	14
10	39	29	36	25	24	24	21	21	21	17	15	16
11	33	29	31	26	25	25	22	21	21	17	17	17
12	34	33	34	26	25	25	23	20	22	18	15	16
13	34	31	32	25	16	21	20	16	18	17	15	16
14	34	29	31	18	16	16	17	16	17	18	16	17
15	33	31	31	18	17	18	18	17	18	19	18	18
16	34	33	33	18	17	18	18	15	16	20	19	19
17	34	33	33	19	18	18	17	16	16	21	20	21
18	35	34	34	20	18	19	18	17	18	21	19	21
19	36	35	35	19	17	18	18	17	18	20	19	19
20	36	35	36	19	17	18	19	18	19	19	15	18
21	36	32	35	18	16	18	20	19	20	17	15	16
22	32	23	27	17	12	15	21	19	20	19	17	18
23	24	22	23	20	17	19	21	20	21	19	19	19
24	24	22	23	21	20	21	22	21	22	19	16	18
25	26	24	25	24	21	22	23	22	22	16	14	15
26	27	26	26	24	23	24	24	23	23	17	15	16
27	28	27	28	25	24	25	24	23	24	18	17	18
28	28	27	27	25	19	23	23	21	22	20	18	19
29	29	27	29	20	18	19	23	22	22	---	---	---
30	27	19	24	20	20	20	23	23	23	---	---	---
31	19	18	18	---	---	---	23	23	23	---	---	---
MONTH	40	18	32	26	12	21	24	15	20	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	23	21	22	22	22	22	22	21	21
2	---	---	---	23	22	23	22	22	22	21	21	21
3	---	---	---	24	23	23	22	22	22	21	21	21
4	---	---	---	24	24	24	22	21	21	22	21	21
5	---	---	---	24	23	24	21	21	21	22	20	21
6	---	---	---	23	18	20	21	19	20	21	20	21
7	---	---	---	21	19	20	19	17	18	21	21	21
8	---	---	---	22	21	21	19	18	18	22	21	22
9	---	---	---	23	22	22	19	17	18	22	21	22
10	---	---	---	23	21	22	17	15	16	23	22	22
11	---	---	---	21	15	18	16	15	16	23	22	22
12	---	---	---	17	15	16	16	15	15	22	21	22
13	---	---	---	18	17	17	16	13	15	21	21	21
14	---	---	---	19	18	18	17	13	16	21	21	21
15	---	---	---	20	19	20	18	17	18	21	20	21
16	---	---	---	21	20	21	19	18	19	22	21	21
17	---	---	---	22	21	21	20	19	19	22	21	22
18	---	---	---	22	22	22	21	20	20	22	21	22
19	---	---	---	22	18	19	21	20	21	22	22	22
20	---	---	---	19	18	19	22	21	21	22	21	22
21	---	---	---	20	19	20	22	21	22	22	21	22
22	---	---	---	21	20	21	22	22	22	22	20	21
23	---	---	---	22	21	22	23	22	22	21	21	21
24	---	---	---	22	20	21	23	22	23	22	21	21
25	---	---	---	21	20	20	23	22	23	22	21	22
26	---	---	---	21	21	21	23	22	23	22	21	22
27	20	19	20	21	21	21	22	22	22	22	21	21
28	22	20	21	22	21	21	23	22	22	21	19	20
29	---	---	---	22	21	21	23	21	22	19	18	18
30	---	---	---	22	22	22	21	21	21	19	18	19
31	---	---	---	22	22	22	---	---	---	20	19	20
MONTH	---	---	---	24	15	21	23	13	20	23	18	21

## SANDY RIVER BASIN

14138900 NORTH FORK BULL RUN RIVER NEAR MULTNOMAH FALLS, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	21	20	20	24	22	23	37	36	37	41	40	41
2	21	20	20	25	23	24	37	36	37	41	40	41
3	21	20	20	25	24	25	37	37	37	41	40	41
4	21	20	21	26	25	25	37	37	37	41	40	41
5	21	20	20	27	26	26	38	36	37	41	40	41
6	21	20	20	29	27	27	38	37	37	41	41	41
7	21	20	21	29	28	28	38	37	38	41	40	41
8	21	21	21	28	27	28	38	37	38	41	41	41
9	22	21	22	30	28	29	39	38	38	42	41	41
10	22	22	22	31	29	30	39	38	38	42	41	41
11	23	22	22	31	30	31	39	38	39	42	41	42
12	23	22	22	32	31	31	39	38	39	42	41	42
13	22	22	22	32	31	32	40	38	39	42	41	42
14	22	22	22	33	31	32	40	39	39	42	41	42
15	22	22	22	33	32	33	40	39	39	42	41	42
16	23	22	22	34	33	33	40	39	39	42	41	41
17	23	20	22	34	33	34	40	39	39	41	38	40
18	20	19	19	35	34	34	40	39	39	41	39	40
19	21	19	20	35	33	34	40	39	39	42	41	41
20	22	21	22	35	34	35	40	39	39	42	41	41
21	23	22	22	35	34	34	40	39	39	42	41	42
22	24	23	23	35	34	35	40	39	40	42	41	42
23	24	23	24	36	34	35	41	39	40	42	41	42
24	25	24	25	36	34	35	41	39	40	43	41	42
25	26	25	25	36	34	35	41	39	40	43	41	42
26	27	26	26	36	35	35	41	40	40	43	41	42
27	27	26	27	36	35	35	41	40	40	42	41	42
28	27	21	26	36	35	36	41	40	41	42	41	42
29	21	17	19	37	36	36	42	40	41	42	39	41
30	22	20	21	37	36	36	41	40	40	39	35	37
31	---	---	---	37	36	36	41	40	41	---	---	---
MONTH	27	17	22	37	22	32	42	36	39	43	35	41

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.4	9.0	9.5	8.8	8.2	8.4	5.3	4.8	5.2	4.2	3.7	4.0
2	10.2	9.0	9.3	9.4	8.6	9.0	5.2	4.7	5.0	4.5	4.0	4.2
3	9.6	8.2	8.8	8.8	8.0	8.4	5.2	4.7	4.9	4.3	4.0	4.2
4	9.6	8.4	8.8	8.4	7.9	8.2	4.7	2.7	3.7	4.6	3.9	4.2
5	9.6	8.0	8.6	8.4	7.1	7.9	3.8	2.3	3.4	4.8	4.3	4.5
6	9.1	8.3	8.5	7.1	6.3	6.8	4.6	3.6	3.9	4.8	4.5	4.6
7	8.3	7.7	8.0	6.6	5.7	6.1	4.7	4.4	4.6	5.0	4.6	4.7
8	8.5	8.1	8.2	6.8	5.7	6.2	4.9	4.4	4.6	4.8	4.5	4.6
9	8.5	7.6	8.1	7.0	5.9	6.5	4.7	4.3	4.6	4.6	4.2	4.5
10	8.7	7.2	7.5	7.5	6.8	7.1	4.3	3.5	4.0	4.8	4.2	4.5
11	8.5	7.9	8.4	7.7	7.1	7.4	4.4	4.0	4.3	5.0	4.5	4.8
12	8.3	7.6	7.8	8.0	7.5	7.7	4.7	4.4	4.6	5.0	3.9	4.5
13	9.1	8.3	8.6	8.7	7.8	8.0	4.6	3.8	4.3	4.0	3.7	3.9
14	9.6	8.8	9.1	9.5	8.7	9.2	3.8	3.0	3.5	4.0	3.4	3.8
15	9.4	8.4	8.9	9.1	8.5	8.8	4.0	3.3	3.6	3.9	3.4	3.6
16	9.0	8.2	8.7	8.5	7.9	8.3	4.4	3.9	4.1	3.4	2.5	3.1
17	8.6	7.7	8.1	7.9	7.0	7.5	4.4	3.8	4.1	3.1	2.8	3.0
18	7.7	6.9	7.3	7.2	6.7	6.9	4.3	4.0	4.1	3.2	2.9	3.1
19	8.0	7.1	7.5	7.6	6.9	7.3	4.6	4.0	4.4	3.5	2.9	3.2
20	8.0	7.3	7.7	7.8	7.4	7.6	4.6	4.3	4.4	3.5	2.6	3.2
21	7.6	6.9	7.2	7.6	7.2	7.4	4.6	4.1	4.4	3.5	2.4	3.1
22	8.9	7.6	8.2	7.6	7.0	7.3	4.1	3.8	3.9	2.8	2.2	2.6
23	8.5	7.6	8.0	7.0	6.5	6.7	4.0	3.5	3.7	2.9	2.6	2.7
24	7.8	7.0	7.4	6.5	5.8	6.2	3.8	3.2	3.5	3.4	2.9	3.3
25	8.5	7.4	7.9	5.8	5.0	5.2	3.6	3.2	3.3	3.7	2.6	3.1
26	8.7	7.6	8.1	5.5	5.0	5.2	3.5	2.9	3.2	3.1	2.4	2.8
27	8.1	7.2	7.8	5.3	4.7	5.0	3.6	3.3	3.5	2.9	2.1	2.7
28	7.2	6.2	6.8	5.2	4.4	4.8	3.9	3.4	3.6	2.9	2.2	2.7
29	7.5	6.8	7.2	5.3	4.5	5.0	3.7	3.2	3.4	2.2	1.6	1.9
30	9.2	7.5	8.3	5.3	4.5	5.0	4.0	3.5	3.8	2.8	2.1	2.4
31	9.0	8.4	8.6	---	---	---	4.5	3.7	4.1	2.8	2.2	2.6
MONTH	10.4	6.2	8.2	9.5	4.4	7.0	5.3	2.3	4.1	5.0	1.6	3.6





SANDY RIVER BASIN

14139000 BULL RUN RESERVOIR NUMBER ONE NEAR BULL RUN, OR

LOCATION.--Lat 45°28'58", long 122°04'56", in NW 1/4 SW 1/4 sec.16, T.1 S., R.6 E., Multnomah County, Hydrologic Unit 17080001, in Mount Hood National Forest, in control house of Bear Creek Dam on Bull Run River, 8.2 mi northeast of Bull Run, and at mile 11.2.

DRAINAGE AREA.--74.6 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1928 to current year. Prior to October 1937, published as Bull Run Reservoir. October 1937 to September 1967, published as Lake Ben Morrow. Prior to October 1975, monthend contents only.

REVISED RECORDS.--WSP 814: 1935(M). WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Portland Water Bureau). Prior to Oct. 9, 1930, Oct. 1, 1962 to Dec. 31, 1975, nonrecording gage. Oct. 9, 1930 to Sept. 30, 1962, water-stage recorder at present site and datum.

REMARKS.--Midnight elevations Mar. 25 to Apr. 11, furnished by Portland General Electric. Lake is formed by concrete dam completed in March 1929 for water supply of city of Portland. Storage began about Apr. 29, 1929; first filling occurred May 15, 1929. Capacity, 26,930 acre-ft at crest of spillway, elevation, 1,036.0 ft; capacity increased in October 1954 to 30,140 acre-ft at elevation 1,044.0 ft by installation of three gates 40 ft wide and 8 ft high. No dead storage. Water is used for power generation by Portland General Electric Co. and municipal supply for city of Portland.

COOPERATION.--Capacity table furnished by Portland Water Bureau.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 31,600 acre-ft Mar. 31, 1931, elevation, 1,047.40 ft; minimum contents observed, 169 acre-ft Jan. 10, 1960, elevation, 887.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 30,800 acre-ft June 20, July 4, 11, elevation, 1,045.46 ft; minimum contents, 8,130 acre-ft Oct. 5, elevation, 970.43 ft.

Capacity table (elevation, in feet, and capacity, in acre-feet)

870	0	970	8,050
890	213	990	12,370
910	1,130	1,010	17,950
930	2,680	1,030	24,680
950	4,900	1,048	31,860

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	975.49	1024.23	1036.59	1034.71	1034.81	1034.86	1035.24	1035.07	1041.29	1044.80	1044.87	1009.97
2	973.22	1033.28	1035.92	1034.85	1034.80	1034.80	1035.32	1035.08	1040.80	1044.89	1043.81	1008.74
3	971.88	1035.72	1035.67	1035.08	1034.74	1034.76	1035.06	1035.00	1041.05	1045.10	1043.40	1007.49
4	970.90	1034.99	1035.06	1034.80	1034.72	1035.01	1035.34	1035.24	1042.88	1045.05	1042.74	1006.23
5	970.63	1034.92	1035.60	1034.60	1034.84	1035.11	1035.18	1035.33	1044.96	1044.89	1042.14	1004.97
6	971.21	1035.31	1037.26	1035.79	1035.04	1034.84	1035.21	1035.01	1044.68	1044.90	1041.57	1003.66
7	971.80	1035.30	1035.53	1037.01	1035.11	1034.99	1035.87	1035.17	1044.53	1044.85	1041.14	1002.40
8	971.38	1036.43	1035.34	1037.39	1034.93	1034.98	1035.09	1035.00	1044.89	1045.27	1040.38	1001.44
9	970.71	1034.28	1035.31	1035.70	1034.53	1034.98	1035.58	1035.54	1044.77	1045.37	1039.49	1000.73
10	971.32	1034.10	1034.98	1034.94	1034.87	1035.23	1037.01	1035.67	1044.82	1045.26	1038.36	999.77
11	973.40	1032.65	1035.55	1035.18	1034.82	1038.75	1036.83	1036.12	1044.75	1045.34	1037.81	998.70
12	973.33	1032.34	1035.14	1035.58	1034.71	1036.54	1036.71	1036.86	1045.07	1045.15	1035.34	997.51
13	974.31	1034.77	1040.68	1034.95	1034.49	1035.74	1037.99	1037.99	1044.38	1044.85	1032.05	996.19
14	976.95	1035.17	1037.27	1034.85	1034.67	1035.00	1038.41	1039.83	1043.51	1044.77	1028.95	994.84
15	977.84	1034.81	1035.31	1035.15	1034.69	1035.18	1035.97	1041.03	1044.09	1044.89	1028.02	993.45
16	977.52	1034.88	1038.70	1035.03	1035.22	1035.04	1035.54	1041.12	1044.24	1044.67	1026.90	992.16
17	976.59	1034.54	1036.68	1034.81	1035.08	1034.82	1034.46	1041.20	1045.15	1044.84	1025.77	991.18
18	974.89	1034.89	1035.62	1034.63	1034.81	1034.64	1034.61	1041.13	1044.83	1044.86	1024.82	990.09
19	973.07	1034.80	1035.31	1035.35	1034.86	1035.61	1034.57	1041.21	1044.89	1044.89	1023.04	989.03
20	971.99	1035.01	1035.05	1035.68	1034.91	1034.99	1034.77	1041.18	1045.23	1044.98	1021.33	987.94
21	972.32	1034.75	1034.70	1035.15	1035.79	1034.98	1034.63	1041.21	1044.51	1044.97	1020.38	986.82
22	979.81	1040.89	1034.82	1034.97	1035.75	1034.94	1034.72	1041.37	1044.78	1044.88	1019.65	985.68
23	990.78	1038.89	1034.90	1034.54	1038.46	1034.93	1034.99	1040.89	1044.92	1044.78	1018.93	984.53
24	996.49	1036.75	1034.65	1035.46	1036.03	1035.37	1034.66	1040.69	1044.87	1044.78	1018.19	983.37
25	999.84	1034.92	1034.59	1036.28	1035.31	1035.20	1034.97	1040.89	1044.83	1044.03	1017.43	982.18
26	1002.26	1034.64	1035.41	1035.01	1035.06	1034.99	1035.17	1041.30	1044.88	1044.56	1016.70	981.49
27	1004.27	1034.38	1034.80	1034.39	1035.10	1034.85	1035.09	1041.05	1045.01	1045.08	1015.83	981.33
28	1006.12	1036.34	1034.98	1034.86	1035.28	1035.01	1035.08	1041.24	1044.95	1044.99	1014.75	981.19
29	1004.67	1036.18	1034.84	1034.99	--	1034.96	1035.28	1041.92	1044.92	1044.95	1013.57	981.22
30	1005.82	1035.97	1034.50	1035.04	--	1035.29	1035.25	1041.64	1044.92	1044.93	1012.38	982.37
31	1015.40	--	1034.75	1034.74	--	1035.10	--	1040.71	--	1044.85	1011.19	--
MAX	1015.40	1040.89	1040.68	1037.39	1038.46	1038.75	1038.41	1041.92	1045.23	1045.37	1044.87	1009.97
MIN	970.63	1024.23	1034.50	1034.39	1034.49	1034.64	1034.46	1035.00	1040.80	1044.03	1011.19	981.19
(†)	19700	26900	26500	26500	26700	26600	26600	28800	30500	30500	18300	10600
(‡)	+10090	+7200	-400	0	+200	-100	0	+2200	+1700	0	-12200	-7700
CAL YR 2001	MAX 1045.41	MIN 970.63	AC-FT†	-100								
WTR YR 2002	MAX 1045.37	MIN 970.63	AC-FT†	+990								

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

SANDY RIVER BASIN

14139700 CEDAR CREEK NEAR BRIGHTWOOD, OR

LOCATION.--Lat 45°27'30", long 122°01'50", in NE 1/4 sec.26, T.1 S., R.6 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank 5.8 mi north of Brightwood and at mile 2.5.

DRAINAGE AREA.--7.93 mi<sup>2</sup>.

PERIOD OF RECORD.--July to November 1964, June 1965 to current year.

REVISED RECORDS.--WDR OR 96-1: 1989(M), 1991 (M).

GAGE.--Water-stage recorder. Elevation of gage is 1,960 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--37 years (water years 1966-2002), 66.0 ft<sup>3</sup>/s, 113.02 in/yr, 47,790 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,990 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 7.20 ft, from rating curve extended above 940 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 4.7 ft<sup>3</sup>/s Oct. 28, 29, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	2100	543	3.70	Apr. 14	0500	*877	*4.22
Dec. 13	2130	520	3.66				

Minimum discharge, 6.0 ft<sup>3</sup>/s Oct. 3-8.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6.6	189	196	77	42	48	65	53	64	45	15	11
2	6.3	198	201	106	40	43	65	53	56	39	15	11
3	6.1	105	135	94	45	39	66	52	51	35	15	11
4	6.0	70	89	81	46	37	76	48	47	32	15	11
5	6.0	76	68	70	43	40	92	54	52	30	17	11
6	6.0	54	190	150	49	118	114	56	47	27	16	11
7	6.0	43	218	220	96	87	155	49	41	26	15	10
8	8.3	35	130	299	105	63	125	45	38	28	15	10
9	8.8	30	110	179	82	53	139	42	35	25	15	10
10	21	27	82	110	65	58	258	39	34	23	15	10
11	49	24	81	82	62	184	259	38	32	22	14	10
12	21	27	87	136	52	280	270	44	31	21	14	9.9
13	35	108	333	107	46	148	259	52	31	21	14	9.6
14	33	218	323	79	42	96	534	58	31	20	14	9.3
15	25	117	161	63	40	72	220	53	30	20	14	9.2
16	19	115	332	54	39	60	155	50	29	19	13	10
17	20	103	283	46	38	50	117	54	33	19	13	18
18	16	71	163	44	46	44	88	53	77	18	13	11
19	14	65	121	56	81	129	73	54	49	18	13	10
20	13	68	87	113	82	121	64	53	40	18	13	9.6
21	13	75	70	132	124	88	58	51	35	18	13	9.2
22	89	244	57	76	159	68	54	70	33	17	13	8.9
23	144	253	48	60	335	60	51	60	30	17	13	8.7
24	81	122	41	91	266	76	48	54	28	17	12	8.4
25	51	82	37	269	134	76	48	54	27	16	12	8.4
26	38	67	33	138	89	69	49	54	25	16	12	8.0
27	33	53	31	84	68	81	58	55	25	16	12	8.0
28	31	162	48	63	56	79	51	73	28	16	12	8.0
29	28	244	39	52	---	74	51	141	110	16	12	11
30	119	169	35	45	---	68	54	98	55	15	11	25
31	270	---	37	43	---	65	---	77	---	15	11	---
TOTAL	1223.1	3214	3866	3219	2372	2574	3716	1787	1244	685	421	316.2
MEAN	39.45	107.1	124.7	103.8	84.71	83.03	123.9	57.65	41.47	22.10	13.58	10.54
MAX	270	253	333	299	335	280	534	141	110	45	17	25
MIN	6.0	24	31	43	38	37	48	38	25	15	11	8.0
AC-FT	2430	6370	7670	6380	4700	5110	7370	3540	2470	1360	835	627
CFSM	4.98	13.5	15.7	13.1	10.7	10.5	15.6	7.27	5.23	2.79	1.71	1.33
IN.	5.74	15.08	18.14	15.10	11.13	12.07	17.43	8.38	5.84	3.21	1.97	1.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 2002, BY WATER YEAR (WY)

	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002					
MEAN	39.90	96.86	113.8	111.5	99.02	84.00	84.33	64.29	43.04	21.68	15.12	20.31																														
MAX	86.5	211	232	218	202	181	130	136	115	53.9	38.1	51.4																														
(WY)	1968	1996	1978	1975	1996	1972	1974	1969	1981	1983	1968	1977																														
MIN	5.43	15.5	29.4	31.9	29.8	22.6	46.0	30.6	12.8	10.9	8.68	7.43																														
(WY)	1988	1994	1977	1981	1993	1992	1998	1992	1992	1992	1970	2001																														

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1966 - 2002

ANNUAL TOTAL	18691.4	24637.3		
ANNUAL MEAN	51.21	67.50	65.96	
HIGHEST ANNUAL MEAN			105	1974
LOWEST ANNUAL MEAN			40.7	2001
HIGHEST DAILY MEAN	333	534	1510	Nov 25 1999
LOWEST DAILY MEAN	6.0	6.0	4.8	Oct 28 1987
ANNUAL SEVEN-DAY MINIMUM	6.1	6.1	4.9	Oct 23 1987
ANNUAL RUNOFF (AC-FT)	37070	48870	47790	
ANNUAL RUNOFF (CFSM)	6.46	8.51	8.32	
ANNUAL RUNOFF (INCHES)	87.68	115.57	113.02	
10 PERCENT EXCEEDS	122	152	141	
50 PERCENT EXCEEDS	31	49	41	
90 PERCENT EXCEEDS	8.3	11	12	

SANDY RIVER BASIN

14139800 SOUTH FORK BULL RUN RIVER NEAR BULL RUN, OR

LOCATION.--Lat 45°26'41", long 122°06'30", in NE 1/4 NE 1/4 sec.31, T.1 S., R.6 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on right bank 6.2 mi northeast of Bull Run, and at mile 0.6.

DRAINAGE AREA.--15.4 mi<sup>2</sup>

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1974 to current year.

REVISED RECORDS.--WDR OR-91-1: 1989.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 990 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--28 years (water years 1975-2002), 112 ft<sup>3</sup>/s, 98.65 in/yr, 81,010 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,630 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 9.54 ft, from rating curve extended above 1,800 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 5.4 ft<sup>3</sup>/s Oct. 13, 1994.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 1,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	0530	*1,680	*7.10	No other peak greater than base discharge.			
Minimum discharge, 9.3 ft <sup>3</sup> /s Oct. 5-7.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	10	343	350	125	87	93	105	85	102	82	19	14
2	10	374	392	196	83	81	104	85	88	70	18	14
3	9.8	224	289	182	90	72	104	83	78	61	18	14
4	9.7	149	208	159	96	65	113	76	73	54	19	14
5	9.5	152	160	135	90	67	133	81	78	48	20	13
6	9.4	115	336	227	94	184	167	85	73	44	19	13
7	9.5	92	465	346	170	172	221	77	63	42	18	13
8	12	75	282	512	205	130	197	70	58	43	18	13
9	13	63	240	325	179	107	204	65	52	38	17	13
10	21	54	188	212	146	109	371	60	50	34	17	13
11	75	46	182	161	131	271	396	58	47	32	17	13
12	33	49	184	211	111	488	444	64	46	30	17	12
13	59	150	557	190	96	275	396	77	47	29	16	12
14	60	358	632	151	85	191	967	87	47	27	16	12
15	51	211	331	120	77	147	346	83	43	26	16	12
16	39	207	585	101	74	118	233	77	40	26	16	13
17	37	194	535	86	72	96	188	81	43	25	16	23
18	29	146	319	81	82	80	151	81	99	24	15	15
19	25	128	240	109	134	204	126	82	70	24	15	13
20	23	129	184	188	152	217	111	81	58	23	16	13
21	23	136	145	268	195	169	99	79	51	22	16	12
22	116	383	117	176	249	134	90	102	47	22	15	12
23	220	483	97	133	532	113	84	97	43	21	15	12
24	160	252	83	176	494	129	78	86	40	21	15	12
25	106	173	72	502	261	133	76	82	37	20	15	12
26	79	136	64	298	183	121	78	82	34	20	15	11
27	66	107	60	192	139	132	92	84	32	20	15	11
28	60	272	84	141	112	130	85	105	37	20	15	11
29	51	470	71	111	---	128	84	191	157	19	14	13
30	173	322	65	94	---	117	87	155	103	19	14	32
31	461	---	68	90	---	109	---	123	---	19	14	---
TOTAL	2059.9	5993	7585	5998	4419	4582	5930	2724	1836	1005	506	410
MEAN	66.45	199.8	244.7	193.5	157.8	147.8	197.7	87.87	61.20	32.42	16.32	13.67
MAX	461	483	632	512	532	488	967	191	157	82	20	32
MIN	9.4	46	60	81	72	65	76	58	32	19	14	11
AC-FT	4090	11890	15040	11900	8770	9090	11760	5400	3640	1990	1000	813
CFSM	4.31	13.0	15.9	12.6	10.2	9.60	12.8	5.71	3.97	2.11	1.06	0.89
IN.	4.98	14.48	18.32	14.49	10.67	11.07	14.32	6.58	4.44	2.43	1.22	0.99

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	63.95	169.4	202.7	182.7	179.7	146.2	143.9	104.0	71.67	32.59	21.14	29.63																
MAX	146	313	413	321	353	275	215	163	180	91.2	53.2	93.4																
(WY)	1997	1996	1997	1997	1996	1997	1976	1999	1981	1983	1978	1977																
MIN	8.31	23.3	50.4	56.5	54.7	53.8	89.6	47.1	15.4	14.8	11.7	9.03																
(WY)	1988	1994	1977	2001	1977	1992	1983	1992	1992	1992	1994	1994																

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1975 - 2002
ANNUAL TOTAL	34839.2	43047.9	
ANNUAL MEAN	95.45	117.9	111.8
HIGHEST ANNUAL MEAN			171
LOWEST ANNUAL MEAN			74.9
HIGHEST DAILY MEAN	632	967	2880
LOWEST DAILY MEAN	9.3	9.4	5.6
ANNUAL SEVEN-DAY MINIMUM	9.5	9.7	5.7
ANNUAL RUNOFF (AC-FT)	69100	85390	81010
ANNUAL RUNOFF (CFSM)	6.20	7.66	7.26
ANNUAL RUNOFF (INCHES)	84.16	103.99	98.65
10 PERCENT EXCEEDS	237	271	237
50 PERCENT EXCEEDS	56	82	74
90 PERCENT EXCEEDS	12	14	15

14139800 SOUTH FORK BULL RUN RIVER NEAR BULL RUN, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1978 to current year.  
 pH: November 1980 to September 1981, June 1990 to September 1992.  
 WATER TEMPERATURE: October 1978 to current year.  
 TURBIDITY: June 1990 to September 1994.  
 SUSPENDED SEDIMENT DISCHARGE: October 1978 to September 1986.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Specific conductance records good. Water temperature records excellent. Turbidity data prior to October 1990 are available in the files of the Portland field office.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 56 microsiemens Oct. 31, 1988; minimum, 9 microsiemens Jan. 4, 1983.  
 pH: Maximum recorded, 8.0 units Aug. 17, Oct. 2, 1990, but may have been higher in water year 1990, 1992 during period of missing record; minimum recorded, 6.4 units Dec. 6, 1991, but may have been lower during period of missing record.  
 WATER TEMPERATURE: Maximum, 18.0°C June 23, 24, July 18, 19, 1992; minimum, 0.0°C on many days during winter periods.  
 TURBIDITY: Maximum recorded, 16 NTU Oct. 16, 1993; minimum recorded, 0.08 NTU Sept. 2, 1994.  
 SEDIMENT CONCENTRATION: Maximum daily, 212 mg/L Nov. 7, 1985; minimum, 0 mg/L on many days.  
 SEDIMENT DISCHARGE: Maximum daily, 794 tons Nov. 7, 1985; minimum, 0 tons on many days.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 45 microsiemens several days in August and September; minimum, 14 microsiemens Apr. 14.  
 WATER TEMPERATURE: Maximum, 15.8°C July 23-25; minimum, 2.2°C Mar. 8.

## SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	18	17	18	19	17	18	25	20	23
2	---	---	---	18	18	18	18	17	18	20	20	20
3	---	---	---	19	18	19	20	18	19	21	20	20
4	---	---	---	20	19	20	20	19	20	21	20	21
5	---	---	---	20	20	20	22	20	21	22	21	21
6	---	---	---	21	20	21	22	18	20	21	19	20
7	---	---	---	22	21	22	19	18	19	19	18	19
8	---	---	---	23	22	22	21	19	20	18	17	17
9	---	---	---	23	23	23	21	20	20	19	18	18
10	---	---	---	24	23	24	22	21	21	20	19	20
11	---	---	---	24	24	24	22	21	22	21	20	21
12	27	27	27	25	24	24	22	21	22	21	19	20
13	27	25	26	25	19	23	21	15	18	20	19	20
14	26	25	25	19	18	18	18	15	17	21	20	21
15	25	24	24	20	19	19	19	18	19	22	21	21
16	26	25	25	20	19	19	19	17	18	22	22	22
17	26	25	25	21	19	20	18	17	17	24	22	23
18	26	25	25	23	20	21	19	18	19	24	23	24
19	26	26	26	23	20	21	20	19	20	23	22	23
20	27	26	27	21	20	21	21	20	21	23	19	22
21	28	27	27	21	20	21	22	21	21	21	19	20
22	27	21	24	21	15	19	22	22	22	22	21	21
23	21	20	20	18	15	17	24	22	23	23	22	22
24	20	19	20	19	18	19	24	23	23	23	20	22
25	21	20	20	20	19	20	25	24	24	20	18	19
26	22	21	21	21	20	20	25	24	24	21	19	20
27	23	22	22	21	21	21	25	24	25	22	21	21
28	23	22	22	22	17	19	24	23	24	23	22	22
29	24	23	23	18	17	17	24	24	24	24	23	23
30	24	19	22	19	18	18	26	24	25	24	24	24
31	19	17	18	---	---	---	25	24	24	25	24	24
MONTH	---	---	---	25	15	20	26	15	21	25	17	21

## SANDY RIVER BASIN

14139800 SOUTH FORK BULL RUN RIVER NEAR BULL RUN, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	25	25	25	24	23	23	22	22	22	23	22	22
2	26	25	25	24	24	24	22	22	22	23	22	22
3	26	25	25	25	24	25	22	22	22	22	22	22
4	25	24	25	25	25	25	22	21	22	23	22	22
5	25	25	25	25	25	25	21	21	21	23	22	23
6	25	24	25	25	19	22	21	20	20	22	22	22
7	24	21	22	21	20	21	20	18	19	23	22	23
8	22	21	21	22	21	22	20	19	19	23	23	23
9	22	21	22	23	22	22	20	18	19	24	23	23
10	23	22	23	23	22	23	19	17	18	24	24	24
11	23	23	23	22	17	20	18	17	18	25	24	25
12	24	23	24	19	17	18	18	17	17	25	24	24
13	25	24	24	20	19	19	18	16	17	24	22	23
14	25	25	25	21	20	20	17	14	15	23	22	22
15	26	25	25	22	21	21	18	17	18	22	22	22
16	26	26	26	23	22	22	19	18	19	23	22	22
17	26	26	26	24	23	23	20	19	19	23	22	22
18	26	25	25	24	23	24	21	20	20	22	21	22
19	25	22	23	23	20	21	21	21	21	22	21	21
20	23	22	22	21	20	20	22	21	22	22	21	21
21	23	21	21	21	21	21	23	22	22	22	21	21
22	21	20	20	22	21	22	23	22	22	22	20	21
23	20	17	18	23	22	22	23	22	23	20	20	20
24	19	17	18	23	21	22	23	22	23	21	20	21
25	20	18	19	22	21	22	23	22	23	21	21	21
26	21	20	20	22	21	22	24	22	23	21	21	21
27	22	21	21	22	21	21	22	22	22	21	21	21
28	23	22	22	22	21	21	22	22	22	21	19	20
29	---	---	---	22	21	21	23	22	22	20	17	18
30	---	---	---	22	21	22	22	22	22	19	18	18
31	---	---	---	22	21	22	---	---	---	20	19	19
MONTH	26	17	23	25	17	22	24	14	20	25	17	22
	JUNE			JULY			AUGUST			SEPTEMBER		
1	21	20	20	25	24	25	40	38	39	44	43	43
2	21	21	21	26	25	25	40	38	39	44	43	44
3	22	21	22	28	26	26	40	39	39	44	42	43
4	23	22	22	28	26	27	42	38	39	43	43	43
5	24	21	22	31	27	28	41	38	39	43	43	43
6	22	21	22	31	28	29	40	38	39	43	43	43
7	23	22	23	32	29	30	41	39	39	43	42	43
8	25	23	24	31	29	30	41	39	40	44	42	43
9	25	24	24	32	30	30	42	40	40	44	43	44
10	26	24	25	33	31	31	42	40	41	44	44	44
11	27	25	25	34	31	32	42	40	41	45	44	44
12	27	25	26	34	32	33	44	41	41	45	44	44
13	27	25	25	35	33	34	43	41	42	45	44	44
14	27	25	25	34	33	33	44	41	42	45	44	44
15	28	25	26	34	33	34	44	41	43	45	43	44
16	28	26	26	37	34	35	45	41	42	45	43	44
17	29	26	27	36	34	35	44	41	42	44	39	41
18	27	22	23	36	35	35	43	41	42	42	40	41
19	24	22	23	36	35	35	44	41	42	43	42	42
20	25	24	24	36	36	36	44	41	42	44	43	43
21	28	25	25	37	36	36	43	41	42	43	43	43
22	27	26	26	37	36	37	44	42	42	43	41	42
23	29	26	27	38	37	37	45	42	43	42	41	42
24	30	27	27	38	37	38	43	42	43	42	41	42
25	29	28	28	39	37	37	43	42	43	42	41	42
26	31	29	29	39	37	37	43	42	43	42	41	42
27	31	29	30	39	37	37	43	43	43	42	41	42
28	30	28	29	40	37	38	44	43	43	42	41	42
29	29	22	24	41	38	39	44	43	43	42	39	41
30	24	23	23	41	38	39	43	42	43	39	33	36
31	---	---	---	39	38	38	44	43	43	---	---	---
MONTH	31	20	25	41	24	33	45	38	41	45	33	43

## 14139800 SOUTH FORK BULL RUN RIVER NEAR BULL RUN, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.4	9.6	10.0	8.5	8.1	8.3	6.3	5.8	6.1	4.5	4.0	4.2
2	10.2	9.8	10.0	8.9	8.3	8.6	6.1	5.6	5.8	5.1	4.5	4.8
3	10.0	9.2	9.5	8.3	7.7	8.1	5.9	5.2	5.5	4.8	4.5	4.7
4	9.8	9.2	9.4	8.3	7.7	8.0	5.4	3.3	4.4	4.8	4.2	4.6
5	9.6	9.2	9.4	8.3	7.2	7.9	4.4	2.7	3.7	5.1	4.7	4.9
6	10.0	9.4	9.7	7.2	6.3	6.8	4.6	4.1	4.4	5.1	5.1	5.1
7	9.6	9.0	9.3	6.3	5.6	5.8	5.4	4.3	5.0	5.5	5.1	5.3
8	9.4	9.0	9.3	6.1	5.4	5.8	5.8	5.2	5.4	5.5	5.1	5.3
9	9.2	8.4	8.9	6.3	5.6	5.9	5.4	4.9	5.3	5.3	4.8	5.1
10	8.4	8.0	8.2	7.0	6.3	6.6	4.9	4.4	4.6	5.3	4.8	5.0
11	8.8	8.2	8.6	7.5	6.8	7.2	4.8	4.5	4.6	5.5	5.0	5.2
12	8.6	8.0	8.3	8.1	7.5	7.8	5.1	4.8	5.0	5.3	4.7	5.1
13	9.2	8.6	8.8	8.3	8.1	8.1	5.3	4.7	5.1	4.7	4.3	4.4
14	9.6	9.2	9.3	9.1	8.3	8.7	4.7	4.3	4.5	4.5	4.2	4.3
15	9.2	8.6	8.8	8.7	8.5	8.6	4.8	4.3	4.7	4.3	3.7	4.0
16	9.0	8.6	8.8	8.5	8.1	8.4	5.3	4.8	5.0	3.7	2.9	3.4
17	8.6	7.8	8.3	8.1	6.8	7.6	5.3	4.8	5.0	3.4	2.9	3.1
18	7.8	7.1	7.2	7.0	6.4	6.7	5.1	4.8	5.0	3.4	3.2	3.3
19	7.6	6.7	7.2	7.9	6.8	7.5	5.1	4.8	5.0	3.4	2.8	3.1
20	7.6	7.2	7.5	7.9	7.5	7.7	5.1	5.0	5.0	3.2	2.6	3.0
21	7.2	6.9	7.0	7.7	7.3	7.5	5.0	4.3	4.8	3.7	2.6	3.1
22	8.6	7.2	7.9	7.7	7.3	7.5	4.5	4.2	4.3	3.1	2.6	2.8
23	8.4	7.4	7.9	7.3	7.0	7.2	4.2	3.7	3.9	3.4	2.9	3.1
24	7.5	6.8	7.2	7.0	6.3	6.7	3.7	3.4	3.6	3.5	3.1	3.4
25	8.1	7.3	7.8	6.3	5.7	5.9	3.7	3.2	3.4	3.4	2.5	3.1
26	7.9	7.3	7.7	5.9	5.6	5.8	3.4	3.1	3.2	3.8	2.9	3.4
27	7.9	7.2	7.7	5.6	5.1	5.3	3.7	3.4	3.5	3.5	3.1	3.4
28	7.2	6.1	6.5	5.7	4.3	4.9	4.2	3.7	3.9	3.5	2.9	3.4
29	7.3	6.4	6.9	5.9	5.7	5.8	3.8	3.4	3.6	2.9	2.3	2.7
30	8.7	7.3	8.0	5.9	5.6	5.8	4.2	3.5	3.8	3.2	2.9	3.1
31	8.7	8.3	8.4	---	---	---	4.7	4.0	4.3	3.3	2.7	3.1
MONTH	10.4	6.1	8.4	9.1	4.3	7.1	6.3	2.7	4.6	5.5	2.3	4.0
	FEBRUARY			MARCH			APRIL			MAY		
1	3.5	2.7	3.1	3.6	3.0	3.2	5.8	4.8	5.2	6.7	5.8	6.2
2	3.6	3.2	3.4	3.4	2.7	3.0	5.8	4.0	4.8	6.5	5.8	6.0
3	3.9	3.6	3.8	3.7	2.8	3.2	6.0	4.0	4.9	6.1	5.1	5.7
4	3.6	3.3	3.5	4.1	3.1	3.5	6.1	4.2	5.1	6.5	4.6	5.6
5	3.9	3.5	3.7	4.4	3.9	4.2	5.3	4.6	4.9	6.3	5.4	5.8
6	4.1	3.8	3.9	4.2	3.0	3.6	5.1	4.8	4.9	5.4	4.1	4.8
7	4.1	2.7	3.7	3.3	2.7	3.0	5.1	4.6	4.8	4.8	3.7	4.2
8	3.8	2.9	3.4	3.0	2.2	2.6	6.0	4.0	4.8	6.5	4.0	5.2
9	4.3	3.6	3.9	3.6	2.8	3.2	5.3	4.8	5.0	6.1	5.1	5.4
10	4.4	3.9	4.2	4.1	3.6	3.8	5.1	4.6	4.8	6.5	5.1	5.7
11	4.3	3.6	4.0	4.4	3.7	4.1	5.1	4.5	4.8	7.7	5.3	6.5
12	4.1	3.5	3.7	4.1	3.1	3.7	5.3	4.6	4.9	8.9	6.3	7.6
13	3.9	3.3	3.6	3.7	3.1	3.6	5.6	5.0	5.2	8.5	6.3	7.0
14	3.9	3.5	3.7	3.6	3.1	3.4	5.6	3.4	4.2	7.4	6.0	6.6
15	3.8	3.3	3.6	4.1	3.3	3.6	4.6	4.2	4.3	7.7	5.6	6.7
16	4.1	3.8	3.9	3.4	3.0	3.2	4.8	4.1	4.4	8.1	5.6	6.9
17	4.1	3.5	3.8	3.3	2.5	3.0	5.1	4.1	4.6	8.5	6.8	7.6
18	4.6	4.1	4.3	3.4	3.1	3.3	5.6	4.6	5.0	7.9	6.6	7.3
19	4.6	4.1	4.3	3.3	2.8	3.0	5.6	4.9	5.2	7.6	6.6	7.1
20	4.4	4.0	4.2	4.7	3.3	4.0	6.1	5.0	5.5	7.5	6.4	6.9
21	4.6	4.3	4.4	4.4	3.4	3.9	5.6	5.1	5.4	7.3	6.5	6.9
22	4.9	4.3	4.5	4.9	3.6	4.2	6.1	5.3	5.7	7.1	6.2	6.6
23	4.4	3.2	3.9	5.2	4.2	4.7	6.1	4.6	5.4	8.0	5.7	6.8
24	4.1	3.2	3.7	4.9	4.4	4.7	6.8	4.3	5.6	8.4	5.9	7.2
25	3.8	3.2	3.4	5.2	3.9	4.5	6.7	5.1	6.0	8.2	6.9	7.6
26	3.8	3.0	3.3	4.9	3.7	4.4	6.3	5.4	5.7	9.2	7.3	8.1
27	4.0	2.9	3.4	4.7	4.1	4.4	6.0	4.8	5.4	8.6	7.6	7.9
28	4.2	3.6	3.9	4.7	4.4	4.5	6.8	4.3	5.5	8.0	7.5	7.7
29	---	---	---	5.2	4.2	4.7	7.4	5.0	6.1	7.8	7.1	7.4
30	---	---	---	5.8	4.4	4.9	6.8	5.6	6.1	9.0	6.6	7.6
31	---	---	---	5.4	4.2	4.8	---	---	---	9.2	6.7	7.9
MONTH	4.9	2.7	3.8	5.8	2.2	3.8	7.4	3.4	5.1	9.2	3.7	6.7





SANDY RIVER BASIN

14139900 BULL RUN RESERVOIR NUMBER TWO NEAR BULL RUN, OR

LOCATION.--Lat 45°26'52", long 122°08'52", on line between secs.25 and 26, T.1 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on headworks dam on Bull Run River, 4.1 mi northeast of Bull Run, and at mile 6.5.

DRAINAGE AREA.--102 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1961 to current year. Prior to October 1975, monthend contents only.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Portland Water Bureau). Prior to Dec. 31, 1975, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earth and rockfill dam with concrete spillway built by Portland Water Bureau. Storage began about Dec. 20, 1961; first filling occurred Dec. 24, 1961. Capacity, 20,990 acre-ft at crest of spillway, elevation, 860.0 ft. Dead storage negligible. Water is used as municipal supply for city of Portland and for power generation by Portland General Electric Co.

COOPERATION.--Capacity table furnished by Portland Water Bureau.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 23,660 acre-ft Dec. 22, 1964, elevation, 866.00 ft; no contents at times during low-flow periods.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 22,140 acre-ft Apr. 14, elevation, 862.59 ft; minimum contents, 13,080 acre-ft Oct. 8, elevation, 839.36 ft.

Capacity table (elevation, in feet, and capacity in acre-feet)

752	0	830	10,000
770	234	850	16,800
790	1,860	870	25,500
810	5,070		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	843.31	857.29	860.76	859.64	859.43	859.30	859.24	859.35	859.31	859.76	849.48	854.39
2	843.71	858.27	860.37	859.29	859.30	859.41	859.51	859.37	859.64	859.81	849.96	854.51
3	843.50	859.81	860.09	859.14	859.39	859.43	859.59	859.80	859.26	859.71	849.66	854.67
4	842.94	859.66	859.44	859.30	859.49	859.13	859.48	859.69	859.40	859.74	849.71	854.80
5	842.12	859.62	859.37	859.51	859.46	859.27	859.47	859.80	859.60	859.76	849.75	854.91
6	840.98	858.62	860.66	859.42	859.43	859.34	859.83	859.34	859.15	859.71	849.80	855.05
7	839.83	858.32	860.58	860.81	859.33	859.05	859.74	859.13	859.79	859.92	849.65	855.19
8	839.58	857.08	859.68	861.09	859.62	859.37	859.27	859.41	859.50	860.01	849.71	855.19
9	839.77	858.25	859.39	860.14	859.67	859.64	859.23	859.35	859.17	859.92	849.70	854.96
10	839.95	858.06	859.63	859.87	859.64	859.36	860.81	859.45	858.93	859.94	849.87	854.60
11	840.50	858.73	859.54	859.50	859.35	861.10	860.80	859.31	859.41	859.66	849.53	854.31
12	840.97	858.64	859.63	859.82	859.01	860.78	860.82	859.26	859.78	859.54	850.96	854.22
13	841.49	859.35	862.16	859.89	859.17	859.91	861.05	859.45	859.69	859.65	852.93	854.18
14	841.34	860.14	861.12	859.38	859.26	859.97	861.47	859.32	858.99	859.51	854.64	854.22
15	841.60	859.40	860.35	859.22	859.53	859.42	860.57	859.24	859.16	859.18	854.42	854.28
16	842.22	859.41	861.56	859.70	859.37	859.27	859.66	859.59	859.77	859.04	854.41	854.45
17	843.15	859.69	860.91	859.49	859.54	859.07	859.11	859.88	859.60	858.54	854.46	854.82
18	844.33	859.39	860.12	859.61	859.70	859.43	859.84	859.32	859.67	858.06	854.39	855.02
19	845.27	859.59	859.83	859.19	859.58	859.94	859.46	859.33	859.59	857.59	855.02	855.12
20	845.60	859.49	859.52	859.53	859.39	859.86	858.78	859.59	859.27	857.14	855.63	855.16
21	845.38	859.59	859.76	859.86	859.58	859.49	858.70	859.72	859.51	856.74	855.63	855.12
22	845.25	861.51	859.45	859.38	859.79	859.33	858.68	859.58	858.98	856.24	855.50	855.06
23	845.89	860.56	859.29	859.67	861.33	859.31	858.53	859.49	859.22	855.67	855.35	854.93
24	846.02	860.29	859.43	859.52	860.70	859.59	859.04	859.44	859.41	854.98	855.09	854.71
25	845.73	859.42	859.65	860.90	859.84	859.42	859.32	859.45	859.39	855.05	854.78	854.56
26	845.25	859.29	859.02	859.94	859.60	859.53	859.49	859.40	859.50	853.86	854.46	854.28
27	844.86	859.10	859.52	859.54	859.71	859.71	859.14	859.44	859.60	852.76	854.24	853.76
28	844.39	860.54	859.58	859.47	859.10	859.70	858.98	859.71	859.92	852.25	854.19	853.20
29	846.42	860.77	859.36	859.53	--	859.38	859.39	860.01	859.92	851.55	854.26	852.78
30	850.60	860.35	859.40	859.36	--	859.14	859.63	859.69	859.80	850.73	854.32	852.56
31	856.24	--	858.94	859.57	--	859.11	--	859.77	--	850.08	854.33	--
MAX	856.24	861.51	862.16	861.09	861.33	861.10	861.47	860.01	859.92	860.01	855.63	855.19
MIN	839.58	857.08	858.94	859.14	859.01	859.05	858.53	859.13	858.93	850.08	849.48	852.56
(†)	19350	21150	20530	20810	20600	20610	20840	20900	20910	16830	18530	17820
(‡)	+5090	+1800	-620	+280	-210	+10	+230	+60	+10	-4080	+1700	-710

CAL YR 2001 MAX 862.16 MIN 839.58 †AC-FT -210  
WTR YR 2002 MAX 862.16 MIN 839.58 †AC-FT +3560

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

## SANDY RIVER BASIN

14140000 BULL RUN RIVER NEAR BULL RUN, OR

LOCATION.--Lat 45°26'15", long 122°10'42", in NE 1/4 SW 1/4 sec.34, T.1 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on left bank 1.8 mi downstream from Bull Run Reservoir Number Two, 2.7 mi northeast of Bull Run, and at mile 4.7.

DRAINAGE AREA.--107 mi<sup>2</sup>.

PERIOD OF DAILY RECORD.--December 2000 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Record fair.

EXTREMES FOR PERIOD OF RECORD.--Maximum, 21.8°C July 10, 2002; minimum, 2.8°C Feb. 12, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum, 21.8°C July 10; minimum, 3.0°C Jan. 29, Feb. 27.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	16.7	14.1	15.2	10.4	9.9	10.1	7.6	6.0	6.7	4.9	3.3	4.3
2	16.3	14.0	15.0	10.5	9.8	10.1	7.4	6.3	6.8	4.9	3.4	4.2
3	15.8	13.5	14.4	10.2	9.3	9.8	7.1	5.8	6.5	5.0	3.5	4.2
4	15.5	13.1	14.2	10.5	9.5	10.0	7.1	5.9	6.3	4.7	3.5	4.2
5	15.6	13.3	14.2	10.2	9.0	9.7	6.7	5.8	6.3	5.1	3.5	4.4
6	15.4	13.7	14.5	9.8	8.7	9.3	6.7	5.3	6.1	5.2	3.8	4.4
7	14.3	13.0	13.7	9.6	8.4	9.0	7.0	5.3	6.1	5.5	3.6	4.5
8	14.7	13.4	14.0	9.7	8.6	9.1	6.8	5.3	6.0	5.7	3.6	4.7
9	14.9	12.9	13.8	9.5	8.3	8.9	6.4	5.1	5.8	5.5	3.8	4.6
10	13.7	12.3	13.0	9.9	8.4	9.0	6.2	5.1	5.7	5.3	3.9	4.7
11	13.9	12.7	13.3	9.9	8.5	9.0	6.3	5.3	5.8	5.4	4.2	4.8
12	13.4	12.3	13.0	9.3	8.5	8.9	6.2	5.3	5.7	5.5	3.8	4.8
13	14.5	12.6	13.5	9.3	8.3	8.9	6.6	4.9	5.6	5.5	3.8	4.7
14	14.3	12.8	13.5	9.9	8.3	8.9	6.2	4.6	5.4	5.4	4.1	4.8
15	14.0	12.0	12.9	9.8	8.1	8.9	6.1	4.4	5.2	5.4	4.1	4.7
16	13.4	12.4	12.8	9.2	8.0	8.6	6.0	4.5	5.3	5.2	4.1	4.8
17	13.2	11.7	12.5	9.0	8.0	8.5	6.1	4.3	5.2	5.3	4.3	4.8
18	12.6	11.1	11.8	9.3	7.9	8.6	5.9	4.4	5.1	5.2	4.3	4.7
19	13.4	11.1	12.2	9.7	8.4	9.0	5.5	4.7	5.1	5.3	4.3	4.7
20	12.8	11.4	11.9	9.3	8.1	8.7	5.4	4.6	5.0	5.2	4.1	4.7
21	11.7	10.6	11.2	9.2	7.7	8.5	5.5	4.6	5.0	5.3	3.7	4.6
22	12.0	11.0	11.5	9.1	7.9	8.4	5.4	4.4	4.9	5.3	3.8	4.5
23	11.6	10.6	11.0	8.8	7.7	8.4	5.4	4.2	4.8	4.9	4.0	4.5
24	11.5	10.1	10.7	8.9	7.3	8.1	5.2	4.1	4.7	4.8	4.0	4.5
25	12.1	10.4	11.2	8.7	7.2	7.8	5.4	3.7	4.6	5.0	3.8	4.4
26	12.0	10.2	11.1	8.2	6.8	7.6	5.0	3.5	4.3	5.0	3.8	4.3
27	11.6	9.9	10.9	8.0	6.8	7.3	5.1	3.4	4.3	4.9	3.8	4.3
28	11.1	9.2	10.2	8.3	6.5	7.4	5.1	3.5	4.4	4.7	3.8	4.2
29	11.1	9.9	10.5	8.1	6.4	7.2	5.2	3.2	4.1	4.7	3.0	4.0
30	11.3	10.6	10.9	7.8	6.2	6.9	4.9	3.2	4.1	4.4	3.6	4.1
31	11.0	10.2	10.6	---	---	---	4.9	3.3	4.2	4.4	3.5	4.0
MONTH	16.7	9.2	12.6	10.5	6.2	8.7	7.6	3.2	5.3	5.7	3.0	4.5



## 14140001 BULL RUN RIVER NEAR BULL RUN, OR

LOCATION.--Lat 45°26'15", long 122°10'42", in NE 1/4 SW 1/4 sec.34, T.1 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on left bank 1.8 mi downstream from Bull Run Reservoir Number Two, 2.7 mi northeast of Bull Run, and at mile 4.7.

DRAINAGE AREA.--107 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1907 to current year. Records for January 1895 to August 1907, published in WSP 370, have been found to be unreliable and should not be used.

REVISED RECORDS.--WSP 1288: 1910-11, 1913, 1920-23, 1926, 1929. WSP 1318: 1919(M). WSP 1568: 1952. See also PERIOD OF RECORD.

GAGE.--Water-stage recorder. Datum of gage is 567.90 ft above NGVD of 1929 (levels by Portland Water Bureau). Prior to July 27, 1909, nonrecording gage at site 1.5 mi upstream at different datum. July 27, 1909, to Sept. 30, 1959, water-stage recorder at site 2.5 mi upstream at different datums.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1915 by Bull Run Lake capacity, 12,270 acre-ft, since 1929 by Bull Run Reservoir Number One (station 14139000), since 1958 by North Fork Reservoir, capacity, 1,030 acre-ft, and since 1961 by Bull Run Reservoir Number Two (station 14139900). All records given herein include flow diverted from Bull Run Reservoir Number Two for city of Portland, and that used by Portland General Electric Co. for power generation, which returns to Bull Run River downstream from station. Total diversion, 169,100 acre-ft of which 50,540 acre-ft were used for power generation and returned to Bull Run River.

COOPERATION.--Records of daily diversion furnished by Portland Water Bureau.

AVERAGE DISCHARGE.--95 years (water years 1908-2002), 777 ft<sup>3</sup>/s, 98.61 in/yr, 562,900 acre-ft/yr, adjusted for storage in Bull Run Reservoir Number One since 1929 and Bull Run Reservoir Number Two since 1961.

EXTREMES FOR PERIOD OF RECORD.--River only, maximum discharge, 24,800 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 17.21 ft, from rating curve extended above 8,800 ft<sup>3</sup>/s on basis of computation of peak flow over dam; minimum discharge, 1.1 ft<sup>3</sup>/s Oct. 4, 1974.

Combined flow, maximum discharge, 25,100 ft<sup>3</sup>/s Dec. 22, 1964; minimum daily, 11 ft<sup>3</sup>/s Nov. 16, 1987.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 7,720 ft<sup>3</sup>/s Apr. 14, gage height, 11.43 ft; minimum discharge, 20 ft<sup>3</sup>/s July 18-26, 29.

Combined flow, maximum discharge, 8,030 ft<sup>3</sup>/s (of which approximately 132 ft<sup>3</sup>/s were diverted for Portland water supply) Apr. 14; minimum daily, 115 ft<sup>3</sup>/s (of which approximately 84 ft<sup>3</sup>/s were diverted for Portland water supply) Oct. 15, 18.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	210	237	2280	500	607	605	644	764	891	604	233	258
2	214	270	2730	896	567	495	617	694	821	441	243	242
3	221	398	1900	839	596	460	704	623	737	390	253	238
4	246	1030	1670	810	581	444	736	603	308	378	253	242
5	228	835	1010	718	556	418	937	641	306	371	243	241
6	209	801	1640	1300	553	1080	1050	882	862	326	227	235
7	206	573	2860	2230	1030	948	1470	663	488	264	232	231
8	157	508	1900	3580	1160	660	1570	541	522	216	254	214
9	117	513	1500	2600	1070	539	1300	434	580	272	284	224
10	125	435	1210	1520	781	660	1990	432	539	275	300	278
11	126	425	1040	1050	824	1430	2640	421	386	288	277	278
12	120	417	1230	1310	744	3720	2910	421	362	294	311	255
13	120	508	3140	1420	574	2110	2780	433	685	255	327	254
14	116	2070	5470	1130	454	1450	6040	449	930	249	322	242
15	115	1570	2780	759	414	1160	3220	498	362	248	309	235
16	128	1260	3810	583	399	936	2080	563	306	255	292	224
17	120	1130	4100	654	438	831	1730	638	382	267	280	194
18	115	845	2410	588	518	610	943	848	995	267	276	186
19	147	773	1640	708	840	1130	1030	718	727	263	261	192
20	179	821	1270	1140	911	1580	948	681	561	253	257	200
21	185	939	937	1690	1160	1200	800	690	596	250	253	215
22	173	1310	819	1240	1790	912	682	954	526	274	243	214
23	172	3700	669	900	2550	781	626	995	357	293	244	229
24	167	2020	578	1020	3450	752	566	809	365	282	265	245
25	186	1670	460	2660	1830	956	493	693	378	282	273	233
26	186	956	431	2300	1140	842	550	705	320	271	278	204
27	172	781	430	1420	779	818	774	842	292	248	271	195
28	170	1220	508	806	781	815	683	1020	324	245	271	197
29	165	2960	540	680	---	888	537	1780	1310	272	256	196
30	168	2150	483	637	---	745	623	1560	767	287	257	178
31	198	---	499	638	---	751	---	1240	---	264	266	---
TOTAL	5161	33125	51944	38326	27097	30726	41673	23235	16985	9144	8311	6769
MEAN	166.5	1104	1676	1236	967.8	991.2	1389	749.5	566.2	295.0	268.1	225.6
MAX	246	3700	5470	3580	3450	3720	6040	1780	1310	604	327	278
MIN	115	237	430	500	399	418	493	421	292	216	227	178
AC-FT	10240	65700	103000	76020	53750	60950	82660	46090	33690	18140	16480	13430
MEAN†	413	1255	1658	1240	967	990	1392	786	595	229	97.3	84.4
CFSM†	3.86	11.7	15.5	11.6	9.04	9.25	13.0	7.35	5.56	2.14	0.91	0.79
IN.†	4.46	13.09	17.87	13.37	9.41	10.67	14.52	8.48	6.20	2.46	1.05	0.88
AC-FT†	25420	74670	102000	76260	53710	60860	82850	48350	35390	14060	5980	5020

CAL YR 2001 TOTAL 223856 MEAN 613.3 MAX 5470 MIN 115 AC-FT 444000 MEAN† 613 CFSM† 5.73 IN.† 77.78 AC-FT† 443700  
WTR YR 2002 TOTAL 292496 MEAN 801.4 MAX 6040 MIN 115 AC-FT 580200 MEAN† 807 CFSM† 7.55 IN.† 102.46 AC-FT† 584600

† Adjusted for change in contents in Bull Run Reservoir Number One and Bull Run Reservoir Number Two.

SANDY RIVER BASIN

14141500 LITTLE SANDY RIVER NEAR BULL RUN, OR

LOCATION.--Lat 45°24'56", long 122°10'13", in NE 1/4 NE 1/4 sec.10, T.2 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on left bank 0.25 mi upstream from Portland General Electric Co. dam and tunnel from Sandy River, 3.0 mi east of Bull Run, and at mile 1.95.

DRAINAGE AREA.--22.3 mi<sup>2</sup>.

PERIOD OF RECORD.--May to July 1911, October 1911 to March 1912, June 1912 to April 1913, July 1919 to current year. Monthly discharge only for some periods in water years 1911-13, published in WSP 1318.

REVISED RECORDS.--WSP 1154: 1949. WSP 1248: Drainage area. WSP 1288: 1912, 1920-21(M), 1922-23, 1931, 1945. WSP 1318: 1920. WDR OR-82-2: 1972(P), 1974-76(P), 1978-81(P).

GAGE.--Water-stage recorder. Elevation of gage is 720 ft above NGVD of 1929, from topographic map. May 23, 1911, to Apr. 29, 1913, nonrecording gage at site 0.85 mi downstream at different datum, 0.5 mi downstream from Sandy River diversion tunnel. July 1, 1919, to Sept. 30, 1931, water-stage recorder at site 0.1 mi downstream at different datum. Oct 1, 1931, to Nov. 3, 1967, at site 0.1 mi downstream at datum 712 ft above sea level. Nov. 4, 1967, to Aug. 8, 1971, water-stage recorder at site 0.1 mi downstream at datum 697.44 ft above sea level (Portland General Electric Co. bench mark).

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--83 years (water years 1920-2002), 144 ft<sup>3</sup>/s, 87.75 in/yr, 104,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,320 ft<sup>3</sup>/s Nov. 20, 1921, gage height, 9.18 ft, site and datum then in use, from rating curve extended above 2,200 ft<sup>3</sup>/s; minimum discharge, 8.0 ft<sup>3</sup>/s Aug. 20, Sept. 16, 17, 1940.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	0400	*1,590	*5.55	No other peak greater than base discharge.			
Minimum discharge, 11 ft <sup>3</sup> /s Oct. 4-7.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	388	324	124	126	98	120	126	e160	78	21	13
2	12	396	337	206	117	87	117	129	e140	66	21	13
3	12	234	295	189	117	78	116	132	e120	58	21	13
4	11	153	249	166	114	73	127	e125	e110	54	21	13
5	11	173	227	139	110	73	155	e130	e130	49	22	13
6	11	127	487	251	111	191	213	e135	e120	44	21	13
7	11	100	567	389	159	186	340	e115	e100	42	20	13
8	15	82	367	544	227	138	258	e110	e90	45	20	13
9	18	70	308	341	207	117	232	e100	e75	40	18	12
10	24	60	265	222	180	109	407	e95	e75	36	18	12
11	120	54	264	172	161	263	411	e90	e75	34	18	12
12	49	59	260	246	138	491	450	e110	e80	32	18	12
13	101	179	583	224	122	294	455	e125	e90	31	17	12
14	93	380	614	162	107	227	974	e140	e90	29	16	12
15	68	212	405	128	98	184	402	e130	e85	28	16	12
16	46	221	615	112	94	154	289	e120	e80	27	15	13
17	45	205	572	100	90	129	233	e125	e85	26	15	26
18	34	154	379	95	97	112	198	e125	e180	25	15	17
19	29	133	283	112	135	190	174	e120	e115	25	15	14
20	26	136	227	172	153	247	156	e120	e85	24	15	13
21	25	142	186	287	190	200	143	e120	e70	24	15	13
22	184	429	153	218	260	162	128	e175	63	24	15	12
23	397	502	127	176	451	137	123	e160	58	23	14	12
24	208	273	110	195	445	152	116	e140	54	23	14	12
25	118	193	97	471	245	157	117	e135	49	23	14	12
26	86	146	88	385	174	139	119	e140	46	23	14	12
27	72	120	82	263	134	150	144	e150	42	23	14	12
28	66	299	102	200	114	159	127	e200	48	23	14	12
29	57	448	89	157	---	158	126	e400	180	23	13	18
30	229	314	79	132	---	133	134	e270	99	22	13	42
31	542	---	83	129	---	127	---	e200	---	22	13	---
TOTAL	2732	6382	8824	6707	4676	5115	7104	4492	2794	1046	516	428
MEAN	88.13	212.7	284.6	216.4	167.0	165.0	236.8	144.9	93.13	33.74	16.65	14.27
MAX	542	502	615	544	451	491	974	400	180	78	22	42
MIN	11	54	79	95	90	73	116	90	42	22	13	12
AC-FT	5420	12660	17500	13300	9270	10150	14090	8910	5540	2070	1020	849
CFSM	3.95	9.54	12.8	9.70	7.49	7.40	10.6	6.50	4.18	1.51	0.75	0.64
IN.	4.56	10.65	14.72	11.19	7.80	8.53	11.85	7.49	4.66	1.74	0.86	0.71

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1920 - 2002, BY WATER YEAR (WY)

	MEAN	86.73	209.8	246.7	236.7	209.5	185.1	194.0	162.2	102.2	39.62	23.08	37.40
MAX	271	588	585	589	452	407	325	328	268	121	96.1	184	
(WY)	1960	1956	1965	1953	1961	1932	1920	1945	1933	1983	1968	1927	
MIN	10.6	14.3	57.5	45.9	59.2	49.9	54.0	55.8	19.2	13.8	10.1	12.4	
(WY)	1988	1930	1977	1937	1977	1941	1941	1947	1992	1940	1940	1938	

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1920 - 2002

ANNUAL TOTAL	41851	50816	
ANNUAL MEAN	114.7	139.2	144.0
HIGHEST ANNUAL MEAN			223
LOWEST ANNUAL MEAN			87.6
HIGHEST DAILY MEAN	637	974	3500
LOWEST DAILY MEAN	11	11	8.0
ANNUAL SEVEN-DAY MINIMUM	11	11	9.0
ANNUAL RUNOFF (AC-FT)	83010	100800	104300
ANNUAL RUNOFF (CFSM)	5.14	6.24	6.46
ANNUAL RUNOFF (INCHES)	69.81	84.77	87.75
10 PERCENT EXCEEDS	283	310	302
50 PERCENT EXCEEDS	75	117	97
90 PERCENT EXCEEDS	15	14	18

SANDY RIVER BASIN

14142500 SANDY RIVER BELOW BULL RUN RIVER, NEAR BULL RUN, OR

LOCATION.--Lat 45°26'57", long 122°14'38", in SW 1/4 sec.30, T.1 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, on left bank 0.1 mi downstream from Bull Run River, 0.2 mi downstream from Dodge Park, 400 ft below city of Portland water conduit crossing Sandy River, and at mile 18.4.

DRAINAGE AREA.--436 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1910 to September 1914, October 1929 to September 1966, May 1984 to current year. Monthly discharge only for some periods during the 1911, 1912, and water years, published in WSP 1318.

REVISED RECORDS.--WDR OR-96-1: 1986 (P).

GAGE.--Water-stage recorder. Elevation of gage is 240 ft above NGVD of 1929, from topographic map. April 1910 to September 1914, staff gage at present site at different datum. October 1929 to September 1966, water-stage recorder at site 0.8 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1915 by Bull Run Lake, since 1929 by Bull Run Reservoir Number One (station 14139000), and since 1961 by Bull Run Reservoir Number Two (station 14139900). Some fluctuation caused by Bull Run powerplant of Portland General Electric Company. Portland Water Bureau diverted 169,100 acre-ft from Bull Run River, of which 50,540 acre-ft were used for power generation by Portland General Electric Company and returned to Bull Run River. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--4 years (water years 1911-14) 2,321 ft<sup>3</sup>/s, 1,681,000 acre-ft/yr. 55 years (water years 1930-66, 1985-2002), 2,287 ft<sup>3</sup>/s, 1,657,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 84,400 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 22.3 ft, site and datum then in use; minimum discharge, 45 ft<sup>3</sup>/s Sept. 26, 1962, minimum daily, 63 ft<sup>3</sup>/s Oct. 12, Nov. 9, 1952.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 19,800 ft<sup>3</sup>/s Apr. 14, gage height, 15.91 ft; minimum discharge, 188 ft<sup>3</sup>/s Oct. 6.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	321	2560	5050	1590	2120	1950	2140	2440	3180	1710	552	411
2	298	2560	5870	2260	1970	1730	2190	2470	2900	1410	535	428
3	281	2040	4560	2190	1970	1580	2230	2490	2690	1280	518	440
4	294	2230	3940	2080	1940	1530	2320	2320	2200	1200	515	410
5	284	2040	3170	1920	1870	1490	2970	2330	2320	1130	523	369
6	254	1810	4940	3000	1850	2780	3250	2630	2840	1070	493	359
7	279	1430	7410	5320	2710	2880	4100	2250	2220	999	455	365
8	310	1240	5100	8180	3550	2240	4180	1970	2100	1020	500	358
9	387	1120	4260	6360	3230	1910	3810	1800	2070	982	468	381
10	389	1020	3590	4260	2640	1990	5630	1700	1900	936	524	412
11	1160	964	3400	3270	2600	3550	6560	1650	1710	940	518	373
12	658	969	3440	3720	2350	9010	7030	1730	1720	893	479	379
13	701	1290	7300	3980	2020	5430	7120	2030	2130	904	561	384
14	686	4660	12200	3270	1750	4070	15200	2120	2610	871	482	387
15	621	3250	6980	2560	1620	3380	8680	2160	1990	789	532	382
16	516	2820	9070	2220	1580	2920	5940	2180	1830	752	460	446
17	470	2780	10100	2140	1630	2610	4850	2320	1780	747	461	548
18	384	2290	6540	1980	1740	2170	3560	2660	3020	738	462	443
19	417	2020	4760	2170	2260	3330	3280	2570	2420	725	456	398
20	414	2090	3890	3010	2660	4070	2980	2630	2000	690	430	374
21	348	2230	3150	4650	2980	3400	2700	2700	1890	664	434	309
22	895	3830	2730	3500	4390	2790	2430	3280	1780	672	444	347
23	2780	7720	2360	2770	6180	2480	2320	3280	1590	695	430	333
24	1830	4630	2070	2840	7230	2420	2160	2890	1500	662	435	332
25	1250	3670	1810	6710	4460	2640	2050	2690	1400	619	425	327
26	923	2610	1690	5860	3190	2470	2120	2800	1340	640	436	319
27	803	2170	1590	4900	2480	2510	2470	3070	1320	644	448	299
28	775	3370	1710	2940	2300	2470	2250	3440	1330	605	456	281
29	688	6360	1630	2470	---	2520	2080	5020	3050	643	458	367
30	1140	4840	1490	2220	---	2270	2260	4570	2140	614	428	608
31	2760	---	1520	2170	---	2240	---	3800	---	567	409	---
TOTAL	23316	82613	137320	105700	77270	88830	120860	81990	62970	26811	14727	11569
MEAN	752.1	2754	4430	3410	2760	2865	4029	2645	2099	864.9	475.1	385.6
MAX	2780	7720	12200	8180	7230	9010	15200	5020	3180	1710	561	608
MIN	254	964	1490	1590	1580	1490	2050	1650	1320	567	409	281
AC-FT	46250	163900	272400	209700	153300	176200	239700	162600	124900	53180	29210	22950

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2002, BY WATER YEAR (WY)

MEAN	1122	3090	3838	3440	3400	2982	3293	2792	1787	800.7	494.7	512.0
MAX	4086	7882	10700	8955	8793	6426	5176	5357	4887	1756	731	1947
(WY)	1960	1996	1965	1953	1996	1932	1937	1949	1933	1955	1964	1959
MIN	242	294	992	791	1196	997	980	998	479	390	308	310
(WY)	1988	1953	1953	1937	1993	1941	1941	1992	1992	1992	1992	1994

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1930 - 2002

ANNUAL TOTAL	609577	833976	
ANNUAL MEAN	1670	2285	2287
HIGHEST ANNUAL MEAN			3456
LOWEST ANNUAL MEAN			1334
HIGHEST DAILY MEAN	12200	15200	57800
LOWEST DAILY MEAN	239	254	63
ANNUAL SEVEN-DAY MINIMUM	286	286	228
ANNUAL RUNOFF (AC-FT)	1209000	1654000	1657000
10 PERCENT EXCEEDS	3780	4590	4700
50 PERCENT EXCEEDS	1120	2070	1610
90 PERCENT EXCEEDS	367	412	406

SANDY RIVER BASIN

14142800 BEAVER CREEK AT TROUTDALE, OR

LOCATION.--Lat. 45°31'10", long 122°23'16" in Land Grant parcel number 50, T.1N., R.3E., Multnomah County, Hydrologic Unit 17080001, on right bank, 100 ft downstream from Stark Street culvert outlet, 2.1 mi upstream from mouth.

DRAINAGE AREA.--8.91 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1999 to current year.

Gage.--Water stage recorder. Datum of gage is 195 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except those for the period July 18 to Sept. 27, which are poor. No known diversions. Kelly Creek, an upstream tributary, is impounded at Mt. Hood Community College. The pond is approximately 10 acre-ft. Maintenance of the structure may effect downstream flow. Irrigation by the Gresham Golf Course, upstream from pond, may increase flow over the pond spillway during summer months.

AVERAGE DISCHARGE.--3 years (water year 2000-02), 20.5 ft<sup>3</sup>/s, 31.20 in/yr, 14,820 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 579 ft<sup>3</sup>/s Mar. 11, 2002, gage height, 10.28 ft; minimum discharge, 0.06 ft<sup>3</sup>/s Aug. 29, 2000, Aug. 25, 30, 31, Sept. 6-11, 14, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 25	1030	541	10.04	Mar. 11	1930	*579	*10.28

Minimum discharge, 0.06 ft<sup>3</sup>/s Aug. 25, 30, 31, Sept. 6-11, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	25	203	83	59	6.8	5.7	7.3	2.7	5.5	0.33	0.10
2	1.3	17	177	65	33	5.7	5.5	6.4	2.4	5.4	0.31	0.33
3	1.4	8.0	142	39	30	4.9	4.9	5.6	2.2	3.4	0.19	0.12
4	1.3	8.5	158	27	21	4.4	4.5	5.3	2.7	1.9	0.37	0.13
5	1.2	40	205	35	28	6.2	5.4	5.3	2.1	1.3	0.37	0.13
6	1.3	11	113	107	60	235	4.4	6.3	2.2	2.3	0.26	0.09
7	1.3	6.9	88	169	171	68	5.8	6.5	1.8	8.0	0.21	0.07
8	2.9	5.3	58	154	154	29	4.3	4.5	4.6	17	0.19	0.08
9	1.8	4.3	44	55	54	21	26	4.1	4.1	3.2	0.17	0.08
10	19	3.8	69	34	40	28	18	4.1	4.3	3.2	0.30	0.07
11	6.4	3.5	90	25	28	170	17	3.7	2.3	2.2	0.18	0.06
12	4.4	18	77	37	20	158	10	3.5	2.4	2.3	0.15	0.09
13	5.6	39	208	24	15	94	39	3.3	2.1	1.8	0.27	0.13
14	3.0	42	162	19	12	66	101	3.2	1.9	1.6	0.14	0.09
15	2.4	30	94	15	9.3	56	32	3.3	1.7	1.4	0.22	0.09
16	4.1	52	156	21	8.4	58	61	2.7	1.7	1.1	0.17	2.4
17	2.6	43	143	20	7.0	58	69	5.2	22	1.3	0.16	8.0
18	1.7	17	91	23	8.5	43	32	2.7	7.6	0.98	0.13	0.72
19	1.6	39	66	45	45	202	21	4.2	2.9	0.87	0.15	0.42
20	1.4	40	62	77	15	72	16	4.6	2.5	0.79	0.14	0.36
21	4.9	44	43	88	16	37	13	2.8	2.4	0.86	0.15	0.34
22	11	99	32	101	11	25	11	3.9	2.0	0.44	0.20	0.21
23	15	51	23	50	138	19	9.8	3.1	2.0	1.1	0.14	0.17
24	4.6	33	19	64	32	17	7.5	2.4	1.9	0.59	0.12	0.37
25	2.6	29	15	312	19	17	6.6	2.2	1.8	0.73	0.08	0.62
26	2.2	17	13	118	14	12	20	2.0	1.7	0.65	0.10	0.30
27	13	13	18	94	10	11	68	3.1	1.6	0.28	0.09	0.26
28	4.7	246	33	73	8.6	9.0	15	19	30	0.27	0.11	1.3
29	7.2	160	16	43	---	7.9	11	11	34	0.22	0.11	26
30	56	139	13	33	---	6.9	8.9	3.6	4.9	0.38	0.08	49
31	40	---	21	57	---	6.3	---	2.9	---	0.21	0.10	---
TOTAL	227.3	1284.3	2652	2107	1066.8	1554.1	653.3	147.8	158.5	71.27	5.69	92.13
MEAN	7.33	42.8	85.5	68.0	38.1	50.1	21.8	4.77	5.28	2.30	0.18	3.07
MAX	56	246	208	312	171	235	101	19	34	17	0.37	49
MIN	1.2	3.5	13	15	7.0	4.4	4.3	2.0	1.6	0.21	0.08	0.06
AC-FT	451	2550	5260	4180	2120	3080	1300	293	314	141	11	183
CFSM	0.82	4.80	9.60	7.63	4.28	5.63	2.44	0.54	0.59	0.26	0.02	0.34
IN.	0.95	5.36	11.07	8.80	4.45	6.49	2.73	0.62	0.66	0.30	0.02	0.38

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2000 - 2002, BY WATER YEAR (WY)

	2000	2001	2002	2000	2001	2002	2000	2001	2002	2000	2001	2002
MEAN	6.35	31.1	54.0	43.7	37.9	37.2	16.3	9.77	4.74	1.54	1.00	2.47
MAX	7.75	42.8	85.5	68.0	58.0	50.1	21.8	15.2	5.28	2.30	2.14	3.07
(WY)	2001	2002	2002	2002	2000	2002	2002	2000	2002	2002	2001	2002
MIN	3.97	10.8	25.7	12.5	16.9	28.7	9.72	4.77	4.23	1.02	0.18	1.60
(WY)	2000	2001	2001	2001	2001	2001	2000	2002	2000	2000	2002	2001

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 2000 - 2002	
ANNUAL TOTAL	7023.57		10020.19			
ANNUAL MEAN	19.2		27.5		20.5	
HIGHEST ANNUAL MEAN					27.5	
LOWEST ANNUAL MEAN					11.6	
HIGHEST DAILY MEAN	246	Nov 28	312	Jan 25	315	Nov 25 1999
LOWEST DAILY MEAN	0.50	Aug 21	0.06	Sep 11	0.06	Sep 11 2002
ANNUAL SEVEN-DAY MINIMUM	0.59	Aug 15	0.08	Sep 6	0.08	Sep 6 2002
ANNUAL RUNOFF (AC-FT)	13930		19880		14820	
ANNUAL RUNOFF (CFSM)	2.16		3.08		2.30	
ANNUAL RUNOFF (INCHES)	29.32		41.84		31.20	
10 PERCENT EXCEEDS	45		79		56	
50 PERCENT EXCEEDS	7.2		6.6		6.6	
90 PERCENT EXCEEDS	0.75		0.20		0.63	

14144700 COLUMBIA RIVER AT VANCOUVER, WA

LOCATION.--Lat 45°37'15", long 122°40'20", in NE 1/4 NW 1/4 sec.34, T.2 N., R.1 E., Clark County, Hydrologic Unit 17080001, near right bank in control house of Interstate Highway 5 bridge at south edge of Vancouver, 5.0 mi upstream from Willamette River, and at mile 106.5.

DRAINAGE AREA.--241,000 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1963 to June 1970 (discharge), February 1998 to current year (gage heights only).

GAGE.--Water-stage recorder. Datum of gage is 1.82 ft above NGVD of 1929. Prior to February 1998, datum of gage was NGVD of 1929.

REMARKS.--Considerable regulation by many large reservoirs. Diurnal fluctuations caused by powerplant operations at Bonneville Dam and tides. Gage maintained by National Weather Service.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 27.60 ft Dec. 25, 1964, present datum, (backwater from Willamette River).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 7, 1894, reached a stage of 34.4 ft, present datum, from information provided by U.S. Army Corps of Engineers. Flood of June 13, 14, 1948, reached a stage of 31.0 ft, present datum, from Weather Bureau records.

EXTREMES FOR CURRENT YEAR.--Maximum recorded gage height, 12.92 ft Apr. 18; minimum, -0.68 ft Oct. 26.

## GAGE HEIGHT, in FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

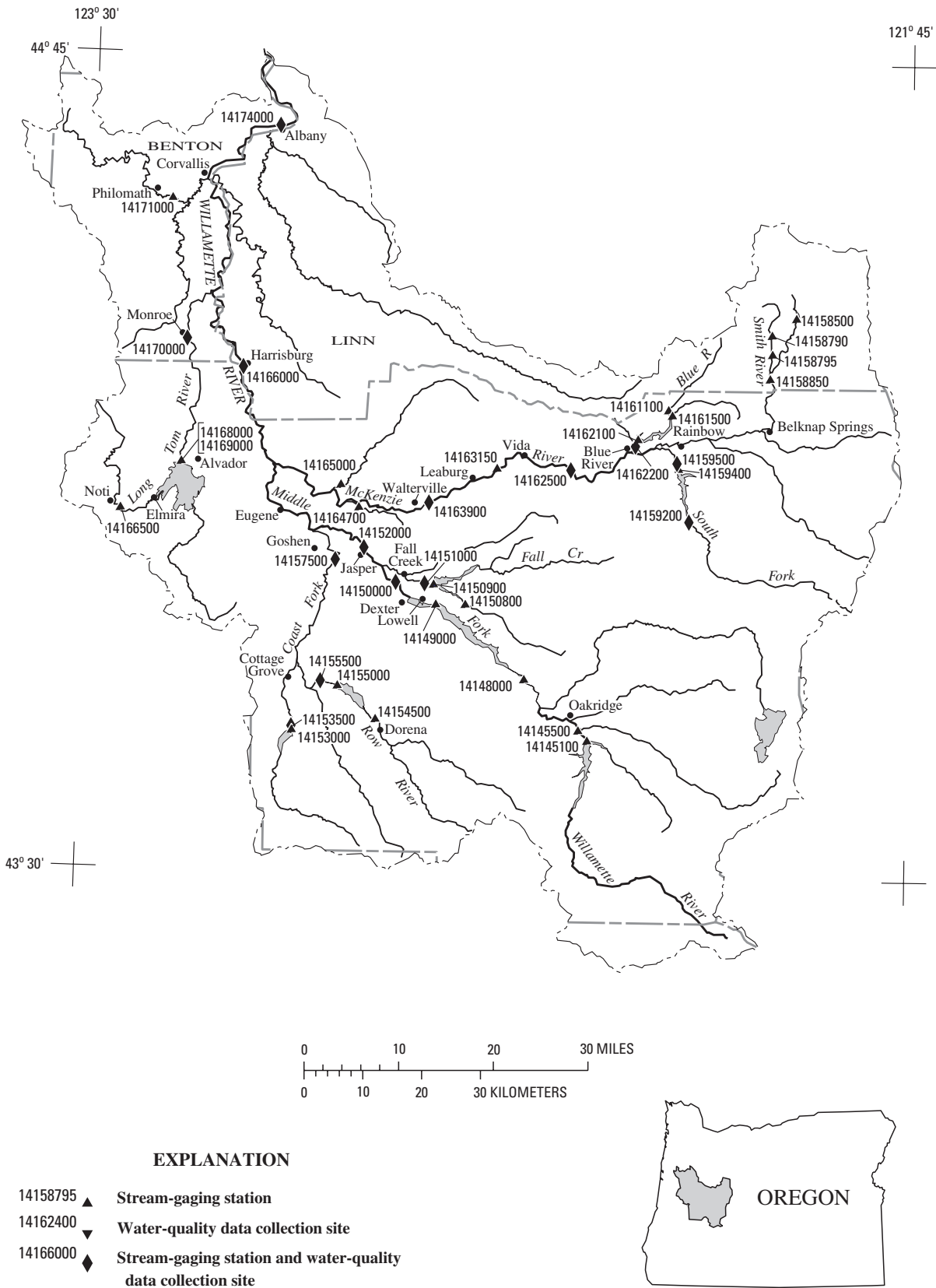
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	3.30	-0.02	1.62	4.60	1.28	2.74	8.32	6.42	7.37	---	---	---
2	3.68	0.42	1.99	4.72	1.38	2.81	8.22	7.12	7.84	6.72	---	---
3	3.72	0.50	2.04	4.44	1.30	2.57	8.32	6.92	7.65	5.62	3.72	4.63
4	3.24	0.16	1.66	4.04	0.86	2.18	7.22	6.12	6.75	5.02	3.12	4.14
5	3.78	0.00	1.68	3.88	0.80	2.10	6.92	5.82	6.49	5.12	2.92	4.04
6	3.64	0.48	1.84	4.04	0.72	2.23	6.82	5.72	6.40	5.52	3.12	4.27
7	3.32	0.20	1.50	3.32	0.98	1.97	6.72	5.42	6.04	7.42	4.22	5.90
8	3.28	-0.10	1.32	3.24	0.56	1.74	6.02	4.92	5.50	8.42	6.82	7.48
9	2.88	-0.26	1.06	3.22	0.92	2.05	5.92	4.52	5.30	8.12	7.12	7.60
10	3.44	-0.64	1.03	3.68	0.72	2.11	6.02	4.02	4.91	8.52	7.52	7.97
11	3.48	0.22	1.60	3.68	0.32	1.97	6.22	4.02	5.05	7.72	6.22	7.24
12	2.98	-0.46	1.28	4.36	0.64	2.41	6.12	4.32	5.15	7.02	5.42	6.16
13	3.28	-0.26	1.42	4.82	1.40	2.94	7.02	4.42	5.65	6.62	5.02	5.64
14	3.28	0.00	1.68	6.42	1.62	4.05	8.22	6.32	7.54	6.02	4.62	5.37
15	3.96	0.36	2.08	6.52	3.42	4.69	8.02	6.82	7.55	5.32	3.92	4.76
16	4.40	0.90	2.48	6.02	2.92	4.20	8.62	7.02	7.77	6.52	4.32	5.48
17	4.60	1.00	2.56	5.42	2.52	3.67	9.22	8.12	8.67	6.22	5.02	5.58
18	4.76	1.50	2.92	4.92	2.42	3.44	9.52	8.02	8.67	5.42	4.22	4.77
19	4.42	1.04	2.51	4.92	1.62	2.97	9.52	8.02	8.81	5.02	3.72	4.30
20	3.84	0.64	1.99	5.02	2.02	3.45	8.82	6.62	7.61	4.92	2.92	3.98
21	3.52	0.14	1.60	4.52	2.42	3.61	7.82	6.82	7.18	5.62	3.82	4.84
22	3.80	0.00	1.62	5.12	2.32	3.90	7.82	5.52	6.69	5.92	4.42	5.27
23	3.40	0.76	1.94	4.72	3.42	4.06	6.12	4.72	5.51	6.52	5.32	5.93
24	2.28	-0.40	1.12	5.02	3.52	4.17	5.32	3.92	4.68	7.22	5.82	6.51
25	2.48	-0.08	1.21	4.82	3.32	4.06	4.72	3.12	3.86	7.22	6.12	6.74
26	2.44	-0.68	0.97	4.42	2.72	3.54	4.82	2.92	3.68	8.72	6.82	7.84
27	3.04	-0.08	1.48	4.62	2.72	3.56	5.42	3.02	3.85	8.42	7.52	8.01
28	2.92	-0.16	1.33	6.72	3.32	4.87	6.02	3.02	4.21	8.62	7.42	7.91
29	3.44	0.28	1.71	7.22	4.92	6.33	6.12	3.32	4.37	8.52	7.12	7.64
30	4.12	0.68	2.15	7.22	5.82	6.61	6.22	3.22	4.36	8.22	6.82	7.47
31	4.44	0.98	2.59	---	---	---	6.32	3.22	4.42	7.72	6.12	6.95
MONTH	4.76	-0.68	1.74	7.22	0.32	3.37	9.52	2.92	6.11	---	---	---



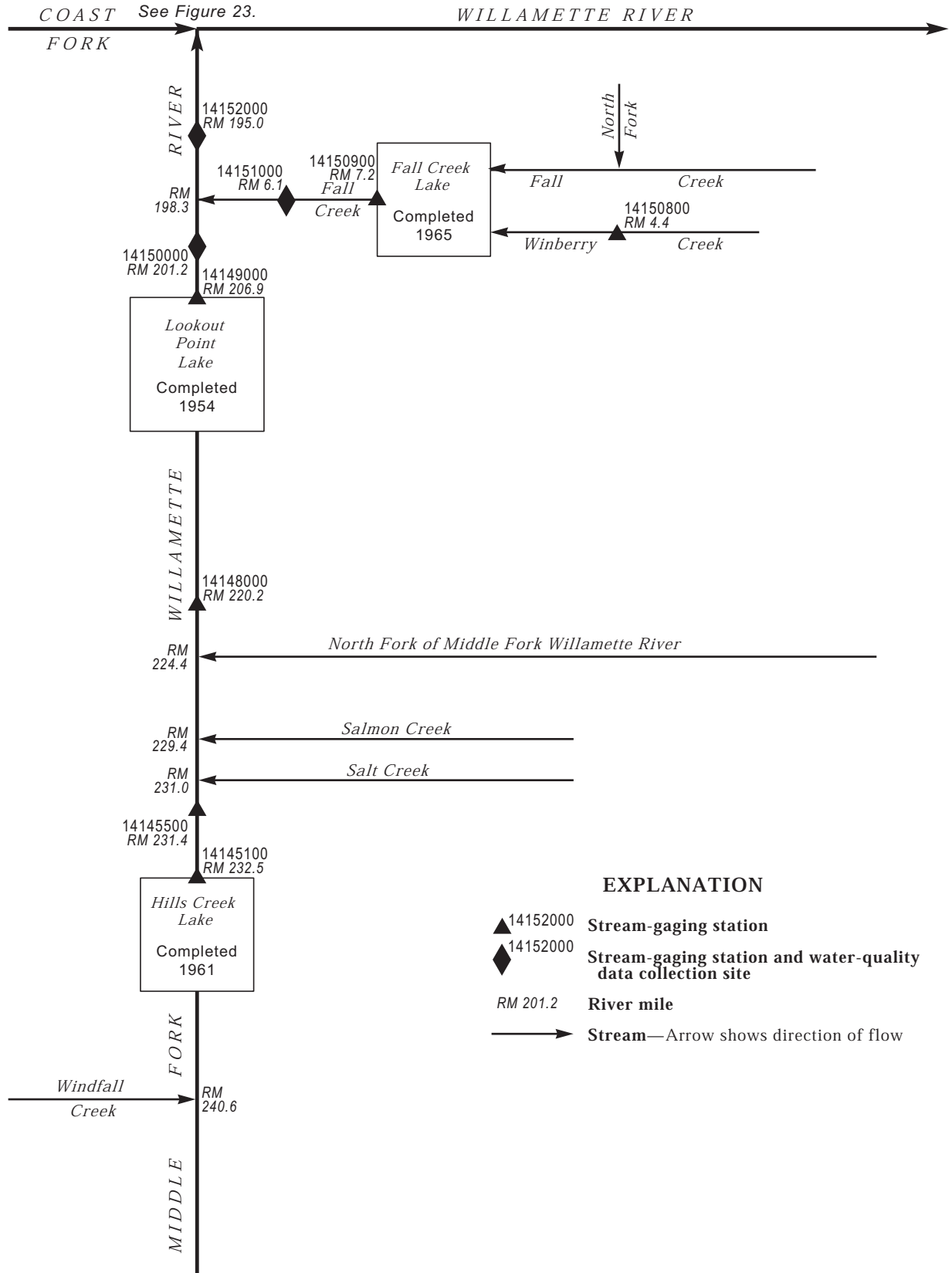
## 14144700 COLUMBIA RIVER AT VANCOUVER, WA--Continued

GAGE HEIGHT, in FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.22	5.92	6.54	5.92	4.02	4.89	5.42	2.62	3.92	6.82	5.42	6.07
2	6.52	5.02	5.78	5.42	2.92	4.07	5.72	3.72	4.54	6.42	4.92	5.66
3	6.12	4.22	5.10	5.32	2.52	3.65	5.02	2.82	3.93	6.12	4.92	5.53
4	5.12	3.22	4.20	5.12	2.12	3.31	4.12	2.12	3.16	6.02	4.92	5.58
5	6.02	4.32	4.98	5.22	2.22	3.31	3.92	2.12	3.17	6.02	5.12	5.61
6	5.82	4.02	4.81	5.02	2.32	3.32	3.72	1.82	3.00	5.72	4.32	4.96
7	6.22	4.32	5.11	4.62	2.72	3.42	3.82	1.92	3.04	5.82	4.32	5.27
8	6.92	4.82	6.04	4.32	2.22	3.46	4.22	1.82	3.21	6.62	5.12	6.03
9	7.12	5.92	6.51	4.32	2.12	3.17	4.92	3.12	4.13	6.62	4.82	5.77
10	6.42	4.62	5.76	5.12	2.12	3.71	5.82	3.42	4.86	5.82	4.02	4.83
11	5.62	3.92	4.78	6.02	2.72	4.27	6.72	4.72	5.83	5.32	3.82	4.63
12	6.02	4.42	5.14	6.92	3.92	5.55	6.82	5.72	6.31	6.02	4.22	4.96
13	5.62	3.72	4.79	7.82	5.82	6.95	7.62	5.92	6.81	5.52	3.92	4.66
14	5.72	3.62	4.64	7.62	6.22	7.07	9.62	7.32	8.82	6.02	4.42	5.18
15	5.22	3.32	4.51	6.72	5.52	6.15	10.32	9.02	9.51	6.12	4.52	5.24
16	4.52	2.22	3.56	6.82	5.52	6.10	12.42	10.32	11.45	6.12	4.42	5.21
17	4.72	2.62	3.46	5.92	4.22	5.04	12.92	12.42	12.67	5.72	4.32	4.95
18	4.52	2.22	3.21	4.92	3.02	4.02	12.92	12.02	12.46	6.32	4.72	5.47
19	5.32	2.42	3.71	5.32	3.82	4.40	12.02	10.82	11.49	5.62	4.42	5.05
20	4.62	3.02	3.63	5.22	3.82	4.35	10.82	8.92	9.92	5.72	4.82	5.33
21	5.02	3.22	3.90	4.42	3.22	3.78	9.42	8.62	9.15	6.32	5.32	5.94
22	5.12	3.32	4.08	4.42	2.82	3.64	8.82	7.42	8.24	7.42	6.02	7.10
23	5.52	3.52	4.32	4.32	2.42	3.38	7.92	7.32	7.63	8.42	7.22	7.79
24	5.62	3.52	4.48	4.42	2.32	3.32	7.92	7.22	7.55	8.32	7.32	7.73
25	5.62	3.92	4.84	4.72	2.32	3.45	8.12	6.72	7.36	---	7.32	---
26	6.22	3.92	4.96	5.22	2.52	3.71	7.82	6.62	7.11	8.22	6.62	7.32
27	6.22	3.92	5.17	5.52	2.72	4.04	7.62	6.22	6.87	7.72	6.02	6.84
28	6.02	4.12	5.02	5.62	3.32	4.37	7.82	5.62	6.61	8.42	6.72	7.71
29	---	---	---	5.42	3.12	4.20	6.82	5.02	5.77	9.52	8.02	8.91
30	---	---	---	5.52	2.92	4.05	7.12	5.22	6.09	9.42	8.82	9.14
31	---	---	---	5.62	2.92	3.94	---	---	---	9.42	8.92	9.14
MONTH	7.22	2.22	4.75	7.82	2.12	4.26	12.92	1.82	6.82	---	3.82	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	10.22	9.12	9.44	9.22	8.32	8.68	4.24	2.05	2.92	3.90	1.05	1.98
2	10.42	9.22	9.82	9.02	8.42	8.63	4.30	1.90	2.81	3.52	0.60	1.68
3	9.42	8.32	8.78	8.92	7.52	8.24	4.27	2.24	2.93	3.50	0.05	1.72
4	9.22	8.62	8.97	8.22	7.62	7.86	4.42	1.79	2.84	4.06	0.38	2.26
5	10.42	9.12	9.67	8.32	6.72	7.49	4.28	1.51	2.84	4.87	1.28	2.87
6	11.32	10.42	11.08	7.52	5.62	6.34	5.36	2.73	3.81	4.93	1.31	2.97
7	11.42	10.52	11.03	7.22	5.42	6.11	5.35	---	---	4.99	1.30	2.97
8	10.72	10.42	10.59	7.12	5.22	6.07	5.39	2.31	3.62	4.51	0.95	2.61
9	10.62	9.42	10.01	6.62	---	---	5.92	3.06	4.35	4.32	0.73	2.40
10	9.82	8.52	9.15	---	---	---	5.81	2.59	4.05	5.02	0.94	2.59
11	9.62	8.42	8.89	6.99	4.95	5.78	5.40	2.65	3.87	4.93	1.22	2.85
12	9.92	8.22	9.10	7.28	5.66	6.37	5.25	2.17	3.60	4.08	0.66	2.31
13	9.12	8.12	8.64	7.79	5.97	6.82	5.69	2.34	3.67	3.67	0.31	1.64
14	9.32	7.82	8.60	7.07	5.42	6.29	5.78	2.53	3.81	4.03	0.33	1.85
15	8.42	7.52	7.97	6.98	5.58	6.15	5.67	2.43	3.69	4.22	0.86	2.03
16	8.22	7.02	7.75	6.98	4.63	5.78	5.66	2.70	3.71	3.42	0.01	1.62
17	8.22	6.82	7.31	6.27	4.29	5.00	5.33	2.10	3.33	3.55	0.19	1.95
18	8.62	7.52	7.99	6.73	5.25	5.81	4.66	1.54	2.79	4.17	0.80	2.41
19	9.32	8.12	8.79	7.03	4.59	5.55	4.83	1.86	3.11	4.03	0.88	2.43
20	10.32	9.32	10.11	6.61	4.34	5.24	5.03	2.13	3.38	4.07	1.03	2.58
21	10.82	10.22	10.45	6.70	4.50	5.65	5.23	2.46	3.59	4.16	1.16	2.62
22	10.82	9.32	10.07	6.70	4.97	5.77	5.22	2.22	3.52	3.93	0.78	2.37
23	9.82	8.22	8.92	7.03	4.50	5.63	5.00	2.23	3.46	4.77	1.06	2.74
24	9.62	8.32	8.92	6.53	4.21	5.23	4.90	2.25	3.49	4.55	1.64	3.03
25	9.62	8.22	8.83	6.47	4.17	5.16	4.61	1.70	3.17	4.34	1.07	2.42
26	8.82	7.62	8.18	5.89	3.38	4.56	3.87	1.31	2.50	4.65	1.28	2.54
27	8.62	7.72	8.18	5.14	2.89	3.94	4.08	1.11	2.41	4.42	1.48	2.64
28	9.22	8.32	8.74	4.41	2.19	3.44	4.39	1.37	2.59	3.73	0.83	2.10
29	10.42	9.22	9.98	4.10	1.75	3.07	3.99	1.49	2.63	3.38	0.53	1.65
30	10.42	9.02	9.67	4.81	2.70	3.39	3.97	0.91	1.99	3.25	0.13	1.41
31	---	---	---	4.75	1.91	3.18	3.87	1.26	2.08	---	---	---
MONTH	11.42	6.82	9.19	---	---	---	5.92	---	---	5.02	0.01	2.31



**Figure 21.** Location of surface-water and water-quality stations in the Willamette River Basin upstream from the Luckiamute River.



**EXPLANATION**

- ▲ 14152000 Stream-gaging station
- ◆ 14152000 Stream-gaging station and water-quality data collection site
- RM 201.2 River mile
- Stream—Arrow shows direction of flow

**Figure 22.** Schematic diagram showing gaging stations in the Middle Fork Willamette River Basin.

14145100 HILLS CREEK LAKE NEAR OAKRIDGE, OR

LOCATION.--Lat 43°42'30", long 122°25'25", in NW 1/4 sec.35, T.21 S., R.3 E., Lane County, Hydrologic Unit 17090001, in Willamette National Forest, near right end of Hills Creek Dam on Middle Fork Willamette River, 600 ft downstream from Hills Creek, 3.5 mi southeast of Oakridge, and at mile 232.5.

DRAINAGE AREA.--389 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1961 to current year. Prior to October 1971, published as Hills Creek Reservoir near Oakridge.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway completed in 1961 by the Corps of Engineers; storage began August 1961. Total capacity is 355,600 acre-ft at elevation 1,543.0 ft, top of spillway gates, and usable capacity is 248,900 acre-ft between elevations 1,414.0 ft, minimum power pool, and 1,543.0 ft. Reservoir used for flood control and power generation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 354,200 acre-ft June 25, 1971, elevation, 1,542.52 ft; minimum contents, 104,800 acre-ft Jan. 2, 1969, elevation, 1,412.52 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 350,300 acre-ft May 17, elevation, 1,541.11 ft; minimum contents, 155,200 acre-ft Jan. 24, elevation, 1,447.88 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

1,410	101,500	1,460	174,900	1,520	297,200
1,420	114,600	1,480	211,000	1,540	347,300
1,440	143,000	1,500	251,900	1,544	358,500

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1467.84	1456.17	1459.27	1451.41	1454.73	1486.25	1513.96	1534.01	1534.80	1534.51	1529.16	1525.21
2	1467.20	1456.09	1458.87	1452.73	1455.44	1486.87	1514.50	1534.63	1535.29	1534.44	1529.04	1525.07
3	1466.54	1455.96	1457.54	1453.67	1456.13	1487.42	1515.20	1535.28	1535.70	1534.41	1528.91	1524.75
4	1465.89	1455.79	1455.93	1454.00	1456.77	1487.93	1516.04	1535.91	1536.06	1534.41	1528.80	1524.30
5	1465.23	1455.61	1454.65	1454.08	1457.42	1488.45	1517.05	1536.50	1536.41	1534.34	1528.71	1523.67
6	1464.58	1455.43	1454.93	1455.86	1458.09	1489.17	1518.01	1537.08	1536.75	1534.19	1528.59	1522.66
7	1463.92	1455.23	1454.86	1458.64	1459.86	1490.17	1518.82	1537.58	1536.40	1534.02	1528.48	1521.66
8	1463.26	1455.02	1453.68	1464.13	1462.37	1490.95	1519.30	1538.03	1535.89	1533.82	1528.36	1520.63
9	1462.79	1454.80	1452.28	1466.11	1464.06	1491.63	1519.72	1538.48	1535.34	1533.50	1528.25	1519.58
10	1462.54	1454.58	1450.89	1465.87	1465.32	1492.29	1520.75	1538.88	1534.74	1533.19	1528.12	1518.54
11	1462.44	1454.37	1450.02	1464.92	1466.42	1493.13	1521.77	1539.26	1533.96	1532.72	1527.98	1517.51
12	1462.21	1454.19	1449.28	1463.77	1467.39	1495.17	1522.74	1539.65	1533.16	1532.11	1527.84	1516.43
13	1461.91	1454.06	1450.92	1462.37	1468.27	1496.78	1524.18	1540.16	1532.83	1531.49	1527.71	1515.34
14	1461.48	1454.06	1456.32	1460.66	1469.09	1498.03	1528.78	1540.65	1532.98	1530.86	1527.57	1514.25
15	1461.02	1454.00	1457.73	1458.68	1469.82	1499.07	1530.50	1540.97	1533.21	1530.70	1527.44	1513.16
16	1460.58	1454.20	1459.72	1456.58	1470.57	1499.98	1531.05	1541.04	1533.42	1530.62	1527.31	1512.06
17	1460.26	1454.42	1462.52	1454.48	1471.32	1500.73	1531.08	1541.03	1533.68	1530.53	1527.17	1511.58
18	1459.96	1454.44	1462.49	1452.47	1472.05	1501.37	1530.75	1540.44	1534.14	1530.45	1527.04	1511.04
19	1459.56	1454.42	1461.77	1450.96	1473.10	1501.99	1530.59	1539.49	1534.43	1530.36	1526.91	1510.40
20	1459.07	1454.56	1460.72	1449.66	1474.34	1502.72	1530.62	1538.49	1534.64	1530.29	1526.80	1509.71
21	1458.63	1455.35	1459.20	1449.25	1475.77	1503.64	1530.54	1537.47	1534.80	1530.22	1526.68	1508.62
22	1458.36	1457.71	1457.34	1448.42	1477.44	1504.75	1530.38	1536.01	1534.95	1530.15	1526.55	1507.51
23	1458.34	1458.47	1455.24	1447.94	1479.54	1506.14	1530.52	1535.38	1535.07	1530.10	1526.42	1506.41
24	1458.03	1457.96	1453.39	1447.90	1481.32	1507.58	1530.84	1534.74	1535.19	1530.04	1526.29	1505.30
25	1457.65	1457.39	1452.18	1449.92	1482.69	1508.86	1531.28	1534.13	1535.02	1529.97	1526.16	1504.18
26	1457.23	1456.67	1451.26	1452.38	1483.77	1509.92	1531.82	1533.63	1534.79	1529.87	1526.03	1503.05
27	1456.81	1455.72	1450.61	1453.35	1484.72	1510.87	1532.34	1533.25	1534.57	1529.76	1525.91	1501.91
28	1456.37	1457.33	1450.29	1453.78	1485.54	1511.72	1532.76	1533.00	1534.55	1529.66	1525.78	1500.77
29	1456.01	1458.93	1450.07	1453.85	---	1512.52	1533.15	1533.03	1534.56	1529.53	1525.64	1499.64
30	1456.05	1458.97	1449.98	1453.81	---	1513.07	1533.53	1533.56	1534.55	1529.39	1525.51	1498.60
31	1456.17	---	1450.61	1454.01	---	1513.50	---	1534.23	---	1529.27	1525.36	---
MAX	1467.84	1458.97	1462.52	1466.11	1485.54	1513.50	1533.53	1541.04	1536.75	1534.51	1529.16	1525.21
MIN	1456.01	1454.00	1449.28	1447.90	1454.73	1486.25	1513.96	1533.00	1532.83	1529.27	1525.36	1498.60
(†)	168500	173200	159500	165000	221800	282000	330500	332300	333100	319800	310100	248800
(‡)	-21100	+4700	-13700	+5500	+56800	+60200	+48500	+1800	+800	-13300	-9700	-61300

CAL YR 2001 MAX 1509.81 MIN 1448.70 AC-FT† +2900  
WTR YR 2002 MAX 1541.04 MIN 1447.90 AC-FT† +59200

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

14145500 MIDDLE FORK WILLAMETTE RIVER ABOVE SALT CREEK, NEAR OAKRIDGE, OR

LOCATION.--Lat 43°43'20", long 122°26'15", in NW 1/4 NE 1/4 sec.27, T.21 S., R.3 E., Lane County, Hydrologic Unit 17090001, in Willamette National Forest, on right bank 90 ft upstream from highway bridge, 0.4 mi upstream from Salt Creek, 1.1 mi downstream from Hills Creek Dam, 2.3 mi southeast of Oakridge, and at mile 231.4.

DRAINAGE AREA.--392 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1913 to September 1914, September 1935 to current year. Monthly discharge only September 1935, published in WSP 1318.

REVISED RECORDS.--WSP 1248: 1914.

GAGE.--Water-stage recorder. Datum of gage is 1,208.01 ft above NGVD of 1929 (levels by Corps of Engineers). Oct. 3, 1913, to Sept. 30, 1914, nonrecording gage and Sept. 1, 1935, to Aug. 18, 1960, water-stage recorder at sites 400 ft and 1,000 ft downstream, respectively, at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1961 by Hills Creek Lake (station 14145100). No diversions upstream from station.

AVERAGE DISCHARGE.--68 years (water years 1914, 1936-2002), 1,147 ft<sup>3</sup>/s, 39.74 in/yr, 831,000 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 34,000 ft<sup>3</sup>/s Dec. 28, 1945, gage height, 12.06 ft, site and datum then in use, from rating curve extended above 13,000 ft<sup>3</sup>/s; minimum observed discharge, 0.70 ft<sup>3</sup>/s Sept. 8-11, 13, 1961.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,240 ft<sup>3</sup>/s Jan. 14, gage height, 5.65 ft; minimum discharge, 239 ft<sup>3</sup>/s Feb. 4.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	799	421	1520	1230	352	300	711	412	508	507	404	408
2	798	421	2040	1340	304	299	712	301	503	512	407	407
3	797	425	2410	1440	304	300	713	302	505	472	411	610
4	794	425	2460	1470	306	300	714	305	506	403	403	777
5	795	425	2400	1420	308	307	724	304	511	473	405	1000
6	791	428	2590	1410	310	314	718	306	515	591	405	1540
7	791	429	2560	1340	304	313	719	307	1380	595	405	1550
8	798	431	2670	1300	302	311	1070	306	1540	634	405	1560
9	622	432	2560	2320	295	309	1310	307	1530	800	405	1560
10	475	430	2350	2990	307	309	1320	310	1540	786	404	1550
11	442	429	1760	2980	307	309	1320	308	1780	985	404	1530
12	449	429	1650	2930	308	316	1320	305	1810	1190	418	1570
13	518	431	1600	2910	309	318	1330	311	1200	1180	406	1580
14	601	428	1690	2950	308	324	1850	321	565	1180	423	1580
15	598	427	1580	2960	306	325	2510	577	405	568	400	1580
16	595	426	1540	2920	306	324	2490	905	404	414	405	1580
17	497	426	2210	2790	308	324	2480	1060	403	416	398	1030
18	475	426	3080	2630	308	324	2480	2010	408	414	396	989
19	549	425	3100	2240	309	323	2000	2510	410	410	394	1020
20	644	430	2990	2090	309	321	1560	2510	409	395	394	1040
21	593	520	2980	2100	307	324	1560	2520	411	393	402	1570
22	597	705	2950	2040	310	316	1560	3030	412	391	401	1560
23	606	1050	2960	1540	309	309	1120	1800	404	404	404	1550
24	607	1570	2590	1040	310	310	785	1800	405	412	402	1550
25	607	1540	1910	1020	311	308	607	1800	777	410	396	1540
26	606	1550	1610	1060	308	309	507	1800	803	410	395	1560
27	604	1600	1340	1040	297	308	509	1790	804	413	397	1560
28	606	1220	1260	1020	296	300	511	1810	528	409	392	1550
29	588	1290	1220	1070	---	316	516	1630	492	434	392	1550
30	413	1520	1220	997	---	530	515	950	493	443	400	1560
31	421	---	1220	724	---	709	---	560	---	422	407	---
TOTAL	19076	21109	66020	57311	8618	10309	36241	33467	22361	17466	12480	40011
MEAN	615.4	703.6	2130	1849	307.8	332.5	1208	1080	745.4	563.4	402.6	1334
MAX	799	1600	3100	2990	352	709	2510	3030	1810	1190	423	1580
MIN	413	421	1220	724	295	299	507	301	403	391	392	407
AC-FT	37840	41870	131000	113700	17090	20450	71880	66380	44350	34640	24750	79360
MEAN†	272	783	1907	1938	1331	1311	2024	1109	759	347	245	304
CFSM†	0.69	2.00	4.86	4.94	3.39	3.34	5.16	2.83	1.94	0.88	0.62	0.77
IN.†	0.80	2.23	5.61	5.70	3.53	3.86	5.76	3.26	2.16	1.02	0.72	0.86
AC-FT†	16740	46570	117300	119200	73890	80650	120380	68180	45150	21340	15050	18060
CAL YR 2001 TOTAL	243046											
MEAN	665.9											
MAX	3100											
MIN	83											
AC-FT	482100											
MEAN†	670											
CFSM†	1.71											
IN.†	23.20											
AC-FT†	485000											
WTR YR 2002 TOTAL	344469											
MEAN	943.8											
MAX	3100											
MIN	295											
AC-FT	683300											
MEAN†	1025											
CFSM†	2.62											
IN.†	35.52											
AC-FT†	742500											

† Adjusted for change in contents, in Hill Creek Lake.

14148000 MIDDLE FORK WILLAMETTE RIVER BELOW NORTH FORK, NEAR OAKRIDGE, OR

LOCATION.--Lat 43°48'05", long 122°33'35", in SW 1/4 sec.27, T.20 S., R.2 E., Lane County, Hydrologic Unit 17090001, on left bank 0.5 mi downstream from Whitehead Creek, 4.2 mi downstream from North Fork of Middle Fork Willamette River, 7.0 mi northwest of Oakridge, and at mile 220.2.

DRAINAGE AREA.--924 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1911 to September 1912, July 1923 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "near Hazeldell" 1911-12 and as "at Eula" 1923-50.

REVISED RECORDS.--WSP 694: 1925-28. WSP 814: Drainage area at Eula. WSP 1248: 1924, 1925(M), 1926-28, 1929(M), 1930, 1933, 1946(M). WSP 1398: 1927(M). WSP 1638: 1936(M).

GAGE.--Water-stage recorder. Datum of gage is 934.76 ft above NGVD of 1929. Mar. 22, 1911, to Sept. 30, 1912, nonrecording gage at site 4.0 mi upstream, just downstream from North Fork at different datum. July 1, 1923, to Aug. 11, 1935, nonrecording gage and Aug. 12, 1935, to Sept. 30, 1950, water-stage recorder at site 4.0 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1961 by Hills Creek Lake (station 14145100); slight regulation at times by logponds upstream from station. No diversion upstream from station. Continuous water-quality records for the period September 1950 to September 1987 have been collected at this location.

AVERAGE DISCHARGE.--39 years (water years 1912, 1924-1961), 2,726 ft<sup>3</sup>/s, 1,975,000 acre-ft/yr.  
41 years (water years 1962-2002), 2,854 ft<sup>3</sup>/s, 2,068,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 81,800 ft<sup>3</sup>/s Dec. 28, 1945, gage height, 18.8 ft, from floodmark, site and datum then in use, from rating curve extended above 39,000 ft<sup>3</sup>/s; minimum discharge, 322 ft<sup>3</sup>/s Aug. 30, 1961, caused by closing outlet gates at Hills Creek Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since 1861 and prior to March 1911, 17.0 ft in February 1890 at site used 1923-50, from information by local resident, discharge, about 55,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,400 ft<sup>3</sup>/s Apr. 14, gage height, 6.80 ft; minimum discharge, 679 ft<sup>3</sup>/s Oct. 9.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1140	1320	4080	3730	2090	2170	2930	2300	2710	1280	822	755
2	1140	1180	4590	4360	1930	2010	3050	2220	2480	1250	821	753
3	1140	1070	4600	4560	1880	1890	3250	2340	2320	1190	825	930
4	1130	1000	4400	4200	1830	1800	3480	2290	2210	1080	815	1160
5	1130	967	4530	3850	1820	1770	3760	2230	2230	1100	820	1310
6	1130	949	6640	4240	1790	1990	3700	2150	2220	1240	824	1930
7	1130	918	7050	4880	2320	2460	3630	2040	2860	1230	812	1940
8	1140	896	5910	7020	3220	2180	3690	1910	2980	1240	803	1960
9	1000	880	5300	7420	2880	2040	4080	1840	2850	1420	798	1950
10	816	863	4770	7000	2530	1970	5470	1760	2750	1390	794	1940
11	1140	851	4020	6290	2370	2200	5680	1690	2940	1540	789	1910
12	905	866	3940	5970	2240	4070	5540	1720	3000	1780	799	1950
13	887	931	5420	5740	2160	3730	6170	1900	2520	1770	782	1960
14	971	1270	10400	5470	2070	3250	14200	1930	1950	1760	794	1960
15	955	1070	6770	5210	2000	2920	11100	2180	1670	1200	767	1950
16	943	1260	7150	4960	1980	2680	8270	2590	1610	935	767	1950
17	849	1450	9220	4710	2020	2470	7040	2720	1590	930	765	1620
18	783	1260	8570	4390	1980	2270	6280	3850	2100	921	755	1520
19	853	1160	7680	4010	2280	2240	5350	4380	1890	912	758	1470
20	995	1220	6970	3950	2580	2350	4440	4340	1660	888	760	1430
21	922	1640	6320	5140	2680	2560	4180	4310	1560	873	797	1940
22	1160	3280	5820	4560	3080	2750	4010	4900	1500	863	780	1940
23	2230	3650	5430	3790	3670	3110	3550	3490	1440	879	767	1940
24	1480	3480	4850	3010	3710	3390	3040	3380	1380	896	782	1930
25	1240	3360	3840	4000	3230	3200	2810	3400	1670	878	766	1930
26	1150	3270	3420	4990	2840	2940	2690	3570	1720	869	761	1920
27	1110	3070	3020	4010	2550	2790	2700	3730	1690	859	756	1930
28	1110	3550	3070	3440	2350	2620	2530	4010	1400	850	748	1930
29	1100	4630	2980	3140	--	2540	2420	4150	1360	871	742	1930
30	1090	4060	3000	2870	--	2660	2420	3640	1330	876	747	2070
31	1470	--	3500	2480	--	2880	--	2980	--	851	755	--
TOTAL	34239	55371	167260	143390	68080	79900	141460	89940	61590	34621	24271	51808
MEAN	1104	1846	5395	4625	2431	2577	4715	2901	2053	1117	782.9	1727
MAX	2230	4630	10400	7420	3710	4070	14200	4900	3000	1780	825	2070
MIN	783	851	2980	2480	1790	1770	2420	1690	1330	850	742	753
AC-FT	67910	109800	331800	284400	135000	158500	280600	178400	122200	68670	48140	102800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2002, BY WATER YEAR (WY)

	1890	3434	4927	4598	3361	3009	3204	3336	2402	1270	1163	1681
MEAN	1890	3434	4927	4598	3361	3009	3204	3336	2402	1270	1163	1681
MAX	3035	7641	13540	10350	8460	7802	5606	5550	4969	1990	1753	2639
(WY)	1998	1997	1965	1997	1996	1972	1993	1996	1974	1999	1982	1966
MIN	625	1414	1073	874	710	1167	1464	1113	811	703	629	1102
(WY)	1962	1994	1977	1977	1977	1992	1968	1992	1992	1994	1994	2001

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1962 - 2002

ANNUAL TOTAL	684697	951930										
ANNUAL MEAN	1876	2608	2854									
HIGHEST ANNUAL MEAN			4710									1997
LOWEST ANNUAL MEAN			1416									1977
HIGHEST DAILY MEAN				10400	Dec 14		14200	Apr 14		43500	Dec 23	1964
LOWEST DAILY MEAN				705	Jul 27		742	Aug 29		334	Oct 5	1961
ANNUAL SEVEN-DAY MINIMUM				719	Jul 23		751	Aug 27		349	Oct 1	1961
ANNUAL RUNOFF (AC-FT)			1358000				1888000			2068000		
10 PERCENT EXCEEDS			3680				4920			5450		
50 PERCENT EXCEEDS			1210				2070			2100		
90 PERCENT EXCEEDS			852				850			1000		

WILLAMETTE RIVER BASIN

14149000 LOOKOUT POINT LAKE NEAR LOWELL, OR

LOCATION.--Lat 43°54'50", long 122°45'00", in SE 1/4 sec.13, T.19 S., R.1 W., Lane County, Hydrologic Unit 17090001, in elevator house at right end of spillway section of dam on Middle Fork Willamette River, 1.5 mi east of Lowell, and at mile 206.9.

DRAINAGE AREA.--991 mi<sup>2</sup>.

PERIOD OF RECORD.--November 1953 to current year. Prior to October 1971, published as Lookout Point Reservoir near Lowell.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers). Nov. 7, 1953, to Dec. 4, 1954, approximate elevations obtained from reference marks and Dec. 5, 1954, to Feb. 4, 1955, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam with concrete gate and spillway section, completed in 1954 by Corps of Engineers. Planned storage began in November 1953. Total capacity is 455,800 acre-ft at elevation 929 ft, and usable capacity is 349,200 acre-ft between elevations 819 ft and 929 ft, top of spillway gates. Reservoir used for flood control, improvement of navigation, power generation, pollution abatement, and other purposes. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 464,900 acre-ft Dec. 26, 1964, elevation, 931.09 ft; minimum contents observed since first filling, 91,450 acre-ft Dec. 1, 1954, elevation, 811.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 427,900 acre-ft May 7, elevation, 922.43 ft; minimum contents, 115,100 acre-ft Dec. 27, elevation, 823.22 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

810	89,600	860	205,500	900	338,900
820	108,600	870	235,500	910	377,400
830	129,500	880	267,800	920	417,800
840	152,500	890	302,300	930	460,200
850	177,700				

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	842.19	837.43	835.31	825.68	829.45	861.94	891.93	920.65	919.03	921.88	906.05	866.38
2	842.06	837.50	833.11	826.40	829.74	862.63	892.71	920.96	919.45	921.96	904.96	864.87
3	841.90	837.47	830.73	827.29	830.29	863.21	893.60	921.34	919.40	922.00	903.84	863.41
4	841.72	837.39	827.78	827.85	831.14	863.71	894.56	921.69	919.26	921.99	902.71	861.98
5	841.55	837.28	825.79	828.13	831.82	864.13	895.75	922.05	919.15	921.98	901.54	860.63
6	841.39	837.17	827.43	828.75	832.41	864.77	896.87	922.21	919.02	921.91	900.40	859.85
7	841.35	836.99	829.15	830.02	833.87	865.75	897.89	921.77	918.82	921.85	899.32	859.13
8	841.24	836.81	828.84	832.96	835.94	866.58	898.82	921.25	918.78	921.80	898.19	858.32
9	840.95	836.60	827.81	835.75	837.75	867.30	899.74	920.71	918.72	921.74	896.99	857.41
10	840.58	836.37	826.76	837.21	839.14	868.01	901.52	919.88	918.60	921.66	895.79	856.46
11	840.44	836.18	825.59	837.33	840.34	868.96	903.53	919.01	918.57	921.58	894.65	855.45
12	840.14	836.00	824.43	837.19	841.70	871.17	905.34	918.15	918.54	921.50	893.46	854.59
13	839.77	835.87	824.90	836.73	842.86	873.01	907.80	917.37	918.65	921.38	892.27	853.89
14	839.49	836.02	830.52	835.98	843.70	874.48	913.71	916.61	918.83	921.28	891.05	852.84
15	839.18	836.02	832.30	834.94	844.49	875.79	916.64	915.97	919.10	920.82	889.84	851.90
16	838.88	836.30	836.10	833.98	845.24	876.96	917.15	915.49	919.36	920.11	888.65	851.03
17	838.46	836.66	840.84	832.62	846.14	877.94	917.44	915.06	919.64	919.36	887.39	850.04
18	838.00	836.89	842.17	830.77	846.94	878.79	917.38	915.21	920.13	918.56	886.22	848.95
19	837.48	836.97	842.19	828.87	848.04	879.53	917.06	915.60	920.54	917.69	884.91	847.98
20	836.93	836.60	840.68	827.06	849.40	880.32	916.65	916.16	920.80	916.86	883.52	847.32
21	836.56	836.10	837.74	826.95	850.79	881.26	916.48	916.70	921.03	916.06	882.18	846.97
22	836.45	836.90	834.20	825.50	852.43	882.29	916.69	917.36	921.23	915.21	880.73	846.65
23	837.24	838.00	831.11	824.50	854.36	883.51	916.98	917.32	921.41	914.40	879.38	846.30
24	837.36	838.33	828.50	823.42	856.28	884.89	917.46	917.24	921.55	913.59	878.03	845.97
25	837.30	837.96	825.75	824.77	857.86	886.14	917.79	917.13	921.64	912.71	876.63	845.47
26	837.14	837.17	824.15	826.30	859.19	887.21	918.25	917.13	921.69	911.81	875.18	845.23
27	836.97	836.31	823.56	826.38	860.20	888.20	918.87	917.24	921.57	910.90	873.77	844.83
28	836.82	836.90	823.58	826.22	861.12	889.08	919.31	917.46	921.50	910.07	872.32	844.53
29	836.70	837.64	824.29	826.75	---	889.91	919.71	917.74	921.65	909.16	870.78	844.17
30	836.83	836.89	824.89	827.49	---	890.51	920.31	918.10	921.80	908.12	869.28	843.95
31	837.21	---	825.56	828.33	---	891.21	---	918.61	---	907.10	867.87	---
MAX	842.19	838.33	842.19	837.33	861.12	891.21	920.31	922.21	921.80	922.00	906.05	866.38
MIN	836.45	835.87	823.56	823.42	829.45	861.94	891.93	915.06	918.54	907.10	867.87	843.95
(†)	145800	145100	119900	125800	208700	306600	419100	412100	425300	366100	229000	162200
(‡)	-12500	-700	-25200	+5900	+82900	+97900	+112500	-7000	+13200	-59200	-137100	-66800

CAL YR 2001 MAX 876.26 MIN 823.56 AC-FT† -7700  
WTR YR 2002 MAX 922.21 MIN 823.42 AC-FT† +3900

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

## WILLAMETTE RIVER BASIN

14150000 MIDDLE FORK WILLAMETTE RIVER NEAR DEXTER, OR

LOCATION.--Lat 43°56'45", long 122°50'10", in SE 1/4 NW 1/4 sec.5, T.19 S., R.1 W., Lane County, Hydrologic Unit 17090001, on right bank 0.6 mi upstream from Lost Creek, 2.0 mi northwest of Dexter, 2.6 mi downstream from Dexter Dam, and at mile 201.2.

DRAINAGE AREA.--1,001 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1946 to current year. Prior to October 1954, published as "at Lowell".

REVISED RECORDS.--WSP 1638: 1948(P).

GAGE.--Water-stage recorder. Datum of gage is 592.30 ft above NGVD of 1929 (levels by Corps of Engineers). Prior to Aug. 23, 1950, nonrecording gage and Aug. 23, 1950, to Sept. 30, 1954, at site 4.0 mi upstream at different datum, and June 9, 1955, to Feb. 18, 1977, at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1953 by Lookout Point Lake (station 14149000), since 1955 by Dexter Lake (re-regulating), and since 1961 by Hills Creek Lake (station 14145100).

AVERAGE DISCHARGE.--6 years (water years 1947-1952), 3,572 ft<sup>3</sup>/s, 2,588,000 acre-ft/yr.  
50 years (water years 1953-2002), 3,056 ft<sup>3</sup>/s, 2,214,000 acre-ft/yr, regulated.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,600 ft<sup>3</sup>/s Jan. 18, 1953, gage height, 12.46 ft, site and datum then in use, from rating curve extended above 33,000 ft<sup>3</sup>/s; minimum daily discharge, 100 ft<sup>3</sup>/s Nov. 25, 1960.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage, 13.9 ft Dec. 28, 1945, former site and datum.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,100 ft<sup>3</sup>/s Dec. 20, gage height, 8.38 ft; minimum discharge, 1,040 ft<sup>3</sup>/s Feb. 23.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1620	1310	5770	3450	1390	1110	1700	1610	1830	1210	3020	3220
2	1510	1310	7330	3500	1890	1100	1700	1620	1830	1200	3140	3220
3	1490	1320	7440	3490	1400	1100	1710	1620	2420	1200	3160	3210
4	1490	1320	7580	3530	1170	1140	1710	1620	2510	1190	3160	3230
5	1490	1330	7020	3540	1160	1360	1700	1620	2510	1250	3160	3250
6	1490	1310	5270	3520	1160	1350	1700	1910	2510	1430	3060	3260
7	1500	1320	5160	3490	1160	1340	1700	2980	3210	1430	3110	3260
8	1510	1330	5870	3500	1130	1230	2050	3070	3040	1460	3110	3250
9	1510	1310	6080	4330	1110	1120	2540	2910	3010	1620	3090	3260
10	1520	1300	6040	4940	1110	1130	2360	3520	3010	1620	3100	3250
11	1520	1300	4980	5680	1110	1160	1770	3560	3020	1820	3140	3250
12	1520	1300	4950	5950	1110	1190	1660	3560	3020	2050	3150	3260
13	1520	1300	4950	6000	1110	1190	1660	3560	2330	2020	3120	3250
14	1520	1300	4900	6010	1100	1190	2950	3570	1680	2030	3110	3250
15	1530	1300	4900	6010	1090	1190	5620	3560	1210	2310	3110	3260
16	1520	1300	3180	6010	1090	1200	6430	3540	1180	2480	3110	3230
17	1530	1310	3870	6000	1090	1190	6560	3570	1180	2520	3120	3210
18	1520	1310	6950	5990	1080	1190	6500	3570	1190	2680	3110	3240
19	1640	1310	7970	6020	1080	1180	6330	3600	1190	2670	3120	2850
20	1960	1910	8910	6010	1080	1150	5370	3240	1180	2690	3330	2460
21	1670	2520	9970	6030	1100	1150	4320	3240	1170	2710	3360	2460
22	1520	2590	9940	6010	1100	1180	3580	3490	1190	2700	3340	2470
23	1520	2590	8870	5140	1090	1200	2900	3530	1190	2690	3220	2460
24	1530	3290	7680	4250	1090	1190	2120	3500	1200	2700	3250	2470
25	1500	3990	6590	3440	1100	1200	2010	3530	1620	2710	3240	2470
26	1490	4120	5090	4240	1100	1190	2010	3560	1660	2740	3240	2470
27	1490	4120	3620	4290	1100	1200	1720	3540	2040	2730	3240	2470
28	1500	3270	2880	3840	1110	1220	1600	3540	1620	2740	3220	2480
29	1510	4080	2410	2660	---	1220	1610	3540	1230	2750	3210	2480
30	1320	4690	2410	2060	---	1700	1620	2980	1180	3020	3220	2490
31	1310	---	2850	1670	---	1710	---	1960	---	3040	3230	---
TOTAL	47270	62060	181430	140600	32410	37970	87210	94220	57160	67410	98300	88390
MEAN	1525	2069	5853	4535	1158	1225	2907	3039	1905	2175	3171	2946
MAX	1960	4690	9970	6030	1890	1710	6560	3600	3210	3040	3360	3260
MIN	1310	1300	2410	1670	1080	1100	1600	1610	1170	1190	3020	2460
AC-FT	93760	123100	359900	278900	64290	75310	173000	186900	113400	133700	195000	175300

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2002, BY WATER YEAR (WY)

	2851	4470	5340	4977	2873	2335	2282	2885	2471	1706	1970	2482
MEAN	2851	4470	5340	4977	2873	2335	2282	2885	2471	1706	1970	2482
MAX	5266	8779	12310	13510	7724	8084	4854	5464	5072	3145	3171	3932
(WY)	1963	1985	1997	1965	1953	1957	1993	1996	1984	1999	2002	1972
MIN	808	874	981	1050	668	525	437	526	816	1053	1083	892
(WY)	1953	1953	1955	1977	1977	1977	1977	1977	1977	1957	1966	1953

## SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1953 - 2002

ANNUAL TOTAL	745100	994430	
ANNUAL MEAN	2041	2724	3056
HIGHEST ANNUAL MEAN			4660
LOWEST ANNUAL MEAN			1392
HIGHEST DAILY MEAN	9970	Dec 21	9970
LOWEST DAILY MEAN	1020	Jan 19	1080
ANNUAL SEVEN-DAY MINIMUM	1060	Mar 6	1090
ANNUAL RUNOFF (AC-FT)	1478000	1972000	2214000
10 PERCENT EXCEEDS	4160	5150	6080
50 PERCENT EXCEEDS	1420	2470	2260
90 PERCENT EXCEEDS	1090	1180	1160



14150000 MIDDLE FORK WILLAMETTE RIVER NEAR DEXTER, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--August 1955 to September 1997, August 2001 to present.

INSTRUMENTATION.--Temperature recorder.

REMARKS.--Records fair

EXTREMES FOR PERIOD OF DAILY RECORD.--Maximum, 20.5°C several days in September, 1992, Aug. 28, Sept. 15, 16, 2001;  
 minimum recorded, 2.5°C Feb. 6-8, 1989, but may have been lower during period of missing record Feb. 9 to  
 Mar. 30, 1989

EXTREMES FOR CURRENT YEAR.--Maximum, 19.1°C Oct. 1, 2; minimum, 4.7°C Feb. 10.

## WATER TEMPERATURE, in (DEGREES C), AUGUST TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	19.2	16.6	17.6	20.0	17.9	18.7
2	---	---	---	---	---	---	19.4	16.7	17.7	20.3	18.2	18.9
3	---	---	---	---	---	---	18.4	16.8	17.4	20.2	17.9	18.8
4	---	---	---	---	---	---	18.2	16.9	17.4	20.2	18.0	18.9
5	---	---	---	---	---	---	19.3	16.6	17.6	19.5	18.2	18.6
6	---	---	---	---	---	---	19.5	16.8	17.8	20.1	18.0	18.8
7	---	---	---	---	---	---	19.5	17.1	17.9	20.2	17.9	18.8
8	---	---	---	---	---	---	19.6	17.0	18.0	20.4	18.0	18.9
9	---	---	---	---	---	---	19.9	17.3	18.3	20.4	18.1	18.9
10	---	---	---	---	---	---	19.8	17.3	18.3	20.2	18.3	18.9
11	---	---	---	---	---	---	19.8	17.2	18.2	20.3	18.1	18.9
12	---	---	---	---	---	---	19.8	17.5	18.4	20.3	18.4	19.0
13	---	---	---	---	---	---	19.8	17.5	18.4	20.3	18.5	19.1
14	---	---	---	---	---	---	19.7	17.6	18.3	20.4	18.5	19.2
15	---	---	---	---	---	---	20.0	17.7	18.5	20.5	18.9	19.3
16	---	---	---	---	---	---	19.5	17.6	18.2	20.5	18.7	19.2
17	---	---	---	---	---	---	19.9	17.6	18.4	20.2	18.5	19.1
18	---	---	---	---	---	---	19.5	17.8	18.4	20.4	18.4	19.1
19	---	---	---	---	---	---	20.0	17.5	18.3	20.2	18.2	19.0
20	---	---	---	---	---	---	19.9	17.5	18.4	20.3	18.2	19.0
21	---	---	---	---	---	---	19.3	17.6	18.3	20.1	18.2	18.9
22	---	---	---	---	---	---	18.6	18.1	18.3	20.2	18.1	18.9
23	---	---	---	---	---	---	19.6	17.7	18.4	20.2	18.2	18.9
24	---	---	---	---	---	---	20.0	17.7	18.5	19.8	18.3	18.8
25	---	---	---	---	---	---	20.0	17.7	18.6	18.8	18.4	18.6
26	---	---	---	---	---	---	20.2	17.9	18.7	18.7	18.0	18.4
27	---	---	---	---	---	---	20.3	18.0	18.8	18.8	17.7	18.1
28	---	---	---	---	---	---	20.5	18.0	18.9	19.3	17.3	18.0
29	---	---	---	---	---	---	20.2	18.0	18.8	19.1	17.2	17.8
30	---	---	---	---	---	---	20.2	17.8	18.7	19.1	17.1	17.8
31	---	---	---	---	---	---	20.2	18.0	18.7	---	---	---
MONTH	---	---	---	---	---	---	20.5	16.6	18.3	20.5	17.1	18.8

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	19.1	17.3	18.0	14.1	13.5	13.7	9.8	9.5	9.7	6.3	6.0	6.2
2	19.1	17.3	17.9	14.7	13.5	13.9	9.7	9.4	9.6	6.5	6.1	6.3
3	19.0	17.0	17.7	14.6	13.2	13.7	9.6	9.1	9.3	6.5	6.0	6.2
4	19.0	17.1	17.8	14.0	13.5	13.7	9.2	8.6	8.9	6.3	6.0	6.1
5	18.6	17.2	17.6	14.2	13.2	13.6	8.8	8.6	8.7	6.3	6.0	6.2
6	18.0	17.1	17.5	14.1	12.7	13.3	8.9	8.5	8.7	6.7	6.2	6.5
7	17.8	16.9	17.2	13.8	12.3	12.9	8.8	8.3	8.6	6.9	6.5	6.7
8	18.0	16.6	17.2	13.3	12.2	12.6	8.5	8.1	8.3	7.0	6.7	6.8
9	17.8	16.4	16.9	13.2	11.9	12.4	8.4	7.9	8.1	6.9	6.5	6.7
10	16.6	16.2	16.4	13.2	12.0	12.4	8.0	7.7	7.9	6.8	6.4	6.6
11	17.5	15.9	16.5	13.0	12.1	12.4	7.9	7.5	7.7	6.8	6.5	6.6
12	17.0	15.7	16.2	12.7	12.2	12.4	7.7	7.4	7.5	6.8	6.5	6.7
13	17.0	15.8	16.3	12.6	12.1	12.4	7.7	7.4	7.5	6.8	6.3	6.5
14	17.2	15.7	16.2	13.1	12.4	12.7	7.6	7.2	7.4	6.6	6.2	6.4
15	16.8	15.6	16.0	12.8	12.4	12.5	7.3	7.0	7.2	6.6	6.1	6.3
16	16.7	15.6	16.0	12.5	12.1	12.4	7.5	7.0	7.3	6.4	6.0	6.2
17	16.7	15.4	15.8	12.9	11.8	12.2	7.4	7.0	7.2	6.4	6.1	6.2
18	16.5	15.2	15.6	12.5	11.6	11.9	7.2	6.8	7.1	6.4	6.0	6.2
19	16.5	15.0	15.5	12.5	11.7	12.0	7.0	6.6	6.9	6.3	6.0	6.1
20	15.8	15.2	15.4	11.9	11.5	11.7	7.1	6.8	6.9	6.2	5.8	6.0
21	15.6	15.2	15.3	11.7	11.4	11.6	7.0	6.6	6.8	6.3	5.7	5.9
22	15.4	15.0	15.2	11.5	11.2	11.4	6.8	6.5	6.6	6.0	5.7	5.8
23	15.3	14.4	14.9	11.5	11.2	11.3	6.7	6.2	6.5	6.0	5.6	5.8
24	15.5	14.3	14.7	11.3	10.9	11.1	6.5	6.0	6.3	6.0	5.5	5.7
25	15.7	14.3	14.8	11.1	10.7	10.9	6.3	5.9	6.2	6.0	5.6	5.8
26	15.6	14.0	14.6	10.8	10.4	10.6	6.3	5.9	6.1	6.0	5.5	5.7
27	14.6	14.0	14.3	10.6	10.1	10.4	6.2	5.8	6.0	5.8	5.3	5.5
28	14.3	13.8	14.1	10.2	10.0	10.1	6.3	5.6	5.9	5.8	5.2	5.4
29	14.3	13.8	14.0	10.3	9.9	10.1	6.2	5.8	6.0	5.8	5.0	5.3
30	14.2	13.7	13.9	10.1	9.7	10	6.2	5.7	5.9	5.7	5.0	5.3
31	14.1	13.6	13.8	---	---	---	6.4	5.9	6.1	5.5	5.0	5.3
MONTH	19.1	13.6	15.9	14.7	9.7	12.1	9.8	5.6	7.4	7.0	5.0	6.1



14150800 WINBERRY CREEK NEAR LOWELL, OR

LOCATION.--Lat 43°54'50", long 122°41'15", in NE 1/4 SE 1/4 sec.16, T.19 S., R.1 E., Lane County, Hydrologic Unit 17090001, on right bank 0.9 m upstream from Nelson Creek, 4.6 mi east of Lowell, and at mile 4.4.

DRAINAGE AREA.--43.9 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1963 to September 1981, October 2000 to current year.

GAGE.--Water-stage recorder. Datum of gage is 863.70 ft above NGVD of 1929. Levels by U.S. Army Corps of Engineers (USACE).

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--20 years (water years 1964-1981, 2001-02), 115 ft<sup>3</sup>/s, 35.51 in/yr, 83,120 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 4,500 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 8.07 ft; minimum discharge, 1.5 ft<sup>3</sup>/s Sept. 4, 5, 8-10, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0230	*1,250	*4.51	Apr. 14	0730	1,230	4.48

Minimum discharge, 2.5 ft<sup>3</sup>/s Sept. 10-16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.6	e50	249	176	e155	97	116	75	35	11	4.2	2.8
2	3.3	e40	243	211	e150	85	113	72	31	10	4.1	2.8
3	3.2	e32	184	185	e150	76	114	74	29	9.4	4.0	2.9
4	3.1	e28	169	149	e150	69	116	68	26	9.1	4.1	3.2
5	3.1	e26	278	127	146	67	e130	64	25	8.8	4.1	3.1
6	3.1	e22	502	156	145	110	e125	62	23	8.4	4.4	2.9
7	3.1	e19	481	177	303	171	e125	60	22	8.3	4.5	2.9
8	3.5	17	302	235	367	136	e115	54	21	8.0	4.1	2.9
9	4.6	15	259	202	268	124	e130	51	22	7.6	3.9	2.8
10	6.0	13	227	158	207	125	e180	48	19	7.3	3.9	2.7
11	47	12	262	129	181	168	178	45	18	7.0	e3.7	2.6
12	12	16	303	119	158	389	174	45	16	6.8	e3.6	2.6
13	8.6	19	480	109	139	297	253	48	15	6.6	e3.5	2.6
14	7.8	29	971	97	123	249	972	46	15	6.3	3.3	2.5
15	6.2	22	489	85	113	227	563	45	15	6.4	3.2	2.5
16	5.5	79	610	76	109	199	388	44	14	6.3	3.1	2.7
17	5.8	106	668	75	110	170	346	45	16	6.2	e3.1	13
18	5.3	60	434	70	109	146	348	44	16	6.0	e3.1	14
19	4.8	43	336	96	160	157	277	44	21	6.0	e3.2	6.1
20	4.5	37	319	149	184	210	217	47	17	6.2	e3.3	4.4
21	4.5	53	257	466	179	262	178	49	15	5.8	e4.2	3.8
22	35	188	196	278	195	268	153	58	15	5.6	e4.0	3.5
23	114	200	150	202	240	284	132	46	14	5.4	3.7	3.2
24	46	130	122	196	236	374	113	43	13	5.2	3.4	3.0
25	24	201	104	527	190	334	102	41	12	5.1	3.3	2.9
26	17	202	92	611	155	248	95	41	11	5.0	3.3	2.9
27	14	140	90	316	130	210	106	41	11	4.9	3.3	2.8
28	16	320	115	208	112	178	92	44	11	4.8	3.1	2.8
29	14	369	106	e150	---	152	84	44	13	4.6	3.0	3.5
30	39	244	106	e125	---	134	80	41	12	4.5	2.9	14
31	e70	---	161	e110	---	123	---	38	---	4.3	2.8	---
TOTAL	537.6	2732	9265	5970	4864	5839	6115	1567	558	206.9	111.4	124.4
MEAN	17.3	91.1	299	193	174	188	204	50.5	18.6	6.67	3.59	4.15
MAX	114	369	971	611	367	389	972	75	35	11	4.5	14
MIN	3.1	12	90	70	109	67	80	38	11	4.3	2.8	2.5
AC-FT	1070	5420	18380	11840	9650	11580	12130	3110	1110	410	221	247
CFSM	0.40	2.07	6.81	4.39	3.96	4.29	4.64	1.15	0.42	0.15	0.08	0.09
IN.	0.46	2.32	7.85	5.06	4.12	4.95	5.18	1.33	0.47	0.18	0.09	0.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY)

	MEAN	25.9	137	230	262	158	180	167	116	59.5	16.8	10.7	14.0
MAX	82.6	429	668	512	311	399	362	258	170	46.8	33.0	73.1	
(WY)	1969	1974	1965	1971	1979	1972	1979	1977	1964	1969	1978	1978	
MIN	7.88	21.8	16.3	32.1	19.7	57.8	80.4	35.8	14.3	6.67	3.59	3.68	
(WY)	1975	1977	1977	1977	1977	1978	1968	1966	1966	2002	2002	2001	

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1964 - 2002

ANNUAL TOTAL	29864.7	37890.3	
ANNUAL MEAN	81.8	104	115
HIGHEST ANNUAL MEAN			182
LOWEST ANNUAL MEAN			57.9
HIGHEST DAILY MEAN	971	972	3130
LOWEST DAILY MEAN	2.8	2.5	2.0
ANNUAL SEVEN-DAY MINIMUM	2.9	2.6	2.2
ANNUAL RUNOFF (AC-FT)	59240	75160	83120
ANNUAL RUNOFF (CFSM)	1.86	2.36	2.61
ANNUAL RUNOFF (INCHES)	25.31	32.11	35.51
10 PERCENT EXCEEDS	210	262	267
50 PERCENT EXCEEDS	44	46	59
90 PERCENT EXCEEDS	4.0	3.3	6.7

e Estimated

WILLAMETTE RIVER BASIN

14150900 FALL CREEK LAKE NEAR LOWELL, OR

LOCATION.--Lat 43°56'40", long 122°45'20", in SW 1/4 sec.1, T.19 S., R.1 W., Lane County, Hydrologic Unit 17090001, in regulating tower near the center of Fall Creek Dam on Fall Creek, 2.2 mi northeast of Lowell, and at mile 7.2.

DRAINAGE AREA.--184 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1966 to current year. Prior to October 1971, published as Fall Creek Reservoir near Lowell.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Levels by U.S. Army Corps of Engineers (USACE).

REMARKS.--Reservoir is formed by earthfill dam with concrete gate and spillway section, completed in 1965 by Corps of Engineers; storage began January 1966. Total capacity is 125,100 acre-ft at elevation 834 ft and usable capacity is 115,500 acre-ft between elevation 728 ft and 834 ft. Reservoir used for flood control, conservation, and recreation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by USACE.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 123,200 acre-ft May 30, 31, 1972, May 19, 1991; maximum elevation, 832.98 ft May 31, 1972; minimum contents, no contents Nov. 7 to Dec. 6, 1969, Nov. 14-16, 1970, Nov. 18-25, 1972.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 113,800 acre-ft May 30 to June 2, elevation, 827.68 ft; minimum contents, 4,820 acre-ft Jan. 7, elevation, 713.57.

Capacity table (elevation, in feet, and total contents, in acre-feet)

670.4	0	725	8,340	785	53,120
679	59	735	13,270	795	64,590
685	366	745	19,480	805	77,880
695	1,400	755	26,130	815	92,750
705	2,850	765	33,770	825	109,200
715	5,200	775	42,580	833	123,200

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	784.12	735.44	727.57	729.33	732.93	787.94	810.56	826.16	827.68	826.46	824.31	820.10
2	782.51	735.48	728.19	728.39	735.53	788.61	810.26	826.30	827.64	826.40	824.23	819.89
3	780.99	735.27	728.16	725.38	738.02	789.11	809.90	826.54	827.60	826.32	824.12	819.63
4	779.39	734.85	728.06	721.18	740.16	789.61	809.68	826.66	827.54	826.24	824.08	819.38
5	777.84	734.41	728.66	716.24	742.36	789.90	809.60	826.78	827.48	826.16	824.00	819.10
6	776.20	733.92	733.95	713.67	744.81	790.64	809.62	826.86	827.38	826.10	823.91	818.84
7	774.59	733.32	735.01	714.05	749.93	791.94	809.78	826.94	827.28	826.00	823.83	818.57
8	772.91	732.69	731.53	717.53	755.01	792.86	809.96	826.92	827.18	825.92	823.76	818.35
9	771.13	732.01	728.34	719.84	758.20	793.76	810.38	826.96	827.12	825.84	823.72	818.10
10	769.36	731.29	727.32	720.88	760.16	794.64	811.60	827.04	827.06	825.76	823.61	817.86
11	768.06	730.58	728.04	722.10	761.64	796.02	812.72	827.10	827.02	825.70	823.53	817.55
12	766.24	729.92	728.59	723.19	762.81	799.36	813.70	827.14	826.98	825.66	823.49	817.33
13	764.31	729.44	732.71	724.37	763.61	801.70	815.18	827.18	826.94	825.58	823.38	817.08
14	762.31	729.97	740.89	725.21	764.53	803.64	819.74	827.24	826.88	825.56	823.28	816.82
15	760.30	729.87	739.96	726.34	765.94	805.04	820.30	827.26	826.84	825.52	823.23	816.58
16	758.08	730.36	740.68	727.52	767.28	805.48	820.58	827.30	826.76	825.42	823.15	816.15
17	755.98	730.00	740.58	728.64	768.66	805.68	820.78	827.32	826.78	825.34	823.06	815.53
18	753.67	728.38	737.83	729.51	769.89	805.72	821.18	827.34	826.90	825.28	822.96	814.68
19	751.33	727.97	736.25	729.99	771.81	806.12	821.78	827.38	826.94	825.22	822.87	813.72
20	748.95	727.81	734.03	730.83	773.77	806.80	822.54	827.42	826.94	825.16	822.79	812.75
21	746.56	728.33	730.00	735.90	775.64	807.84	823.06	827.46	826.94	825.08	822.73	811.79
22	744.58	731.04	728.22	735.28	777.72	808.62	823.54	827.54	826.92	825.04	822.56	810.83
23	744.47	733.34	728.24	732.76	780.10	808.34	824.02	827.56	826.86	824.98	822.30	809.82
24	742.79	732.83	728.13	729.81	782.37	808.38	824.34	827.58	826.82	824.86	822.07	808.78
25	740.55	733.03	728.21	733.65	784.01	808.70	824.68	827.58	826.76	824.82	821.83	807.71
26	738.44	733.35	728.25	738.01	785.29	809.28	825.04	827.58	826.70	824.74	821.60	806.63
27	737.02	732.44	728.26	737.40	786.30	810.02	825.34	827.58	826.62	824.68	821.36	805.57
28	735.52	734.06	728.76	735.28	787.22	810.62	825.62	827.62	826.58	824.62	821.16	804.49
29	734.01	735.00	729.02	732.88	---	811.04	825.76	827.66	826.58	824.58	820.87	803.43
30	733.83	728.99	729.26	731.25	---	811.08	825.96	827.68	826.52	824.46	820.61	802.37
31	734.84	---	729.41	730.77	---	810.84	---	827.68	---	824.38	820.36	---
MAX	784.12	735.48	740.89	738.01	787.22	811.08	825.96	827.68	827.68	826.46	824.31	820.10
MIN	733.83	727.81	727.32	713.67	732.93	787.94	809.60	826.16	826.52	824.38	820.36	802.37
(†)	13180	10090	10300	10980	55580	86380	110800	113800	111800	108100	101400	74220
(‡)	-40550	-3090	+210	+680	+44600	+30800	+24420	+3000	-2000	-3700	-6700	-27180

CAL YR 2001 MAX --- MIN --- AC-FT† +120  
WTR YR 2002 MAX 827.68 MIN 713.67 AC-FT† +20490

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

14151000 FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OR

LOCATION.--Lat 43°56'40", long 122°46'25", in NW 1/4 SE 1/4 sec.2, T.19 S., R.1 W., Lane County, Hydrologic Unit 17090001, on right bank 10 ft upstream from highway bridge, 1.1 mi downstream from Fall Creek Dam, 2.3 mi southeast of town of Fall Creek, and at mile 6.1.

DRAINAGE AREA.--186 mi<sup>2</sup>.

PERIOD OF RECORD.--October to December 1911 (published as Big Fall Creek near Fall Creek; gage heights and discharge measurements only), September 1935 to current year.

REVISED RECORDS.--WSP 1094: 1946(M). WSP 1248: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 637.81 ft above NGVD of 1929 (Corps of Engineers bench mark). Oct. 1 to Dec. 31, 1911, nonrecording gage at site 0.25 mi downstream at different datum. Sept. 9, 1935, to Aug. 3, 1950, nonrecording gage on left bank at present site and datum. Aug. 4, 1950 to Aug. 27, 1982 water-stage recorder. Aug. 27, 1982 gage moved to right bank at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1966 by Fall Creek Lake (station 14150900). No diversion upstream from station.

AVERAGE DISCHARGE.--67 years (water years 1936-2002), 577 ft<sup>3</sup>/s, 42.13 in/yr, 418,000 acre-ft/yr, adjusted for storage in Fall Creek Lake since January 1965.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 24,700 ft<sup>3</sup>/s Dec. 11, 1956, gage height, 18.80 ft, from rating curve extended above 9,700 ft<sup>3</sup>/s; minimum discharge, 1.5 ft<sup>3</sup>/s Oct. 7, 8, 1965.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,880 ft<sup>3</sup>/s Dec. 17, gage height, 7.31 ft; minimum discharge, 55 ft<sup>3</sup>/s Mar. 4, 5.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	788	235	1540	757	315	67	775	176	165	113	72	200
2	780	236	1160	1100	168	67	793	162	165	113	72	200
3	770	235	934	1490	172	67	806	162	165	113	72	201
4	770	233	833	1490	175	62	692	162	165	113	72	203
5	767	233	1060	1440	172	199	596	162	165	113	72	203
6	763	235	1800	1100	72	163	444	163	165	113	85	203
7	756	234	2530	720	80	149	303	266	165	113	95	203
8	750	233	2430	627	439	88	304	237	165	113	70	203
9	771	233	2020	618	467	58	187	163	165	113	70	203
10	820	230	1290	584	472	59	98	163	165	113	70	203
11	830	231	954	404	474	60	107	163	130	85	70	202
12	821	233	1280	336	477	64	129	163	108	72	70	201
13	813	231	1550	296	478	65	141	163	109	73	83	201
14	806	233	2610	274	353	66	852	163	110	73	97	200
15	800	259	2660	154	95	273	1940	163	111	72	69	201
16	791	327	2660	99	70	792	1500	161	111	87	69	383
17	783	740	3070	101	70	773	1510	163	112	103	69	638
18	809	751	2990	112	71	737	1270	163	111	81	69	795
19	811	340	2290	376	72	580	805	165	111	81	69	791
20	803	226	2260	785	73	604	398	165	111	81	69	786
21	791	195	2260	1680	74	678	398	165	111	81	87	783
22	783	843	1390	1800	74	925	288	165	112	80	137	779
23	815	1070	798	1780	76	1590	200	165	112	93	203	776
24	816	1080	667	1740	75	1550	200	165	112	100	203	797
25	807	1080	514	1770	76	1210	199	165	112	74	203	805
26	689	1080	482	1910	77	665	200	165	112	74	203	802
27	459	1080	435	1920	73	394	200	165	113	74	202	798
28	454	1200	433	1720	67	395	200	165	113	74	201	795
29	450	1760	433	1490	---	396	200	165	113	74	200	793
30	300	2720	436	1110	---	645	200	165	113	89	200	793
31	229	---	675	739	---	776	---	165	---	100	200	---
TOTAL	22395	18016	46444	30522	5357	14217	15935	5263	3897	2851	3523	14341
MEAN	722.4	600.5	1498	984.6	191.3	458.6	531.2	169.8	129.9	91.97	113.6	478.0
MAX	830	2720	3070	1920	478	1590	1940	266	165	113	203	805
MIN	229	195	433	99	67	58	98	161	108	72	69	200
AC-FT	44420	35730	92120	60540	10630	28200	31610	10440	7730	5650	6990	28450
MEAN†	62.9	549	1501	995	995	959	942	219	96.3	31.7	4.72	21.3
CFSM†	0.34	2.95	8.07	5.35	5.35	5.16	5.06	1.18	0.52	0.17	0.02	0.11
IN.†	0.39	3.29	9.31	6.17	5.57	5.95	5.65	1.35	0.58	0.20	0.03	0.13
AC-FT†	3870	32640	92330	61220	55230	59000	56030	13440	5730	1950	290	1270

CAL YR 2001 TOTAL 143309 MEAN 392.6 MAX 3070 MIN 34 AC-FT 284300 MEAN† 393 CFSM† 2.11 IN.† 28.67 AC-FT† 284400  
WTR YR 2002 TOTAL 182761 MEAN 500.7 MAX 3070 MIN 58 AC-FT 362500 MEAN† 529 CFSM† 2.84 IN.† 38.61 AC-FT† 383000

† Adjusted for change in contents, in Fall Creek Lake.

14151000 FALL CREEK BELOW WINBERRY CREEK, NEAR FALL CREEK, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1950 to September 1997. August 2001 to September 2002.

INSTRUMENTATION.--Temperature probe and data logger.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.0°C July 28, 1958; minimum, 0.0°C Dec. 23, 24, 1990.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 21.5°C Aug. 29; minimum, 4.9°C Jan. 23, 24, Feb. 4.

DAY	WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	12.0	11.3	11.6	12.1	11.4	11.8	7.8	7.3	7.5	6.4	6.0	6.2
2	12.1	11.4	11.7	11.7	11.2	11.5	7.7	7.2	7.5	6.5	6.2	6.4
3	12.2	11.5	11.8	11.8	11.1	11.5	7.6	7.1	7.4	6.9	6.4	6.6
4	12.2	10.8	11.4	11.7	11.3	11.5	7.4	7.0	7.2	6.9	6.3	6.6
5	12.0	10.9	11.4	11.9	11.3	11.5	7.3	6.8	7.0	6.6	6.3	6.4
6	12.5	11.5	12.0	11.8	11.2	11.4	7.1	6.3	6.7	7.0	6.3	6.6
7	13.1	12.1	12.7	11.8	11.1	11.4	7.5	6.5	7.0	8.0	6.8	7.6
8	13.7	12.8	13.4	11.3	10.7	11.0	7.5	6.9	7.2	8.2	7.6	7.9
9	14.6	13.6	14.1	11.2	10.5	10.8	7.3	6.8	7.0	8.2	7.7	8.0
10	15.5	14.5	15.0	10.8	10.2	10.5	7.2	6.7	7.0	8.0	7.5	7.7
11	16.0	15.2	15.7	10.8	10.3	10.6	6.9	6.4	6.7	7.7	7.2	7.5
12	16.1	15.6	15.9	11.1	10.5	10.8	6.7	6.3	6.5	7.4	7.0	7.3
13	16.2	15.7	16.0	11.2	10.6	10.9	6.7	6.2	6.4	7.3	7.1	7.2
14	16.5	16.0	16.2	11.3	10.8	11.0	7.1	6.3	6.8	7.2	6.8	7.1
15	16.6	16.0	16.3	11.3	10.8	11.0	7.2	6.8	7.0	7.0	6.3	6.7
16	16.7	16.2	16.5	11.2	10.8	11.0	7.1	6.8	7.0	6.4	6.0	6.1
17	16.7	16.2	16.4	11.2	10.6	10.9	7.6	6.8	7.1	6.2	5.4	5.9
18	16.6	16.1	16.3	11.0	10.3	10.7	7.5	7.0	7.2	6.4	5.5	5.9
19	16.5	15.9	16.2	10.5	9.3	10	7.2	6.8	7.0	6.2	5.7	5.9
20	16.3	15.8	16.0	10.3	9.5	9.9	7.1	6.7	6.9	6.1	5.7	5.9
21	16.1	15.7	15.9	10.2	9.6	9.9	7.2	6.9	7.0	5.9	5.3	5.6
22	16.0	15.4	15.7	10.1	9.6	9.9	7.0	6.6	6.8	5.5	5.1	5.3
23	15.8	13.5	14.6	9.9	9.1	9.4	6.7	6.0	6.4	5.4	4.9	5.2
24	13.8	13.1	13.5	9.6	8.8	9.1	6.2	5.9	6.1	5.2	4.9	5.1
25	13.7	13.1	13.3	9.2	8.5	8.8	6.0	5.5	5.8	5.3	5.0	5.2
26	13.8	12.9	13.4	8.7	7.9	8.3	5.6	5.2	5.4	5.6	5.1	5.3
27	13.6	12.9	13.3	8.2	7.6	8.0	5.4	5.1	5.3	5.8	5.5	5.7
28	13.6	13.1	13.3	8.1	7.4	7.8	5.4	5.1	5.3	5.9	5.5	5.7
29	13.6	13.1	13.4	7.8	7.2	7.4	5.5	5.2	5.4	5.8	5.4	5.6
30	13.5	12.5	13.1	7.9	7.3	7.6	5.6	5.2	5.4	5.6	5.4	5.5
31	12.9	11.8	12.3	---	---	---	6.0	5.5	5.7	5.6	5.2	5.3
MONTH	16.7	10.8	14.1	12.1	7.2	10.2	7.8	5.1	6.6	8.2	4.9	6.3



14152000 MIDDLE FORK WILLAMETTE RIVER AT JASPER, OR

LOCATION.--Lat 43°59'54", long 122°54'17", in SW 1/4 SW 1/4 sec.14, T.18 S., R.2 W., Lane County, Hydrologic Unit 17090001, on right bank 25 ft downstream from highway bridge at Jasper, 0.1 mi downstream from Hills Creek, and at mile 195.0.

DRAINAGE AREA.--1,340 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1905 to February 1912, July 1913 to March 1917, October 1952 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1288: 1907-8, 1910-12, 1914-16, drainage area.

GAGE.--Water-stage recorder. Datum of gage is 513.45 ft above NGVD of 1929. September 1905 to February 1912 and July 1913 to March 1917, nonrecording gage at approximately same site at datum about 1.5 ft higher. Oct. 22, 1952, to Sept. 30, 1953, nonrecording gage at site 25 ft upstream at same datum.

REMARKS.--No estimated daily discharges. Records good except for the period Dec. 22 to Feb. 5, which are fair. Flow regulated since November 1953 by Lookout Point Lake (station 14149000), since 1961 by Hills Creek Lake (station 14145100), and since 1966 by Fall Creek Lake (station 14150900).

AVERAGE DISCHARGE.--10 years (water years 1906-11, 1914-16, 1953), 3,866 ft<sup>3</sup>/s, 2,801,000 acre-ft/yr. 49 years (water years 1954-2002), 4,136 ft<sup>3</sup>/s, 2,996,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 94,000 ft<sup>3</sup>/s Nov. 23, 1909, gage height, 17.4 ft, datum then in use, from graph based on gage readings, from rating curve extended above 42,000 ft<sup>3</sup>/s; minimum discharge, 366 ft<sup>3</sup>/s Dec. 5, 1954.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,300 ft<sup>3</sup>/s Dec. 20, gage height, 7.96 ft; minimum discharge, 1,270 ft<sup>3</sup>/s June 15-17, 21, 22.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002 DAILY MEAN VALUES

Table with 13 columns (DAY, OCT, NOV, DEC, JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP) and 31 rows of daily mean discharge values.

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1954 - 2002, BY WATER YEAR (WY)

Table with 13 columns (MEAN, MAX, MIN) and 4 rows (WY) showing monthly mean statistics for water years 1954-1997.

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1954 - 2002

Summary statistics table with 4 columns corresponding to the categories above, listing various annual and daily mean values and exceedance percentages.



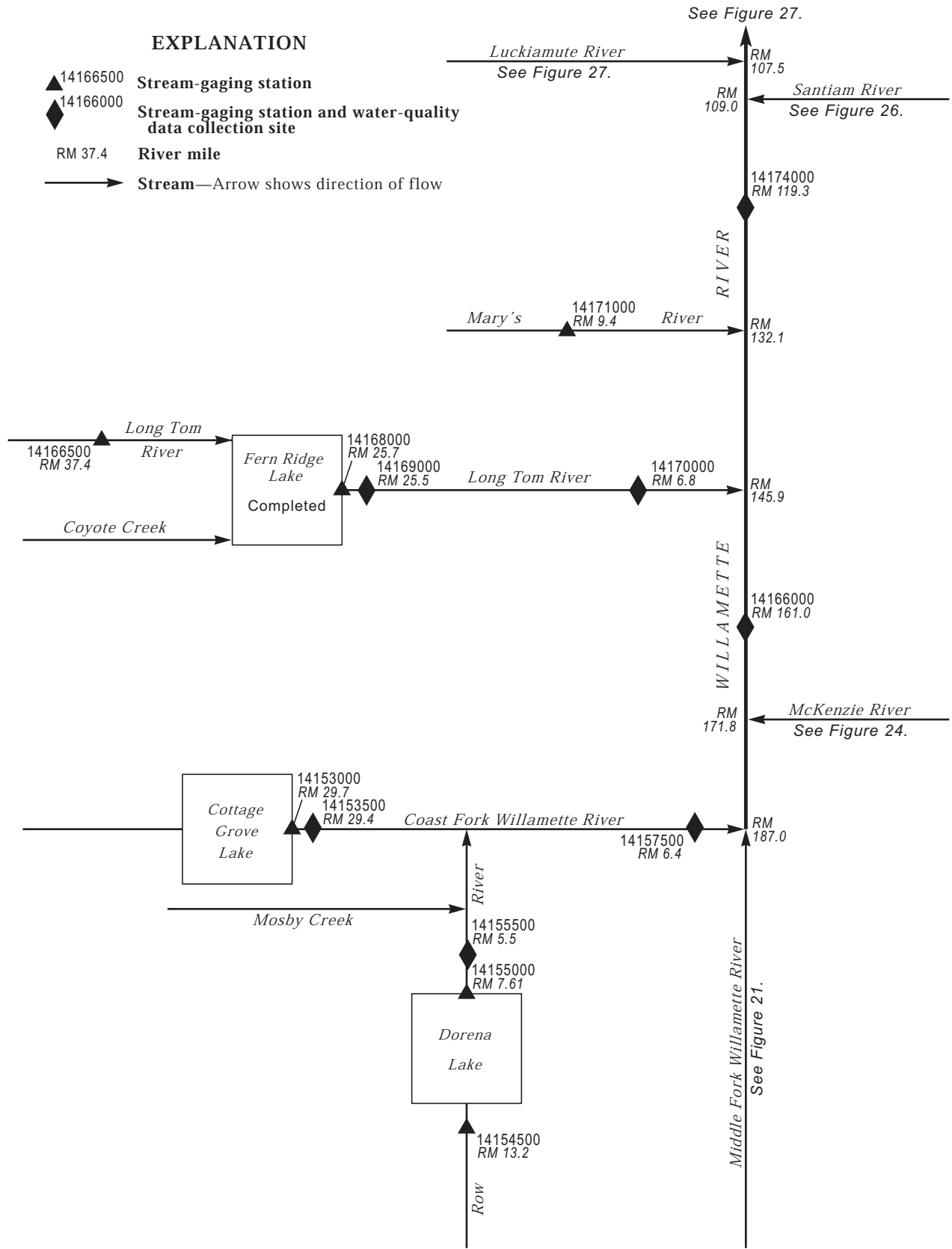


## WILLAMETTE RIVER BASIN

14152000 MIDDLE FORK WILLAMETTE RIVER AT JASPER, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	7.6	4.3	5.7	10.6	6.9	8.3	11.6	8.9	9.9
2	---	---	---	7.9	4.2	5.8	10.5	7.2	8.4	11.0	9.0	9.8
3	---	---	---	8.3	4.4	6.1	10.7	7.2	8.5	12.5	9.0	10.2
4	---	---	---	8.6	5.0	6.5	11.3	7.5	8.9	12.5	8.4	10.2
5	---	---	---	7.0	6.2	6.6	8.9	8.2	8.6	11.1	9.1	9.9
6	---	---	---	7.3	6.3	6.8	9.4	8.2	8.7	10.7	8.8	9.6
7	6.1	---	---	7.0	5.5	6.1	11.0	8.3	9.3	11.4	8.6	9.6
8	6.5	5.5	5.9	7.1	5.2	6.0	11.3	8.0	9.2	11.7	8.3	9.5
9	6.7	5.0	5.7	6.7	5.3	6.1	10.1	8.9	9.2	10.2	8.9	9.4
10	7.0	5.0	6.0	7.3	6.0	6.7	10.6	8.9	9.7	11.0	8.6	9.4
11	6.5	5.2	5.9	7.8	6.9	7.3	10.4	9.0	9.5	11.7	8.6	9.8
12	6.0	4.7	5.3	8.2	6.6	7.2	12.6	8.8	10.3	12.1	8.9	10.2
13	6.7	4.6	5.4	7.1	6.2	6.5	10.6	9.5	10.0	10.0	9.3	9.5
14	6.6	4.2	5.2	7.5	5.9	6.5	10.4	8.1	9.5	11.6	8.8	9.8
15	6.8	4.2	5.4	6.9	5.6	6.2	9.0	7.8	8.2	11.7	8.9	9.9
16	7.3	5.3	6.1	6.6	5.4	5.8	8.6	7.8	8.1	11.9	8.9	10.0
17	7.5	5.8	6.5	7.0	5.3	6.0	8.3	7.6	7.9	12.3	9.2	10.3
18	8.1	6.2	6.9	6.5	5.5	6.0	8.6	7.5	7.9	10.6	9.4	9.8
19	7.1	6.4	6.9	7.7	6.0	6.6	8.7	7.7	8.1	10.1	9.2	9.6
20	8.3	6.1	7.0	8.5	5.8	7.0	9.5	7.9	8.4	11.0	8.9	9.7
21	8.8	7.0	7.8	8.5	6.4	7.2	10.1	7.6	8.6	10.6	9.0	9.6
22	9.3	6.9	7.9	7.9	6.0	6.8	10.6	7.8	8.9	11.2	8.9	9.7
23	8.6	7.5	8.0	8.2	6.5	7.2	10.9	8.0	9.1	12.2	8.6	9.9
24	7.8	6.1	7.0	7.7	6.7	7.1	11.8	7.6	9.3	12.1	9.2	10.3
25	7.8	5.2	6.2	9.1	6.2	7.4	12.1	8.1	9.7	11.7	9.4	10.3
26	8.0	5.1	6.3	9.1	6.1	7.5	10.2	8.3	9.2	12.8	9.7	10.8
27	7.8	4.7	6.0	9.7	7.1	8.1	12.0	8.3	9.6	11.3	10.0	10.6
28	7.6	4.8	5.9	10.0	6.8	8.1	12.5	7.6	9.7	10.9	10.0	10.4
29	---	---	---	10.6	6.8	8.3	12.9	8.3	10.1	11.7	9.8	10.5
30	---	---	---	9.9	6.7	8.0	9.9	9.0	9.4	13.2	9.8	11.0
31	---	---	---	10.1	7.0	8.1	---	---	---	14.2	9.9	11.5
MONTH	---	---	---	10.6	4.2	6.8	12.9	6.9	9.0	14.2	8.3	10.0
	JUNE			JULY			AUGUST			SEPTEMBER		
1	14.6	10.2	11.9	17.9	12.3	14.6	16.4	13.3	14.5	19.3	16.6	17.7
2	14.7	10.0	11.9	18.0	11.9	14.5	16.2	13.3	14.3	19.6	16.9	17.9
3	13.8	10.3	11.7	16.7	12.3	14.1	16.3	13.2	14.3	19.2	16.7	17.9
4	14.7	10.9	12.3	17.2	12.4	14.3	15.2	13.4	14.1	18.6	15.9	16.9
5	13.9	11.2	12.1	17.8	12.3	14.5	15.5	13.3	14.1	18.5	16.0	16.9
6	14.1	10.7	11.9	16.7	12.6	14.4	16.2	13.3	14.3	18.6	16.1	17.0
7	13.1	10.6	11.5	15.7	12.9	14.0	16.4	13.2	14.4	18.5	16.3	17.0
8	12.3	10.4	11.2	17.8	12.5	14.7	16.6	13.6	14.7	18.4	16.1	17.0
9	13.3	10.6	11.6	18.2	12.7	15.0	16.9	13.8	15.0	18.8	16.1	17.1
10	14.0	10.4	11.7	18.5	13.2	15.4	17.2	14.2	15.3	18.9	16.4	17.3
11	14.3	10.7	12.1	17.6	13.2	15.1	17.3	14.2	15.3	19.1	16.6	17.5
12	14.5	11.1	12.5	16.6	13.3	14.8	17.5	14.2	15.5	19.2	16.7	17.6
13	15.4	11.2	12.9	16.7	13.4	14.8	17.7	14.6	15.8	19.3	16.8	17.7
14	15.4	11.2	12.7	17.3	13.2	14.8	18.1	15.0	16.1	18.8	16.8	17.6
15	16.4	11.2	13.1	16.9	13.0	14.6	17.8	14.8	16.0	18.4	17.0	17.5
16	15.5	11.5	13.0	17.0	13.3	14.8	17.8	14.9	15.9	17.6	16.1	16.9
17	12.6	11.4	12.0	16.9	13.5	14.7	17.9	14.9	16.0	16.7	15.5	16.1
18	13.5	11.5	12.2	16.7	13.5	14.6	17.7	14.9	15.9	17.1	15.2	15.8
19	16.8	10.6	13.2	16.4	13.7	14.6	17.5	15.2	15.9	17.3	14.7	15.7
20	16.9	11.1	13.7	16.7	13.2	14.6	16.8	15.4	15.9	17.0	14.7	15.5
21	15.7	11.7	13.3	16.5	13.0	14.4	17.6	15.2	16.0	17.0	14.4	15.3
22	13.4	11.9	12.6	16.4	13.1	14.4	18.1	15.2	16.3	17.1	14.4	15.4
23	17.3	11.7	13.9	16.5	13.5	14.6	18.4	15.6	16.7	17.1	14.5	15.4
24	17.2	11.9	14.1	16.5	13.3	14.6	18.5	15.7	16.8	17.1	14.5	15.5
25	17.0	11.5	13.9	16.6	13.5	14.5	17.8	16.0	16.7	17.2	14.6	15.5
26	16.9	12.1	14.1	16.5	13.6	14.6	18.6	16.3	17.0	16.8	14.7	15.5
27	14.8	12.3	13.3	16.3	13.1	14.4	18.8	16.0	17.1	17.3	15.0	15.7
28	14.0	12.5	13.2	16.7	13.2	14.5	19.3	16.3	17.4	17.2	14.8	15.6
29	15.4	12.7	13.7	16.9	13.5	14.8	19.2	16.6	17.5	16.3	15.1	15.5
30	17.2	12.6	14.4	16.8	13.6	14.8	19.1	16.4	17.4	16.1	14.8	15.3
31	---	---	---	16.4	13.5	14.5	19.4	16.4	17.5	---	---	---
MONTH	17.3	10.0	12.7	18.5	11.9	14.6	19.4	13.2	15.8	19.6	14.4	16.5



**Figure 23.** Schematic diagram showing gaging stations in the Long Tom, Coast Fork Willamette and upper Willamette River Basins.

14153000 COTTAGE GROVE LAKE NEAR COTTAGE GROVE, OR

LOCATION.--Lat 43°43'00", long 123°02'55", in NE 1/4 sec.28, T.21 S., R.3 W., Lane County, Hydrologic Unit 17090002, in east abutment of dam on Coast Fork Willamette River 5.8 mi south of Cottage Grove, and at mile 29.7.

DRAINAGE AREA.--104 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1942 to current year. Prior to October 1971, published as Cottage Grove Reservoir near Cottage Grove.

REVISED RECORDS.--WSP 1218: 1950.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Lake is formed by earthfill dam with concrete spillway completed by Corps of Engineers in 1942; storage began Oct. 31, 1942. Capacity, 32,930 acre-ft between elevation 719.0 ft, outlet conduit, and 791.0 ft, crest of spillway. Dead storage negligible. Reservoir used for flood control and improvement of navigation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 36,750 acre-ft Dec. 24, 1964, elevation, 794.23 ft; minimum contents since first filling, no contents Sept. 26 to Oct. 19, 1966, and Nov. 14, 15, Nov. 20 to Dec. 8, 1969.

EXTREMES FOR CURRENT YEAR.-- Maximum contents, 29,310 acre-ft May 29 to June 1, elevation, 787.77 ft; minimum contents, 2,900 acre-ft Jan. 10, elevation, 749.16 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

710.9	0	755	4,860	780	21,460
730	151	760	7,150	785	26,370
740	926	765	9,970	790	31,780
745	1,840	770	13,260	793	35,270
750	3,140	775	17,070	795	37,690

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	764.98	753.72	751.29	750.58	751.63	768.14	778.18	786.50	787.76	786.73	784.68	781.71
2	764.16	753.45	750.44	750.81	752.44	768.52	778.20	786.61	787.74	786.68	784.68	781.62
3	763.31	753.04	750.46	750.86	753.08	768.86	778.23	786.71	787.72	786.63	784.59	781.54
4	762.46	752.55	750.39	750.48	753.60	769.17	778.37	786.80	787.70	786.58	784.51	781.45
5	761.58	752.01	751.33	750.24	754.20	769.47	778.58	786.87	787.68	786.54	784.44	781.37
6	760.68	751.43	751.71	750.42	754.86	770.11	778.81	786.96	787.64	786.49	784.36	781.28
7	759.76	750.91	749.41	750.53	757.91	770.91	779.01	787.03	787.60	786.43	784.20	781.20
8	758.88	750.64	749.72	751.03	761.83	771.22	779.19	787.08	787.58	786.38	784.08	781.12
9	757.94	750.46	749.91	749.64	763.88	771.42	779.43	787.13	787.55	786.32	783.93	781.03
10	757.37	750.27	749.43	749.45	765.00	771.65	779.75	787.18	787.52	786.27	783.77	780.95
11	757.36	750.08	749.27	749.50	765.63	772.18	779.99	787.21	787.49	786.21	783.60	780.86
12	757.25	749.98	749.29	749.94	766.00	773.50	780.20	787.24	787.45	786.15	783.44	780.78
13	757.12	749.93	751.13	750.10	766.17	774.19	780.76	787.27	787.41	786.08	783.27	780.70
14	756.96	750.02	753.80	750.09	766.18	774.57	782.16	787.30	787.36	786.02	783.16	780.61
15	756.80	750.15	750.87	750.08	766.07	774.56	782.20	787.31	787.32	785.95	783.08	780.52
16	756.64	750.81	750.31	750.01	766.02	774.08	782.27	787.33	787.27	785.87	782.99	780.46
17	756.46	749.87	751.08	750.09	766.10	774.01	782.47	787.36	787.26	785.80	782.91	780.53
18	756.29	749.98	749.94	750.36	766.15	774.18	782.69	787.37	787.25	785.74	782.83	780.51
19	756.11	749.97	749.43	750.56	765.99	774.49	783.18	787.41	787.24	785.67	782.75	780.45
20	755.93	750.00	749.61	750.98	765.23	774.94	783.76	787.51	787.20	785.60	782.68	780.38
21	755.75	750.53	749.69	755.27	764.74	775.43	784.22	787.56	787.15	785.53	782.61	780.30
22	755.73	752.82	749.60	752.94	765.06	775.73	784.61	787.62	787.11	785.46	782.53	780.23
23	756.16	751.81	749.85	749.91	765.74	775.53	784.93	787.65	787.07	785.39	782.45	780.03
24	756.06	750.42	750.01	749.77	766.24	775.58	785.20	787.67	787.02	785.32	782.38	779.77
25	755.79	751.14	749.83	751.52	766.57	775.85	785.43	787.69	786.97	785.25	782.30	779.49
26	755.35	750.84	749.70	750.12	766.98	776.41	785.66	787.69	786.91	785.17	782.22	779.22
27	754.84	750.14	749.76	755.78	767.42	777.01	785.89	787.72	786.85	785.08	782.14	778.82
28	754.29	751.24	750.04	752.98	767.79	777.48	786.07	787.75	786.80	785.00	782.06	778.37
29	753.79	752.08	750.34	750.77	---	777.88	786.23	787.77	786.80	784.92	781.97	777.94
30	753.52	750.07	750.67	750.45	---	778.07	786.37	787.77	786.77	784.84	781.88	777.63
31	753.66	---	750.64	750.51	---	778.14	---	787.77	---	784.75	781.79	---
MAX	764.98	753.72	753.80	755.78	767.79	778.14	786.37	787.77	787.76	786.73	784.68	781.71
MIN	753.52	749.87	749.27	749.45	751.63	768.14	778.18	786.50	786.77	784.75	781.79	777.63
(†)	4350	3160	3330	3290	11740	19770	27800	29310	28230	26110	23160	19320
(‡)	-6110	-1190	+170	-40	+8450	+8030	+8030	+1510	-1080	-2120	-2950	-3840
CAL YR 2001	MAX 784.23	MIN 749.27	AC-FT†	-100								
WTR YR 2002	MAX 787.77	MIN 749.27	AC-FT†	+8860								

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

14153500 COAST FORK WILLAMETTE RIVER BELOW COTTAGE GROVE DAM, OR

LOCATION.--Lat 43°43'15", long 123°02'55", in NE 1/4 sec.28, T.21 S., R.3 W., Lane County, Hydrologic Unit 17090002, on right bank at bridge 0.3 mi downstream from Cottage Grove Dam, 5.5 mi south of Cottage Grove, and at mile 29.4.

DRAINAGE AREA.--104 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1939 to current year. Prior to October 1944, published as "near Cottage Grove."

REVISED RECORDS.--WSP 1448: 1949(M).

GAGE.--Water-stage recorder. Datum of gage is 711.00 ft above NGVD of 1929 (Corps of Engineers bench mark). Jan. 1 to Oct. 12, 1939, nonrecording gage and Oct. 13, 1939, to Sept. 30, 1944, water-stage recorder at several sites and datums 0.8 mi downstream.

REMARKS.--Records good. Flow regulated since 1942 by Cottage Grove Lake (station 14153000). Small diversions for irrigation upstream from station. Several observations of water temperature were made during the year.

AVERAGE DISCHARGE.--63 years (water years 1940-2002), 265 ft<sup>3</sup>/s, 34.60 in/yr, 192,000 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,910 ft<sup>3</sup>/s Dec. 24, 1964, gage height, 11.83 ft; no flow July 5-7, 1945, and for part of Aug. 24, 1947.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,580 ft<sup>3</sup>/s Jan. 26, gage height, 6.56 ft; minimum discharge, 33 ft<sup>3</sup>/s Mar. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	281	146	910	383	388	85	193	74	60	49	47	43
2	278	145	1090	383	364	57	193	74	60	47	47	43
3	275	143	580	383	348	57	177	74	60	48	47	43
4	273	142	493	383	322	57	120	74	60	48	47	43
5	270	141	930	330	280	57	85	74	60	48	47	43
6	268	141	1170	371	246	58	71	74	60	48	47	43
7	264	118	1330	423	251	122	72	74	60	48	47	43
8	262	73	647	635	337	211	72	74	61	48	64	43
9	258	54	561	737	348	210	72	74	60	48	97	43
10	174	53	542	459	351	209	72	74	60	48	97	43
11	53	50	448	347	353	211	72	74	60	48	97	43
12	53	51	422	267	353	376	73	74	61	48	97	42
13	53	52	525	268	353	481	76	74	62	48	97	42
14	53	55	1470	269	353	483	497	74	62	48	68	42
15	52	55	1460	241	353	555	751	74	62	47	41	42
16	52	151	1030	228	319	690	494	74	61	47	42	42
17	52	340	1370	206	252	489	420	74	61	47	42	43
18	52	111	e1400	162	252	353	389	74	60	47	42	43
19	52	107	e1200	252	361	277	188	74	60	47	42	43
20	52	107	776	388	544	239	71	74	60	47	42	42
21	52	128	585	915	456	240	71	68	60	47	42	42
22	52	530	492	1410	233	303	71	60	60	47	42	42
23	52	814	364	1170	225	504	71	60	60	47	41	101
24	85	570	318	634	226	503	71	60	60	47	41	146
25	106	555	316	976	226	371	72	60	60	47	40	146
26	128	652	280	1570	156	168	72	60	60	47	40	146
27	146	470	251	1540	110	90	72	60	60	47	40	204
28	146	642	251	1290	109	91	73	60	60	47	49	231
29	146	978	251	929	---	91	74	60	60	47	43	231
30	146	962	252	517	---	155	74	60	60	47	43	230
31	146	---	374	414	---	193	---	60	---	47	43	---
TOTAL	4332	8536	22088	18480	8469	7986	4879	2148	1810	1471	1661	2373
MEAN	140	285	713	596	302	258	163	69.3	60.3	47.5	53.6	79.1
MAX	281	978	1470	1570	544	690	751	74	62	49	97	231
MIN	52	50	251	162	109	57	71	60	60	47	40	42
AC-FT	8590	16930	43810	36660	16800	15840	9680	4260	3590	2920	3290	4710
MEAN†	40.3	264	715	596	455	388	298	93.8	42.2	13.0	5.5	14.6
CFSM†	0.39	2.54	6.88	5.73	4.37	3.73	2.86	0.90	0.41	0.12	0.05	0.14
IN.†	0.45	2.84	7.93	6.60	4.55	4.30	3.19	1.04	0.45	0.14	0.06	0.16
AC-FT†	2480	15740	43980	36620	25250	23870	17710	5770	2510	800	340	870
CAL YR 2001	TOTAL 55558	MEAN 152	MAX 1470	MIN 42	AC-FT 110200	MEAN† 152	CFSM† 1.46	IN.† 19.85	AC-FT† 110100			
WTR YR 2002	TOTAL 84233	MEAN 231	MAX 1570	MIN 40	AC-FT 167100	MEAN† 243	CFSM† 2.34	IN.† 31.73	AC-FT† 175960			

e Estimated

† Adjusted for change in contents, in Cottage Grove Lake.

WATER-QUALITY RECORDS

PERIOD OF RECORD.--

WATER TEMPERATURE: August 2001 to September 2002.

INSTRUMENTATION.--Temperature recorder since September 2001.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 22.0°C Aug. 31, Sept. 2, 15, 2001; minimum, 4.8°C Dec. 28, 2001.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 20.4°C Sept. 19, 22; minimum, 4.8°C Dec. 28.

WATER TEMPERATURE, in (DEGREES C), SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	---	---	---	21.8	19.8	20.5
2	---	---	---	---	---	---	---	---	---	22.0	20.0	20.7
3	---	---	---	---	---	---	18.2	16.4	17.0	21.9	19.9	20.6
4	---	---	---	---	---	---	17.7	16.5	17.0	21.7	20.1	20.7
5	---	---	---	---	---	---	19.0	16.4	17.3	21.3	20.2	20.6
6	---	---	---	---	---	---	19.3	16.3	17.5	21.9	20.1	20.6
7	---	---	---	---	---	---	19.2	16.8	17.6	21.8	19.9	20.5
8	---	---	---	---	---	---	19.5	16.8	17.8	21.9	20.0	20.6
9	---	---	---	---	---	---	19.7	17.1	18.1	21.9	19.8	20.5
10	---	---	---	---	---	---	19.7	17.3	18.1	21.8	19.9	20.5
11	---	---	---	---	---	---	19.8	17.5	18.2	21.7	19.8	20.5
12	---	---	---	---	---	---	19.9	17.6	18.4	21.7	20.0	20.6
13	---	---	---	---	---	---	20.0	17.8	18.6	21.9	20.0	20.6
14	---	---	---	---	---	---	20.1	17.9	18.6	21.9	20.0	20.7
15	---	---	---	---	---	---	20.0	17.9	18.6	22.0	20.4	20.9
16	---	---	---	---	---	---	19.6	17.9	18.5	21.9	20.1	20.7
17	---	---	---	---	---	---	20.2	17.8	18.6	21.8	20.1	20.6
18	---	---	---	---	---	---	20.0	18.1	18.7	21.1	20.1	20.7
19	---	---	---	---	---	---	20.5	17.9	18.8	21.2	20.7	20.9
20	---	---	---	---	---	---	20.6	18.2	19.0	21.1	20.6	20.8
21	---	---	---	---	---	---	20.2	18.5	19.1	20.9	20.4	20.6
22	---	---	---	---	---	---	19.8	18.8	19.3	20.6	20.2	20.4
23	---	---	---	---	---	---	20.4	19.1	19.6	20.7	20.1	20.3
24	---	---	---	---	---	---	21.3	19.2	19.9	20.5	20.1	20.3
25	---	---	---	---	---	---	21.4	19.3	20.0	20.3	20.1	20.2
26	---	---	---	---	---	---	21.6	19.3	20.1	20.1	19.7	19.9
27	---	---	---	---	---	---	21.7	19.3	20.1	19.8	19.2	19.6
28	---	---	---	---	---	---	21.8	19.5	20.3	19.5	18.7	19.1
29	---	---	---	---	---	---	21.6	19.7	20.3	19.1	18.6	18.8
30	---	---	---	---	---	---	21.8	19.8	20.4	19.1	18.6	18.7
31	---	---	---	---	---	---	22.0	19.8	20.5	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	22.0	18.6	20.4

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	19.0	18.5	18.7	12.2	11.8	12.0	7.4	7.2	7.3	6.6	5.5	6.2
2	19.0	18.5	18.7	12.4	11.7	11.9	7.5	7.2	7.4	7.3	6.3	6.9
3	18.9	18.3	18.5	12.6	11.9	12.2	7.6	7.3	7.4	7.7	7.2	7.4
4	18.7	18.2	18.4	12.4	12.1	12.2	7.3	6.7	7.1	7.3	6.7	7.0
5	18.6	18.2	18.4	12.3	11.8	12.0	6.7	6.4	6.6	6.8	6.6	6.7
6	18.5	18.0	18.3	12.4	11.6	11.9	---	---	---	7.8	6.4	7.1
7	18.0	17.0	17.8	---	---	---	---	---	---	8.5	7.3	7.8
8	17.5	16.9	17.3	---	---	---	---	---	---	9.1	8.4	8.6
9	17.1	16.5	16.8	---	---	---	7.2	6.9	7.1	8.9	8.5	8.7
10	16.6	16.1	16.3	---	---	---	6.9	6.4	6.7	8.5	7.7	8.1
11	16.7	15.5	16.0	11.0	9.7	10.3	6.5	6.3	6.4	7.8	7.5	7.6
12	16.3	15.3	15.6	10.6	10.1	10.4	6.5	6.3	6.4	7.6	7.4	7.5
13	16.2	15.3	15.6	10.9	10.0	10.6	---	---	---	7.5	7.3	7.4
14	16.3	15.1	15.5	11.6	10.7	11.1	7.3	6.7	7.1	7.3	6.9	7.2
15	16.1	15.2	15.5	11.2	10.9	11.1	6.9	6.7	6.8	6.9	6.4	6.7
16	16.0	15.1	15.4	11.2	10.9	11.1	---	6.8	---	6.4	6.1	6.3
17	15.9	14.6	15.2	11.0	10.2	10.7	7.7	7.1	7.5	6.2	5.7	6.0
18	15.6	14.5	14.7	10.6	9.8	10.2	---	---	---	5.9	5.6	5.8
19	15.4	14.0	14.4	10.5	9.8	10.1	---	---	---	5.7	5.4	5.5
20	14.3	13.8	14.1	10.1	9.7	9.9	7.1	6.9	7.0	5.8	5.4	5.5
21	14.4	13.7	14.0	9.7	9.6	9.7	7.2	7.0	7.1	5.8	5.4	5.6
22	14.1	13.5	13.8	9.6	8.8	9.2	7.2	6.8	7.0	5.6	5.3	5.4
23	14.0	12.6	13.4	8.9	8.4	8.7	6.8	6.0	6.4	5.7	5.5	5.6
24	13.4	12.7	13.0	8.4	8.2	8.3	6.1	5.8	6.0	5.8	5.6	5.7
25	13.4	12.8	12.9	8.2	7.6	8.0	5.8	5.5	5.7	6.6	5.8	6.2
26	13.4	12.6	12.9	7.6	7.3	7.4	5.5	5.2	5.4	6.7	6.2	6.5
27	13.2	12.8	12.9	---	---	---	5.2	5.0	5.1	6.3	5.9	6.1
28	12.8	12.0	12.6	---	---	---	5.0	4.8	4.9	6.0	5.7	5.9
29	12.5	12.1	12.3	7.4	7.0	7.3	5.2	4.9	5.0	5.9	5.5	5.7
30	12.3	12.0	12.1	7.5	7.3	7.4	5.5	5.1	5.3	5.6	5.2	5.4
31	12.3	12.1	12.2	---	---	---	6.0	5.4	5.7	5.3	5.1	5.2
MONTH	19.0	12.0	15.3	---	---	---	---	---	---	9.1	5.1	6.6

WILLAMETTE RIVER BASIN

14153500 COAST FORK WILLAMETTE RIVER BELOW COTTAGE GROVE DAM, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.3	5.0	5.1	8.2	7.0	7.4	8.4	7.6	7.9	10.4	9.4	9.7
2	5.8	5.2	5.5	8.4	6.8	7.3	8.4	7.8	8.1	11.0	9.3	9.9
3	6.3	5.5	5.9	8.4	6.8	7.3	8.5	7.8	8.2	11.2	9.3	9.9
4	6.4	5.8	6.1	8.6	6.9	7.6	9.2	7.9	8.4	11.3	9.2	9.9
5	6.2	5.6	5.9	7.5	7.1	7.2	8.3	8.0	8.2	10.4	9.3	9.8
6	6.0	5.7	5.9	7.8	7.0	7.4	8.8	7.9	8.3	10.4	9.3	9.7
7	6.0	5.7	5.8	8.0	7.0	7.5	9.3	7.9	8.5	11.1	9.2	9.8
8	6.4	5.9	6.1	8.0	7.2	7.6	9.7	8.0	8.5	11.3	9.3	10.0
9	6.3	6.0	6.1	7.7	7.1	7.3	9.4	8.1	8.5	10.3	9.5	9.8
10	6.6	6.1	6.3	7.7	7.2	7.4	9.4	8.1	8.6	11.0	9.6	10.1
11	6.5	6.0	6.2	7.7	7.3	7.5	9.3	8.2	8.7	11.7	9.4	10.3
12	6.4	6.1	6.2	7.7	7.4	7.6	10.0	8.2	8.9	11.8	9.5	10.4
13	6.4	6.1	6.2	7.7	7.5	7.6	9.1	8.3	8.8	10.2	9.8	10.0
14	6.5	6.1	6.3	7.9	7.4	7.6	10.6	8.4	9.3	11.8	9.7	10.4
15	6.5	6.1	6.3	7.7	7.3	7.5	10.2	9.3	9.7	11.6	9.5	10.4
16	6.6	6.4	6.4	7.6	7.2	7.4	10.5	9.2	9.7	11.9	9.5	10.5
17	6.7	6.5	6.6	7.4	7.0	7.2	10.0	9.1	9.5	11.8	10.0	10.5
18	7.8	6.5	7.1	7.3	7.0	7.1	9.7	9.2	9.5	10.9	9.9	10.4
19	7.8	7.2	7.5	7.3	6.5	6.9	10.2	9.1	9.4	11.3	9.9	10.4
20	7.4	7.2	7.2	6.9	6.4	6.7	10.5	8.9	9.3	11.7	10.1	10.6
21	7.8	7.2	7.5	7.0	6.5	6.7	10.6	8.8	9.4	11.1	10.0	10.4
22	7.6	7.3	7.5	7.4	6.6	6.9	10.8	9.1	9.5	11.9	10.0	10.7
23	8.7	7.3	7.9	7.7	6.8	7.2	10.8	8.9	9.5	12.5	10.0	10.9
24	8.7	7.8	8.1	7.6	7.1	7.4	11.0	8.8	9.6	12.4	9.9	10.9
25	8.3	7.7	7.9	7.8	7.0	7.3	11.0	9.1	9.7	12.3	10.1	11.0
26	8.4	7.2	7.7	7.5	7.0	7.2	10.1	9.0	9.4	12.6	10.3	11.1
27	8.3	7.2	7.6	8.2	6.9	7.4	10.7	9.0	9.6	11.5	10.4	10.8
28	8.2	7.0	7.4	8.3	7.1	7.4	11.0	9.0	9.7	11.3	10.3	10.8
29	---	---	---	8.4	7.2	7.6	11.0	9.2	9.8	12.0	10.7	11.1
30	---	---	---	8.0	7.2	7.6	9.7	9.3	9.5	12.7	10.6	11.2
31	---	---	---	8.2	7.5	7.8	---	---	---	12.8	10.5	11.2
MONTH	8.7	5.0	6.7	8.6	6.4	7.3	11.0	7.6	9.1	12.8	9.2	10.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	13.0	10.5	11.4	14.7	11.8	12.8	16.1	13.4	14.3	18.5	15.8	16.7
2	13.0	10.4	11.3	14.7	11.8	12.8	16.1	13.5	14.3	18.6	15.9	16.8
3	12.9	10.5	11.4	14.0	12.0	12.7	16.2	13.5	14.4	18.1	16.2	16.8
4	13.3	10.7	11.6	14.5	12.0	12.8	15.2	13.8	14.3	18.3	15.9	16.7
5	12.8	10.8	11.5	14.9	12.0	13.0	16.0	13.7	14.4	18.4	15.9	16.8
6	12.9	10.8	11.5	14.3	12.1	12.9	16.3	13.8	14.6	18.4	16.4	17.1
7	12.6	10.6	11.3	13.7	12.3	12.8	16.5	13.7	14.7	18.9	16.6	17.3
8	12.3	10.6	11.2	14.9	12.3	13.2	16.4	13.8	14.7	18.8	16.7	17.4
9	12.9	10.8	11.5	15.3	12.2	13.3	16.2	14.4	15.0	19.3	16.9	17.7
10	13.3	10.8	11.7	15.3	12.6	13.5	16.4	14.6	15.2	19.5	17.2	18.0
11	13.6	10.8	11.8	15.3	12.6	13.5	16.6	14.7	15.4	19.6	17.4	18.2
12	13.8	10.9	12.0	14.7	12.7	13.4	16.8	14.8	15.6	19.8	17.6	18.3
13	13.8	11.0	12.0	14.8	12.8	13.4	17.0	15.1	15.8	19.9	17.6	18.5
14	13.2	11.1	11.8	15.3	12.6	13.6	17.6	14.8	15.9	19.6	17.7	18.3
15	13.5	11.1	11.9	15.1	12.5	13.5	17.4	14.6	15.5	19.3	18.1	18.4
16	13.3	11.3	12.0	15.4	12.7	13.7	17.4	14.6	15.5	19.2	17.9	18.4
17	11.9	11.4	11.7	15.3	13.0	13.7	17.4	14.7	15.6	19.2	18.2	18.5
18	12.5	11.4	11.8	15.4	12.9	13.7	17.5	14.8	15.6	20.1	18.3	18.8
19	13.8	11.2	12.1	15.1	13.1	13.7	17.1	14.8	15.6	20.4	18.2	18.9
20	13.7	11.2	12.2	15.7	12.8	13.8	16.5	14.9	15.5	20.2	18.3	18.9
21	13.5	11.3	12.1	15.8	13.0	14.0	17.4	14.9	15.7	20.2	18.1	18.8
22	12.2	11.6	11.9	15.6	13.2	14.0	17.7	14.9	15.9	20.4	18.2	18.9
23	13.7	11.6	12.3	15.7	13.3	14.1	17.8	15.0	16.0	20.3	18.2	19.0
24	14.0	11.6	12.4	15.7	13.1	14.0	17.7	15.2	16.1	20.0	19.0	19.4
25	14.4	11.5	12.5	15.9	13.3	14.2	17.5	15.4	16.0	20.0	19.2	19.4
26	14.3	11.8	12.6	15.5	13.4	14.1	17.8	15.5	16.3	19.9	19.2	19.4
27	13.2	11.8	12.4	15.9	13.1	14.1	18.0	15.2	16.2	19.9	19.3	19.5
28	13.0	12.0	12.3	16.2	13.4	14.3	18.4	15.5	16.6	20.0	19.4	19.5
29	13.0	11.9	12.4	16.3	13.6	14.5	18.3	15.7	16.6	19.7	19.4	19.5
30	14.1	11.9	12.7	16.3	13.7	14.5	18.2	15.6	16.4	19.5	19.1	19.3
31	---	---	---	16.0	13.4	14.3	18.4	15.6	16.5	---	---	---
MONTH	14.4	10.4	11.9	16.3	11.8	13.6	18.4	13.4	15.5	20.4	15.8	18.3





WILLAMETTE RIVER BASIN

189

14155000 DORENA LAKE NEAR COTTAGE GROVE, OR

LOCATION.--Lat 43°47'10", long 122°57'15", in SE 1/4 sec.32, T.20 S., R.2 W., Lane County, Hydrologic Unit 17090002, on left end of Dorena Dam on Row River, 5.0 mi east of Cottage Grove, and at mile 7.61.

DRAINAGE AREA.--265 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1949 to current year. Prior to October 1971, published as Dorena Reservoir near Cottage Grove.

REVISED RECORDS.--WRD OR-78-1: 1969.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam with concrete outlet and spillway, completed in 1949 by Corps of Engineers; controlled storage began Oct. 11, 1949. Capacity, 77,580 acre-ft between elevations 739.0 ft, sill of outlet gates, and 835.0 ft, crest of spillway. Dead storage, 18 acre-ft below elevation 739.0 ft. Reservoir used for flood control and improvement of navigation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 95,550 acre-ft Dec. 23, 1964, elevation, 844.03 ft; minimum contents observed since first filling, 159 acre-ft Dec. 14, 1970, elevation, 743.60 ft.

EXTREMES FOR CURRENT YEAR.--Maximum recorded contents, 66,640 acre-ft June 28 but may have been higher during period of missing record, elevation, 828.95 ft; minimum recorded contents, 6,380 acre-ft Dec. 9, elevation, 769.08 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

760	2,810	785	15,850	810	39,380	835	77,600
765	4,560	790	19,580	815	45,620	840	87,320
770	6,840	795	23,780	820	52,480	845	97,580
775	9,540	800	28,490	825	60,060		
780	12,530	805	33,700	830	68,470		

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	807.98	775.41	771.85	770.75	773.66	797.26	813.47	826.52	---	828.58	825.95	820.95
2	807.02	774.91	770.55	771.23	774.57	797.91	813.18	826.78	---	828.53	825.83	820.82
3	806.04	774.12	770.57	769.97	775.78	798.51	813.09	827.05	---	828.41	825.72	820.69
4	805.06	773.11	770.16	770.38	777.01	799.04	813.10	827.28	---	828.41	825.62	820.56
5	804.05	772.39	770.74	770.97	778.21	799.56	813.52	827.47	---	828.34	825.51	820.42
6	803.03	772.15	775.19	771.40	779.16	800.50	814.05	827.65	---	828.28	825.41	820.29
7	801.92	771.98	774.91	770.56	784.07	802.16	814.52	827.67	---	828.22	825.30	820.16
8	800.99	771.79	770.85	774.06	788.18	802.95	814.93	827.71	---	828.15	825.13	820.03
9	799.90	771.53	769.54	771.70	789.48	803.52	815.51	827.82	---	828.08	824.84	819.90
10	798.88	771.22	769.77	769.86	789.42	804.07	816.70	827.91	---	828.01	824.55	819.76
11	798.05	770.88	769.82	770.07	788.95	805.08	817.66	827.99	---	827.93	824.25	819.62
12	797.03	770.61	770.04	770.85	787.93	808.49	818.18	---	---	827.86	823.96	819.49
13	795.93	770.49	775.37	771.04	787.36	809.68	818.94	---	---	827.76	823.56	819.34
14	794.79	770.95	784.88	770.71	787.31	809.48	822.60	---	---	827.68	823.34	819.21
15	793.62	771.22	783.13	770.43	787.49	808.77	821.37	---	---	827.59	823.06	819.07
16	792.44	772.73	784.70	770.65	788.05	807.60	820.99	---	---	827.50	822.92	818.94
17	791.24	772.68	789.12	770.96	788.76	807.22	821.33	---	---	827.42	822.79	818.97
18	789.97	771.41	786.83	771.05	789.30	807.74	821.61	---	---	827.33	822.66	819.05
19	788.68	770.39	783.47	771.20	790.18	808.42	822.05	---	---	827.24	822.53	818.92
20	787.38	770.85	778.80	771.60	790.80	809.61	822.42	---	---	827.15	822.46	818.89
21	786.05	771.06	772.06	778.07	791.46	811.37	822.71	---	---	827.06	822.34	818.54
22	784.88	777.43	770.14	777.85	792.44	812.85	823.17	---	---	826.97	822.22	817.88
23	785.19	778.06	770.25	775.83	793.91	813.57	823.72	---	---	826.88	822.10	817.18
24	784.33	775.14	770.14	773.11	794.69	814.46	824.13	---	---	826.78	821.97	816.48
25	783.03	773.29	770.19	779.06	795.07	814.56	824.51	---	---	826.68	821.85	815.76
26	781.41	771.25	770.13	783.71	795.59	814.00	824.94	---	---	826.59	821.72	815.06
27	779.65	770.11	770.57	782.55	796.27	813.53	825.38	---	---	826.48	821.61	814.31
28	777.76	775.27	771.13	780.74	796.80	813.46	825.71	---	828.89	826.38	821.48	813.62
29	775.89	777.98	770.83	779.17	---	813.81	825.99	---	828.78	826.28	821.34	812.94
30	774.75	773.35	771.56	776.93	---	813.83	826.25	---	828.64	826.17	821.21	812.28
31	775.39	---	771.62	774.27	---	813.67	---	---	---	826.06	821.08	---
MAX	807.98	778.06	789.12	783.71	796.80	814.56	826.25	---	---	828.58	825.95	820.95
MIN	774.75	770.11	769.54	769.86	773.66	797.26	813.09	---	---	826.06	821.08	812.28
(†)	9770	8620	7680	9130	25420	43900	62080	*---	66100	61770	54050	42150
(‡)	-28350	-1150	-940	+1450	+16290	+18480	+18180	*---	---	-4330	-7720	-11900

CAL YR 2001 MAX 833.50 MIN 769.54 AC-FT‡ -10  
WTR YR 2002 MAX --- MIN --- AC-FT‡ +4030

e Estimated  
† Contents, in acre-feet, at 2400, on last day of month.  
\* No substitute values available between May 12 to June 28.  
‡ Change in contents, in acre-feet.

## WILLAMETTE RIVER BASIN

14155500 ROW RIVER NEAR COTTAGE GROVE, OR

LOCATION.--Lat 43°47'35", long 122°59'25", in NE 1/4 sec.36, T.20 S., R.3 W., Lane County, Hydrologic Unit 17090002, on right bank 1.7 mi upstream from Mosby Creek, 2.1 mi downstream from Dorena Dam, 3.5 mi east of Cottage Grove, and at mile 5.5.

DRAINAGE AREA.--270 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1939 to current year. Prior to October 1947, published as "near Dorena."

GAGE.--Water-stage recorder. Datum of gage is 685.24 ft above NGVD of 1929 (levels by Corps of Engineers). Jan. 5 to Oct. 12, 1939, nonrecording gage at site 180 ft upstream at datum 1.00 ft higher.

REMARKS.--Records good. Flow regulated since October 1949 by Dorena Lake (station 14155000). No diversion upstream from station.

AVERAGE DISCHARGE.--63 years (water years 1940-2002), 742 ft<sup>3</sup>/s, 37.32 in/yr, 537,600 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,400 ft<sup>3</sup>/s Dec. 28, 1945, gage height, 18.20 ft; minimum discharge, 0.20 ft<sup>3</sup>/s Sept. 25 to Oct. 7, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 4,220 ft<sup>3</sup>/s Dec. 17, 18, gage height, 7.47 ft; minimum recorded discharge, 87 ft<sup>3</sup>/s July 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	601	385	2640	1490	1080	369	801	210	213	115	101	93
2	597	385	2530	1540	662	226	800	208	213	101	100	93
3	593	381	1310	1640	557	213	800	208	213	101	100	93
4	590	377	1130	932	527	210	699	208	213	101	101	93
5	585	292	1440	700	536	208	476	208	213	101	100	93
6	580	166	2500	1330	603	208	314	208	213	101	99	93
7	577	123	3080	1970	624	264	314	280	213	101	99	93
8	573	121	2840	2310	1490	400	275	266	213	101	143	93
9	591	119	1830	2540	1580	402	210	217	213	101	258	94
10	600	119	1160	1700	1590	405	208	215	213	101	258	98
11	592	119	1080	919	1580	409	299	213	195	101	258	100
12	589	119	1340	738	1570	706	508	213	189	101	257	98
13	583	119	1530	740	1260	1140	825	213	208	101	256	98
14	578	119	3540	737	940	1650	2740	213	208	101	276	98
15	572	119	3540	637	761	1770	3860	213	208	101	247	98
16	567	282	3500	480	592	1890	2290	213	208	101	93	97
17	560	799	4000	426	532	1220	1480	213	208	101	93	99
18	573	665	4170	427	534	562	1330	213	208	101	93	96
19	574	487	4030	534	677	427	971	213	208	101	93	96
20	567	214	3820	719	1030	371	817	213	208	100	94	96
21	558	639	3510	1420	1030	414	710	213	208	100	94	276
22	553	1070	1710	1960	1040	762	474	213	208	100	93	495
23	549	1630	934	1920	1050	1220	301	213	208	99	93	521
24	576	1780	804	1850	1060	1520	301	213	207	100	93	518
25	601	1710	667	1950	925	1760	276	213	206	101	93	518
26	650	1660	622	2520	660	1780	213	213	204	101	93	514
27	663	1070	551	2600	438	1490	213	213	204	101	93	511
28	647	1160	792	2080	431	1030	213	213	204	101	93	508
29	631	2300	939	1550	---	617	213	213	206	100	93	508
30	522	2940	779	1500	---	731	213	213	204	100	93	506
31	385	---	1310	1450	---	804	---	213	---	100	93	---
TOTAL	17977	21469	63628	43309	25359	25178	23144	6701	6237	3136	4143	6787
MEAN	580	716	2053	1397	906	812	771	216	208	101	134	226
MAX	663	2940	4170	2600	1590	1890	3860	280	213	115	276	521
MIN	385	119	551	426	431	208	208	208	189	99	93	93
AC-FT	35660	42580	126200	85900	50300	49940	45910	13290	12370	6220	8220	13460
MEAN†	119	696	2037	1421	1199	1113	1077	---	---	30.7	8.13	26.2
CFSM†	0.44	2.58	7.54	5.26	4.44	4.12	3.99	---	---	0.11	0.03	0.10
IN.†	0.51	2.88	8.70	6.06	4.62	4.75	4.45	---	---	0.13	0.04	0.11
AC-FT†	7310	41430	125300	87350	66590	68420	64090	---	---	1890	500	1560

CAL YR 2001 TOTAL 172655 MEAN 473 MAX 4170 MIN 96 AC-FT 342500 MEAN† 473 CFSM† 1.75 IN.† 23.77 AC-FT† 342400  
WTR YR 2002 TOTAL 247068 MEAN 677 MAX 4170 MIN 93 AC-FT 490100 MEAN† 682 CFSM† 2.53 IN.† 34.32 AC-FT† 494100

Adjusted for change in contents, in Dorena Lake.

## WILLAMETTE RIVER BASIN

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14155500 ROW RIVER NEAR COTTAGE GROVE, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 2001 to September 2002.

INSTRUMENTATION.--Temperature recorder since August 2001.

REMARKS.--Water temperature records good.

EXTREMES FOR CURRENT PERIOD.--

WATER TEMPERATURE: Maximum, 19.3°C Oct. 1; minimum, 4.6°C Dec. 27.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.3	18.2	18.6	12.3	11.8	12.1	7.4	7.3	7.3	7.1	6.6	7.0
2	19.2	18.2	18.6	12.2	11.3	11.7	7.6	7.3	7.4	7.6	7.0	7.3
3	19.2	18.2	18.5	12.5	11.5	11.9	7.6	7.4	7.5	7.7	7.1	7.5
4	19.2	18.2	18.5	12.3	11.6	12.0	7.4	6.8	7.1	7.1	6.5	6.9
5	18.8	18.2	18.4	12.4	11.2	11.9	6.8	6.3	6.5	6.7	6.5	6.5
6	18.7	18.1	18.4	12.0	10.5	11.3	7.3	6.4	6.8	7.6	6.6	7.0
7	18.4	17.9	18.1	11.6	10.0	10.6	7.5	7.2	7.3	8.3	7.6	7.9
8	18.4	17.6	17.9	11.3	9.6	10.3	7.3	6.9	7.0	8.3	7.9	8.1
9	18.2	17.1	17.6	11.1	9.4	10.0	7.0	6.7	6.9	8.2	7.6	8.0
10	17.3	17.1	17.2	11.1	9.6	10.1	6.8	6.1	6.5	7.6	6.9	7.2
11	17.4	16.7	17.0	11.1	9.7	10.2	6.2	6.0	6.1	6.9	6.7	6.8
12	17.2	16.5	16.8	10.6	9.8	10.2	6.1	6.0	6.0	7.0	6.8	6.9
13	16.8	15.9	16.4	10.5	9.9	10.3	6.8	6.1	6.4	7.1	6.8	6.9
14	16.8	15.9	16.2	11.5	10.4	10.7	7.2	6.7	7.1	7.0	6.6	6.8
15	16.7	15.9	16.2	11.1	10.4	10.7	6.9	6.5	6.7	6.6	6.0	6.4
16	16.7	15.9	16.2	10.8	10.3	10.6	7.6	6.6	7.0	6.2	5.8	6.0
17	16.5	15.7	16.0	10.7	10.1	10.5	7.7	7.3	7.5	6.0	5.3	5.6
18	16.1	15.5	15.8	10.1	9.5	9.8	7.3	6.9	7.1	5.5	5.1	5.3
19	16.0	15.4	15.6	9.9	9.4	9.6	7.0	6.8	6.9	5.3	5.0	5.1
20	15.6	15.2	15.4	9.5	9.2	9.4	7.1	6.8	7.0	5.1	4.9	5.0
21	15.4	15.1	15.2	9.2	9.0	9.1	7.1	6.6	6.8	5.1	4.7	4.9
22	15.2	14.9	15.1	9.0	8.5	8.8	6.6	6.0	6.2	5.2	4.8	5.0
23	15.0	14.3	14.8	8.6	8.4	8.5	6.2	5.7	5.9	5.5	5.1	5.3
24	14.3	12.9	13.5	8.5	8.1	8.3	5.7	5.2	5.5	5.4	5.1	5.2
25	13.4	12.5	13.0	8.2	7.7	8.0	5.2	4.8	5.0	5.7	5.2	5.4
26	13.6	12.6	13.0	7.8	7.0	7.4	5.1	4.8	4.9	6.3	5.7	6.1
27	13.5	12.8	13.1	7.1	6.6	6.8	4.8	4.6	4.8	6.2	5.8	6.0
28	13.2	12.9	13.0	6.8	6.5	6.6	5.1	4.7	4.9	5.9	5.5	5.7
29	13.1	12.7	12.9	7.5	6.7	7.1	5.5	4.9	5.3	5.6	5.1	5.4
30	12.8	12.5	12.7	7.6	7.3	7.4	6.1	5.4	5.8	5.3	4.9	5.1
31	12.8	12.0	12.4	--	--	--	6.6	6.0	6.3	5.1	4.8	5.0
MONTH	19.3	12.0	15.9	12.5	6.5	9.7	7.7	4.6	6.4	8.3	4.7	6.2



14157500 COAST FORK WILLAMETTE RIVER NEAR GOSHEN, OR

LOCATION.--Lat 43°58'50", long 122°57'55", in NW 1/4 sec.29, T.18 S., R.2 W., Lane County, Hydrologic Unit 17090002, on right bank at downstream side of bridge on State Highway 58, 2.5 mi southeast of Goshen, and at mile 6.4.

DRAINAGE AREA.--642 mi<sup>2</sup>.

## WATER-DISCHARGES RECORDS

PERIOD OF RECORD.--August 1905 to February 1912, October 1950 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1248: 1905-12. WSP 1935: 1956.

GAGE.--Water-stage recorder. Datum of gage is 473.80 ft above NGVD of 1929. Aug. 23, 1905 to Feb. 7, 1912, nonrecording gage at site 600 ft upstream at different datum.

REMARKS.--Records good. Flow regulated since 1942 by Cottage Grove Lake (station 14153000) and since 1949 by Dorena Lake (station 14155000). Several small diversions for logponds and irrigation upstream from station. Several observations of water temperature were made during the year. Continuous water-quality records for the period October 1961 to September 1975 have been collected at this location. Periodic suspended sediment data are available for the period October 1991 to September 1993.

AVERAGE DISCHARGE.--58 years (water years 1906-11, 1951-2002), 1,580 ft<sup>3</sup>/s, 1,145,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 58,500 ft<sup>3</sup>/s Nov. 22, 1909, gage height, 19.5 ft, site and datum then in use, from rating curve extended above 15,000 ft<sup>3</sup>/s; minimum discharge, 36 ft<sup>3</sup>/s Sept. 29, 30, Oct. 11, 12, 1908.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,680 ft<sup>3</sup>/s Dec. 14, gage height, 10.45 ft; minimum discharge, 118 ft<sup>3</sup>/s July 29-31, Aug. 1, 3, 4, 7.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	970	814	5150	2750	e1690	e510	e1140	485	266	236	119	128
2	960	725	6170	2860	e1180	e325	e1140	455	261	158	121	130
3	951	649	3300	3000	e1040	e310	e1120	422	256	149	120	131
4	946	609	2880	2260	e975	e310	e940	407	257	146	121	130
5	937	567	4270	1820	e940	e305	e645	395	258	145	122	129
6	930	372	5420	2500	e975	e305	e445	387	255	141	121	130
7	922	297	6160	3620	e1010	e445	e445	449	249	140	119	130
8	920	239	4750	4770	e2100	e705	e400	519	248	139	120	131
9	922	209	3710	4610	e2220	e705	e325	367	250	135	259	130
10	939	209	2710	3520	e2230	e705	e320	358	248	132	311	131
11	771	207	2420	2230	e2220	e715	e425	348	241	130	313	135
12	746	212	2520	1920	e2210	e1240	e670	341	243	128	312	134
13	720	216	2930	1770	e1850	e1860	e1040	332	275	128	312	133
14	703	244	8450	1690	e1490	e2450	e3720	334	272	129	313	133
15	692	272	7020	e1000	e1280	e2690	e5300	326	272	127	308	135
16	685	520	6320	e725	e1050	e2970	e3200	319	273	126	181	136
17	671	1520	7670	e725	e905	e1960	e2180	326	277	125	129	155
18	673	1220	7490	e675	e905	e1050	e1980	322	294	125	128	170
19	683	874	7600	e905	e1190	e810	e1330	322	299	125	128	163
20	673	594	6310	e1270	e1810	e700	e1710	392	286	126	130	152
21	664	867	5210	e2690	e1710	e750	1520	381	276	125	136	197
22	689	2640	3670	e3880	e1460	e1220	1240	376	274	124	134	460
23	815	3870	2320	e3550	e1470	e1980	882	358	275	122	134	582
24	790	3120	1940	e2860	e1480	e2330	812	333	271	122	132	712
25	825	3130	1710	e3360	e1320	e2450	764	315	265	122	131	704
26	846	3450	1530	e4700	e940	e2280	624	306	258	122	132	704
27	927	2580	1380	e4760	e630	e1820	619	297	256	122	131	727
28	915	2890	1530	e3880	e620	e1290	582	306	260	123	131	797
29	905	5660	1900	e2850	---	e810	544	310	279	120	131	808
30	900	5180	1670	e2320	---	e1020	520	297	278	120	128	833
31	836	---	2440	e2140	---	e1150	---	274	---	118	128	---
TOTAL	25526	43956	128550	81610	38900	38170	36582	11159	7972	4130	5235	9270
MEAN	823	1465	4147	2633	1389	1231	1219	360	266	133	169	309
MAX	970	5660	8450	4770	2230	2970	5300	519	299	236	313	833
MIN	664	207	1380	675	620	305	320	274	241	118	119	128
AC-FT	50630	87190	255000	161900	77160	75710	72560	22130	15810	8190	10380	18390

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1906 - 2002, BY WATER YEAR (WY)

	MEAN	MAX	MIN	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)	(WY)
MEAN	788	1966	3340	3562	2775	2207	1559	1063	579	251	358	542
MAX	3119	6305	9820	7814	6891	5716	4020	3285	2424	588	1115	1057
(WY)	1951	1974	1965	1909	1961	1957	1963	1963	1993	1957	1955	1978
MIN	147	121	196	200	203	385	460	247	129	90.3	49.7	63.5
(WY)	1911	1953	1977	1977	1977	1992	1987	1987	1987	1910	1910	1910

## SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1906 - 2002

ANNUAL TOTAL	334344	431060										
ANNUAL MEAN	916	1181								1580		
HIGHEST ANNUAL MEAN										2701		1956
LOWEST ANNUAL MEAN										512		1977
HIGHEST DAILY MEAN			8450	Dec 14	8450	Dec 14			36500	Jan 4	1907	
LOWEST DAILY MEAN			137	Aug 16	118	Jul 31			36	Sep 29	1908	
ANNUAL SEVEN-DAY MINIMUM			137	Aug 15	120	Jul 29			42	Aug 28	1911	
ANNUAL RUNOFF (AC-FT)	663200	855000								1145000		
10 PERCENT EXCEEDS			1920		3050				4150			
50 PERCENT EXCEEDS			486		664				740			
90 PERCENT EXCEEDS			145		130				172			

e Estimated

14157500 COAST FORK WILLAMETTE RIVER NEAR GOSHEN, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--

WATER TEMPERATURE: August 2001 to September 2002.

INSTRUMENTATION.--Temperature recorder.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 27.1°C July 11, 2002; minimum, 4.8°C Dec. 26-28, 2001.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 27.1°C July 11; minimum, 4.8°C Dec. 26-28.

WATER TEMPERATURE, in (DEGREES C), SEPTEMBER 2001												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	21.4	17.9	19.6
2	---	---	---	---	---	---	---	---	---	22.0	18.3	19.8
3	---	---	---	---	---	---	---	---	---	20.8	16.9	18.8
4	---	---	---	---	---	---	---	---	---	20.2	16.4	18.2
5	---	---	---	---	---	---	---	---	---	18.8	16.1	17.4
6	---	---	---	---	---	---	---	---	---	18.3	14.6	16.4
7	---	---	---	---	---	---	---	---	---	17.5	14.6	16.0
8	---	---	---	---	---	---	---	---	---	18.0	15.0	16.3
9	---	---	---	---	---	---	---	---	---	18.4	15.2	16.6
10	---	---	---	---	---	---	---	---	---	18.4	15.8	16.9
11	---	---	---	---	---	---	---	---	---	18.2	15.4	16.7
12	---	---	---	---	---	---	---	---	---	18.8	16.3	17.4
13	---	---	---	---	---	---	---	---	---	19.4	16.6	17.7
14	---	---	---	---	---	---	---	---	---	19.5	16.6	17.9
15	---	---	---	---	---	---	---	---	---	20.0	17.7	18.6
16	---	---	---	---	---	---	22.9	20.0	21.0	19.6	17.4	18.4
17	---	---	---	---	---	---	22.6	18.7	20.3	18.1	16.3	17.1
18	---	---	---	---	---	---	22.3	19.1	20.2	17.8	15.1	16.3
19	---	---	---	---	---	---	22.4	17.7	19.7	17.4	15.4	16.5
20	---	---	---	---	---	---	22.5	17.8	19.7	17.6	15.4	16.7
21	---	---	---	---	---	---	20.5	18.0	19.3	17.8	15.8	17.0
22	---	---	---	---	---	---	19.6	18.7	19.2	18.3	15.8	17.2
23	---	---	---	---	---	---	21.1	17.7	19.0	19.1	16.8	18.0
24	---	---	---	---	---	---	22.2	17.8	19.6	19.1	17.4	18.4
25	---	---	---	---	---	---	22.2	18.0	19.8	18.8	17.9	18.3
26	---	---	---	---	---	---	23.0	18.4	20.3	18.4	17.9	18.1
27	---	---	---	---	---	---	23.5	19.0	20.8	18.3	17.2	17.7
28	---	---	---	---	---	---	23.7	19.1	21.0	18.7	16.6	17.7
29	---	---	---	---	---	---	21.8	19.5	20.5	18.7	16.7	17.9
30	---	---	---	---	---	---	21.7	17.6	19.5	19.0	16.8	18.1
31	---	---	---	---	---	---	22.0	18.0	19.8	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	22.0	14.6	17.6

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.2	17.0	18.3	12.2	11.9	12.1	7.7	7.5	7.6	7.2	6.8	7.0
2	19.0	17.1	18.2	13.2	12.1	12.5	7.8	7.3	7.5	7.8	7.0	7.3
3	18.3	16.3	17.5	13.0	12.2	12.6	7.9	7.4	7.6	7.7	7.1	7.4
4	18.4	16.4	17.5	12.6	12.1	12.3	7.4	6.7	6.9	7.1	6.4	6.7
5	18.2	16.9	17.5	12.7	11.8	12.2	7.0	6.5	6.7	7.1	6.4	6.7
6	17.8	17.0	17.4	12.3	10.4	11.5	7.7	7.0	7.4	8.2	7.1	7.6
7	17.2	15.8	16.4	10.4	8.9	9.6	7.8	7.3	7.6	8.7	8.2	8.4
8	17.1	16.2	16.6	9.7	8.1	8.8	7.3	6.9	7.1	8.9	8.5	8.7
9	16.9	15.5	16.2	9.7	7.7	8.7	7.3	6.8	7.1	8.6	7.9	8.3
10	16.2	14.8	15.3	10.1	8.5	9.3	6.8	6.5	6.6	7.9	7.4	7.7
11	16.8	15.4	15.9	11.0	9.6	10.3	6.8	6.3	6.6	7.7	7.2	7.4
12	16.2	14.5	15.3	11.0	10.4	10.7	6.7	6.4	6.5	7.9	7.3	7.5
13	16.9	16.0	16.4	10.8	10.3	10.6	7.6	6.6	7.1	7.7	7.0	7.2
14	16.2	14.7	15.6	12.6	10.8	11.7	7.6	7.0	7.3	7.0	6.6	6.8
15	16.0	15.0	15.6	12.0	11.5	11.8	7.0	6.7	6.9	6.6	5.9	6.4
16	15.8	15.1	15.5	11.5	10.6	11.2	7.9	7.0	7.5	5.9	5.2	5.5
17	15.5	14.3	14.9	10.6	10.0	10.2	8.0	7.4	7.7	6.2	5.5	5.8
18	14.7	13.3	14.1	10.2	9.4	9.7	7.4	7.0	7.2	6.2	5.6	6.0
19	15.0	13.2	14.2	10.1	9.3	9.7	7.1	6.7	6.9	6.3	5.8	6.1
20	14.7	13.7	14.3	10.0	9.6	9.8	7.3	6.9	7.1	6.3	5.5	5.8
21	14.2	13.3	13.7	9.6	9.0	9.2	7.2	6.5	7.0	6.3	5.2	5.6
22	14.4	14.1	14.2	9.2	8.9	9.1	6.9	6.2	6.5	5.8	5.1	5.4
23	14.3	13.1	13.8	8.9	8.5	8.7	6.6	5.9	6.2	6.0	5.5	5.7
24	13.5	12.2	12.9	8.7	8.1	8.4	6.0	5.4	5.6	6.0	5.5	5.8
25	13.9	12.3	13.2	8.3	7.8	8.1	5.7	5.1	5.4	6.7	6.0	6.3
26	13.6	11.8	12.9	8.0	7.3	7.7	5.2	4.8	5.1	6.6	6.1	6.4
27	13.4	12.4	12.6	7.3	7.0	7.1	5.2	4.8	4.9	6.2	5.7	6.0
28	12.4	11.8	11.9	7.6	6.8	7.2	5.7	4.8	5.3	6.2	5.6	5.8
29	12.3	11.8	12.0	7.8	7.5	7.7	5.9	5.2	5.5	6.0	5.3	5.6
30	12.6	12.1	12.4	7.8	7.5	7.7	6.2	5.7	5.9	5.8	5.0	5.3
31	12.5	12.1	12.3	---	---	---	7.1	6.0	6.5	5.6	5.0	5.2
MONTH	19.2	11.8	15.0	13.2	6.8	9.9	8.0	4.8	6.7	8.9	5.0	6.6



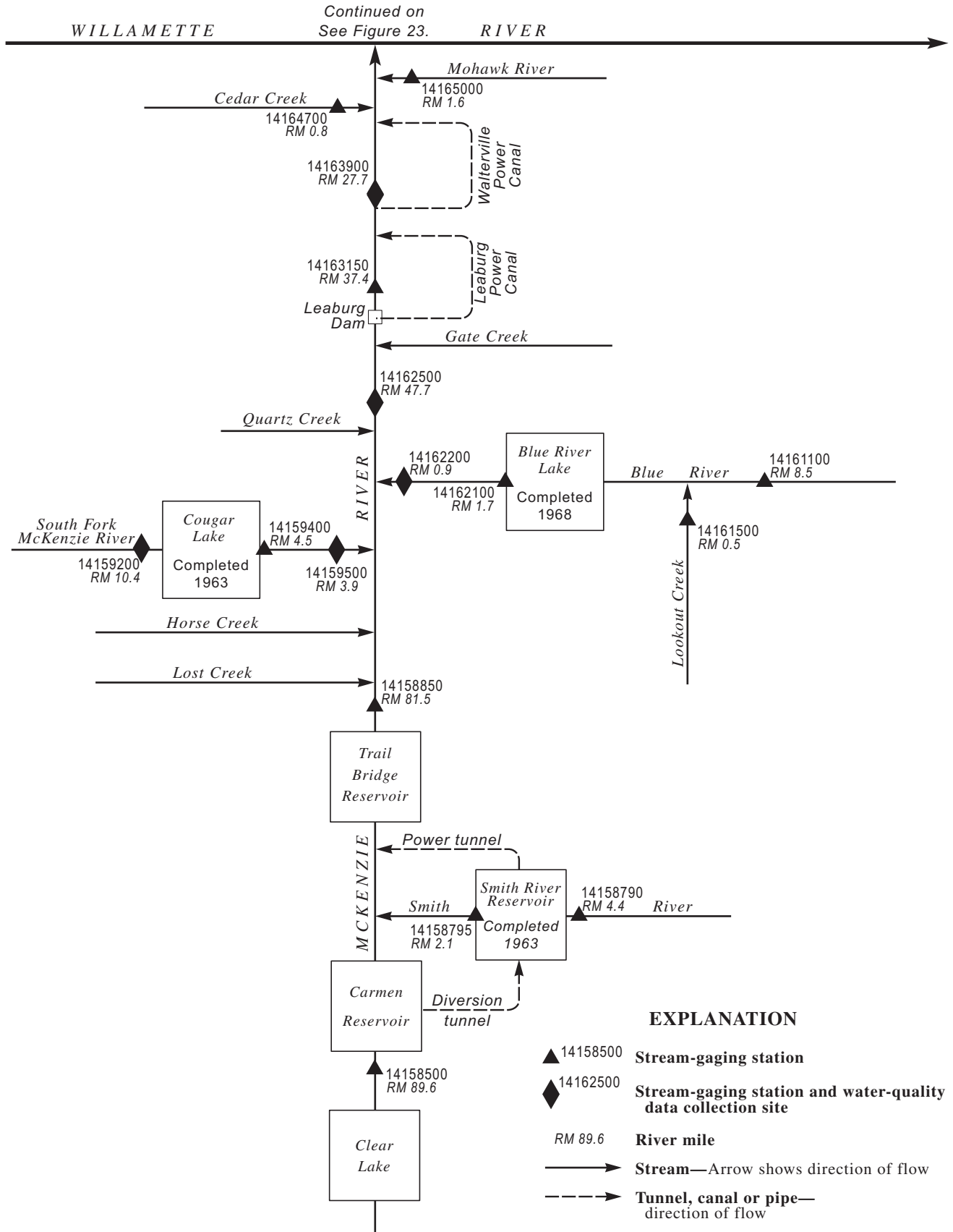


Figure 24. Schematic diagram showing gaging stations and diversions in the McKenzie River Basin.



14158500 MCKENZIE RIVER AT OUTLET OF CLEAR LAKE, OR

LOCATION.--Lat 44°21'40", long 121°59'40", in SE 1/4 sec.8, T.14 S., R.7 E., Linn County, Hydrologic Unit 17090004, Willamette National Forest, on west bank of Clear Lake in narrow channel, 150 ft upstream from outlet and at mile 89.6.

DRAINAGE AREA.--92.4 mi<sup>2</sup>, hydrologic drainage boundary uncertain owing to ground-water exchange.

PERIOD OF RECORD.--June 1912 to September 1915, October 1947 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1288: 1949. WSP 1318: 1915(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,015.32 ft above NGVD of 1929 (levels by Eugene Water and Electric Board). June 20, 1912, to July 31, 1915, nonrecording gage at site 1.0 mi north at different datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by natural storage in lake. At high stages an undetermined flow enters numerous sinkholes in lava rock along south edge of lake upstream from station.

AVERAGE DISCHARGE.--58 years (water years 1913-15, 1948-2002), 458 ft<sup>3</sup>/s, 67.27 in/yr, 331,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,300 ft<sup>3</sup>/s Dec. 23, 1964, gage height, 8.15 ft; minimum discharge, 116 ft<sup>3</sup>/s Oct. 27, 28, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,740 ft<sup>3</sup>/s Apr. 14, gage height, 5.52 ft; minimum discharge, 134 ft<sup>3</sup>/s Oct. 10, 19-21.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	139	162	394	405	366	334	376	744	786	483	350	271
2	139	168	398	403	355	335	379	746	771	474	346	268
3	139	175	395	397	348	335	384	761	757	465	341	268
4	137	177	398	392	339	335	391	755	745	455	338	266
5	137	178	399	388	331	335	402	747	745	450	334	265
6	136	177	415	403	325	353	414	744	742	444	330	262
7	136	175	430	418	323	354	468	726	716	440	327	261
8	136	173	433	433	312	347	535	707	682	435	324	260
9	136	172	437	782	297	342	580	694	652	431	321	257
10	137	168	445	663	287	343	795	681	625	429	317	257
11	141	166	441	591	278	366	938	664	607	428	315	255
12	137	166	428	580	270	405	955	655	596	424	311	253
13	137	170	461	589	265	394	1030	666	595	423	309	253
14	138	172	679	585	260	390	1620	676	600	421	307	251
15	137	172	681	574	254	395	1490	677	591	418	304	249
16	136	181	683	558	250	402	1210	676	575	415	302	249
17	136	186	843	543	247	402	1120	680	565	412	299	251
18	136	192	797	519	245	403	1080	699	586	409	298	247
19	135	200	711	501	248	406	1040	710	582	406	294	246
20	134	205	663	494	246	402	1000	709	558	402	293	244
21	134	216	631	485	248	400	971	704	547	398	291	242
22	141	253	610	466	250	396	940	704	542	395	288	242
23	146	273	588	436	266	395	914	696	539	391	288	239
24	142	291	562	417	282	392	882	691	528	387	286	238
25	146	316	534	422	298	388	856	697	516	383	284	238
26	149	325	505	410	312	384	840	715	508	380	280	236
27	151	329	485	398	323	383	825	744	502	375	279	235
28	151	357	472	388	330	379	791	775	495	370	277	234
29	152	378	447	382	---	377	764	821	496	366	276	233
30	156	374	425	375	---	375	756	839	488	361	274	235
31	161	---	412	371	---	375	---	808	---	356	272	---
TOTAL	4368	6647	16202	14970	8155	11622	24746	22311	18237	12826	9455	7505
MEAN	140.9	221.6	522.6	482.9	291.2	374.9	824.9	719.7	607.9	413.7	305.0	250.2
MAX	161	378	843	782	366	406	1620	839	786	483	350	271
MIN	134	162	394	371	245	334	376	655	488	356	272	233
AC-FT	8660	13180	32140	29690	16180	23050	49080	44250	36170	25440	18750	14890
CFSM	1.52	2.40	5.66	5.23	3.15	4.06	8.93	7.79	6.58	4.48	3.30	2.71
IN.	1.76	2.68	6.52	6.03	3.28	4.68	9.96	8.98	7.34	5.16	3.81	3.02

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1913 - 2002, BY WATER YEAR (WY)

	MEAN	248.2	371.1	539.9	520.0	527.8	506.4	595.4	680.2	563.3	388.5	300.9	252.5
MAX	428	828	1209	1123	1313	1205	873	1178	1202	737	499	392	
(WY)	1951	1951	1965	1997	1996	1972	1997	1949	1974	1950	1974	1974	
MIN	122	141	209	191	180	224	341	319	203	173	149	132	
(WY)	1993	1988	1977	1977	1977	1977	1955	1992	1992	1977	1992	1992	

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1913 - 2002

ANNUAL TOTAL	100117	157044	
ANNUAL MEAN	274.3	430.3	457.5
HIGHEST ANNUAL MEAN			688
LOWEST ANNUAL MEAN			241
HIGHEST DAILY MEAN	843	Dec 17	1620
LOWEST DAILY MEAN	134	Oct 20	134
ANNUAL SEVEN-DAY MINIMUM	135	Oct 15	135
ANNUAL RUNOFF (AC-FT)	198600	311500	331400
ANNUAL RUNOFF (CFSM)	2.97	4.66	4.95
ANNUAL RUNOFF (INCHES)	40.31	63.23	67.27
10 PERCENT EXCEEDS	433	745	798
50 PERCENT EXCEEDS	246	388	395
90 PERCENT EXCEEDS	145	169	210

14158790 SMITH RIVER ABOVE SMITH RIVER RESERVOIR, NEAR BELKNAP SPRINGS, OR

LOCATION.--Lat 44°20'05", long 122°02'45", in SW 1/4 SW 1/4 sec.24, T.14 S., R.6 E., Linn County, Hydrologic Unit 17090004, in Willamette National Forest, on right bank 200 ft upstream from Smith River Reservoir, 0.7 mi downstream from Browder Creek, 10 mi north of town of Belknap Springs, and at mile 4.4.

DRAINAGE AREA.--16.2 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WDR OR 80-2: 1978(P).

GAGE.--Water-stage recorder. Datum of gage is 2,610.00 ft above NGVD of 1929 (levels by Eugene Water and Electric Board). Prior to Sept. 10, 1964, at datum 1.56 ft higher.

REMARKS.--No estimated daily discharges. Records good. Eugene Water and Electric Board telemetry at station. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--42 years (water years 1961-2002), 89.7 ft<sup>3</sup>/s, 75.23 in/yr, 64,980 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,160 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 11.9 ft, from floodmark, from rating curve extended above 560 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum discharge, 1.2 ft<sup>3</sup>/s Oct. 13, 1991, result of log jam.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 800 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	0330	*1,300	*8.64	No other peak greater than base discharge.			
Minimum discharge, 4.0 ft <sup>3</sup> /s Oct. 8.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.4	64	170	83	40	82	139	153	205	42	8.9	5.4
2	4.3	45	141	123	36	74	164	179	178	37	8.6	5.3
3	4.2	33	109	131	36	69	188	196	158	34	8.4	5.3
4	4.2	25	91	114	34	67	222	179	151	31	8.4	5.2
5	4.2	22	79	103	33	66	254	170	152	29	8.4	5.1
6	4.2	19	169	219	33	124	239	158	140	27	8.4	5.1
7	4.1	16	209	428	38	134	232	137	118	25	7.9	5.1
8	4.5	15	153	634	43	102	215	121	98	24	7.7	5.1
9	4.8	13	119	362	40	87	286	113	85	22	7.7	5.1
10	7.0	12	100	234	38	81	571	104	80	21	7.6	5.1
11	16	12	86	180	38	229	507	103	84	20	7.2	4.9
12	6.3	13	75	185	37	391	488	123	93	19	7.1	4.8
13	6.0	47	307	170	36	229	579	158	107	18	7.1	4.6
14	5.3	75	447	139	35	164	964	165	111	17	7.1	4.6
15	5.2	51	241	114	35	131	486	168	100	16	6.8	4.6
16	4.9	66	410	98	35	110	298	164	90	15	6.6	4.8
17	4.9	63	470	86	37	93	218	179	91	15	6.6	8.8
18	4.6	51	275	76	39	82	171	190	126	14	6.6	6.0
19	4.6	49	192	71	58	76	146	180	92	13	6.6	5.2
20	4.2	61	148	69	63	72	129	168	79	13	6.6	5.1
21	4.2	125	118	67	95	69	123	162	74	12	6.6	4.8
22	36	480	99	61	143	68	127	160	71	12	6.6	4.6
23	38	280	85	54	237	70	133	148	66	12	8.9	4.6
24	18	180	75	53	216	74	131	148	60	11	8.5	4.6
25	13	129	69	71	155	76	138	162	56	10	6.3	4.6
26	11	99	62	66	122	80	150	190	54	10	5.7	4.6
27	10	82	59	57	104	88	142	215	50	9.9	5.6	4.6
28	10	190	67	52	92	91	130	246	46	9.7	5.5	4.6
29	12	264	62	47	---	96	135	325	58	9.6	5.1	5.5
30	34	169	59	44	---	106	152	279	47	9.3	5.4	9.3
31	75	---	68	42	---	121	---	234	---	9.0	5.5	---
TOTAL	369.1	2750	4814	4233	1948	3402	7857	5377	2920	566.5	220.0	157.0
MEAN	11.91	91.67	155.3	136.5	69.57	109.7	261.9	173.5	97.33	18.27	7.097	5.233
MAX	75	480	470	634	237	391	964	325	205	42	8.9	9.3
MIN	4.1	12	59	42	33	66	123	103	46	9.0	5.1	4.6
AC-FT	732	5450	9550	8400	3860	6750	15580	10670	5790	1120	436	311
CFSM	0.73	5.66	9.59	8.43	4.29	6.77	16.2	10.7	6.01	1.13	0.44	0.32
IN.	0.85	6.31	11.05	9.72	4.47	7.81	18.04	12.35	6.71	1.30	0.51	0.36

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2002, BY WATER YEAR (WY)

	MEAN	23.03	114.9	149.8	136.0	133.9	118.7	147.6	150.6	74.16	17.15	6.775	7.178
MAX	95.4	239	404	293	371	321	270	318	260	51.5	12.9	23.5	
(WY)	1998	1996	1965	1970	1996	1993	1993	1971	1974	1971	1999	1978	
MIN	3.33	4.47	9.88	13.5	12.8	41.2	50.3	28.1	8.63	5.23	3.22	3.74	
(WY)	1988	1994	1977	1977	1977	1992	1967	1992	1992	1992	1992	1992	

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1961 - 2002

ANNUAL TOTAL	19531.6	34613.6	
ANNUAL MEAN	53.51	94.83	89.69
HIGHEST ANNUAL MEAN			136
LOWEST ANNUAL MEAN			37.1
HIGHEST DAILY MEAN	480	964	2590
LOWEST DAILY MEAN	3.5	4.1	2.5
ANNUAL SEVEN-DAY MINIMUM	3.6	4.2	2.6
ANNUAL RUNOFF (AC-FT)	38740	68660	64980
ANNUAL RUNOFF (CFSM)	3.30	5.85	5.54
ANNUAL RUNOFF (INCHES)	44.85	79.48	75.23
10 PERCENT EXCEEDS	128	215	212
50 PERCENT EXCEEDS	32	66	53
90 PERCENT EXCEEDS	4.0	5.1	5.0

WILLAMETTE RIVER BASIN

14158795 SMITH RIVER RESERVOIR NEAR BELKNAP SPRINGS, OR

LOCATION.--Lat 44°18'20", long 122°02'40", in SW 1/4 SW 1/4 sec.36, T.14 S., R.6 E., Linn County, Hydrologic Unit 17090004, Willamette National Forest, in intake tower near left end of Smith River Dam on Smith River, 800 ft upstream from Bunchgrass Creek, 8 mi north of town of Belknap Springs, and at mile 2.1.

DRAINAGE AREA.--18.2 mi<sup>2</sup>.

PERIOD OF RECORD.--March 1963 to current year.

REVISED RECORDS.--WDR OR-86-2: 1985.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Eugene Water and Electric Board).

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway completed in 1963 by Eugene Water and Electric Board; storage began Mar. 18, 1963. Total capacity is 15,000 acre-ft at elevation 2,605.0 ft, top of spillway gates, and usable capacity is 9,900 acre-ft between elevations 2,525.0 ft, minimum power pool, and 2,605.0 ft. Storage of 5,100 acre-ft, below elevation 2,525.0 ft, not normally available for release. Water used for power generation. Figures herein represent total contents and are furnished by Eugene Water and Electric Board.

COOPERATION.--Elevations and area-volume curves furnished by Eugene Water and Electric Board.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 15,200 acre-ft Dec. 22, 1964, elevation, 2,606.5 ft; minimum contents, 5,700 acre-ft Apr. 11, 14, 1964, elevation, 2,532.90 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 14,870 acre-ft Apr. 14, elevation, 2,604.53 ft; minimum contents, 11,250 acre-ft Nov. 8, elevation, 2,581.26 ft.

MONTHEND ELEVATION AND CONTENTS AT 2400, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept.30.....	2,598.34	13,830	--
Oct. 31.....	2,595.99	13,460	-370
Nov. 30.....	2,591.60	12,760	-700
Dec. 31.....	2,589.44	12,410	-350
CAL YR 2001.....			-610
Jan. 31.....	2,584.14	11,600	-810
Feb. 28.....	2,588.34	12,230	+630
Mar. 31.....	2,594.89	13,280	+1,050
Apr. 30.....	2,598.68	13,890	+610
May 31.....	2,600.79	14,230	+340
June 30.....	2,601.25	14,310	+80
July 31.....	2,601.73	14,390	+80
Aug. 31.....	2,601.31	14,320	-70
Sept.30.....	2,601.38	14,330	+10
WTR YR 2002.....			+500

14158850 MCKENZIE RIVER BELOW TRAIL BRIDGE DAM, NEAR BELKNAP SPRINGS, OR

LOCATION.--Lat 44°16'05", long 122°02'55", in T.15 S., R.6 E., (unsurveyed), Linn County, Hydrologic Unit 17090004, in Willamette National Forest, on left bank 0.4 mi downstream from Trail Bridge Dam, 0.5 mi upstream from Anderson Creek, 5 mi north of town of Belknap Springs, and at mile 81.5.

DRAINAGE AREA.--184 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,980.00 ft above NGVD of 1929 (levels by Eugene Water and Electric Board). Prior to Oct. 11, 1963, at datum 5.60 ft higher.

REMARKS.--No estimated daily discharges. Records good. Discharge for the period Dec. 12 to Feb. 28 computed from data obtained from the Eugene Water & Electric Board (EWEB). Flow regulated since 1963 by Smith River Reservoir (station 14158795). Diurnal fluctuations by powerplants and by Trail Bridge re-regulation reservoir upstream. Water is diverted from McKenzie River in SW 1/4 sec.20, T.14 S., R.7 E., to Smith River Reservoir and returned to river upstream from station. Continuous water-quality records for the period November 1976 to September 1985, July 1992 September 1993 have been collected at this location.

AVERAGE DISCHARGE.--43 years (water years 1960-2002), 1,016 ft<sup>3</sup>/s, 74.99 in/yr, 736,100 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,200 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 12.45 ft, from rating curve extended above 3,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 185 ft<sup>3</sup>/s Feb. 3, 1963; minimum daily, 423 ft<sup>3</sup>/s Nov. 22, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,840 ft<sup>3</sup>/s Apr. 14, gage height, 9.27 ft; minimum discharge, 450 ft<sup>3</sup>/s Oct. 10.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	556	702	1100	953	881	898	1030	1410	1380	987	762	683
2	551	690	1110	1040	852	891	1070	1410	1370	959	751	683
3	554	758	1120	1100	805	883	1050	1410	1330	918	760	684
4	550	786	1070	1030	844	888	1080	1410	1300	923	761	704
5	550	806	1040	1020	821	864	1150	1410	1300	886	761	682
6	551	805	1140	1150	823	892	1180	1400	1360	866	761	644
7	554	769	1350	1480	852	1010	1220	1350	1290	871	741	668
8	569	659	1170	1870	867	941	1270	1350	1240	861	722	674
9	547	569	1160	1710	824	923	1360	1320	1170	912	731	635
10	513	569	1170	1510	799	918	1780	1280	1170	856	746	675
11	597	591	1090	1410	776	1090	1770	1260	1110	846	737	674
12	561	527	1070	1320	750	1500	1760	1240	1120	869	722	674
13	564	554	1230	1330	740	1360	1970	1300	1140	877	724	672
14	562	623	1930	1310	729	1170	3300	1230	1160	852	748	664
15	570	650	1570	1210	746	1070	2560	1200	1110	865	736	663
16	560	656	1700	1160	675	1010	2170	1220	1110	825	722	665
17	532	646	1840	1110	631	1000	1880	1240	1040	847	716	665
18	540	648	1700	1120	682	986	1850	1300	1090	839	716	665
19	548	661	1540	1090	801	979	1660	1250	1120	815	715	664
20	547	677	1490	1040	848	987	1610	1210	1070	845	717	665
21	550	752	1350	1050	821	987	1590	1260	1060	814	716	666
22	593	1370	1280	1080	947	974	1580	1270	1060	842	716	661
23	678	1160	1250	1050	1020	957	1560	1280	1030	779	710	648
24	644	1020	1130	925	1160	967	1580	1220	1050	798	703	649
25	644	971	1070	1030	1020	968	1540	1280	1000	794	707	650
26	645	963	1050	1120	959	968	1460	1290	1000	812	709	650
27	645	929	1060	1000	940	969	1450	1320	995	797	709	651
28	630	965	1060	945	916	968	1430	1380	936	794	700	651
29	572	1140	1010	941	---	966	1410	1440	962	793	699	653
30	581	1090	964	879	---	972	1410	1410	980	787	691	677
31	698	---	929	875	---	1020	---	1380	---	778	683	---
TOTAL	17956	23706	38743	35858	23529	30976	47730	40730	34053	26307	22492	19999
MEAN	579.2	790.2	1250	1157	840.3	999.2	1591	1314	1135	848.6	725.5	666.6
MAX	698	1370	1930	1870	1160	1500	3300	1440	1380	987	762	704
MIN	513	527	929	875	631	864	1030	1200	936	778	683	644
AC-FT	35620	47020	76850	71120	46670	61440	94670	80790	67540	52180	44610	39670
MEAN†	573	779	1244	1143	852	1016	1602	1319	1137	850	724	667
CFSM†	3.11	4.23	6.76	6.21	4.63	5.52	8.71	7.17	6.18	4.62	3.93	3.62
IN.†	3.59	4.72	7.80	7.16	4.82	6.37	9.71	8.27	6.89	5.32	4.54	4.04
AC-FT†	35250	46320	76500	70310	47300	62490	95280	81130	67620	52260	44540	39680

CAL YR 2001 TOTAL 281481 MEAN 771.2 MAX 1930 MIN 505 AC-FT 558300 MEAN† 770 CFSM† 4.18 IN.† 56.83 AC-FT† 557700  
WTR YR 2002 TOTAL 362079 MEAN 992.0 MAX 3300 MIN 513 AC-FT 718200 MEAN† 993 CFSM† 5.40 IN.† 73.24 AC-FT† 718700

† Adjusted for change in contents in Smith River Reservoir.

WILLAMETTE RIVER BASIN

14159200 SOUTH FORK MCKENZIE RIVER ABOVE COUGAR LAKE, NEAR RAINBOW, OR

LOCATION.--Lat 44°02'50", long 122°13'00", in T.17 S., R.5 E., (unsurveyed), Lane County, Hydrologic Unit 17090004, in Willamette National Forest, on right bank 100 ft upstream from Tipsoo Creek, 8.0 mi south of Rainbow, 9.0 mi southeast of town of Blue River, and at mile 10.4.

DRAINAGE AREA.--160 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1957 to September 1987, October 2000 to current year. Prior to October 1971 published as South Fork McKenzie River above Cougar Lake Reservoir.

REVISED RECORDS.--WSP 1638: Drainage area. WSP 1935: 1958(M).

GAGE.--Water-stage recorder. Datum of gage is 1,709.52 ft above NGVD of 1929 (Corps of Engineers bench mark..

REMARKS.--Records good. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--32 years (water years 1958-87, 2001-02), 629 ft<sup>3</sup>/s, 53.39 in/yr, 455,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 18,400 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 20.06 ft, from floodmark, from rating curve extended above 7,600 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum discharge, 170 ft<sup>3</sup>/s Oct. 5, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 13	2330	3,570	9.00	Apr. 14	0700	*6,140	*11.12
Minimum discharge, 170 ft <sup>3</sup> /s Oct. 5.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	176	397	913	876	575	665	833	794	1100	336	229	208
2	175	336	868	1110	553	619	910	852	999	323	228	208
3	174	298	723	1120	537	584	1020	904	926	313	228	208
4	174	275	636	954	516	560	1140	871	876	306	228	209
5	173	266	612	856	510	552	1300	848	877	298	229	207
6	173	256	1460	1080	508	691	1240	806	852	291	229	206
7	174	247	1490	1430	652	805	1170	746	776	286	227	208
8	178	239	1060	2280	786	701	1080	691	694	280	225	207
9	180	234	882	1810	688	648	1230	669	632	275	223	204
10	189	231	769	1390	622	628	1980	635	589	269	223	203
11	300	227	693	1170	595	855	1930	622	576	265	222	202
12	207	235	650	1130	573	1620	1880	660	582	262	220	201
13	193	303	1450	1050	556	1240	2290	753	608	259	218	200
14	187	421	2540	932	540	1000	5090	757	628	256	217	199
15	184	339	1510	831	537	883	3270	787	604	254	216	199
16	181	414	1770	756	548	809	2200	791	570	251	216	201
17	180	432	2100	701	578	749	1690	839	581	249	215	241
18	179	376	1600	651	583	685	1390	899	732	247	215	232
19	178	348	1330	631	689	667	1210	896	598	245	215	212
20	178	366	1180	648	743	660	1080	859	533	244	221	207
21	178	513	1020	778	855	725	993	849	496	242	222	204
22	331	1050	893	675	1120	804	944	839	468	241	218	201
23	520	979	786	612	1350	914	915	778	442	259	217	200
24	308	708	709	582	1240	916	869	769	420	250	219	199
25	254	606	654	1040	1020	867	862	809	399	241	217	198
26	240	538	610	1120	879	819	880	914	381	238	215	197
27	229	481	585	847	785	807	859	1000	367	237	213	197
28	230	e874	613	718	720	778	796	1130	355	235	212	197
29	233	1190	603	646	---	762	773	1290	381	233	211	201
30	307	873	616	598	---	759	805	1280	354	232	210	244
31	450	---	785	572	---	788	---	1190	---	231	209	---
TOTAL	7013	14052	32110	29594	19858	24560	42629	26527	18396	8148	6807	6200
MEAN	226	468	1036	955	709	792	1421	856	613	263	220	207
MAX	520	1190	2540	2280	1350	1620	5090	1290	1100	336	229	244
MIN	173	227	585	572	508	552	773	622	354	231	209	197
AC-FT	13910	27870	63690	58700	39390	48710	84550	52620	36490	16160	13500	12300
CFSM	1.41	2.93	6.47	5.97	4.43	4.95	8.88	5.35	3.83	1.64	1.37	1.29
IN.	1.63	3.27	7.47	6.88	4.62	5.71	9.91	6.17	4.28	1.89	1.58	1.44

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1958 - 2002, BY WATER YEAR (WY)

	287	616	962	917	897	766	841	903	603	300	241	235
MEAN	287	616	962	917	897	766	841	903	603	300	241	235
MAX	475	1305	2915	1827	1778	2065	1421	1383	1418	457	338	304
(WY)	1983	1985	1965	1971	1982	1972	2002	1972	1974	1975	1976	1978
MIN	188	261	231	234	232	410	445	426	270	221	195	179
(WY)	1981	1977	1977	1977	1977	1977	1968	1968	1987	1973	2001	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1958 - 2002

ANNUAL TOTAL	159928	235894	
ANNUAL MEAN	438	646	629
HIGHEST ANNUAL MEAN			917
LOWEST ANNUAL MEAN			346
HIGHEST DAILY MEAN	2540	Dec 14	5090
LOWEST DAILY MEAN	173	Sep 24	173
ANNUAL SEVEN-DAY MINIMUM	174	Oct 1	174
ANNUAL RUNOFF (AC-FT)	317200	467900	455900
ANNUAL RUNOFF (CFSM)	2.74	4.04	3.93
ANNUAL RUNOFF (INCHES)	37.18	54.85	53.43
10 PERCENT EXCEEDS	822	1170	1200
50 PERCENT EXCEEDS	322	598	476
90 PERCENT EXCEEDS	181	205	220

e Estimated

14159200 SOUTH FORK MCKENZIE RIVER ABOVE COUGAR LAKE, NEAR RAINBOW, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: November 1957 to September 1987, December 2000 to current year.  
 TURBIDITY: November 2000 to current year.

## INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Water temperature and turbidity records good. Turbidity values are considered relative to this site.  
 The probe was checked using a polymer bead standard, after Feb. 27, formazine was used.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 17.0°C July 8, 1968, July 19, 20, 1979; minimum, 0.0°C Dec. 7-11, 1972,  
 Dec. 30, 1978, Jan. 1, 1979, Jan. 4, 1982, Dec. 24, 1983.  
 TURBIDITY: Maximum, 323 NTU Apr. 14, 2002; minimum, <1 NTU many days every year.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 15.4°C July 13; minimum recorded, 2.4°C Jan. 29.  
 TURBIDITY: Maximum, 323 NTU Apr. 14; minimum, <1 NTU many days during year.

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	9.8	7.8	8.7	8.4	7.9	8.1	5.8	5.6	5.8	5.8	5.1	5.5
2	9.7	7.7	8.7	8.3	7.5	8.0	6.2	5.5	5.8	6.1	5.4	5.8
3	9.5	7.6	8.5	7.5	6.6	7.1	5.9	5.3	5.7	5.9	5.1	5.5
4	9.7	7.6	8.6	7.2	6.3	6.8	5.3	4.2	4.7	5.3	4.7	5.0
5	9.5	7.3	8.4	7.6	6.7	7.1	5.0	3.8	4.3	5.9	5.1	5.6
6	9.2	8.2	8.6	6.7	5.6	6.2	6.0	5.0	5.5	6.1	5.7	5.9
7	8.2	6.8	7.6	5.6	4.8	5.2	6.1	5.7	5.9	6.2	5.9	6.1
8	8.3	7.5	7.9	6.1	4.7	5.4	6.0	5.5	5.8	6.2	5.7	6.0
9	8.1	7.0	7.5	6.4	5.0	5.8	5.8	5.1	5.6	5.7	5.0	5.4
10	7.8	6.0	6.8	6.9	5.7	6.3	5.1	4.7	4.9	5.8	5.1	5.5
11	8.6	7.5	8.1	7.7	6.6	7.1	5.4	5.0	5.2	6.1	5.3	5.7
12	8.2	6.6	7.4	8.0	7.2	7.6	5.2	4.9	5.1	5.9	5.5	5.7
13	8.8	7.7	8.1	7.8	7.3	7.5	5.8	5.2	5.5	5.5	5.1	5.2
14	8.2	6.9	7.5	8.6	7.8	8.1	5.8	5.2	5.5	5.1	4.4	4.8
15	8.2	6.7	7.5	8.1	7.6	7.8	5.5	5.2	5.4	4.4	3.5	3.8
16	8.7	7.3	7.9	8.0	7.5	7.8	6.0	5.4	5.8	4.1	3.1	3.5
17	8.0	6.7	7.2	7.5	6.1	6.9	6.0	5.5	5.8	4.5	3.8	4.2
18	7.1	5.4	6.3	6.5	5.5	6.0	5.5	5.3	5.4	4.6	4.1	4.4
19	7.7	5.9	6.7	7.4	6.2	6.8	5.8	5.3	5.5	4.3	3.7	4.1
20	7.9	6.7	7.2	7.2	6.8	6.9	5.6	5.2	5.5	4.1	3.1	3.5
21	7.2	5.9	6.6	6.9	6.6	6.7	5.2	4.8	5.0	3.9	2.9	3.3
22	8.4	7.2	7.6	7.0	6.4	6.8	5.4	4.7	5.0	3.6	3.3	3.5
23	8.4	7.1	7.6	6.7	6.2	6.4	5.0	4.6	4.7	4.1	3.3	3.8
24	7.2	6.4	6.8	6.3	4.9	5.9	4.6	4.2	4.4	4.6	4.0	4.3
25	7.8	6.8	7.2	5.5	4.9	5.1	5.0	4.2	4.6	4.4	3.6	4.1
26	7.5	6.2	6.8	5.4	4.7	5.0	5.2	4.5	4.8	4.4	4.0	4.2
27	7.5	6.4	7.0	4.9	4.1	4.5	5.5	4.8	5.2	4.3	3.8	4.0
28	7.7	6.6	7.2	5.5	3.1	4.3	5.4	4.7	5.1	3.9	3.2	3.6
29	7.8	7.1	7.5	5.6	5.5	5.6	5.6	4.6	5.1	3.6	2.4	3.1
30	8.3	7.6	7.9	5.8	5.4	5.6	5.6	4.8	5.2	4.3	3.5	3.9
31	8.5	8.0	8.2	---	---	---	5.7	5.1	5.4	4.5	3.8	4.1
MONTH	9.8	5.4	7.6	8.6	3.1	6.5	6.2	3.8	5.3	6.2	2.4	4.6
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	4.6	3.6	4.1	4.4	3.0	3.7	7.0	4.2	5.5	8.2	5.6	6.6
2	4.3	3.8	4.1	4.7	3.1	3.8	7.1	4.4	5.6	8.7	5.7	6.9
3	4.8	4.0	4.3	5.1	3.4	4.1	7.1	4.5	5.7	7.8	5.5	6.4
4	4.2	3.4	3.9	5.5	3.6	4.4	7.2	4.6	5.7	7.8	4.5	6.0
5	4.5	3.6	4.1	5.4	4.2	4.7	5.7	5.3	5.5	6.7	5.2	5.8
6	4.5	3.9	4.2	5.6	4.1	5.0	6.3	5.2	5.7	6.4	5.0	5.6
7	4.3	4.0	4.2	4.3	3.1	3.8	6.3	5.1	5.6	6.5	4.4	5.3
8	4.6	3.6	4.0	4.2	2.9	3.5	7.1	4.5	5.7	7.7	3.8	5.6
9	4.6	3.7	4.1	4.4	3.3	3.8	6.0	5.3	5.6	6.4	5.2	5.8
10	4.9	4.0	4.3	4.9	3.9	4.4	6.0	5.0	5.4	7.7	5.0	6.2
11	5.1	4.1	4.6	5.5	4.4	4.9	6.0	5.1	5.5	8.9	4.7	6.6
12	4.9	3.6	4.2	4.9	4.2	4.7	6.7	5.2	5.8	9.6	5.4	7.3
13	4.8	3.9	4.3	4.6	3.7	4.1	6.0	5.4	5.7	7.6	6.2	6.6
14	4.4	3.3	3.8	5.0	3.9	4.3	5.7	4.3	4.9	9.0	5.8	7.1
15	4.9	3.7	4.2	4.8	3.7	4.2	4.8	4.1	4.4	8.8	5.5	6.9
16	5.0	4.0	4.5	3.7	2.7	3.3	4.7	4.0	4.3	8.8	5.1	6.8
17	5.1	3.9	4.5	4.0	2.5	3.3	5.0	3.8	4.3	9.5	6.4	7.6
18	5.5	4.5	4.9	4.2	3.2	3.7	5.7	4.2	4.8	8.3	6.6	7.3
19	4.9	4.5	4.8	4.8	3.6	4.1	5.9	4.4	5.1	6.9	6.2	6.6
20	5.8	4.4	5.0	5.6	3.8	4.5	7.1	4.7	5.7	7.3	5.8	6.5
21	5.8	4.9	5.3	5.6	4.0	4.7	7.5	4.6	5.9	7.0	5.9	6.4
22	5.8	4.7	5.1	5.9	4.2	4.9	7.7	4.6	6.0	7.4	5.6	6.4
23	5.7	4.9	5.3	6.0	4.5	5.2	7.4	5.0	6.0	8.9	4.9	6.7
24	5.3	4.3	4.9	6.0	4.8	5.3	7.7	4.1	5.8	8.7	5.8	7.2
25	4.9	3.8	4.3	6.1	4.2	5.0	8.0	4.8	6.2	9.7	6.4	7.8
26	5.3	4.1	4.6	6.4	4.0	5.1	6.6	4.9	5.7	9.4	7.0	8.1
27	5.2	3.7	4.4	6.4	4.8	5.5	6.8	4.8	5.6	8.1	7.0	7.6
28	5.1	3.8	4.3	6.6	4.8	5.5	7.3	4.0	5.6	7.7	7.0	7.4
29	---	---	---	6.7	4.4	5.5	7.5	4.8	6.1	9.7	7.1	8.1
30	---	---	---	6.8	4.1	5.3	6.4	5.2	5.8	9.9	7.3	8.4
31	---	---	---	6.8	4.1	5.3	---	---	---	9.7	7.3	8.4
MONTH	5.8	3.3	4.4	6.8	2.5	4.5	8.0	3.8	5.5	9.9	3.8	6.8

14159200 SOUTH FORK MCKENZIE RIVER ABOVE COUGAR LAKE, NEAR RAINBOW, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	9.9	7.6	8.5	13.6	9.4	11.3	13.4	9.0	11.1	12.3	8.9	10.5
2	10.2	7.3	8.5	13.8	9.2	11.3	12.8	8.7	10.7	12.4	9.1	10.6
3	9.5	7.2	8.3	12.5	9.2	10.8	11.9	8.3	10.1	10.7	9.2	9.8
4	11.0	7.9	9.1	12.3	9.0	10.5	10.4	8.9	9.5	10.9	7.8	9.2
5	10.8	8.5	9.4	13.4	8.5	10.6	10.6	8.0	9.2	10.6	7.8	9.1
6	10.5	7.8	9.0	13.5	9.2	11.2	11.9	8.3	9.8	10.0	7.3	8.6
7	9.7	7.0	8.2	12.2	9.7	11.0	11.8	7.5	9.6	10.0	8.0	9.0
8	8.6	6.6	7.4	13.6	9.6	11.3	12.1	7.9	9.9	9.8	7.0	8.3
9	8.8	6.8	7.6	14.2	9.0	11.4	12.7	8.3	10.4	10.8	7.5	9.0
10	11.2	7.0	8.7	14.9	9.8	12.2	13.1	8.8	10.8	11.2	8.0	9.5
11	11.8	7.7	9.5	15.1	10.4	12.6	12.9	8.8	10.8	11.4	8.4	9.8
12	12.3	8.1	10	14.3	10.5	12.4	13.2	8.8	10.8	11.8	8.6	10.1
13	12.9	8.8	10.6	15.4	10.8	12.9	13.7	9.2	11.3	11.8	8.8	10.2
14	12.9	9.3	10.9	14.7	10.7	12.5	13.6	9.5	11.4	11.4	8.9	10.1
15	12.8	9.1	10.7	13.9	9.8	11.8	13.2	9.1	11.1	11.0	9.1	10
16	12.1	9.4	10.5	14.2	9.7	11.8	12.9	8.8	10.8	10.2	8.9	9.6
17	10.2	9.3	9.6	14.5	9.9	12.0	12.8	9.0	10.8	10.2	9.2	9.7
18	9.7	8.8	9.3	14.4	9.7	11.9	12.4	8.4	10.4	10.9	9.1	9.9
19	11.6	7.7	9.5	14.2	10.0	11.9	12.3	8.8	10.5	10.7	8.1	9.3
20	12.4	8.5	10.2	14.2	9.4	11.7	10.6	8.9	9.8	10.6	8.2	9.3
21	12.3	9.2	10.6	14.4	9.5	11.8	11.5	8.7	9.9	10.4	7.8	9.0
22	13.4	9.7	11.2	14.1	10.1	12.0	12.2	8.3	10.1	10.4	7.7	9.0
23	13.6	10.0	11.5	14.2	10.7	12.3	12.0	8.8	10.3	10.7	8.2	9.3
24	13.5	9.3	11.2	14.3	10.0	12.0	12.5	8.9	10.6	10.6	8.1	9.3
25	14.0	9.5	11.6	14.4	10.1	12.1	12.4	9.1	10.6	10.3	7.9	9.0
26	13.9	10.2	11.9	14.3	10.0	12.0	12.5	9.4	10.8	9.7	7.7	8.7
27	13.1	10.3	11.7	13.8	9.7	11.6	12.4	8.7	10.5	9.9	7.7	8.7
28	11.8	10.2	11.0	13.8	9.3	11.4	12.6	9.1	10.7	9.8	7.2	8.4
29	12.2	10.2	11.0	14.2	9.7	11.8	12.6	9.4	10.9	8.9	8.0	8.4
30	12.5	9.8	10.9	13.9	9.8	11.8	12.3	9.3	10.7	8.5	7.7	8.1
31	---	---	---	13.7	9.8	11.6	12.0	8.2	10.0	---	---	---
MONTH	14.0	6.6	9.9	15.4	8.5	11.7	13.7	7.5	10.4	12.4	7.0	9.3
YEAR	15.4	2.4	7.2									

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	---	---	---	2	<1	<1	2	<1	<1	2	<1	<1
2	---	---	---	2	<1	<1	5	<1	<1	11	<1	1
3	---	---	---	2	<1	<1	3	<1	<1	6	<1	<1
4	---	---	---	<1	<1	<1	2	<1	<1	5	<1	<1
5	---	---	---	1	<1	<1	1	<1	<1	2	<1	<1
6	---	---	---	<1	<1	<1	19	<1	5	4	<1	<1
7	---	---	---	<1	<1	<1	14	1	3	5	1	2
8	---	---	---	2	<1	<1	10	<1	<1	20	4	10
9	---	---	---	<1	<1	<1	10	<1	<1	6	2	3
10	---	---	---	<1	<1	<1	3	<1	<1	2	<1	1
11	---	---	---	<1	<1	<1	2	<1	<1	5	<1	<1
12	---	---	---	3	<1	<1	6	<1	<1	5	<1	<1
13	1	<1	<1	4	<1	<1	119	<1	2	2	<1	<1
14	<1	<1	<1	4	<1	<1	102	4	12	1	<1	<1
15	<1	<1	<1	3	<1	<1	12	2	3	3	<1	<1
16	<1	<1	<1	3	<1	<1	10	2	4	2	<1	<1
17	<1	<1	<1	8	<1	<1	16	2	5	1	<1	<1
18	<1	<1	<1	4	<1	<1	9	1	2	2	<1	<1
19	<1	<1	<1	2	<1	<1	6	<1	1	2	<1	<1
20	<1	<1	<1	2	<1	<1	2	<1	<1	6	<1	<1
21	<1	<1	<1	4	<1	<1	3	<1	<1	1	<1	<1
22	40	<1	<1	18	1	6	3	<1	<1	15	<1	<1
23	8	<1	2	9	<1	2	2	<1	<1	6	<1	<1
24	5	<1	<1	7	<1	<1	5	<1	<1	<1	<1	<1
25	1	<1	<1	4	<1	<1	1	<1	<1	8	<1	3
26	<1	<1	<1	4	<1	<1	1	<1	<1	3	<1	1
27	<1	<1	<1	2	<1	<1	2	<1	<1	<1	<1	<1
28	<1	<1	<1	10	<1	4	2	<1	<1	3	<1	<1
29	<1	<1	<1	5	<1	2	2	<1	<1	1	<1	<1
30	3	<1	<1	2	<1	<1	1	<1	<1	<1	<1	<1
31	3	<1	<1	---	---	---	12	<1	<1	2	<1	<1
MAX	---	---	---	18	1	6	119	4	12	20	4	10
MIN	---	---	---	<1	<1	<1	1	<1	<1	<1	<1	<1





14159400 COUGAR LAKE NEAR RAINBOW, OR

LOCATION.--Lat 44°07'40", long 122°14'25", in SE 1/4 SE 1/4 sec.31, T.16 S., R.5 E., Lane County, Hydrologic Unit 17090004, Willamette National Forest, in intake tower near left end of Cougar Dam on South Fork McKenzie River, 2.7 mi south of Rainbow, and at mile 4.5.

DRAINAGE AREA.--207 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1963 to current year. Prior to October 1971, published as Cougar Reservoir near Rainbow.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--The 2400 hour elevations for the period Apr. 10-13 and Apr. 20 to Sept. 30, were furnished by the Corps of Engineers. Lake is formed by earthfill dam with concrete spillway completed in 1963 by the Corps of Engineers; storage began September 1963. Total capacity is 200,000 acre-ft at elevation 1,699 ft, maximum pool, and usable capacity is 156,500 acre-ft between elevations 1,516 ft, minimum power pool, and 1,699 ft. Lake used for flood control and power generation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 215,900 acre-ft Apr. 28, 1990, elevation, 1,696.51 ft; minimum contents, 5,930 acre-ft June 15, Sept. 15, 2002, elevation, 1,399.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 106,800 acre-ft Oct. 1, elevation, 1,590.53 ft; minimum contents, 5,930 acre-ft June 15, Sept. 15, elevation, 1,399.00 ft.

Capacity table January 1968 to April 4, 2002 (elevation, in feet, and total contents, in acre-feet)

1,510	50,920	1,650	162,300
1,550	75,940	1,696	215,300
1,600	114,800		

Capacity table no. 2 in effect April 5, 2002 to September 30, 2002 (elevation, in feet, and total contents, in acre-feet)

1,300	0.0	1,600	97,800
1,400	6,060	1,650	144,100
1,500	35,700	1,699	200,000

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1589.31	1556.60	1545.06	1535.57	1532.29	1537.08	1530.48	1473.36	1399.21	1399.66	1399.45	1399.52
2	1588.08	1555.91	1545.28	1536.89	1532.26	1535.89	1528.72	1470.11	1399.64	1399.79	1399.86	1399.40
3	1586.84	1555.01	1543.49	1538.20	1532.20	1534.53	1527.13	1466.96	1399.34	1399.38	1400.00	1399.36
4	1585.61	1553.99	1540.23	1538.65	1532.20	1533.04	1524.48	1463.66	1399.60	1399.45	1399.80	1399.74
5	1584.35	1552.95	1536.94	1538.65	1532.37	1532.45	1521.39	1460.69	1399.71	1399.34	1399.62	1399.40
6	1583.07	1551.82	1538.95	1539.74	1532.54	1533.38	1518.52	1457.72	1399.35	1399.34	1399.40	1399.40
7	1581.76	1550.60	1540.67	1540.26	1533.60	1534.65	1515.13	1454.79	1399.24	1399.22	1399.39	1399.40
8	1580.48	1549.36	1540.88	1542.86	1535.49	1536.64	1512.21	1451.93	1399.35	1399.14	1399.31	1399.40
9	1579.19	1548.09	1541.31	1546.69	1537.01	1538.35	1509.94	1451.17	1399.24	1399.20	1399.39	1399.50
10	1578.04	1546.77	1541.16	1548.42	1538.36	1539.97	1507.30	1444.71	1399.58	1399.30	1399.48	1399.50
11	1577.24	1545.45	1540.62	1546.81	1539.54	1542.94	1504.48	1441.77	1399.70	1399.45	1399.56	1399.55
12	1576.02	1544.26	1539.96	1545.13	1540.38	1549.88	1503.04	1438.95	1399.68	1399.42	1399.39	1399.55
13	1574.77	1543.36	1544.10	1543.06	1540.89	1554.39	1504.33	1436.31	1399.89	1399.37	1399.23	1399.55
14	1573.49	1542.97	1554.91	1540.49	1541.33	1557.63	1523.21	1433.46	1399.52	1399.25	1399.23	1399.55
15	1572.50	1542.40	1559.82	1537.47	1540.94	1560.20	1521.94	1430.62	1399.00	1399.15	1399.23	1399.00
16	1571.45	1542.25	1566.08	1534.93	1539.68	1562.44	1518.95	1427.76	1399.17	1399.25	1399.23	1399.20
17	1570.14	1542.03	1569.42	1533.35	1538.55	1564.30	1516.01	1425.14	1399.50	1399.35	1399.48	1399.70
18	1568.78	1541.48	1567.29	1532.69	1537.42	1565.08	1512.94	1422.11	1399.40	1399.35	1399.50	1399.90
19	1567.40	1540.45	1563.61	1532.81	1536.91	1565.07	1509.96	1418.99	1399.31	1399.36	1399.62	1399.70
20	1566.03	1539.27	1558.62	1533.26	1536.49	1565.11	1506.84	1415.85	1399.44	1399.25	1399.62	1399.24
21	1564.66	1538.68	1552.89	1534.35	1536.54	1565.41	1503.89	1412.89	1399.19	1399.19	1399.75	1399.14
22	1564.21	1541.05	1546.29	1534.55	1537.80	1565.79	1500.88	1410.02	1399.02	1399.30	1399.80	1399.26
23	1564.35	1542.72	1541.09	1533.40	1536.08	1563.60	1497.75	1407.07	1399.31	1399.40	1399.83	1399.30
24	1563.53	1542.85	1539.04	1532.13	1538.09	1559.74	1494.63	1403.84	1399.46	1399.65	1399.65	1399.40
25	1562.46	1542.57	1538.08	1534.49	1538.99	1555.61	1491.67	1401.24	1399.38	1399.70	1399.73	1399.40
26	1561.29	1541.89	1537.57	1535.72	1539.10	1551.71	1488.76	1400.06	1399.06	1399.84	1399.55	1399.43
27	1560.13	1540.84	1537.30	1535.19	1538.74	1548.73	1485.58	1400.17	1399.39	1399.68	1399.45	1399.43
28	1558.88	1542.14	1537.17	1533.74	1538.05	1545.56	1482.66	1400.10	1399.94	1399.45	1399.50	1399.43
29	1557.69	1544.20	1536.73	1532.41	---	1542.25	1479.72	1400.10	1399.88	1399.16	1399.48	1399.43
30	1557.02	1544.49	1535.64	1532.07	---	1538.20	1476.60	1399.50	1399.34	1399.09	1399.58	1399.56
31	1556.94	---	1535.38	1532.17	---	1533.76	---	1399.39	---	1399.28	1399.40	---
MAX	1589.31	1556.60	1569.42	1548.42	1541.33	1565.79	1530.48	1473.36	1399.94	1399.84	1400.00	1399.90
MIN	1556.94	1538.68	1535.38	1532.07	1532.20	1532.45	1476.60	1399.39	1399.00	1399.09	1399.23	1399.00
(†)	80840	72140	66070	64010	67820	65030	25900	5980	5970	5960	5980	6000
(‡)	-25960	-8700	-6070	-2060	+3810	-2790	-39130	-19920	-10	-10	+20	+20
CAL YR 2001	MAX 1653.35	MIN 1533.17	AC-FT†	+28800								
WTR YR 2002	MAX 1589.31	MIN 1399.00	AC-FT‡	-100800								

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

## WILLAMETTE RIVER BASIN

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OR

LOCATION.--Lat 44°08'10", long 122°14'50", in NE 1/4 sec.31, T.16 S., R.5 E., Lane County, Hydrologic Unit 17090004, in Willamette National Forest, on right bank 0.2 mi upstream from Cougar Creek, 0.6 mi downstream from Cougar Dam, 2.1 mi south of Rainbow, and at mile 3.9.

DRAINAGE AREA.--208 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1947 to current year.

REVISED RECORDS.--WSP 1638: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,236.42 ft above NGVD of 1929 (Federal Highway Administration bench mark). Oct. 1 to Nov. 4, 1947, nonrecording gage at site 40 ft upstream at datum 0.80 ft higher.

REMARKS.--Records good except for the period July 1 to Sept. 30 and estimated daily discharges, which are fair. Flow regulated since 1963 by Cougar Lake (station 14159400), usable capacity, 164,800 acre-ft. No diversion upstream from station.

AVERAGE DISCHARGE.--55 years (water years 1948-2002), 851 ft<sup>3</sup>/s, 55.56 in/yr, 616,500 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,600 ft<sup>3</sup>/s Dec. 11, 1956, gage height, 8.66 ft, from rating curve extended above 8,100 ft<sup>3</sup>/s; maximum gage height, 8.90 ft Dec. 22, 1955 (backwater from debris); minimum discharge, 17 ft<sup>3</sup>/s Nov. 18, 1965; minimum daily, 85 ft<sup>3</sup>/s Apr. 26-28, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 24,500 ft<sup>3</sup>/s Dec. 28, 1945, gage height, 8.8 ft, from floodmarks, at Corps of Engineers gage at site 40 ft upstream at datum 0.80 ft higher; gage height at present site and datum, about 9.3 ft, computed by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,000 ft<sup>3</sup>/s Apr. 15, gage height, 4.77 ft; minimum discharge, 156 ft<sup>3</sup>/s Feb. 7.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	710	728	1200	1160	735	e1170	2020	1620	1310	329	227	231
2	710	728	1210	1160	753	e1170	1670	1660	1130	328	231	240
3	709	729	1560	1170	758	1170	1770	1670	1110	368	236	237
4	704	725	1920	1170	686	1160	2230	1640	1010	317	263	241
5	709	723	1920	1180	624	890	2580	1520	1020	321	262	245
6	718	724	1870	1180	630	738	2390	1470	1020	312	249	220
7	725	726	1810	1820	679	759	2440	1370	911	309	249	221
8	726	726	1500	2470	642	303	2130	1290	797	313	235	244
9	726	727	1070	1330	511	295	2180	912	746	288	224	246
10	725	724	1090	1300	419	301	3540	1720	647	278	227	249
11	724	722	1070	2010	424	314	3470	1170	668	277	232	209
12	724	720	1070	2000	499	320	3010	1190	683	276	245	211
13	721	719	1040	1980	578	298	2840	1260	699	285	241	211
14	721	714	455	1970	588	290	2290	1280	766	278	223	211
15	604	649	551	1960	823	295	4590	1300	750	285	227	211
16	614	642	569	1700	1140	295	3630	1300	637	271	223	208
17	718	696	2000	1340	1130	284	2920	1310	644	265	227	214
18	722	697	3180	1020	1130	599	2520	1400	880	271	227	247
19	725	799	3250	794	1150	904	2220	1400	723	259	237	251
20	723	870	3450	803	1170	889	2080	1340	595	279	242	253
21	724	883	3380	931	1160	895	1900	1310	585	270	222	222
22	726	901	3400	898	1170	967	1830	1280	547	260	234	208
23	728	967	2700	1160	2500	1980	1810	1210	466	257	236	207
24	723	1040	1560	1160	1190	2580	1760	1210	451	248	250	217
25	723	1040	1140	987	1170	2570	1680	1210	464	264	250	207
26	726	1030	949	1310	1170	2380	1690	1220	437	263	256	211
27	723	1040	857	1360	e1170	2020	1730	1220	357	273	245	212
28	724	1030	863	1430	e1170	2020	1600	1370	338	283	241	208
29	725	1130	932	1260	---	2020	1570	1560	424	290	248	218
30	729	1200	1140	889	---	2220	1590	1580	438	254	226	267
31	727	---	1150	747	---	2340	---	1410	---	239	227	---
TOTAL	22136	24749	49856	41649	25769	34436	69680	42402	21253	8810	7362	6777
MEAN	714.1	825.0	1608	1344	920.3	1111	2323	1368	708.4	284.2	237.5	225.9
MAX	729	1200	3450	2470	2500	2580	4590	1720	1310	368	263	267
MIN	604	642	455	747	419	284	1570	912	338	239	222	207
AC-FT	43910	49090	98890	82610	51110	68300	138200	84100	42160	17470	14600	13440
MEAN†	292	679	1509	1310	989	1065	1665	1044	709	284	238	226
CFSM†	1.40	3.26	7.25	6.30	4.75	5.12	8.00	5.02	3.41	1.36	1.14	1.09
IN.†	1.62	3.64	8.37	7.26	4.95	5.90	8.93	5.78	3.80	1.57	1.32	1.21
AC-FT†	17940	40390	92820	80550	54920	65510	99070	64180	42150	17460	14620	13460
CAL YR 2001	TOTAL 224748	MEAN 615.7	MAX 3450	MIN 231	AC-FT 445800	MEAN† 655	CFSM† 3.15	IN.† 42.78	AC-FT† 474600			
WTR YR 2002	TOTAL 354879	MEAN 972.3	MAX 4590	MIN 207	AC-FT 703900	MEAN† 833	CFSM† 4.00	IN.† 54.37	AC-FT† 603100			

e Estimated

† Adjusted for change in contents, in Cougar Lake.

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1955 to November 1999, December 2000 to current year.

DISSOLVED OXYGEN: December 2000 to current year.

TURBIDITY: December 2000 to current year.

## INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Water temperature records excellent, except for the period Feb. 6 to Apr. 3, Apr. 14 to May 12, which are poor. Dissolved oxygen records poor. Turbidity records fair except those for the period Aug. 1 to Sept. 12, which are poor. The probe was checked using a polymer bead standard, after Feb. 27 formazie was used. Water-quality data collected at this site may not always provide a representative value of the total stream due to inadequate mixing of the flow between the dam (0.6 mi upstream) and the gage.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 20.0°C July 28, 1958; minimum, 0.5°C Jan. 20-23, 1962.

DISSOLVED OXYGEN: Maximum, 14.5 mg/L Feb. 23, 2002, due to Cougar Lake tunnel tap; minimum, 7.4 mg/L Sept. 15, 2001.

TURBIDITY: Maximum, 1,410 NTU Feb. 23, 2002, due to Cougar Lake tunnel tap; minimum, &lt;1 many days each year.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 17.6°C July 31, Aug. 1; minimum, 4.0°C Feb. 4, 6, 7, 12-15.

DISSOLVED OXYGEN: Maximum, 14.5 mg/L Feb. 23, due to Cougar Lake tunnel tap; minimum, 7.8 mg/L Oct. 1.

TURBIDITY: Maximum, 1,410 NTU Feb. 23, due to Cougar Lake tunnel tap; minimum, &lt;1 on many days.

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	14.5	13.7	14.0	---	11.4	---	6.9	6.5	6.7	5.2	5.1	5.2
2	14.5	13.5	14.0	---	---	---	6.8	6.6	6.7	5.3	5.1	5.2
3	14.7	13.4	14.0	12.1	11.6	11.8	6.7	6.4	6.6	5.4	5.1	5.2
4	14.5	13.5	14.0	11.8	---	---	6.5	6.1	6.3	5.3	5.1	5.2
5	14.4	13.7	14.1	---	---	---	6.3	6.0	6.2	5.4	5.1	5.3
6	14.5	13.8	14.1	11.7	10.8	11.2	6.3	6.0	6.2	5.5	5.3	5.4
7	14.2	13.8	14.0	11.5	11.1	11.2	6.2	6.0	6.1	5.5	5.3	5.4
8	14.2	13.7	14.0	11.4	10.6	11.1	6.1	5.9	6.0	5.8	5.4	5.6
9	14.3	13.8	14.0	11.2	10.5	10.8	6.0	5.7	5.9	5.8	5.6	5.7
10	14.0	13.5	13.8	11.0	10.5	10.8	5.8	5.7	5.7	5.8	5.6	5.7
11	14.2	13.6	13.9	10.9	10.3	10.6	5.8	5.6	5.7	5.8	5.5	5.7
12	13.9	13.6	13.7	10.8	10.0	10.4	5.7	5.5	5.6	5.7	5.5	5.6
13	14.0	13.5	13.8	---	---	---	6.3	5.5	5.7	5.7	5.4	5.5
14	14.0	13.6	13.8	10.9	---	---	6.4	5.6	6.0	5.6	5.3	5.5
15	14.2	13.4	13.7	10.8	10.0	10.5	5.7	5.5	5.6	5.5	5.3	5.4
16	13.9	13.1	13.5	10.0	9.3	9.7	5.7	5.5	5.6	5.4	5.2	5.3
17	14.1	13.3	13.7	10.2	9.8	10.0	5.8	5.4	5.6	5.3	5.0	5.2
18	14.3	13.3	13.7	10.1	9.8	9.9	5.6	5.4	5.5	5.2	4.9	5.1
19	14.0	13.4	13.6	9.8	9.6	9.7	5.6	5.4	5.5	5.0	4.8	4.9
20	13.9	13.3	13.5	9.7	9.2	9.5	5.6	5.4	5.5	4.9	4.6	4.8
21	13.8	13.0	13.4	9.5	9.0	9.3	5.6	5.4	5.5	4.9	4.6	4.8
22	13.7	12.9	13.3	9.3	8.8	9.0	5.5	5.3	5.4	5.0	4.5	4.7
23	---	12.3	---	8.9	8.5	8.7	5.5	5.2	5.3	4.7	4.5	4.6
24	12.8	12.2	12.5	8.5	7.8	8.2	5.4	5.1	5.2	4.8	4.5	4.6
25	12.7	12.1	12.5	8.0	7.8	7.9	5.3	5.1	5.2	4.8	4.5	4.7
26	---	---	---	7.9	7.5	7.7	5.3	5.0	5.1	4.8	4.3	4.5
27	---	11.7	---	7.6	7.4	7.5	5.2	5.0	5.1	4.5	4.2	4.4
28	---	---	---	7.5	7.1	7.3	5.3	5.0	5.2	4.5	4.1	4.3
29	---	---	---	7.4	7.1	7.2	5.2	5.0	5.1	4.3	4.1	4.2
30	---	---	---	7.2	6.8	7.0	5.2	5.0	5.1	4.4	4.1	4.2
31	---	---	---	---	---	---	5.3	5.1	5.2	4.4	4.1	4.2
MONTH	---	---	---	---	---	---	6.9	5.0	5.7	5.8	4.1	5.0

## WILLAMETTE RIVER BASIN

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	4.4	4.1	4.2	---	---	---	7.0	6.0	6.4	7.4	7.1	7.3
2	4.3	4.1	4.2	---	---	---	7.4	6.3	7.0	7.6	7.3	7.4
3	4.4	4.1	4.2	5.3	4.9	5.1	7.6	4.8	6.7	7.7	7.4	7.5
4	4.3	4.0	4.2	5.3	4.9	5.1	7.4	4.5	6.4	7.9	7.5	7.7
5	4.4	4.1	4.2	5.3	5.0	5.1	5.6	4.8	5.1	7.8	7.6	7.7
6	4.2	4.0	4.1	5.1	4.9	5.0	6.5	5.1	5.8	7.9	7.5	7.7
7	4.5	4.0	4.2	4.9	4.6	4.8	6.6	5.7	6.1	7.8	7.3	7.6
8	4.5	4.2	4.4	5.1	4.6	4.8	6.7	5.8	6.4	7.8	7.2	7.5
9	4.5	4.1	4.2	5.1	4.6	4.9	6.8	4.6	5.5	7.7	7.3	7.5
10	4.5	4.1	4.3	5.2	4.8	5.0	5.1	4.7	4.9	8.0	7.6	7.7
11	4.4	4.1	4.3	5.4	4.9	5.2	5.3	5.0	5.1	8.0	7.6	7.8
12	4.4	4.0	4.2	5.6	5.1	5.4	5.6	5.1	5.3	8.1	7.7	7.9
13	4.5	4.0	4.2	5.2	4.9	5.0	5.8	5.5	5.7	8.0	7.8	7.9
14	4.5	4.0	4.2	5.6	4.8	5.1	6.5	5.7	6.0	8.4	7.9	8.1
15	4.6	4.0	4.2	5.4	4.9	5.1	6.3	6.2	6.2	8.5	8.1	8.2
16	4.5	4.1	4.3	5.0	4.5	4.8	6.3	6.2	6.2	8.6	7.9	8.2
17	4.5	4.1	4.3	5.0	4.5	4.8	6.4	5.9	6.1	8.6	8.1	8.4
18	4.5	4.1	4.3	5.0	4.6	4.8	6.0	5.7	5.8	8.8	8.5	8.6
19	4.5	4.2	4.4	4.9	4.6	4.8	5.8	5.5	5.7	8.9	8.6	8.7
20	4.7	4.3	4.5	5.1	4.7	4.9	5.9	5.5	5.6	8.8	8.4	8.6
21	4.9	4.4	4.7	5.3	4.9	5.1	5.9	5.6	5.7	8.7	8.2	8.5
22	5.3	4.6	5.0	5.3	4.9	5.1	5.9	5.6	5.7	8.4	7.7	8.1
23	5.4	4.4	5.1	5.4	4.9	5.2	6.0	5.6	5.8	8.2	7.5	7.9
24	5.2	4.8	5.0	5.5	5.0	5.3	6.0	5.7	5.8	8.3	7.9	8.1
25	5.3	4.9	5.1	5.8	5.0	5.4	6.2	5.7	5.9	8.8	8.2	8.4
26	5.5	5.0	5.3	6.2	4.9	5.5	6.3	5.9	6.1	9.2	8.5	8.8
27	---	---	---	5.4	4.8	5.1	6.6	6.1	6.4	9.4	9.0	9.2
28	---	---	---	5.5	4.9	5.1	6.9	6.4	6.7	9.4	8.8	9.1
29	---	---	---	6.7	5.0	5.9	7.2	6.8	7.0	9.2	8.7	9.0
30	---	---	---	6.7	5.4	6.1	7.3	6.9	7.1	9.8	9.0	9.2
31	---	---	---	6.7	5.4	6.2	---	---	---	9.7	9.2	9.4
MONTH	---	---	---	---	---	---	7.6	4.5	6.0	9.8	7.1	8.2
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	10.0	9.4	9.6	15.0	13.8	14.2	17.6	15.8	16.3	15.7	14.1	14.5
2	10.1	9.5	9.8	15.0	13.7	14.1	17.4	15.6	16.1	15.8	14.2	14.6
3	10.0	9.4	9.7	14.7	13.8	14.1	16.9	15.4	15.8	14.9	14.2	14.5
4	10.2	9.6	9.9	15.0	13.7	14.2	16.0	15.4	15.6	15.2	13.6	14.2
5	10.6	9.9	10.2	14.8	13.6	14.1	15.8	14.8	15.3	14.9	13.4	13.9
6	10.9	10.1	10.5	15.0	13.6	14.1	15.9	14.7	15.0	14.7	13.1	13.6
7	10.7	9.9	10.4	15.0	13.7	14.2	15.8	14.4	14.9	14.3	13.0	13.4
8	10.3	9.6	10.0	15.4	14.1	14.4	15.9	14.3	14.7	14.0	12.6	13.1
9	10.0	9.4	9.8	15.5	14.0	14.5	16.0	14.2	14.8	14.2	12.6	13.0
10	10.1	9.4	9.8	15.6	14.1	14.6	16.1	14.3	14.9	14.1	12.5	13.0
11	10.3	9.5	9.9	15.7	14.2	14.7	16.2	14.4	15.0	14.2	12.7	13.1
12	10.6	9.8	10.1	15.6	14.3	14.7	16.2	14.6	15.0	14.3	12.8	13.2
13	10.8	10.0	10.4	15.7	14.5	14.9	16.4	14.6	15.1	14.4	12.9	13.3
14	11.2	10.3	10.7	16.0	14.5	15.0	16.5	14.6	15.1	14.3	13.0	13.4
15	11.8	10.8	11.4	16.1	14.7	15.2	16.6	14.7	15.2	14.2	13.0	13.4
16	12.6	11.6	12.1	16.3	14.9	15.4	16.5	14.7	15.2	---	---	---
17	12.7	12.1	12.5	16.6	15.2	15.6	16.4	14.7	15.1	13.7	13.1	13.4
18	12.6	11.9	12.2	16.8	15.0	15.7	16.3	14.6	15.0	13.9	12.9	13.3
19	12.0	11.3	11.7	16.9	15.4	15.9	16.2	14.6	15.0	14.0	12.6	13.0
20	12.2	11.4	11.7	17.0	15.5	16.0	15.5	14.6	14.9	13.8	12.6	12.9
21	12.6	11.6	12.0	17.0	15.6	16.0	15.9	14.4	14.9	13.9	12.4	12.8
22	12.8	11.9	12.3	17.0	15.7	16.1	15.8	14.1	14.7	13.7	12.2	12.6
23	13.4	12.2	12.6	17.3	15.8	16.3	15.6	14.1	14.6	13.6	12.2	12.6
24	13.6	12.4	12.8	17.4	15.8	16.3	15.7	14.2	14.6	13.6	12.2	12.6
25	13.8	12.7	13.0	17.3	15.8	16.3	15.6	14.2	14.6	13.5	12.1	12.5
26	13.9	12.9	13.2	17.4	15.9	16.3	15.8	14.5	14.8	13.0	11.9	12.3
27	14.0	13.0	13.4	17.4	15.9	16.3	15.8	14.3	14.8	13.3	11.8	12.3
28	14.2	12.2	13.4	17.2	15.8	16.3	15.9	14.3	14.7	13.2	11.7	12.1
29	14.6	13.4	13.9	17.4	15.9	16.3	15.9	14.2	14.7	12.6	11.6	11.9
30	14.6	13.3	14.0	17.5	15.9	16.4	15.9	14.3	14.8	12.2	11.4	11.8
31	---	---	---	17.6	15.9	16.4	15.9	14.1	14.7	---	---	---
MONTH	14.6	9.4	11.4	17.6	13.6	15.3	17.6	14.1	15.0	---	---	---

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.9	7.8	8.3	9.7	9.3	9.4	10.1	9.5	9.8	10.9	10.8	10.9
2	8.9	7.9	8.4	9.8	9.3	9.4	10.2	10.0	10.1	11.0	10.8	10.9
3	9.0	7.9	8.5	9.8	9.3	9.5	10.3	10.1	10.3	11.1	11.0	11.1
4	9.1	8.0	8.5	9.7	9.3	9.4	10.4	10.3	10.4	11.3	11.1	11.2
5	9.0	8.1	8.6	9.7	9.3	9.4	10.4	10.1	10.3	11.2	11.1	11.1
6	8.8	8.1	8.5	9.8	9.4	9.5	10.5	10.0	10.3	11.2	11.1	11.2
7	9.0	8.4	8.7	9.9	9.5	9.6	10.5	10.4	10.5	11.4	11.2	11.3
8	9.0	8.5	8.7	10.0	9.6	9.7	10.6	10.4	10.5	11.6	11.3	11.5
9	9.1	8.8	8.9	10.0	9.5	9.7	10.4	10.3	10.4	11.6	11.3	11.5
10	9.0	8.8	8.9	10.0	9.6	9.7	10.4	10.3	10.3	11.6	11.4	11.5
11	9.4	8.8	9.0	9.8	9.5	9.6	10.4	10.3	10.4	11.6	11.5	11.6
12	9.6	9.0	9.2	9.7	9.4	9.5	10.9	10.3	10.4	11.6	11.5	11.6
13	9.7	9.1	9.2	9.7	9.5	9.5	10.4	10.3	10.4	11.6	11.5	11.6
14	9.7	9.1	9.2	9.9	9.5	9.6	10.8	10.3	10.6	11.6	11.5	11.6
15	10.4	9.0	9.7	10.5	9.4	9.8	10.7	10.5	10.6	11.7	11.5	11.6
16	10.6	9.1	9.8	10.7	9.4	9.8	10.8	10.5	10.6	11.6	11.5	11.6
17	9.6	9.0	9.2	9.9	9.5	9.7	11.5	10.5	11.0	11.6	11.3	11.4
18	9.6	9.1	9.2	10.1	9.7	9.8	11.6	11.3	11.4	11.4	11.2	11.3
19	9.6	9.1	9.2	9.8	9.6	9.7	11.7	11.3	11.6	11.6	11.2	11.4
20	9.6	9.1	9.2	9.8	9.5	9.7	11.9	11.7	11.8	11.6	11.4	11.5
21	9.5	9.0	9.2	9.8	9.5	9.7	12.0	11.9	11.9	11.6	11.5	11.5
22	9.2	9.0	9.1	9.8	9.4	9.7	12.0	11.8	12.0	12.3	11.5	11.9
23	9.6	9.1	9.2	10.0	9.6	9.8	12.0	11.3	11.7	11.6	11.4	11.5
24	9.7	9.2	9.4	9.7	9.6	9.6	11.3	11.1	11.2	11.5	11.3	11.4
25	9.7	9.2	9.3	9.9	9.6	9.8	11.2	11.1	11.2	11.4	11.2	11.3
26	---	---	---	9.9	9.8	9.8	11.2	11.0	11.1	11.5	11.2	11.3
27	9.6	9.2	9.3	10.1	9.9	10	11.0	10.9	10.9	11.4	11.2	11.3
28	9.7	9.2	9.4	9.9	9.8	9.9	11.1	10.9	11.0	11.4	11.2	11.3
29	9.6	9.2	9.3	10.1	9.8	9.9	11.1	10.8	10.9	11.6	11.4	11.5
30	9.4	9.2	9.2	10.1	9.7	9.9	11.0	10.8	10.9	13.1	11.5	11.8
31	9.5	9.2	9.3	---	---	---	11.0	10.8	10.9	11.7	11.5	11.6
MONTH	---	---	---	10.7	9.3	9.7	12.0	9.5	10.8	13.1	10.8	11.4
	FEBRUARY			MARCH			APRIL			MAY		
1	11.9	11.6	11.7	---	---	---	13.3	11.4	12.1	11.4	11.3	11.4
2	11.9	11.6	11.7	---	---	---	13.2	12.9	13.0	11.3	11.2	11.3
3	12.0	11.7	11.8	12.3	12.2	12.2	13.1	12.2	12.9	11.4	11.3	11.3
4	12.0	11.6	11.8	12.3	12.2	12.2	13.0	12.6	12.8	11.3	11.2	11.3
5	12.6	11.6	11.8	12.3	12.1	12.2	13.1	12.6	12.8	11.2	11.2	11.2
6	11.9	11.6	11.7	12.2	12.1	12.1	13.5	12.7	13.1	11.3	11.2	11.3
7	12.3	11.5	11.8	12.9	11.9	12.1	13.8	13.3	13.6	11.4	11.3	11.3
8	12.4	11.6	12.0	12.4	12.0	12.2	13.6	13.3	13.4	11.4	11.3	11.3
9	12.2	11.6	11.8	12.4	12.0	12.1	13.3	12.5	12.9	11.3	10.9	11.2
10	12.2	11.7	11.8	12.3	12.0	12.1	12.8	12.6	12.7	11.3	11.2	11.2
11	12.2	11.7	11.9	12.3	11.8	12.0	12.7	12.4	12.5	11.2	11.1	11.2
12	12.3	11.7	11.9	12.4	11.8	11.9	12.5	12.2	12.4	11.2	11.1	11.1
13	12.1	11.7	11.8	12.3	11.8	11.9	12.2	12.0	12.2	11.2	11.1	11.2
14	12.1	11.8	11.9	12.3	11.8	12.0	12.0	11.4	11.8	11.2	11.1	11.2
15	12.9	11.8	12.0	12.3	11.8	12.0	12.2	12.0	12.1	11.1	11.1	11.1
16	12.0	11.8	11.8	12.2	11.8	11.9	12.0	11.9	11.9	11.2	11.1	11.1
17	12.0	11.8	11.8	12.3	11.8	12.0	12.8	11.9	12.1	11.1	10.9	11.0
18	12.0	11.8	11.8	12.2	11.8	11.9	12.2	12.1	12.2	10.9	10.8	10.9
19	12.0	11.8	11.9	12.1	11.9	11.9	12.2	12.1	12.2	11.0	10.8	10.8
20	13.1	11.9	12.4	12.1	11.9	12.0	12.1	12.0	12.1	11.1	10.9	11.0
21	13.1	12.0	12.6	12.1	11.9	12.0	12.0	12.0	12.0	11.2	11.0	11.1
22	12.2	11.9	12.1	11.9	11.7	11.9	12.1	12.0	12.0	11.4	11.2	11.3
23	14.5	12.1	12.6	12.1	11.7	11.9	12.1	12.0	12.0	11.4	11.2	11.3
24	12.3	12.1	12.2	12.1	12.0	12.0	12.1	11.9	12.0	11.2	11.1	11.2
25	12.4	12.2	12.3	12.1	11.9	12.0	12.0	11.8	11.9	11.1	10.9	11.1
26	12.4	12.2	12.2	13.8	11.8	12.3	11.8	11.6	11.7	11.1	10.8	11.0
27	---	---	---	11.8	11.6	11.7	11.7	11.6	11.6	10.9	10.9	10.9
28	---	---	---	11.8	11.7	11.7	11.6	11.5	11.6	11.1	10.9	11.0
29	---	---	---	11.8	11.7	11.7	11.5	11.4	11.4	11.2	11.0	11.1
30	---	---	---	11.8	11.6	11.7	11.4	11.3	11.4	11.1	10.9	11.1
31	---	---	---	11.8	11.6	11.7	---	---	---	11.1	10.9	11.0
MONTH	---	---	---	---	---	---	13.8	11.3	12.3	11.4	10.8	11.1

WILLAMETTE RIVER BASIN

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	11.1	10.9	11.0	10.2	9.6	9.8	9.8	8.4	8.9	10.1	8.5	9.0
2	11.0	10.8	11.0	10.1	9.6	9.7	9.9	8.5	8.9	10.3	8.6	9.1
3	11.1	10.8	11.0	10.1	9.6	9.7	10.0	8.5	9.0	9.8	8.6	9.0
4	---	---	---	10.0	9.5	9.7	9.7	8.6	9.1	10.4	8.8	9.3
5	10.9	10.8	10.9	10.0	9.6	9.7	9.9	8.7	9.2	10.6	9.0	9.5
6	10.9	10.6	10.8	10.0	9.6	9.7	10.2	8.8	9.3	10.6	9.1	9.5
7	10.9	10.7	10.8	9.9	9.6	9.7	10.2	8.8	9.3	10.4	9.0	9.5
8	11.0	10.7	10.8	10.1	9.6	9.8	10.2	8.8	9.2	10.8	9.2	9.7
9	11.0	10.8	10.9	10.1	9.6	9.7	10.6	8.7	9.2	10.7	9.3	9.7
10	11.0	10.7	10.9	10.0	9.5	9.7	10.5	8.7	9.2	10.7	9.3	9.7
11	10.9	10.7	10.8	10.0	9.5	9.7	10.5	8.6	9.2	10.6	9.3	9.7
12	10.8	10.6	10.7	9.9	9.5	9.6	10.6	8.7	9.3	11.1	9.3	9.8
13	10.8	10.5	10.6	9.8	9.5	9.6	10.6	8.7	9.2	11.0	9.6	10
14	10.7	10.5	10.6	9.7	9.4	9.5	10.6	8.6	9.2	10.9	9.6	9.9
15	10.5	10.2	10.4	9.7	9.3	9.5	10.4	8.5	9.0	10.8	9.5	9.9
16	10.3	10.0	10.2	9.7	9.3	9.4	10.5	8.5	9.1	10.3	9.5	9.8
17	10.1	10.0	10.0	9.7	9.2	9.4	10.6	8.5	9.2	10.3	9.5	9.8
18	10.4	10.0	10.2	9.6	9.2	9.3	10.5	8.5	9.2	10.5	9.7	9.9
19	10.6	10.2	10.3	9.6	9.2	9.3	10.6	8.5	9.2	10.4	9.8	10
20	10.5	10.1	10.3	9.6	9.2	9.3	10.4	8.6	9.2	10.3	9.8	9.9
21	10.4	10.1	10.2	9.5	9.0	9.2	10.4	8.6	9.2	10.3	9.8	9.9
22	10.4	10.0	10.2	9.6	9.0	9.2	10.3	8.7	9.2	10.3	9.7	9.9
23	10.4	9.9	10.1	9.6	9.0	9.2	10.3	8.7	9.2	10.3	9.8	10
24	10.4	9.9	10.0	9.6	8.9	9.2	10.1	8.6	9.1	10.2	9.8	9.9
25	10.3	9.8	10	9.6	8.9	9.1	10.2	8.5	9.1	10.1	9.8	9.9
26	10.1	9.8	9.9	9.6	8.9	9.1	10.1	8.4	9.0	10.2	9.8	9.9
27	10.1	9.6	9.8	9.6	8.8	9.1	10.1	8.4	8.9	10.1	9.7	9.8
28	10.0	9.5	9.7	9.6	8.8	9.1	10.0	8.3	8.8	10.1	9.7	9.8
29	10.0	9.5	9.7	9.7	8.7	9.0	10.0	8.2	8.9	10.2	9.8	9.9
30	10.1	9.6	9.8	9.8	8.7	9.0	10.1	8.3	8.9	10.2	9.8	10
31	---	---	---	9.9	8.5	9.0	10.2	8.3	9.0	---	---	---
MONTH	---	---	---	10.2	8.5	9.4	10.6	8.2	9.1	11.1	8.5	9.7

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	1	<1	<1	2	<1	<1	7	<1	1	2	2	2
2	<1	<1	<1	1	<1	<1	2	<1	1	2	1	2
3	<1	<1	<1	---	<1	---	2	<1	1	2	1	1
4	1	<1	<1	1	<1	<1	2	<1	1	2	<1	1
5	2	<1	<1	6	<1	<1	2	<1	1	2	<1	1
6	2	<1	<1	8	<1	<1	3	1	2	1	<1	<1
7	1	<1	<1	17	<1	<1	2	1	1	5	<1	1
8	<1	<1	<1	9	<1	<1	2	1	2	2	<1	1
9	1	<1	<1	16	<1	<1	2	1	2	5	<1	<1
10	2	<1	<1	1	<1	<1	3	1	2	57	1	2
11	1	<1	1	1	<1	<1	2	1	2	14	1	2
12	1	<1	<1	1	<1	<1	3	1	2	2	1	1
13	1	<1	<1	9	<1	<1	19	2	2	2	1	1
14	<1	<1	<1	8	<1	<1	11	3	5	2	1	1
15	2	<1	<1	4	2	3	5	2	3	2	1	1
16	6	<1	1	5	2	3	4	2	3	1	<1	1
17	50	2	4	8	2	3	6	2	3	5	<1	1
18	7	<1	4	5	2	2	5	2	2	2	<1	<1
19	1	<1	<1	4	<1	1	6	3	3	2	<1	<1
20	2	<1	<1	2	<1	<1	4	2	3	4	<1	<1
21	1	<1	<1	3	<1	<1	4	3	3	4	<1	2
22	3	<1	<1	8	<1	2	4	3	3	3	<1	1
23	2	<1	<1	3	1	2	4	3	3	2	<1	<1
24	3	<1	<1	2	2	2	4	2	3	1	<1	<1
25	3	<1	<1	3	1	2	3	2	2	8	<1	2
26	---	<1	---	3	1	2	4	2	2	2	<1	1
27	---	1	---	4	1	1	4	2	2	1	<1	<1
28	6	2	3	4	1	2	3	2	2	2	<1	<1
29	5	2	3	2	1	2	6	2	2	1	<1	<1
30	6	2	3	2	<1	1	3	2	2	1	<1	<1
31	5	<1	<1	---	---	---	3	2	2	2	<1	<1
MAX	---	2	---	---	2	---	19	3	5	57	2	2
MIN	---	<1	---	---	<1	---	2	<1	1	1	<1	<1

14159500 SOUTH FORK MCKENZIE RIVER NEAR RAINBOW, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	2	<1	<1	---	---	---	2	<1	<1	139	81	93
2	1	<1	<1	---	<1	<1	3	<1	1	94	77	83
3	<1	<1	<1	1	<1	<1	9	<1	2	88	72	79
4	2	<1	<1	<1	<1	<1	26	1	3	98	82	90
5	1	<1	<1	<1	<1	<1	16	4	6	98	80	88
6	1	<1	<1	3	<1	<1	18	8	12	103	86	91
7	3	<1	1	<1	<1	<1	19	9	11	113	94	100
8	2	1	1	<1	<1	<1	23	15	17	109	90	100
9	3	1	1	<1	<1	<1	189	18	28	115	87	100
10	3	<1	1	<1	<1	<1	64	22	30	131	92	105
11	2	<1	1	3	<1	<1	52	23	30	114	92	101
12	2	<1	1	8	<1	2	48	25	32	110	85	96
13	1	<1	1	3	<1	<1	44	34	39	96	79	87
14	4	<1	1	<1	<1	<1	136	39	77	95	80	86
15	8	<1	1	<1	<1	<1	131	99	109	103	79	87
16	1	<1	<1	1	<1	<1	101	81	93	106	79	89
17	3	<1	<1	2	<1	<1	83	48	71	109	87	93
18	3	<1	<1	2	<1	<1	64	47	52	106	86	95
19	3	<1	<1	12	<1	<1	48	35	43	125	92	113
20	4	<1	2	23	<1	<1	45	33	36	119	106	112
21	23	<1	2	18	<1	<1	42	35	37	139	114	126
22	5	<1	<1	15	<1	<1	41	33	36	147	120	137
23	1410	<1	2	12	<1	1	60	30	34	138	113	125
24	137	<1	2	38	<1	3	34	30	32	128	104	109
25	50	<1	2	18	<1	<1	34	29	32	131	93	104
26	311	<1	<1	2	<1	<1	46	32	35	155	99	109
27	---	<1	1	88	<1	<1	131	39	44	126	106	115
28	---	---	---	<1	<1	<1	379	72	86	110	91	101
29	---	---	---	2	<1	<1	93	65	78	120	88	98
30	---	---	---	<1	<1	<1	214	69	75	98	74	86
31	---	---	---	1	<1	<1	---	---	---	78	56	65
MAX	---	---	---	---	---	---	379	99	109	155	120	137
MIN	---	---	---	---	---	---	2	<1	<1	78	56	65

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	63	48	54	---	8	9	4	2	2	---	2	2
2	52	42	47	---	7	8	5	2	3	---	2	2
3	45	36	40	8	6	7	6	2	3	---	2	2
4	41	31	32	8	6	6	---	2	4	---	2	2
5	32	29	30	8	6	6	---	2	4	---	2	2
6	30	25	28	6	5	6	---	2	---	---	2	---
7	26	20	22	9	5	5	---	3	---	---	2	---
8	22	18	19	5	5	5	---	3	---	---	2	2
9	20	17	18	27	4	5	---	2	---	---	2	2
10	17	14	15	6	4	4	3	2	2	---	1	2
11	16	13	14	5	3	4	6	2	3	---	1	---
12	15	13	13	5	3	4	6	2	2	---	1	2
13	15	12	12	5	3	4	3	2	2	3	1	2
14	12	11	11	4	3	4	6	2	2	3	1	2
15	11	9	10	4	3	4	5	2	2	3	1	2
16	10	9	9	87	3	5	4	2	2	3	1	2
17	26	9	21	45	4	4	3	2	2	4	1	2
18	18	14	16	9	3	4	---	2	2	4	2	2
19	15	12	13	14	3	4	5	2	2	4	1	2
20	14	10	12	5	3	4	6	2	3	3	1	2
21	18	10	11	4	3	3	5	2	2	3	1	1
22	12	10	11	16	3	3	4	2	2	2	1	1
23	11	9	10	8	3	3	4	2	2	3	1	1
24	12	8	9	4	3	4	4	2	2	3	1	2
25	10	8	9	4	3	4	4	2	2	4	1	2
26	14	8	9	4	2	3	4	2	3	2	1	1
27	9	8	8	4	2	3	6	2	3	2	1	2
28	9	7	8	6	2	3	3	2	2	3	1	1
29	15	8	8	4	2	3	---	2	---	4	1	1
30	---	8	8	4	2	3	---	2	---	4	1	2
31	---	---	---	3	2	2	---	2	2	---	---	---
MAX	---	48	54	---	8	9	---	3	---	---	2	---
MIN	---	7	8	---	2	2	---	2	---	---	1	---

WILLAMETTE RIVER BASIN

14161100 BLUE RIVER BELOW TIDBITS CREEK, NEAR BLUE RIVER, OR

LOCATION.--Lat 44°13'05", long 122°15'50", in SE 1/4 NE 1/4 sec.36, T.15 S., R.4 E., Lane County, Hydrologic Unit 17090004, in Willamette National Forest, on left bank 0.2 mi downstream from Tidbits Creek, 5.5 mi northeast of town of Blue River, and at mile 8.5.

DRAINAGE AREA.--45.8 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1963 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,386.90 ft above NGVD of 1929 (Corps of Engineers bench mark).

REMARKS.--Records good. No regulation or diversion upstream from station. Continuous water-quality records for the period September 1963 to September 1987 have been collected at this location. U.S. Geological Survey satellite telemetry at station.

AVERAGE DISCHARGE.--39 years (water years 1964-2002), 251 ft<sup>3</sup>/s, 74.55 in/yr, 182,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,400 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 15.32 ft, from floodmarks, from rating curve extended above 2,800 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily discharge, 6.0 ft<sup>3</sup>/s Oct. 27-29, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	1830	2,200	6.95	Jan. 8	0800	2,070	6.80
Dec. 13	2130	*4,160	*8.66	Mar. 12	0100	2,070	6.80
Dec. 17	0230	2,080	6.81	Apr. 14	0330	3,730	8.34

Minimum discharge, 7.0 ft<sup>3</sup>/s Oct. 5-8.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.7	289	811	521	179	291	479	246	213	52	18	14
2	7.5	169	771	743	169	257	517	258	188	49	18	14
3	7.3	108	506	684	168	233	569	274	170	46	17	13
4	7.3	79	389	521	167	225	617	247	158	44	18	13
5	7.2	69	325	429	168	234	652	234	155	43	18	13
6	7.2	57	1150	903	173	741	559	225	144	41	18	13
7	7.1	49	1160	1240	340	796	516	198	128	40	17	13
8	7.8	43	683	1730	431	492	467	178	114	39	17	13
9	8.9	39	499	989	330	374	605	170	104	38	17	12
10	13	35	396	628	269	345	1350	157	94	37	17	12
11	73	33	328	483	259	924	1090	157	94	36	17	12
12	28	39	299	505	235	1510	945	184	97	35	16	11
13	21	229	1660	477	218	833	1120	231	98	34	16	11
14	18	422	2040	383	213	576	2490	216	97	32	15	11
15	16	204	917	315	220	448	1100	212	90	29	15	11
16	14	239	1480	269	251	373	721	205	83	28	15	11
17	14	242	1620	236	292	309	570	214	91	27	15	25
18	13	179	914	211	283	265	471	225	141	25	15	21
19	13	150	654	205	461	256	406	214	101	24	15	15
20	12	167	587	228	501	267	350	199	85	23	17	14
21	12	372	474	429	585	319	318	191	79	23	19	13
22	183	1630	386	289	779	365	304	194	73	22	18	13
23	236	1030	319	231	1160	428	299	181	68	25	17	12
24	96	532	274	214	932	490	273	179	63	22	17	12
25	54	370	241	753	619	464	276	190	60	21	16	12
26	40	290	216	594	462	428	288	207	57	21	16	12
27	33	237	206	380	382	443	271	222	54	21	15	12
28	32	863	320	288	336	413	239	250	53	20	15	12
29	36	1190	302	233	---	396	239	360	72	19	14	12
30	203	682	304	202	---	407	266	295	58	19	14	19
31	411	---	432	186	---	444	---	243	---	19	14	---
TOTAL	1639.0	10037	20663	15499	10582	14346	18367	6756	3082	954	506	401
MEAN	52.87	334.6	666.5	500.0	377.9	462.8	612.2	217.9	102.7	30.77	16.32	13.37
MAX	411	1630	2040	1730	1160	1510	2490	360	213	52	19	25
MIN	7.1	33	206	186	167	225	239	157	53	19	14	11
AC-FT	3250	19910	40990	30740	20990	28460	36430	13400	6110	1890	1000	795
CFSM	1.15	7.30	14.6	10.9	8.25	10.1	13.4	4.76	2.24	0.67	0.36	0.29
IN.	1.33	8.15	16.78	12.59	8.59	11.65	14.92	5.49	2.50	0.77	0.41	0.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY)

	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	
MEAN	68.76	336.7	510.9	490.7	437.1	379.5	349.9	254.8	123.0	39.04	20.86	24.60														
MAX	234	731	1471	1033	1066	995	611	521	320	90.9	51.9	82.2														
(WY)	1998	1974	1965	1970	1996	1972	2002	1971	1974	1983	1968	1978														
MIN	6.42	21.0	33.0	48.3	65.0	84.6	147	70.7	27.3	17.7	9.51	8.62														
(WY)	1988	1994	1977	1977	1977	1992	1968	1992	1992	1992	1992	1987														

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1964 - 2002
ANNUAL TOTAL	64468.3	102832.0	
ANNUAL MEAN	176.6	281.7	251.3
HIGHEST ANNUAL MEAN			404
LOWEST ANNUAL MEAN			106
HIGHEST DAILY MEAN	2040	Dec 14	2490
LOWEST DAILY MEAN	7.0	Sep 24	7.1
ANNUAL SEVEN-DAY MINIMUM	7.3	Oct 1	7.3
ANNUAL RUNOFF (AC-FT)	127900	204000	182100
ANNUAL RUNOFF (CFSM)	3.86	6.15	5.49
ANNUAL RUNOFF (INCHES)	52.36	83.52	74.55
10 PERCENT EXCEEDS	394	683	578
50 PERCENT EXCEEDS	98	202	142
90 PERCENT EXCEEDS	9.8	13	15





WILLAMETTE RIVER BASIN

14162100 BLUE RIVER LAKE NEAR BLUE RIVER, OR

LOCATION.--Lat 44°10'20", long 122°19'40", in SE 1/4 SE 1/4 sec.16, T.16 S., R.4 E., Lane County, Hydrologic Unit 17090004, in intake tower near left end of Blue River Dam on Blue River, 1.4 mi north of town of Blue River, and at mile 1.7.

DRAINAGE AREA.--87.3 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1968 to current year. Prior to October 1971, published as Blue River Reservoir near Blue River.

REVISED RECORDS.--WDR OR-92-1: 1975-77.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam with concrete gate and spillway section, completed in 1968 by Corps of Engineers; storage began October 1968. Total capacity is 89,520 acre-ft at elevation 1,357 ft, maximum pool, and usable capacity is 85,550 acre-ft between elevations 1,180 ft, minimum flood control pool, and 1,357 ft, maximum pool. Reservoir used for flood control. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 86,260 acre-ft Apr. 28, 1990, elevation, 1,353.63 ft; minimum contents observed since first filling in 1968, 305 acre-ft Dec. 7, 1973, elevation, 1,125.47 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 84,580 acre-ft June 17, 18, elevation, 1,351.86 ft; minimum contents recorded, 3,830 acre-ft Jan. 4, elevation, 1,178.91 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

1,120	156	1,160	1,870	1,250	19,260
1,130	437	1,180	3,970	1,290	36,960
1,140	764	1,200	7,030	1,340	73,710
1,150	1,210	1,220	11,040	1,354	86,620

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1211.23	1210.96	1186.93	1186.21	1186.32	1298.06	1320.14	1345.95	1349.92	1349.92	1348.98	1335.62
2	1210.07	1212.72	1185.03	1185.23	1191.92	1299.20	1319.95	1346.25	1349.89	1349.89	1348.92	1335.05
3	1208.90	1213.01	1185.26	1181.19	1196.80	1300.16	1319.92	1346.63	1349.83	1349.83	1348.83	1334.47
4	1207.69	1212.78	1183.33	1181.00	1201.12	1301.09	1319.94	1346.90	1349.83	1349.80	1348.76	1333.88
5	1206.47	1211.05	1183.14	1180.54	1205.07	1302.05	1320.71	1347.12	1350.05	1349.80	1348.70	1333.31
6	1205.24	1207.83	1206.23	1185.39	1208.89	1305.56	1321.42	1347.31	1350.34	1349.80	1348.63	1332.73
7	1204.01	1204.34	1208.78	1185.38	1217.26	1308.57	1321.90	1347.39	1350.59	1349.80	1348.56	1332.14
8	1202.79	1200.63	1193.59	1196.86	1226.26	1308.78	1322.23	1347.56	1350.82	1349.82	1348.41	1331.56
9	1201.58	1196.72	1182.09	1187.45	1231.91	1308.38	1323.57	1348.00	1350.99	1349.82	1348.12	1330.98
10	1200.60	1192.61	1180.78	1182.91	1235.88	1307.89	1328.66	1348.36	1351.15	1349.82	1347.84	1330.37
11	1200.92	1188.15	1181.95	1180.43	1239.22	1310.47	1332.32	1348.75	1351.29	1349.78	1347.56	1329.79
12	1200.15	1183.62	1182.65	1186.18	1241.85	1315.23	1333.10	1349.24	1351.45	1349.77	1347.27	1329.20
13	1199.15	1185.73	1214.46	1183.29	1244.17	1315.51	1332.93	1349.78	1351.62	1349.76	1346.98	1328.60
14	1198.06	1194.33	1245.99	1182.77	1246.26	1314.74	1342.07	1350.09	1351.70	1349.74	1346.70	1328.02
15	1196.93	1194.66	1253.07	1181.73	1248.36	1313.79	1341.89	1350.24	1351.77	1349.71	1346.26	1327.42
16	1195.74	1195.76	1264.49	1182.26	1250.63	1311.91	1340.02	1350.28	1351.80	1349.68	1345.52	1326.86
17	1194.52	1194.48	1268.52	1182.88	1253.18	1311.87	1337.51	1350.26	1351.86	1349.65	1344.79	1326.39
18	1193.27	1189.42	1262.54	1182.64	1255.54	1311.97	1335.70	1350.36	1351.58	1349.63	1344.06	1325.86
19	1191.99	1182.92	1254.08	1183.08	1259.52	1312.38	1335.79	1350.42	1351.11	1349.59	1343.32	1325.26
20	1190.68	1183.00	1243.72	1185.07	1263.71	1312.99	1337.02	1350.38	1350.58	1349.55	1342.60	1324.67
21	1189.34	1183.15	1228.46	1185.30	1268.18	1313.81	1338.12	1350.31	1350.08	1349.53	1341.86	1324.08
22	1192.69	1207.34	1206.78	1181.71	1273.78	1314.71	1339.12	1350.27	1350.05	1349.47	1341.21	1323.48
23	1197.68	1209.65	1186.43	1180.81	1281.46	1315.63	1340.11	1350.18	1350.05	1349.45	1340.64	1322.88
24	1198.70	1200.20	1181.78	1180.86	1287.23	1316.45	1340.99	1350.10	1350.00	1349.42	1340.10	1321.93
25	1198.71	1187.74	1181.20	1192.89	1290.79	1317.12	1341.88	1350.09	1349.93	1349.37	1339.54	1320.60
26	1198.27	1184.88	1180.88	1189.51	1293.24	1317.95	1342.86	1350.18	1349.86	1349.33	1338.98	1319.13
27	1197.66	1183.10	1180.34	1186.85	1295.14	1318.96	1343.71	1350.26	1349.83	1349.28	1338.43	1317.65
28	1197.01	1192.46	1181.18	1185.61	1296.74	1319.80	1344.43	1350.16	1349.82	1349.22	1337.88	1316.16
29	1196.46	1195.56	1180.93	1184.39	---	1320.58	1345.04	1350.30	1349.89	1349.17	1337.32	1314.76
30	1199.63	1182.35	1183.87	1183.55	---	1320.62	1345.58	1350.15	1349.90	1349.10	1336.76	1313.40
31	1206.58	---	1183.92	1182.55	---	1320.32	---	1349.89	---	1349.05	1336.18	---
MAX	1211.23	1213.01	1268.52	1196.86	1296.74	1320.62	1345.58	1350.42	1351.86	1349.92	1348.98	1335.62
MIN	1189.34	1182.35	1180.34	1180.43	1186.32	1298.06	1319.92	1345.95	1349.82	1349.05	1336.18	1313.40
(†)	8230	4290	4500	4320	4010	57490	78720	82720	82730	81930	70380	52320
(‡)	-1150	-3940	+210	-180	+36690	+16480	+21230	+4000	+10	-800	-11550	-18060

CAL YR 2001 MAX 1304.39 MIN 1180.34 AC-FT† -90  
WTR YR 2002 MAX 1351.86 MIN 1180.34 AC-FT† +42940

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

## 14162200 BLUE RIVER AT BLUE RIVER, OR

LOCATION.--Lat 44°09'45", long 122°19'55", in NW 1/4 SE 1/4 sec.21, T.16 S., R.4 E., Lane County, Hydrologic Unit 17090004, on right bank 0.3 mi upstream from Simmonds Creek, 0.7 mi north of town of Blue River, 0.8 mi downstream from Blue River Dam, and at mile 0.9.

DRAINAGE AREA.--87.7 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1966 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,056.53 ft above NGVD of 1929 (Corps of Engineers bench mark). Prior to Aug. 25, 1966, nonrecording gage at datum 0.80 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since October 1968 by Blue River Lake (station 14162100). No diversion upstream from station. Discharge not adjusted for storage or release from Blue River Lake as losses from reservoir at times exceed natural flow.

AVERAGE DISCHARGE.--36 years (water years 1967-2002), 457 ft<sup>3</sup>/s, 331,200 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,270 ft<sup>3</sup>/s Feb. 23, 1968, gage height, 8.93 ft; minimum discharge, 0.80 ft<sup>3</sup>/s Oct. 8, 10, 11, 1968; minimum daily, 3.7 ft<sup>3</sup>/s Oct. 8, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1964 reached a stage of 16.5 ft, from floodmark.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,050 ft<sup>3</sup>/s Dec. 17, 20, 21, gage height, 7.60 ft; minimum discharge, 8 ft<sup>3</sup>/s Oct. 30.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	109	110	1140	708	220	65	764	256	344	86	49	258
2	108	134	1440	1200	69	65	833	304	316	86	49	258
3	109	160	874	1250	72	65	887	304	290	86	49	258
4	107	161	803	848	74	65	927	304	239	74	49	258
5	106	262	681	707	76	65	752	304	160	56	49	258
6	105	352	1130	1110	77	70	638	304	95	55	49	258
7	103	343	2180	1830	92	328	636	304	83	55	49	257
8	102	335	2370	2180	85	724	634	226	79	55	86	257
9	101	326	1510	2200	58	721	427	97	82	55	148	257
10	100	314	790	1270	55	724	290	96	82	51	148	256
11	102	302	623	893	54	736	406	96	82	51	148	256
12	102	288	627	576	54	1070	1270	96	81	52	148	256
13	101	211	1280	893	54	1390	1960	133	92	52	147	256
14	100	205	408	650	54	1270	884	210	114	52	148	255
15	99	307	547	565	54	1090	1990	281	114	52	209	255
16	97	309	577	432	54	1240	1980	332	114	50	343	255
17	97	485	2000	372	54	558	1970	352	171	49	343	255
18	95	585	2990	373	55	455	1510	334	369	49	343	255
19	94	556	2950	382	56	381	648	331	369	49	342	254
20	93	260	2950	474	58	338	104	351	369	49	341	254
21	92	501	2980	1190	58	334	102	358	346	49	341	253
22	94	1020	2720	816	59	335	102	335	120	49	305	253
23	101	1620	1830	532	64	402	102	340	118	49	259	252
24	101	1570	697	449	64	518	102	328	118	49	259	376
25	101	1430	443	1050	64	518	103	311	118	49	259	523
26	101	716	385	1540	64	400	104	311	118	49	259	562
27	101	542	370	922	65	341	104	361	98	49	258	560
28	100	872	465	646	65	341	103	463	86	49	258	555
29	99	1770	489	528	---	341	145	524	86	49	258	556
30	77	1840	357	440	---	591	221	558	86	49	258	553
31	107	---	665	414	---	763	---	495	---	49	258	---
TOTAL	3104	17886	39271	27440	1928	16304	20698	9399	4939	1703	6209	9569
MEAN	100.1	596.2	1267	885.2	68.86	525.9	689.9	303.2	164.6	54.94	200.3	319.0
MAX	109	1840	2990	2200	220	1390	1990	558	369	86	343	562
MIN	77	110	357	372	54	65	102	96	79	49	49	252
AC-FT	6160	35480	77890	54430	3820	32340	41050	18640	9800	3380	12320	18980

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2002, BY WATER YEAR (WY)

	308.8	661.1	963.7	866.1	452.6	385.3	357.0	344.0	231.3	274.8	368.2	263.1
MEAN	308.8	661.1	963.7	866.1	452.6	385.3	357.0	344.0	231.3	274.8	368.2	263.1
MAX	811	1459	2189	1720	1594	1766	869	699	549	626	765	566
(WY)	1998	1974	1978	1997	1996	1972	2000	1999	1984	1979	1971	1997
MIN	45.7	39.4	63.1	68.1	32.6	12.0	12.0	35.0	49.7	46.6	26.6	27.1
(WY)	1993	1988	1977	1977	1977	1977	1977	1973	2000	1967	1967	1967

## SUMMARY STATISTICS

## FOR 2001 CALENDAR YEAR

## FOR 2002 WATER YEAR

## WATER YEARS 1967 - 2002

ANNUAL TOTAL	116173	158450	
ANNUAL MEAN	318.3	434.1	
HIGHEST ANNUAL MEAN			457.2
LOWEST ANNUAL MEAN			727
HIGHEST DAILY MEAN	2990	Dec 18	2990
LOWEST DAILY MEAN	46	Feb 2	49
ANNUAL SEVEN-DAY MINIMUM	47	Feb 2	49
ANNUAL RUNOFF (AC-FT)	230400	314300	331200
10 PERCENT EXCEEDS	629	1120	1000
50 PERCENT EXCEEDS	111	258	288
90 PERCENT EXCEEDS	50	55	50

14162200 BLUE RIVER AT BLUE RIVER, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1966 to November 1999, Aug. 2001 to current year.

INSTRUMENTATION.--Temperature recorder and data logger.

REMARKS.--Records excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.0°C July 6, 1968; minimum, 0.0°C Jan. 5-9, 1974, Dec. 23, 24, 1983.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 18.6°C Oct. 1-4; minimum, 3.1°C Jan. 21, 23.

## WATER TEMPERATURE, in (DEGREES C), AUGUST TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	---	---	---	21.6	20.8	21.0
2	---	---	---	---	---	---	---	---	---	21.6	20.7	21.0
3	---	---	---	---	---	---	---	---	---	21.7	20.7	21.0
4	---	---	---	---	---	---	---	---	---	21.7	20.8	21.1
5	---	---	---	---	---	---	---	---	---	21.2	20.7	20.9
6	---	---	---	---	---	---	---	---	---	21.7	20.3	20.9
7	---	---	---	---	---	---	---	---	---	21.3	20.1	20.5
8	---	---	---	---	---	---	---	---	---	21.3	20.0	20.3
9	---	---	---	---	---	---	15.8	15.2	15.5	21.1	19.9	20.2
10	---	---	---	---	---	---	16.1	15.6	15.8	20.7	19.7	20.0
11	---	---	---	---	---	---	16.5	15.9	16.2	21.0	19.7	20.1
12	---	---	---	---	---	---	16.8	16.2	16.6	20.9	19.8	20.1
13	---	---	---	---	---	---	17.3	16.7	17.0	20.9	19.8	20.1
14	---	---	---	---	---	---	17.7	17.0	17.4	20.9	19.7	20.1
15	---	---	---	---	---	---	18.2	17.5	17.9	20.4	19.9	20.0
16	---	---	---	---	---	---	18.5	17.9	18.3	20.9	19.7	20.0
17	---	---	---	---	---	---	19.0	18.3	18.7	20.9	19.6	20.0
18	---	---	---	---	---	---	19.3	18.6	19.0	20.8	19.5	19.9
19	---	---	---	---	---	---	19.6	19.1	19.3	20.7	19.6	19.8
20	---	---	---	---	---	---	19.9	19.4	19.6	20.7	19.5	19.8
21	---	---	---	---	---	---	20.2	19.7	20.0	20.4	19.5	19.7
22	---	---	---	---	---	---	20.5	20.1	20.3	20.4	19.4	19.6
23	---	---	---	---	---	---	20.9	20.4	20.6	20.3	19.3	19.5
24	---	---	---	---	---	---	21.1	20.7	20.8	20.2	19.2	19.5
25	---	---	---	---	---	---	21.1	20.7	20.9	19.4	19.3	19.3
26	---	---	---	---	---	---	21.3	20.9	21.0	19.3	18.8	19.2
27	---	---	---	---	---	---	21.6	20.8	21.1	19.0	18.1	18.6
28	---	---	---	---	---	---	21.6	20.7	21.0	18.9	18.0	18.3
29	---	---	---	---	---	---	21.6	20.7	21.0	18.8	18.1	18.3
30	---	---	---	---	---	---	21.6	20.7	21.0	18.6	18.0	18.2
31	---	---	---	---	---	---	21.7	20.7	21.0	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	21.7	18.0	19.9

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	18.6	18.0	18.2	10.3	9.9	10.1	6.3	6.0	6.1	5.5	5.2	5.4
2	18.6	18.0	18.2	10.1	9.8	9.9	6.4	6.3	6.3	6.0	5.3	5.6
3	18.6	18.0	18.2	10.1	9.7	9.8	6.6	6.4	6.5	6.1	5.8	5.9
4	18.6	18.0	18.2	9.9	9.5	9.6	6.4	5.3	6.0	6.0	5.2	5.6
5	18.5	17.8	18.0	9.8	9.6	9.7	5.3	4.5	4.9	5.5	5.2	5.3
6	18.1	17.7	17.8	9.8	9.7	9.7	6.0	4.4	5.2	6.1	5.4	5.8
7	17.9	17.4	17.7	9.9	9.4	9.7	6.4	6.0	6.3	6.4	6.1	6.3
8	17.5	17.0	17.3	9.4	9.1	9.3	6.4	6.0	6.2	6.6	6.4	6.4
9	17.4	16.6	17.0	9.1	8.9	9.0	6.1	5.9	6.0	6.6	5.9	6.2
10	16.8	16.5	16.6	9.1	8.9	8.9	5.9	4.9	5.5	5.9	5.4	5.7
11	16.5	14.2	15.6	9.2	8.9	9.1	4.9	4.6	4.7	6.0	5.6	5.8
12	14.3	14.0	14.1	9.5	9.2	9.4	5.0	4.7	4.9	6.0	5.7	5.9
13	14.7	14.1	14.3	9.7	9.4	9.5	6.0	5.0	5.5	6.0	5.5	5.8
14	15.0	14.3	14.6	9.4	9.1	9.2	6.5	6.0	6.1	5.5	5.0	5.2
15	15.2	14.6	14.8	9.4	9.1	9.3	6.0	6.0	6.0	5.0	4.5	4.9
16	15.2	14.7	14.8	9.3	9.2	9.3	6.0	5.9	6.0	4.5	3.9	4.2
17	15.3	14.6	14.9	9.4	9.1	9.3	5.9	5.8	5.8	4.0	3.5	3.7
18	15.2	14.4	14.7	9.1	8.3	8.8	5.9	5.7	5.9	3.7	3.4	3.5
19	14.9	14.1	14.4	8.3	7.8	8.1	6.0	5.9	5.9	3.9	3.6	3.8
20	14.8	14.1	14.3	8.1	7.9	8.0	6.0	5.7	5.8	4.0	3.7	3.8
21	14.4	14.2	14.3	8.2	8.0	8.1	5.7	5.5	5.6	4.3	3.1	3.7
22	14.2	13.1	14.0	8.0	7.8	7.9	5.5	5.2	5.4	3.5	3.2	3.3
23	13.1	11.0	11.8	7.9	7.8	7.8	5.2	4.8	5.0	3.4	3.1	3.2
24	11.0	10.1	10.6	7.8	7.4	7.7	4.8	4.1	4.5	3.8	3.3	3.5
25	10.4	9.9	10.1	7.4	6.5	7.0	4.1	3.7	3.9	4.5	3.7	4.1
26	10.5	9.9	10.1	6.5	6.0	6.2	4.0	3.6	3.8	4.9	4.5	4.7
27	10.2	10.0	10.2	6.2	6.0	6.1	4.4	3.9	4.1	4.7	4.2	4.5
28	10.4	10.2	10.3	6.0	4.7	5.6	4.6	4.2	4.4	4.3	4.0	4.2
29	10.3	10.2	10.2	6.3	4.7	5.7	5.1	4.6	4.8	4.0	3.7	3.8
30	11.2	10.2	10.4	6.4	6.1	6.3	5.0	4.6	4.8	3.7	3.4	3.5
31	10.4	10.2	10.2	---	---	---	5.3	4.9	5.1	3.6	3.3	3.4
MONTH	18.6	9.9	14.4	10.3	4.7	8.5	6.6	3.6	5.4	6.6	3.1	4.7



## 14162500 MCKENZIE RIVER NEAR VIDA, OR

LOCATION.--Lat 44°07'30", long 122°28'10", in NE 1/4 NE 1/2 sec.5, T.17 S., R.3 E., Lane County, Hydrologic Unit 17090004, on right bank 0.4 mi downstream from Mason Creek, 5.4 mi east of Vida, and at mile 47.7.

DRAINAGE AREA.--930 mi<sup>2</sup> at cableway 0.4 mi downstream, where all discharge measurement are made.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1910 to March 1911 (published as "at Martins Rapids, near Vida"), September 1924 to current year. Monthly discharge only for some periods (water years 1910-11, 1924-25), published in WSP 1318.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 855.71 ft above NGVD of 1929 (levels by Eugene Water and Electric Board). July 1, 1910, to Mar. 31, 1911, nonrecording gage at site 3 mi downstream at different datum. Sept. 1, 1924, to Nov. 16, 1928, nonrecording gage at site 20 ft upstream at datum 0.15 ft lower. Nov. 17, 1928, to Sept. 23, 1968, water-stage recorder at present site on left bank at datum 0.15 ft lower.

REMARKS.--Records good. Flow regulated since 1963 by Smith River Reservoir (station 14158795) and Cougar Lake (station 14159400), and since 1968 by Blue River Lake (station 14162100). No diversion upstream from station. All records given herein are for measuring site. Continuous water-quality records for the period June 1961 to September 1985 have been collected at this location. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--38 years (water years 1925-1962), 4,001 ft<sup>3</sup>/s, 2,898,000 acre-ft/yr.  
40 years (water years 1963-2002), 4,096 ft<sup>3</sup>/s, 2,967,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 64,400 ft<sup>3</sup>/s Dec. 28, 1945, gage height, 17.70 ft, site and datum then in use, from rating curve extended above 32,000 ft<sup>3</sup>/s; minimum discharge, 1,260 ft<sup>3</sup>/s Nov. 7, 1930, Sept. 17, Oct. 4, 8, 9, 1931.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in January 1923 reached a stage of 17.2 ft, from floodmarks, discharge, 62,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,700 ft<sup>3</sup>/s Apr. 14, gage height, 6.41 ft; minimum discharge, 1,710 ft<sup>3</sup>/s Oct. 15, 16.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1890	2700	5840	4730	3750	3820	5920	4940	4840	2570	1900	1900
2	1870	2460	6180	5660	3500	3710	5640	5040	4540	2470	1880	1890
3	1870	2390	5470	5790	3400	3630	5790	5130	4370	2470	1880	1900
4	1860	2360	5610	5100	3330	3580	6320	5040	4070	2390	1910	1920
5	1860	2450	5600	4720	3180	3330	6840	4890	4050	2330	1950	1920
6	1860	2540	8620	5630	3160	3700	6460	4810	4060	2270	1930	1850
7	1880	2490	9700	7650	4060	4720	6510	4580	3760	2270	1920	1850
8	1900	2370	8220	10500	4660	4130	6180	4340	3490	2270	1890	1880
9	1900	2240	6350	8880	3960	3880	6170	3810	3320	2270	1940	1870
10	1890	2190	5340	6820	3470	3830	9090	4450	3140	2230	1950	1870
11	2200	2200	4970	6710	3340	4690	9240	3880	3090	2170	1950	1870
12	1970	2150	4940	6140	3190	7850	9500	3890	3120	2210	1950	1860
13	1940	2250	7940	6320	3190	6930	10400	4140	3250	2200	1930	1860
14	1910	2710	10400	5910	3090	5990	14200	4220	3410	2170	1930	1850
15	1800	2500	7160	5550	3210	5290	13800	4250	3350	2170	1960	1840
16	1750	2720	7930	5030	3540	5140	11600	4310	3190	2110	2090	1850
17	1840	3040	10600	4500	3530	4190	10100	4360	3160	2090	2080	1960
18	1850	2910	11700	4050	3530	4020	8940	4610	3890	2110	2070	1950
19	1870	2900	11100	3880	3980	4320	7340	4580	3640	2050	2070	1910
20	1860	2740	10800	4220	4240	4360	6260	4410	3350	2090	2090	1900
21	1850	3190	10100	6510	4210	4490	5890	4460	3280	2050	2100	1860
22	2190	6040	9510	5140	4660	4510	5680	4490	2990	2050	2050	1860
23	2880	6690	8000	4730	6580	5430	5560	4270	2860	2040	1990	1800
24	2270	5500	5500	4380	5550	6460	5440	4230	2830	1990	2010	1900
25	2120	5230	4410	6910	4790	6380	5280	4220	2780	1990	1990	2060
26	2070	4380	4050	8040	4380	5990	5200	4380	2760	1990	1980	2110
27	2050	3790	3850	6150	4140	5500	5210	4570	2670	2000	1970	2110
28	2060	5330	4030	5330	3990	5410	4930	5090	2540	1990	1940	2110
29	2010	7050	4000	4810	---	5340	4820	5550	2670	1990	1940	2130
30	2270	6400	4020	4120	---	5700	4920	5660	2670	1970	1940	2300
31	2790	---	4540	3810	---	6090	---	5240	---	1940	1910	---
TOTAL	62330	103910	216480	177720	109610	152410	219230	141840	101140	66910	61090	57900
MEAN	2011	3464	6983	5733	3915	4916	7308	4575	3371	2158	1971	1930
MAX	2880	7050	11700	10500	6580	7850	14200	5660	4840	2570	2100	2300
MIN	1750	2150	3850	3810	3090	3330	4820	3810	2540	1940	1880	1800
AC-FT	123600	206100	429400	352500	217400	302300	434800	281300	200600	132700	121200	114800

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2002, BY WATER YEAR (WY)

	2796	4583	6294	6075	4907	4391	4356	4463	3523	2614	2636	2544
MEAN	2796	4583	6294	6075	4907	4391	4356	4463	3523	2614	2636	2544
MAX	4116	8718	14430	11180	11510	11210	7308	6625	6604	3529	3510	3358
(WY)	1998	1985	1965	1965	1996	1972	2002	1999	1974	1974	1971	1972
MIN	1640	1925	1865	1752	1542	2351	2671	2268	2180	1813	1824	1711
(WY)	1993	1988	1977	1977	1977	1977	1977	1992	1973	1968	1967	1963

## SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR		FOR 2002 WATER YEAR		WATER YEARS 1963 - 2002	
ANNUAL TOTAL	1092600		1470570			
ANNUAL MEAN	2993		4029		4096	
HIGHEST ANNUAL MEAN					6014	
LOWEST ANNUAL MEAN					2447	
HIGHEST DAILY MEAN	11700		Dec 18		43200	
LOWEST DAILY MEAN	1750		Oct 16		1330	
ANNUAL SEVEN-DAY MINIMUM	1820		Jul 6		1350	
ANNUAL RUNOFF (AC-FT)	2167000		2917000		2967000	
10 PERCENT EXCEEDS	4720		6620		6980	
50 PERCENT EXCEEDS	2300		3640		3230	
90 PERCENT EXCEEDS	1880		1900		2200	

14162500 MCKENZIE RIVER NEAR VIDA, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1976 to September 1985.

WATER TEMPERATURE: June 1961 to September 1985, November 2000 to current year.

INSTRUMENTATION.--Temperature probe and data logger.

REMARKS.--Records good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 72 microsiemens Nov. 20, 1980; minimum recorded, 2.4 microsiemens Nov. 25, 1977.

WATER TEMPERATURE: Maximum, 16.8°C July 23, 2002; minimum recorded, 0.5°C Jan. 1, 1979.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 16.8°C July 23; minimum, 3.9°C Jan. 29.

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	13.4	10.9	12.2	9.8	9.3	9.6	6.8	6.5	6.6	6.1	5.6	5.9
2	13.4	10.9	12.1	10.4	9.4	9.8	6.8	6.4	6.6	6.5	6.0	6.2
3	13.2	10.6	11.9	9.6	8.6	9.2	6.8	6.3	6.6	6.2	5.8	6.1
4	13.3	10.7	12.0	9.4	8.6	9.0	6.3	5.4	5.9	5.8	5.3	5.6
5	13.0	10.6	11.9	9.9	8.9	9.3	6.0	5.2	5.6	6.2	5.5	5.9
6	12.6	11.4	12.0	9.1	8.1	8.6	6.7	5.8	6.3	6.5	6.1	6.3
7	11.7	10.3	11.1	8.5	7.4	7.9	6.7	6.3	6.5	6.5	6.4	6.5
8	11.9	10.9	11.3	8.6	7.2	7.9	6.5	6.0	6.3	6.7	6.4	6.6
9	12.3	10.7	11.3	8.8	7.4	8.1	6.4	5.9	6.2	6.4	5.9	6.1
10	10.9	9.7	10.2	9.1	7.9	8.5	5.9	5.2	5.5	6.2	5.6	5.9
11	11.5	10.5	10.9	9.4	8.5	8.9	5.7	5.4	5.5	6.3	5.8	6.1
12	11.2	9.8	10.5	9.6	8.9	9.2	5.7	5.5	5.7	6.4	6.0	6.2
13	12.1	10.5	11.2	9.3	9.0	9.1	6.7	5.7	6.1	6.1	5.7	5.9
14	11.8	10.1	10.9	9.8	8.8	9.3	6.6	5.7	6.1	5.8	5.4	5.6
15	11.5	9.8	10.7	9.4	8.9	9.1	6.0	5.7	5.8	5.4	4.8	5.1
16	11.4	10.1	10.8	9.2	8.7	8.9	6.6	5.9	6.2	4.9	4.5	4.7
17	11.0	9.8	10.5	8.8	7.8	8.5	6.6	5.9	6.2	5.4	4.5	5.0
18	10.8	8.9	9.8	8.2	7.2	7.7	6.0	5.8	5.9	5.4	4.9	5.2
19	11.1	9.0	10.0	8.7	7.8	8.2	6.1	5.8	6.0	5.2	4.7	5.0
20	11.5	10.0	10.6	8.5	8.1	8.2	6.3	5.8	6.0	5.1	4.0	4.5
21	10.5	9.7	10.1	8.2	7.9	8.0	5.8	5.5	5.6	5.1	4.3	4.6
22	10.4	9.9	10.1	8.0	7.7	7.9	5.9	5.4	5.6	4.8	4.3	4.5
23	10.2	9.2	9.7	8.0	7.6	7.8	5.6	5.1	5.3	5.0	4.3	4.7
24	9.9	8.7	9.3	7.8	6.9	7.5	5.2	4.8	5.0	5.2	4.8	5.0
25	10.5	9.1	9.7	7.0	6.6	6.8	5.4	4.7	5.0	5.5	5.0	5.2
26	10.2	8.7	9.4	7.0	6.5	6.7	5.5	4.8	5.1	5.3	4.9	5.1
27	9.6	9.0	9.3	6.6	5.9	6.2	5.7	5.1	5.4	5.3	4.7	5.0
28	9.8	8.9	9.3	6.5	5.6	6.1	5.8	5.3	5.6	4.9	4.4	4.7
29	9.9	9.2	9.6	6.7	6.3	6.5	5.8	5.1	5.4	4.6	3.9	4.3
30	9.9	9.6	9.8	6.7	6.5	6.6	5.9	5.2	5.6	5.1	4.4	4.7
31	10.0	9.5	9.8	--	--	--	6.3	5.8	5.9	5.1	4.6	4.8
MONTH	13.4	8.7	10.6	10.4	5.6	8.2	6.8	4.7	5.8	6.7	3.9	5.4





14163150 MCKENZIE RIVER BELOW LEABURG DAM, NEAR LEABURG, OR

LOCATION.--Lat 44°07'26", long 122°37'35", in NE 1/4 NE 1/4 sec.1, T.17 S., R.1 E., Lane County, Hydrologic Unit 17090004, on right bank 1.4 mi downstream from Leaburg Dam, 3.0 mi northeast of Leaburg, and at mile 37.4.

DRAINAGE AREA.--1,030 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 710 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1963 by Smith River Reservoir (station 14158795) and Cougar Lake (station 14159400), and since 1968 by Blue River Lake (station 14162100). Diversion upstream from station through the Leaburg Power canal. Continuous water temperature records for the period June 1992 to September 1993 have been collected at this location.

AVERAGE DISCHARGE.--13 years (water years 1990-2002), 2,658 ft<sup>3</sup>/s, 1,926,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,900 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 17.95 ft; minimum discharge, 457 ft<sup>3</sup>/s Aug. 29, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 18,800 ft<sup>3</sup>/s Dec. 14, gage height, 11.37 ft; minimum discharge, 781 ft<sup>3</sup>/s June 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1090	1840	4950	3210	2570	2260	4220	3360	3040	989	956	983
2	1090	1490	5450	4170	2240	2080	3830	3440	2720	983	958	984
3	1080	1370	4300	4370	2110	1970	3950	3530	2540	986	958	972
4	1070	1320	4330	3660	2010	1890	4440	3450	2210	1080	986	974
5	1060	1390	4430	3200	1850	1690	5300	3280	2190	1210	985	984
6	1070	1490	9020	4120	1790	2280	4580	3170	2200	1140	1080	973
7	1080	1430	10500	6190	3370	3520	4630	2950	1910	1150	982	989
8	1100	1320	7640	9680	5250	2790	4320	2720	1620	1120	966	1000
9	1120	1160	5420	7950	3600	2400	4280	2120	1450	1100	999	987
10	1140	1100	4260	5560	2470	2330	7510	2750	1210	1080	982	994
11	1200	1090	3860	5300	2230	3500	7770	2130	1140	1030	986	997
12	1120	1100	3900	4680	2000	7380	7920	2120	1140	1030	969	993
13	1160	1230	7890	4780	1900	6140	8940	2370	1260	1010	963	994
14	1130	1940	13300	4400	1760	5000	14800	2480	1440	1000	958	993
15	1070	1540	7360	3990	1790	4120	14000	2480	1420	998	972	983
16	1040	1830	8090	3480	2150	3870	11100	2560	1210	985	974	979
17	1080	2240	10700	2920	2130	2900	9400	2590	1210	974	984	1000
18	1070	1990	11700	2460	2120	2540	8110	2860	2070	984	987	991
19	1080	1940	10900	2370	2620	2910	6330	2880	1790	957	1000	979
20	1080	1750	10300	3030	3020	3000	5060	2670	1460	969	1000	983
21	1080	1930	9280	6530	2890	3200	4620	2720	1360	959	1030	982
22	1360	5680	8440	4390	3410	3200	4320	2770	1040	957	1020	977
23	2000	6680	6860	3660	5530	3940	4180	2470	996	984	1010	974
24	1240	4980	4220	3230	4550	5090	4010	2450	1010	983	1000	981
25	1070	4480	3010	6790	3600	4960	3810	2410	989	1000	1010	989
26	1030	3250	2580	8290	3020	4540	3710	2580	996	1010	1010	992
27	1020	2440	2320	5560	2720	3960	3730	2780	991	1000	997	981
28	1030	4510	2880	4450	2490	3820	3400	3320	985	989	978	985
29	998	6620	2440	3720	---	3700	3250	4960	1010	979	975	983
30	1260	5500	2440	2910	---	3960	3330	5720	1000	960	993	1080
31	1940	---	2960	2520	---	4320	---	4170	---	951	988	---
TOTAL	35958	76630	195730	141570	77190	109260	178850	92260	45607	31547	30656	29656
MEAN	1160	2554	6314	4567	2757	3525	5962	2976	1520	1018	989	989
MAX	2000	6680	13300	9680	5530	7380	14800	5720	3040	1210	1080	1080
MIN	998	1090	2320	2370	1760	1690	3250	2120	985	951	956	972
AC-FT	71320	152000	388200	280800	153100	216700	354700	183000	90460	62570	60810	58820

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2002, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	1179	3102	4957	4769	3577	2927	3239	3107	1912	1089	1062	1017	
MAX	2361	7467	12250	9241	11880	6149	6042	5410	3632	1390	1285	1374	
(WY)	1998	1997	1997	1997	1996	1993	1993	1999	1999	1999	1995	2000	
MIN	610	741	1269	1036	1066	897	1595	1099	1072	946	907	525	
(WY)	1990	1990	1990	2001	2001	1992	1998	1994	2001	1993	1991	1990	

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1990 - 2002
ANNUAL TOTAL	670058	1044914	
ANNUAL MEAN	1836	2863	2658
HIGHEST ANNUAL MEAN			4550
LOWEST ANNUAL MEAN			1321
HIGHEST DAILY MEAN	13300	14800	42700
LOWEST DAILY MEAN	998	951	478
ANNUAL SEVEN-DAY MINIMUM	1020	964	486
ANNUAL RUNOFF (AC-FT)	1329000	2073000	1926000
10 PERCENT EXCEEDS	3170	5610	5680
50 PERCENT EXCEEDS	1120	2130	1440
90 PERCENT EXCEEDS	1020	983	944



14163900 MCKENZIE RIVER NEAR WALTERVILLE, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1992 to September 1993. August 2001 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.-- Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 19.5°C Aug. 11, 14, 18, 1992; minimum, 2.0°C Feb. 17, 1993.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 18.5°C July 30; minimum, 4.0°C Jan. 29.

## WATER TEMPERATURE, in (DEGREES C), AUGUST TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	---	---	---	16.2	13.8	14.9
2	---	---	---	---	---	---	---	---	---	16.2	13.5	14.7
3	---	---	---	---	---	---	---	---	---	15.9	13.3	14.3
4	---	---	---	---	---	---	---	---	---	15.8	13.0	14.1
5	---	---	---	---	---	---	---	---	---	14.6	12.7	13.8
6	---	---	---	---	---	---	---	---	---	13.9	11.8	12.7
7	---	---	---	---	---	---	---	---	---	14.5	11.8	13.0
8	---	---	---	---	---	---	17.1	14.5	15.6	15.0	12.1	13.4
9	---	---	---	---	---	---	17.5	14.4	15.9	15.2	12.4	13.5
10	---	---	---	---	---	---	17.0	14.7	15.8	15.5	12.6	13.8
11	---	---	---	---	---	---	17.2	14.6	15.7	15.1	12.7	13.6
12	---	---	---	---	---	---	16.6	14.5	15.5	15.7	13.0	14.3
13	---	---	---	---	---	---	16.8	14.3	15.4	15.9	13.5	14.5
14	---	---	---	---	---	---	16.8	14.5	15.5	16.0	13.7	14.7
15	---	---	---	---	---	---	17.4	14.4	15.7	15.6	13.8	14.6
16	---	---	---	---	---	---	16.7	14.2	15.6	15.5	13.4	14.2
17	---	---	---	---	---	---	17.3	13.9	15.5	15.4	13.2	14.2
18	---	---	---	---	---	---	16.5	13.9	15.3	15.0	12.7	13.7
19	---	---	---	---	---	---	16.3	13.6	14.8	14.7	12.5	13.3
20	---	---	---	---	---	---	16.2	13.4	14.6	14.6	12.3	13.2
21	---	---	---	---	---	---	15.3	13.3	14.2	14.3	12.1	13.0
22	---	---	---	---	---	---	14.8	13.2	14.0	14.5	12.0	13.1
23	---	---	---	---	---	---	15.0	12.9	13.8	15.0	12.4	13.5
24	---	---	---	---	---	---	15.9	13.7	14.6	14.9	12.8	13.6
25	---	---	---	---	---	---	16.2	13.7	14.8	13.6	12.4	13.3
26	---	---	---	---	---	---	16.8	13.6	15.1	12.6	11.8	12.3
27	---	---	---	---	---	---	17.2	14.4	15.6	12.8	11.5	12.1
28	---	---	---	---	---	---	16.8	14.0	15.3	13.3	11.2	12.1
29	---	---	---	---	---	---	16.8	13.8	15.1	13.6	11.4	12.3
30	---	---	---	---	---	---	16.9	13.9	15.2	14.1	11.8	12.7
31	---	---	---	---	---	---	16.7	14.0	15.2	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	16.2	11.2	13.6

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	14.6	12.2	13.2	10.2	9.7	10.0	7.2	6.6	7.0	6.8	6.0	6.3
2	14.4	12.3	13.1	10.8	9.8	10.2	7.3	6.7	7.0	7.0	6.2	6.6
3	13.9	11.9	12.7	10.2	9.2	9.8	7.4	6.6	7.0	6.7	6.1	6.4
4	13.9	11.9	12.6	9.7	9.2	9.4	6.8	5.9	6.2	6.3	5.4	5.8
5	13.7	12.0	12.6	10.0	9.1	9.5	6.3	5.3	5.8	6.6	5.6	6.1
6	13.2	11.8	12.5	9.5	8.3	9.0	7.4	6.1	6.8	7.3	6.4	6.8
7	12.4	11.0	11.7	8.5	7.4	7.9	7.4	6.7	7.1	7.4	6.8	7.1
8	12.3	10.9	11.5	8.1	7.3	7.5	7.2	6.2	6.6	7.5	6.7	7.1
9	12.6	11.1	11.6	8.4	7.4	7.9	6.9	6.3	6.6	6.8	6.0	6.5
10	11.3	10.3	10.9	9.0	7.8	8.4	6.6	5.3	5.8	6.6	5.7	6.2
11	11.7	10.2	10.8	9.6	8.4	9.1	6.2	5.5	5.9	6.7	5.8	6.3
12	11.6	10.6	10.9	9.7	9.2	9.4	6.4	5.7	6.0	6.8	6.2	6.5
13	12.6	10.6	11.6	9.8	9.4	9.6	7.4	5.8	6.6	6.6	5.7	6.1
14	12.7	11.1	11.8	10.1	9.3	9.7	7.3	6.2	6.8	6.0	5.4	5.8
15	12.3	10.9	11.4	9.9	9.2	9.7	6.7	5.8	6.3	5.8	4.8	5.3
16	12.3	10.9	11.4	9.7	9.1	9.4	7.5	6.3	6.8	5.0	4.4	4.7
17	11.8	10.5	11.1	9.3	8.5	9.0	7.3	6.2	6.9	5.4	4.4	4.8
18	10.9	9.6	10.2	8.5	7.5	7.9	6.7	5.8	6.2	5.6	4.8	5.2
19	11.1	9.5	10.1	8.8	7.9	8.4	7.0	5.8	6.4	5.5	4.9	5.2
20	11.5	9.9	10.6	9.0	8.3	8.6	7.1	6.1	6.5	5.2	4.3	4.8
21	11.1	10.4	10.8	8.5	8.0	8.3	6.3	5.6	6.0	5.2	4.3	4.8
22	10.8	10.2	10.5	8.5	8.2	8.3	6.4	5.5	5.9	5.2	4.4	4.7
23	10.6	9.6	10.2	8.6	7.9	8.2	6.0	5.2	5.6	5.4	4.5	4.9
24	10.0	9.3	9.6	8.3	7.4	7.9	5.5	4.8	5.2	5.7	4.8	5.2
25	10.8	9.3	10	7.5	6.8	7.1	5.6	4.7	5.1	6.0	5.2	5.6
26	10.8	9.7	10.1	7.1	6.7	7.0	5.6	4.8	5.3	6.0	5.1	5.5
27	10.3	9.3	9.8	6.9	6.1	6.4	5.9	5.4	5.6	5.5	4.8	5.2
28	9.7	9.0	9.3	7.3	6.0	6.5	6.5	5.8	6.1	5.4	4.4	4.9
29	10.1	9.3	9.7	7.3	6.6	7.0	6.1	5.3	5.6	4.8	4.0	4.4
30	10.5	9.8	10.2	7.2	6.7	6.9	6.2	5.5	5.8	5.3	4.2	4.7
31	10.5	10.0	10.2	---	---	---	6.7	5.9	6.3	5.2	4.6	5.0
MONTH	14.6	9.0	11.1	10.8	6.0	8.5	7.5	4.7	6.2	7.5	4.0	5.6



WILLAMETTE RIVER BASIN

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14164700 CEDAR CREEK AT SPRINGFIELD, OR

LOCATION.--Lat 44°03'34", long 122°55'07", in land grant parcel number 75, T.17S., R.2 W, Lane County, Hydrologic Unit 17090004, on left bank, and at mile 0.8.

DRAINAGE AREA.--9.62 mi<sup>2</sup>.

PERIOD OF RECORD.--October 2001 to September 2002.

GAGE.--Water-stage recorder. Elevation of gage is 490 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. Flow from the McKenzie River can be diverted to Cedar Creek at a point upstream from gage.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 180 ft<sup>3</sup>/s Jan. 21, gage height, 3.44 ft; minimum discharge, 11 ft<sup>3</sup>/s Oct. 24, 25.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e16	23	71	33	84	18	21	34	33	29	25	24
2	e16	23	77	37	70	17	20	34	33	34	24	24
3	e16	18	56	35	63	16	19	34	32	34	25	24
4	e17	17	56	32	55	15	21	32	33	33	25	24
5	17	16	73	30	49	15	32	32	32	32	25	25
6	16	17	69	36	46	28	31	30	31	30	25	24
7	15	23	76	41	78	47	31	30	29	31	24	23
8	15	29	65	69	104	36	29	29	28	30	24	24
9	15	30	53	61	88	31	33	26	27	29	23	24
10	21	30	47	49	72	29	39	27	26	30	22	23
11	21	28	46	41	60	35	41	39	26	29	23	23
12	17	21	46	37	51	65	39	33	25	29	22	23
13	17	17	60	32	44	79	52	29	26	29	23	24
14	16	18	139	30	37	77	116	30	26	29	23	24
15	16	17	106	27	32	68	101	30	26	29	24	23
16	15	25	110	25	29	67	75	31	26	28	25	24
17	14	28	117	25	26	60	88	35	29	27	25	27
18	13	20	119	23	24	52	99	35	30	28	26	27
19	13	24	131	26	23	47	76	36	32	28	27	24
20	13	30	107	47	22	43	62	38	30	29	27	24
21	12	35	85	158	20	37	52	37	29	29	28	25
22	19	91	70	132	20	33	45	36	28	27	27	24
23	18	106	56	111	31	33	40	35	27	28	26	23
24	14	85	46	96	28	37	37	34	26	27	26	24
25	16	102	38	117	25	34	39	34	25	26	25	26
26	16	94	33	143	23	31	38	34	25	27	25	27
27	17	74	29	109	21	29	37	34	26	26	24	28
28	16	79	28	86	20	26	34	35	27	27	23	28
29	17	100	25	70	---	24	34	36	31	26	24	29
30	22	74	24	59	---	22	33	35	29	25	23	31
31	24	---	31	55	---	21	---	35	---	25	23	---
TOTAL	510	1294	2089	1872	1245	1172	1414	1029	853	890	761	747
MEAN	16.5	43.1	67.4	60.4	44.5	37.8	47.1	33.2	28.4	28.7	24.5	24.9
MAX	24	106	139	158	104	79	116	39	33	34	28	31
MIN	12	16	24	23	20	15	19	26	25	25	22	23
AC-FT	1010	2570	4140	3710	2470	2320	2800	2040	1690	1770	1510	1480
CFSM	1.71	4.48	7.00	6.28	4.62	3.93	4.90	3.45	2.96	2.98	2.55	2.59
IN.	1.97	5.00	8.08	7.24	4.81	4.53	5.47	3.98	3.30	3.44	2.94	2.89

WTR YR 2002 TOTAL 13876 MEAN 38.0 MAX 158 MIN 12 AC-FT 27520 CFSM 3.95 IN. 53.66

e Estimated

14165000 MOHAWK RIVER NEAR SPRINGFIELD, OR

LOCATION.--Lat 44°05'34", long 122°57'20", in SE 1/4 NW 1/4 sec.17, T.17 S., R.2 W., Lane County, Hydrologic Unit 17090004, on left bank 50 ft downstream from bridge, 1.3 mi northeast of Springfield, and at mile 1.59.

DRAINAGE AREA.--177 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1935 to September 1952, October 1963 to September 1997. October 1998 to current year. Prior to October 1935 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1248: 1939. WSP 1738: Drainage area. WDR OR-86-2: 1985(m).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 442.47 ft above NGVD of 1929. Oct. 1, 1935, to Sept. 30, 1952, nonrecording gage at same site and datum.

REMARKS.--Records good except for Dec. 7,8 and estimated daily discharges, which are poor. Many diversions for irrigation upstream from station. Continuous water-quality records for the period October 1963 to September 1969 and April 1983 to September 1984 have been collected at this location.

AVERAGE DISCHARGE.--56 years (water years 1936-52, 1963-97, 1999-2002), 530 ft<sup>3</sup>/s, 40.68 in/yr, 384,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,500 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 23.11 ft; minimum discharge, 8.2 ft<sup>3</sup>/s Sept. 9, 1967.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1955, reached at stage of 22.9 ft, from floodmark, probably affected by backwater from McKenzie River, discharge, 9,200 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0700	3,930	11.32	Jan. 21	1130	4,340	11.99
Dec. 17	0800	3,520	10.60	Jan. 26	0130	*5,400	*13.64

Minimum discharge, 13 ft<sup>3</sup>/s Sept. 13, 14.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	21	250	1420	538	1580	461	481	338	136	92	29	18
2	19	161	1830	608	1300	431	450	321	129	81	28	17
3	18	117	1240	594	1160	404	425	306	125	76	29	16
4	17	93	1120	540	1020	379	410	286	121	74	31	16
5	17	89	1720	500	927	375	408	275	120	70	31	17
6	17	86	1950	749	863	656	395	273	119	68	31	17
7	19	73	2170	948	1690	984	377	263	112	65	30	17
8	21	67	1580	e1600	2760	749	355	247	111	68	27	18
9	24	62	1260	e1200	2180	652	374	237	116	61	27	18
10	27	59	1060	e950	1670	619	e550	230	110	58	25	17
11	87	56	989	e800	1370	831	e500	218	104	54	25	16
12	51	65	974	796	1160	1950	e520	210	98	52	23	15
13	34	107	1240	722	1010	1800	717	202	91	51	22	14
14	33	235	3380	657	879	1740	2060	203	88	50	20	14
15	30	161	2340	594	780	1440	e1600	191	88	47	18	16
16	27	261	2710	544	725	1290	e1250	183	88	46	18	18
17	26	307	3280	542	667	1130	e1200	186	94	44	18	30
18	28	222	e2600	507	623	971	e1100	180	158	45	19	54
19	25	197	e2200	673	610	927	908	183	116	44	19	32
20	24	239	e1700	1320	588	880	773	195	97	45	21	25
21	25	403	e1400	3700	561	845	684	207	90	42	31	22
22	60	1400	e1200	2600	558	801	615	192	88	40	29	20
23	206	1700	e1000	1950	917	779	556	176	89	37	23	19
24	92	883	878	1620	788	877	507	164	82	37	22	18
25	60	902	756	3360	669	799	471	157	78	36	20	18
26	48	752	667	4530	598	727	443	150	73	37	22	16
27	43	592	609	2810	544	669	456	145	70	37	21	17
28	58	1010	582	2010	499	615	408	160	74	36	19	17
29	55	2090	524	1530	---	572	376	184	150	34	18	20
30	89	1460	484	1240	---	536	354	164	124	32	16	31
31	293	---	536	1130	---	508	---	145	---	30	16	---
TOTAL	1594	14099	45399	41862	28696	26397	19723	6571	3139	1589	728	603
MEAN	51.42	470.0	1464	1350	1025	851.5	657.4	212.0	104.6	51.26	23.48	20.10
MAX	293	2090	3380	4530	2760	1950	2060	338	158	92	31	54
MIN	17	56	484	500	499	375	354	145	70	30	16	14
AC-FT	3160	27970	90050	83030	56920	52360	39120	13030	6230	3150	1440	1200
CFSM	0.29	2.66	8.27	7.63	5.79	4.81	3.71	1.20	0.59	0.29	0.13	0.11
IN.	0.34	2.96	9.54	8.80	6.03	5.55	4.15	1.38	0.66	0.33	0.15	0.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2002, BY WATER YEAR (WY)

	MEAN	108.7	609.1	1145	1233	1116	868.0	592.0	363.3	200.3	76.45	38.52	39.86
MAX (WY)	719	1653	3235	2464	2480	1975	1545	762	752	190	91.4	112	1968
MIN (WY)	19.2	26.5	52.6	84.0	126	282	242	118	54.3	34.3	14.7	18.9	1967
	1988	1937	1977	1977	1977	1965	1942	1966	1966	1940	1966	1967	

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1936 - 2002

ANNUAL TOTAL	118357			190400			
ANNUAL MEAN	324.3			521.6			530.0
HIGHEST ANNUAL MEAN							883
LOWEST ANNUAL MEAN							164
HIGHEST DAILY MEAN			3380	Dec 14		4530	Jan 26
LOWEST DAILY MEAN			15	Sep 24		14	Sep 13
ANNUAL SEVEN-DAY MINIMUM			16	Sep 18		16	Sep 9
ANNUAL RUNOFF (AC-FT)	234800			377700			384000
ANNUAL RUNOFF (CFSM)			1.83			2.95	2.99
ANNUAL RUNOFF (INCHES)			24.88			40.02	40.68
10 PERCENT EXCEEDS			689			1430	1360
50 PERCENT EXCEEDS			196			203	251
90 PERCENT EXCEEDS			23			19	30

e Estimated

14166000 WILLAMETTE RIVER AT HARRISBURG, OR

LOCATION.--Lat 44°16'14", long 123°10'21", in NW 1/4 NE 1/4 sec.16, T.15 S., R.4 W., Linn County, Hydrologic Unit 17090003, on right bank 75 ft north of intersection of First Street and Kesling Street in Harrisburg and at mile 161.0.

DRAINAGE AREA.--3,420 mi<sup>2</sup>, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1944 to current year. Gage-height records collected at same site in 1927-28, 1931, 1934, are contained in reports of National Weather Service.

GAGE.--Water-stage recorder. Datum of gage is 288.39 ft above NGVD of 1929. Oct 1 to Nov. 14, 1944, nonrecording gage at bridge 1,110 ft upstream at different datum. Nov. 15, 1944, to Aug. 15, 1973, at site 1,100 ft upstream at datum 2.00 ft higher.

REMARKS.--Records good. Flow regulated by 8 reservoirs upstream from station. Many small diversions upstream from station for irrigation. Continuous water-quality records for the period June 1961 to September 1987 have been collected at this location. Periodic suspended sediment data are available for the period October 1991 to September 1993.

AVERAGE DISCHARGE.--24 years (water years 1945-68), 12,320 ft<sup>3</sup>/s, 8,927,000 acre-ft/yr.  
34 years (water years 1969-2002), 11,370 ft<sup>3</sup>/s, 8,236,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 210,000 ft<sup>3</sup>/s Dec. 29, 1945, gage height, 19.69 ft, from rating curve extended above 115,000 ft<sup>3</sup>/s; minimum discharge, 1,990 ft<sup>3</sup>/s Oct. 30, 1944.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood stage of 20.5 ft was reached in December 1861, and 20.1 ft in February 1890 (information from Corps of Engineers). Flood of Jan. 1, 1943, reached a stage of 19.1 ft from National Weather Service.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 42,600 ft<sup>3</sup>/s Dec. 14, gage height, 10.78 ft; minimum discharge, 3,800 ft<sup>3</sup>/s Nov. 11.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4990	5940	22900	13200	13400	7210	10800	8060	7260	4520	4980	5030
2	4890	5410	25900	14400	12000	6750	10200	7960	6930	4350	5000	5010
3	4760	4980	22300	15900	10900	6330	10100	8000	6860	4240	5090	5000
4	4790	4790	19800	14900	9760	6090	10300	7900	7000	4190	5140	5000
5	4750	4660	21500	13400	9080	5990	10600	7690	6860	4120	5210	5030
6	4770	4690	23800	13900	8580	6510	10100	7550	6810	4140	5190	5090
7	4790	4550	32200	17300	11000	10300	9650	8360	7000	4150	5220	5010
8	4830	4470	29000	22800	18800	9580	9530	8750	6980	4130	5220	5020
9	4840	4250	24800	25000	17400	8190	9690	7930	6730	4180	5250	5030
10	4880	4060	20700	20700	14200	7800	11900	8310	6500	4100	5370	5020
11	5310	3960	18000	17800	12500	8520	14000	8560	6350	4120	5430	5020
12	5180	4150	17300	16900	11400	15500	13100	8250	6260	4410	5470	5050
13	4910	4170	19000	16400	10600	17600	14000	8230	6000	4420	5480	5040
14	4800	4880	36700	16000	9550	16400	13000	8530	5570	4420	5500	5040
15	4800	4990	34100	15200	8580	14800	34400	8400	5240	4450	5500	5090
16	4660	5230	29600	14300	8380	14500	31400	8480	5020	4720	5550	5120
17	4650	6730	33400	13500	8060	13600	27100	8580	4950	4710	5560	5400
18	4690	6960	39200	12700	7780	11100	25600	8650	5270	4840	5470	5760
19	4730	6180	40000	12900	7800	10300	22200	8830	5000	4860	5040	5480
20	5010	6070	38200	14700	9490	10000	18100	8680	5160	4840	5090	5120
21	5000	6610	35800	28300	9320	10100	15700	8480	4990	4860	5230	4960
22	4940	10800	32600	30900	9480	10200	13600	8670	4910	4830	5220	5040
23	6340	20500	26900	24500	11500	11500	12000	8530	4790	4800	5170	5140
24	5960	16200	21100	20500	12500	14400	10800	8340	4690	4750	5140	5170
25	5430	16100	16900	22500	10600	14600	9840	8210	4720	4750	5140	5330
26	5210	16800	14700	37800	9360	13300	9440	8330	4750	4770	5140	5430
27	5000	14400	11900	30500	8300	11700	9320	8400	4900	4790	5110	5450
28	4970	13500	11000	24800	7660	10600	8660	8850	4840	4810	5080	5510
29	4910	23700	10500	19000	---	9800	8240	9290	4720	4820	5030	5600
30	5050	24100	9950	15500	---	9630	8200	9600	4670	4890	5000	5710
31	5720	---	11300	12900	---	10800	---	8300	---	4990	5030	---
TOTAL	155560	263830	751050	589100	297980	333700	432170	260700	172230	140970	162050	155700
MEAN	5018	8794	24230	19000	10640	10760	14410	8410	5741	4547	5227	5190
MAX	6340	24100	40000	37800	18800	17600	34400	9600	7260	4990	5560	5760
MIN	4650	3960	9950	12700	7660	5990	8200	7550	4670	4100	4980	4960
AC-FT	308600	523300	1490000	1168000	591000	661900	857200	517100	341600	279600	321400	308800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2002, BY WATER YEAR (WY)

	7635	14340	21430	20690	14440	12630	10900	10130	7548	4864	5256	6632
MEAN	7635	14340	21430	20690	14440	12630	10900	10130	7548	4864	5256	6632
MAX	10970	30850	48480	36750	33520	36070	21680	17120	16150	6283	7117	8986
(WY)	1985	1985	1997	1971	1996	1972	1993	1996	1984	1969	1971	1972
MIN	4203	4924	3848	3695	2859	5156	4823	4009	3658	3267	3795	4305
(WY)	1993	1988	1977	1977	1977	2001	1977	1987	1987	2001	2001	1992

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1969 - 2002

ANNUAL TOTAL	2619990	3715040	
ANNUAL MEAN	7178	10180	11370
HIGHEST ANNUAL MEAN			17800
LOWEST ANNUAL MEAN			5233
HIGHEST DAILY MEAN	40000	Dec 19	40000
LOWEST DAILY MEAN	3110	Jul 24	3960
ANNUAL SEVEN-DAY MINIMUM	3160	Jul 23	4130
ANNUAL RUNOFF (AC-FT)	5197000		7369000
10 PERCENT EXCEEDS	12100		20900
50 PERCENT EXCEEDS	4840		7690
90 PERCENT EXCEEDS	3550		4750

e Estimated

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--June 1961 to September 1987, October 2000 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--Maximum, 24.0°C Aug. 12, 1973; minimum, 0.0°C Jan. 8, 9, 1973.

EXTREMES FOR CURRENT YEAR.--Maximum, 21.5°C July 11; minimum, 5.1°C Jan. 30.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	17.0	15.7	16.3	12.0	11.6	11.8	8.6	8.3	8.4	7.2	6.7	6.9
2	17.1	16.0	16.5	12.8	11.9	12.3	8.4	8.0	8.2	7.3	6.8	7.1
3	16.4	15.3	15.9	12.9	12.1	12.5	8.6	8.2	8.4	7.2	6.8	7.0
4	16.3	15.1	15.7	12.4	11.9	12.2	8.3	7.6	7.9	7.0	6.3	6.5
5	16.2	15.2	15.6	12.3	11.5	11.9	7.6	7.4	7.6	6.9	6.2	6.4
6	15.9	15.0	15.4	11.5	10.8	11.2	8.1	7.6	7.9	7.9	6.9	7.4
7	15.0	14.2	14.4	10.8	9.3	9.9	8.1	7.8	8.0	8.2	7.9	8.0
8	15.0	14.3	14.6	9.5	8.9	9.2	7.8	7.4	7.6	8.4	7.9	8.1
9	14.8	13.6	14.2	9.6	8.7	9.2	7.8	7.4	7.6	8.0	7.4	7.6
10	14.4	13.6	13.8	10.2	9.4	9.8	7.4	7.1	7.2	7.4	6.9	7.1
11	14.6	13.5	14.0	10.9	10.1	10.5	7.2	6.9	7.1	7.2	6.8	7.0
12	14.3	13.5	13.9	11.0	10.7	10.9	7.2	7.1	7.1	7.4	6.9	7.1
13	15.5	14.3	14.8	11.1	10.8	10.9	7.7	7.2	7.5	7.1	6.6	6.8
14	15.3	14.4	14.8	11.9	11.1	11.6	7.7	7.2	7.5	6.6	6.1	6.4
15	14.9	14.4	14.6	11.8	11.3	11.5	7.2	7.0	7.1	6.3	5.8	6.0
16	14.9	14.2	14.6	11.3	10.8	11.1	8.0	7.2	7.6	5.8	5.2	5.4
17	14.4	13.5	13.9	10.8	10.3	10.5	8.0	7.5	7.8	5.8	5.5	5.6
18	13.8	12.8	13.3	10.3	9.5	9.9	7.5	7.1	7.2	6.2	5.7	6.0
19	13.9	12.8	13.4	10.1	9.4	9.7	7.2	7.0	7.1	6.3	5.9	6.1
20	13.8	13.2	13.5	10.1	10.0	10.0	7.5	7.1	7.3	6.1	5.7	5.9
21	13.2	12.6	12.9	10.1	9.8	9.9	7.3	6.8	7.1	6.1	5.3	5.7
22	13.6	13.2	13.4	9.9	9.4	9.7	6.8	6.4	6.7	5.7	5.3	5.5
23	13.3	12.2	12.7	9.4	9.1	9.2	6.7	6.4	6.5	5.9	5.6	5.7
24	12.6	11.7	12.2	9.3	9.0	9.1	6.4	5.8	6.1	6.1	5.8	5.9
25	13.3	12.2	12.7	9.0	8.7	8.8	6.1	5.7	5.9	6.4	6.1	6.3
26	13.2	12.4	12.9	8.8	8.3	8.6	5.9	5.6	5.8	6.4	6.0	6.3
27	12.9	11.6	12.4	8.6	8.0	8.2	6.0	5.6	5.8	6.0	5.6	5.8
28	11.6	11.2	11.4	8.4	7.9	8.1	6.7	5.9	6.2	5.9	5.6	5.7
29	11.6	11.2	11.3	8.4	8.0	8.2	6.7	6.2	6.4	5.8	5.3	5.5
30	12.1	11.6	11.8	8.3	8.0	8.2	6.4	6.1	6.3	5.6	5.1	5.4
31	12.1	11.8	12.0	--	--	--	7.2	6.4	6.7	5.7	5.5	5.6
MONTH	17.1	11.2	13.8	12.9	7.9	10.2	8.6	5.6	7.1	8.4	5.1	6.4



WILLAMETTE RIVER BASIN

14166000 WILLAMETTE RIVER AT HARRISBURG, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	6.3	5.6	5.9	7.2	5.6	6.4	10.3	8.4	9.3	11.0	9.2	10.0
2	6.3	5.5	6.0	7.0	5.3	6.2	10.6	8.8	9.7	10.7	9.9	10.3
3	6.9	6.2	6.5	7.4	5.6	6.5	10.8	9.0	9.9	12.6	10.1	11.2
4	6.5	5.8	6.0	8.0	6.1	7.1	10.9	9.2	10.1	12.1	10.1	11.1
5	5.8	5.3	5.5	7.6	7.0	7.2	10.2	8.8	9.7	11.7	10.4	11.0
6	6.0	5.4	5.7	7.4	7.1	7.3	9.1	8.5	8.9	10.8	9.6	10.2
7	6.4	6.0	6.2	7.3	6.3	6.8	10.0	8.8	9.3	11.1	9.2	10.2
8	6.7	6.1	6.3	6.6	5.7	6.1	10.5	8.8	9.6	11.6	9.3	10.5
9	6.6	6.0	6.3	6.4	5.7	6.1	10.4	9.6	10.0	11.4	10.0	10.6
10	7.0	6.2	6.6	7.4	6.2	6.7	10.0	9.2	9.6	11.8	9.4	10.5
11	7.0	6.5	6.8	7.9	7.3	7.6	9.7	9.2	9.4	12.8	9.9	11.3
12	6.5	5.8	6.1	7.9	7.1	7.6	10.4	8.9	9.6	13.8	11.0	12.4
13	6.7	5.6	6.1	7.1	6.7	6.9	10.3	9.6	9.8	13.4	11.2	12.0
14	6.5	5.6	6.1	7.0	6.4	6.7	10.3	9.3	9.7	12.8	10.0	11.3
15	6.6	5.5	6.2	7.0	6.6	6.8	9.4	8.2	8.6	13.4	10.8	12.1
16	7.3	6.3	6.8	6.9	6.4	6.6	8.5	7.9	8.2	13.3	10.9	12.2
17	7.7	6.5	7.1	6.5	5.8	6.2	8.6	7.8	8.2	13.0	11.4	12.3
18	8.1	7.0	7.6	6.5	6.0	6.3	9.0	7.7	8.3	12.9	11.6	12.4
19	8.1	7.6	7.9	7.6	6.3	6.8	9.0	8.2	8.6	12.2	10.8	11.4
20	8.1	7.1	7.6	8.3	6.8	7.5	9.8	8.3	9.0	12.2	10.4	11.3
21	9.0	8.0	8.5	8.7	7.6	8.1	10.3	8.4	9.4	12.2	10.7	11.5
22	9.3	8.4	8.8	8.0	7.3	7.7	11.0	9.1	10.0	12.0	10.5	11.3
23	9.0	8.2	8.7	8.9	7.3	8.1	11.1	9.2	10.2	13.2	10.5	11.8
24	8.2	7.1	7.7	8.4	7.9	8.1	11.1	9.0	10.1	13.9	11.5	12.7
25	7.3	6.0	6.7	8.7	7.4	8.0	11.9	9.8	10.8	13.7	12.0	12.9
26	7.4	6.0	6.7	8.8	7.8	8.3	11.2	9.6	10.3	14.8	12.1	13.4
27	7.4	5.9	6.7	9.6	8.1	8.8	10.8	9.0	9.8	14.6	13.1	13.6
28	7.4	6.0	6.7	8.8	8.2	8.5	11.6	9.3	10.3	13.1	12.0	12.3
29	---	---	---	9.8	8.0	8.9	12.4	9.8	11.1	13.0	11.8	12.4
30	---	---	---	10.1	8.4	9.2	11.7	9.8	10.8	14.2	11.8	12.9
31	---	---	---	9.9	8.4	9.2	---	---	---	14.6	12.6	13.6
MONTH	9.3	5.3	6.8	10.1	5.3	7.4	12.4	7.7	9.6	14.8	9.2	11.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.4	12.9	14.1	18.8	16.4	17.6	18.6	17.1	17.8	19.1	17.8	18.4
2	15.5	12.9	14.2	19.0	16.5	17.8	18.0	16.7	17.4	19.4	18.0	18.7
3	15.1	13.4	14.3	18.5	17.0	17.8	17.8	16.5	17.2	19.0	18.2	18.6
4	15.7	13.5	14.5	18.4	16.2	17.3	17.3	16.2	16.7	18.2	16.9	17.6
5	16.1	14.6	15.3	18.8	16.3	17.6	17.1	15.7	16.3	17.3	16.2	16.9
6	15.7	13.7	14.7	19.6	17.2	18.4	17.4	15.5	16.4	17.2	16.0	16.7
7	15.0	13.1	14.0	19.2	17.4	18.1	17.6	16.1	16.8	17.5	16.0	16.8
8	13.8	12.1	12.8	19.1	16.4	17.7	18.0	16.4	---	17.0	15.9	16.5
9	14.2	11.8	13.0	20.3	17.4	18.8	18.6	16.9	17.7	17.5	16.1	16.8
10	15.3	12.7	14.0	---	19.0	---	19.2	17.8	18.5	17.9	16.5	17.2
11	16.7	13.8	15.1	21.5	19.4	20.4	19.0	17.6	18.3	18.5	17.0	17.8
12	17.6	14.9	16.2	20.6	19.4	20.0	19.1	17.7	18.4	18.7	17.4	18.1
13	17.8	15.5	16.8	20.5	19.1	19.7	19.8	18.1	18.9	18.8	17.5	18.2
14	17.5	15.4	16.3	19.9	18.0	18.9	20.1	18.6	19.4	18.4	17.2	17.7
15	16.6	14.8	15.7	19.8	18.0	19.0	19.6	18.3	19.0	17.4	16.9	17.2
16	17.2	15.1	16.1	19.7	18.2	19.0	19.0	17.6	18.4	17.0	16.6	16.7
17	16.7	14.8	15.3	19.4	18.2	18.9	18.7	17.4	18.1	16.7	16.1	16.4
18	15.2	13.6	14.4	19.0	17.9	18.5	18.3	17.0	17.8	16.5	15.5	16.0
19	15.9	12.9	14.4	18.7	17.9	18.3	18.0	16.9	17.4	17.1	15.6	16.4
20	17.9	14.3	15.9	19.4	17.5	18.4	17.7	17.0	17.2	16.9	15.9	16.5
21	17.6	15.3	16.5	19.5	18.2	18.9	17.6	16.1	16.8	16.3	15.2	15.8
22	17.0	15.1	15.8	20.0	18.6	19.2	17.9	16.2	17.1	16.5	15.3	15.9
23	17.5	13.9	15.6	19.9	18.5	19.2	18.6	17.0	17.8	16.7	15.6	16.1
24	18.3	16.1	17.3	19.7	18.2	19.0	18.9	17.5	18.2	16.7	15.5	16.1
25	19.7	16.6	18.1	19.4	18.2	18.9	18.5	17.3	17.8	16.5	15.5	16.1
26	19.8	17.6	18.7	19.1	18.4	18.7	18.8	17.3	18.0	16.2	15.3	15.7
27	19.4	17.2	18.1	19.0	17.6	18.3	18.9	17.3	18.1	16.4	15.3	15.9
28	17.2	16.1	16.4	19.4	17.6	18.5	19.6	18.1	18.9	16.2	15.1	15.7
29	16.6	15.6	16.1	20.0	18.4	19.1	19.6	18.5	19.1	15.9	15.1	15.4
30	18.3	15.6	16.8	20.0	18.8	19.4	19.0	17.6	18.3	15.2	14.4	14.8
31	---	---	---	19.1	17.4	18.1	18.8	17.4	18.1	---	---	---
MONTH	19.8	11.8	15.6	---	16.2	---	20.1	15.5	---	19.4	14.4	16.8

14166500 LONG TOM RIVER NEAR NOTI, OR

LOCATION.--Lat 44°03'00", long 123°25'30", in SE 1/4 NW 1/4 sec.33, T.17 S., R.6 W., Lane County, Hydrologic Unit 17090003, on left bank 0.2 mi upstream from Southern Pacific Railroad bridge, 0.8 mi downstream from Noti Creek, 1.3 mi southeast of Noti, and at mile 37.4.

DRAINAGE AREA.--89.3 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1935 to current year.

REVISED RECORDS.--WSP 1318: 1936(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 389.05 ft above NGVD of 1929 (levels by National Weather Service). Prior to Nov. 6, 1940, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records fair except those for the period Mar. 12 to Sept. 30 which are poor. Slight regulation caused by logpond upstream from Noti. No diversion upstream from station.

AVERAGE DISCHARGE.--67 years (water years 1936-2002), 229 ft<sup>3</sup>/s, 34.90 in/yr, 166,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,990 ft<sup>3</sup>/s Dec. 22, 1955, gage height, 20.17 ft; minimum discharge, 0.04 ft<sup>3</sup>/s Aug. 13, 1977.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	1300	2,100	13.54	Jan. 26	0430	*3,240	*15.81

Minimum discharge, 5.7 ft<sup>3</sup>/s Oct. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	8.8	45	1050	312	813	176	194	114	63	45	15	11
2	8.8	33	1270	368	719	169	187	112	62	40	16	11
3	8.0	25	707	335	596	163	180	111	59	38	16	11
4	7.7	22	495	294	500	158	175	106	57	38	16	9.5
5	6.9	19	824	271	443	161	172	105	56	37	17	9.6
6	7.2	18	798	542	408	313	171	106	55	35	17	10
7	8.5	17	706	1210	546	491	163	102	54	34	16	11
8	9.5	16	524	1360	1250	352	155	99	56	33	16	12
9	9.7	16	387	1020	1100	294	171	97	63	31	15	11
10	11	16	317	679	793	304	247	94	57	30	14	10
11	15	15	295	520	615	520	219	91	54	29	14	9.9
12	16	17	284	425	513	1360	196	89	51	28	14	9.0
13	14	22	466	371	454	1210	189	86	48	28	12	8.4
14	13	72	1830	336	401	1020	360	86	47	28	11	8.7
15	13	64	1240	304	365	761	336	83	47	28	12	10
16	13	69	899	269	338	654	277	81	48	25	12	30
17	12	64	1210	252	312	624	259	82	49	25	11	31
18	13	51	988	231	291	541	226	81	63	24	11	38
19	12	45	853	243	284	503	200	80	56	23	12	36
20	12	54	704	399	262	471	188	96	50	23	12	23
21	12	87	542	1240	243	423	177	91	47	23	13	16
22	24	456	429	1350	228	374	167	84	46	22	13	14
23	68	577	363	1120	256	350	157	79	47	20	13	13
24	40	247	304	847	240	323	148	75	46	20	12	11
25	22	212	271	1560	215	287	141	72	44	20	12	12
26	16	202	243	2860	201	268	135	69	41	21	13	12
27	13	162	226	1660	191	252	134	68	39	20	12	13
28	13	369	249	1150	184	237	130	72	41	20	11	11
29	14	1180	228	823	---	224	124	79	56	19	10	12
30	28	711	215	648	---	211	119	72	51	17	10	15
31	61	---	286	560	---	201	---	66	---	16	10	---
TOTAL	530.1	4903	19203	23559	12761	13395	5697	2728	1553	840	408	439.1
MEAN	17.1	163	619	760	456	432	190	88.0	51.8	27.1	13.2	14.6
MAX	68	1180	1830	2860	1250	1360	360	114	63	45	17	38
MIN	6.9	15	215	231	184	158	119	66	39	16	10	8.4
AC-FT	1050	9730	38090	46730	25310	26570	11300	5410	3080	1670	809	871
CFSM	0.19	1.83	6.94	8.51	5.10	4.84	2.13	0.99	0.58	0.30	0.15	0.16
IN.	0.22	2.04	8.00	9.81	5.32	5.58	2.37	1.14	0.65	0.35	0.17	0.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2002, BY WATER YEAR (WY)

MEAN	39.5	204	471	584	556	409	248	127	65.8	30.6	16.8	17.4
MAX	300	708	1425	1260	1283	923	684	340	164	65.2	35.5	34.5
(WY)	1948	1974	1956	1956	1996	1938	1937	1963	1937	1937	1993	1997
MIN	8.00	16.6	23.8	25.2	62.5	89.3	57.2	51.5	24.7	6.20	3.61	7.25
(WY)	1988	1937	1977	1977	1977	2001	1977	2001	1977	1977	1977	2001

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1936 - 2002

ANNUAL TOTAL	38249.8	86016.2		
ANNUAL MEAN	105	236		
HIGHEST ANNUAL MEAN			229	
LOWEST ANNUAL MEAN			424	1974
HIGHEST DAILY MEAN	1830	Dec 14	5850	Dec 22 1964
LOWEST DAILY MEAN	5.2	Sep 11	0.04	Aug 13 1977
ANNUAL SEVEN-DAY MINIMUM	5.6	Sep 8	0.06	Aug 8 1977
ANNUAL RUNOFF (AC-FT)	75870		166200	
ANNUAL RUNOFF (CFSM)	1.17		2.57	
ANNUAL RUNOFF (INCHES)	15.93		34.90	
10 PERCENT EXCEEDS	219		581	
50 PERCENT EXCEEDS	48		91	
90 PERCENT EXCEEDS	7.8		15	

14168000 FERN RIDGE LAKE NEAR ELMIRA, OR

LOCATION.--Lat 44°07'15", long 123°18'00", near center of sec.4, T.17 S., R.5 W., Lane County, Hydrologic Unit 17090003, in control house at spillway section of dam across Long Tom River and Coyote Creek, 4.5 mi northeast of Elmira, and at mile 25.7.

DRAINAGE AREA.--252 mi<sup>2</sup>, not including Amazon Creek basin (see REMARKS).

PERIOD OF RECORD.--October 1941 to current year. Prior to October 1971, published as Fern Ridge Reservoir near Elmira.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Lake is formed by earth-fill dam with concrete outlet and spillway, completed in 1941 by Corps of Engineers; storage began Nov. 13, 1941. Total capacity (new capacity table put into use Oct. 1, 1992 based on Dec. 1992 resurvey), 107,400 acre-ft at elevation 375.1 ft, maximum pool elevation. Usable capacity, 93,350 acre-ft between elevations 340.0 ft, sill of outlet gate, and 373.5 ft, normal maximum operating pool level. Reservoir used for flood control and improvement of navigation. Since November 1951, most of flow of Amazon Creek has been diverted in SE 1/4 sec.29, T.17 S., R.4 W., and discharged into Fern Ridge Lake; drainage area at point of diversion, 21.3 mi<sup>2</sup>.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 124,500 acre-ft Dec. 27, 1955, elevation, 375.83 ft; minimum contents since first filling in 1942, 163 acre-ft Nov. 11, 1950, elevation, 344.00 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 93,440 acre-ft May 20, 28, 29, elevation, 373.51 ft; minimum contents, 2,800 acre-ft Dec. 9, elevation, 352.83 ft.

Capacity table (elevation, in feet, and usable contents, in acre-feet)

349	439	356	6,810	364	30,560	372	81,180
350	835	358	10,680	366	40,480	374	97,590
352	2,090	360	15,830	368	52,350	375	106,400
354	4,030	362	22,410	370	65,980		

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	362.00	359.79	355.74	353.96	360.89	365.46	371.18	373.26	373.46	373.04	372.24	371.36
2	361.96	359.55	356.15	354.01	360.25	365.53	371.24	373.29	373.45	373.02	372.20	371.34
3	361.92	359.23	355.61	353.75	359.41	365.63	371.29	373.30	373.45	373.00	372.18	371.31
4	361.90	358.91	354.17	353.70	358.87	365.70	371.35	373.32	373.44	372.98	372.15	371.28
5	361.85	358.56	353.28	353.86	358.49	365.84	371.40	373.34	373.42	372.97	372.12	371.25
6	361.81	358.22	353.09	354.87	358.20	366.21	371.45	373.34	373.41	372.96	372.09	371.23
7	361.78	357.85	353.00	356.17	359.00	366.62	371.50	373.34	373.39	372.93	372.06	371.20
8	361.75	357.48	352.94	357.69	360.46	366.87	371.54	373.34	373.41	372.90	372.04	371.18
9	361.71	357.10	352.88	358.12	361.67	367.08	371.66	373.33	373.40	372.90	372.01	371.15
10	361.70	356.70	352.89	357.75	362.47	367.32	371.76	373.33	373.39	372.88	371.97	371.13
11	361.68	356.28	353.04	356.85	362.93	367.76	371.85	373.34	373.39	372.85	371.95	371.11
12	361.66	355.89	353.11	355.64	363.28	368.59	371.91	373.35	373.39	372.81	371.90	371.09
13	361.63	355.54	354.43	353.91	363.52	369.34	372.06	373.35	373.36	372.80	371.88	371.07
14	361.60	355.10	356.42	353.44	363.72	369.78	372.22	373.35	373.33	372.76	371.86	371.04
15	361.57	354.73	357.56	353.26	363.86	369.96	372.38	373.35	373.32	372.73	371.83	371.01
16	361.54	354.40	357.95	353.16	363.99	370.10	372.50	373.36	373.30	372.71	371.79	371.01
17	361.50	353.92	358.38	353.13	364.08	370.19	372.61	373.39	373.31	372.69	371.76	371.04
18	361.47	353.48	358.52	353.29	364.16	370.26	372.72	373.39	373.29	372.65	371.73	371.04
19	361.43	353.50	358.50	353.32	364.21	370.34	372.80	373.46	373.27	372.62	371.69	371.01
20	361.40	353.50	358.07	353.61	364.27	370.38	372.86	373.50	373.25	372.59	371.69	370.98
21	361.38	353.70	357.16	356.19	364.31	370.37	372.92	373.47	373.23	372.58	371.65	370.96
22	361.45	353.97	355.79	358.23	364.50	370.38	372.96	373.46	373.20	372.54	371.63	370.94
23	361.31	354.18	353.98	358.74	364.72	370.43	373.00	373.45	373.18	372.52	371.61	370.92
24	361.14	353.62	353.54	358.54	364.88	370.50	373.05	373.46	373.16	372.49	371.59	370.90
25	360.94	353.25	353.49	359.92	365.03	370.60	373.08	373.47	373.14	372.46	371.55	370.88
26	360.73	353.22	353.43	362.09	365.15	370.71	373.12	373.47	373.11	372.43	371.52	370.85
27	360.54	353.16	353.44	362.94	365.27	370.82	373.15	373.48	373.09	372.40	371.50	370.80
28	360.33	354.33	353.53	362.99	365.36	370.90	373.19	373.51	373.09	372.38	371.48	370.80
29	360.15	355.86	353.57	362.64	---	370.98	373.23	373.48	373.08	372.35	371.45	370.80
30	360.08	355.45	353.70	362.01	---	371.06	373.24	373.47	373.06	372.32	371.42	370.83
31	359.95	---	353.80	361.30	---	371.12	---	373.47	---	372.27	371.40	---
MAX	362.00	359.79	358.52	362.99	365.36	371.12	373.24	373.51	373.46	373.04	372.24	371.36
MIN	359.95	353.16	352.88	353.13	358.20	365.46	371.18	373.26	373.06	372.27	371.40	370.80
(†)	15680	5950	3800	19940	37100	74350	91180	93100	89690	83300	76510	72140
(‡)	-6840	-9730	-2150	+16140	+17160	+37250	+16830	+1920	-3410	-6390	-6790	-4370

CAL YR 2001 MAX 365.80 MIN 352.88 AC-FT† -220  
WTR YR 2002 MAX 373.51 MIN 352.88 AC-FT‡ +49620

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

## WILLAMETTE RIVER BASIN

14169000 LONG TOM RIVER NEAR ALVADORE, OR

LOCATION.--Lat 44°07'25", long 123°17'55", in SW 1/4 NE 1/4 sec.4, T.17 S., R.5 W., Lane County, Hydrologic Unit 17090003, on left bank 0.2 mi downstream from Fern Ridge Dam, 1.7 mi west of Alvadore, and at mile 25.5.

DRAINAGE AREA.--252 mi<sup>2</sup>, not including Amazon Creek basin.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1939 to current year. Prior to October 1943, published as "at Smithfield," and October 1943 to September 1959, as "below Fern Ridge Dam, near Smithfield." Prior to October 1985, published figures included diversion from Fern Ridge Reservoir into Coyote Creek channel (station 14169001).

REVISED RECORDS.--WSP 1248: 1940-41, 1948.

GAGE.--Water-stage recorder and masonry control. Datum of gage is 332.00 ft above NGVD of 1929 (levels by Corps of Engineers). Prior to Sept. 21, 1939, nonrecording gage and Sept. 21, 1939, to Sept. 30, 1943, water-stage recorder at site 2.5 mi downstream at datum 11.09 ft lower.

REMARKS.--No estimated daily discharges. Records good except for the period June 28 to Sept. 30, which are fair. Flow regulated since 1941 by Fern Ridge Lake (station 14168000). Several small diversions for irrigation upstream from station. Approximately 7 ft<sup>3</sup>/s diverted from Fern Ridge Reservoir into Coyote Creek channel. Discharge not adjusted for storage or release from Fern Ridge Lake as evaporation from reservoir at times exceeds natural flow and diversions, and beginning in November 1951, most of flow of Amazon Creek has been diverted into Fern Ridge Lake.

AVERAGE DISCHARGE.--59 years (water years 1944-2002), 519 ft<sup>3</sup>/s, 376,000 acre-ft/yr, adjusted for Coyote Creek diversion.  
17 years (water years 1986-2002), 477 ft<sup>3</sup>/s, 345,700 acre-ft/yr, not adjusted for diversions into or out of Fern Ridge Lake.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 11,500 ft<sup>3</sup>/s Jan. 1, 1943, gage height, 15.12 ft, site and datum then in use; minimum daily discharge, 2 ft<sup>3</sup>/s Aug. 7, 1941.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 2,850 ft<sup>3</sup>/s Dec. 19, gage height, 6.97 ft; minimum discharge, 29 ft<sup>3</sup>/s June 30.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	53	371	2630	538	2460	61	51	48	49	38	54	50
2	53	374	2610	538	2500	61	51	48	48	38	55	50
3	53	489	2580	538	2430	61	51	48	48	38	55	50
4	53	517	2600	591	1590	61	52	48	48	38	55	50
5	53	517	2450	652	1210	61	53	48	48	38	55	50
6	53	517	2210	892	1090	61	53	64	48	38	55	50
7	53	514	1840	1280	929	59	53	106	48	38	55	48
8	53	495	1280	1470	895	58	53	104	48	38	55	48
9	53	492	1000	1890	660	58	53	104	48	38	54	48
10	54	479	796	2250	484	58	53	93	48	41	54	48
11	54	479	685	2180	484	58	53	58	48	55	54	48
12	54	471	683	2070	442	58	50	58	55	55	54	48
13	54	468	746	1920	409	275	50	58	65	54	53	48
14	55	458	1850	982	409	692	50	58	65	55	53	48
15	56	446	2040	753	409	981	50	58	65	54	53	48
16	56	445	2100	647	409	983	50	58	72	54	53	48
17	56	436	2330	586	409	977	49	58	81	54	53	48
18	56	348	2770	474	409	891	48	60	89	54	54	48
19	56	170	2750	504	409	651	48	60	89	54	54	47
20	56	145	2830	544	385	688	48	197	89	54	54	48
21	56	219	2730	970	377	740	48	285	88	54	53	48
22	58	760	2570	1520	181	689	48	185	89	54	51	48
23	374	1060	2190	2290	58	547	48	91	88	54	51	48
24	388	1080	952	2550	58	370	48	54	88	54	51	48
25	379	872	658	1890	57	186	48	54	87	54	51	48
26	377	687	591	1240	54	54	48	54	86	54	51	48
27	377	548	542	2430	53	54	48	54	86	54	51	48
28	377	684	539	2650	60	54	48	74	86	53	50	48
29	371	1380	538	2620	---	52	48	163	86	53	50	48
30	371	2500	538	2560	---	51	48	91	64	53	50	48
31	371	---	538	2460	---	51	---	60	---	54	50	---
TOTAL	4583	18421	51166	44479	19320	9701	1499	2599	2047	1517	1641	1451
MEAN	147.8	614.0	1651	1435	690.0	312.9	49.97	83.84	68.23	48.94	52.94	48.37
MAX	388	2500	2830	2650	2500	983	53	285	89	55	55	50
MIN	53	145	538	474	53	51	48	48	48	38	50	47
AC-FT	9090	36540	101500	88220	38320	19240	2970	5160	4060	3010	3250	2880

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2002, BY WATER YEAR (WY)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	754.3	733.5	970.2	1367	874.9	391.0	161.0	189.5	92.97	59.05	56.07	85.27					
MAX	1007	1475	2851	2973	3148	1136	895	497	469	150	73.6	293					
(WY)	1998	1997	1997	1997	1996	1999	1993	1996	1993	1993	1993	1999					
MIN	148	218	103	101	53.5	21.3	24.5	20.8	34.7	39.1	40.5	38.3					
(WY)	2002	1994	1990	2001	2001	1988	1988	1987	1990	1986	1986	1990					

## SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1986 - 2002

ANNUAL TOTAL	89725	158424															
ANNUAL MEAN	245.8	434.0								477.2							
HIGHEST ANNUAL MEAN										907						1999	
LOWEST ANNUAL MEAN										183						2001	
HIGHEST DAILY MEAN	2830	Dec 20				2830	Dec 20			5570	Jan 5	1997					
LOWEST DAILY MEAN	26	May 8				38	Jul 1			16	Mar 3	1988					
ANNUAL SEVEN-DAY MINIMUM	29	May 17				38	Jul 1			17	Apr 30	1990					
ANNUAL RUNOFF (AC-FT)	178000					314200				345700							
10 PERCENT EXCEEDS	540					1490				1250							
50 PERCENT EXCEEDS	54					58				70							
90 PERCENT EXCEEDS	40					48				39							

14169000 LONG TOM RIVER NEAR ALVADORE, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 2001 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 25.2°C Aug. 15, 2002; minimum, 4.2°C Dec. 27, 28, 2001.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 25.2°C Aug. 15; minimum, 4.2°C Dec. 27, 28.

WATER TEMPERATURE, in (DEGREES C), AUGUST TO SEPTEMBER 2001												
DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	---	---	---	22.5	21.0	21.7
2	---	---	---	---	---	---	---	---	---	22.6	21.0	21.7
3	---	---	---	---	---	---	---	---	---	22.7	21.1	21.8
4	---	---	---	---	---	---	---	---	---	21.5	20.4	20.9
5	---	---	---	---	---	---	---	---	---	21.0	20.0	20.5
6	---	---	---	---	---	---	---	---	---	20.5	19.7	20.0
7	---	---	---	---	---	---	---	---	---	20.3	19.5	19.9
8	---	---	---	---	---	---	22.5	21.2	21.8	20.0	19.0	19.5
9	---	---	---	---	---	---	23.0	21.5	22.2	19.5	18.9	19.1
10	---	---	---	---	---	---	23.8	22.1	23.0	19.6	18.8	19.1
11	---	---	---	---	---	---	23.6	22.1	22.9	19.5	18.6	19.0
12	---	---	---	---	---	---	23.2	21.8	22.6	19.8	18.9	19.3
13	---	---	---	---	---	---	23.6	22.5	23.0	20.6	19.4	20.0
14	---	---	---	---	---	---	23.1	21.7	22.6	20.5	19.7	20.1
15	---	---	---	---	---	---	23.0	21.6	22.2	20.4	19.8	20.1
16	---	---	---	---	---	---	22.1	21.2	21.9	21.1	19.8	20.3
17	---	---	---	---	---	---	22.5	21.2	21.5	20.5	19.8	20.1
18	---	---	---	---	---	---	21.8	20.9	21.3	20.1	19.5	19.8
19	---	---	---	---	---	---	21.7	20.7	21.2	20.0	19.4	19.6
20	---	---	---	---	---	---	21.8	20.6	21.1	19.7	18.8	19.3
21	---	---	---	---	---	---	21.5	20.6	21.1	19.8	18.4	19.0
22	---	---	---	---	---	---	20.9	20.5	20.7	19.1	18.1	18.5
23	---	---	---	---	---	---	20.7	20.0	20.3	19.6	18.0	18.8
24	---	---	---	---	---	---	20.8	19.6	20.1	20.1	18.9	19.6
25	---	---	---	---	---	---	20.2	19.2	19.7	19.4	18.2	18.9
26	---	---	---	---	---	---	21.3	19.4	20.3	18.2	17.8	18.0
27	---	---	---	---	---	---	21.4	20.2	20.7	18.1	17.6	17.8
28	---	---	---	---	---	---	21.2	19.8	20.4	18.0	16.6	17.4
29	---	---	---	---	---	---	20.9	19.7	20.2	17.3	16.4	16.7
30	---	---	---	---	---	---	21.3	19.8	20.5	17.0	16.2	16.6
31	---	---	---	---	---	---	22.5	21.0	21.8	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	22.7	16.2	19.4

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.6	16.4	16.9	11.4	11.3	11.3	---	---	---	6.6	6.1	6.4
2	17.7	16.9	17.2	11.6	11.2	11.4	---	---	---	7.0	6.3	6.6
3	17.6	16.8	17.1	11.7	11.2	11.4	---	---	---	7.2	6.3	6.7
4	17.9	16.9	17.2	13.1	11.3	12.1	---	---	---	6.9	6.5	6.7
5	18.6	17.0	17.8	13.1	12.0	12.6	7.2	6.6	6.8	6.8	6.3	6.5
6	18.1	16.6	17.4	12.3	11.6	12.0	8.5	6.8	7.8	9.2	6.8	7.4
7	16.9	16.3	16.6	12.0	11.2	11.6	8.6	8.2	8.4	9.9	9.0	9.4
8	16.6	15.6	16.2	11.5	10.8	11.1	8.2	7.1	7.7	10.3	9.8	10.1
9	16.2	15.1	15.6	11.2	10.3	10.6	7.6	6.6	7.1	10.0	9.5	9.8
10	15.1	14.8	14.9	10.8	10.1	10.5	6.7	5.9	6.4	9.5	8.9	9.2
11	15.1	14.0	14.6	10.6	10.1	10.3	6.7	6.2	6.4	8.9	8.5	8.7
12	15.0	13.9	14.4	---	---	---	7.3	6.4	6.7	8.5	8.2	8.3
13	15.1	14.6	14.9	---	---	---	9.2	7.3	8.0	8.2	6.8	7.8
14	15.5	14.6	15.0	---	---	---	8.0	7.1	7.6	7.1	6.5	6.8
15	15.4	14.7	15.1	---	---	---	7.2	6.6	7.0	6.7	5.8	6.2
16	15.6	14.7	15.1	---	---	---	8.6	6.8	7.7	5.9	4.6	5.1
17	14.7	14.2	14.5	---	---	---	8.6	7.5	8.0	5.2	4.4	4.9
18	14.2	13.5	13.8	---	---	---	7.8	7.3	7.5	5.8	5.1	5.5
19	14.1	13.3	13.6	---	---	---	7.6	7.1	7.3	5.8	5.2	5.5
20	13.6	13.1	13.3	---	---	---	7.3	7.1	7.2	6.0	5.3	5.7
21	13.2	12.8	13.0	---	---	---	7.6	7.2	7.3	5.9	4.8	5.4
22	13.1	12.6	13.0	---	---	---	7.6	7.2	7.4	5.0	4.4	4.7
23	12.7	12.1	12.4	---	---	---	7.3	6.8	7.1	4.9	4.4	4.7
24	12.5	11.9	12.2	---	---	---	6.8	6.3	6.5	5.4	4.9	5.2
25	12.8	12.2	12.5	---	---	---	6.4	5.6	5.9	6.5	5.4	6.1
26	13.0	12.1	12.4	---	---	---	5.7	4.6	5.1	6.6	5.6	6.1
27	12.7	12.3	12.6	---	---	---	4.6	4.2	4.4	5.6	5.0	5.3
28	12.3	11.7	11.9	---	---	---	4.8	4.2	4.5	5.1	4.9	5.0
29	11.7	11.4	11.5	---	---	---	5.4	4.8	5.1	5.5	4.9	5.2
30	11.5	11.3	11.4	---	---	---	5.9	5.3	5.6	5.3	5.1	5.2
31	11.4	11.2	11.4	---	---	---	6.2	5.8	6.0	5.2	5.0	5.1
MONTH	18.6	11.2	14.4	---	---	---	---	---	---	10.3	4.4	6.5

## WILLAMETTE RIVER BASIN

14169000 LONG TOM RIVER AT ALVADORE, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.6	5.2	5.3	9.1	8.1	8.5	11.9	10.4	11.2	14.7	13.9	14.2
2	6.0	5.4	5.7	8.8	7.8	8.3	12.2	10.6	11.4	14.6	13.7	14.2
3	6.9	6.0	6.4	8.8	8.0	8.4	12.4	11.3	12.0	14.9	13.9	14.4
4	6.7	6.3	6.5	9.4	8.0	8.7	12.8	11.8	12.3	14.7	13.6	14.0
5	6.6	6.3	6.4	9.4	8.5	8.9	12.8	12.4	12.7	14.7	13.6	14.2
6	6.5	6.2	6.3	9.1	8.6	8.9	13.2	12.8	13.0	14.7	13.8	14.2
7	6.4	6.1	6.2	8.9	8.2	8.5	13.6	12.6	13.0	14.4	13.8	14.0
8	6.4	5.9	6.1	8.6	7.8	8.1	13.5	12.4	12.8	14.3	13.5	13.8
9	6.4	6.2	6.3	8.2	7.7	8.0	13.6	12.6	13.0	14.2	13.4	13.8
10	7.1	6.1	6.5	8.3	7.9	8.1	14.3	13.3	13.7	14.5	13.7	14.0
11	7.1	6.5	7.0	8.7	8.1	8.5	14.3	13.3	14.0	14.6	13.4	13.9
12	6.6	6.1	6.4	9.1	8.3	8.6	14.7	13.8	14.1	15.2	13.5	14.3
13	6.6	6.3	6.4	8.5	8.2	8.4	14.7	13.9	14.4	15.6	14.6	15.2
14	6.7	6.3	6.5	8.7	8.1	8.3	15.2	14.3	14.7	16.1	15.0	15.5
15	7.3	6.3	6.5	8.3	8.1	8.2	14.7	13.7	14.1	15.6	14.5	15.0
16	7.0	6.3	6.6	8.1	7.7	7.9	13.7	12.9	13.3	15.8	14.5	15.1
17	7.5	6.6	7.0	7.8	7.5	7.7	13.6	12.6	13.0	16.7	15.0	15.8
18	9.0	7.0	8.2	7.8	7.4	7.6	13.5	12.6	12.9	16.3	15.4	15.8
19	9.0	8.4	8.7	8.0	7.4	7.7	13.3	12.5	12.8	16.7	15.7	16.0
20	8.7	8.2	8.4	8.3	7.8	7.9	13.6	12.6	12.9	16.3	15.6	15.9
21	10.6	8.6	9.5	8.6	7.9	8.2	13.7	12.6	13.0	16.8	16.0	16.4
22	10.3	9.1	9.8	8.9	8.4	8.6	13.8	12.8	13.1	16.7	15.8	16.3
23	10.8	9.3	10.1	9.0	8.3	8.6	13.8	12.7	13.1	16.4	15.6	15.9
24	10.7	9.7	10.3	9.6	8.9	9.2	14.2	12.6	13.4	16.7	15.6	16.0
25	9.8	9.0	9.4	9.8	9.0	9.5	14.3	13.2	13.7	16.9	15.7	16.2
26	9.4	8.7	9.0	10.3	9.0	9.5	14.1	13.2	13.5	17.3	16.0	16.6
27	9.2	8.5	8.8	10.8	9.7	10.1	14.5	13.4	13.8	17.8	16.0	16.8
28	9.1	8.4	8.7	10.8	9.7	10.3	14.8	13.3	14.0	16.6	16.3	16.4
29	---	---	---	10.8	9.8	10.2	14.6	13.5	13.9	17.3	16.4	16.8
30	---	---	---	10.8	9.9	10.2	14.3	13.6	14.0	17.4	16.0	16.6
31	---	---	---	10.8	9.6	10.2	---	---	---	16.8	15.9	16.2
MONTH	10.8	5.2	7.5	10.8	7.4	8.7	15.2	10.4	13.2	17.8	13.4	15.3
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.9	15.9	16.9	21.6	19.8	20.5	24.5	22.4	23.1	22.4	21.4	21.8
2	19.2	16.3	17.5	21.6	19.9	20.7	23.1	21.8	22.4	22.3	21.5	21.8
3	17.6	16.1	16.8	21.8	19.9	20.6	23.8	21.9	22.5	22.4	21.4	22.0
4	19.4	16.9	17.9	21.6	19.8	20.5	22.8	21.6	22.1	22.4	21.3	21.7
5	19.3	16.9	17.8	21.4	19.8	20.5	22.5	21.2	21.7	22.4	21.2	21.6
6	17.6	16.9	17.2	22.0	19.9	20.8	22.6	21.0	21.6	22.2	21.0	21.4
7	18.2	16.6	17.3	22.7	20.4	21.7	21.8	20.7	21.2	21.7	20.5	21.0
8	19.0	17.0	18.0	22.8	20.7	21.7	21.9	20.7	21.2	21.1	20.2	20.6
9	19.6	18.0	18.7	22.0	20.4	21.2	22.2	21.0	21.6	21.0	20.0	20.4
10	19.6	18.3	18.8	22.9	20.9	21.8	22.6	21.2	21.8	20.9	19.9	20.3
11	19.4	18.2	18.7	23.2	21.6	22.2	22.7	21.5	22.1	20.8	19.8	20.2
12	19.5	18.1	18.7	22.6	21.3	21.9	23.1	21.8	22.4	21.1	19.9	20.4
13	20.4	18.1	19.4	24.8	21.3	23.3	23.2	21.8	22.4	21.1	20.2	20.6
14	21.2	19.5	20.5	23.9	22.8	23.3	23.8	22.3	22.9	21.4	20.2	20.8
15	20.7	19.5	20.2	23.4	22.1	22.7	25.2	22.3	23.5	20.9	20.2	20.7
16	20.7	19.5	20.0	24.1	22.0	22.7	24.4	22.5	23.2	20.6	20.0	20.3
17	20.1	19.5	19.8	24.3	22.2	23.4	24.3	22.2	23.0	20.2	19.7	20.0
18	19.8	19.2	19.4	23.8	22.5	23.2	23.4	22.3	22.8	20.1	19.5	19.7
19	20.0	18.9	19.5	23.4	22.5	23.1	23.8	22.0	22.7	20.1	19.3	19.6
20	21.7	19.3	19.9	23.2	22.1	22.7	23.3	22.0	22.5	19.7	18.9	19.2
21	21.0	19.4	20.4	23.5	22.4	22.9	22.8	21.8	22.2	19.5	18.8	19.1
22	21.3	19.7	20.5	24.5	22.4	23.2	22.6	21.8	22.1	19.3	18.5	18.8
23	20.6	19.6	20.0	24.0	22.7	23.5	23.0	21.6	22.1	19.1	18.2	18.6
24	20.9	19.4	19.7	25.0	22.8	24.1	22.8	21.6	22.2	18.9	18.1	18.4
25	20.5	19.3	20.0	24.1	22.9	23.5	22.8	21.9	22.4	18.8	17.9	18.3
26	22.0	19.5	20.6	24.1	22.6	23.2	22.5	21.6	22.0	18.8	17.9	18.3
27	23.1	20.5	22.0	23.4	22.4	22.8	22.2	21.4	21.7	18.9	18.2	18.5
28	22.4	21.4	21.8	23.4	22.2	22.8	22.4	21.4	21.8	19.1	18.0	18.5
29	21.7	20.7	21.4	24.0	22.6	23.2	22.6	21.6	22.0	19.0	18.0	18.6
30	21.9	20.1	21.0	24.4	22.6	23.4	22.5	21.6	22.1	18.7	17.6	18.2
31	---	---	---	23.5	22.4	22.9	22.3	21.4	21.7	---	---	---
MONTH	23.1	15.9	19.3	25.0	19.8	22.4	25.2	20.7	22.2	22.4	17.6	20.0

14170000 LONG TOM RIVER AT MONROE, OR

LOCATION.--Lat 44°18'47", long 123°17'43", in NE 1/4 sec.33, T.14 S., R.5 W., Benton County, Hydrologic Unit 17090003, on left bank at Monroe, 110 ft upstream from bridge on State Highway 99W, 0.1 mi downstream from Shafer Creek, and at mile 6.8.

DRAINAGE AREA.--391 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1920 to July 1921, October 1921 to April 1926, November 1926 to May 1927, October 1927 to current year. Prior to October 1930, published as "near Monroe."

REVISED RECORDS.--WSP 654: Drainage area. WSP 1248: 1923, 1927, 1928(M). WSP 1288: 1952.

GAGE.--Water-stage recorder and concrete control. Datum of gage is 270.57 ft above NGVD of 1929. Prior to Nov. 24, 1944, nonrecording gage at various sites ranging from present site to 1.5 mi downstream at different datums.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated since 1941 by Fern Ridge Lake (station 14168000). Several small diversions upstream from station. Periodic suspended sediment data are available for the period October 1991 to September 1994.

AVERAGE DISCHARGE.--18 years (water years 1922-25, 1928-1941), 689 ft<sup>3</sup>/s, 499,200 acre-ft/yr.  
61 years (water years 1942-2002), 773 ft<sup>3</sup>/s, 559,800 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,300 ft<sup>3</sup>/s Jan. 2, 1943, gage height, 17.14 ft, site and datum then in use, from graph based on gage readings, includes some overflow from Willamette River near Junction City; no flow Oct. 20-22, 1944 (water filling pool at gage); minimum discharge observed prior to regulation, 7 ft<sup>3</sup>/s Sept. 29, Oct. 1, 1939.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,520 ft<sup>3</sup>/s Jan. 25, gage height, 8.42 ft; minimum discharge, 23 ft<sup>3</sup>/s Sept. 26, 27.

DISCHARGE, in CFSF, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48	354	3370	1570	3440	178	197	126	86	62	34	37
2	40	348	4010	1700	3250	168	192	120	86	48	35	37
3	42	464	3300	1510	3070	162	187	118	74	41	37	34
4	46	454	3210	1250	2500	157	182	116	71	37	42	31
5	42	449	3800	992	1890	159	180	116	68	35	41	31
6	42	441	3230	1870	1680	564	183	116	68	36	41	30
7	49	430	2890	2820	2090	775	180	151	69	36	40	30
8	53	423	2140	3250	2890	403	176	160	70	33	38	33
9	52	414	1670	2860	1850	315	186	160	73	32	38	32
10	53	406	1270	2950	1120	377	242	160	71	28	38	32
11	55	403	1070	2780	957	739	215	134	66	27	41	30
12	55	399	1010	2650	859	1560	188	116	61	34	41	31
13	88	397	1430	2470	746	1440	179	113	65	37	35	28
14	55	408	3740	1740	703	1580	335	107	70	42	32	28
15	45	408	3250	1140	669	1780	275	101	66	42	28	32
16	45	404	3240	932	653	1720	221	93	71	37	28	33
17	45	403	3780	867	641	1710	205	96	76	35	31	40
18	46	360	3680	685	620	1520	198	106	88	35	33	47
19	45	215	3750	710	608	1200	188	107	88	37	34	49
20	46	153	3560	1510	573	1110	176	178	83	38	34	56
21	45	204	3280	3630	532	1140	175	378	79	41	34	57
22	51	850	3070	3300	431	1040	170	281	79	39	33	41
23	212	1490	2830	3300	349	903	160	173	88	35	33	34
24	346	1400	1710	3340	274	658	152	114	79	35	32	32
25	325	1200	1010	4550	222	523	147	104	78	34	32	29
26	316	908	871	3680	201	276	127	103	69	34	33	26
27	314	726	788	3670	189	250	116	97	70	36	32	26
28	314	1010	819	3670	179	238	139	101	72	40	30	29
29	319	2490	790	3390	---	229	133	176	86	38	30	33
30	324	2800	775	3200	---	216	124	158	90	34	30	34
31	348	---	1330	3100	---	207	---	106	---	33	32	---
TOTAL	3906	20811	74673	75086	33186	23297	5528	4285	2260	1151	1072	1042
MEAN	126.0	693.7	2409	2422	1185	751.5	184.3	138.2	75.33	37.13	34.58	34.73
MAX	348	2800	4010	4550	3440	1780	335	378	90	62	42	57
MIN	40	153	775	685	179	157	116	93	61	27	28	26
AC-FT	7750	41280	148100	148900	65820	46210	10960	8500	4480	2280	2130	2070

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2002, BY WATER YEAR (WY)

	757.1	952.5	1779	2165	1632	904.9	457.0	252.2	96.89	44.07	71.57	192.0
MEAN	757.1	952.5	1779	2165	1632	904.9	457.0	252.2	96.89	44.07	71.57	192.0
MAX	1895	3437	5355	6222	4683	2761	2277	1193	697	148	524	960
(WY)	1948	1951	1956	1956	1996	1957	1963	1993	1993	1993	1951	1955
MIN	27.1	91.5	55.5	43.5	44.1	136	54.5	50.3	28.6	23.0	20.0	12.4
(WY)	1942	1953	1977	1977	1977	1978	1977	1987	1987	1965	1944	1943

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1942 - 2002

ANNUAL TOTAL	125861	246297	
ANNUAL MEAN	344.8	674.8	
HIGHEST ANNUAL MEAN			772.7
LOWEST ANNUAL MEAN			1517
HIGHEST DAILY MEAN	4010	Dec 2	4550
LOWEST DAILY MEAN	18	Jul 13	26
ANNUAL SEVEN-DAY MINIMUM	23	Jul 8	30
ANNUAL RUNOFF (AC-FT)	249600		488500
10 PERCENT EXCEEDS	802		2810
50 PERCENT EXCEEDS	122		168
90 PERCENT EXCEEDS	37		33

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--August 2001 to current year.

INSTRUMENTATION.--Temperature probe and data logger.

REMARKS.--Records fair. Recorded temperatures during low flow periods may not necessarily represent the average temperature of the cross-section.

EXTREMES FOR PERIOD OF DAILY RECORD.--Maximum, 25.4°C July 12, 2002; minimum, 4.8°C Dec. 28, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum, 25.4°C July 12; minimum, 4.8°C Dec. 28.

DAY	WATER TEMPERATURE, in (DEGREES C), AUGUST TO SEPTEMBER 2001											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	22.3	21.6	21.9
2	---	---	---	---	---	---	---	---	---	22.0	21.5	21.8
3	---	---	---	---	---	---	---	---	---	21.9	20.8	21.3
4	---	---	---	---	---	---	---	---	---	21.2	20.4	20.8
5	---	---	---	---	---	---	---	---	---	20.9	19.8	20.2
6	---	---	---	---	---	---	---	---	---	19.8	18.6	19.0
7	---	---	---	---	---	---	---	---	---	19.6	18.4	19.0
8	---	---	---	---	---	---	23.0	22.5	22.7	19.8	18.4	19.0
9	---	---	---	---	---	---	23.2	22.4	22.8	19.3	18.7	19.0
10	---	---	---	---	---	---	23.9	23.0	23.4	19.6	18.9	19.2
11	---	---	---	---	---	---	23.8	23.5	23.6	20.1	19.1	19.5
12	---	---	---	---	---	---	23.8	23.5	23.7	20.4	19.5	19.9
13	---	---	---	---	---	---	24.0	23.5	23.8	20.7	20.0	20.4
14	---	---	---	---	---	---	23.7	23.4	23.5	21.1	20.4	20.6
15	---	---	---	---	---	---	23.4	23.0	23.2	21.1	20.5	20.8
16	---	---	---	---	---	---	23.1	22.6	22.8	21.4	20.8	21.1
17	---	---	---	---	---	---	22.6	21.5	21.9	21.2	19.6	20.5
18	---	---	---	---	---	---	22.3	21.6	21.9	19.9	18.8	19.5
19	---	---	---	---	---	---	22.5	21.1	21.6	19.6	18.6	19.1
20	---	---	---	---	---	---	21.7	20.4	21.0	19.3	18.1	18.5
21	---	---	---	---	---	---	21.1	20.5	20.8	18.3	17.8	18.1
22	---	---	---	---	---	---	20.5	19.6	20.1	18.5	18.1	18.2
23	---	---	---	---	---	---	20.0	19.4	19.5	18.7	18.2	18.4
24	---	---	---	---	---	---	20.0	18.8	19.3	19.2	18.5	18.7
25	---	---	---	---	---	---	20.0	18.9	19.5	18.8	18.1	18.6
26	---	---	---	---	---	---	20.8	19.4	20.2	18.1	17.4	17.6
27	---	---	---	---	---	---	21.3	20.1	20.7	17.4	16.7	16.9
28	---	---	---	---	---	---	21.4	20.5	20.9	16.8	16.2	16.5
29	---	---	---	---	---	---	21.9	21.0	21.4	16.6	15.8	16.3
30	---	---	---	---	---	---	22.2	21.2	21.6	16.9	16.2	16.6
31	---	---	---	---	---	---	22.3	21.3	21.7	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	22.3	15.8	19.2

DAY	WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	17.2	16.6	16.9	11.6	11.4	11.5	8.0	7.7	7.9	6.7	6.3	6.5
2	17.8	16.6	17.2	12.2	11.5	11.9	7.9	7.5	7.7	6.9	6.6	6.7
3	17.6	17.0	17.3	12.2	11.5	11.9	7.8	7.5	7.6	6.8	6.4	6.6
4	17.3	16.4	16.9	12.1	11.8	12.0	7.6	7.0	7.2	6.8	6.5	6.7
5	16.9	16.3	16.7	12.9	11.9	12.3	7.0	6.7	6.8	7.0	6.6	6.7
6	16.8	16.1	16.4	12.2	11.3	11.8	8.3	7.0	7.6	9.0	7.0	7.9
7	16.2	15.1	15.5	11.3	10.6	10.9	8.5	8.2	8.3	10.1	9.0	9.7
8	15.3	14.8	15.1	10.6	9.9	10.3	8.4	7.7	8.0	10.2	9.8	10.0
9	14.9	14.1	14.4	10.4	9.6	10.0	7.7	7.0	7.2	10.1	9.6	9.7
10	14.3	13.1	13.7	10.4	9.9	10.1	7.3	6.5	6.8	9.6	9.1	9.2
11	13.6	13.1	13.2	10.6	10.1	10.3	6.9	6.5	6.7	9.1	8.5	8.7
12	13.8	13.4	13.6	10.6	10.3	10.4	7.0	6.6	6.7	8.6	8.1	8.4
13	15.4	13.6	14.1	10.8	10.2	10.4	8.7	7.0	7.7	8.1	7.6	7.8
14	14.9	14.2	14.4	11.9	10.8	11.4	8.8	7.3	8.0	7.6	6.7	6.9
15	14.4	13.9	14.1	12.2	11.7	12.0	7.3	6.8	7.1	6.7	6.0	6.3
16	14.6	13.9	14.3	12.1	11.4	11.8	8.6	7.3	7.8	6.0	5.3	5.7
17	13.9	13.1	13.5	11.4	10.5	10.8	8.6	8.0	8.2	5.5	5.0	5.3
18	13.1	12.2	12.5	10.5	10.0	10.3	8.1	7.5	7.7	6.2	5.5	5.8
19	12.6	11.9	12.2	10.2	9.9	10.0	7.6	7.3	7.4	6.4	6.1	6.2
20	13.0	12.0	12.7	10.1	9.8	10	7.5	7.2	7.3	6.4	5.7	6.0
21	12.6	11.4	12.0	9.9	9.2	9.5	7.6	7.3	7.4	6.4	5.4	5.8
22	12.0	11.4	11.7	9.4	9.1	9.3	7.4	7.2	7.3	5.4	4.9	5.1
23	12.6	11.5	12.0	9.1	8.8	8.9	7.4	7.0	7.1	5.4	5.0	5.1
24	12.3	11.4	11.8	8.8	8.5	8.6	7.0	6.3	6.6	5.8	5.3	5.6
25	12.9	12.0	12.4	8.5	8.1	8.3	6.3	5.8	6.1	7.0	5.8	6.5
26	12.7	12.3	12.6	8.1	7.5	7.8	5.8	5.4	5.6	7.0	5.8	6.4
27	12.5	11.7	12.2	7.7	7.3	7.5	5.4	4.9	5.1	5.8	5.3	5.4
28	11.7	11.4	11.5	7.8	7.1	7.4	5.4	4.8	5.1	5.4	5.1	5.2
29	11.4	11.1	11.3	8.2	7.7	8.0	5.7	5.4	5.5	5.7	5.2	5.4
30	11.5	11.1	11.3	8.0	7.6	7.8	6.0	5.3	5.7	5.7	5.4	5.5
31	11.8	11.3	11.5	---	---	---	6.4	6.0	6.2	5.5	5.3	5.4
MONTH	17.8	11.1	13.7	12.9	7.1	10.1	8.8	4.8	7.0	10.2	4.9	6.7





14171000 MARYS RIVER NEAR PHILOMATH, OR

LOCATION.--Lat 44°31'35", long 123°20'00", in NE 1/4 SE 1/4 sec.18, T.12 S., R.5 W., Benton County, Hydrologic Unit 17090003, on right bank 15 ft downstream from bridge on Bellfountain Road, 0.6 mi downstream from Newton Creek, 2.0 mi southeast of Philomath, and at mile 9.4.

DRAINAGE AREA.--159 mi<sup>2</sup>, including drainage area of Evergreen Creek above Bellfountain Road, 1.4 mi south of station.

PERIOD OF RECORD.--October 1940 to September 1985, October 2000 to current year.

REVISED RECORDS.--WSP 1218: Drainage area. WSP 1935: 1956(M).

GAGE.--Water-stage recorder. Datum of gage is 224.01 ft above NGVD of 1929 (levels by Corps of Engineers). Prior to Oct. 1 1961, nonrecording gage at bridge 50 ft upstream at same datum. October 1, 1961 to Sept. 30, 1985, gage on left bank, 35 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records fair. Records include flow of Evergreen Creek at Bellfountain Road crossing 1.4 mi south of station, with which overflow from Marys River may at times be mingled. Slight regulation by small storage reservoir on Rock Creek from which municipal supply is diverted for city of Corvallis. Other small diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--47 years (water years 1941-85, 2001-02), 455 ft<sup>3</sup>/s, 38.86 in/yr, 329,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 13,600 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 20.72 ft; maximum gage height, 20.91 ft Jan. 15, 1974; minimum discharge, 0.60 ft<sup>3</sup>/s Aug. 23, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 1	1830	4,390	19.39	Jan. 8	0400	3,310	17.72
Dec. 17	0400	3,370	17.87	Jan. 25	1600	*4,550	*19.52

Minimum discharge, 4.8 ft<sup>3</sup>/s Aug. 30.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	15	106	3560	615	1330	285	344	175	85	59	18	8.3
2	14	93	3020	709	1150	270	326	168	80	51	18	8.1
3	13	72	1820	636	1030	256	310	164	77	46	17	6.5
4	12	55	1500	571	946	250	295	158	74	43	17	6.5
5	12	44	2160	540	852	254	286	154	73	43	19	6.4
6	12	37	2170	1260	797	741	281	165	71	40	23	6.9
7	13	34	2150	2490	1290	710	268	164	70	39	21	7.9
8	14	30	1620	2940	2290	557	256	150	70	38	19	9.6
9	14	27	1220	2040	1880	506	262	142	71	36	17	8.8
10	15	26	971	1410	1420	634	294	136	68	34	15	7.8
11	19	25	891	1070	1110	1140	286	130	65	33	15	7.6
12	24	26	848	922	914	2010	266	126	62	30	12	8.2
13	30	39	1390	825	774	1910	258	122	59	30	12	7.3
14	24	197	3110	714	669	1620	447	120	57	29	10	7.7
15	23	207	2470	629	591	1280	479	116	55	26	9.6	8.4
16	22	143	2340	559	535	1120	442	112	55	26	10	9.3
17	21	116	2940	531	464	1040	422	113	58	25	10	16
18	20	93	2180	485	429	911	405	111	68	26	9.8	27
19	19	94	1750	590	420	1380	373	106	71	25	11	23
20	19	161	1400	1250	392	1490	347	121	64	26	11	20
21	18	270	1090	2640	369	1210	321	123	57	26	12	15
22	22	1150	902	2640	359	955	299	111	53	24	11	12
23	66	1550	757	2150	495	798	277	104	53	23	10	10
24	86	937	645	1670	442	727	260	99	52	23	10	9.3
25	53	682	565	3370	392	617	247	95	50	23	10	9.3
26	38	522	503	3490	374	543	232	91	46	24	10	9.0
27	31	412	467	2630	347	490	236	88	44	24	8.9	9.0
28	31	1020	556	1900	304	449	221	97	46	23	8.9	9.3
29	30	2320	491	1360	---	419	203	113	63	21	8.6	9.5
30	67	1760	455	1080	---	389	182	104	73	20	7.1	10
31	96	---	529	1030	---	365	---	91	---	18	8.3	---
TOTAL	893	12248	46470	44746	22365	25326	9125	3869	1890	954	399.2	313.7
MEAN	28.81	408.3	1499	1443	798.8	817.0	304.2	124.8	63.00	30.77	12.88	10.46
MAX	96	2320	3560	3490	2290	2010	479	175	85	59	23	27
MIN	12	25	455	485	304	250	182	88	44	18	7.1	6.4
AC-FT	1770	24290	92170	88750	44360	50230	18100	7670	3750	1890	792	622
CFSM	0.18	2.57	9.43	9.08	5.02	5.14	1.91	0.78	0.40	0.19	0.08	0.07
IN.	0.21	2.87	10.87	10.47	5.23	5.93	2.13	0.91	0.44	0.22	0.09	0.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1941 - 2002, BY WATER YEAR (WY)

	MEAN	70.57	472.7	1065	1198	1050	786.0	457.6	218.4	93.84	35.76	17.89	19.55
MAX	568	1897	2360	2455	2398	1736	1133	660	295	89.6	35.8	51.9	
(WY)	1948	1974	1982	1970	1949	1961	1963	1963	1984	1984	1968	1941	
MIN	8.24	21.9	29.9	37.6	83.2	190	160	90.9	43.1	16.4	4.89	6.02	
(WY)	1953	1953	1977	1977	1977	1941	1977	1966	1966	1973	1967	1967	

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1941 - 2002
ANNUAL TOTAL	93033.9	168598.9	
ANNUAL MEAN	254.9	461.9	454.8
HIGHEST ANNUAL MEAN			816
LOWEST ANNUAL MEAN			104
HIGHEST DAILY MEAN	3560	Dec 1	11300
LOWEST DAILY MEAN	9.1	Sep 13	1.4
ANNUAL SEVEN-DAY MINIMUM	11	Sep 8	2.4
ANNUAL RUNOFF (AC-FT)	184500	334400	329500
ANNUAL RUNOFF (CFSM)	1.60	2.91	2.86
ANNUAL RUNOFF (INCHES)	21.77	39.45	38.86
10 PERCENT EXCEEDS	496	1400	1260
50 PERCENT EXCEEDS	110	116	158
90 PERCENT EXCEEDS	14	10	15

14174000 WILLAMETTE RIVER AT ALBANY, OR

LOCATION.--Lat 44°38'20", long 123°06'20", in SW 1/4 sec.6, T.11 S., R.3 W., Linn County, Hydrologic Unit 17090003, on right bank 5 ft upstream from bridge on U.S. Highway 20 (Ellsworth Street) in Albany, 0.2 mi downstream from Calapooia River, and at mile 119.31.

DRAINAGE AREA.--4,840 mi<sup>2</sup>, approximately.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1878 to April 1888 (fragmentary), January to June 1892, November 1892 to September 1894, December 1894 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 694: Drainage area. WSP 904: 1939. WSP 964: 1881, 1890, 1894, 1897, 1901, 1903, 1908, 1910, 1916, 1923, 1927, 1932(M). WSP 984: 1916. WSP 1248: 1895, 1902, 1907, 1915(M), 1917(M), 1918-19, 1934(M). WSP 1318 (monthly and annual figures only): 1894, 1897, 1901-3, 1907-8, 1910, 1916, 1918-19, 1923, 1927.

GAGE.--Water-stage recorder. Datum of gage is 167.18 ft above NGVD of 1929. Prior to Sept. 27, 1906, nonrecording gage at site 0.2 mi upstream at datum 5.00 ft higher. Sept. 27, 1906, to Nov. 12, 1934, nonrecording gage at site 300 ft upstream at datum 5.00 ft higher. Nov. 14, 1934, to Sept. 30, 1962, at datum 5.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by nine reservoirs upstream from station. Albany power canal diverts water from South Santiam River at Lebanon and discharges into Calapooia River near mouth; small diversions for irrigation and municipal water supply.

AVERAGE DISCHARGE.--47 years (water years 1894, 1896-1941), 13,530 ft<sup>3</sup>/s, 38.00 in/yr, 9,805,000 acre-ft/yr. 61 years (water years 1942-2002), 14,750 ft<sup>3</sup>/s, 41.41 in/yr, 10,690,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 266,000 ft<sup>3</sup>/s Jan. 14, 1881, gage height, 37.8 ft, present datum; minimum discharge, 1,840 ft<sup>3</sup>/s Sept. 1, 2, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 4, 1861, reached a stage of 41.0 ft, discharge, 340,000 ft<sup>3</sup>/s, from rating curve extended above 220,000 ft<sup>3</sup>/s. Flood of Feb. 4, 1890, reached a stage of 38.9 ft, discharge, 291,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 53,900 ft<sup>3</sup>/s Jan. 27, gage height, 18.78 ft; minimum discharge, 4,170 ft<sup>3</sup>/s July 9, 10.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5330	6920	34300	17200	21500	9860	12700	9440	8690	5190	4880	5230
2	5270	6840	38700	19500	22100	9330	12500	9260	8120	5040	4910	5230
3	5140	6200	39100	20400	19500	8760	12000	9180	7800	4820	4920	5230
4	5070	5850	31700	20200	17600	8390	12000	9150	7740	4560	4960	5200
5	5050	5650	32800	18200	15600	8190	12100	8970	7740	4410	5020	5190
6	5050	5550	35100	19400	14500	9630	12300	8790	7640	4280	5060	5230
7	5070	5450	38100	26600	15900	15400	11600	8850	7590	4240	5050	5260
8	5120	5350	40100	31200	27900	16000	11400	9620	7700	4210	5020	5230
9	5130	5180	34500	35900	31300	13100	11300	9560	7700	4190	4980	5240
10	5160	4980	28900	32400	24400	12000	12000	8820	7530	4180	4970	5250
11	5320	4790	24400	27000	20000	12600	15300	9590	7320	4200	5050	5240
12	5630	4860	21700	24300	17600	20100	15400	9220	7140	4200	5110	5230
13	5400	4930	22500	22800	15900	28600	15100	9120	7010	4240	5160	5250
14	5270	5130	34800	21800	14500	27900	18100	9230	6730	4310	5150	5250
15	5170	6110	49100	20000	13100	24500	29900	9310	6320	4370	5130	5260
16	5100	6000	45900	18500	12200	22200	33700	9220	5930	4410	5100	5330
17	4980	6550	44900	17400	11900	21500	30700	9310	5650	4530	5110	5420
18	4990	7900	48000	16400	11300	18900	27700	9320	5540	4630	5100	5700
19	5020	7510	49700	15900	10900	17400	25500	9480	5730	4750	5100	6000
20	5110	6770	49100	18300	11500	16500	22000	9720	5980	4850	5120	5970
21	5340	7000	45900	29700	12300	15500	18600	9610	5800	4890	5240	5680
22	5290	9470	41700	45500	12100	15100	16400	9640	5570	4930	5400	5410
23	5690	20200	36700	43200	14200	15000	14600	9730	5410	4930	5440	5360
24	7080	22000	30200	34200	17200	16900	13100	9370	5260	4900	5420	5390
25	6410	19300	23600	33500	15100	18200	11900	9150	5120	4860	5390	5430
26	6000	19400	19800	45900	13100	17200	11200	9040	5090	4830	5390	5550
27	5800	18100	17100	52900	11600	15400	10800	9150	5110	4820	5380	5660
28	5660	16500	15400	43800	10500	13900	10500	9300	5170	4820	5350	5730
29	5570	24800	14700	33500	---	12900	9880	9780	5240	4820	5320	5800
30	5760	33300	14000	26500	---	12000	9590	10300	5240	4800	5250	5910
31	5950	---	14300	22200	---	12300	---	9930	---	4810	5220	---
TOTAL	167930	308590	1016800	854300	455300	485260	479870	290160	194610	143020	159700	162860
MEAN	5417	10290	32800	27560	16260	15650	16000	9360	6487	4614	5152	5429
MAX	7080	33300	49700	52900	31300	28600	33700	10300	8690	5190	5440	6000
MIN	4980	4790	14000	15900	10500	8190	9590	8790	5090	4180	4880	5190
AC-FT	333100	612100	2017000	1695000	903100	962500	951800	575500	386000	283700	316800	323000
CFSM	1.12	2.13	6.78	5.69	3.36	3.23	3.30	1.93	1.34	0.95	1.06	1.12
IN.	1.29	2.37	7.82	6.57	3.50	3.73	3.69	2.23	1.50	1.10	1.23	1.25

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1942 - 2002, BY WATER YEAR (WY)

MEAN	8143	17000	28020	28840	23860	18730	15120	12640	8925	5283	4999	5879
MAX	17070	46180	69630	61230	51960	43890	29610	24830	18460	7333	7313	8985
(WY)	1948	1951	1956	1956	1961	1957	1955	1963	1993	1969	1971	1972
MIN	2629	3196	4150	3901	3208	6571	5630	4733	4091	3281	2485	2623
(WY)	1943	1953	1977	1977	1977	2001	1977	1973	1987	1944	1944	1944

## SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1942 - 2002

ANNUAL TOTAL		3176020		4718400								
ANNUAL MEAN		8701		12930						14750		
HIGHEST ANNUAL MEAN										24080		1956
LOWEST ANNUAL MEAN										5831		1977
HIGHEST DAILY MEAN			49700	Dec 19	52900	Jan 27	210000	Jan 2	1943			
LOWEST DAILY MEAN			3770	Jul 30	4180	Jul 10	2130	Sep 12	1944			
ANNUAL SEVEN-DAY MINIMUM			3830	Jul 28	4210	Jul 7	2180	Sep 8	1944			
ANNUAL RUNOFF (AC-FT)			6300000		9359000					10690000		
ANNUAL RUNOFF (CFSM)			1.80		2.67					3.05		
ANNUAL RUNOFF (INCHES)			24.41		36.27					41.41		
10 PERCENT EXCEEDS			15000		29800					33200		
50 PERCENT EXCEEDS			5760		9120					9370		
90 PERCENT EXCEEDS			3900		4970					4550		

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--August 2001 to current year.

INSTRUMENTATION.--Temperature probe and data logger.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 23.0°C July 11, 2002; minimum, 4.9°C Jan. 27, 28, 2002.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 23.0°C July 11; minimum, 4.9°C Jan. 27, 28.

WATER TEMPERATURE, in (DEGREES C), AUGUST TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	---	---	---	20.4	19.2	19.9
2	---	---	---	---	---	---	---	---	---	20.5	19.1	19.8
3	---	---	---	---	---	---	---	---	---	20.0	18.7	19.4
4	---	---	---	---	---	---	---	---	---	19.7	18.7	19.2
5	---	---	---	---	---	---	---	---	---	19.2	17.7	18.3
6	---	---	---	---	---	---	---	---	---	18.1	16.8	17.5
7	---	---	---	---	---	---	---	---	---	17.9	16.6	17.2
8	---	---	---	---	---	---	---	---	---	18.1	16.6	17.4
9	---	---	---	---	---	---	---	---	---	18.8	17.2	17.9
10	---	---	---	---	---	---	22.9	---	---	19.1	17.6	18.4
11	---	---	---	---	---	---	22.5	20.6	21.7	19.2	17.9	18.6
12	---	---	---	---	---	---	22.4	20.8	21.7	19.5	18.1	18.8
13	---	---	---	---	---	---	22.4	20.5	21.5	19.7	18.4	19.1
14	---	---	---	---	---	---	21.8	20.1	20.9	19.4	18.6	19.0
15	---	---	---	---	---	---	21.4	19.7	20.6	19.8	18.6	19.1
16	---	---	---	---	---	---	20.7	19.3	19.9	19.9	18.8	19.3
17	---	---	---	---	---	---	20.5	18.8	19.6	19.2	18.1	18.6
18	---	---	---	---	---	---	20.0	19.0	19.6	18.3	17.2	17.7
19	---	---	---	---	---	---	20.5	18.9	19.7	17.9	16.9	17.4
20	---	---	---	---	---	---	20.2	18.6	19.4	17.4	16.5	17.0
21	---	---	---	---	---	---	19.6	18.4	18.8	17.4	16.3	17.0
22	---	---	---	---	---	---	18.4	17.8	18.2	17.8	16.7	17.3
23	---	---	---	---	---	---	18.5	17.4	17.9	18.1	16.9	17.6
24	---	---	---	---	---	---	19.1	17.2	18.2	18.0	17.2	17.6
25	---	---	---	---	---	---	19.9	18.0	18.9	17.5	16.3	16.9
26	---	---	---	---	---	---	20.5	18.7	19.6	16.4	15.9	16.2
27	---	---	---	---	---	---	20.6	18.9	19.8	15.9	15.2	15.5
28	---	---	---	---	---	---	21.0	19.2	20.1	15.7	14.7	15.3
29	---	---	---	---	---	---	21.1	19.5	20.3	16.3	15.0	15.7
30	---	---	---	---	---	---	20.9	19.4	20.2	16.8	15.6	16.3
31	---	---	---	---	---	---	20.9	19.1	20.0	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	20.5	14.7	17.8

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.2	16.0	16.6	12.0	11.5	11.7	8.2	7.9	8.1	7.2	6.7	7.0
2	17.4	16.6	17.0	12.4	11.7	12.0	8.1	7.6	7.9	7.3	6.9	7.1
3	17.1	16.2	16.7	12.9	12.2	12.5	8.1	7.6	7.9	7.6	7.2	7.4
4	16.6	15.7	16.2	12.9	12.6	12.8	7.9	7.0	7.6	7.3	6.7	7.0
5	16.3	15.5	16.0	12.8	11.9	12.3	7.1	6.4	6.7	6.8	6.6	6.7
6	16.1	15.6	15.9	11.9	11.3	11.6	7.9	6.6	7.4	8.7	6.8	7.5
7	15.6	14.8	15.1	11.3	10.1	10.6	8.1	7.9	8.0	9.8	8.7	9.5
8	14.9	14.4	14.7	10.1	9.1	9.4	8.0	7.5	7.8	10.0	9.4	9.8
9	14.6	13.9	14.3	9.1	8.6	8.9	7.7	7.4	7.5	9.6	8.5	9.1
10	14.3	13.5	13.8	9.7	8.8	9.2	7.5	6.9	7.2	8.5	7.9	8.2
11	14.0	13.4	13.7	10.5	9.6	10	7.0	6.8	6.9	8.0	7.7	7.9
12	14.4	13.4	13.9	10.9	10.4	10.6	7.2	6.8	7.0	7.9	7.6	7.7
13	15.0	14.0	14.4	11.1	10.9	10.9	8.2	7.1	7.6	7.7	7.2	7.4
14	15.5	14.8	15.1	12.3	11.1	11.7	8.3	7.3	7.9	7.2	6.6	7.0
15	15.1	14.4	14.8	12.3	11.8	12.0	7.3	6.7	6.9	6.6	6.0	6.3
16	14.9	14.1	14.5	12.0	11.4	11.7	8.2	6.7	7.4	6.0	5.5	5.8
17	14.1	13.5	13.8	11.4	10.3	10.8	8.4	7.9	8.2	5.8	5.4	5.6
18	13.6	12.9	13.2	10.3	9.9	10.1	7.9	7.2	7.6	6.4	5.8	6.1
19	13.7	12.7	13.2	9.9	9.6	9.8	7.3	7.1	7.2	6.6	6.2	6.4
20	13.8	13.1	13.4	10.0	9.7	9.8	7.5	7.1	7.3	6.4	6.0	6.2
21	13.4	12.5	12.8	9.8	9.7	9.7	7.6	7.2	7.4	6.3	5.8	6.1
22	13.1	12.5	12.8	9.8	9.4	9.7	7.2	6.7	6.9	5.8	5.0	5.3
23	13.4	12.8	13.0	9.4	9.0	9.2	6.8	6.4	6.6	5.8	5.1	5.4
24	12.9	11.6	12.1	9.1	8.8	9.0	6.5	6.0	6.2	6.2	5.8	6.0
25	12.9	12.0	12.4	8.8	8.5	8.7	6.0	5.5	5.7	6.8	6.2	6.6
26	13.1	12.4	12.8	8.5	8.1	8.3	5.7	5.4	5.6	6.8	5.9	6.4
27	13.1	12.2	12.7	8.2	7.8	8.1	5.7	5.5	5.6	5.9	4.9	5.3
28	12.2	11.2	11.5	7.8	7.4	7.6	6.1	5.6	5.8	5.6	4.9	5.3
29	11.2	11.0	11.1	8.2	7.6	8.0	6.6	6.0	6.3	5.7	5.3	5.6
30	11.7	11.0	11.2	8.2	7.9	8.0	6.3	6.0	6.2	5.7	5.5	5.6
31	12.2	11.7	12.0	---	---	---	6.7	6.3	6.5	6.0	5.6	5.8
MONTH	17.4	11.0	13.9	12.9	7.4	10.2	8.4	5.4	7.1	10.0	4.9	6.7





**Figure 25.** Location of surface-water and water-quality stations in the Willamette River Basin, downstream from the Luckiamute River.

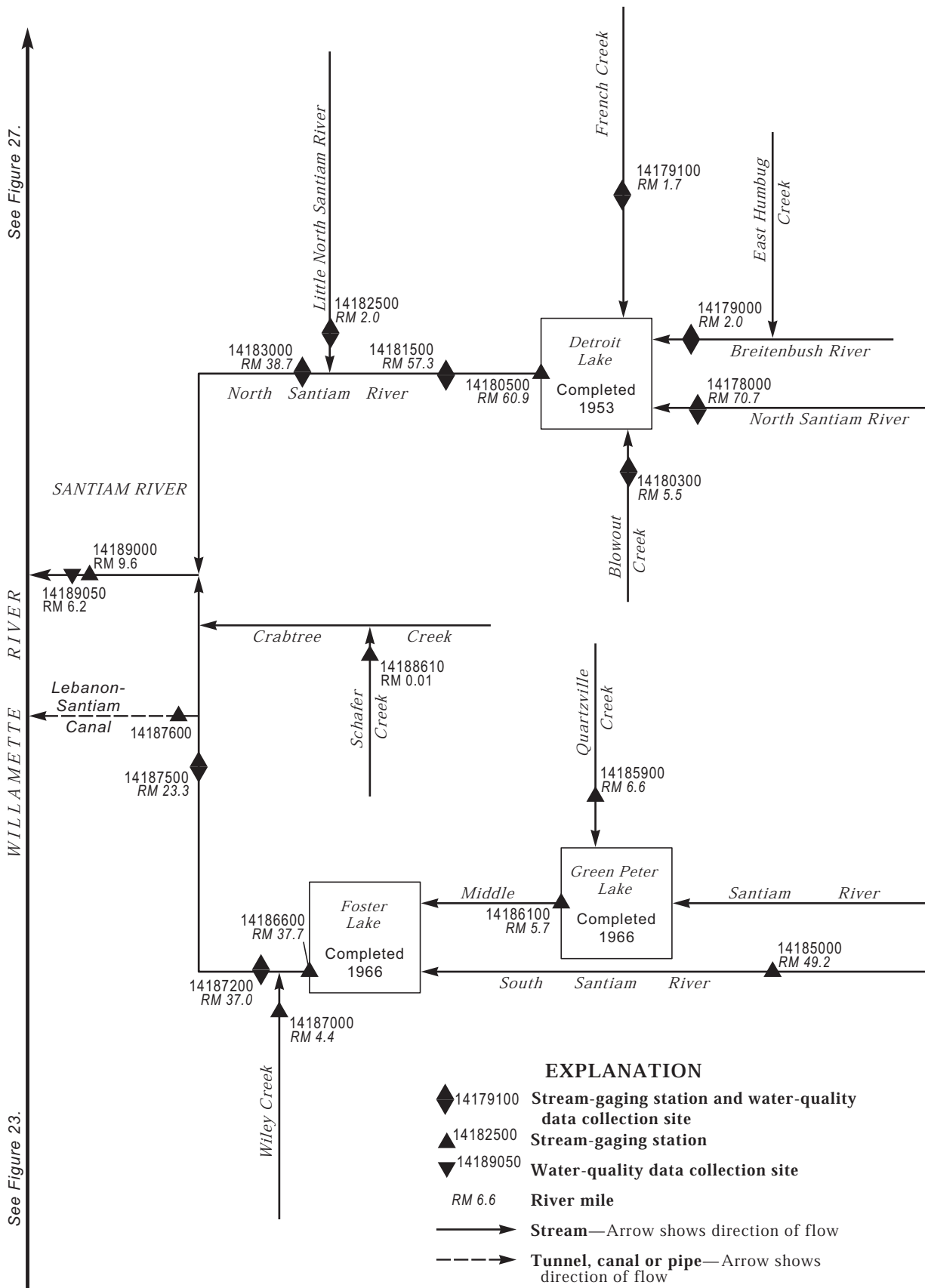


Figure 26. Schematic diagram showing gaging stations and diversions in the Santiam River Basin.

WILLAMETTE RIVER BASIN

14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OR

LOCATION.--Lat 44°42'25", long 122°06'00", in SE 1/4 NW 1/4 sec.17, T.10 S., R.6 E., Marion County, Hydrologic Unit 17090005, on right bank 0.5 mi downstream from Boulder Creek, 3.0 mi southeast of Detroit, and at mile 70.7.

DRAINAGE AREA.--216 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1907 to October 1910, October 1928 to current year. Monthly discharge only January 1907, published in WSP 1318. Prior to October 1952, published as "at Detroit."

REVISED RECORDS.--WSP 814: Drainage area at former site. WSP 1248: 1931. WDR OR-85-2: 1982-82 (P).

GAGE.--Water-stage recorder. Datum of gage is 1,590.07 ft above NGVD of 1929. See WSP 1738 for history of changes prior to Oct. 1, 1952.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. Continuous water-quality records for the period April 1951 to September 1987 and Oct. 1998 to current year have been collected at this location.

AVERAGE DISCHARGE.--76 years (water years 1908, 1909, 1929-2002), 1,007 ft<sup>3</sup>/s, 63.34 in/yr, 729,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,700 ft<sup>3</sup>/s Dec. 22, 1964, slope-area measurement of peak flow, gage height, 13.76 ft, temporary backwater from debris; minimum discharge, 250 ft<sup>3</sup>/s Sept. 13, 1909.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0100	4,650	6.32	Jan. 8	0830	5,310	6.62
Dec. 17	0400	4,120	6.06	Apr. 14	0500	*9,200	*8.12

Minimum discharge, 277 ft<sup>3</sup>/s Oct. 4-8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	289	750	1730	938	771	942	1130	1500	2020	948	530	449
2	288	613	1640	1190	734	881	1220	1670	1870	887	528	452
3	285	508	1320	1320	718	834	1310	1800	1730	850	520	457
4	284	451	1140	1230	691	804	1450	1670	1640	803	517	442
5	280	429	1030	1150	674	800	1650	1600	1690	777	511	433
6	280	404	1540	1680	672	1100	1710	1540	1660	764	509	428
7	280	381	1840	2820	781	1160	1800	1390	1490	774	500	425
8	286	366	1470	4690	868	1020	1770	1270	1330	761	496	423
9	292	355	1250	3340	794	943	2050	1220	1220	734	497	422
10	305	346	1120	2420	753	923	3900	1150	1140	760	502	424
11	455	339	1020	1950	731	1530	3630	1150	1150	756	499	425
12	349	347	936	1870	702	2970	3850	1230	1230	742	493	424
13	331	432	1870	1750	681	2140	3920	1420	1390	738	498	422
14	316	822	3520	1540	661	1690	7330	1430	1530	717	496	424
15	308	608	2280	1360	649	1430	4430	1470	1490	673	489	419
16	299	717	2970	1230	644	1270	3160	1450	1390	653	482	419
17	296	734	3600	1130	643	1140	2500	1520	1330	648	477	472
18	289	623	2660	1050	646	1030	2080	1630	1730	638	473	449
19	285	588	2100	1010	749	994	1820	1620	1420	625	470	430
20	285	661	1780	1030	809	940	1640	1590	1260	607	479	419
21	285	979	1490	1020	899	920	1570	1590	1240	596	479	411
22	410	2480	1300	942	1160	886	1560	1590	1230	594	469	404
23	599	2230	1150	866	1600	886	1570	1500	1190	591	467	403
24	429	1480	1040	854	1670	937	1500	1480	1130	585	482	400
25	373	1170	957	1250	1430	960	1490	1520	1070	576	469	399
26	352	974	891	1190	1230	966	1520	1660	1090	574	463	396
27	338	843	858	1030	1110	997	1470	1800	1080	564	462	394
28	341	1330	959	926	1020	997	1380	2030	1020	556	470	393
29	342	1960	885	851	---	997	1370	2580	1200	565	465	402
30	474	1510	841	803	---	1020	1460	2470	1070	556	455	493
31	818	---	869	780	---	1060	---	2210	---	543	446	---
TOTAL	10843	25430	48056	45210	24490	35167	67240	49750	41030	21155	15093	12753
MEAN	350	848	1550	1458	875	1134	2241	1605	1368	682	487	425
MAX	818	2480	3600	4690	1670	2970	7330	2580	2020	948	530	493
MIN	280	339	841	780	643	800	1130	1150	1020	543	446	393
AC-FT	21510	50440	95320	89670	48580	69750	133400	98680	81380	41960	29940	25300
CFSM	1.62	3.92	7.18	6.75	4.05	5.25	10.4	7.43	6.33	3.16	2.25	1.97
IN.	1.87	4.38	8.28	7.79	4.22	6.06	11.58	8.57	7.07	3.64	2.60	2.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1908 - 2002, BY WATER YEAR (WY)

	508	988	1383	1319	1298	1193	1364	1421	1092	628	474	436
MEAN	508	988	1383	1319	1298	1193	1364	1421	1092	628	474	436
MAX	1215	2167	3840	2991	3552	2865	2241	2762	2759	1101	723	595
(WY)	1951	1951	1965	1953	1996	1972	2002	1949	1933	1950	1999	1971
MIN	312	335	432	383	404	616	610	600	412	363	319	302
(WY)	1981	1994	1977	1937	1977	1941	1941	1992	1992	1992	1992	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1908 - 2002

ANNUAL TOTAL	253842	396217	
ANNUAL MEAN	695	1086	
HIGHEST ANNUAL MEAN			1506 1974
LOWEST ANNUAL MEAN			569 1977
HIGHEST DAILY MEAN	3600	Dec 17	7330 Apr 14
LOWEST DAILY MEAN	280	Oct 5	280 Oct 5
ANNUAL SEVEN-DAY MINIMUM	283	Oct 2	283 Oct 2
ANNUAL RUNOFF (AC-FT)	503500	785900	729500
ANNUAL RUNOFF (CFSM)	3.22	5.03	4.66
ANNUAL RUNOFF (INCHES)	43.72	68.24	63.34
10 PERCENT EXCEEDS	1250	1810	1800
50 PERCENT EXCEEDS	552	926	786
90 PERCENT EXCEEDS	305	401	402



14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OR--Continued

## WATER-QUALITY RECORDS

INSTRUMENTATION.--Water-quality monitor.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1998 to current year.

pH: October 1998 to current year.

WATER TEMPERATURE: April 1951 to September 1987, October 1998 to current year.

TURBIDITY: October 1998 to current year.

REMARKS.--Water-quality data for the 2001 water year available in the files of the Portland field office.

SPECIFIC CONDUCTANCE: Record good.

pH: Record good.

WATER TEMPERATURE: Record good.

TURBIDITY: Record good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 54 microsiemens Sept. 12, 2001; minimum recorded, 18 microsiemens

Apr. 14, 2002.

pH: Maximum recorded, 8.4 units Sept. 15, 2002; minimum recorded, 6.8 units Mar. 28, Apr. 30, 2001.

WATER TEMPERATURE: Maximum recorded, 19.0°C July 18, 19, 1970; minimum recorded, 0.0°C several days in Jan. 1974,

Jan., Feb. 1979, Jan. 1980, Dec. 1998.

TURBIDITY: Maximum recorded, 1,770 NTU Oct. 1, 2001, minimum recorded, &lt;1 NTU on many days during most years.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 53 microsiemens Oct. 1; minimum recorded, 18 microsiemens Apr. 14.

pH: Maximum recorded, 8.4 units Sept. 15; minimum recorded, 7.4 units May 29.

WATER TEMPERATURE: Maximum recorded, 16.6°C July 23; minimum recorded, 0.4°C Jan. 21.

TURBIDITY: Maximum recorded, 1,470 NTU Apr. 14, minimum recorded, &lt;1 NTU on many days during the year.

## WATER-QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT					
11...	1300	480	87	13	16.8
23...	1705	548	67	6.0	8.9
31...	1601	883	77	14	33.4
NOV					
14...	1334	783	56	5.0	10.6
22...	1530	3280	57	147	1300
23...	1256	2110	56	14	79.8
23...	1316	2090	58	15	84.6
29...	1010	2030	45	15	82.3
DEC					
07...	0900	1890	42	5.0	25.5
14...	1140	3430	46	28	259
16...	1526	3450	34	34	317
16...	1545	3440	34	38	353
JAN					
08...	1117	5210	38	134	1880
FEB					
21...	1402	907	73	2.0	4.9
MAR					
12...	1133	2970	43	23	184
APR					
14...	1336	7350	43	225	4470
JUL					
18...	0727	650	76	9.0	15.8

## WILLAMETTE RIVER BASIN

14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	53	51	52	42	41	42	38	37	37	41	40	41
2	52	52	52	44	42	43	39	37	38	40	38	39
3	52	51	52	44	44	44	40	39	39	38	38	38
4	52	51	51	45	44	45	40	40	40	39	38	39
5	51	51	51	46	45	45	41	39	40	39	39	39
6	52	51	52	47	46	46	41	36	38	39	34	37
7	52	51	51	47	47	47	38	36	37	34	30	32
8	51	50	51	47	47	47	39	38	38	30	27	28
9	50	50	50	48	47	47	40	39	39	32	29	31
10	51	48	50	48	48	48	40	39	40	34	32	33
11	50	48	49	48	47	48	41	40	40	35	34	35
12	51	50	50	48	47	47	41	40	41	35	34	35
13	50	49	50	48	45	47	41	29	37	35	34	35
14	50	50	50	45	42	43	42	28	31	36	35	36
15	50	50	50	44	43	44	49	40	44	37	36	37
16	51	50	50	43	42	42	45	36	41	38	37	38
17	50	49	50	42	41	42	47	32	36	39	38	38
18	49	49	49	43	42	43	34	33	33	39	39	39
19	49	49	49	43	43	43	36	34	35	39	39	39
20	50	49	49	43	42	43	37	36	36	39	38	38
21	49	49	49	42	40	41	38	37	38	40	38	39
22	49	45	47	40	32	35	39	38	38	40	39	40
23	46	44	45	37	33	36	39	39	39	41	40	41
24	47	46	47	38	37	38	40	39	40	41	40	41
25	48	47	48	39	38	39	41	40	40	40	38	39
26	48	48	48	40	39	40	41	41	41	41	39	40
27	49	48	48	41	40	41	41	41	41	41	41	41
28	49	48	48	41	35	38	41	40	40	41	40	41
29	48	47	47	37	35	36	41	41	41	41	41	41
30	48	45	47	38	37	38	42	41	41	41	41	41
31	45	41	42	---	---	---	42	41	41	42	41	42
MONTH	53	41	49	48	32	43	49	28	39	42	27	38
	FEBRUARY			MARCH			APRIL			MAY		
1	42	41	41	42	41	41	39	39	39	35	34	35
2	42	42	42	42	42	42	39	38	38	34	33	34
3	43	42	42	43	42	42	38	37	37	33	32	33
4	44	43	43	43	42	43	37	36	37	34	33	33
5	45	44	44	43	42	43	36	34	35	34	34	34
6	44	43	44	43	40	41	34	33	34	35	34	34
7	43	42	43	41	40	41	33	33	33	36	35	35
8	43	42	42	42	41	41	33	32	33	37	36	36
9	43	43	43	42	42	42	32	28	31	37	36	37
10	44	43	44	42	42	42	28	26	26	37	37	37
11	44	44	44	42	33	40	27	25	26	37	37	37
12	44	44	44	34	31	32	26	25	25	38	36	37
13	44	44	44	36	34	34	26	22	24	36	35	35
14	44	44	44	37	36	36	22	18	19	35	35	35
15	44	44	44	38	37	37	---	---	---	35	34	34
16	45	44	44	38	38	38	---	---	---	34	34	34
17	45	44	45	39	38	39	---	---	---	34	33	34
18	45	44	45	40	39	40	---	---	---	33	33	33
19	45	43	44	40	39	40	---	---	---	33	33	33
20	43	43	43	41	40	41	---	---	---	33	33	33
21	43	42	42	41	41	41	---	---	---	33	33	33
22	42	40	41	41	41	41	---	---	---	33	33	33
23	40	38	39	42	41	41	---	---	---	34	33	34
24	38	38	38	42	41	41	35	35	35	34	34	34
25	39	38	39	41	41	41	35	35	35	34	33	34
26	40	39	40	41	41	41	35	35	35	33	33	33
27	41	40	40	41	40	40	35	35	35	33	32	32
28	41	41	41	40	40	40	36	35	35	32	31	31
29	---	---	---	40	40	40	36	36	36	31	28	29
30	---	---	---	40	40	40	36	35	35	29	28	29
31	---	---	---	40	39	40	---	---	---	30	29	30
MONTH	45	38	42	43	31	40	---	---	---	38	28	34

14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	31	30	31	37	36	36	45	44	45	49	48	48
2	31	30	31	38	37	37	45	45	45	49	47	48
3	32	31	31	38	38	38	45	45	45	49	48	48
4	32	32	32	39	38	38	46	45	45	49	47	48
5	32	31	32	39	39	39	46	45	45	49	48	48
6	32	31	31	40	39	39	46	44	45	49	48	48
7	33	32	32	40	39	39	45	45	45	49	49	49
8	33	32	32	40	39	40	46	45	46	50	48	48
9	34	33	34	41	40	40	46	46	46	49	48	49
10	35	34	35	40	40	40	47	46	46	50	48	49
11	35	35	35	40	39	39	47	46	47	50	48	49
12	35	34	35	40	39	39	47	46	47	49	48	48
13	34	32	33	40	39	39	48	47	47	49	48	48
14	32	31	32	40	38	39	48	46	47	49	48	48
15	33	31	32	41	40	40	48	47	47	49	47	48
16	34	32	33	41	41	41	48	47	48	48	47	47
17	34	33	34	42	41	41	49	48	48	47	46	47
18	34	31	32	42	41	41	49	48	48	48	46	47
19	34	32	33	42	41	41	49	47	47	48	47	48
20	35	34	34	43	42	42	48	47	47	49	48	48
21	35	34	35	43	42	43	48	47	48	49	48	49
22	35	34	34	43	43	43	49	48	48	49	48	49
23	36	34	35	43	43	43	50	48	48	50	49	49
24	36	35	35	43	43	43	50	47	48	50	48	49
25	37	36	36	44	43	44	48	47	48	49	48	48
26	37	35	35	44	43	44	48	47	48	49	48	49
27	35	34	35	44	44	44	49	48	48	49	48	49
28	36	35	35	44	44	44	49	48	48	49	47	48
29	36	33	34	45	43	44	49	45	46	48	47	48
30	36	34	35	44	44	44	47	46	46	47	46	46
31	---	---	---	45	44	44	48	47	47	---	---	---
MONTH	37	30	33	45	36	41	50	44	47	50	46	48

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	7.9	7.6	7.6	7.8	7.6	7.7	7.6	7.5	7.6	7.7	7.7	7.7
2	8.0	7.6	7.6	7.8	7.6	7.6	7.7	7.5	7.6	7.8	7.7	7.7
3	7.9	7.6	7.6	7.8	7.6	7.7	7.7	7.6	7.6	7.8	7.7	7.7
4	8.0	7.6	7.7	7.8	7.6	7.6	7.7	7.6	7.6	7.8	7.7	7.7
5	8.0	7.6	7.6	7.8	7.6	7.7	7.7	7.6	7.6	7.8	7.7	7.7
6	8.0	7.6	7.6	7.9	7.6	7.7	7.6	7.5	7.6	7.7	7.6	7.7
7	8.0	7.6	7.6	7.8	7.7	7.7	7.6	7.5	7.6	7.7	7.6	7.6
8	8.0	7.6	7.7	7.9	7.7	7.7	7.7	7.6	7.6	7.6	7.5	7.6
9	8.0	7.6	7.7	7.9	7.7	7.7	7.7	7.6	7.6	7.6	7.5	7.6
10	7.8	7.6	7.6	7.9	7.7	7.7	7.7	7.6	7.6	7.7	7.5	7.6
11	7.8	7.6	7.7	7.9	7.7	7.7	7.7	7.6	7.6	7.7	7.6	7.7
12	7.9	7.6	7.6	7.9	7.6	7.7	7.7	7.6	7.7	7.7	7.7	7.7
13	7.9	7.6	7.6	7.9	7.7	7.7	7.7	7.5	7.6	7.7	7.6	7.7
14	8.0	7.6	7.6	7.8	7.6	7.7	7.6	7.5	7.6	7.7	7.7	7.7
15	7.9	7.6	7.6	7.8	7.6	7.7	7.6	7.6	7.6	7.7	7.7	7.7
16	7.9	7.6	7.7	7.8	7.6	7.7	7.6	7.5	7.6	7.7	7.7	7.7
17	7.9	7.6	7.6	7.8	7.7	7.7	7.6	7.5	7.6	7.7	7.7	7.7
18	7.8	7.6	7.6	7.8	7.7	7.7	7.6	7.6	7.6	7.8	7.7	7.7
19	7.9	7.5	7.6	7.8	7.7	7.7	7.7	7.6	7.6	7.8	7.7	7.7
20	7.9	7.5	7.6	7.8	7.6	7.7	7.7	7.6	7.6	7.7	7.7	7.7
21	7.9	7.6	7.6	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.6	7.7
22	7.8	7.6	7.6	7.7	7.5	7.6	7.7	7.7	7.7	7.7	7.6	7.7
23	7.7	7.6	7.6	7.6	7.5	7.6	7.7	7.7	7.7	7.7	7.7	7.7
24	8.0	7.6	7.8	7.7	7.6	7.6	7.7	7.7	7.7	7.8	7.7	7.7
25	8.0	7.8	7.8	7.7	7.6	7.6	7.8	7.7	7.7	7.7	7.7	7.7
26	8.0	7.7	7.8	7.7	7.6	7.6	7.8	7.7	7.7	7.7	7.7	7.7
27	8.0	7.7	7.8	7.7	7.6	7.6	7.8	7.7	7.7	7.7	7.7	7.7
28	8.0	7.7	7.8	7.7	7.5	7.6	7.8	7.7	7.7	7.7	7.7	7.7
29	7.9	7.6	7.7	7.6	7.5	7.6	7.8	7.7	7.7	7.7	7.7	7.7
30	7.8	7.6	7.7	7.6	7.6	7.6	7.8	7.7	7.7	7.8	7.7	7.7
31	7.8	7.7	7.7	---	---	---	7.8	7.7	7.7	7.8	7.7	7.7
MAX	8.0	7.8	7.8	7.9	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7
MIN	7.7	7.5	7.6	7.6	7.5	7.6	7.6	7.5	7.6	7.6	7.5	7.6

## WILLAMETTE RIVER BASIN

14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.7
2	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.6
3	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.6
4	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.6
5	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.6
6	7.8	7.7	7.7	7.7	7.7	7.7	7.8	7.7	7.7	7.6	7.6	7.6
7	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.6
8	7.7	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.6
9	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.6	7.6	7.6
10	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.6	7.7	7.6	7.6
11	7.8	7.7	7.7	7.8	7.6	7.7	7.7	7.6	7.6	7.7	7.6	7.6
12	7.8	7.7	7.7	7.7	7.6	7.6	7.7	7.6	7.6	7.7	7.6	7.6
13	7.7	7.7	7.7	7.7	7.6	7.6	7.7	7.6	7.6	7.6	7.5	7.6
14	7.7	7.7	7.7	7.7	7.6	7.6	7.6	7.5	7.5	7.6	7.5	7.6
15	7.8	7.7	7.7	7.7	7.6	7.7	7.6	7.5	7.5	7.8	7.5	7.7
16	7.8	7.7	7.7	7.7	7.7	7.7	7.6	7.5	7.6	7.7	7.7	7.7
17	7.8	7.6	7.7	7.7	7.7	7.7	7.6	7.6	7.6	7.7	7.7	7.7
18	7.8	7.6	7.7	7.7	7.7	7.7	7.7	7.6	7.6	7.7	7.6	7.7
19	7.7	7.6	7.7	7.7	7.7	7.7	7.7	7.6	7.7	7.7	7.6	7.7
20	7.7	7.6	7.6	7.8	7.7	7.7	7.7	7.6	7.7	7.7	7.7	7.7
21	7.8	7.6	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.7
22	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.7
23	7.7	7.6	7.6	7.8	7.7	7.7	7.7	7.6	7.7	7.7	7.6	7.7
24	7.7	7.6	7.6	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.7
25	7.7	7.6	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.6
26	7.7	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.7	7.7	7.6	7.6
27	7.7	7.7	7.7	7.8	7.7	7.7	7.7	7.7	7.7	7.7	7.6	7.6
28	7.8	7.7	7.7	7.8	7.7	7.7	7.7	7.6	7.7	7.6	7.5	7.6
29	---	---	---	7.8	7.7	7.7	7.7	7.6	7.7	7.6	7.4	7.5
30	---	---	---	7.8	7.7	7.7	7.7	7.6	7.7	7.6	7.5	7.5
31	---	---	---	7.8	7.7	7.7	---	---	---	7.6	7.5	7.6
MAX	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7	7.8	7.7	7.7
MIN	7.7	7.6	7.6	7.7	7.6	7.6	7.6	7.5	7.5	7.6	7.4	7.5
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.6	7.5	7.6	7.8	7.7	7.8	8.0	7.7	7.8	8.2	7.7	7.7
2	7.6	7.5	7.6	7.8	7.7	7.8	8.0	7.7	7.8	8.2	7.7	7.7
3	7.6	7.5	7.6	7.9	7.7	7.8	8.0	7.8	7.8	8.3	7.6	7.7
4	7.6	7.5	7.6	7.9	7.7	7.8	8.0	7.8	7.8	8.3	7.7	7.7
5	7.6	7.5	7.6	7.9	7.7	7.8	8.0	7.8	7.8	8.2	7.6	7.7
6	7.6	7.5	7.6	7.9	7.7	7.8	8.0	7.8	7.8	8.2	7.6	7.7
7	7.6	7.5	7.6	7.9	7.7	7.8	8.0	7.8	7.8	8.2	7.6	7.7
8	7.6	7.5	7.6	7.9	7.7	7.8	8.0	7.7	7.8	8.3	7.6	7.7
9	7.7	7.5	7.6	7.9	7.7	7.7	8.0	7.7	7.8	8.2	7.6	7.6
10	7.7	7.5	7.6	7.9	7.6	7.7	8.0	7.7	7.7	8.2	7.6	7.6
11	7.7	7.6	7.7	7.9	7.5	7.7	8.0	7.7	7.7	8.2	7.5	7.6
12	7.8	7.7	7.7	7.9	7.7	7.7	8.0	7.7	7.7	8.3	7.5	7.6
13	7.8	7.6	7.7	7.9	7.7	7.8	8.0	7.6	7.7	8.3	7.5	7.6
14	7.8	7.6	7.7	7.9	7.7	7.8	8.0	7.6	7.7	8.4	7.5	7.6
15	7.8	7.6	7.7	7.9	7.7	7.8	8.0	7.6	7.7	8.4	7.5	7.6
16	7.8	7.7	7.7	8.0	7.7	7.8	8.1	7.7	7.7	8.0	7.5	7.6
17	7.8	7.7	7.7	8.0	7.7	7.8	8.1	7.6	7.7	8.0	7.6	7.7
18	7.8	7.7	7.7	7.9	7.6	7.8	8.0	7.7	7.7	8.1	7.7	7.7
19	7.8	7.7	7.7	7.9	7.7	7.8	8.1	7.7	7.7	8.1	7.6	7.7
20	7.8	7.6	7.7	7.9	7.7	7.8	8.0	7.7	7.7	8.1	7.6	7.7
21	7.8	7.6	7.7	7.9	7.7	7.8	8.1	7.7	7.7	8.1	7.6	7.7
22	7.8	7.6	7.7	7.9	7.7	7.8	8.0	7.6	7.7	8.2	7.6	7.6
23	7.8	7.7	7.8	7.9	7.7	7.7	8.1	7.6	7.7	8.2	7.6	7.6
24	7.8	7.7	7.7	7.9	7.7	7.7	8.0	7.6	7.7	8.2	7.6	7.6
25	7.8	7.6	7.7	7.9	7.7	7.8	8.1	7.6	7.7	8.2	7.6	7.6
26	7.8	7.6	7.7	7.9	7.7	7.8	8.1	7.6	7.7	8.2	7.6	7.6
27	7.8	7.6	7.7	7.9	7.7	7.8	8.0	7.6	7.7	8.1	7.5	7.6
28	7.8	7.7	7.8	7.9	7.7	7.8	8.0	7.5	7.6	8.2	7.5	7.6
29	7.8	7.7	7.8	7.9	7.7	7.7	8.1	7.5	7.7	8.2	7.5	7.6
30	7.8	7.7	7.8	8.0	7.7	7.8	8.2	7.7	7.8	8.0	7.6	7.6
31	---	---	---	8.0	7.7	7.8	8.1	7.7	7.8	---	---	---
MAX	7.8	7.7	7.8	8.0	7.7	7.8	8.2	7.8	7.8	8.4	7.7	7.7
MIN	7.6	7.5	7.6	7.8	7.5	7.7	8.0	7.5	7.6	8.0	7.5	7.6

14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.9	8.9	10.1	8.1	7.5	7.8	5.3	4.9	5.2	4.7	4.1	4.5
2	10.7	9.0	10.1	8.5	7.9	8.1	5.6	4.9	5.2	5.2	4.7	4.8
3	10.2	8.4	9.5	7.9	6.7	7.1	5.3	4.9	5.1	4.9	4.4	4.7
4	10.2	8.5	9.6	7.1	6.0	6.6	4.9	3.0	4.0	4.7	4.1	4.5
5	9.8	7.8	9.0	7.3	6.4	7.0	4.1	2.5	3.4	5.2	4.4	4.8
6	10.2	8.7	9.4	6.4	5.1	5.7	4.4	3.9	4.2	5.3	4.9	5.1
7	9.2	7.4	8.2	5.1	4.0	4.5	4.8	4.4	4.6	5.4	5.1	5.2
8	9.4	8.4	8.8	4.8	3.7	4.4	5.1	4.4	4.7	5.2	4.8	5.0
9	9.3	7.7	8.4	5.3	4.0	4.7	5.0	4.5	4.8	5.0	4.5	4.7
10	7.9	6.3	7.0	6.4	4.9	5.6	4.5	3.8	4.0	5.1	4.4	4.7
11	8.7	7.7	8.2	7.1	6.0	6.6	4.4	3.9	4.2	5.2	4.6	4.9
12	8.5	7.3	7.9	7.7	6.9	7.3	4.4	4.1	4.2	5.1	4.6	4.9
13	9.7	8.3	8.9	7.7	7.3	7.5	4.7	4.1	4.5	4.6	4.1	4.4
14	9.6	8.4	9.0	8.5	7.6	8.1	4.2	3.8	4.0	4.4	4.0	4.3
15	9.0	7.3	8.2	8.2	7.6	7.9	4.5	4.1	4.3	4.0	3.3	3.6
16	9.4	8.0	8.7	7.9	7.4	7.8	4.9	4.4	4.7	3.3	2.5	2.9
17	8.8	7.0	8.0	7.4	5.9	6.8	4.9	4.4	4.7	3.7	2.8	3.4
18	7.0	5.4	6.3	5.9	4.9	5.5	4.6	4.2	4.4	4.1	3.6	3.8
19	7.9	5.8	6.8	7.2	5.7	6.4	4.9	4.3	4.6	3.7	2.8	3.4
20	8.7	7.6	8.1	7.1	6.8	6.9	4.7	4.2	4.6	3.4	0.9	1.9
21	7.6	6.1	6.7	6.9	6.3	6.5	4.6	4.1	4.3	2.0	0.4	1.3
22	8.0	7.1	7.6	6.6	5.5	6.2	4.2	3.6	3.9	2.4	1.0	1.8
23	7.8	6.7	7.3	6.3	5.6	5.9	4.2	3.4	3.6	3.2	2.3	2.8
24	6.7	6.0	6.4	6.0	5.3	5.8	3.4	2.7	3.1	3.7	3.1	3.4
25	7.9	6.6	7.1	5.3	4.4	4.9	3.7	2.8	3.3	3.2	2.9	3.1
26	7.4	6.0	6.9	5.2	4.4	4.9	3.9	3.0	3.4	3.2	2.7	3.0
27	7.3	6.6	7.0	4.9	4.1	4.4	4.2	3.7	4.0	3.4	2.5	3.0
28	7.1	6.2	6.8	4.7	3.3	3.9	4.6	3.9	4.3	3.3	2.6	3.0
29	7.8	7.0	7.4	5.2	4.6	4.9	4.3	3.5	4.0	3.0	1.6	2.3
30	8.3	7.7	8.0	5.0	4.8	4.9	4.6	4.2	4.4	3.5	2.8	3.2
31	8.1	7.8	8.0	---	---	---	4.9	4.3	4.6	3.7	2.8	3.4
MONTH	10.9	5.4	8.0	8.5	3.3	6.2	5.6	2.5	4.3	5.4	0.4	3.7
	FEBRUARY			MARCH			APRIL			MAY		
1	4.0	2.6	3.3	3.9	2.4	3.2	7.0	3.8	5.3	8.5	5.5	6.6
2	3.6	3.2	3.5	4.2	2.4	3.3	6.9	3.8	5.3	8.6	5.5	6.8
3	4.3	3.5	3.8	4.4	2.6	3.5	7.0	3.9	5.3	7.5	5.1	6.2
4	3.8	2.7	3.2	4.9	2.9	3.9	7.1	4.0	5.4	7.8	4.1	5.8
5	3.8	2.8	3.3	4.5	3.8	4.2	5.3	4.5	4.9	6.5	5.1	5.8
6	4.0	3.4	3.7	4.2	3.5	4.0	6.0	4.7	5.2	5.8	4.8	5.2
7	3.8	3.1	3.6	3.9	3.0	3.5	5.5	4.6	5.0	6.0	4.0	5.0
8	3.5	2.6	3.1	3.9	2.5	3.2	7.1	4.4	5.5	7.6	3.7	5.6
9	3.8	3.0	3.5	4.2	2.9	3.6	5.5	4.6	5.0	6.5	5.1	5.6
10	4.4	3.2	3.8	4.7	3.8	4.2	5.4	4.2	4.6	8.5	4.8	6.3
11	4.4	3.6	4.0	4.7	3.7	4.4	5.5	4.5	4.9	9.0	4.6	6.7
12	4.0	2.8	3.4	3.7	3.3	3.5	5.9	4.5	5.0	9.7	5.2	7.3
13	3.8	2.9	3.4	4.2	3.3	3.7	5.4	4.7	5.0	7.8	5.9	6.3
14	3.7	2.7	3.3	4.7	3.6	4.1	5.0	3.5	4.1	9.0	5.5	6.9
15	4.2	2.8	3.5	4.7	3.6	4.1	4.8	3.8	4.2	8.8	5.0	6.7
16	4.5	3.5	4.0	3.8	2.5	3.3	4.8	3.8	4.2	8.7	4.7	6.7
17	4.5	3.3	3.9	4.1	2.5	3.2	5.1	3.9	4.4	9.7	6.2	7.7
18	5.1	4.0	4.6	3.8	2.8	3.3	6.2	4.1	4.9	8.0	6.2	7.1
19	4.7	4.2	4.4	3.8	2.8	3.4	6.0	4.4	5.1	7.1	6.1	6.6
20	5.0	3.8	4.4	5.5	3.5	4.4	7.4	4.4	5.7	7.6	5.8	6.7
21	5.2	4.4	4.7	5.5	3.6	4.5	7.5	5.0	6.0	7.5	5.7	6.5
22	5.3	4.1	4.7	5.5	3.4	4.4	7.9	4.7	6.2	7.6	5.6	6.4
23	4.9	4.2	4.5	6.0	4.2	5.0	7.2	4.5	5.7	9.5	5.7	7.3
24	4.6	3.8	4.3	5.9	4.4	5.1	7.6	3.7	5.5	9.1	5.6	7.2
25	4.4	3.1	3.7	6.3	4.2	5.1	7.8	4.2	5.9	9.4	6.3	7.6
26	4.5	3.2	3.8	6.0	3.6	4.9	6.2	4.7	5.4	9.4	6.7	7.9
27	4.5	2.9	3.7	6.3	4.4	5.3	6.5	4.7	5.4	8.1	6.6	7.4
28	4.6	3.4	3.9	6.1	4.4	5.1	7.8	3.9	5.6	7.5	6.7	7.2
29	---	---	---	6.8	4.1	5.3	8.2	4.3	6.1	9.3	6.7	7.7
30	---	---	---	6.7	3.6	5.1	7.5	4.8	6.1	10.2	6.4	8.0
31	---	---	---	6.8	3.7	5.1	---	---	---	10.1	6.6	8.1
MONTH	5.3	2.6	3.8	6.8	2.4	4.2	8.2	3.5	5.2	10.2	3.7	6.7

WILLAMETTE RIVER BASIN

14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	10.2	6.9	8.3	13.6	9.6	11.3	14.6	10.4	12.5	13.7	10.4	12.1
2	10.4	6.9	8.4	13.7	9.2	11.3	14.1	10.2	12.1	13.7	10.6	12.3
3	9.6	6.6	8.1	12.3	9.5	10.9	13.8	9.5	11.7	13.0	10.9	12.0
4	10.8	7.5	8.8	12.9	9.3	10.8	12.4	10.5	11.2	11.5	8.7	10.3
5	10.1	7.9	8.9	13.5	8.9	10.9	11.6	9.6	10.6	11.1	8.7	10.0
6	9.8	6.9	8.3	14.2	9.9	11.9	12.2	9.7	10.7	10.4	8.0	9.4
7	9.1	6.1	7.5	13.0	10.5	11.9	13.1	8.5	10.7	11.1	8.8	9.9
8	8.2	6.1	7.1	14.3	10.2	11.9	13.5	9.2	11.3	10.4	7.8	9.2
9	8.2	6.4	7.2	15.0	9.8	12.1	14.4	9.8	12.1	11.5	8.2	9.9
10	11.3	6.9	8.8	15.7	10.7	13.0	14.9	10.7	12.7	12.2	9.0	10.7
11	11.6	7.2	9.3	16.1	11.3	13.6	14.4	10.4	12.5	12.6	9.6	11.2
12	12.4	7.8	9.9	15.1	11.7	13.5	14.8	10.7	12.7	12.9	10.1	11.6
13	12.8	8.3	10.3	16.5	12.3	14.3	15.5	10.9	13.1	12.8	10.2	11.7
14	12.7	8.7	10.5	15.8	12.0	13.8	15.2	11.2	13.2	12.6	10.4	11.6
15	12.4	8.2	10.1	15.1	10.6	12.8	14.9	11.0	13.0	12.3	10.5	11.5
16	11.8	8.8	10.2	15.4	10.9	13.0	14.6	10.7	12.7	11.7	10.5	10.9
17	10.0	8.6	9.1	15.8	11.3	13.4	14.3	11.0	12.8	11.1	10.0	10.5
18	8.9	8.1	8.5	15.8	11.2	13.4	13.9	10.0	12.0	11.5	9.7	10.6
19	11.7	7.6	9.3	15.6	11.4	13.3	13.8	10.5	12.3	11.4	8.7	10.2
20	12.2	8.2	10.0	15.4	10.9	13.0	12.6	10.9	11.8	11.2	9.1	10.4
21	12.9	8.9	10.7	15.6	11.1	13.2	12.9	10.1	11.3	10.7	8.4	9.7
22	13.1	9.2	11.0	15.7	11.5	13.5	13.6	9.6	11.6	10.7	8.0	9.5
23	13.4	9.7	11.3	16.6	12.5	14.4	13.2	10.3	11.9	11.0	8.6	10.0
24	13.4	9.2	11.1	16.4	12.0	14.1	13.9	10.5	12.2	11.0	8.7	10.0
25	14.0	9.4	11.5	16.5	12.1	14.2	14.1	11.0	12.6	10.8	8.7	9.9
26	14.2	10.2	12.1	16.1	12.2	14.0	14.1	11.3	12.7	10.3	8.4	9.5
27	12.6	10.3	11.5	14.9	10.9	12.9	13.8	10.3	12.1	10.6	8.8	9.8
28	11.3	10.1	10.7	15.5	10.7	13.0	14.3	10.9	12.7	10.2	7.9	9.2
29	10.9	10.0	10.4	16.0	11.4	13.6	14.5	11.3	13.0	9.8	8.8	9.2
30	12.0	9.4	10.4	15.7	11.6	13.6	13.8	11.1	12.6	8.8	7.7	8.3
31	---	---	---	15.0	11.4	13.1	13.2	9.9	11.7	---	---	---
MONTH	14.2	6.1	9.6	16.6	8.9	12.9	15.5	8.5	12.1	13.7	7.7	10.4
YEAR	16.6	0.4	7.3									

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	3	<1	1	5	2	2	12	2	5	5	<1	1
2	4	<1	2	3	<1	2	5	2	3	4	1	2
3	2	<1	1	2	<1	1	3	1	2	3	1	2
4	2	<1	1	2	<1	<1	4	1	1	3	<1	<1
5	4	<1	1	2	<1	1	2	<1	1	3	<1	<1
6	5	<1	1	2	<1	<1	8	1	4	7	1	4
7	2	<1	1	3	<1	<1	10	2	3	20	6	9
8	4	<1	1	1	<1	<1	4	1	2	68	14	31
9	5	<1	1	2	<1	<1	3	<1	1	19	5	9
10	4	<1	1	8	<1	<1	3	<1	1	17	2	4
11	15	2	6	2	<1	<1	2	<1	1	3	2	2
12	3	<1	2	2	<1	<1	4	<1	1	4	1	2
13	4	<1	1	10	<1	1	64	1	4	3	1	1
14	3	<1	1	16	6	10	63	7	15	4	<1	1
15	2	<1	1	---	---	---	13	4	5	2	<1	<1
16	4	<1	<1	---	---	---	16	4	10	2	<1	<1
17	2	<1	<1	10	<1	2	22	6	11	2	<1	<1
18	2	<1	<1	2	<1	1	8	3	4	8	<1	<1
19	3	<1	<1	3	<1	1	4	2	3	3	<1	<1
20	2	<1	<1	3	<1	1	4	2	2	1	<1	<1
21	2	<1	<1	6	2	4	3	1	2	2	<1	1
22	23	<1	2	97	6	42	2	<1	1	5	<1	1
23	24	2	4	24	4	8	3	<1	1	2	<1	<1
24	3	<1	1	5	2	3	2	<1	<1	3	<1	<1
25	2	<1	1	4	2	2	1	<1	<1	6	2	3
26	1	<1	<1	3	1	2	4	<1	<1	6	<1	1
27	3	<1	<1	2	<1	1	2	<1	<1	2	<1	<1
28	2	<1	<1	14	<1	3	2	<1	<1	2	<1	<1
29	2	<1	<1	17	3	5	3	<1	<1	<1	<1	<1
30	8	<1	2	9	2	3	6	<1	<1	2	<1	<1
31	11	4	6	---	---	---	4	<1	<1	<1	<1	<1
MAX	24	4	6	---	---	---	64	7	15	68	14	31
MIN	1	<1	<1	---	---	---	1	<1	<1	<1	<1	<1

14178000 NORTH SANTIAM RIVER BELOW BOULDER CREEK, NEAR DETROIT, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	1	<1	<1	1	<1	<1	6	<1	<1	1	<1	<1
2	<1	<1	<1	2	<1	<1	3	<1	<1	2	<1	<1
3	1	<1	<1	<1	<1	<1	3	<1	<1	2	<1	1
4	1	<1	<1	<1	<1	<1	5	<1	1	2	<1	<1
5	<1	<1	<1	3	<1	<1	3	1	2	3	<1	<1
6	2	<1	<1	5	<1	2	3	1	2	2	<1	<1
7	4	<1	<1	2	<1	<1	3	<1	1	<1	<1	<1
8	2	<1	<1	<1	<1	<1	2	<1	1	1	<1	<1
9	<1	<1	<1	3	<1	<1	14	<1	2	2	<1	<1
10	<1	<1	<1	4	<1	<1	28	9	16	1	<1	<1
11	4	<1	<1	33	<1	2	12	6	8	<1	<1	<1
12	<1	<1	<1	26	3	7	10	5	7	2	<1	<1
13	<1	<1	<1	4	2	2	44	5	6	2	<1	<1
14	1	<1	<1	7	1	2	1470	33	86	2	<1	<1
15	2	<1	<1	2	<1	1	37	10	18	1	<1	<1
16	<1	<1	<1	4	<1	<1	11	5	7	2	<1	<1
17	2	<1	<1	2	<1	<1	7	3	4	1	<1	<1
18	2	<1	<1	1	<1	<1	4	2	2	3	<1	<1
19	3	<1	<1	1	<1	<1	4	1	2	1	<1	<1
20	1	<1	<1	6	<1	<1	3	1	1	1	<1	<1
21	2	<1	<1	4	<1	<1	2	<1	1	2	<1	<1
22	7	<1	2	4	<1	<1	4	<1	1	6	<1	<1
23	7	2	4	3	<1	<1	3	<1	<1	1	<1	<1
24	5	<1	2	8	<1	<1	1	<1	<1	2	<1	<1
25	4	<1	<1	<1	<1	<1	1	<1	<1	2	<1	<1
26	5	<1	<1	1	<1	<1	2	<1	<1	7	<1	<1
27	1	<1	<1	<1	<1	<1	2	<1	<1	4	<1	1
28	1	<1	<1	2	<1	<1	1	<1	<1	4	2	2
29	---	---	---	1	<1	<1	2	<1	<1	10	4	8
30	---	---	---	2	<1	<1	2	<1	<1	9	3	4
31	---	---	---	2	<1	<1	---	---	---	4	2	2
MAX	7	2	4	33	3	7	1470	33	86	10	4	8
MIN	<1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	5	1	2	2	1	2	7	3	4	5	2	3
2	3	1	1	2	<1	1	8	4	5	8	3	5
3	2	<1	1	2	<1	1	6	3	4	10	4	6
4	2	<1	<1	2	<1	<1	7	2	3	6	2	4
5	2	<1	1	3	<1	<1	3	1	2	4	2	2
6	2	<1	1	2	<1	<1	2	<1	1	10	1	2
7	2	<1	<1	3	<1	1	2	<1	1	3	<1	1
8	2	<1	<1	5	<1	2	2	<1	1	3	<1	1
9	<1	<1	<1	13	<1	3	2	<1	1	4	<1	1
10	2	<1	<1	49	2	9	4	1	2	2	<1	1
11	1	<1	<1	221	5	8	6	2	4	3	1	2
12	2	<1	<1	19	6	9	8	2	3	4	2	2
13	2	<1	<1	13	8	10	8	4	5	5	2	3
14	9	1	2	46	9	14	13	5	8	5	2	3
15	8	1	2	10	6	7	10	4	6	6	2	3
16	2	<1	1	12	6	6	8	3	5	8	2	2
17	2	<1	<1	35	7	9	6	3	4	8	2	4
18	5	1	2	12	6	9	6	2	4	6	2	3
19	5	<1	1	10	5	7	6	2	3	7	2	3
20	3	<1	<1	9	4	6	5	2	3	9	2	2
21	4	<1	<1	7	3	5	8	2	3	5	1	2
22	2	<1	1	10	4	6	4	2	2	4	1	2
23	2	<1	1	8	5	7	5	2	3	3	1	2
24	2	<1	<1	9	5	6	5	2	3	3	1	2
25	3	<1	<1	8	4	5	5	2	3	7	1	2
26	3	<1	1	9	4	6	5	2	3	5	1	2
27	20	1	4	11	5	7	5	2	3	4	1	2
28	3	1	2	9	4	5	8	3	6	2	<1	1
29	13	1	7	20	6	9	14	5	8	3	<1	1
30	6	2	2	23	7	9	9	4	6	4	1	2
31	---	---	---	11	5	8	6	2	3	---	---	---
MAX	20	2	7	221	9	14	14	5	8	10	4	6
MIN	<1	<1	<1	2	<1	<1	2	<1	1	2	<1	1

WILLAMETTE RIVER BASIN

14179000 BREITENBUSH RIVER ABOVE FRENCH CREEK, NEAR DETROIT, OR

LOCATION.--Lat 44°45'10", long 122°07'40", in SE 1/4 NE 1/4 sec.36, T.9 S., R.5 E., Marion County, Hydrologic Unit 17090005, in Willamette National Forest, on left bank 600 ft upstream from Canyon Creek, 1.5 mi northeast of Detroit, and at mile 2.0.

DRAINAGE AREA.--108 mi<sup>2</sup>, at measuring cable 0.2 mi downstream from gage.

WATER-DISCHARGE RECORD

PERIOD OF RECORD.--June 1932 to September 1987, October 1998 to current year. Monthly discharge only June 1932, published in WSP 1318. Published as "above Canyon Creek, near Detroit" from October 1952 to September 1984.

GAGE.--Water-stage recorder. Datum of gage is 1,573.95 ft above NGVD of 1929. Prior to Oct. 1, 1952, at site 0.2 mi downstream at datum 13.46 ft lower.

REMARKS.--Records fair. No regulation or diversion upstream from station. All records given herein are for measuring site 0.2 mi downstream from gage.

AVERAGE DISCHARGE.--59 years, (water years 1933-87, 1999-2002), 574 ft<sup>3</sup>/s, 72.20 in/yr, 415,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 16,900 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 14.55 ft; minimum discharge, 87 ft<sup>3</sup>/s Sept. 2, 1940, Sept. 24, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 13	2300	4,140	7.66	Apr. 14	0500	*6,530	*9.35

Minimum discharge, 87 ft<sup>3</sup>/s Oct. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	94	587	1340	518	356	548	708	779	998	457	191	141
2	93	468	1280	758	339	498	767	877	900	418	188	140
3	92	342	923	852	339	464	821	935	822	391	185	140
4	91	277	757	760	337	445	907	832	806	369	184	140
5	90	254	654	673	329	452	1060	777	927	358	185	138
6	90	225	1180	1100	329	690	1030	736	885	353	185	137
7	91	202	1340	2030	424	707	1020	657	713	369	181	136
8	94	187	965	3280	511	573	991	592	599	368	177	136
9	95	175	789	2050	446	506	1240	556	524	349	174	134
10	112	165	690	1380	e420	500	2200	518	487	373	172	132
11	203	158	613	1070	e380	1140	2030	508	535	360	169	131
12	133	163	562	1100	e380	1960	2130	562	634	345	167	130
13	121	324	1780	1030	e360	1250	2370	711	779	345	163	129
14	115	675	2560	864	e360	938	4730	718	868	336	162	128
15	111	392	1410	739	e340	777	2490	709	803	300	160	127
16	107	475	1970	656	355	677	1620	690	721	281	158	128
17	105	477	2380	590	372	591	1250	731	697	277	157	152
18	102	385	1550	533	380	526	1020	800	1030	273	155	144
19	101	359	1180	509	528	525	874	795	697	264	155	136
20	100	407	968	523	599	510	788	788	608	253	161	132
21	101	661	801	523	749	514	754	769	637	242	162	129
22	319	1700	690	464	1060	480	745	746	639	239	157	127
23	504	1470	599	418	1410	476	752	694	631	235	154	125
24	272	923	531	415	1290	534	715	687	583	228	154	124
25	203	702	479	745	974	554	713	738	537	222	156	123
26	191	575	439	677	787	571	736	873	566	219	152	122
27	179	491	416	533	682	609	712	955	579	215	149	122
28	171	987	481	458	613	592	665	1140	527	208	147	121
29	166	1580	456	410	---	577	668	1610	704	205	145	127
30	368	1050	424	382	---	602	741	1390	550	200	143	200
31	707	---	440	368	---	649	---	1150	---	196	142	---
TOTAL	5321	16836	30647	26408	15449	20435	37247	25023	20986	9248	5090	4031
MEAN	172	561	989	852	552	659	1242	807	700	298	164	134
MAX	707	1700	2560	3280	1410	1960	4730	1610	1030	457	191	200
MIN	90	158	416	368	329	445	665	508	487	196	142	121
AC-FT	10550	33390	60790	52380	30640	40530	73880	49630	41630	18340	10100	8000
CFSM	1.59	5.20	9.15	7.89	5.11	6.10	11.5	7.47	6.48	2.76	1.52	1.24
IN.	1.83	5.80	10.56	9.10	5.32	7.04	12.83	8.62	7.23	3.19	1.75	1.39

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1933 - 2002, BY WATER YEAR (WY)

	256	662	922	835	801	676	778	785	575	286	171	156
MEAN	256	662	922	835	801	676	778	785	575	286	171	156
MAX	827	1504	2385	2135	1867	1874	1280	1627	1564	532	288	267
(WY)	1948	1943	1965	1953	1982	1972	1949	1949	1933	1933	1999	1971
MIN	104	106	163	142	176	289	295	344	202	129	98.4	97.6
(WY)	1946	1937	1977	1937	1977	1941	1941	1934	1934	1940	1940	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1933 - 2002

ANNUAL TOTAL	136263	216721	
ANNUAL MEAN	373	594	574
HIGHEST ANNUAL MEAN			892
LOWEST ANNUAL MEAN			276
HIGHEST DAILY MEAN	2560	Dec 14	4730
LOWEST DAILY MEAN	90	Sep 24	90
ANNUAL SEVEN-DAY MINIMUM	92	Oct 1	92
ANNUAL RUNOFF (AC-FT)	270300	429900	415800
ANNUAL RUNOFF (CFSM)	3.46	5.50	5.31
ANNUAL RUNOFF (INCHES)	46.94	74.65	72.20
10 PERCENT EXCEEDS	725	1120	1130
50 PERCENT EXCEEDS	272	509	409
90 PERCENT EXCEEDS	102	133	138

e Estimated



14179000 BREITENBUSH RIVER ABOVE FRENCH CREEK, NEAR DETROIT, OR--Continued

## WATER-QUALITY RECORDS

INSTRUMENTATION.--Water-quality monitor.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1998 to current year.

pH: October 1998 to current year.

WATER TEMPERATURE: December 1950 to July 1961, January 1962 to September 1987, October 1998 to current year.

TURBIDITY: October 1998 to current year.

REMARKS.--Water-quality data for the 2001 water year available in the files of the Portland field office.

SPECIFIC CONDUCTANCE: Record excellent.

pH: Record good.

WATER TEMPERATURE: Record good.

TURBIDITY: Record good

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 100 microsiemens Sept. 28, 2001; minimum, 21 microsiemens Nov. 26, 1999.

pH: Maximum, 8.3 units Sept. 1, 3, 2001; minimum, 6.7 units Nov. 25, 26, 1999.

WATER TEMPERATURE: Maximum, 18.0°C July 27, 1973; minimum, 0.0°C several days in 1972-73, 1977-79, 1985, 1999.

TURBIDITY: Maximum, 1,160 NTU Nov. 25, 1999; minimum, &lt;1 NTU many days during most years.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 72 microsiemens Oct. 5; minimum, 24 microsiemens Apr. 14,

pH: Maximum, 7.9 Oct. 6, 7, 9, Aug. 7; minimum, 7.2 units Oct. 23, 24, Apr. 14.

WATER TEMPERATURE: Maximum, 15.9°C July 25; minimum, 0.5°C Jan. 22.

TURBIDITY: Maximum, 406 NTU Apr. 14; minimum, &lt;1 NTU many days during year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT					
31...	1710	716	75	3.0	5.8
NOV					
14...	1458	571	70	5.0	7.7
22...	1433	2160	31	107	623
22...	1454	2200	48	62	368
23...	1150	1390	67	9.0	33.8
29...	1450	1460	46	5.0	19.8
29...	1520	1450	8	44	173
DEC					
14...	1242	2310	48	35	218
JAN					
08...	0829	3930	31	320	3390
MAR					
12...	1249	1860	55	14	70.2
APR					
14...	1524	4280	49	355	4100

## WILLAMETTE RIVER BASIN

14179000 BREITENBUSH RIVER ABOVE FRENCH CREEK, NEAR DETROIT, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	68	66	67	43	41	42	42	38	40	48	45	46
2	68	67	67	47	43	45	42	38	40	45	42	44
3	68	66	67	49	46	47	43	42	42	42	41	42
4	68	67	67	51	49	50	44	43	43	44	42	43
5	72	67	69	52	51	51	45	43	44	45	43	44
6	68	67	67	52	51	52	45	37	40	44	37	41
7	68	67	67	54	51	52	41	37	39	37	32	34
8	68	66	67	55	53	54	43	41	42	32	29	30
9	71	67	68	56	54	55	44	43	43	35	32	34
10	68	61	66	56	55	56	45	44	44	41	35	37
11	62	57	59	57	56	56	45	44	45	40	38	39
12	64	60	62	58	56	56	46	44	45	40	38	39
13	65	63	64	58	42	53	44	30	39	40	38	39
14	65	64	64	47	42	44	36	30	34	41	40	41
15	66	65	65	64	47	50	39	36	38	42	41	42
16	67	65	66	52	47	48	39	33	36	43	42	43
17	67	65	66	49	47	48	36	33	34	44	43	43
18	67	66	66	50	48	49	38	36	37	45	44	44
19	67	66	67	50	49	50	41	38	40	45	44	44
20	68	67	67	50	46	48	47	41	42	45	42	43
21	67	65	66	47	44	45	44	42	43	45	42	43
22	65	46	60	44	34	38	44	43	44	45	42	44
23	51	41	46	40	36	39	46	44	45	46	44	45
24	53	51	52	43	40	42	47	45	46	46	44	46
25	55	53	54	44	42	43	47	46	46	44	41	42
26	56	55	55	45	43	44	48	47	47	44	42	43
27	56	55	56	49	45	46	48	47	48	45	44	44
28	58	55	56	46	37	42	47	46	46	46	45	46
29	58	57	57	44	36	39	47	47	47	47	46	46
30	57	46	53	42	40	41	48	47	47	47	46	47
31	46	41	42	--	--	--	48	46	47	47	46	47
MONTH	72	41	62	64	34	48	48	30	42	48	29	42
	FEBRUARY			MARCH			APRIL			MAY		
1	65	46	48	47	46	46	45	44	44	39	38	39
2	64	48	50	48	46	47	44	43	43	42	36	38
3	49	47	48	48	47	48	43	42	43	36	36	36
4	48	48	48	48	47	48	48	41	43	37	36	37
5	49	48	48	48	47	47	41	40	40	38	37	38
6	49	46	48	47	43	45	40	40	40	38	37	37
7	46	44	46	54	44	46	40	40	40	39	37	38
8	57	44	46	47	46	46	40	40	40	40	39	40
9	47	45	46	48	47	47	40	35	39	42	40	40
10	47	46	47	48	47	47	35	33	34	43	40	41
11	47	47	47	47	34	42	35	34	34	43	41	42
12	47	47	47	37	33	35	36	33	34	43	39	41
13	47	47	47	40	37	39	34	29	32	39	37	38
14	49	47	48	42	40	41	29	24	26	38	37	37
15	49	48	49	43	42	43	33	29	31	39	36	36
16	49	48	49	44	43	44	35	33	34	37	36	37
17	49	48	49	46	44	45	37	35	36	37	36	36
18	49	47	48	46	45	46	39	37	38	36	35	36
19	48	45	46	47	45	46	39	38	39	36	35	35
20	46	45	45	47	46	47	40	39	40	36	35	35
21	46	42	44	47	46	47	41	40	40	36	35	35
22	45	40	42	47	46	47	40	40	40	36	35	36
23	40	38	38	48	47	47	40	39	40	37	36	37
24	39	38	38	47	46	46	41	39	40	37	36	37
25	41	39	40	47	46	46	41	40	40	37	35	36
26	42	40	41	46	45	46	40	39	40	35	32	34
27	45	42	43	46	45	45	40	39	40	32	31	32
28	46	45	45	46	45	45	40	40	40	31	28	30
29	---	---	---	46	45	46	40	40	40	28	25	26
30	---	---	---	45	45	45	40	39	39	27	25	26
31	---	---	---	45	45	45	---	---	---	29	27	28
MONTH	65	38	46	54	33	45	48	24	38	43	25	36

14179000 BREITENBUSH RIVER ABOVE FRENCH CREEK, NEAR DETROIT, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	30	29	29	37	34	36	52	51	51	59	58	59
2	31	30	30	38	36	37	53	51	52	60	58	59
3	32	31	31	38	37	37	53	52	52	60	59	59
4	32	31	32	39	38	38	53	52	52	60	59	59
5	31	28	30	40	38	39	53	52	52	60	59	59
6	31	28	29	41	39	40	54	53	53	60	59	59
7	33	31	32	40	39	39	54	52	53	60	59	59
8	36	33	34	41	38	39	54	53	54	60	59	59
9	38	35	37	41	39	40	55	54	54	61	59	60
10	38	37	38	40	38	39	55	54	55	62	59	61
11	38	36	37	44	38	39	56	54	55	61	60	60
12	36	33	35	46	39	42	56	54	55	61	60	61
13	33	28	31	47	40	40	56	55	56	62	60	61
14	29	27	28	41	38	40	57	55	56	62	60	61
15	30	27	29	43	40	41	57	56	56	62	61	61
16	31	29	30	45	42	43	57	56	56	62	60	61
17	32	30	31	45	43	44	57	56	56	61	58	59
18	31	25	27	46	43	44	58	56	56	60	58	59
19	33	28	30	46	44	45	57	56	56	61	59	60
20	34	32	33	47	45	46	58	55	56	61	59	60
21	33	32	32	48	46	46	57	55	56	62	58	60
22	33	31	32	48	46	47	57	55	56	60	58	59
23	33	31	32	49	47	48	57	56	57	61	59	60
24	34	31	33	49	48	48	57	56	56	60	59	59
25	35	33	34	49	48	49	58	56	57	60	59	60
26	34	32	34	50	49	49	58	57	57	62	60	60
27	33	31	32	50	49	49	59	57	58	61	60	60
28	34	33	33	51	49	50	59	58	58	62	58	60
29	34	29	31	51	50	50	59	58	58	61	57	58
30	35	31	33	52	50	51	59	58	58	57	53	54
31	---	---	---	52	51	51	59	58	58	---	---	---
MONTH	38	25	32	52	34	43	59	51	55	62	53	60
YEAR	72	24	46									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.8	7.5	7.6	7.5	7.3	7.5	7.5	7.5	7.5	7.6	7.5	7.6
2	7.8	7.5	7.6	7.6	7.3	7.4	7.6	7.5	7.5	7.6	7.5	7.6
3	7.8	7.6	7.6	7.6	7.3	7.5	7.6	7.5	7.5	7.6	7.5	7.5
4	7.8	7.5	7.6	7.6	7.4	7.5	7.6	7.4	7.5	7.6	7.5	7.6
5	7.8	7.6	7.6	7.7	7.3	7.5	7.6	7.4	7.5	7.6	7.5	7.6
6	7.9	7.6	7.6	7.7	7.3	7.6	7.6	7.4	7.5	7.6	7.5	7.5
7	7.9	7.5	7.6	7.7	7.3	7.6	7.5	7.4	7.5	7.5	7.4	7.5
8	7.8	7.6	7.6	7.7	7.4	7.6	7.6	7.4	7.5	7.5	7.4	7.4
9	7.9	7.6	7.6	7.7	7.4	7.6	7.6	7.5	7.5	7.5	7.4	7.5
10	7.7	7.5	7.6	7.7	7.5	7.6	7.6	7.5	7.5	7.6	7.5	7.5
11	7.7	7.5	7.6	7.7	7.4	7.6	7.6	7.5	7.5	7.5	7.4	7.5
12	7.7	7.5	7.6	7.7	7.5	7.6	7.6	7.4	7.5	---	---	---
13	7.7	7.5	7.5	7.7	7.4	7.6	7.6	7.4	7.5	---	---	---
14	7.7	7.5	7.5	7.6	7.4	7.5	7.5	7.4	7.5	---	---	---
15	7.7	7.5	7.5	7.6	7.4	7.5	7.5	7.4	7.5	---	---	---
16	7.7	7.4	7.5	7.6	7.4	7.5	7.5	7.4	7.5	---	---	---
17	7.7	7.5	7.5	7.6	7.5	7.5	7.5	7.4	7.5	---	---	---
18	7.7	7.5	7.5	7.6	7.4	7.5	7.5	7.4	7.5	---	---	---
19	7.6	7.4	7.5	7.6	7.4	7.5	7.6	7.5	7.5	---	---	---
20	7.6	7.4	7.5	7.6	7.4	7.5	7.6	7.5	7.5	---	---	---
21	7.6	7.5	7.5	7.6	7.5	7.6	7.6	7.5	7.5	---	---	---
22	7.6	7.4	7.5	7.6	7.4	7.5	7.6	7.5	7.5	---	---	---
23	7.5	7.2	7.3	7.6	7.5	7.5	7.6	7.5	7.5	---	---	---
24	7.7	7.2	7.5	7.6	7.5	7.5	7.6	7.5	7.6	---	---	---
25	7.7	7.3	7.6	7.6	7.4	7.5	7.6	7.4	7.6	---	---	---
26	7.7	7.4	7.6	7.6	7.4	7.5	7.6	7.5	7.6	---	---	---
27	7.7	7.5	7.6	7.6	7.5	7.5	7.6	7.5	7.6	---	---	---
28	7.7	7.5	7.6	7.6	7.4	7.5	7.6	7.5	7.6	---	---	---
29	7.7	7.4	7.6	7.5	7.4	7.5	7.7	7.5	7.6	---	---	---
30	7.6	7.4	7.5	7.6	7.5	7.5	7.6	7.5	7.6	---	---	---
31	7.6	7.4	7.5	---	---	---	7.6	7.5	7.6	7.8	7.6	7.7
MAX	7.9	7.6	7.6	7.7	7.5	7.6	7.7	7.5	7.6	---	---	---
MIN	7.5	7.2	7.3	7.5	7.3	7.4	7.5	7.4	7.5	---	---	---

WILLAMETTE RIVER BASIN

14179000 BREITENBUSH RIVER ABOVE FRENCH CREEK, NEAR DETROIT, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.7	7.6	7.7	7.6	7.5	7.6	7.5	7.4	7.5	7.6	7.5	7.5
2	7.7	7.6	7.7	7.6	7.5	7.6	7.6	7.5	7.5	7.6	7.5	7.5
3	7.8	7.6	7.7	7.6	7.5	7.6	7.6	7.4	7.5	7.6	7.5	7.5
4	7.7	7.6	7.7	7.7	7.5	7.6	7.6	7.4	7.5	7.6	7.4	7.5
5	7.7	7.6	7.7	7.7	7.5	7.6	7.5	7.5	7.5	7.6	7.4	7.5
6	7.8	7.6	7.7	7.6	7.5	7.6	7.6	7.5	7.5	7.6	7.5	7.5
7	7.7	7.6	7.7	7.6	7.5	7.6	7.6	7.5	7.5	7.6	7.4	7.5
8	7.7	7.6	7.7	7.6	7.5	7.6	7.6	7.5	7.5	7.6	7.5	7.5
9	7.7	7.6	7.7	7.6	7.5	7.6	7.5	7.5	7.5	7.6	7.5	7.5
10	7.7	7.6	7.7	7.6	7.5	7.6	7.5	7.4	7.4	7.6	7.5	7.5
11	7.8	7.6	7.7	7.6	7.4	7.5	7.5	7.4	7.4	7.6	7.5	7.5
12	7.8	7.6	7.7	7.5	7.4	7.5	7.5	7.4	7.4	7.6	7.5	7.5
13	7.7	7.6	7.7	7.5	7.4	7.5	7.4	7.3	7.4	7.6	7.4	7.5
14	7.8	7.6	7.7	7.6	7.4	7.5	7.3	7.2	7.3	7.6	7.4	7.5
15	7.7	7.6	7.7	7.6	7.4	7.5	7.4	7.3	7.4	7.6	7.5	7.5
16	7.7	7.6	7.7	7.6	7.4	7.5	7.5	7.4	7.4	7.6	7.4	7.5
17	7.8	7.6	7.7	7.6	7.4	7.5	7.5	7.4	7.4	7.6	7.4	7.5
18	7.8	7.6	7.7	7.6	7.4	7.5	7.5	7.4	7.5	7.6	7.5	7.5
19	7.7	7.6	7.7	7.5	7.4	7.5	7.5	7.4	7.5	7.6	7.5	7.5
20	7.8	7.6	7.7	7.6	7.4	7.5	7.5	7.4	7.5	7.6	7.5	7.5
21	7.7	7.6	7.7	7.6	7.5	7.5	7.5	7.4	7.5	7.6	7.5	7.5
22	7.7	7.6	7.7	7.6	7.4	7.5	7.5	7.4	7.5	7.6	7.5	7.5
23	7.7	7.6	7.7	7.6	7.4	7.5	7.5	7.4	7.5	7.6	7.5	7.5
24	7.7	7.6	7.6	7.6	7.4	7.5	7.6	7.4	7.5	7.6	7.5	7.5
25	7.6	7.6	7.6	7.6	7.5	7.5	7.6	7.5	7.5	7.6	7.5	7.5
26	7.7	7.6	7.6	7.6	7.4	7.5	7.6	7.5	7.5	7.6	7.4	7.5
27	7.6	7.5	7.6	7.6	7.4	7.5	7.6	7.5	7.5	7.5	7.4	7.5
28	7.7	7.5	7.6	7.6	7.4	7.5	7.6	7.5	7.5	7.5	7.4	7.5
29	---	---	---	7.6	7.4	7.5	7.6	7.5	7.5	7.4	7.3	7.4
30	---	---	---	7.6	7.4	7.5	7.6	7.5	7.5	7.5	7.3	7.4
31	---	---	---	7.6	7.5	7.5	---	---	---	7.5	7.3	7.5
MAX	7.8	7.6	7.7	7.7	7.5	7.6	7.6	7.5	7.5	7.6	7.5	7.5
MIN	7.6	7.5	7.6	7.5	7.4	7.5	7.3	7.2	7.3	7.4	7.3	7.4

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.6	7.3	7.5	7.5	7.4	7.4	7.8	7.6	7.6	---	---	---
2	7.6	7.4	7.5	7.6	7.4	7.5	7.8	7.5	7.7	---	---	---
3	7.6	7.4	7.5	7.6	7.4	7.5	7.8	7.6	7.7	---	---	---
4	7.6	7.4	7.5	7.6	7.4	7.5	7.8	7.6	7.7	---	---	---
5	7.5	7.4	7.5	7.6	7.4	7.5	7.8	7.5	7.7	---	---	---
6	7.6	7.4	7.5	7.6	7.4	7.5	7.8	7.5	7.7	---	---	---
7	7.6	7.4	7.5	7.6	7.4	7.5	7.9	7.5	7.7	---	---	---
8	7.6	7.5	7.6	7.6	7.4	7.5	7.8	7.6	7.7	---	---	---
9	7.6	7.5	7.6	7.6	7.4	7.5	7.8	7.6	7.7	---	---	---
10	7.7	7.5	7.6	7.6	7.4	7.5	7.8	7.6	7.6	---	---	---
11	7.7	7.5	7.5	7.6	7.4	7.5	7.8	7.6	7.6	---	---	---
12	7.6	7.4	7.5	7.7	7.4	7.5	7.8	7.6	7.6	---	---	---
13	7.5	7.3	7.4	7.7	7.4	7.5	7.8	7.5	7.6	---	---	---
14	7.5	7.3	7.4	7.7	7.5	7.6	7.8	7.5	7.6	---	---	---
15	7.5	7.3	7.4	7.7	7.5	7.6	7.8	7.5	7.6	---	---	---
16	7.5	7.4	7.4	7.8	7.5	7.6	7.8	7.5	7.6	---	---	---
17	7.5	7.4	7.4	7.8	7.5	7.6	7.8	7.5	7.6	---	---	---
18	7.4	7.3	7.4	7.8	7.5	7.6	7.8	7.5	7.6	---	---	---
19	7.5	7.3	7.4	7.8	7.6	7.7	7.8	7.5	7.6	---	---	---
20	7.5	7.3	7.4	7.8	7.6	7.7	7.8	7.5	7.6	---	---	---
21	7.5	7.3	7.4	7.8	7.6	7.7	7.8	7.5	7.6	---	---	---
22	7.5	7.3	7.4	7.8	7.5	7.7	7.8	7.5	7.6	---	---	---
23	7.5	7.3	7.4	7.8	7.5	7.6	7.7	7.4	7.5	---	---	---
24	7.5	7.3	7.4	7.8	7.5	7.6	7.7	7.5	7.5	---	---	---
25	7.5	7.3	7.4	7.8	7.5	7.6	7.7	7.4	7.5	---	---	---
26	7.5	7.3	7.3	7.8	7.5	7.7	7.7	7.4	7.5	---	---	---
27	7.5	7.3	7.4	7.8	7.5	7.7	7.7	7.5	7.5	---	---	---
28	7.5	7.3	7.4	7.8	7.6	7.6	7.7	7.4	7.5	---	---	---
29	7.5	7.3	7.4	7.8	7.5	7.6	---	---	---	---	---	---
30	7.5	7.3	7.4	7.8	7.5	7.6	---	---	---	---	---	---
31	---	---	---	7.8	7.5	7.7	---	---	---	---	---	---
MAX	7.7	7.5	7.6	7.8	7.6	7.7	---	---	---	---	---	---
MIN	7.4	7.3	7.3	7.5	7.4	7.4	---	---	---	---	---	---

14179000 BREITENBUSH RIVER ABOVE FRENCH CREEK, NEAR DETROIT, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.6	8.9	9.7	8.1	7.5	7.8	6.1	5.5	5.8	4.8	4.3	4.6
2	10.6	9.1	9.8	8.4	7.9	8.1	6.4	5.9	6.1	5.3	4.8	5.0
3	9.9	8.3	9.1	7.9	7.0	7.4	6.1	5.6	5.9	5.1	4.8	4.9
4	10.2	8.6	9.3	7.5	6.8	7.1	5.6	3.6	4.7	5.1	4.5	4.8
5	9.9	8.3	9.1	7.7	6.7	7.3	4.9	3.3	4.2	5.4	4.7	5.0
6	10.2	9.0	9.4	6.7	5.8	6.1	5.7	4.6	5.1	5.5	5.1	5.3
7	9.2	8.0	8.5	5.8	4.5	5.0	5.9	5.5	5.7	5.7	5.5	5.6
8	9.6	8.5	9.0	5.1	4.1	4.6	5.7	5.2	5.5	5.6	5.3	5.5
9	9.2	8.0	8.6	5.6	4.3	4.9	5.7	5.2	5.5	5.4	5.0	5.2
10	8.0	6.9	7.3	6.6	5.0	5.6	5.2	4.4	4.8	5.5	4.8	5.1
11	8.8	7.8	8.3	7.0	6.1	6.5	5.0	4.5	4.8	5.6	4.9	5.2
12	8.5	7.8	8.2	7.7	6.8	7.1	5.0	4.7	4.8	5.5	5.1	5.3
13	9.6	8.5	8.9	7.9	7.5	7.6	5.7	4.8	5.2	5.1	4.5	4.8
14	9.8	8.8	9.2	8.7	7.9	8.4	5.5	5.0	5.2	4.9	4.2	4.7
15	9.1	7.7	8.4	8.4	7.9	8.2	5.3	4.9	5.1	4.2	3.6	3.9
16	9.0	8.2	8.6	8.3	7.7	8.1	5.8	5.1	5.4	3.7	3.0	3.5
17	8.6	6.9	7.9	7.7	6.4	7.2	5.8	5.4	5.6	4.2	3.0	3.7
18	6.9	5.6	6.3	6.4	5.5	5.9	5.4	5.1	5.2	4.4	3.9	4.1
19	7.2	5.9	6.5	7.4	5.9	6.5	5.6	5.2	5.3	4.1	3.3	3.7
20	8.7	7.2	7.8	7.5	7.1	7.3	5.3	4.9	5.1	3.7	1.3	2.2
21	7.5	6.7	7.0	7.4	6.7	7.0	5.2	4.8	5.0	2.7	1.3	1.9
22	8.4	7.0	7.8	7.1	6.5	6.9	4.8	4.1	4.5	2.4	0.5	1.5
23	8.3	6.9	7.4	7.0	6.5	6.7	4.6	3.8	4.1	3.3	2.3	2.9
24	7.0	6.4	6.8	6.5	5.8	6.3	4.1	3.2	3.6	3.8	2.9	3.4
25	8.0	6.8	7.3	6.0	4.7	5.6	4.2	3.2	3.7	3.8	3.0	3.4
26	7.6	6.4	7.0	5.6	4.7	5.3	4.2	3.2	3.7	3.9	3.4	3.6
27	7.6	7.2	7.4	5.4	4.8	5.1	4.3	3.8	4.0	3.9	3.0	3.5
28	7.3	6.2	6.7	5.6	3.4	4.5	4.7	4.1	4.3	3.7	3.0	3.3
29	7.8	7.1	7.4	5.9	5.3	5.6	4.4	3.8	4.1	3.2	1.9	2.6
30	8.3	7.7	8.0	5.8	5.2	5.5	4.5	4.1	4.3	3.8	3.0	3.3
31	8.2	7.7	8.0	---	---	---	4.9	4.3	4.6	3.7	2.9	3.4
MONTH	10.6	5.6	8.1	8.7	3.4	6.5	6.4	3.2	4.9	5.7	0.5	4.0
	FEBRUARY			MARCH			APRIL			MAY		
1	4.1	2.8	3.4	4.3	2.9	3.6	6.7	4.1	5.2	8.8	5.8	6.9
2	3.9	3.6	3.7	4.4	2.8	3.6	6.7	4.1	5.2	8.7	5.7	6.9
3	4.3	3.6	3.9	4.5	3.0	3.7	6.7	4.2	5.2	7.5	5.3	6.3
4	3.8	3.0	3.4	4.9	3.2	4.0	6.9	4.2	5.3	7.7	4.3	5.9
5	4.0	3.2	3.5	4.8	4.0	4.4	5.4	4.7	5.1	6.5	5.4	5.9
6	4.1	3.7	3.9	4.5	3.7	4.1	6.1	4.9	5.4	5.9	4.8	5.3
7	3.9	3.1	3.7	4.4	3.5	4.1	5.8	4.9	5.3	5.9	4.2	5.0
8	4.3	3.0	3.7	4.1	3.1	3.6	7.0	4.8	5.6	7.8	4.2	5.8
9	4.3	3.5	3.9	4.5	3.2	3.9	5.6	4.9	5.2	6.6	5.2	5.8
10	4.4	3.5	4.0	4.9	4.1	4.4	5.8	4.7	5.1	8.1	5.1	6.3
11	4.5	3.8	4.2	5.0	4.4	4.7	5.8	4.9	5.3	9.0	4.5	6.6
12	4.2	3.1	3.6	4.6	4.1	4.4	6.3	5.0	5.4	9.8	5.2	7.3
13	3.9	3.0	3.5	4.4	3.8	4.1	5.7	5.2	5.4	7.9	6.0	6.5
14	3.8	2.9	3.4	5.0	4.1	4.5	5.5	4.0	4.6	8.6	5.5	6.7
15	4.0	3.1	3.5	5.0	4.0	4.5	5.3	4.3	4.6	8.7	4.9	6.6
16	4.4	3.7	4.0	4.2	3.1	3.7	5.3	4.3	4.7	8.7	4.7	6.6
17	4.7	3.5	4.0	4.1	3.1	3.5	5.6	4.2	4.8	9.3	6.2	7.5
18	5.0	4.2	4.6	4.1	2.8	3.5	6.2	4.6	5.3	7.6	6.1	6.8
19	4.9	4.4	4.6	4.0	2.6	3.3	6.4	4.8	5.5	7.1	6.0	6.5
20	5.1	4.4	4.7	5.3	3.8	4.5	7.7	4.9	6.0	7.5	5.7	6.5
21	4.9	4.6	4.8	5.2	3.6	4.4	7.8	5.1	6.3	7.3	5.7	6.4
22	5.4	4.6	4.9	5.1	3.5	4.3	8.0	5.2	6.4	7.4	5.6	6.4
23	5.2	4.4	4.8	5.9	4.2	4.9	7.3	4.6	5.9	9.3	5.7	7.1
24	5.0	4.3	4.7	5.8	4.5	5.1	7.8	4.0	5.7	8.9	5.5	7.1
25	4.8	3.6	4.2	6.1	4.5	5.1	7.9	4.5	6.1	8.9	6.1	7.4
26	4.7	3.5	4.0	6.0	4.0	4.9	6.4	4.9	5.7	8.9	6.4	7.5
27	4.8	3.2	4.0	6.0	4.6	5.2	7.2	5.0	5.8	7.8	6.2	7.0
28	4.8	3.8	4.3	6.1	4.7	5.2	7.9	4.2	5.8	7.3	6.3	6.8
29	---	---	---	6.5	4.4	5.3	8.5	4.5	6.3	8.2	6.2	7.0
30	---	---	---	6.5	4.3	5.2	7.6	5.1	6.4	9.4	5.9	7.3
31	---	---	---	6.6	4.0	5.1	---	---	---	9.5	5.8	7.4
MONTH	5.4	2.8	4.0	6.6	2.6	4.3	8.5	4.0	5.5	9.8	4.2	6.6



14179000 BREITENBUSH RIVER ABOVE FRENCH CREEK, NEAR DETROIT, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	<1	<1	<1	1	<1	<1	2	<1	<1	5	<1	<1
2	<1	<1	<1	6	<1	<1	3	<1	<1	8	<1	1
3	<1	<1	<1	2	<1	<1	2	<1	<1	4	<1	1
4	<1	<1	<1	<1	<1	<1	4	<1	<1	2	<1	<1
5	<1	<1	<1	2	<1	<1	5	<1	1	2	<1	<1
6	<1	<1	<1	10	<1	1	3	<1	1	3	<1	<1
7	<1	<1	<1	2	<1	<1	4	<1	<1	2	<1	<1
8	1	<1	<1	2	<1	<1	2	<1	<1	6	<1	<1
9	<1	<1	<1	2	<1	<1	16	<1	1	3	<1	<1
10	<1	<1	<1	2	<1	<1	59	7	15	2	<1	<1
11	<1	<1	<1	135	<1	2	14	5	8	1	<1	<1
12	<1	<1	<1	98	4	10	43	6	9	3	<1	<1
13	<1	<1	<1	5	1	3	87	7	12	5	<1	<1
14	<1	<1	<1	3	<1	1	406	68	170	1	<1	<1
15	<1	<1	<1	2	<1	<1	80	16	33	1	<1	<1
16	1	<1	<1	2	<1	<1	17	4	8	2	<1	<1
17	<1	<1	<1	4	<1	<1	10	2	4	1	<1	<1
18	<1	<1	<1	<1	<1	<1	8	1	3	2	<1	<1
19	2	<1	<1	2	<1	<1	8	<1	2	2	<1	<1
20	1	<1	<1	<1	<1	<1	3	<1	1	4	<1	<1
21	13	<1	2	<1	<1	<1	2	<1	1	2	<1	<1
22	8	2	3	1	<1	<1	5	<1	<1	5	<1	<1
23	14	4	6	1	<1	<1	3	<1	<1	1	<1	<1
24	9	2	3	3	<1	<1	4	<1	<1	2	<1	<1
25	2	<1	2	2	<1	<1	8	<1	<1	8	<1	<1
26	2	<1	<1	3	<1	<1	8	<1	<1	3	<1	<1
27	5	<1	<1	2	<1	<1	2	<1	<1	8	<1	1
28	2	<1	<1	2	<1	<1	3	<1	<1	16	2	3
29	---	---	---	3	<1	<1	8	<1	<1	27	9	15
30	---	---	---	2	<1	<1	6	<1	<1	23	3	8
31	---	---	---	2	<1	<1	---	---	---	7	2	3
MAX	14	4	6	135	4	10	406	68	170	27	9	15
MIN	<1	<1	<1	<1	<1	<1	2	<1	<1	1	<1	<1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	10	<1	2	2	<1	<1	2	<1	<1	<1	<1	<1
2	8	<1	1	6	<1	<1	<1	<1	<1	2	<1	<1
3	7	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
4	2	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
5	8	<1	2	1	<1	<1	<1	<1	<1	4	<1	<1
6	7	<1	2	2	<1	<1	2	<1	<1	<1	<1	<1
7	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
8	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
9	2	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
10	1	<1	<1	3	<1	<1	<1	<1	<1	<1	<1	<1
11	<1	<1	<1	1	<1	<1	1	<1	<1	<1	<1	<1
12	6	<1	<1	<1	<1	<1	<1	-1	<1	<1	<1	<1
13	6	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
14	7	<1	2	<1	<1	<1	<1	<1	<1	<1	<1	<1
15	10	<1	1	1	<1	<1	<1	<1	<1	<1	<1	<1
16	7	<1	<1	<1	<1	<1	3	<1	<1	<1	<1	<1
17	3	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
18	19	1	7	2	<1	<1	<1	<1	<1	<1	<1	<1
19	9	<1	1	3	<1	<1	2	<1	<1	<1	<1	<1
20	4	<1	<1	<1	<1	<1	<1	<1	<1	1	<1	<1
21	5	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1
22	2	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1
23	5	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
24	5	<1	<1	<1	<1	<1	<1	<1	<1	2	<1	<1
25	3	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1
26	1	<1	<1	1	<1	<1	2	<1	<1	<1	<1	<1
27	3	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1
28	3	<1	<1	8	<1	<1	1	<1	<1	<1	<1	<1
29	16	<1	5	<1	<1	<1	<1	<1	<1	<1	<1	<1
30	4	<1	<1	<1	<1	<1	4	<1	<1	1	<1	<1
31	---	---	---	2	<1	<1	1	<1	<1	---	---	---
MAX	19	1	7	8	<1	<1	4	<1	<1	4	<1	<1
MIN	<1	<1	<1	<1	<1	<1	<1	-1	<1	<1	<1	<1

WILLAMETTE RIVER BASIN

14179100 FRENCH CREEK, NEAR DETROIT, OR

LOCATION.--Lat 44°45'38", long 122°10'02", in NW 1/4 SW 1/4 sec.26, T.9 S., R.5 E. Marion County, Hydrologic Unit 17090005, on right bank 25 ft upstream of bridge over French Creek, 1.9 northeast of Detroit, and at mile 1.7.

DRAINAGE AREA.--9.9 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 2001 to September 2002.

GAGE.--Water-stage recorder. Datum of gage is approximately 1,800 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. No regulation or diversion upstream from station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	1800	976	4.79	Apr. 10	1230	854	4.65
Dec. 13	2230	949	4.76	Apr. 14	0630	*2,230	*5.76
Jan. 8	0330	730	4.49				

Minimum discharge, 2.1 ft<sup>3</sup>/s Oct. 2, 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.2	138	210	71	e28	56	115	112	174	e43	5.5	3.4
2	2.2	121	194	122	e27	47	131	131	156	e38	5.3	3.5
3	2.1	90	153	139	e26	42	150	140	141	34	5.2	3.5
4	2.2	63	125	110	25	41	187	118	139	30	5.3	3.4
5	2.2	53	102	93	25	43	228	106	151	27	5.3	3.4
6	2.2	42	301	155	26	86	205	102	143	24	5.2	3.4
7	2.3	34	308	346	40	90	194	80	113	23	4.9	3.4
8	2.6	29	184	503	55	65	181	65	88	21	4.8	3.4
9	2.8	24	141	242	e48	54	248	58	76	18	4.7	3.3
10	6.5	22	121	145	e42	50	511	53	78	16	4.5	3.2
11	30	19	100	113	e40	168	368	54	98	15	4.3	3.2
12	13	20	88	124	39	389	337	76	124	14	4.3	3.2
13	11	47	388	124	e36	217	440	122	143	13	4.1	3.1
14	11	99	491	103	e36	128	1280	126	143	12	4.0	3.0
15	11	72	184	78	e35	90	335	120	125	11	4.0	3.0
16	8.6	87	327	61	e37	68	181	114	109	9.6	3.9	3.2
17	7.6	86	397	50	e40	54	131	124	103	8.9	3.9	4.7
18	6.7	68	200	42	e50	45	105	137	159	8.5	3.8	4.2
19	6.1	61	128	38	e85	42	87	132	113	8.3	3.8	3.6
20	5.7	66	104	36	e97	39	74	125	93	7.9	3.9	3.4
21	5.8	87	82	34	e140	41	71	123	91	7.6	4.0	3.3
22	147	423	66	42	e180	39	71	135	87	7.2	4.0	3.2
23	184	357	53	38	e240	44	76	128	75	7.0	3.9	3.1
24	107	182	45	36	e200	68	75	128	65	6.7	3.8	3.0
25	75	138	39	77	e130	74	80	144	61	6.6	3.8	2.9
26	59	109	33	68	e100	78	92	174	61	6.5	3.8	2.8
27	46	86	30	52	e80	93	89	188	56	6.3	3.7	2.8
28	38	168	40	43	67	87	78	214	e48	6.1	3.6	2.8
29	32	272	40	e36	---	80	83	296	e75	6.1	3.5	3.9
30	83	183	37	e33	---	84	107	232	e55	5.9	3.5	14
31	136	---	49	e30	---	97	---	193	---	5.6	3.4	---
TOTAL	1050.8	3246	4760	3184	1974	2599	6310	4050	3143	453.8	131.7	110.3
MEAN	33.9	108	154	103	70.5	83.8	210	131	105	14.6	4.25	3.68
MAX	184	423	491	503	240	389	1280	296	174	43	5.5	14
MIN	2.1	19	30	30	25	39	71	53	48	5.6	3.4	2.8
AC-FT	2080	6440	9440	6320	3920	5160	12520	8030	6230	900	261	219
CFSM	3.42	10.9	15.5	10.4	7.12	8.47	21.2	13.2	10.6	1.48	0.43	0.37
IN.	3.95	12.20	17.89	11.96	7.42	9.77	23.71	15.22	11.81	1.71	0.49	0.41

WTR YR 2002 TOTAL 31012.6 MEAN 85.0 MAX 1280 MIN 2.1 AC-FT 61510 CFSM 8.58 IN. 116.53

e Estimated



14179100 FRENCH CREEK NEAR DETROIT, OR--Continued  
WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 2001 to current year.  
pH: June 2001 to current year.  
WATER TEMPERATURE: June 2001 to current year.  
TURBIDITY: June 2001 to current year.

## INSTRUMENTATION.--Water-quality monitor.

REMARKS: Water-quality data for the 2001 water year available in the files of the Portland field office.

SPECIFIC CONDUCTANCE: Record good  
pH: Record good.  
WATER TEMPERATURE: Record good.  
TURBIDITY: Record fair.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 42 microsiemens Sept. 29, 2002; minimum, 15 microsiemens Apr. 14, 2002.  
pH: Maximum, 7.6 units June 18, Aug. 8-11, 2002; minimum, 6.1 units Apr. 15, 2002.  
WATER TEMPERATURE: Maximum, 14.5°C July 24, 25, 2002; minimum, 0.1°C Jan. 22, 2002.  
TURBIDITY: Maximum, 214 NTU Apr. 14, 2002; minimum, <1 many days.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 42 microsiemens Sept. 29; minimum, 15 microsiemens Apr. 14.  
pH: Maximum, 7.6 units June 18, Aug. 8-11; minimum, 6.1 units Apr. 15.  
WATER TEMPERATURE: Maximum, 14.5°C July 24, 25; minimum, 0.1°C Jan. 22.  
TURBIDITY: Maximum, 214 NTU Apr. 14; minimum, <1 many days during year.

## WATER-QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
JUN 2001					
26...	1600	17	33	1.0	.04
JUL					
24...	1511	E4.8	29	<1.0	--
AUG					
16...	1100	E3.8	22	1.0	.01
SEP					
26...	1233	3.3	75	<1.0	--
OCT					
11...	1537	28	30	1.0	.08
23...	1802	150	42	1.0	.41
31...	1214	139	57	1.0	.38
NOV					
06...	1601	41	95	1.0	.11
14...	1608	88	88	1.0	.24
14...	1650	86	63	1.0	.23
22...	1738	812	19	127	278
23...	1053	347	38	4.0	3.7
23...	1108	334	18	11	9.9
23...	1536	278	25	4.0	3.0
29...	1300	261	--	1.0	.70
DEC					
06...	1648	488	57	8.0	10.5
07...	1026	306	28	1.0	.83
07...	1044	298	9	2.0	1.6
14...	0842	544	46	7.0	10.3
19...	1548	114	50	<1.0	--
JAN 2002					
08...	1000	541	28	13	19.0
FEB					
20...	1521	E97	27	2.0	.52
APR					
14...	1700	888	41	31	74.3

< Actual value is known to be less than the value shown.  
E Estimated

WILLAMETTE RIVER BASIN

14179100 FRENCH CREEK NEAR DETROIT, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	24	23	24	---	---	---	---	---	---
2	---	---	---	25	23	24	---	---	---	24	22	22
3	---	---	---	25	25	25	---	---	---	22	22	22
4	---	---	---	25	25	25	---	---	---	22	21	22
5	---	---	---	25	25	25	---	---	---	24	22	23
6	---	---	---	26	25	25	---	---	---	24	20	22
7	---	---	---	26	26	26	---	---	---	20	19	20
8	---	---	---	26	25	25	---	---	---	19	17	18
9	---	---	---	26	25	25	---	---	---	21	16	19
10	---	---	---	26	25	26	---	---	---	22	20	21
11	---	---	---	27	25	26	---	---	---	22	21	21
12	---	---	---	27	27	27	---	---	---	21	19	20
13	---	---	---	27	22	26	23	16	20	20	19	19
14	---	---	---	25	23	24	20	16	19	21	19	20
15	---	---	---	25	23	24	21	20	20	22	21	21
16	---	---	---	24	23	23	21	16	19	22	20	22
17	---	---	---	24	22	23	19	18	18	22	22	22
18	---	---	---	25	23	23	21	19	20	22	22	22
19	---	---	---	25	24	24	21	21	21	22	22	22
20	---	---	---	24	24	24	21	21	21	23	21	22
21	---	---	---	24	23	24	21	20	21	23	21	22
22	---	---	---	23	18	21	23	20	22	23	22	22
23	---	---	---	23	20	22	---	---	---	23	22	23
24	---	---	---	23	23	23	---	---	---	24	22	23
25	26	26	26	24	23	24	---	---	---	23	22	23
26	26	26	26	26	24	24	---	---	---	24	22	23
27	26	25	26	26	24	26	---	---	---	24	22	24
28	25	25	25	26	21	24	---	---	---	24	24	24
29	27	25	26	---	---	---	---	---	---	24	24	24
30	26	24	25	---	---	---	---	---	---	24	23	24
31	24	24	24	---	---	---	---	---	---	24	23	23
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	24	23	24	25	24	24	25	24	24	23	21	22
2	25	23	24	24	24	24	25	24	24	22	20	21
3	25	23	25	24	24	24	25	24	24	21	21	21
4	25	25	25	25	24	24	25	22	23	23	21	22
5	25	25	25	25	25	25	22	21	22	22	21	21
6	25	23	24	25	23	24	22	22	22	22	21	22
7	25	23	24	24	23	24	22	22	22	22	21	22
8	25	23	24	24	23	24	22	22	22	23	22	22
9	25	23	25	24	23	24	22	21	21	23	22	23
10	25	25	25	24	24	24	21	18	20	24	22	23
11	25	24	25	24	21	23	21	19	20	24	22	23
12	25	25	25	23	21	22	20	19	19	23	22	23
13	25	25	25	24	23	23	19	16	19	22	21	21
14	25	25	25	24	23	23	18	15	17	21	20	21
15	25	25	25	23	23	23	20	18	20	22	20	21
16	25	24	25	24	23	24	22	20	21	22	20	21
17	25	24	25	24	24	24	22	21	22	21	19	21
18	25	24	24	25	24	24	23	21	22	21	19	20
19	25	23	24	26	24	25	23	22	23	21	19	20
20	24	23	23	26	25	25	23	22	23	21	19	20
21	23	21	22	25	25	25	23	22	23	21	20	21
22	23	21	21	27	24	25	23	22	23	21	19	20
23	21	20	21	27	25	26	23	22	23	21	19	20
24	22	21	22	26	24	25	23	22	23	21	20	21
25	23	22	22	26	24	25	23	22	23	21	20	20
26	24	22	23	26	24	25	23	21	23	21	18	19
27	24	22	24	25	24	24	23	21	22	20	19	19
28	24	24	24	25	24	24	23	22	23	19	19	19
29	---	---	---	26	24	25	23	22	23	19	17	18
30	---	---	---	26	24	25	23	21	22	19	17	18
31	---	---	---	26	24	25	---	---	---	20	18	19
MONTH	25	20	24	27	21	24	25	15	22	24	17	21

WILLAMETTE RIVER BASIN

14179100 FRENCH CREEK NEAR DETROIT, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	20	18	19	23	21	21	31	30	30	35	34	34
2	20	18	19	24	19	23	31	30	31	35	34	35
3	20	19	20	24	17	22	31	30	31	35	34	35
4	20	19	20	24	16	22	32	30	31	35	34	34
5	20	18	19	24	17	22	32	30	31	35	33	34
6	20	18	19	25	17	23	31	30	31	35	34	34
7	21	19	20	25	18	23	32	30	31	35	34	34
8	21	20	21	25	25	25	---	---	---	35	33	34
9	22	20	21	26	25	26	---	---	---	35	34	34
10	22	20	21	27	25	26	---	---	---	35	34	35
11	21	19	20	27	26	27	---	---	---	36	35	35
12	20	18	19	---	---	---	---	---	---	36	34	35
13	19	17	18	---	---	---	---	---	---	35	34	35
14	19	17	18	---	---	---	---	---	---	35	34	35
15	19	17	18	---	---	---	---	---	---	35	34	35
16	19	18	18	---	---	---	---	---	---	34	33	34
17	20	18	19	---	---	---	---	---	---	34	32	32
18	19	17	18	28	26	27	---	---	---	33	32	33
19	19	18	19	28	27	27	---	---	---	37	33	35
20	20	19	19	29	27	28	---	---	---	37	35	36
21	20	19	19	29	27	28	---	---	---	38	36	37
22	20	19	19	29	28	29	---	---	---	39	37	38
23	21	19	20	30	28	29	---	---	---	39	37	38
24	21	20	21	30	28	29	---	---	---	40	38	39
25	21	20	21	30	29	29	---	---	---	40	39	40
26	22	20	21	30	29	29	---	---	---	40	39	40
27	22	21	21	30	29	30	---	---	---	41	40	41
28	23	21	21	31	29	30	---	---	---	41	40	41
29	---	---	---	31	29	30	35	34	34	42	36	40
30	---	---	---	31	30	30	35	34	34	37	33	35
31	---	---	---	31	29	30	35	34	34	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	42	32	36

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	---	---	---	7.0	6.8	7.0	7.0	7.0	7.0	7.0	6.9	6.9
2	---	---	---	7.0	6.8	7.0	7.0	7.0	7.0	6.9	6.8	6.9
3	---	---	---	7.0	7.0	7.0	7.1	7.0	7.0	6.8	6.8	6.8
4	---	---	---	7.0	7.0	7.0	7.1	7.0	7.1	6.9	6.8	6.8
5	---	---	---	7.0	6.9	7.0	7.1	7.0	7.1	6.9	6.8	6.8
6	---	---	---	7.0	6.8	7.0	7.1	6.8	7.0	6.8	6.7	6.8
7	---	---	---	7.0	6.9	7.0	6.9	6.8	6.8	6.7	6.5	6.6
8	---	---	---	7.0	7.0	7.0	7.0	6.9	6.9	6.6	6.5	6.5
9	---	---	---	7.1	7.0	7.0	7.0	7.0	7.0	6.7	6.6	6.7
10	---	---	---	7.0	7.0	7.0	7.0	7.0	7.0	6.8	6.7	6.8
11	---	---	---	7.1	7.0	7.0	7.0	7.0	7.0	6.9	6.7	6.8
12	---	---	---	7.1	7.0	7.0	7.1	6.9	7.0	6.9	6.9	6.9
13	---	---	---	7.2	7.0	7.1	7.0	6.6	6.8	7.0	6.9	6.9
14	---	---	---	7.1	7.0	7.1	6.8	6.6	6.6	7.0	7.0	7.0
15	---	---	---	7.2	7.1	7.1	6.9	6.8	6.9	7.0	7.0	7.0
16	---	---	---	7.2	7.1	7.2	6.9	6.6	6.7	7.1	7.0	7.0
17	---	---	---	7.2	7.2	7.2	6.8	6.5	6.7	7.1	7.0	7.1
18	---	---	---	7.2	7.2	7.2	6.9	6.8	6.8	7.1	7.1	7.1
19	---	---	---	7.2	7.1	7.2	6.9	6.9	6.9	7.1	7.1	7.1
20	---	---	---	7.2	7.2	7.2	7.0	6.9	7.0	7.1	7.1	7.1
21	---	---	---	7.2	7.2	7.2	7.0	7.0	7.0	7.2	7.1	7.1
22	---	---	---	7.2	6.8	7.0	7.0	7.0	7.0	7.1	7.1	7.1
23	---	---	---	7.1	6.9	7.0	7.0	7.0	7.0	7.1	7.1	7.1
24	---	---	---	7.1	7.1	7.1	7.0	7.0	7.0	7.2	7.1	7.1
25	7.0	7.0	7.0	7.1	7.1	7.1	7.0	7.0	7.0	7.2	7.1	7.2
26	7.0	7.0	7.0	7.1	7.1	7.1	7.0	7.0	7.0	7.2	7.2	7.2
27	7.1	7.0	7.0	7.1	7.1	7.1	7.0	7.0	7.0	7.2	7.2	7.2
28	7.1	7.0	7.1	7.1	6.9	7.1	7.0	7.0	7.0	7.3	7.2	7.3
29	7.1	7.0	7.1	7.0	6.9	6.9	7.0	7.0	7.0	7.3	7.2	7.2
30	7.0	6.9	7.0	7.0	7.0	7.0	7.0	6.9	7.0	7.2	7.2	7.2
31	7.0	6.9	7.0	---	---	---	7.0	6.9	6.9	7.2	7.1	7.2
MAX	---	---	---	7.2	7.2	7.2	7.1	7.0	7.1	7.3	7.2	7.3
MIN	---	---	---	7.0	6.8	6.9	6.8	6.5	6.6	6.6	6.5	6.5

## WILLAMETTE RIVER BASIN

14179100 FRENCH CREEK NEAR DETROIT, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.2	7.1	7.2	---	---	---	7.4	7.4	7.4	7.1	7.0	7.1
2	7.2	7.1	7.2	---	---	---	7.4	7.4	7.4	7.1	7.0	7.1
3	7.2	7.1	7.1	---	---	---	7.4	7.4	7.4	7.2	7.0	7.1
4	7.2	7.1	7.2	---	---	---	7.4	7.3	7.3	7.2	7.0	7.1
5	7.2	7.1	7.1	---	---	---	7.3	7.3	7.3	7.1	7.0	7.1
6	7.2	7.1	7.1	---	---	---	7.3	7.3	7.3	7.1	7.1	7.1
7	7.2	7.1	7.1	7.4	7.4	7.4	7.3	7.3	7.3	7.1	7.1	7.1
8	7.1	7.1	7.1	7.4	7.4	7.4	7.4	7.3	7.3	7.1	7.0	7.1
9	7.1	7.1	7.1	7.4	7.4	7.4	7.3	7.2	7.3	7.1	7.1	7.1
10	7.1	7.1	7.1	7.4	7.4	7.4	7.2	7.1	7.2	7.2	7.1	7.1
11	7.1	7.1	7.1	7.4	7.2	7.3	7.2	7.1	7.1	7.2	7.1	7.1
12	7.2	7.0	7.1	7.3	7.2	7.3	7.2	7.1	7.1	7.2	7.1	7.2
13	7.1	7.0	7.0	7.3	7.3	7.3	7.2	7.0	7.1	7.3	7.2	7.3
14	7.1	7.0	7.0	7.4	7.3	7.3	7.0	6.7	6.8	7.3	7.1	7.2
15	7.1	7.0	7.1	7.4	7.3	7.3	6.9	6.1	6.8	7.2	7.1	7.2
16	7.1	7.0	7.1	7.4	7.3	7.3	7.0	6.8	7.0	7.2	7.1	7.2
17	7.1	7.0	7.0	7.4	7.3	7.4	7.1	7.0	7.0	7.2	7.1	7.2
18	7.1	7.0	7.0	7.4	7.3	7.4	7.1	7.1	7.1	7.2	7.1	7.2
19	7.0	6.9	7.0	7.4	7.3	7.4	7.1	6.8	7.0	7.2	7.1	7.2
20	7.0	6.9	---	7.4	7.4	7.4	7.0	6.9	7.0	7.3	7.1	7.2
21	7.2	7.0	---	7.4	7.4	7.4	7.0	6.9	6.9	7.3	7.2	7.3
22	7.1	6.9	7.0	7.4	7.4	7.4	7.0	6.9	6.9	7.3	7.2	7.3
23	7.0	6.9	7.0	7.5	7.4	7.4	7.0	6.9	7.0	7.3	7.1	7.2
24	7.0	6.9	7.0	7.4	7.4	7.4	7.0	7.0	7.0	7.2	7.1	7.2
25	7.0	6.9	7.0	7.4	7.4	7.4	7.0	7.0	7.0	7.3	7.1	7.2
26	7.0	6.9	7.0	7.4	7.4	7.4	7.1	7.0	7.0	7.3	7.1	7.2
27	7.0	6.9	7.0	7.4	7.4	7.4	7.1	7.0	7.0	7.3	7.2	7.2
28	7.0	6.8	6.9	7.4	7.4	7.4	7.1	7.0	7.1	7.4	7.2	7.3
29	---	---	---	7.5	7.4	7.4	7.1	7.0	7.0	7.4	7.2	7.3
30	---	---	---	7.5	7.4	7.4	7.1	7.0	7.1	7.4	7.1	7.2
31	---	---	---	7.4	7.4	7.4	---	---	---	7.3	7.1	7.2
MAX	7.2	7.1	---	---	---	---	7.4	7.4	7.4	7.4	7.2	7.3
MIN	7.0	6.8	---	---	---	---	6.9	6.1	6.8	7.1	7.0	7.1
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.3	7.1	7.2	---	---	---	---	---	---	7.4	7.3	7.4
2	7.3	7.1	7.3	---	---	---	---	---	---	7.4	7.3	7.3
3	7.3	7.1	7.2	---	---	---	---	---	---	7.4	7.3	7.4
4	7.3	7.2	7.3	---	---	---	---	---	---	7.4	7.3	7.4
5	7.3	7.2	7.3	---	---	---	---	---	---	7.4	7.3	7.4
6	7.4	7.2	7.3	---	---	---	---	---	---	7.4	7.3	7.4
7	7.4	7.2	7.3	---	---	---	---	---	---	7.4	7.3	7.4
8	7.3	7.1	7.3	---	---	---	7.6	7.5	7.6	7.5	7.3	7.4
9	7.3	7.2	7.2	---	---	---	7.6	7.5	7.6	7.4	7.3	7.3
10	7.3	7.2	7.2	---	---	---	7.6	7.5	7.5	7.4	7.3	7.3
11	7.4	7.2	7.3	---	---	---	7.6	7.4	7.5	7.4	7.3	7.3
12	7.4	7.3	7.4	---	---	---	7.5	7.4	7.5	7.4	7.3	7.3
13	7.4	7.2	7.4	---	---	---	7.5	7.4	7.5	7.4	7.3	7.3
14	7.5	7.2	7.4	---	---	---	7.5	7.4	7.5	7.4	7.3	7.3
15	7.5	7.3	7.4	---	---	---	7.5	7.3	7.4	7.4	7.3	7.4
16	7.5	7.3	7.4	---	---	---	7.5	7.4	7.4	7.4	7.3	7.3
17	7.5	7.4	7.4	---	---	---	7.5	7.4	7.4	7.4	7.3	7.4
18	7.6	7.5	7.6	---	---	---	7.5	7.4	7.4	7.4	7.3	7.4
19	7.5	7.2	7.4	---	---	---	7.5	7.4	7.4	7.4	7.3	7.3
20	7.4	7.3	7.4	---	---	---	7.5	7.4	7.4	7.4	7.3	7.3
21	7.5	7.3	7.4	---	---	---	7.5	7.3	7.4	7.4	7.3	7.3
22	---	---	---	---	---	---	7.4	7.3	7.3	7.4	7.2	7.3
23	---	---	---	---	---	---	7.4	7.3	7.3	7.3	7.3	7.3
24	---	---	---	---	---	---	7.3	7.2	7.3	7.3	7.2	7.3
25	---	---	---	---	---	---	7.4	7.3	7.3	7.3	7.2	7.3
26	---	---	---	---	---	---	7.4	7.3	7.3	7.3	7.2	7.3
27	---	---	---	---	---	---	7.4	7.3	7.3	7.3	7.2	7.3
28	---	---	---	---	---	---	7.4	7.3	7.3	7.3	7.2	7.3
29	---	---	---	---	---	---	7.4	7.3	7.3	7.3	7.2	7.3
30	---	---	---	---	---	---	7.4	7.3	7.4	7.4	7.2	7.3
31	---	---	---	---	---	---	7.4	7.3	7.4	---	---	---
MAX	---	---	---	---	---	---	---	---	---	7.5	7.3	7.4
MIN	---	---	---	---	---	---	---	---	---	7.3	7.2	7.3

14179100 FRENCH CREEK NEAR DETROIT, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	7.6	7.3	7.4	5.3	5.1	5.2	4.5	4.2	4.3
2	---	---	---	8.0	7.6	7.8	5.8	5.3	5.6	4.9	4.5	4.6
3	---	---	---	7.6	7.2	7.4	5.6	4.9	5.3	4.5	4.5	4.5
4	---	---	---	7.3	7.0	7.2	4.9	3.4	4.3	4.7	4.3	4.5
5	---	---	---	7.3	6.5	7.1	4.3	3.3	4.0	4.9	4.5	4.7
6	---	---	---	6.6	5.8	6.3	5.1	3.8	4.3	5.3	4.8	5.0
7	---	---	---	5.8	5.3	5.5	5.4	5.1	5.2	5.4	5.2	5.3
8	---	---	---	5.7	5.1	5.4	5.4	5.0	5.2	5.4	5.0	5.1
9	---	---	---	6.1	5.3	5.7	5.1	4.7	4.9	5.1	4.7	4.9
10	---	---	---	6.7	5.9	6.3	4.7	3.8	4.2	5.1	4.6	4.8
11	---	---	---	7.2	6.4	6.8	4.3	3.8	4.1	5.1	4.7	4.9
12	---	---	---	7.5	7.0	7.3	4.4	4.1	4.3	5.0	4.5	4.9
13	---	---	---	7.8	7.4	7.5	4.7	4.1	4.4	4.5	4.1	4.3
14	---	---	---	8.4	7.8	8.1	4.5	4.1	4.3	4.3	4.0	4.2
15	---	---	---	8.1	7.8	8.0	4.4	4.2	4.3	4.0	3.5	3.7
16	---	---	---	7.8	7.1	7.6	5.1	4.4	4.7	3.6	2.5	3.2
17	---	---	---	7.1	6.1	6.8	5.0	4.7	4.8	3.6	3.0	3.4
18	---	---	---	6.4	5.8	6.1	4.8	4.5	4.6	3.6	3.1	3.5
19	---	---	---	7.2	6.2	6.7	4.8	4.6	4.7	3.1	2.6	2.8
20	---	---	---	7.1	7.0	7.0	4.7	4.2	4.5	2.7	0.4	1.4
21	---	---	---	7.0	6.3	6.6	4.5	4.2	4.4	2.0	0.8	1.4
22	---	---	---	6.7	5.9	6.4	4.4	3.9	4.2	1.7	0.1	1.1
23	---	---	---	6.5	6.2	6.4	4.3	3.7	4.0	2.4	1.5	2.1
24	---	---	---	6.2	5.5	6.0	3.7	3.4	3.5	2.7	2.3	2.5
25	7.4	6.8	7.0	5.5	4.3	5.1	3.8	3.3	3.5	2.8	2.0	2.4
26	7.6	6.9	7.2	5.1	4.7	5.0	3.8	3.3	3.6	3.0	2.5	2.8
27	7.6	7.0	7.3	5.0	4.8	4.9	4.0	3.7	3.8	3.2	2.0	2.9
28	7.0	6.3	6.7	5.0	3.2	4.3	4.3	3.8	4.0	3.1	2.7	3.0
29	7.3	6.8	7.1	5.2	4.5	5.0	4.2	3.8	4.0	3.1	2.6	2.9
30	8.0	7.3	7.7	5.2	4.8	5.0	4.3	4.0	4.2	3.4	3.0	3.2
31	7.8	7.3	7.6	---	---	---	4.5	4.2	4.3	3.4	2.8	3.2
MONTH	---	---	---	8.4	3.2	6.4	5.8	3.3	4.4	5.4	0.1	3.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.3	2.8	3.2	---	3.0	---	5.3	4.1	4.6	6.5	4.8	5.4
2	3.5	3.3	3.4	---	---	---	5.3	4.1	4.6	6.8	4.9	5.5
3	3.7	3.3	3.5	---	---	---	5.4	4.1	4.7	5.5	4.3	4.9
4	3.5	3.0	3.2	---	---	---	5.5	4.2	4.8	5.8	3.7	4.7
5	3.6	3.2	3.4	---	---	---	4.8	4.5	4.6	5.2	4.4	4.8
6	3.8	3.3	3.6	---	---	---	5.2	4.5	4.7	4.5	3.7	4.2
7	3.3	2.4	3.1	3.8	3.0	3.5	4.8	4.4	4.5	4.6	3.4	4.0
8	3.6	2.6	3.3	3.5	3.0	3.3	5.5	4.3	4.8	5.8	3.7	4.6
9	4.0	3.5	3.7	4.0	3.2	3.6	4.8	4.4	4.6	5.4	4.3	4.7
10	4.1	3.6	3.9	4.2	3.8	3.9	4.8	4.3	4.5	6.3	4.3	5.1
11	4.2	3.7	3.9	4.2	3.9	4.0	5.0	4.5	4.7	6.8	4.1	5.4
12	4.1	3.4	3.7	3.9	3.6	3.8	5.4	4.6	4.9	7.5	4.7	5.9
13	3.9	3.4	3.7	3.7	3.3	3.5	5.4	4.9	5.0	5.8	4.9	5.3
14	3.9	3.3	3.6	3.9	3.5	3.6	5.0	3.6	4.0	6.3	4.5	5.2
15	4.0	3.4	3.7	4.0	3.3	3.6	4.3	3.7	3.8	6.4	4.1	5.2
16	4.2	3.8	4.0	3.3	2.1	2.8	4.2	3.6	3.8	6.6	4.1	5.3
17	4.4	3.7	4.0	3.1	2.5	2.8	4.3	3.6	3.9	7.0	5.1	5.8
18	4.6	4.1	4.3	3.3	2.1	2.9	5.0	3.8	4.3	6.0	5.2	5.6
19	4.4	4.2	4.2	2.9	1.4	2.2	5.2	4.1	4.5	5.6	5.0	5.3
20	4.6	4.1	4.3	3.9	2.9	3.4	6.0	4.3	4.9	6.2	4.7	5.4
21	---	---	---	4.2	3.2	3.7	6.2	4.2	5.0	5.9	4.8	5.2
22	4.6	4.2	4.4	4.3	3.2	3.7	6.2	4.5	5.2	5.6	4.7	5.1
23	4.4	3.9	4.2	4.5	3.7	4.0	5.6	4.0	4.8	6.8	4.6	5.5
24	4.3	3.9	4.1	4.8	3.9	4.2	5.9	3.6	4.7	7.0	4.7	5.8
25	4.2	3.6	3.9	4.8	4.0	4.3	6.2	4.1	5.1	7.3	5.2	6.1
26	4.1	3.5	3.8	5.0	3.9	4.4	5.3	4.3	4.7	7.5	5.5	6.3
27	4.1	3.4	3.8	4.8	4.1	4.4	5.1	4.1	4.5	6.6	5.5	6.0
28	4.2	3.5	3.9	4.8	4.2	4.4	6.0	3.9	4.8	6.5	5.7	6.1
29	---	---	---	5.2	4.2	4.6	6.5	4.1	5.2	7.1	5.8	6.3
30	---	---	---	5.2	4.1	4.5	5.8	4.5	5.1	7.9	5.4	6.4
31	---	---	---	5.3	4.1	4.6	---	---	---	7.9	5.3	6.5
MONTH	---	---	---	---	---	---	6.5	3.6	4.6	7.9	3.4	5.4

## WILLAMETTE RIVER BASIN

14179100 FRENCH CREEK NEAR DETROIT, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	7.8	5.6	6.5	---	---	---	13.4	11.6	12.5	13.2	11.9	12.5
2	7.8	5.5	6.5	---	---	---	13.0	11.5	12.2	13.2	11.9	12.5
3	7.6	5.5	6.6	---	---	---	12.6	11.0	11.8	13.1	12.0	12.6
4	7.9	6.2	6.9	---	---	---	11.9	11.3	11.6	12.2	11.0	11.6
5	8.0	6.5	7.1	---	---	---	11.7	10.9	11.3	11.6	10.4	11.1
6	7.3	5.5	6.4	---	---	---	11.7	10.9	11.2	11.2	10.2	10.8
7	6.3	5.0	5.7	---	---	---	11.9	10.2	11.0	11.2	10.5	10.8
8	6.3	5.0	5.5	---	---	---	12.0	10.3	11.2	11.0	9.9	10.5
9	6.6	5.4	5.9	---	---	---	12.5	10.7	11.6	11.3	10.0	10.7
10	8.4	6.0	7.1	---	---	---	12.9	11.3	12.0	11.6	10.3	11.0
11	8.6	6.0	7.4	---	---	---	12.7	10.9	11.8	12.0	10.8	11.4
12	9.1	6.6	7.7	---	---	---	13.0	11.3	12.2	12.2	11.1	11.7
13	9.9	7.0	8.3	---	---	---	13.6	11.7	12.6	12.4	11.3	11.8
14	9.7	7.1	8.3	---	---	---	13.7	12.1	12.8	12.5	11.5	12.0
15	9.5	7.1	8.2	---	---	---	13.6	12.1	12.8	12.3	11.6	11.9
16	9.1	7.5	8.2	---	---	---	13.4	11.8	12.6	11.9	11.6	11.7
17	7.8	7.2	7.5	---	---	---	13.5	12.1	12.7	11.8	11.4	11.6
18	7.5	6.6	7.0	13.5	11.7	12.5	13.3	11.7	12.5	11.6	10.9	11.2
19	8.6	6.1	7.2	13.3	12.0	12.5	13.3	11.9	12.6	11.5	10.4	11.0
20	9.4	6.9	8.2	13.3	11.4	12.4	12.6	12.2	12.4	11.5	10.6	11.1
21	10.2	7.8	8.9	13.5	11.6	12.6	12.3	11.5	11.9	11.3	10.1	10.7
22	10.2	8.4	9.2	13.8	12.0	12.9	12.8	11.2	12.0	11.1	9.9	10.5
23	10.2	8.5	9.3	14.3	12.8	13.5	12.8	11.5	12.2	11.1	10.0	10.6
24	10.3	8.3	9.3	14.5	12.8	13.6	13.1	11.8	12.4	11.1	10.0	10.6
25	10.9	8.7	9.8	14.5	12.9	13.7	13.2	12.1	12.6	11.1	10.1	10.6
26	11.5	9.5	10.5	14.1	13.1	13.5	13.1	12.3	12.6	10.9	10.0	10.5
27	10.8	9.9	10.4	13.6	11.9	12.8	13.2	11.7	12.4	11.0	10.3	10.7
28	---	---	---	13.7	11.8	12.7	13.5	12.1	12.8	10.8	9.8	10.4
29	---	---	---	14.1	12.4	13.2	13.7	12.4	13.0	10.5	9.6	10.2
30	---	---	---	14.1	12.5	13.2	13.4	12.3	12.8	9.6	9.0	9.4
31	---	---	---	13.5	11.9	12.8	13.1	11.7	12.4	---	---	---
MONTH	---	---	---	---	---	---	13.7	10.2	12.2	13.2	9.0	11.1

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	---	---	---	4	<1	<1	4	<1	<1	2	<1	<1
2	---	---	---	3	<1	<1	2	<1	<1	9	<1	1
3	---	---	---	2	<1	<1	2	<1	<1	4	<1	<1
4	---	---	---	2	<1	<1	1	<1	<1	5	<1	<1
5	---	---	---	2	<1	<1	1	<1	<1	2	<1	<1
6	---	---	---	2	<1	<1	35	<1	3	7	<1	2
7	---	---	---	4	<1	<1	27	<1	2	24	4	11
8	---	---	---	1	<1	<1	3	<1	<1	34	8	20
9	---	---	---	1	<1	<1	2	<1	<1	16	<1	2
10	---	---	---	5	<1	<1	1	<1	<1	2	<1	<1
11	---	---	---	4	<1	<1	1	<1	<1	2	<1	<1
12	---	---	---	3	<1	<1	2	<1	<1	1	<1	<1
13	---	---	---	8	<1	<1	102	<1	3	2	<1	<1
14	---	---	---	4	<1	1	68	2	21	2	<1	<1
15	---	---	---	2	<1	<1	9	<1	1	2	<1	<1
16	---	---	---	5	<1	<1	33	<1	14	1	<1	<1
17	---	---	---	4	<1	<1	43	2	12	3	<1	<1
18	---	---	---	<1	<1	<1	7	<1	1	4	<1	<1
19	---	---	---	2	<1	<1	3	<1	<1	4	<1	<1
20	---	---	---	2	<1	<1	2	<1	<1	2	<1	<1
21	---	---	---	2	<1	<1	3	<1	<1	2	<1	<1
22	---	---	---	62	<1	13	1	<1	<1	10	<1	<1
23	---	---	---	33	<1	9	1	<1	<1	2	<1	<1
24	---	---	---	4	<1	<1	9	<1	<1	2	<1	<1
25	1	<1	<1	3	<1	<1	2	<1	<1	2	<1	<1
26	3	<1	<1	2	<1	<1	6	<1	<1	2	<1	<1
27	7	<1	<1	<1	<1	<1	6	<1	<1	<1	<1	<1
28	2	<1	<1	6	<1	<1	6	<1	<1	<1	<1	<1
29	2	<1	<1	12	<1	2	8	<1	<1	<1	<1	<1
30	4	<1	1	1	<1	<1	2	<1	<1	1	<1	<1
31	3	<1	1	---	---	---	3	<1	<1	<1	<1	<1
MAX	---	---	---	62	<1	13	102	2	21	34	8	20
MIN	---	---	---	<1	<1	<1	1	<1	<1	<1	<1	<1



14180300 BLOWOUT CREEK NEAR DETROIT, OR

LOCATION.--44°39'11", long 122°07'47", in NW 1/4 sec.6, T.11 S., R.6 E., Marion County, Hydrologic Unit 17090005, on left bank, 6.0 mi south of Detroit, and at mile 5.5.

DRAINAGE AREA.--26.0 mi<sup>2</sup>.

WATER-DISCHARGE RECORD

PERIOD OF RECORD.--October 1998 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,840 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good except those below 10 ft<sup>3</sup>/s and estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--4 years (water years 1999-2002), 116 ft<sup>3</sup>/s, 60.47 in/yr, 83,830 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,400 ft<sup>3</sup>/s Dec. 28, 1998, gage height, 7.38 ft; minimum discharge, 3.0 ft<sup>3</sup>/s Sept. 21-25, 2001, Oct. 5, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	1600	1,480	6.08	Jan. 8	0900	1,320	5.94
Dec. 13	2130	1,490	6.09	Apr. 14	0400	*2,280	*6.71
Dec. 17	0200	1,180	5.80				

Minimum discharge, 3.0 ft<sup>3</sup>/s Oct. 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.8	108	452	136	94	130	163	142	142	27	8.6	4.7
2	3.6	74	394	228	86	115	176	155	128	25	8.3	4.6
3	3.4	52	265	264	83	104	193	164	114	24	8.2	4.6
4	3.4	39	201	210	79	97	217	150	106	22	8.2	4.6
5	3.2	35	164	183	76	97	252	139	106	21	8.3	4.6
6	3.2	29	366	404	79	238	253	133	99	20	8.2	4.6
7	3.3	25	413	733	124	250	247	117	86	20	8.0	4.6
8	3.7	23	287	1100	159	185	229	102	78	20	7.7	4.6
9	4.0	21	217	617	137	154	318	94	69	e19	7.5	4.4
10	5.3	19	178	385	120	148	738	88	63	e18	7.3	4.1
11	19	18	151	277	110	445	613	88	63	e17	6.8	4.0
12	11	19	134	273	101	762	593	99	66	16	6.6	4.0
13	7.9	64	545	253	93	419	629	127	71	16	6.4	4.0
14	6.7	170	876	208	88	287	1410	127	72	15	6.2	3.9
15	6.0	102	435	173	84	218	648	127	65	14	6.0	3.9
16	5.5	128	728	150	84	178	402	122	58	14	6.0	4.0
17	5.1	130	868	134	84	148	283	131	58	13	5.9	5.8
18	4.8	95	510	119	87	129	221	139	75	13	5.8	5.4
19	4.7	80	362	113	131	127	183	136	58	13	5.9	4.7
20	4.5	87	294	130	157	121	159	129	50	12	6.2	4.3
21	4.5	205	226	148	211	123	150	127	45	12	6.2	4.1
22	25	799	183	123	313	117	148	127	42	11	6.0	3.9
23	48	529	151	107	478	120	150	118	39	11	5.7	3.8
24	27	277	130	109	403	138	142	116	36	10	5.6	3.7
25	17	187	113	304	286	145	140	123	33	10	5.6	3.7
26	14	143	101	269	218	143	145	140	31	10	5.4	3.6
27	13	117	96	188	176	148	142	148	29	10	5.4	3.6
28	13	427	124	148	150	145	130	165	28	9.9	5.2	3.6
29	13	633	110	125	---	141	127	227	42	9.7	5.1	3.9
30	53	376	102	109	---	142	139	195	31	9.5	5.0	7.7
31	144	---	108	100	---	150	---	162	---	9.1	4.8	---
TOTAL	483.6	5011	9284	7820	4291	5864	9340	4157	1983	471.2	202.1	131.0
MEAN	15.6	167	299	252	153	189	311	134	66.1	15.2	6.52	4.37
MAX	144	799	876	1100	478	762	1410	227	142	27	8.6	7.7
MIN	3.2	18	96	100	76	97	127	88	28	9.1	4.8	3.6
AC-FT	959	9940	18410	15510	8510	11630	18530	8250	3930	935	401	260
CFSM	0.60	6.42	11.5	9.70	5.89	7.28	12.0	5.16	2.54	0.58	0.25	0.17
IN.	0.69	7.17	13.28	11.19	6.14	8.39	13.36	5.95	2.84	0.67	0.29	0.19

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2002, BY WATER YEAR (WY)

	1999	2000	2001	2002
MEAN	11.2	148	262	180
MAX	15.6	226	425	265
(WY)	2002	1999	1999	2000
MIN	7.63	22.6	81.4	53.5
(WY)	2000	2001	2001	2001

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1999 - 2002
ANNUAL TOTAL	28891.3	49037.9	
ANNUAL MEAN	79.2	134	116
HIGHEST ANNUAL MEAN			162
LOWEST ANNUAL MEAN			48.3
HIGHEST DAILY MEAN	876	1410	2440
LOWEST DAILY MEAN	3.1	3.2	3.1
ANNUAL SEVEN-DAY MINIMUM	3.3	3.4	3.3
ANNUAL RUNOFF (AC-FT)	57310	97270	83830
ANNUAL RUNOFF (CFSM)	3.04	5.17	4.45
ANNUAL RUNOFF (INCHES)	41.34	70.16	60.47
10 PERCENT EXCEEDS	170	298	257
50 PERCENT EXCEEDS	46	101	68
90 PERCENT EXCEEDS	4.5	4.7	5.3

e Estimated



14180300 BLOWOUT CREEK NEAR DETROIT, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1998 to current year.  
 pH: October 1998 to current year.  
 WATER TEMPERATURE: October 1998 to current year.  
 TURBIDITY: October 1998 to current year.

INSTRUMENTATION: Water-quality monitor and data logger.

REMARKS.--Water-quality data for the 2001 water year available in the files of the Portland field office.

SPECIFIC CONDUCTANCE: Record good.  
 pH: Record excellent.  
 WATER TEMPERATURE: Record excellent.  
 TURBIDITY: Record good.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 54 microsiemens Sept. 30, 2001; minimum recorded, 17 microsiemens, Dec. 17, 2001.  
 pH: Maximum recorded, 8.2 units Aug. 14, 15, 21, 2001; minimum recorded, 6.6 units Dec. 17, 2002.  
 WATER TEMPERATURE: Maximum recorded, 21.0°C Aug. 13, 2001, July 23, 24, 2002; minimum recorded, 0.0°C Dec. 20-23, 1998.  
 TURBIDITY: Maximum recorded 1,370 NTU Dec. 17, 2001, minimum recorded, <1 many days during most years.

## EXTREMES FOR CURRENT YEAR:

SPECIFIC CONDUCTANCE: Maximum recorded, 53 microsiemens Oct. 1, 4; minimum recorded, 17 microsiemens, Dec. 17.  
 pH: Maximum recorded, 8.0 units Sept. 14, 15; minimum recorded, 6.6 units Dec. 17.  
 WATER TEMPERATURE: Maximum recorded, 21.0°C July 23, 24; minimum recorded, 1.6°C Jan. 22.  
 TURBIDITY: Maximum recorded, 1,370 NTU Dec. 17; minimum recorded, <1 NTU many days during year.

## WATER-QUALITY DATA

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT					
11...	1412	19	81	2.0	.10
23...	1612	48	75	2.0	.26
31...	1331	160	74	11	4.8
NOV					
14...	1206	160	87	2.0	.86
22...	1620	1340	46	246	890
22...	1633	1270	23	482	1660
23...	1414	460	49	19	23.6
23...	1428	452	52	21	25.6
29...	0800	733	50	31	61.4
29...	1542	586	73	20	31.6
29...	1600	582	53	28	44.0
DEC					
06...	1452	442	63	29	34.6
14...	1015	876	48	67	158
16...	1546	841	51	47	107
16...	1601	826	32	64	143
19...	1400	339	51	63	57.7
19...	1405	340	66	53	48.7
JAN					
03...	1344	258	91	142	98.9
07...	1437	763	39	239	492
08...	1326	1110	47	195	585
FEB					
20...	1043	157	66	2.0	.85
APR					
03...	1311	185	64	5.0	2.5
14...	1355	1280	43	222	765

WILLAMETTE RIVER BASIN

14180300 BLOWOUT CREEK NEAR DETROIT, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	53	49	50	42	40	41	34	32	33	41	39	40
2	51	49	50	43	42	42	35	33	34	39	35	37
3	52	49	50	43	43	43	36	35	35	36	34	35
4	53	49	50	43	42	43	36	35	36	37	36	36
5	50	48	49	42	41	42	37	35	36	37	36	37
6	51	49	49	42	40	41	36	31	33	36	29	32
7	52	48	49	41	40	41	35	32	34	29	27	28
8	50	48	49	41	40	41	36	34	35	---	---	---
9	50	49	50	42	41	41	36	35	36	---	---	---
10	52	45	49	42	41	41	37	36	36	---	---	---
11	47	44	46	42	41	42	37	36	37	---	---	---
12	48	47	47	42	41	42	38	36	37	---	---	---
13	50	47	48	42	35	40	36	26	32	---	---	---
14	48	47	48	38	35	37	32	27	30	---	---	---
15	52	47	48	39	38	39	33	31	32	---	---	---
16	52	48	48	40	38	39	33	28	30	---	---	---
17	49	48	48	40	38	39	31	17	28	---	---	---
18	49	48	48	39	39	39	39	30	31	---	---	---
19	49	47	48	39	38	38	33	32	33	---	---	---
20	49	48	49	39	36	38	34	33	34	---	---	---
21	49	48	48	38	36	37	35	34	35	---	---	---
22	48	42	45	36	29	32	36	35	35	---	---	---
23	47	43	45	34	32	33	37	35	36	---	---	---
24	47	44	46	35	34	35	38	36	37	---	---	---
25	47	46	47	37	35	36	39	38	38	---	---	---
26	48	46	47	38	36	37	40	38	39	---	---	---
27	47	46	47	39	38	38	40	38	39	---	---	---
28	47	46	47	38	30	34	40	38	39	---	---	---
29	47	46	47	34	31	32	40	39	39	---	---	---
30	47	41	45	34	34	34	41	40	40	---	---	---
31	41	39	40	---	---	---	41	40	41	---	---	---
MONTH	53	39	48	43	29	39	41	17	35	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	---	---	---	39	38	38	34	33	34	33	32	32
2	---	---	---	39	38	39	34	33	33	32	31	32
3	---	---	---	39	38	38	34	33	33	32	31	31
4	---	---	---	39	38	39	33	32	33	32	30	32
5	---	---	37	39	38	39	33	32	32	31	30	31
6	38	36	37	39	33	36	32	32	32	32	31	31
7	36	35	35	37	34	36	33	32	32	32	31	32
8	38	35	36	38	37	37	33	32	32	33	32	33
9	39	38	38	39	38	38	33	28	31	33	33	33
10	39	37	38	38	37	38	28	27	27	33	33	33
11	38	37	38	37	25	33	29	28	28	33	32	33
12	39	38	38	29	25	27	29	28	28	33	31	32
13	38	37	38	29	28	29	29	24	28	31	31	31
14	38	38	38	31	29	30	27	21	24	32	31	31
15	38	37	38	32	31	31	29	26	28	32	31	31
16	38	37	37	33	32	32	31	29	29	32	31	32
17	38	37	38	33	32	32	32	30	31	32	31	32
18	38	37	38	33	33	33	33	31	32	32	31	32
19	37	34	36	34	33	33	33	33	33	32	32	32
20	37	35	36	34	34	34	33	33	33	33	32	32
21	37	35	36	35	34	34	34	33	33	33	32	33
22	36	34	35	35	34	35	34	33	33	33	31	32
23	34	31	33	36	35	35	33	33	33	32	32	32
24	33	31	33	35	34	34	34	33	33	33	32	32
25	34	33	33	35	34	34	33	33	33	32	32	32
26	36	34	35	35	34	35	33	33	33	32	31	31
27	37	36	36	35	34	35	33	32	33	31	30	31
28	38	37	37	35	35	35	33	32	32	31	30	30
29	---	---	---	35	35	35	33	32	33	30	27	28
30	---	---	---	35	34	35	32	32	32	28	27	28
31	---	---	---	35	33	34	---	---	---	29	28	28
MONTH	---	---	---	39	25	35	34	21	31	33	27	31

WILLAMETTE RIVER BASIN

14180300 BLOWOUT CREEK NEAR DETROIT, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	29	28	29	38	37	38	42	40	41	47	45	46
2	30	29	29	39	38	38	42	39	41	46	45	45
3	30	30	30	39	38	38	41	39	40	47	45	45
4	31	30	30	39	38	38	42	39	40	47	45	45
5	31	29	30	39	38	38	42	39	41	46	44	45
6	29	28	29	39	38	39	42	42	42	45	44	45
7	29	29	29	40	39	39	42	41	42	46	44	44
8	30	29	30	40	39	39	43	42	42	45	44	44
9	31	30	31	42	38	40	43	42	42	45	43	44
10	32	31	32	41	39	40	44	42	43	45	44	44
11	32	31	32	41	40	40	44	42	43	47	44	45
12	32	31	32	41	40	40	44	42	43	46	44	45
13	32	32	32	41	40	41	45	43	44	48	45	45
14	32	32	32	41	40	40	45	43	44	46	45	45
15	33	32	32	41	40	40	44	43	44	46	45	45
16	33	33	33	41	40	40	44	43	44	46	45	45
17	34	32	33	41	40	41	45	43	44	46	44	45
18	34	33	33	42	41	41	46	44	44	47	45	46
19	35	34	34	42	41	41	45	44	44	46	45	46
20	36	35	35	42	40	41	46	44	44	47	45	46
21	36	36	36	41	40	41	46	44	45	47	45	46
22	37	36	37	41	41	41	45	44	44	48	45	46
23	37	37	37	42	41	42	46	44	45	48	45	46
24	39	36	37	42	41	42	45	44	44	46	45	46
25	38	37	37	44	42	42	46	44	45	48	45	46
26	39	37	38	44	42	42	46	44	45	46	45	46
27	38	37	38	42	40	41	46	44	45	46	45	45
28	38	37	38	41	40	41	47	45	45	47	43	45
29	38	37	37	42	41	41	46	45	45	45	43	43
30	38	37	37	42	41	41	46	45	45	44	41	42
31	---	---	---	42	40	41	46	44	45	---	---	---
MONTH	39	28	33	44	37	40	47	39	43	48	41	45

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.8	7.3	7.4	7.5	7.4	7.5	7.4	7.3	7.4	7.4	7.4	7.4
2	7.8	7.3	7.4	7.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
3	7.8	7.3	7.4	7.5	7.4	7.4	7.4	7.4	7.4	7.5	7.4	7.4
4	7.8	7.3	7.4	7.5	7.4	7.4	7.4	7.4	7.4	7.5	7.4	7.4
5	7.8	7.3	7.4	7.6	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.4
6	8.0	7.3	7.4	7.6	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.4
7	7.8	7.3	7.4	7.5	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3
8	7.8	7.3	7.4	7.6	7.4	7.4	7.5	7.4	7.4	7.4	7.3	7.3
9	7.8	7.4	7.4	7.6	7.4	7.4	7.5	7.4	7.5	7.4	7.3	7.4
10	7.7	7.4	7.4	7.6	7.4	7.4	7.5	7.4	7.5	7.4	7.4	7.4
11	7.7	7.4	7.5	7.6	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.4
12	7.7	7.4	7.4	7.5	7.3	7.4	7.5	7.4	7.4	7.4	7.4	7.4
13	7.7	7.3	7.4	7.5	7.4	7.4	7.5	7.3	7.4	7.4	7.4	7.4
14	7.7	7.3	7.4	7.5	7.4	7.4	7.4	7.3	7.4	7.5	7.4	7.4
15	7.7	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
16	7.7	7.3	7.4	7.5	7.4	7.4	7.4	7.3	7.4	7.4	7.4	7.4
17	7.7	7.4	7.4	7.5	7.4	7.4	7.4	6.5	7.3	7.4	7.4	7.4
18	7.6	7.4	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.4	7.4	7.4
19	7.6	7.3	7.4	7.5	7.3	7.4	7.4	7.3	7.4	7.4	7.4	7.4
20	7.7	7.3	7.4	7.6	7.3	7.5	7.4	7.4	7.4	7.4	7.3	7.4
21	7.7	7.4	7.4	7.5	7.4	7.5	7.4	7.4	7.4	7.4	7.3	7.4
22	7.6	7.3	7.5	7.4	7.3	7.3	7.4	7.4	7.4	7.4	7.3	7.4
23	7.6	7.4	7.5	7.4	7.3	7.4	7.4	7.4	7.4	7.4	7.3	7.4
24	7.6	7.5	7.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.4
25	7.6	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.3
26	7.6	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.3	7.4
27	7.7	7.4	7.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4
28	7.7	7.4	7.5	7.4	7.3	7.4	7.5	7.4	7.4	7.4	7.3	7.4
29	7.6	7.3	7.4	7.4	7.3	7.4	7.4	7.4	7.4	7.4	7.4	7.4
30	7.6	7.3	7.5	7.4	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.4
31	7.5	7.4	7.5	---	---	---	7.5	7.4	7.4	7.4	7.4	7.4
MAX	8.0	7.5	7.5	7.6	7.4	7.5	7.5	7.4	7.5	7.5	7.4	7.4
MIN	7.5	7.3	7.4	7.4	7.3	7.3	7.3	6.5	7.3	7.4	7.3	7.3

## WILLAMETTE RIVER BASIN

14180300 BLOWOUT CREEK NEAR DETROIT, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.5
2	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.4	7.5
3	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.5
4	7.4	7.4	7.4	7.4	7.4	7.4	7.6	7.5	7.5	7.5	7.4	7.5
5	7.5	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.5
6	7.5	7.4	7.4	7.4	7.3	7.4	7.5	7.5	7.5	7.5	7.4	7.5
7	7.5	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.5
8	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.4
9	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.4	7.5	7.5	7.4	7.4
10	7.4	7.4	7.4	7.4	7.3	7.4	7.5	7.4	7.4	7.5	7.4	7.5
11	7.4	7.4	7.4	7.4	7.2	7.3	7.5	7.4	7.4	7.5	7.4	7.5
12	7.5	7.4	7.4	7.3	7.3	7.3	7.5	7.4	7.4	7.5	7.4	7.4
13	7.4	7.4	7.4	7.4	7.3	7.3	7.4	7.3	7.4	7.5	7.4	7.4
14	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3	7.5	7.4	7.4
15	7.4	7.4	7.4	7.4	7.3	7.4	7.4	7.3	7.4	7.5	7.4	7.5
16	7.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.4	7.5
17	7.5	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.4	7.5
18	7.5	7.4	7.4	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.4	7.5
19	7.4	7.3	7.4	7.4	7.3	7.3	7.4	7.4	7.4	7.5	7.4	7.5
20	7.5	7.3	7.4	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.4	7.5
21	7.5	7.4	7.4	7.4	7.3	7.4	7.4	7.4	7.4	7.5	7.4	7.5
22	7.5	7.4	7.4	7.4	7.3	7.4	7.5	7.4	7.4	7.5	7.4	7.5
23	7.4	7.2	7.4	7.4	7.3	7.4	7.5	7.4	7.4	7.5	7.4	7.5
24	7.4	7.3	7.4	7.4	7.3	7.4	7.5	7.3	7.5	7.5	7.4	7.5
25	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.4
26	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.4
27	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.4	7.4
28	7.4	7.4	7.4	7.5	7.4	7.4	7.5	7.5	7.5	7.5	7.3	7.4
29	---	---	---	7.5	7.4	7.4	7.5	7.4	7.5	7.5	7.2	7.4
30	---	---	---	7.5	7.4	7.4	7.5	7.4	7.5	7.5	7.4	7.4
31	---	---	---	7.5	7.4	7.4	---	---	---	7.5	7.4	7.4
MAX	7.5	7.4	7.4	7.5	7.4	7.4	7.6	7.5	7.5	7.5	7.4	7.5
MIN	7.4	7.2	7.4	7.3	7.2	7.3	7.3	7.3	7.3	7.5	7.2	7.4
DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.5	7.4	7.4	7.6	7.4	7.5	7.7	7.3	7.4	8.0	7.3	7.4
2	7.5	7.4	7.4	7.6	7.4	7.5	7.7	7.3	7.4	7.9	7.3	7.4
3	7.5	7.4	7.4	7.6	7.4	7.5	7.7	7.4	7.4	8.0	7.3	7.4
4	7.5	7.4	7.4	7.6	7.5	7.5	7.8	7.4	7.5	7.9	7.3	7.4
5	7.5	7.3	7.5	7.6	7.4	7.5	7.8	7.3	7.4	7.9	7.3	7.4
6	7.5	7.4	7.5	7.6	7.4	7.5	7.8	7.3	7.4	7.9	7.3	7.4
7	7.5	7.4	7.5	7.6	7.4	7.5	7.7	7.3	7.4	7.9	7.3	7.4
8	7.5	7.4	7.5	7.6	7.4	7.5	7.7	7.3	7.4	7.9	7.3	7.4
9	7.5	7.4	7.5	7.6	7.4	7.5	7.7	7.3	7.4	7.8	7.3	7.3
10	7.5	7.4	7.5	7.6	7.4	7.5	7.7	7.3	7.4	7.9	7.3	7.3
11	7.5	7.4	7.4	7.6	7.3	7.4	7.8	7.3	7.4	7.8	7.3	7.3
12	7.5	7.4	7.4	7.6	7.4	7.4	7.8	7.3	7.4	7.9	7.2	7.3
13	7.5	7.4	7.4	7.7	7.3	7.5	7.8	7.3	7.4	7.9	7.3	7.3
14	7.5	7.4	7.5	7.7	7.4	7.5	7.8	7.3	7.3	8.1	7.2	7.3
15	7.5	7.4	7.5	7.6	7.4	7.5	7.8	7.3	7.4	8.1	7.3	7.3
16	7.5	7.4	7.5	7.7	7.4	7.5	7.8	7.3	7.4	8.0	7.3	7.3
17	7.5	7.4	7.5	7.6	7.4	7.5	7.8	7.3	7.4	7.9	7.3	7.4
18	7.5	7.4	7.5	7.7	7.4	7.5	7.7	7.2	7.3	7.7	7.3	7.3
19	7.5	7.4	7.5	7.7	7.4	7.5	7.8	7.2	7.3	7.7	7.3	7.3
20	7.5	7.4	7.5	7.7	7.4	7.5	7.7	7.2	7.4	7.8	7.3	7.3
21	7.5	7.4	7.5	7.7	7.3	7.4	7.8	7.3	7.4	7.8	7.3	7.3
22	7.6	7.4	7.5	7.8	7.3	7.5	7.7	7.3	7.3	7.7	7.3	7.3
23	7.5	7.4	7.5	7.7	7.3	7.4	7.8	7.2	7.4	7.8	7.3	7.3
24	7.5	7.4	7.5	7.7	7.3	7.4	7.8	7.2	7.3	7.8	7.3	7.3
25	7.5	7.4	7.5	7.7	7.3	7.4	7.9	7.2	7.4	7.8	7.3	7.3
26	7.6	7.4	7.5	7.7	7.3	7.4	7.9	7.2	7.4	7.9	7.3	7.4
27	7.6	7.4	7.5	7.7	7.3	7.4	7.8	7.3	7.3	7.9	7.3	7.4
28	7.6	7.4	7.5	7.7	7.3	7.4	7.9	7.3	7.3	7.8	7.3	7.4
29	7.6	7.4	7.5	7.7	7.3	7.4	8.0	7.3	7.4	7.9	7.3	7.3
30	7.6	7.4	7.5	7.7	7.3	7.4	7.9	7.3	7.4	7.7	7.3	7.4
31	---	---	---	7.7	7.3	7.5	7.9	7.3	7.4	---	---	---
MAX	7.6	7.4	7.5	7.8	7.5	7.5	8.0	7.4	7.5	8.1	7.3	7.4
MIN	7.5	7.3	7.4	7.6	7.3	7.4	7.7	7.2	7.3	7.7	7.2	7.3

14180300 BLOWOUT CREEK NEAR DETROIT, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.1	9.2	11.3	8.5	7.8	8.1	5.9	5.6	5.7	4.6	4.1	4.3
2	13.8	9.3	11.3	8.9	7.9	8.4	6.2	5.6	5.9	5.2	4.5	4.7
3	13.4	8.8	10.7	8.0	7.0	7.6	5.8	5.2	5.4	4.9	4.4	4.6
4	13.3	8.8	10.6	7.7	6.5	7.1	5.2	3.5	4.5	4.7	4.1	4.4
5	12.6	8.0	10.1	7.8	6.0	7.2	4.7	3.4	4.2	5.2	4.2	4.8
6	12.4	9.2	10.3	6.8	5.3	6.0	5.3	4.5	4.8	5.6	5.0	5.3
7	10.6	7.8	9.3	5.3	4.2	4.7	5.4	5.1	5.2	5.8	5.5	5.7
8	11.4	9.3	9.9	5.0	3.7	4.4	5.4	4.9	5.2	5.8	5.5	5.6
9	11.6	8.1	9.5	5.4	3.7	4.6	5.3	4.7	5.0	5.5	4.8	5.2
10	8.5	6.8	7.7	6.3	4.4	5.4	4.7	4.2	4.4	5.6	4.7	5.1
11	9.8	8.3	8.8	7.4	5.6	6.5	4.6	4.4	4.5	5.6	4.8	5.1
12	9.9	8.0	8.8	7.6	6.4	7.0	4.5	4.3	4.4	5.4	4.7	5.2
13	11.8	9.2	10.0	7.9	7.1	7.4	5.2	4.5	4.8	4.7	4.1	4.3
14	11.6	9.0	9.8	8.9	7.9	8.4	5.1	4.7	4.8	4.5	3.9	4.2
15	10.9	8.0	9.4	8.4	7.7	8.0	4.9	4.6	4.8	3.9	3.1	3.6
16	11.5	8.3	9.6	8.1	7.4	7.9	5.6	4.8	5.2	3.3	2.5	3.0
17	10.4	7.3	8.8	7.4	5.8	6.9	5.5	5.0	5.2	3.5	2.9	3.3
18	8.9	5.7	7.1	6.3	5.3	5.8	5.0	4.8	4.9	4.0	3.4	3.6
19	9.1	5.7	7.4	7.6	5.8	6.7	5.3	4.8	5.0	3.5	2.6	3.1
20	10.9	7.8	8.9	7.4	6.9	7.1	5.0	4.5	4.9	3.0	1.9	2.3
21	8.4	7.2	7.8	7.0	6.6	6.8	4.8	4.4	4.6	2.8	1.9	2.4
22	8.8	8.1	8.3	7.1	6.7	6.9	4.6	3.9	4.3	2.8	1.6	2.4
23	8.2	7.1	7.7	6.9	6.5	6.6	4.4	3.4	3.9	3.3	2.5	2.9
24	7.6	6.2	7.0	6.5	5.2	6.2	3.4	2.8	3.2	3.6	3.1	3.3
25	8.8	7.1	7.7	5.8	4.6	5.2	3.9	2.9	3.3	3.7	3.1	3.4
26	8.3	6.3	7.3	5.4	5.0	5.1	3.8	2.9	3.3	3.8	3.1	3.6
27	7.8	6.7	7.2	5.0	4.5	4.7	4.0	3.4	3.7	3.9	3.0	3.4
28	7.8	6.4	7.1	5.6	2.8	4.5	4.4	3.5	4.0	3.5	2.8	3.2
29	8.2	7.3	7.8	5.9	5.4	5.7	4.2	3.4	3.8	3.3	2.4	2.9
30	8.7	8.0	8.3	5.7	5.4	5.5	4.3	3.9	4.1	3.6	2.9	3.2
31	8.4	7.9	8.2	---	---	---	4.8	4.1	4.3	3.6	2.5	3.1
MONTH	14.1	5.7	8.8	8.9	2.8	6.4	6.2	2.8	4.6	5.8	1.6	3.9
	FEBRUARY			MARCH			APRIL			MAY		
1	3.7	2.4	3.1	3.8	2.2	3.0	6.9	3.8	5.0	8.8	5.5	6.6
2	3.6	3.2	3.3	4.0	2.0	2.9	6.8	3.6	4.9	9.3	5.4	6.8
3	4.1	3.1	3.4	4.1	2.1	3.0	6.9	3.7	5.0	7.6	5.0	6.0
4	3.3	2.3	2.8	4.6	2.4	3.3	7.1	3.8	5.2	8.0	3.8	5.6
5	3.5	2.3	3.0	4.2	3.2	3.7	5.3	4.6	4.9	6.7	5.0	5.7
6	3.7	3.1	3.3	4.0	3.3	3.7	6.0	4.6	5.2	6.0	4.1	5.0
7	3.5	2.7	3.2	4.0	2.5	3.3	5.7	4.7	5.1	5.8	3.7	4.6
8	3.7	2.6	3.3	3.9	2.6	3.2	7.1	4.4	5.4	7.9	3.2	5.3
9	4.2	3.2	3.6	4.0	2.7	3.3	5.6	4.7	5.1	5.9	4.7	5.2
10	4.3	3.2	3.7	4.5	3.5	3.9	5.8	4.5	4.9	8.7	4.5	6.2
11	4.3	3.2	3.8	4.6	3.9	4.2	6.0	4.8	5.2	9.5	4.1	6.5
12	4.0	2.6	3.3	4.1	3.8	4.0	6.7	5.0	5.5	10.4	4.9	7.3
13	3.7	2.6	3.1	4.4	3.6	4.0	6.0	5.3	5.6	7.0	5.8	6.3
14	3.6	2.4	3.0	4.8	3.7	4.0	5.8	4.3	4.8	9.3	5.4	6.8
15	4.0	2.5	3.1	4.6	3.5	3.9	5.5	4.2	4.6	9.1	4.6	6.4
16	4.2	3.0	3.5	3.8	2.6	3.0	5.2	4.1	4.5	9.1	4.2	6.5
17	4.4	2.9	3.6	3.5	2.6	2.9	5.5	4.0	4.6	10.0	6.0	7.5
18	4.7	3.6	4.0	3.7	2.5	3.0	6.4	4.2	5.0	8.0	6.2	7.0
19	4.5	3.8	4.0	4.0	2.7	3.3	6.2	4.1	5.1	7.0	6.1	6.5
20	4.9	3.8	4.2	5.3	3.3	4.0	7.5	4.6	5.7	8.1	5.7	6.6
21	4.9	4.1	4.4	5.3	3.2	4.0	7.8	4.8	6.0	7.8	5.3	6.3
22	5.1	4.2	4.5	5.3	3.0	4.0	8.4	4.8	6.2	7.3	5.3	6.2
23	5.1	4.0	4.5	5.5	3.8	4.5	7.4	4.4	5.6	9.7	5.3	7.1
24	4.6	3.7	4.3	5.7	4.0	4.6	7.9	3.3	5.3	9.5	5.3	7.1
25	4.4	3.2	3.7	6.0	3.8	4.6	8.2	4.0	5.8	10.2	6.1	7.8
26	4.4	3.1	3.6	5.9	3.6	4.6	6.1	4.6	5.3	9.2	6.8	7.9
27	4.4	2.8	3.5	6.0	4.1	4.8	6.7	4.2	5.3	8.3	6.7	7.5
28	4.6	3.0	3.7	5.7	4.1	4.7	7.9	4.1	5.6	8.1	6.8	7.4
29	---	---	---	6.6	4.0	4.8	8.7	4.1	6.1	10.0	7.0	8.0
30	---	---	---	6.6	3.6	4.7	7.3	4.8	6.0	10.6	6.5	8.1
31	---	---	---	6.7	3.5	4.7	---	---	---	10.4	6.4	8.1
MONTH	5.1	2.3	3.6	6.7	2.0	3.9	8.7	3.3	5.3	10.6	3.2	6.6

## WILLAMETTE RIVER BASIN

14180300 BLOWOUT CREEK NEAR DETROIT, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	10.3	6.8	8.2	15.8	10.6	12.7	18.7	12.5	15.4	18.4	12.7	15.2
2	10.7	6.9	8.4	16.2	10.0	12.8	18.1	12.1	14.8	18.3	12.6	15.1
3	10.2	6.4	8.1	14.1	10.3	12.1	17.7	11.3	14.2	17.6	12.9	15.0
4	11.2	7.5	8.9	15.0	10.6	12.3	15.6	12.9	13.9	16.0	10.6	13.0
5	11.2	8.1	9.2	16.5	9.8	12.6	15.0	12.0	13.3	14.0	10.0	12.0
6	10.4	7.2	8.5	17.1	11.1	13.6	16.4	11.9	13.5	14.3	9.2	11.6
7	9.0	5.8	7.2	15.9	12.2	13.7	17.0	10.1	13.3	14.3	10.3	12.0
8	9.3	5.7	7.0	17.1	11.9	14.1	17.5	10.7	13.9	14.2	9.0	11.4
9	8.6	6.3	7.3	18.2	11.1	14.3	18.6	11.5	14.8	15.4	9.3	12.1
10	12.1	7.2	9.2	19.3	12.2	15.4	18.9	12.6	15.5	16.1	10.2	12.9
11	12.7	7.1	9.6	19.8	13.4	16.3	18.7	12.0	15.3	16.9	11.0	13.7
12	13.4	7.8	10.2	19.2	13.8	16.2	19.5	12.6	15.7	17.4	11.7	14.2
13	14.1	8.5	11.0	20.1	14.7	17.0	20.2	12.9	16.3	17.5	11.9	14.4
14	13.9	9.5	11.3	19.4	14.1	16.4	20.0	13.5	16.5	17.0	12.3	14.4
15	14.0	9.1	11.1	18.9	12.4	15.4	19.8	13.3	16.3	16.4	12.6	14.1
16	13.1	9.7	10.9	19.1	12.7	15.6	19.2	12.9	15.9	14.8	12.9	13.7
17	10.4	9.1	9.7	19.6	13.2	16.0	19.3	13.5	16.1	14.5	12.7	13.3
18	10.0	8.8	9.3	19.6	13.2	16.0	18.5	12.2	15.3	15.9	12.0	13.4
19	13.1	8.2	10.2	19.2	14.1	16.1	18.5	12.7	15.3	15.5	10.4	12.7
20	13.7	8.5	10.8	19.7	13.2	16.0	15.7	13.4	14.4	15.5	10.8	12.8
21	15.2	9.7	12.0	20.0	13.2	16.3	16.5	12.3	14.0	14.8	9.8	12.0
22	14.8	10.7	12.3	19.9	14.1	16.9	17.8	11.3	14.2	14.6	9.1	11.6
23	15.1	10.9	12.6	21.0	15.5	17.9	17.7	12.1	14.8	14.9	9.7	12.0
24	15.7	10.4	12.7	21.0	15.1	17.8	18.6	13.0	15.6	14.8	9.8	12.0
25	16.5	10.5	13.2	20.8	15.1	17.6	18.2	13.2	15.4	14.7	9.8	11.9
26	16.9	11.6	14.0	19.8	15.4	17.2	18.8	14.1	15.9	13.6	9.4	11.4
27	14.8	12.1	13.4	19.1	13.1	15.9	18.5	12.6	15.3	13.9	10.5	11.9
28	13.9	11.9	12.8	19.9	12.9	16.1	19.4	13.3	15.9	13.7	9.0	11.2
29	12.9	11.6	12.1	20.5	14.0	16.9	19.5	14.0	16.3	12.5	10.2	11.0
30	13.5	10.9	12.0	19.8	14.2	16.7	18.3	13.4	15.5	10.6	8.9	9.8
31	---	---	---	19.1	13.5	16.0	18.0	11.9	14.7	---	---	---
MONTH	16.9	5.7	10.4	21.0	9.8	15.5	20.2	10.1	15.1	18.4	8.9	12.7
YEAR	21.0	1.6	8.1									

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	<1	<1	<1	3	2	2	40	8	13	49	5	11
2	1	<1	<1	3	<1	1	41	7	10	83	12	18
3	<1	<1	<1	2	<1	1	21	5	8	251	21	38
4	4	<1	<1	1	<1	<1	14	5	6	38	13	18
5	1	<1	<1	9	<1	1	24	4	7	71	9	13
6	2	<1	<1	2	<1	<1	23	8	13	241	19	87
7	<1	<1	<1	2	<1	<1	12	4	6	670	57	86
8	1	<1	<1	1	<1	<1	8	4	4	306	30	81
9	<1	<1	<1	2	<1	<1	7	3	4	32	12	18
10	1	<1	<1	<1	<1	<1	6	3	3	29	6	9
11	8	<1	2	<1	<1	<1	6	3	3	7	4	5
12	1	<1	<1	4	<1	<1	6	2	3	21	4	6
13	1	<1	<1	24	<1	2	155	3	7	6	3	4
14	<1	<1	<1	24	2	4	101	12	26	6	3	3
15	1	<1	<1	8	2	2	14	6	8	4	2	3
16	<1	<1	<1	4	2	2	37	8	21	6	2	3
17	<1	<1	<1	4	1	2	1370	20	128	4	2	2
18	<1	<1	<1	3	1	1	446	58	86	4	2	2
19	<1	<1	<1	13	1	2	111	29	42	4	2	2
20	1	<1	<1	13	1	2	34	17	25	11	2	3
21	<1	<1	<1	14	2	5	20	12	14	6	2	3
22	24	<1	<1	85	6	64	13	10	10	3	2	2
23	10	1	3	32	7	12	18	7	9	4	2	2
24	2	<1	<1	9	4	5	8	6	7	8	2	2
25	1	<1	<1	4	3	4	7	6	6	20	7	11
26	<1	<1	<1	7	2	3	6	5	6	12	5	10
27	3	<1	<1	3	2	2	28	5	5	15	3	9
28	1	<1	<1	40	2	19	38	7	9	4	2	3
29	8	<1	<1	22	9	14	9	6	7	3	2	2
30	13	1	6	60	8	10	7	5	6	3	2	2
31	16	2	5	---	---	---	18	6	6	3	2	2
MAX	24	2	6	85	9	64	1370	58	128	670	57	87
MIN	<1	<1	<1	<1	<1	<1	6	2	3	3	2	2



14180500 DETROIT LAKE NEAR DETROIT, OR

LOCATION.--Lat 44°43'20", long 122°14'55", in SW 1/4 NW 1/4 sec.7, T.10 S., R.5 E., Marion County, Hydrologic Unit 17090005, in control house near right abutment of Detroit Dam on North Santiam River, 4.9 mi west of Detroit, and at mile 60.9.

DRAINAGE AREA.--437 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1953 to current year. Prior to October 1971, published as Detroit Reservoir near Detroit.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by concrete, gravity-type dam with six 42-ft by 28-ft control gates. Length of dam is 1,580 ft, built by Corps of Engineers. Storage began in January 1953. Total capacity is 455,100 acre-ft and usable capacity is 340,100 acre-ft between elevations 1,425.0 ft, proposed lower limit of operation, and 1,569.0 ft, top of spillway gates. Reservoir used for flood control, power development, irrigation, improvement of navigation, pollution abatement, and other purposes. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 457,900 acre-ft July 13, 1972, elevation, 1,569.79 ft; minimum contents, 115,500 acre-ft Jan. 30, 1969, elevation, 1,425.37 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 440,300 acre-ft May 31, elevation, 1,564.75 ft; minimum contents, 149,100 acre-ft Dec. 31, elevation, 1,446.92 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

1,425	115,000	1,480	210,900	1,530	331,500
1,430	122,200	1,490	232,000	1,540	360,200
1,440	137,700	1,500	254,600	1,550	390,900
1,450	154,400	1,510	278,700	1,560	424,000
1,460	172,200	1,520	304,400	1,570	458,600

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1462.20	1460.08	1475.53	1447.30	1452.46	1492.33	1537.84	1563.12	1564.07	1563.38	1560.20	1554.77
2	1461.75	1461.13	1473.92	1448.69	1453.04	1493.27	1539.05	1563.65	1563.70	1563.34	1560.04	1554.56
3	1461.31	1461.64	1469.98	1450.57	1453.65	1494.05	1540.40	1564.15	1563.45	1563.24	1559.86	1554.37
4	1460.83	1461.82	1465.20	1451.78	1454.21	1494.79	1541.94	1564.23	1563.31	1563.18	1559.65	1553.92
5	1460.32	1462.05	1459.73	1452.62	1454.70	1495.58	1543.79	1564.24	1563.29	1563.16	1559.48	1553.37
6	1459.85	1461.95	1457.57	1455.67	1455.28	1497.85	1545.27	1564.20	1563.35	1563.09	1559.34	1552.80
7	1459.37	1461.88	1455.66	1462.67	1456.45	1499.82	1546.43	1563.95	1563.20	1563.06	1559.12	1552.24
8	1458.93	1461.74	1452.64	1474.00	1457.89	1501.17	1547.51	1563.59	1563.25	1563.02	1558.94	1551.69
9	1458.49	1461.68	1449.96	1478.82	1459.01	1502.33	1548.83	1563.31	1563.39	1562.98	1558.72	1551.12
10	1458.15	1461.48	1449.32	1480.00	1459.86	1503.45	1552.00	1563.16	1563.49	1562.88	1558.54	1550.59
11	1458.27	1461.26	1449.56	1479.42	1460.71	1507.22	1553.15	1563.00	1563.43	1562.84	1558.32	1550.02
12	1457.95	1461.20	1449.72	1478.97	1461.39	1513.69	1554.16	1562.94	1563.46	1562.75	1558.15	1549.34
13	1457.60	1461.67	1455.86	1478.41	1462.11	1517.44	1555.66	1563.15	1563.71	1562.70	1558.01	1548.71
14	1457.23	1463.46	1463.54	1477.00	1462.80	1519.94	1562.34	1563.35	1564.05	1562.59	1557.84	1548.06
15	1456.94	1463.80	1465.76	1475.07	1463.32	1521.67	1562.31	1563.28	1564.00	1562.41	1557.68	1547.36
16	1456.49	1463.86	1472.14	1472.80	1463.89	1523.02	1560.47	1563.08	1563.78	1562.34	1557.52	1546.73
17	1456.03	1463.94	1478.67	1470.16	1464.60	1524.13	1557.76	1563.07	1563.58	1562.27	1557.35	1546.16
18	1455.59	1463.61	1479.72	1467.29	1465.49	1525.07	1555.56	1563.29	1563.87	1562.23	1557.18	1545.54
19	1455.21	1463.04	1478.98	1464.25	1466.86	1525.95	1554.25	1563.41	1563.73	1562.14	1557.00	1544.89
20	1454.73	1462.07	1476.49	1461.44	1468.51	1526.77	1554.27	1563.38	1563.41	1562.04	1556.85	1544.23
21	1454.26	1461.51	1472.53	1458.60	1470.74	1527.51	1554.71	1563.33	1563.37	1561.92	1556.70	1543.52
22	1454.76	1467.27	1467.53	1455.98	1474.11	1528.25	1555.51	1563.28	1563.34	1561.84	1556.53	1542.82
23	1456.14	1470.84	1463.18	1453.31	1479.14	1529.02	1556.54	1563.13	1563.29	1561.72	1556.40	1542.12
24	1456.47	1471.55	1459.48	1451.50	1483.32	1530.03	1557.44	1562.95	1563.17	1561.53	1556.24	1541.43
25	1456.50	1471.29	1456.30	1451.91	1486.16	1531.11	1558.32	1562.85	1563.03	1561.43	1556.05	1540.72
26	1456.34	1470.44	1453.82	1451.85	1488.24	1532.07	1559.30	1563.14	1562.95	1561.31	1555.89	1539.98
27	1456.27	1469.25	1451.57	1450.88	1489.87	1533.11	1560.20	1562.97	1563.00	1561.12	1555.70	1539.28
28	1456.09	1471.50	1449.50	1450.01	1491.26	1534.09	1560.97	1563.35	1562.98	1560.94	1555.54	1538.55
29	1455.87	1475.39	1448.24	1450.18	---	1535.03	1561.74	1564.24	1563.31	1560.82	1555.33	1537.87
30	1456.36	1475.79	1447.23	1450.98	---	1535.89	1562.39	1564.68	1563.37	1560.59	1555.15	1537.30
31	1458.49	---	1447.16	1451.77	---	1536.83	---	1564.51	---	1560.41	1554.96	---
MAX	1462.20	1475.79	1479.72	1480.00	1491.26	1536.83	1562.39	1564.68	1564.07	1563.38	1560.20	1554.77
MIN	1454.26	1460.08	1447.16	1447.30	1452.46	1492.33	1537.84	1562.85	1562.95	1560.41	1554.96	1537.30
(†)	169400	202500	149500	157500	234800	351000	432200	439500	435600	425400	407000	352300
(‡)	-7800	+33100	-53000	+8000	+77300	+116200	+81200	+7300	-3900	-10200	-18400	-54700

CAL YR 2001 MAX 1510.72 MIN 1447.16 AC-FT† -12700

WTR YR 2002 MAX 1564.68 MIN 1447.16 AC-FT† +175100

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.



14181500 NORTH SANTIAM RIVER AT NIAGARA, OR

LOCATION.--Lat 44°45'10", long 122°17'50", in NE 1/4 NE 1/4 sec.34, T.9 S., R.4 E., Linn County, Hydrologic Unit 17090005, on left bank 0.1 mi downstream from Little Sardine Creek, 0.8 mi downstream from Big Cliff Dam, 2.1 mi east of Niagara, and at mile 57.3.

DRAINAGE AREA.--453 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1908 to January 1920, October 1921 to March 1922, October 1938 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as "North Fork of Santiam River near Niagara" prior to October 1913, and as "above Mayflower Creek, near Detroit" October 1938 to September 1952.

REVISED RECORDS.--WSP 1288: 1914-18, 1920. WSP 1718: 1953-54.

GAGE.--Water-stage recorder. Datum of gage is 1,093.78 ft above NGVD of 1929 (Federal Highway Administration bench mark). See WSP 1738 for history of changes prior to Oct. 1, 1952.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1953 by Detroit Lake (station 14180500) and Big Cliff Reservoir, usable capacity for reregulating purposes, 2,930 acre-ft. No diversion upstream from station.

AVERAGE DISCHARGE.--74 years (water years 1910-19, 1939-2002), 2,322 ft<sup>3</sup>/s, 69.61 in/yr, 1,682,000 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 63,200 ft<sup>3</sup>/s Nov. 22, 1909, gage height, 16.4 ft, from floodmark, site and datum then in use, from rating curve extended above 35,000 ft<sup>3</sup>/s; minimum discharge, 19 ft<sup>3</sup>/s Aug. 21, 1963; minimum daily, 395 ft<sup>3</sup>/s Mar. 25, 26, 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 10,200 ft<sup>3</sup>/s Apr. 15, gage height, 7.60 ft; minimum discharge, 801 ft<sup>3</sup>/s Oct. 31.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	870	859	6390	2130	995	882	1180	1730	4570	1610	1100	979
2	863	864	7120	2090	994	883	1180	2430	4120	1570	1100	980
3	856	864	7870	2140	994	888	1180	2680	3710	1570	1100	982
4	868	858	7870	2120	1040	887	1180	3160	3160	1410	1100	1450
5	864	860	7870	2100	1070	886	1190	3180	3230	1360	1090	1610
6	869	858	7660	2180	1060	890	1660	3200	2990	1350	1090	1620
7	871	852	7820	2380	1070	883	2180	3100	2990	1350	1090	1610
8	868	851	6820	2520	1070	888	2230	3100	2260	1350	1100	1620
9	875	853	5660	3280	1060	886	2890	2770	1850	1340	1100	1620
10	870	852	3550	4210	1050	885	4480	2410	1790	1340	1100	1610
11	863	860	2460	4890	1030	894	6810	2430	2200	1330	1100	1610
12	856	858	2350	4800	990	892	7070	2440	2180	1330	1100	1710
13	869	884	2340	4670	950	890	7200	2470	2150	1340	993	1740
14	858	911	4400	4950	963	889	7610	2500	2120	1340	990	1730
15	853	1370	4110	4940	946	991	10100	3080	2770	1340	985	1730
16	861	1900	3220	4940	909	993	10000	3130	2800	1200	982	1730
17	865	1950	4330	4960	882	988	9990	2980	2820	1120	982	1730
18	858	1950	5770	5010	878	988	8030	2880	2880	1110	979	1730
19	853	1970	5960	5080	884	983	5970	2890	2820	1110	979	1740
20	851	2600	6850	5220	880	988	3350	3120	2780	1110	980	1720
21	851	3250	7490	5240	882	985	2380	3150	2230	1120	981	1720
22	856	3280	7860	4700	902	986	1640	3130	2150	1110	986	1730
23	855	3340	6710	4280	911	985	1330	3150	2160	1130	983	1740
24	857	3250	5670	3450	900	987	1320	3140	2170	1130	980	1720
25	858	3250	4920	3340	900	978	1320	3140	2110	1130	977	1720
26	865	3250	4090	3390	890	978	1330	2840	1990	1140	977	1760
27	856	3250	3730	3310	885	979	1330	3910	1810	1130	976	1810
28	850	2590	3800	2900	876	978	1330	3520	1730	1130	983	1760
29	851	3430	3040	1730	---	978	1320	3930	1730	1130	986	1780
30	854	4320	2630	1070	---	1150	1690	4140	1710	1130	983	1760
31	858	---	2080	1030	---	1180	---	4500	---	1140	979	---
TOTAL	26672	57034	162440	109050	26861	29518	110470	94230	75980	39000	31831	48751
MEAN	860.4	1901	5240	3518	959.3	952.2	3682	3040	2533	1258	1027	1625
MAX	875	4320	7870	5240	1070	1180	10100	4500	4570	1610	1100	1810
MIN	850	851	2080	1030	876	882	1180	1730	1710	1110	976	979
AC-FT	52900	113100	322200	216300	53280	58550	219100	186900	150700	77360	63140	96700
MEAN†	733	2458	4377	3647	2352	2842	5048	3158	2468	1092	727	706
CFSM†	1.62	5.43	9.66	8.05	5.19	6.27	11.1	6.97	5.45	2.41	1.60	1.56
IN.†	1.87	6.05	11.14	9.28	5.40	7.24	12.43	8.04	6.08	2.78	1.85	1.74
AC-FT†	45100	146200	269200	224300	130600	174800	300300	194200	146800	67160	44740	42000

CAL YR 2001 TOTAL 592281 MEAN 1623 MAX 7870 MIN 808 AC-FT 1175000 MEAN† 1605 CFSM† 3.54 IN.† 48.10 AC-FT† 1162000  
WTR YR 2002 TOTAL 811837 MEAN 2224 MAX 10100 MIN 850 AC-FT 1610000 MEAN† 2465 CFSM† 5.44 IN.† 73.88 AC-FT† 1785000

† Adjusted for change in contents, in Detroit Lake.

14181500 NORTH SANTIAM RIVER AT NIAGARA, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: April 2000 to current year.  
 pH: August 2000 to current year.  
 WATER TEMPERATURE: January 1953 to September 1997, October 1999 to current year.  
 TURBIDITY: April 2000 to current year.

INSTRUMENTATION.-- Water-quality monitor.

REMARKS.--Water-quality data for the 2001 water year available in the files of the Portland field office.

SPECIFIC CONDUCTANCE: Record good.  
 pH: Record good.  
 WATER TEMPERATURE: Record excellent.  
 TURBIDITY: Record good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 48 microsiemens Oct. 14-21, 2001; minimum, 28 microsiemens Nov. 30, 2001.  
 pH: Maximum, 7.7 units Apr. 16, 2001; minimum, 6.8 Sept. 17, 2001.  
 WATER TEMPERATURE: Maximum, 19.5°C Aug. 21, 1997; minimum, 1.0°C Jan. 30 to Feb. 4, 1979.  
 TURBIDITY: Maximum recorded, 45 NTU Apr. 14, 2002; minimum recorded, <1 many days most years.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 48 microsiemens Oct. 14-21; minimum, 28 microsiemens Nov. 30.  
 pH: Maximum, 7.6 units many days during year, but may have been higher during period of missing record; minimum, 7.0 units many days during November, July and September.  
 WATER TEMPERATURE: Maximum, 16.0°C Oct. 1, 2; minimum, 3.8°C Feb. 14, 15.  
 TURBIDITY: Maximum recorded, 45 NTU Apr. 14; minimum recorded, <1 many days during year.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
NOV					
29...	1328	3490	80	3.0	28.3
DEC					
03...	1310	7860	78	3.0	63.7
03...	1440	7890	54	2.0	42.6
07...	1145	7990	86	4.0	86.3
13...	1546	2370	30	4.0	25.6
14...	1440	6800	64	5.0	91.8
JAN					
08...	1635	2490	71	6.0	40.4
08...	1710	2460	75	6.0	39.9
FEB					
19...	1359	892	98	2.0	4.8
APR					
14...	1907	10100	71	5.0	136
26...	1000	1320	73	4.0	14.3

14181500 NORTH SANTIAM RIVER AT NIAGARA, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	47	47	47	42	41	41	40	30	37	35	35	35
2	47	47	47	43	41	42	40	39	39	35	34	34
3	47	46	47	44	43	43	40	39	39	35	34	34
4	47	46	46	44	43	43	39	39	39	35	34	35
5	47	46	46	44	43	43	39	39	39	35	35	35
6	47	46	47	44	44	44	39	37	38	35	34	35
7	47	47	47	45	44	45	38	37	38	34	32	33
8	47	47	47	45	45	45	39	38	38	33	30	31
9	47	47	47	45	45	45	39	39	39	36	32	34
10	47	47	47	45	45	45	39	38	38	35	33	34
11	47	47	47	45	45	45	38	38	38	34	34	34
12	47	47	47	45	45	45	38	38	38	35	34	34
13	47	47	47	46	45	45	38	34	36	37	35	37
14	48	47	47	46	45	45	39	31	35	37	36	36
15	48	47	47	45	44	44	39	38	38	37	36	37
16	48	48	48	45	44	45	38	34	36	36	35	36
17	48	48	48	45	45	45	36	32	34	35	35	35
18	48	47	47	45	45	45	36	36	36	35	35	35
19	48	47	47	45	44	45	36	35	35	36	35	35
20	48	47	47	45	45	45	35	35	35	37	36	36
21	48	47	47	45	45	45	36	35	36	36	34	35
22	47	44	47	45	39	43	36	36	36	34	34	34
23	44	43	43	43	38	41	36	35	36	34	34	34
24	45	43	44	44	43	43	36	35	36	34	33	33
25	46	45	46	44	43	44	36	36	36	33	33	33
26	47	46	46	43	43	43	36	35	36	33	33	33
27	47	46	46	44	43	43	36	36	36	33	33	33
28	47	46	46	44	37	42	36	35	36	33	33	33
29	47	46	47	37	31	33	36	35	35	33	33	33
30	47	46	47	40	28	32	36	35	35	33	33	33
31	46	42	45	---	---	---	35	35	35	35	33	34
MONTH	48	42	47	46	28	43	40	30	37	37	30	34
	FEBRUARY			MARCH			APRIL			MAY		
1	35	34	35	36	34	35	35	33	34	36	33	34
2	35	34	34	36	35	36	35	33	34	35	32	34
3	35	34	34	36	36	36	34	33	34	34	31	34
4	35	34	34	36	36	36	34	33	33	34	33	34
5	35	33	34	36	36	36	34	33	33	35	33	34
6	34	33	33	36	34	35	34	33	34	35	32	33
7	34	33	33	35	33	34	35	34	35	33	32	33
8	33	32	32	34	33	33	36	35	35	34	33	33
9	33	32	32	35	33	34	35	34	35	34	33	33
10	34	33	33	36	35	35	35	33	34	34	32	33
11	34	33	33	36	34	35	35	32	33	33	32	32
12	34	34	34	34	30	32	35	32	33	33	31	32
13	35	34	34	31	29	30	34	33	34	33	32	33
14	35	34	34	33	30	31	35	29	32	33	31	32
15	35	34	35	35	33	33	36	35	35	33	32	32
16	35	34	35	35	35	35	37	35	36	33	32	33
17	34	34	34	36	35	35	36	35	36	34	32	33
18	34	33	34	36	35	36	36	36	36	34	33	33
19	34	33	34	36	34	35	37	36	37	34	33	33
20	33	33	33	35	34	34	38	35	37	34	33	34
21	34	33	33	35	34	34	38	36	37	34	33	34
22	34	32	33	35	34	34	37	35	37	34	33	33
23	33	30	32	35	34	34	37	35	37	34	33	34
24	31	29	30	35	33	34	36	32	34	34	34	34
25	32	30	31	33	33	33	34	31	33	34	33	34
26	36	32	34	34	33	33	35	32	34	34	33	34
27	36	34	36	34	33	34	35	34	34	34	33	34
28	35	34	35	34	33	34	34	33	34	34	33	34
29	---	---	---	35	33	34	34	31	33	33	33	33
30	---	---	---	35	33	34	35	32	34	33	33	33
31	---	---	---	35	34	34	---	---	---	33	32	33
MONTH	36	29	34	36	29	34	38	29	35	36	31	33

## WILLAMETTE RIVER BASIN

14181500 NORTH SANTIAM RIVER AT NIAGARA, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	33	32	33	34	33	33	33	33	33	34	33	34
2	33	32	33	34	34	34	34	33	33	34	34	34
3	33	33	33	34	34	34	33	33	33	34	34	34
4	33	33	33	34	34	34	33	33	33	34	33	34
5	33	32	33	34	34	34	34	33	33	34	33	34
6	33	32	33	34	34	34	34	33	33	34	33	34
7	33	33	33	34	34	34	33	33	33	34	33	33
8	33	33	33	34	34	34	34	32	33	34	33	34
9	33	33	33	34	34	34	34	33	33	34	33	34
10	33	33	33	34	34	34	34	33	33	34	33	34
11	33	33	33	34	34	34	34	33	34	34	33	34
12	33	33	33	34	34	34	34	33	34	34	33	33
13	33	33	33	34	34	34	34	33	34	34	33	33
14	33	33	33	34	34	34	34	34	34	34	33	34
15	33	33	33	34	34	34	34	33	34	34	34	34
16	33	33	33	34	34	34	34	33	34	34	34	34
17	33	33	33	35	34	34	34	34	34	34	34	34
18	33	33	33	34	34	34	34	34	34	34	34	34
19	33	32	33	34	33	34	34	34	34	34	34	34
20	33	33	33	34	33	34	34	33	34	34	34	34
21	33	33	33	34	33	33	34	33	34	34	34	34
22	33	33	33	34	33	34	34	34	34	35	34	35
23	33	33	33	34	34	34	34	34	34	35	34	35
24	33	33	33	34	34	34	34	34	34	35	35	35
25	34	33	33	34	34	34	34	34	34	35	35	35
26	33	33	33	34	33	34	34	34	34	35	35	35
27	33	33	33	34	34	34	34	34	34	36	35	35
28	33	33	33	34	34	34	35	34	34	36	35	36
29	33	33	33	34	32	33	35	33	33	36	35	35
30	33	33	33	33	33	33	34	33	33	36	35	36
31	---	---	---	33	32	33	34	33	34	---	---	---
MONTH	34	32	33	35	32	34	35	32	34	36	33	34
YEAR	48	28	36									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.3	7.2	7.2	7.3	7.3	7.3	7.4	7.3	7.3	7.4	7.3	7.4
2	7.3	7.2	7.2	7.3	7.2	7.3	7.4	7.3	7.4	7.4	7.4	7.4
3	7.2	7.1	7.2	7.4	7.3	7.3	7.5	7.4	7.4	7.4	7.3	7.4
4	7.2	7.1	7.2	7.4	7.3	7.3	7.5	7.4	7.5	7.4	7.4	7.4
5	7.3	7.1	7.2	7.3	7.2	7.3	7.5	7.4	7.5	7.4	7.4	7.4
6	7.3	7.2	7.2	7.3	7.2	7.3	7.5	7.4	7.5	7.4	7.3	7.4
7	7.3	7.2	7.2	---	---	---	7.5	7.4	7.4	7.4	7.3	7.3
8	7.3	7.2	7.2	---	---	---	7.5	7.4	7.4	7.4	7.3	7.3
9	7.3	7.2	7.2	---	---	---	7.4	7.3	7.4	7.4	7.3	7.3
10	7.3	7.2	7.2	---	---	---	7.3	7.3	7.3	7.4	7.4	7.4
11	7.3	7.2	7.3	---	---	---	7.3	7.3	7.3	7.5	7.3	7.4
12	7.3	7.2	7.3	---	---	---	7.3	7.3	7.3	7.4	7.3	7.4
13	7.3	7.2	7.2	---	---	---	7.3	7.3	7.3	7.3	7.3	7.3
14	7.3	7.2	7.2	---	---	---	7.4	7.3	7.3	7.4	7.3	7.3
15	7.2	7.2	7.2	---	---	---	7.3	7.3	7.3	7.4	7.3	7.3
16	7.3	7.2	7.2	---	---	---	7.3	7.2	7.2	7.4	7.4	7.4
17	7.3	7.2	7.3	---	---	---	7.3	7.2	7.2	7.4	7.4	7.4
18	7.3	7.2	7.3	---	---	---	7.4	7.3	7.4	7.4	7.4	7.4
19	7.3	7.2	7.3	---	---	---	7.4	7.3	7.3	7.4	7.4	7.4
20	7.4	7.3	7.3	7.4	7.2	7.3	7.4	7.4	7.4	7.4	7.3	7.3
21	7.4	7.3	7.3	7.3	7.2	7.2	7.4	7.4	7.4	7.4	7.3	7.4
22	7.3	7.2	7.2	7.3	7.2	7.3	7.5	7.4	7.4	7.5	7.4	7.4
23	7.4	7.2	7.2	7.2	7.1	7.2	7.5	7.4	7.4	7.4	7.4	7.4
24	7.4	7.3	7.3	7.2	7.1	7.2	7.5	7.4	7.4	7.4	7.4	7.4
25	7.3	7.2	7.2	7.2	7.0	7.1	7.4	7.4	7.4	7.4	7.4	7.4
26	7.3	7.2	7.2	7.1	7.0	7.0	7.4	7.4	7.4	7.4	7.4	7.4
27	7.3	7.2	7.2	7.2	7.1	7.1	7.4	7.4	7.4	7.4	7.4	7.4
28	7.3	7.2	7.3	7.4	7.2	7.2	7.4	7.4	7.4	7.4	7.4	7.4
29	7.3	7.2	7.2	7.4	7.2	7.3	7.4	7.4	7.4	7.5	7.4	7.4
30	7.4	7.3	7.3	7.3	7.1	7.2	7.4	7.4	7.4	7.5	7.4	7.4
31	7.6	7.3	7.3	---	---	---	7.4	7.4	7.4	---	---	---
MAX	7.6	7.3	7.3	---	---	---	7.5	7.4	7.5	---	---	---
MIN	7.2	7.1	7.2	---	---	---	7.3	7.2	7.2	---	---	---

14181500 NORTH SANTIAM RIVER AT NIAGARA, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	---	---	---	7.5	7.4	7.5	7.5	7.4	7.4	---	---	---
2	---	---	---	7.5	7.4	7.5	7.5	7.4	7.4	---	---	---
3	---	---	---	7.5	7.5	7.5	7.6	7.4	7.5	---	---	---
4	---	---	---	7.6	7.5	7.5	7.6	7.5	7.5	---	---	---
5	---	---	---	7.5	7.5	7.5	7.5	7.4	7.5	---	---	---
6	---	---	---	7.5	7.4	7.5	7.5	7.4	7.4	---	---	---
7	---	---	---	7.6	7.4	7.5	7.5	7.4	7.4	---	---	---
8	---	---	---	7.6	7.4	7.5	---	---	---	---	---	---
9	---	---	---	7.6	7.5	7.5	---	---	---	---	---	---
10	---	---	---	7.6	7.4	7.5	---	---	---	---	---	---
11	---	---	---	7.6	7.4	7.5	---	---	---	---	---	---
12	---	---	---	7.5	7.4	7.4	---	---	---	---	---	---
13	---	---	---	7.5	7.4	7.4	---	---	---	---	---	---
14	---	---	---	7.6	7.4	7.4	---	---	---	---	---	---
15	---	---	---	7.5	7.4	7.4	---	---	---	---	---	---
16	---	---	---	7.5	7.4	7.4	---	---	---	---	---	---
17	---	---	---	7.6	7.4	7.4	---	---	---	---	---	---
18	---	---	---	7.6	7.4	7.4	---	---	---	7.4	7.3	7.3
19	---	---	---	7.5	7.4	7.4	---	---	---	7.4	7.3	7.3
20	---	---	---	7.6	7.4	7.4	---	---	---	7.4	7.3	7.3
21	---	---	---	7.6	7.4	7.5	---	---	---	7.4	7.3	7.3
22	---	---	---	7.6	7.5	7.5	---	---	---	7.4	7.3	7.3
23	---	---	---	7.6	7.4	7.5	---	---	---	7.4	7.3	7.4
24	---	---	---	7.6	7.4	7.4	---	---	---	7.4	7.3	7.3
25	---	---	---	7.5	7.4	7.4	---	---	---	7.4	7.3	7.3
26	---	---	---	7.6	7.4	7.4	---	---	---	7.4	7.3	7.3
27	---	---	---	7.6	7.4	7.4	---	---	---	7.4	7.3	7.4
28	7.6	7.4	7.5	7.6	7.4	7.4	---	---	---	7.4	7.3	7.3
29	---	---	---	7.6	7.4	7.4	---	---	---	7.4	7.3	7.3
30	---	---	---	7.5	7.4	7.4	---	---	---	7.4	7.3	7.4
31	---	---	---	7.6	7.4	7.4	---	---	---	7.4	7.4	7.4
MAX	---	---	---	7.6	7.5	7.5	---	---	---	---	---	---
MIN	---	---	---	7.5	7.4	7.4	---	---	---	---	---	---
DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.4	7.4	7.4	7.4	7.2	7.3	7.3	7.2	7.2	7.2	7.1	7.1
2	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1
3	7.4	7.3	7.4	7.4	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1
4	7.4	7.3	7.3	7.4	7.3	7.3	7.3	7.1	7.2	7.2	7.1	7.1
5	7.4	7.3	7.4	7.4	7.3	7.3	7.3	7.1	7.2	7.2	7.1	7.1
6	7.4	7.3	7.4	7.4	7.3	7.3	7.3	7.1	7.2	7.1	7.0	7.1
7	7.4	7.3	7.4	7.4	7.2	7.3	7.3	7.1	7.2	7.1	7.1	7.1
8	7.4	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.2	7.1	7.1	7.1
9	7.4	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.2	7.1	7.1	7.1
10	7.4	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.2	7.1	7.1	7.1
11	7.5	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.2	7.1	7.0	7.1
12	7.4	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.2	7.1	7.1	7.1
13	7.4	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.2	7.1	7.0	7.1
14	7.4	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.2	7.1	7.0	7.1
15	7.4	7.3	7.3	7.4	7.2	7.3	7.3	7.2	7.2	7.1	7.1	7.1
16	7.4	7.3	7.3	7.5	7.2	7.3	7.3	7.2	7.2	7.1	7.0	7.1
17	7.4	7.3	7.3	7.4	7.2	7.3	7.3	7.1	7.2	7.1	7.0	7.0
18	7.3	7.3	7.3	7.4	7.2	7.3	7.3	7.1	7.2	7.1	7.0	7.0
19	7.3	7.3	7.3	7.5	7.2	7.3	7.3	7.1	7.2	7.1	7.0	7.1
20	7.4	7.3	7.3	7.4	7.2	7.3	7.3	7.1	7.2	7.0	7.0	7.0
21	7.4	7.3	7.3	7.4	7.2	7.3	7.5	7.1	7.2	7.0	7.0	7.0
22	7.3	7.3	7.3	7.4	7.2	7.3	7.3	7.1	7.2	7.0	7.0	7.0
23	7.3	7.3	7.3	7.4	7.2	7.3	7.3	7.1	7.2	7.0	7.0	7.0
24	7.3	7.3	7.3	7.4	7.0	7.3	7.3	7.1	7.2	7.0	7.0	7.0
25	7.3	7.3	7.3	7.4	7.2	7.2	7.2	7.1	7.1	7.0	7.0	7.0
26	7.3	7.3	7.3	7.4	7.2	7.2	7.3	7.1	7.2	7.0	7.0	7.0
27	7.3	7.3	7.3	7.4	7.2	7.3	7.2	7.1	7.2	7.0	7.0	7.0
28	7.3	7.3	7.3	7.4	7.2	7.2	7.2	7.1	7.2	7.0	7.0	7.0
29	7.3	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.0	7.0	7.0
30	7.4	7.2	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.3	7.0	7.2
31	---	---	---	7.3	7.2	7.2	7.2	7.1	7.1	---	---	---
MAX	7.5	7.4	7.4	7.5	7.3	7.3	7.5	7.2	7.2	7.3	7.1	7.2
MIN	7.3	7.2	7.3	7.3	7.0	7.2	7.2	7.1	7.1	7.0	7.0	7.0

## WILLAMETTE RIVER BASIN

14181500 NORTH SANTIAM RIVER AT NIAGARA, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	16.0	15.8	15.9	11.7	11.4	11.5	7.9	7.6	7.8	5.2	5.1	5.1
2	16.0	15.7	15.9	11.5	11.4	11.4	7.7	7.4	7.6	5.2	5.1	5.2
3	15.8	15.6	15.7	11.5	11.4	11.4	7.7	7.2	7.4	5.2	5.1	5.1
4	15.8	15.5	15.6	11.5	11.3	11.4	7.2	7.1	7.1	5.1	5.0	5.0
5	15.7	15.5	15.7	11.4	11.2	11.3	7.1	7.0	7.1	5.0	5.0	5.0
6	15.8	15.5	15.7	11.2	10.8	11.1	7.1	6.8	7.0	5.2	5.0	5.1
7	15.5	15.3	15.4	10.8	10.6	10.7	6.9	6.8	6.8	5.4	5.2	5.3
8	15.3	15.2	15.3	10.6	10.4	10.5	7.0	6.9	6.9	5.5	5.3	5.4
9	15.3	15.0	15.1	10.5	10.3	10.4	6.9	6.5	6.7	5.4	5.0	5.1
10	15.0	14.7	14.8	10.6	10.4	10.5	6.5	6.4	6.4	5.2	5.0	5.1
11	14.7	14.6	14.7	10.7	10.6	10.7	6.4	6.3	6.4	5.2	5.1	5.2
12	14.6	14.5	14.6	10.8	10.7	10.7	6.4	6.3	6.3	5.3	5.1	5.2
13	14.6	14.5	14.5	10.7	10.6	10.7	6.5	6.3	6.4	5.1	4.8	4.9
14	14.6	14.3	14.5	10.6	10.5	10.5	6.4	5.8	6.0	4.9	4.9	4.9
15	14.4	14.2	14.3	10.6	10.4	10.5	5.9	5.8	5.9	4.9	4.8	4.9
16	14.4	14.2	14.3	10.4	10.1	10.3	6.1	5.9	6.0	4.9	4.8	4.9
17	14.3	14.0	14.2	10.1	9.9	10.0	6.1	5.8	6.0	4.9	4.8	4.9
18	14.0	13.8	13.9	10	9.7	9.8	5.8	5.7	5.7	4.9	4.9	4.9
19	13.8	13.6	13.7	10.1	9.9	10.0	5.8	5.8	5.8	4.9	4.8	4.9
20	13.8	13.7	13.8	10.1	9.6	9.9	5.8	5.8	5.8	4.8	4.8	4.8
21	13.8	13.6	13.7	9.7	9.6	9.7	5.8	5.7	5.7	4.8	4.6	4.7
22	13.6	13.0	13.4	9.6	9.0	9.5	5.7	5.7	5.7	4.6	4.4	4.5
23	13.0	12.5	12.7	9.0	8.9	9.0	5.7	5.5	5.6	4.6	4.5	4.6
24	12.5	12.4	12.4	9.1	8.9	9.0	5.5	5.3	5.4	4.6	4.5	4.5
25	12.6	12.4	12.5	8.9	8.5	8.8	5.3	5.2	5.3	4.5	4.5	4.5
26	12.6	12.4	12.5	8.5	8.4	8.4	5.2	5.1	5.2	4.5	4.4	4.4
27	12.6	12.4	12.5	8.5	8.3	8.4	5.2	5.1	5.2	4.4	4.3	4.4
28	12.4	12.2	12.3	8.5	8.2	8.4	5.2	5.1	5.2	4.4	4.2	4.3
29	12.2	12.1	12.1	8.2	7.8	8.1	5.1	5.0	5.1	4.2	4.1	4.2
30	12.3	12.1	12.2	7.9	7.7	7.8	5.1	5.0	5.1	4.2	4.2	4.2
31	12.1	11.7	11.9	--	--	--	5.1	5.1	5.1	4.2	4.2	4.2
MONTH	16.0	11.7	14.1	11.7	7.7	10.0	7.9	5.0	6.1	5.5	4.1	4.8
	FEBRUARY			MARCH			APRIL			MAY		
1	4.2	4.1	4.2	4.2	4.0	4.2	5.3	5.1	5.2	5.7	5.5	5.6
2	4.2	4.0	4.1	4.2	4.0	4.1	5.5	5.1	5.3	6.2	5.6	5.8
3	4.3	4.1	4.2	4.2	4.0	4.1	5.6	5.2	5.4	6.2	5.6	5.8
4	4.2	4.0	4.1	4.3	4.0	4.1	5.9	5.4	5.7	6.3	5.4	5.8
5	4.1	4.0	4.1	4.3	4.2	4.3	5.8	5.6	5.7	6.0	5.4	5.5
6	4.1	4.0	4.1	4.3	4.3	4.3	5.6	5.1	5.3	6.1	5.3	5.5
7	4.2	4.1	4.1	4.3	4.1	4.2	5.1	4.9	5.0	6.1	5.6	5.8
8	4.2	4.1	4.2	4.2	4.0	4.1	5.3	4.8	5.0	6.3	5.4	5.8
9	4.2	4.1	4.1	4.1	3.9	4.0	5.8	5.3	5.6	6.3	5.4	5.6
10	4.2	4.0	4.1	4.3	4.1	4.2	6.5	5.6	5.9	6.3	5.3	5.6
11	4.2	4.1	4.2	4.7	4.3	4.5	6.6	6.1	6.4	6.3	6.0	6.2
12	4.2	4.0	4.1	4.7	4.6	4.7	6.4	5.5	5.8	6.4	6.1	6.2
13	4.0	3.8	3.9	4.7	4.5	4.6	6.5	5.7	6.0	6.4	5.6	5.9
14	4.0	3.8	3.9	4.6	4.5	4.5	6.5	5.2	5.9	6.3	5.6	6.0
15	4.0	3.8	3.9	4.6	4.5	4.5	5.3	5.0	5.1	6.4	6.0	6.2
16	4.1	3.9	4.0	4.5	4.2	4.4	5.5	5.3	5.4	6.4	5.8	6.0
17	4.2	4.0	4.0	4.3	4.1	4.2	5.8	5.5	5.6	6.4	5.9	6.1
18	4.2	4.1	4.2	4.3	4.1	4.2	5.7	5.5	5.6	6.4	5.9	6.1
19	4.3	4.2	4.2	4.4	4.3	4.3	5.5	5.3	5.4	6.3	5.8	6.0
20	4.5	4.2	4.3	4.7	4.3	4.5	5.6	5.3	5.5	6.2	5.9	6.0
21	4.6	4.4	4.5	4.8	4.5	4.6	5.6	5.3	5.4	6.6	5.7	6.1
22	4.8	4.5	4.7	4.8	4.5	4.6	5.6	5.4	5.5	6.5	6.0	6.1
23	4.9	4.7	4.8	5.0	4.7	4.8	5.8	5.5	5.7	6.6	5.9	6.2
24	4.8	4.7	4.8	5.0	4.8	4.9	6.1	5.6	5.9	6.7	6.0	6.3
25	4.8	4.5	4.6	5.2	4.8	5.0	6.3	6.0	6.1	6.6	6.3	6.5
26	4.5	4.2	4.3	5.1	4.9	5.0	6.1	5.7	6.0	6.7	6.2	6.5
27	4.3	4.0	4.2	5.2	5.0	5.0	5.7	5.4	5.6	6.7	6.2	6.4
28	4.3	4.2	4.2	5.1	5.0	5.1	5.9	5.5	5.7	6.5	6.2	6.4
29	--	--	--	5.1	4.8	5.0	6.6	5.8	6.2	6.6	6.4	6.5
30	--	--	--	5.2	4.9	5.0	6.2	5.7	6.0	7.5	6.6	7.0
31	--	--	--	5.2	5.0	5.1	--	--	--	7.6	6.3	6.8
MONTH	4.9	3.8	4.2	5.2	3.9	4.5	6.6	4.8	5.6	7.6	5.3	6.1

14181500 NORTH SANTIAM RIVER AT NIAGARA, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.7	6.9	7.3	8.6	8.1	8.3	10.0	9.4	9.7	11.1	10.6	10.9
2	7.6	6.6	7.1	8.9	8.5	8.7	9.7	9.3	9.5	11.2	10.7	10.9
3	7.4	6.6	6.9	8.8	8.4	8.6	9.9	9.4	9.6	10.9	10.6	10.8
4	7.4	6.6	7.0	8.6	8.2	8.4	9.8	9.5	9.6	11.0	10.7	10.8
5	7.6	6.7	7.2	8.8	8.3	8.5	9.5	9.1	9.3	10.8	10.5	10.7
6	7.5	7.0	7.3	8.9	8.5	8.7	9.5	9.4	9.4	10.6	10.3	10.4
7	7.5	6.9	7.2	8.9	8.4	8.6	9.8	9.3	9.6	10.7	10.4	10.5
8	7.5	6.8	7.1	8.6	8.3	8.5	10	9.5	9.7	10.6	10.2	10.5
9	7.5	6.9	7.2	9.2	8.5	8.9	10.1	9.6	9.8	10.9	10.5	10.6
10	7.8	7.3	7.4	9.4	8.9	9.1	10.0	9.6	9.8	11.1	10.8	10.9
11	8.0	7.4	7.8	9.3	8.9	9.1	10.2	9.7	9.9	11.4	11.1	11.1
12	8.0	7.5	7.8	9.4	8.8	9.1	10.3	9.7	10	11.4	11.0	11.2
13	8.0	7.6	7.8	9.2	8.9	9.0	10.5	9.8	10.2	11.4	11.1	11.3
14	8.5	7.9	8.1	9.2	8.8	9.0	10.5	9.9	10.2	11.4	11.1	11.2
15	8.4	7.3	7.7	9.5	9.0	9.3	10.6	10	10.2	11.4	11.2	11.3
16	8.0	7.1	7.7	9.5	9.1	9.2	10.6	10.0	10.3	11.4	11.0	11.2
17	8.0	7.1	7.5	9.2	8.9	9.0	10.5	10.0	10.2	11.5	11.0	11.3
18	7.9	7.0	7.5	9.3	9.1	9.2	10.5	9.9	10.1	11.7	11.4	11.5
19	8.0	7.5	7.8	9.5	9.1	9.3	10.2	9.9	10.1	11.8	11.5	11.6
20	8.6	7.2	7.7	9.7	9.2	9.4	10.1	9.9	10.0	12.0	11.6	11.8
21	8.6	7.6	8.1	10	9.3	9.6	10.2	9.9	10.0	12.0	11.6	11.8
22	8.6	7.6	8.0	9.7	9.2	9.4	10.6	10.1	10.3	12.1	11.6	11.8
23	8.5	7.6	8.0	9.5	9.2	9.4	10.7	10.2	10.4	12.2	11.9	12.1
24	8.5	7.8	8.2	9.6	9.4	9.5	10.8	10.3	10.5	12.2	11.9	12.0
25	8.7	7.7	8.2	9.7	9.5	9.6	10.5	10.3	10.4	12.3	12.0	12.1
26	8.7	7.8	8.3	9.7	9.6	9.7	10.7	10.4	10.5	12.3	11.9	12.1
27	8.6	7.9	8.2	9.8	9.5	9.7	11.0	10.4	10.7	12.6	12.3	12.4
28	8.4	8.1	8.2	9.9	9.3	9.6	11.1	10.5	10.8	12.6	12.2	12.4
29	8.4	8.2	8.3	9.8	9.3	9.6	10.8	10.3	10.6	12.4	12.4	12.4
30	8.4	8.1	8.3	9.9	9.4	9.7	10.7	10.5	10.6	12.6	12.4	12.5
31	--	--	--	9.8	9.5	9.6	11.1	10.6	10.8	--	--	--
MONTH	8.7	6.6	7.7	10.0	8.1	9.1	11.1	9.1	10.1	12.6	10.2	11.4
YEAR	16.0	3.8	7.8									

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	<1	<1	<1	2	<1	<1	10	2	3	8	7	8
2	1	<1	<1	3	<1	<1	3	2	2	8	6	7
3	1	<1	<1	3	<1	<1	4	2	3	7	6	6
4	<1	<1	<1	2	<1	1	4	2	3	6	5	6
5	2	<1	<1	2	<1	1	8	2	3	6	5	6
6	2	<1	<1	2	<1	1	5	2	3	6	5	5
7	1	<1	<1	2	<1	1	5	2	2	6	4	5
8	3	<1	<1	2	<1	1	5	2	2	9	4	6
9	1	<1	<1	1	<1	1	5	2	2	5	3	4
10	3	<1	<1	2	<1	1	3	2	3	4	4	4
11	2	<1	<1	2	<1	1	2	2	2	7	4	4
12	1	<1	<1	7	<1	1	3	2	2	7	6	7
13	2	<1	<1	2	<1	1	5	2	2	7	4	5
14	2	<1	<1	2	<1	<1	9	3	5	6	5	6
15	1	<1	<1	8	<1	1	5	2	3	6	5	6
16	1	<1	<1	4	1	1	6	4	5	9	5	6
17	1	<1	<1	2	<1	1	12	5	6	8	5	6
18	2	<1	<1	4	<1	1	11	6	9	6	5	6
19	2	<1	<1	2	<1	1	11	6	6	6	5	5
20	2	<1	<1	2	<1	<1	9	6	6	5	4	5
21	3	<1	<1	2	<1	<1	13	6	8	5	4	4
22	3	<1	<1	8	<1	1	12	7	8	9	4	4
23	6	1	2	6	1	3	8	6	7	10	4	4
24	2	<1	1	2	<1	1	8	7	7	5	3	4
25	2	<1	<1	2	<1	1	9	8	8	5	4	4
26	2	<1	<1	4	2	2	10	9	9	6	3	4
27	2	<1	<1	5	2	3	9	8	8	5	3	4
28	1	<1	<1	4	1	2	9	8	8	5	3	4
29	1	<1	<1	4	1	2	9	8	8	4	3	3
30	1	<1	<1	7	1	2	8	7	8	4	3	3
31	4	<1	<1	--	--	--	8	7	8	4	2	3
MAX	6	1	2	8	2	3	13	9	9	10	7	8
MIN	<1	<1	<1	1	<1	<1	2	2	2	4	2	3





14182500 LITTLE NORTH SANTIAM RIVER NEAR MEHAMA, OR

LOCATION.--Lat 44°47'30", long 122°34'40", in NW 1/4 sec.16, T.9 S., R.2 E., Marion County, Hydrologic Unit  
17090005, on left bank 2.0 mi east of Mehama, and at mile 2.0.

DRAINAGE AREA.--112 mi<sup>2</sup> at cableway 1.2 mi downstream.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1931 to current year. Records for July to September 1924 and July to September 1931  
at site 4 mi upstream not equivalent as a result of differences in drainage areas.

REVISED RECORDS.--WSP 754: 1932. WSP 1218: 1934, 1936, 1949-50. WSP 1935: Maximum only, 1932-34, 1936, 1938,  
1943, 1945-49, 1950(M,P), 1951-53(M), 1954(M,P), 1955(M), 1956(M,P), 1957(M), 1958-59(M,P). WSP 2135:  
Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 655.41 ft above NGVD of 1929. Prior to June 12, 1948, nonrecording  
gage at about same site and datum.

REMARKS.--Records good. No regulation or diversion upstream from station. Records herein are for measuring site.  
Continuous water-quality records for the period May 1985 to September 1986 have been collected at this location.

AVERAGE DISCHARGE.--71 years (water years 1932-2002), 749 ft<sup>3</sup>/s, 90.85 in/yr, 542,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,000 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 16.73 ft, from rating  
curve extended above 17,000 ft<sup>3</sup>/s; minimum discharge, 13 ft<sup>3</sup>/s Aug. 30, 1961.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 8,200 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0000	9,930	10.21	Apr. 14	0500	*12,100	*10.89

Minimum discharge, 29 ft<sup>3</sup>/s Oct. 3-7.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	1500	2320	842	570	592	801	662	724	396	67	43
2	31	1120	2320	1300	525	520	829	685	639	323	66	43
3	30	713	1700	1310	564	470	892	733	580	276	65	42
4	30	489	1330	987	602	438	1030	658	560	242	64	42
5	29	426	1140	787	585	455	1250	603	586	217	66	42
6	29	358	3060	1430	613	1700	1130	666	577	196	67	42
7	29	293	3210	2290	1230	1650	1100	598	477	184	66	41
8	32	246	1910	3160	1540	1030	1000	517	407	173	63	41
9	32	211	1560	1890	1190	797	1290	476	376	160	60	41
10	40	183	1240	1240	942	713	2790	441	341	154	59	40
11	155	164	1140	940	904	2160	2240	416	373	146	57	40
12	91	168	1120	1150	779	3700	2290	454	431	140	56	40
13	70	642	4510	1250	672	1870	2480	645	484	137	52	40
14	66	2660	5210	919	602	1380	6320	650	507	128	51	39
15	65	1040	2340	724	572	1110	2180	604	447	117	50	42
16	58	1040	4360	614	593	931	1500	555	401	109	49	48
17	55	989	3850	539	630	779	1250	573	378	114	49	66
18	51	764	2160	492	634	675	1060	626	907	110	48	86
19	48	637	1590	601	809	918	926	631	656	106	48	70
20	45	702	1340	1010	951	968	823	617	496	102	49	64
21	45	877	1080	1780	1440	966	757	592	438	98	54	60
22	407	3110	884	1090	1900	870	706	691	408	94	51	58
23	1460	3190	738	832	2590	834	689	651	363	90	49	57
24	705	1620	637	784	2330	1080	644	598	320	87	48	56
25	363	1180	558	2170	1430	1000	623	618	290	85	47	55
26	263	1010	496	1760	1020	886	656	718	280	82	47	55
27	209	832	455	1170	809	892	703	759	266	81	46	55
28	202	1940	620	876	683	795	631	814	245	76	45	54
29	173	3570	635	704	---	710	602	1370	643	72	44	57
30	734	2070	572	597	---	688	667	1060	550	71	43	105
31	2050	---	703	564	---	727	---	841	---	69	43	---
TOTAL	7628	33744	54788	35802	27709	32304	39859	20522	14150	4435	1669	1564
MEAN	246.1	1125	1767	1155	989.6	1042	1329	662.0	471.7	143.1	53.84	52.13
MAX	2050	3570	5210	3160	2590	3700	6320	1370	907	396	67	105
MIN	29	164	455	492	525	438	602	416	245	69	43	39
AC-FT	15130	66930	108700	71010	54960	64070	79060	40710	28070	8800	3310	3100
CFSM	2.20	10.0	15.8	10.3	8.84	9.30	11.9	5.91	4.21	1.28	0.48	0.47
IN.	2.53	11.21	18.20	11.89	9.20	10.73	13.24	6.82	4.70	1.47	0.55	0.52

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1932 - 2002, BY WATER YEAR (WY)

MEAN	391.9	1140	1445	1315	1197	1018	972.5	785.8	453.4	131.7	62.79	103.7
MAX	1594	3121	3680	3615	3533	2645	1712	1439	1684	547	432	490
(WY)	1948	1943	1965	1953	1996	1932	1937	1949	1933	1983	1968	1959
MIN	17.3	25.7	193	218	260	226	268	211	53.5	32.3	19.2	24.3
(WY)	1988	1937	1977	1937	1977	1992	1941	1992	1992	1992	1961	1987

## SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1932 - 2002
ANNUAL TOTAL	198446	274174	
ANNUAL MEAN	543.7	751.2	748.9
HIGHEST ANNUAL MEAN			1146
LOWEST ANNUAL MEAN			400
HIGHEST DAILY MEAN	5210	Dec 14	31400
LOWEST DAILY MEAN	27	Sep 22	13
ANNUAL SEVEN-DAY MINIMUM	28	Sep 18	15
ANNUAL RUNOFF (AC-FT)	393600	543800	542600
ANNUAL RUNOFF (CFSM)	4.85	6.71	6.69
ANNUAL RUNOFF (INCHES)	65.91	91.06	90.85
10 PERCENT EXCEEDS	1290	1720	1680
50 PERCENT EXCEEDS	311	601	466
90 PERCENT EXCEEDS	34	48	42

14182500 LITTLE NORTH SANTIAM RIVER NEAR MEHAMA, OR--Continued  
WATER-QUALITY RECORDS

## PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: April 2000 to current year.

pH: June 2000 to current year.

WATER TEMPERATURE: July 1985 to November 1986, April 2000 to current year.

TURBIDITY: April 2000 to current year.

## INSTRUMENTATION.-- Water-quality monitor.

## REMARKS.--Water-quality data for the 2001 water year available in the files of the Portland field office.

SPECIFIC CONDUCTANCE: Records excellent.

pH: Records good.

WATER TEMPERATURE: Records excellent.

TURBIDITY: Records good.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 52 microsiemens Aug. 30, Sept. 12, 14, 17, 2001; minimum, 14 microsiemens

Nov. 14, 2001, Apr. 14, 2002.

pH: Maximum, 8.6 units Aug. 15, 2001; minimum, 6.8 units Apr. 14, 2002.

WATER TEMPERATURE: Maximum, 27.3°C Aug. 8, 1986; minimum, 0.8°C Dec. 1, 2, 1985.

TURBIDITY: Maximum, 301 NTU Apr. 14, 2002; minimum, &lt;1 many days many years.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 51 microsiemens several days in October and September; minimum, 14 microsiemens

Nov. 14, Apr. 14.

pH: Maximum, 8.3 units Oct. 6; minimum, 6.8 units Apr. 14.

WATER TEMPERATURE: Maximum, 25.5°C Aug. 14; minimum, 3.2°C Mar. 2.

TURBIDITY: Maximum, 301 NTU Apr. 14; minimum, &lt;1 many days during period.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDEDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY) (80155)
OCT					
11...	1129	207	94	9.0	5.0
23...	1206	1240	43	2.0	6.7
31...	1924	2440	62	14	92.2
NOV					
14...	1155	2270	55	18	110
14...	1250	2140	52	15	86.8
22...	1845	5860	43	227	3590
23...	0931	3240	62	23	201
23...	0946	3210	54	29	252
29...	1156	3780	63	25	255
29...	1219	3730	51	30	302
DEC					
06...	1215	3100	52	29	243
13...	1358	4270	56	58	669
14...	1155	4560	44	59	727
14...	1244	4430	46	75	897
16...	1345	5940	38	135	2170
16...	1352	5980	48	107	1730
JAN					
08...	1215	3560	41	29	279
08...	1255	3540	43	31	297
25...	1058	2470	56	33	220
25...	1433	2820	44	42	320
FEB					
19...	1116	782	71	2.0	4.2
MAR					
12...	1410	2970	51	20	160
12...	1505	2940	49	18	143
APR					
14...	1130	5920	53	193	3080

14182500 LITTLE NORTH SANTIAM RIVER NEAR MEHAMA, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	51	49	50	26	23	25	26	22	25	26	25	26
2	51	50	50	27	25	26	26	23	24	25	23	24
3	51	50	50	28	27	27	28	26	27	23	22	23
4	51	50	51	29	28	28	29	28	29	25	23	24
5	51	50	51	30	29	30	30	29	29	26	25	25
6	51	50	51	31	30	31	30	20	25	26	21	24
7	51	50	51	32	31	31	26	20	23	21	19	20
8	51	50	50	32	32	32	26	25	26	20	17	19
9	51	49	50	33	32	33	28	26	27	22	20	21
10	51	47	49	34	33	33	28	28	28	25	22	24
11	48	42	45	35	34	34	28	28	28	26	25	26
12	42	40	41	35	33	34	29	28	28	26	22	25
13	43	41	42	35	22	33	28	19	23	24	22	23
14	44	42	43	25	14	22	25	19	22	26	24	25
15	44	42	43	28	25	27	28	25	27	27	26	26
16	44	42	43	28	27	27	27	20	23	28	27	27
17	44	43	43	29	27	28	25	21	23	28	28	28
18	45	43	44	30	29	29	27	25	26	28	28	28
19	45	43	44	31	30	30	27	26	27	30	28	29
20	45	43	44	30	29	29	27	27	27	30	26	29
21	45	44	44	29	27	28	28	27	28	28	25	27
22	44	25	42	27	21	24	28	28	28	29	28	28
23	26	24	25	26	21	24	29	28	28	30	29	30
24	29	26	27	29	26	28	29	29	29	30	29	30
25	31	29	30	29	28	29	30	29	30	29	22	25
26	32	31	31	31	29	30	31	30	30	28	24	26
27	32	31	31	32	31	31	31	31	31	28	28	28
28	32	32	32	32	21	28	31	28	29	29	28	29
29	33	32	32	25	21	23	28	28	28	30	29	29
30	33	25	31	26	25	26	28	28	28	30	30	30
31	25	23	24	---	---	---	28	26	27	30	29	30
MONTH	51	23	41	35	14	29	31	19	27	30	17	26
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	31	30	30	28	28	28	26	25	25	26	26	26
2	31	31	31	29	28	29	25	24	25	26	26	26
3	31	30	31	29	29	29	24	23	23	26	25	25
4	30	29	30	30	29	30	23	22	22	25	24	25
5	30	29	30	30	29	30	22	21	21	25	25	25
6	30	29	29	29	20	25	22	22	22	25	24	24
7	29	25	27	24	20	23	23	22	22	25	24	25
8	26	25	25	26	24	25	23	23	23	26	25	26
9	28	26	27	27	26	27	24	20	23	27	26	26
10	29	28	29	28	27	28	20	17	18	27	27	27
11	29	28	29	28	16	23	20	19	20	28	27	27
12	29	29	29	21	16	19	20	19	19	28	27	27
13	30	29	30	24	21	23	20	19	19	27	23	25
14	30	30	30	26	24	25	19	14	17	24	23	24
15	31	30	30	27	26	27	22	19	21	25	24	24
16	31	30	30	28	26	27	24	22	23	25	25	25
17	30	29	29	28	27	27	25	24	24	25	25	25
18	29	29	29	28	28	28	27	25	26	25	24	24
19	29	26	28	28	27	27	28	27	27	25	24	24
20	26	25	25	27	27	27	28	28	28	25	24	25
21	26	22	24	27	26	27	28	28	28	25	25	25
22	22	22	22	27	27	27	28	28	28	26	23	24
23	22	20	21	27	27	27	28	27	28	24	23	24
24	23	20	22	27	24	25	28	28	28	24	24	24
25	25	23	24	25	24	24	28	28	28	25	24	24
26	26	25	26	26	25	25	28	26	27	24	22	23
27	27	26	27	26	25	25	27	27	27	22	22	22
28	28	27	27	26	25	25	27	27	27	22	21	22
29	---	---	---	26	26	26	28	27	27	22	18	19
30	---	---	---	26	26	26	28	26	27	21	19	20
31	---	---	---	26	25	26	---	---	---	22	21	21
MONTH	31	20	28	30	16	26	28	14	24	28	18	24

## WILLAMETTE RIVER BASIN

14182500 LITTLE NORTH SANTIAM RIVER NEAR MEHAMA, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	23	22	22	26	24	25	43	42	43	47	47	47
2	23	23	23	28	26	27	44	42	43	48	47	47
3	24	23	23	28	27	28	43	42	43	49	47	48
4	24	23	24	29	28	29	44	42	43	47	47	47
5	23	22	23	30	29	29	43	42	42	47	47	47
6	23	22	22	31	30	30	43	42	42	47	47	47
7	24	23	23	31	31	31	43	42	42	47	46	47
8	26	24	25	32	31	31	44	43	43	47	46	47
9	26	25	25	33	32	32	44	43	43	47	46	47
10	28	26	27	33	33	33	45	43	44	47	46	47
11	27	26	26	33	33	33	45	44	44	48	47	47
12	26	24	25	33	33	33	45	44	44	48	47	48
13	25	23	24	33	33	33	46	44	45	48	47	48
14	23	22	23	34	33	33	47	45	46	48	47	48
15	24	23	23	34	34	34	46	45	46	48	47	48
16	24	24	24	35	34	34	46	45	46	48	47	48
17	26	24	25	35	35	35	46	45	46	49	46	47
18	26	20	22	36	35	35	46	45	46	48	47	47
19	23	21	22	36	36	36	46	45	46	47	47	47
20	25	23	24	37	36	36	46	45	46	48	47	47
21	26	24	25	37	36	37	46	45	45	48	47	48
22	25	24	24	38	37	37	46	45	45	51	47	48
23	25	24	25	39	38	38	47	45	46	48	47	48
24	26	25	26	39	38	39	47	46	47	48	47	48
25	27	26	27	40	39	39	47	46	47	48	47	48
26	27	27	27	40	39	40	47	46	47	48	47	48
27	28	27	27	41	40	40	47	46	47	48	48	48
28	28	27	27	40	40	40	47	46	47	48	48	48
29	28	22	25	42	40	41	47	47	47	48	47	48
30	24	22	23	42	42	42	47	47	47	48	46	47
31	---	---	---	43	42	42	47	47	47	---	---	---
MONTH	28	20	24	43	24	35	47	42	45	51	46	48
YEAR	51	14	31									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	8.1	7.4	7.5	7.3	7.2	7.3	7.3	7.2	7.3	7.3	7.2	7.2
2	8.1	7.4	7.5	7.4	7.2	7.3	7.3	7.2	7.2	7.3	7.1	7.2
3	8.1	7.4	7.5	7.4	7.2	7.3	7.3	7.3	7.3	7.2	7.1	7.2
4	8.1	7.4	7.5	7.5	7.2	7.3	7.3	7.3	7.3	7.3	7.2	7.2
5	8.1	7.5	7.6	7.6	7.2	7.4	7.3	7.3	7.3	7.3	7.2	7.2
6	8.3	7.4	7.6	7.6	7.3	7.4	7.3	7.1	7.2	7.2	7.1	7.2
7	8.2	7.5	7.6	7.6	7.3	7.4	7.2	7.1	7.2	7.1	7.1	7.1
8	8.1	7.5	7.5	7.6	7.3	7.4	7.3	7.2	7.3	7.1	7.0	7.1
9	8.0	7.5	7.6	7.7	7.4	7.4	7.4	7.3	7.3	7.2	7.1	7.1
10	7.7	7.5	7.5	7.8	7.3	7.4	7.3	7.3	7.3	7.3	7.1	7.2
11	7.7	7.4	7.5	7.9	7.4	7.4	7.3	7.3	7.3	7.4	7.2	7.3
12	7.7	7.4	7.5	7.8	7.4	7.4	7.4	7.3	7.3	7.4	7.2	7.3
13	7.8	7.4	7.5	7.6	7.2	7.4	7.3	7.0	7.1	7.3	7.2	7.2
14	7.8	7.4	7.5	7.3	7.1	7.2	7.1	7.0	7.1	7.4	7.2	7.3
15	7.9	7.4	7.5	7.4	7.2	7.3	7.2	7.1	7.2	7.4	7.3	7.3
16	7.8	7.4	7.5	7.4	7.3	7.3	7.2	7.0	7.1	7.4	7.3	7.3
17	7.9	7.4	7.5	7.4	7.3	7.3	7.2	7.0	7.1	7.4	7.3	7.3
18	7.8	7.4	7.5	7.5	7.3	7.3	7.2	7.1	7.2	7.4	7.3	7.3
19	7.8	7.4	7.5	7.5	7.3	7.4	7.3	7.2	7.2	7.4	7.3	7.3
20	8.0	7.4	7.5	7.5	7.4	7.4	7.3	7.2	7.2	7.3	7.2	7.3
21	7.8	7.5	7.5	7.5	7.4	7.4	7.3	7.2	7.2	7.3	7.2	7.2
22	7.7	7.4	7.5	7.4	7.0	7.4	7.3	7.2	7.3	7.3	7.2	7.3
23	7.4	7.3	7.3	7.2	7.1	7.2	7.3	7.2	7.3	7.4	7.3	7.3
24	7.4	7.3	7.3	7.3	7.2	7.3	7.3	7.2	7.3	7.4	7.3	7.3
25	7.5	7.3	7.3	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.1	7.2
26	7.5	7.3	7.3	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.2
27	7.5	7.3	7.4	7.4	7.3	7.3	7.4	7.3	7.3	7.3	7.2	7.3
28	7.5	7.3	7.4	7.4	7.1	7.3	7.4	7.2	7.3	7.4	7.3	7.3
29	7.5	7.3	7.3	7.2	7.1	7.2	7.3	7.2	7.3	7.4	7.3	7.3
30	7.4	7.3	7.3	7.3	7.2	7.3	7.4	7.2	7.3	7.4	7.3	7.3
31	7.3	7.2	7.3	---	---	---	7.3	7.2	7.3	7.3	7.0	7.2
MAX	8.3	7.5	7.6	7.9	7.4	7.4	7.4	7.3	7.3	7.4	7.3	7.3
MIN	7.3	7.2	7.3	7.2	7.0	7.2	7.1	7.0	7.1	7.1	7.0	7.1

14182500 LITTLE NORTH SANTIAM RIVER NEAR MEHAMA, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.4	7.2	7.3	7.5	7.4	7.4	7.5	7.3	7.4	7.4	7.2	7.3
2	7.4	7.3	7.3	7.5	7.3	7.4	7.5	7.2	7.3	7.4	7.2	7.3
3	7.4	7.2	7.3	7.5	7.4	7.4	7.4	7.2	7.3	7.4	7.2	7.3
4	7.4	7.2	7.3	7.6	7.4	7.4	7.4	7.2	7.2	7.4	7.2	7.3
5	7.4	7.2	7.3	7.5	7.4	7.4	7.3	7.2	7.2	7.4	7.2	7.3
6	7.4	7.2	7.3	7.4	7.1	7.4	7.3	7.2	7.2	7.4	7.2	7.3
7	7.3	7.2	7.2	7.3	7.2	7.3	7.4	7.2	7.3	7.4	7.2	7.3
8	7.3	7.2	7.2	7.4	7.3	7.3	7.4	7.2	7.2	7.4	7.2	7.3
9	7.4	7.2	7.2	7.5	7.3	7.4	7.3	7.1	7.2	7.4	7.2	7.3
10	7.4	7.2	7.3	7.5	7.3	7.4	7.1	7.0	7.1	7.5	7.2	7.3
11	7.4	7.3	7.3	7.3	7.0	7.3	7.2	7.0	7.1	7.5	7.2	7.3
12	7.4	7.2	7.3	7.2	7.0	7.1	7.2	7.0	7.1	7.5	7.2	7.3
13	7.4	7.3	7.3	7.3	7.2	7.2	7.1	7.0	7.1	7.4	7.2	7.3
14	7.5	7.3	7.3	7.4	7.2	7.3	7.1	6.8	7.0	7.4	7.2	7.3
15	7.5	7.3	7.3	7.4	7.3	7.3	7.2	7.0	7.1	7.5	7.2	7.3
16	7.5	7.3	7.3	7.4	7.3	7.3	7.2	7.1	7.2	7.5	7.3	7.4
17	7.5	7.3	7.3	7.5	7.3	7.4	7.3	7.2	7.2	7.5	7.3	7.4
18	7.5	7.3	7.3	7.5	7.3	7.4	7.3	7.2	7.2	7.5	7.2	7.3
19	7.5	7.3	7.4	7.4	7.3	7.4	7.3	7.2	7.2	7.5	7.2	7.3
20	7.6	7.4	7.4	7.5	7.3	7.4	7.3	7.2	7.3	7.5	7.3	7.3
21	7.5	7.3	7.4	7.5	7.3	7.4	7.3	7.2	7.3	7.5	7.2	7.3
22	7.5	7.3	7.3	7.5	7.3	7.4	7.4	7.2	7.3	7.5	7.2	7.3
23	7.3	7.3	7.3	7.5	7.3	7.4	7.4	7.2	7.3	7.5	7.2	7.3
24	7.4	7.2	7.3	7.4	7.3	7.3	7.4	7.3	7.3	7.5	7.2	7.3
25	7.4	7.3	7.3	7.4	7.3	7.3	7.4	7.3	7.3	7.5	7.2	7.3
26	7.5	7.3	7.4	7.5	7.3	7.4	7.4	7.2	7.3	7.5	7.2	7.3
27	7.5	7.3	7.3	7.5	7.3	7.4	7.4	7.3	7.3	7.4	7.1	7.3
28	7.5	7.3	7.4	7.5	7.3	7.4	7.4	7.2	7.3	7.4	7.1	7.2
29	---	---	---	7.5	7.3	7.4	7.4	7.2	7.3	7.3	7.1	7.2
30	---	---	---	7.5	7.3	7.4	7.5	7.2	7.3	7.4	7.1	7.2
31	---	---	---	7.5	7.3	7.4	---	---	---	7.4	7.2	7.3
MAX	7.6	7.4	7.4	7.6	7.4	7.4	7.5	7.3	7.4	7.5	7.3	7.4
MIN	7.3	7.2	7.2	7.2	7.0	7.1	7.1	6.8	7.0	7.3	7.1	7.2
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.4	7.2	7.3	7.5	7.2	7.3	7.9	7.3	7.5	7.9	7.4	7.5
2	7.4	7.2	7.3	7.5	7.3	7.4	7.9	7.4	7.5	7.9	7.4	7.5
3	7.5	7.2	7.3	7.6	7.3	7.4	7.9	7.4	7.5	7.9	7.4	7.5
4	7.4	7.2	7.3	7.5	7.3	7.4	7.9	7.3	7.5	7.9	7.4	7.5
5	7.4	7.2	7.3	7.5	7.3	7.4	7.9	7.4	7.6	7.8	7.4	7.5
6	7.4	7.2	7.3	7.6	7.3	7.4	7.8	7.4	7.6	7.8	7.4	7.5
7	7.4	7.2	7.3	7.6	7.2	7.4	7.8	7.4	7.5	7.9	7.4	7.5
8	7.4	7.2	7.3	7.6	7.3	7.4	7.8	7.4	7.5	7.9	7.4	7.5
9	7.4	7.2	7.3	7.6	7.3	7.4	7.8	7.4	7.5	7.8	7.4	7.5
10	7.4	7.2	7.3	7.5	7.3	7.3	7.9	7.4	7.5	7.8	7.4	7.5
11	7.4	7.2	7.3	7.6	7.3	7.4	7.9	7.4	7.5	7.8	7.4	7.5
12	7.4	7.2	7.3	7.7	7.3	7.4	7.9	7.4	7.5	7.8	7.4	7.5
13	7.4	7.2	7.3	7.7	7.3	7.4	8.0	7.3	7.5	7.9	7.4	7.5
14	7.4	7.2	7.3	7.6	7.3	7.4	8.0	7.3	7.5	8.1	7.4	7.5
15	7.4	7.2	7.3	7.6	7.3	7.4	8.0	7.3	7.5	8.1	7.4	7.6
16	7.4	7.2	7.3	7.6	7.3	7.4	8.1	7.3	7.5	7.9	7.4	7.5
17	7.4	7.2	7.3	7.6	7.3	7.4	8.0	7.3	7.5	7.9	7.4	7.5
18	7.3	7.2	7.3	7.7	7.3	7.5	7.9	7.3	7.5	7.8	7.4	7.5
19	7.4	7.2	7.3	7.7	7.3	7.5	8.1	7.3	7.5	7.9	7.4	7.5
20	7.4	7.2	7.2	7.7	7.3	7.4	7.9	7.3	7.5	8.0	7.4	7.5
21	7.4	7.2	7.3	7.7	7.3	7.4	7.9	7.3	7.5	7.9	7.4	7.5
22	7.5	7.2	7.3	7.9	7.3	7.5	7.8	7.3	7.4	7.9	7.4	7.5
23	7.5	7.2	7.3	8.0	7.4	7.5	7.8	7.3	7.4	7.9	7.4	7.5
24	7.5	7.2	7.3	7.9	7.4	7.5	7.8	7.3	7.4	7.9	7.4	7.5
25	7.5	7.2	7.3	8.0	7.4	7.5	7.9	7.3	7.4	8.0	7.4	7.5
26	7.5	7.2	7.3	8.0	7.4	7.5	7.9	7.2	7.4	8.1	7.4	7.5
27	7.5	7.2	7.3	7.9	7.4	7.5	7.8	7.2	7.4	8.0	7.3	7.5
28	7.5	7.3	7.4	7.9	7.4	7.5	7.9	7.4	7.5	7.9	7.4	7.5
29	7.5	7.2	7.3	7.9	7.3	7.5	8.0	7.4	7.5	7.9	7.4	7.5
30	7.5	7.2	7.3	8.0	7.4	7.5	7.9	7.4	7.5	7.7	7.4	7.5
31	---	---	---	8.0	7.3	7.6	7.9	7.4	7.5	---	---	---
MAX	7.5	7.3	7.4	8.0	7.4	7.6	8.1	7.4	7.6	8.1	7.4	7.6
MIN	7.3	7.2	7.2	7.5	7.2	7.3	7.8	7.2	7.4	7.7	7.3	7.5

## WILLAMETTE RIVER BASIN

14182500 LITTLE NORTH SANTIAM RIVER NEAR MEHAMA, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	16.8	12.4	14.4	9.2	8.8	8.9	7.2	6.9	7.1	6.5	5.6	6.0
2	16.3	12.7	14.4	9.9	9.2	9.5	7.5	6.8	7.2	6.8	6.3	6.6
3	15.5	11.9	13.7	9.5	8.6	9.1	7.4	6.7	7.0	6.3	5.8	6.0
4	15.4	11.7	13.5	9.3	9.0	9.2	6.7	5.0	5.9	5.9	5.2	5.6
5	14.9	11.9	13.4	9.3	8.5	8.9	6.0	4.8	5.3	6.7	5.7	6.1
6	14.8	12.8	13.6	8.5	7.2	7.7	6.7	6.0	6.3	7.2	6.7	6.9
7	13.3	11.7	12.5	7.2	5.9	6.3	7.1	6.6	6.8	7.3	7.0	7.2
8	13.4	12.2	12.7	6.2	5.3	5.9	7.0	6.3	6.6	7.2	6.6	6.8
9	12.6	10.6	11.6	6.4	5.7	6.1	6.8	6.3	6.5	6.6	5.8	6.1
10	11.3	10.0	10.4	7.6	6.4	7.2	6.3	5.2	5.7	6.6	5.6	6.1
11	11.4	10.3	10.7	8.8	7.5	8.3	6.1	5.4	5.8	6.7	6.0	6.4
12	11.1	10.1	10.6	9.3	8.6	9.0	6.5	6.0	6.2	6.8	5.9	6.6
13	12.9	10.7	11.5	9.5	9.3	9.4	7.0	6.5	6.7	5.9	5.2	5.4
14	13.0	11.5	12.0	10.1	9.3	9.7	6.5	5.6	5.9	5.3	5.0	5.1
15	12.7	10.5	11.5	9.8	9.4	9.6	6.2	5.6	5.9	5.0	4.4	4.8
16	12.0	11.0	11.4	9.5	9.0	9.3	7.0	6.2	6.6	4.4	3.5	3.8
17	12.1	10.0	10.8	9.0	7.6	8.5	7.0	6.2	6.4	4.4	3.4	3.9
18	10.8	8.6	9.5	7.8	6.9	7.4	6.6	6.1	6.3	4.7	4.1	4.4
19	10.9	8.4	9.4	9.1	7.6	8.3	6.6	6.1	6.4	4.7	4.2	4.5
20	10.5	9.1	9.7	9.1	8.7	8.8	6.6	5.9	6.5	4.8	3.6	4.2
21	9.9	8.9	9.4	8.8	8.2	8.4	5.9	5.3	5.6	5.0	4.6	4.8
22	10.4	9.6	10.0	8.3	8.0	8.2	6.2	5.0	5.5	4.7	3.4	4.0
23	9.8	8.2	8.9	8.1	7.7	7.9	5.7	4.9	5.2	4.8	4.1	4.5
24	8.4	7.5	8.0	7.8	7.2	7.6	5.0	4.3	4.6	5.1	4.7	4.9
25	9.2	8.1	8.6	7.2	6.2	6.8	5.1	4.4	4.8	5.1	4.4	4.9
26	9.1	8.1	8.7	6.6	6.0	6.3	5.2	4.3	4.8	5.2	4.7	4.9
27	9.1	8.4	8.8	6.2	5.4	5.8	5.7	5.0	5.3	4.9	4.2	4.5
28	8.4	7.6	8.0	7.0	6.0	6.5	6.1	5.6	5.9	4.9	4.5	4.7
29	8.5	7.9	8.2	7.1	6.8	7.0	5.6	4.9	5.2	4.6	3.6	4.1
30	9.5	8.5	9.0	7.1	6.9	7.0	6.1	5.1	5.5	4.6	4.1	4.3
31	9.5	8.9	9.3	---	---	---	6.4	5.8	6.2	4.7	4.4	4.5
MONTH	16.8	7.5	10.8	10.1	5.3	8.0	7.5	4.3	6.0	7.3	3.4	5.2
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	5.2	4.3	4.7	5.0	3.6	4.4	8.1	5.4	6.8	8.8	7.3	7.9
2	5.3	4.2	4.7	5.2	3.2	4.2	8.1	5.3	6.8	8.7	7.6	8.1
3	5.6	4.9	5.2	5.6	3.6	4.7	8.3	5.3	6.9	8.9	7.0	7.9
4	5.0	3.9	4.5	6.0	3.9	5.0	8.6	5.4	7.0	8.6	5.8	7.3
5	4.9	4.1	4.5	6.0	5.2	5.5	7.2	6.0	6.3	8.1	6.8	7.2
6	5.3	4.5	4.9	5.6	4.8	5.4	7.0	5.9	6.4	7.1	6.1	6.6
7	5.3	4.4	5.1	4.8	4.0	4.5	6.5	5.9	6.2	6.7	5.1	5.9
8	5.7	4.3	5.0	4.5	3.6	4.0	8.3	5.3	6.7	8.9	4.9	6.9
9	5.9	4.6	5.2	5.3	3.9	4.5	7.7	6.0	6.6	8.7	6.8	7.3
10	6.3	4.9	5.5	5.8	5.0	5.3	6.3	5.7	5.9	9.4	6.2	7.7
11	5.9	5.0	5.5	6.1	5.2	5.8	6.6	5.7	6.1	10.7	6.8	8.9
12	5.8	4.3	5.0	5.3	4.9	5.1	7.5	5.9	6.5	12.0	8.1	10.2
13	5.4	4.2	4.8	5.0	4.3	4.6	6.9	6.4	6.6	11.6	7.5	8.7
14	5.6	3.8	4.7	5.3	4.3	4.7	7.2	5.1	5.8	9.4	6.8	8.0
15	5.8	4.2	5.0	5.5	4.5	5.0	5.7	5.2	5.4	10.1	6.7	8.5
16	6.2	4.8	5.5	5.0	3.8	4.3	5.7	5.1	5.4	10.1	6.9	8.7
17	5.9	4.5	5.2	4.8	3.6	4.1	6.3	5.1	5.6	11.2	8.2	9.7
18	6.7	5.4	6.0	4.8	4.0	4.4	7.2	5.5	6.2	10.4	8.4	9.0
19	6.4	5.8	6.1	4.8	3.9	4.3	7.7	5.9	6.6	8.4	7.7	8.0
20	6.6	5.1	5.8	6.9	4.5	5.6	8.5	6.4	7.4	8.5	7.2	7.9
21	6.3	5.7	6.0	6.7	5.0	5.8	8.5	6.0	7.2	8.4	7.2	7.8
22	6.8	5.4	6.0	6.7	4.7	5.7	9.7	6.7	8.1	8.5	7.0	7.7
23	5.9	5.6	5.7	7.3	5.7	6.5	8.9	6.3	7.7	10.6	6.6	8.5
24	5.6	4.8	5.2	6.7	5.7	6.2	9.4	5.5	7.5	10.6	7.7	9.2
25	5.6	4.2	4.8	7.4	4.8	6.1	9.6	6.6	8.2	10.4	8.4	9.4
26	5.7	4.1	4.8	7.3	5.0	6.2	8.9	6.8	7.3	11.2	8.8	9.9
27	5.7	3.7	4.7	7.3	5.8	6.6	8.2	5.9	6.9	10.2	8.7	9.0
28	5.6	4.4	5.0	6.7	5.8	6.2	9.2	5.4	7.3	8.9	8.3	8.6
29	---	---	---	7.7	5.7	6.7	10.0	6.3	8.2	8.8	8.1	8.5
30	---	---	---	7.8	5.0	6.5	9.3	7.3	8.2	11.2	7.6	9.2
31	---	---	---	8.0	5.2	6.7	---	---	---	11.2	8.2	9.8
MONTH	6.8	3.7	5.2	8.0	3.2	5.3	10.0	5.1	6.8	12.0	4.9	8.3

WILLAMETTE RIVER BASIN

14182500 LITTLE NORTH SANTIAM RIVER NEAR MEHAMA, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	11.6	8.9	10.2	15.3	11.0	13.1	22.9	17.8	20.1	22.0	17.1	19.4
2	12.1	8.8	10.5	16.0	12.2	14.3	22.3	17.5	19.6	22.2	17.2	19.5
3	11.6	9.1	10.4	15.2	12.9	14.2	21.8	16.6	19.0	21.5	18.0	19.6
4	12.3	9.7	11.0	15.8	13.3	14.5	19.1	17.4	18.3	19.7	15.6	17.6
5	11.9	10.3	11.2	16.8	13.0	14.9	19.2	15.8	17.3	18.7	14.2	16.4
6	11.7	9.3	10.7	18.4	14.8	16.4	18.5	16.3	17.3	18.0	13.6	15.7
7	10.6	8.4	9.6	17.2	15.3	16.2	20.5	15.1	17.4	18.0	14.2	16.0
8	9.6	7.9	8.9	17.9	14.4	16.0	21.4	15.9	18.3	17.3	13.5	15.4
9	10.9	8.4	9.5	20.1	15.5	17.6	22.7	16.7	19.4	18.8	13.4	15.9
10	13.4	8.8	11.0	21.9	17.2	19.4	23.6	18.2	20.5	19.5	14.3	16.7
11	14.5	10.6	12.7	22.8	18.5	20.4	23.3	17.7	20.2	20.2	15.1	17.5
12	15.0	11.2	13.4	22.8	18.7	20.6	24.0	18.0	20.6	20.7	15.9	18.2
13	15.3	11.6	13.6	22.6	19.4	20.7	25.2	18.8	21.6	20.7	15.9	18.2
14	14.8	11.9	13.5	22.5	18.2	20.1	25.5	20.0	22.4	18.9	16.3	17.7
15	14.6	11.6	13.2	22.1	17.4	19.6	25.0	19.6	22.0	17.8	16.6	17.0
16	13.9	12.0	12.7	22.6	17.7	20.0	23.9	18.5	21.0	16.7	15.8	16.3
17	12.2	10.9	11.3	22.9	18.2	20.4	23.7	18.6	20.8	16.9	15.5	16.1
18	11.1	9.3	10.0	22.5	18.5	20.2	22.9	17.5	20.0	17.8	14.0	15.5
19	12.7	8.5	10.5	21.1	19.0	19.9	21.7	17.6	19.6	18.3	13.7	15.6
20	13.9	10.1	12.1	22.6	17.0	19.6	19.8	17.8	18.8	18.2	14.0	15.8
21	15.0	11.5	13.2	23.6	18.1	20.7	18.7	16.1	17.3	17.9	12.9	15.2
22	14.7	12.5	13.1	24.3	19.3	21.7	20.9	15.0	17.6	17.8	13.0	15.2
23	15.5	11.7	13.5	24.5	20.2	22.1	22.0	16.3	18.8	17.7	13.3	15.3
24	16.5	12.6	14.7	24.8	20.1	22.3	22.9	17.3	19.7	17.6	13.3	15.3
25	17.3	13.5	15.6	24.5	20.2	22.1	20.4	18.0	19.0	17.4	13.2	15.2
26	17.4	14.7	16.2	23.4	20.6	21.7	22.0	17.7	19.4	16.6	13.3	14.9
27	16.5	15.1	15.5	23.0	18.5	20.6	22.4	16.9	19.3	16.8	13.6	15.1
28	15.1	13.6	14.2	23.8	18.1	20.7	23.5	17.9	20.4	16.5	13.0	14.7
29	13.6	12.0	12.8	24.8	19.5	21.8	23.3	18.7	20.8	15.0	13.4	14.1
30	13.0	11.0	12.0	24.8	20.0	22.0	22.0	17.5	19.7	14.2	12.5	13.3
31	---	---	---	23.3	18.6	20.7	21.6	16.8	19.1	---	---	---
MONTH	17.4	7.9	12.2	24.8	11.0	19.2	25.5	15.0	19.5	22.2	12.5	16.3
YEAR	25.5	3.2	10.3									

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	<1	<1	<1	5	2	2	12	4	6	4	<1	1
2	<1	<1	<1	4	<1	1	9	3	5	7	2	3
3	2	<1	<1	2	<1	<1	5	3	4	4	2	2
4	<1	<1	<1	<1	<1	<1	5	2	3	2	1	1
5	<1	<1	<1	1	<1	<1	10	2	3	3	<1	1
6	<1	<1	<1	<1	<1	<1	36	3	17	7	1	4
7	<1	<1	<1	<1	<1	<1	25	5	9	12	5	7
8	<1	<1	<1	<1	<1	<1	9	3	4	35	6	13
9	<1	<1	<1	<1	<1	<1	4	2	2	9	3	4
10	1	<1	<1	<1	<1	<1	4	2	2	6	2	2
11	9	<1	3	<1	<1	<1	3	2	2	2	1	1
12	2	<1	<1	1	<1	<1	4	2	2	13	1	2
13	<1	<1	<1	50	<1	1	166	4	33	3	1	2
14	1	<1	<1	143	4	13	167	15	38	2	1	1
15	<1	<1	<1	9	2	2	15	7	9	2	<1	1
16	<1	<1	<1	3	1	2	55	7	27	4	<1	1
17	2	<1	<1	4	1	2	28	8	14	2	<1	<1
18	<1	<1	<1	4	<1	1	11	5	6	2	<1	<1
19	2	<1	<1	1	<1	1	7	4	4	6	2	3
20	2	<1	<1	2	<1	1	8	3	4	43	2	4
21	1	<1	<1	2	<1	1	3	2	3	46	4	9
22	73	<1	1	104	1	6	3	2	2	7	3	4
23	38	2	4	64	6	13	3	2	2	5	2	3
24	3	<1	1	8	3	4	2	1	2	5	2	2
25	2	<1	<1	4	2	3	2	1	1	23	5	10
26	<1	<1	<1	6	2	2	2	<1	1	8	3	4
27	1	<1	<1	2	1	2	2	<1	1	8	2	2
28	<1	<1	<1	28	2	5	5	1	2	4	2	2
29	<1	<1	<1	37	8	15	2	<1	1	2	1	2
30	10	<1	1	8	4	5	1	<1	<1	2	1	1
31	15	3	5	---	---	---	3	<1	1	5	1	2
MAX	73	3	5	143	8	15	167	15	38	46	6	13
MIN	<1	<1	<1	<1	<1	<1	1	<1	<1	2	<1	<1





WILLAMETTE RIVER BASIN

14183000 NORTH SANTIAM RIVER AT MEHAMA, OR

LOCATION.--Lat 44°47'20", long 122°37'00", in NW 1/4 sec.18, T.9 S., R.2 E., Marion County, Hydrologic Unit 17090005, on right bank 300 ft downstream from highway bridge at Mehama, 0.5 mi downstream from Little North Santiam River, and at mile 38.71.

DRAINAGE AREA.--655 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1905 to March 1907, October 1910 to September 1914, September 1921 to current year. Monthly discharge only September 1921, published in WSP 1318. Prior to October 1913, published as North Fork of Santiam River at Mehama.

REVISED RECORDS.--WSP 739: 1922-23(M). WSP 1044: 1943. WSP 1248: 1906, 1911-14, 1924(M), 1926, 1934-36(M), 1937, 1938(M), 1942(M). WSP 2135: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 602.49 ft above NGVD of 1929. Prior to June 15, 1933, nonrecording gage at site 100 ft upstream at same datum.

REMARKS.--Records good. Flow regulated since 1953 by Detroit Lake (station 14180500) and Big Cliff Reservoir, usable capacity for reregulating purposes, 2,930 acre-ft. No diversion upstream from station. All records given herein are for measuring site.

AVERAGE DISCHARGE.--36 years (water years 1906, 1911-14, 1922-1952), 3,251 ft<sup>3</sup>/s, 2,355,000 acre-ft/yr. 50 years (water years 1953-2002), 3,455 ft<sup>3</sup>/s, 2,503,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 76,600 ft<sup>3</sup>/s Dec. 28, 1945, gage height, 15.37 ft, from rating curve extended above 36,000 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; maximum gage height, 17.5 ft Nov. 20, 1921, from graph based on gage readings, and Jan. 6, 1923, from floodmark, at site then in use; minimum discharge, 254 ft<sup>3</sup>/s Aug. 3, 1970; minimum daily, 420 ft<sup>3</sup>/s Sept. 18, 1924.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 22,800 ft<sup>3</sup>/s Apr. 14, gage height, 9.64 ft; minimum discharge, 767 ft<sup>3</sup>/s Aug. 21.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	923	2930	10000	3630	2460	2070	2590	2680	5440	2140	1120	912
2	915	2450	11100	4170	2320	1950	2620	3250	4820	1980	1100	919
3	906	1970	10800	4220	2370	1880	2680	3640	4460	1920	1100	913
4	913	1690	10200	3830	2420	1820	2860	3960	3750	1750	1100	1310
5	912	1630	10000	3570	2410	1840	3150	3960	3880	1640	1090	1600
6	913	1510	12800	4420	2450	3720	3370	4070	3650	1590	1090	1610
7	917	1410	13000	5800	3580	3790	3810	3880	3500	1580	1090	1610
8	928	1340	10100	7300	4130	2860	3810	3750	2830	1570	1090	1620
9	928	1290	8310	6150	3480	2480	4690	3470	2380	1530	1090	1620
10	977	1250	5980	6080	3020	2360	8030	2980	2210	1510	1090	1610
11	1230	1220	4690	6330	2890	4100	9680	2960	e2500	1480	1080	1610
12	1060	1250	4460	6540	2630	6680	10200	3010	e2600	1480	1080	1690
13	1020	1810	8690	6380	2390	4270	10600	3260	e2600	1470	975	1740
14	1000	4370	12600	6310	2250	3570	17200	3320	e2700	1460	944	1740
15	990	2830	8420	6060	2170	3210	14200	3740	3140	1450	939	1740
16	990	3410	10500	5950	2140	2930	12800	3790	3220	1330	930	1740
17	979	3490	10900	5880	2140	2660	12300	3690	3230	1200	927	1760
18	976	3190	9700	5870	2130	2470	10300	3630	3960	1190	924	1770
19	956	3020	8500	6150	2350	2860	7800	3650	3590	1180	923	1760
20	945	3600	9170	7140	2520	2870	4910	3830	3360	1170	931	1740
21	955	4400	9250	8930	3060	2820	3720	3860	2790	1180	929	1740
22	1410	7700	9390	6920	3740	2680	2910	3990	2630	1150	941	1740
23	2780	8100	8130	6120	4900	2630	2430	3930	2560	1170	931	1740
24	1890	5640	6920	5280	4520	2980	2330	3850	2530	1170	928	1730
25	1470	5050	6070	7770	3310	2850	2280	3860	2450	1170	924	1720
26	1340	4820	5210	6970	2730	2640	2330	3690	2360	1170	923	1750
27	1270	4560	4710	5720	2410	2620	2470	4650	2140	1160	918	1810
28	1250	5670	4930	4870	2210	2480	2310	4590	2060	1160	926	1770
29	1210	8950	4380	3550	---	2350	2240	5530	2550	1150	924	1800
30	1900	7410	3820	2540	---	2430	2590	5450	2390	1150	921	1870
31	3510	---	3470	2410	---	2520	---	5410	---	1150	914	---
TOTAL	38363	107960	256200	172860	79130	89390	173210	119330	92280	43400	30792	48684
MEAN	1238	3599	8265	5576	2826	2884	5774	3849	3076	1400	993.3	1623
MAX	3510	8950	13000	8930	4900	6680	17200	5530	5440	2140	1120	1870
MIN	906	1220	3470	2410	2130	1820	2240	2680	2060	1150	914	912
AC-FT	76090	214100	508200	342900	157000	177300	343600	236700	183000	86080	61080	96560

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2002, BY WATER YEAR (WY)

	MEAN	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002								
MEAN	2895	5184	6274	5682	4220	3277	3322	3546	2563	1388	1223	1923																																															
MAX (WY)	5109	9857	14300	11700	12360	10890	6128	5897	5521	2528	1833	2800																																															
MIN (WY)	1960	1974	1978	1953	1996	1972	1993	1960	1955	1983	1968	1959																																															

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1953 - 2002

ANNUAL TOTAL	903582	1251599	
ANNUAL MEAN	2476	3429	3455
HIGHEST ANNUAL MEAN			5255
LOWEST ANNUAL MEAN			1743
HIGHEST DAILY MEAN	13000	17200	46700
LOWEST DAILY MEAN	896	906	626
ANNUAL SEVEN-DAY MINIMUM	898	914	636
ANNUAL RUNOFF (AC-FT)	1792000	2483000	2503000
10 PERCENT EXCEEDS	4840	7340	6970
50 PERCENT EXCEEDS	1590	2590	2460
90 PERCENT EXCEEDS	918	978	1150

e Estimated

14183000 NORTH SANTIAM RIVER AT MEHAMA, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: April 2000 to current year.  
 pH: June 2000 to current year.  
 WATER TEMPERATURE: September 1985 to October 1986, April 2000 to current year.  
 TURBIDITY: April 2000 to current year.

INSTRUMENTATION: Water-quality monitor since April 2000.

REMARKS.--Water-quality data for the 2001 water year available in the files of the Portland field office.

SPECIFIC CONDUCTANCE: Record excellent.  
 pH: Record good.  
 TEMPERATURE: Record good.  
 TURBIDITY: Record good.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 52 microsiemens Oct. 22, 2001; minimum, 15 microsiemens Apr. 14, 2002.  
 pH: Maximum, 8.3 units Sept. 1-4, 14, 2001, Oct. 20, 2001; minimum, 6.3 units April 14, 2002.  
 WATER TEMPERATURE: Maximum, 19.9°C Aug. 10, 2001; minimum, 3.4°C Mar. 2, 2002.  
 TURBIDITY: Maximum, 296 NTU Apr. 14, 2002; minimum <1 many days during period.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 52 microsiemens Oct. 22; minimum, 15 microsiemens Apr. 14.  
 pH: Maximum, 8.3 units Oct. 20; minimum, 6.3 units Apr. 14.  
 WATER TEMPERATURE: Maximum, 18.0°C Oct. 1; minimum, 3.4°C Mar. 2.  
 TURBIDITY: Maximum, 296 NTU Apr. 14; minimum; <1 many days during period.

## WATER-QUALITY DATA, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Time	DIS- CHARGE, INST. CUBIC FEET PER SECOND (00061)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, SUS- PENDED (MG/L) (80154)	SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) (80155)
OCT					
11...	1029	1350	98	4.0	14.6
23...	1101	2560	80	5.0	34.5
31...	2034	3980	71	10	108
NOV					
14...	1345	3750	63	9.0	91.1
14...	1450	3630	48	10	98.1
22...	1911	12100	49	162	5300
23...	0834	8520	70	20	460
23...	0851	8450	53	25	570
29...	1043	10100	64	25	679
29...	1109	9940	61	26	698
DEC					
03...	1547	10600	47	12	343
03...	1640	10600	29	22	630
06...	1110	12600	67	14	476
13...	1128	8090	63	29	634
13...	1202	8120	54	35	768
14...	1340	10700	69	38	1100
14...	1355	10900	53	36	1060
14...	1415	11400	48	35	1080
14...	1510	12500	42	61	2060
16...	1238	12200	50	59	1940
16...	1246	12200	45	71	2340
JAN					
08...	1415	7560	53	17	347
08...	1501	7430	27	30	602
25...	1258	8980	64	25	606
25...	1400	9130	61	30	740
FEB					
19...	1221	2320	81	1.0	6.3
MAR					
12...	1610	5610	53	24	364
12...	1657	5520	21	33	492
APR					
14...	1112	14900	58	148	5950

14183000 NORTH SANTIAM RIVER AT MEHAMA, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	50	49	49	32	27	30	30	24	27	30	28	29
2	50	48	49	35	32	33	29	24	26	28	26	27
3	50	48	49	39	35	37	31	29	30	28	26	27
4	50	49	50	40	39	39	32	31	32	29	28	28
5	50	49	50	41	40	40	34	32	33	30	28	29
6	51	48	50	42	41	41	34	21	27	30	24	27
7	50	49	50	44	42	43	29	23	27	24	22	23
8	50	49	50	44	43	43	31	29	30	23	19	21
9	51	49	50	45	44	44	32	31	31	27	22	25
10	51	48	50	46	44	45	33	32	32	28	27	28
11	49	48	49	46	45	46	34	32	33	29	28	29
12	49	48	49	46	44	45	34	33	33	30	26	28
13	50	48	49	45	25	42	33	18	24	28	26	27
14	50	48	49	32	20	26	26	18	22	30	28	29
15	50	48	49	35	32	34	29	26	28	32	30	31
16	49	48	49	34	33	33	29	20	23	32	31	32
17	49	48	48	35	33	34	26	21	23	32	32	32
18	49	48	48	38	35	36	29	26	28	33	32	32
19	50	48	49	39	37	38	30	28	29	33	32	32
20	50	49	50	38	37	37	31	30	30	33	28	32
21	50	49	50	37	35	36	33	31	32	30	26	28
22	52	32	49	35	22	28	34	33	33	31	29	30
23	34	29	32	30	22	26	34	33	34	32	31	32
24	40	34	37	34	30	32	34	34	34	32	30	32
25	43	40	41	36	34	35	35	34	34	30	23	26
26	45	43	44	37	35	37	35	33	34	28	25	27
27	45	43	44	39	37	38	34	34	34	30	28	29
28	46	44	45	39	23	33	34	31	33	31	30	31
29	46	45	46	29	23	25	32	31	31	33	31	32
30	46	31	42	31	29	30	32	31	32	34	33	33
31	31	25	28	---	---	---	32	29	31	34	33	34
MONTH	52	25	47	46	20	36	35	18	30	34	19	29
	FEBRUARY			MARCH			APRIL			MAY		
1	35	33	34	34	33	34	31	29	30	32	30	31
2	35	34	35	35	34	35	31	29	30	32	29	30
3	35	34	34	36	35	35	31	29	30	30	28	29
4	34	33	34	36	35	36	30	28	29	31	29	30
5	34	33	34	37	36	36	28	28	28	31	30	31
6	34	33	34	36	21	29	28	28	28	31	30	30
7	33	28	30	29	23	27	28	28	28	31	30	30
8	29	27	28	32	29	30	28	28	28	32	31	32
9	31	29	30	34	32	33	28	22	27	32	31	32
10	31	30	31	34	34	34	22	18	20	33	32	32
11	31	30	31	34	17	28	23	20	22	33	32	32
12	33	31	31	24	17	20	23	21	22	33	31	32
13	34	33	33	28	24	26	23	20	21	32	29	30
14	34	33	34	29	28	28	22	15	18	30	29	29
15	34	34	34	31	29	30	27	22	25	30	29	29
16	35	34	34	32	31	31	30	27	28	32	29	31
17	35	33	34	33	32	32	32	29	30	30	29	30
18	34	33	33	34	33	33	32	29	30	30	28	29
19	33	30	32	33	31	32	30	29	30	29	29	29
20	31	30	30	32	31	32	32	30	30	31	29	29
21	31	25	29	32	31	31	33	30	31	30	29	29
22	26	25	26	32	32	32	33	31	32	30	28	29
23	25	22	23	32	31	31	34	32	33	30	28	29
24	26	22	23	31	28	29	33	32	32	30	29	29
25	28	26	27	29	28	28	33	32	32	30	29	29
26	31	28	29	29	28	29	32	31	32	29	28	28
27	33	30	32	30	29	29	33	31	32	28	27	28
28	34	33	33	31	29	30	34	32	33	28	27	28
29	---	---	---	32	30	31	33	32	32	27	24	25
30	---	---	---	32	30	31	32	30	31	28	25	26
31	---	---	---	31	29	30	---	---	---	30	27	28
MONTH	35	22	31	37	17	31	34	15	28	33	24	30

## WILLAMETTE RIVER BASIN

14183000 NORTH SANTIAM RIVER AT MEHAMA, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	31	28	29	33	32	33	36	35	35	38	37	37
2	31	28	29	34	33	33	36	35	36	40	37	37
3	31	29	29	34	34	34	36	35	35	38	37	38
4	31	29	29	35	34	34	36	34	35	39	35	36
5	33	29	30	35	34	35	36	35	35	36	35	35
6	31	29	30	35	34	34	36	35	35	36	35	35
7	35	30	31	35	33	34	36	35	35	36	35	35
8	36	32	34	35	34	34	36	34	35	36	35	35
9	35	32	35	35	34	34	35	35	35	36	35	35
10	36	33	35	35	35	35	36	35	35	36	35	35
11	34	33	33	35	35	35	36	35	36	36	35	35
12	---	---	---	36	35	35	36	35	36	36	35	35
13	---	---	---	37	36	36	37	35	36	36	35	35
14	32	31	31	36	36	36	35	34	35	36	35	35
15	32	31	31	36	36	36	36	35	35	36	35	35
16	32	31	32	37	36	36	36	35	35	36	35	35
17	32	31	31	37	35	36	36	35	35	36	35	35
18	31	25	27	36	34	35	36	35	35	36	35	35
19	30	27	28	34	33	34	36	34	35	36	35	35
20	31	29	30	34	34	34	36	34	35	36	35	35
21	32	30	32	35	34	34	36	35	35	36	35	35
22	32	31	32	35	35	35	36	35	35	36	35	36
23	33	32	32	36	35	35	36	35	36	36	35	36
24	34	32	33	36	35	36	36	35	36	37	36	36
25	34	33	33	35	35	35	36	34	35	37	36	36
26	34	33	34	36	35	35	36	34	35	37	36	36
27	34	33	33	36	35	36	36	34	35	37	36	36
28	34	33	33	36	35	36	36	35	35	37	36	36
29	33	29	31	36	35	36	37	36	36	37	36	36
30	32	29	31	36	35	35	37	36	37	38	36	37
31	---	---	---	36	35	35	38	36	37	---	---	---
MONTH	---	---	---	37	32	35	38	34	35	40	35	36

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	8.0	7.3	7.4	7.3	7.0	7.2	7.0	6.8	6.9	7.1	7.0	7.1
2	8.0	7.3	7.4	7.6	7.1	7.3	7.0	6.8	6.9	7.1	7.0	7.0
3	7.9	7.3	7.4	7.8	7.3	7.4	7.0	7.0	7.0	7.1	7.0	7.0
4	7.9	7.3	7.4	7.9	7.3	7.4	7.0	7.0	7.0	7.1	7.0	7.0
5	8.0	7.3	7.4	7.8	7.2	7.4	7.1	7.0	7.0	7.2	7.0	7.1
6	8.0	7.3	7.4	7.8	7.2	7.3	7.0	6.7	6.9	7.1	6.9	7.0
7	8.0	7.3	7.4	7.7	7.2	7.3	6.9	6.7	6.9	7.0	6.9	6.9
8	8.0	7.3	7.4	7.8	7.2	7.3	7.0	6.9	7.0	6.9	6.8	6.9
9	8.0	7.3	7.5	7.9	7.2	7.3	7.0	6.9	7.0	7.1	6.9	7.0
10	7.6	7.3	7.4	8.0	7.2	7.3	7.0	6.9	7.0	7.1	7.0	7.0
11	7.8	7.3	7.5	8.0	7.2	7.3	7.0	6.9	7.0	7.1	7.0	7.1
12	7.9	7.3	7.4	7.7	7.2	7.3	7.1	7.0	7.0	7.1	7.0	7.1
13	8.0	7.3	7.5	7.5	6.9	7.3	7.0	6.7	6.8	7.1	7.0	7.0
14	8.0	7.4	7.5	7.1	6.8	7.0	6.9	6.7	6.8	7.2	7.0	7.1
15	8.0	7.4	7.5	7.2	7.0	7.1	7.0	6.9	6.9	7.2	7.1	7.1
16	7.9	7.4	7.5	7.2	7.1	7.1	7.0	6.8	6.8	7.2	7.1	7.1
17	8.2	7.4	7.5	7.2	7.0	7.1	6.9	6.8	6.8	7.2	7.1	7.1
18	8.1	7.3	7.5	7.3	7.1	7.1	7.0	6.9	7.0	7.2	7.1	7.2
19	8.2	7.3	7.5	7.3	7.1	7.1	7.0	7.0	7.0	7.2	7.1	7.2
20	8.3	7.3	7.5	7.3	7.1	7.2	7.1	7.0	7.0	7.1	7.0	7.1
21	7.9	7.3	7.4	7.2	7.1	7.1	7.1	7.0	7.0	7.0	6.9	7.0
22	7.8	7.1	7.4	7.1	6.7	7.1	7.1	7.0	7.1	7.1	7.0	7.1
23	7.3	7.0	7.2	7.0	6.7	6.9	7.1	7.1	7.1	7.2	7.1	7.1
24	7.7	7.2	7.3	7.0	6.9	7.0	7.1	7.1	7.1	7.2	7.1	7.1
25	8.0	7.3	7.4	7.1	7.0	7.0	7.2	7.1	7.1	7.1	6.9	6.9
26	8.2	7.3	7.4	7.1	7.0	7.0	7.2	7.1	7.1	7.0	6.9	7.0
27	7.7	7.3	7.4	7.1	7.0	7.1	7.2	7.1	7.1	7.1	7.0	7.0
28	8.2	7.4	7.5	7.1	6.8	7.0	7.2	7.1	7.1	7.2	7.0	7.1
29	7.8	7.3	7.4	6.8	6.8	6.8	7.1	7.0	7.1	7.2	7.0	7.1
30	7.7	7.2	7.4	7.0	6.8	6.9	7.2	7.1	7.1	7.2	7.1	7.1
31	7.3	7.0	7.2	---	---	---	7.2	7.0	7.1	7.2	7.1	7.1
MAX	8.3	7.4	7.5	8.0	7.3	7.4	7.2	7.1	7.1	7.2	7.1	7.2
MIN	7.3	7.0	7.2	6.8	6.7	6.8	6.9	6.7	6.8	6.9	6.8	6.9

14183000 NORTH SANTIAM RIVER AT MEHAMA, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.2	7.1	7.1	7.3	7.1	7.2	7.2	6.9	7.0	7.2	6.9	7.0
2	7.2	7.1	7.1	7.3	7.1	7.2	7.2	6.9	7.0	7.2	6.9	7.0
3	7.2	7.1	7.1	7.4	7.1	7.2	7.2	6.9	7.0	7.1	6.9	7.0
4	7.2	7.1	7.1	7.4	7.1	7.2	7.2	6.9	7.0	7.1	6.9	7.0
5	7.2	7.1	7.1	7.4	7.1	7.2	7.1	6.9	6.9	7.1	6.9	7.0
6	7.2	7.0	7.1	7.2	6.8	7.1	7.1	6.9	7.0	7.1	6.9	7.0
7	7.1	6.9	7.0	7.0	6.8	6.9	7.1	6.9	6.9	7.1	6.9	7.0
8	7.0	6.9	6.9	7.1	6.9	7.0	7.2	6.8	6.9	7.1	6.8	7.0
9	7.1	6.9	7.0	7.2	7.0	7.1	7.0	6.8	6.9	7.1	6.9	7.0
10	7.2	7.0	7.0	7.3	7.0	7.1	6.8	6.7	6.7	7.2	6.9	7.0
11	7.2	7.0	7.0	7.1	6.6	7.0	6.9	6.7	6.8	7.2	6.9	7.0
12	7.2	7.0	7.0	6.9	6.6	6.8	6.9	6.7	6.7	7.2	6.9	7.0
13	7.2	7.0	7.1	7.0	6.8	6.9	6.8	6.6	6.7	7.1	6.8	6.9
14	7.2	7.0	7.1	7.0	6.9	6.9	6.7	6.3	6.6	7.3	6.8	7.0
15	7.3	7.0	7.1	7.1	6.9	7.0	6.8	6.6	6.8	7.3	7.0	7.1
16	7.3	7.0	7.1	7.1	7.0	7.0	6.9	6.8	6.8	7.3	7.0	7.1
17	7.3	7.0	7.1	7.2	7.0	7.0	6.9	6.8	6.9	7.3	7.0	7.1
18	7.3	7.0	7.1	7.2	7.0	7.1	6.9	6.8	6.9	7.2	6.9	7.1
19	7.3	7.0	7.1	7.1	7.0	7.0	6.9	6.8	6.9	7.2	6.9	7.0
20	7.3	7.0	7.1	7.2	6.9	7.0	6.9	6.8	6.9	7.2	7.0	7.0
21	7.2	6.9	7.1	7.2	7.0	7.0	7.0	6.8	6.9	7.2	6.9	7.0
22	7.1	6.9	6.9	7.2	6.9	7.0	7.0	6.8	6.9	7.2	6.9	7.0
23	6.9	6.8	6.9	7.2	6.9	7.0	7.2	6.9	7.0	7.2	6.9	7.0
24	7.0	6.8	6.9	7.1	6.9	6.9	7.2	7.0	7.1	7.2	6.9	7.0
25	7.1	6.9	7.0	7.1	6.9	6.9	7.3	7.0	7.2	7.2	6.9	7.0
26	7.2	7.0	7.0	7.1	6.9	7.0	7.3	7.0	7.1	7.2	6.8	7.0
27	7.3	7.0	7.1	7.2	6.9	7.0	7.3	7.0	7.1	7.1	6.8	7.0
28	7.3	7.1	7.1	7.2	6.9	7.0	7.3	7.0	7.1	7.1	6.8	6.9
29	---	---	---	7.2	6.9	7.0	7.3	7.0	7.1	7.0	6.8	6.8
30	---	---	---	7.2	6.9	7.0	7.2	7.0	7.1	7.1	6.8	6.9
31	---	---	---	7.2	6.9	7.0	---	---	---	7.1	6.8	7.0
MAX	7.3	7.1	7.1	7.4	7.1	7.2	7.3	7.0	7.2	7.3	7.0	7.1
MIN	6.9	6.8	6.9	6.9	6.6	6.8	6.7	6.3	6.6	7.0	6.8	6.8

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	7.1	6.8	7.0	7.4	7.0	7.2	7.5	7.1	7.2	7.7	7.1	7.3
2	7.1	6.9	7.0	7.4	7.0	7.2	7.5	7.1	7.2	7.6	7.1	7.2
3	7.2	6.8	7.0	7.4	7.1	7.2	7.5	7.1	7.2	7.7	7.2	7.3
4	7.1	6.9	7.0	7.4	7.1	7.2	7.5	7.1	7.2	7.7	7.1	7.2
5	7.1	6.8	7.0	7.4	7.1	7.2	7.7	7.0	7.3	7.6	7.1	7.2
6	7.1	6.9	7.0	7.5	7.0	7.2	7.7	7.2	7.3	7.7	7.1	7.2
7	7.1	6.9	7.0	7.4	7.0	7.2	7.7	7.2	7.3	7.7	7.1	7.2
8	7.1	6.9	7.0	7.4	7.1	7.2	7.7	7.2	7.3	7.8	7.1	7.2
9	7.2	6.9	7.1	7.4	7.0	7.2	7.7	7.1	7.3	7.7	7.1	7.2
10	7.2	6.9	7.1	7.4	7.0	7.1	7.6	7.1	7.3	7.8	7.1	7.2
11	---	6.9	---	7.4	7.0	7.2	7.6	7.1	7.3	7.8	7.0	7.2
12	---	---	---	7.4	7.0	7.2	7.6	7.1	7.3	7.8	7.0	7.2
13	---	---	---	7.4	7.0	7.2	7.6	7.1	7.2	7.9	7.0	7.2
14	7.4	---	---	7.4	7.1	7.2	7.6	7.1	7.2	8.0	7.0	7.2
15	7.4	7.1	7.2	7.4	7.0	7.2	7.6	7.1	7.2	7.8	7.0	7.2
16	7.4	7.1	7.2	7.4	7.0	7.1	7.6	7.1	7.2	7.8	7.0	7.2
17	7.3	7.1	7.2	7.4	7.0	7.2	7.6	7.1	7.2	8.1	7.0	7.2
18	7.1	7.0	7.1	7.5	7.0	7.2	7.6	7.1	7.2	8.1	7.1	7.3
19	7.3	7.0	7.1	7.5	7.1	7.2	7.6	7.1	7.2	8.1	7.1	7.2
20	7.3	7.0	7.2	7.5	7.0	7.2	7.5	7.1	7.2	8.1	7.1	7.2
21	7.4	7.0	7.2	7.5	7.0	7.1	7.6	7.0	7.2	8.1	7.1	7.2
22	7.4	7.1	7.2	7.7	7.0	7.3	7.6	7.0	7.2	8.1	7.1	7.2
23	7.4	7.1	7.2	7.7	7.2	7.4	7.6	7.0	7.2	8.1	7.1	7.2
24	7.4	7.0	7.2	7.7	7.1	7.3	7.5	7.0	7.2	8.1	7.1	7.2
25	7.4	7.1	7.2	7.7	7.2	7.3	7.5	7.0	7.1	8.1	7.1	7.2
26	7.4	7.0	7.2	7.7	7.1	7.3	7.5	7.0	7.1	8.1	7.1	7.2
27	7.4	7.1	7.2	7.7	7.1	7.3	7.7	7.0	7.2	8.1	7.1	7.2
28	7.4	7.1	7.2	7.6	7.1	7.2	7.7	7.1	7.3	8.1	7.1	7.2
29	7.3	7.0	7.2	7.6	7.1	7.2	7.7	7.1	7.3	7.9	7.1	7.2
30	7.4	7.0	7.2	7.6	7.0	7.2	7.7	7.2	7.3	7.9	7.1	7.2
31	---	---	---	7.6	7.1	7.3	7.7	7.1	7.3	---	---	---
MAX	---	---	---	7.7	7.2	7.4	7.7	7.2	7.3	8.1	7.2	7.3
MIN	---	---	---	7.4	7.0	7.1	7.5	7.0	7.1	7.6	7.0	7.2

## WILLAMETTE RIVER BASIN

14183000 NORTH SANTIAM RIVER AT MEHAMA, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.0	14.6	16.4	10.1	9.5	9.8	7.4	7.1	7.3	6.5	5.7	6.1
2	17.6	14.5	16.1	11.2	10.1	10.6	7.6	6.9	7.2	6.9	6.3	6.6
3	17.1	13.8	15.5	10.9	9.6	10.3	7.6	7.0	7.2	6.3	5.8	6.0
4	17.1	13.9	15.5	11.0	10.4	10.7	7.0	6.0	6.5	5.8	5.3	5.6
5	16.7	14.0	15.4	11.0	9.8	10.5	6.7	5.9	6.3	6.5	5.7	6.0
6	16.5	14.8	15.4	10.1	9.0	9.5	6.7	6.3	6.6	7.2	6.5	6.8
7	15.3	13.5	14.5	9.4	8.0	8.7	7.0	6.7	6.8	7.4	7.2	7.3
8	15.6	14.3	14.9	9.4	7.9	8.6	7.1	6.4	6.7	7.2	6.7	6.9
9	15.5	13.4	14.4	9.7	8.2	8.9	6.9	6.4	6.6	6.7	6.0	6.2
10	14.2	12.9	13.4	10.6	9.1	9.7	6.4	5.6	5.9	6.5	5.7	6.1
11	14.0	13.0	13.5	11.1	9.7	10.3	6.3	5.7	6.0	6.3	6.0	6.2
12	14.2	12.7	13.4	10.8	10.2	10.5	6.6	6.1	6.3	6.7	6.0	6.4
13	15.4	13.8	14.4	10.7	9.4	10.4	7.0	6.5	6.7	6.0	5.3	5.5
14	15.4	13.8	14.4	10.5	9.4	10.0	6.5	5.6	5.9	5.5	5.1	5.3
15	15.2	12.6	14.0	10.3	10.0	10.1	6.2	5.6	5.9	5.3	4.8	5.0
16	14.8	13.2	14.0	10.0	9.5	9.8	7.0	6.2	6.6	4.8	4.3	4.5
17	14.5	12.8	13.5	9.5	8.4	9.2	7.0	6.2	6.4	5.0	4.4	4.7
18	13.8	11.5	12.7	8.8	7.9	8.4	6.5	6.1	6.3	5.2	4.9	5.0
19	14.3	11.6	13.0	9.9	8.7	9.3	6.5	6.1	6.3	5.1	4.9	5.0
20	13.7	12.6	13.1	9.8	9.3	9.5	6.5	6.0	6.3	5.0	4.5	4.8
21	13.0	12.3	12.6	9.3	8.9	9.0	6.0	5.6	5.7	5.2	4.8	5.0
22	13.0	10.2	12.6	8.9	8.0	8.5	6.0	5.4	5.7	4.9	4.0	4.5
23	10.3	9.7	10.1	8.3	7.8	8.0	5.8	5.3	5.5	5.1	4.6	4.9
24	10.6	9.1	9.9	8.1	7.7	7.9	5.4	4.9	5.1	5.3	5.0	5.1
25	12.2	10.5	11.2	7.7	7.0	7.5	5.4	5.0	5.1	5.3	4.7	5.1
26	12.3	10.6	11.4	7.4	6.8	7.0	5.4	4.9	5.2	5.3	4.8	5.1
27	11.6	10.9	11.1	7.1	6.4	6.8	5.8	5.4	5.5	5.0	4.4	4.7
28	11.2	10.1	10.7	7.3	6.7	7.1	6.2	5.6	5.9	5.1	4.6	4.8
29	11.2	10.6	11.0	7.2	6.9	7.1	5.6	5.2	5.4	4.7	4.0	4.4
30	11.4	10.3	11.0	7.3	7.1	7.2	5.9	5.3	5.6	4.9	4.3	4.6
31	10.3	9.5	10.0	---	---	---	6.5	5.8	6.1	5.0	4.6	4.8
MONTH	18.0	9.1	13.2	11.2	6.4	9.0	7.6	4.9	6.1	7.4	4.0	5.5
	FEBRUARY			MARCH			APRIL			MAY		
1	5.6	4.6	5.0	5.7	3.6	4.6	8.7	5.4	7.0	8.7	6.9	7.6
2	5.5	4.5	5.0	5.9	3.4	4.6	8.7	5.4	7.1	7.9	7.1	7.5
3	6.0	5.0	5.4	6.3	3.6	4.9	8.9	5.6	7.3	8.9	6.8	7.7
4	5.2	4.1	4.7	6.3	4.0	5.2	9.2	5.8	7.5	8.6	5.9	7.3
5	5.1	4.2	4.7	5.6	5.1	5.3	7.7	6.4	6.7	7.6	6.7	7.1
6	5.4	4.6	5.0	5.5	5.0	5.4	7.2	6.2	6.6	6.9	6.2	6.5
7	5.4	4.8	5.2	5.0	4.3	4.7	6.6	6.1	6.3	7.2	5.8	6.4
8	5.9	4.6	5.2	4.8	3.8	4.4	8.4	5.4	6.8	8.8	5.3	7.0
9	5.9	4.7	5.3	5.4	4.0	4.7	7.5	6.2	6.7	7.6	6.5	7.0
10	6.3	4.9	5.6	6.0	5.0	5.5	6.4	5.9	6.1	9.2	6.1	7.4
11	6.1	5.1	5.6	6.3	5.3	6.0	6.8	6.0	6.4	10.5	6.5	8.3
12	5.8	4.2	5.0	5.6	5.0	5.2	7.5	6.1	6.7	11.1	7.3	9.0
13	5.6	4.2	4.9	5.1	4.7	4.9	6.9	6.4	6.6	9.2	7.1	8.0
14	5.6	3.8	4.7	5.6	4.6	5.1	7.3	5.2	5.9	9.5	6.7	7.9
15	5.9	4.1	5.0	5.7	4.7	5.2	5.7	5.3	5.5	9.9	6.7	8.2
16	6.5	4.7	5.5	5.3	4.1	4.7	5.8	5.3	5.6	9.5	6.8	8.2
17	5.8	4.4	5.2	5.2	4.0	4.5	6.4	5.5	5.9	10.5	7.7	8.9
18	6.5	5.3	5.9	5.1	4.2	4.7	6.8	5.7	6.2	8.9	7.9	8.3
19	6.4	5.8	6.0	5.3	4.5	4.9	7.3	5.8	6.4	8.0	7.4	7.7
20	6.6	5.1	5.9	7.1	4.8	5.9	8.0	6.3	7.1	8.5	7.1	7.7
21	6.7	6.0	6.3	7.0	5.2	6.1	8.3	5.9	7.0	8.2	6.9	7.5
22	7.0	5.6	6.2	6.8	4.8	5.9	9.7	6.4	7.9	8.2	7.1	7.7
23	6.2	5.8	6.0	7.5	5.7	6.6	9.4	6.0	7.7	10.3	6.6	8.3
24	5.8	5.0	5.5	6.9	5.9	6.4	9.9	5.4	7.7	10.2	7.5	8.7
25	6.0	4.3	5.1	7.9	5.0	6.4	10.0	6.4	8.3	10.1	8.0	8.9
26	6.0	4.3	5.1	7.4	5.2	6.4	8.5	6.4	7.3	11.0	8.2	9.4
27	5.8	3.8	4.9	7.9	5.8	6.8	8.9	6.2	7.3	9.4	8.2	8.7
28	6.1	4.3	5.1	7.2	5.8	6.4	9.9	5.4	7.6	8.8	7.9	8.4
29	---	---	---	8.3	5.7	6.9	10.6	6.1	8.4	8.8	8.2	8.5
30	---	---	---	8.3	5.0	6.7	9.1	7.0	8.0	10.9	7.7	9.1
31	---	---	---	8.5	5.3	6.9	---	---	---	10.4	8.2	9.3
MONTH	7.0	3.8	5.3	8.5	3.4	5.5	10.6	5.2	6.9	11.1	5.3	8.0

WILLAMETTE RIVER BASIN

14183000 NORTH SANTIAM RIVER AT MEHAMA, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	10.6	8.7	9.6	14.2	9.4	11.6	15.7	10.1	13.0	15.9	11.2	13.6
2	11.1	8.5	9.7	14.8	9.5	12.0	15.2	10.0	12.7	16.1	11.2	13.8
3	10.7	8.5	9.5	12.9	9.9	11.4	15.2	9.7	12.5	15.3	12.0	13.7
4	11.5	8.9	10.0	13.6	10.0	11.6	13.3	10.6	11.9	14.2	10.2	12.3
5	11.5	9.4	10.2	15.0	9.4	12.0	13.1	10.1	11.7	13.8	10.0	11.8
6	11.1	8.7	9.9	15.6	10.0	12.7	13.6	10.2	11.8	13.7	10.1	11.8
7	10.2	8.0	9.0	13.0	10.7	11.6	15.2	9.5	12.3	13.3	10.5	11.8
8	9.6	7.9	8.6	14.9	10.2	12.2	15.4	9.8	12.7	13.1	10.1	11.5
9	10.8	8.1	9.0	16.4	9.9	13.0	16.2	10.2	13.2	14.1	10.1	11.9
10	12.9	7.8	10.0	16.8	10.6	13.6	16.1	10.6	13.5	14.5	10.6	12.4
11	---	8.7	---	16.7	10.9	13.7	15.9	10.1	13.1	14.9	10.9	12.7
12	---	---	---	16.0	10.9	13.5	16.4	10.5	13.4	15.0	11.2	12.9
13	---	---	---	15.3	11.1	13.1	17.1	10.8	14.0	14.9	11.2	12.8
14	13.6	---	---	15.7	10.6	13.1	16.9	11.3	14.2	13.7	11.3	12.4
15	12.7	10.0	11.1	16.0	10.1	13.0	16.4	11.0	13.9	12.7	11.5	12.0
16	11.1	9.8	10.4	16.4	10.4	13.3	16.1	10.6	13.5	12.5	11.6	12.0
17	9.9	9.3	9.5	16.5	10.8	13.7	16.1	11.1	13.7	12.8	11.6	12.1
18	9.8	9.0	9.6	16.0	10.7	13.3	15.6	10.5	13.2	14.3	11.2	12.6
19	12.4	8.5	10.2	14.9	11.3	13.1	15.0	10.7	13.1	14.6	11.1	12.7
20	12.6	9.1	10.7	16.5	10.5	13.4	13.7	11.1	12.4	14.4	11.5	12.7
21	13.3	10.0	11.3	16.9	10.7	13.8	13.6	10.3	11.9	14.4	11.1	12.6
22	11.2	10.0	10.7	16.6	11.2	14.0	15.6	10.1	12.9	14.3	11.3	12.6
23	13.3	9.7	11.2	16.6	11.4	14.0	16.0	10.8	13.5	14.7	11.6	13.0
24	14.1	9.9	11.7	16.7	11.1	13.9	16.1	11.1	13.7	14.6	11.5	12.9
25	14.5	10.0	11.9	16.5	11.2	13.8	14.3	11.3	12.8	14.7	11.5	12.9
26	14.0	10.3	11.9	15.4	11.6	13.4	15.4	11.4	13.2	14.1	11.7	12.8
27	12.2	10.3	11.1	15.8	10.6	13.3	16.1	10.9	13.5	14.7	12.1	13.2
28	10.9	10.0	10.4	16.7	10.7	13.7	16.7	11.5	14.1	14.6	11.9	13.1
29	12.3	10.2	11.2	16.6	10.9	13.9	16.0	11.7	14.0	13.4	12.1	12.7
30	12.1	9.9	10.9	16.7	10.8	13.7	15.3	10.9	13.3	13.5	12.2	12.6
31	---	---	---	15.6	10.3	13.1	15.7	10.8	13.3	---	---	---
MONTH	---	---	---	16.9	9.4	13.1	17.1	9.5	13.1	16.1	10.0	12.6

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	2	<1	<1	6	2	3	11	5	8	5	3	4
2	3	<1	<1	4	1	2	12	5	6	6	3	4
3	2	<1	<1	3	1	1	7	5	6	9	3	3
4	2	<1	<1	2	<1	1	6	4	5	3	2	3
5	2	<1	<1	3	<1	1	8	4	5	3	3	3
6	2	<1	<1	2	<1	1	35	4	16	10	3	5
7	3	<1	<1	3	<1	1	33	6	9	12	5	7
8	3	<1	<1	3	<1	1	6	4	4	36	6	13
9	2	<1	<1	2	<1	1	4	3	3	8	3	5
10	5	<1	1	2	<1	1	5	3	3	4	3	3
11	6	1	2	2	<1	1	4	2	3	6	3	3
12	2	<1	1	6	<1	1	6	2	2	10	3	4
13	2	<1	1	36	1	2	170	4	32	5	2	3
14	3	<1	1	70	4	13	230	16	44	4	3	3
15	3	<1	1	5	3	4	17	7	8	5	3	4
16	2	<1	1	6	2	3	55	7	26	5	4	4
17	2	<1	1	4	2	3	30	8	16	5	4	4
18	3	<1	<1	3	1	2	9	6	7	5	4	4
19	2	<1	<1	6	1	2	8	4	6	6	4	5
20	3	<1	<1	5	2	2	8	5	5	36	4	5
21	3	<1	1	8	2	3	7	5	6	41	6	9
22	60	<1	2	111	2	7	9	6	7	7	4	5
23	47	2	4	70	7	15	8	5	5	4	3	4
24	4	1	2	8	4	5	7	5	5	5	3	4
25	2	<1	1	4	3	3	7	5	6	22	5	10
26	2	<1	1	5	3	3	7	5	6	8	4	5
27	3	<1	1	4	2	3	8	5	6	6	3	3
28	3	<1	1	29	2	4	6	4	5	3	2	3
29	2	<1	1	34	8	18	5	4	4	3	2	3
30	9	1	2	8	5	6	5	4	4	4	2	3
31	14	3	5	---	---	---	7	4	4	5	2	3
MAX	60	3	5	111	8	18	230	16	44	41	6	13
MIN	2	<1	<1	2	<1	1	4	2	2	3	2	3

WILLAMETTE RIVER BASIN

14183000 NORTH SANTIAM RIVER AT MEHAMA, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	4	3	3	2	1	2	2	<1	<1	3	2	2
2	4	2	3	2	1	2	2	<1	<1	3	2	2
3	5	2	3	2	1	2	3	<1	<1	3	2	2
4	3	2	2	2	1	2	2	<1	<1	4	2	2
5	4	2	2	3	1	2	2	<1	1	2	2	2
6	7	2	2	23	2	7	2	<1	1	2	2	2
7	14	3	6	8	3	4	3	<1	1	2	1	2
8	11	3	5	4	2	2	2	<1	<1	3	2	2
9	4	2	3	3	2	2	10	<1	2	4	2	2
10	3	2	2	3	2	2	26	5	10	3	2	2
11	3	2	2	63	2	4	8	4	5	2	1	2
12	3	2	2	66	6	17	6	3	3	3	1	2
13	3	2	2	6	3	3	13	2	5	2	1	2
14	2	2	2	6	2	2	296	13	84	3	1	1
15	3	2	2	5	1	2	31	10	13	2	1	1
16	2	2	2	2	1	2	15	6	8	2	1	2
17	3	2	2	2	1	1	8	4	6	4	1	1
18	2	2	2	3	1	1	7	4	5	2	1	1
19	2	2	2	4	2	3	10	3	4	3	<1	1
20	3	1	2	7	2	2	8	2	3	2	<1	1
21	6	1	3	3	1	2	4	2	3	3	<1	1
22	7	2	3	2	1	1	6	2	3	2	<1	1
23	18	3	8	3	<1	1	3	2	3	2	<1	1
24	9	3	4	4	1	2	5	2	3	2	<1	1
25	4	2	2	2	<1	1	4	2	3	2	<1	<1
26	4	2	2	2	<1	1	4	2	2	2	<1	1
27	4	1	2	2	<1	1	4	2	3	2	<1	1
28	2	1	2	2	<1	1	4	2	2	3	1	1
29	---	---	---	1	<1	<1	3	2	2	11	2	5
30	---	---	---	2	<1	1	3	2	2	4	1	2
31	---	---	---	2	<1	1	---	---	---	4	1	2
MAX	18	3	8	66	6	17	296	13	84	11	2	5
MIN	2	1	2	1	<1	<1	2	<1	<1	2	<1	<1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	5	1	1	2	<1	<1	3	<1	<1	1	<1	<1
2	2	<1	1	1	<1	<1	1	<1	<1	1	<1	<1
3	2	<1	1	<1	<1	<1	2	<1	<1	2	<1	<1
4	2	<1	<1	2	<1	<1	2	<1	<1	3	<1	1
5	2	<1	<1	3	<1	<1	2	<1	<1	5	<1	1
6	1	<1	<1	1	<1	<1	1	<1	<1	2	<1	<1
7	2	<1	<1	2	<1	<1	2	<1	<1	2	<1	<1
8	1	<1	<1	1	<1	<1	1	<1	<1	3	<1	<1
9	2	<1	<1	1	<1	<1	2	<1	<1	2	<1	<1
10	1	<1	<1	1	<1	<1	2	<1	<1	2	<1	<1
11	---	---	---	2	<1	<1	2	<1	<1	4	<1	<1
12	---	---	---	3	<1	<1	2	<1	<1	2	<1	<1
13	---	---	---	1	<1	<1	4	<1	<1	2	<1	<1
14	---	<1	---	2	<1	<1	2	<1	<1	1	<1	<1
15	3	<1	<1	2	<1	<1	1	<1	<1	1	<1	<1
16	2	<1	<1	<1	<1	<1	2	<1	<1	2	<1	<1
17	2	<1	<1	2	<1	<1	4	<1	<1	1	<1	<1
18	6	1	2	2	<1	<1	2	<1	<1	2	<1	<1
19	2	<1	<1	<1	<1	<1	1	<1	<1	2	<1	<1
20	3	<1	<1	1	<1	<1	1	<1	<1	2	<1	<1
21	2	<1	<1	4	<1	<1	1	<1	<1	3	<1	<1
22	2	<1	<1	2	<1	<1	2	<1	<1	2	<1	<1
23	4	<1	<1	2	<1	<1	2	<1	<1	2	<1	<1
24	1	<1	<1	2	<1	<1	2	<1	<1	3	<1	<1
25	1	<1	<1	3	<1	<1	3	<1	<1	2	<1	<1
26	2	<1	<1	1	<1	<1	2	<1	<1	4	<1	<1
27	1	<1	<1	2	<1	<1	1	<1	<1	2	<1	<1
28	2	<1	<1	2	<1	<1	2	<1	<1	2	<1	<1
29	4	<1	1	2	<1	<1	5	<1	<1	1	<1	<1
30	1	<1	<1	2	<1	<1	2	<1	<1	4	<1	<1
31	---	---	---	2	<1	<1	2	<1	<1	---	---	---
MAX	---	---	---	4	<1	<1	5	<1	<1	5	<1	1
MIN	---	---	---	<1	<1	<1	1	<1	<1	1	<1	<1



444728122450000--NORTH SANTIAM RIVER AT GEREN ISLAND WATER TREATMENT PLANT, NEAR STAYTON, OR

LOCATION.--Lat 44°47'28", long 122°45'00", Marion County, Hydrologic Unit 17090005, at the water treatment plant water intake, on Geren Island which is located approximately 5 mi east of Stayton and at mile 30.5.

DRAINAGE AREA.--667.01 mi<sup>2</sup>.

PERIOD OF DAILY RECORD.--  
 SPECIFIC CONDUCTANCE: March 2001 to current year.  
 pH: March 2001 to current year.  
 WATER TEMPERATURE: March 2001 to current year.  
 TURBIDITY: March 2001 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Records for the period March to September 2001, may be found in the files of the Portland field office.  
 SPECIFIC CONDUCTANCE: Record excellent.  
 pH: Record excellent.  
 WATER TEMPERATURE: Record excellent.  
 TURBIDITY: Record good.

EXTREMES FOR PERIOD OF RECORD.--  
 SPECIFIC CONDUCTANCE: Maximum, 51 microsiemens Sept, 21, 2001; minimum, 21 microsiemens Mar. 12, 2002.  
 pH: Maximum, 8.7 units Sept. 17-28, 2002; minimum, 7.1 units Dec. 14, Mar. 12, Apr. 14, 2002.  
 WATER TEMPERATURE: Maximum, 20.4°C Aug. 7, 10, 13, 2001; minimum, 3.4° Mar. 2, 2002.  
 TURBIDITY: Maximum, 135 NTU Apr.14, 2002; minimum, <1 NTU many days most years.

EXTREMES FOR CURRENT YEAR.--  
 SPECIFIC CONDUCTANCE: Maximum, 50 microsiemens Oct. 20-22; minimum, 21 microsiemens Mar. 12.  
 pH: Maximum, 8.7 units Sept. 17-28; minimum, 7.1 units Dec. 14, Mar. 12, Apr. 14.  
 WATER TEMPERATURE: Maximum, 18.0°C Oct. 1; minimum, 3.4°C Mar. 2.  
 TURBIDITY: Maximum, 135 NTU Apr. 14; minimum, <1 NTU on many days.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	48	47	48	38	30	35	36	33	35	33	32	33
2	48	48	48	36	34	34	36	33	35	33	30	31
3	48	48	48	40	36	37	37	36	37	31	29	30
4	48	48	48	41	40	40	37	37	37	32	31	31
5	48	48	48	41	41	41	38	37	38	33	32	33
6	48	48	48	42	41	42	38	31	35	33	29	31
7	49	48	48	43	42	43	35	31	33	---	---	---
8	49	48	48	44	43	44	36	35	36	---	---	---
9	49	48	48	45	44	44	37	36	36	---	---	---
10	49	47	48	45	44	45	37	36	36	---	---	---
11	48	47	48	46	45	45	36	35	36	---	---	---
12	48	47	48	46	45	45	36	36	36	---	---	---
13	48	47	48	45	41	45	36	24	30	---	---	---
14	49	48	48	41	27	30	33	23	27	---	---	---
15	49	48	48	39	33	36	34	33	33	---	---	---
16	49	48	48	39	37	38	34	27	30	---	---	---
17	49	48	49	39	38	38	32	27	29	---	---	---
18	49	48	49	41	39	40	33	32	33	---	---	---
19	49	49	49	41	41	41	34	33	33	---	---	---
20	50	49	49	41	40	41	34	33	34	---	---	---
21	50	49	49	41	40	41	35	34	34	---	---	---
22	50	48	49	41	28	36	35	35	35	---	---	---
23	48	33	35	35	28	32	35	35	35	---	---	---
24	39	34	36	38	35	36	35	34	35	---	---	---
25	42	39	40	39	38	39	34	34	34	---	---	---
26	44	42	43	39	39	39	35	34	34	---	---	---
27	44	43	44	40	39	39	35	34	34	---	---	---
28	45	44	44	40	30	37	34	34	34	---	---	---
29	46	45	45	33	29	31	34	33	34	---	---	---
30	45	36	43	36	33	35	34	33	34	---	---	---
31	36	30	32	---	---	---	34	33	33	---	---	---
MONTH	50	30	46	46	27	39	38	23	34	---	---	---

## WILLAMETTE RIVER BASIN

444728122450000 NORTH SANTIAM RIVER AT GEREN ISLAND WATER TREATMENT PLANT, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	35	35	35	34	34	34	33	32	33	33	33	33
2	36	35	35	34	33	34	33	31	32	33	33	33
3	35	35	35	35	34	34	32	31	31	33	31	32
4	35	34	35	35	34	35	31	30	31	33	33	33
5	35	34	34	35	34	35	31	29	30	33	33	33
6	35	34	34	34	26	31	31	30	31	33	33	33
7	34	31	32	29	26	28	32	31	32	33	32	33
8	32	31	31	31	29	31	33	32	33	33	33	33
9	33	32	32	32	31	32	34	31	33	33	33	33
10	33	32	33	33	32	33	31	28	29	33	33	33
11	33	33	33	33	23	30	32	29	31	36	33	33
12	34	33	33	27	21	24	32	31	32	34	33	33
13	34	34	34	28	27	27	32	30	31	34	32	33
14	35	34	35	30	28	29	30	22	25	32	32	32
15	35	35	35	32	30	31	34	29	33	33	32	32
16	35	34	35	33	32	33	34	33	33	33	32	33
17	35	34	34	34	33	34	33	33	33	33	32	33
18	34	34	34	35	34	34	34	33	34	33	32	32
19	34	32	33	35	33	34	34	34	34	32	32	32
20	32	31	31	34	33	33	34	33	34	33	32	32
21	32	27	30	34	33	33	34	33	33	33	32	33
22	27	27	27	34	33	33	34	33	33	33	32	32
23	27	25	26	34	33	33	33	33	33	34	32	32
24	27	25	26	33	31	32	33	33	33	33	32	33
25	29	27	28	32	31	31	33	33	33	33	32	33
26	31	29	30	32	31	32	33	32	33	33	31	32
27	33	31	32	33	32	32	33	32	33	32	32	32
28	34	33	33	32	32	32	34	33	33	32	30	31
29	---	---	---	33	32	32	33	33	33	30	28	29
30	---	---	---	34	33	33	33	32	33	32	29	30
31	---	---	---	34	32	33	---	---	---	32	30	31
MONTH	36	25	32	35	21	32	34	22	32	36	28	32
	JUNE			JULY			AUGUST			SEPTEMBER		
1	32	31	31	34	33	33	35	34	35	34	34	34
2	32	31	32	34	33	34	35	34	35	34	34	34
3	32	32	32	34	34	34	36	35	35	34	34	34
4	32	31	32	34	34	34	35	35	35	34	33	34
5	32	31	32	35	34	34	35	35	35	34	33	33
6	32	31	31	35	34	35	35	35	35	34	33	33
7	34	32	32	35	34	35	35	35	35	34	32	33
8	32	32	32	35	34	35	35	35	35	---	---	---
9	33	32	32	35	34	34	35	35	35	---	---	---
10	33	33	33	34	34	34	35	35	35	---	---	---
11	34	33	33	34	34	34	35	35	35	---	---	---
12	34	33	33	36	34	34	35	35	35	---	---	---
13	34	32	33	34	34	34	36	35	35	---	---	---
14	33	32	32	34	34	34	36	35	35	---	---	---
15	33	32	33	35	34	34	36	35	35	---	---	---
16	34	33	33	34	34	34	36	35	35	---	---	---
17	34	33	33	34	34	34	36	35	35	---	---	---
18	33	30	32	35	34	34	36	35	35	36	35	35
19	33	31	32	35	34	34	36	35	35	36	35	35
20	34	33	33	35	34	34	36	35	35	36	35	35
21	33	33	33	34	34	34	37	35	35	36	35	35
22	34	33	33	35	34	34	36	35	35	36	35	35
23	34	33	34	35	34	34	36	35	35	36	35	35
24	34	34	34	35	34	34	36	35	35	36	35	36
25	34	34	34	34	34	34	36	35	35	36	35	36
26	35	34	34	34	34	34	36	35	35	36	35	36
27	35	34	34	34	34	34	35	35	35	36	34	35
28	35	34	34	34	34	34	36	35	35	36	35	35
29	34	31	33	35	34	34	35	35	35	36	34	35
30	33	31	32	35	34	35	35	35	35	36	35	35
31	---	---	---	35	34	34	35	34	34	---	---	---
MONTH	35	30	33	36	33	34	37	34	35	---	---	---

444728122450000 NORTH SANTIAM RIVER AT GEREN ISLAND WATER TREATMENT PLANT, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	8.2	7.5	7.6	7.6	7.3	7.4	7.4	7.3	7.3	7.4	7.3	7.4
2	8.2	7.5	7.6	7.7	7.3	7.4	7.4	7.3	7.3	7.5	7.3	7.3
3	8.2	7.5	7.6	7.9	7.3	7.4	7.4	7.3	7.4	7.4	7.3	7.3
4	8.2	7.5	7.7	8.0	7.4	7.5	7.4	7.3	7.4	7.4	7.3	7.3
5	8.3	7.5	7.7	8.1	7.4	7.5	7.4	7.3	7.4	7.5	7.3	7.4
6	8.4	7.5	7.7	8.0	7.5	7.5	7.4	7.2	7.3	7.4	7.3	7.3
7	8.4	7.5	7.7	7.9	7.5	7.5	7.3	7.2	7.3	---	---	---
8	8.3	7.5	7.7	8.0	7.5	7.5	7.4	7.3	7.3	---	---	---
9	8.4	7.5	7.7	8.1	7.5	7.5	7.4	7.3	7.3	---	---	---
10	7.9	7.5	7.6	8.2	7.5	7.6	7.4	7.3	7.3	---	---	---
11	8.2	7.5	7.6	8.3	7.5	7.6	7.4	7.3	7.3	---	---	---
12	8.3	7.5	7.6	8.0	7.5	7.5	7.4	7.3	7.4	---	---	---
13	8.4	7.5	7.7	7.9	7.5	7.5	7.4	7.2	7.3	---	---	---
14	8.4	7.5	7.6	7.5	7.2	7.3	7.3	7.1	7.2	---	---	---
15	8.4	7.5	7.7	7.5	7.3	7.4	7.3	7.3	7.3	---	---	---
16	8.2	7.5	7.6	7.6	7.4	7.4	7.3	7.2	7.3	---	---	---
17	8.4	7.5	7.7	7.7	7.4	7.4	7.3	7.2	7.2	---	---	---
18	8.4	7.5	7.7	7.7	7.4	7.5	7.4	7.3	7.3	---	---	---
19	8.4	7.5	7.7	7.7	7.4	7.5	7.4	7.3	7.3	---	---	---
20	8.6	7.5	7.7	7.6	7.5	7.5	7.4	7.3	7.4	---	---	---
21	8.2	7.5	7.6	7.6	7.5	7.5	7.4	7.3	7.4	---	---	---
22	8.1	7.5	7.6	7.5	7.2	7.5	7.4	7.4	7.4	---	---	---
23	7.7	7.3	7.4	7.3	7.2	7.3	7.4	7.4	7.4	---	---	---
24	7.9	7.3	7.5	7.5	7.3	7.4	7.4	7.3	7.4	---	---	---
25	8.1	7.4	7.5	7.5	7.4	7.4	7.5	7.3	7.4	---	---	---
26	8.3	7.4	7.6	7.6	7.4	7.4	7.5	7.3	7.4	---	---	---
27	7.8	7.4	7.5	7.6	7.4	7.5	7.5	7.4	7.4	---	---	---
28	8.3	7.5	7.6	7.5	7.3	7.5	7.5	7.4	7.4	---	---	---
29	8.0	7.5	7.5	7.3	7.2	7.3	7.5	7.3	7.4	---	---	---
30	7.9	7.4	7.5	7.4	7.3	7.3	7.5	7.3	7.4	---	---	---
31	7.6	7.3	7.4	---	---	---	7.5	7.3	7.4	---	---	---
MAX	8.6	7.5	7.7	8.3	7.5	7.6	7.5	7.4	7.4	---	---	---
MIN	7.6	7.3	7.4	7.3	7.2	7.3	7.3	7.1	7.2	---	---	---

DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.5	7.3	7.4	7.8	7.3	7.4	7.7	7.2	7.3	7.7	7.3	7.4
2	7.5	7.3	7.4	7.8	7.3	7.4	7.7	7.2	7.3	7.6	7.3	7.4
3	7.6	7.3	7.4	7.8	7.3	7.4	7.7	7.2	7.3	7.7	7.3	7.5
4	7.6	7.3	7.4	7.9	7.4	7.5	7.7	7.2	7.3	7.7	7.3	7.5
5	7.6	7.3	7.4	7.8	7.3	7.4	7.5	7.2	7.3	7.7	7.3	7.4
6	7.5	7.3	7.4	7.5	7.2	7.4	7.6	7.2	7.4	7.6	7.3	7.4
7	7.4	7.2	7.3	7.5	7.2	7.3	7.6	7.3	7.4	7.7	7.3	7.5
8	7.4	7.2	7.2	7.6	7.3	7.4	7.7	7.3	7.4	7.8	7.3	7.5
9	7.5	7.2	7.3	7.7	7.3	7.4	7.6	7.3	7.4	7.7	7.3	7.4
10	7.5	7.2	7.3	7.7	7.3	7.4	7.4	7.2	7.3	7.8	7.3	7.5
11	7.6	7.2	7.3	7.6	7.2	7.4	7.5	7.2	7.4	7.9	7.3	7.5
12	7.6	7.2	7.3	7.3	7.1	7.2	7.5	7.3	7.4	7.9	7.3	7.5
13	7.6	7.2	7.3	7.5	7.2	7.3	7.4	7.3	7.3	7.7	7.3	7.4
14	7.6	7.3	7.3	7.5	7.2	7.3	7.3	7.1	7.2	7.9	7.3	7.5
15	7.6	7.3	7.3	7.5	7.2	7.3	7.4	7.2	7.4	7.9	7.3	7.5
16	7.7	7.3	7.3	7.5	7.3	7.4	7.4	7.3	7.4	7.8	7.3	7.5
17	7.7	7.3	7.3	7.6	7.3	7.4	7.4	7.3	7.4	7.9	7.3	7.5
18	7.8	7.3	7.3	7.6	7.3	7.4	7.4	7.3	7.4	7.8	7.3	7.5
19	7.8	7.3	7.3	7.5	7.3	7.3	7.4	7.3	7.4	7.7	7.3	7.5
20	7.8	7.3	7.4	7.6	7.3	7.4	7.4	7.3	7.4	7.8	7.3	7.5
21	7.8	7.2	7.3	7.6	7.3	7.4	7.4	7.3	7.3	7.8	7.3	7.5
22	7.7	7.2	7.3	7.6	7.3	7.4	7.5	7.3	7.3	7.8	7.3	7.5
23	7.4	7.2	7.2	7.7	7.3	7.3	7.5	7.3	7.4	7.9	7.3	7.5
24	7.5	7.2	7.3	7.6	7.2	7.3	7.5	7.4	7.4	7.8	7.3	7.5
25	7.6	7.2	7.3	7.6	7.2	7.3	7.5	7.3	7.4	7.8	7.3	7.5
26	7.6	7.2	7.3	7.7	7.2	7.3	7.6	7.4	7.4	7.8	7.3	7.4
27	7.7	7.3	7.4	7.7	7.2	7.3	7.6	7.3	7.4	7.6	7.2	7.4
28	7.8	7.3	7.4	7.7	7.2	7.3	7.6	7.3	7.4	7.6	7.3	7.4
29	---	---	---	7.7	7.2	7.3	7.6	7.3	7.5	7.5	7.2	7.3
30	---	---	---	7.7	7.2	7.4	7.6	7.3	7.4	7.7	7.2	7.4
31	---	---	---	7.7	7.2	7.4	---	---	---	7.7	7.3	7.4
MAX	7.8	7.3	7.4	7.9	7.4	7.5	7.7	7.4	7.5	7.9	7.3	7.5
MIN	7.4	7.2	7.2	7.3	7.1	7.2	7.3	7.1	7.2	7.5	7.2	7.3

## WILLAMETTE RIVER BASIN

444728122450000 NORTH SANTIAM RIVER AT GEREN ISLAND WATER TREATMENT PLANT, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.6	7.3	7.4	7.7	7.3	7.4	7.7	7.3	7.4	8.0	7.3	7.5
2	7.6	7.3	7.4	7.7	7.3	7.4	7.7	7.3	7.4	8.0	7.3	7.5
3	7.6	7.3	7.4	7.8	7.3	7.5	7.7	7.3	7.4	8.1	7.3	7.5
4	7.6	7.3	7.4	7.8	7.3	7.5	7.7	7.3	7.4	8.0	7.3	7.5
5	7.6	7.3	7.4	7.7	7.3	7.4	7.8	7.2	7.5	8.0	7.3	7.5
6	7.6	7.3	7.4	7.8	7.3	7.4	7.8	7.3	7.5	8.1	7.3	7.5
7	7.6	7.3	7.4	7.8	7.2	7.5	7.8	7.3	7.5	8.2	7.3	7.5
8	7.6	7.3	7.4	7.8	7.3	7.5	7.8	7.3	7.5	8.3	7.3	7.5
9	7.6	7.3	7.4	7.8	7.3	7.4	7.8	7.3	7.4	8.3	7.3	7.5
10	7.6	7.2	7.4	7.8	7.2	7.4	7.8	7.3	7.4	8.4	7.3	7.5
11	7.7	7.2	7.4	7.8	7.3	7.4	7.8	7.3	7.4	8.4	7.3	7.5
12	7.6	7.3	7.4	7.8	7.2	7.4	7.8	7.3	7.4	8.5	7.3	7.5
13	7.6	7.3	7.4	7.8	7.3	7.5	7.8	7.2	7.4	8.5	7.3	7.5
14	7.6	7.3	7.5	7.9	7.3	7.5	7.8	7.2	7.4	8.6	7.2	7.5
15	7.6	7.3	7.5	7.8	7.3	7.5	7.8	7.2	7.4	8.5	7.3	7.5
16	7.6	7.3	7.5	7.9	7.3	7.4	7.9	7.2	7.4	8.5	7.3	7.5
17	7.6	7.3	7.4	7.9	7.3	7.5	7.9	7.2	7.4	8.7	7.3	7.5
18	7.5	7.3	7.4	8.0	7.3	7.5	7.9	7.2	7.4	8.7	7.3	7.6
19	7.6	7.3	7.4	8.1	7.3	7.5	8.0	7.2	7.4	8.7	7.3	7.5
20	7.7	7.3	7.4	8.1	7.3	7.4	8.0	7.2	7.4	8.7	7.3	7.5
21	7.7	7.3	7.4	8.2	7.2	7.4	7.9	7.2	7.4	8.7	7.3	7.5
22	7.6	7.3	7.4	7.8	7.2	7.5	7.9	7.2	7.4	8.7	7.3	7.5
23	7.7	7.3	7.5	7.8	7.3	7.5	7.9	7.2	7.4	8.7	7.3	7.5
24	7.7	7.3	7.4	7.8	7.3	7.5	7.9	7.2	7.4	8.7	7.3	7.5
25	7.7	7.3	7.4	7.8	7.3	7.5	8.0	7.2	7.4	8.7	7.3	7.5
26	7.7	7.2	7.4	7.7	7.3	7.5	8.0	7.2	7.4	8.7	7.3	7.5
27	7.6	7.3	7.4	7.7	7.3	7.5	7.9	7.2	7.4	8.7	7.3	7.5
28	7.6	7.3	7.5	7.7	7.3	7.4	8.0	7.3	7.5	8.7	7.3	7.5
29	7.7	7.3	7.4	7.7	7.2	7.4	8.0	7.3	7.5	8.5	7.3	7.4
30	7.7	7.3	7.4	7.7	7.2	7.4	8.0	7.3	7.5	8.4	7.3	7.5
31	---	---	---	7.7	7.3	7.5	8.0	7.3	7.5	---	---	---
MAX	7.7	7.3	7.5	8.2	7.3	7.5	8.0	7.3	7.5	8.7	7.3	7.6
MIN	7.5	7.2	7.4	7.7	7.2	7.4	7.7	7.2	7.4	8.0	7.2	7.4

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	18.0	14.9	16.6	10.4	9.8	10.1	8.1	7.8	7.9	6.4	5.7	6.0
2	17.4	14.7	16.3	11.4	10.3	10.8	8.0	7.5	7.8	6.9	6.3	6.5
3	16.7	14.0	15.6	11.1	9.8	10.5	8.0	7.4	7.8	6.4	5.8	6.1
4	17.0	14.0	15.6	11.1	10.5	10.8	7.4	7.0	7.2	5.8	5.4	5.6
5	16.4	14.0	15.3	11.0	10.0	10.7	7.4	6.8	7.1	6.4	5.6	6.0
6	16.2	14.8	15.5	10.2	9.1	9.6	7.4	7.3	7.4	7.1	6.4	6.7
7	15.1	13.5	14.3	9.2	7.9	8.6	7.4	7.2	7.3	---	---	---
8	15.6	14.3	14.8	9.2	7.5	8.4	7.5	7.0	7.2	---	---	---
9	15.2	13.1	14.1	9.5	7.7	8.6	7.4	6.8	7.1	---	---	---
10	14.1	12.6	13.1	10.4	8.6	9.5	6.8	6.3	6.5	---	---	---
11	14.1	13.2	13.6	10.9	9.6	10.3	6.7	6.3	6.6	---	---	---
12	14.0	12.4	13.2	10.9	10.2	10.6	7.0	6.5	6.7	---	---	---
13	15.4	13.8	14.4	10.9	10.6	10.8	7.5	7.0	7.2	---	---	---
14	15.1	13.8	14.4	10.9	10.0	10.5	7.2	6.1	6.5	---	---	---
15	14.9	12.7	13.9	10.7	10.4	10.5	6.6	6.0	6.3	---	---	---
16	14.5	13.3	13.9	10.5	10.1	10.3	7.3	6.6	6.9	---	---	---
17	14.2	12.6	13.4	10.2	9.0	9.8	7.3	6.4	6.8	---	---	---
18	13.4	11.1	12.4	9.4	8.3	8.9	6.6	6.3	6.4	---	---	---
19	14.2	11.4	12.8	10.3	9.1	9.7	6.5	6.3	6.4	---	---	---
20	13.9	12.5	13.0	10.3	9.8	10.0	6.7	6.2	6.5	---	---	---
21	12.7	11.9	12.3	9.9	9.5	9.6	6.2	5.9	6.0	---	---	---
22	13.1	12.5	12.9	9.6	8.6	9.3	6.4	5.8	6.1	---	---	---
23	12.5	9.8	10.5	8.9	8.5	8.7	6.1	5.6	5.8	---	---	---
24	10.7	9.0	9.9	8.7	8.5	8.6	5.8	5.3	5.5	---	---	---
25	12.2	10.5	11.2	8.6	8.1	8.4	5.8	5.2	5.5	---	---	---
26	12.4	10.5	11.5	8.3	7.6	7.9	5.6	5.2	5.4	---	---	---
27	11.9	10.8	11.1	7.8	7.3	7.6	5.8	5.4	5.6	---	---	---
28	11.0	10.0	10.5	8.3	7.7	7.9	6.2	5.6	5.9	---	---	---
29	11.2	10.5	10.8	7.9	7.7	7.8	5.7	5.4	5.5	---	---	---
30	11.7	10.7	11.2	7.9	7.6	7.8	5.9	5.3	5.6	---	---	---
31	10.7	9.9	10.4	---	---	---	6.5	5.8	6.1	---	---	---
MONTH	18.0	9.0	13.2	11.4	7.3	9.4	8.1	5.2	6.5	---	---	---

WILLAMETTE RIVER BASIN

444728122450000 NORTH SANTIAM RIVER AT GEREN ISLAND WATER TREATMENT PLANT, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
FEBRUARY			MARCH			APRIL			MAY			
1	5.8	4.8	5.2	5.8	3.7	4.8	9.2	5.7	7.5	9.0	7.1	8.0
2	5.8	4.5	5.2	6.0	3.4	4.8	9.2	5.7	7.6	8.4	7.0	7.5
3	6.3	5.3	5.7	6.4	3.8	5.1	9.4	5.9	7.8	9.4	6.7	7.8
4	5.4	4.1	4.8	6.7	4.2	5.5	9.8	6.1	8.1	9.0	5.9	7.4
5	5.3	4.3	4.8	5.8	5.3	5.6	8.6	6.9	7.3	7.7	6.7	7.2
6	5.5	4.7	5.1	5.8	5.3	5.6	7.5	6.6	7.0	7.1	6.1	6.6
7	5.5	5.1	5.3	5.3	4.5	4.9	7.0	6.3	6.5	8.0	5.8	6.8
8	6.2	4.8	5.5	5.1	3.9	4.5	8.9	5.4	7.0	9.3	5.5	7.3
9	6.0	4.6	5.3	5.5	4.1	4.8	7.7	6.5	6.9	7.6	6.6	7.1
10	6.4	4.9	5.7	6.2	5.2	5.7	7.0	6.3	6.6	9.7	6.1	7.6
11	6.3	5.3	5.8	6.6	6.1	6.3	7.4	6.7	7.0	11.1	6.3	8.6
12	5.8	4.0	5.0	6.2	5.4	5.7	7.6	6.7	7.1	11.7	7.0	9.2
13	5.7	4.2	5.0	5.7	5.1	5.4	7.3	6.7	6.9	9.6	7.1	8.0
14	5.8	3.8	4.9	5.9	4.9	5.4	7.5	6.1	6.7	10.2	6.6	8.1
15	6.1	4.1	5.2	5.9	4.8	5.4	6.1	5.5	5.7	10.4	6.6	8.4
16	6.8	4.9	5.8	5.5	4.4	5.0	6.2	5.5	5.8	9.9	6.6	8.2
17	5.9	4.7	5.4	5.3	4.1	4.6	6.7	5.8	6.1	10.6	7.3	8.6
18	6.8	5.6	6.2	5.2	4.3	4.8	7.0	5.9	6.4	8.8	7.4	8.0
19	6.7	6.0	6.4	5.8	4.8	5.2	7.2	5.8	6.4	7.9	7.4	7.6
20	6.9	5.4	6.2	7.5	5.0	6.2	8.7	6.2	7.1	8.8	6.9	7.7
21	7.2	6.4	6.8	7.4	5.5	6.5	8.4	5.9	7.0	8.2	6.7	7.4
22	7.3	5.8	6.6	7.0	5.0	6.1	10.1	6.4	8.0	8.7	7.3	7.8
23	6.8	6.1	6.4	8.4	6.0	7.0	9.8	6.3	8.2	10.6	6.6	8.4
24	6.2	5.3	5.8	7.3	6.3	6.8	10.4	5.8	8.2	10.5	7.2	8.7
25	6.2	4.2	5.2	8.3	5.2	6.8	10.6	6.8	8.8	10.3	7.7	8.8
26	6.2	4.3	5.3	7.7	5.5	6.8	9.3	6.8	7.8	11.4	7.9	9.4
27	6.0	3.8	5.0	8.4	6.1	7.2	9.2	6.5	7.8	9.2	7.8	8.5
28	6.3	4.4	5.3	7.7	6.1	6.8	10.5	5.8	8.1	8.9	7.5	8.2
29	---	---	---	8.8	5.9	7.2	11.3	6.6	9.0	9.0	7.9	8.4
30	---	---	---	8.8	5.3	7.1	10.1	7.4	8.6	11.1	7.6	9.1
31	---	---	---	9.0	5.6	7.4	---	---	---	10.4	8.1	9.1
MONTH	7.3	3.8	5.5	9.0	3.4	5.8	11.3	5.4	7.3	11.7	5.5	8.0

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	10.8	8.2	9.3	15.0	9.7	12.2	16.5	11.5	14.2	16.5	12.7	14.8
2	11.2	8.2	9.5	15.5	10.0	12.8	16.0	11.7	14.0	16.7	12.8	14.9
3	10.6	8.1	9.2	13.8	10.3	12.2	15.8	11.1	13.7	16.1	13.5	15.0
4	11.5	8.5	9.7	14.5	10.3	12.4	14.8	12.1	13.2	14.6	11.3	13.2
5	11.5	8.6	9.8	15.7	9.9	12.8	14.6	10.9	12.7	14.3	10.3	12.4
6	11.4	8.1	9.6	16.4	10.8	13.7	14.5	11.4	12.9	14.4	10.4	12.4
7	10.6	7.7	9.1	15.1	11.3	12.6	15.9	10.6	13.3	14.0	10.7	12.4
8	10.4	7.7	8.9	15.8	10.8	13.0	16.1	11.4	13.9	13.6	10.3	12.0
9	11.5	7.9	9.6	17.3	10.8	14.0	16.9	11.8	14.5	14.8	10.2	12.5
10	13.6	7.9	10.6	17.7	11.7	14.9	16.9	12.5	15.0	15.2	10.8	13.1
11	14.1	8.7	11.4	17.6	12.0	15.0	16.6	11.8	14.5	15.6	11.1	13.5
12	14.6	9.1	11.8	17.0	12.0	14.8	17.2	12.1	14.8	15.8	11.5	13.7
13	14.7	9.5	12.0	15.9	12.1	14.3	17.9	12.6	15.5	15.7	11.4	13.6
14	14.2	9.8	12.0	16.6	11.6	14.2	17.6	13.5	15.8	14.2	11.5	13.1
15	12.9	9.8	11.2	16.8	11.0	14.1	17.1	13.1	15.3	13.3	11.8	12.5
16	10.9	9.6	10.1	17.1	11.5	14.5	16.7	12.5	14.8	13.0	11.8	12.4
17	9.8	9.0	9.3	17.4	12.3	15.0	16.9	13.0	15.1	13.3	12.0	12.5
18	9.8	8.7	9.2	16.7	11.9	14.4	16.3	12.2	14.5	14.7	11.4	13.0
19	12.9	8.6	10.4	16.0	12.5	14.4	15.8	12.4	14.4	15.2	11.2	13.2
20	12.9	8.7	10.7	17.3	11.8	14.6	14.7	12.4	13.6	14.8	11.7	13.4
21	13.8	9.7	11.3	17.7	12.4	15.2	14.7	11.0	12.8	15.0	11.0	13.0
22	11.9	10.2	10.7	17.6	13.0	15.5	16.1	11.4	13.7	14.8	11.2	13.1
23	13.9	9.6	11.4	17.6	13.2	15.3	16.6	12.5	14.7	15.2	11.5	13.4
24	14.7	9.7	12.1	17.6	12.6	15.5	16.8	12.9	15.0	15.2	11.5	13.4
25	15.3	9.7	12.4	17.4	12.4	15.1	15.9	12.7	14.1	15.2	11.5	13.4
26	14.8	10.1	12.5	16.3	12.7	14.6	16.0	12.5	14.3	14.7	11.7	13.2
27	12.8	10.3	11.6	16.6	11.9	14.4	16.8	12.3	14.6	15.2	12.0	13.6
28	11.4	10.2	10.8	17.5	12.0	14.9	17.4	13.3	15.5	14.9	11.7	13.4
29	12.9	10.4	11.4	17.7	12.8	15.4	16.9	13.5	15.4	13.8	12.1	13.0
30	12.6	10.2	11.4	17.3	12.7	15.3	15.9	12.5	14.5	13.4	12.1	12.7
31	---	---	---	16.3	11.9	14.3	16.3	12.1	14.4	---	---	---
MONTH	15.3	7.7	10.6	17.7	9.7	14.2	17.9	10.6	14.3	16.7	10.2	13.2

444728122450000 NORTH SANTIAM RIVER AT GEREN ISLAND WATER TREATMENT PLANT, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	2	<1	<1	7	2	3	17	5	12	7	4	4
2	4	<1	<1	5	1	2	16	7	9	6	4	5
3	3	<1	<1	2	<1	1	11	6	8	6	4	4
4	3	<1	<1	4	<1	<1	8	6	6	5	3	4
5	2	<1	<1	4	<1	1	8	5	6	5	3	3
6	2	<1	<1	2	<1	<1	26	5	11	6	3	4
7	2	<1	<1	2	<1	<1	22	7	10	---	---	---
8	2	<1	<1	2	<1	<1	8	4	5	---	---	---
9	2	<1	<1	6	<1	<1	11	3	4	---	---	---
10	2	<1	<1	1	<1	<1	5	3	4	---	---	---
11	6	<1	2	1	<1	<1	4	<1	3	---	---	---
12	5	<1	1	2	<1	<1	4	2	3	---	---	---
13	2	<1	<1	8	<1	1	88	2	15	---	---	---
14	4	<1	<1	40	3	10	107	11	33	---	---	---
15	2	<1	<1	5	2	3	12	5	7	---	---	---
16	5	<1	<1	6	2	3	34	6	16	---	---	---
17	2	<1	<1	7	2	3	24	9	14	---	---	---
18	1	<1	<1	4	1	2	13	7	9	---	---	---
19	3	<1	<1	4	1	2	10	5	7	---	---	---
20	2	<1	<1	5	2	2	9	6	7	---	---	---
21	2	<1	<1	5	2	3	10	6	7	---	---	---
22	22	<1	1	70	3	5	10	7	9	---	---	---
23	38	2	5	58	6	13	10	6	7	---	---	---
24	4	<1	2	9	3	4	7	6	6	---	---	---
25	3	<1	1	5	2	3	8	6	7	---	---	---
26	3	<1	<1	5	<1	3	9	6	7	---	---	---
27	3	<1	<1	4	2	3	7	6	6	---	---	---
28	3	<1	<1	20	2	3	8	6	6	---	---	---
29	4	<1	<1	50	7	13	7	5	6	---	---	---
30	6	<1	1	11	4	6	7	5	6	---	---	---
31	11	2	5	---	---	---	7	4	5	---	---	---
MAX	38	2	5	70	7	13	107	11	33	---	---	---
MIN	1	<1	<1	1	<1	<1	4	<1	3	---	---	---

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	9	2	3	2	<1	1	6	<1	1	9	2	3
2	4	2	2	2	<1	1	3	<1	1	5	2	3
3	3	2	2	2	<1	1	5	<1	1	4	3	3
4	3	2	2	2	<1	1	8	<1	1	5	3	4
5	7	2	2	2	<1	1	3	1	2	5	3	3
6	3	2	2	14	1	3	3	1	2	4	3	3
7	10	2	5	9	3	4	4	1	2	6	2	3
8	11	4	5	4	2	2	5	1	2	4	3	3
9	4	2	3	4	1	2	9	1	3	7	2	3
10	4	2	2	4	1	2	20	4	7	8	2	3
11	4	2	2	20	1	2	12	5	6	4	2	2
12	4	1	2	30	5	14	7	3	5	4	2	2
13	2	1	2	6	3	4	7	3	5	8	2	2
14	3	1	2	5	3	3	135	7	55	5	2	2
15	3	1	1	4	2	2	42	10	14	4	2	2
16	6	1	1	4	2	2	16	8	10	3	2	2
17	3	1	1	5	2	2	11	7	8	4	2	2
18	2	1	1	4	2	2	11	5	7	3	2	2
19	2	1	1	5	2	3	7	4	5	6	2	2
20	2	<1	1	5	2	3	6	3	4	3	2	2
21	5	1	1	6	2	2	6	3	4	3	2	2
22	3	2	2	5	1	2	5	3	3	4	2	2
23	14	2	6	3	1	2	4	2	3	6	2	2
24	8	2	4	6	2	2	6	2	3	4	2	2
25	11	1	2	3	1	2	4	3	3	5	1	2
26	5	1	2	3	1	2	4	2	3	5	1	2
27	4	<1	1	3	<1	2	6	2	3	6	2	2
28	6	<1	1	3	1	1	4	2	2	3	2	2
29	---	---	---	2	<1	1	6	2	2	7	2	3
30	---	---	---	3	1	1	3	2	2	9	2	2
31	---	---	---	3	<1	1	---	---	---	3	2	2
MAX	14	4	6	30	5	14	135	10	55	9	3	4
MIN	2	<1	1	2	<1	1	3	<1	1	3	1	2

444728122450000 NORTH SANTIAM RIVER AT GEREN ISLAND WATER TREATMENT PLANT, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	3	2	2	1	<1	<1	3	<1	<1	3	<1	<1
2	2	1	2	3	<1	<1	3	<1	<1	2	<1	<1
3	4	1	2	2	<1	<1	3	<1	<1	2	<1	<1
4	3	1	2	3	<1	<1	1	<1	<1	2	<1	1
5	6	<1	1	2	<1	<1	3	<1	<1	3	<1	1
6	4	<1	1	1	<1	<1	2	<1	<1	2	<1	1
7	2	1	1	2	<1	<1	2	<1	<1	3	<1	<1
8	3	<1	1	2	<1	<1	2	<1	<1	2	<1	<1
9	6	<1	1	2	<1	<1	3	<1	<1	4	<1	<1
10	3	<1	1	4	<1	<1	2	<1	<1	3	<1	<1
11	3	<1	1	2	<1	<1	2	<1	<1	3	<1	<1
12	2	<1	1	1	<1	<1	4	<1	<1	4	<1	<1
13	4	<1	<1	2	<1	<1	3	<1	<1	3	<1	<1
14	4	<1	<1	4	<1	<1	2	<1	<1	3	<1	<1
15	3	<1	1	2	<1	<1	2	<1	<1	3	<1	<1
16	3	<1	1	2	<1	<1	2	<1	<1	6	<1	<1
17	3	<1	1	2	<1	<1	3	<1	<1	2	<1	<1
18	5	2	2	2	<1	<1	3	<1	<1	2	<1	<1
19	2	<1	1	2	<1	<1	2	<1	<1	4	<1	<1
20	2	1	1	3	<1	<1	4	<1	<1	3	<1	<1
21	3	<1	1	2	<1	<1	5	<1	<1	7	<1	<1
22	3	<1	1	1	<1	<1	4	<1	<1	2	<1	<1
23	3	<1	1	1	<1	<1	1	<1	<1	2	<1	<1
24	2	<1	1	2	<1	<1	2	<1	<1	10	<1	<1
25	2	<1	1	1	<1	<1	3	<1	<1	2	<1	<1
26	3	<1	<1	2	<1	<1	3	<1	<1	7	<1	<1
27	2	<1	<1	1	<1	<1	2	<1	<1	2	<1	<1
28	4	<1	<1	3	<1	<1	2	<1	<1	4	<1	<1
29	3	1	2	1	<1	<1	3	<1	<1	5	<1	<1
30	3	<1	1	1	<1	<1	2	<1	<1	3	<1	1
31	---	---	---	2	<1	<1	3	<1	<1	---	---	---
MAX	6	2	2	4	<1	<1	5	<1	<1	10	<1	1
MIN	2	<1	<1	1	<1	<1	1	<1	<1	2	<1	<1

WILLAMETTE RIVER BASIN

14185000 SOUTH SANTIAM RIVER BELOW CASCADIA, OR

LOCATION.--Lat 44°23'31", long 122°29'47", in NW 1/4 SW 1/4 sec.31, T.13 S., R.3 E., Linn County, Hydrologic Unit 17090006, on left bank, 0.2 mi upstream from Mouse Creek, 0.8 mi southwest of Cascadia, and at mile 49.2.

DRAINAGE AREA.--174 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1935 to current year. Monthly discharge only September 1935, published in WSP 1318.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 775 ft above NGVD of 1929, from topographic map. Prior to Sept. 26, 1989, at site 0.7 mi downstream at datum 759.88 above sea level. Prior to Nov. 1, 1935, nonrecording gage at site 0.7 mi downstream at different datum.

REMARKS.--No estimated daily discharges. Records good for the period October and November, fair for the remainder of the water year, December through September. No regulation or diversion upstream from station. Continuous water-quality records for the period June 1962 to September 1967 and February 1969 to September 1987 have been collected at this location.

AVERAGE DISCHARGE.--67 years (water years 1936-2002), 817 ft<sup>3</sup>/s, 63.83 in/yr, 592,200 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 31,700 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 18.11 ft, from rating curve extended above 10,000 ft<sup>3</sup>/s; minimum discharge, 23 ft<sup>3</sup>/s Dec. 1, 2, 1936, site then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 5,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	1830	6,750	8.41	Dec. 17	0300	7,010	8.55
Dec. 6	2000	5,830	7.91	Apr. 14	0645	*11,400	*10.70
Dec. 13	2330	10,600	10.32				

Minimum discharge, 33 ft<sup>3</sup>/s Sept. 26-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	931	2640	1140	827	814	949	775	715	210	62	40
2	44	644	2520	1540	816	717	991	793	642	190	61	39
3	42	446	1690	1570	809	644	1070	857	583	176	60	39
4	41	340	1340	1280	787	596	1190	789	545	167	59	39
5	40	327	1310	1090	786	590	1340	749	555	158	62	39
6	39	283	3650	1570	816	1310	1300	761	528	149	61	38
7	39	243	3860	2440	1700	1680	1290	687	461	144	59	39
8	42	217	2320	4290	2100	1160	1180	613	410	141	57	38
9	47	196	1770	2600	1470	959	1370	581	377	131	56	38
10	63	180	1490	1770	1180	884	3620	531	342	124	54	37
11	310	167	1500	1370	1130	1960	2940	510	343	118	53	37
12	139	179	1540	1320	973	4070	2700	544	354	114	52	36
13	104	396	4440	1270	871	2400	3070	679	366	110	50	35
14	91	1000	6470	1050	799	1810	8080	682	363	105	48	35
15	81	606	3100	905	766	1470	3890	681	333	102	47	34
16	73	841	4700	803	788	1240	2490	651	310	99	46	35
17	69	948	5410	730	824	1030	1960	677	317	94	45	61
18	65	678	3120	657	796	887	1680	717	585	92	44	77
19	61	554	2470	731	1080	993	1430	688	412	90	44	54
20	59	568	2150	1300	1300	1070	1230	663	333	88	46	46
21	58	1050	1700	2810	1360	1220	1090	668	304	85	54	43
22	477	4060	1390	1440	1760	1270	987	770	285	83	51	40
23	1010	3270	1140	1070	2930	1280	933	698	268	86	48	37
24	483	1730	978	999	2500	1400	862	654	245	80	46	35
25	294	1400	865	2650	1760	1320	835	657	228	77	45	35
26	226	1180	778	2380	1340	1160	850	701	215	75	45	34
27	191	936	736	1500	1100	1130	926	754	202	73	44	34
28	197	2260	948	1120	938	1040	816	843	196	71	43	33
29	187	3640	869	904	---	955	774	1060	285	70	42	37
30	439	2190	837	774	---	915	813	945	256	68	40	66
31	1030	---	1030	712	---	922	811	---	712	65	40	---
TOTAL	6086	31460	68761	45785	34306	38896	52656	22189	11358	3435	1564	1230
MEAN	196	1049	2218	1477	1225	1255	1755	716	379	111	50.5	41.0
MAX	1030	4060	6470	4290	2930	4070	8080	1060	715	210	62	77
MIN	39	167	736	657	766	590	774	510	196	65	40	33
AC-FT	12070	62400	136400	90810	68050	77150	104400	44010	22530	6810	3100	2440
CFSM	1.13	6.03	12.7	8.49	7.04	7.21	10.1	4.11	2.18	0.64	0.29	0.24
IN.	1.30	6.73	14.70	9.79	7.33	8.32	11.26	4.74	2.43	0.73	0.33	0.26

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1936 - 2002, BY WATER YEAR (WY)

	292	1108	1536	1445	1374	1166	1139	929	516	168	79.9	93.3
MEAN	292	1108	1536	1445	1374	1166	1139	929	516	168	79.9	93.3
MAX	1296	2442	4319	3278	3326	2913	2052	1639	1261	466	222	318
(WY)	1951	1943	1965	1953	1996	1972	1937	1960	1937	1983	1968	1959
MIN	31.6	27.6	82.3	107	130	324	356	282	101	54.2	35.9	40.9
(WY)	1988	1937	1977	1977	1977	1941	1941	1987	1992	1940	1992	1987

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1936 - 2002

ANNUAL TOTAL	220491	317726	
ANNUAL MEAN	604	870	817
HIGHEST ANNUAL MEAN			1280
LOWEST ANNUAL MEAN			359
HIGHEST DAILY MEAN	6470	Dec 14	8080
LOWEST DAILY MEAN	36	Sep 23	33
ANNUAL SEVEN-DAY MINIMUM	37	Sep 18	35
ANNUAL RUNOFF (AC-FT)	437300	630200	592200
ANNUAL RUNOFF (CFSM)	3.47	5.00	4.70
ANNUAL RUNOFF (INCHES)	47.14	67.93	63.83
10 PERCENT EXCEEDS	1430	2020	1810
50 PERCENT EXCEEDS	336	681	505
90 PERCENT EXCEEDS	49	44	61



14185900 QUARTZVILLE CREEK NEAR CASCADIA, OR

LOCATION.--Lat 44°32'25", long 122°26'05", in NW 1/4 sec.10, T.12 S., R.3 E., Linn County, Hydrologic Unit 17090006, on Bureau of Land Management land, on right bank 80 ft downstream from Panther Creek, 10 mi north of Cascadia, and at mile 6.6.

DRAINAGE AREA.--99.2 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1963 to November 1964 (destroyed by flood of December 1964); October 1965 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,050 ft above NGVD of 1929, from topographic map. Aug. 13, 1963, to Dec. 22, 1964, water-stage recorder on left bank at present datum.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion upstream from station. Continuous water-quality records for the period August 1963 to September 1987 have been collected at this location.

AVERAGE DISCHARGE.--38 years (water years 1964, 1966-2002), 654 ft<sup>3</sup>/s, 89.53 in/yr, 473,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 23,700 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 20.54 ft, from rating curve extended above 8,000 ft<sup>3</sup>/s on the basis of slope-area measurement of peak flow; minimum discharge, 14 ft<sup>3</sup>/s Aug. 19-23, 1973.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 36,500 ft<sup>3</sup>/s Dec. 22, 1964, from slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,500 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	1800	6,700	11.36	Jan. 8	0730	5,400	10.48
Nov. 28	1630	5,380	10.47	Mar. 11	2330	6,440	11.19
Dec. 13	1900	*9,980	*13.35	Apr. 14	0400	8,820	12.67
Dec. 16	1300	5,710	10.70				

Minimum discharge, 23 ft<sup>3</sup>/s Sept. 28, 29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	32	1160	2600	958	332	532	977	608	539	195	55	31
2	31	726	2270	1430	310	468	1020	651	474	166	54	30
3	30	444	1510	1290	356	423	1150	690	426	148	52	30
4	30	315	1150	1010	384	409	1280	599	398	137	52	30
5	29	285	950	778	364	452	1410	561	400	128	51	29
6	29	235	2960	2180	386	2110	1270	579	367	119	51	28
7	29	196	2750	3240	995	1670	1210	509	311	115	50	28
8	31	171	1620	4270	1140	934	1070	446	273	110	49	28
9	32	151	1300	2120	766	693	1440	420	254	105	47	27
10	55	137	1030	1270	595	678	3300	386	235	100	46	26
11	252	125	893	916	598	2990	2540	378	245	96	45	26
12	101	137	888	1080	525	3950	2510	441	254	93	44	25
13	69	751	5120	1040	464	1930	2950	586	259	90	43	25
14	59	1770	4600	785	438	1350	5660	542	256	86	41	25
15	54	728	1990	622	447	1030	2240	526	229	83	40	24
16	48	867	4360	521	513	845	1510	492	209	81	40	25
17	45	788	4050	451	582	701	1240	522	223	79	39	39
18	43	553	2090	403	562	606	1050	560	523	77	39	39
19	41	471	1590	418	939	652	902	524	319	75	38	31
20	39	526	1370	521	1020	702	784	502	250	74	39	27
21	39	1140	1030	748	1620	831	724	496	221	72	40	26
22	595	4390	802	508	2040	820	692	527	200	70	39	25
23	791	3020	641	407	3050	915	696	490	183	69	37	25
24	375	1530	536	422	2180	1130	644	475	165	66	37	24
25	210	1090	462	2110	1290	1050	638	500	154	64	36	24
26	157	886	402	1350	907	954	665	562	144	62	35	24
27	131	739	371	758	722	973	660	577	136	61	34	24
28	138	2830	598	551	622	859	588	663	134	60	33	23
29	127	3820	555	442	---	784	570	1090	346	59	33	24
30	643	1980	513	379	---	804	634	791	259	58	32	41
31	1820	---	744	352	---	896	---	630	---	56	31	---
TOTAL	6105	31961	51745	33330	24147	33141	42024	17323	8386	2854	1302	833
MEAN	197	1065	1669	1075	862	1069	1401	559	280	92.1	42.0	27.8
MAX	1820	4390	5120	4270	3050	3950	5660	1090	539	195	55	41
MIN	29	125	371	352	310	409	570	378	134	56	31	23
AC-FT	12110	63390	102600	66110	47900	65740	83350	34360	16630	5660	2580	1650
CFSM	1.99	10.7	16.8	10.8	8.69	10.8	14.1	5.63	2.82	0.93	0.42	0.28
IN.	2.29	11.99	19.40	12.50	9.06	12.43	15.76	6.50	3.14	1.07	0.49	0.31

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 2002, BY WATER YEAR (WY)

	255	1006	1287	1250	1098	944	853	613	319	101	57.1	82.8
MEAN	255	1006	1287	1250	1098	944	853	613	319	101	57.1	82.8
MAX	786	2224	2897	2450	2441	2018	1600	1147	817	336	240	268
(WY)	1998	1974	1974	1970	1982	1972	1993	1999	1984	1983	1968	1971
MIN	20.8	57.6	110	157	208	204	382	182	63.1	36.8	20.9	27.8
(WY)	1988	1994	1977	1977	1977	1992	1968	1992	1992	1992	1992	2002

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1964 - 2002

ANNUAL TOTAL	180248	253151	
ANNUAL MEAN	494	694	654
HIGHEST ANNUAL MEAN			1113
LOWEST ANNUAL MEAN			311
HIGHEST DAILY MEAN	5120	Dec 13	5660
LOWEST DAILY MEAN	29	Sep 21	23
ANNUAL SEVEN-DAY MINIMUM	30	Sep 18	24
ANNUAL RUNOFF (AC-FT)	357500	502100	473600
ANNUAL RUNOFF (CFSM)	4.98	6.99	6.59
ANNUAL RUNOFF (INCHES)	67.59	94.93	89.53
10 PERCENT EXCEEDS	1080	1640	1510
50 PERCENT EXCEEDS	299	462	367
90 PERCENT EXCEEDS	36	32	39

14186100 GREEN PETER LAKE NEAR FOSTER, OR

LOCATION.--Lat 44°27'10", long 122°32'40", in NE 1/4 SE 1/4 sec.10, T.13 S., R.2 E., Linn County, Hydrologic Unit 17090006, in Green Peter Dam on Middle Santiam River, 7.0 mi northeast of Foster, and at mile 5.7.

DRAINAGE AREA.--273 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1966 to current year. Prior to October 1971, published as Green Peter Reservoir near Foster.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by concrete, gravity-type dam with ogee spillway completed in 1966 by Corps of Engineers; controlled storage began Oct. 6, 1966. Total capacity, 428,100 acre-ft, usable capacity 330,800 acre-ft between elevations 887.0 ft, proposed lower limit of operation, and 1,015.0 ft, top of spillway gates. Reservoir used for flood control, power development, improvement of navigation, pollution abatement, and other purposes. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 426,700 acre-ft April 29, 1990, elevation, 1,014.61 ft; minimum contents, 116,900 acre-ft Dec. 15, 1972, elevation, 899.20 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 412,500 acre-ft Apr. 15, elevation, 1,010.74 ft; minimum contents, 159,600 acre-ft Dec. 31, elevation, 921.86 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

899	116,600	960	251,100
900	118,300	980	309,700
920	155,700	1,000	374,800
940	199,900	1,015	428,100

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	939.43	945.61	951.87	922.58	926.03	974.10	990.88	1005.35	1001.99	992.90	984.27	973.20
2	938.92	946.87	950.64	923.87	927.08	974.94	991.15	1005.68	1002.14	992.72	983.94	972.81
3	938.38	947.41	947.46	924.53	928.31	975.72	991.57	1006.04	1002.17	992.54	983.55	972.42
4	937.87	947.71	943.56	925.13	929.45	976.44	991.93	1006.31	1002.05	992.36	983.22	971.97
5	937.33	948.01	939.15	924.93	930.53	977.28	992.47	1006.55	1001.72	992.18	982.92	971.55
6	936.82	948.19	940.80	926.61	931.73	980.13	992.92	1006.82	1001.87	991.97	982.56	971.14
7	936.28	948.28	942.60	930.03	934.28	982.47	993.25	1006.64	1001.24	991.76	982.21	970.72
8	935.80	948.34	941.07	935.85	937.04	982.83	993.46	1006.40	1000.52	991.61	981.88	970.27
9	935.29	948.31	938.40	937.20	939.05	982.44	993.85	1006.28	999.65	991.40	981.49	969.85
10	935.02	948.16	936.24	936.33	940.64	982.14	997.15	1005.80	998.54	991.13	981.13	969.40
11	935.02	948.01	935.32	934.74	942.11	984.69	999.52	1005.32	996.98	990.86	980.80	968.89
12	934.66	947.80	934.84	933.36	943.40	988.71	1000.87	1004.84	995.45	990.59	980.44	968.44
13	934.24	948.49	942.28	931.83	944.51	989.31	1003.00	1004.57	994.82	990.32	980.11	968.02
14	933.79	950.56	950.98	929.85	945.59	988.32	1009.90	1004.27	994.67	990.05	979.69	967.57
15	933.88	950.53	951.22	928.41	946.58	987.54	1010.02	1003.91	994.58	989.75	979.36	967.12
16	933.91	950.68	956.11	926.82	947.66	986.58	1007.53	1003.22	994.46	989.45	978.97	966.73
17	933.97	950.73	960.40	924.96	948.83	985.32	1004.14	1002.47	994.49	989.15	978.59	966.37
18	934.00	950.43	960.25	923.86	949.94	984.06	1001.95	1001.15	994.76	988.85	978.23	965.98
19	934.03	950.04	959.11	922.96	951.59	984.09	1000.93	999.80	994.73	988.55	977.81	965.56
20	934.06	948.39	956.86	923.14	953.43	984.07	1001.08	998.42	994.61	988.22	977.48	965.11
21	934.15	946.98	953.50	924.64	955.83	984.70	1001.62	997.91	994.49	987.92	977.15	964.66
22	935.47	951.60	949.30	924.55	958.89	985.36	1002.13	998.06	994.43	987.62	976.82	964.21
23	937.15	953.94	944.32	923.98	963.45	986.11	1002.61	998.12	994.25	987.29	976.46	963.76
24	937.90	953.70	940.16	922.57	966.90	987.07	1003.00	998.18	994.01	986.96	976.10	963.40
25	938.32	952.71	936.59	925.15	969.09	987.91	1003.33	998.27	993.80	986.60	975.74	963.01
26	938.62	951.27	933.86	926.11	970.71	988.63	1003.75	998.42	993.53	986.27	975.38	962.65
27	938.92	949.50	931.55	925.54	972.00	989.38	1004.20	998.69	993.29	985.91	975.06	962.26
28	939.19	950.70	928.22	924.25	973.14	989.95	1004.50	999.17	993.17	985.59	974.67	961.84
29	939.43	953.46	924.50	923.80	---	990.46	1004.77	1000.07	993.17	985.26	974.31	961.51
30	940.69	952.77	922.07	924.01	---	990.52	1005.07	1000.85	993.05	984.90	973.92	961.21
31	943.63	---	922.10	924.80	---	990.67	---	1001.45	---	984.60	973.56	---
MAX	943.63	953.94	960.40	937.20	973.14	990.67	1010.02	1006.82	1002.17	992.90	984.27	973.20
MIN	933.79	945.61	922.07	922.57	926.03	974.10	990.88	997.91	993.05	984.60	973.56	961.21
(†)	208600	231700	160100	165700	288900	343600	392300	379700	351500	324100	290100	254500
(‡)	+8900	+23100	-71600	+5600	+123200	+54700	+48700	-12600	-28200	-27400	-34000	-35600

CAL YR 2001 MAX 993.58 MIN 922.07 AC-FT† -17300

WTR YR 2002 MAX 1010.02 MIN 922.07 AC-FT† +54800

† Contents, in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

WILLAMETTE RIVER BASIN

14186600 FOSTER LAKE AT FOSTER, OR

LOCATION.--Lat 44°25'00", long 122°40'25", in NW 1/4 NE 1/4 sec.27, T.13 S., R.1 E., Linn County, Hydrologic Unit 17090006, in Foster Dam on South Santiam River, 0.3 mi above Wiley Creek, 0.5 mi north of Foster, and at mile 37.7.

DRAINAGE AREA.--492 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1966 to current year. Prior to October 1971, published as Foster Reservoir at Foster.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Lake is formed by rockfill embankment with an impervious core and ogee spillway completed in 1966 by Corps of Engineers; controlled storage began in November 1966. Total capacity, 60,780 acre-ft and usable capacity 33,210 acre-ft between elevations 609.0 ft, proposed lower limit of operation, and 641.0 ft, top of spillway gates. Lake used for reregulation of water released from Green Peter Lake, flood control, power development, pollution abatement, and other purposes. Elevations for the period Oct. 28 to Feb. 19 computed from data obtained through U.S. Army Corps of Engineers Columbia River Operational Hydromet System(CROHMS) database. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 60,350 acre-ft Apr. 28, 1990, elevation, 640.66 ft; minimum contents, 26,590 acre-ft Nov. 15, 16, 1971, elevation, 607.85 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 56,910 acre-ft Oct. 1, elevation, 637.86 ft; minimum contents, 30,150 acre-ft Nov. 13, elevation, 611.97 ft.

Capacity table (elevation, in feet, and total contents, in acre-feet)

607	25,880	630	47,860
610	28,430	635	53,510
615	32,870	640	59,530
620	37,570	641	60,780
625	42,550		

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	637.68	617.54	613.99	614.34	614.33	622.70	627.01	614.05	636.26	636.88	636.53	636.95
2	637.53	616.56	613.84	615.38	614.55	622.40	625.96	613.96	636.08	637.00	636.62	636.89
3	637.41	616.65	613.99	616.06	614.77	622.53	624.49	614.17	635.93	637.06	636.71	636.95
4	637.26	616.46	613.99	614.79	614.92	622.50	623.50	614.11	635.93	637.12	636.71	636.92
5	637.17	616.33	614.24	614.71	615.12	622.38	622.87	614.14	636.86	637.15	636.68	636.92
6	637.05	615.99	614.45	615.45	615.34	623.67	622.15	614.29	635.96	637.15	636.80	636.92
7	636.96	615.57	614.15	616.07	616.83	624.24	621.49	613.93	637.11	637.18	636.92	636.92
8	636.84	615.09	613.80	619.95	616.95	624.39	620.14	614.38	636.87	637.00	636.92	636.92
9	636.78	614.63	613.50	623.35	616.99	625.02	619.02	614.08	636.57	637.00	637.01	636.92
10	636.75	613.82	613.41	622.90	617.17	625.20	618.99	614.05	636.36	637.06	637.13	636.92
11	637.11	612.93	614.14	621.37	617.38	627.09	616.53	613.99	636.51	637.06	637.10	636.95
12	637.17	612.51	614.97	619.60	617.57	628.32	616.35	613.98	636.78	637.06	637.16	636.95
13	637.21	612.74	616.86	617.76	617.70	625.11	615.30	614.16	636.90	637.06	637.13	636.95
14	637.21	613.64	614.59	615.43	617.80	625.44	616.32	613.95	636.78	637.07	637.19	636.95
15	636.07	614.05	614.34	614.53	617.95	625.86	614.04	614.07	636.66	637.04	637.16	636.97
16	634.93	615.31	614.19	614.27	618.17	626.43	614.10	616.71	636.48	637.01	637.22	637.06
17	633.76	615.31	614.05	614.35	618.43	626.61	614.16	620.25	636.42	637.01	637.31	637.21
18	632.56	614.55	614.02	613.64	618.63	626.70	614.16	625.29	636.84	636.98	637.28	637.33
19	631.33	614.05	614.05	613.61	618.98	626.31	614.19	630.06	637.02	636.95	637.37	637.42
20	630.10	613.72	614.04	615.68	619.22	626.25	614.12	634.71	637.05	636.98	637.37	637.51
21	628.90	614.39	614.05	615.17	619.43	625.86	614.06	636.72	637.17	636.95	637.34	637.57
22	628.30	614.87	614.06	614.02	619.91	626.04	614.00	637.05	636.90	636.89	637.31	637.66
23	628.09	613.39	614.17	613.98	622.70	626.35	614.12	637.04	636.96	636.89	637.28	637.74
24	626.77	613.43	614.12	614.05	624.59	626.86	614.03	637.01	637.02	636.89	637.25	637.50
25	625.03	613.91	614.27	614.65	625.04	627.22	613.91	636.83	637.02	636.86	637.22	637.44
26	623.17	613.81	614.20	613.73	625.22	627.16	614.27	636.89	637.06	636.83	637.19	637.20
27	622.03	613.31	614.45	614.49	624.89	627.16	614.30	636.98	636.94	636.80	637.13	637.14
28	620.83	614.76	613.86	614.55	623.93	627.43	614.24	636.77	636.58	636.74	637.10	637.08
29	619.68	614.21	613.97	614.50	---	627.31	614.12	636.86	636.97	636.68	637.04	637.05
30	618.94	613.87	614.25	613.21	---	627.52	614.09	636.47	637.06	636.65	637.07	637.08
31	618.40	---	614.17	614.05	---	627.25	---	636.50	---	636.65	637.01	---
MEAN	631.58	614.58	614.20	615.79	618.73	625.66	617.20	623.98	636.70	636.96	637.07	637.13
MAX	637.68	617.54	616.86	623.35	625.22	628.32	627.01	637.05	637.17	637.18	637.37	637.74
MIN	618.40	612.51	613.41	613.21	614.33	622.38	613.91	613.93	635.93	636.65	636.53	636.89
(†)	36040	31850	32120	32010	41460	44900	32050	55280	55940	55460	55880	55970
(‡)	-20760	-4190	+270	-110	+9450	+3440	-12850	+23230	+660	-480	+420	+90
CAL YR 2001	MEAN 624.68	MAX 637.80	MIN 612.51	AC-FT† +50								
WTR YR 2002	MEAN 625.85	MAX 637.74	MIN 612.51	AC-FT† -830								

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

WILLAMETTE RIVER BASIN

14187000 WILEY CREEK NEAR FOSTER, OR

LOCATION.--Lat 44°22'20", long 122°37'20", in NE 1/4 NE 1/4 sec.12, T.14 S., R.1 E., Linn County, Hydrologic Unit 17090006, on right bank 0.5 mi downstream from Little Wiley Creek, 3.5 mi southeast of Foster, and at mile 4.4.

DRAINAGE AREA.--51.8 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1947 to July 1973, July 1988 to current year.

REVISED RECORDS.--WDR OR-90-2: 1989 (M), WDR OR-93-1: 1992.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 720 ft above NGVD of 1929, from topographic map. Prior to April 6, 1965, water-stage recorder at present site at datum of 718.08 ft above sea level (Corps of Engineers bench mark). Apr. 6, 1965, to July 1973, water-stage recorder at present site at datum 2.00 ft lower than previous datum.

REMARKS.--Records good except those below 20 ft<sup>3</sup>/s and estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--39 years (water years 1948-72, 1989-2002), 215 ft<sup>3</sup>/s, 56.31 in/yr, 155,500 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,640 ft<sup>3</sup>/s Jan. 21, 1972, gage height, 9.28 ft, datum then in use, from rating curve extended above 3,700 ft<sup>3</sup>/s; maximum gage height, 9.80 ft, Dec. 21, 1964 (backwater from debris), datum then in use; minimum discharge, 2.9 ft<sup>3</sup>/s August 28-31, 1992.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 13	2230	*2,300	*5.82				
Minimum discharge, 3.6 ft <sup>3</sup> /s Sept. 26-28.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6.5	178	1010	217	300	187	189	125	48	26	6.8	4.1
2	6.0	109	948	306	267	163	184	118	45	23	6.5	3.9
3	5.7	75	590	296	265	145	184	115	42	20	6.4	4.0
4	5.6	56	457	230	243	132	190	105	39	20	6.5	4.1
5	5.4	57	500	196	225	132	205	100	38	19	7.1	4.1
6	5.2	48	929	314	254	443	205	106	36	17	7.5	4.2
7	5.5	40	944	490	751	541	193	100	34	17	6.9	4.2
8	6.2	35	631	900	838	352	174	90	34	17	6.5	4.3
9	8.0	31	532	569	559	276	219	84	40	15	6.1	4.1
10	12	28	444	379	431	270	524	80	34	14	5.9	3.9
11	58	26	419	276	382	696	481	75	30	13	5.6	3.7
12	22	35	413	252	319	1220	417	72	28	13	5.3	3.7
13	17	66	989	223	272	786	469	76	25	12	5.1	3.6
14	14	130	1510	193	235	604	1400	74	24	11	4.7	3.5
15	12	90	861	167	213	486	812	70	23	11	4.5	3.6
16	11	167	1210	153	205	400	587	66	23	11	4.4	4.0
17	12	179	1410	146	200	319	506	65	28	11	4.4	10
18	11	122	967	134	197	262	452	63	59	10	4.5	11
19	9.7	114	806	172	260	306	385	63	38	10	4.5	7.1
20	9.1	139	660	514	288	310	323	73	31	10	5.6	5.8
21	9.0	299	499	1130	332	341	271	78	27	9.7	6.9	5.2
22	94	1150	383	572	413	347	233	81	26	9.2	6.0	4.7
23	135	878	290	399	792	354	205	71	25	8.8	5.5	4.3
24	57	465	227	376	631	436	181	63	23	8.4	5.0	4.1
25	34	396	191	1280	455	397	165	58	21	8.2	4.8	3.9
26	e25	300	167	1020	344	334	156	54	20	8.3	5.2	3.8
27	e22	213	158	617	269	300	193	54	19	8.2	5.0	3.7
28	e20	677	180	441	222	260	160	60	20	7.7	4.7	3.8
29	e25	1140	164	333	---	232	144	70	45	7.5	4.4	4.8
30	100	727	156	265	---	211	135	61	34	7.2	4.1	6.9
31	233	---	191	240	---	198	---	53	---	6.9	4.1	---
TOTAL	995.9	7970	18836	12800	10162	11440	9942	2423	959	390.1	170.5	142.1
MEAN	32.13	265.7	607.6	412.9	362.9	369.0	331.4	78.16	31.97	12.58	5.500	4.737
MAX	233	1150	1510	1280	838	1220	1400	125	59	26	7.5	11
MIN	5.2	26	156	134	197	132	135	53	19	6.9	4.1	3.5
AC-FT	1980	15810	37360	25390	20160	22690	19720	4810	1900	774	338	282
CFSM	0.62	5.13	11.7	7.97	7.01	7.12	6.40	1.51	0.62	0.24	0.11	0.09
IN.	0.72	5.72	13.53	9.19	7.30	8.22	7.14	1.74	0.69	0.28	0.12	0.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2002, BY WATER YEAR (WY)

	MEAN	79.18	272.9	416.0	447.4	389.1	340.5	268.2	191.6	86.55	31.24	16.16	17.63
MAX	397	620	1107	842	944	625	490	353	286	75.9	53.4	67.8	
(WY)	1951	1951	1965	1953	1961	1972	1955	1963	1993	1969	1968	1968	
MIN	8.08	15.7	109	82.1	92.5	85.0	133	62.8	20.2	11.8	4.40	4.74	
(WY)	1989	1953	1960	1963	2001	1992	1968	1973	1992	1992	1992	2002	

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1948 - 2002
ANNUAL TOTAL	50936.3	76230.6	
ANNUAL MEAN	139.6	208.9	214.7
HIGHEST ANNUAL MEAN			318
LOWEST ANNUAL MEAN			80.3
HIGHEST DAILY MEAN	1510	Dec 14	6410
LOWEST DAILY MEAN	4.9	Sep 24	2.9
ANNUAL SEVEN-DAY MINIMUM	5.3	Sep 18	3.0
ANNUAL RUNOFF (AC-FT)	1010000	1512000	1555000
ANNUAL RUNOFF (CFSM)	2.69	4.03	4.14
ANNUAL RUNOFF (INCHES)	36.58	54.74	56.31
10 PERCENT EXCEEDS	325	570	501
50 PERCENT EXCEEDS	69	84	119
90 PERCENT EXCEEDS	7.2	5.0	12

e Estimated

14187200 SOUTH SANTIAM RIVER NEAR FOSTER, OR

LOCATION.--Lat 44°24'45", long 122°41'15", in SE 1/4 NE 1/4 sec.28, T.13 S., R.1 E., Linn County, Hydrologic Unit 17090006, on left bank 0.6 mi downstream from Wiley Creek and at mile 37.0.

DRAINAGE AREA.--557 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1973 to current year. Records for October 1966 to July 1973 (published as South Santiam River at Foster, station 14186700) at site 0.5 mi upstream not equivalent owing to inflow between sites.

GAGE.--Water-stage recorder. Elevation of gage is 530 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since October 1966 by Green Peter Lake (station 14186100) and since December 1966 by Foster Lake (station 14186600). No diversion upstream from station. Continuous water-quality records for the period July 1973 to September 1997 have been collected at this location.

AVERAGE DISCHARGE.--29 years (water years 1974-2002), 2,851 ft<sup>3</sup>/s, 69.51 in/yr, 2,066,000 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 28,700 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 18.74 ft, from rating curve extended above 16,000 ft<sup>3</sup>/s; minimum discharge, 343 ft<sup>3</sup>/s July 18, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 14,600 ft<sup>3</sup>/s Apr. 14, gage height, 15.89 ft; minimum discharge, 390 ft<sup>3</sup>/s July 31.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	739	1650	11000	3130	1450	1810	3350	1920	1210	1090	757	714
2	760	1290	10900	3290	1400	1180	3810	1960	1680	860	714	714
3	752	882	10600	4050	1370	899	4100	1870	1690	842	713	718
4	746	867	10500	4140	1330	888	4230	1900	1700	842	717	769
5	749	857	10600	3810	1260	908	4230	1820	1690	844	715	768
6	743	859	11000	4200	1280	1250	4220	1760	1680	839	711	760
7	743	851	10900	5390	2140	2360	4260	2560	1670	835	711	762
8	748	844	10100	6450	3480	3590	4360	2060	2630	838	710	762
9	749	836	9750	5620	2470	3770	5070	1990	2770	833	708	764
10	757	1120	8070	7070	1890	3780	6380	2470	3050	814	710	765
11	817	1120	5940	7260	1730	4410	7040	2450	3590	819	708	764
12	773	1120	5440	7280	1490	7990	7130	2430	3550	832	726	770
13	763	1040	6770	7230	1330	9880	8030	2490	2070	835	720	772
14	763	1530	11200	7170	1230	8350	12800	2670	1350	816	716	774
15	759	2340	10600	5350	1110	6660	12800	2520	1190	823	718	762
16	755	2290	11200	4710	1080	6040	12800	1820	1190	826	721	756
17	752	3040	12100	4490	1090	5910	12800	1640	1200	813	719	766
18	758	3080	11400	3810	1080	5510	9610	1820	1230	810	702	767
19	772	2840	10300	3780	1290	4160	6540	1820	1200	810	711	766
20	759	4470	10600	4300	1680	3910	3710	1800	1190	810	699	765
21	751	5280	10500	8580	1680	3280	2510	1800	1100	811	714	765
22	833	9100	10500	6200	2050	2990	2370	1790	1090	811	718	766
23	1390	9680	10300	4610	2530	2940	2170	1840	1080	813	717	763
24	1290	6790	8650	5410	2440	3040	2170	1810	1080	812	715	765
25	1280	6180	7250	7940	2220	2980	2110	1810	1080	815	711	762
26	1240	6130	5810	8620	1820	2960	1910	1680	1070	816	710	763
27	848	5870	5160	6020	1740	2830	2100	1670	1070	817	711	762
28	809	6730	6700	5540	1830	2620	2060	1770	1080	818	710	765
29	815	10000	6760	3940	---	2590	2010	1820	1110	817	712	766
30	889	9190	5290	3180	---	3080	1960	1630	1100	815	715	773
31	1650	---	3250	1540	---	3360	---	1240	---	689	715	---
TOTAL	26952	107876	279140	164110	47490	115925	158640	60630	48390	25665	22154	22808
MEAN	869.4	3596	9005	5294	1696	3740	5288	1956	1613	827.9	714.6	760.3
MAX	1650	10000	12100	8620	3480	9880	12800	2670	3590	1090	757	774
MIN	739	836	3250	1540	1080	888	1910	1240	1070	689	699	714
AC-FT	53460	214000	553700	325500	94200	229900	314700	120300	95980	50910	43940	45240
MEAN†	676	3914	7845	5383	4085	4684	5891	2129	1150	374	168	164
CFSM†	1.22	7.03	14.1	9.66	7.33	8.41	10.6	3.82	2.06	0.67	0.30	0.29
IN.†	1.40	7.84	16.24	11.14	7.64	9.70	11.80	4.41	2.30	0.78	0.35	0.33
AC-FT†	41600	232900	482400	331000	226800	288000	350600	130900	68440	23030	10360	9730

CAL YR 2001 TOTAL 754892 MEAN 2068 MAX 12100 MIN 600 AC-FT 1497000 MEAN† 2044 CFSM† 3.67 IN.† 49.82 AC-FT† 1480000  
WTR YR 2002 TOTAL 1079780 MEAN 2958 MAX 12800 MIN 689 AC-FT 2142000 MEAN† 3033 CFSM† 5.45 IN.† 73.94 AC-FT† 2196000

† Adjusted for change in contents in Green Peter Lake and Foster Lake.

14187200 SOUTH SANTIAM RIVER NEAR FOSTER, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--July 1973 to September 1997. August 2001 to current year.

INSTRUMENTATION.--Water-temperature probe and data logger.

REMARKS.--Records fair, except those for the period May 5-23, which are poor.

EXTREMES FOR PERIOD OF DAILY RECORD.--Maximum, 15.5°C at times in 1975, 1978, 1981, 1987, 1990, 1993; minimum, 2.5°C Dec. 30, 31, 1978, Feb. 1, 1980, Feb. 7, 1985.

EXTREMES FOR CURENT YEAR.--Maximum, 13.6°C Oct. 10; minimum, 4.4°C Feb. 04.

## WATER TEMPERATURE, in (DEGREES C), AUGUST TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	---	---	---	13.2	12.1	12.7
2	---	---	---	---	---	---	---	---	---	13.1	12.0	12.6
3	---	---	---	---	---	---	---	---	---	13.0	12.0	12.6
4	---	---	---	---	---	---	---	---	---	13.0	12.0	12.6
5	---	---	---	---	---	---	---	---	---	13.1	12.1	12.5
6	---	---	---	---	---	---	---	---	---	12.9	12.0	12.4
7	---	---	---	---	---	---	---	---	---	12.8	11.9	12.4
8	---	---	---	---	---	---	---	---	---	13.0	11.9	12.5
9	---	---	---	---	---	---	---	---	---	13.0	12.1	12.5
10	---	---	---	---	---	---	---	---	---	12.9	12.1	12.6
11	---	---	---	---	---	---	---	---	---	13.0	12.0	12.6
12	---	---	---	---	---	---	---	---	---	13.1	12.1	12.6
13	---	---	---	---	---	---	---	---	---	13.1	12.1	12.6
14	---	---	---	---	---	---	---	---	---	13.1	12.1	12.6
15	---	---	---	---	---	---	---	---	---	13.1	12.3	12.7
16	---	---	---	---	---	---	---	---	---	13.3	12.2	12.7
17	---	---	---	---	---	---	---	---	---	13.0	12.1	12.5
18	---	---	---	---	---	---	---	---	---	13.0	12.0	12.5
19	---	---	---	---	---	---	---	---	---	12.9	12.1	12.5
20	---	---	---	---	---	---	---	---	---	12.9	12.0	12.5
21	---	---	---	---	---	---	---	---	---	12.9	12.1	12.5
22	---	---	---	---	---	---	---	---	---	12.9	12.1	12.6
23	---	---	---	---	---	---	13.0	12.1	12.6	12.9	12.2	12.6
24	---	---	---	---	---	---	---	---	---	13.1	12.2	12.6
25	---	---	---	---	---	---	13.1	11.9	12.5	12.8	12.3	12.5
26	---	---	---	---	---	---	13.3	11.8	12.6	13.1	12.3	12.7
27	---	---	---	---	---	---	13.3	12.0	12.6	12.9	12.3	12.6
28	---	---	---	---	---	---	13.2	11.9	12.7	13.1	12.1	12.6
29	---	---	---	---	---	---	13.3	12.0	12.6	13.1	12.2	12.8
30	---	---	---	---	---	---	13.2	11.9	12.7	13.1	12.3	12.7
31	---	---	---	---	---	---	13.1	12.1	12.6	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	13.3	11.9	12.6

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	13.2	12.5	12.8	11.5	11.0	11.2	8.5	8.2	8.3	7.4	6.7	7.0
2	13.1	12.4	12.7	11.6	11.0	11.2	8.6	8.0	8.3	7.7	7.2	7.4
3	13.1	12.4	12.7	11.3	10.7	10.9	8.5	8.2	8.4	7.3	6.8	7.0
4	13.2	12.4	12.8	11.7	10.8	11.2	8.3	8.0	8.2	6.9	6.4	6.7
5	13.2	12.3	12.7	11.2	10.7	10.9	8.5	8.0	8.2	7.2	6.6	6.9
6	13.1	12.5	12.9	11.1	10.6	10.8	8.5	8.2	8.4	7.8	7.2	7.5
7	13.1	12.6	12.8	10.9	10.0	10.5	8.2	7.7	8.0	8.0	7.7	7.8
8	13.0	12.6	12.8	10.5	9.8	10.1	8.2	7.6	7.8	8.1	7.6	7.9
9	13.1	12.3	12.7	10.3	9.8	10.1	7.8	7.5	7.6	7.7	6.8	7.2
10	13.6	12.6	13.1	10.4	9.9	10.2	7.5	7.3	7.4	7.3	6.8	7.0
11	13.1	12.0	12.6	10.6	10.0	10.3	7.5	7.2	7.4	7.1	6.8	7.0
12	13.3	12.4	12.8	10.8	10.3	10.5	7.5	7.2	7.3	7.2	6.8	7.0
13	13.1	12.2	12.7	10.8	10.4	10.6	8.0	7.5	7.7	6.8	6.5	6.6
14	13.0	12.2	12.7	11.2	10.6	10.8	7.7	6.9	7.2	6.6	6.3	6.5
15	12.8	12.3	12.5	11.0	10.6	10.8	7.1	6.8	6.9	6.4	6.0	6.2
16	13.2	12.0	12.6	10.9	10.4	10.8	8.0	7.1	7.6	6.1	5.8	5.9
17	12.9	12.0	12.5	10.6	10.2	10.4	7.8	7.0	7.3	6.2	5.8	6.0
18	12.9	12.2	12.6	10.3	9.8	10.1	7.2	7.0	7.1	6.1	5.8	6.0
19	13.0	12.2	12.6	10.7	10.2	10.4	7.3	6.8	7.1	6.2	5.8	6.0
20	12.8	12.3	12.6	10.5	10.2	10.3	7.4	6.9	7.2	6.5	5.8	5.9
21	13.0	12.6	12.7	10.4	10.1	10.2	7.0	6.7	6.8	6.5	5.7	6.0
22	12.9	11.5	12.5	10.4	9.4	9.8	7.1	6.6	6.8	5.9	5.5	5.7
23	12.3	11.4	11.9	9.7	9.3	9.5	6.9	6.6	6.7	5.9	5.5	5.6
24	12.5	11.6	12.0	9.5	9.0	9.3	6.7	6.4	6.5	5.9	5.6	5.7
25	12.7	11.9	12.3	9.2	8.8	8.9	6.6	6.3	6.4	6.4	5.9	6.2
26	12.7	11.8	12.2	9.2	8.7	8.9	6.5	6.2	6.4	6.1	5.4	5.8
27	12.2	11.3	11.8	8.8	8.3	8.6	6.6	6.4	6.5	5.8	5.3	5.5
28	11.8	11.2	11.5	8.7	8.3	8.6	6.8	6.5	6.7	5.5	5.1	5.2
29	11.8	11.2	11.5	8.6	8.0	8.3	6.7	6.4	6.6	5.1	4.6	4.9
30	11.9	11.1	11.5	8.4	8.0	8.2	6.8	6.5	6.7	5.3	4.8	5.0
31	11.2	10.8	11.0	---	---	---	7.2	6.8	7.0	5.3	4.9	5.1
MONTH	13.6	10.8	12.4	11.7	8.0	10.1	8.6	6.2	7.3	8.1	4.6	6.3



14187500 SOUTH SANTIAM RIVER AT WATERLOO, OR

LOCATION.--Lat 44°29'55", long 122°49'20", in SW 1/4 NW 1/4 sec.28, T.12 S., R.1 W., Linn County, Hydrologic Unit 17090006, on left bank 0.1 mi downstream from highway bridge at Waterloo, 2.1 mi upstream from Hamilton Creek, and at mile 23.3.

DRAINAGE AREA.--640 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1905 to March 1907, October 1910 to December 1911 (gage heights only January to December 1911), July 1923 to current year. Monthly discharge only for some periods, published in WSP 1318. Published as South Fork of Santiam River at Waterloo 1905-07, 1910-11.

REVISED RECORDS.--WSP 1248: 1907, 1924-30, 1932.

GAGE.--Water-stage recorder. Datum of gage is 370.39 ft above NGVD of 1929. Prior to Dec. 31, 1911, nonrecording gage at site 0.5 mi downstream at datum about 5.0 ft lower. July 1, 1923, to Nov. 12, 1934, nonrecording gage, at present site and datum.

REMARKS.--Records fair. Flow regulated since October 1966 by Green Peter Lake (station 14186100) and since December 1966 by Foster Lake (station 14186600). Some diversion upstream from station. Continuous water-quality records for the period October 1963 to September 1987 have been collected at this location.

AVERAGE DISCHARGE.--44 years (water years 1906, 1924-1966), 2,896 ft<sup>3</sup>/s, 2,098,000 acre-ft/yr.  
36 years (water years 1967-2002), 3,009 ft<sup>3</sup>/s, 2,180,000 acre-ft/yr (regulated period).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 95,200 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 24.50 ft; minimum discharge, 61 ft<sup>3</sup>/s Oct. 12, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,000 ft<sup>3</sup>/s Apr. 14, gage height, 9.00 ft; minimum discharge, 375 ft<sup>3</sup>/s July 31.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	767	1950	11700	3520	2030	2120	3550	2170	1290	1140	756	698
2	810	1670	11700	3680	1890	1590	3930	2190	1720	932	680	697
3	806	1030	11200	4400	1800	1090	4310	2100	1830	852	679	688
4	804	986	11100	4630	1730	1050	4470	2130	1830	847	683	760
5	807	971	11300	4210	1620	1080	4480	2050	1830	847	683	761
6	804	969	11700	4680	1600	1660	4460	1950	1820	844	679	746
7	804	954	11700	5930	2710	2890	4500	2750	1790	837	676	748
8	811	941	10900	7060	4670	4180	4540	2380	2670	838	676	747
9	811	932	10400	6250	3430	4300	5310	2150	2990	832	674	744
10	831	1190	e9000	7420	2590	4280	6510	2730	3170	815	676	745
11	914	1260	e6400	7700	2310	4820	7780	2700	3860	808	677	744
12	852	1280	e5800	7680	2040	8540	7290	2690	3840	821	691	743
13	834	1250	7080	7660	1780	10900	8310	2760	2480	831	687	739
14	831	1660	11900	7550	1630	9220	13200	2980	1580	809	685	744
15	825	2580	11300	5980	1470	7470	13400	2790	1270	813	685	734
16	821	2640	12000	5190	1380	6710	13100	2160	1260	816	689	721
17	813	3300	12800	4910	1370	6490	13100	1780	1280	801	690	739
18	815	3430	12400	4290	1350	6030	10400	2010	1350	798	672	733
19	832	3180	10900	4240	1460	4780	7400	2010	1290	798	678	725
20	821	4630	11300	5180	2040	4400	4490	1980	1260	798	673	724
21	813	5580	11000	9970	1940	3710	3060	1990	1180	799	691	723
22	877	9290	10900	7750	2410	3340	2780	1970	1140	797	688	721
23	1570	10600	10800	5390	3100	3280	2510	2010	1140	795	693	717
24	1480	7450	9280	6210	2980	3490	2490	1990	1130	797	688	715
25	1430	6800	7820	8950	2720	3370	2440	1970	1120	799	686	712
26	1420	6690	6440	10200	2230	3280	2190	1860	1110	801	685	713
27	1030	6390	5610	6950	2040	3150	2400	1810	1110	802	684	710
28	903	7130	7020	6570	2160	2880	2340	1900	1120	801	686	713
29	904	10700	7180	4650	---	2810	2290	2000	1190	801	686	723
30	962	9640	6000	3930	---	3210	2240	1840	1160	796	692	745
31	1780	---	3770	2200	---	3580	---	1390	---	656	696	---
TOTAL	29582	117073	298400	184930	60480	129700	169270	67190	51810	25521	21264	21872
MEAN	954.3	3902	9626	5965	2160	4184	5642	2167	1727	823.3	685.9	729.1
MAX	1780	10700	12800	10200	4670	10900	13400	2980	3860	1140	756	761
MIN	767	932	3770	2200	1350	1050	2190	1390	1110	656	672	688
AC-FT	58680	232200	591900	366800	120000	257300	335700	133300	102800	50620	42180	43380

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 2002, BY WATER YEAR (WY)

	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002		
MEAN	2076	4761	6602	5747	3783	3297	3020	2379	1603	790.5	771.1	1307																										
MAX	5530	9509	12910	9978	10430	9649	6529	4384	4300	1526	1239	2769																										
(WY)	1969	1985	1978	1999	1996	1972	1993	1999	1984	1983	1969	1968																										
MIN	666	827	1126	713	597	865	1059	792	616	470	475	473																										
(WY)	1967	1988	1977	1977	1977	1992	1968	1987	1992	1967	1967	1967																										

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1967 - 2002
ANNUAL TOTAL	843168	1177092	
ANNUAL MEAN	2310	3225	3009
HIGHEST ANNUAL MEAN			4666
LOWEST ANNUAL MEAN			1407
HIGHEST DAILY MEAN	12800	Dec 17	26000
LOWEST DAILY MEAN	615	Aug 7	67
ANNUAL SEVEN-DAY MINIMUM	622	Aug 5	75
ANNUAL RUNOFF (AC-FT)	1672000		2180000
10 PERCENT EXCEEDS	6160		7020
50 PERCENT EXCEEDS	1210		1840
90 PERCENT EXCEEDS	675		705

e Estimated



14187500 SOUTH SANTIAM RIVER AT WATERLOO, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--October 1963 to September 1987, August, 2001 to current year.

INSTRUMENTATION.--Temperature probe and data logger.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--Maximum, 26.0°C Aug. 4, 1966; minimum, 1.5°C Dec. 18-20, 1965, Feb. 1, 2, 1979.

EXTREMES FOR CURRENT YEAR.--Maximum, 17.9°C Aug. 13; minimum, 4.6°C Feb. 5, 14, 15.

WATER TEMPERATURE, in (DEGREES C), AUGUST TO SEPTEMBER 2001												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	---	---	---	16.3	14.2	15.5
2	---	---	---	---	---	---	---	---	---	16.7	14.3	15.6
3	---	---	---	---	---	---	---	---	---	16.2	13.6	15.0
4	---	---	---	---	---	---	---	---	---	16.1	13.7	15.1
5	---	---	---	---	---	---	---	---	---	15.2	13.3	14.2
6	---	---	---	---	---	---	---	---	---	15.2	12.4	13.8
7	---	---	---	---	---	---	---	---	---	15.6	12.8	14.3
8	---	---	---	---	---	---	---	---	---	15.9	13.0	14.6
9	---	---	---	---	---	---	---	---	---	16.1	13.3	14.8
10	---	---	---	---	---	---	---	---	---	16.0	13.4	14.8
11	---	---	---	---	---	---	---	---	---	15.9	13.3	14.7
12	---	---	---	---	---	---	---	---	---	16.2	13.8	15.1
13	---	---	---	---	---	---	---	---	---	16.1	13.9	15.1
14	---	---	---	---	---	---	---	---	---	15.9	13.8	14.9
15	---	---	---	---	---	---	---	---	---	15.7	14.1	15.1
16	---	---	---	---	---	---	---	---	---	16.1	14.1	15.1
17	---	---	---	---	---	---	---	---	---	15.4	13.0	14.2
18	---	---	---	---	---	---	---	---	---	15.3	12.9	14.2
19	---	---	---	---	---	---	---	---	---	15.2	12.8	14.1
20	---	---	---	---	---	---	---	---	---	15.3	12.7	14.0
21	---	---	---	---	---	---	---	---	---	15.0	12.8	14.0
22	---	---	---	---	---	---	---	---	---	15.5	12.9	14.2
23	---	---	---	---	---	---	---	---	---	15.6	13.4	14.5
24	---	---	---	---	---	---	---	---	---	15.4	13.5	14.6
25	---	---	---	---	---	---	16.7	14.0	15.4	15.0	13.1	13.8
26	---	---	---	---	---	---	17.0	14.4	15.7	13.5	12.8	13.1
27	---	---	---	---	---	---	16.9	14.6	15.8	13.7	12.1	12.9
28	---	---	---	---	---	---	17.2	14.5	15.9	14.7	12.1	13.4
29	---	---	---	---	---	---	16.6	14.2	15.5	15.1	12.3	13.8
30	---	---	---	---	---	---	17.1	14.4	15.6	15.2	12.4	14.0
31	---	---	---	---	---	---	16.9	14.3	15.7	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	16.7	12.1	14.4

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	15.4	12.8	14.2	11.9	11.3	11.6	9.0	8.7	8.9	7.2	6.9	7.0
2	15.0	12.5	14.0	12.7	11.7	12.1	9.0	8.6	8.8	7.7	7.1	7.3
3	14.7	11.9	13.5	11.9	10.9	11.5	9.1	8.8	8.9	7.3	6.8	7.1
4	14.8	12.1	13.6	12.0	11.1	11.6	8.9	8.7	8.8	7.0	6.6	6.8
5	14.4	12.1	13.5	12.0	11.0	11.7	8.9	8.6	8.8	7.1	6.8	7.0
6	14.1	12.9	13.6	11.6	10.3	10.9	9.1	8.7	8.9	7.6	7.1	7.4
7	13.4	11.7	12.7	10.7	9.1	10.0	8.7	8.3	8.6	7.9	7.6	7.7
8	13.9	12.7	13.3	10.3	9.0	9.8	8.5	8.1	8.3	8.2	7.7	7.9
9	13.9	11.9	13.0	10.4	8.9	9.7	8.3	8.0	8.1	7.7	7.3	7.5
10	13.2	11.5	12.2	11.0	9.5	10.3	---	---	---	7.5	7.1	7.3
11	13.4	12.6	12.9	11.3	10.0	10.7	---	---	---	7.3	7.0	7.1
12	13.6	11.8	12.6	11.1	10.4	10.8	---	---	---	7.4	7.0	7.1
13	14.6	13.0	13.7	11.1	10.8	10.9	8.1	7.8	8.0	7.0	6.8	6.9
14	13.8	12.5	13.2	12.1	11.1	11.5	8.0	7.3	7.6	6.9	6.5	6.8
15	13.7	12.2	13.0	11.4	10.8	11.1	7.3	7.1	7.2	6.9	6.2	6.5
16	13.5	12.2	13.1	11.2	10.9	11.1	8.0	7.2	7.6	6.4	6.0	6.2
17	13.4	11.8	12.7	11.1	10.6	10.8	7.7	7.3	7.5	6.6	6.2	6.3
18	13.2	10.8	12.1	10.8	10.2	10.4	7.4	7.2	7.3	6.5	6.2	6.3
19	13.7	11.2	12.5	11.1	10.1	10.7	7.4	7.1	7.2	6.6	6.2	6.4
20	13.4	11.9	12.4	10.8	10.4	10.6	7.5	7.3	7.4	6.4	6.0	6.2
21	12.6	11.8	12.2	10.8	10.5	10.7	7.4	7.0	7.2	6.4	5.9	6.2
22	12.9	12.6	12.7	10.8	10.2	10.6	7.3	6.9	7.1	6.2	5.8	5.9
23	12.8	11.6	12.3	10.4	10.1	10.2	7.3	6.9	7.0	6.1	5.8	5.9
24	13.0	11.0	12.0	10.1	9.8	10	7.1	6.7	6.9	6.0	5.8	5.9
25	13.5	12.0	12.7	10.0	9.6	9.7	7.0	6.6	6.7	6.4	6.0	6.2
26	13.4	11.7	12.6	9.9	9.4	9.6	6.8	6.5	6.6	6.1	5.7	5.9
27	13.2	11.6	11.9	9.4	9.1	9.2	6.7	6.6	6.6	6.0	5.6	5.8
28	11.6	10.8	11.2	9.3	9.1	9.2	7.0	6.7	6.8	6.0	5.4	5.7
29	11.6	11.1	11.3	9.2	8.7	9.0	6.9	6.8	6.9	5.6	5.2	5.4
30	12.1	11.4	11.7	8.9	8.7	8.8	7.1	6.7	6.9	5.7	5.2	5.4
31	12.1	11.3	11.6	---	---	---	7.4	6.8	7.1	5.8	5.4	5.6
MONTH	15.4	10.8	12.7	12.7	8.7	10.5	---	---	---	8.2	5.2	6.5

## WILLAMETTE RIVER BASIN

141878500 SOUTH SANTIAM RIVER AT WATERLOO, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	6.4	5.5	5.8	7.2	5.1	6.1	9.8	6.5	8.0	10.9	8.6	9.6
2	6.3	4.9	5.6	7.2	4.8	6.0	9.5	6.8	7.9	10.2	9.1	9.6
3	6.9	5.9	6.3	7.4	4.8	6.2	10.0	6.9	8.2	11.6	8.0	9.6
4	6.1	4.7	5.4	7.9	5.5	6.8	10.6	7.2	8.6	12.4	7.8	10.1
5	5.8	4.6	5.2	7.4	6.5	6.8	8.4	7.4	8.0	10.6	8.4	9.5
6	5.9	5.2	5.5	7.1	6.7	6.8	8.8	7.2	8.1	10.2	8.0	9.1
7	6.0	5.8	5.9	6.7	5.8	6.3	8.4	7.2	7.7	11.0	7.8	9.2
8	6.6	5.5	6.0	6.6	5.5	6.0	10.3	7.5	8.4	12.3	7.6	9.7
9	6.5	5.1	5.7	6.4	5.6	6.0	9.0	7.5	8.1	10.1	7.8	8.8
10	6.8	5.3	6.1	6.6	6.0	6.2	8.7	7.3	8.1	11.0	8.0	9.3
11	6.7	5.8	6.2	6.8	6.3	6.5	8.6	7.3	7.9	12.5	7.1	9.6
12	6.3	5.3	5.8	6.5	6.0	6.2	8.9	7.3	7.9	13.1	7.8	10.2
13	6.5	4.9	5.7	6.3	5.9	6.1	8.4	7.6	8.0	10.4	8.4	9.2
14	6.4	4.6	5.5	6.3	5.8	6.0	8.2	7.3	7.7	11.8	8.7	10.0
15	6.9	4.6	5.8	6.2	5.6	5.9	7.3	6.7	7.1	12.2	7.2	9.6
16	7.4	5.8	6.6	6.3	5.5	5.7	6.9	6.3	6.7	13.2	7.6	10.3
17	7.4	5.9	6.7	6.2	5.3	5.7	6.9	6.2	6.5	12.9	8.6	10.6
18	8.0	6.6	7.3	5.9	5.3	5.6	7.1	6.2	6.5	11.2	8.2	9.7
19	7.7	7.1	7.4	6.4	5.6	5.9	7.6	6.3	6.8	9.9	8.6	9.4
20	7.9	6.3	7.1	7.2	5.6	6.3	8.7	6.6	7.3	11.3	8.1	9.6
21	8.3	7.2	7.8	7.3	5.9	6.5	9.3	6.4	7.7	10.4	8.0	9.1
22	8.6	7.2	7.9	6.8	5.4	6.1	10.3	6.8	8.4	10.5	7.8	8.9
23	8.1	7.5	7.8	8.1	6.2	7.0	10.1	6.7	8.4	12.2	7.6	9.7
24	7.5	6.5	7.0	8.0	6.7	7.4	10.9	6.6	8.6	12.4	7.7	9.9
25	7.5	5.8	6.6	8.8	6.1	7.3	11.6	7.3	9.4	12.2	8.2	10.1
26	7.4	5.6	6.5	8.5	6.3	7.3	10.0	7.6	8.7	12.8	8.5	10.6
27	7.3	5.1	6.2	8.7	6.8	7.6	11.0	8.4	9.5	11.2	9.0	10.1
28	7.3	5.4	6.3	8.2	6.6	7.3	12.2	7.9	9.9	10.4	8.9	9.6
29	---	---	---	9.5	6.9	8.0	12.6	7.6	10	11.0	9.3	10.1
30	---	---	---	9.3	6.2	7.6	10.7	7.9	9.3	13.2	9.3	10.8
31	---	---	---	9.2	6.8	7.8	---	---	---	13.5	9.4	11.4
MONTH	8.6	4.6	6.3	9.5	4.8	6.5	12.6	6.2	8.1	13.5	7.1	9.8
	JUNE			JULY			AUGUST			SEPTEMBER		
1	13.8	9.6	11.8	15.4	11.3	13.5	16.7	13.2	15.1	16.7	13.9	15.4
2	13.4	9.4	11.4	16.0	11.4	13.8	16.3	13.9	15.2	16.7	14.1	15.4
3	12.9	9.2	11.0	15.2	12.2	13.7	16.4	13.4	15.0	16.3	14.6	15.6
4	13.6	10.0	11.6	15.5	12.1	13.6	15.9	13.9	14.7	15.4	12.9	14.3
5	12.7	10.2	11.4	16.0	12.0	14.0	15.2	12.7	14.1	15.2	12.5	13.9
6	13.2	9.4	11.2	16.5	12.7	14.6	16.2	13.4	14.7	15.4	12.5	13.9
7	11.9	9.5	10.7	15.8	12.8	13.8	16.5	13.4	15.0	15.3	12.8	14.1
8	11.8	9.3	10.4	16.6	12.8	14.3	16.7	13.8	15.3	14.7	12.3	13.6
9	12.1	9.5	10.9	17.3	12.9	15.1	17.3	14.0	15.6	15.6	12.5	14.1
10	13.3	9.4	11.0	17.4	14.0	15.8	17.4	14.8	16.1	15.8	13.0	14.5
11	12.4	9.7	11.0	17.3	13.9	15.7	17.0	14.3	15.7	16.1	13.2	14.7
12	12.6	9.8	10.9	16.8	13.8	15.4	17.3	14.2	15.7	16.1	13.3	14.8
13	13.9	9.8	11.5	16.2	13.8	15.2	17.9	14.6	16.3	16.0	13.3	14.8
14	14.2	9.5	11.7	16.6	13.0	15.0	17.5	15.1	16.4	15.4	13.2	14.2
15	13.1	10.0	11.5	16.8	13.2	15.1	17.2	14.5	15.9	14.2	12.8	13.4
16	12.7	10.2	11.5	17.1	13.6	15.4	16.6	13.9	15.3	13.4	12.7	13.1
17	11.9	9.9	10.7	17.1	13.6	15.5	16.6	14.0	15.3	13.8	12.6	13.2
18	12.6	10.3	11.3	16.6	13.3	15.1	16.3	13.7	15.1	15.2	12.6	13.8
19	14.7	9.9	12.1	16.1	13.7	15.1	15.8	13.7	14.9	15.2	12.3	13.8
20	14.9	10.6	12.8	17.3	13.5	15.4	15.2	13.8	14.4	14.9	12.6	13.9
21	13.8	10.8	12.3	17.4	14.0	15.8	15.6	12.9	14.1	14.6	11.8	13.3
22	13.0	10.9	11.8	17.5	14.4	16.1	16.5	13.2	14.8	14.5	12.0	13.3
23	15.1	10.7	12.7	17.6	14.6	16.2	16.8	13.9	15.4	14.7	12.2	13.6
24	15.1	11.2	13.2	17.5	14.0	16.0	16.9	14.3	15.6	14.6	12.2	13.5
25	15.8	11.3	13.6	17.0	13.6	15.5	16.3	13.8	14.7	14.6	12.0	13.4
26	15.9	11.9	14.0	16.5	13.8	15.2	16.5	13.7	14.9	14.0	11.9	13.1
27	14.7	11.9	12.8	16.7	13.5	15.1	16.7	13.8	15.3	14.8	12.6	13.6
28	12.7	11.7	12.0	17.5	13.5	15.6	17.3	14.6	15.9	14.2	11.9	13.2
29	13.5	11.5	12.4	17.8	14.3	16.2	16.7	14.7	15.9	13.6	12.1	13.0
30	15.1	11.5	13.2	17.6	14.4	16.2	16.1	13.8	15.1	13.2	11.8	12.5
31	---	---	---	16.9	13.7	15.5	16.3	13.6	15.0	---	---	---
MONTH	15.9	9.2	11.8	17.8	11.3	15.1	17.9	12.7	15.2	16.7	11.8	13.9

## WILLAMETTE RIVER BASIN

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14187600 LEBANON SANTIAM CANAL NEAR LEBANON, OR

LOCATION.--Lat 44°30'54", long 122°51'49", in SW 1/4 NW 1/4 sec.19, T.12 S., R.1 W., Linn County, Hydrologic Unit 17090006, near right bank, on downstream side of bridge on Headgate Road, 2.2 mi east of Lebanon.

PERIOD OF RECORD.--May 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 370 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 191 ft<sup>3</sup>/s Mar. 8, 1994; minimum daily discharge, 25 ft<sup>3</sup>/s Jan. 18, 1994.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	100	89	66	73	54	42	85	83	74	90	101	98
2	102	87	43	73	67	47	88	83	82	81	93	98
3	101	80	57	77	64	41	91	82	85	77	93	96
4	101	80	64	79	63	46	87	82	85	77	92	96
5	102	86	65	77	61	56	80	81	85	77	92	96
6	102	90	65	80	60	59	80	79	85	77	93	96
7	102	89	65	74	65	64	80	90	85	77	92	96
8	103	71	64	65	59	61	80	86	96	77	92	96
9	100	76	64	63	45	52	81	83	93	76	92	96
10	96	89	70	70	41	52	78	91	94	82	91	96
11	99	90	79	76	50	54	80	90	101	84	90	96
12	97	91	77	76	63	59	75	90	101	85	90	96
13	97	87	64	75	63	59	78	91	85	85	89	95
14	96	81	35	78	65	55	94	94	78	84	88	96
15	96	84	58	82	62	51	87	91	77	84	88	96
16	96	81	60	85	60	48	74	83	77	85	88	91
17	96	83	61	84	59	47	74	77	77	85	88	90
18	96	82	60	80	60	50	77	80	81	85	88	89
19	96	80	57	80	60	56	82	80	83	85	88	88
20	96	82	58	73	69	61	68	80	81	85	89	89
21	96	80	56	61	67	57	60	81	81	85	90	90
22	97	75	56	52	74	55	80	80	83	85	89	91
23	94	69	55	52	74	54	87	81	83	85	88	90
24	88	71	70	61	63	55	86	80	82	86	88	89
25	87	69	82	56	58	63	85	80	82	86	90	88
26	86	78	76	48	61	79	79	79	84	87	94	88
27	83	85	72	42	59	84	73	78	87	87	98	88
28	82	73	78	41	40	80	72	80	88	87	97	90
29	86	77	79	36	---	80	77	86	92	87	97	90
30	94	69	75	43	---	82	84	86	91	86	98	91
31	93	---	69	43	---	86	---	77	---	98	98	---
TOTAL	2960	2424	2000	2055	1686	1835	2402	2584	2558	2597	2844	2785
MEAN	95.48	80.80	64.52	66.29	60.21	59.19	80.07	83.35	85.27	83.77	91.74	92.83
MAX	103	91	82	85	74	86	94	94	101	98	101	98
MIN	82	69	35	36	40	41	60	77	74	76	88	88
AC-FT	5870	4810	3970	4080	3340	3640	4760	5130	5070	5150	5640	5520
CAL YR 2001	TOTAL 31051	MEAN 85.07	MAX 111	MIN 35	AC-FT 61590							
WTR YR 2002	TOTAL 28730	MEAN 78.71	MAX 103	MIN 35	AC-FT 56990							

14188610 SCHAFFER CREEK NEAR LACOMB, OR

LOCATION.--Lat 44°37'11", long 122°27'53", in NE 1/4 SE 1/4 sec.8, T.11 S., R.3 E., Linn County, Hydrologic Unit 17090006, on right bank, 40 ft upstream from Crabtree Creek, and 8.0 mi east of LaComb.

DRAINAGE AREA.--1.03 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1993 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 2,900 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair except those below 2.0 ft<sup>3</sup>/s, which are poor.

AVERAGE DISCHARGE.--9 years (water years 1994-2002), 7.66 ft<sup>3</sup>/s, 101.03 in/yr, 5,550 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 400 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 7.93 ft, from rating curve extended above 110 ft<sup>3</sup>/s, on basis of slope-area measurement of peak flow; minimum discharge, 0.01 ft<sup>3</sup>/s Sept. 30, Oct. 1-5, 1999, Sept. 24, 25, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 130 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Apr. 14	0100	*153	*6.48	No other peak greater than base discharge.			
Minimum discharge, 0.02 ft <sup>3</sup> /s Oct. 7.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.04	25	27	15	2.9	4.8	8.3	9.3	10	3.3	0.29	0.12
2	0.04	16	19	24	2.7	4.2	9.5	10	9.2	2.9	0.27	0.12
3	0.04	11	12	20	2.8	3.8	12	11	8.5	2.5	0.25	0.12
4	0.03	7.2	8.9	13	2.9	3.6	16	9.2	8.9	2.2	0.26	0.12
5	0.03	7.5	6.7	10	2.8	3.6	19	8.3	9.4	2.0	0.25	0.11
6	0.03	5.8	37	28	3.1	20	17	9.1	8.0	1.8	0.24	0.11
7	0.03	4.5	32	41	6.6	18	16	7.2	6.1	1.6	0.23	0.11
8	0.04	3.6	16	49	7.2	11	13	6.0	4.9	1.5	0.22	0.11
9	0.04	3.0	11	23	5.4	7.8	23	5.5	4.3	1.4	0.21	0.10
10	1.4	2.5	8.7	13	5.1	7.0	51	5.0	4.8	1.3	0.20	0.10
11	5.2	2.1	6.9	9.6	4.7	30	37	5.1	5.8	1.2	0.19	0.10
12	1.8	2.4	7.2	14	4.3	45	31	7.6	6.6	1.1	0.18	0.10
13	1.3	11	52	14	3.8	17	57	11	7.1	1.0	0.18	0.09
14	1.1	18	42	10	3.5	10	87	10	6.3	0.94	0.18	0.10
15	1.0	13	17	7.8	3.2	7.7	24	9.2	5.2	0.87	0.17	0.10
16	0.82	17	52	6.1	3.2	6.2	12	8.6	4.5	0.79	0.16	0.11
17	0.76	14	46	5.0	3.5	5.1	8.0	10	6.4	0.75	0.15	0.79
18	0.62	10	18	4.3	3.9	4.5	6.2	11	17	0.69	0.15	0.32
19	0.52	9.7	12	3.9	6.1	4.6	5.6	10	7.8	0.65	0.15	0.24
20	0.45	12	11	5.6	8.0	5.1	5.1	10	5.5	0.59	0.24	0.20
21	0.44	14	8.8	6.1	11	5.4	5.1	11	4.8	0.55	0.22	0.18
22	20	55	7.1	4.4	19	5.9	5.3	11	4.2	0.53	0.18	0.18
23	26	35	5.7	3.8	43	7.6	6.2	9.5	3.5	0.47	0.18	0.16
24	13	16	4.8	4.3	30	12	6.2	9.3	3.1	0.44	0.16	0.15
25	8.8	11	4.1	13	15	11	6.7	11	2.9	0.41	0.15	0.14
26	6.1	7.7	3.8	9.3	9.6	9.0	7.9	13	2.7	0.39	0.15	0.14
27	4.5	5.7	3.7	6.3	7.1	8.7	8.4	13	2.4	0.38	0.14	0.13
28	4.0	22	6.3	4.9	5.8	7.9	7.5	16	2.2	0.35	0.14	0.13
29	3.9	35	6.9	4.0	---	7.0	7.6	25	5.9	0.33	0.13	0.16
30	16	17	7.4	3.5	---	6.5	9.6	16	4.1	0.31	0.13	1.0
31	30	---	12	3.3	---	7.0	---	12	---	0.29	0.13	---
TOTAL	148.03	413.7	513.0	379.2	226.2	307.0	528.2	319.9	182.1	33.53	5.88	5.64
MEAN	4.78	13.8	16.5	12.2	8.08	9.90	17.6	10.3	6.07	1.08	0.19	0.19
MAX	30	55	52	49	43	45	87	25	17	3.3	0.29	1.0
MIN	0.03	2.1	3.7	3.3	2.7	3.6	5.1	5.0	2.2	0.29	0.13	0.09
AC-FT	294	821	1020	752	449	609	1050	635	361	67	12	11
CFSM	4.64	13.4	16.1	11.9	7.84	9.61	17.1	10.0	5.89	1.05	0.18	0.18
IN.	5.35	14.94	18.53	13.70	8.17	11.09	19.08	11.55	6.58	1.21	0.21	0.20

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2002, BY WATER YEAR (WY)

	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	4.95	12.2	14.8	12.7	12.0	9.94	11.0	8.38	4.49
MAX	9.18	28.8	24.2	20.5	23.7	14.7	17.6	16.4	7.78
(WY)	1997	1996	1997	1995	1996	1997	2002	1999	1999
MIN	0.33	0.97	4.44	4.42	4.33	7.25	5.95	3.84	1.41
(WY)	1994	1994	1998	2001	2001	1996	1998	1994	1996

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1994 - 2002

ANNUAL TOTAL	2164.39	3062.38		
ANNUAL MEAN	5.93	8.39	7.66	
HIGHEST ANNUAL MEAN			10.5	1996
LOWEST ANNUAL MEAN			4.20	2001
HIGHEST DAILY MEAN	55	Nov 22	87	Apr 14
LOWEST DAILY MEAN	0.02	Sep 18	0.03	Oct 4
ANNUAL SEVEN-DAY MINIMUM	0.02	Sep 18	0.03	Oct 1
ANNUAL RUNOFF (AC-FT)	4290		6070	5550
ANNUAL RUNOFF (CFSM)	5.76		8.15	7.44
ANNUAL RUNOFF (INCHES)	78.17		110.60	101.03
10 PERCENT EXCEEDS	15		19	18
50 PERCENT EXCEEDS	3.3		5.5	3.8
90 PERCENT EXCEEDS	0.06		0.15	0.16

14189000 SANTIAM RIVER AT JEFFERSON, OR

LOCATION.--Lat 44°42'55", long 123°00'40", in SE 1/4 sec.11, T.10 S., R.3 W., Marion County, Hydrologic Unit 17090005, on right bank 350 ft upstream from Southern Pacific railroad bridge at Jefferson, 2.1 mi downstream from confluence of North and South Santiam Rivers, and at mile 9.62.

DRAINAGE AREA.--1,790 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1905 to June 1906 (gage heights and discharge measurements only), October 1907 to September 1916, October 1939 to current year. Gage-height records collected at same site since 1907 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 904: Drainage area. WSP 1094: 1908, 1910, 1912, 1943. WSP 1248: 1911, 1915-16(M). WSP 1935: 1909, WDR OR-93-1: 1974.

GAGE.--Water-stage recorder. Datum of gage is 199.63 ft above NGVD of 1929. Prior to Sept. 22, 1940, nonrecording gages at sites within 350 ft downstream at datum 3.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1953 by Detroit Lake (station 14180500), since 1966 by Green Peter Lake (station 14186100) and by Foster Lake (station 14186600). Salem Canal diverts from North Santiam River at Stayton for irrigation and power; most of this water reaches Willamette River by way of Mill Creek at Salem. Stayton Canal diverts from North Santiam River at Stayton for irrigation of lands near town of West Stayton; some return flow reaches North Santiam River upstream from station. Albany power canal diverts from South Santiam River at Lebanon; return flow reaches Willamette River at Albany. Continuous water-quality records for the period October 1963 to September 1987 have been collected at this location. Water temperature data for the period October 2000 to June 2001 available in the files of the Portland Field Office. Periodic suspended sediment data are available for the period October 1991 to September 1993.

AVERAGE DISCHARGE.--22 years (water years 1908-16, 1940-1952), 7,587 ft<sup>3</sup>/s, 5,497,000 acre-ft/yr.  
50 years (water years 1953-2002), 7,815 ft<sup>3</sup>/s, 5,662,000 acre-ft/yr (regulated period).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 197,000 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 24.22 ft; minimum discharge observed, 260 ft<sup>3</sup>/s Aug. 15-22, Aug. 24 to Sept. 2, 1940.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood stage of 25.0 ft was reached in December 1861, and 23.4 ft in February 1890 (information from Corps of Engineers). On Nov. 21, 1921, the stage reached 19.5 ft at gage on railroad bridge 350 ft downstream, corresponding gage height at present site and datum, 24.4 ft, from curve of relation, discharge, 202,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 38,600 ft<sup>3</sup>/s Apr. 14, gage height, 13.33 ft; minimum discharge, 1,150 ft<sup>3</sup>/s Aug. 28.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1490	6250	23800	8390	7780	5160	7190	5670	7330	3490	1470	1220
2	1530	5150	29000	9310	6820	4680	7330	5920	6840	3130	1430	1220
3	1530	3770	28300	10100	6380	3900	7870	6420	6800	2830	1420	1220
4	1530	3120	26800	10100	6160	3650	8120	6640	5880	2710	1440	1350
5	1530	2930	28300	9040	5820	3580	8520	6650	5890	2500	1450	1820
6	1540	2810	28800	10700	5730	6850	8670	6670	5780	2400	1430	1920
7	1540	2620	32100	14200	8990	11500	9060	6930	5500	2360	1390	1950
8	1580	2490	26400	18400	14200	9370	9180	6890	5480	2340	1390	1970
9	1580	2400	23000	16200	11200	8650	10100	6290	5570	2270	1380	1980
10	1620	2430	19300	15300	8870	8340	14500	6050	5240	2180	1370	1970
11	1940	2510	15100	15700	7830	9620	19000	5970	6030	2110	1370	1960
12	1940	2540	13500	15600	6940	19900	18400	5940	6330	2090	1370	1990
13	1760	2780	17300	15600	6090	19800	19800	6240	5620	2070	1320	2060
14	1730	6410	33300	15200	5530	16900	31800	6620	4500	2050	1230	2070
15	1710	5750	26500	13700	5110	14000	31700	6700	4230	2030	1240	2110
16	1690	6540	27900	12300	4870	12600	27900	6570	4470	1970	1210	2130
17	1680	7400	31800	11900	4710	11600	27200	5940	4480	1790	1210	2240
18	1680	7280	28800	11300	4630	10700	24000	5990	5450	1730	1200	2270
19	1700	6780	23200	11700	4720	10400	18300	6070	5360	1690	1200	2230
20	1690	7850	24100	13900	5620	9830	12400	6210	4840	1690	1220	2200
21	1680	9620	23000	26400	5730	8890	9220	6310	4340	1680	1270	2160
22	1800	14200	22700	22200	7440	8140	7670	6480	3910	1660	1280	2140
23	4320	26000	21200	15900	11000	7790	6530	6430	3770	1640	1260	2140
24	3840	17100	18600	14600	10900	9050	6160	6270	3690	1630	1250	2090
25	3060	14500	15800	24100	8480	8740	5920	6180	3560	1630	1250	2070
26	2780	13700	13500	28400	6880	7990	5640	5970	3430	1640	1250	2070
27	2500	12700	11500	19000	5860	7670	6190	6550	3200	1640	1210	2160
28	2280	12500	12600	16100	5540	7130	5910	6970	3130	1660	1200	2160
29	2210	25100	12700	11800	---	6680	5580	7740	3760	1640	1210	2190
30	2450	22000	11200	9510	---	6650	5560	8210	3990	1600	1200	2320
31	5320	---	8950	7420	---	7190	---	7390	---	1520	1200	---
TOTAL	65230	257230	679050	454070	199830	286950	385420	200880	148400	63370	40320	59380
MEAN	2104	8574	21900	14650	7137	9256	12850	6480	4947	2044	1301	1979
MAX	5320	26000	33300	28400	14200	19900	31800	8210	7330	3490	1470	2320
MIN	1490	2400	8950	7420	4630	3580	5560	5670	3130	1520	1200	1220
AC-FT	129400	510200	1347000	900600	396400	569200	764500	398400	294400	125700	79970	117800

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2002, BY WATER YEAR (WY)

	4794	11520	16100	14910	11440	9238	8344	7139	4493	1867	1441	2684
MEAN	4794	11520	16100	14910	11440	9238	8344	7139	4493	1867	1441	2684
MAX	11890	26850	37880	30310	32350	25700	16150	14180	11150	4825	2883	5325
(WY)	1969	1974	1965	1953	1996	1972	1993	1960	1984	1983	1968	1968
MIN	432	622	2420	2178	1897	3245	3874	2115	1287	944	747	887
(WY)	1953	1953	1977	1977	1977	1977	1968	1973	1992	1965	1966	1953

SUMMARY STATISTICS	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1953 - 2002
ANNUAL TOTAL	1991020	2840130	
ANNUAL MEAN	5455	7781	7815
HIGHEST ANNUAL MEAN			12310
LOWEST ANNUAL MEAN			3512
HIGHEST DAILY MEAN	33300	Dec 14	143000
LOWEST DAILY MEAN	1190	Aug 10	396
ANNUAL SEVEN-DAY MINIMUM	1200	Aug 10	406
ANNUAL RUNOFF (AC-FT)	3949000	5633000	5662000
10 PERCENT EXCEEDS	12500	19000	17600
50 PERCENT EXCEEDS	3330	5910	5120
90 PERCENT EXCEEDS	1320	1510	1440

## WILLAMETTE RIVER BASIN

14189050 SANTIAM RIVER NEAR JEFFERSON, OR

## WATER-QUALITY RECORDS

LOCATION.--Lat. 44°44'20", long 123°02'55", in SW 1/4 sec. 34, T.9 S., R.3 W., Marion County, Hydrologic Unit 17090005, on right bank 0.1 mi upstream from Interstate 5 bridge in east side of Santiam Safety Rest Area, and at mile 6.2.

DRAINAGE AREA.--1,790 mi<sup>2</sup> approximately, at site (14189000) 3.4 mi upstream.

PERIOD OF DAILY RECORD.--May 2001 to current year.

INSTRUMENTATION.--Water-temperature recorder.

REMARKS.--Records good.

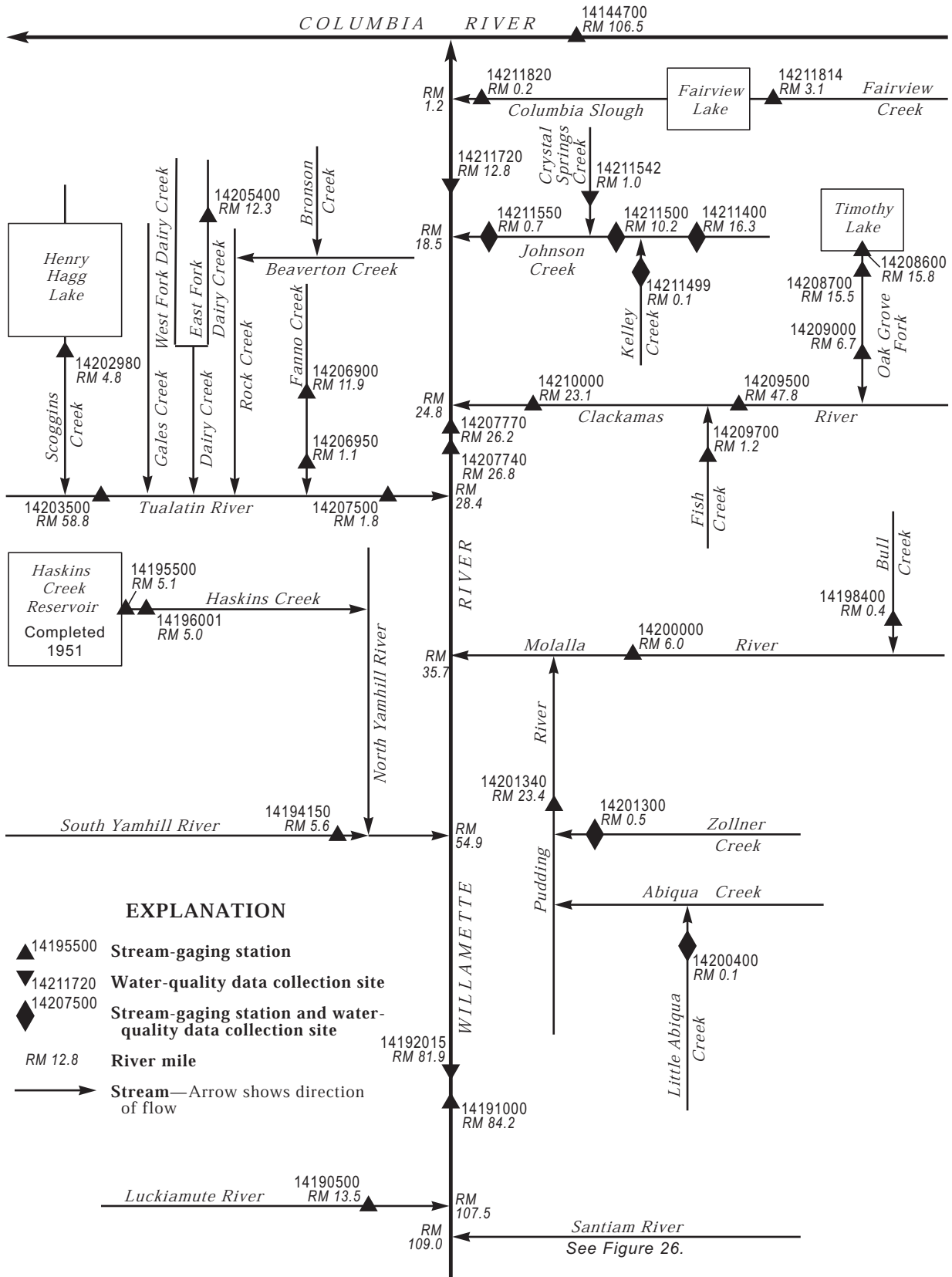
EXTREMES FOR PERIOD OF RECORD.--Maximum recorded, 22.5°C Aug. 10, 2001; minimum recorded, 4.8°C Jan. 27, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum recorded, 22.0°C July 22, Aug. 14; minimum recorded, 4.8°C Jan. 27.

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.3	15.3	16.4	11.0	10.5	10.8	8.3	8.1	8.2	6.9	6.5	6.6
2	17.2	15.7	16.5	12.2	11.0	11.5	8.2	7.8	8.0	7.4	6.6	7.0
3	16.7	15.0	15.8	11.9	11.5	11.7	8.3	8.0	8.2	7.1	6.5	6.8
4	16.2	14.5	15.5	12.0	11.3	11.6	8.0	7.6	7.7	6.6	6.0	6.2
5	16.1	14.4	15.3	11.9	11.1	11.5	8.0	7.3	7.6	6.8	6.2	6.4
6	15.6	14.7	15.1	11.1	10.1	10.6	8.3	8.0	8.1	8.1	6.8	7.4
7	15.1	13.8	14.2	10.1	8.8	9.3	8.0	7.8	7.9	8.2	8.1	8.2
8	14.6	13.6	14.1	8.9	8.0	8.5	7.9	7.3	7.6	8.2	7.8	8.1
9	14.3	12.9	13.7	8.9	8.0	8.4	7.8	7.4	7.6	7.8	7.1	7.4
10	13.9	12.5	12.8	9.7	8.3	9.0	7.4	7.1	7.3	7.1	6.7	6.9
11	13.9	12.4	13.1	10.6	9.4	10	7.4	7.1	7.3	6.9	6.6	6.7
12	13.7	12.6	13.2	10.9	10.3	10.6	7.5	7.2	7.3	7.1	6.6	6.8
13	14.9	13.3	14.0	11.1	10.5	10.8	7.9	7.5	7.8	6.7	6.0	6.2
14	15.2	13.9	14.6	11.8	10.9	11.4	7.8	6.7	7.1	6.2	5.8	6.0
15	14.9	13.4	14.2	11.6	11.0	11.4	7.0	6.6	6.7	5.9	5.4	5.6
16	14.5	13.4	13.7	11.0	10.6	10.8	7.8	7.0	7.4	5.5	5.0	5.2
17	13.5	12.4	13.0	10.6	9.9	10.3	7.8	6.9	7.3	5.8	5.3	5.5
18	13.1	11.8	12.6	9.9	9.4	9.6	6.9	6.7	6.8	5.8	5.5	5.7
19	13.6	11.6	12.6	10.2	9.4	9.7	6.9	6.6	6.8	6.1	5.6	5.9
20	13.5	12.4	12.8	10.4	10.2	10.3	7.2	6.8	7.0	5.8	5.5	5.7
21	12.6	11.5	11.8	10.3	10.0	10.1	7.0	6.4	6.7	5.8	5.5	5.7
22	12.8	11.9	12.3	10.2	9.4	10	6.6	6.1	6.3	5.6	5.1	5.4
23	12.7	11.3	11.9	9.6	9.0	9.3	6.5	5.9	6.2	5.8	5.3	5.5
24	11.3	10.2	10.8	9.5	9.1	9.2	6.1	5.7	5.9	6.0	5.6	5.8
25	12.8	11.0	11.7	9.1	8.8	8.9	6.0	5.4	5.7	6.2	6.0	6.1
26	12.8	11.6	12.2	8.8	8.4	8.6	5.9	5.3	5.6	6.0	5.5	5.7
27	12.5	11.4	11.9	8.6	8.0	8.1	6.0	5.7	5.8	5.5	4.8	5.1
28	11.4	10.3	10.7	8.6	7.9	8.3	6.5	5.9	6.2	5.5	5.0	5.3
29	10.8	10.4	10.6	8.5	8.2	8.3	6.5	5.9	6.2	5.4	5.0	5.2
30	11.4	10.7	11.0	8.2	7.9	8.1	6.4	5.8	6.1	5.5	4.9	5.2
31	11.5	11.0	11.3	--	--	--	7.0	6.3	6.6	5.8	5.4	5.6
MONTH	17.3	10.2	13.2	12.2	7.9	9.9	8.3	5.3	7.0	8.2	4.8	6.2





See Figure 23.

**Figure 27.** Schematic diagram showing gaging stations in the Willamette River Basin, from the Luckiamute River downstream to the mouth.



14190500 LUCKIAMUTE RIVER NEAR SUVER, OR

LOCATION.--Lat 44°47'00", long 123°14'00", in SW 1/4 SW 1/4 sec.18, T.9 S., R.4 W., Polk County, Hydrologic Unit 17090003, on right bank 10 ft upstream from highway bridge at Helmick State Park, 3.0 mi northwest of Suver, 4.7 mi downstream from Little Luckiamute River, and at mile 13.5.

DRAINAGE AREA.--240 mi<sup>2</sup>.

PERIOD OF RECORD.--August 1905 to October 1911, July 1940 to current year.

REVISED RECORDS.--WSP 1044: Drainage area. WSP 1094: 1945-46. WSP 1248: 1905-11.

GAGE.--Water-stage recorder. Datum of gage is 171.92 ft above NGVD of 1929. Aug. 18, 1905, to Oct. 31, 1911, nonrecording gage at present site at different datum, Aug. 20 to Oct. 15, 1940, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records poor. Some diurnal fluctuation during periods of low flow caused by millpond upstream from station. A few small diversions for irrigation upstream from station. Continuous water-quality records for the period October 1963 to September 1987 have been collected at this location.

AVERAGE DISCHARGE.--68 years (water years 1906-11, 1941-2002), 889 ft<sup>3</sup>/s, 50.33 in/yr, 644,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 32,900 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 34.52 ft; minimum discharge, 0.65 ft<sup>3</sup>/s Aug. 13, 1966.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 6,600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 8	1530	6,780	26.66	Jan. 26	0800	*7,340	*27.10

Minimum discharge, 12 ft<sup>3</sup>/s Sept. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	338	4330	927	2130	719	662	395	198	159	41	25
2	22	258	5240	1160	1860	669	624	377	185	135	40	28
3	19	223	4150	1090	1730	627	588	364	175	120	39	23
4	19	177	3020	1110	1660	591	558	350	166	111	41	16
5	19	151	3600	1050	1510	567	534	338	161	107	44	16
6	19	142	3750	1790	1450	915	534	353	155	98	45	19
7	22	123	4040	4060	1780	1080	510	334	148	93	42	29
8	24	110	3140	6250	3230	874	483	313	143	92	40	29
9	24	102	2230	5090	2990	801	479	298	147	85	38	31
10	26	97	1770	3090	2290	851	695	287	141	81	37	24
11	39	94	1590	2140	1830	1590	790	276	132	75	35	19
12	68	92	1510	1830	1540	3800	785	267	125	70	35	17
13	49	104	2210	1680	1340	3520	764	256	115	68	30	19
14	42	1150	5210	1430	1170	2910	1570	250	105	70	27	15
15	41	1060	5150	1260	1050	2220	1550	243	101	68	24	20
16	40	667	3990	1120	960	1900	1190	233	105	65	26	25
17	36	488	4820	1030	883	1710	1080	232	108	62	30	28
18	34	387	4200	936	823	1460	974	226	157	62	31	40
19	34	359	3130	1000	871	2530	870	221	161	61	31	41
20	34	465	2490	1690	890	3240	793	229	131	64	27	33
21	33	582	2010	3350	910	2370	727	243	117	64	32	30
22	35	1650	1680	3520	1010	1830	671	222	109	61	32	26
23	163	3610	1430	3090	1330	1530	619	211	106	54	28	26
24	159	2380	1240	2510	1260	1400	575	201	105	54	27	19
25	99	1720	1090	4050	1060	1210	538	191	98	51	28	14
26	81	1320	978	6960	935	1070	506	182	90	51	30	15
27	72	1050	892	5200	846	968	495	178	84	50	28	16
28	69	1540	962	3500	780	884	466	193	88	49	26	16
29	70	4150	870	2450	---	819	438	260	179	48	25	20
30	81	3530	811	1950	---	757	414	267	224	44	21	25
31	264	---	892	1750	---	706	---	220	---	42	18	---
TOTAL	1765	28119	82425	78063	40118	46118	21482	8210	4059	2314	998	704
MEAN	56.9	937	2659	2518	1433	1488	716	265	135	74.6	32.2	23.5
MAX	264	4150	5240	6960	3230	3800	1570	395	224	159	45	41
MIN	19	92	811	927	780	567	414	178	84	42	18	14
AC-FT	3500	55770	163500	154800	79570	91480	42610	16280	8050	4590	1980	1400
CFSM	0.24	3.91	11.1	10.5	5.97	6.20	2.98	1.10	0.56	0.31	0.13	0.10
IN.	0.27	4.36	12.78	12.10	6.22	7.15	3.33	1.27	0.63	0.36	0.15	0.11

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1906 - 2002, BY WATER YEAR (WY)

	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	179	1078	2106	2241	2052	1422	846	422	204	81.1	42.8	52.7																																																																																					
MAX	1241	4574	5112	4727	4769	3002	1847	1026	512	184	85.0	190																																																																																					
(WY)	1948	1910	1965	1956	1949	1961	1955	1963	1984	1906	1906	1959																																																																																					
MIN	20.2	49.4	106	151	253	391	312	190	74.3	30.0	9.45	17.0																																																																																					
(WY)	1953	1994	1977	1977	1977	1941	1977	1966	1992	1967	1967	1967																																																																																					

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1906 - 2002
ANNUAL TOTAL	187137	314375	
ANNUAL MEAN	513	861	889
HIGHEST ANNUAL MEAN			1464
LOWEST ANNUAL MEAN			230
HIGHEST DAILY MEAN	5240	Dec 2	6960
LOWEST DAILY MEAN	19	Sep 14	14
ANNUAL SEVEN-DAY MINIMUM	20	Sep 19	18
ANNUAL RUNOFF (AC-FT)	371200	623600	644000
ANNUAL RUNOFF (CFSM)	2.14	3.59	3.70
ANNUAL RUNOFF (INCHES)	29.01	48.73	50.33
10 PERCENT EXCEEDS	1010	2500	2360
50 PERCENT EXCEEDS	301	264	352
90 PERCENT EXCEEDS	29	27	36

## 14191000 WILLAMETTE RIVER AT SALEM, OR

LOCATION.--Lat 44°56'40", long 123°02'30", in SE 1/4 SW 1/4 sec. 22, T.7 S., R.3 W., Marion County, Hydrologic Unit 17090007, on right bank 300 ft upstream from Center Street Bridge in Salem and at mile 84.16.

DRAINAGE AREA.--7,280 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1909 to December 1916, January 1923 to current year. Monthly discharge only January 1923 to September 1927, published in WSP 1318. Gage-height records collected at about the same site since 1892 are contained in reports of National Weather Service.

REVISED RECORDS.--WSP 1318: 1915 (M).

GAGE.--Water-stage recorder. Datum of gage is 106.14 ft above NGVD of 1929. Oct. 1, 1909, to Dec. 31, 1916, nonrecording gage at site 0.5 mi upstream at datum 8.00 ft higher. Jan. 1, 1923, to Nov. 26, 1934, nonrecording gage at Center Street Bridge at datum 8.00 ft higher. Nov. 27, 1934, to Sept. 30, 1962, water-stage recorder at present site at datum 8.00 ft higher.

REMARKS.--Records good. Flow regulated by 12 reservoirs upstream from station (see elsewhere in this report). Many small diversions for irrigation upstream from station; part of flow of Salem Canal, which diverts water from North Santiam River, returns to Willamette River downstream from station, through Mill Creek at Salem. Periodic suspended sediment data are available for the period October 1991 to September 1993.

AVERAGE DISCHARGE.--36 years (water years 1910-16, 1924-1952), 22,590 ft<sup>3</sup>/s, 42.14 in/yr, 16,370,000 acre-ft/yr.  
50 years (water years 1953-2002) 24,000 ft<sup>3</sup>/s, 44.80 in/yr, 17,390,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 348,000 ft<sup>3</sup>/s Jan. 8, 1923, gage height, 38.3 ft, present datum; minimum discharge, 2,470 ft<sup>3</sup>/s Aug. 27, 1940, gage height, 3.55 ft, present datum.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum discharge, 500,000 ft<sup>3</sup>/s Dec. 4, 1861, gage height, about 47 ft present datum, from rating curve extended above 250,000 ft<sup>3</sup>/s in 1916. Floods of Jan. 16, 1881, and Feb. 5, 1890, reached stages of 44.3 ft, discharge, 428,000 ft<sup>3</sup>/s, and 45.1 ft, discharge, 448,000 ft<sup>3</sup>/s, respectively, from floodmarks and information by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 87,100 ft<sup>3</sup>/s Jan. 27, gage height, 20.83 ft; minimum discharge, 6,410 ft<sup>3</sup>/s July 12.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	6780	13200	64300	27000	36200	17000	20800	15500	16100	8700	6580	6580
2	6730	12700	75000	31300	36200	15900	20600	15300	14800	8100	6580	6610
3	6670	11100	76500	33000	32200	14600	20500	15700	14400	7550	6550	6590
4	6540	9640	68100	33800	29500	13700	20500	15800	13700	7300	6610	6560
5	6530	9000	66700	30900	26400	13200	21000	15800	13400	7080	6690	6830
6	6520	8660	68400	32900	24400	15700	21500	15500	13200	6880	6700	7020
7	6540	8400	73900	46700	27300	29700	21200	15500	12800	6800	6630	7080
8	6580	8010	75000	57900	47400	29300	21100	16600	12800	6780	6600	7050
9	6620	7740	65600	62600	52300	24900	21200	16100	13100	6680	6540	7110
10	6670	7350	55400	57100	43400	22500	25300	15000	12500	6630	6540	7110
11	6860	7320	45300	49900	35400	24500	34900	15400	12600	6580	6640	7070
12	7620	7270	39400	45100	30400	43300	36500	15300	12900	6440	6680	7050
13	7310	7620	40300	43400	26700	55200	36900	15200	12600	6610	6650	7150
14	7000	10700	65600	41300	23900	54300	45400	15500	11100	6660	6530	7150
15	6810	13400	82100	38600	21500	47100	61800	15800	10200	6660	6470	7180
16	6750	e13200	82900	34700	19800	42000	64100	15800	9990	6620	6440	7290
17	6640	13800	85500	32400	19100	39600	61600	15300	9720	6750	6450	7480
18	6590	15200	85800	30800	18100	35600	57000	15100	10100	6660	6460	7770
19	6600	14900	82300	29800	17700	33700	49400	15400	11200	6740	6460	8040
20	6630	14400	79100	33700	18500	34200	40800	15700	10800	6800	6470	7820
21	6810	16500	75900	53300	19800	e29800	31900	15800	10000	6780	6630	7460
22	6950	21500	70200	72500	21200	27800	26900	15900	9210	6790	6780	7260
23	8640	43600	64200	71200	27300	26100	23200	16000	8910	6710	6800	7310
24	11200	45300	55300	58700	32900	28400	20700	15600	8690	6660	6710	7340
25	10200	36800	45200	62000	28400	30400	19000	15200	8390	6610	6680	7340
26	9220	34700	38000	81500	23500	28400	17700	15000	8280	6600	6710	7440
27	8750	32700	32600	86100	20300	25800	17400	15100	8140	6610	6690	7570
28	8150	31400	30000	76200	18300	23300	17200	16000	8260	6630	6640	7620
29	7890	47700	30200	58600	---	21300	16200	16600	8600	6650	6600	7710
30	8240	61600	28000	45700	---	19900	15500	18400	9230	6590	6540	7920
31	9990	---	25700	38100	---	20200	---	17600	---	6600	6530	---
TOTAL	231030	585410	1872500	1496800	778100	887400	907800	488500	335720	212250	204580	217510
MEAN	7453	19510	60400	48280	27790	28630	30260	15760	11190	6847	6599	7250
MAX	11200	61600	85800	86100	52300	55200	64100	18400	16100	8700	6800	8040
MIN	6520	7270	25700	27000	17700	13200	15500	15000	8140	6440	6440	6560
AC-FT	458200	1161000	3714000	2969000	1543000	1760000	1801000	968900	665900	421000	405800	431400
CFSM	1.02	2.68	8.30	6.63	3.82	3.93	4.16	2.16	1.54	0.94	0.91	1.00
IN.	1.18	2.99	9.57	7.65	3.98	4.53	4.64	2.50	1.72	1.08	1.05	1.11

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2002, BY WATER YEAR (WY)

	13060	29100	47910	48430	38160	30300	24530	20060	13650	7457	6927	9105
MEAN	13060	29100	47910	48430	38160	30300	24530	20060	13650	7457	6927	9105
MAX	24390	70400	116700	95930	91350	73670	46440	38610	30910	12410	9540	13340
(WY)	1969	1974	1965	1965	1961	1972	1993	1963	1984	1983	1971	1978
MIN	4422	3993	6780	6377	5313	11180	10260	7701	5657	5415	5342	5958
(WY)	1953	1953	1977	1977	1977	2001	1977	1973	1992	1966	1966	1953

## SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1953 - 2002

	5481000	8217600					
ANNUAL TOTAL	5481000	8217600					
ANNUAL MEAN	15020	22510					
HIGHEST ANNUAL MEAN						37960	1974
LOWEST ANNUAL MEAN						9792	1977
HIGHEST DAILY MEAN		85800	Dec 18		86100	Jan 27	304000
LOWEST DAILY MEAN		5110	Jul 28		6440	Jul 12	3500
ANNUAL SEVEN-DAY MINIMUM		5180	Jul 23		6470	Aug 14	3560
ANNUAL RUNOFF (AC-FT)	10870000				16300000		17390000
ANNUAL RUNOFF (CFSM)		2.06			3.09		3.30
ANNUAL RUNOFF (INCHES)		28.01			41.99		44.80
10 PERCENT EXCEEDS		30100			55300		55400
50 PERCENT EXCEEDS		9840			15300		15100
90 PERCENT EXCEEDS		5560			6620		6580

e Estimated

## WILLAMETTE RIVER BASIN

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14192015 WILLAMETTE RIVER AT KEIZER, OR

## WATER-QUALITY RECORDS

LOCATION.--Lat. 44°58'26", long 123°02'10", Marion County, Hydrologic Unit 17090007, downstream of Mill Creek, and approximately at mile 82.2.

DRAINAGE AREA.--Approximately 7,390 mi<sup>2</sup>.

PERIOD OF DAILY RECORD.--October 2000 to current year.

INSTRUMENTATION.--Temperature probe and data logger.

REMARKS.--Records fair except for the periods Feb. 4 to Mar. 1 and July 1-8, which are poor. Additional temperature data is available in the files of the Portland Field Office for the Willamette River at Salem site, approximately 2 miles upstream.

EXTREMES FOR PERIOD OF RECORD.--Maximum, 24.5°C Aug. 12, 2001, but may have been higher during period of missing record; minimum, 5.4°C Jan. 18, 2001, Jan. 27, 28, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum, 23.8°C July 11; minimum, 5.4°C Jan. 27, 28.

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.4	16.1	16.8	11.9	11.2	11.6	8.7	8.2	8.4	7.5	---	7.1
2	17.7	16.5	17.1	12.1	11.3	11.7	8.6	8.1	8.4	7.6	7.1	7.3
3	17.5	16.6	17.0	12.5	11.8	12.2	8.6	8.1	8.4	7.9	7.2	7.5
4	17.1	16.2	16.7	13.0	12.0	12.5	8.4	7.7	8.1	7.6	6.9	7.3
5	16.7	15.7	16.2	12.8	12.0	12.5	8.1	7.4	7.7	7.3	6.8	7.0
6	16.4	15.8	16.0	12.1	11.2	11.7	8.4	7.6	8.0	8.4	7.1	7.6
7	15.9	15.0	15.4	11.2	10.3	10.8	8.6	8.0	8.3	9.5	8.2	8.9
8	15.4	14.5	14.9	10.3	9.2	9.8	8.5	7.8	8.1	9.6	9.0	9.4
9	15.0	13.8	14.4	9.3	8.6	9.0	8.0	7.5	7.9	9.4	8.6	9.0
10	14.3	13.2	13.7	9.0	8.2	8.8	8.0	7.3	7.7	8.8	8.0	8.4
11	13.9	13.0	13.4	9.7	8.8	9.3	7.8	7.3	7.5	8.2	7.7	8.0
12	14.0	13.2	13.5	10.6	9.7	10.1	7.8	7.3	7.5	8.0	7.5	7.8
13	14.8	13.6	14.1	11.1	10.4	10.7	8.6	7.4	8.0	8.0	7.1	7.5
14	15.2	14.2	14.7	12.1	10.9	11.6	8.5	7.6	8.1	7.4	6.8	7.1
15	15.2	14.5	14.8	12.2	11.6	11.9	7.8	7.1	7.5	7.0	6.3	6.6
16	14.9	14.0	14.5	12.0	11.3	11.7	8.3	7.2	7.7	6.6	5.8	6.2
17	14.2	13.1	13.7	11.5	10.5	11.0	8.4	7.9	8.2	6.4	5.8	6.0
18	13.6	12.6	13.1	10.5	9.9	10.2	8.2	7.4	7.8	6.7	6.0	6.3
19	13.5	12.4	13.0	10.4	9.8	10.0	7.7	7.1	7.4	7.0	6.4	6.6
20	13.4	12.6	13.0	10.5	9.8	10.2	7.7	7.2	7.4	6.9	6.2	6.6
21	13.0	12.2	12.6	10.4	9.9	10.2	7.8	7.2	7.6	6.7	6.2	6.4
22	12.8	12.1	12.5	10.6	10.1	10.3	7.6	6.8	7.2	6.4	5.6	6.0
23	12.8	12.0	12.4	10.2	9.4	9.8	7.2	6.6	6.9	6.1	5.6	5.9
24	12.4	11.8	12.1	9.8	9.2	9.5	7.0	6.2	6.6	6.6	5.9	6.2
25	12.6	11.5	12.1	9.5	8.9	9.2	6.5	5.9	6.2	7.1	6.4	6.7
26	13.1	11.9	12.5	9.1	8.6	8.9	6.3	5.8	6.1	6.9	6.2	6.6
27	12.9	12.1	12.6	8.8	8.2	8.6	6.3	5.9	6.1	6.6	5.4	6.0
28	12.3	11.3	11.7	8.5	7.9	8.3	6.7	6.1	6.3	6.0	5.4	5.7
29	11.5	10.6	11.0	8.8	8.3	8.5	6.9	6.4	6.6	6.2	5.5	5.8
30	11.2	10.7	10.9	8.6	8.1	8.4	6.9	6.3	6.5	6.1	5.6	5.8
31	11.9	11.0	11.4	---	---	---	7.2	6.4	6.9	6.4	5.6	6.1
MONTH	17.7	10.6	13.8	13.0	7.9	10.3	8.7	5.8	7.5	9.6	---	6.9

## WILLAMETTE RIVER BASIN

14192015 WILLAMETTE RIVER AT KEIZER, OR--Contineud

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	6.8	6.1	6.4	7.8	6.9	7.4	10.9	9.8	10.2	12.8	11.7	12.2
2	6.9	6.4	6.6	7.7	6.8	7.3	11.0	9.9	10.4	12.4	11.1	11.7
3	7.4	6.7	7.0	7.8	6.9	7.3	11.2	10.0	10.6	11.6	10.5	11.0
4	7.8	6.1	7.1	8.1	7.1	7.6	11.5	10.3	10.9	12.4	10.8	11.5
5	7.5	5.5	6.5	8.3	7.8	8.0	11.3	10.2	10.9	12.2	11.5	11.9
6	7.7	5.7	6.6	8.4	7.5	8.0	10.4	9.6	10.1	11.9	11.0	11.4
7	7.7	5.9	6.9	7.7	6.9	7.3	10.4	9.3	9.6	11.1	10.3	10.7
8	7.5	5.8	6.5	7.3	6.6	7.0	10.3	8.8	9.6	11.6	10.1	10.9
9	7.7	6.2	6.8	6.9	6.3	6.5	11.0	10.1	10.5	11.8	11.0	11.4
10	7.6	6.1	6.8	7.4	6.3	6.8	10.5	9.8	10.1	11.9	10.6	11.2
11	8.1	6.4	7.1	8.5	7.3	7.8	10.0	9.4	9.7	12.9	11.1	11.9
12	7.7	5.9	6.9	8.5	7.7	8.1	10.0	9.4	9.7	14.0	12.1	13.0
13	7.5	5.8	6.6	8.0	7.3	7.6	10.3	9.5	9.9	13.8	12.8	13.5
14	7.9	5.8	6.8	7.6	7.0	7.2	10.1	9.1	9.7	13.2	12.0	12.6
15	7.8	6.3	6.9	7.4	6.8	7.1	9.3	8.4	8.7	13.3	11.8	12.7
16	8.1	6.5	7.4	7.3	6.7	7.0	8.6	7.8	8.0	13.8	12.5	13.0
17	8.4	7.1	7.7	7.0	6.4	6.7	8.0	7.5	7.9	14.0	12.5	13.3
18	9.2	7.3	8.0	6.7	6.0	6.4	8.4	7.7	8.0	14.1	13.2	13.6
19	9.2	7.8	8.6	7.2	6.1	6.5	9.1	8.0	8.5	13.8	12.3	13.0
20	9.5	8.0	8.8	8.1	7.0	7.5	9.7	8.5	9.1	12.6	11.8	12.2
21	9.9	8.4	9.2	8.6	7.8	8.0	10.0	9.3	9.5	12.6	11.7	12.1
22	10.7	9.2	9.7	8.4	7.8	8.1	10.7	9.2	10.0	12.6	11.9	12.1
23	10.8	9.2	9.9	9.1	7.8	8.3	11.4	10.1	10.7	13.2	11.5	12.2
24	10.0	7.9	9.2	9.3	8.4	8.9	11.7	10.4	11.1	13.9	12.3	13.1
25	8.8	7.0	8.0	9.1	8.3	8.6	12.1	10.7	11.4	14.6	13.3	14.0
26	8.2	6.6	7.5	9.0	8.4	8.7	11.9	11.2	11.5	15.3	13.9	14.6
27	8.4	6.8	7.4	9.3	8.5	8.9	11.6	10.6	11.1	15.4	14.5	15.0
28	7.9	6.5	7.5	9.7	9.0	9.3	12.2	10.6	11.4	14.9	13.6	14.3
29	---	---	---	9.7	8.7	9.3	13.0	11.3	12.0	14.1	13.0	13.5
30	---	---	---	10.5	9.2	9.7	13.0	12.2	12.6	14.2	12.7	13.5
31	---	---	---	10.5	9.5	10	---	---	---	14.9	13.6	14.3
MONTH	10.8	5.5	7.5	10.5	6.0	7.8	13.0	7.5	10.1	15.4	10.1	12.6
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.5	14.2	14.8	20.1	17.2	18.1	21.8	20.2	21.0	20.6	19.3	20.0
2	15.8	14.3	15.0	20.9	17.3	18.7	20.8	19.7	20.3	20.9	19.7	20.3
3	15.9	14.9	15.2	20.6	18.0	19.1	20.8	19.3	19.9	20.6	19.7	20.2
4	16.2	14.7	15.3	20.5	17.5	19.0	19.8	19.1	19.4	19.9	18.8	19.5
5	16.9	15.3	16.1	20.5	17.3	19.1	19.5	18.4	19.0	19.2	18.1	18.7
6	16.5	15.6	16.0	22.1	18.1	20.0	19.4	18.0	18.7	18.3	17.1	17.7
7	15.7	14.8	15.3	21.3	19.7	20.5	19.9	18.3	19.0	17.5	16.6	17.1
8	14.9	13.8	14.4	20.9	19.0	20.1	20.5	18.6	19.4	17.3	16.3	16.9
9	14.8	13.2	13.9	21.7	19.4	20.4	21.0	19.2	20.1	17.9	16.4	17.1
10	16.0	13.5	14.6	23.0	20.5	21.7	21.8	20.3	20.9	18.4	16.9	17.7
11	16.9	14.7	15.8	23.8	21.8	22.7	21.8	20.2	21.1	19.3	17.7	18.4
12	18.1	15.7	16.9	23.7	22.2	23.0	22.2	20.8	21.4	19.9	18.2	19.0
13	19.0	16.7	17.8	23.4	22.1	22.7	22.6	21.1	21.8	19.8	18.6	19.2
14	19.5	17.3	18.3	22.7	21.3	21.9	23.2	21.7	22.4	19.5	18.7	19.1
15	18.6	17.2	17.7	22.1	20.5	21.3	23.1	21.6	22.3	18.9	17.7	18.2
16	17.3	16.2	16.6	22.6	20.6	21.5	22.2	21.2	21.8	17.7	16.7	17.1
17	16.3	15.4	15.8	22.8	21.0	21.8	22.0	20.9	21.4	17.0	16.1	16.5
18	15.4	14.4	15.0	22.4	21.1	21.7	21.3	20.0	20.7	17.0	15.7	16.3
19	16.1	14.5	15.3	21.6	20.8	21.2	20.9	19.7	20.2	17.5	15.8	16.7
20	18.0	15.4	16.5	21.8	20.0	20.9	20.3	19.4	19.9	17.6	16.3	17.0
21	19.1	16.5	17.7	22.3	20.5	21.4	19.6	18.4	19.0	17.2	16.2	16.8
22	18.6	17.4	18.0	23.4	21.4	22.3	19.7	18.2	18.8	17.0	15.8	16.5
23	18.3	16.6	17.5	23.7	22.2	22.8	20.3	18.5	19.5	17.2	15.7	16.5
24	19.2	16.8	17.9	23.5	21.8	22.7	21.1	19.4	20.1	17.5	16.4	16.9
25	20.6	17.9	19.1	22.8	21.5	22.1	20.5	19.8	20.1	17.6	16.6	17.1
26	21.8	19.0	20.3	22.4	21.2	21.8	20.5	19.3	20.0	17.2	16.3	16.9
27	21.3	19.7	20.4	21.9	20.5	21.3	20.8	19.3	20.0	17.0	16.1	16.6
28	19.7	17.6	18.6	22.2	20.4	21.3	21.6	20.0	20.7	16.9	15.8	16.5
29	18.0	16.9	17.4	22.8	20.9	21.8	21.8	20.3	21.1	16.8	15.9	16.3
30	18.0	16.6	17.3	22.7	21.8	22.2	21.1	19.9	20.5	16.1	15.0	15.5
31	---	---	---	22.1	20.9	21.5	20.7	19.5	20.1	---	---	---
MONTH	21.8	13.2	16.7	23.8	17.2	21.2	23.2	18.0	20.3	20.9	15.0	17.6

14194150 SOUTH YAMHILL RIVER AT MCMINNVILLE, OR

LOCATION.--Lat 45°12'21", long 123°10'53", in SE 1/4 sec. 21, T.4 S., R.4 W., Yamhill County, Hydrologic Unit 17090008, on left bank 0.3 mi downstream from Cozine Creek, at Highway 18 McMinnville Spur bridge, in McMinnville, and at mile 5.6.

DRAINAGE AREA.--528 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1994 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for the periods Oct. 3-10, Nov. 28 to Feb. 26, which are poor. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--8 years (water years 1995-2002), 2,004 ft<sup>3</sup>/s, 51.58 in/yr, 1,452,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,100 ft<sup>3</sup>/s Feb. 9, 1996, gage height, 59.33; minimum discharge, 12 ft<sup>3</sup>/s Oct. 12, 1994, but may have been lower during period of missing record Oct. 5-12, 1994.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 3	0315	13,200	43.81	Jan. 9	0315	*17,100	*48.08

Minimum discharge, 14 ft<sup>3</sup>/s Sept. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	42	377	e9000	1630	3410	1410	1190	681	305	271	31	18
2	39	305	11800	2430	3170	1290	1110	643	286	218	31	16
3	39	237	12600	2630	2950	1190	1040	611	271	189	29	18
4	35	192	9950	2740	3000	1110	975	584	260	167	33	17
5	35	160	8530	2410	2740	1040	931	553	252	150	37	18
6	35	152	8370	2990	2630	1340	923	562	244	138	34	15
7	35	140	8090	7510	3320	2170	895	585	237	129	37	17
8	35	121	6980	13600	5820	1840	831	525	234	116	41	20
9	35	108	5130	15700	6590	1650	801	485	238	106	39	21
10	49	100	3920	10800	5430	1830	1050	457	240	97	35	24
11	46	94	3750	6450	4150	3710	1670	435	219	84	34	25
12	47	93	3650	4070	3340	6790	1510	416	205	63	29	20
13	71	109	3910	3750	2810	7880	1410	402	195	54	24	19
14	54	1480	7140	3140	2410	6840	2110	390	187	58	23	19
15	51	4050	9630	2710	2120	5260	2870	389	181	64	20	19
16	52	2240	9220	2370	1900	4160	2520	376	188	59	18	18
17	54	1520	9990	2150	1750	3750	2360	370	190	53	18	31
18	42	1110	10900	1940	1610	3260	2130	357	199	49	22	29
19	37	921	9550	1950	1730	4550	1870	347	244	47	36	60
20	35	1490	7440	2900	2260	6820	1650	348	223	47	36	62
21	34	2260	5550	6150	2000	5760	1470	361	196	50	33	45
22	41	3520	4260	7540	2240	4190	1330	343	180	45	28	34
23	50	6260	3410	7230	2400	3230	1210	336	176	37	30	33
24	242	6130	2770	5870	2750	2720	1100	320	173	31	33	26
25	160	4160	2330	7320	2370	2370	1010	305	165	32	35	24
26	114	3110	2000	11400	1990	2090	935	297	159	34	35	26
27	98	2550	1800	12000	1740	1850	892	289	150	55	33	26
28	85	e2600	1800	9310	1560	1670	854	294	160	59	31	22
29	82	e7500	1840	6050	---	1520	769	341	193	54	27	25
30	97	e9000	1670	4080	---	1390	422	422	421	38	27	30
31	119	---	1600	3260	---	1280	---	346	---	34	22	---
TOTAL	1990	62089	188580	174080	80190	95960	40138	13170	6571	2628	941	777
MEAN	64.2	2070	6083	5615	2864	3095	1338	425	219	84.8	30.4	25.9
MAX	242	9000	12600	15700	6590	7880	2870	681	421	271	41	62
MIN	34	93	1600	1630	1560	1040	722	289	150	31	18	15
AC-FT	3950	123200	374000	345300	159100	190300	79610	26120	13030	5210	1870	1540
CFSM	0.12	3.92	11.5	10.6	5.42	5.86	2.53	0.80	0.41	0.16	0.06	0.05
IN.	0.14	4.37	13.29	12.26	5.65	6.76	2.83	0.93	0.46	0.19	0.07	0.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1995 - 2002, BY WATER YEAR (WY)

	1995	1996	1997	1998	1999	2000	2001	2002				
MEAN	391	2686	5607	4966	4693	2812	1588	843	364	110	44.6	77.7
MAX	1491	3683	9904	6162	9541	4229	3832	1669	530	163	68.5	281
(WY)	1998	1997	1997	1999	1996	1997	1996	1996	1997	1997	2001	1997
MIN	64.2	222	1250	784	1082	854	660	425	219	74.0	26.4	25.9
(WY)	2002	2001	2001	2001	2001	2001	2001	2002	2002	1995	1996	2002

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1995 - 2002

ANNUAL TOTAL	391955	667114										
ANNUAL MEAN	1074	1828							2004			
HIGHEST ANNUAL MEAN									2796			1996
LOWEST ANNUAL MEAN									515			2001
HIGHEST DAILY MEAN				12600	Dec 3		15700	Jan 9	40300	Feb 9	1996	
LOWEST DAILY MEAN				23	Sep 14		15	Sep 6	12	Oct 8	1994	
ANNUAL SEVEN-DAY MINIMUM				28	Sep 19		17	Sep 1	16	Oct 5	1994	
ANNUAL RUNOFF (AC-FT)	777400						1323000		1452000			
ANNUAL RUNOFF (CFSM)		2.03					3.46		3.80			
ANNUAL RUNOFF (INCHES)		27.62					47.00		51.58			
10 PERCENT EXCEEDS		2250					6080		5770			
50 PERCENT EXCEEDS		535					402		722			
90 PERCENT EXCEEDS		39					30		39			

e Estimated

## WILLAMETTE RIVER BASIN

14195500 HASKINS CREEK RESERVOIR NEAR MCMINNVILLE, OR

LOCATION.--Lat 45°18'43", long 123°21'23", in SW 1/4 NW 1/4 sec.18, T.3 S., R.5 W., Yamhill County, Hydrologic Unit 17090008, on control tower 250 ft upstream from dam on Haskins Creek, 11 mi northwest of McMinnville, and at mile 5.1.

DRAINAGE AREA.--6.88 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1738: Drainage area. WDR OR-79-1: 1978 (maximum contents).

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929 (levels by city of McMinnville). Prior to February 1981, at datum 20.0 ft lower.

REMARKS.--Reservoir is formed by earthfill dam equipped with five siphon spillways which act as overflow weirs until priming occurs, approximately 815.0 ft elevation. Capacity of reservoir (based on May 1992 resurvey, new capacity table put into use Oct. 1, 1991), 721 acre-ft between elevations 741.5 ft, invert of outlet tunnel, and 815.0 ft, crest of siphon spillways. Dead storage negligible. Rated capacity of three siphons is 700 ft<sup>3</sup>/s each and remaining two siphons 350 ft<sup>3</sup>/s each. Water is used for municipal supply of City of McMinnville.

COOPERATION.--Elevation and capacity table furnished by City of McMinnville Water and Light Department. Elevations based on once-daily staff gage readings.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed contents, 748 acre-ft Nov. 17, 1954, elevation, 815.65 ft, present datum; no contents at times during winter months.

EXTREMES FOR CURRENT YEAR.--Maximum observed contents, 729 acre-ft Apr. 10, 14, 17, 18, elevation, 815.3 ft; no contents, Jan. 1-7, 9-24, Jan. 27 to Feb. 8.

## MONTHEND ELEVATIONS AND CONTENTS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	801.4	446	
Oct. 31.....	814.7	711	+265
Nov. 30.....	801.4	446	-265
Dec. 31.....	763.0	36	-410
CAL YR 2001.....	-	-	+36
Jan. 31.....	748.0	0	-36
Feb. 28.....	804.3	497	+497
Mar. 31.....	815.2	727	+230
Apr. 30.....	815.0	721	-6
May 31.....	814.8	714	-7
June 30.....	806.1	530	-184
July 31.....	806.9	545	+15
Aug. 31.....	805.9	526	-19
Sept. 30.....	808.7	580	+54
WTR YR 2002.....	-	-	+134

14196001 HASKINS CREEK BELOW RESERVOIR, NEAR MCMINNVILLE, OR

LOCATION.--Lat 45°18'39", long 123°21'06", in SE 1/4 NW 1/4 sec.18, T.3 S., R.5 W., Yamhill County, Hydrologic Unit 17090008, on right bank 800 ft downstream from Haskins Creek Reservoir, 11 mi northwest of McMinnville, and at mile 5.0.

DRAINAGE AREA.--6.90 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1951 to current year.

REVISED RECORDS.--WSP 1738: Drainage area. Maximum discharge for water year 1957, published in WSP 1518, has been found to be unreliable and should not be used.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 707 ft above NGVD of 1929, topographic survey of 1955. Prior to Aug. 5, 1952, water-stage recorder at site 600 ft upstream at different datum.

REMARKS.--No estimated daily discharges. Records fair except for the periods Oct. 1-11, Aug. 1-3, which are poor. All records given herein include flow in pipeline which diverts 600 ft upstream from station for municipal supply of McMinnville. Flow regulated by Haskins Creek Reservoir (station 14195500). Water from McGuire Lake (station 14302800) on the Nestucca River is diverted through a tunnel to Haskins Creek Reservoir to augment summer flows.

COOPERATION.--Meter readings for diversion and elevations of Haskins Creek Reservoir furnished by city of McMinnville.

AVERAGE DISCHARGE.--51 years (water years 1952-2002), 31.1 ft<sup>3</sup>/s, 61.21 in/yr, 22,530 acre-ft/yr, adjusted for storage and diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,050 ft<sup>3</sup>/s Feb. 8, 1996, gage height, 6.01 ft, from floodmark, from rating curve extended above 140 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; maximum daily discharge, 615 ft<sup>3</sup>/s Feb. 8, 1996; minimum daily, 0.10 ft<sup>3</sup>/s Oct. 27, 28, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 305 ft<sup>3</sup>/s Jan. 8; minimum daily, 4.2 ft<sup>3</sup>/s Oct. 11, 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	7.1	23	235	40	56	29	27	21	8.8	8.7	14	12
2	7.1	12	230	40	50	27	25	20	8.7	9.9	13	11
3	7.3	11	165	39	51	25	24	19	9.5	11	12	11
4	7.3	8.1	137	36	48	25	22	19	10	12	12	13
5	7.2	6.5	132	40	46	25	22	20	10	11	11	12
6	7.2	5.8	136	102	50	30	21	21	10	11	11	11
7	7.3	5.0	157	250	68	28	19	18	9.6	12	11	9.8
8	7.1	5.0	146	308	71	26	19	16	8.4	10	13	9.8
9	7.1	5.2	111	166	40	26	22	16	8.3	11	14	10
10	5.6	5.1	98	140	39	32	31	15	9.2	14	15	12
11	4.2	4.4	108	110	38	41	31	14	11	16	15	12
12	4.2	4.5	108	101	36	97	27	14	12	16	15	12
13	4.4	5.6	148	89	35	109	29	14	13	13	16	11
14	4.8	99	230	91	34	80	39	13	12	12	16	11
15	5.0	77	223	74	33	55	36	13	12	13	15	9.8
16	4.8	35	208	69	32	42	43	12	11	13	13	8.3
17	5.3	34	230	65	32	36	44	12	9.8	13	13	8.7
18	6.2	25	230	61	32	36	43	11	8.5	13	13	8.7
19	6.9	37	196	66	32	43	42	12	8.4	13	13	8.8
20	6.4	60	157	133	32	47	40	12	9.7	12	10	8.6
21	5.0	67	125	157	35	49	37	12	11	14	10	8.3
22	5.0	140	109	131	41	52	36	12	12	14	11	9.0
23	5.1	151	90	112	41	51	35	11	11	14	10	11
24	5.1	124	76	133	37	45	33	11	11	14	14	11
25	5.1	98	66	297	32	34	31	10	12	14	14	11
26	5.0	79	63	221	30	29	29	10	13	13	12	10
27	5.0	74	62	141	32	17	28	11	13	13	12	10
28	5.0	100	62	103	32	25	25	12	8.8	13	14	9.8
29	5.3	131	59	82	---	31	24	12	7.1	14	13	8.8
30	5.3	167	53	66	---	30	22	10	8.3	14	11	7.4
31	20	---	51	64	---	29	---	8.7	---	15	12	---
TOTAL	193.4	1599.2	4201	3527	1135	1251	906	431.7	307.1	396.6	398	306.8
MEAN	6.24	53.3	136	114	40.5	40.4	30.2	13.9	10.2	12.8	12.8	10.2
MAX	20	167	235	308	71	109	44	21	13	16	16	13
MIN	4.2	4.4	51	36	30	17	19	8.7	7.1	8.7	10	7.4
AC-FT	384	3170	8330	7000	2250	2480	1800	856	609	787	789	609
MEAN†	1.97	48.3	129	113	49.5	44.1	30.1	13.8	6.47	5.40	2.47	1.14
CFSM†	0.28	7.00	18.7	16.4	7.17	6.39	4.37	2.00	0.94	0.78	0.36	0.17
IN.†	0.33	7.81	21.53	18.93	7.47	7.37	4.88	2.31	1.05	0.90	0.41	0.18
AC-FT†	121	2875	7920	6964	2747	2710	1794	849	385	332	152	68

CAL YR 2001 TOTAL 9350.4 MEAN 25.6 MAX 235 MIN 4.2 AC-FT 18550 MEAN† 23.3 CFSM† 3.38 IN.† 45.87 AC-FT† 16880  
WTR YR 2002 TOTAL 14652.8 MEAN 40.1 MAX 308 MIN 4.2 AC-FT 29060 MEAN† 37.2 CFSM† 5.39 IN.† 73.15 AC-FT† 26910

† Adjusted for change in contents in Haskins Creek Reservoir and diversion from McGuire Lake.

## WILLAMETTE RIVER BASIN

14197900 WILLAMETTE RIVER AT NEWBERG, OR

LOCATION.--45°17'01", long 122°57'38", in sec.68, T.3 S., R.2 W., Yamhill County, Hydrologic Unit 17090007, on left bank at Newberg, and at mile 50.

DRAINAGE AREA.--Unknown.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 2001 to September 2002.

GAGE.--Water-stage. Datum of gage is NGVD of 1929.

REMARKS.--Records fair.

EXTREMES FOR CURRENT YEAR.--Maximum recorded discharge, 99,600 ft<sup>3</sup>/s Jan. 28, gage height, 74.78 ft; minimum discharge, 6,440 ft<sup>3</sup>/s July 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e6900	13600	73000	28900	42400	21000	22800	17200	17400	10400	6990	7160
2	e6800	14800	83100	33100	41700	19500	22800	16900	16000	9630	7010	7190
3	e6700	13300	88300	36300	38800	18100	22500	16800	15000	8960	6920	7220
4	e6600	11400	85000	37300	35800	16600	22400	17000	14400	e8450	6920	7160
5	e6600	10300	78900	35800	33100	15900	22500	17000	13800	e8200	7050	7200
6	e6600	9830	78100	35500	30400	17500	23000	16800	13700	e7870	7140	7440
7	e6600	9560	80500	53100	31300	29100	22900	16700	13400	e7670	7150	7360
8	e6650	9090	82200	73000	48600	33900	22700	17100	13100	e7490	7060	7390
9	e6700	8650	76900	81000	61500	30300	22600	e17300	13300	e7280	7040	7480
10	e6800	8330	66400	75700	56300	26900	24900	16400	13200	e7100	6970	7530
11	e7000	8160	56100	63700	45400	29100	e31500	15900	12900	e6900	6990	7550
12	e7700	8200	48200	53700	38600	46500	36700	16200	13200	6930	7120	7540
13	e7400	9150	45600	e50000	33800	62400	36300	15900	13100	6720	7210	7480
14	e7100	11200	64900	e47500	30200	65400	41600	16100	12200	6880	7090	7350
15	e6900	e18800	83600	e43500	27400	58300	56800	16500	11100	6950	6940	7370
16	e6800	17600	91400	39100	24900	50100	62800	16500	10600	6870	6900	7550
17	e6700	16900	96100	35900	23400	45500	62300	16300	10500	6870	6770	8030
18	e6700	17400	97500	33800	22300	41900	58900	15900	10500	6880	6770	8310
19	e6700	17700	95600	32200	21700	40000	52900	16000	11500	6800	6830	8750
20	6620	17400	89500	34300	22500	44300	44900	16200	11800	6940	7060	8860
21	6740	19800	84400	49000	23600	41700	36000	16500	11100	7010	7230	8490
22	7070	25300	77800	70900	25200	36400	e30700	16500	10200	7040	7470	8000
23	7800	42300	71200	79500	29400	32700	26300	16600	9690	6930	7490	7960
24	10600	54200	63300	72000	36800	31500	23700	16300	9440	6760	7350	7930
25	11300	46300	53400	69800	35600	33400	21700	15800	9200	6630	7310	7880
26	10000	40600	44200	87000	30100	32200	20100	15500	8960	6610	7400	e7900
27	9330	37800	38000	e97500	25900	29700	e19300	15300	8880	7010	7600	e8100
28	8910	35900	33800	95300	23000	27200	19300	16100	8860	7150	7580	8130
29	8510	49400	33600	79000	---	25000	18500	16900	9500	e7200	7460	8210
30	8770	66600	31800	59500	---	23300	17500	18600	10200	e7160	7210	8460
31	10300	---	29500	47600	---	22300	---	18800	---	7000	7140	---
TOTAL	235900	669570	2121900	1730500	939700	1047700	946900	513600	356730	228290	221170	232980
MEAN	7610	22320	68450	55820	33560	33800	31560	16570	11890	7364	7135	7766
MAX	11300	66600	97500	97500	61500	65400	62800	18800	17400	10400	7600	8860
MIN	6600	8160	29500	28900	21700	15900	17500	15300	8860	6610	6770	7160
AC-FT	467900	1328000	4209000	3432000	1864000	2078000	1878000	1019000	707600	452800	438700	462100

WTR YR 2002 TOTAL 9244940 MEAN 25330 MAX 97500 MIN 6600 AC-FT 18340000

e Estimated





## WILLAMETTE RIVER BASIN

14197900 WILLAMETTE RIVER AT NEWBERG, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.6	5.1	5.4	6.8	6.0	6.4	10.3	9.4	9.8	12.8	12.0	12.4
2	5.7	5.3	5.5	6.7	6.0	6.4	10.5	9.6	10.0	12.7	11.7	12.0
3	6.0	5.6	5.8	6.8	5.9	6.4	10.8	9.9	10.3	11.7	10.6	11.1
4	6.2	5.8	6.0	7.1	6.3	6.7	11.3	10.1	10.6	11.7	10.5	11.0
5	6.0	5.5	5.7	7.2	7.0	7.1	11.2	10.4	10.7	11.7	11.2	11.5
6	5.6	5.3	5.5	7.2	7.0	7.1	10.6	9.7	10.1	11.6	11.0	11.3
7	5.9	5.6	5.7	7.0	6.3	6.6	9.8	9.5	9.7	11.3	10.4	10.8
8	5.8	5.5	5.7	6.3	5.8	6.1	9.8	8.7	9.2	11.2	9.8	10.4
9	5.8	5.3	5.6	6.0	5.5	5.6	10.4	9.5	9.8	11.2	10.3	---
10	5.9	5.5	5.7	6.0	5.3	5.6	10.4	9.8	10.1	11.5	10.5	10.9
11	6.1	5.7	5.9	6.9	6.0	6.4	10.2	---	---	12.3	10.7	11.4
12	6.0	5.7	5.8	7.5	6.9	7.2	9.7	9.0	9.4	13.5	11.8	12.5
13	5.8	5.3	5.6	7.1	6.7	6.8	9.9	9.4	9.6	13.5	12.8	13.1
14	5.8	5.3	5.6	6.7	6.3	6.5	9.9	9.2	9.5	13.1	12.6	12.9
15	6.2	5.5	5.8	6.4	6.2	6.3	9.5	8.1	8.7	13.4	11.9	12.6
16	6.5	5.9	6.1	6.3	6.0	6.1	8.2	7.2	7.6	13.6	12.3	13.0
17	6.8	6.2	6.4	6.1	5.8	5.9	7.6	7.1	7.3	14.0	12.9	13.4
18	7.3	6.6	6.9	5.9	5.4	5.6	7.7	7.1	7.4	14.1	13.2	13.7
19	7.8	7.2	7.5	5.8	5.3	5.5	8.2	7.3	7.7	14.1	13.0	13.5
20	8.3	7.5	7.9	6.9	5.8	6.3	9.1	7.9	8.4	13.0	12.4	12.7
21	8.6	8.1	8.3	7.4	6.7	7.0	9.4	8.6	8.9	12.6	11.7	12.2
22	9.0	8.3	8.6	7.6	7.0	7.3	---	8.8	---	12.6	11.8	12.3
23	9.3	8.9	9.0	7.9	7.3	7.5	10.8	9.4	9.9	13.1	11.8	12.4
24	9.1	8.3	8.7	8.6	7.7	8.1	11.3	10.0	10.6	14.0	12.2	12.9
25	8.3	7.2	7.6	8.7	8.1	8.4	11.6	10.5	11.0	14.6	13.5	13.9
26	7.2	6.4	6.7	8.4	7.8	8.2	11.6	10.8	11.0	15.6	14.2	14.8
27	6.6	6.0	6.4	8.7	7.8	8.2	---	10.5	---	15.7	15.0	15.3
28	6.8	6.2	6.5	9.0	8.3	8.6	---	10.4	---	15.5	14.7	15.0
29	---	---	---	9.2	8.6	8.9	12.3	10.9	11.6	14.7	14.0	14.2
30	---	---	---	9.7	8.6	9.1	12.7	11.7	12.2	14.5	13.3	13.9
31	---	---	---	10.0	9.2	9.6	---	---	---	15.1	13.5	14.2
MONTH	9.3	5.1	6.5	10.0	5.3	7.0	---	---	---	15.7	9.8	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.6	14.3	14.9	18.9	17.6	18.1	22.1	21.6	21.9	21.4	21.0	21.2
2	15.8	14.4	15.1	19.3	18.4	18.8	21.8	20.9	21.4	21.3	21.0	21.2
3	16.1	14.9	15.4	19.5	19.2	19.3	21.0	20.4	20.7	21.4	20.9	21.2
4	16.1	15.1	15.6	19.6	19.2	19.4	20.6	19.7	20.3	21.1	20.3	20.8
5	16.8	15.7	16.1	19.8	18.9	19.3	19.7	19.4	19.6	20.5	19.6	20.1
6	16.8	15.9	16.3	20.6	19.8	20.1	19.7	19.3	19.5	19.8	18.9	19.4
7	16.4	15.3	15.7	20.9	20.3	20.6	---	19.1	---	19.0	18.0	18.5
8	15.8	14.7	15.0	20.8	20.1	20.4	19.9	---	---	18.0	17.4	17.7
9	14.8	13.9	14.4	21.2	20.6	20.8	20.7	19.9	20.4	17.9	17.5	17.6
10	15.4	14.0	14.6	22.2	21.2	21.7	21.4	20.7	21.2	18.4	17.8	18.1
11	16.7	15.2	15.7	23.0	22.2	22.7	21.6	21.4	21.6	19.1	18.4	18.8
12	17.8	16.3	16.9	23.8	23.0	23.5	22.1	21.6	21.9	19.7	19.1	19.4
13	18.7	17.5	18.0	24.0	23.5	23.8	22.5	22.1	22.4	20.1	19.7	20.0
14	18.9	18.2	18.6	23.6	22.6	23.1	23.2	22.5	22.9	20.4	19.9	20.1
15	19.0	18.2	18.5	22.6	22.2	22.4	23.2	22.7	23.0	20.2	19.2	19.7
16	18.3	17.0	17.5	22.6	22.2	22.3	22.8	22.2	22.6	19.4	18.2	18.8
17	17.0	15.7	16.2	22.5	22.0	22.3	22.6	22.2	22.4	18.2	17.4	17.7
18	15.7	15.2	15.4	22.5	22.1	22.3	22.3	21.4	21.9	17.4	16.8	17.1
19	16.1	14.6	15.2	22.5	21.7	22.2	21.4	20.8	21.2	17.7	17.0	17.2
20	17.2	15.6	16.1	21.8	21.4	21.6	21.0	20.2	20.8	17.8	17.3	17.6
21	18.5	17.1	17.6	22.1	21.8	21.9	20.3	19.4	19.9	17.8	17.1	17.4
22	18.6	18.0	18.3	22.8	22.0	22.5	19.5	19.1	19.3	17.5	17.0	17.2
23	18.4	17.8	18.1	23.2	22.8	23.0	20.1	19.4	19.8	17.5	17.1	17.3
24	18.9	17.8	18.2	23.6	23.1	23.3	20.6	20.0	20.4	17.7	17.3	17.5
25	20.0	18.6	19.0	23.4	22.6	23.1	21.0	20.4	20.8	18.0	17.7	17.8
26	21.2	19.8	20.2	23.0	22.5	22.8	20.6	20.3	20.5	18.1	17.6	17.8
27	21.4	20.5	20.9	22.6	21.9	22.2	20.6	20.3	20.4	17.9	17.4	17.7
28	20.6	18.9	19.9	22.2	21.8	22.0	21.3	20.6	21.1	17.8	17.1	17.4
29	18.9	18.1	18.5	22.5	21.9	22.3	22.1	21.3	21.7	17.5	16.8	17.2
30	18.6	17.8	18.1	22.7	---	---	21.9	21.1	21.6	16.9	16.2	16.5
31	---	---	---	---	21.7	---	21.4	21.1	21.3	---	---	---
MONTH	21.4	13.9	17.0	---	---	---	---	---	---	21.4	16.2	18.5

14198400 BULL CREEK NEAR WILHOIT, OR

LOCATION.--Lat 44°57'42", long 122°22'59", in NW 1/4 SE 1/4 sec.13, T.7 S., R.3 E., Clackamas County, Hydrologic Unit 17090009, on left bank 0.5 mi upstream from mouth, 11 mi southeast of Wilhoit and at mile 0.43.

DRAINAGE AREA.--0.66 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1993 to current year.

REVISED RECORDS.--WDR OR-97-1. Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,680 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records poor. No regulation or diversion.

AVERAGE DISCHARGE.--9 years (water years 1994-2002), 2.11 ft<sup>3</sup>/s, 43.36 in/yr, 1,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 250 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 7.55 ft, from rating curve extended above 70 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 0.02 ft<sup>3</sup>/s Sept. 25-28, 1994, Sept. 21-24, 1995, Sept. 28-30, 1996, Oct. 1-4, 7-12, 1996, Sept. 15-17, 1998, Oct. 4, 21-23, 1999, Oct. 4-6, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 18 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0830	28	5.56	Dec. 17	0630	51	6.23
Dec. 1	2300	32	5.68	Jan. 25	1400	53	6.27
Dec. 6	2045	34	5.77	Feb. 8	0000	33	5.72
Dec. 13	2330	*61	*6.42	Mar. 12	0130	42	5.98

Minimum discharge, 0.02 ft<sup>3</sup>/s Oct. 4-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.03	0.80	23	2.0	2.0	1.5	1.5	1.2	0.35	0.36	0.09	0.06
2	0.03	0.57	18	2.6	2.1	1.4	1.4	1.1	0.34	0.31	0.10	0.06
3	0.03	0.42	7.7	2.6	2.5	1.3	1.4	1.0	0.32	0.28	0.10	0.06
4	0.03	0.38	4.4	2.3	2.8	1.3	1.3	0.96	0.30	0.25	0.10	0.06
5	0.02	0.41	3.1	2.1	3.1	1.2	1.3	0.92	0.29	0.24	0.11	0.06
6	0.03	0.35	16	2.5	5.3	3.2	1.2	0.88	0.27	0.22	0.10	0.06
7	0.03	0.32	21	4.1	21	4.4	1.1	0.82	0.27	0.24	0.10	0.06
8	0.06	0.29	8.5	10	23	3.0	1.1	0.77	0.32	0.23	0.09	0.06
9	0.05	0.27	5.7	6.6	11	2.5	1.2	0.73	0.34	0.21	0.08	0.06
10	0.11	0.25	4.0	3.6	5.1	2.6	1.4	0.73	0.29	0.20	0.08	0.06
11	0.18	0.23	3.7	2.7	4.5	10	1.4	0.66	0.27	0.18	0.08	0.05
12	0.08	0.30	3.7	2.6	3.8	27	1.4	0.62	0.24	0.17	0.08	0.05
13	0.10	0.53	15	2.7	3.0	8.6	1.6	0.60	0.22	0.16	0.08	0.05
14	0.08	0.88	40	2.7	2.5	4.3	6.9	0.59	0.22	0.17	0.07	0.04
15	0.07	0.74	10	2.4	2.2	3.2	5.1	0.52	0.21	0.16	0.07	0.05
16	0.07	0.91	27	2.1	2.3	2.7	3.4	0.48	0.22	0.15	0.07	0.06
17	0.07	1.3	37	1.9	2.6	2.2	3.0	0.49	0.29	0.15	0.07	0.12
18	0.06	0.98	12	1.9	2.6	1.9	3.0	0.45	0.38	0.15	0.07	0.08
19	0.06	1.0	6.8	2.2	3.1	2.3	2.9	0.45	0.27	0.15	0.08	0.07
20	0.06	1.2	4.7	4.6	3.5	3.0	2.8	0.43	0.24	0.14	0.11	0.06
21	0.08	1.4	3.7	10	3.6	4.4	2.5	0.41	0.22	0.15	0.10	0.06
22	0.33	6.3	3.1	5.3	4.2	3.8	2.1	0.43	0.21	0.13	0.09	0.06
23	0.40	8.8	2.7	3.2	4.3	3.4	1.8	0.39	0.22	0.13	0.08	0.05
24	0.25	4.2	2.3	4.0	3.4	3.9	1.6	0.36	0.21	0.12	0.07	0.05
25	0.18	2.7	2.0	37	2.7	3.5	1.5	0.33	0.20	0.11	0.07	0.05
26	0.15	1.9	1.9	22	2.2	2.8	1.4	0.34	0.19	0.12	0.08	0.05
27	0.19	1.6	1.8	7.8	1.9	2.4	1.5	0.35	0.18	0.11	0.07	0.05
28	0.20	8.3	2.0	3.7	1.7	2.1	1.4	0.41	0.24	0.10	0.06	0.05
29	0.18	22	1.9	2.6	---	1.9	1.4	0.55	0.83	0.10	0.06	0.08
30	0.67	9.9	1.8	2.2	---	1.7	1.3	0.45	0.44	0.10	0.06	0.12
31	0.94	---	1.8	2.1	---	1.6	---	0.39	---	0.10	0.06	---
TOTAL	4.82	79.23	296.3	164.1	132.0	119.1	60.9	18.81	8.59	5.39	2.53	1.85
MEAN	0.16	2.64	9.56	5.29	4.71	3.84	2.03	0.61	0.29	0.17	0.082	0.062
MAX	0.94	22	40	37	23	27	6.9	1.2	0.83	0.36	0.11	0.12
MIN	0.02	0.23	1.8	1.9	1.7	1.2	1.1	0.33	0.18	0.10	0.06	0.04
AC-FT	9.6	157	588	325	262	236	121	37	17	11	5.0	3.7
CFSM	0.24	4.00	14.5	8.02	7.14	5.82	3.08	0.92	0.43	0.26	0.12	0.09
IN.	0.27	4.47	16.70	9.25	7.44	6.71	3.43	1.06	0.48	0.30	0.14	0.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2002, BY WATER YEAR (WY)

	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	0.51	2.97	5.50	4.39	4.84	2.88	1.86	1.54	0.55
MAX	1.73	5.85	12.0	6.28	10.8	6.49	3.11	3.63	0.96
(WY)	1998	1997	1997	1998	1996	1997	1998	1998	1998
MIN	0.087	0.13	0.91	0.48	0.53	0.87	0.78	0.32	0.29
(WY)	1994	1994	1994	2001	2001	2001	2000	1994	2002

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1994 - 2002

ANNUAL TOTAL	529.81	893.62										
ANNUAL MEAN	1.45	2.45										
HIGHEST ANNUAL MEAN									2.11			
LOWEST ANNUAL MEAN									3.10			1996
HIGHEST DAILY MEAN									0.53			2001
LOWEST DAILY MEAN	40	Dec 14				40	Dec 14		100	Feb 7		1996
ANNUAL SEVEN-DAY MINIMUM	0.02	Oct 5				0.02	Oct 5		0.02	Sep 26		1994
ANNUAL RUNOFF (AC-FT)	0.03	Oct 1				0.03	Oct 1		0.02	Sep 27		1996
ANNUAL RUNOFF (CFSM)	1050					1770			1530			
ANNUAL RUNOFF (INCHES)	2.20					3.71			3.19			
10 PERCENT EXCEEDS	29.86					50.37			43.36			
50 PERCENT EXCEEDS	2.1					4.9			4.8			
90 PERCENT EXCEEDS	0.43					0.66			0.64			
	0.05					0.06			0.06			



14200400 LITTLE ABIQUA CREEK NEAR SCOTTS MILLS, OR

LOCATION.--Lat 44°57'21", long 122°37'38", in SW 1/4 SE 1/4 sec.13, T.7 S., R.1 E, Marion County, Hydrologic Unit 17090009, on left bank, 4 mi south of Scotts Mills, and 0.1 mi upstream from mouth.

DRAINAGE AREA.--9.81 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1993 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 800 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--9 years (water years 1994-2002), 37.4 ft<sup>3</sup>/s, 51.82 in/yr, 27,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,500 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 6.19 ft from rating curve extended above 340 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; maximum gage height, 6.57 ft Feb. 7, 1996; minimum discharge, 1.3 ft<sup>3</sup>/s Sept. 26, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 250 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 06	1230	266	3.80	Jan. 25	1000	*417	*4.35
Dec. 13	1830	260	3.89				

Minimum discharge, 1.3 ft<sup>3</sup>/s Sept. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.5	21	208	32	72	48	31	22	11	11	3.5	2.3
2	2.5	16	211	33	66	44	28	21	11	10	3.4	2.3
3	2.4	12	211	27	69	38	25	20	10	9.4	3.4	2.5
4	2.5	10	196	24	64	33	24	18	9.6	8.9	3.5	2.5
5	2.5	13	191	23	62	32	23	19	9.8	8.3	3.8	2.3
6	2.5	10	233	36	71	86	22	19	9.2	7.9	3.6	2.2
7	2.6	9.0	224	40	158	72	22	18	8.7	7.8	3.4	2.2
8	3.0	8.3	190	71	196	58	20	16	8.8	7.6	3.3	2.2
9	2.9	7.7	164	59	173	53	26	16	8.8	6.9	3.1	2.0
10	4.2	7.3	142	51	140	55	31	15	8.1	6.4	3.1	2.0
11	7.6	6.9	125	45	119	97	29	14	7.7	6.0	3.1	2.0
12	3.6	9.4	110	45	102	144	26	13	7.4	5.8	3.0	1.8
13	3.9	16	174	39	91	132	35	14	7.0	5.6	2.8	1.7
14	3.7	23	209	35	77	141	103	14	6.8	5.5	2.7	1.7
15	3.6	20	175	33	71	127	84	12	6.8	5.3	2.6	1.8
16	3.4	31	200	30	70	111	84	11	6.9	5.2	2.6	2.0
17	4.1	46	195	29	68	94	84	12	9.0	5.0	2.6	5.1
18	3.3	31	164	28	63	82	74	11	17	4.9	2.6	2.9
19	3.1	32	133	43	76	113	66	12	10	5.0	2.7	2.0
20	3.0	34	113	78	69	107	59	13	8.4	4.9	2.9	1.9
21	3.1	35	90	140	77	101	52	12	7.5	4.6	3.1	1.7
22	12	121	77	108	73	90	46	12	7.2	4.4	3.0	1.6
23	20	124	62	89	121	81	41	11	7.0	4.2	2.7	1.5
24	8.3	90	52	113	99	77	37	10	6.6	4.1	2.6	1.5
25	5.5	79	44	293	79	68	33	10	6.1	4.0	2.6	1.5
26	4.7	73	38	265	70	61	32	9.9	5.8	4.1	2.8	1.4
27	5.5	63	39	184	68	56	43	9.9	5.8	4.0	2.6	1.4
28	7.0	103	43	130	59	49	30	12	7.8	3.9	2.5	1.4
29	5.7	184	35	96	---	44	27	22	35	3.7	2.4	2.0
30	20	181	31	77	---	39	24	15	14	3.7	2.4	3.0
31	33	---	30	72	---	34	---	13	---	3.6	2.4	---
TOTAL	191.7	1416.6	4109	2368	2523	2367	1261	446.8	284.8	181.7	90.8	62.4
MEAN	6.18	47.2	133	76.4	90.1	76.4	42.0	14.4	9.49	5.86	2.93	2.08
MAX	33	184	233	293	196	144	103	22	35	11	3.8	5.1
MIN	2.4	6.9	30	23	59	32	20	9.9	5.8	3.6	2.4	1.4
AC-FT	380	2810	8150	4700	5000	4690	2500	886	565	360	180	124
CFSM	0.63	4.81	13.5	7.79	9.19	7.78	4.28	1.47	0.97	0.60	0.30	0.21
IN.	0.73	5.37	15.58	8.98	9.57	8.98	4.78	1.69	1.08	0.69	0.34	0.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2002, BY WATER YEAR (WY)

	1994	1995	1996	1997	1998	1999	2000	2001	2002			
MEAN	14.7	50.5	82.2	73.1	76.9	57.3	39.3	29.8	14.2	6.10	3.50	3.73
MAX	43.0	89.1	141	94.3	143	95.7	51.3	46.1	19.5	7.34	4.61	7.18
(WY)	1998	1996	1997	1998	1996	1997	1996	1998	1998	1999	1999	1997
MIN	3.06	5.09	27.4	23.1	21.6	29.3	20.1	12.7	9.49	4.99	2.57	2.08
(WY)	1994	1994	1994	2001	2001	2001	2000	1994	2002	2001	1994	2002

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1994 - 2002

ANNUAL TOTAL	10758.9	15302.8										
ANNUAL MEAN	29.5	41.9										
HIGHEST ANNUAL MEAN									37.4			
LOWEST ANNUAL MEAN									50.5		1996	
HIGHEST DAILY MEAN	233	Dec 6				293	Jan 25		850	Feb 7	1996	
LOWEST DAILY MEAN	2.3	Sep 21				1.4	Sep 26		1.4	Sep 26	2002	
ANNUAL SEVEN-DAY MINIMUM	2.3	Sep 18				1.5	Sep 22		1.5	Sep 22	2002	
ANNUAL RUNOFF (AC-FT)	21340					30350			27100			
ANNUAL RUNOFF (CFSM)	3.00					4.27			3.81			
ANNUAL RUNOFF (INCHES)	40.80					58.03			51.82			
10 PERCENT EXCEEDS	61					120			96			
50 PERCENT EXCEEDS	16					16			20			
90 PERCENT EXCEEDS	2.8					2.5			3.0			

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1993 to Sept. 1997, January to September 2002.  
 WATER TEMPERATURE: July 1993 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--

SPECIFIC CONDUCTANCE: Records poor.  
 WATER TEMPERATURE: Records fair.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 63 microsiemens Sept. 29, 30, 1993; minimum recorded, 8 microsiemens Feb. 5-7, 1996.  
 WATER TEMPERATURE: Maximum, 19.0°C July 23, 1994, minimum, 0.0°C Nov. 24-26, 1993.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 60 microsiemens Sept. 14, 23-25, but may have been greater during periods of missing record; minimum, 18 microsiemens Mar. 19, but may have been less during periods of missing record.  
 WATER TEMPERATURE: Maximum, 17.5°C July 23, 24; minimum, 3.1°C Mar. 2.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	36	33	36
9	---	---	---	---	---	---	---	---	---	38	32	35
10	---	---	---	---	---	---	---	---	---	36	32	33
11	---	---	---	---	---	---	---	---	---	34	29	32
12	---	---	---	---	---	---	---	---	---	33	27	29
13	---	---	---	---	---	---	---	---	---	33	25	30
14	---	---	---	---	---	---	---	---	---	33	31	32
15	---	---	---	---	---	---	---	---	---	34	32	33
16	---	---	---	---	---	---	---	---	---	38	32	34
17	---	---	---	---	---	---	---	---	---	36	33	34
18	---	---	---	---	---	---	---	---	---	33	29	32
19	---	---	---	---	---	---	---	---	---	33	28	30
20	---	---	---	---	---	---	---	---	---	34	25	29
21	---	---	---	---	---	---	---	---	---	36	30	32
22	---	---	---	---	---	---	---	---	---	37	31	34
23	---	---	---	---	---	---	---	---	---	33	29	33
24	---	---	---	---	---	---	---	---	---	35	32	33
25	---	---	---	---	---	---	---	---	---	37	26	31
26	---	---	---	---	---	---	---	---	---	37	30	34
27	---	---	---	---	---	---	---	---	---	47	32	41
28	---	---	---	---	---	---	---	---	---	44	36	39
29	---	---	---	---	---	---	---	---	---	40	36	39
30	---	---	---	---	---	---	---	---	---	42	37	40
31	---	---	---	---	---	---	---	---	---	46	33	42
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	44	33	38	32	28	29	29	27	28	32	30	31
2	37	31	33	30	29	30	31	28	29	34	31	31
3	35	27	32	33	29	31	32	28	29	33	31	32
4	36	27	32	34	29	31	30	28	29	33	31	32
5	36	31	33	33	29	32	32	28	30	35	31	32
6	34	28	32	32	25	28	31	29	30	34	31	32
7	30	28	29	32	28	30	31	28	30	34	31	32
8	35	27	30	32	28	30	31	29	30	34	31	32
9	31	28	30	32	27	30	32	28	30	34	32	34
10	34	29	31	30	25	28	31	26	28	34	31	33
11	37	29	31	30	21	26	30	27	28	34	30	33
12	36	29	33	28	23	25	32	27	29	---	---	32
13	35	31	32	29	23	26	32	25	30	---	---	---
14	---	---	---	26	21	23	29	22	25	---	---	---
15	---	---	---	24	20	22	29	22	25	---	---	---
16	30	29	29	24	19	22	29	23	25	---	---	---
17	31	29	30	29	22	26	27	22	24	---	---	---
18	30	29	30	29	21	25	28	20	25	---	---	---
19	29	26	28	25	18	22	28	23	25	---	---	---
20	29	27	28	---	---	---	28	23	26	---	---	---
21	29	26	27	---	---	---	27	24	25	---	---	---
22	28	25	26	---	---	---	30	24	25	---	---	---
23	25	19	23	---	---	---	34	25	31	---	---	---
24	23	20	22	---	---	---	36	27	32	---	---	---
25	29	22	25	---	---	---	34	30	30	---	---	---
26	26	22	23	---	---	---	31	29	30	---	---	---
27	29	21	25	27	26	26	30	27	28	---	---	---
28	29	25	28	28	26	27	31	29	30	---	---	---
29	---	---	---	28	27	27	32	30	30	---	---	---
30	---	---	---	28	27	27	31	30	31	---	---	---
31	---	---	---	29	27	28	---	---	---	---	---	---
MONTH	---	---	---	---	---	---	36	20	28	---	---	---

## 14200400 LITTLE ABIQUA CREEK NEAR SCOTTS MILLS, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	---	---	---	---	---	---	50	46	48	55	54	54
2	---	---	---	---	---	---	49	46	47	55	54	55
3	---	---	---	---	---	---	49	46	47	56	55	55
4	---	---	---	---	---	---	49	45	47	55	50	53
5	---	---	---	---	---	---	46	46	46	55	52	53
6	---	---	---	---	---	---	48	46	46	54	52	54
7	---	---	---	---	---	---	48	46	47	55	54	54
8	---	---	---	---	---	---	48	44	47	58	52	54
9	---	---	---	---	---	---	52	48	49	54	52	53
10	---	---	---	---	---	---	52	48	49	56	54	55
11	---	---	---	---	---	---	49	48	49	57	55	56
12	---	---	---	---	---	---	50	49	50	58	55	56
13	---	---	---	---	---	---	51	50	50	58	56	57
14	---	---	---	---	---	---	51	50	50	60	57	58
15	---	---	---	---	---	---	51	50	50	58	55	56
16	---	---	---	---	---	---	51	50	51	57	55	56
17	---	---	---	---	---	---	52	51	51	58	50	52
18	---	---	---	---	---	---	51	50	51	54	51	52
19	---	---	---	44	43	44	51	50	51	55	52	54
20	---	---	---	45	44	44	51	49	50	56	55	55
21	---	---	---	46	44	45	51	50	50	56	55	56
22	---	---	---	46	45	46	51	50	50	58	56	57
23	---	---	---	46	44	46	51	50	50	60	56	57
24	---	---	---	48	46	46	51	50	51	60	57	58
25	---	---	---	48	46	46	52	51	51	60	57	58
26	---	---	---	48	46	47	52	51	51	57	55	56
27	---	---	---	48	46	46	52	51	52	56	54	55
28	---	---	---	48	46	47	54	52	53	56	55	55
29	---	---	---	48	46	48	54	54	54	57	52	55
30	---	---	---	49	46	48	54	54	54	54	50	51
31	---	---	---	48	42	46	58	54	55	---	---	---
MONTH	---	---	---	---	---	---	58	44	50	60	50	55

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	12.8	10.6	11.6	9.4	8.6	9.1	7.8	7.4	7.5	7.7	6.2	6.8
2	12.4	10.4	11.4	10.3	9.4	9.8	8.0	7.0	7.6	8.2	6.7	7.6
3	11.7	9.5	10.6	9.4	8.0	8.9	7.4	7.0	7.2	7.1	6.0	6.5
4	12.2	9.5	10.8	9.6	8.8	9.2	7.0	5.9	6.3	6.4	5.2	5.8
5	11.7	9.5	10.7	9.4	7.5	8.8	7.2	5.8	6.5	7.9	6.0	7.0
6	12.1	10.4	11.1	7.7	6.2	7.1	7.8	7.0	7.3	9.0	7.9	8.4
7	10.8	9.1	10.0	6.2	5.2	5.7	8.0	6.8	7.4	9.2	8.7	9.0
8	11.2	10.2	10.7	6.4	4.7	5.5	7.7	6.7	7.1	8.7	7.8	8.3
9	10.2	8.7	9.5	6.4	4.9	5.7	7.1	6.4	6.7	7.8	6.1	7.0
10	9.7	8.1	8.9	7.5	5.9	6.7	6.7	6.2	6.5	7.8	6.3	7.0
11	10.4	9.1	9.8	8.4	6.9	7.6	6.9	6.6	6.8	7.6	6.5	7.0
12	10.4	8.5	9.5	8.7	8.0	8.3	7.5	6.2	6.8	7.6	6.1	7.1
13	11.0	10.2	10.4	9.6	8.5	8.9	8.1	7.3	7.8	6.1	5.2	5.6
14	11.5	9.9	10.6	10.8	9.6	10.2	7.3	6.2	6.6	5.9	5.1	5.6
15	10.5	8.7	9.6	10.2	9.3	9.9	7.5	6.2	6.7	5.3	4.1	4.9
16	10.5	9.2	9.8	9.3	8.5	9.1	8.1	7.5	7.9	4.8	3.8	4.3
17	9.4	7.5	8.3	8.5	7.0	8.1	7.7	6.4	6.9	5.5	4.6	5.0
18	8.5	6.4	7.5	7.8	5.9	6.8	7.1	6.6	6.9	5.6	4.8	5.2
19	9.0	6.9	8.0	9.5	7.2	8.6	7.3	6.4	7.0	5.5	5.0	5.3
20	9.0	7.5	8.3	9.1	8.5	8.7	7.3	6.4	7.0	5.8	4.6	5.2
21	8.6	6.6	7.6	8.7	8.3	8.4	6.6	5.7	6.1	5.5	4.5	5.3
22	9.7	8.6	9.0	8.5	8.3	8.5	6.9	5.5	6.2	5.1	3.2	4.5
23	9.0	7.5	8.4	8.5	7.9	8.2	6.0	5.3	5.6	5.5	5.0	5.4
24	7.9	6.2	7.2	8.0	7.0	7.8	5.3	4.8	5.1	5.8	5.5	5.6
25	9.4	7.7	8.5	7.2	6.3	6.8	5.7	4.8	5.1	5.8	5.0	5.5
26	9.5	7.7	8.5	7.4	5.9	6.8	5.8	4.8	5.3	5.8	5.3	5.5
27	8.6	7.5	8.4	6.3	5.4	5.9	6.6	5.7	6.0	5.5	4.0	5.0
28	7.5	5.9	6.6	7.8	5.9	7.1	7.1	5.7	6.7	5.3	4.8	5.1
29	7.7	6.6	7.1	7.6	7.0	7.3	6.2	5.5	5.9	5.1	4.3	4.7
30	9.4	7.7	8.6	7.6	7.0	7.3	6.7	5.7	6.2	5.5	4.8	5.1
31	9.4	8.8	9.2	---	---	---	7.7	6.4	7.0	5.5	4.9	5.2
MONTH	12.8	5.9	9.2	10.8	4.7	7.9	8.1	4.8	6.6	9.2	3.2	6.0





14201300 ZOLLNER CREEK NEAR MOUNT ANGEL, OR

LOCATION.--Lat 45°06'02", long 122°49'14", in SW 1/4 SW 1/4 sec. 28, T.5 S., R.1 W., Marion County, Hydrologic Unit 17090009, on left bank downstream corner of Monitor-McKee Road bridge, 2.3 mi north-northwest of Mount Angel and at mile 0.4.

DRAINAGE AREA.--15.0 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1993 to current year.

REVISED RECORD.--WDR OR-96-1: 1994 (M).

GAGE.--Water-stage recorder and velocity meter. Elevation of gage is 120 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. Flows subject to backwater from the Pudding River. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--9 years (water years 1994-2002), 24.9 ft<sup>3</sup>/s, 22.59 in/yr, 18,070 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,890 ft<sup>3</sup>/s Nov. 19, 1996, gage height 16.93 ft; maximum gage height, 21.33 ft, Feb. 8, 1996, from floodmark (backwater from Pudding River); minimum discharge, 0.02 ft<sup>3</sup>/s Sept. 22, 1994.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 400 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 25	1500	*426	12.32	Jan. 27	1830	(a)	*15.21

Minimum discharge, 0.07 ft<sup>3</sup>/s Aug. 11-13, Sept. 12, 28.  
 (a) Backwater from Pudding River.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
 DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.45	9.1	e230	17	55	10	8.7	3.4	1.2	1.1	0.73	0.53
2	0.33	6.9	e230	39	42	9.4	10	4.2	2.3	1.1	0.37	0.50
3	0.25	4.3	e230	27	36	8.5	4.0	3.4	2.3	1.1	0.14	0.59
4	0.65	2.5	e220	20	e28	8.0	3.3	3.4	1.4	1.1	0.22	0.42
5	1.3	2.7	e220	16	e24	7.9	3.2	3.3	0.81	0.97	0.31	0.36
6	0.44	2.2	e240	85	e30	96	3.1	2.8	0.51	0.93	0.16	0.33
7	0.30	1.8	e220	125	e90	90	2.8	2.2	0.49	1.0	0.11	0.32
8	0.32	1.3	e190	173	e170	e40	2.5	2.4	0.61	1.2	0.09	0.38
9	0.31	1.1	e140	87	e26	e26	2.7	2.3	0.78	0.92	0.10	0.19
10	0.60	1.4	e100	52	e56	e20	4.5	2.7	0.85	1.0	0.09	0.13
11	0.69	1.0	e65	37	43	36	5.5	2.6	0.68	1.0	0.09	0.10
12	0.60	1.2	e30	e28	37	e170	5.0	2.0	0.87	0.88	0.08	0.08
13	0.58	2.6	42	e22	e25	e110	5.6	2.1	0.79	0.67	0.08	0.10
14	0.44	4.5	112	17	e20	69	e22	2.8	0.60	0.21	0.16	0.16
15	0.40	4.4	79	14	e15	46	e16	2.2	0.57	0.15	0.38	0.27
16	0.37	6.4	69	13	12	35	9.9	1.6	0.64	0.51	0.47	0.44
17	0.33	15	110	12	12	31	7.5	2.4	0.74	0.73	0.17	1.7
18	2.1	9.2	89	12	12	e25	8.0	3.4	1.4	0.41	0.13	0.77
19	1.7	8.5	73	13	13	e70	7.2	3.4	1.4	0.36	0.12	0.60
20	1.5	14	64	34	11	52	6.8	3.3	1.3	0.27	0.36	0.48
21	0.77	14	75	118	6.4	e34	6.3	3.4	1.0	0.38	0.59	0.46
22	0.72	55	54	157	6.2	e22	5.7	4.5	0.94	0.65	0.38	0.48
23	1.1	131	35	97	e95	e16	5.0	4.1	1.0	0.67	0.42	0.41
24	0.88	97	e26	55	48	14	4.3	3.3	0.59	0.74	0.44	0.35
25	1.00	49	e18	209	27	12	4.6	2.7	e18	0.46	0.47	0.35
26	0.73	25	10	134	e18	11	4.5	1.8	0.29	0.18	0.55	0.26
27	1.2	16	10	140	e14	11	5.2	2.1	0.22	0.77	0.41	0.13
28	1.9	e100	11	130	12	9.4	4.0	2.6	0.36	0.63	0.39	0.27
29	1.2	e210	12	77	---	8.6	3.5	3.6	2.2	0.58	0.28	0.99
30	2.5	e210	11	54	---	8.2	3.2	2.8	1.2	0.73	0.14	0.86
31	4.6	---	11	48	---	7.8	---	2.4	---	0.73	0.18	---
TOTAL	30.26	1007.1	3026	2062	1040.6	1113.8	184.6	89.2	28.50	22.07	8.61	13.01
MEAN	0.98	33.6	97.6	66.5	37.2	35.9	6.15	2.88	0.95	0.71	0.28	0.43
MAX	4.6	210	240	209	171	170	22	4.5	2.3	1.2	0.73	1.7
MIN	0.25	1.0	10	12	6.2	7.8	2.5	1.6	0.22	0.15	0.08	0.08
AC-FT	60	2000	6000	4090	2060	2210	366	177	57	44	17	26
CFSM	0.07	2.24	6.51	4.43	2.48	2.40	0.41	0.19	0.06	0.05	0.02	0.03
IN.	0.08	2.50	7.50	5.11	2.58	2.76	0.46	0.22	0.07	0.05	0.02	0.03

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2002, BY WATER YEAR (WY)

	1994	1995	1996	1997	1998	1999	2000	2001	2002			
MEAN	7.89	47.2	70.5	59.7	56.1	35.6	11.7	6.80	3.19	0.91	0.47	0.92
MAX	23.1	121	187	103	114	91.5	25.9	21.8	6.60	1.66	0.93	2.54
(WY)	1997	1997	1997	1996	1996	1997	1996	1996	1997	1997	1997	1997
MIN	0.93	1.89	10.9	7.47	9.28	10.4	5.80	2.05	0.95	0.24	0.14	0.19
(WY)	2000	1994	2001	2001	2001	2001	2000	1994	2002	1994	2001	2001

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1994 - 2002
ANNUAL TOTAL	5340.46	8625.75	
ANNUAL MEAN	14.6	23.6	24.9
HIGHEST ANNUAL MEAN			48.8
LOWEST ANNUAL MEAN			4.83
HIGHEST DAILY MEAN	240	240	1510
LOWEST DAILY MEAN	0.03	0.08	0.03
ANNUAL SEVEN-DAY MINIMUM	0.05	0.09	0.05
ANNUAL RUNOFF (AC-FT)	10590	17110	18070
ANNUAL RUNOFF (CFSM)	0.98	1.58	1.66
ANNUAL RUNOFF (INCHES)	13.24	21.39	22.59
10 PERCENT EXCEEDS	21	83	70
50 PERCENT EXCEEDS	3.4	2.8	5.7
90 PERCENT EXCEEDS	0.11	0.31	0.39

e Estimated

14201300 ZOLLNER CREEK NEAR MOUNT ANGEL, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 1993 to September 1997.  
 WATER TEMPERATURE: July 1993 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Water temperature records good.

## EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 611 microsiemens Oct. 6, 1995, but may have been greater during periods of missing record; minimum recorded, 77 microsiemens Feb. 6, 1996, but may have been lower during periods of missing record.  
 WATER TEMPERATURE: Maximum, 24.5°C July 21-23, 1994, July 26, 1996, July 28, 1998, but may have been higher during periods of missing record during the 1996 water year; minimum, 0.5°C Nov. 25, 26, 1993, Dec. 22, 23, 1998.

## EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 22.5°C July 13; minimum, 5.2°C Jan. 27.

DAY	TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.3	11.7	12.5	11.5	10.9	11.2	9.0	8.7	9.0	6.8	6.2	6.4
2	13.5	12.1	12.8	12.3	11.5	11.8	8.8	8.4	8.6	7.4	6.7	7.1
3	13.2	12.0	12.7	12.1	11.7	11.9	9.0	8.5	8.7	7.5	6.7	7.1
4	13.1	11.7	12.5	12.4	11.9	12.1	8.6	7.9	8.2	7.3	6.8	7.0
5	12.8	11.8	12.3	12.3	11.2	11.9	8.0	7.3	7.8	7.5	7.0	7.2
6	13.6	12.2	13.0	11.2	9.8	10.6	8.9	8.0	8.4	8.8	7.5	8.0
7	12.9	11.8	12.2	9.8	8.0	8.7	9.1	8.7	8.9	9.8	8.8	9.4
8	12.8	11.9	12.4	8.0	7.0	7.4	9.1	8.7	8.9	9.9	9.4	9.7
9	12.1	11.0	11.5	7.0	6.3	6.7	9.0	8.6	8.7	9.4	9.1	9.2
10	11.2	10.3	10.6	7.0	6.1	6.6	8.7	8.2	8.3	9.1	8.8	8.9
11	11.4	10.4	10.8	7.6	6.8	7.2	8.2	7.8	8.0	8.9	8.3	8.5
12	11.4	10.4	10.9	8.6	7.6	8.1	8.1	7.8	7.9	8.6	8.1	8.4
13	12.3	11.1	11.6	9.8	8.6	9.0	9.2	8.1	8.6	8.1	7.2	7.5
14	13.0	11.8	12.3	11.7	9.8	10.9	9.1	8.2	8.4	7.6	7.2	7.4
15	12.5	11.3	12.0	12.2	11.7	11.9	8.2	7.7	7.9	7.2	6.5	6.7
16	12.1	11.3	11.7	11.8	11.3	11.6	9.1	8.1	8.6	6.5	6.2	6.3
17	11.3	10.3	10.8	11.3	10.4	10.9	9.1	8.3	8.6	6.5	6.3	6.4
18	10.5	9.3	9.7	10.4	9.3	9.8	8.3	8.1	8.2	6.6	6.3	6.4
19	10.4	9.2	9.8	10.1	9.3	9.6	8.1	7.6	7.8	6.8	6.4	6.6
20	10.8	10.1	10.5	10.6	10.1	10.4	8.1	7.9	8.0	6.7	6.2	6.5
21	10.3	9.6	9.9	10.6	10.1	10.3	8.2	7.9	8.0	6.7	6.2	6.5
22	10.8	9.9	10.3	10.4	10.1	10.3	7.9	7.6	7.7	6.2	5.6	5.9
23	11.2	10.2	10.8	10.2	9.8	10.0	7.7	6.7	7.0	6.5	5.8	6.1
24	10.2	9.3	9.7	10.1	9.7	9.9	6.7	5.9	6.2	6.8	6.4	6.6
25	10.6	9.4	10.0	9.7	9.4	9.6	5.9	5.6	5.8	7.1	6.7	6.9
26	10.8	9.8	10.2	9.4	9.1	9.3	5.7	5.3	5.5	6.7	6.0	6.4
27	10.1	9.6	9.9	9.1	8.5	8.8	5.9	5.7	5.8	6.0	5.2	5.5
28	9.6	9.1	9.3	9.4	8.2	8.8	6.1	5.8	6.0	6.0	5.4	5.6
29	9.1	8.9	9.0	9.4	8.9	9.1	5.9	5.6	5.7	5.9	5.5	5.7
30	10.0	9.1	9.5	9.1	8.7	8.9	6.0	5.4	5.7	6.2	5.6	5.8
31	10.9	10.0	10.5	---	---	---	6.6	6.0	6.3	6.3	6.0	6.1
MONTH	13.6	8.9	11.0	12.4	6.1	9.8	9.2	5.3	7.7	9.9	5.2	7.0



WILLAMETTE RIVER BASIN

14201340 PUDDING RIVER NEAR WOODBURN, OR

LOCATION.--Lat 45°09'05", long 122°48'11", in NW 1/4 SW 1/4 sec. 10, T.5 S., R.1 W., Marion County, Hydrologic Unit 17090009, on left bank 1.0 mile east of Woodburn, and at mile 23.4.

DRAINAGE AREA.--314 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1997 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 130 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. Many diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--5 years (water years 1998-2002), 816 ft<sup>3</sup>/s, 35.30 in/yr, 590,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,500 ft<sup>3</sup>/s Dec. 29, 1998, gage height, 29.05 ft; minimum discharge, 7.0 ft<sup>3</sup>/s Sept. 27, 2002.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 8, 1996 reached a stage of 32.76 ft, from floodmark, discharge about 29,000 ft<sup>3</sup>/s, on basis of runoff comparison with nearby station.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 28	0200	*4,580	*26.37	No other peak greater than base discharge.			
Minimum discharge, 7.0 ft <sup>3</sup> /s Sept. 27.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	30	672	2640	957	2490	1050	817	526	340	328	26	10
2	27	597	3010	1170	2360	910	785	500	294	253	26	15
3	25	481	3220	1350	2190	805	745	485	268	210	26	15
4	24	351	3200	1280	2040	727	719	464	240	182	25	13
5	25	271	3100	1120	1860	674	709	433	220	167	29	12
6	24	264	3080	1210	1700	898	716	435	212	150	33	21
7	23	235	3140	1940	1820	2130	710	443	200	137	30	35
8	25	203	3090	2490	2720	2150	690	410	188	132	29	32
9	27	177	2900	2670	3020	1850	662	376	186	123	25	29
10	28	157	2640	2440	2830	1580	865	358	189	109	19	33
11	31	143	2370	2150	2550	1480	1150	335	173	98	24	27
12	44	135	2150	1880	2280	2470	1110	319	158	89	17	23
13	55	146	2020	1730	e2010	2950	1050	316	145	80	17	20
14	51	286	2840	1510	1760	2800	1610	334	132	74	14	19
15	49	580	3330	1280	1490	2590	2110	322	121	73	12	18
16	45	511	3280	1090	1260	2370	1710	291	118	67	10	19
17	43	638	3480	976	1130	2180	1450	290	124	64	10	35
18	44	708	3640	903	1040	1960	1330	296	144	55	11	40
19	47	626	3430	888	993	1880	1200	292	297	50	14	46
20	42	615	3080	1070	1100	2110	1070	302	243	51	18	38
21	41	640	2840	1780	1080	2070	975	306	189	52	17	32
22	41	791	2560	2490	1270	1910	886	311	163	55	16	42
23	48	1870	2260	2580	1700	1730	807	309	148	48	27	38
24	217	2060	1990	2370	2240	1580	735	284	144	42	35	33
25	175	1780	1710	2660	2150	1470	676	257	129	34	35	22
26	114	1540	1420	3720	1880	1340	634	243	113	32	37	11
27	96	1330	1150	4270	1570	1210	642	245	102	32	37	7.6
28	91	1180	1050	4400	1260	1110	702	258	101	35	25	9.8
29	107	2000	1120	3690	---	1020	610	308	137	35	16	14
30	111	2630	1030	3130	---	934	550	493	442	34	13	19
31	243	---	947	2720	---	870	---	419	---	27	11	---
TOTAL	1993	23617	77717	63914	51793	50808	28425	10960	5660	2918	684	728.4
MEAN	64.3	787	2507	2062	1850	1639	948	354	189	94.1	22.1	24.3
MAX	243	2630	3640	4400	3020	2950	2110	526	442	328	37	46
MIN	23	135	947	888	993	674	550	243	101	27	10	7.6
AC-FT	3950	46840	154200	126800	102700	100800	56380	21740	11230	5790	1360	1440
CFSM	0.20	2.51	7.98	6.57	5.89	5.22	3.02	1.13	0.60	0.30	0.07	0.08
IN.	0.24	2.80	9.21	7.57	6.14	6.02	3.37	1.30	0.67	0.35	0.08	0.09

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2002, BY WATER YEAR (WY)

	1998	1999	2000	2001	2002
MEAN	200	869	1823	1916	1727
MAX	600	1394	2845	2842	2835
(WY)	1998	1999	1999	1999	1999
MIN	61.3	202	717	478	460
(WY)	2000	2001	2001	2001	2001

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1998 - 2002
ANNUAL TOTAL	193793	319217.4	
ANNUAL MEAN	531	875	816
HIGHEST ANNUAL MEAN			1191
LOWEST ANNUAL MEAN			334
HIGHEST DAILY MEAN	3640	4400	7210
LOWEST DAILY MEAN	12	7.6	7.6
ANNUAL SEVEN-DAY MINIMUM	15	13	13
ANNUAL RUNOFF (AC-FT)	384400	633200	590900
ANNUAL RUNOFF (CFSM)	1.69	2.79	2.60
ANNUAL RUNOFF (INCHES)	22.96	37.82	35.30
10 PERCENT EXCEEDS	1160	2510	2300
50 PERCENT EXCEEDS	312	358	440
90 PERCENT EXCEEDS	20	25	32

e Estimated

14202980 SCOGGINS CREEK BELOW HENRY HAGG LAKE, NEAR GASTON, OR

LOCATION.--Lat 45°28'10", long 123°11'56", in SE 1/4 NE 1/4 sec.20, T.1 S., R.4 W., Washington County, Hydrologic Unit 17090010, on left bank 600 ft downstream from Scoggins Dam, 800 ft upstream from small left bank tributary, 3.7 mi northwest of Gaston, and at mile 48.

DRAINAGE AREA.--38.8 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1975 to current year.

GAGE.--Water-stage recorder. Datum of gage is 187.48 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good. Flow completely regulated by Henry Hagg Lake since January 1975. Discharge not adjusted for storage or release from Henry Hagg Lake as evaporation from reservoir at times exceeds natural flow.

AVERAGE DISCHARGE.--27 years (water years 1976-2002), 114 ft<sup>3</sup>/s, 82,500 acre-ft, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,210 ft<sup>3</sup>/s Apr. 23, 1996, gage height, 16.88 ft; minimum discharge, 0.72 ft<sup>3</sup>/s Nov. 4, 5, 1996, Dec. 16, 1997.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 914 ft<sup>3</sup>/s Jan. 13, gage height, 11.22 ft; minimum discharge, 3.4 ft<sup>3</sup>/s Dec. 2, 3.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	89	14	6.9	127	620	9.2	92	60	31	141	153	190
2	86	14	3.4	128	557	9.2	65	59	31	126	148	189
3	85	14	4.2	128	502	9.2	47	60	61	134	147	181
4	82	14	5.1	190	231	9.3	47	60	93	141	146	171
5	79	14	5.0	237	16	9.3	101	60	82	141	143	164
6	83	14	4.5	187	16	9.5	181	60	67	141	137	170
7	77	23	9.4	9.7	17	9.4	180	50	59	141	145	181
8	71	36	15	9.1	17	9.2	111	42	63	136	148	180
9	72	57	15	9.2	16	9.3	44	36	63	140	160	178
10	66	65	16	41	16	9.6	35	27	64	161	166	175
11	43	64	16	209	16	38	100	31	88	165	166	181
12	39	50	16	278	16	62	155	31	151	152	159	178
13	43	36	16	621	37	202	156	48	170	150	167	172
14	43	23	16	859	59	288	110	62	166	150	183	172
15	43	16	16	786	59	252	80	62	162	143	178	171
16	50	13	17	714	59	211	80	50	162	143	174	162
17	49	13	17	680	59	210	81	40	137	152	173	148
18	43	13	17	740	60	306	80	40	109	159	173	142
19	45	14	17	580	60	394	101	40	107	160	167	142
20	47	14	18	267	141	394	117	44	122	154	161	144
21	45	14	247	132	186	392	117	47	122	155	159	144
22	42	15	395	276	82	254	117	47	122	169	155	148
23	26	15	391	367	55	123	83	47	122	175	155	150
24	13	15	564	230	55	123	32	39	139	169	155	152
25	13	15	660	13	25	105	21	33	168	159	155	166
26	14	14	585	9.4	9.2	92	21	29	168	158	160	173
27	16	13	517	9.3	9.3	92	21	27	178	161	168	167
28	16	15	285	163	9.3	92	66	47	164	161	171	163
29	15	14	126	452	---	92	72	47	146	155	178	162
30	14	11	127	563	---	92	60	47	146	156	181	104
31	14	---	127	656	---	92	---	38	---	160	190	---
TOTAL	1463	662	4274.5	9670.7	3004.8	3999.2	2573	1410	3463	4708	5021	4920
MEAN	47.2	22.1	138	312	107	129	85.8	45.5	115	152	162	164
MAX	89	65	660	859	620	394	181	62	178	175	190	190
MIN	13	11	3.4	9.1	9.2	9.2	21	27	31	126	137	104
AC-FT	2900	1310	8480	19180	5960	7930	5100	2800	6870	9340	9960	9760

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2002, BY WATER YEAR (WY)

	93.5	64.2	159	183	135	125	79.5	57.4	62.0	125	151	130
MEAN	93.5	64.2	159	183	135	125	79.5	57.4	62.0	125	151	130
MAX	155	233	571	700	720	326	272	122	121	201	216	206
(WY)	1980	1985	1996	1997	1999	1983	1996	1992	1994	1996	1993	1993
MIN	26.2	16.7	10.2	9.69	9.50	9.98	9.91	19.9	14.3	52.3	83.4	72.9
(WY)	1978	1988	2001	2001	1977	2001	2001	1977	1977	1993	1977	1977

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1976 - 2002

ANNUAL TOTAL	19180.0	45169.2										
ANNUAL MEAN	52.5	124								114		
HIGHEST ANNUAL MEAN										217		1999
LOWEST ANNUAL MEAN										40.4		1977
HIGHEST DAILY MEAN	660	Dec 25				859	Jan 14		1940	Jan 3	1997	
LOWEST DAILY MEAN	3.4	Dec 2				3.4	Dec 2		3.4	Dec 2	2001	
ANNUAL SEVEN-DAY MINIMUM	5.5	Dec 1				5.5	Dec 1		5.5	Dec 1	2001	
ANNUAL RUNOFF (AC-FT)	38040					89590			82500			
10 PERCENT EXCEEDS	110					210			219			
50 PERCENT EXCEEDS	17					92			77			
90 PERCENT EXCEEDS	9.8					14			12			

14203500 TUALATIN RIVER NEAR DILLEY, OR

LOCATION.--Lat 45°28'30", long 123°07'23", in NE 1/4 NW 1/4 sec.24, T.1 S., R.4 W., Washington County, Hydrologic Unit 17090010, on right bank 5 ft upstream from highway bridge, 1.0 mi south of Dilley, 1.2 mi downstream from Scoggins Creek, and at mile 58.8.

DRAINAGE AREA.--125 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1939 to current year.

REVISED RECORDS.--WSP 1935: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 147.57 ft above NGVD of 1929. Prior to June 16, 1950, nonrecording gage at several sites within 200 ft of present site at datum 4.00 ft higher. June 16, 1950, to Aug. 10, 1966, water-stage recorder at present site at datum 4.00 ft higher.

REMARKS.--Records good except for estimated daily discharges, which are poor. Diurnal fluctuation caused by operation of millpond on Scoggins Creek upstream from station and regulation by Henry Hagg Lake since January 1975. Diversions upstream from station of approximately 3,000 acre-ft from J. W. Barney Reservoir on the Middle Fork of North Fork Trask River for municipal water supply and irrigation in Wapato Lake area. Continuous water-quality records for the period November 1963 to September 1968 have been collected at this location. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--35 years (water years 1940-1974), 415 ft<sup>3</sup>/s, 300,800 acre-ft/yr.  
28 years (water years 1975-2002), 364 ft<sup>3</sup>/s, 263,600 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,100 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 19.34 ft, from rating curve extended above 6,000 ft<sup>3</sup>/s; minimum discharge, 0.08 ft<sup>3</sup>/s Sept. 3, 1967.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,870 ft<sup>3</sup>/s Jan. 8, gage height, 17.82 ft; minimum discharge, 45 ft<sup>3</sup>/s Nov. 7.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	89	2720	448	1560	264	302	170	90	202	199	241
2	119	69	2740	524	1350	243	277	166	85	184	194	240
3	116	59	1880	516	1210	224	238	162	93	184	196	235
4	115	52	1300	530	1020	211	227	158	141	195	200	222
5	113	49	1210	599	626	204	239	156	139	194	197	218
6	116	49	1110	726	523	233	343	161	135	190	183	223
7	115	53	1360	2270	599	229	340	151	120	189	194	241
8	103	73	1140	3480	921	211	297	134	128	188	192	244
9	105	94	846	2540	1080	199	214	127	132	183	202	241
10	e110	108	712	1720	872	260	273	105	128	195	211	242
11	e120	107	638	1260	738	461	326	116	133	215	211	238
12	e120	106	593	1220	655	1050	383	113	186	204	206	238
13	e110	87	684	1250	584	1210	384	116	222	203	200	224
14	e100	424	1870	1810	548	1280	508	138	220	203	222	224
15	e95	428	1880	1750	490	1100	515	135	215	197	224	225
16	e90	246	1910	1540	445	871	450	127	217	189	219	223
17	e90	167	2730	1310	407	767	412	112	206	204	221	220
18	e85	131	2250	1260	384	722	378	110	184	207	222	207
19	e85	138	1950	1220	440	899	352	111	168	214	220	205
20	82	281	1580	1020	503	1220	348	115	182	204	211	207
21	82	400	1320	1030	599	1180	327	118	177	209	210	205
22	90	602	1490	1170	596	1000	308	112	174	216	205	209
23	133	937	1280	1380	558	716	279	113	175	221	204	211
24	88	731	1140	1310	523	616	211	107	180	212	204	211
25	64	532	1270	2340	446	543	179	94	216	202	205	222
26	57	421	1190	2510	361	466	170	91	214	198	207	237
27	60	343	1030	1950	320	421	166	84	217	206	217	234
28	67	448	888	1380	290	386	176	112	225	206	216	226
29	60	1180	618	1500	---	358	200	133	236	201	223	228
30	62	1720	491	1560	---	337	176	120	214	196	226	206
31	89	---	451	1590	---	317	---	108	---	204	239	---
TOTAL	2966	10124	42271	44713	18648	18198	8998	3875	5152	6215	6480	6747
MEAN	95.68	337.5	1364	1442	666.0	587.0	299.9	125.0	171.7	200.5	209.0	224.9
MAX	133	1720	2740	3480	1560	1280	515	170	236	221	239	244
MIN	57	49	451	448	290	199	166	84	85	183	183	205
AC-FT	5880	20080	83840	88690	36990	36100	17850	7690	10220	12330	12850	13380

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1975 - 2002, BY WATER YEAR (WY)

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
MEAN	144.0	321.8	754.4	797.2	722.7	538.1	327.3	170.4	117.7	147.8	173.8	166.6																	
MAX	320	882	2062	1615	2250	1086	974	424	189	211	269	370																	
(WY)	1998	1985	1996	1999	1999	1983	1991	1996	2000	2000	1975	1975																	
MIN	6.03	47.2	41.1	31.8	62.0	125	99.8	80.8	65.9	91.0	93.0	82.6																	
(WY)	1975	1988	1977	1977	1977	2001	1977	1977	1979	1977	1977	1985																	

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1975 - 2002

ANNUAL TOTAL	87992	174387		
ANNUAL MEAN	241.1	477.8	363.9	
HIGHEST ANNUAL MEAN			695	1999
LOWEST ANNUAL MEAN			104	1977
HIGHEST DAILY MEAN	2740	Dec 2	3480	Jan 8
LOWEST DAILY MEAN	49	Nov 5	49	Nov 5
ANNUAL SEVEN-DAY MINIMUM	58	Nov 2	58	Nov 2
ANNUAL RUNOFF (AC-FT)	174500	345900	263600	
10 PERCENT EXCEEDS	467	1270	906	
50 PERCENT EXCEEDS	118	221	186	
90 PERCENT EXCEEDS	89	106	85	

e Estimated

## WILLAMETTE RIVER BASIN

347

14205400 EAST FORK DAIRY CREEK NEAR MEACHAM, OR

LOCATION.--Lat 45°40'51", long 123°04'12", in SW 1/4 SW 1/4 sec.4, T.2 N., R.3 W., Washington County, Hydrologic Unit 17090010, on right bank of private drive, 0.9 mi downstream from Murtaugh Creek, and at mile 12.3.

DRAINAGE AREA.-- 32.92 mi<sup>2</sup>.

PERIOD OF RECORD.--May to September 2002.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair.

EXTREMES FOR PERIOD MAY TO SEPTEMBER.--Maximum discharge, 50 ft<sup>3</sup>/s May 7, 10, gage height, 5.19 ft; minimum discharge, 7.8 ft<sup>3</sup>/s Sept. 26, 27.

DISCHARGE, CUBIC FEET PER SECOND, MAY TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	MAY	JUN	JUL	AUG	SEP
1	---	32	22	13	10
2	---	31	21	13	10
3	---	30	20	13	10
4	---	30	20	13	10
5	---	29	19	14	10
6	---	29	19	13	11
7	---	29	19	13	11
8	47	30	20	13	11
9	46	29	19	13	11
10	46	28	18	12	9.8
11	44	27	18	12	9.8
12	43	26	17	12	9.6
13	42	25	16	12	9.3
14	42	25	16	12	9.0
15	40	26	16	12	9.3
16	39	24	16	12	9.7
17	42	26	16	11	10
18	39	27	16	11	9.9
19	39	25	16	11	9.5
20	39	24	16	11	9.3
21	38	23	16	11	8.9
22	36	23	15	12	8.7
23	36	22	15	11	8.6
24	35	22	15	11	8.5
25	34	21	15	12	9.6
26	34	21	15	11	8.3
27	35	21	14	11	8.2
28	38	25	14	11	8.4
29	39	28	14	10	8.8
30	34	23	14	10	e12
31	33	---	14	10	---
TOTAL	---	781	521	366	289.2
MEAN	---	26.0	16.8	11.8	9.64
MAX	---	32	22	14	12
MIN	---	21	14	10	8.2
AC-FT	---	1550	1030	726	574
CFSM	---	0.79	0.51	0.36	0.29
IN.	---	0.88	0.59	0.41	0.33

e Estimated

WILLAMETTE RIVER BASIN

14206900 FANNO CREEK AT 56TH AVENUE, PORTLAND, OR

LOCATION.--Lat 45°29'17", long 122°44'01", in NE 1/4 NW 1/4 sec.18, T.1 S., R.1 E., Multnomah County, Hydrologic Unit 17090010, on bridge at SW 56th Ave., in Portland, and at mile 11.9.

DRAINAGE AREA.--2.37 mi<sup>2</sup>.

PERIOD OF RECORD.--Annual maximums, 1975-77. October 1990 to current year.

REVISED RECORDS.--WDR OR-92-1: 1991, 1991(m).

GAGE.--Water-stage recorder. Elevation of gage is 250 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--12 years (water years 1991-2002), 3.35 ft<sup>3</sup>/s, 19.18 in/yr, 2,420 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD--Maximum discharge, 733 ft<sup>3</sup>/s Feb. 8, 1996, gage height, 13.2 ft, from floodmark, from rating curve extended above 200 ft<sup>3</sup>/s; minimum discharge, 0.01 ft<sup>3</sup>/s Sept. 4, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 150 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 28	1645	161	11.04	Feb. 7	1630	184	11.18
Dec. 16	2200	157	11.01	Feb. 23	0115	303	11.78
Jan. 7	2030	*314	*11.83				

Minimum discharge, 0.02 ft<sup>3</sup>/s Oct. 1.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.12	1.9	37	9.2	4.2	1.9	1.3	0.72	0.57	0.47	0.14	0.13
2	0.12	0.94	10	3.5	3.5	1.7	1.2	0.71	0.53	0.43	0.14	0.13
3	0.15	0.50	6.8	3.1	4.0	1.5	1.2	0.65	0.51	0.46	0.15	0.14
4	0.12	1.3	16	2.0	3.0	1.5	1.2	0.63	0.48	0.42	0.20	0.15
5	0.10	4.9	17	7.3	4.3	1.7	2.8	0.86	0.46	0.37	0.41	0.15
6	0.13	0.70	8.3	28	8.9	19	1.2	0.65	0.43	0.37	0.23	0.15
7	0.15	0.54	4.5	56	31	3.4	1.0	0.60	0.45	0.67	0.16	0.15
8	0.33	0.54	5.1	16	13	2.5	0.96	0.58	0.57	3.2	0.15	0.14
9	0.15	0.54	3.7	6.0	4.8	2.5	2.8	0.62	0.46	0.33	0.17	0.15
10	4.1	0.57	4.6	4.4	4.5	7.8	3.8	0.62	0.45	0.25	0.15	0.14
11	0.45	0.70	4.4	3.6	3.3	29	2.1	0.59	0.46	0.26	0.14	0.14
12	0.22	2.7	6.0	4.7	2.9	12	1.2	0.63	0.43	0.36	0.13	0.15
13	0.41	6.4	26	3.2	2.6	7.1	5.1	0.67	0.41	0.29	0.13	0.18
14	0.18	8.9	8.9	2.9	2.4	4.4	2.8	0.59	0.44	0.23	0.13	0.14
15	0.17	4.0	6.3	2.5	2.1	4.7	1.4	0.54	0.40	0.19	0.14	0.16
16	0.52	1.8	30	2.8	3.7	3.7	3.6	0.57	0.39	0.19	0.14	2.9
17	0.22	0.91	9.6	2.3	2.2	3.6	2.1	1.6	3.5	0.20	0.12	1.3
18	0.17	0.76	9.0	4.1	2.7	4.2	1.3	0.52	1.1	0.20	0.13	0.21
19	0.16	6.9	5.4	4.7	15	14	e1.2	0.94	0.56	0.20	0.15	0.20
20	0.16	7.3	8.7	6.9	3.1	4.4	1.2	3.2	0.47	0.19	0.16	0.22
21	0.99	6.5	3.8	6.9	3.1	3.4	1.1	1.4	0.42	0.16	0.14	0.19
22	4.6	21	3.2	6.1	2.5	3.0	0.93	1.8	0.38	0.14	0.14	0.20
23	2.5	2.2	2.5	3.4	36	2.8	0.87	0.71	0.55	0.13	0.14	0.22
24	0.37	4.5	2.2	6.8	3.8	2.4	0.84	0.59	0.33	0.13	0.15	0.23
25	0.25	3.2	2.0	32	3.0	2.1	0.77	0.59	0.32	0.17	0.14	0.24
26	0.22	1.4	1.8	9.8	2.6	2.0	2.7	0.54	0.31	0.19	0.14	0.24
27	5.4	1.2	3.8	12	2.4	1.8	2.0	1.8	0.31	0.16	0.13	0.22
28	0.45	32	2.6	7.6	2.1	1.7	1.4	4.6	7.2	0.16	0.13	0.22
29	1.2	5.4	1.7	4.7	--	1.6	0.81	1.4	3.3	0.17	0.13	0.87
30	11	22	1.5	4.3	--	1.5	0.77	0.87	0.64	0.18	0.12	2.1
31	4.0	--	2.9	6.0	--	1.4	--	0.61	--	0.19	0.13	--
TOTAL	39.11	152.20	255.3	272.8	176.7	154.3	51.65	31.40	26.83	11.06	4.76	11.76
MEAN	1.262	5.073	8.235	8.800	6.311	4.977	1.722	1.013	0.894	0.357	0.154	0.392
MAX	11	32	37	56	36	29	5.1	4.6	7.2	3.2	0.41	2.9
MIN	0.10	0.50	1.5	2.0	2.1	1.4	0.77	0.52	0.31	0.13	0.12	0.13
AC-FT	78	302	506	541	350	306	102	62	53	22	9.4	23
CFSM	0.53	2.14	3.47	3.71	2.66	2.10	0.73	0.43	0.38	0.15	0.06	0.17
IN.	0.61	2.39	4.01	4.28	2.77	2.42	0.81	0.49	0.42	0.17	0.07	0.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2002, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	1.828	5.454	6.941	7.019	7.033	4.461	2.880	2.158	1.154	0.537	0.389	0.513
MAX	4.11	14.3	20.1	11.8	16.6	9.47	5.20	4.79	1.94	0.89	1.07	1.18
(WY)	1995	1997	1997	1999	1996	1997	1996	1998	1997	1997	1997	1996
MIN	0.60	1.06	2.67	1.06	1.22	1.73	1.31	0.73	0.31	0.29	0.13	0.12
(WY)	1992	1994	2001	2001	2001	1994	1998	1994	1992	1992	1992	1999

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1991 - 2002

ANNUAL TOTAL	714.54	1187.87										
ANNUAL MEAN	1.958	3.254								3.346		
HIGHEST ANNUAL MEAN										5.95		1997
LOWEST ANNUAL MEAN										1.21		2001
HIGHEST DAILY MEAN			37	Dec 1		56	Jan 7		202	Nov 19		1996
LOWEST DAILY MEAN			0.10	Oct 5		0.10	Oct 5		0.06	Sep 12		1999
ANNUAL SEVEN-DAY MINIMUM			0.12	Sep 29		0.13	Oct 1		0.07	Oct 1		1991
ANNUAL RUNOFF (AC-FT)	1420	2360							2420			
ANNUAL RUNOFF (CFSM)	0.83	1.37							1.41			
ANNUAL RUNOFF (INCHES)	11.22	18.65							19.18			
10 PERCENT EXCEEDS		4.5				7.2			7.8			
50 PERCENT EXCEEDS		0.66				1.2			1.2			
90 PERCENT EXCEEDS		0.17				0.15			0.20			

e Estimated



14206950 FANNO CREEK AT DURHAM, OR

LOCATION.--Lat 45°24'13", long 122°45'13", in NE 1/4 NW 1/4 sec.13, T.2 S., R.1 W., Washington County, Hydrologic Unit 17090010, on right bank under Durham Road bridge, at Durham, and at mile 1.13.

DRAINAGE AREA.--31.5 mi<sup>2</sup>.

PERIOD OF RECORD.--September to November 1966, September 1972 to September 1977 (discharge measurements only), October 1993 to February 1996, October 2000 to September 2001.

GAGE.--Water-stage recorder. Datum of gage is 116.83 ft above NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--4 years (water years 1994-95, 2001-02), 39.9 ft<sup>3</sup>/s, 17.20 in/yr, 28,890 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,090 ft<sup>3</sup>/s Feb. 6, 1996, gage height, 9.45 ft (from outside high-water mark); minimum discharge, 1.0 ft<sup>3</sup>, Sept. 13, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,030 ft<sup>3</sup>/s Jan. 8, gage height, 9.18 ft; minimum discharge, 2.3 ft<sup>3</sup>/s Aug. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.5	31	467	e120	80	28	17	13	12	13	e3.8	3.1
2	4.6	26	457	110	50	25	15	12	10	10	e3.8	3.2
3	4.1	15	172	71	57	22	16	11	9.6	10	e4.0	3.3
4	4.5	12	216	44	41	20	15	10	9.5	9.7	e4.0	3.6
5	3.8	60	316	87	53	21	35	9.7	9.7	9.1	e4.4	3.6
6	4.0	24	141	265	76	302	32	10	7.8	8.2	e5.0	5.0
7	4.1	12	99	757	235	109	18	9.8	6.9	10	e5.0	5.0
8	6.0	9.3	68	700	358	53	17	9.4	7.9	49	e4.4	3.3
9	4.9	8.6	70	179	111	41	41	9.1	7.2	14	e4.0	3.9
10	50	9.0	66	96	76	87	88	9.5	6.6	6.6	e4.0	4.1
11	28	9.1	55	71	66	298	44	8.8	6.3	e7.5	e4.0	5.4
12	9.8	26	90	84	47	400	27	8.4	7.2	e7.0	e4.0	4.0
13	7.8	69	326	52	40	166	41	8.4	7.1	e6.5	e3.8	3.6
14	6.3	233	408	44	35	104	120	9.2	e7.0	e6.0	e3.8	3.4
15	5.0	60	134	36	31	79	32	9.1	7.1	e5.5	e4.0	3.1
16	7.1	48	285	33	49	73	40	8.5	5.8	e5.5	4.4	23
17	8.8	30	388	33	32	61	55	35	26	e5.0	3.5	68
18	5.5	16	164	42	31	62	38	13	38	e5.0	3.0	12
19	4.5	86	132	68	199	218	23	14	11	e4.8	3.3	6.7
20	4.5	103	163	108	68	87	20	52	8.8	e4.6	11	5.3
21	9.5	113	103	96	57	56	18	34	8.9	e4.6	5.7	4.9
22	45	249	68	110	43	44	17	16	8.2	e4.4	4.2	4.1
23	57	82	49	61	356	39	14	18	7.7	e4.4	3.6	3.2
24	24	67	38	64	110	33	13	11	7.2	e4.2	3.6	3.3
25	9.3	47	32	422	56	29	14	11	7.6	e4.2	3.4	3.3
26	7.1	30	27	225	43	26	17	15	6.9	e4.0	3.0	e3.4
27	57	21	34	218	36	23	47	13	7.2	e4.0	2.8	4.0
28	40	327	71	141	32	21	17	56	47	e4.0	2.6	4.6
29	19	338	29	85	---	20	14	73	128	e4.0	3.6	40
30	149	282	24	66	---	18	13	18	19	e4.0	3.5	35
31	104	---	e45	77	---	18	---	14	---	e3.8	3.1	---
TOTAL	698.7	2443.0	4737	4565	2468	2583	918	548.9	459.2	245.9	126.3	278.4
MEAN	22.5	81.4	153	147	88.1	83.3	30.6	17.7	15.3	7.93	4.07	9.28
MAX	149	338	467	757	358	400	120	73	128	49	11	68
MIN	3.8	8.6	24	33	31	18	13	8.4	5.8	3.8	2.6	3.1
AC-FT	1390	4850	9400	9050	4900	5120	1820	1090	911	488	251	552
CFSM	0.72	2.59	4.85	4.67	2.80	2.65	0.97	0.56	0.49	0.25	0.13	0.29
IN.	0.83	2.89	5.59	5.39	2.91	3.05	1.08	0.65	0.54	0.29	0.15	0.33

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1994 - 2002, BY WATER YEAR (WY)

	MEAN	26.4	63.4	99.6	95.0	78.1	55.9	34.8	18.8	15.4	8.07	6.69	8.25
MAX	49.8	115	153	147	111	83.3	49.0	26.7	22.6	12.6	9.63	9.67	
(WY)	1995	1996	2002	2002	1995	2002	1995	1995	1995	1995	2001	1995	
MIN	8.53	10.3	40.0	17.1	21.5	27.6	24.6	13.5	10.3	4.20	3.83	7.00	
(WY)	1994	1994	2001	2001	2001	2001	2001	1994	1994	1994	1994	2001	

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1994 - 2002

ANNUAL TOTAL	12286.4	20071.4	
ANNUAL MEAN	33.7	55.0	39.9
HIGHEST ANNUAL MEAN			56.2
LOWEST ANNUAL MEAN			19.3
HIGHEST DAILY MEAN	467	757	840
LOWEST DAILY MEAN	2.7	2.6	1.3
ANNUAL SEVEN-DAY MINIMUM	3.0	3.1	1.9
ANNUAL RUNOFF (AC-FT)	24370	39810	28890
ANNUAL RUNOFF (CFSM)	1.07	1.75	1.27
ANNUAL RUNOFF (INCHES)	14.51	23.70	17.20
10 PERCENT EXCEEDS	70	133	89
50 PERCENT EXCEEDS	13	18	15
90 PERCENT EXCEEDS	4.5	4.0	3.8

e Estimated

## 14207500 TUALATIN RIVER AT WEST LINN, OR

LOCATION.--Lat 45°21'03", long 122°40'30", in SW 1/4 sec.34, T.2 S., R.1 E., Clackamas County, Hydrologic Unit 17090010, on left bank 300 ft upstream from bridge on State Highway 212, 0.4 mi west of West Linn city limits, and at mile 1.8.

DRAINAGE AREA.--706 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1928 to current year. Prior to October 1960, published as "near Willamette."

REVISED RECORDS.--WSP 1014: 1943. WSP 1184: 1947. WSP 1248: 1941. WSP 1935: Drainage area. WDR OR-75-1: 1974(M). WDR OR-77-1: 1971-73, 1975, 1976(M).

GAGE.--Water-stage recorder. Datum of gage is 85.61 ft above NGVD of 1929 (levels by Corps of Engineers). Prior to June 12, 1941, nonrecording gage at datum 1.02 ft higher.

REMARKS.--Records good except for the period December through May and estimated daily discharges, which are poor. Discharge data for the period Sept. 24-30 obtained from the National Weather Service. October 1951 to September 1970, records published for this station included the daily flow in Oswego Canal, which diverts at point 5.0 mi upstream from station for development of power between outlet of Lake Oswego and Willamette River. Adjustment for diversion to Lake Oswego are published for the 1971-95 water years. Some regulation in low-water season by flashboards on crest of diversion dam for Oswego Canal and regulation by Henry Hagg Lake since January 1975. Several diversions upstream from station for irrigation. U.S. Geological Survey satellite telemeter at station. Periodic suspended sediment data are available for the period October 1974 to September 1995.

AVERAGE DISCHARGE.--27 years (water years 1976-2002), 1,452 ft<sup>3</sup>/s, 1,052,000 acre-ft/yr, river only, not adjusted for diversion to Oswego Canal.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 26,400 ft<sup>3</sup>/s Feb. 10, 1996, gage height, 18.32 ft, does not include an estimated 3,600 ft<sup>3</sup>/s flowing in Oswego Canal; minimum daily discharge, 0.20 ft<sup>3</sup>/s July 30 to Aug. 2, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 7,620 ft<sup>3</sup>/s Dec. 21, gage height, 10.38 ft; minimum discharge, 135 ft<sup>3</sup>/s Aug. 19.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	201	567	4590	2590	5690	1670	1330	758	444	564	182	183
2	203	484	5370	2490	5270	1520	1250	713	374	472	183	188
3	191	409	5360	2540	4890	1390	1170	680	328	389	158	204
4	174	331	5840	2500	4500	1280	1080	653	304	326	144	210
5	163	336	6600	2410	4170	1200	1020	634	291	293	153	201
6	159	312	6570	2780	3940	1600	1020	622	297	290	166	184
7	154	292	6440	4770	3990	1790	1030	618	295	274	167	183
8	164	247	6140	6180	4500	1660	1040	602	286	308	162	192
9	173	221	5800	5960	4430	1430	1020	566	298	334	173	217
10	207	214	5430	6370	4370	1350	1110	537	316	331	166	231
11	254	225	5010	6860	4320	1860	1210	503	311	278	156	226
12	251	266	4600	7050	4250	3490	1250	475	281	245	162	214
13	236	342	4670	6720	4100	4140	1240	452	256	241	172	208
14	206	800	5120	6160	3870	4160	1430	446	254	234	167	204
15	190	1250	4850	5550	3560	4150	1550	452	278	235	158	201
16	185	1770	5130	4960	3260	4240	1700	462	291	238	148	217
17	185	1520	5790	4450	2940	4260	1690	498	321	224	152	309
18	177	1100	6000	4020	2510	4180	1610	497	395	203	148	316
19	181	900	6610	3700	2410	4300	1490	474	394	204	141	308
20	175	967	7250	3510	2270	4150	1350	489	371	214	151	280
21	171	1390	7560	3430	2170	3980	1250	544	324	226	158	242
22	200	2100	7470	3480	2120	3800	1190	527	295	228	160	e200
23	293	2450	7080	3510	2720	3650	1130	511	270	214	163	e200
24	321	2630	6530	3550	2850	3480	1060	469	262	201	159	191
25	329	2650	5920	4630	2670	3220	972	434	267	202	148	178
26	285	2520	5300	5160	2380	2870	884	403	254	206	144	175
27	269	2200	4730	5540	2090	2440	881	374	250	201	147	184
28	313	2260	4290	5950	1860	2030	875	424	272	199	153	201
29	318	3020	3830	6200	---	1750	831	569	523	210	158	239
30	472	3600	3420	6210	---	1560	801	556	584	198	189	281
31	600	---	2990	6000	---	1430	---	522	---	181	205	---
TOTAL	7400	37373	172290	145230	98100	84030	35464	16464	9686	8163	4993	6567
MEAN	238.7	1246	5558	4685	3504	2711	1182	531.1	322.9	263.3	161.1	218.9
MAX	600	3600	7560	7050	5690	4300	1700	758	584	564	205	316
MIN	154	214	2990	2410	1860	1200	801	374	250	181	141	175
AC-FT	14680	74130	341700	288100	194600	166700	70340	32660	19210	16190	9900	13030

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1976 - 2002, BY WATER YEAR (WY)

	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	291.9	1164	3231	3473	3554	2645	1530	726.4	368.5	186.5	156.4	206.0															
MAX	995	3062	7035	7845	9490	5625	3758	2437	762	292	254	420															
(WY)	1998	1984	1997	1997	1996	1999	1991	1996	1984	1998	1997	1997															
MIN	71.7	130	158	163	180	638	354	229	147	59.9	79.9	79.1															
(WY)	1988	1988	1977	1977	1977	2001	1977	1977	1992	1977	1986	1987															

## SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1976 - 2002

	2001 CALENDAR YEAR	2002 WATER YEAR	1976 - 2002
ANNUAL TOTAL	328335	625760	
ANNUAL MEAN	899.5	1714	1452
HIGHEST ANNUAL MEAN			2787
LOWEST ANNUAL MEAN			278
HIGHEST DAILY MEAN	7560	Dec 21	25900
LOWEST DAILY MEAN	108	Aug 16	18
ANNUAL SEVEN-DAY MINIMUM	114	Aug 11	24
ANNUAL RUNOFF (AC-FT)	651300		1052000
10 PERCENT EXCEEDS	2480		4190
50 PERCENT EXCEEDS	438		544
90 PERCENT EXCEEDS	130		176

e Estimated



14207740 WILLAMETTE RIVER ABOVE FALLS, AT OREGON CITY, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 2001 to present.

INSTURMENTATION.--Temperature probe and data logger.

REMARKS.--Records fair. Records represent water temperature at the probe and are not necessarily representative of the river cross-section. Periodic cross-section water temperature data available in the files of the Portland Field Office.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 24.5°C Aug. 14, 2001; minimum, 5.6°C Jan. 29, 2002.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 24.1°C July 16, 17, 28, Aug. 17; minimum, 5.6°C Jan. 29.

## TEMPERATURE, WATER (DEG. C), AUGUST TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	---	---	---	22.0	21.7	21.9
2	---	---	---	---	---	---	---	---	---	22.6	21.8	22.1
3	---	---	---	---	---	---	---	---	---	22.5	21.9	22.1
4	---	---	---	---	---	---	---	---	---	22.2	21.9	22.0
5	---	---	---	---	---	---	---	---	---	21.9	21.5	21.7
6	---	---	---	---	---	---	---	---	---	21.5	20.9	21.2
7	---	---	---	---	---	---	---	---	---	21.0	20.6	20.8
8	---	---	---	---	---	---	---	---	---	20.6	20.1	20.4
9	---	---	---	---	---	---	23.1	22.4	22.6	20.3	20.0	20.2
10	---	---	---	---	---	---	23.5	22.6	23.0	20.2	19.6	19.9
11	---	---	---	---	---	---	23.9	23.0	23.4	19.8	19.4	19.6
12	---	---	---	---	---	---	24.3	23.5	23.8	19.7	19.4	19.6
13	---	---	---	---	---	---	24.4	23.7	24.0	19.8	19.5	19.6
14	---	---	---	---	---	---	24.5	24.0	24.2	20.1	19.6	19.8
15	---	---	---	---	---	---	24.5	24.0	24.2	20.6	20.0	20.3
16	---	---	---	---	---	---	24.3	23.9	24.0	21.0	20.3	20.5
17	---	---	---	---	---	---	24.2	23.6	23.8	20.9	20.5	20.6
18	---	---	---	---	---	---	23.9	23.5	23.7	20.9	20.5	20.7
19	---	---	---	---	---	---	23.5	23.1	23.3	20.6	20.3	20.4
20	---	---	---	---	---	---	23.2	22.8	22.9	20.4	20.0	20.2
21	---	---	---	---	---	---	22.8	21.8	22.4	20.3	19.9	20.0
22	---	---	---	---	---	---	21.9	21.5	21.7	20.0	19.6	19.7
23	---	---	---	---	---	---	21.5	20.9	21.3	19.7	19.3	19.4
24	---	---	---	---	---	---	21.1	20.7	20.8	19.4	18.9	19.1
25	---	---	---	---	---	---	21.0	20.7	20.8	19.1	18.5	18.7
26	---	---	---	---	---	---	20.8	20.3	20.5	18.5	18.4	18.4
27	---	---	---	---	---	---	20.4	20.0	20.2	18.5	18.2	18.3
28	---	---	---	---	---	---	20.8	20.1	20.3	18.4	18.1	18.2
29	---	---	---	---	---	---	21.1	20.6	20.7	18.1	17.5	17.7
30	---	---	---	---	---	---	21.8	20.8	21.1	17.7	17.1	17.4
31	---	---	---	---	---	---	22.0	21.2	21.6	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	22.6	17.1	20.0

## TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.2	16.7	16.9	11.3	10.7	11.0	8.1	8.0	8.0	6.7	6.4	6.6
2	16.9	16.5	16.7	11.1	10.7	10.9	8.2	8.0	8.1	7.1	6.7	6.9
3	17.0	16.4	16.6	11.5	11.1	11.3	8.1	8.0	8.1	7.2	7.0	7.1
4	16.8	16.5	16.7	11.6	11.4	11.5	8.0	7.7	7.9	7.4	7.1	7.2
5	17.3	16.6	16.9	11.7	11.5	11.6	7.8	7.6	7.7	7.3	7.0	7.2
6	17.4	17.0	17.1	11.9	11.6	11.7	7.6	7.4	7.5	7.3	7.0	7.1
7	17.1	16.8	16.9	11.8	11.5	11.7	8.0	7.6	7.8	8.7	7.3	7.9
8	16.8	16.4	16.6	11.6	11.3	11.5	8.1	8.0	8.0	9.4	8.7	9.2
9	16.6	16.1	16.3	11.3	10.9	11.1	8.0	7.7	7.9	9.4	9.1	9.3
10	16.2	15.6	15.9	10.9	10.2	10.5	7.8	7.6	7.7	9.1	8.6	8.9
11	15.6	15.0	15.3	10.2	9.8	10.0	7.6	7.3	7.4	8.7	8.2	8.4
12	15.0	14.7	14.9	9.8	9.3	9.5	7.4	7.2	7.3	8.2	7.9	8.1
13	14.7	14.3	14.5	9.3	9.1	9.1	7.8	7.4	7.5	7.9	7.6	7.7
14	14.4	13.9	14.1	9.8	9.1	9.4	7.9	7.7	7.8	7.6	7.2	7.4
15	14.3	13.8	14.0	10.8	9.8	10.4	7.9	7.4	7.7	7.2	6.7	6.9
16	14.1	13.8	14.0	11.4	10.8	11.2	7.6	7.4	7.4	6.7	6.3	6.5
17	14.7	13.9	14.1	11.3	11.1	11.2	7.9	7.5	7.7	6.3	6.0	6.2
18	14.6	14.1	14.3	11.1	10.6	10.9	7.9	7.7	7.8	6.1	5.9	6.0
19	14.7	14.1	14.3	10.6	10.0	10.4	7.7	7.3	7.5	6.5	6.1	6.3
20	14.5	14.0	14.3	10.0	9.8	9.9	7.3	7.2	7.3	6.7	6.3	6.5
21	14.0	13.4	13.7	9.8	9.6	9.6	7.3	7.2	7.2	6.6	6.3	6.5
22	13.4	13.0	13.2	9.6	9.5	9.6	7.3	7.0	7.2	6.5	6.3	6.4
23	13.0	12.8	12.9	9.6	9.5	9.6	7.0	6.7	6.9	6.3	5.9	6.0
24	12.8	12.0	12.4	9.5	9.1	9.3	6.7	6.3	6.5	6.2	5.9	6.1
25	12.3	12.0	12.1	9.1	8.8	9.0	6.4	6.0	6.2	6.7	6.2	6.5
26	12.2	11.9	12.0	8.8	8.6	8.8	6.0	5.7	5.9	6.9	6.6	6.8
27	12.0	11.9	12.0	8.6	8.2	8.5	5.8	5.7	5.7	6.7	6.1	6.3
28	12.0	11.7	11.8	8.2	8.0	8.1	6.0	5.7	5.8	6.1	5.7	5.9
29	11.8	11.6	11.7	8.0	7.7	7.9	6.2	5.9	6.0	5.8	5.6	5.7
30	11.9	11.7	11.8	8.1	7.8	8.0	6.4	6.1	6.2	5.8	5.7	5.8
31	11.8	11.3	11.6	---	---	---	6.5	6.3	6.4	6.0	5.8	5.9
MONTH	17.4	11.3	14.4	11.9	7.7	10.1	8.2	5.7	7.2	9.4	5.6	6.9

14207740 WILLAMETTE RIVER ABOVE FALLS, AT OREGON CITY, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	6.4	6.0	6.2	7.2	6.9	7.1	10.2	9.9	10.0	12.9	12.2	12.6
2	6.6	6.3	6.5	7.2	6.9	7.0	10.4	10.0	10.2	13.0	12.7	12.9
3	6.8	6.5	6.7	7.2	7.0	7.1	10.7	10.2	10.4	12.8	12.2	12.6
4	7.0	6.7	6.9	7.3	6.9	7.1	11.0	10.6	10.8	12.2	11.7	12.1
5	7.0	6.8	6.9	7.5	7.0	7.3	11.1	10.7	10.9	11.8	11.3	11.7
6	6.8	6.6	6.7	7.4	7.1	7.3	11.0	10.7	10.8	12.0	11.3	11.7
7	6.7	6.5	6.6	7.3	7.2	7.3	10.7	10.3	10.5	11.9	11.6	11.7
8	6.9	6.6	6.8	7.2	6.7	7.0	10.4	9.9	10.1	11.8	11.4	11.7
9	6.8	6.5	6.6	6.7	6.4	6.6	10.2	9.7	9.9	11.6	11.0	11.3
10	6.8	6.6	6.7	6.5	6.3	6.4	10.7	10.1	10.3	11.7	11.0	11.4
11	6.9	6.6	6.7	7.0	6.4	6.7	10.8	10.3	10.6	12.2	11.3	11.7
12	6.9	6.6	6.7	7.7	7.0	7.3	10.5	9.9	10.2	12.8	11.8	12.4
13	6.9	6.6	6.7	7.8	7.4	7.6	10.3	9.9	10.1	13.3	12.4	13.0
14	6.7	6.4	6.6	7.4	7.0	7.3	10.3	9.7	10.1	14.1	13.0	13.7
15	6.9	6.4	6.6	7.1	6.8	7.0	9.8	8.9	9.5	14.0	13.5	13.8
16	7.2	6.7	6.9	6.9	6.7	6.8	9.0	8.2	8.6	13.8	13.4	13.7
17	7.3	7.0	7.1	6.7	6.5	6.6	8.2	7.8	8.0	14.1	13.4	13.8
18	7.5	7.1	7.3	6.5	6.2	6.4	8.0	7.9	8.0	14.4	13.7	14.1
19	7.9	7.5	7.7	6.4	6.2	6.2	8.2	7.9	8.1	14.5	13.9	14.2
20	8.5	7.9	8.1	6.9	6.2	6.5	9.1	8.2	8.7	14.4	13.8	14.1
21	9.0	8.5	8.7	7.4	6.8	7.1	9.7	8.9	9.3	13.9	13.2	13.6
22	9.2	8.9	9.0	7.9	7.2	7.5	10.0	9.3	9.6	13.2	12.8	13.1
23	9.4	9.1	9.2	8.3	7.7	8.0	10.4	9.4	9.8	13.3	12.7	13.0
24	9.6	9.2	9.4	8.5	8.1	8.3	11.2	10.1	10.6	13.5	12.9	13.2
25	9.2	8.2	8.7	9.1	8.3	8.7	11.6	11.0	11.2	13.9	13.2	13.6
26	8.2	7.6	7.8	9.1	8.7	8.9	11.6	11.3	11.5	15.0	13.6	14.4
27	7.6	7.0	7.2	8.9	8.4	8.7	11.8	11.5	11.6	15.7	14.7	15.2
28	7.2	6.9	7.1	9.0	8.5	8.7	11.8	11.5	11.7	16.0	15.3	15.7
29	---	---	---	9.3	8.8	9.0	12.1	11.8	11.9	15.8	15.4	15.6
30	---	---	---	9.6	9.2	9.4	12.4	11.9	12.2	15.4	15.0	15.1
31	---	---	---	9.9	9.4	9.6	---	---	---	15.0	14.8	14.8
MONTH	9.6	6.0	7.3	9.9	6.2	7.5	12.4	7.8	10.2	16.0	11.0	13.3
	JUNE			JULY			AUGUST			SEPTEMBER		
1	15.1	14.8	15.0	20.0	19.3	19.5	22.9	22.4	22.6	22.9	22.0	22.3
2	15.8	15.0	15.5	19.9	19.1	19.4	23.2	22.4	22.8	23.2	22.4	22.6
3	16.2	15.5	15.9	19.4	18.9	19.2	22.8	22.4	22.5	22.9	22.3	22.5
4	16.5	15.6	16.1	19.6	18.9	19.2	22.4	22.0	22.1	22.4	22.0	22.2
5	17.0	15.9	16.4	20.1	19.3	19.6	22.4	21.8	22.0	22.2	21.8	22.0
6	16.8	16.1	16.5	20.4	19.9	20.0	22.1	21.6	21.7	22.1	21.6	21.8
7	17.0	16.3	16.7	20.5	20.3	20.4	21.6	21.1	21.3	21.9	21.3	21.6
8	16.7	16.2	16.4	20.6	20.2	20.4	21.3	20.8	21.0	21.3	20.7	21.0
9	16.3	15.8	16.1	---	---	---	21.4	20.7	20.9	20.7	20.1	20.4
10	16.3	15.5	15.9	---	---	---	21.4	20.9	21.1	20.3	19.5	19.9
11	16.5	15.4	15.9	---	---	---	21.4	20.9	21.1	19.6	19.1	19.4
12	17.3	15.8	16.5	---	---	---	22.2	21.2	21.6	19.7	19.1	19.3
13	18.3	17.0	17.6	---	---	---	22.9	21.7	22.2	20.1	19.4	19.6
14	19.2	18.0	18.6	---	---	---	23.4	22.5	22.7	20.2	19.7	20.0
15	19.5	18.7	19.1	---	---	---	23.5	22.8	23.1	20.4	20.0	20.2
16	19.4	18.9	19.1	24.1	23.6	23.9	23.8	23.1	23.3	20.6	20.3	20.4
17	18.9	18.4	18.8	24.1	23.8	23.9	24.1	23.4	23.6	20.5	20.2	20.4
18	18.4	17.4	17.9	23.8	23.3	23.5	23.9	23.4	23.6	20.3	19.7	20.0
19	17.4	16.8	17.0	23.4	22.9	23.1	23.8	23.3	23.5	19.8	19.0	19.4
20	17.1	16.4	16.7	22.9	22.5	22.7	23.4	23.0	23.2	19.2	18.4	18.6
21	17.6	16.5	16.9	23.3	22.5	22.8	23.0	22.5	22.7	18.4	17.9	18.0
22	17.7	17.4	17.5	23.4	22.8	23.0	22.5	21.8	22.0	18.2	17.7	18.0
23	18.7	17.6	18.2	23.2	22.8	22.9	22.0	21.5	21.7	18.4	18.0	18.1
24	19.6	18.5	19.1	23.3	22.7	23.0	21.7	21.3	21.5	18.5	18.0	18.2
25	19.8	19.2	19.4	23.7	23.0	23.2	21.5	21.0	21.2	18.8	18.0	18.2
26	20.1	19.5	19.8	23.9	23.3	23.5	21.1	20.8	21.0	18.4	18.1	18.2
27	20.4	19.8	20.1	24.0	23.4	23.6	21.7	21.0	21.2	18.5	18.1	18.2
28	20.4	20.0	20.2	24.1	23.3	23.6	22.1	21.5	21.7	18.4	18.1	18.2
29	21.0	20.1	20.5	23.8	23.1	23.4	22.5	21.9	22.1	18.3	17.9	18.2
30	20.7	20.0	20.4	23.7	23.1	23.3	22.1	21.8	21.9	18.0	17.5	17.8
31	---	---	---	23.1	22.5	22.8	22.4	21.6	21.9	---	---	---
MONTH	21.0	14.8	17.7	---	---	---	24.1	20.7	22.1	23.2	17.5	19.8

14207770 WILLAMETTE RIVER BELOW FALLS, AT OREGON CITY, OR

LOCATION.--Lat 45°21'28", long 122°36'35", in NE 1/4 NW 1/4 sec.31, T.2 S., R.2 E., Clackamas County, Hydrologic Unit 17090007, on right bank 0.5 mi below Willamette Falls, 1.4 mi upstream from Clackamas River, and at mile 26.2.

DRAINAGE AREA.--10,000 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--November 1976 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Oregon State Highway Division bench mark).

REMARKS.--Flow regulated by many reservoirs upstream. Gage out of operation during period October 1993 to January 1994 and July to September 1994.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 46.04 ft Feb. 9, 1996, from high-water mark; minimum, 1.24 ft July 14, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 21.60 ft Dec. 17; minimum, 1.49 ft Oct. 10.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	5.38	2.05	3.74	7.40	4.23	5.69	18.45	16.53	17.31	10.77	8.59	9.38
2	5.81	2.40	4.05	7.55	4.77	5.92	19.48	18.40	19.05	11.77	9.20	10.24
3	5.94	2.59	4.15	7.07	4.29	5.45	19.71	19.10	19.41	11.46	10.21	10.75
4	5.45	2.21	3.79	6.43	3.59	4.84	19.15	18.26	18.76	11.15	10.19	10.65
5	5.92	2.05	3.77	6.31	3.41	4.63	18.38	17.69	18.03	11.02	9.92	10.36
6	5.75	2.44	3.91	6.51	3.24	4.64	18.35	17.66	17.87	11.76	9.68	10.47
7	5.33	2.18	3.59	5.83	3.34	4.35	18.48	18.08	18.32	16.43	11.76	14.20
8	5.35	1.86	3.43	5.71	2.93	4.07	18.41	17.82	18.14	19.04	16.43	18.11
9	4.93	1.83	3.18	5.81	3.13	4.27	18.15	16.47	17.41	19.15	18.60	18.87
10	5.59	1.49	3.16	5.99	2.88	4.31	16.50	14.91	15.79	18.70	17.29	18.17
11	5.59	2.32	3.71	5.80	2.53	4.21	14.94	13.53	14.35	17.29	15.19	16.32
12	5.29	1.78	3.47	6.46	2.84	4.60	13.61	12.51	13.13	15.19	13.92	14.51
13	5.53	1.97	3.65	7.21	3.32	5.14	14.28	12.27	12.99	14.05	13.44	13.73
14	5.44	2.14	3.85	8.80	3.88	6.52	18.25	14.28	17.06	13.46	12.66	13.06
15	6.07	2.43	4.20	9.59	6.59	7.91	19.46	18.25	18.88	12.66	11.78	12.23
16	6.50	2.92	4.54	8.99	6.33	7.47	20.86	19.31	19.87	12.11	11.40	11.74
17	6.69	2.92	4.60	8.57	6.03	6.98	21.60	20.85	21.23	11.89	10.77	11.27
18	6.95	3.38	4.91	8.19	5.91	6.77	21.31	20.60	21.04	11.03	10.14	10.49
19	6.55	3.01	4.54	7.94	5.45	6.44	21.27	20.27	20.76	10.48	9.65	10.01
20	5.87	2.55	4.08	8.09	5.57	6.74	20.48	19.16	19.70	10.92	9.45	10.14
21	5.63	2.15	3.70	8.07	6.11	7.20	19.30	18.49	18.83	14.80	10.91	12.74
22	5.94	2.08	3.75	10.56	6.96	8.43	18.60	17.13	17.87	17.07	14.80	16.03
23	5.44	2.93	4.15	13.39	10.56	11.86	17.24	15.89	16.58	17.77	17.07	17.37
24	5.05	2.49	3.78	13.99	13.08	13.60	15.99	14.31	15.19	17.24	15.78	16.60
25	5.14	2.90	3.96	13.12	11.20	12.16	14.31	12.45	13.46	18.25	15.89	16.84
26	4.81	2.20	3.58	11.30	10.38	10.90	12.46	11.07	11.90	20.22	18.25	19.37
27	5.33	2.48	3.90	10.85	9.87	10.35	11.44	10.19	10.88	20.81	20.05	20.48
28	5.25	2.34	3.72	11.83	9.84	10.71	11.31	9.81	10.33	20.60	19.62	20.28
29	5.70	2.60	4.00	15.16	11.49	13.85	11.35	9.74	10.27	19.62	17.00	18.31
30	6.36	2.94	4.45	16.68	15.15	16.06	11.04	9.40	9.96	17.03	14.82	15.69
31	6.90	3.31	5.13	--	--	--	10.77	8.92	9.59	14.82	13.16	13.82
MONTH	6.95	1.49	3.95	16.68	2.53	7.54	21.60	8.92	16.26	20.81	8.59	14.27

## 14207770 WILLAMETTE RIVER BELOW FALLS, AT OREGON CITY, OR--Continued

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	13.44	12.43	12.86	9.52	7.75	8.49	9.28	7.11	8.00	9.54	8.19	8.79
2	12.84	11.92	12.35	9.10	6.79	7.72	9.49	7.82	8.39	9.17	7.77	8.44
3	12.32	10.97	11.60	8.85	6.11	7.18	8.87	7.23	7.99	8.83	7.78	8.30
4	11.25	10.25	10.69	8.33	5.74	6.67	8.25	6.81	7.49	8.72	7.74	8.36
5	11.11	9.96	10.52	8.24	5.62	6.52	8.14	6.94	7.55	8.72	7.87	8.32
6	10.60	9.61	10.04	8.34	5.88	7.01	8.08	6.85	7.57	8.49	7.23	7.84
7	11.10	9.65	10.43	9.95	7.85	9.11	8.14	6.91	7.60	8.47	7.23	8.00
8	14.91	11.10	13.45	10.32	9.12	9.89	8.39	6.89	7.64	9.15	7.82	8.62
9	15.83	14.91	15.48	9.59	8.17	9.07	8.82	7.46	8.14	9.32	7.70	8.48
10	15.42	13.29	14.53	9.60	8.12	8.70	10.07	7.76	9.10	8.62	6.94	7.66
11	13.29	11.86	12.54	10.78	8.02	9.39	11.64	9.62	10.70	8.23	6.65	7.39
12	11.87	11.15	11.56	14.99	10.58	13.31	12.17	11.28	11.76	8.83	---	---
13	11.23	10.04	10.65	16.59	14.97	15.85	12.57	11.38	11.98	8.51	6.71	7.42
14	10.44	9.53	9.90	16.64	15.66	16.26	15.67	12.48	14.47	8.87	7.26	7.91
15	9.87	8.79	9.39	15.66	14.33	14.93	17.03	15.61	16.23	8.92	7.38	7.99
16	9.52	8.11	8.73	14.33	13.11	13.66	18.26	17.03	17.65	8.88	7.24	7.96
17	9.01	7.45	8.04	13.11	12.10	12.56	18.35	18.13	18.24	8.52	7.08	7.71
18	8.69	7.06	7.64	12.13	11.02	11.55	18.23	17.21	17.74	8.89	7.39	8.09
19	9.08	6.98	7.85	11.97	10.99	11.43	17.23	15.62	16.48	8.36	7.14	7.77
20	8.71	7.52	7.94	12.52	11.85	12.08	15.62	13.48	14.63	8.44	7.56	8.02
21	9.05	7.71	8.24	11.98	10.87	11.47	13.60	12.36	13.11	8.90	7.77	8.51
22	9.49	8.25	8.75	11.06	9.83	10.53	12.48	11.00	11.86	9.82	8.37	9.45
23	10.62	8.51	9.80	10.18	9.06	9.75	11.28	10.58	10.96	10.71	9.50	10.09
24	11.84	10.21	11.08	10.02	9.11	9.45	11.00	10.27	10.63	10.70	9.57	10.02
25	11.51	10.18	10.95	10.51	9.11	9.76	11.03	9.74	10.30	11.01	9.52	10.09
26	10.89	9.41	10.06	10.50	9.08	9.67	10.67	9.38	9.92	10.69	8.96	9.67
27	10.33	8.61	9.51	10.30	8.78	9.36	10.57	9.06	9.69	10.34	8.42	9.24
28	9.84	8.19	8.90	10.08	8.40	9.09	10.70	8.63	9.50	10.85	9.07	10.01
29	---	---	---	9.70	7.89	8.62	9.92	8.00	8.74	11.76	10.29	11.13
30	---	---	---	9.59	7.42	8.25	9.90	8.07	8.81	11.86	11.18	11.52
31	---	---	---	9.48	7.25	8.01	---	---	---	11.81	11.20	11.49
MONTH	15.83	6.98	10.48	16.64	5.62	10.17	18.35	6.81	11.10	11.86	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	12.13	11.26	11.55	11.05	10.17	10.43	6.48	3.96	4.83	5.99	3.03	3.99
2	12.33	11.24	11.81	10.80	10.02	10.34	6.50	3.84	4.73	5.74	2.61	3.76
3	11.44	10.34	10.82	10.56	9.28	9.92	6.45	4.07	4.84	5.60	2.08	3.83
4	11.06	10.49	10.88	9.84	9.27	9.51	6.57	3.72	4.77	6.20	2.40	4.30
5	12.03	10.90	11.45	10.01	8.43	9.21	6.52	3.35	4.80	7.07	3.16	4.87
6	---	---	---	9.31	7.39	8.13	7.55	4.45	5.70	7.11	3.26	5.01
7	---	---	---	9.04	7.17	7.90	7.72	3.97	5.43	7.24	3.21	5.02
8	12.48	12.12	12.29	8.97	7.08	7.88	7.61	4.13	5.53	6.70	2.90	4.70
9	12.43	11.27	11.82	8.71	6.43	7.34	8.20	4.82	6.20	6.42	2.76	4.52
10	11.67	10.48	11.04	8.89	5.91	7.16	8.19	4.39	5.97	7.02	2.97	4.68
11	11.37	10.31	10.76	9.12	6.59	7.55	7.80	4.41	5.78	6.99	3.21	4.91
12	11.88	10.19	11.02	9.34	7.32	8.07	7.67	4.01	5.57	6.09	2.75	4.42
13	11.21	10.02	10.57	9.60	7.55	8.50	7.93	4.13	5.61	5.93	2.43	3.81
14	11.34	9.74	10.53	8.98	7.12	8.01	7.93	4.38	5.71	6.24	2.42	3.96
15	10.38	9.32	9.85	8.90	7.23	7.87	7.73	4.29	5.58	6.34	2.89	4.13
16	10.11	8.87	9.60	8.79	6.34	7.53	7.73	4.50	5.57	5.64	2.18	3.81
17	10.09	8.64	9.15	8.43	6.02	6.78	7.47	4.00	5.25	5.71	2.41	4.16
18	10.35	9.34	9.82	8.61	6.91	7.51	6.89	3.42	4.76	6.46	2.93	4.57
19	10.97	9.89	10.55	8.98	6.26	7.30	7.02	3.72	5.07	6.41	3.08	4.63
20	12.02	10.97	11.77	8.59	6.09	7.05	7.25	3.93	5.30	6.51	3.20	4.76
21	12.48	11.78	12.07	8.68	6.09	7.41	7.51	4.27	5.50	6.66	3.28	4.78
22	12.52	10.96	11.73	8.77	6.62	7.50	7.53	4.00	5.47	6.46	2.75	4.53
23	11.64	9.97	10.67	9.10	6.17	7.41	7.39	4.06	5.41	7.03	3.11	4.80
24	11.40	10.02	10.62	8.81	5.89	7.03	7.33	4.05	5.43	6.86	3.62	5.09
25	11.52	9.83	10.55	8.61	5.88	6.97	7.09	3.54	5.14	6.60	3.16	4.53
26	10.69	9.28	9.94	8.20	5.21	6.42	6.27	3.20	4.50	6.82	3.24	4.60
27	10.41	9.43	9.87	7.48	4.65	5.81	6.39	3.07	4.44	6.65	3.58	4.73
28	10.84	9.95	10.36	6.77	4.04	5.38	6.55	2.95	4.57	5.90	2.98	4.25
29	12.08	10.77	11.52	6.44	3.65	5.04	6.21	3.47	4.63	5.62	2.72	3.84
30	12.09	10.69	11.38	6.96	4.55	5.28	6.16	2.92	4.00	5.49	2.35	3.66
31	---	---	---	6.64	3.80	5.10	5.99	3.19	4.07	---	---	---
MONTH	---	---	---	11.05	3.65	7.53	8.20	2.92	5.17	7.24	2.08	4.42

14208600 TIMOTHY LAKE NEAR GOVERNMENT CAMP, OR

LOCATION.--Lat 45°06'50", long 121°48'35", in NE 1/4 sec.27, T.5 S., R.8 E., Clackamas County, Hydrologic Unit 17090011, Mount Hood National Forest, in intake structure 350 ft upstream from dam on Oak Grove Fork, 0.4 mi upstream from Anvil Creek, 14 mi south of Government Camp, and at mile 15.8.

DRAINAGE AREA.--53.8 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1956 to current year. Prior to October 1957, published as Timothy Meadows Reservoir.

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929 (levels by Portland General Electric Co.).

REMARKS.--Reservoir is formed by earthfill dam with concrete spillway built by Portland General Electric Co. Usable storage began May 28, 1956. Capacity, 65,710 acre-ft at elevation 3,190 ft, normal maximum operating level. Usable capacity increased in 1966 water year to 64,450 acre-ft between elevations 3,125.0 ft, invert of outlet pipe, and 3,192.0 ft, top of radial gates. Storage of 4,060 acre-ft below elevation 3,125.0 ft not normally available for release. Water is used for power generation. Figures given herein represent total contents.

COOPERATION.--Elevations and capacity table furnished by Portland General Electric Co.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 68,800 acre-ft Oct. 3, 1967, elevation, 3,192.2 ft; minimum contents observed, 16,010 acre-ft Feb. 24, 1957, elevation, 3,144.5 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 66,210 acre-ft July 8, 9, 25-27, Aug. 10-12, elevation, 3,191.79 ft; minimum contents observed, 42,670 acre-ft Feb. 19, elevation, 3,171.69 ft.

## MONTHEND ELEVATION AND CONTENTS AT 0800, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	3,187.73	62,630	-
Oct. 31.....	3,183.68	57,320	-5,310
Nov. 30.....	3,180.30	53,040	-4,280
Dec. 31.....	3,180.00	52,670	-370
CAL YR 2001.....	-	-	+840
Jan. 31.....	3,177.67	49,800	-2,870
Feb. 28.....	3,172.49	43,600	-6,200
Mar. 31.....	3,177.20	49,220	+5,620
Apr. 30.....	3,186.38	60,840	+11,620
May 31.....	3,191.64	68,000	+7,160
June 30.....	3,191.64	68,000	0
July 31.....	3,191.77	68,190	+190
Aug. 31.....	3,191.78	68,200	+10
Sept. 30.....	3,186.45	60,930	-7,270
WTR YR 2002.....	-	-	-1,700



14208700 OAK GROVE FORK NEAR GOVERNMENT CAMP, OR

LOCATION.--Lat 45°06'50", long 121°48'50", in NE 1/4 sec.27, T.5 S., R.8 E., Clackamas County, Hydrologic Unit 17090011, Mount Hood National Forest, on right bank 0.1 mi upstream from Anvil Creek, 0.3 mi downstream from Timothy Lake, 14 mi south of Government Camp, and at mile 15.5.

DRAINAGE AREA.--54.4 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1956 to current year.

GAGE.--Water-stage recorder and artificial control. Datum of gage is 3,041.83 ft above NGVD of 1929 (Portland General Electric Co. bench mark).

REMARKS.--No estimated daily discharges. Records good. Flow regulated since 1956 by Timothy Lake (station 14208600). No diversion upstream from station.

AVERAGE DISCHARGE.--46 years (water years 1957-2002), 134 ft<sup>3</sup>/s, 33.45 in/yr, 97,080 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,110 ft<sup>3</sup>/s Dec. 24, 1964, gage height, 3.93 ft, from rating curve extended above 290 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 3.7 ft<sup>3</sup>/s Sept. 23, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 696 ft<sup>3</sup>/s Sept. 23, gage height, 2.99 ft; minimum discharge, 36 ft<sup>3</sup>/s Mar. 21, 22.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	144	213	150	210	290	43	43	153	210	86	68	61
2	144	217	150	210	298	43	43	153	206	78	67	67
3	144	217	162	209	299	42	44	153	204	74	64	79
4	144	220	193	216	298	42	44	153	202	74	62	96
5	146	206	147	207	297	42	44	153	185	75	62	99
6	153	212	173	174	307	42	44	55	164	78	62	113
7	153	213	64	117	288	42	45	78	156	84	62	113
8	150	213	120	69	283	42	45	112	156	92	64	116
9	139	212	141	44	294	42	46	111	158	93	67	150
10	130	211	187	69	293	42	48	45	159	92	67	214
11	67	210	185	109	294	42	49	58	159	92	67	232
12	117	210	185	95	294	44	50	124	159	88	67	280
13	142	210	116	111	294	43	53	114	153	83	67	294
14	141	208	43	138	294	43	67	103	133	81	67	294
15	141	210	45	170	294	44	65	104	131	77	67	294
16	143	152	45	181	293	44	88	109	131	77	67	294
17	142	132	44	201	290	43	110	95	131	77	67	294
18	143	123	42	204	225	43	53	80	144	77	67	294
19	142	121	66	211	95	43	47	80	142	77	66	291
20	144	101	121	204	64	42	46	76	133	71	63	290
21	154	102	162	207	62	37	51	95	133	63	62	290
22	128	89	189	210	60	40	50	111	133	62	62	290
23	143	107	199	246	64	42	58	111	133	62	62	286
24	169	151	199	252	62	42	104	120	120	62	62	211
25	170	150	199	177	57	43	168	125	89	64	62	115
26	219	143	207	217	43	43	208	137	86	66	62	125
27	219	99	210	248	43	43	224	138	86	69	62	125
28	220	98	210	265	43	43	223	151	86	69	62	125
29	219	109	210	268	---	43	194	168	86	69	61	114
30	219	135	210	282	---	43	153	213	86	69	61	101
31	202	---	210	285	---	43	---	213	---	69	60	---
TOTAL	4831	4994	4584	5806	5818	1315	2507	3691	4254	2350	1988	5747
MEAN	155.8	166.5	147.9	187.3	207.8	42.42	83.57	119.1	141.8	75.81	64.13	191.6
MAX	220	220	210	285	307	44	224	213	210	93	68	294
MIN	67	89	42	44	43	37	43	45	86	62	60	61
AC-FT	9580	9910	9090	11520	11540	2610	4970	7320	8440	4660	3940	11400
MEAN†	69.4	94.6	142	141	96.2	134	279	235	142	78.9	64.2	69.4
CFSM†	1.28	1.74	2.61	2.59	1.77	2.46	5.13	4.32	2.61	1.45	1.18	1.28
IN.†	1.47	1.94	3.00	2.98	1.84	2.84	5.72	4.99	2.91	1.67	1.36	1.42
AC-FT†	4270	5630	8720	8650	5340	8230	16590	14480	8440	4850	3950	4130

CAL YR 2001 TOTAL 29604 MEAN 81.11 MAX 220 MIN 39 AC-FT 58720 MEAN† 82.3 CFSM† 1.51 IN.† 20.53 AC-FT† 59560  
WTR YR 2002 TOTAL 47885 MEAN 131.2 MAX 307 MIN 37 AC-FT 94980 MEAN† 129 CFSM† 2.37 IN.† 32.15 AC-FT† 93280

† Adjusted for change in contents in Timothy Lake.





14209700 FISH CREEK NEAR THREE LYNX, OR

LOCATION.--Lat 45°08'52", long 122°09'07", in NE 1/4 SE 1/4 sec.11, T.5 S., R.5 E., Clackamas County, Hydrologic Unit 17090011, Mount Hood National Forest, on right bank, 0.7 mi upstream from Clackamas River, and at mile 1.15.

DRAINAGE AREA.--45.1 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 940 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--13 years (water years 1990-2002), 212 ft<sup>3</sup>/s, 63.94 in/yr, 153,800 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,540 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 11.83 ft, from rating curve extended above 2,800 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; maximum gage height, 15.40 ft, backwater from debris flow; minimum discharge, 6.0 ft<sup>3</sup>/s Sept. 1, 2, 1992.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 13	2230	2,160	8.59	Apr. 14	0400	*2,400	*8.81

Minimum discharge, 7.8 ft<sup>3</sup>/s Oct. 4-6, Sept. 25-29.

DISCHARGE in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	9.3	391	836	157	129	156	205	215	256	93	19	10
2	8.9	343	723	233	130	138	219	233	228	80	18	10
3	8.5	226	453	251	142	125	228	255	209	71	18	10
4	8.1	161	337	222	152	118	260	224	206	64	18	10
5	8.0	140	274	201	146	119	313	210	222	59	19	9.9
6	8.1	114	675	437	156	311	317	205	214	54	19	10
7	8.2	96	741	1020	346	318	329	179	177	52	18	10
8	9.6	82	457	1360	397	177	315	158	151	49	17	9.8
9	10	73	357	745	282	183	378	146	135	45	16	9.7
10	21	64	291	462	215	183	646	135	127	42	16	9.4
11	92	58	279	334	205	555	642	129	136	40	15	9.2
12	39	65	277	369	178	985	639	145	151	37	15	9.0
13	42	157	867	377	153	551	711	199	166	35	14	8.7
14	38	295	1300	297	135	392	1660	215	172	34	13	8.6
15	34	208	648	238	130	309	809	207	152	33	13	8.7
16	28	247	1100	202	133	256	510	199	136	31	13	9.1
17	25	242	1220	174	142	212	382	213	137	30	13	12
18	21	193	688	157	144	185	318	231	198	29	12	12
19	19	184	477	173	249	267	271	233	153	28	12	11
20	18	226	365	291	269	294	236	230	127	27	13	11
21	18	289	288	430	373	274	214	231	115	26	14	9.6
22	177	1030	235	254	594	221	204	239	109	25	13	9.0
23	347	992	197	192	694	200	201	226	101	24	13	8.6
24	181	485	169	191	556	215	191	217	90	23	12	8.3
25	115	316	149	606	361	217	188	225	82	22	12	8.2
26	87	242	134	437	265	214	196	259	77	22	12	8.0
27	75	198	125	273	213	227	200	284	73	22	12	8.0
28	73	548	154	204	181	209	184	319	69	21	12	7.9
29	67	1090	147	165	---	193	182	423	145	20	11	9.4
30	227	584	134	141	---	188	204	365	114	20	11	19
31	459	---	134	133	---	198	---	300	---	19	11	---
TOTAL	2281.7	9339	14231	10726	7070	8236	11352	7049	4428	1177	444	294.1
MEAN	73.60	311.3	459.1	346.0	252.5	265.7	378.4	227.4	147.6	37.97	14.32	9.803
MAX	459	1090	1300	1360	694	985	1660	423	256	93	19	19
MIN	8.0	58	125	133	129	118	182	129	69	19	11	7.9
AC-FT	4530	18520	28230	21280	14020	16340	22520	13980	8780	2330	881	583
CFSM	1.63	6.90	10.2	7.67	5.60	5.89	8.39	5.04	3.27	0.84	0.32	0.22
IN.	1.88	7.70	11.74	8.85	5.83	6.79	9.36	5.81	3.65	0.97	0.37	0.24

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2002, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	94.48	337.8	415.9	370.3	356.7	288.6	296.4	208.0	117.0	37.00	17.75	17.48	
MAX	233	756	1006	654	817	564	447	389	236	62.8	31.4	44.0	
(WY)	1998	1996	1997	1997	1996	1997	1993	1999	1999	1993	1993	1997	
MIN	15.3	26.7	177	98.1	90.0	87.0	181	68.0	20.9	13.6	8.20	9.61	
(WY)	1994	1994	2001	2001	2001	1992	1998	1992	1992	1992	1992	2001	

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1990 - 2002
ANNUAL TOTAL	52543.0	76627.8	
ANNUAL MEAN	144.0	209.9	212.3
HIGHEST ANNUAL MEAN			335
LOWEST ANNUAL MEAN			99.6
HIGHEST DAILY MEAN	1300	1660	5970
LOWEST DAILY MEAN	8.0	7.9	6.1
ANNUAL SEVEN-DAY MINIMUM	8.3	8.3	6.4
ANNUAL RUNOFF (AC-FT)	104200	152000	153800
ANNUAL RUNOFF (CFSM)	3.19	4.65	4.71
ANNUAL RUNOFF (INCHES)	43.34	63.21	63.94
10 PERCENT EXCEEDS	337	458	473
50 PERCENT EXCEEDS	80	166	131
90 PERCENT EXCEEDS	11	11	14



## WATER-QUALITY RECORDS

PERIOD OR RECORD.--July 2001 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: July 2001 to current year.

pH: July 2001 to current year.

WATER TEMPERATURE: July 2001 to current year.

DISSOLVED OXYGEN: July 2001 to current year.

TURBIDITY: July 2001 to current year.

INSTRUMENTATION.--Water-quality monitor. Electronic data logger with a 30-minute recording interval.

REMARKS.--

SPECIFIC CONDUCTANCE: Records excellent.

pH: Records excellent.

WATER TEMPERATURE: Records excellent.

DISSOLVED OXYGEN: Records poor.

TURBIDITY: Records excellent for the period Jan. 24 to Sept. 30, 2002; records good for the period July 11, 2001 to Jan. 24, 2002.

EXTREMES FOR PEROF OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 72 microsiemens Sept. 19, 22, 2001; minimum recorded, 24 microsiemens

Apr. 14, 15, 2002.

pH: Maximum recorded, 7.7 units Aug. 2, 24, 2001; minimum recorded, 7.1 units Apr. 14, 2002.

WATER TEMPERATURE: Maximum recorded, 18.6°C July 26, 29, 2002; minimum recorded, 3.5°C Feb. 1, 2002.

DISSOLVED OXYGEN: Maximum recorded, 13.7 mg/L Jan. 21, 2002; minimum recorded, 8.2 mg/L Aug. 17, 2001.

TURBIDITY: Maximum recorded, 124 NTU Apr. 14, 2002; minimum recorded, <1 many days most years.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 70 microsiemens Oct. 4-11; minimum recorded, 24 microsiemens Apr. 14, 15.

pH: Maximum recorded, 7.6 units Sept. 26, 27; minimum recorded, 7.1 units Apr. 14.

WATER TEMPERATURE: Maximum recorded, 18.6°C July 26, 29; minimum recorded, 3.5°C Feb. 1.

DISSOLVED OXYGEN: Maximum recorded, 13.7 mg/L Jan. 21; minimum recorded, 8.8 mg/L Aug. 19.

TURBIDITY: Maximum recorded, 124 NTU Apr. 14; minimum recorded, <1 many days.

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), JULY TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	67	66	67	70	70	70
2	---	---	---	---	---	---	67	66	67	71	70	70
3	---	---	---	---	---	---	67	66	67	71	70	70
4	---	---	---	---	---	---	67	67	67	71	70	70
5	---	---	---	---	---	---	67	67	67	71	70	71
6	---	---	---	---	---	---	67	67	67	71	71	71
7	---	---	---	---	---	---	68	67	68	71	71	71
8	---	---	---	---	---	---	68	68	68	71	71	71
9	---	---	---	---	---	---	69	68	68	71	71	71
10	---	---	---	---	---	---	69	68	68	71	71	71
11	---	---	---	---	---	---	69	68	68	71	71	71
12	---	---	---	63	63	63	69	69	69	71	71	71
13	---	---	---	63	63	63	69	69	69	71	71	71
14	---	---	---	64	63	63	70	68	69	71	71	71
15	---	---	---	64	63	64	69	68	69	71	71	71
16	---	---	---	64	64	64	69	69	69	71	71	71
17	---	---	---	65	64	64	69	69	69	71	71	71
18	---	---	---	65	65	65	69	69	69	71	71	71
19	---	---	---	65	65	65	70	69	69	72	71	71
20	---	---	---	65	65	65	70	70	70	71	71	71
21	---	---	---	65	65	65	70	70	70	71	71	71
22	---	---	---	65	65	65	70	70	70	72	70	70
23	---	---	---	66	65	65	70	70	70	70	70	70
24	---	---	---	66	65	65	71	70	70	70	70	70
25	---	---	---	66	65	65	70	70	70	70	70	70
26	---	---	---	65	65	65	71	69	70	70	69	70
27	---	---	---	66	65	65	69	69	69	70	69	69
28	---	---	---	66	66	66	69	69	69	70	69	70
29	---	---	---	66	66	66	70	69	69	70	69	69
30	---	---	---	66	66	66	71	70	70	69	69	69
31	---	---	---	66	66	66	70	70	70	---	---	---
MONTH	---	---	---	---	---	---	71	66	69	72	69	70

WILLAMETTE RIVER BASIN

14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	69	69	69	59	54	57	39	37	38	48	47	48
2	69	69	69	55	47	51	40	38	39	48	48	48
3	69	69	69	47	45	46	39	38	38	48	48	48
4	70	69	69	46	45	46	41	39	40	48	46	46
5	70	69	69	46	46	46	42	41	41	46	45	45
6	70	69	70	49	46	48	43	42	43	45	44	44
7	70	70	70	50	49	50	44	40	42	45	35	42
8	70	70	70	52	50	51	40	38	38	35	29	31
9	70	70	70	52	51	51	40	38	39	31	29	30
10	70	70	70	52	52	52	41	40	41	33	31	32
11	70	69	69	53	52	52	43	41	42	36	33	34
12	69	69	69	54	53	53	43	42	43	37	36	36
13	69	68	69	54	53	53	44	43	44	38	37	38
14	69	67	68	56	54	55	44	31	36	38	37	38
15	67	66	67	56	52	55	34	31	33	39	38	38
16	67	66	66	52	47	49	37	34	36	39	39	39
17	66	66	66	47	46	46	37	31	33	41	39	40
18	66	66	66	46	46	46	34	31	32	42	41	42
19	66	66	66	46	46	46	36	34	35	42	41	42
20	66	66	66	47	46	46	37	36	37	43	42	43
21	66	66	66	47	47	47	39	37	38	43	43	43
22	66	66	66	47	45	47	40	39	39	43	41	42
23	67	66	66	45	35	38	41	40	41	42	41	41
24	66	62	65	37	35	36	43	41	42	44	42	43
25	62	58	60	39	37	38	44	43	43	46	44	45
26	58	56	56	41	39	40	45	44	44	46	40	43
27	57	56	56	42	41	42	46	45	45	40	39	40
28	57	57	57	43	42	43	46	46	46	43	40	42
29	58	57	58	45	36	42	47	46	47	44	43	43
30	59	58	58	37	35	36	47	47	47	45	44	45
31	59	59	59	---	---	---	48	47	47	47	45	46
MONTH	70	56	66	59	35	47	48	31	40	48	29	41
	FEBRUARY			MARCH			APRIL			MAY		
1	47	47	47	42	41	42	46	46	46	41	40	41
2	48	47	48	43	42	43	46	45	46	41	40	40
3	48	48	48	44	43	44	46	45	45	40	39	39
4	48	48	48	45	44	45	45	44	44	39	37	38
5	49	48	49	46	45	46	44	43	43	37	37	37
6	49	49	49	47	46	47	43	41	42	38	37	38
7	49	49	49	48	47	47	41	40	41	38	38	38
8	49	49	49	47	42	45	41	39	40	38	38	38
9	49	45	47	42	42	42	39	38	39	39	38	38
10	45	45	45	43	42	42	39	37	38	40	38	39
11	46	45	45	45	43	44	37	32	34	41	40	40
12	47	46	47	45	33	40	32	32	32	41	40	41
13	48	47	47	34	33	33	32	32	32	42	41	42
14	48	48	48	36	34	35	32	24	28	42	41	42
15	49	48	49	38	36	37	28	24	26	41	40	40
16	50	49	49	39	38	39	30	28	29	40	39	39
17	50	49	50	41	39	40	32	30	31	39	39	39
18	51	50	50	42	41	42	34	32	33	39	39	39
19	51	50	51	43	42	42	35	34	35	39	37	38
20	51	51	51	44	43	43	37	13	36	37	37	37
21	51	49	50	44	43	44	38	37	38	37	37	37
22	49	47	48	44	43	44	39	38	39	37	36	37
23	47	41	44	45	44	44	40	39	40	36	36	36
24	41	37	39	45	45	45	40	40	40	36	36	36
25	37	37	37	46	45	46	40	40	40	37	36	36
26	38	37	37	46	46	46	40	40	40	37	36	37
27	39	38	39	46	46	46	40	40	40	37	36	37
28	41	39	40	46	46	46	40	40	40	36	35	35
29	---	---	---	46	46	46	40	40	40	35	34	34
30	---	---	---	46	46	46	41	40	40	34	31	33
31	---	---	---	46	46	46	---	---	---	31	30	31
MONTH	51	37	46	48	33	43	46	13	38	42	30	38

WILLAMETTE RIVER BASIN

14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	32	31	31	45	45	45	62	62	62	66	66	66
2	33	32	33	45	45	45	63	62	62	66	66	66
3	34	33	34	46	45	46	63	63	63	67	66	67
4	35	34	35	46	46	46	64	63	63	67	67	67
5	36	35	35	47	46	47	64	63	63	67	67	67
6	36	35	36	48	47	47	63	63	63	67	67	67
7	36	36	36	48	48	48	64	63	63	67	67	67
8	36	36	36	49	48	48	63	63	63	67	66	67
9	37	36	37	49	49	49	63	63	63	67	66	67
10	38	37	38	50	49	50	63	63	63	67	66	67
11	39	38	39	52	50	52	63	63	63	67	66	67
12	40	39	39	53	52	52	63	63	63	67	67	67
13	41	40	41	53	53	53	64	63	63	67	67	67
14	41	41	41	54	53	53	64	64	64	67	66	66
15	41	40	40	55	54	54	64	64	64	67	66	66
16	40	39	39	56	55	55	64	64	64	66	66	66
17	39	38	39	57	56	57	64	64	64	66	65	65
18	39	39	39	58	57	57	65	64	64	66	65	65
19	39	39	39	58	58	58	65	65	65	66	65	65
20	39	38	38	58	58	58	66	65	65	65	65	65
21	39	38	39	59	58	58	66	66	66	65	65	65
22	41	39	40	59	59	59	66	66	66	66	65	65
23	41	40	40	59	59	59	66	66	66	66	65	65
24	44	41	41	60	59	59	66	66	66	66	65	65
25	42	42	42	60	59	59	66	66	66	65	64	64
26	43	42	42	60	60	60	66	66	66	64	62	64
27	43	43	43	60	60	60	66	65	65	66	57	60
28	44	43	43	61	60	60	66	66	66	66	59	60
29	44	44	44	61	61	61	66	66	66	63	57	61
30	45	44	45	62	61	62	66	66	66	66	62	64
31	---	---	---	62	62	62	66	66	66	---	---	---
MONTH	45	31	39	62	45	54	66	62	64	67	57	65
YEAR	70	13	49									

PH, WATER, WHOLE, FIELD, STANDARD UNITS, JULY TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	---	---	---	---	---	---	7.6	7.5	7.5	7.5	7.4	7.5
2	---	---	---	---	---	---	7.7	7.5	7.6	7.5	7.4	7.4
3	---	---	---	---	---	---	7.7	7.6	7.6	7.4	7.4	7.4
4	---	---	---	---	---	---	7.6	7.5	7.6	7.5	7.4	7.5
5	---	---	---	---	---	---	7.5	7.5	7.5	7.6	7.5	7.5
6	---	---	---	---	---	---	7.6	7.5	7.5	7.7	7.5	7.5
7	---	---	---	---	---	---	7.7	7.5	7.6	7.6	7.5	7.5
8	---	---	---	---	---	---	7.6	7.5	7.6	7.6	7.5	7.6
9	---	---	---	---	---	---	7.6	7.5	7.5	7.6	7.5	7.6
10	---	---	---	---	---	---	7.6	7.5	7.5	7.6	7.5	7.6
11	---	---	---	---	---	---	7.6	7.5	7.5	7.6	7.5	7.5
12	---	---	---	7.6	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.5
13	---	---	---	7.6	7.5	7.5	7.6	7.5	7.5	7.6	7.5	7.5
14	---	---	---	7.5	7.4	7.5	7.5	7.5	7.5	7.6	7.5	7.5
15	---	---	---	7.5	7.4	7.5	7.5	7.5	7.4	7.5	7.6	7.5
16	---	---	---	7.5	7.4	7.4	7.5	7.5	7.5	7.6	7.5	7.5
17	---	---	---	7.4	7.4	7.4	7.5	7.5	7.5	7.5	7.5	7.5
18	---	---	---	7.5	7.4	7.5	7.5	7.5	7.5	7.5	7.5	7.5
19	---	---	---	7.5	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.5
20	---	---	---	7.6	7.5	7.5	7.5	7.5	7.5	7.5	7.4	7.5
21	---	---	---	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.5
22	---	---	---	7.5	7.4	7.5	7.5	7.4	7.5	7.6	7.5	7.6
23	---	---	---	7.6	7.5	7.5	7.4	7.4	7.4	7.6	7.6	7.6
24	---	---	---	7.6	7.5	7.5	7.7	7.4	7.6	7.6	7.5	7.6
25	---	---	---	7.6	7.5	7.6	7.5	7.4	7.5	7.6	7.5	7.6
26	---	---	---	7.6	7.5	7.5	7.6	7.5	7.5	7.6	7.5	7.5
27	---	---	---	7.6	7.5	7.5	7.6	7.5	7.6	7.5	7.5	7.5
28	---	---	---	7.6	7.5	7.5	7.6	7.5	7.5	7.5	7.5	7.5
29	---	---	---	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.5
30	---	---	---	7.5	7.5	7.5	7.5	7.5	7.5	7.6	7.5	7.6
31	---	---	---	7.6	7.4	7.5	7.5	7.4	7.5	---	---	---
MAX	---	---	---	---	---	---	7.7	7.6	7.6	7.7	7.6	7.6
MIN	---	---	---	---	---	---	7.4	7.4	7.4	7.4	7.4	7.4



WILLAMETTE RIVER BASIN

14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.6	7.5	7.6	7.3	7.3	7.3	7.3	7.2	7.3	7.4	7.3	7.3
2	7.6	7.5	7.6	7.3	7.2	7.3	7.3	7.3	7.3	7.4	7.3	7.4
3	7.6	7.5	7.5	7.2	7.2	7.2	7.3	7.2	7.3	7.4	7.4	7.4
4	7.6	7.5	7.5	7.3	7.2	7.2	7.3	7.2	7.3	7.4	7.4	7.4
5	7.6	7.5	7.5	7.2	7.2	7.2	7.3	7.2	7.3	7.4	7.4	7.4
6	7.6	7.5	7.5	7.3	7.2	7.2	7.4	7.3	7.3	7.4	7.3	7.4
7	7.6	7.5	7.5	7.3	7.2	7.3	7.4	7.3	7.3	7.4	7.3	7.4
8	7.5	7.5	7.5	7.5	7.3	7.4	7.3	7.2	7.3	7.3	7.2	7.2
9	7.5	7.5	7.5	7.4	7.4	7.4	7.3	7.2	7.3	7.2	7.2	7.2
10	7.5	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.2	7.2	7.2
11	7.5	7.5	7.5	7.4	7.4	7.4	7.3	7.2	7.3	7.3	7.2	7.2
12	7.5	7.5	7.5	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.2	7.3
13	7.5	7.4	7.5	7.4	7.4	7.4	7.4	7.3	7.3	7.3	7.3	7.3
14	7.5	7.4	7.4	7.5	7.4	7.4	7.4	7.2	7.3	7.3	7.3	7.3
15	7.4	7.4	7.4	7.4	7.3	7.4	7.2	7.2	7.2	7.3	7.3	7.3
16	7.4	7.3	7.3	7.3	7.2	7.3	7.3	7.2	7.3	7.3	7.3	7.3
17	7.3	7.3	7.3	7.3	7.2	7.2	7.3	7.2	7.2	7.3	7.3	7.3
18	7.3	7.3	7.3	7.3	7.2	7.3	7.2	7.2	7.2	7.3	7.3	7.3
19	7.3	7.3	7.3	7.3	7.2	7.3	7.3	7.2	7.2	7.4	7.3	7.3
20	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.2	7.4	7.3	7.3
21	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.2	7.4	7.3	7.3
22	7.4	7.3	7.3	7.4	7.2	7.3	7.3	7.2	7.3	7.3	7.3	7.3
23	7.4	7.3	7.3	7.4	7.1	7.2	7.3	7.3	7.3	7.3	7.3	7.3
24	7.4	7.3	7.3	7.2	7.1	7.1	7.3	7.3	7.3	7.4	7.3	7.3
25	7.3	7.3	7.3	7.2	7.1	7.2	7.3	7.3	7.3	7.4	7.3	7.3
26	7.3	7.2	7.3	7.2	7.2	7.2	7.3	7.3	7.3	7.4	7.3	7.4
27	7.3	7.2	7.3	7.2	7.2	7.2	7.3	7.3	7.3	7.3	7.3	7.3
28	7.3	7.2	7.2	7.3	7.2	7.3	7.4	7.3	7.3	7.4	7.3	7.3
29	7.3	7.2	7.2	7.4	7.2	7.3	7.4	7.3	7.3	7.4	7.3	7.3
30	7.3	7.2	7.3	7.3	7.2	7.2	7.4	7.3	7.3	7.4	7.3	7.4
31	7.4	7.3	7.3	---	---	---	7.4	7.3	7.3	7.4	7.4	7.4
MAX	7.6	7.5	7.6	7.5	7.4	7.4	7.4	7.3	7.3	7.4	7.4	7.4
MIN	7.3	7.2	7.2	7.2	7.1	7.1	7.2	7.2	7.2	7.2	7.2	7.2

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.4	7.4	7.4	7.4	7.4	7.4	7.6	7.5	7.5	7.5	7.3	7.4
2	7.4	7.4	7.4	7.4	7.4	7.4	7.6	7.5	7.5	7.4	7.3	7.4
3	7.4	7.3	7.4	7.5	7.4	7.4	7.6	7.5	7.5	7.4	7.3	7.4
4	7.4	7.4	7.4	7.5	7.4	7.4	7.6	7.3	7.5	7.4	7.3	7.4
5	7.4	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.4	7.4	7.3	7.4
6	7.4	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.4	7.4	7.3	7.4
7	7.5	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.4
8	7.4	7.4	7.4	7.4	7.4	7.4	7.5	7.4	7.4	7.5	7.4	7.4
9	7.4	7.3	7.3	7.4	7.4	7.4	7.5	7.3	7.4	7.5	7.4	7.4
10	7.4	7.3	7.3	7.4	7.4	7.4	7.5	7.4	7.4	7.4	7.4	7.4
11	7.4	7.3	7.3	7.5	7.4	7.4	7.4	7.3	7.3	7.5	7.4	7.4
12	7.4	7.3	7.3	7.5	7.3	7.4	7.4	7.3	7.3	7.5	7.4	7.5
13	7.4	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.5	7.4	7.4
14	7.5	7.3	7.4	7.3	7.3	7.3	7.3	7.1	7.2	7.5	7.4	7.4
15	7.5	7.4	7.4	7.4	7.3	7.3	7.2	7.1	7.2	7.5	7.4	7.5
16	7.5	7.4	7.4	7.4	7.3	7.3	7.2	7.2	7.2	7.5	7.4	7.5
17	7.5	7.4	7.4	7.4	7.4	7.4	7.3	7.2	7.2	7.5	7.2	7.3
18	7.5	7.4	7.5	7.4	7.4	7.4	7.3	7.2	7.2	7.4	7.3	7.3
19	7.5	7.4	7.5	7.4	7.4	7.4	7.3	7.2	7.2	7.3	7.2	7.3
20	7.5	7.4	7.5	7.5	7.4	7.4	7.3	7.2	7.2	7.3	7.2	7.3
21	7.5	7.4	7.5	7.5	7.4	7.4	7.3	7.2	7.3	7.3	7.2	7.3
22	7.5	7.4	7.4	7.5	7.4	7.4	7.3	7.2	7.2	7.3	7.2	7.3
23	7.5	7.4	7.4	7.5	7.4	7.5	7.3	7.2	7.3	7.3	7.2	7.3
24	7.4	7.3	7.4	7.5	7.4	7.5	7.3	7.2	7.3	7.3	7.2	7.3
25	7.3	7.3	7.3	7.5	7.4	7.5	7.4	7.2	7.3	7.3	7.2	7.3
26	7.4	7.3	7.3	7.5	7.5	7.5	7.4	7.3	7.3	7.3	7.2	7.3
27	7.4	7.3	7.3	7.6	7.4	7.5	7.4	7.3	7.3	7.3	7.2	7.2
28	7.4	7.3	7.4	7.5	7.5	7.5	7.4	7.3	7.4	7.3	7.2	7.2
29	---	---	---	7.5	7.5	7.5	7.4	7.3	7.4	7.3	7.2	7.2
30	---	---	---	7.6	7.5	7.5	7.5	7.3	7.4	7.2	7.2	7.2
31	---	---	---	7.6	7.5	7.5	---	---	---	7.2	7.1	7.2
MAX	7.5	7.4	7.5	7.6	7.5	7.5	7.6	7.5	7.5	7.5	7.4	7.5
MIN	7.3	7.3	7.3	7.3	7.3	7.3	7.2	7.2	7.2	7.2	7.1	7.2

WILLAMETTE RIVER BASIN

14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.2	7.1	7.2	7.2	7.1	7.1	7.3	7.3	7.3	7.5	7.4	7.4
2	7.3	7.2	7.2	7.3	7.1	7.2	7.4	7.3	7.3	7.4	7.3	7.4
3	7.3	7.2	7.2	7.3	7.2	7.2	7.4	7.3	7.3	7.5	7.3	7.4
4	7.3	7.2	7.2	7.2	7.2	7.2	7.4	7.3	7.4	7.4	7.3	7.4
5	7.3	7.2	7.2	7.2	7.1	7.2	7.3	7.2	7.3	7.5	7.4	7.4
6	7.3	7.2	7.3	7.2	7.1	7.2	7.3	7.3	7.3	7.5	7.4	7.5
7	7.3	7.2	7.3	7.2	7.1	7.1	7.4	7.3	7.4	7.5	7.4	7.5
8	7.3	7.2	7.3	7.2	7.1	7.1	7.5	7.4	7.4	7.5	7.4	7.5
9	7.3	7.2	7.3	7.2	7.1	7.2	7.5	7.4	7.4	7.5	7.4	7.5
10	7.3	7.2	7.3	7.2	7.2	7.2	7.4	7.3	7.4	7.5	7.4	7.5
11	7.3	7.2	7.3	7.3	7.2	7.3	7.4	7.3	7.4	7.5	7.4	7.5
12	7.3	7.2	7.2	7.4	7.3	7.3	7.5	7.3	7.3	7.5	7.4	7.4
13	7.3	7.2	7.3	7.4	7.3	7.3	7.4	7.3	7.3	7.5	7.4	7.4
14	7.3	7.2	7.3	7.3	7.3	7.3	7.4	7.3	7.3	7.5	7.4	7.4
15	7.3	7.2	7.3	7.3	7.2	7.3	7.4	7.3	7.3	7.5	7.4	7.4
16	7.3	7.2	7.2	7.4	7.3	7.3	7.3	7.2	7.3	7.4	7.4	7.4
17	7.3	7.2	7.2	7.4	7.3	7.3	7.3	7.2	7.3	7.4	7.3	7.4
18	7.4	7.2	7.3	7.4	7.3	7.3	7.3	7.2	7.2	7.4	7.3	7.4
19	7.4	7.3	7.3	7.4	7.3	7.3	7.3	7.2	7.3	7.5	7.3	7.4
20	7.4	7.3	7.3	7.4	7.3	7.3	7.3	7.3	7.3	7.5	7.4	7.4
21	7.3	7.2	7.3	7.4	7.3	7.3	7.3	7.3	7.3	7.5	7.4	7.4
22	7.3	7.2	7.3	7.4	7.3	7.3	7.4	7.2	7.3	7.5	7.4	7.4
23	7.3	7.2	7.3	7.4	7.3	7.3	7.5	7.3	7.4	7.5	7.4	7.4
24	7.3	7.2	7.2	7.3	7.3	7.3	7.5	7.3	7.4	7.5	7.4	7.4
25	7.3	7.2	7.3	7.3	7.2	7.3	7.5	7.4	7.4	7.5	7.4	7.4
26	7.3	7.2	7.2	7.3	7.2	7.2	7.4	7.3	7.3	7.7	7.4	7.6
27	7.2	7.2	7.2	7.2	7.2	7.2	7.4	7.3	7.4	7.7	7.6	7.6
28	7.2	7.1	7.2	7.3	7.2	7.2	7.5	7.4	7.4	7.6	7.6	7.6
29	7.2	7.1	7.1	7.3	7.2	7.3	7.5	7.4	7.4	7.6	7.6	7.6
30	7.2	7.1	7.1	7.4	7.3	7.3	7.5	7.4	7.5	7.6	7.6	7.6
31	---	---	---	7.3	7.3	7.3	7.5	7.4	7.4	---	---	---
MAX	7.4	7.3	7.3	7.4	7.3	7.3	7.5	7.4	7.5	7.7	7.6	7.6
MIN	7.2	7.1	7.1	7.2	7.1	7.1	7.3	7.2	7.2	7.4	7.3	7.4

TEMPERATURE, WATER (DEG. C), JULY TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	16.7	16.5	16.6	17.2	17.0	17.1
2	---	---	---	---	---	---	16.7	16.5	16.6	17.0	16.8	16.9
3	---	---	---	---	---	---	16.8	16.6	16.7	16.8	16.6	16.7
4	---	---	---	---	---	---	16.6	16.4	16.5	16.7	16.5	16.7
5	---	---	---	---	---	---	16.6	16.2	16.4	16.5	16.4	16.5
6	---	---	---	---	---	---	17.0	16.4	16.7	16.4	16.1	16.2
7	---	---	---	---	---	---	17.2	16.8	17.0	16.1	16.0	16.0
8	---	---	---	---	---	---	17.3	16.9	17.1	16.1	15.8	16.0
9	---	---	---	---	---	---	17.5	17.1	17.3	16.0	15.8	15.9
10	---	---	---	---	---	---	17.6	17.4	17.5	15.9	15.6	15.7
11	---	---	---	---	---	---	17.8	17.5	17.7	15.7	15.5	15.7
12	---	---	---	18.0	17.7	17.8	17.9	17.6	17.8	15.7	15.5	15.6
13	---	---	---	18.2	17.8	18.0	18.0	17.7	17.9	15.7	15.5	15.6
14	---	---	---	18.1	17.8	17.9	18.1	17.9	18.0	15.6	15.4	15.5
15	---	---	---	17.8	17.7	17.8	17.9	17.7	17.8	15.6	15.5	15.6
16	---	---	---	17.7	17.4	17.5	17.8	17.7	17.8	15.7	15.6	15.7
17	---	---	---	17.4	17.2	17.2	17.8	17.5	17.6	15.6	15.5	15.6
18	---	---	---	17.2	16.8	17.0	18.0	17.6	17.8	15.5	15.3	15.4
19	---	---	---	16.8	16.5	16.6	17.9	17.7	17.8	15.3	15.2	15.2
20	---	---	---	16.5	16.3	16.4	17.9	17.7	17.8	15.2	15.0	15.1
21	---	---	---	16.3	15.9	16.1	17.8	17.6	17.7	15.1	14.8	14.9
22	---	---	---	16.4	15.9	16.1	17.6	17.1	17.3	14.8	14.6	14.7
23	---	---	---	16.7	16.3	16.5	17.1	16.7	16.9	14.7	14.5	14.6
24	---	---	---	16.6	16.4	16.5	16.7	16.4	16.6	14.6	14.4	14.4
25	---	---	---	17.0	16.5	16.8	16.6	16.3	16.5	14.4	14.2	14.3
26	---	---	---	17.1	16.8	16.9	16.6	16.3	16.5	14.2	13.8	14.0
27	---	---	---	17.1	16.8	17.0	16.7	16.4	16.6	13.8	13.5	13.6
28	---	---	---	17.4	17.0	17.2	16.9	16.6	16.8	13.6	13.3	13.4
29	---	---	---	17.1	16.9	17.0	17.0	16.8	16.9	13.3	13.1	13.2
30	---	---	---	16.9	16.6	16.7	17.1	16.9	17.0	13.4	13.1	13.2
31	---	---	---	16.8	16.5	16.6	17.2	17.0	17.1	---	---	---
MONTH	---	---	---	---	---	---	18.1	16.2	17.2	17.2	13.1	15.3

## WILLAMETTE RIVER BASIN

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14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.2	13.0	13.1	8.9	8.5	8.7	6.1	6.0	6.0	4.3	4.0	4.1
2	13.1	12.9	13.0	8.9	8.9	8.9	6.3	6.0	6.2	4.7	4.3	4.5
3	13.1	12.9	13.0	8.9	8.8	8.8	6.3	6.2	6.2	4.9	4.6	4.7
4	13.1	12.8	12.9	9.0	8.8	9.0	6.3	6.1	6.2	5.2	4.9	5.1
5	12.9	12.7	12.8	9.1	9.0	9.1	6.1	5.8	6.0	5.3	5.1	5.2
6	12.8	12.7	12.7	9.0	8.6	8.8	5.8	5.2	5.5	5.4	5.2	5.3
7	12.7	12.3	12.5	8.6	8.3	8.5	5.9	5.2	5.6	6.5	5.4	6.0
8	12.3	11.8	12.0	8.3	8.1	8.2	6.1	5.9	6.0	6.7	6.4	6.5
9	11.8	11.7	11.7	8.1	7.6	7.8	6.0	5.8	5.9	6.4	6.1	6.3
10	11.7	11.3	11.4	7.6	7.3	7.4	5.9	5.8	5.8	6.1	5.8	5.9
11	11.3	10.9	11.0	7.3	7.2	7.3	5.8	5.6	5.7	5.8	5.6	5.6
12	10.9	10.6	10.7	7.4	7.1	7.2	5.6	5.3	5.4	5.8	5.7	5.8
13	10.6	10.3	10.4	7.6	7.4	7.5	5.5	5.2	5.4	5.8	5.7	5.8
14	10.7	10.4	10.6	8.1	7.6	7.8	6.3	5.5	5.9	5.8	5.4	5.7
15	10.7	10.5	10.6	8.6	8.1	8.3	5.5	5.4	5.4	5.4	5.0	5.2
16	10.6	10.4	10.5	9.0	8.6	8.8	5.9	5.4	5.6	5.0	4.8	4.9
17	10.7	10.5	10.6	9.1	9.0	9.0	6.5	5.9	6.2	4.8	4.5	4.7
18	10.6	10.4	10.5	9.0	8.6	8.8	5.9	5.6	5.8	4.5	4.2	4.2
19	10.5	10.3	10.4	8.8	8.6	8.7	5.7	5.5	5.6	4.2	4.1	4.1
20	10.5	10.4	10.4	8.7	7.6	8.1	5.6	5.5	5.5	4.4	4.1	4.2
21	10.4	10	10.2	7.6	7.4	7.5	5.6	5.5	5.6	4.5	4.2	4.4
22	10	9.6	9.7	7.9	7.6	7.8	5.6	5.3	5.4	4.3	4.2	4.2
23	9.6	9.2	9.4	7.8	7.4	7.6	5.3	4.9	5.0	4.2	4.1	4.1
24	9.2	8.9	9.0	7.4	7.2	7.3	4.9	4.5	4.6	4.1	3.9	3.9
25	9.2	9.0	9.1	7.2	7.0	7.1	4.5	4.1	4.2	4.4	3.9	4.0
26	9.0	8.7	8.8	7.0	6.5	6.7	4.1	3.8	3.9	4.6	4.4	4.5
27	8.7	8.6	8.7	6.5	6.2	6.2	3.8	3.6	3.7	4.4	4.3	4.4
28	8.7	8.5	8.6	6.2	6.1	6.1	3.6	3.5	3.6	4.4	4.0	4.2
29	8.6	8.5	8.5	6.1	5.3	5.6	3.6	3.5	3.6	4.0	3.7	3.8
30	8.6	8.5	8.6	6.0	5.6	5.8	3.9	3.6	3.7	3.9	3.8	3.9
31	8.5	8.4	8.4	---	---	---	4.0	3.9	4.0	3.9	3.5	3.6
MONTH	13.2	8.4	10.6	9.1	5.3	7.8	6.5	3.5	5.3	6.7	3.5	4.8
	FEBRUARY			MARCH			APRIL			MAY		
1	3.7	3.5	3.6	4.4	4.0	4.2	7.2	6.8	7.0	8.4	7.8	8.1
2	4.0	3.6	3.8	4.7	4.2	4.4	7.6	6.8	7.1	8.4	8.0	8.1
3	4.3	4.0	4.1	4.8	4.6	4.7	7.7	7.0	7.3	8.3	7.9	8.1
4	4.4	4.2	4.3	4.8	4.5	4.6	7.9	6.9	7.4	8.3	7.8	8.1
5	4.4	4.3	4.3	4.6	4.4	4.5	7.8	7.0	7.3	8.2	7.3	7.6
6	4.5	4.4	4.5	4.6	4.4	4.5	7.3	6.9	7.1	7.7	7.5	7.6
7	4.5	4.2	4.4	5.2	4.6	4.9	7.0	6.7	6.8	7.7	7.1	7.3
8	4.7	4.2	4.4	5.1	4.7	4.8	7.4	6.7	7.0	7.3	6.6	6.9
9	4.7	4.5	4.6	4.7	4.5	4.5	7.3	6.6	6.9	7.3	6.6	6.9
10	4.9	4.6	4.7	4.6	4.4	4.4	7.3	6.8	7.1	7.5	7.0	7.2
11	4.9	4.7	4.8	4.8	4.3	4.5	6.8	6.5	6.7	7.9	7.3	7.5
12	5.0	4.6	4.8	5.9	4.8	5.5	6.8	6.3	6.5	8.8	7.6	8.0
13	5.0	4.8	4.8	5.4	5.1	5.2	7.2	6.5	6.8	8.9	8.3	8.6
14	4.9	4.7	4.8	5.2	4.9	5.0	7.1	5.5	6.5	9.2	8.6	8.9
15	4.7	4.5	4.6	5.1	4.9	5.0	5.5	5.1	5.4	9.4	8.2	8.8
16	4.7	4.5	4.6	5.1	4.9	5.0	5.7	5.1	5.4	9.5	8.3	8.9
17	4.6	4.4	4.5	5.0	4.8	4.9	5.6	5.2	5.4	9.5	8.4	8.9
18	4.9	4.6	4.7	5.0	4.6	4.7	5.7	5.4	5.5	9.5	8.8	9.1
19	5.0	4.9	4.9	4.6	4.4	4.4	5.9	5.6	5.7	9.4	9.2	9.3
20	5.4	4.9	5.1	4.7	4.3	4.4	13.2	5.9	6.3	9.2	8.7	8.9
21	5.8	5.4	5.6	4.8	4.4	4.6	7.0	6.2	6.5	9.1	8.4	8.7
22	6.0	5.7	5.8	5.3	4.8	5.0	7.2	6.8	7.0	8.9	8.3	8.6
23	6.3	5.9	6.1	5.3	5.1	5.2	7.8	6.8	7.2	9.1	8.2	8.6
24	6.2	5.8	5.9	5.4	5.1	5.2	8.1	7.2	7.6	9.4	8.2	8.7
25	5.8	5.2	5.5	6.1	5.3	5.6	8.1	7.0	7.5	9.6	8.7	9.1
26	5.2	4.7	4.9	6.6	5.8	6.1	7.8	7.2	7.5	10.0	9.1	9.5
27	4.7	4.2	4.4	6.7	6.3	6.5	7.7	7.4	7.6	9.9	9.3	9.6
28	4.5	4.2	4.3	6.6	6.4	6.5	8.0	7.1	7.4	9.8	9.3	9.5
29	---	---	---	6.7	6.6	6.7	8.2	7.0	7.5	9.3	9.0	9.2
30	---	---	---	6.9	6.6	6.7	8.3	7.5	7.9	9.7	8.9	9.2
31	---	---	---	7.1	6.5	6.8	---	---	---	10.0	8.7	9.4
MONTH	6.3	3.5	4.7	7.1	4.0	5.1	13.2	5.1	6.8	10.0	6.6	8.5

## WILLAMETTE RIVER BASIN

14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	10.4	9.2	9.8	14.2	13.9	14.1	18.0	17.7	17.8	16.5	16.3	16.4
2	10.7	9.5	10.0	14.3	14.0	14.1	17.9	17.6	17.8	16.6	16.3	16.5
3	10.8	9.7	10.2	14.4	13.9	14.2	17.6	17.3	17.4	16.7	16.4	16.5
4	10.7	10	10.3	14.5	14.0	14.2	17.3	17.0	17.2	16.4	16.1	16.3
5	11.0	10.2	10.5	14.6	14.1	14.4	17.0	16.5	16.7	16.1	15.8	16.0
6	11.2	10.4	10.8	14.9	14.4	14.7	16.5	16.1	16.3	15.8	15.6	15.7
7	11.2	10.4	10.7	14.7	14.4	14.6	16.1	15.7	15.9	15.6	15.2	15.4
8	10.7	9.9	10.1	14.6	14.2	14.4	15.8	15.6	15.7	15.2	14.7	14.9
9	10.0	9.6	9.7	15.3	14.4	14.9	15.9	15.6	15.8	14.7	14.5	14.6
10	9.9	9.4	9.6	16.1	15.2	15.6	16.2	15.9	16.0	14.6	14.4	14.5
11	10.6	9.7	10.0	16.1	15.7	15.9	16.2	15.9	16.1	14.5	14.3	14.4
12	11.3	10.2	10.6	16.3	15.9	16.1	16.4	16.1	16.2	14.4	14.2	14.3
13	12.5	11.1	11.6	16.6	16.2	16.4	16.7	16.3	16.5	14.4	14.2	14.3
14	13.0	11.9	12.4	16.9	16.4	16.6	16.9	16.6	16.7	14.4	14.2	14.3
15	13.2	12.6	12.9	17.2	16.6	16.9	17.2	16.7	16.9	14.4	14.1	14.2
16	13.3	12.8	13.0	17.7	17.1	17.4	17.0	16.8	16.9	14.1	13.8	13.9
17	13.0	12.6	12.8	18.0	17.6	17.8	17.1	16.8	16.9	13.8	13.6	13.7
18	12.6	12.0	12.3	18.0	17.8	17.9	17.2	16.9	17.1	13.6	13.3	13.4
19	12.1	11.3	11.7	17.8	17.6	17.7	17.3	17.0	17.2	13.5	13.2	13.4
20	12.2	11.3	11.7	17.8	17.5	17.6	17.3	16.9	17.1	13.5	13.3	13.4
21	12.5	11.9	12.1	18.1	17.7	17.9	16.9	16.4	16.6	13.5	13.2	13.4
22	12.7	12.1	12.4	18.3	17.9	18.1	16.4	16.1	16.2	13.4	13.0	13.2
23	13.9	12.3	12.6	18.5	18.2	18.3	16.4	16.1	16.2	13.4	13.1	13.3
24	13.8	13.0	13.5	18.5	18.3	18.4	16.3	16.1	16.2	13.4	13.0	13.1
25	14.2	13.8	14.0	18.6	18.3	18.4	16.3	16.2	16.3	13.1	12.8	13.0
26	14.5	14.2	14.4	18.6	18.3	18.5	16.2	16.0	16.1	13.1	12.9	13.0
27	14.7	14.4	14.5	18.3	18.1	18.2	16.2	15.9	16.0	13.1	12.9	13.0
28	14.5	14.4	14.5	18.4	18.0	18.2	16.4	16.1	16.2	13.1	12.9	13.0
29	14.8	14.5	14.6	18.6	18.3	18.5	16.6	16.3	16.4	13.1	12.9	13.0
30	14.6	13.9	14.3	18.6	18.2	18.4	16.5	16.2	16.4	12.9	12.6	12.7
31	---	---	---	18.2	17.8	18.0	16.4	16.2	16.3	---	---	---
MONTH	14.8	9.2	11.9	18.6	13.9	16.7	18.0	15.6	16.6	16.7	12.6	14.2
YEAR	18.6	3.5	9.5									

OXYGEN DISSOLVED (MG/L), JULY TO SEPTEMBER 2001

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	---	---	---	9.0	8.5	8.8	8.8	8.5	8.6
2	---	---	---	---	---	---	9.1	8.7	9.0	8.7	8.4	8.6
3	---	---	---	---	---	---	9.1	8.8	9.0	8.7	8.5	8.6
4	---	---	---	---	---	---	9.1	8.8	8.9	9.1	8.5	8.7
5	---	---	---	---	---	---	8.9	8.7	8.8	8.8	8.5	8.7
6	---	---	---	---	---	---	9.0	8.7	8.8	9.4	8.4	8.6
7	---	---	---	---	---	---	9.0	8.7	8.8	8.7	8.5	8.6
8	---	---	---	---	---	---	9.0	8.6	8.8	8.8	8.6	8.7
9	---	---	---	---	---	---	8.8	8.5	8.7	8.8	8.6	8.8
10	---	---	---	---	---	---	8.9	8.4	8.7	9.1	8.7	8.9
11	---	---	---	---	---	---	8.8	8.5	8.7	9.1	8.7	8.9
12	---	---	---	9.3	8.9	9.1	8.8	8.5	8.6	8.9	8.7	8.8
13	---	---	---	9.2	8.9	9.1	8.7	8.4	8.6	8.9	8.7	8.8
14	---	---	---	9.2	8.8	9.0	8.7	8.2	8.4	8.9	8.7	8.8
15	---	---	---	9.0	8.8	8.8	8.4	8.2	8.3	9.3	8.8	9.0
16	---	---	---	8.9	8.7	8.7	8.4	8.2	8.3	9.1	8.8	9.0
17	---	---	---	8.7	8.5	8.6	8.3	8.2	8.2	9.0	8.8	8.9
18	---	---	---	8.9	8.6	8.7	8.5	8.2	8.4	8.9	8.7	8.8
19	---	---	---	9.3	8.7	9.0	8.5	8.3	8.4	8.8	8.7	8.7
20	---	---	---	9.2	8.9	9.1	8.5	8.3	8.4	8.9	8.7	8.8
21	---	---	---	9.1	8.9	9.0	8.5	8.2	8.3	9.0	8.7	8.9
22	---	---	---	9.2	8.9	9.0	8.4	8.2	8.3	9.1	8.9	9.0
23	---	---	---	9.2	8.9	9.0	8.4	8.2	8.3	9.1	8.8	9.0
24	---	---	---	9.3	8.8	9.0	9.4	8.3	9.0	9.1	8.8	9.0
25	---	---	---	9.0	8.7	8.8	8.9	8.6	8.8	---	---	---
26	---	---	---	8.9	8.6	8.7	9.0	8.7	8.9	---	---	---
27	---	---	---	8.7	8.5	8.6	9.1	8.8	9.0	---	---	---
28	---	---	---	8.7	8.4	8.5	9.1	8.8	8.9	---	---	---
29	---	---	---	8.7	8.3	8.5	9.0	8.7	8.9	---	---	---
30	---	---	---	8.8	8.4	8.6	8.8	8.6	8.7	---	---	---
31	---	---	---	9.1	8.5	8.7	8.8	8.6	8.7	---	---	---
MONTH	---	---	---	---	---	---	9.4	8.2	8.7	---	---	---

## 14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	10.7	10.5	10.6	12.6	11.7	12.0	12.5	12.3	12.4
2	---	---	---	10.8	10.6	10.7	12.5	11.9	12.2	12.4	12.1	12.2
3	---	---	---	10.9	10.6	10.7	12.0	11.6	11.8	12.2	12.0	12.1
4	---	---	---	10.7	10.5	10.6	11.8	11.6	11.7	12.0	11.9	11.9
5	---	---	---	10.7	10.6	10.7	11.8	11.7	11.8	12.0	11.9	11.9
6	---	---	---	10.8	10.6	10.7	13.0	11.7	12.2	12.1	11.8	11.9
7	---	---	---	11.0	10.8	10.9	13.1	12.4	12.9	12.4	12.1	12.3
8	---	---	---	11.1	10.7	10.9	12.4	12.1	12.2	13.0	12.3	12.8
9	---	---	---	11.1	10.7	11.0	12.3	12.0	12.1	12.8	12.3	12.5
10	---	---	---	11.0	10.9	11.0	12.2	12.0	12.1	12.4	11.9	12.2
11	---	---	---	11.3	11.0	11.1	12.2	11.9	12.1	11.9	11.8	11.8
12	---	---	---	11.3	11.2	11.3	12.2	12.0	12.1	11.8	11.7	11.7
13	---	---	---	11.4	11.2	11.3	13.1	11.8	12.1	11.8	11.7	11.7
14	---	---	---	11.4	10.8	11.0	13.2	12.8	13.0	12.0	11.7	11.8
15	---	---	---	10.8	10.5	10.7	12.9	12.5	12.8	12.1	12.0	12.1
16	---	---	---	10.7	10.4	10.5	12.9	12.5	12.6	12.2	12.1	12.1
17	10.0	9.8	9.9	10.7	10.4	10.6	13.1	12.7	12.9	12.4	11.8	12.2
18	9.9	9.8	9.9	10.9	10.6	10.8	12.7	12.4	12.6	12.5	12.4	12.5
19	9.9	9.7	9.8	10.9	10.6	10.7	12.8	12.0	12.4	12.5	12.4	12.5
20	9.9	9.7	9.8	11.2	10.8	11.0	12.0	11.8	11.9	12.5	12.1	12.2
21	10.1	9.8	10.0	11.3	11.2	11.3	11.9	11.8	11.9	13.7	12.1	12.9
22	10.2	9.8	10.0	12.4	10.9	11.5	12.1	11.8	11.9	13.4	12.5	13.0
23	10.3	10.1	10.3	12.4	12.1	12.3	12.3	12.0	12.2	12.8	12.3	12.5
24	10.4	10.0	10.2	12.1	11.7	11.8	12.5	12.2	12.3	12.7	12.4	12.5
25	10.5	10.3	10.4	11.8	11.5	11.7	12.7	12.4	12.6	12.6	12.3	12.5
26	10.6	10.4	10.5	11.9	11.5	11.6	12.7	12.6	12.7	12.5	12.0	12.2
27	10.7	10.3	10.5	12.0	11.8	11.9	12.7	12.7	12.7	12.3	12.0	12.1
28	10.6	10.3	10.4	12.0	11.6	11.8	12.8	12.7	12.7	12.5	12.2	12.3
29	10.4	10.3	10.4	12.8	12.0	12.6	12.7	12.6	12.7	12.7	12.5	12.6
30	10.7	10.3	10.4	12.7	11.8	12.2	12.7	12.5	12.6	12.7	12.4	12.5
31	10.8	10.6	10.7	---	---	---	12.6	12.5	12.5	12.8	12.5	12.6
MONTH	---	---	---	12.8	10.4	11.2	13.2	11.6	12.3	13.7	11.7	12.3
	FEBRUARY			MARCH			APRIL			MAY		
1	12.8	12.6	12.7	12.7	12.4	12.6	12.6	12.3	12.4	12.1	11.8	11.9
2	12.7	12.5	12.6	12.7	12.5	12.6	12.5	12.2	12.4	11.9	11.7	11.7
3	12.7	12.5	12.6	12.5	12.4	12.4	12.4	12.1	12.3	11.8	11.7	11.7
4	12.6	12.5	12.5	12.6	12.4	12.5	12.4	12.1	12.2	11.8	11.6	11.7
5	12.6	12.4	12.5	12.6	12.4	12.5	12.1	12.0	12.0	11.7	11.6	11.7
6	12.5	12.4	12.4	12.5	12.2	12.4	12.1	11.9	12.0	11.7	11.5	11.6
7	12.9	12.2	12.4	12.2	12.0	12.1	12.0	11.9	12.0	11.8	11.6	11.7
8	12.4	12.3	12.4	12.3	12.0	12.1	12.1	11.8	11.9	11.8	11.7	11.8
9	12.4	12.3	12.3	12.3	12.1	12.2	12.0	11.9	11.9	11.7	11.6	11.6
10	12.6	12.2	12.4	12.5	12.2	12.3	12.3	11.8	12.0	11.7	11.6	11.6
11	12.6	12.5	12.5	12.7	12.2	12.4	12.3	12.2	12.3	11.7	11.6	11.7
12	12.6	12.3	12.4	13.3	12.7	12.9	12.4	12.3	12.4	11.7	11.5	11.6
13	12.5	12.1	12.2	12.9	12.5	12.7	12.4	12.2	12.3	11.6	11.4	11.5
14	12.6	12.2	12.4	12.6	12.5	12.5	13.4	12.3	13.2	11.6	11.4	11.5
15	12.5	12.3	12.4	12.7	12.4	12.6	13.2	13.0	13.1	11.6	11.4	11.5
16	12.5	12.4	12.4	12.7	12.5	12.6	13.0	12.6	12.7	11.6	11.4	11.5
17	12.5	12.4	12.4	12.7	12.6	12.6	12.7	12.6	12.6	11.8	11.3	11.5
18	12.5	12.2	12.4	12.9	12.6	12.7	12.7	12.6	12.6	11.3	11.0	11.1
19	12.3	12.1	12.2	13.0	12.9	12.9	12.7	12.5	12.6	11.0	10.8	10.9
20	12.2	12.1	12.2	13.0	12.9	13.0	12.7	8.6	12.6	11.2	10.9	11.0
21	12.2	11.7	12.0	13.0	12.8	12.9	12.6	12.4	12.5	11.2	11.1	11.1
22	11.9	11.7	11.8	12.9	12.7	12.8	12.5	12.3	12.4	11.4	11.1	11.2
23	12.0	11.6	11.8	12.8	12.6	12.7	12.4	12.3	12.4	11.4	11.3	11.3
24	12.2	11.8	12.1	12.8	12.7	12.8	12.4	12.3	12.4	11.4	11.3	11.3
25	12.2	11.8	12.0	12.8	12.6	12.7	13.0	12.3	12.6	11.3	11.1	11.2
26	12.5	12.2	12.3	12.7	12.4	12.5	12.7	12.4	12.5	11.3	11.1	11.2
27	12.7	12.4	12.5	12.6	12.3	12.4	12.4	12.2	12.3	11.2	10.9	11.0
28	12.7	12.5	12.6	12.6	12.4	12.5	12.4	12.3	12.3	11.1	10.9	11.0
29	---	---	---	12.6	12.4	12.4	12.4	12.1	12.3	11.6	10.9	11.2
30	---	---	---	12.6	12.4	12.5	12.4	12.1	12.2	11.6	11.2	11.3
31	---	---	---	12.6	12.4	12.5	---	---	---	11.3	11.1	11.2
MONTH	12.9	11.6	12.3	13.3	12.0	12.6	13.4	8.6	12.4	12.1	10.8	11.4

WILLAMETTE RIVER BASIN

14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	11.2	11.0	11.1	9.9	9.7	9.8	9.4	9.0	9.2	9.8	9.5	9.6
2	11.2	11.0	11.1	10.5	9.8	10.2	9.4	9.0	9.2	9.7	9.4	9.6
3	11.1	11.0	11.1	10.5	10.1	10.2	9.4	9.2	9.3	9.7	9.4	9.6
4	11.1	11.0	11.0	10.2	9.9	10.1	9.5	9.2	9.3	9.7	9.4	9.6
5	11.1	11.0	11.0	10.2	9.8	10	9.7	9.1	9.4	9.7	9.4	9.6
6	11.1	10.8	11.0	10.0	9.8	9.9	9.6	9.5	9.6	9.8	9.4	9.6
7	11.1	10.8	10.9	9.8	9.7	9.7	9.8	9.4	9.7	9.9	9.5	9.7
8	11.2	11.1	11.1	9.9	9.7	9.8	10	9.7	9.9	10	9.7	9.8
9	11.5	11.2	11.3	10.2	9.8	10	10.0	9.8	9.9	10.1	9.8	10
10	11.3	11.1	11.2	9.9	9.7	9.8	9.9	9.7	9.8	10.1	9.8	10
11	11.2	10.9	11.0	10.2	9.6	9.8	9.8	9.6	9.7	10.1	9.8	9.9
12	11.0	10.7	10.9	9.8	9.5	9.7	9.7	9.0	9.5	10.2	9.7	9.9
13	10.9	10.5	10.7	9.7	9.5	9.6	9.6	9.3	9.4	10.1	9.7	9.9
14	10.7	10.5	10.5	9.6	9.3	9.5	9.5	9.2	9.3	10	9.7	9.8
15	10.6	10.3	10.4	9.5	9.1	9.3	9.4	9.1	9.2	9.9	9.7	9.8
16	10.3	10.1	10.2	9.2	8.9	9.1	9.5	9.2	9.3	9.9	9.6	9.7
17	10.4	10.1	10.2	9.1	8.9	9.0	9.4	9.1	9.2	9.9	9.5	9.7
18	11.0	10.3	10.6	9.2	8.9	9.1	9.3	8.8	9.1	10.0	9.7	9.9
19	11.0	10.9	10.9	9.2	8.9	9.0	9.4	8.8	9.1	10.1	9.8	10
20	11.0	10.8	10.9	9.1	8.9	9.0	9.4	9.1	9.2	10.2	9.9	10.0
21	10.9	10.6	10.8	9.1	8.8	9.0	9.5	9.1	9.3	10.2	9.9	10.1
22	10.8	10.6	10.7	9.3	8.8	9.1	9.6	9.3	9.5	10.2	9.9	10.1
23	10.7	10.2	10.5	9.4	9.1	9.2	9.9	9.5	9.7	10.2	9.9	10.0
24	10.4	10.0	10.2	9.4	9.1	9.2	10	9.6	9.8	10.3	9.8	10.1
25	10.3	9.9	10.1	9.4	9.1	9.2	10	9.7	9.8	10.3	10.0	10.2
26	10.1	9.7	9.9	9.2	9.0	9.1	9.8	9.6	9.7	10.5	10	10.3
27	9.9	9.6	9.8	9.1	8.9	9.0	9.9	9.6	9.7	10.5	10.2	10.4
28	9.7	9.5	9.6	9.2	8.9	9.1	9.9	9.6	9.8	10.4	10.2	10.3
29	9.7	9.5	9.6	9.3	9.0	9.2	10	9.6	9.8	10.4	10.2	10.3
30	9.8	9.6	9.7	9.4	9.1	9.2	9.9	9.6	9.8	10.5	10.2	10.4
31	---	---	---	9.3	9.1	9.2	9.8	9.6	9.7	---	---	---
MONTH	11.5	9.5	10.6	10.5	8.8	9.5	10.0	8.8	9.5	10.5	9.4	9.9

TURBIDITY (NTU), JULY TO SEPTEMBER 2001

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	---	---	---	---	---	---	3	<1	<1	1	<1	<1
2	---	---	---	---	---	---	2	<1	<1	1	<1	<1
3	---	---	---	---	---	---	2	<1	<1	2	<1	<1
4	---	---	---	---	---	---	2	<1	<1	3	<1	<1
5	---	---	---	---	---	---	2	<1	<1	2	<1	<1
6	---	---	---	---	---	---	2	<1	<1	4	<1	<1
7	---	---	---	---	---	---	2	<1	<1	2	<1	<1
8	---	---	---	---	---	---	2	<1	<1	2	<1	<1
9	---	---	---	---	---	---	2	<1	<1	4	<1	<1
10	---	---	---	---	---	---	1	<1	<1	2	<1	<1
11	---	---	---	---	---	---	2	<1	<1	3	<1	<1
12	---	---	---	2	<1	<1	2	<1	<1	2	<1	<1
13	---	---	---	1	<1	<1	2	<1	<1	1	<1	<1
14	---	---	---	3	<1	<1	3	<1	<1	2	<1	<1
15	---	---	---	2	<1	<1	<1	<1	<1	3	<1	<1
16	---	---	---	2	<1	<1	2	<1	<1	2	<1	<1
17	---	---	---	5	<1	<1	1	<1	<1	3	<1	<1
18	---	---	---	4	<1	<1	2	<1	<1	2	<1	<1
19	---	---	---	3	<1	<1	2	<1	<1	4	<1	<1
20	---	---	---	4	<1	<1	1	<1	<1	2	<1	<1
21	---	---	---	2	<1	<1	2	<1	<1	2	<1	1
22	---	---	---	1	<1	<1	2	<1	<1	2	<1	1
23	---	---	---	4	<1	<1	2	<1	1	2	<1	<1
24	---	---	---	3	<1	<1	2	<1	1	2	<1	<1
25	---	---	---	1	<1	<1	2	<1	<1	5	<1	1
26	---	---	---	2	<1	<1	2	<1	<1	4	<1	1
27	---	---	---	1	<1	<1	2	<1	<1	2	<1	<1
28	---	---	---	2	<1	<1	2	<1	<1	2	<1	<1
29	---	---	---	1	<1	<1	2	<1	<1	3	<1	<1
30	---	---	---	1	<1	<1	2	<1	<1	2	<1	<1
31	---	---	---	2	<1	<1	1	<1	<1	---	---	---
MAX	---	---	---	---	---	---	3	<1	1	5	<1	1
MIN	---	---	---	---	---	---	<1	<1	<1	1	<1	<1

WILLAMETTE RIVER BASIN

14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	2	<1	<1	5	1	2	12	6	8	1	<1	<1
2	2	<1	<1	5	2	3	10	5	8	2	<1	<1
3	4	<1	<1	3	2	3	10	6	8	2	<1	<1
4	5	<1	<1	3	2	2	7	5	5	2	<1	1
5	2	<1	<1	3	2	2	5	3	4	2	1	1
6	2	<1	<1	3	<1	1	5	3	3	2	1	1
7	2	<1	1	2	<1	<1	8	3	5	18	2	5
8	2	<1	<1	---	---	---	10	5	7	61	18	30
9	3	<1	1	3	<1	<1	6	3	4	63	23	38
10	4	<1	1	<1	<1	<1	6	2	3	23	13	16
11	5	1	1	<1	<1	<1	6	2	2	14	6	8
12	2	<1	1	<1	<1	<1	2	2	2	6	4	5
13	2	<1	1	1	<1	<1	10	2	2	9	2	3
14	4	<1	2	7	<1	2	60	10	41	6	3	3
15	5	1	2	5	<1	2	44	15	26	4	2	3
16	3	<1	1	6	3	4	15	8	10	4	2	2
17	2	<1	<1	5	2	3	33	9	23	3	1	2
18	3	<1	<1	6	1	2	33	12	21	2	1	1
19	1	<1	<1	9	2	2	12	8	9	2	1	1
20	<1	<1	<1	2	1	2	8	4	6	2	1	1
21	<1	<1	<1	2	<1	1	6	3	4	3	2	2
22	2	<1	<1	21	1	2	4	3	3	8	3	6
23	4	<1	1	31	12	27	4	2	2	8	5	7
24	4	<1	1	29	12	17	2	2	2	6	4	4
25	2	1	1	12	6	8	6	2	2	12	4	6
26	2	<1	1	6	3	4	3	1	2	12	4	8
27	5	<1	<1	4	2	3	2	1	1	12	7	9
28	1	<1	<1	6	2	4	2	1	1	7	4	5
29	<1	<1	<1	16	4	7	2	<1	1	4	3	3
30	2	<1	<1	19	11	16	1	<1	<1	3	2	2
31	4	<1	1	---	---	---	5	<1	<1	2	2	2
MAX	5	1	2	---	---	---	60	15	41	63	23	38
MIN	<1	<1	<1	---	---	---	1	<1	<1	1	<1	<1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	3	1	2	2	1	1	4	2	2	3	1	1
2	2	1	1	2	<1	1	4	2	2	3	1	2
3	4	1	1	1	<1	<1	3	2	2	3	2	2
4	2	1	1	1	<1	<1	3	2	2	7	2	2
5	2	1	1	2	<1	<1	3	2	2	6	2	2
6	3	1	1	4	<1	2	5	2	2	5	2	2
7	5	1	2	3	1	2	3	2	2	3	1	2
8	3	2	2	6	2	4	4	2	2	3	1	2
9	5	2	3	6	4	5	4	2	2	2	1	1
10	5	4	4	4	2	3	11	2	3	2	1	1
11	5	3	3	6	2	2	10	5	9	2	1	1
12	3	2	2	36	5	13	12	7	8	3	<1	1
13	4	2	2	36	12	21	10	6	7	2	<1	1
14	4	2	2	13	6	9	124	7	46	2	1	1
15	3	1	1	8	4	5	108	34	56	4	1	1
16	2	<1	1	5	4	4	34	14	21	2	1	1
17	4	<1	<1	5	2	3	14	7	10	3	1	1
18	1	<1	<1	4	2	3	11	5	6	2	1	1
19	2	<1	1	4	2	2	8	4	5	3	1	1
20	2	<1	<1	3	2	2	12	3	3	2	1	1
21	2	<1	1	5	2	3	4	2	3	3	1	1
22	5	2	2	5	4	4	4	2	2	2	<1	1
23	7	2	4	4	3	3	3	2	2	2	1	2
24	6	4	6	4	2	3	2	2	2	5	1	2
25	7	4	6	2	2	2	2	1	2	4	1	1
26	4	3	4	5	2	2	2	1	1	2	<1	1
27	3	2	2	4	2	2	3	1	2	3	1	1
28	3	1	2	2	2	2	2	1	1	6	2	2
29	---	---	---	2	2	2	2	1	2	5	2	2
30	---	---	---	3	2	2	2	1	1	5	3	4
31	---	---	---	4	2	2	---	---	---	6	4	5
MAX	7	4	6	36	12	21	124	34	56	7	4	5
MIN	1	<1	<1	1	<1	<1	2	1	1	2	<1	1

## WILLAMETTE RIVER BASIN

14210000 CLACKAMAS RIVER AT ESTACADA, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	4	3	4	<1	<1	<1	2	<1	<1	2	<1	1
2	4	2	2	<1	<1	<1	2	<1	<1	4	<1	1
3	5	2	2	<1	<1	<1	2	<1	1	2	<1	1
4	5	1	2	<1	<1	<1	4	<1	1	3	<1	1
5	2	1	2	<1	<1	<1	2	1	1	2	<1	1
6	3	1	1	<1	<1	<1	2	1	1	5	<1	1
7	2	1	1	<1	<1	<1	4	<1	1	2	<1	2
8	3	1	1	<1	<1	<1	2	<1	<1	2	<1	1
9	3	1	1	<1	<1	<1	2	<1	1	3	<1	1
10	2	<1	1	<1	<1	<1	1	<1	1	5	<1	1
11	2	<1	<1	2	<1	1	1	<1	1	2	<1	1
12	2	<1	<1	2	<1	1	2	<1	1	3	<1	1
13	2	<1	<1	2	<1	1	5	<1	1	2	<1	1
14	1	<1	<1	2	<1	1	2	<1	<1	2	<1	1
15	1	<1	<1	2	<1	1	1	<1	<1	4	1	1
16	2	<1	<1	2	<1	<1	2	<1	<1	2	<1	1
17	2	<1	<1	2	<1	<1	1	<1	<1	2	1	2
18	4	<1	1	4	<1	<1	2	<1	<1	2	1	1
19	2	<1	1	2	<1	1	3	<1	<1	2	<1	1
20	2	<1	1	2	<1	1	4	<1	1	2	<1	1
21	2	<1	<1	2	<1	1	2	<1	1	4	<1	1
22	2	<1	<1	2	<1	1	1	1	1	1	<1	1
23	7	<1	<1	2	<1	1	3	<1	1	4	<1	1
24	<1	<1	<1	2	<1	<1	2	<1	1	1	<1	1
25	<1	<1	<1	1	<1	1	1	<1	1	2	<1	<1
26	<1	<1	<1	1	<1	<1	2	1	1	2	<1	<1
27	<1	<1	<1	3	<1	<1	2	1	1	2	<1	<1
28	1	<1	<1	2	<1	<1	2	<1	1	1	<1	<1
29	<1	<1	<1	3	<1	<1	2	<1	1	4	<1	<1
30	<1	<1	<1	3	<1	<1	1	<1	1	3	1	2
31	---	---	---	2	<1	1	2	<1	1	---	---	---
MAX	7	3	4	4	<1	1	5	1	1	5	1	2
MIN	<1	<1	<1	<1	<1	<1	1	<1	<1	1	<1	<1



14211010 CLACKAMAS RIVER NEAR OREGON CITY, OR

LOCATION.--Lat 45°22'46", long 122°34'34", in SW 1/4 sec.21, T.2 S., R.2 E., Clackamas County, Hydrologic Unit 17090011, on left bank 1,000 ft upstream from bridge on Interstate Highway 205, at South Fork Water Board water intake facility, and at mile 1.6.

DRAINAGE AREA.--940 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 2001 to current year.

GAGE.--Water-stage recorder.

REMARKS.--Records good except for estimated daily discharges, which are fair. Diurnal fluctuations and regulation caused by powerplants at River Mill Dam and, since 1958, North Fork Dam. Minor regulation since 1956 by Timothy Lake (station 14208600). One small diversion for City of Estacada near Estacada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,400 ft<sup>3</sup>/s Apr. 14, 2002, gage height, 35.15 ft; minimum discharge, 549 ft<sup>3</sup>/s Oct. 4, 5, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 30,400 ft<sup>3</sup>/s Apr. 14, gage height, 35.15 ft; minimum discharge, 549 ft<sup>3</sup>/s Oct. 4, 5.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	---	---	e1600	1290	893	658
2	---	---	---	---	---	---	---	---	e1650	1210	845	673
3	---	---	---	---	---	---	---	---	e1900	1160	846	716
4	---	---	---	---	---	---	---	---	e1750	1120	870	687
5	---	---	---	---	---	---	---	---	e1700	1100	838	668
6	---	---	---	---	---	---	---	---	e1650	1070	867	674
7	---	---	---	---	---	---	---	---	e1600	1030	897	638
8	---	---	---	---	---	---	---	---	e1550	1020	e740	647
9	---	---	---	---	---	---	---	---	1530	1000	e740	674
10	---	---	---	---	---	---	---	---	1510	978	e780	700
11	---	---	---	---	---	---	---	---	1540	961	789	812
12	---	---	---	---	---	---	---	---	2570	950	784	710
13	---	---	---	---	---	---	---	---	2230	964	761	661
14	---	---	---	---	---	---	---	---	1950	923	722	635
15	---	---	---	---	---	---	---	---	1780	909	711	710
16	---	---	---	---	---	---	---	---	1630	967	729	771
17	---	---	---	---	---	---	---	---	1550	1020	691	726
18	---	---	---	---	---	---	---	---	1480	961	699	731
19	---	---	---	---	---	---	---	---	1420	967	776	735
20	---	---	---	---	---	---	---	---	1330	944	796	749
21	---	---	---	---	---	---	---	---	1290	917	773	737
22	---	---	---	---	---	---	---	---	1250	902	808	733
23	---	---	---	---	---	---	---	---	1240	876	836	741
24	---	---	---	---	---	---	---	---	1240	867	800	745
25	---	---	---	---	---	---	---	---	1430	873	770	798
26	---	---	---	---	---	---	---	---	1290	1020	730	e880
27	---	---	---	---	---	---	---	---	1420	774	680	e840
28	---	---	---	---	---	---	---	---	1810	740	665	820
29	---	---	---	---	---	---	---	---	1500	770	727	797
30	---	---	---	---	---	---	---	---	1360	996	675	768
31	---	---	---	---	---	---	---	---	---	1010	662	---
TOTAL	---	---	---	---	---	---	---	---	47750	30289	23900	21834
MEAN	---	---	---	---	---	---	---	---	1592	977	771	728
MAX	---	---	---	---	---	---	---	---	2570	1290	897	880
MIN	---	---	---	---	---	---	---	---	1240	740	662	635
AC-FT	---	---	---	---	---	---	---	---	94710	60080	47410	43310
CFSM	---	---	---	---	---	---	---	---	1.69	1.04	0.82	0.77
IN.	---	---	---	---	---	---	---	---	1.89	1.20	0.95	0.86

e Estimated

## WILLAMETTE RIVER BASIN

14211010 CLACKAMAS RIVER NEAR OREGON CITY, OR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	755	4370	8610	2910	4100	3160	3260	3930	4990	2050	928	760
2	762	3720	10700	3630	3870	2880	3350	4160	4500	1860	961	751
3	742	2840	8190	3920	e3600	2660	3560	4550	4140	1720	914	759
4	722	2290	6790	3720	e3800	2520	3750	4320	3970	1670	968	774
5	707	e2300	6650	3550	e3700	2470	4190	4050	3990	1600	996	784
6	776	2120	6760	4550	e3700	4390	4460	3980	4030	1540	906	776
7	775	1950	10600	10400	4630	6150	4730	3650	3630	1490	917	797
8	783	1610	7600	17100	7020	4640	4760	3300	3280	1540	861	801
9	831	1450	6500	12200	5880	3860	4850	3200	3120	1440	857	797
10	844	1400	5540	8350	4840	3640	7610	2890	2890	1390	860	826
11	1580	1370	e5100	6470	4410	4760	8880	2840	2820	1370	838	872
12	1340	1410	e4800	5860	4050	13300	9050	2970	2820	1370	824	912
13	934	1820	e7500	6100	3730	9350	9190	3300	3060	1240	811	977
14	1020	4920	18500	5270	3120	7290	21600	3660	3240	1230	779	967
15	1000	3690	10900	4580	2900	6050	14300	3680	3170	1200	833	960
16	951	3360	11500	4080	2940	5200	9520	3620	2960	1170	787	982
17	984	3910	16700	3780	2870	4630	7540	3520	2820	1160	783	1160
18	968	3370	11500	3630	2820	4070	6390	3950	3600	1110	740	1090
19	913	2890	8620	3770	e3000	4960	5470	4020	3230	1100	741	1020
20	849	3130	7090	3980	e3300	5070	4820	4020	e2800	1100	834	1000
21	890	3410	5930	6680	e3700	4620	4470	4100	2560	1060	835	979
22	1170	6460	5050	5820	5210	4070	4180	4370	2490	1030	811	952
23	2930	12500	4360	5140	7300	3710	4070	4230	2370	1000	730	948
24	2390	7150	3840	4410	7430	3580	3830	4020	2240	997	754	972
25	1800	5200	3440	9200	5780	3480	3780	3940	2120	976	758	791
26	1540	4180	3200	10400	4660	3400	3850	e4200	2000	971	765	753
27	1280	3450	2990	7430	4120	3450	4210	4580	1960	977	765	780
28	1300	4580	3110	5820	3490	3360	3850	4940	1960	957	762	771
29	1270	12000	2950	4670	---	3200	3680	6080	2600	944	756	824
30	1820	8330	2730	4070	---	3150	3770	6510	2370	934	749	992
31	e4600	---	2750	3910	---	3170	---	5670	---	920	750	---
TOTAL	39226	121180	220500	185400	119970	140240	180970	126250	91730	39116	25573	26527
MEAN	1265	4039	7113	5981	4285	4524	6032	4073	3058	1262	825	884
MAX	4600	12500	18500	17100	7430	13300	21600	6510	4990	2050	996	1160
MIN	707	1370	2730	2910	2820	2470	3260	2840	1960	920	730	751
AC-FT	77800	240400	437400	367700	238000	278200	359000	250400	181900	77590	50720	52620
CFSM	1.35	4.30	7.57	6.36	4.56	4.81	6.42	4.33	3.25	1.34	0.88	0.94
IN.	1.55	4.80	8.73	7.34	4.75	5.55	7.16	5.00	3.63	1.55	1.01	1.05

WTR YR 2002 TOTAL 1316682 MEAN 3607 MAX 21600 MIN 707 AC-FT 2612000 CFSM 3.84 IN. 52.11

e Estimated

14211010 CLACKAMAS RIVER NEAR OREGON CITY, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June to September 2002.  
 pH: June to September 2002.  
 WATER TEMPERATURE: June to September 2002.  
 DISSOLVED OXYGEN: June to September 2002.  
 TURBIDITY: June to September 2002.

INSTRUMENTATION.--Water-quality monitor. Electronic datalogger with a 30-minute recording interval.

## REMARKS.--

SPECIFIC CONDUCTANCE: Records excellent.  
 pH: Records excellent.  
 WATER TEMPERATURE: Records excellent.  
 DISSOLVED OXYGEN: Records poor.  
 TURBIDITY: Records excellent.

## EXTREMES FOR PERIOD JUNE TO SEPTEMBER:--

SPECIFIC CONDUCTANCE: Maximum recorded, 68 microsiemens Aug. 21, Sept. 2-11; minimum recorded, 40 microsiemens June 20-22.  
 pH: Maximum recorded, 8.5 units Aug. 22, 29; minimum recorded, 7.3 units June 21, 26, July 11.  
 WATER TEMPERATURE: Maximum recorded, 22.9°C July 23; minimum recorded, 12.2°C June 21.  
 DISSOLVED OXYGEN: Maximum recorded, 11.7 mg/L Sept. 19, minimum recorded, 7.9 mg/L July 11.  
 TURBIDITY: Maximum recorded, 10.7 NTU June 28, 29; minimum recorded <1 on many days during the year.

## SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), JUNE SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	48	47	48	63	62	63	67	66	67
2	---	---	---	50	47	48	63	62	63	68	66	67
3	---	---	---	49	47	48	63	62	63	68	67	67
4	---	---	---	48	48	48	64	63	63	68	67	67
5	---	---	---	49	48	48	64	63	63	68	67	67
6	---	---	---	50	49	49	64	63	64	68	67	67
7	---	---	---	51	50	51	64	63	64	68	67	67
8	---	---	---	52	51	51	64	63	64	68	67	67
9	---	---	---	52	51	51	64	63	64	68	66	67
10	---	---	---	52	51	52	64	63	64	68	66	67
11	---	---	---	53	52	53	64	63	64	68	66	67
12	---	---	---	54	53	54	64	64	64	67	66	67
13	---	---	---	55	54	54	65	64	64	67	66	67
14	---	---	---	55	54	54	65	64	65	67	66	66
15	---	---	---	55	55	55	65	64	65	67	66	66
16	---	---	---	56	55	56	66	64	65	66	65	66
17	---	---	---	57	56	57	67	65	65	65	65	65
18	---	---	---	58	57	58	65	65	65	65	64	65
19	---	---	---	59	58	58	66	65	65	66	64	65
20	---	---	---	59	58	59	66	65	65	66	64	65
21	41	40	40	59	59	59	68	65	66	65	64	64
22	41	40	41	60	59	60	66	65	66	66	63	65
23	42	41	41	60	60	60	67	66	67	65	63	64
24	43	42	43	61	60	60	67	66	66	65	63	64
25	44	43	44	61	60	61	67	66	66	66	63	65
26	45	44	44	61	60	61	66	65	66	66	64	65
27	45	44	45	61	61	61	67	66	66	66	64	65
28	46	45	45	63	61	61	67	66	66	66	64	65
29	48	45	47	63	61	62	67	66	67	66	65	65
30	48	47	47	63	62	62	67	66	66	66	64	65
31	---	---	---	62	62	62	67	66	67	---	---	---
MONTH	---	---	---	63	47	56	68	62	65	68	63	66

## WILLAMETTE RIVER BASIN

14211010 CLACKAMAS RIVER NEAR OREGON CITY, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, JUNE TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	---	---	---	8.2	7.4	7.6	8.3	7.5	7.8	8.4	7.6	7.9
2	---	---	---	8.1	7.4	7.6	8.3	7.5	7.8	8.4	7.6	7.9
3	---	---	---	8.1	7.4	7.6	8.3	7.5	7.8	8.4	7.6	7.9
4	---	---	---	8.2	7.4	7.7	8.3	7.6	7.8	8.4	7.6	7.9
5	---	---	---	8.2	7.4	7.7	8.3	7.6	7.8	8.4	7.6	7.9
6	---	---	---	8.2	7.4	7.6	8.2	7.6	7.8	8.4	7.6	7.9
7	---	---	---	7.9	7.4	7.6	8.2	7.6	7.8	8.4	7.6	7.9
8	---	---	---	8.2	7.4	7.7	8.3	7.6	7.8	8.4	7.6	7.9
9	---	---	---	8.2	7.4	7.6	8.3	7.5	7.8	8.3	7.6	7.9
10	---	---	---	8.2	7.4	7.6	8.3	7.6	7.9	8.3	7.5	7.8
11	---	---	---	8.3	7.4	7.7	8.4	7.6	7.8	8.3	7.5	7.8
12	---	---	---	8.3	7.5	7.7	8.3	7.6	7.8	8.3	7.5	7.8
13	---	---	---	8.3	7.4	7.7	8.3	7.6	7.8	8.3	7.5	7.8
14	---	---	---	8.3	7.5	7.8	8.3	7.5	7.8	8.3	7.5	7.8
15	---	---	---	8.3	7.5	7.8	8.3	7.6	7.8	8.2	7.5	7.8
16	---	---	---	8.4	7.5	7.8	8.4	7.6	7.9	8.1	7.5	7.7
17	---	---	---	8.4	7.5	7.8	8.3	7.6	7.9	8.3	7.5	7.7
18	---	---	---	8.4	7.5	7.8	8.4	7.6	7.9	8.2	7.5	7.7
19	---	---	---	8.3	7.5	7.8	8.4	7.6	7.9	8.3	7.5	7.8
20	---	---	---	8.3	7.5	7.8	8.3	7.6	7.9	8.3	7.5	7.8
21	8.1	7.3	7.5	8.3	7.5	7.8	8.4	7.6	7.8	8.3	7.5	7.8
22	8.0	7.3	7.5	8.3	7.5	7.7	8.5	7.6	7.9	8.3	7.5	7.8
23	8.1	7.3	7.6	8.3	7.5	7.8	8.4	7.6	7.9	8.2	7.5	7.8
24	8.1	7.3	7.5	8.3	7.5	7.8	8.4	7.6	7.9	8.3	7.5	7.8
25	8.1	7.3	7.5	8.3	7.5	7.8	8.3	7.6	7.8	8.3	7.5	7.8
26	8.1	7.3	7.5	8.2	7.5	7.7	8.4	7.6	7.8	8.4	7.5	7.8
27	7.9	7.3	7.5	8.3	7.5	7.8	8.4	7.6	7.9	8.4	7.5	7.9
28	7.7	7.4	7.5	8.3	7.5	7.8	8.4	7.6	7.9	8.4	7.5	7.8
29	7.9	7.4	7.5	8.3	7.5	7.8	8.5	7.6	7.9	8.2	7.5	7.8
30	8.1	7.4	7.6	8.3	7.5	7.8	8.4	7.6	8.0	8.2	7.5	7.7
31	---	---	---	8.3	7.5	7.8	8.4	7.6	7.9	---	---	---
MAX	---	---	---	8.4	7.5	7.8	8.5	7.6	8.0	8.4	7.6	7.9
MIN	---	---	---	7.9	7.4	7.6	8.2	7.5	7.8	8.1	7.5	7.7

TEMPERATURE, WATER (DEG. C), JUNE TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	18.5	14.2	16.2	20.7	17.7	19.5	19.5	17.5	18.7
2	---	---	---	18.6	13.8	16.3	20.6	17.5	19.2	19.8	17.7	19.0
3	---	---	---	18.1	14.1	15.8	20.1	17.4	19.1	19.9	18.1	18.8
4	---	---	---	17.4	14.4	15.8	20.1	17.7	18.7	18.3	16.2	17.5
5	---	---	---	19.0	14.0	16.4	19.3	16.6	18.1	18.0	15.8	17.1
6	---	---	---	19.6	14.8	17.3	19.1	17.1	18.2	17.7	15.9	17.0
7	---	---	---	19.4	15.7	16.7	19.4	16.3	17.9	17.6	16.0	16.9
8	---	---	---	18.2	15.1	16.4	19.5	16.7	18.4	17.2	15.0	16.2
9	---	---	---	20.1	14.9	17.5	20.3	17.1	18.8	17.6	15.3	16.6
10	---	---	---	21.3	16.2	18.9	20.4	18.0	19.3	17.8	15.4	16.8
11	---	---	---	21.3	16.9	19.5	20.2	17.1	18.9	18.0	15.6	17.1
12	---	---	---	21.3	17.0	19.4	20.6	17.7	19.4	18.0	15.4	17.0
13	---	---	---	21.2	17.8	19.5	21.2	18.3	19.9	17.9	14.9	16.7
14	---	---	---	20.2	17.0	18.7	21.2	18.9	20.4	17.8	15.2	16.5
15	---	---	---	20.9	16.8	18.9	21.1	18.4	20.0	16.9	15.1	15.8
16	---	---	---	21.7	17.5	19.8	20.8	18.4	19.8	15.6	14.7	15.2
17	---	---	---	21.9	18.2	20.3	20.4	18.3	19.7	16.3	14.4	15.3
18	---	---	---	21.8	18.5	20.1	20.1	18.0	19.3	16.1	13.4	14.9
19	---	---	---	20.8	18.5	19.5	20.1	18.4	19.4	16.5	13.4	15.1
20	---	---	---	21.6	17.8	19.6	19.7	18.2	18.9	16.5	14.0	15.4
21	17.4	12.2	14.6	22.3	18.4	20.5	18.4	16.8	17.4	16.0	13.1	14.6
22	15.8	12.8	13.9	22.7	19.2	21.2	19.6	16.7	17.9	15.8	13.4	14.8
23	16.1	12.8	14.3	22.9	19.6	21.5	19.9	17.6	19.0	15.9	13.3	14.8
24	18.3	13.2	15.6	22.9	19.7	21.6	20.1	17.9	19.2	15.9	13.5	15.0
25	19.4	13.7	16.4	22.8	19.4	21.2	20.1	17.8	18.6	15.9	13.7	15.0
26	19.4	14.7	17.0	22.0	19.5	20.8	18.3	17.4	17.8	15.6	13.8	14.7
27	18.4	15.1	16.3	20.7	18.1	19.5	19.8	16.7	18.3	15.7	14.2	15.1
28	16.5	14.9	15.3	21.7	18.4	20.1	20.4	18.1	19.4	15.6	13.4	14.6
29	17.5	14.9	16.0	22.2	19.1	20.9	20.5	18.6	19.6	15.3	13.8	14.4
30	17.6	14.6	16.0	22.2	19.2	20.4	19.6	17.1	18.2	14.0	12.8	13.4
31	---	---	---	20.5	17.4	19.1	19.1	17.1	18.1	---	---	---
MONTH	---	---	---	22.9	13.8	19.0	21.2	16.3	18.9	19.9	12.8	16.0

WILLAMETTE RIVER BASIN

14211010 CLACKAMAS RIVER NEAR OREGON CITY, OR--Continued

OXYGEN DISSOLVED (MG/L), JUNE TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	JUNE			JULY			AUGUST			SEPTEMBER		
				MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	---	---	---	10.2	8.9	9.6	10.5	8.7	9.5	10.7	8.9	9.7			
2	---	---	---	10.3	8.8	9.5	10.5	8.6	9.6	10.6	8.9	9.6			
3	---	---	---	10.3	8.7	9.6	10.5	8.7	9.5	10.5	8.7	9.6			
4	---	---	---	10.4	9.0	9.7	10.5	8.7	9.6	10.8	9.2	9.9			
5	---	---	---	10.3	8.6	9.6	10.6	9.1	9.9	10.9	9.3	10.0			
6	---	---	---	10.2	8.5	9.4	10.6	9.0	9.8	10.9	9.3	10.1			
7	---	---	---	10	8.3	9.3	10.8	9.1	9.9	11.1	9.4	10.2			
8	---	---	---	10.4	9.0	9.7	10.8	8.9	9.9	11.3	9.7	10.5			
9	---	---	---	10.3	8.4	9.4	10.3	8.8	9.5	11.2	9.7	10.4			
10	---	---	---	10	8.0	9.1	10.2	8.4	9.3	11.2	9.6	10.3			
11	---	---	---	10.1	7.9	9.1	10.3	8.6	9.4	11.2	9.5	10.3			
12	---	---	---	10.2	8.3	9.2	10.2	8.5	9.3	11.2	9.5	10.3			
13	---	---	---	10.1	8.2	9.1	10.1	8.4	9.2	11.2	9.6	10.3			
14	---	---	---	10.3	8.6	9.4	10	8.2	9.1	11.3	9.6	10.4			
15	---	---	---	10.4	8.6	9.5	10.1	8.3	9.2	11.2	9.8	10.5			
16	---	---	---	10.3	8.4	9.3	10.2	8.3	9.3	11.3	10.2	10.7			
17	---	---	---	10.1	8.2	9.1	10.2	8.4	9.3	11.3	10.2	10.7			
18	---	---	---	10.1	8.2	9.2	10.3	8.7	9.4	11.6	10.4	10.9			
19	---	---	---	10.2	8.4	9.3	10.3	8.6	9.4	11.7	10.1	10.8			
20	---	---	---	10.2	8.6	9.4	10.3	8.7	9.5	11.5	10.0	10.7			
21	10.5	9.2	9.9	10.2	8.4	9.2	10.8	9.2	9.9	11.6	10.2	10.8			
22	10.4	9.2	9.9	10	8.1	9.0	10.7	9.3	10	11.5	10.1	10.7			
23	10.5	9.3	9.9	10	8.1	9.0	10.6	8.9	9.7	11.4	9.8	10.6			
24	10.3	8.9	9.7	9.9	8.1	9.0	10.6	8.9	9.7	11.3	9.9	10.5			
25	10.1	8.6	9.4	10.3	8.2	9.2	10.7	8.8	9.7	11.0	9.5	10.3			
26	10	8.6	9.3	10.1	8.2	9.2	10.8	9.4	10.0	11.0	9.1	10			
27	9.8	8.6	9.3	10.3	8.8	9.5	10.4	9.0	9.8	10.8	9.1	9.8			
28	9.8	8.9	9.3	10.3	8.6	9.4	10.2	8.6	9.3	11.0	9.1	10			
29	9.9	9.0	9.4	10.2	8.4	9.2	10.3	8.4	9.3	10.9	9.1	9.9			
30	10.1	9.0	9.5	10.4	8.4	9.4	10.7	8.7	9.7	11.1	9.5	10.2			
31	---	---	---	10.6	8.9	9.7	10.6	9.0	9.7	---	---	---			
MONTH	---	---	---	10.6	7.9	9.3	10.8	8.2	9.6	11.7	8.7	10.3			

TURBIDITY (NTU), WATER YEAR JUNE SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	JUNE			JULY			AUGUST			SEPTEMBER		
				MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	---	---	---	3	<1	1	<1	<1	<1	2	<1	<1			
2	---	---	---	2	<1	<1	<1	<1	<1	1	<1	<1			
3	---	---	---	1	<1	<1	2	<1	<1	1	<1	<1			
4	---	---	---	3	<1	<1	2	<1	<1	<1	<1	<1			
5	---	---	---	3	<1	<1	2	<1	<1	<1	<1	<1			
6	---	---	---	3	<1	<1	2	<1	<1	<1	<1	<1			
7	---	---	---	2	<1	<1	<1	<1	<1	2	<1	<1			
8	---	---	---	3	<1	1	2	<1	<1	2	<1	<1			
9	---	---	---	2	<1	1	3	<1	<1	2	<1	<1			
10	---	---	---	2	<1	1	1	<1	<1	2	<1	1			
11	---	---	---	2	<1	<1	<1	<1	<1	2	<1	1			
12	---	---	---	3	<1	<1	<1	<1	<1	2	<1	<1			
13	---	---	---	1	<1	<1	<1	<1	<1	3	<1	<1			
14	---	---	---	2	<1	<1	<1	<1	<1	3	<1	<1			
15	---	---	---	2	<1	<1	1	<1	<1	3	<1	1			
16	---	---	---	1	<1	<1	1	<1	<1	5	<1	3			
17	---	---	---	1	<1	<1	<1	<1	<1	---	---	---			
18	---	---	---	<1	<1	<1	<1	<1	<1	---	---	---			
19	---	---	---	2	<1	<1	1	<1	<1	---	---	---			
20	---	---	---	2	<1	<1	2	<1	<1	---	---	---			
21	2	<1	1	3	<1	<1	2	<1	<1	---	---	---			
22	1	<1	<1	<1	<1	<1	1	<1	<1	---	---	---			
23	2	<1	<1	<1	<1	<1	1	<1	<1	---	---	---			
24	1	<1	<1	2	<1	<1	<1	<1	<1	---	---	---			
25	1	<1	<1	2	<1	1	<1	<1	<1	---	---	---			
26	2	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1			
27	1	<1	<1	2	<1	<1	<1	<1	<1	<1	<1	<1			
28	11	<1	1	<1	<1	<1	1	<1	<1	1	<1	<1			
29	11	2	4	1	<1	<1	2	<1	<1	3	<1	<1			
30	5	<1	2	3	<1	1	2	<1	<1	2	<1	<1			
31	---	---	---	<1	<1	<1	<1	<1	<1	---	---	---			
MAX	---	---	---	3	<1	1	3	<1	<1	---	---	---			
MIN	---	---	---	<1	<1	<1	<1	<1	<1	---	---	---			

14211315 TRYON CREEK BELOW NETTLE CREEK, NEAR LAKE OSWEGO, OR

LOCATION.--Lat 45°25'53", long 122°40'17", in NW 1/4 NW 1/4 sec.42, T.2S., R.1E, Clackamas County, Hydrologic unit 17090012, on right bank, 0.8 mi north of Lake Oswego, and at mile 1.0.

DRAINAGE AREA.--6.28 mi<sup>2</sup>.

PERIOD OF RECORD.--August 2001 to September 2002.

GAGE.--Water-stage recorder. Datum of gage is 95 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 340 ft<sup>3</sup>/s Feb. 23, gage height, 6.41 ft; minimum discharge, 0.09 ft<sup>3</sup>/s Sept. 4, 5, 12.DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.82	4.8	e60	e19	14	6.0	6.2	3.2	2.2	1.7	0.36	0.13
2	0.81	3.2	e20	e8.0	11	5.4	6.0	3.2	1.9	1.5	0.33	0.15
3	0.79	1.6	e12	e6.5	12	5.1	5.7	2.9	1.8	1.3	0.35	0.20
4	0.87	1.0	e40	e4.8	9.2	4.9	5.0	2.7	1.9	1.2	1.1	0.15
5	1.0	11	54	e14	11	5.3	7.7	2.8	1.6	1.2	0.79	0.18
6	0.91	2.5	23	e50	18	53	5.0	3.1	1.5	1.1	0.60	0.21
7	0.95	1.4	15	e80	53	19	4.4	2.8	1.6	1.5	e0.50	0.19
8	1.3	1.3	14	e75	34	14	3.9	2.7	1.7	6.5	e0.40	0.18
9	0.95	1.2	12	24	17	12	8.8	2.8	1.5	0.78	e0.50	0.19
10	9.1	1.1	12	17	16	20	18	2.8	1.3	0.66	0.50	0.23
11	2.0	1.3	11	14	12	68	9.5	2.7	e1.3	0.52	e0.70	0.47
12	1.2	4.8	15	15	11	50	6.7	2.5	e1.2	0.48	e1.0	0.16
13	1.5	13	78	12	9.5	36	13	2.7	e1.1	0.48	1.1	0.12
14	0.96	26	30	11	8.4	26	17	2.5	e1.0	0.43	e0.70	0.11
15	1.0	9.8	e22	9.6	7.7	23	9.7	2.3	e1.0	0.42	e0.70	0.13
16	2.3	6.5	e50	9.3	9.8	20	13	2.3	e0.90	0.40	e0.80	4.4
17	1.6	4.0	e32	8.7	7.4	19	10	5.0	e1.3	0.39	e0.70	5.4
18	1.2	2.9	e24	12	7.6	18	8.0	2.8	e4.0	0.39	e0.90	0.42
19	1.2	14	e14	12	23	47	6.9	4.1	e1.8	0.38	e1.0	0.24
20	1.0	14	e28	17	9.4	23	6.5	12	e1.6	0.39	e0.60	0.19
21	2.5	15	e22	e16	9.3	18	6.0	6.7	e1.4	0.34	e0.40	0.23
22	9.4	35	18	e16	7.9	16	5.5	5.4	1.3	0.36	0.32	0.36
23	7.0	8.2	14	13	49	14	5.1	4.2	1.2	0.30	0.25	0.33
24	2.8	11	12	16	14	12	4.6	3.7	1.2	0.35	0.17	0.34
25	2.0	8.4	11	67	10	11	4.4	3.5	1.2	0.33	0.22	0.36
26	1.6	4.9	9.8	28	8.7	10	5.8	3.2	1.1	0.34	0.22	0.40
27	12	3.5	13	32	7.7	9.1	10	4.9	1.1	0.37	0.19	0.35
28	3.6	65	14	24	6.6	8.1	5.1	9.7	9.6	0.36	0.20	0.38
29	5.0	e22	10	17	---	7.5	3.9	8.4	11	0.37	0.21	4.2
30	23	e42	9.6	14	---	6.6	3.6	3.4	2.3	0.34	0.18	4.0
31	11	---	13	16	---	6.3	---	2.7	---	0.38	0.16	---
TOTAL	111.36	340.4	712.4	677.9	414.2	593.3	225.0	123.7	75.30	25.56	16.15	24.40
MEAN	3.59	11.3	23.0	21.9	14.8	19.1	7.50	3.99	2.51	0.82	0.52	0.81
MAX	23	65	78	80	53	68	18	12	13	6.5	1.1	5.4
MIN	0.79	1.0	9.6	4.8	6.6	4.9	3.6	2.3	0.90	0.30	0.16	0.11
AC-FT	221	675	1410	1340	822	1180	446	245	149	51	32	48
CFSM	0.57	1.81	3.66	3.48	2.36	3.05	1.19	0.64	0.40	0.13	0.08	0.13
IN.	0.66	2.02	4.22	4.02	2.45	3.51	1.33	0.73	0.45	0.15	0.10	0.14

WTR YR 2002 TOTAL 3339.67 MEAN 9.15 MAX 80 MIN 0.11 AC-FT 6620 CFSM 1.46 IN. 19.78

e Estimated

14211400 JOHNSON CREEK AT REGNER ROAD, AT GRESHAM, OR

LOCATION.--Lat 45°29'12", long 122°25'14", in SW 1/4 NE 1/4 sec.15, T.1 S., R.3 E., Multnomah County, Hydrologic unit 17090012, on left bank at Regner Road, 1.5 mi southeast of Gresham City Hall, and at mile 16.3.

DRAINAGE AREA.--15.36 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1998 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 305 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--4 years (water years 1999-2002), 30.0 ft<sup>3</sup>/s, 26.52 in/yr, 21,720 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 629 ft<sup>3</sup>/s Feb. 27, 28, 1999, gage height, 8.58 ft; minimum discharge, 0.26 ft<sup>3</sup>/s Sept. 27, 28, 2000.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 350 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 5	0430	431	7.47	Jan. 25	1230	*535	*8.03
Dec. 13	2100	452	7.58	Mar. 11	2000	485	7.76

Minimum discharge, 0.33 ft<sup>3</sup>/s Sept. 14, 15, 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.3	19	187	72	92	17	8.9	14	3.0	4.2	0.92	0.60
2	1.1	19	202	80	74	14	7.9	11	2.5	3.0	0.96	0.99
3	0.90	11	175	62	66	12	7.1	9.9	2.4	2.8	0.76	0.95
4	0.93	8.5	180	50	54	11	6.6	7.7	2.3	2.7	1.0	0.77
5	0.93	25	247	47	53	11	6.6	7.2	2.3	2.6	1.0	0.59
6	1.0	15	138	103	69	159	6.1	7.7	2.0	2.1	1.1	0.52
7	0.86	10	120	150	152	101	6.1	6.6	2.0	2.4	1.0	0.49
8	1.7	8.2	90	175	185	66	5.3	5.6	2.7	5.6	0.89	0.48
9	2.0	7.4	73	93	99	49	11	5.0	3.4	2.6	0.90	0.53
10	4.9	6.3	83	67	74	45	14	4.8	5.1	2.1	0.88	0.54
11	6.5	5.7	104	51	59	155	17	4.4	3.1	1.9	1.0	0.72
12	3.1	9.7	96	51	45	154	14	4.0	2.5	1.9	1.1	0.46
13	3.9	24	203	40	36	114	21	3.6	2.2	1.7	0.78	0.45
14	2.7	34	229	34	28	96	97	3.4	2.1	1.8	0.75	0.41
15	2.3	25	132	27	23	82	53	3.0	2.0	1.3	1.3	0.41
16	2.8	44	148	26	20	76	57	2.9	2.2	1.2	0.89	0.65
17	2.8	43	166	30	17	71	56	3.8	5.6	1.5	0.92	2.7
18	1.8	25	113	31	15	59	41	2.9	7.4	1.3	0.93	1.8
19	1.4	31	90	47	40	169	32	3.8	3.8	1.5	0.91	1.2
20	1.3	35	83	69	26	103	26	4.0	3.2	1.4	0.98	0.95
21	2.2	38	70	90	23	71	20	3.2	3.1	1.4	1.1	0.77
22	6.8	122	56	108	20	52	18	3.6	2.5	1.4	0.88	0.65
23	10	80	44	81	114	39	14	3.1	2.6	1.4	0.76	0.57
24	7.3	54	36	77	61	30	12	2.6	2.2	1.1	0.79	0.47
25	e4.0	42	29	298	44	25	11	2.6	2.0	1.2	0.87	0.50
26	e3.2	30	23	171	34	20	13	2.5	1.9	1.2	1.0	0.47
27	6.3	23	22	136	26	17	67	2.7	1.7	1.1	0.94	0.61
28	7.2	205	42	109	21	14	30	5.9	6.6	1.1	0.67	0.58
29	5.1	186	27	83	---	12	21	10	22	1.3	0.48	2.2
30	29	144	22	70	---	11	17	4.7	6.5	1.2	0.45	5.8
31	29	---	30	85	---	9.9	---	3.5	---	0.95	0.54	---
TOTAL	154.32	1329.8	3260	2613	1570	1864.9	716.6	159.7	112.9	58.95	27.45	28.83
MEAN	4.98	44.3	105	84.3	56.1	60.2	23.9	5.15	3.76	1.90	0.89	0.96
MAX	29	205	247	298	185	169	97	14	22	5.6	1.3	5.8
MIN	0.86	5.7	22	26	15	9.9	5.3	2.5	1.7	0.95	0.45	0.41
AC-FT	306	2640	6470	5180	3110	3700	1420	317	224	117	54	57
CFSM	0.32	2.89	6.85	5.49	3.65	3.92	1.56	0.34	0.25	0.12	0.06	0.06
IN.	0.37	3.22	7.90	6.33	3.80	4.52	1.74	0.39	0.27	0.14	0.07	0.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1999 - 2002, BY WATER YEAR (WY)

	1999	2000	2001	2002
MEAN	3.89	39.8	80.6	67.7
MAX	4.98	61.9	121	102
(WY)	2002	1999	1999	1999
MIN	3.09	8.49	30.2	16.8
(WY)	1999	2001	2001	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1999 - 2002

ANNUAL TOTAL	8329.62	11896.45		
ANNUAL MEAN	22.8	32.6	30.0	
HIGHEST ANNUAL MEAN			45.4	1999
LOWEST ANNUAL MEAN			13.4	2001
HIGHEST DAILY MEAN	247	298	412	Dec 28 1998
LOWEST DAILY MEAN	0.54	0.41	0.36	Sep 14 2000
ANNUAL SEVEN-DAY MINIMUM	0.74	0.50	0.43	Sep 23 2000
ANNUAL RUNOFF (AC-FT)	16520	23600	21720	
ANNUAL RUNOFF (CFSM)	1.49	2.12	1.95	
ANNUAL RUNOFF (INCHES)	20.17	28.81	26.52	
10 PERCENT EXCEEDS	55	100	89	
50 PERCENT EXCEEDS	9.7	7.4	8.4	
90 PERCENT EXCEEDS	0.90	0.89	0.96	

e Estimated

14211400 JOHNSON CREEK AT REGNER ROAD, AT GRESHAM, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: January 1999 to current year.

INSTRUMENTATION.--Temperature recorder.

REMARKS.--Records excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 23.0°C July 23, 2002; minimum, 1.5°C Dec. 29, 30, 1999.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 23.0°C July 23; minimum, 3.6°C Mar. 2.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.8	12.4	13.6	10.9	10.3	10.6	8.9	8.3	8.7	6.3	5.4	5.7
2	14.1	11.8	13.0	11.9	10.9	11.4	8.8	8.3	8.5	7.3	6.3	6.8
3	13.4	11.0	12.2	11.1	9.7	10.4	8.8	8.1	8.5	7.3	6.0	6.7
4	13.7	11.2	12.3	11.5	10.6	11.0	8.1	7.2	7.7	7.2	6.1	6.7
5	13.7	11.7	12.5	11.5	9.8	10.8	8.4	6.5	7.6	7.2	6.6	6.9
6	13.7	12.3	12.7	9.8	8.2	9.2	9.0	8.4	8.7	8.3	7.2	7.5
7	12.4	10.4	11.1	8.2	6.9	7.5	9.1	8.3	8.6	9.5	8.3	8.9
8	12.4	11.2	11.7	8.1	7.0	7.6	8.8	7.9	8.4	9.4	8.7	9.0
9	11.5	10.3	10.9	7.3	5.8	6.4	8.5	7.8	8.1	8.7	7.9	8.4
10	11.0	8.9	9.9	7.4	6.1	6.8	7.8	7.5	7.7	8.3	7.6	7.9
11	11.3	10.3	10.7	8.2	7.3	7.8	7.9	7.7	7.8	8.0	7.3	7.7
12	11.5	9.6	10.3	8.9	8.1	8.4	8.6	7.8	8.1	8.3	7.1	7.8
13	11.9	10.9	11.4	10.3	8.8	9.4	9.3	8.6	9.0	7.1	6.3	6.8
14	12.6	11.6	12.0	12.3	10.3	11.5	8.7	7.8	8.1	7.0	6.2	6.7
15	12.0	10.5	11.2	12.0	11.4	11.8	8.5	7.8	8.1	6.2	5.1	5.7
16	11.4	10.2	10.9	11.4	10.7	11.1	9.5	8.5	9.1	5.5	5.1	5.3
17	10.8	9.2	10.0	10.7	8.8	9.9	8.9	8.1	8.4	5.8	5.3	5.5
18	9.4	7.5	8.6	9.3	8.0	8.7	8.1	7.8	8.0	6.5	5.7	6.1
19	10.2	7.7	8.9	10.0	9.0	9.5	8.1	7.7	7.9	6.7	6.2	6.4
20	10.2	8.8	9.5	10.1	9.7	10.0	7.9	7.7	7.7	6.8	6.0	6.4
21	9.5	7.5	8.4	10.0	9.6	9.8	7.8	6.8	7.5	6.7	5.6	6.3
22	10.9	9.4	10.0	10.2	9.6	10.0	7.1	6.3	6.7	6.3	5.4	5.8
23	10.3	9.1	9.7	10.1	9.4	9.7	6.6	5.6	6.2	6.8	6.0	6.4
24	9.1	7.7	8.5	9.7	8.9	9.3	6.2	5.3	5.7	7.1	6.8	6.9
25	10.5	8.9	9.5	9.1	8.6	8.8	5.4	4.6	5.1	7.0	6.6	6.9
26	10.0	8.6	9.3	8.8	7.9	8.4	4.8	4.2	4.5	6.9	5.6	6.3
27	9.5	8.9	9.4	7.9	6.8	7.3	4.6	4.2	4.4	6.2	5.3	5.7
28	8.9	7.7	8.2	8.6	6.6	7.5	5.7	4.4	5.2	6.0	5.2	5.7
29	8.9	7.7	8.2	9.2	8.6	8.9	5.3	4.4	4.9	5.7	4.8	5.2
30	10.5	8.8	9.6	8.8	8.4	8.6	5.5	4.9	5.2	6.2	5.3	5.7
31	10.9	10.5	10.6	---	---	---	6.2	5.4	5.7	6.4	6.0	6.2
MONTH	14.8	7.5	10.5	12.3	5.8	9.3	9.5	4.2	7.3	9.5	4.8	6.6





WILLAMETTE RIVER BASIN

14211499 KELLEY CREEK AT 159TH DRIVE, AT PORTLAND, OR

LOCATION.--Lat 45°28'37", long 122°29'50", in SE 1/4 SE 1/4 sec.13, T.1 S., R.2 E., Multnomah County, Hydrologic unit 17090012, on right bank at southeast 159th Drive, 3.3 mi east of I-205, and at mouth.

DRAINAGE AREA.--4.69 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 2000 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 245 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. No regulation or diversion upstream from station.

AVERAGE DISCHARGE.--2 years (water years 2001-02), 5.88 ft<sup>3</sup>/s, 17.04 in/yr, 4,260 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 100 ft<sup>3</sup>/s Jan. 25, 2002, maximum gage height, 5.87 ft; no flow July 27, 2002.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 100 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 25	unknown	(a)	*5.87				
Minimum discharge, 0.00 ft <sup>3</sup> /s July 27.							
(a) Backwater from Johnson Creek.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.19	2.5	78	21	18	4.1	2.5	2.9	0.76	0.60	0.28	0.14
2	0.23	1.9	75	17	12	3.5	2.4	2.6	0.59	0.53	0.29	0.23
3	0.24	0.89	51	12	11	3.1	2.2	2.3	0.53	0.50	0.29	0.14
4	0.18	0.68	64	9.0	8.9	2.9	2.1	2.1	0.56	0.42	0.30	0.16
5	0.17	4.7	e80	11	9.4	3.1	2.3	1.9	0.54	0.41	0.25	0.18
6	0.16	1.7	36	36	23	87	2.1	1.8	0.55	0.47	0.28	0.12
7	0.18	0.81	26	85	73	27	2.2	1.7	0.54	0.39	0.27	0.14
8	0.25	0.58	16	e70	71	13	1.9	1.6	0.97	0.57	0.25	0.15
9	0.16	0.48	13	22	22	9.8	3.5	1.5	0.77	0.46	0.24	0.18
10	1.3	0.41	18	13	15	10	4.7	1.4	0.80	0.39	0.30	0.18
11	0.86	0.36	23	9.3	12	e65	4.0	1.2	0.61	0.37	0.28	0.22
12	0.32	1.8	21	9.9	9.1	e60	3.0	1.1	0.62	0.37	0.29	0.18
13	0.36	5.4	e50	7.8	7.2	35	6.0	0.98	0.50	0.38	0.32	0.09
14	0.20	8.2	e60	6.4	5.8	24	15	0.97	0.47	0.36	0.37	0.12
15	0.15	3.9	32	5.2	5.0	19	6.8	0.93	0.50	0.37	0.26	0.19
16	0.24	7.9	55	5.1	4.5	19	7.2	0.81	0.49	0.36	0.24	0.45
17	0.25	6.4	49	5.2	4.1	18	9.7	1.2	1.9	0.36	0.23	1.0
18	0.17	2.5	29	5.9	4.0	14	8.0	0.85	1.3	0.34	0.20	0.27
19	0.21	6.3	21	9.4	12	57	5.9	1.3	0.59	0.36	0.22	0.22
20	0.17	7.0	24	16	7.1	22	4.9	1.3	0.56	0.36	0.22	0.19
21	0.33	7.7	17	22	6.5	13	4.0	0.99	0.54	0.35	0.18	0.17
22	1.2	32	13	27	5.7	9.7	3.5	1.3	0.47	0.35	0.20	0.14
23	1.9	12	9.2	15	63	7.7	2.9	0.98	0.43	0.32	0.20	0.19
24	0.86	9.2	7.1	15	14	6.0	2.6	0.79	0.40	0.32	0.19	0.14
25	0.41	7.6	5.6	e100	9.4	5.0	2.4	0.72	0.40	0.31	0.20	0.17
26	0.27	5.0	4.7	47	7.1	4.4	5.0	0.65	0.43	0.33	0.19	0.21
27	1.5	3.7	5.0	38	5.8	3.8	16	0.72	0.37	0.29	0.23	0.21
28	0.88	e75	8.1	29	4.9	3.5	6.0	1.9	2.1	0.29	0.23	0.16
29	0.87	51	5.1	18	---	3.2	4.4	2.0	4.1	0.30	0.20	0.87
30	5.5	43	4.2	14	---	2.9	3.5	1.0	0.87	0.31	0.22	1.5
31	4.1	---	5.5	16	---	2.6	4.6	0.81	---	0.28	0.17	---
TOTAL	23.81	310.61	905.5	717.2	450.5	558.3	146.7	42.30	24.26	11.82	7.59	8.31
MEAN	0.768	10.35	29.21	23.14	16.09	18.01	4.890	1.365	0.809	0.381	0.245	0.277
MAX	5.5	75	80	100	73	87	16	2.9	4.1	0.60	0.37	1.5
MIN	0.15	0.36	4.2	5.1	4.0	2.6	1.9	0.65	0.37	0.28	0.17	0.09
AC-FT	47	616	1800	1420	894	1110	291	84	48	23	15	16
CFSM	0.16	2.21	6.23	4.93	3.43	3.84	1.04	0.29	0.17	0.08	0.05	0.06
IN.	0.19	2.46	7.18	5.69	3.57	4.43	1.16	0.34	0.19	0.09	0.06	0.07

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 2001 - 2002, BY WATER YEAR (WY)

	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002	2001	2002
MEAN	0.908	5.816	17.76	13.32	10.68	13.36	5.315	1.934	0.729	0.334	0.289	0.253
MAX	1.05	10.4	29.2	23.1	16.1	18.0	5.74	2.50	0.81	0.38	0.33	0.28
(WY)	2001	2002	2002	2002	2002	2002	2001	2001	2002	2002	2001	2002
MIN	0.77	1.28	6.30	3.50	5.27	8.71	4.89	1.36	0.65	0.29	0.24	0.23
(WY)	2002	2001	2001	2001	2001	2001	2002	2002	2001	2001	2002	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 2001 - 2002

ANNUAL TOTAL	2061.62	3206.90		
ANNUAL MEAN	5.648	8.786		5.883
HIGHEST ANNUAL MEAN				8.79
LOWEST ANNUAL MEAN				2.98
HIGHEST DAILY MEAN	80	Dec 5	100	Jan 25
LOWEST DAILY MEAN	0.08	Sep 17	0.09	Sep 13
ANNUAL SEVEN-DAY MINIMUM	0.15	Sep 16	0.15	Sep 3
ANNUAL RUNOFF (AC-FT)	4090		6360	4260
ANNUAL RUNOFF (CFSM)	1.20		1.87	1.25
ANNUAL RUNOFF (INCHES)	16.35		25.44	17.04
10 PERCENT EXCEEDS	13		23	14
50 PERCENT EXCEEDS	1.8		1.9	1.5
90 PERCENT EXCEEDS	0.19		0.20	0.20

e Estimated

14211499 KELLEY CREEK AT 159TH DRIVE, AT PORTLAND, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: January 2000 to current year.

INSTRUMENTATION.--Digital temperature recorder.

REMARKS.--Records excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 20.7°C Aug. 14, 2002; minimum, 2.2°C Dec. 12, 2000.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 20.7°C Aug. 14; minimum, 3.9°C Mar. 2.

DAY	WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.2	12.3	13.3	11.4	10.3	10.8	8.8	8.1	8.6	6.1	5.3	5.7
2	13.6	11.8	12.9	11.9	11.1	11.5	8.6	8.0	8.3	7.3	6.1	6.6
3	13.0	11.1	12.2	11.3	10.2	10.8	8.6	7.7	8.2	6.9	5.6	6.3
4	13.6	11.4	12.4	11.5	10.9	11.2	7.7	6.8	7.3	6.8	5.9	6.4
5	14.0	12.2	12.9	11.6	9.8	10.8	8.1	6.0	7.3	7.1	6.4	6.7
6	13.7	12.2	12.9	9.8	8.1	9.2	8.9	8.1	8.4	8.6	7.1	7.6
7	12.2	11.1	11.4	8.2	6.7	7.5	8.8	7.9	8.3	9.7	8.5	9.0
8	12.3	11.1	11.7	8.3	7.5	7.9	8.4	7.6	8.1	9.4	8.6	9.0
9	11.6	10.1	10.9	7.6	6.0	6.8	8.1	7.3	7.6	8.8	7.9	8.4
10	11.3	9.2	10.0	8.2	7.2	7.7	7.6	7.0	7.3	8.1	7.4	7.8
11	11.8	10.8	11.3	8.8	8.1	8.4	7.8	7.4	7.6	7.9	7.3	7.6
12	11.6	9.8	10.6	9.4	8.5	8.9	8.4	7.6	7.9	8.4	7.1	7.9
13	12.1	11.5	11.8	10.9	9.3	9.8	9.3	8.4	8.9	7.1	6.4	6.8
14	12.9	11.6	12.2	12.3	10.9	11.8	8.6	7.8	8.0	7.0	6.3	6.7
15	12.2	10.8	11.5	12.2	11.6	11.9	8.4	7.6	7.9	6.3	5.3	5.8
16	11.6	10.5	11.1	11.6	11.0	11.2	9.5	8.4	9.0	5.6	5.2	5.5
17	10.6	8.9	9.6	11.0	8.9	10.0	8.9	7.8	8.2	6.0	5.4	5.7
18	9.2	7.8	8.6	9.5	8.5	9.0	7.9	7.5	7.7	6.6	5.8	6.2
19	10.0	8.0	9.0	10.1	9.1	9.6	7.9	7.4	7.7	6.8	6.3	6.5
20	10.2	8.7	9.6	10.4	9.7	10.1	7.5	7.3	7.4	6.8	5.9	6.4
21	9.5	7.8	8.4	10.2	9.7	9.9	7.6	6.6	7.3	6.7	5.1	6.2
22	11.5	9.5	10.3	10.4	9.8	10.1	6.7	6.2	6.5	6.2	5.1	5.7
23	10.7	9.2	10.1	9.9	9.2	9.6	6.6	5.9	6.3	6.6	5.8	6.1
24	9.4	7.7	8.6	9.4	8.5	9.0	6.2	5.3	5.8	7.1	6.6	6.8
25	10.6	9.3	9.9	9.0	8.2	8.6	5.5	4.7	5.1	7.1	6.6	6.9
26	10.5	9.2	9.9	8.4	7.5	8.1	4.9	4.3	4.6	6.8	5.1	6.1
27	10.1	9.4	9.7	7.5	6.6	7.1	4.7	4.3	4.5	5.9	4.8	5.3
28	9.4	8.0	8.5	8.6	6.1	7.5	5.7	4.6	5.2	6.2	5.0	5.5
29	9.4	8.0	8.5	9.1	8.5	8.8	5.3	4.6	4.9	5.7	4.8	5.2
30	10.8	9.1	10.1	8.7	8.0	8.4	5.5	4.8	5.2	6.1	5.1	5.6
31	10.9	10.5	10.8	---	---	---	6.0	5.3	5.6	6.5	6.0	6.2
MONTH	14.2	7.7	10.7	12.3	6.0	9.4	9.5	4.3	7.1	9.7	4.8	6.6





14211500 JOHNSON CREEK AT SYCAMORE, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: April 1998 to current year.

INSTRUMENTATION.--Temperature recorder.

REMARKS.--Records excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 25.0°C July 28, 1998; minimum, 0.0°C Dec. 23, 24, 1998.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 22.9°C July 23; minimum, 4.0°C Dec. 27.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.3	12.4	13.3	11.4	10.5	10.9	8.7	8.1	8.5	5.8	5.2	5.3
2	13.8	11.9	12.9	11.7	11.2	11.4	8.5	8.0	8.3	6.9	5.8	6.4
3	13.2	11.3	12.3	11.4	10.7	11.0	8.4	8.0	8.2	6.9	5.8	6.3
4	13.1	11.2	12.2	11.4	10.7	11.0	8.2	7.1	7.4	6.9	6.2	6.5
5	13.2	11.9	12.6	11.5	10.2	11.0	8.1	6.2	7.1	7.0	6.3	6.6
6	13.9	12.4	13.0	10.2	8.4	9.5	8.8	8.1	8.4	8.2	6.9	7.3
7	12.7	10.8	11.5	8.4	7.1	7.5	8.7	8.0	8.4	9.6	8.2	8.8
8	12.4	11.4	11.8	7.7	6.6	7.1	8.5	7.8	8.2	9.6	8.8	9.1
9	11.9	10.6	11.4	7.2	5.9	6.5	8.4	7.6	7.9	8.8	8.1	8.5
10	11.2	9.8	10.4	7.7	6.5	7.1	7.7	7.2	7.4	8.1	7.4	7.8
11	12.0	11.1	11.5	8.1	7.1	7.7	7.6	7.5	7.5	8.0	7.5	7.7
12	11.9	10.4	11.0	9.2	7.8	8.4	8.2	7.6	7.8	8.2	7.4	7.8
13	12.7	11.4	12.0	10.7	9.2	9.7	9.3	8.2	8.9	7.4	6.6	6.8
14	13.0	12.1	12.5	12.2	10.7	11.7	8.9	7.8	8.0	6.8	6.3	6.6
15	12.2	10.9	11.6	12.2	12.0	12.1	8.2	7.6	7.8	6.3	5.3	5.8
16	12.0	11.1	11.6	12.0	11.1	11.4	9.4	8.2	8.9	5.4	5.2	5.3
17	11.1	9.9	10.3	11.1	9.2	10.1	9.1	8.0	8.3	5.7	5.2	5.4
18	10.0	8.5	9.1	9.2	8.5	8.7	8.0	7.5	7.8	6.4	5.6	5.9
19	10.6	8.5	9.5	9.7	8.6	9.2	7.8	7.6	7.7	6.5	6.2	6.4
20	10.1	9.0	9.7	10.1	9.7	9.9	7.6	7.4	7.5	6.7	5.8	6.2
21	9.5	7.9	8.7	10.1	9.7	9.8	7.5	6.9	7.3	6.7	5.1	6.2
22	11.3	9.5	10.3	10.3	9.6	10.0	6.9	6.2	6.5	6.0	5.1	5.5
23	11.2	9.7	10.6	9.9	9.4	9.6	6.4	5.8	6.1	6.5	5.8	6.1
24	9.7	8.7	9.2	9.6	8.7	9.1	5.9	5.0	5.5	7.0	6.5	6.8
25	10.5	9.1	9.8	8.8	8.4	8.6	5.1	4.5	4.9	7.0	6.6	6.8
26	10.4	9.0	9.8	8.4	7.8	8.2	4.5	4.1	4.3	6.8	5.5	6.3
27	10.4	9.5	9.9	7.8	6.8	7.2	4.3	4.0	4.1	5.9	5.2	5.5
28	9.7	8.2	9.0	8.4	5.8	7.0	5.2	4.1	4.7	5.9	5.3	5.5
29	9.1	8.1	8.4	8.9	8.4	8.7	4.8	4.3	4.6	5.5	4.8	5.2
30	10.5	9.1	9.8	8.7	7.9	8.4	5.0	4.6	4.8	6.1	5.2	5.6
31	11.0	10.4	10.7	--	--	--	5.7	5.0	5.3	6.3	6.0	6.1
MONTH	14.3	7.9	10.9	12.2	5.8	9.3	9.4	4.0	7.0	9.6	4.8	6.5



14211542 CRYSTAL SPRINGS CREEK AT BYBEE STREET, PORTLAND, OR

## WATER-QUALITY RECORDS

LOCATION.--Lat 45°28'27", long 122°38'27", Multnomah County, Hydrologic Unit 17090012, at Bybee Street in Portland, and at mile 1.0.

DRAINAGE AREA.--Not Determined.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: July 1998 to current year.

INSTRUMENTATION.--Temperature recorder.

REMARKS.--Records excellent.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 23.1°C June 13, 2002; minimum, 4.0°C Dec. 22, 1998.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 23.1°C June 13; minimum, 6.7°C Dec. 27.

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	16.9	13.9	15.2	12.2	11.6	11.9	9.9	9.1	9.5	8.3	7.8	8.1
2	16.3	13.8	14.9	13.0	11.9	12.4	9.7	9.1	9.5	9.5	8.3	8.7
3	16.0	13.3	14.5	13.0	11.9	12.3	10.2	8.8	9.6	10.0	8.3	9.1
4	15.6	13.0	14.2	13.0	12.2	12.6	8.9	8.3	8.7	9.8	8.6	9.2
5	16.0	12.8	14.2	12.7	11.4	12.1	9.6	8.0	8.9	9.5	9.0	9.2
6	14.9	13.3	14.1	12.2	10.7	11.4	10.0	9.1	9.6	10.9	9.4	9.9
7	13.3	12.4	12.7	11.4	9.9	10.5	9.9	9.1	9.6	11.8	10.9	11.4
8	13.9	12.5	13.1	11.3	9.6	10.4	10.2	9.6	9.9	12.0	11.2	11.6
9	14.7	12.2	13.1	11.1	9.1	10.1	10.0	9.3	9.6	11.5	10.6	11.1
10	12.7	11.9	12.2	11.3	9.7	10.3	9.9	8.9	9.4	10.9	10.3	10.6
11	13.8	12.0	12.7	11.1	10.0	10.5	9.7	9.3	9.5	10.8	10.0	10.3
12	13.6	11.9	12.7	11.1	10.3	10.7	9.8	9.5	9.7	10.9	9.5	10.2
13	14.9	12.7	13.6	11.7	10.8	11.3	10.6	9.8	10.2	10.1	9.4	9.6
14	14.9	13.3	13.8	13.6	11.7	12.7	10.0	9.2	9.7	10.0	8.9	9.5
15	14.5	12.5	13.4	13.0	12.4	12.8	9.8	9.2	9.6	9.5	8.3	8.8
16	13.4	12.0	12.8	12.4	11.9	12.2	10.8	9.7	10.3	9.0	8.7	8.8
17	13.4	11.6	12.3	12.0	10.7	11.4	10.4	9.7	10.0	9.0	8.4	8.8
18	13.1	10.8	12.0	11.4	10.2	10.7	9.8	9.4	9.6	9.4	8.9	9.1
19	13.6	11.1	12.3	11.1	10.7	10.8	9.7	9.0	9.4	10.0	9.0	9.4
20	13.3	11.4	12.2	11.3	10.8	11.1	9.7	9.0	9.2	9.2	8.4	8.9
21	12.0	11.0	11.5	11.1	10.7	10.9	9.8	8.6	9.2	9.0	8.1	8.7
22	12.7	11.7	12.1	11.3	10.7	11.0	9.2	8.3	8.6	9.0	8.0	8.6
23	12.2	11.1	11.6	11.1	10.2	10.7	9.4	8.0	8.4	9.0	8.6	8.8
24	12.0	10.2	11.2	10.7	10.2	10.3	8.7	7.5	7.9	9.0	8.6	8.9
25	13.4	11.4	12.2	10.8	10.0	10.3	8.4	7.2	7.6	9.4	8.6	9.0
26	13.3	11.3	12.2	10.3	9.7	10.0	7.3	6.9	7.0	8.9	7.3	8.3
27	12.4	11.3	11.8	10.3	9.7	9.9	7.2	6.7	6.9	8.4	7.0	7.8
28	12.2	10.8	11.3	9.9	8.9	9.5	8.1	7.2	7.5	8.9	7.7	8.2
29	11.3	10.7	11.0	10.3	9.6	9.9	8.1	7.0	7.6	8.6	7.5	8.1
30	11.7	11.0	11.3	9.9	9.1	9.4	8.4	7.3	7.8	8.9	7.8	8.4
31	12.2	11.4	11.8	---	---	---	8.7	7.7	8.2	9.2	8.4	8.8
MONTH	16.9	10.2	12.7	13.6	8.9	11.0	10.8	6.7	9.0	12.0	7.0	9.2





WILLAMETTE RIVER BASIN

14211550 JOHNSON CREEK AT MILWAUKIE, OR

LOCATION.--Lat 45°27'11", long 122°38'31", in NE 1/4 SE 1/4 sec.26, T.1 S., R.1 E., Clackamas County, Hydrologic Unit 17090012, on the right bank upstream side of the Milport Road bridge, in the city limits of Milwaukie, and at mile 0.7.

DRAINAGE AREA.--53.17 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929, from State of Oregon.

REMARKS.--No estimated daily discharges. Records good. Small diversions for irrigation upstream from station. Significant portion of summer flow is from Crystal Springs, through Crystal Springs Creek, which enters 0.5 mi upstream from gage.

AVERAGE DISCHARGE.--13 years (water years 1990-2002), 80.0 ft<sup>3</sup>/s, 20.44 in/yr, 57,950 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,170 ft<sup>3</sup>/s Feb. 8, 1996, gage height 30.27 ft; maximum gage height, 34.43 ft, Feb. 9, 1996, backwater from Willamette River; minimum discharge, 10 ft<sup>3</sup>/s July 1, 3-5, 1994.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 750 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Jan. 25	1630	*782	*27.90	No other peak greater than base discharge.			
Minimum discharge, 12 ft <sup>3</sup> /s June 24-27, July 18, Aug. 3, 9, 15-21, 24, 25, 28, 29, 31, Sept. 1-3, 10-15, 24-26.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	14	54	334	121	155	46	31	38	16	22	13	13
2	14	56	426	155	119	41	29	34	16	20	13	13
3	14	37	348	117	110	37	28	31	15	18	13	13
4	14	30	306	89	91	34	26	27	14	18	15	13
5	13	71	503	90	90	36	29	26	14	18	15	13
6	14	46	247	197	114	337	28	26	14	17	14	13
7	14	34	236	335	284	224	27	26	14	17	14	13
8	14	27	153	439	439	126	25	23	16	27	13	13
9	15	25	135	183	195	94	39	21	24	21	13	13
10	34	23	138	124	137	94	69	21	20	17	13	13
11	33	21	174	94	116	219	49	20	17	16	13	13
12	20	33	170	95	88	403	42	19	15	15	13	13
13	20	68	332	77	74	227	53	18	14	15	13	13
14	18	106	518	66	62	186	158	18	13	15	13	13
15	16	63	249	56	56	147	91	17	13	16	13	13
16	16	92	298	52	53	145	91	17	13	15	13	17
17	20	100	350	62	46	136	111	21	20	15	13	32
18	16	59	220	56	44	116	87	18	42	15	13	18
19	15	77	178	87	93	296	66	20	19	15	13	16
20	15	92	164	114	66	196	57	26	16	15	13	14
21	16	88	143	149	58	129	50	19	15	15	13	14
22	30	210	111	196	54	98	44	19	15	15	13	13
23	45	170	87	142	272	80	40	19	14	14	13	13
24	33	109	71	123	125	67	35	17	14	14	13	13
25	21	89	61	546	89	58	32	16	13	14	13	13
26	18	68	55	341	71	52	32	16	13	14	13	13
27	33	55	53	260	59	46	128	16	13	14	13	13
28	35	328	82	206	53	42	66	25	27	14	13	13
29	26	415	57	151	---	39	51	45	84	13	13	20
30	87	262	49	122	---	35	44	23	30	13	13	46
31	87	---	59	130	---	33	---	18	---	14	13	---
TOTAL	780	2908	6307	4975	3213	3819	1658	700	583	501	409	463
MEAN	25.16	96.93	203.5	160.5	114.8	123.2	55.27	22.58	19.43	16.16	13.19	15.43
MAX	87	415	518	546	439	403	158	45	84	27	15	46
MIN	13	21	49	52	44	33	25	16	13	13	13	13
AC-FT	1550	5770	12510	9870	6370	7570	3290	1390	1160	994	811	918
CFSM	0.47	1.82	3.83	3.02	2.16	2.32	1.04	0.42	0.37	0.30	0.25	0.29
IN.	0.55	2.03	4.41	3.48	2.25	2.67	1.16	0.49	0.41	0.35	0.29	0.32

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 2002, BY WATER YEAR (WY)

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	36.92	104.4	154.0	164.3	164.5	111.2	76.37	57.27	32.38	22.16	19.93	21.14	
MAX	73.2	244	411	277	386	225	137	111	49.8	36.6	31.5	39.3	
(WY)	1998	1997	1997	1997	1996	1997	1993	1998	1998	1997	1997	1997	
MIN	16.8	18.5	65.7	42.7	34.0	44.1	39.8	22.2	16.7	14.1	13.2	15.3	
(WY)	1994	1994	2001	2001	1993	1992	2000	1994	1992	1994	2002	2001	

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1990 - 2002

ANNUAL TOTAL	20123	26316	
ANNUAL MEAN	55.13	72.10	79.99
HIGHEST ANNUAL MEAN			137
LOWEST ANNUAL MEAN			38.7
HIGHEST DAILY MEAN	518	Dec 14	546
LOWEST DAILY MEAN	13	Sep 10	13
ANNUAL SEVEN-DAY MINIMUM	13	Sep 8	13
ANNUAL RUNOFF (AC-FT)	39910	52200	57950
ANNUAL RUNOFF (CFSM)	1.04	1.36	1.50
ANNUAL RUNOFF (INCHES)	14.08	18.41	20.44
10 PERCENT EXCEEDS	115	190	178
50 PERCENT EXCEEDS	33	32	40
90 PERCENT EXCEEDS	14	13	16

14211550 JOHNSON CREEK AT MILWAUKIE, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: May 1998 to current year.

INSTRUMENTATION.--Temperature recorder.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 25.1°C July 10, 2002; minimum, 0.5°C Dec. 22, 1998.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 25.1°C July 10; minimum, 4.2°C Dec. 26, 27.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.3	14.2	16.2	12.0	11.1	11.5	9.3	8.9	9.1	6.0	5.3	5.7
2	17.6	13.8	15.7	12.8	11.6	12.1	8.9	8.7	8.8	7.1	5.7	6.5
3	17.1	13.4	15.2	12.8	11.7	12.2	8.9	8.2	8.7	6.9	6.1	6.6
4	16.4	13.1	14.8	13.1	12.1	12.6	8.2	7.6	7.9	7.3	6.3	6.8
5	16.7	13.0	14.8	12.6	10.8	11.8	8.4	6.9	7.5	7.3	6.5	7.0
6	15.9	13.9	14.8	11.1	9.6	10.5	9.3	8.4	8.9	8.9	7.3	7.7
7	13.9	12.2	12.9	9.9	8.2	9.1	9.2	8.7	8.9	10.0	8.9	9.3
8	14.6	12.8	13.6	10.0	8.2	9.1	9.0	8.7	8.8	9.9	9.2	9.6
9	15.1	12.1	13.3	9.7	7.5	8.6	8.7	8.1	8.5	9.2	8.4	9.0
10	13.2	11.1	11.9	10.2	8.1	9.2	8.1	7.8	8.0	8.4	8.0	8.3
11	13.5	11.6	12.4	10.6	9.2	9.8	8.3	7.9	8.1	8.5	7.9	8.1
12	13.7	11.4	12.5	10.6	9.7	10.0	8.7	8.1	8.3	8.7	7.6	8.2
13	14.9	12.8	13.8	11.3	9.7	10.3	9.9	8.7	9.4	7.8	7.0	7.4
14	15.4	13.4	14.2	13.1	11.3	12.4	9.6	8.1	8.6	7.5	6.4	7.0
15	14.9	12.4	13.7	13.1	12.4	12.7	8.6	7.9	8.2	6.7	5.5	6.2
16	13.9	12.1	13.0	12.4	11.6	12.1	9.8	8.6	9.3	6.2	5.8	6.0
17	13.2	11.0	12.1	11.6	9.6	10.8	9.6	8.3	8.7	6.3	5.7	6.0
18	13.2	10.2	11.6	10.2	9.1	9.6	8.3	7.8	8.1	6.9	6.2	6.5
19	14.0	10.6	12.2	10.3	9.4	9.8	8.0	7.7	7.9	7.4	6.5	6.8
20	13.5	11.1	12.3	10.7	10.1	10.4	7.7	7.6	7.7	6.8	6.2	6.5
21	11.9	10.3	11.2	10.6	10.2	10.4	7.7	6.9	7.4	6.7	5.9	6.5
22	12.9	11.5	12.1	10.9	10.2	10.5	6.9	6.3	6.6	6.0	5.3	5.8
23	12.0	10.4	11.1	10.4	9.9	10.1	6.9	5.9	6.3	6.6	6.0	6.3
24	11.4	9.2	10.3	10.0	9.2	9.6	6.2	5.1	5.7	7.3	6.6	7.0
25	13.3	10.9	12.0	9.6	8.8	9.1	5.7	4.5	5.1	7.4	6.8	7.1
26	13.4	10.8	12.1	9.1	8.5	8.8	5.1	4.2	4.6	6.9	5.7	6.5
27	12.5	10.4	11.5	8.6	7.8	8.3	4.9	4.2	4.5	5.8	5.2	5.5
28	11.1	9.6	10.2	8.7	6.7	7.5	5.5	4.6	5.0	6.2	5.4	5.7
29	10.7	9.6	10.2	9.3	8.7	9.1	5.5	4.5	4.9	5.6	5.1	5.4
30	10.8	10.2	10.5	9.1	8.6	8.9	5.8	4.8	5.3	6.2	5.4	5.7
31	11.5	10.8	11.2	--	--	--	6.3	5.3	5.7	6.8	6.1	6.4
MONTH	18.3	9.2	12.7	13.1	6.7	10.2	9.9	4.2	7.4	10.0	5.1	6.9



14211720 WILLAMETTE RIVER AT PORTLAND, OR  
(National stream quality accounting network station)

## WATER-QUALITY RECORDS

LOCATION.--Lat 45°31'07", long 122°40'00", in NW 1/4 NE 1/4 sec.3, T.1 S., R.1 E., Multnomah County, Hydrologic Unit 17090012, in pier at east end of drawspan, on upstream side of Morrison Bridge, in Portland, and at mile 12.8.

DRAINAGE AREA.--11,100 mi<sup>2</sup>, approximately.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: December 1975 to September 1981, November 2001 to September 2002.

WATER TEMPERATURE: November 1975 to September 1981, November 2001 to September 2002.

REMARKS.--Specific conductance and water-temperature records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum daily recorded, 120 microsiemens Feb. 8, 1977; minimum, 42 microsiemens Apr. 15, 16, 2002.

WATER TEMPERATURE: Maximum, 27.5°C July 29, Aug. 7, 8, 1978; minimum, 0.0°C Jan. 3-10, 1979.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 99 microsiemens Sept. 4-6; minimum, 42 microsiemens Apr. 15, 16

WATER TEMPERATURE: Maximum, 24.6°C July 18, 23, 24; minimum, 5.1°C Jan. 29, 30.

## SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	66	62	63	76	74	74
2	---	---	---	83	78	80	65	64	65	78	75	76
3	---	---	---	80	78	79	65	64	64	79	78	79
4	---	---	---	80	77	79	67	65	66	79	76	78
5	---	---	---	79	72	75	70	67	68	76	73	75
6	---	---	---	74	72	72	71	70	71	73	73	73
7	---	---	---	74	71	73	70	66	68	74	73	74
8	---	---	---	75	73	74	67	60	63	74	65	70
9	---	---	---	76	75	76	61	59	60	65	63	64
10	---	---	---	78	76	78	64	61	63	63	62	62
11	---	---	---	80	78	79	66	64	65	63	62	63
12	---	---	---	81	79	80	69	66	68	64	63	64
13	---	---	---	83	80	81	70	69	69	65	64	65
14	---	---	---	83	80	83	70	64	66	65	64	65
15	---	---	---	84	81	83	65	58	61	65	64	65
16	---	---	---	---	---	---	58	55	57	66	65	65
17	---	---	---	---	---	---	58	57	58	69	65	67
18	---	---	---	---	---	---	58	57	57	70	69	69
19	---	---	---	---	---	---	59	57	58	71	70	70
20	---	---	---	---	---	---	60	58	59	72	70	71
21	---	---	---	---	---	---	61	60	60	72	70	71
22	---	---	---	---	---	---	62	61	62	70	63	68
23	---	---	---	---	---	---	62	62	62	63	62	62
24	---	---	---	---	---	---	63	62	62	68	63	65
25	---	---	---	---	---	---	65	63	64	68	66	68
26	---	---	---	---	---	---	68	65	66	66	61	64
27	---	---	---	67	65	66	69	67	69	61	58	59
28	---	---	---	67	66	66	71	69	70	61	58	59
29	---	---	---	67	65	66	74	71	72	66	61	63
30	---	---	---	71	65	69	75	73	74	69	66	68
31	---	---	---	---	---	---	74	72	73	73	69	72
MONTH	---	---	---	---	---	---	75	55	65	79	58	68
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	76	73	74	76	73	75	74	72	73	68	67	67
2	78	76	77	78	76	77	74	71	73	69	67	68
3	78	78	78	79	78	79	72	68	70	70	69	69
4	80	77	79	81	79	80	69	68	68	69	68	69
5	80	79	79	82	81	81	68	67	67	69	68	68
6	80	79	79	84	81	83	67	66	67	68	66	67
7	80	79	80	83	78	81	66	64	65	67	65	66
8	80	79	79	84	79	82	65	63	64	66	65	65
9	79	71	76	80	74	76	64	63	63	67	65	66
10	71	67	68	76	74	76	64	61	63	67	66	67
11	70	67	68	75	73	74	62	59	60	67	65	66
12	73	70	72	75	66	71	59	53	57	67	65	66
13	75	73	74	70	60	67	53	50	51	68	66	67
14	77	75	76	61	60	60	50	44	48	68	66	67
15	80	77	79	63	61	62	45	42	44	66	65	65
16	82	80	81	64	63	64	44	42	42	66	65	65
17	83	81	82	66	64	65	44	43	43	65	64	65
18	84	83	83	67	66	67	46	44	45	65	63	64
19	85	84	85	68	67	67	49	46	47	64	61	62
20	85	83	84	73	68	71	51	48	50	64	62	63
21	83	83	83	74	71	73	54	51	52	65	64	65
22	83	77	81	72	71	71	58	54	56	65	63	65
23	77	71	73	72	71	72	60	58	59	63	62	62
24	71	67	68	73	72	72	62	60	61	63	62	63
25	70	67	68	73	70	72	65	62	64	63	62	62
26	67	66	67	70	67	69	66	65	66	63	62	62
27	69	67	68	67	66	67	68	66	67	62	61	62
28	73	69	71	68	66	67	68	67	68	62	61	62
29	---	---	---	69	67	68	69	68	69	62	61	62
30	---	---	---	71	69	70	69	68	69	61	57	60
31	---	---	---	72	71	71	---	---	---	57	56	56
MONTH	85	66	76	84	60	72	74	42	60	70	56	65

WILLAMETTE RIVER BASIN

14211720 WILLAMETTE RIVER AT PORTLAND, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	56	55	56	80	76	77	88	86	87	97	90	91
2	55	54	55	80	79	80	89	87	88	98	91	92
3	55	54	55	80	78	79	92	88	89	97	91	93
4	56	55	55	81	79	80	91	88	89	99	92	93
5	57	56	57	82	79	81	91	88	89	99	92	94
6	58	57	58	82	79	80	90	88	89	99	92	94
7	59	58	58	80	79	79	91	88	89	97	91	93
8	60	58	59	82	79	80	92	88	89	95	91	92
9	61	60	61	84	81	83	91	88	89	96	89	92
10	62	61	62	84	82	83	91	88	89	90	89	89
11	65	62	64	85	83	84	91	88	89	90	89	89
12	65	63	64	86	84	85	90	88	89	90	88	89
13	64	62	63	88	85	86	91	88	89	90	86	87
14	64	62	62	88	86	87	93	89	90	88	85	86
15	63	62	62	88	87	87	98	89	90	87	84	85
16	63	61	62	88	87	87	98	89	90	86	84	85
17	63	62	62	88	87	87	90	87	88	85	84	85
18	66	63	64	89	88	88	91	86	88	86	84	85
19	69	66	67	90	88	89	91	86	87	86	85	86
20	70	68	69	91	89	90	91	86	88	86	85	86
21	71	69	70	92	89	90	92	88	88	86	85	85
22	74	70	71	91	87	88	92	88	89	87	85	86
23	74	72	72	89	86	87	94	90	91	87	85	86
24	72	69	71	91	86	87	93	90	92	87	86	87
25	70	68	69	90	87	87	93	89	90	88	86	86
26	71	69	70	90	87	88	93	88	89	86	84	85
27	73	71	71	90	88	88	91	89	90	86	84	85
28	74	73	73	91	88	88	95	90	91	86	85	85
29	76	74	75	92	88	88	95	90	92	86	84	85
30	77	76	76	92	87	88	94	90	91	85	84	85
31	---	---	---	88	86	87	97	90	91	---	---	---
MONTH	77	54	64	92	76	85	98	86	89	99	84	88

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	---	---	---	---	---	---	8.0	7.8	7.9	6.1	5.7	5.9
2	---	---	---	11.3	10.8	11.0	8.0	7.8	7.8	6.5	6.1	6.2
3	---	---	---	11.2	10.7	10.8	8.0	7.8	8.0	6.7	6.5	6.6
4	---	---	---	11.4	11.1	11.2	7.8	7.8	7.8	6.9	6.7	6.7
5	---	---	---	11.3	11.3	11.3	7.8	7.4	7.6	6.9	6.9	6.9
6	---	---	---	11.3	11.3	11.3	7.4	7.2	7.3	6.9	6.7	6.9
7	---	---	---	11.3	11.1	11.2	7.6	7.2	7.4	7.8	6.9	7.2
8	---	---	---	11.1	11.1	11.1	7.8	7.6	7.8	8.8	7.8	8.5
9	---	---	---	11.1	10.8	11.0	7.8	7.6	7.7	9.0	8.8	8.9
10	---	---	---	11.1	10.8	10.8	7.6	7.3	7.4	8.8	8.4	8.6
11	---	---	---	10.8	10.6	10.7	7.3	6.9	7.1	8.4	8.0	8.2
12	---	---	---	10.6	10.2	10.4	7.1	6.9	6.9	8.0	7.6	7.8
13	---	---	---	10.2	9.8	10.0	7.3	6.9	7.1	7.6	7.2	7.4
14	---	---	---	10.2	9.6	9.9	7.3	7.1	7.2	7.2	7.0	7.1
15	---	---	---	9.8	8.9	9.7	7.5	7.1	7.3	7.0	6.5	6.7
16	---	---	---	---	---	---	7.1	7.1	7.1	6.5	6.2	6.3
17	---	---	---	---	---	---	7.5	7.1	7.2	6.2	5.8	6.0
18	---	---	---	---	---	---	7.5	7.3	7.5	5.8	5.6	5.7
19	---	---	---	---	---	---	7.5	7.1	7.2	5.8	5.6	5.7
20	---	---	---	---	---	---	7.1	6.9	6.9	6.0	5.8	6.0
21	---	---	---	---	---	---	6.9	6.9	6.9	6.2	6.0	6.2
22	---	---	---	---	---	---	6.9	6.8	6.9	6.0	5.8	6.0
23	---	---	---	---	---	---	6.8	6.4	6.6	6.0	5.5	5.7
24	---	---	---	---	---	---	6.4	6.1	6.2	5.6	5.5	5.6
25	---	---	---	---	---	---	6.1	5.7	5.9	6.2	5.6	6.0
26	---	---	---	---	---	---	5.7	5.4	5.5	6.3	6.2	6.3
27	---	---	---	8.6	8.4	8.5	5.4	5.2	5.3	6.3	5.8	6.0
28	---	---	---	8.4	8.0	8.2	5.4	5.2	5.4	5.8	5.3	5.5
29	---	---	---	8.0	7.6	7.8	5.5	5.4	5.4	5.3	5.1	5.2
30	---	---	---	8.0	7.4	7.7	5.7	5.5	5.5	5.3	5.1	5.2
31	---	---	---	---	---	---	5.9	5.7	5.9	5.5	5.3	5.3
MONTH	---	---	---	---	---	---	8.0	5.2	6.9	9.0	5.1	6.5

## 14211720 WILLAMETTE RIVER AT PORTLAND, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	5.6	5.5	5.5	7.2	6.8	6.9	10.1	9.7	9.9	12.4	11.7	12.1
2	6.0	5.6	5.7	7.0	6.6	6.8	10.7	9.9	10.3	12.4	12.0	12.2
3	6.2	6.0	6.1	7.0	6.6	6.8	11.0	10.1	10.5	12.7	12.2	12.4
4	6.3	6.2	6.2	7.2	6.8	7.0	11.2	10.5	10.8	12.4	12.0	12.2
5	6.3	6.2	6.3	7.2	7.0	7.1	11.2	10.9	11.1	12.0	11.7	11.8
6	6.3	6.2	6.3	7.2	7.0	7.1	11.2	10.7	10.9	11.7	11.1	11.4
7	6.2	6.0	6.2	7.0	7.0	7.0	10.9	10.7	10.8	11.7	11.1	11.3
8	6.3	6.0	6.1	7.1	6.8	7.0	10.7	10.3	10.5	12.0	11.3	11.5
9	6.3	6.2	6.2	6.8	6.4	6.7	10.7	10.3	10.5	11.7	11.3	11.5
10	6.3	6.0	6.2	6.6	6.4	6.6	10.3	10.1	10.2	11.5	11.1	11.3
11	6.3	6.2	6.3	6.8	6.4	6.6	10.5	10.1	10.3	12.0	11.1	11.5
12	6.3	6.2	6.2	7.3	6.6	7.0	10.3	10.1	10.3	12.7	11.3	12.0
13	6.3	6.2	6.3	7.7	7.3	7.6	10.3	9.9	10.1	12.9	12.0	12.5
14	6.3	6.2	6.3	7.5	7.3	7.4	10.3	9.7	10	13.1	12.4	12.7
15	6.3	6.2	6.2	7.3	7.1	7.1	9.7	9.1	9.4	13.9	12.7	13.2
16	6.5	6.2	6.3	7.1	7.0	7.0	9.5	8.7	8.9	13.9	13.1	13.5
17	7.0	6.4	6.7	7.0	6.8	6.8	8.7	8.1	8.3	13.9	13.4	13.6
18	7.0	6.6	6.8	6.8	6.4	6.6	8.3	8.1	8.2	14.1	13.2	13.6
19	7.5	7.0	7.2	6.6	6.2	6.4	8.5	8.1	8.3	13.9	13.4	13.6
20	7.7	7.3	7.6	6.8	6.4	6.5	9.1	8.5	8.7	13.9	13.4	13.7
21	8.3	7.7	8.0	7.3	6.8	7.0	9.5	9.1	9.3	14.1	13.4	13.7
22	8.7	8.3	8.6	7.7	7.3	7.4	9.9	9.5	9.7	13.9	13.1	13.4
23	8.9	8.7	8.8	8.3	7.7	8.0	10.3	9.5	10	13.1	12.7	12.9
24	8.9	8.7	8.8	8.5	8.3	8.5	10.7	9.7	10.2	13.4	12.4	12.9
25	8.9	8.3	8.6	8.9	8.5	8.7	11.4	10.3	10.9	13.6	12.7	13.2
26	8.3	7.5	8.0	9.3	8.9	9.1	11.5	11.1	11.3	13.9	13.2	13.5
27	7.5	7.0	7.4	9.1	8.7	9.0	11.5	11.3	11.3	14.9	13.4	14.1
28	7.2	6.8	7.1	9.1	8.7	9.0	11.7	11.3	11.4	14.9	14.4	14.6
29	---	---	---	9.3	8.7	9.1	12.0	11.3	11.6	15.2	14.7	14.9
30	---	---	---	9.9	9.1	9.5	12.2	11.5	11.9	15.2	14.4	14.8
31	---	---	---	10.1	9.5	9.8	---	---	---	14.9	14.1	14.5
MONTH	8.9	5.5	6.9	10.1	6.2	7.5	12.2	8.1	10.2	15.2	11.1	12.9
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	14.9	14.1	14.5	20.7	19.6	20.0	23.7	22.9	23.2	21.8	21.4	21.5
2	15.5	14.4	14.7	20.4	19.7	20.1	23.3	22.5	22.9	21.8	21.1	21.3
3	15.5	14.7	15.1	20.0	19.7	19.8	22.9	22.1	22.6	21.8	21.1	21.3
4	15.7	14.9	15.4	19.7	19.4	19.5	22.5	22.1	22.3	21.8	21.1	21.4
5	16.0	15.5	15.7	19.7	19.1	19.4	22.9	22.1	22.3	21.8	21.4	21.6
6	16.0	15.7	15.9	20.1	19.1	19.6	22.5	21.8	22.1	21.4	21.1	21.3
7	16.0	15.7	15.9	20.4	19.7	20.0	22.1	21.8	21.9	21.1	20.7	21.0
8	16.0	15.7	15.8	20.7	19.7	20.0	22.1	21.4	21.8	20.7	20.4	20.7
9	16.3	15.7	15.8	21.1	20.0	20.5	22.2	21.4	21.8	20.7	20.4	20.5
10	16.5	15.6	15.8	21.8	20.4	20.8	21.8	21.4	21.6	20.7	20.4	20.5
11	15.9	15.6	15.8	21.9	20.8	21.3	21.8	21.1	21.4	20.4	20.0	20.2
12	16.5	15.6	16.0	22.3	21.2	21.7	21.8	21.1	21.3	20.4	19.7	20.0
13	17.1	15.9	16.4	23.0	21.9	22.5	22.2	21.1	21.5	19.7	19.4	19.6
14	17.9	16.5	17.1	22.6	22.2	22.4	22.5	21.4	21.8	19.7	19.1	19.3
15	17.9	17.3	17.7	23.0	22.2	22.5	22.9	21.8	22.2	19.4	19.1	19.1
16	18.2	17.9	18.1	23.8	22.6	23.0	22.9	22.1	22.3	19.1	18.8	19.1
17	18.2	17.9	18.0	24.2	23.0	23.3	23.3	22.1	22.7	19.4	19.1	19.1
18	18.2	17.6	17.9	24.6	23.4	23.7	22.9	22.5	22.6	19.4	19.1	19.3
19	17.9	17.6	17.7	24.2	23.8	23.8	23.3	22.5	22.7	19.7	19.1	19.4
20	17.6	17.0	17.2	24.2	23.4	23.9	22.9	22.5	22.7	19.4	19.1	19.2
21	17.6	17.0	17.1	23.8	23.4	23.5	22.5	22.5	22.5	19.1	18.4	18.6
22	17.7	17.1	17.3	24.2	23.0	23.5	22.5	22.1	22.5	18.4	17.8	18.2
23	18.0	16.8	17.4	24.6	23.4	23.9	22.5	22.1	22.2	17.8	17.5	17.7
24	18.3	17.4	17.6	24.6	23.4	23.9	22.5	21.8	22.1	18.1	17.5	17.6
25	19.3	18.0	18.5	24.2	23.4	23.9	21.8	21.4	21.8	18.1	17.5	17.6
26	20.3	19.0	19.6	24.2	23.4	23.9	21.8	21.4	21.4	18.1	17.5	17.8
27	20.0	19.6	19.8	23.8	23.4	23.5	21.8	21.1	21.3	18.1	17.8	17.8
28	19.6	19.6	19.6	24.2	23.4	23.6	21.8	20.7	21.1	17.8	17.5	17.7
29	19.9	19.6	19.7	24.1	23.3	23.6	21.4	20.7	21.0	17.8	17.5	17.7
30	19.6	19.3	19.5	23.7	23.3	23.4	21.4	20.7	21.0	17.8	17.5	17.5
31	---	---	---	23.7	23.3	23.4	21.8	21.1	21.3	---	---	---
MONTH	20.3	14.1	17.1	24.6	19.1	22.2	23.7	20.7	22.0	21.8	17.5	19.5

14211814 FAIRVIEW CREEK AT GLISAN STREET, NEAR GRESHAM, OR

LOCATION.--Lat 45°31'40", long 122°26'51", in Land Grant parcel number 58, T.1 N., R.3 E., Multnomah County, Hydrologic Unit 17090012, on right bank at upstream side of culvert on Glisan St., 0.4 mi east of the intersection of 202nd Ave. and Glisan St., 1.7 mi northwest of Gresham City Hall, and at mile 3.05.

DRAINAGE AREA.--4.94 mi<sup>2</sup>.

PERIOD OF RECORD.--May 1992 to current year.

GAGE.--Water-stage recorder. Datum of gage is 205 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records poor. No regulation or diversion. High flows affected to an unknown degree by two small ponds just upstream from station.

AVERAGE DISCHARGE.--10 years (water years 1993-2002), 5.71 ft<sup>3</sup>/s, 15.71 in/yr, 4,140 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 85 ft<sup>3</sup>/s Nov. 19, 1996, gage height, 6.18 ft, but may have been greater during period of missing record Feb. 7, 1996; maximum gage height, 6.34 ft Nov. 1, 1994; minimum discharge, 0.24 ft<sup>3</sup>/s Sept. 15, 1995.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 30 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 29	0030	42	5.47	Dec. 17	0130	31	5.22
Dec. 1	2330	*43	5.48	Jan. 8	0400	39	5.39
Dec. 13	2230	40	5.42	Jan. 25	1300	*43	*5.49

Minimum discharge, 0.27 ft<sup>3</sup>/s Oct. 4-6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.41	7.4	29	14	8.2	3.8	3.0	2.8	2.0	2.4	0.92	0.63
2	0.38	6.5	32	19	6.4	3.2	3.0	2.6	1.8	1.8	0.89	0.63
3	0.35	2.9	27	14	6.0	3.2	2.9	2.6	1.6	1.6	0.87	0.59
4	0.31	1.5	21	12	5.9	3.0	2.8	2.5	1.6	1.6	0.85	0.57
5	0.27	5.7	28	10	5.3	3.1	3.0	2.2	1.6	1.6	0.81	0.55
6	0.28	5.3	18	18	6.9	18	3.2	2.2	1.5	1.5	0.81	0.52
7	0.29	2.1	19	26	16	13	3.2	2.6	1.5	1.4	0.81	0.50
8	0.30	1.2	13	31	20	6.7	3.0	2.4	1.7	2.0	0.81	0.50
9	0.31	0.86	13	18	10	5.1	3.6	2.3	2.9	2.0	0.81	0.50
10	0.56	0.71	13	14	7.3	5.7	9.1	1.9	2.3	1.5	0.81	0.50
11	2.0	0.67	17	12	7.9	11	6.5	1.9	2.0	1.3	0.80	0.48
12	1.4	0.93	15	13	6.0	17	4.2	2.0	1.6	1.2	0.78	0.48
13	1.2	6.0	22	14	5.0	11	4.9	1.8	1.5	1.3	0.78	0.50
14	0.89	13	30	11	4.7	8.8	11	2.0	1.4	1.3	0.78	0.50
15	0.66	7.2	19	9.4	4.3	6.7	5.9	2.0	1.4	1.3	0.78	0.50
16	0.54	8.3	24	8.5	4.0	7.0	5.7	2.0	1.4	1.2	0.78	0.52
17	0.55	9.5	26	11	4.0	8.2	9.0	2.6	1.9	1.2	0.71	1.2
18	0.57	4.2	19	9.9	3.9	6.9	8.3	2.5	6.3	1.2	0.72	1.3
19	0.51	4.6	18	13	7.0	11	4.8	2.5	3.2	1.2	0.69	0.96
20	0.47	10	16	14	6.4	8.6	3.9	3.1	1.9	1.2	0.67	0.75
21	0.44	9.5	16	16	4.8	5.8	3.3	2.8	1.6	1.2	0.63	0.64
22	0.57	16	13	19	4.2	4.9	3.2	2.3	1.5	1.1	0.63	0.54
23	1.5	12	12	14	14	4.4	3.0	2.3	1.4	1.1	0.65	0.50
24	2.3	6.7	9.8	12	9.0	4.2	2.7	2.1	1.4	1.1	0.67	0.50
25	1.3	5.8	8.2	32	5.4	4.2	2.6	2.0	1.4	1.1	0.68	0.48
26	0.79	3.9	7.7	24	4.4	3.9	2.7	1.9	1.4	1.1	0.68	0.49
27	0.79	2.2	7.5	17	4.0	3.6	11	1.8	1.4	1.0	0.65	0.53
28	2.1	20	13	12	4.0	3.3	6.1	2.8	1.9	0.97	0.65	0.57
29	1.5	30	11	8.4	---	3.2	3.6	7.5	12	0.97	0.65	0.95
30	7.0	23	8.5	6.7	---	3.2	3.1	3.9	5.0	0.93	0.65	4.3
31	13	---	9.0	6.3	---	3.1	---	2.4	---	0.93	0.64	---
TOTAL	43.54	227.67	534.7	459.2	195.0	204.8	142.3	78.3	70.1	41.30	23.06	22.18
MEAN	1.40	7.59	17.2	14.8	6.96	6.61	4.74	2.53	2.34	1.33	0.74	0.74
MAX	13	30	32	32	20	18	11	7.5	12	2.4	0.92	4.3
MIN	0.27	0.67	7.5	6.3	3.9	3.0	2.6	1.8	1.4	0.93	0.63	0.48
AC-FT	86	452	1060	911	387	406	282	155	139	82	46	44
CFSM	0.28	1.54	3.49	3.00	1.41	1.34	0.96	0.51	0.47	0.27	0.15	0.15
IN.	0.33	1.71	4.03	3.46	1.47	1.54	1.07	0.59	0.53	0.31	0.17	0.17

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 2002, BY WATER YEAR (WY)

	3.05	6.69	9.79	10.5	9.85	8.73	6.01	5.18	3.78	2.19	1.48	1.51
MEAN	3.05	6.69	9.79	10.5	9.85	8.73	6.01	5.18	3.78	2.19	1.48	1.51
MAX	6.77	11.8	20.2	16.8	19.2	17.7	8.81	8.55	6.14	4.76	3.67	3.16
(WY)	1998	1997	1997	1997	1999	1999	1999	1996	1999	1997	1997	1996
MIN	1.18	1.42	4.39	2.13	2.54	4.74	3.42	2.47	1.33	0.47	0.53	0.44
(WY)	1994	1994	1994	2001	1993	1993	2001	1994	2001	2001	1994	2001

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1993 - 2002

ANNUAL TOTAL	1372.86	2042.15	
ANNUAL MEAN	3.76	5.59	5.71
HIGHEST ANNUAL MEAN			9.11
LOWEST ANNUAL MEAN			2.55
HIGHEST DAILY MEAN	32	Dec 2	71
LOWEST DAILY MEAN	0.26	Sep 12	0.26
ANNUAL SEVEN-DAY MINIMUM	0.27	Sep 8	0.27
ANNUAL RUNOFF (AC-FT)	2720		4140
ANNUAL RUNOFF (CFSM)	0.76		1.16
ANNUAL RUNOFF (INCHES)	10.34		15.71
10 PERCENT EXCEEDS	12		13
50 PERCENT EXCEEDS	1.3		3.6
90 PERCENT EXCEEDS	0.31		0.87



WILLAMETTE RIVER BASIN

14211820 COLUMBIA SLOUGH AT PORTLAND, OR

LOCATION.--Lat 45°38'21", long 122°45'43", in NE 1/4 SE 1/4 sec.23, T.2 N., R.1 W., Multnomah County, Hydrologic Unit 17090012, on right bank, 0.25 mi upstream from mouth, and 1.25 mi upstream from confluence of Willamette and Columbia Rivers.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--October 1989 to current year.

GAGE.--Acoustic velocity meter with water-stage and velocity-index recorder. Datum of gage is 1.53 ft above NGVD of 1929.

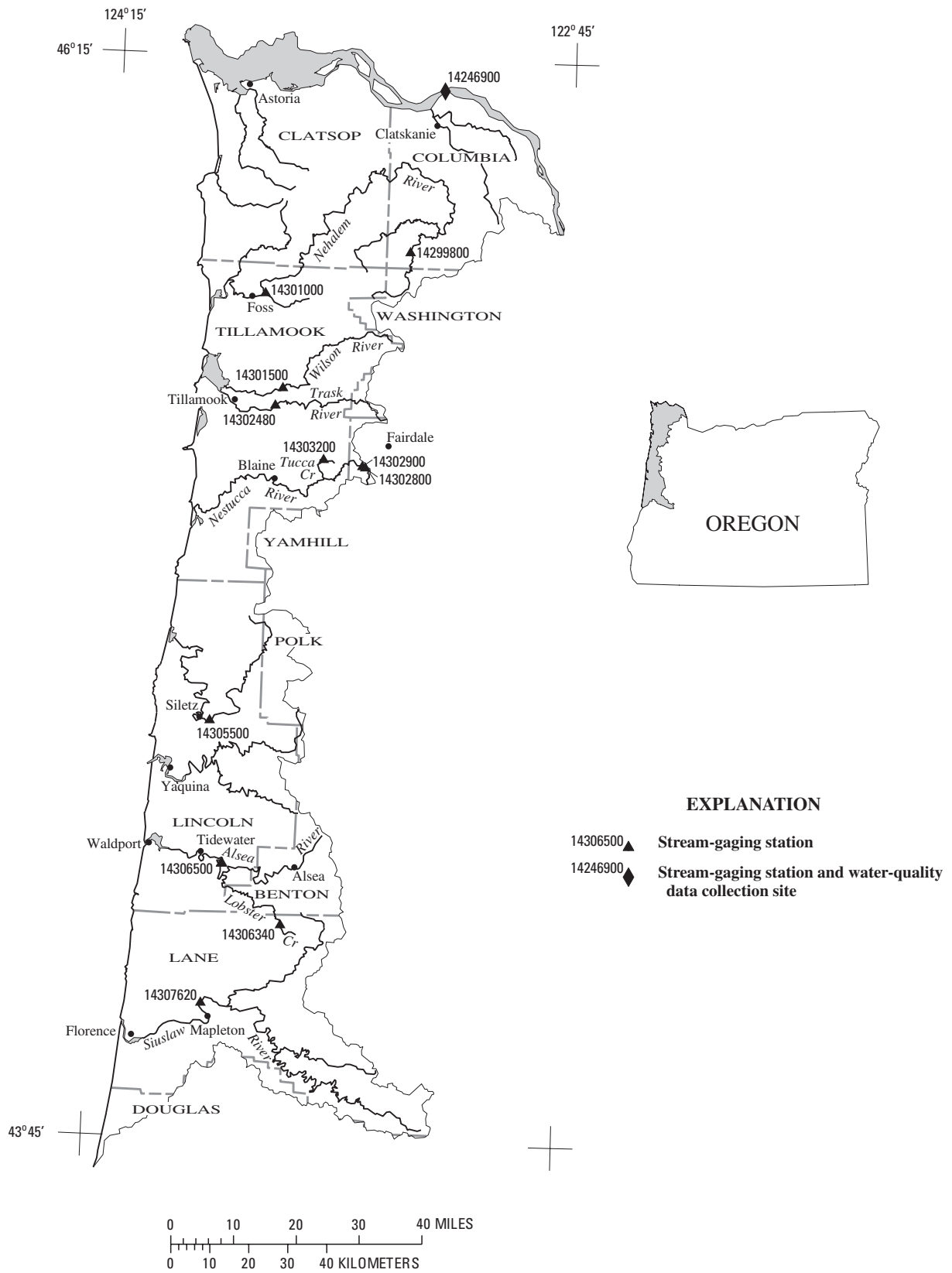
REMARKS.--Records poor. Flows affected by tide which can cause reverse direction during tidal cycle. Mean discharge values are based on a 24 hour day, not a tidal cycle.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 2,400 ft<sup>3</sup>/s Dec. 5, 1995, but may have been greater Dec. 2-4, 1995, Feb. 10-14, 1996; maximum gage height, 27.26 ft Feb. 9, 1996; minimum daily discharge, -6,700 ft<sup>3</sup>/s Feb. 7, 1996, but may have been less Nov. 29 to Dec. 3, 1995, Feb. 8, 9, 1996.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 311 ft<sup>3</sup>/s Feb. 10; maximum gage height, 13.20 ft Apr. 18; minimum daily discharge, -362 ft<sup>3</sup>/s Apr. 16, but may have been lower during period of missing record.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	91	---	48	188	127	-4.1	29	---	-43	103	---
2	20	112	---	28	203	186	49	142	---	164	---	116
3	56	---	---	221	296	150	216	48	---	136	---	---
4	---	---	---	199	178	91	144	123	---	45	134	---
5	---	114	---	156	100	132	143	-50	-177	158	15	43
6	---	41	---	185	157	219	125	---	-118	170	-3.2	-67
7	---	116	---	101	162	135	20	---	58	155	84	-41
8	---	85	---	149	50	144	-43	---	-90	47	0.49	42
9	96	81	---	93	93	103	41	---	---	---	-34	-38
10	---	98	---	87	311	17	-72	---	---	---	101	-27
11	---	88	---	295	174	131	-89	---	-98	-54	-13	-34
12	164	19	---	199	56	-21	4.3	51	110	157	---	126
13	140	51	-17	123	200	-56	-75	---	---	10	---	146
14	---	-21	6.9	175	54	187	-235	---	---	-22	56	63
15	---	49	125	181	162	143	-50	24	---	-54	132	144
16	---	47	100	-95	202	129	-362	77	---	62	154	87
17	---	117	247	189	161	273	-314	66	---	119	195	-67
18	---	97	126	198	117	175	-59	7.5	125	-12	---	---
19	---	102	193	230	89	100	114	129	-109	181	38	---
20	---	56	300	108	172	176	257	---	-69	90	7.9	---
21	---	161	108	2.2	85	165	---	-82	-22	-104	35	---
22	---	95	292	104	113	164	---	-131	84	-62	---	---
23	---	202	242	12	226	154	---	-26	185	---	37	-69
24	---	95	273	70	101	97	66	-31	---	23	23	81
25	125	183	194	304	67	66	84	---	---	63	139	75
26	72	140	114	12	28	42	31	35	---	135	69	9.5
27	52	25	68	246	95	13	25	56	---	60	23	57
28	95	18	54	85	98	46	174	-123	---	96	24	128
29	43	5.1	63	63	---	72	86	-144	-172	28	---	---
30	89	222	62	185	---	130	---	40	-79	-59	---	---
31	121	---	58	127	---	80	---	24	---	135	---	---
TOTAL	---	---	---	4080.2	3938	3570	---	---	---	---	---	---
MEAN	---	---	---	132	141	115	---	---	---	---	---	---
MAX	---	---	---	304	311	273	---	---	---	---	---	---
MIN	---	---	---	-95	28	-56	---	---	---	---	---	---
AC-FT	---	---	---	8090	7810	7080	---	---	---	---	---	---



**Figure 28.** Location of surface-water and water-quality stations in the Oregon Coastal Drainages north of the Siuslaw River Basin and in the lower Columbia River.

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR

LOCATION.--Lat 46°10'55", long 123°10'50", in NE 1/4 sec.16, T.8 N., R.4 W., Columbia County, Hydrologic Unit 17080003, on left bank, 0.7 mi downstream from Crims Island, 3.0 mi northwest of Quincy, and at mile 53.8.

DRAINAGE AREA.--256,900 mi<sup>2</sup>, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1968 to June 1970, June 1991 to current year.

GAGE.--Water-stage and velocity index recorder. Datum of gage is 0.52 ft above NGVD of 1929. May 1968 to June 1970 water-stage recorder with auxillary water-stage recorder 5.6 miles downstream, at datum 10.00 ft lower.

REMARKS.--Records fair. Flow regulated by many reservoirs on Columbia River and in tributary basins. Flows affected by tide which can cause reverse direction during tidal cycle when mean daily flows are less than 250,000 ft<sup>3</sup>/s. Mean discharge values are based on a 24 hour day, not a tidal cycle.

AVERAGE DISCHARGE.--12 years (water years 1969, 1992-2002), 239,300 ft<sup>3</sup>/s, 173,300,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 864,000 ft<sup>3</sup>/s Feb. 10, 1996; minimum daily discharge, 63,600 ft<sup>3</sup>/s Sept. 9, 2001.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 464,000 ft<sup>3</sup>/s Apr. 18; maximum gage height, 9.57 ft Dec. 1; minimum daily discharge, 68,000 ft<sup>3</sup>/s Oct. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	88700	124000	274000	171000	272000	215000	173000	264000	369000	355000	166000	143000
2	101000	127000	317000	159000	249000	189000	212000	261000	384000	352000	169000	120000
3	106000	121000	325000	185000	233000	177000	202000	270000	365000	349000	166000	103000
4	91700	104000	293000	188000	210000	152000	176000	279000	363000	334000	166000	118000
5	70100	106000	291000	189000	231000	154000	183000	277000	375000	319000	147000	134000
6	85400	118000	288000	181000	218000	152000	177000	265000	406000	284000	178000	121000
7	84600	138000	302000	227000	222000	173000	183000	265000	417000	266000	164000	115000
8	69400	126000	267000	315000	271000	198000	178000	283000	403000	265000	159000	96300
9	79800	131000	265000	338000	298000	176000	203000	282000	388000	241000	176000	88500
10	75300	124000	242000	348000	268000	162000	223000	249000	e380000	219000	158000	90200
11	113000	111000	241000	324000	230000	164000	256000	225000	e370000	216000	147000	117000
12	97400	111000	245000	266000	232000	222000	278000	231000	357000	239000	145000	108000
13	102000	123000	218000	254000	224000	283000	281000	212000	327000	256000	151000	89400
14	92800	132000	291000	243000	218000	306000	328000	237000	330000	247000	154000	91800
15	105000	165000	323000	225000	220000	268000	375000	238000	315000	244000	163000	120000
16	101000	157000	305000	250000	195000	264000	423000	244000	319000	242000	181000	93300
17	104000	159000	370000	272000	164000	245000	459000	240000	301000	221000	164000	101000
18	127000	165000	364000	247000	165000	209000	464000	249000	326000	242000	145000	123000
19	109000	133000	376000	227000	167000	221000	439000	239000	346000	247000	146000	116000
20	91700	146000	346000	206000	195000	234000	400000	249000	381000	228000	154000	122000
21	80100	175000	328000	238000	195000	234000	373000	268000	388000	239000	163000	132000
22	68000	170000	319000	266000	205000	209000	351000	297000	381000	230000	153000	113000
23	122000	237000	283000	291000	203000	191000	337000	317000	348000	225000	148000	112000
24	113000	227000	258000	299000	222000	186000	328000	314000	336000	199000	148000	131000
25	118000	227000	221000	301000	240000	182000	304000	305000	340000	205000	153000	118000
26	97800	220000	211000	331000	220000	177000	284000	281000	314000	186000	130000	117000
27	112000	215000	194000	338000	220000	182000	269000	264000	316000	171000	130000	129000
28	109000	200000	182000	321000	214000	187000	264000	284000	335000	170000	138000	114000
29	117000	252000	184000	308000	---	185000	240000	329000	369000	159000	144000	94800
30	111000	286000	178000	295000	---	184000	248000	350000	383000	171000	132000	102000
31	107000	---	170000	280000	---	174000	---	361000	---	181000	143000	---
TOTAL	3049800	4830000	8471000	8083000	6201000	6255000	8611000	8429000	10732000	7502000	4781000	3373300
MEAN	98380	161000	273300	260700	221500	201800	287000	271900	357700	242000	154200	112400
MAX	127000	286000	376000	348000	298000	306000	464000	361000	417000	355000	181000	143000
MIN	68000	104000	170000	159000	164000	152000	173000	212000	301000	159000	130000	88500
AC-FT	6049000	9580000	16800000	16030000	12300000	12410000	17080000	16720000	21290000	14880000	9483000	6691000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2002, BY WATER YEAR (WY)

	1968	1969	1996	1997	1998	1999	2000	2001	2002			
MEAN	144800	196500	269100	288900	282400	255900	273600	325100	327800	217400	157400	129600
MAX	212300	256500	430800	444300	543400	388700	406500	507500	514500	279300	223000	177300
(WY)	1998	1996	1996	1997	1996	1997	1997	1997	1997	1997	1999	1997
MIN	98380	136100	175400	153400	141500	142100	150500	174700	151700	98390	106300	90080
(WY)	2002	1994	1994	2001	2001	2001	2001	2001	2001	2001	2001	2001

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1968 - 2002
ANNUAL TOTAL	53007600	80318100	
ANNUAL MEAN	145200	220000	239300
HIGHEST ANNUAL MEAN			338200
LOWEST ANNUAL MEAN			140000
HIGHEST DAILY MEAN	376000	464000	864000
LOWEST DAILY MEAN	63600	68000	63600
ANNUAL SEVEN-DAY MINIMUM	78700	79500	78700
ANNUAL RUNOFF (AC-FT)	105100000	159300000	173300000
10 PERCENT EXCEEDS	211000	346000	390000
50 PERCENT EXCEEDS	140000	180000	217000
90 PERCENT EXCEEDS	88900	110000	123000

e Estimated

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR--Continued  
(National stream quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--August 1967 to September 1970, October 1993 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1993 to current year.  
WATER TEMPERATURE: August 1967 to September 1970. October 1993 to current year.  
TURBIDITY: February 2001 to current year.

INSTRUMENTATION.--Temperature recorder August 1967 to September 1970. Water-quality monitor.

REMARKS.--Specific conductance, water temperature and turbidity records good. The probe was checked using a formazin standard. Since February, 1994, specific conductance and temperature sensors located near right bank. Prior to that time, sensors were located near left bank. It was determined that daily record collected prior to February 1994 is not representative of the cross section due to a seasonal influence from several upstream sloughs. Additional specific conductance and temperature data for the period October 1992 to September 1993 available in the files of the Portland field office. Boron values less than 16 UG/L have been designated as estimated due to a change in the minimum reporting level effective December 22, 1997.

EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 188 microsiemens Feb. 5, 1994, but may have been higher during periods of missing record; minimum recorded, 73 microsiemens Feb. 9, 1996, but may have been lower during periods of missing record.  
WATER TEMPERATURE: Maximum, 24.0°C July 28, 1998; minimum, 0.0°C Jan. 31, Feb. 1, 1969.  
TURBIDITY: Maximum, >130 NTU Dec. 17, 18, 2001, Jan. 8, 9, Apr. 15, 2002; minimum, <1 NTU Mar. 2, 2001.

EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 173 microsiemens Apr. 3; minimum recorded, 87 microsiemens Dec. 17.  
WATER TEMPERATURE: Maximum, 21.8°C Aug. 14-17; minimum, 5.0°C Feb. 15.  
TURBIDITY: Maximum, >130 NTU Dec. 17, 18, Jan. 8, 9, Apr. 15; minimum, 1 NTU many days October and August.

WATER-QUALITY DATA

Date	Time	DIS-CHARGE, IN CUBIC FEET PER SECOND (00060)	TURBIDITY YSI-6920 (NTU) (00076)	TURBIDITY HACH 2100AN (NTU) (99872)	BARO-METRIC PRES-SURE (MM HG) (00025)	OXYGEN, DIS-SOLVED (MG/L) (00300)	OXYGEN, SATUR-ATION (00301)	PH WATER (STAND-ARD UNITS) (00400)	SPE-CIFIC CON-DUCT-ANCE (US/CM) (00095)	TEMPER-ATURE WATER (DEG C) (00010)	HARD-NESS TOTAL (MG/L CaCO3) (00900)	CALCIUM DIS-SOLVED (MG/L Ca) (00915)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) (00925)
OCT 2001													
30...	1020	111000	3.6	--	754	--	--	7.8	150	12.9	--	--	--
NOV													
27...	1310	215000	11	11	772	--	--	7.8	122	9.0	43	11.1	3.58
DEC													
04...	1020	293000	25	--	--	--	--	7.7	112	8.0	--	--	--
18...	1140	364000	68	39	754	--	--	7.5	89	7.2	32	8.32	2.62
JAN 2002													
10...	1000	348000	65	--	--	--	--	7.5	108	7.2	--	--	--
16...	1210	250000	16	9.4	--	--	--	7.7	119	5.9	46	12.3	3.80
FEB													
14...	1340	218000	12	9.8	767	13.1	102	8.0	145	5.2	55	14.5	4.58
MAR													
12...	1230	222000	24	23	759	13.7	111	7.8	137	6.2	50	13.1	4.16
APR													
09...	1140	203000	7.0	--	757	--	--	8.3	142	8.8	--	--	--
15...	1340	375000	60	--	757	11.5	102	8.0	144	9.5	--	--	--
19...	1020	439000	--	--	769	12.4	107	8.0	158	9.5	--	--	--
MAY													
16...	1340	244000	6.0	6.1	764	11.8	110	8.1	124	12.2	50	13.5	4.00
JUN													
10...	1140	E380000	11	--	765	11.7	114	7.7	102	14.7	--	--	--
JUL													
16...	1220	242000	10	7.1	763	9.8	107	7.8	107	19.2	44	12.2	3.32
AUG													
13...	1050	151000	4.3	--	764	7.8	85	7.6	120	19.2	--	--	--
SEP													
10...	1150	90200	1.4	4.0	764	8.6	94	7.7	129	19.7	50	13.7	3.91

Date	POTAS-SIUM, DIS-SOLVED (MG/L AS K) (00935)	SODIUM AD-SORP-TION RATIO (00931)	SODIUM, DIS-SOLVED (MG/L AS Na) (00930)	SODIUM PERCENT (00932)	ALKA-LINITY WAT DIS TOT IT FIELD (39086)	BICAR-BONATE WATER DIS IT (00453)	CAR-BONATE WATER DIS IT (00452)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL) (00940)	FLUO-RIDE, DIS-SOLVED (MG/L AS F) (00950)	SILICA, DIS-SOLVED (MG/L AS SiO2) (00955)	SULFATE DIS-SOLVED (MG/L AS SO4) (00945)	SOLIDS, DIS-SOLVED (TONS PER AC-FT) (70303)	SOLIDS, RESIDUE AT 180 DEG. C DIS-SOLVED (MG/L) (70300)
OCT 2001													
30...	--	--	--	--	51	62	0	--	--	--	--	--	--
NOV													
27...	1.05	.4	5.85	22	44	53	0	3.96	E.1	11.0	8.2	.10	76
DEC													
04...	--	--	--	--	40	49	0	--	--	--	--	--	--
18...	.94	.3	4.23	22	30	36	0	3.35	E.1	11.2	6.0	.08	60
JAN 2002													
10...	--	--	--	--	39	47	0	--	--	--	--	--	--
16...	1.00	.4	5.62	20	44	54	0	3.72	.1	11.5	8.1	.10	74
FEB													
14...	1.12	.4	6.59	20	54	66	0	4.18	.1	11.0	10.9	.11	84
MAR													
12...	1.10	.4	6.27	21	49	60	0	3.86	E.1	11.2	10.1	.12	90
APR													
09...	--	--	--	--	54	66	0	--	--	--	--	--	--
15...	--	--	--	--	52	64	0	--	--	--	--	--	--
19...	--	--	--	--	59	72	0	--	--	--	--	--	--
MAY													
16...	1.05	.3	4.93	17	49	59	0	2.54	E.09	11.6	8.2	.10	75
JUN													
10...	--	--	--	--	40	48	0	--	--	--	--	--	--
JUL													
16...	.70	.2	3.26	14	43	52	0	2.26	E.06	7.99	6.0	.07	54
AUG													
13...	--	--	--	--	48	58	0	--	--	--	--	--	--
SEP													
10...	1.01	.3	5.55	19	48	58	0	3.88	.11	8.68	8.3	.11	77

E Estimated.

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL NEAR QUINCY, OR--Continued

WATER-QUALITY DATA

Date	SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) (70301)	NITRO- GEN, AMMONIA DIS- SOLVED (MG/L) AS N) (00608)	NITRO- GEN,AM- MONIA + ORGANIC DIS. (MG/L) AS N) (00623)	NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L) AS N) (00625)	NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L) AS N) (00631)	NITRO- GEN, NITRITE DIS- SOLVED (MG/L) AS N) (00613)	PHOS- PHORUS DIS- SOLVED (MG/L) AS P) (00666)	ORTHO- PHOS- PHATE, DIS- SOLVED (MG/L) AS P) (00671)	PHOS- PHORUS TOTAL (MG/L) AS P) (00665)	PHOS- PHORUS SEDIMENT SUSP. PERCENT (30292)	CARBON, INORG + ORGANIC PARTIC. TOTAL (MG/L) AS C) (00694)	CARBON, INORGANIC, PARTIC. TOTAL (MG/L) AS C) (00688)	CARBON, ORGANIC DIS- SOLVED (MG/L) AS C) (00681)
OCT 2001													
30...	--	--	--	--	--	--	--	--	--	--	.2	<.1	2.4
NOV													
27...	73	.021	.15	.18	.397	.004	.024	.020	.050	.150	.3	<.1	2.1
DEC													
04...	--	--	--	--	--	--	--	--	--	--	.7	<.1	1.8
18...	57	E.013	E.09	.23	.556	.003	.019	.012	.128	--	.8	<.1	2.1
JAN 2002													
10...	--	--	--	--	--	--	--	--	--	--	.4	<.1	1.6
16...	75	.017	E.09	.17	.388	E.002	.019	.016	.046	--	.3	<.1	1.9
FEB													
14...	88	E.014	E.07	.16	.458	E.002	.019	.016	.043	.120	.3	<.1	1.5
MAR													
12...	82	.033	.14	.21	.450	.005	.016	.012	.071	--	.6	<.1	1.8
APR													
09...	--	--	--	--	--	--	--	--	--	--	.7	<.1	1.5
15...	--	--	--	--	--	--	--	--	--	--	.9	<.1	1.9
19...	--	--	--	--	--	--	--	--	--	--	1.2	<.1	1.8
MAY													
16...	76	<.015	E.10	.17	.196	E.002	.009	E.004	.043	.140	.5	<.1	2.0
JUN													
10...	--	--	--	--	--	--	--	--	--	--	.7	<.1	2.8
JUL													
16...	62	<.015	E.08	.17	.030	E.002	.009	<.007	.018	--	1.0	<.1	2.1
AUG													
13...	--	--	--	--	--	--	--	--	--	--	.5	<.1	2.4
SEP													
10...	75	E.010	E.09	.14	.097	.003	.017	.012	.017	.130	.4	<.1	2.6

Date	CARBON, ORGANIC PARTIC- ULATE TOTAL (MG/L) AS C) (00689)	CARBON SED. SUSP. PERCENT (30244)	CARBON, ORGANIC SUS- PENDED, TOTAL (UG/L) AS AL) (50465)	ALUM- INUM, DIS- SOLVED (UG/L) AS AL) (01106)	ANTI- MONY, DIS- SOLVED (UG/L) AS SB) (01095)	ARSENIC DIS- SOLVED (UG/L) AS AS) (01000)	BARIUM, DIS- SOLVED (UG/L) AS BA) (01005)	BERYL- LIUM, DIS- SOLVED (UG/L) AS BE) (01010)	BORON, DIS- SOLVED (UG/L) AS B) (01020)	CADMIUM DIS- SOLVED (UG/L) AS CD) (01025)	CHRO- MIUM, DIS- SOLVED (UG/L) AS CR) (01030)	COBALT, DIS- SOLVED (UG/L) AS CO) (01035)	COPPER, DIS- SOLVED (UG/L) AS CU) (01040)
OCT 2001													
30...	.2	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
27...	.3	2.8	2.7	8	.11	.7	12	<.06	15	<.04	<.8	.04	1.0
DEC													
04...	.7	--	--	--	--	--	--	--	--	--	--	--	--
18...	.8	--	--	--	--	.3	--	--	16	--	--	--	--
JAN 2002													
10...	.4	--	--	--	--	--	--	--	--	--	--	--	--
16...	.3	--	--	--	--	.6	--	--	14	--	--	--	--
FEB													
14...	.2	2.3	2.3	4	.12	.7	17	<.06	13	E.02	<.8	.06	1.5
MAR													
12...	.6	--	--	--	--	.7	--	--	16	--	--	--	--
APR													
09...	.6	--	--	--	--	--	--	--	--	--	--	--	--
15...	.9	--	--	--	--	--	--	--	--	--	--	--	--
19...	1.2	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
16...	.5	2.6	2.5	4	.18	.7	18	<.06	9	<.04	<.8	.05	.9
JUN													
10...	.7	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
16...	1.0	--	--	--	--	.6	--	--	8	--	--	--	--
AUG													
13...	.5	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	.4	--	3.1	3	.08	.8	20	<.06	12	<.04	<.8	.04	1.0

Date	IRON, DIS- SOLVED (UG/L) AS FE) (01046)	LEAD, DIS- SOLVED (UG/L) AS PB) (01049)	LITHIUM DIS- SOLVED (UG/L) AS LI) (01130)	MANGA- NESE, DIS- SOLVED (UG/L) AS MN) (01056)	MOLYB- DENUM, DIS- SOLVED (UG/L) AS MO) (01060)	NICKEL, DIS- SOLVED (UG/L) AS NI) (01065)	SELE- NIUM, DIS- SOLVED (UG/L) AS SE) (01145)	SILVER, DIS- SOLVED (UG/L) AS AG) (01075)	STRON- TIUM, DIS- SOLVED (UG/L) AS SR) (01080)	VANA- DIUM, DIS- SOLVED (UG/L) AS V) (01085)	ZINC, DIS- SOLVED (UG/L) AS ZN) (01090)	ALUM- INUM SED,SUS PERCENT (30221)	AN- TIMONY SED. SUSP. (UG/G) (29816)
OCT 2001													
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
27...	17	.09	2.4	1.6	.6	.46	<.3	<1	69.6	1.6	1	8.5	.9
DEC													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	20	--	1.8	--	--	--	<.3	--	50.7	1.4	--	--	--
JAN 2002													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	12	--	2.5	--	--	--	<.3	--	68.5	1.9	--	--	--
FEB													
14...	13	<.08	2.9	3.7	.7	.38	<.3	<1	81.6	1.9	3	8.3	.8
MAR													
12...	18	--	3.1	--	--	--	<.3	--	73.7	1.4	--	--	--
APR													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
16...	11	<.08	2.1	1.1	.6	.79	<.3	<1	71.1	2.3	2	7.5	.7
JUN													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
16...	E8	--	1.4	--	--	--	<.3	--	59.2	1.8	--	--	--
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	E6	E.06	1.9	.4	.7	.87	<.3	<1	71.9	2.2	2	7.3	.8

E Estimated.  
< Actual value is known to be less than the value shown.

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL NEAR QUINCY, OR--Continued

WATER-QUALITY DATA

Date	ARSENIC SED. SUSP. (UG/G) (29818)	BARIUM SED. SUSP. (UG/G) (29820)	BERYL- LIUM SED. SUSP. (UG/G) (29822)	CADMIUM SED. SUSP. (UG/G) (29826)	CHRO- MIUM SED. SUSP. (UG/G) (29829)	COBALT SEDI- MENT SUSP. (UG/G) (35031)	COPPER SED. SUSP. (UG/G) (29832)	IRON SEDI- MENT SUSP. PERCENT (30269)	LEAD SED. SUSP. (UG/G) (29836)	LITHIUM SEDI- MENT SUSP. (UG/G) (35050)	MAN- GANESE SED. SUSP. (UG/G) (29839)	MERCURY SED. SUSP. (UG/G) (29841)	MOLYB- DENUM SED. SUSP. (UG/G) (29843)
OCT 2001													
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
27...	10	510	1	.5	62	18	69	4.9	24	26	1400	.21	2
DEC													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	--	--	--	--	--	--
JAN 2002													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
FEB													
14...	7.0	440	1	.7	51	17	150	4.3	19	26	1200	.11	2
MAR													
12...	--	--	--	--	--	--	--	--	--	--	--	--	--
APR													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
16...	4.8	470	1	.7	51	15	37	3.5	16	23	1200	.06	2
JUN													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
16...	--	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	7.0	530	2	.5	59	17	48	3.9	20	22	1500	--	2

Date	NICKEL SED. SUSP. (UG/G) (29845)	SELE- NIUM SED. SUSP. (UG/G) (29847)	SILVER SED. SUSP. (UG/G) (29850)	STRON- TIUM SEDI- MENT SUSP. (UG/G) (35040)	TITA- NIUM SEDI- MENT SUSP. PERCENT (30317)	VANA- DIUM SED. SUSP. (UG/G) (29853)	ZINC SED. SUSP. (UG/G) (29855)	2,6-DI- ETHYL ANILINE WAT FLT 0.7 U GF, REC (UG/L) (82660)	ACETO- CHLOR, WATER, FLTRD REC (UG/L) (49260)	ALA- CHLOR, WATER, DISS, REC, (UG/L) (46342)	ALPHA BHC DIS- SOLVED REC, (UG/L) (34253)	ATRA- ZINE, WATER, DISS, REC (UG/L) (39632)	BEN- FLUR- ALIN WAT FLD 0.7 U GF, REC (UG/L) (82673)
OCT 2001													
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
27...	39	M	M	270	.560	140	170	<.002	<.004	<.002	<.005	E.006	<.010
DEC													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	--	--	--	--	--	--	--	<.002	<.004	<.002	<.005	.047	<.010
JAN 2002													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	--	--	--	--	--	--	--	<.006	<.006	<.004	<.005	.015	<.010
FEB													
14...	33	M	<.5	320	.490	110	140	<.006	<.006	<.004	<.005	.065	<.010
MAR													
12...	--	--	--	--	--	--	--	<.006	<.006	<.004	<.005	.018	<.010
APR													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
16...	29	M	<.5	380	.420	94	130	<.006	<.006	<.004	<.005	E.005	<.010
JUN													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
16...	--	--	--	--	--	--	--	<.006	<.006	<.004	<.005	<.007	<.010
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	37	1	<.5	320	.480	110	160	<.006	<.006	<.004	<.005	<.007	<.010

Date	BUTYL- ATE, WATER, DISS, REC (UG/L) (04028)	CAR- BARYL WATER FLTRD 0.7 U GF, REC (UG/L) (82680)	CARBO- FURAN WATER FLTRD 0.7 U GF, REC (UG/L) (82674)	CHLOR- PYRIFOS DIS- SOLVED (UG/L) (38933)	CYANA- ZINE, WATER, DISS, REC (UG/L) (04041)	DCPA WATER FLTRD 0.7 U GF, REC (UG/L) (82682)	DEETHYL ATRA- ZINE, WATER, DISS, REC (UG/L) (04040)	DI- AZINON, DIS- SOLVED (UG/L) (39572)	DI- ELDRIN DIS- SOLVED (UG/L) (39381)	DISUL- FOTON WATER FLTRD 0.7 U GF, REC (UG/L) (82677)	EPTC WATER FLTRD 0.7 U GF, REC (UG/L) (82668)	ETHAL- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82663)	ETHO- PROP WATER FLTRD 0.7 U GF, REC (UG/L) (82672)
OCT 2001													
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
27...	<.002	E.004	E.009	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005
DEC													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	<.002	<.041	<.020	<.005	<.018	<.003	E.004	<.005	<.005	<.02	<.002	<.009	<.005
JAN 2002													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	<.002	<.041	<.020	<.005	<.018	<.003	E.003	<.005	<.005	<.02	<.002	<.009	<.005
FEB													
14...	<.002	<.041	<.020	<.005	<.018	<.003	E.006	<.005	<.005	<.02	<.002	<.009	<.005
MAR													
12...	<.002	<.041	<.020	<.005	<.018	<.003	E.003	<.005	<.005	<.02	<.002	<.009	<.005
APR													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
16...	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	E.001	<.009	<.005
JUN													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
16...	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	<.002	<.041	<.020	<.005	<.018	<.003	<.006	<.005	<.005	<.02	<.002	<.009	<.005

E Estimated.  
 < Actual value is known to be less than the value shown.  
 M Presence verified, not quantified.

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL NEAR QUINCY, OR--Continued

WATER-QUALITY DATA

Date	FONOFO WATER DISS REC (UG/L) (04095)	LINDANE DIS- SOLVED (UG/L) (39341)	LIN- URON WATER FLTRD 0.7 U GF, REC (UG/L) (82666)	MALA- THION, DIS- SOLVED (UG/L) (39532)	METHYL AZIN- PHOS WAT FLT 0.7 U GF, REC (UG/L) (82686)	METHYL PARA- THION WAT FLT 0.7 U GF, REC (UG/L) (82667)	METO- LACHLOR WATER DISSOLV (UG/L) (39415)	METRI- BUZIN SENCOR WATER DISSOLV (UG/L) (82630)	MOL- INATE WATER FLTRD 0.7 U GF, REC (UG/L) (82671)	NAPROP- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82684)	P, P' DDE DISSOLV (UG/L) (34653)	PARA- THION, DIS- SOLVED (UG/L) (39542)	PEB- ULATE FILTRED 0.7 U GF, REC (UG/L) (82669)
OCT 2001													
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
27...	<.003	<.004	<.035	<.027	<.050	<.006	E.004	<.006	<.002	<.007	<.003	<.007	<.002
DEC													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	<.003	<.004	<.035	<.027	<.050	<.006	E.005	.017	<.002	<.007	<.003	<.007	<.002
JAN 2002													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006	<.002	<.007	<.003	<.010	<.004
FEB													
14...	<.003	<.004	<.035	<.027	<.050	<.006	E.007	.008	<.002	<.007	<.003	<.010	<.004
MAR													
12...	<.003	<.004	<.035	<.027	<.050	<.006	E.004	E.005	<.002	E.006	<.003	<.010	<.004
APR													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
16...	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006	<.002	<.007	<.003	<.010	<.004
JUN													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
16...	<.003	<.004	<.035	<.027	<.050	<.006	<.013	<.006	<.002	<.007	<.003	<.010	<.004
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	<.003	<.004	<.035	<.027	<.050	<.006	E.004	<.006	<.002	<.007	<.003	<.010	<.004

Date	PENDI- METH- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82683)	PER- METHRIN CIS WAT FLT 0.7 U GF, REC (UG/L) (82687)	PHORATE WATER FLTRD 0.7 U GF, REC (UG/L) (82664)	PRO- METON, WATER, DISS, REC (UG/L) (04037)	PRON- AMIDE WATER FLTRD 0.7 U GF, REC (UG/L) (82676)	PROPA- CHLOR, WATER, DISS, REC (UG/L) (04024)	PANIL WATER FLTRD 0.7 U GF, REC (UG/L) (82679)	PRO- PARGITE WATER FLTRD 0.7 U GF, REC (UG/L) (82685)	SI- MAZINE, WATER, DISS, REC (UG/L) (04035)	TEBU- THIURON WATER FLTRD 0.7 U GF, REC (UG/L) (82670)	TER- BACIL WATER FLTRD 0.7 U GF, REC (UG/L) (82665)	TER- BUFOS WATER FLTRD 0.7 U GF, REC (UG/L) (82675)	THIO- BENCARB WATER FLTRD 0.7 U GF, REC (UG/L) (82681)
OCT 2001													
30...	--	--	--	--	--	--	--	--	--	--	--	--	--
NOV													
27...	<.010	<.006	<.011	<.01	<.004	<.010	<.011	<.02	E.003	<.02	<.034	<.02	<.005
DEC													
04...	--	--	--	--	--	--	--	--	--	--	--	--	--
18...	<.010	<.006	<.011	<.01	<.004	<.010	<.011	<.02	.018	<.02	<.034	<.02	<.005
JAN 2002													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
16...	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
FEB													
14...	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	.008	<.02	<.034	<.02	<.005
MAR													
12...	<.022	<.006	<.011	<.01	.005	<.010	<.011	<.02	.014	<.02	<.034	<.02	<.005
APR													
09...	--	--	--	--	--	--	--	--	--	--	--	--	--
15...	--	--	--	--	--	--	--	--	--	--	--	--	--
19...	--	--	--	--	--	--	--	--	--	--	--	--	--
MAY													
16...	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
JUN													
10...	--	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
16...	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005
AUG													
13...	--	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10...	<.022	<.006	<.011	<.01	<.004	<.010	<.011	<.02	<.005	<.02	<.034	<.02	<.005

Date	TRIAL- LATE WATER FLTRD 0.7 U GF, REC (UG/L) (82678)	TRI- FLUR- ALIN WAT FLT 0.7 U GF, REC (UG/L) (82661)	URANIUM NATURAL DIS- SOLVED (UG/L AS U) (22703)	URANIUM MENT SUSP. (UG/G) (35046)	SED. SUSP. SIEVE DIAM. % FINER THAN .062 MM (70331)	SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) (80155)
OCT 2001						
30...	--	--	--	--	91	5.0 1500
NOV						
27...	<.002	<.009	.43	<50	95	13 7550
DEC						
04...	--	--	--	--	72	32 25300
18...	<.002	<.009	--	--	83	105 103000
JAN 2002						
10...	--	--	--	--	97	205 193000
16...	<.002	<.009	--	--	72	25 16900
FEB						
14...	<.002	<.009	.67	<50	78	17 10000
MAR						
12...	<.002	<.009	--	--	96	37 22200
APR						
09...	--	--	--	--	86	13 7130
15...	--	--	--	--	81	128 130000
19...	--	--	--	--	58	65 77000
MAY						
16...	<.002	<.009	.53	<50	49	19 12500
JUN						
10...	--	--	--	--	61	33 E33900
JUL						
16...	<.002	<.009	--	--	84	15 9800
AUG						
13...	--	--	--	--	90	9.0 3670
SEP						
10...	<.002	<.009	.40	<50	72	12 2920

E Estimated.  
< Actual value is known to be less than the value shown.

## COLUMBIA RIVER MAIN STEM

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	152	145	149	153	146	149	125	105	118	143	138	141
2	148	145	146	151	142	146	116	100	110	144	139	141
3	149	146	148	145	140	142	114	101	109	143	139	141
4	150	146	148	144	138	141	117	106	111	144	138	141
5	150	148	149	140	135	138	115	107	111	152	141	144
6	155	149	151	141	135	138	120	110	114	144	140	143
7	153	150	152	143	139	141	120	112	116	148	128	141
8	156	149	153	151	142	146	120	115	117	132	118	125
9	156	149	152	154	146	149	122	116	119	120	113	117
10	158	150	153	153	146	150	121	112	118	117	111	113
11	152	148	150	158	151	154	120	113	117	115	110	113
12	157	150	154	154	149	151	125	116	121	117	109	114
13	160	153	156	155	146	149	129	117	124	118	109	112
14	161	148	156	153	134	146	120	107	113	124	109	117
15	152	147	148	142	129	136	123	104	111	125	114	121
16	152	146	149	137	125	133	107	92	102	125	118	122
17	151	146	148	139	131	135	96	87	91	138	124	129
18	157	150	153	141	133	137	97	89	93	138	133	135
19	151	148	149	143	135	140	106	96	100	139	133	135
20	157	150	154	143	136	140	109	103	105	139	131	135
21	156	149	152	143	137	140	118	103	108	135	123	129
22	154	146	150	140	127	136	121	114	117	131	120	127
23	152	147	150	138	122	128	123	118	120	126	119	122
24	158	150	154	130	124	128	126	121	124	127	117	121
25	160	149	154	126	117	121	129	123	127	121	110	115
26	155	146	150	125	117	122	132	124	129	117	107	113
27	155	146	150	130	121	126	136	128	131	119	113	116
28	148	143	145	138	126	132	140	130	135	120	110	115
29	159	143	150	137	126	133	142	135	139	125	115	120
30	157	147	151	139	114	130	143	138	142	137	125	130
31	152	146	150	---	---	---	142	139	141	143	135	137
MONTH	161	143	151	158	114	139	143	87	117	152	107	127
	FEBRUARY			MARCH			APRIL			MAY		
1	143	138	140	145	137	140	157	145	151	128	123	125
2	142	137	138	149	141	144	160	149	155	126	122	124
3	142	139	141	152	143	147	173	159	168	126	120	123
4	142	136	139	154	144	149	169	159	164	124	121	122
5	141	137	139	159	154	157	160	152	157	125	120	123
6	149	139	145	160	154	157	157	148	152	120	118	119
7	151	140	146	162	154	157	152	146	149	119	117	118
8	142	131	137	163	151	158	149	142	145	120	117	119
9	138	131	134	154	148	152	144	137	141	121	117	119
10	141	135	138	153	147	149	143	138	140	124	118	120
11	136	126	134	152	145	148	141	135	138	128	121	123
12	140	127	134	151	134	141	144	137	139	131	124	127
13	155	140	146	137	130	133	141	134	138	127	123	125
14	154	145	149	133	128	130	141	133	137	130	121	124
15	156	147	151	132	127	129	148	136	143	127	121	124
16	157	153	155	139	128	132	145	133	139	125	120	123
17	158	149	154	143	136	139	157	145	152	127	122	125
18	151	143	148	142	133	138	163	155	159	126	123	125
19	151	145	148	145	129	138	159	154	157	128	124	127
20	157	148	151	140	130	135	158	152	155	129	125	127
21	158	149	154	142	128	133	154	148	151	128	124	125
22	156	142	148	135	128	132	152	149	150	127	122	125
23	152	140	146	140	134	137	150	143	146	125	121	123
24	145	136	140	145	136	142	145	137	142	123	117	121
25	144	128	137	143	137	139	144	132	137	124	119	122
26	139	127	133	142	136	138	133	127	130	123	114	118
27	138	131	134	141	133	138	132	127	130	118	113	116
28	143	135	140	142	134	137	132	126	129	118	114	116
29	---	---	---	148	134	140	131	123	127	118	113	115
30	---	---	---	151	144	147	127	122	124	115	110	112
31	---	---	---	152	145	148	---	---	---	110	106	107
MONTH	158	126	143	163	127	142	173	122	145	131	106	121



## 14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR--Continued

SPECIFIC CONDUCTANCE, in US/CM @ 25C, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	107	105	106	101	97	99	117	113	115	138	129	132
2	108	107	107	101	98	99	115	113	114	131	127	129
3	109	106	107	100	97	99	118	113	115	131	127	129
4	106	102	104	100	97	99	124	116	119	131	127	129
5	103	102	103	100	99	99	119	114	116	130	127	129
6	103	99	101	100	99	99	120	115	116	135	128	132
7	99	95	97	102	99	100	119	115	116	136	130	133
8	95	94	95	114	99	103	117	115	117	133	129	131
9	98	95	96	113	100	105	120	116	118	134	131	132
10	105	---	---	104	100	102	121	118	120	134	130	132
11	---	---	---	102	100	101	128	120	123	131	127	130
12	99	97	98	104	102	103	122	119	121	132	127	129
13	99	96	97	105	102	104	122	120	121	132	128	130
14	98	96	97	108	103	106	123	120	122	131	126	129
15	98	95	97	104	103	104	124	121	123	132	127	130
16	98	96	97	107	103	105	128	122	124	136	130	134
17	100	97	98	111	105	108	126	123	125	137	132	135
18	101	98	100	116	109	113	132	125	128	134	128	132
19	104	98	100	115	111	113	127	126	126	141	133	137
20	105	100	103	114	111	112	127	124	126	135	129	132
21	107	102	104	115	112	114	130	126	127	133	129	131
22	107	105	106	117	114	115	130	126	128	136	131	134
23	106	104	104	118	114	116	128	125	127	136	131	134
24	105	103	104	117	113	115	129	126	127	134	129	132
25	104	99	102	116	114	115	130	126	128	137	129	133
26	102	98	100	118	115	116	131	126	128	135	130	132
27	101	97	98	119	115	116	131	126	129	143	131	139
28	100	97	98	120	114	117	129	125	128	140	133	136
29	102	98	100	117	115	116	131	125	127	139	134	135
30	100	97	99	120	114	118	132	124	128	142	133	138
31	---	---	---	116	114	115	133	127	131	---	---	---
MONTH	---	---	---	120	97	108	133	113	123	143	126	132

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.5	18.2	18.5	12.6	12.4	12.6	8.2	8.0	8.2	5.7	5.5	5.5
2	18.5	18.2	18.4	12.4	12.2	12.4	8.2	8.0	8.1	5.9	5.7	5.7
3	18.5	18.2	18.5	12.4	12.2	12.3	8.0	8.0	8.0	5.9	5.7	5.9
4	18.5	17.9	18.2	12.4	12.2	12.4	8.0	7.6	7.9	6.2	5.9	6.0
5	17.9	17.9	17.9	12.4	12.2	12.4	7.8	7.6	7.6	6.2	6.2	6.2
6	17.9	17.6	17.8	12.4	12.2	12.4	7.8	7.4	7.7	6.5	6.2	6.4
7	17.9	17.6	17.6	12.2	11.9	12.0	7.9	7.8	7.8	7.2	6.5	6.7
8	17.6	17.3	17.5	11.9	11.7	11.9	7.9	7.9	7.9	7.2	7.0	7.1
9	17.3	16.7	17.0	11.9	11.5	11.6	7.9	7.7	7.9	7.2	7.0	7.1
10	16.7	16.4	16.6	11.5	11.0	11.3	7.9	7.5	7.7	7.4	7.0	7.2
11	16.4	16.1	16.1	11.3	10.8	11.0	7.7	7.5	7.6	7.2	7.0	7.1
12	16.2	16.1	16.2	10.8	10.8	10.8	7.5	7.5	7.5	7.0	6.9	7.0
13	16.2	16.0	16.1	10.8	10.5	10.7	7.7	7.5	7.6	7.0	6.8	6.9
14	16.0	16.0	16.0	10.7	10.5	10.6	7.7	7.5	7.7	6.8	6.4	6.5
15	16.0	15.7	16.0	10.7	10.5	10.7	7.6	7.4	7.5	6.4	6.1	6.2
16	16.0	15.7	16.0	10.7	10.7	10.7	7.8	7.4	7.5	6.1	5.9	6.0
17	15.7	15.7	15.7	10.9	10.7	10.7	7.8	7.4	7.6	5.9	5.7	5.7
18	15.7	15.2	15.5	10.7	10.5	10.6	7.4	7.2	7.3	5.7	5.7	5.7
19	15.2	14.9	15.0	10.5	10.3	10.4	7.2	7.0	7.2	5.9	5.7	5.8
20	14.9	14.6	14.9	10.5	10.3	10.3	7.2	7.0	7.1	5.9	5.7	5.8
21	14.9	14.6	14.8	10.3	10.1	10.3	7.0	6.8	7.0	5.9	5.7	5.9
22	14.6	14.4	14.5	10.1	9.9	10.1	6.8	6.7	6.8	5.9	5.7	5.8
23	14.4	14.1	14.3	10.1	9.9	10	6.8	6.5	6.7	5.9	5.7	5.8
24	14.4	14.1	14.1	9.9	9.6	9.8	6.6	6.4	6.5	6.1	5.7	5.9
25	14.1	13.8	13.9	9.6	9.2	9.4	6.4	6.2	6.3	6.2	6.1	6.1
26	13.9	13.6	13.7	9.2	9.0	9.1	6.2	6.1	6.1	6.2	5.9	6.1
27	13.6	13.4	13.4	9.0	8.8	9.0	6.1	5.9	6.0	5.9	5.5	5.7
28	13.4	13.1	13.2	9.0	8.6	8.8	5.9	5.9	5.9	5.7	5.5	5.6
29	13.4	12.9	13.1	9.0	8.8	8.8	5.9	5.7	5.8	5.5	5.4	5.5
30	13.1	12.9	12.9	8.8	8.2	8.5	5.7	5.5	5.5	5.4	5.4	5.4
31	12.9	12.6	12.7	---	---	---	5.5	5.5	5.5	5.4	5.2	5.2
MONTH	18.5	12.6	15.7	12.6	8.2	10.7	8.2	5.5	7.1	7.4	5.2	6.1

## COLUMBIA RIVER MAIN STEM

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.4	5.2	5.3	5.9	5.7	5.8	8.2	7.8	8.1	11.1	10.9	11.0
2	5.4	5.2	5.4	5.9	5.5	5.7	8.4	8.0	8.2	11.1	10.7	10.8
3	5.6	5.4	5.5	5.9	5.5	5.8	8.4	8.0	8.2	10.9	10.7	10.8
4	5.7	5.4	5.5	6.1	5.7	6.0	8.6	8.0	8.4	10.9	10.7	10.7
5	5.5	5.4	5.5	6.1	6.1	6.1	8.8	8.4	8.6	10.9	10.7	10.7
6	5.5	5.2	5.4	6.1	5.9	5.9	8.6	8.3	8.5	11.0	10.7	10.8
7	5.5	5.4	5.4	5.9	5.7	5.7	8.8	8.5	8.6	10.8	10.4	10.6
8	5.6	5.4	5.4	5.7	5.5	5.6	9.0	8.3	8.6	10.8	10.4	10.6
9	5.6	5.2	5.4	5.9	5.7	5.8	9.0	8.7	8.8	10.8	10.6	10.7
10	5.5	5.4	5.4	6.1	5.9	5.9	9.2	8.7	8.9	11.2	10.6	10.9
11	5.7	5.4	5.5	6.2	6.1	6.1	9.2	9.0	9.0	11.5	11.0	11.2
12	5.7	5.4	5.4	6.2	6.1	6.2	9.2	9.0	9.1	12.2	11.4	11.8
13	5.4	5.2	5.3	6.2	6.1	6.2	9.5	9.2	9.3	12.2	12.1	12.2
14	5.4	5.2	5.2	6.4	6.2	6.3	9.8	9.4	9.5	12.5	12.0	12.2
15	5.2	5.0	5.2	6.4	6.2	6.4	9.5	9.3	9.5	12.5	12.0	12.1
16	5.4	5.2	5.3	6.4	6.1	6.2	9.3	9.0	9.1	12.9	12.2	12.2
17	5.6	5.4	5.5	6.2	5.9	6.0	9.3	8.8	9.1	12.9	12.2	12.5
18	5.7	5.5	5.6	6.1	5.9	6.1	9.6	9.1	9.3	13.2	12.7	13.0
19	5.9	5.7	5.8	5.9	5.7	5.9	9.7	9.2	9.5	13.2	12.9	13.0
20	6.1	5.7	6.0	6.2	5.9	6.0	9.9	9.4	9.7	13.2	12.9	13.0
21	6.2	5.9	6.0	6.4	6.1	6.2	9.9	9.9	9.9	13.4	12.9	13.1
22	6.6	6.1	6.3	6.6	6.2	6.3	10.0	9.8	9.9	13.4	13.2	13.3
23	6.6	6.2	6.4	6.6	6.2	6.4	10.2	9.7	9.9	13.7	13.2	13.3
24	6.6	6.4	6.5	6.8	6.4	6.6	10.2	10.0	10.1	13.9	13.4	13.6
25	6.6	6.2	6.4	7.3	6.6	6.9	10.4	10.2	10.3	14.2	13.9	13.9
26	6.4	6.1	6.2	7.4	7.0	7.1	10.4	10.0	10.2	14.4	13.9	14.1
27	6.2	5.9	6.0	7.2	7.0	7.1	10.2	10.0	10.1	14.7	14.2	14.5
28	6.1	5.7	5.8	7.4	7.2	7.3	10.6	10.0	10.2	14.7	14.4	14.7
29	---	---	---	7.6	7.2	7.4	11.2	10.4	10.7	14.7	14.2	14.4
30	---	---	---	7.6	7.4	7.6	11.2	10.9	11.0	14.4	13.9	14.2
31	---	---	---	8.0	7.4	7.7	---	---	---	14.7	14.2	14.3
MONTH	6.6	5.0	5.7	8.0	5.5	6.3	11.2	7.8	9.3	14.7	10.4	12.4
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	14.9	14.4	14.6	17.9	17.0	17.3	21.0	20.7	20.7	21.0	20.7	21.0
2	15.2	14.7	14.9	18.2	17.6	17.7	20.7	20.4	20.6	21.0	20.7	20.9
3	15.2	14.9	15.0	18.2	17.6	17.8	21.0	20.7	20.9	21.0	20.7	20.8
4	15.2	14.9	15.0	18.2	17.9	17.9	21.0	20.7	20.7	21.0	20.3	20.7
5	15.5	14.9	15.2	18.2	17.6	17.9	21.0	20.3	20.7	20.7	20.3	20.4
6	15.5	15.2	15.4	18.5	17.9	18.1	20.7	20.4	20.6	20.7	20.4	20.4
7	15.2	14.7	15.0	18.5	18.1	18.4	20.7	20.3	20.5	20.4	19.7	20.0
8	14.7	14.4	14.6	18.4	18.1	18.3	20.7	20.4	20.5	20.0	19.7	19.7
9	14.7	14.4	14.5	18.8	18.1	18.3	21.1	20.4	20.6	20.0	19.4	19.8
10	---	14.7	---	19.4	18.4	18.8	21.0	20.7	20.7	20.4	19.7	19.8
11	15.5	---	---	19.4	19.0	19.1	21.1	20.7	20.8	20.0	19.7	19.9
12	16.0	15.4	15.6	19.4	19.0	19.1	21.4	20.7	21.0	20.4	19.7	19.9
13	16.3	15.7	16.1	19.4	19.0	19.3	21.4	21.0	21.2	20.0	19.7	20.0
14	16.3	16.0	16.1	19.7	19.4	19.4	21.8	21.4	21.6	20.4	20.0	20.0
15	16.3	15.7	15.9	19.4	19.0	19.4	21.8	21.4	21.7	20.4	20.0	20.2
16	16.0	15.4	15.8	19.7	19.0	19.4	21.8	21.0	21.5	20.4	20.4	20.4
17	15.7	15.4	15.5	20.0	19.4	19.6	21.8	21.0	21.4	20.4	20.0	20.2
18	15.7	15.2	15.3	20.0	19.7	19.9	21.4	21.0	21.2	20.0	19.7	20.0
19	15.6	15.2	15.4	20.0	20.0	20.0	21.4	20.7	21.1	20.0	19.4	19.7
20	16.2	15.4	15.8	20.4	20.0	20.2	21.0	20.7	20.9	19.4	19.0	19.4
21	16.8	16.2	16.4	20.7	20.0	20.5	21.0	20.7	20.8	19.4	18.7	19.2
22	17.0	16.4	16.7	21.4	20.7	20.9	20.7	20.4	20.5	19.1	18.7	19.0
23	17.0	16.7	16.8	21.4	21.0	21.2	20.4	20.0	20.3	19.1	18.7	18.9
24	17.3	16.7	17.1	21.4	21.0	21.3	20.7	20.0	20.4	18.7	18.4	18.7
25	17.6	17.0	17.3	21.4	21.4	21.4	20.7	20.4	20.6	18.7	18.4	18.5
26	17.9	17.3	17.5	21.4	21.4	21.4	20.7	20.7	20.7	18.4	18.4	18.4
27	17.9	17.3	17.6	21.4	21.0	21.2	21.1	20.7	20.8	18.7	18.4	18.6
28	17.6	17.0	17.3	21.4	21.0	21.4	21.1	20.7	20.9	19.0	18.7	18.9
29	17.3	17.0	17.1	21.4	20.7	21.0	21.0	21.0	21.0	19.0	18.7	18.8
30	17.6	17.0	17.2	21.0	21.0	21.0	21.0	20.7	21.0	18.7	18.4	18.5
31	---	---	---	21.0	20.7	20.8	21.4	21.0	21.0	---	---	---
MONTH	---	---	---	21.4	17.0	19.6	21.8	20.0	20.9	21.0	18.4	19.7

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	6	1	3	17	5	7	52	15	24	14	7	11
2	5	1	3	15	7	10	60	29	44	14	7	10
3	4	1	3	10	6	8	60	24	35	15	8	12
4	5	1	3	10	6	8	39	20	30	16	8	12
5	4	1	2	10	6	7	38	23	29	14	8	11
6	5	1	2	8	5	7	32	19	23	13	7	11
7	4	1	2	8	5	7	24	16	21	84	8	12
8	4	1	2	8	5	6	23	14	19	>130	75	>130
9	4	1	2	8	5	6	23	12	18	>130	86	>130
10	4	1	2	8	5	6	24	10	19	123	50	104
11	4	1	3	8	5	6	21	11	18	95	44	77
12	4	1	3	9	6	6	21	10	15	77	30	52
13	4	1	3	9	6	7	23	9	14	61	32	47
14	5	2	3	30	5	14	98	14	37	56	22	36
15	6	2	3	130	16	72	91	26	43	47	15	28
16	6	2	3	72	21	35	63	24	35	39	17	24
17	6	2	3	34	12	22	>130	53	120	32	13	22
18	5	1	3	21	10	14	>130	61	95	31	13	20
19	6	2	3	15	8	11	89	39	58	28	13	20
20	5	2	3	14	8	10	60	37	43	29	13	22
21	5	2	3	20	11	14	49	29	36	31	13	23
22	6	2	3	24	14	18	34	21	29	30	15	21
23	7	2	4	61	17	29	34	20	25	25	12	19
24	6	2	3	64	18	33	25	15	21	32	15	22
25	8	2	4	30	14	22	22	12	19	86	29	43
26	7	1	4	27	13	20	21	10	17	76	33	56
27	7	2	4	26	12	18	19	10	16	47	24	33
28	6	2	4	18	10	15	18	9	14	39	22	31
29	6	2	4	38	10	17	18	8	13	35	19	29
30	9	2	6	34	15	25	18	8	13	30	14	22
31	8	6	7	---	---	---	16	7	12	21	12	17
MAX	9	6	7	130	21	72	>130	61	120	>130	86	>130
MIN	4	1	2	8	5	6	16	7	12	13	7	10

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	20	11	15	23	10	15	10	3	6	19	8	12
2	17	8	13	16	7	11	10	3	6	17	9	12
3	15	7	12	16	7	11	8	3	6	15	8	12
4	15	7	12	16	6	9	9	3	6	16	8	12
5	14	8	11	16	5	8	10	3	6	14	9	12
6	12	5	10	11	4	7	8	3	6	14	8	12
7	21	5	10	10	4	7	10	4	6	16	8	12
8	32	11	17	9	4	7	11	4	7	14	8	11
9	27	12	18	9	4	6	11	4	8	13	8	11
10	22	9	15	10	4	7	16	4	9	14	7	10
11	25	11	18	13	4	8	34	7	18	13	6	9
12	27	13	20	75	6	26	35	15	25	12	6	10
13	20	9	15	69	25	39	32	14	26	12	6	9
14	18	8	14	43	22	30	98	17	37	14	7	10
15	19	5	11	32	16	25	>130	41	81	15	6	9
16	15	5	9	28	14	22	89	36	55	18	7	12
17	13	6	9	23	11	17	57	39	47	16	6	9
18	21	7	10	19	9	15	49	31	41	18	6	9
19	15	6	10	18	8	14	40	29	34	16	7	12
20	13	5	9	27	9	16	43	17	28	16	6	12
21	13	5	9	22	10	17	29	16	24	11	6	8
22	57	6	10	16	7	11	26	18	23	11	6	8
23	74	21	37	16	6	10	25	15	20	12	6	9
24	68	26	42	17	7	11	26	13	19	13	5	9
25	46	16	34	15	6	10	22	9	17	12	5	9
26	34	14	24	14	5	10	22	11	17	12	4	8
27	31	10	20	13	4	9	19	9	15	---	---	---
28	33	10	18	15	5	8	19	8	14	---	---	---
29	---	---	---	11	4	7	16	8	13	---	---	---
30	---	---	---	16	4	8	17	8	12	---	---	---
31	---	---	---	10	4	7	---	---	---	---	---	---
MAX	74	26	42	75	25	39	>130	41	81	---	---	---
MIN	12	5	9	9	4	6	8	3	6	---	---	---

## COLUMBIA RIVER MAIN STEM

14246900 COLUMBIA RIVER AT BEAVER ARMY TERMINAL, NEAR QUINCY, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	---	---	---	20	7	10	8	1	5	9	4	6
2	---	---	---	15	7	10	8	2	5	9	4	6
3	---	---	---	14	6	11	8	1	4	10	4	6
4	---	---	---	14	6	10	8	2	4	16	4	7
5	---	---	---	18	3	9	7	1	4	12	4	7
6	---	---	---	13	3	8	8	1	5	11	4	7
7	---	---	---	12	2	7	8	1	4	12	4	7
8	---	---	---	12	2	7	7	1	5	11	4	7
9	---	---	---	11	2	6	9	1	5	10	4	7
10	---	---	---	9	2	5	8	2	4	14	4	6
11	---	---	---	11	2	6	7	2	4	17	4	6
12	14	8	11	10	2	6	7	1	4	8	3	5
13	16	7	10	10	2	6	7	1	4	8	3	5
14	18	7	10	14	2	6	8	2	4	9	3	5
15	18	7	9	14	2	6	7	2	4	12	3	6
16	16	6	9	---	---	---	7	2	4	9	3	5
17	16	7	10	---	---	---	7	2	4	8	3	5
18	16	5	9	---	---	---	6	2	4	11	3	5
19	14	6	9	---	---	---	7	2	4	8	3	5
20	15	6	10	---	---	---	7	2	4	7	3	5
21	16	6	10	---	---	---	8	2	4	8	3	5
22	14	6	10	---	---	---	8	2	5	7	3	5
23	14	5	8	---	---	---	8	2	4	7	3	5
24	11	3	8	---	---	---	8	2	4	8	3	5
25	13	5	8	---	---	---	10	2	5	9	3	4
26	11	3	7	---	---	---	8	3	6	6	3	4
27	14	4	7	---	---	---	9	3	6	6	2	4
28	11	5	7	---	---	---	9	4	6	8	2	4
29	15	5	8	---	---	---	10	4	6	5	2	4
30	22	7	10	---	---	---	11	4	6	7	2	4
31	---	---	---	8	2	5	8	4	6	---	---	---
MAX	---	---	---	---	---	---	11	4	6	17	4	7
MIN	---	---	---	---	---	---	6	1	4	5	2	4

NEHALEM RIVER BASIN

14299800 NEHALEM RIVER NEAR VERNONIA, OR

LOCATION.--Lat 45°48'26", long 123°16'55", in NE 1/4 NE 1/4 sec.27 ,T.4N., R.5 W., Columbia County, Hydrologic Unit 17100202, on left bank, 6.75 mi southwest of Vernonia and at mile 100.7.

DRAINAGE AREA.--69.8mi<sup>2</sup>.

PERIOD OF RECORD.--July 2001 to September 2002.

GAGE.--Water-stage recorder. Datum of gage is 640 ft above NGVD of 1929.

REMARKS.--Records fair. No regulation or diversion upstream from station.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 5,560 ft<sup>3</sup>/s Jan. 7, gage height, 11.57; minimum discharge , 3.2 ft<sup>3</sup>/s Sept. 26.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	5.0	31	3280	240	502	245	170	100	35	24	7.1	4.0
2	4.7	20	2070	321	487	224	156	94	34	21	6.8	4.0
3	4.5	15	1230	317	e520	205	144	90	32	19	6.7	3.9
4	4.4	13	967	306	e510	189	134	85	32	19	7.0	4.0
5	5.0	12	838	317	520	179	127	85	31	20	7.6	4.1
6	4.9	12	993	704	581	196	120	90	29	18	9.2	4.5
7	5.1	10	1170	3830	957	176	112	82	29	17	9.5	5.2
8	6.1	9.6	888	3200	1210	164	105	75	29	18	7.8	5.3
9	7.0	9.7	698	1590	1110	158	117	71	30	18	7.0	5.6
10	8.2	9.2	607	1050	860	229	189	68	27	16	6.4	5.6
11	13	8.8	597	775	704	809	170	65	26	14	6.1	4.8
12	12	9.9	571	690	585	1250	158	61	24	13	6.0	4.4
13	9.2	19	988	578	498	1180	158	60	23	12	5.5	4.1
14	9.0	870	2010	498	429	1130	304	59	22	12	5.0	3.9
15	8.3	451	1390	436	376	858	306	55	22	12	4.7	3.9
16	7.7	e270	2020	393	348	689	319	53	22	11	4.7	4.2
17	7.0	177	3080	360	e310	563	312	52	23	11	4.8	4.9
18	6.9	132	1760	326	e290	485	298	50	26	12	4.6	5.6
19	6.6	182	1380	371	e340	608	273	52	23	12	4.6	5.1
20	6.5	470	1090	481	e350	671	249	51	22	12	4.6	4.6
21	7.3	687	855	716	462	601	225	49	20	11	4.7	4.3
22	11	1370	704	712	504	515	204	46	18	9.4	5.0	4.1
23	34	1210	579	663	478	443	184	44	18	8.9	5.0	3.8
24	33	791	489	809	422	384	167	42	20	8.7	4.7	3.6
25	16	575	418	2510	372	336	153	40	18	8.6	4.5	3.5
26	e11	447	363	1640	332	296	144	40	17	8.7	4.6	3.5
27	e9.3	365	327	1090	298	268	136	40	16	8.4	4.9	3.5
28	e13	773	321	796	270	242	123	48	21	8.0	4.8	3.4
29	10	e1600	281	624	---	218	114	51	45	8.0	4.4	3.6
30	e10	e1800	257	517	---	199	106	43	28	7.8	4.0	6.6
31	e52	---	243	506	---	183	---	38	---	7.5	4.0	---
TOTAL	347.7	12349.2	32464	27366	14625	13893	5477	1879	762	406.0	176.3	131.6
MEAN	11.2	412	1047	883	522	448	183	60.6	25.4	13.1	5.69	4.39
MAX	52	1800	3280	3830	1210	1250	319	100	45	24	9.5	6.6
MIN	4.4	8.8	243	240	270	158	105	38	16	7.5	4.0	3.4
AC-FT	690	24490	64390	54280	29010	27560	10860	3730	1510	805	350	261
CFSM	0.16	5.90	15.0	12.7	7.49	6.42	2.62	0.87	0.36	0.19	0.08	0.06
IN.	0.19	6.58	17.31	14.59	7.80	7.41	2.92	1.00	0.41	0.22	0.09	0.07

WTR YR 2002 TOTAL 109876.8 MEAN 301 MAX 3830 MIN 3.4 AC-FT 217900 CFSM 4.31 IN. 58.58

e Estimated

NEHALEM RIVER BASIN

14301000 NEHALEM RIVER NEAR FOSS, OR

LOCATION.--Lat 45°42'15", long 123°45'15", in NW 1/4 sec.35, T.3 N., R.9 W., Tillamook County, Hydrologic Unit 17100202, on right bank 0.2 mi upstream from Cook Creek, 2.2 mi northeast of Foss, and at mile 13.5.

DRAINAGE AREA.--667 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1939 to current year.

GAGE.--Water-stage recorder. Datum of gage is 32.60 ft above NGVD of 1929 (State Highway Department bench mark). Prior to Nov. 11, 1939, nonrecording gage.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation. Several small diversions for irrigation and domestic use upstream from station. National Weather Service telemeter at station.

AVERAGE DISCHARGE.--63 years (water years 1940-2002), 2,681 ft<sup>3</sup>/s, 54.60 in/yr, 1,942,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 70,300 ft<sup>3</sup>/s Feb. 8, 1996, gage height, 29.56 ft, based on slope-area measurement of peak flow; minimum discharge, 34 ft<sup>3</sup>/s Aug. 29-31, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 19,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 1	2000	23,500	14.94	Jan. 7	2200	23,600	14.98
Dec. 16	2230	*27,900	*16.55	Jan. 25	1000	23,300	14.86

Minimum discharge, 63 ft<sup>3</sup>/s Sept. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	125	1260	22000	2070	6310	2490	1850	1160	518	423	e133	80
2	114	1090	21400	2300	5860	2250	1720	1090	475	362	e132	79
3	e105	925	15900	2500	5860	2050	1580	1030	449	317	e131	79
4	98	784	11000	2480	5750	1970	1480	967	432	293	e135	77
5	90	736	9980	2480	5450	1780	1410	963	420	276	e134	75
6	85	672	10600	5070	5650	1800	1360	1000	413	264	133	75
7	83	613	11800	19300	7330	1790	1310	999	399	252	130	77
8	93	563	10100	21100	9560	1690	1220	927	401	250	127	80
9	95	517	8050	16800	10400	1620	1280	856	394	241	127	80
10	129	477	6960	10500	8820	2220	2620	809	383	230	121	82
11	229	450	7100	7390	7160	7200	2920	765	375	222	117	84
12	258	453	7140	6540	5910	11300	2870	727	353	210	111	84
13	262	1140	10700	5880	4990	10800	2990	706	334	199	106	83
14	291	14200	17200	5020	4270	10400	5980	705	319	188	103	81
15	273	11600	15500	4340	3720	8760	6090	679	e315	182	98	78
16	243	7440	19800	3850	3340	6980	6120	641	e310	178	96	78
17	219	4880	23800	3560	3080	5840	5590	615	e315	172	94	84
18	198	3550	19600	3300	2890	5210	4790	602	329	170	91	82
19	181	3300	14200	3800	3360	8050	4080	584	330	169	89	80
20	167	4940	10900	6550	3540	9510	3510	588	319	169	89	79
21	173	7210	8500	8880	4710	7930	3030	586	300	167	89	78
22	324	13400	6780	8560	5050	6220	2660	567	281	162	90	76
23	752	14600	5540	8000	4800	5070	2550	544	271	157	90	75
24	795	10300	4580	10200	4420	4310	2070	515	264	152	89	73
25	664	6950	3860	21500	3860	3740	1850	493	254	148	88	70
26	576	5300	3320	19800	3420	3240	1710	478	247	146	89	69
27	509	4220	2930	13800	3060	2900	1650	473	242	144	90	66
28	494	6990	2760	9030	2750	2660	1510	535	286	141	89	65
29	455	12700	2520	6820	---	2430	1360	679	597	139	86	67
30	472	14900	2250	5560	---	2200	1250	638	496	e137	84	88
31	1260	---	2100	5880	---	2010	---	573	---	e134	82	---
TOTAL	9812	156160	318870	252860	145320	146420	80210	22494	10821	6394	3263	2324
MEAN	317	5205	10290	8157	5190	4723	2674	726	361	206	105	77.5
MAX	1260	14900	23800	21500	10400	11300	6120	1160	597	423	135	88
MIN	83	450	2100	2070	2750	1620	1220	473	242	134	82	65
AC-FT	19460	309700	632500	501500	288200	290400	159100	446200	21460	12680	6470	4610
CFSM	.47	7.80	15.4	12.2	7.78	7.08	4.01	1.09	.54	.31	.16	.12
IN.	.55	8.71	17.78	14.10	8.10	8.17	4.47	1.25	.60	.36	.18	.13

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2002, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)
1940	808	3698	1998	69.9	1953
1941	3787	9256	1974	154	1994
1942	6254	11390	1956	599	1977
1943	6195	12450	1971	596	1977
1944	5801	13000	1999	1066	1977
1945	4249	8696	1956	1171	1992
1946	2703	6389	1996	1149	1941
1947	1282	3028	1948	520	1989
1948	622	1591	1968	250	1992
1949	275	747	1983	137	1967
1950	148	314	1968	62.5	1967
1951	210	911	1997	63.6	1967

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1940 - 2002

ANNUAL TOTAL	767985	1154948	
ANNUAL MEAN	2104	3164	2681
HIGHEST ANNUAL MEAN			4292
LOWEST ANNUAL MEAN			1044
HIGHEST DAILY MEAN	23800	23800	61600
LOWEST DAILY MEAN	83	65	36
ANNUAL SEVEN-DAY MINIMUM	93	69	38
ANNUAL RUNOFF (AC-FT)	1523000	2291000	1942000
ANNUAL RUNOFF (CFSM)	3.15	4.74	4.02
ANNUAL RUNOFF (INCHES)	42.83	64.41	54.60
10 PERCENT EXCEEDS	4900	9530	7260
50 PERCENT EXCEEDS	1070	809	1140
90 PERCENT EXCEEDS	140	89	125

e Estimated

14301500 WILSON RIVER NEAR TILLAMOOK, OR

LOCATION.--Lat 45°29'05", long 123°41'20", in NW 1/4 NE 1/4 sec.17, T.1 S., R.8 W., Tillamook County, Hydrologic Unit 17100203, on right bank 0.1 mi downstream from Negro Jack Creek, 8.0 mi east of Tillamook, and at mile 11.5.

DRAINAGE AREA.--161 mi<sup>2</sup>, at former site, 2.1 mi downstream.

PERIOD OF RECORD.--October 1914 to September 1915, August to November 1916, July 1931 to current year. Prior to January 1915 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1398: 1953. WSP 1738: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 71.89 ft above NGVD of 1929. Dec. 18, 1914, to Nov. 4, 1916, nonrecording gage at site 2.8 mi downstream at different datum. July 30, 1931, to Sept. 30, 1938, nonrecording gage at site 2.82 mi downstream at datum 28.83 ft lower. Oct. 1, 1938, to Oct. 17, 1968, water-stage recorder at site 2.1 mi downstream at datum 29.76 ft lower. Oct. 18, 1968 to Sept. 6, 1973 at site 50 ft downstream at same datum.

REMARKS.--No estimated daily discharges. Records good. Discharge for the period Nov. 25 to Dec. 19 computed from data obtained through the U.S. Army Corps of Engineers Columbia River Operational Hydromet System (CROHMS) database. No regulation. Small diversions for domestic use upstream from station.

AVERAGE DISCHARGE.--72 years (water years 1915, 1932-2002), 1,181 ft<sup>3</sup>/s, 99.65 in/yr, 855,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 36,000 ft<sup>3</sup>/s Jan. 20, 1972, gage height, 16.91 ft, site then in use; maximum gage height, 19.59 ft Dec. 27, 1998, from floodmark; minimum discharge, 32 ft<sup>3</sup>/s Sept. 5, 1973, but may have been less for short period following a landslide Jan. 31, 1965.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in February 1916 reached a stage of 20.8 ft, from floodmark, site and datum then in use.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 12,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 14	0630	15,500	13.91	Jan. 7	2330	15,100	13.73
Dec. 13	2300	12,800	12.83	Jan. 25	0830	15,700	13.96
Dec. 16	2300	*16,400	*14.22				

Minimum discharge, 51 ft<sup>3</sup>/s Sept. 26-29.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	67	748	9600	1000	2500	945	878	559	343	340	94	63
2	65	554	7200	1160	2120	844	829	531	310	286	92	62
3	64	451	4400	1190	2270	761	780	507	286	254	90	61
4	63	385	3370	1210	2220	695	747	474	270	232	98	60
5	60	357	3000	1210	2060	659	753	487	266	218	97	60
6	61	312	4250	2820	2580	712	780	496	251	203	98	59
7	61	276	4890	12100	4200	647	740	464	237	192	93	59
8	66	251	3460	10100	4030	606	674	429	238	192	90	62
9	66	230	2720	5330	3540	580	805	406	234	182	87	61
10	90	213	2470	3400	2800	1050	2140	387	217	170	84	60
11	131	201	2690	2450	2350	5740	2170	367	206	161	82	59
12	109	208	2830	2450	1940	6300	2310	350	197	154	80	58
13	115	939	6620	2220	1630	4310	2860	347	188	147	78	57
14	120	12100	9390	1870	1390	3520	5930	351	181	142	75	56
15	106	5730	5480	1590	1230	2780	3840	326	177	138	74	56
16	94	3530	10800	1400	1140	2270	3080	311	175	135	74	60
17	87	2240	10800	1250	1070	1870	2650	307	200	132	73	69
18	82	1600	5750	1160	1070	1740	2190	290	254	129	72	63
19	79	1500	4460	1430	1800	3710	1840	283	214	128	70	60
20	76	2250	3540	2890	1830	4090	1590	295	190	126	70	58
21	89	3290	2790	4250	3060	3120	1370	279	177	122	70	56
22	287	6790	2260	3170	3140	2420	1200	279	169	116	70	55
23	501	5830	1870	2610	2760	2000	1060	263	164	112	70	54
24	363	3530	1590	4830	2310	1820	950	250	161	110	69	53
25	275	2480	1390	12400	1790	1640	858	241	155	109	67	53
26	225	1990	1230	6710	1460	1470	808	233	149	107	67	52
27	214	1620	1120	4130	1230	1320	758	240	147	105	67	51
28	214	3840	1150	2830	1070	1200	688	333	209	103	66	51
29	195	6150	1040	2130	---	1110	634	594	734	101	64	53
30	233	5750	965	1770	---	1020	593	482	444	99	63	65
31	948	---	965	2340	---	942	---	392	---	96	63	---
TOTAL	5206	75345	124090	105400	60590	61891	46505	11553	7143	4841	2407	1746
MEAN	167.9	2512	4003	3400	2164	1996	1550	372.7	238.1	156.2	77.65	58.20
MAX	948	12100	10800	12400	4200	6300	5930	594	734	340	98	69
MIN	60	201	965	1000	1070	580	593	233	147	96	63	51
AC-FT	10330	149400	246100	209100	120200	122800	92240	22920	14170	9600	4770	3460
CFSM	1.04	15.6	24.9	21.1	13.4	12.4	9.63	2.31	1.48	0.97	0.48	0.36
IN.	1.20	17.41	28.67	24.35	14.00	14.30	10.75	2.67	1.65	1.12	0.56	0.40

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1915 - 2002, BY WATER YEAR (WY)

	1915	1898	2692	2509	2232	1762	1175	621.0	339.9	167.6	104.6	152.6
MEAN	563.9	1898	2692	2509	2232	1762	1175	621.0	339.9	167.6	104.6	152.6
MAX	2249	4266	7988	5776	5166	3637	2622	1391	876	514	240	780
(WY)	1998	1996	1934	1953	1999	1956	1991	1933	1933	1983	1968	1959
MIN	43.5	87.2	378	344	634	406	426	202	131	76.5	44.3	40.1
(WY)	1988	1937	1977	1977	1993	1992	1939	1939	1992	1992	1967	1967

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1915 - 2002
ANNUAL TOTAL	337337	506717	
ANNUAL MEAN	924.2	1388	1181
HIGHEST ANNUAL MEAN			1811
LOWEST ANNUAL MEAN			495
HIGHEST DAILY MEAN	12100	12400	28000
LOWEST DAILY MEAN	60	51	34
ANNUAL SEVEN-DAY MINIMUM	63	52	35
ANNUAL RUNOFF (AC-FT)	669100	1005000	855400
ANNUAL RUNOFF (CFSM)	5.74	8.62	7.33
ANNUAL RUNOFF (INCHES)	77.94	117.08	99.65
10 PERCENT EXCEEDS	1960	3610	2920
50 PERCENT EXCEEDS	477	464	571
90 PERCENT EXCEEDS	83	65	87

TRASK RIVER BASIN

14302480 TRASK RIVER ABOVE CEDAR CREEK, NEAR TILLAMOOK, OR

LOCATION.--Lat 45°26'47", long 123°42'33", in NW 1/4 SE 1/4 sec.30, T.1 S., R.8 W., Tillamook County, Hydrologic Unit 17100203, on right bank 0.1 mi upstream from Cedar Creek, 6.8 mi east of Tillamook, and at mile 10.95.

DRAINAGE AREA.--156 mi<sup>2</sup>, at Long Prairie Road bridge, 4.0 mi downstream, where all discharge measurements are made.

PERIOD OF RECORD.--April 1996 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 70 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records fair. No regulation. Water diverted from the J.W. Barney Reservoir (capacity 20,000 acre-ft) on the Middle Fork of the North Fork of the Trask River to the Tualatin River by the City of Hillsboro and Oregon Department of Fish and Wildlife.

AVERAGE DISCHARGE.--6 years (water years 1997-2002), 1,093 ft<sup>3</sup>/s, 95.17 in/yr, 791,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,500 ft<sup>3</sup>/s Nov. 25, 1999, gage height, 21.77 ft; minimum discharge, 56 ft<sup>3</sup>/s Sept. 24, 26, 27, 2002.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 8, 1996 reached a stage of 23.2 ft, from floodmark; discharge, 25,800 ft<sup>3</sup>/s, from slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 9,300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 17	0030	10,200	15.50	Jan. 25	0930	*12,000	*16.54
Minimum discharge, 56 ft <sup>3</sup> /s Sept. 24, 26-28.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	70	456	7540	894	1990	978	933	580	297	258	101	71
2	69	401	5650	917	1810	922	877	556	278	223	99	70
3	68	345	3820	923	1990	869	828	536	267	205	97	69
4	68	305	3060	904	1950	822	791	507	258	196	105	68
5	66	298	2970	911	1860	803	769	544	265	188	106	68
6	67	261	3810	1660	2050	889	763	575	251	177	104	68
7	68	233	4170	5570	2970	817	738	525	239	170	101	69
8	76	209	3190	6000	3600	775	690	488	235	173	95	71
9	75	193	2580	3770	3390	762	781	463	238	165	92	69
10	104	179	2390	2670	2780	1280	1500	444	220	153	90	66
11	176	169	2540	2030	2380	3750	1480	425	211	147	88	65
12	143	183	2650	2170	2010	5010	1420	408	202	143	86	66
13	176	473	4730	1960	1730	3910	1620	402	190	139	83	66
14	175	5920	7170	1710	1510	3360	3470	409	184	136	79	64
15	143	3250	4740	1490	1350	2730	2800	379	184	134	79	65
16	113	2190	6730	1360	1270	2270	2570	362	182	131	79	71
17	102	1530	7870	1270	1180	1910	2270	357	196	129	79	97
18	94	1170	4950	1240	1150	1770	1900	337	265	128	78	80
19	87	1100	3940	1590	1620	4440	1610	329	225	128	78	71
20	84	1360	3200	3360	1610	4270	1390	335	192	128	79	67
21	108	1830	2520	4730	1920	3150	1220	314	180	122	79	64
22	351	4760	2040	3660	2030	2460	1090	321	175	117	79	62
23	544	4800	1670	3010	2150	2050	977	298	173	114	78	60
24	355	3030	1430	4060	1920	1860	892	284	170	115	76	59
25	264	2150	1250	9880	1610	1660	821	274	161	114	74	58
26	211	1710	1120	6020	1390	1490	793	264	154	114	75	58
27	195	1410	1040	3960	1230	1370	766	273	153	113	75	58
28	189	2650	1040	2870	1110	1270	694	346	205	109	73	58
29	166	4240	929	2220	---	1170	650	440	528	107	70	60
30	203	5000	873	1850	---	1080	610	362	310	104	70	88
31	507	---	887	2020	---	998	---	321	---	103	72	---
TOTAL	5117	51805	102499	86679	53560	60895	37713	12458	6788	4483	2619	2026
MEAN	165.1	1727	3306	2796	1913	1964	1257	401.9	226.3	144.6	84.48	67.53
MAX	544	5920	7870	9880	3600	5010	3470	580	528	258	106	97
MIN	66	169	873	894	1110	762	610	264	153	103	70	58
AC-FT	10150	102800	203300	171900	106200	120800	74800	24710	13460	8890	5190	4020
CFSM	1.06	11.1	21.2	17.9	12.3	12.6	8.06	2.58	1.45	0.93	0.54	0.43
IN.	1.22	12.35	24.44	20.67	12.77	14.52	8.99	2.97	1.62	1.07	0.62	0.48

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1997 - 2002, BY WATER YEAR (WY)

	1997	1998	1999	2000	2001	2002
MEAN	502.1	1715	2790	2251	1975	1614
MAX	1688	2370	4157	2893	4345	2538
(WY)	1998	2000	1997	1998	1999	2002
MIN	127	336	849	570	650	673
(WY)	2000	2001	2001	2001	2001	2000

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1997 - 2002
ANNUAL TOTAL	285552	426642	
ANNUAL MEAN	782.3	1169	1093
HIGHEST ANNUAL MEAN			1449
LOWEST ANNUAL MEAN			461
HIGHEST DAILY MEAN	7870	Dec 17	9880
LOWEST DAILY MEAN	66	Oct 5	58
ANNUAL SEVEN-DAY MINIMUM	68	Oct 1	59
ANNUAL RUNOFF (AC-FT)	566400	846200	791600
ANNUAL RUNOFF (CFSM)	5.01	7.49	7.00
ANNUAL RUNOFF (INCHES)	68.09	101.74	95.17
10 PERCENT EXCEEDS	1470	3290	2820
50 PERCENT EXCEEDS	498	444	544
90 PERCENT EXCEEDS	85	72	92



14302800 MCGUIRE LAKE NEAR FAIRDALE, OR

LOCATION.--Lat 45°18'30", long 123°24'30", in NW 1/4 SE 1/4 sec.15, T.3 S., R.6 W., Yamhill County, Hydrologic Unit 17100203, on control tower in reservoir on Nestucca River, 0.3 mi upstream from Walker Creek, and 5.0 mi southwest of Fairdale.

DRAINAGE AREA.--2.85 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929.

REMARKS.--Reservoir is formed by earthfill dam with ungated spillway. Capacity of reservoir is 3,840 acre-ft between elevations 1,810.0 ft and 1,865.5 ft. Dead storage negligible. Under normal operation, reservoir is filled in the spring (April or May) and drained when fall rains start. There is no planned storage during winter months; however, during periods of heavy runoff, inflow may be greater than capacity of outlet tunnel and there may be temporary storage. Water is used during summer months for municipal supply of city of McMinnville.

COOPERATION.--Elevation and capacity table furnished by city of McMinnville Water and Light Department. Elevations based on once-daily staff gage readings. Readings are taken on an average of 13 per month.

EXTREMES FOR PERIOD OF RECORD.--Maximum observed contents, 3,980 acre-ft Dec. 15, 1999, elevation, 1,866.4 ft; no contents most of time during winter months.

EXTREMES FOR CURRENT YEAR.--Maximum observed contents, 2,510 acre-ft several days in April, May and June, elevation, 1,855.0 ft; minimum contents observed, zero acre-ft Dec. 28, 31, elevation, 1,805.0 ft.

MONTHEND ELEVATION AND CONTENTS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	1,841.3	1,290	
Oct. 31.....	1,810.5	10	-1,280
Nov. 30.....	1,823.1	328	+318
Dec. 31.....	1,810.0	0	-328
CAL YR 2001.....	-	-	-570
Jan. 31.....	1,810.0	0	0
Feb. 28.....	1,833.0	760	+760
Mar. 31.....	1,853.0	2,310	+1,550
Apr. 30.....	1,854.7	2,480	+170
May 31.....	1,855.0	2,510	+30
June 30.....	1,854.9	2,500	-10
July 31.....	1,850.9	2,100	-400
Aug. 31.....	1,842.0	1,340	-760
Sept. 30.....	1,833.5	790	-550
WTR YR 2002.....	-	-	-500

## NESTUCCA RIVER BASIN

14302900 NESTUCCA RIVER NEAR FAIRDALE, OR

LOCATION.--Lat 45°18'40", long 123°25'05", in SW 1/4 NW 1/4 sec.15, T.3 S., R.6 W., Yamhill County, Hydrologic Unit 17100203, on right bank 100 ft upstream from former Meadow Lake, 0.4 mi downstream from Walker Creek, 5.3 mi southwest of Fairdale, and at mile 49.3.

DRAINAGE AREA.--6.18 mi<sup>2</sup>.

PERIOD OF RECORD.--June 1960 to current year.

REVISED RECORDS.--WDR OR-97-1: 1994-95 (adjusted discharge), WDR OR-00-1: 1999 (adjusted discharge).

GAGE.--Water-stage recorder. Datum of gage is 1,778.99 ft above NGVD of 1929 (levels by city of McMinnville).

REMARKS.--No estimated daily discharges. Records good. Flow regulated since March 1969 by McGuire Lake about 1 mi upstream from gage (station 14302800). During winter months lake is empty except when inflow exceeds capacity of outlet tunnel. Trans-basin diversion upstream from station to Haskins Creek Basin (see station 14196001). About 1,879 acre-ft diverted during the 2000 water year, primarily during summer and fall.

AVERAGE DISCHARGE.--42 years (water years 1961-2002), 31.7 ft<sup>3</sup>/s, 69.66 in/yr, 22,970 acre-ft/yr, adjusted for storage and diversion.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 876 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 10.43 ft; minimum discharge, 0.16 ft<sup>3</sup>/s Sept. 13, 14, 2002.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 430 ft<sup>3</sup>/s Jan. 7, gage height, 6.54 ft; minimum discharge, 0.16 ft<sup>3</sup>/s Sept. 13, 14.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.4	10	280	33	72	14	11	7.6	11	2.0	0.64	0.39
2	2.7	4.0	190	31	47	12	9.8	9.0	11	1.7	0.69	0.38
3	2.7	3.3	128	35	55	11	9.0	8.4	6.1	1.5	0.70	0.37
4	2.7	3.0	110	31	47	9.9	8.7	8.8	5.9	1.5	0.81	0.37
5	2.7	3.6	99	38	48	9.8	9.0	11	5.6	1.5	0.80	0.41
6	2.7	3.3	139	118	64	16	9.2	13	5.6	1.4	0.84	0.42
7	2.6	2.4	141	296	96	12	8.4	15	4.7	1.4	0.76	0.37
8	2.8	2.4	128	255	103	11	7.8	17	4.3	1.4	0.73	0.42
9	2.9	4.1	116	157	91	13	11	7.8	4.5	1.4	0.66	0.54
10	3.8	4.0	111	127	75	36	26	8.8	4.2	1.1	0.64	0.61
11	3.7	4.0	109	111	59	92	24	13	4.1	1.0	0.62	0.44
12	3.1	6.7	107	113	49	101	19	12	4.1	0.97	0.55	0.49
13	3.2	31	165	101	42	75	28	7.2	4.1	0.90	0.53	0.18
14	3.2	132	191	84	37	54	63	7.0	4.0	0.93	0.49	0.50
15	8.1	84	145	47	27	40	53	7.0	4.1	0.85	0.49	0.23
16	18	68	221	25	15	31	65	6.9	4.1	0.83	0.49	0.61
17	18	57	222	34	14	24	50	7.4	5.0	0.82	0.51	0.85
18	17	42	167	41	16	24	42	7.4	6.5	0.88	0.50	0.51
19	17	45	141	48	39	97	48	8.3	5.7	0.86	0.51	0.41
20	17	69	127	106	34	112	48	8.2	5.0	0.88	0.53	0.35
21	17	89	118	125	42	96	57	7.9	5.6	0.78	0.51	0.33
22	23	166	107	80	40	65	28	7.8	10	0.74	0.57	0.32
23	30	126	97	72	47	44	14	7.4	9.9	0.73	0.52	0.29
24	40	100	75	98	37	38	15	8.0	9.3	0.76	0.51	0.30
25	37	88	38	271	29	31	12	11	2.8	0.73	0.82	0.44
26	36	79	33	168	23	23	9.4	11	2.3	0.73	0.44	0.39
27	34	71	32	129	19	17	18	8.7	2.3	0.75	0.38	0.21
28	32	100	34	114	16	15	24	8.3	4.1	0.73	0.34	0.19
29	36	120	27	99	---	14	13	9.7	8.4	0.69	0.40	0.25
30	43	169	25	81	---	12	7.3	8.0	2.6	0.66	0.38	0.77
31	39	---	27	66	---	11	---	8.2	---	0.65	0.40	---
TOTAL	502.3	1686.8	3650	3134	1283	1160.7	747.6	286.8	166.9	31.77	17.76	12.34
MEAN	16.2	56.2	118	101	45.8	37.4	24.9	9.25	5.56	1.02	0.57	0.41
MAX	43	169	280	296	103	112	65	17	11	2.0	0.84	0.85
MIN	1.4	2.4	25	25	14	9.8	7.3	6.9	2.3	0.65	0.34	0.18
AC-FT	996	3350	7240	6220	2540	2300	1480	569	331	63	35	24
MEAN†	3.97	62.1	112	101	59.4	62.6	27.7	9.74	6.07	2.16	-1.74	1.16
CFSM†	0.64	10.1	18.2	16.4	9.61	10.1	4.49	1.58	0.98	0.35	-0.28	0.19
IN.†	0.74	11.22	20.98	18.88	10.01	11.68	5.01	1.82	1.10	0.40	-0.32	0.21
AC-FT†	244	3698	6912	6220	3300	3850	1650	599	361	133	-107	69

CAL YR 2001 TOTAL 7963.30 MEAN 21.8 MAX 280 MIN 0.71 AC-FT 15800 MEAN† 23.8 CFSM† 3.85 IN.† 52.32 AC-FT† 17240  
WTR YR 2002 TOTAL 12679.97 MEAN 34.7 MAX 296 MIN 0.18 AC-FT 25150 MEAN† 37.2 CFSM† 6.02 IN.† 81.73 AC-FT† 26900

† Adjusted for storage and diversion from McGuire Lake.

Note - Negative values shown for adjusted values during summer period are a result of evaporation exceeding inflows to McGuire Lake.

14303200 TUCCA CREEK NEAR BLAINE, OR

LOCATION.--Lat 45°19'28", long 123°32'43", in SE 1/4 NW 1/4 sec.9, T.3 S., R.7 W., Tillamook County, Hydrologic Unit 17100203, on right bank at road bridge, 80 ft upstream from confluence with Elk Creek, and 8 mi northeast of Blaine.

DRAINAGE AREA.--3.09 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1983 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,400 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair except for estimated daily discharges, which are poor.

AVERAGE DISCHARGE.--19 years (water years 1984-2002), 17.29 ft<sup>3</sup>/s, 76.04 in/yr, 12,530 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 680 ft<sup>3</sup>/s Feb. 6, 1996, gage height, 4.30 ft, from rating curve extended above 190 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; maximum gage height, 5.49 ft, Dec. 27, 1998; minimum discharge, 0.46 ft<sup>3</sup>/s Sept. 30, Oct. 1, 2, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharge greater than base discharge of 180 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 16	2200	*163	*3.95	No other peak greater than base discharge.			
Minimum discharge, 0.99 ft <sup>3</sup> /s Oct. 1-5.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.99	9.2	118	16	26	18	17	9.7	5.4	3.9	1.8	1.3
2	0.99	8.4	89	16	25	16	16	9.3	5.3	3.6	1.8	1.3
3	0.99	7.4	63	16	27	14	15	8.8	5.1	3.4	1.8	1.3
4	0.99	7.2	48	16	28	13	14	8.4	4.9	3.4	2.0	1.3
5	e1.0	7.2	40	16	29	13	13	9.3	4.9	3.2	1.9	1.3
6	e1.0	6.7	60	25	31	14	13	9.3	4.8	3.1	1.9	1.3
7	e1.0	6.3	78	61	41	12	12	8.5	4.7	3.0	1.8	1.3
8	e1.1	6.1	59	83	50	12	11	8.1	4.7	3.1	1.7	1.3
9	e1.1	5.7	46	62	49	12	13	7.8	4.6	3.0	1.7	1.2
10	e1.5	5.4	43	47	42	21	e27	7.4	4.3	2.8	1.7	1.2
11	e2.2	5.3	46	37	35	53	e27	7.3	4.2	2.7	1.6	1.2
12	e1.9	5.8	53	36	31	74	e30	7.0	4.0	2.6	1.5	1.1
13	e2.4	14	90	32	27	57	e36	7.1	3.8	2.6	1.5	1.1
14	e2.4	65	127	30	24	48	52	6.8	3.8	2.5	1.5	1.1
15	e2.0	51	90	28	21	41	48	6.6	3.8	2.4	1.5	1.1
16	e1.8	40	125	26	20	35	43	6.6	3.7	2.4	1.4	1.6
17	e1.6	33	134	24	18	30	39	6.5	4.4	2.4	1.4	2.2
18	e1.4	28	90	22	18	27	35	6.3	4.7	2.4	1.4	1.4
19	e1.4	27	65	24	26	59	30	6.1	3.9	2.4	1.4	1.3
20	e1.3	28	52	46	27	67	25	6.2	3.6	2.3	1.4	1.2
21	e1.6	33	42	73	30	53	22	6.0	3.4	2.3	1.4	1.1
22	e4.2	71	36	55	33	43	19	6.0	3.2	2.2	1.4	1.1
23	e6.3	83	31	44	37	37	17	5.6	3.2	2.1	1.4	1.1
24	4.4	60	27	57	34	34	15	5.5	3.2	2.1	1.4	1.1
25	3.3	46	24	126	30	32	14	5.4	3.0	2.1	1.4	1.1
26	2.8	38	22	85	26	29	13	5.1	2.9	2.1	1.4	1.1
27	3.0	33	20	56	23	27	12	5.4	2.9	2.1	1.3	1.1
28	2.8	54	19	41	20	25	11	6.5	4.5	2.0	1.3	1.1
29	2.6	79	18	33	---	23	11	7.0	7.0	2.0	1.3	1.3
30	3.7	88	17	28	---	20	10	6.0	4.4	1.9	1.3	2.3
31	11	---	16	27	---	19	---	5.7	---	1.9	1.3	---
TOTAL	74.76	951.7	1788	1288	828	978	660	217.3	126.3	80.0	47.6	38.5
MEAN	2.412	31.72	57.68	41.55	29.57	31.55	22.00	7.010	4.210	2.581	1.535	1.283
MAX	11	88	134	126	50	74	52	9.7	7.0	3.9	2.0	2.3
MIN	0.99	5.3	16	16	18	12	10	5.1	2.9	1.9	1.3	1.1
AC-FT	148	1890	3550	2550	1640	1940	1310	431	251	159	94	76
CFSM	0.78	10.3	18.7	13.4	9.57	10.2	7.12	2.27	1.36	0.84	0.50	0.42
IN.	0.90	11.46	21.53	15.51	9.97	11.77	7.95	2.62	1.52	0.96	0.57	0.46

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	5.943	31.79	37.17	33.75	34.22	24.23	17.71	10.50	6.618	3.081	1.754	1.880							
MAX	29.2	66.1	98.5	60.0	98.0	42.4	41.4	18.7	12.0	4.49	2.44	7.64							
(WY)	1998	1996	1997	1999	1999	1997	1996	1998	1990	1997	1997	1997							
MIN	0.95	1.76	15.9	9.03	10.3	6.59	8.66	4.02	2.40	1.65	1.11	0.91							
(WY)	1988	1994	1987	2001	1993	1992	2000	1989	1992	1992	1986	1987							

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1984 - 2002

ANNUAL TOTAL	4850.15	7078.16																	
ANNUAL MEAN	13.29	19.39																	
HIGHEST ANNUAL MEAN																			
LOWEST ANNUAL MEAN																			
HIGHEST DAILY MEAN	134	Dec 17					134	Dec 17											
LOWEST DAILY MEAN	0.99	Sep 24					0.99	Oct 1											
ANNUAL SEVEN-DAY MINIMUM	0.99	Sep 30					0.99	Oct 1											
ANNUAL RUNOFF (AC-FT)	9620						14040												
ANNUAL RUNOFF (CFSM)	4.30						6.28												
ANNUAL RUNOFF (INCHES)	58.39						85.21												
10 PERCENT EXCEEDS	32						52												
50 PERCENT EXCEEDS	7.6						7.4												
90 PERCENT EXCEEDS	1.3						1.3												

e Estimated

14305500 SILETZ RIVER AT SILETZ, OR

LOCATION.--Lat 44°42'55", long 123°53'10", in NW 1/4 SW 1/4 sec.11, T.10 S., R.10 W., Lincoln County, Hydrologic Unit 17100204, on right bank, 1.8 mi downstream from Baker Creek, 1.5 mi east of Siletz, and at mile 42.6.

DRAINAGE AREA.--202 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1905 to December 1908, January 1910 to November 1911, January 1912 to April 1912, December 1924 to current year. Monthly discharges, January to December 1909, published in WSP 1318.

REVISED RECORDS.--WSP 1935: 1943, 1947-49(M), 1953-58(M).

GAGE.--Water-stage recorder. Datum of gage is 102.32 ft above NGVD of 1929. Oct. 1, 1905, to Sept 30, 1938, nonrecording gage at various sites within 2.5 mi downstream at different datums.

REMARKS.--No estimated daily discharges. Records good. Slight regulation from logponds. Small diversions upstream from station for irrigation. Continuous water-quality records for the period February 1972 to September 1985 have been collected at this location.

AVERAGE DISCHARGE.--81 years (water years 1906-08, 1911, 1926-2002), 1,515 ft<sup>3</sup>/s, 101.90 in/yr, 1,097,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 53,800 ft<sup>3</sup>/s Nov. 26, 1999, gage height, 28.62 ft, from rating curve extended above 22,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 47 ft<sup>3</sup>/s Oct. 20, 21, 29, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 20, 1921, reached a stage of 31.6 ft, at site 2.5 mi downstream at different datum, from floodmark, discharge, 40,800 ft<sup>3</sup>/s, from rating curve extended above 17,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 14,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	2000	16,000	14.99	Jan. 8	0030	*18,200	*15.64
Dec. 13	2230	15,500	14.76	Jan. 25	1100	16,700	14.90

Minimum discharge, 62 ft<sup>3</sup>/s Sept. 28.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	80	1080	10000	1210	2780	1170	926	722	536	578	134	80
2	77	1090	8130	1410	2470	1060	875	684	482	492	131	80
3	76	875	5410	1410	2620	969	830	655	444	438	129	78
4	75	708	4390	1360	2530	895	792	614	419	401	132	76
5	74	662	5370	1390	2400	862	780	610	410	374	137	76
6	72	556	5690	3580	2540	1380	830	658	387	342	133	76
7	72	489	5280	12500	3830	1270	802	589	359	318	128	76
8	77	441	3860	13300	4960	1170	749	548	352	308	123	78
9	80	404	3080	6800	4210	1100	952	519	341	293	118	77
10	88	373	2960	4340	3270	1930	2400	497	324	268	114	75
11	231	349	3160	3130	2640	6060	2620	479	308	254	111	73
12	140	368	3340	3040	2170	7760	2830	461	298	239	107	72
13	147	763	8300	2620	1850	5030	3030	447	281	229	104	71
14	136	9390	10900	2260	1610	3990	6960	446	272	216	99	69
15	136	4120	6330	1930	1430	3310	4550	420	268	211	97	69
16	117	2960	9190	1720	1310	2810	3740	401	260	203	96	76
17	107	2090	9570	1580	1200	2390	3440	409	317	196	98	132
18	100	1590	5730	1460	1160	2240	2880	384	569	193	96	129
19	95	1550	4190	1980	1990	5970	2410	369	403	192	95	96
20	93	1660	3250	5120	1900	4970	2050	393	336	192	95	86
21	92	2240	2570	6890	2430	3560	1760	369	306	192	95	78
22	358	9720	2110	5060	2400	2770	1540	397	290	185	95	73
23	954	8670	1760	4020	2810	2290	1360	367	282	180	94	70
24	452	4450	1500	4570	2480	2020	1220	342	271	173	93	68
25	338	3070	1310	13300	2010	1770	1100	326	259	167	91	67
26	279	2410	1160	8840	1700	1570	1040	312	247	162	90	65
27	246	1950	1060	5430	1470	1420	1010	310	239	156	89	64
28	239	4020	1190	3770	1300	1280	898	504	272	150	87	64
29	209	6280	1040	2890	---	1170	826	1020	1160	146	83	65
30	396	5630	967	2360	---	1070	770	771	727	141	79	79
31	1260	---	1130	2530	---	989	---	617	---	136	78	---
TOTAL	6896	79958	133927	131800	65470	76245	55970	15640	11419	7725	3251	2338
MEAN	222	2665	4320	4252	2338	2460	1866	505	381	249	105	77.9
MAX	1260	9720	10900	13300	4960	7760	6960	1020	1160	578	137	132
MIN	72	349	967	1210	1160	862	749	310	239	136	78	64
AC-FT	13680	158600	265600	261400	129900	151200	111000	31020	22650	15320	6450	4640
CFSM	1.10	13.2	21.4	21.0	11.6	12.2	9.24	2.50	1.88	1.23	0.52	0.39
IN.	1.27	14.72	24.66	24.27	12.06	14.04	10.31	2.88	2.10	1.42	0.60	0.43

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1906 - 2002, BY WATER YEAR (WY)

	MEAN	MAX	(WY)	MIN	(WY)	MEAN	MAX	(WY)	MIN	(WY)	MEAN	MAX	(WY)	MIN	(WY)	MEAN	MAX	(WY)	MIN	(WY)																																	
1906	711	3412	1927	50.1	1988	2446	6207	1907	72.4	1930	3364	7828	1934	401	1977	3256	7664	1953	518	1977	2946	6055	1949	752	1973	2216	4560	1937	387	1926	1491	2579	1906	144	1928	498	602	1910	99.7	1992	224	602	1910	131	419	1968	64.5	1992	195	1138	1959	58.6	1965

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1906 - 2002
ANNUAL TOTAL	394633	590639	
ANNUAL MEAN	1081	1618	1515
HIGHEST ANNUAL MEAN			2337
LOWEST ANNUAL MEAN			660
HIGHEST DAILY MEAN	10900	Dec 14	36700
LOWEST DAILY MEAN	72	Oct 6	47
ANNUAL SEVEN-DAY MINIMUM	75	Oct 2	48
ANNUAL RUNOFF (AC-FT)	782800	1172000	1097000
ANNUAL RUNOFF (CFSM)	5.35	8.01	7.50
ANNUAL RUNOFF (INCHES)	72.67	108.77	101.90
10 PERCENT EXCEEDS	2160	4410	3790
50 PERCENT EXCEEDS	647	658	740
90 PERCENT EXCEEDS	98	80	104

14306340 EAST FORK LOBSTER CREEK NEAR ALSEA, OR

LOCATION.--Lat 44°14'53", long 123°38'07", in NE 1/4 SE 1/4 sec.22, T.15 S., R.8 W., Benton County, Hydrologic Unit 17100205, on left bank 500 ft upstream from Lobster Creek, and 9 mi south of Alsea.

DRAINAGE AREA.--5.70 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1983 to current year.

REVISED RECORDS.--WDR OR-87-2: 1984(M,P), 1985(M,P), 1986(M,P).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 680 ft above NGVD of 1929, from topographic map.

REMARKS.--Records poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--19 years (water years 1984-2002), 25.1 ft<sup>3</sup>/s, 59.78 in/yr, 18,170 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,360 ft<sup>3</sup>/s Feb. 7, 1996, gage height, 5.37 ft, from rating curve extended above 900 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 0.17 ft<sup>3</sup>/s Sept. 27, 28, Oct. 2, 1987.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 300 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Nov. 22	1215	320	3.73	Dec. 13	1915	342	3.77
Nov. 28	1145	345	3.79	Jan. 25	1000	*384	*3.87

Minimum discharge, 0.41 ft<sup>3</sup>/s Sept. 13, 14, 16, 24-29.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1.2	e8.3	237	26	64	16	15	9.1	3.7	2.0	0.92	0.57
2	1.1	e5.4	163	27	50	14	14	8.6	3.5	1.8	0.90	0.57
3	1.1	e4.5	95	24	52	13	13	8.2	3.4	1.7	0.88	0.54
4	e1.1	e3.8	89	21	48	12	12	7.8	3.2	1.7	0.90	0.52
5	e1.1	e3.4	153	21	40	13	11	7.8	3.2	1.6	0.94	0.53
6	e1.1	e3.1	140	102	40	67	11	7.6	3.0	1.5	0.96	0.52
7	e1.1	e2.9	126	166	99	50	10	7.0	2.9	1.5	0.93	0.51
8	e1.1	e2.7	78	157	133	33	9.7	6.6	3.0	1.5	0.84	0.53
9	e1.1	e2.6	53	99	86	30	15	6.4	3.0	1.4	0.81	0.51
10	e1.3	e2.5	51	65	60	60	27	6.3	2.8	1.3	0.80	0.47
11	e2.0	e2.5	63	45	46	140	25	6.0	2.6	1.2	0.78	0.47
12	e1.9	e2.7	62	40	37	183	29	5.7	2.4	1.2	0.74	0.47
13	e1.5	e30	166	35	31	137	31	5.6	2.3	1.2	0.73	0.44
14	e1.4	e60	216	31	27	97	94	5.3	2.3	1.2	0.69	0.44
15	e1.3	e21	118	27	24	68	56	5.0	2.2	1.2	0.66	0.44
16	e1.3	e19	147	24	22	55	47	4.7	2.2	1.2	0.67	0.44
17	e1.3	e13	168	22	21	46	46	4.8	2.4	1.1	0.69	0.77
18	e1.3	8.9	111	20	20	39	40	4.5	3.0	1.1	0.65	0.82
19	e1.3	10	93	26	21	63	33	4.5	2.5	1.2	0.65	0.60
20	e1.3	16	70	96	21	59	28	4.6	2.2	1.2	0.66	0.55
21	e1.3	34	52	149	23	50	24	4.3	2.1	1.1	0.67	0.52
22	e2.2	219	40	94	26	42	20	4.2	2.0	1.0	0.66	0.49
23	e8.0	116	32	77	32	36	17	4.1	2.0	1.0	0.66	0.44
24	2.7	64	26	92	31	33	15	3.8	2.0	1.0	0.64	0.42
25	2.0	45	22	284	27	30	14	3.7	1.9	1.0	0.64	0.41
26	1.8	33	19	171	23	26	13	3.5	1.7	1.0	0.67	0.41
27	1.9	24	18	101	20	24	13	3.6	1.7	1.0	0.65	0.41
28	2.3	151	22	66	18	21	12	4.3	1.9	0.98	0.60	0.41
29	2.1	210	19	49	---	19	11	6.3	3.7	0.98	0.60	0.42
30	12	178	18	38	---	17	9.7	4.8	2.3	0.97	0.60	0.66
31	17	---	24	45	---	16	---	4.0	---	0.94	0.57	---
TOTAL	79.2	1296.3	2691	2240	1142	1509	715.4	172.7	77.1	38.77	22.76	15.30
MEAN	2.55	43.2	86.8	72.3	40.8	48.7	23.8	5.57	2.57	1.25	0.73	0.51
MAX	17	219	237	284	133	183	94	9.1	3.7	2.0	0.96	0.82
MIN	1.1	2.5	18	20	18	12	9.7	3.5	1.7	0.94	0.57	0.41
AC-FT	157	2570	5340	4440	2270	2990	1420	343	153	77	45	30
CFSM	0.45	7.58	15.2	12.7	7.16	8.54	4.18	0.98	0.45	0.22	0.13	0.09
IN.	0.52	8.46	17.56	14.62	7.45	9.85	4.67	1.13	0.50	0.25	0.15	0.10

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	5.17	39.8	54.2	56.6	56.8	37.9	24.7	14.6	8.06	2.77	1.33	1.38							
MAX	32.4	115	137	116	164	77.1	49.5	28.2	21.3	10.4	2.42	4.51							
(WY)	1998	1985	1997	1999	1999	1997	1993	1985	1983	1983	1983	1997							
MIN	0.39	1.41	17.6	8.87	13.4	11.5	7.26	5.57	1.83	1.25	0.52	0.51							
(WY)	1988	1994	1990	2001	2001	1992	2000	2002	1992	2002	1992	2002							

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1984 - 2002
ANNUAL TOTAL	6164.0	9999.53	
ANNUAL MEAN	16.9	27.4	25.1
HIGHEST ANNUAL MEAN			46.7
LOWEST ANNUAL MEAN			8.28
HIGHEST DAILY MEAN	237	284	817
LOWEST DAILY MEAN	1.0	0.41	0.25
ANNUAL SEVEN-DAY MINIMUM	1.0	0.42	0.29
ANNUAL RUNOFF (AC-FT)	12230	19830	18170
ANNUAL RUNOFF (CFSM)	2.96	4.81	4.40
ANNUAL RUNOFF (INCHES)	40.23	65.26	59.78
10 PERCENT EXCEEDS	32	90	62
50 PERCENT EXCEEDS	6.0	6.3	9.7
90 PERCENT EXCEEDS	1.2	0.66	1.0

e Estimated

ALSEA RIVER BASIN

14306500 ALSEA RIVER NEAR TIDEWATER, OR

LOCATION.--Lat 44°23'10", long 123°49'50", in NW 1/4 NW 1/4 sec.6, T.14 S., R.9 W., Lincoln County, Hydrologic Unit 17100205, on right bank 0.9 mi downstream from Grass Creek, 2.5 mi upstream from Scott Creek, 3.8 mi southeast of Tidewater, and at mile 21.0.

DRAINAGE AREA.--334 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1939 to current year.

GAGE.--Water-stage recorder. Datum of gage is 48.16 ft above NGVD of 1929. Prior to Nov. 16, 1939, nonrecording gage at present site and datum.

REMARKS.--No estimated daily discharges. Records good. No regulation. Diversion for irrigation upstream from station. Continuous water-quality records for the period October 1979 to September 1981 have been collected at this location.

AVERAGE DISCHARGE.--63 years (water years 1940-2002), 1,476 ft<sup>3</sup>/s, 60.03 in/yr, 1,069,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 41,800 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 27.44 ft; minimum discharge, 45 ft<sup>3</sup>/s Sept. 26, 27, 1965.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood on or about Feb. 3, 1890, reached a stage of 29.5 ft, from floodmark (discharge not determined).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 13,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0300	*14,400	*15.44	Jan. 25	1800	13,900	15.13
Minimum discharge, 59 ft <sup>3</sup> /s Oct. 6, 7.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	68	598	11000	1810	4010	978	1070	733	369	247	109	73
2	64	409	9570	2020	3430	926	1010	700	352	222	107	72
3	62	310	6150	1950	3200	878	953	678	336	205	105	71
4	62	246	5010	1800	2950	837	904	644	326	196	105	69
5	61	213	7590	1730	2690	843	877	634	321	192	113	68
6	60	191	6770	4140	2530	2290	852	656	313	188	118	68
7	60	172	6370	10500	3770	2650	806	618	299	184	116	70
8	63	157	4670	10600	7050	2010	768	579	298	181	109	70
9	65	147	3640	6820	5250	1750	810	556	302	178	104	70
10	74	140	3380	4750	4000	2630	1140	538	292	171	101	70
11	133	134	3590	3620	3240	5050	1130	519	277	164	98	68
12	122	146	3450	3190	2730	8710	1130	500	269	159	96	67
13	102	207	5290	2780	2370	6450	1130	483	255	156	92	66
14	90	1800	12000	2490	2080	5400	2900	478	245	152	88	65
15	85	1140	7440	2200	1860	4300	2390	460	241	151	84	64
16	80	941	6960	1980	1700	3720	2070	445	239	148	82	67
17	76	731	9060	1860	1550	3380	2100	447	249	145	82	96
18	73	569	6680	1710	1440	3010	1950	431	319	144	81	152
19	71	535	5610	1930	1470	4110	1730	419	288	144	81	124
20	69	722	4580	4280	1360	3910	1530	452	250	145	83	96
21	69	1030	3680	7730	1360	3230	1380	454	234	141	89	84
22	167	7220	3100	6030	1350	2750	1250	428	227	135	89	76
23	573	5860	2610	5110	1460	2400	1140	409	227	129	85	72
24	280	2970	2230	4420	1400	2140	1060	390	223	127	83	69
25	179	2250	1970	10200	1290	1900	988	376	213	126	82	68
26	140	1880	1760	10200	1190	1710	941	365	205	126	82	67
27	121	1570	1620	6780	1110	1550	959	361	197	125	83	66
28	116	3810	1780	4980	1040	1420	877	429	205	122	81	65
29	116	8550	1600	3930	---	1310	811	521	383	118	78	65
30	219	6030	1490	3250	---	1210	769	468	316	115	73	86
31	677	---	1730	3070	---	1140	---	402	---	111	72	---
TOTAL	4197	50678	152380	137860	68880	84592	37425	15573	8270	4847	2851	2284
MEAN	135	1689	4915	4447	2460	2729	1248	502	276	156	92.0	76.1
MAX	677	8550	12000	10600	7050	8710	2900	733	383	247	118	152
MIN	60	134	1490	1710	1040	837	768	361	197	111	72	64
AC-FT	8320	100500	302200	273400	136600	167800	74230	30890	16400	9610	5650	4530
CFSM	0.41	5.06	14.7	13.3	7.37	8.17	3.74	1.50	0.83	0.47	0.28	0.23
IN.	0.47	5.64	16.97	15.35	7.67	9.42	4.17	1.73	0.92	0.54	0.32	0.25

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1940 - 2002, BY WATER YEAR (WY)

	367	1757	3319	3534	3257	2441	1475	800	409	192	118	128
MEAN	367	1757	3319	3534	3257	2441	1475	800	409	192	118	128
MAX	2521	6058	7419	7874	6909	5144	3203	1848	1053	363	234	452
(WY)	1948	1974	1965	1953	1996	1961	1963	1963	1993	1983	1968	1941
MIN	62.0	108	182	211	607	604	550	331	178	116	65.6	60.1
(WY)	1988	1994	1977	1977	1977	1941	1977	1966	1966	1992	1966	1965

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1940 - 2002

ANNUAL TOTAL	336924	569837	
ANNUAL MEAN	923	1561	1476
HIGHEST ANNUAL MEAN			2541
LOWEST ANNUAL MEAN			431
HIGHEST DAILY MEAN	12000	Dec 14	12000
LOWEST DAILY MEAN	60	Oct 6	60
ANNUAL SEVEN-DAY MINIMUM	62	Oct 2	62
ANNUAL RUNOFF (AC-FT)	668300	1130000	1069000
ANNUAL RUNOFF (CFSM)	2.76	4.67	4.42
ANNUAL RUNOFF (INCHES)	37.53	63.47	60.03
10 PERCENT EXCEEDS	1770	4620	3810
50 PERCENT EXCEEDS	517	519	640
90 PERCENT EXCEEDS	76	73	98

14307620 SIUSLAW RIVER NEAR MAPLETON, OR

LOCATION.--Lat 44°03'45", long 123°52'55", in SW 1/4 NW 1/4 sec.27, T.17 S., R.10 W., Lane County, Hydrologic Unit 17100206, on right bank 250 ft above Shoemaker Creek, 2.5 mi northwest of Mapleton, and at mile 23.7.

DRAINAGE AREA.--588 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1967 to September 1994, October 2001 to September 2002 (discharge), February 1998 to September 2001 (gage height only).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 41 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records poor. No regulation or diversions upstream from station. Water-quality records are available in the Environmental Quality Section (EQS) of the Oregon District Office.

AVERAGE DISCHARGE.--28 years (water years 1968-1994, 2002), 2,005 ft<sup>3</sup>/s, 46.32 in/yr, 1,452,000 ac-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum 49,400 ft<sup>3</sup>/s Jan. 21, 1972, gage height, 28.45 ft; minimum, 45 ft<sup>3</sup>/s Aug. 18, 19, 1997.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1964 reached a stage of about 28 ft, from information by local residents (discharge not determined). Flood of Feb. 7, 1996 reached a stage of 30.21 ft, present datum, from floodmark, discharge, 54,800 ft<sup>3</sup>/s, from rating curve extended above 40,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 15,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0230	*20,300	17.20	Jan. 25	2030	20,100	17.12

Minimum discharge, 60 ft<sup>3</sup>/s Sept. 5, 6.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	120	897	11300	2900	6700	1400	1480	1110	556	381	127	72
2	117	742	10700	3030	5740	1340	1410	1070	520	341	121	70
3	115	602	7320	2940	4760	1280	1350	1030	489	310	116	67
4	112	488	5620	2690	4030	1230	1290	979	467	288	118	66
5	110	420	8390	2510	3590	1240	1270	958	456	274	121	62
6	109	364	8860	5680	3310	2780	1260	954	442	263	127	62
7	109	325	8290	12600	4600	3630	1200	914	425	252	128	66
8	113	296	5940	13100	9600	2980	1150	866	416	245	123	69
9	113	276	4500	9320	7930	2510	1270	828	418	236	116	68
10	125	263	3890	6330	5890	2850	1830	805	411	227	113	70
11	190	252	3980	4780	4630	5960	1930	783	395	217	112	77
12	187	263	3950	4100	3840	11300	2030	757	380	209	104	77
13	161	385	7690	3500	3340	8650	2140	728	362	203	101	70
14	151	1950	17100	3120	2950	7580	5840	712	334	196	98	68
15	144	1450	10900	2790	2630	5900	4440	689	347	192	93	68
16	140	1500	9050	2530	2420	4890	3450	668	344	187	90	74
17	138	1280	10900	2380	2230	4500	3290	662	370	184	88	142
18	134	1030	8740	2210	2090	4180	3040	639	525	182	86	221
19	130	910	7830	2350	2040	4340	2680	625	451	182	83	172
20	127	928	6840	5350	1900	4070	2380	665	396	183	85	141
21	125	1190	5370	13100	1900	3570	2140	671	365	176	91	126
22	348	8270	4360	10400	1800	3120	1930	665	348	166	91	118
23	829	7180	3630	8280	1840	2820	1750	624	341	161	90	112
24	468	3950	3060	6740	1820	2580	1600	579	329	158	91	108
25	341	2980	2680	14100	1730	2360	1490	554	309	156	90	99
26	289	2810	2400	16800	1630	2160	1400	532	294	153	90	91
27	259	2650	2220	11500	1540	2000	1380	531	282	151	92	86
28	238	4900	2330	7990	1470	1860	1310	604	293	147	88	83
29	223	10100	2210	6030	---	1740	1220	801	544	140	83	85
30	445	7640	2120	4870	---	1640	1160	709	458	136	76	146
31	950	---	2550	4460	---	1550	---	613	---	130	73	---
TOTAL	7160	66291	194720	198480	97950	108010	60110	23325	12067	6426	3105	2836
MEAN	231	2210	6281	6403	3498	3484	2004	752	402	207	100	94.5
MAX	950	10100	17100	16800	9600	11300	5840	1110	556	381	128	221
MIN	109	252	2120	2210	1470	1230	1150	531	282	130	73	62
AC-FT	14200	131500	386200	393700	194300	214200	119200	46270	23930	12750	6160	5630
CFSM	0.39	3.76	10.7	10.9	5.95	5.93	3.41	1.28	0.68	0.35	0.17	0.16
IN.	0.45	4.19	12.32	12.56	6.20	6.83	3.80	1.48	0.76	0.41	0.20	0.18

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2002, BY WATER YEAR (WY)

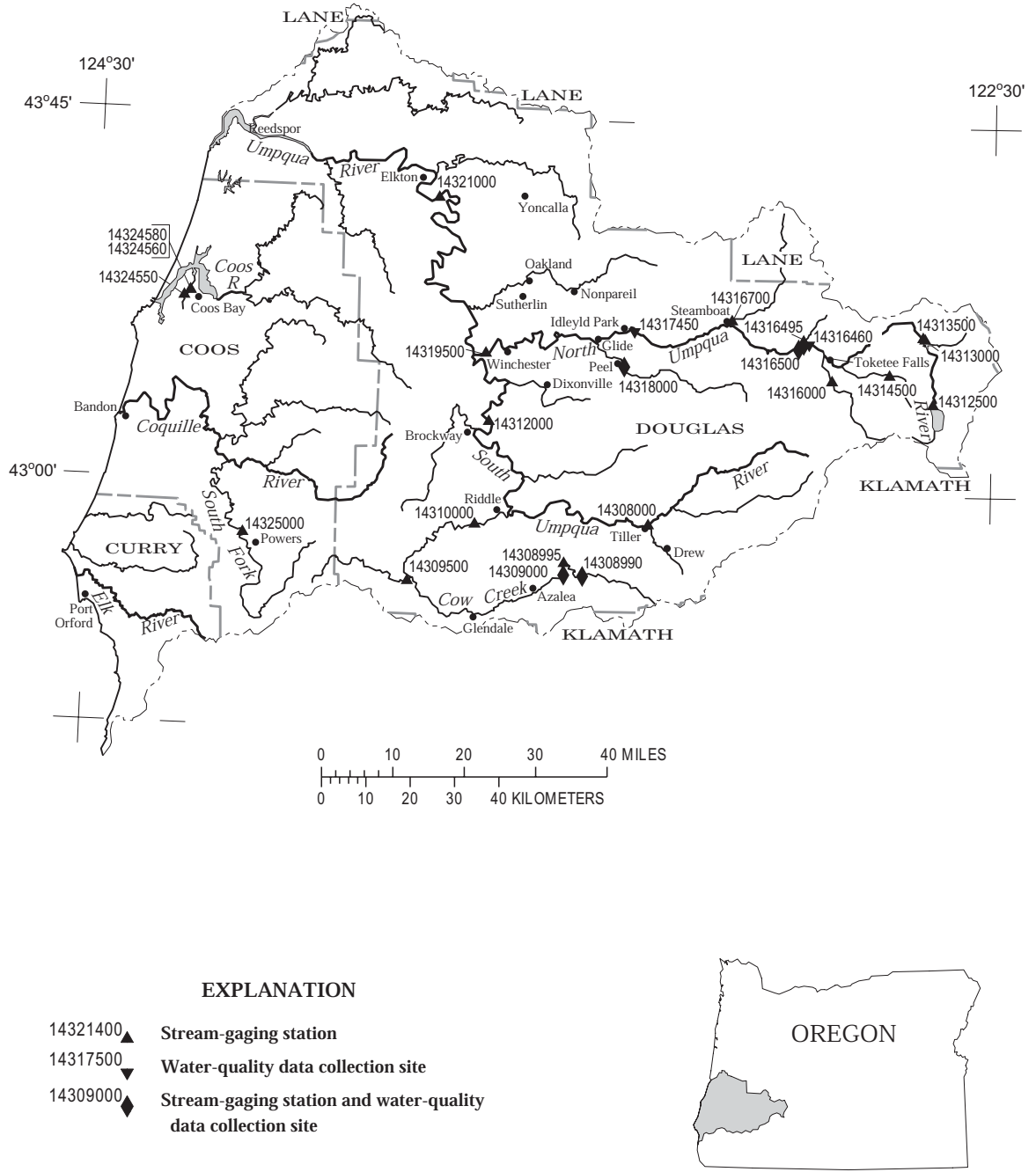
	374	2245	4700	4966	4257	3384	2161	1061	596	269	157	171
MEAN	374	2245	4700	4966	4257	3384	2161	1061	596	269	157	171
MAX	1219	7819	9787	10060	9084	6819	4445	2102	1466	628	321	356
(WY)	1969	1974	1982	1970	1986	1974	1982	1984	1993	1983	1968	1971
MIN	64.3	173	261	300	876	1119	686	541	280	127	77.9	86.8
(WY)	1988	1994	1977	1977	1977	1992	1977	1985	1992	1977	1973	1987

SUMMARY STATISTICS

FOR 2002 WATER YEAR

WATER YEARS 1968 - 2002

ANNUAL TOTAL	780480	
ANNUAL MEAN	2138	2005
HIGHEST ANNUAL MEAN		3711
LOWEST ANNUAL MEAN		576
HIGHEST DAILY MEAN	17100	45900
LOWEST DAILY MEAN	62	45
ANNUAL SEVEN-DAY MINIMUM	66	47
ANNUAL RUNOFF (AC-FT)	1548000	1452000
ANNUAL RUNOFF (CFSM)	3.64	3.41
ANNUAL RUNOFF (INCHES)	49.38	46.32
10 PERCENT EXCEEDS	6150	5250
50 PERCENT EXCEEDS	783	874
90 PERCENT EXCEEDS	93	128



**Figure 29.** Location of surface-water and water-quality stations in the Umpqua, Coos and Coquille River Basins.



PACIFIC OCEAN

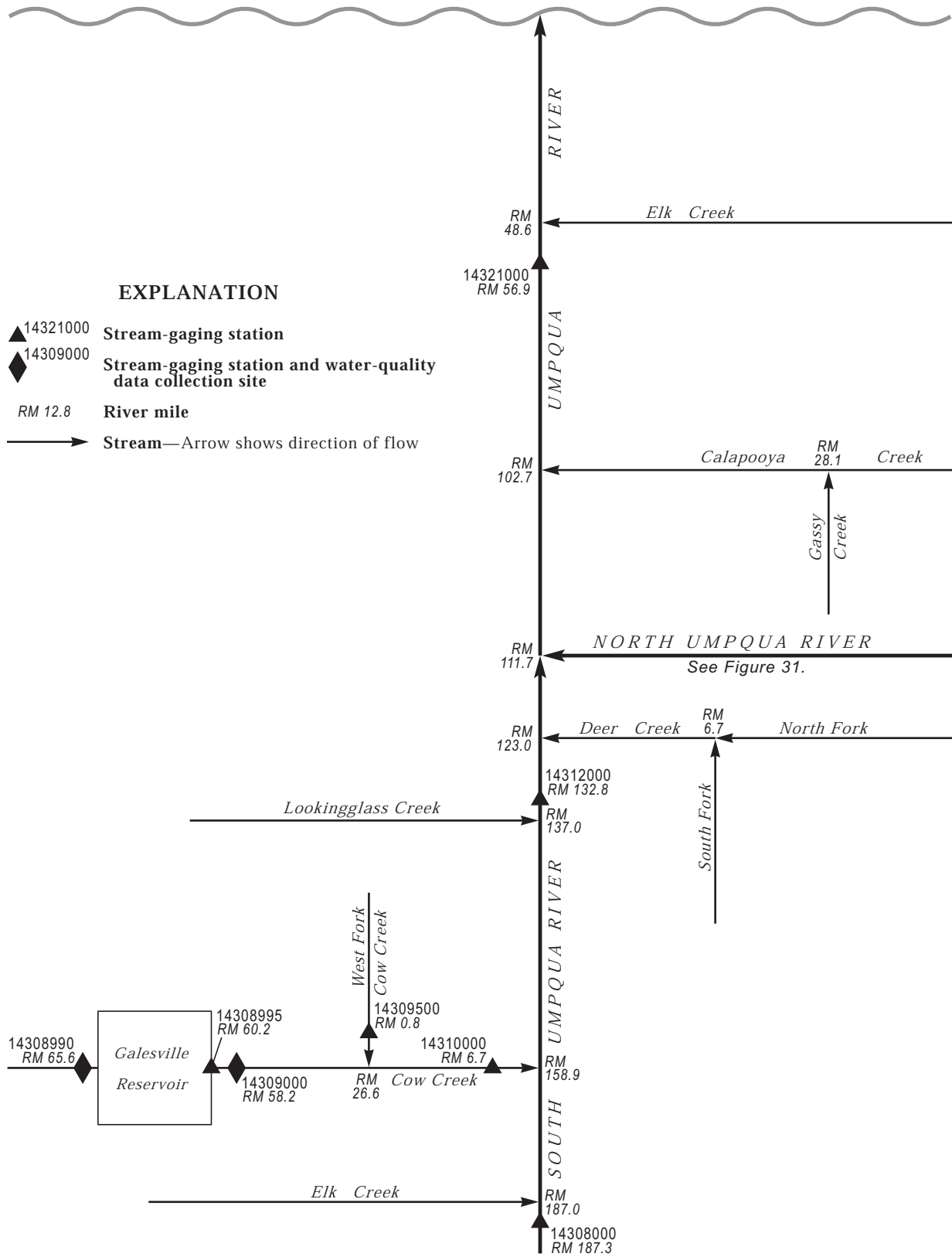


Figure 30. Schematic diagram showing gaging stations in the Umpqua and the South Fork Umpqua River Basins.





14308990 COW CREEK ABOVE GALESVILLE RESERVOIR, NEAR AZALEA, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

TURBIDITY: October 1999 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Records good except for the period Oct. 25 to Nov. 19, which are fair. The probe was checked using a polymer bead standard. Water-quality monitor located 600 ft downstream from water discharge site.

EXTREMES FOR PERIOD OF RECORD.--Maximum recorded, 90 NTU Nov. 28, 2001; minimum, &lt;1 many days each year.

EXTREMES FOR CURRENT YEAR.--

TURBIDITY: Maximum recorded, 90 NTU Nov. 28; minimum, &lt;1 many days during year.

## TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	2	<1	<1	<1	<1	<1	42	5	19	5	4	4
2	3	<1	1	2	<1	<1	19	8	12	14	5	8
3	4	<1	1	<1	<1	<1	13	7	10	9	4	5
4	3	<1	<1	1	<1	<1	57	5	6	7	3	3
5	4	<1	<1	2	<1	<1	22	5	9	4	2	3
6	1	<1	<1	<1	<1	<1	26	9	12	26	4	15
7	4	<1	<1	2	<1	<1	10	6	7	12	7	10
8	2	<1	<1	2	<1	<1	7	4	4	65	12	25
9	7	<1	<1	22	<1	<1	6	4	4	21	8	11
10	4	<1	<1	<1	<1	<1	30	3	4	8	5	6
11	5	<1	<1	<1	<1	<1	8	4	5	6	4	4
12	2	<1	<1	2	<1	<1	10	6	8	16	3	4
13	2	<1	<1	2	<1	<1	86	5	6	5	2	3
14	3	<1	<1	1	<1	<1	90	13	28	4	2	2
15	2	<1	<1	1	<1	<1	14	8	10	5	2	2
16	2	<1	<1	11	<1	4	55	8	9	7	2	2
17	3	<1	<1	12	<1	1	72	14	26	4	2	2
18	2	<1	<1	1	<1	<1	15	8	10	8	1	2
19	2	<1	<1	1	<1	<1	10	6	8	2	1	2
20	3	<1	<1	4	<1	<1	8	5	6	3	2	2
21	2	<1	<1	12	2	3	10	4	5	11	2	8
22	1	<1	<1	24	8	14	6	4	4	10	4	5
23	<1	<1	<1	10	2	3	6	3	4	4	3	3
24	4	<1	<1	13	1	2	8	3	3	3	3	3
25	2	<1	<1	3	2	2	4	2	3	31	3	4
26	2	<1	<1	3	1	2	10	2	2	31	8	11
27	1	<1	<1	2	<1	1	4	2	2	8	4	6
28	<1	<1	<1	---	---	---	6	3	4	5	3	4
29	2	<1	<1	51	10	16	10	3	6	4	3	3
30	<1	<1	<1	17	6	8	6	4	5	4	2	2
31	2	<1	<1	---	---	---	9	5	6	4	2	2
MAX	7	<1	1	---	---	---	90	14	28	65	12	25
MIN	<1	<1	<1	---	---	---	4	2	2	2	1	2

14308990 COW CREEK ABOVE GALESVILLE RESERVOIR, NEAR AZALEA, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3	2	2	3	1	2	2	<1	1	2	<1	1
2	3	2	2	2	1	1	2	<1	1	2	<1	1
3	4	2	2	3	1	1	2	<1	1	2	<1	<1
4	4	2	2	2	<1	1	2	<1	1	1	<1	<1
5	3	2	2	2	1	1	2	1	1	2	<1	<1
6	3	1	2	2	<1	1	2	<1	1	2	<1	<1
7	74	2	8	3	1	2	2	<1	1	2	<1	<1
8	36	9	14	2	1	1	3	<1	1	2	<1	<1
9	9	5	7	2	<1	1	2	<1	1	1	<1	<1
10	7	4	4	3	1	1	2	1	1	2	<1	<1
11	4	3	3	2	1	1	2	<1	1	1	<1	<1
12	6	2	3	3	1	2	2	<1	1	3	<1	<1
13	3	2	2	2	1	2	2	<1	1	3	<1	<1
14	4	2	2	3	1	2	5	1	2	1	<1	<1
15	3	1	2	3	2	2	3	1	1	1	<1	<1
16	3	1	2	2	2	2	3	<1	1	2	<1	<1
17	3	1	1	2	2	2	3	<1	1	2	<1	<1
18	2	1	1	16	2	2	2	1	2	2	<1	<1
19	7	1	2	5	2	2	2	1	1	2	<1	<1
20	14	5	6	7	2	3	2	<1	1	2	<1	<1
21	5	4	5	4	2	3	2	<1	1	1	<1	<1
22	5	3	3	5	2	3	2	<1	1	2	<1	<1
23	4	3	4	4	2	3	2	<1	1	1	<1	<1
24	4	2	3	4	3	3	2	<1	<1	1	<1	<1
25	3	2	2	3	2	2	2	<1	<1	3	<1	<1
26	4	1	2	4	2	2	1	<1	<1	3	<1	<1
27	3	2	2	2	2	2	2	<1	<1	2	<1	<1
28	22	1	2	2	1	2	2	<1	<1	1	<1	<1
29	---	---	---	3	1	2	2	<1	<1	1	<1	<1
30	---	---	---	3	1	1	3	<1	<1	1	<1	1
31	---	---	---	2	1	1	---	---	---	2	<1	1
MAX	74	9	14	16	3	3	5	1	2	3	<1	1
MIN	2	1	1	2	<1	1	1	<1	<1	1	<1	<1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	1	<1	1	2	<1	<1	25	1	2	2	<1	<1
2	1	<1	<1	1	<1	<1	2	1	2	2	<1	<1
3	2	<1	1	2	<1	<1	2	1	2	3	<1	<1
4	1	<1	1	2	<1	1	3	1	2	2	<1	<1
5	2	<1	1	2	<1	1	3	1	2	1	<1	<1
6	17	<1	1	3	1	1	3	1	2	1	<1	<1
7	1	<1	<1	3	1	1	6	1	2	2	<1	<1
8	1	<1	<1	3	1	1	3	1	2	<1	<1	<1
9	1	<1	<1	2	<1	1	3	1	2	3	<1	<1
10	2	<1	<1	6	<1	<1	4	1	2	30	<1	<1
11	1	<1	1	2	<1	<1	6	2	2	1	<1	<1
12	2	<1	<1	2	<1	<1	4	2	2	2	<1	<1
13	1	<1	<1	2	<1	<1	46	1	2	5	<1	<1
14	2	<1	<1	2	<1	<1	4	<1	1	2	<1	<1
15	1	<1	<1	4	<1	<1	2	<1	1	2	<1	<1
16	1	<1	<1	2	<1	<1	3	<1	1	1	<1	<1
17	1	<1	<1	4	<1	1	2	<1	1	4	<1	<1
18	9	<1	<1	2	<1	1	2	<1	1	3	<1	<1
19	2	<1	1	2	<1	<1	2	<1	1	2	<1	<1
20	2	<1	1	2	<1	<1	2	<1	1	2	<1	<1
21	4	<1	1	2	<1	1	2	<1	1	2	<1	<1
22	3	1	1	3	<1	1	3	<1	1	3	<1	<1
23	2	1	1	4	<1	1	4	<1	1	3	<1	<1
24	2	1	1	2	<1	1	4	<1	1	3	<1	1
25	2	<1	1	4	1	1	2	<1	1	3	1	2
26	2	<1	<1	3	<1	1	2	<1	1	2	1	2
27	1	<1	<1	15	<1	1	2	<1	<1	2	1	2
28	1	<1	<1	3	<1	1	2	<1	<1	4	1	2
29	1	<1	<1	12	<1	1	2	<1	<1	2	1	2
30	1	<1	<1	14	<1	2	2	<1	<1	4	1	2
31	---	---	---	9	1	2	1	<1	<1	---	---	---
MAX	17	1	1	15	1	2	46	2	2	30	1	2
MIN	1	<1	<1	1	<1	<1	1	<1	<1	<1	<1	<1

## UMPQUA RIVER BASIN

14308995 GALESVILLE RESERVOIR NEAR AZALEA, OR

LOCATION.--Lat 42°50'56", long 123°10'40", in NE 1/4 sec.28, T.31 S., R.4 W., Douglas County, Hydrologic Unit 17100302, on the upstream face of Galesville dam to the right side of the spillway section, 1.2 mi downstream from McGinnis Creek, 5.6 mi northeast of Azalea, and at mile 60.2.

DRAINAGE AREA.--74.3 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Douglas County).

REMARKS.--Reservoir is formed by a roller compacted concrete dam; storage began Oct. 7, 1985. Capacity, 42,220 acre-ft between elevations 1,780.0 ft (bottom of evacuation outlet) and 1,881.5 ft (crest of spillway). Dead storage, 1,800 acre-ft below elevation 1,780.0 ft. Reservoir is used for irrigation, power generation, flood control, and recreation. Figures given herein represent total contents.

COOPERATION.--Capacity table furnished by Douglas County Public Works Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 43,230 acre-ft Jan. 2, 3, 1997, elevation, 1,883.62 ft; minimum contents, 7,240 acre-ft Jan. 9, 10, 1991, elevation, 1,805.03 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 29,860 acre-ft Apr. 6, elevation, 1,860.72 ft; minimum contents, 8,170 acre-ft Nov. 21, elevation, 1,808.25 ft.

## Capacity table (elevation, in feet, and contents, in acre-feet)

1,780	1,800	1,820	11,960	1,860	29,480
1,790	3,590	1,830	15,660	1,870	34,970
1,800	5,890	1,840	19,820	1,880	40,930
1,810	8,700	1,850	24,420	1,885	44,130

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1821.60	1812.18	1811.89	1837.91	1845.96	1856.18	1860.64	1860.39	1859.63	1858.59	1856.72	1854.21
2	1821.43	1811.80	1812.85	---	1845.99	1856.25	1860.67	1860.37	1859.60	1858.54	1856.64	1854.13
3	1821.26	1811.42	1813.53	---	1846.09	1856.30	1860.69	1860.33	1859.58	1858.48	1856.56	1854.06
4	1821.08	1811.04	1813.82	1840.67	1846.18	1856.33	1860.71	1860.31	1859.56	1858.42	1856.48	1853.98
5	1820.88	1810.68	1814.50	1841.11	1846.28	1856.36	1860.71	1860.28	1859.53	1858.38	1856.42	1853.90
6	1820.68	1810.34	---	1842.89	1846.36	1856.42	1860.71	1860.23	1859.50	1858.33	1856.35	1853.83
7	1820.47	1810.06	---	1844.35	1847.71	1856.54	1860.69	1860.16	1859.46	1858.29	1856.27	1853.75
8	1820.26	1809.82	---	1847.07	1849.38	1856.57	1860.66	1860.09	1859.44	1858.23	1856.18	1853.68
9	1820.03	1809.60	---	1847.41	1850.20	1856.60	1860.63	1860.04	1859.41	1858.20	1856.10	1853.61
10	1819.81	1809.36	---	1846.88	1850.63	1856.63	1860.60	1860.00	1859.39	1858.14	1856.01	1853.53
11	1819.59	1809.13	1817.57	1846.13	1850.95	1856.71	1860.57	1859.96	1859.37	1858.08	1855.92	1853.46
12	1819.33	1808.96	1818.10	1845.62	1851.32	1856.89	1860.55	1859.91	1859.34	1858.03	1855.83	1853.38
13	1819.05	1808.84	1819.06	1845.35	1851.63	1857.08	1860.57	1859.85	1859.31	1857.96	1855.75	1853.31
14	1818.76	1808.64	1822.79	1845.14	1851.89	1857.23	1860.65	1859.80	1859.27	1857.90	1855.65	1853.23
15	1818.44	1808.57	1823.88	1844.97	1852.09	1857.41	1860.67	1859.77	1859.24	1857.84	1855.55	1853.16
16	1818.09	1808.59	1825.09	1844.90	1852.27	1857.59	1860.67	1859.75	1859.21	1857.78	1855.46	1853.09
17	1817.73	1808.49	1828.85	1844.86	1852.43	1857.76	1860.69	1859.72	1859.14	1857.73	1855.37	1853.03
18	1817.35	1808.43	1830.37	1844.83	1852.57	1857.87	1860.71	1859.71	1859.11	1857.67	1855.28	1852.97
19	1816.99	1808.41	1831.37	1844.86	1852.92	1857.98	1860.71	1859.72	1859.09	1857.61	1855.20	1852.90
20	1816.62	1808.39	1832.18	1844.86	1853.48	1858.16	1860.70	1859.77	1859.05	1857.51	1855.12	1852.83
21	1816.25	1808.28	1832.70	1845.04	1853.97	1858.40	1860.67	1859.79	1859.02	1857.46	1855.04	1852.75
22	1815.91	1808.62	1833.17	1844.96	1854.40	1858.71	1860.64	1859.78	1858.99	1857.40	1854.97	1852.68
23	1815.57	1808.62	1833.52	1844.89	1854.86	1859.08	1860.61	1859.77	1858.95	1857.34	1854.89	1852.60
24	1815.18	1808.60	1833.78	1844.92	1855.24	1859.46	1860.58	1859.76	1858.92	1857.27	1854.81	1852.52
25	1814.82	1808.58	1833.92	1845.30	1855.55	1859.78	1860.54	1859.74	1858.87	1857.21	1854.74	1852.44
26	1814.43	1808.52	1834.02	1846.28	1855.77	1860.03	1860.52	1859.72	1858.83	1857.14	1854.67	1852.35
27	1814.06	1808.44	1834.15	1846.51	1855.95	1860.21	1860.52	1859.72	1858.79	1857.07	1854.59	1852.27
28	1813.66	1809.59	1834.53	1846.52	1856.09	1860.35	1860.50	1859.71	1858.73	1857.00	1854.52	1852.19
29	1813.27	1810.55	1835.26	1846.36	---	1860.46	1860.48	1859.69	1858.69	1856.94	1854.44	1852.12
30	1812.92	1810.72	1836.00	1846.11	---	1860.54	1860.41	1859.67	1858.64	1856.87	1854.36	1852.06
31	1812.55	---	1837.04	1845.97	---	1860.60	---	1859.65	---	1856.79	1854.29	---
MAX	1821.60	1812.18	---	---	1856.09	1860.60	1860.71	1860.39	1859.63	1858.59	1856.72	1854.21
MIN	1812.55	1808.28	---	---	1845.96	1856.18	1860.41	1859.65	1858.64	1856.79	1854.29	1852.06
(†)	9490	8920	18540	22520	27440	29790	29690	29290	28760	27800	26530	25430
(‡)	-3080	-570	+9620	+3980	+4920	+2350	-100	-400	-530	-960	-1270	-1100
CAL YR 2001	MAX	---	MIN	---	AC-FT†	-10						
WTR YR 2002	MAX	---	MIN	---	AC-FT†	+12860						

† Contents, in acre-feet, at 2400, on last day of month.

‡ Change in contents, in acre-feet.

14309000 COW CREEK NEAR AZALEA, OR

LOCATION.--Lat 42°49'30", long 123°10'40", in N-1/2 sec.4, T.32 S., R.4 W., Douglas County, Hydrologic Unit 17100302, on right bank 0.8 mi upstream from Whitehorse Creek, 4.5 mi northeast of Azalea, and at mile 58.2.

DRAINAGE AREA.--78.0 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1926 to September 1928 (no winter records), April 1929 to December 1931, April 1932 to current year.

REVISED RECORDS.--WSP 984: 1933-36. WSP 1154: 1946(M), 1948(M). WSP 1448: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,694.32 ft above NGVD of 1929 (Douglas County Road Department bench mark). Prior to July 19, 1949, nonrecording gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since Oct. 7, 1985 by Galesville Reservoir (station 14308995). Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--72 years (water years 1930-31, 1933-2002), 107 ft<sup>3</sup>/s, 18.63 in/yr, 77,520 acre-ft/yr, adjusted for storage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,600 ft<sup>3</sup>/s Jan. 15, 1974, gage height, 16.40 ft, from high-water mark in well; minimum discharge, 1.1 ft<sup>3</sup>/s Aug. 12, 1981, but may have been less during period of no gage-height record Sept. 4-30, 1970.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 423 ft<sup>3</sup>/s Jan. 9, 10, gage height, 3.58 ft; minimum discharge, 19 ft<sup>3</sup>/s Nov. 19, June 22, July 5-18, 20-27, 29-31.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	28	64	77	73	114	70	72	49	26	22	22	23
2	30	64	74	69	93	70	72	47	25	22	22	23
3	31	62	73	72	77	70	72	47	24	21	22	24
4	32	62	72	69	72	70	72	43	24	21	21	24
5	34	61	78	69	70	70	72	41	23	21	22	24
6	36	55	73	80	70	70	72	41	23	20	22	23
7	38	48	69	99	76	70	72	51	23	21	23	24
8	39	41	67	213	81	70	68	47	24	20	26	23
9	42	40	68	358	87	72	71	44	24	21	26	23
10	44	39	68	411	111	70	71	41	24	20	26	23
11	45	40	69	385	108	70	69	41	24	23	26	23
12	47	41	72	293	73	71	63	41	23	20	26	23
13	49	39	86	211	72	71	58	41	22	22	26	23
14	52	33	99	178	71	71	64	40	22	20	26	23
15	55	28	84	156	71	72	68	34	22	21	26	24
16	58	42	80	123	71	72	70	32	22	20	25	23
17	61	46	82	108	71	73	70	31	32	20	23	24
18	62	24	70	96	71	72	70	29	25	20	23	24
19	61	22	67	96	72	72	70	30	23	21	24	24
20	61	31	67	99	76	75	70	36	22	29	24	24
21	61	64	64	147	72	75	70	34	21	20	23	24
22	62	68	63	174	73	75	65	36	20	20	24	24
23	63	58	64	138	74	75	59	31	21	20	23	24
24	65	47	64	113	72	75	58	29	22	20	23	24
25	63	61	64	138	71	73	58	28	22	20	23	24
26	61	52	65	191	70	72	54	28	22	21	24	24
27	63	38	67	185	70	72	55	28	22	20	23	24
28	66	67	67	181	70	72	55	29	22	21	24	24
29	65	76	69	178	---	72	53	28	22	21	23	24
30	65	70	68	177	---	72	58	26	22	21	23	24
31	66	---	72	143	---	72	---	26	---	21	24	---
TOTAL	1605	1483	2222	5023	2179	2226	1971	1129	693	650	738	709
MEAN	51.77	49.43	71.68	162.0	77.82	71.81	65.70	36.42	23.10	20.97	23.81	23.63
MAX	66	76	99	411	114	75	72	51	32	29	26	24
MIN	28	22	63	69	70	70	53	26	20	20	21	23
AC-FT	3180	2940	4410	9960	4320	4420	3910	2240	1370	1290	1460	1410
MEAN†	1.63	39.8	228	227	166	110	64.0	29.9	14.1	5.37	3.09	5.21
CFSTM†	0.02	0.51	2.92	2.91	2.13	1.41	0.82	0.38	0.18	0.07	0.04	0.07
IN.†	0.02	0.57	3.37	3.35	2.22	1.63	0.92	0.44	0.20	0.08	0.04	0.07
AC-FT†	100	2370	14030	13940	9240	6770	3810	1840	840	330	190	310

CAL YR 2001 TOTAL 13653 MEAN 37.41 MAX 99 MIN 19 AC-FT 27080 MEAN† 37.4 CFSTM† 0.48 IN.† 6.51 AC-FT† 27070  
WTR YR 2002 TOTAL 20628 MEAN 56.52 MAX 411 MIN 20 AC-FT 40920 MEAN† 73.3 CFSTM† 0.94 IN.† 12.75 AC-FT† 53050

† Adjusted for change in contents, in Galesville Reservoir.

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

DISSOLVED OXYGEN: November 1985 to current year.  
 TURBIDITY: October 1999 to current year.

INSTRUMENTATION.--Water-quality monitor since November 1985.

REMARKS.--Dissolved oxygen and turbidity records good. The probe was checked using a polymer bead standard.  
 Water-quality monitor located 1.9 mi upstream from water-discharge site, 1000 ft downstream from Galesville Dam, and at mile 60.1.

EXTREMES FOR PERIOD OF DAILY RECORD.--

DISSOLVED OXYGEN: Maximum recorded, 15.1 mg/L Feb. 7, 1989, Nov. 17, 20, 1996, caused by operation of bypass valve at dam; minimum, 0.9 mg/L July 30, 1988.  
 TURBIDITY: Maximum recorded, 89 NTU May 1, 2002, but may have been higher during period of missing record; minimum, <1 NTU many days each year.

EXTREMES FOR CURRENT YEAR.--

DISSOLVED OXYGEN: Maximum recorded, 14.5 mg/L Jan. 25, but may have been higher during periods of missing record; minimum recorded, 6.6 mg/L Aug. 9, but may have been lower during periods of missing record.  
 TURBIDITY: Maximum recorded, 89 NTU May 1, but may have been higher during period of missing record; minimum, <1 NTU many days during the year.

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	---	---	---	---	---	---	---	---	---
2	---	---	---	---	---	---	---	---	---	---	---	---
3	---	---	---	---	---	---	---	---	---	---	---	---
4	---	---	---	---	---	---	---	---	---	---	---	---
5	---	---	---	---	---	---	---	---	---	---	---	---
6	---	---	---	---	---	---	---	---	---	---	---	---
7	---	---	---	---	---	---	---	---	---	---	---	---
8	---	---	---	---	---	---	---	---	---	---	---	---
9	---	---	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---	---	---
11	---	---	---	---	---	---	---	---	---	---	---	---
12	---	---	---	---	---	---	---	---	---	---	---	---
13	---	---	---	---	---	---	---	---	---	---	---	---
14	---	---	---	---	---	---	---	---	---	---	---	---
15	---	---	---	---	---	---	---	---	---	---	---	---
16	---	---	---	---	---	---	---	---	---	---	---	---
17	---	---	---	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---	---	---	---	---	---
22	---	---	---	---	---	---	---	---	---	---	---	---
23	---	---	---	---	---	---	---	---	---	---	---	---
24	---	---	---	---	---	---	---	---	---	---	---	---
25	---	---	---	---	---	---	---	---	---	14.5	10.8	11.9
26	---	---	---	---	---	---	---	---	---	12.0	11.1	11.7
27	---	---	---	---	---	---	---	---	---	11.8	11.4	11.6
28	---	---	---	---	---	---	---	---	---	12.0	11.4	11.7
29	---	---	---	---	---	---	---	---	---	12.2	11.0	11.9
30	---	---	---	---	---	---	---	---	---	12.1	11.5	11.9
31	---	---	---	---	---	---	---	---	---	12.1	11.4	11.9
MONTH	---	---	---	---	---	---	---	---	---	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	12.0	11.9	12.0	11.1	10.6	10.8	11.1	10.2	10.8	10.7	10.2	10.4
2	12.3	11.7	12.0	11.1	10.5	10.8	11.1	10.5	10.8	10.7	10.2	10.5
3	12.3	11.9	12.1	11.1	10.7	11.0	11.1	10.5	10.8	11.1	10.4	10.7
4	12.1	11.8	11.9	11.2	10.7	11.0	10.9	8.9	10.5	10.7	10.2	10.5
5	12.1	11.7	11.9	11.1	10.6	10.9	10.6	9.9	10.4	10.6	9.6	10.1
6	12.4	11.1	11.6	11.5	9.9	10.8	10.5	10.2	10.3	10.9	10.4	10.6
7	11.7	11.0	11.4	10.8	10.1	10.5	10.7	10.0	10.4	11.1	10.2	10.6
8	11.6	11.1	11.4	11.1	10.3	10.8	10.6	10.1	10.4	10.5	9.4	10.1
9	11.6	11.2	11.4	11.3	10.7	10.9	10.7	10.1	10.4	10.7	9.6	10.1
10	11.7	11.2	11.5	11.2	10.7	10.9	10.7	10.1	10.4	10.1	9.7	9.9
11	12.4	11.1	11.7	11.1	10.2	10.7	10.8	10.3	10.5	10.0	9.6	9.9
12	11.7	11.2	11.4	10.9	10.4	10.7	10.8	10.2	10.4	10.2	9.4	9.9
13	11.7	11.1	11.4	11.1	10.6	10.9	10.6	10.3	10.5	10.3	9.6	10
14	11.5	11.1	11.3	11.0	10.6	10.8	11.0	10.3	10.6	10.3	9.8	10.0
15	11.6	11.0	11.4	10.9	10.6	10.8	11.0	10.2	10.5	10.2	9.6	9.9
16	12.3	10.9	11.4	10.8	10.5	10.6	10.7	10.1	10.5	10.4	9.3	9.9
17	11.6	10.8	11.2	10.9	10.5	10.7	10.6	10.2	10.3	10.4	9.7	10.1
18	11.9	11.0	11.3	11.1	10.7	10.9	10.5	10.1	10.4	10.2	9.5	9.9
19	12.1	10.0	11.1	12.1	10.6	10.9	10.6	10.0	10.4	10.0	7.8	9.6
20	10.1	9.6	9.8	11.3	10.7	11.0	10.5	9.8	10.3	10.4	9.6	10
21	10.3	9.7	10.0	11.3	10.7	11.1	10.5	10	10.3	10.3	8.9	9.8
22	10.5	9.9	10.2	11.4	10.5	11.2	10.9	10.0	10.3	10.6	9.1	10
23	10.7	9.6	10.1	11.3	10.6	11.1	10.6	10.2	10.4	10.4	9.2	9.8
24	10.7	10.1	10.3	11.3	10.8	11.0	10.5	10	10.3	10.4	9.2	9.7
25	10.6	10.2	10.5	11.5	10.7	11.1	10.9	10.0	10.4	10.4	9.4	9.8
26	10.8	10.3	10.6	11.4	10.3	11.0	10.9	10.2	10.5	10.4	9.5	9.9
27	10.8	10.4	10.6	11.4	10.3	10.9	10.6	10.2	10.4	10.3	9.3	9.7
28	11.0	10.3	10.7	11.4	10.2	11.0	10.4	10.1	10.3	10.2	9.0	9.6
29	---	---	---	11.3	10.4	10.9	10.7	10.1	10.4	10.3	9.0	9.5
30	---	---	---	11.2	10.5	10.9	11.1	10.2	10.5	9.7	9.0	9.3
31	---	---	---	11.1	10.3	10.8	---	---	---	9.6	8.9	9.3
MONTH	12.4	9.6	11.2	12.1	9.9	10.9	11.1	8.9	10.4	11.1	7.8	10.





UMPQUA RIVER BASIN

14309000 COW CREEK NEAR AZALEA, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	4	4	4	4	3	3	1	<1	<1	89	6	33
2	4	4	4	4	3	3	1	<1	<1	69	9	22
3	4	4	4	4	3	3	2	<1	<1	81	4	10
4	4	4	4	3	2	3	6	<1	<1	10	4	5
5	4	4	4	3	2	2	1	<1	<1	26	3	7
6	5	4	5	3	2	3	1	<1	<1	8	2	4
7	5	5	5	3	2	3	2	<1	<1	9	2	3
8	5	5	5	3	2	2	3	<1	<1	11	3	4
9	5	5	5	29	2	2	3	<1	<1	32	5	8
10	5	5	5	11	2	2	2	<1	<1	8	4	5
11	6	5	5	4	2	2	1	<1	<1	24	3	4
12	5	5	5	2	2	2	69	<1	<1	20	4	9
13	5	4	5	9	2	2	18	<1	<1	12	3	6
14	5	4	5	2	2	2	47	<1	1	8	2	3
15	5	5	5	2	1	2	<1	<1	<1	17	3	4
16	6	4	5	2	1	1	<1	<1	<1	39	3	8
17	5	4	4	2	1	1	1	<1	<1	19	3	5
18	5	4	4	2	1	1	2	<1	<1	10	4	4
19	6	4	4	3	<1	2	<1	<1	<1	6	4	4
20	8	3	4	3	2	2	2	<1	<1	9	4	5
21	4	3	4	3	2	2	8	<1	<1	27	3	5
22	5	4	4	2	2	2	1	<1	<1	7	4	6
23	4	4	4	3	2	2	6	<1	1	7	4	6
24	11	4	4	6	2	2	14	1	2	7	4	6
25	5	4	4	2	2	2	10	2	3	7	5	6
26	6	4	4	2	2	2	14	3	4	8	4	6
27	4	3	4	10	2	2	5	4	4	7	4	5
28	5	3	3	7	1	2	7	4	5	7	4	5
29	---	---	---	17	1	1	10	6	7	6	3	5
30	---	---	---	3	<1	1	28	6	7	8	3	4
31	---	---	---	2	<1	1	---	---	---	5	3	4
MAX	11	5	5	29	3	3	69	6	7	89	9	33
MIN	4	3	3	2	<1	1	<1	<1	<1	5	2	3

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	5	3	4	2	<1	1	7	6	6	23	3	4
2	5	4	5	3	<1	1	7	5	6	4	3	3
3	6	4	4	4	<1	1	6	5	6	3	3	3
4	6	3	4	4	2	3	6	5	5	21	2	3
5	6	3	5	3	2	3	6	4	5	18	2	3
6	5	4	4	3	2	2	5	4	4	4	2	2
7	4	3	4	4	2	3	5	3	4	4	2	2
8	5	3	3	3	2	2	5	3	4	3	2	2
9	5	2	3	3	2	3	4	3	4	2	1	2
10	5	3	3	3	2	3	4	2	3	3	1	2
11	4	3	3	18	2	3	3	2	3	2	2	2
12	4	2	3	4	2	3	3	2	2	3	1	2
13	4	2	3	65	2	3	7	2	2	2	1	2
14	3	2	2	6	2	3	8	6	7	2	1	2
15	3	2	2	5	3	4	7	6	6	5	1	2
16	5	2	2	5	3	4	6	5	5	2	1	1
17	9	1	2	7	3	5	5	5	5	2	<1	1
18	3	1	2	7	5	5	5	4	4	2	<1	1
19	2	<1	1	7	4	6	4	4	4	3	<1	1
20	3	1	2	10	4	5	6	3	4	1	<1	<1
21	2	<1	2	6	5	5	4	3	4	1	<1	<1
22	2	1	2	7	4	5	5	3	3	1	<1	<1
23	2	<1	1	6	4	5	4	2	3	2	<1	<1
24	4	<1	1	5	4	4	5	2	2	3	<1	<1
25	2	<1	1	5	4	4	15	1	2	12	<1	1
26	3	<1	1	4	3	4	3	1	2	3	<1	1
27	2	<1	1	15	3	4	5	2	4	2	<1	1
28	3	<1	1	4	3	3	5	4	4	3	1	1
29	3	<1	2	4	3	3	5	4	4	2	2	2
30	2	<1	1	8	3	5	10	3	4	4	1	2
31	---	---	---	19	6	7	11	3	4	---	---	---
MAX	9	4	5	65	6	7	15	6	7	23	3	4
MIN	2	<1	1	2	<1	1	3	1	2	1	<1	<1



UMPQUA RIVER BASIN

14310000 COW CREEK NEAR RIDDLE, OR

LOCATION.--Lat 42°55'25", long 123°25'40", in NE 1/4 sec.32, T.30 S., R.6 W., Douglas County, Hydrologic Unit 17100302, on left bank 0.4 mi upstream from Council Creek, 3.8 mi southwest of Riddle, and at mile 6.7.

DRAINAGE AREA.--456 mi<sup>2</sup>.

PERIOD OF RECORD.--September 1954 to current year.

REVISED RECORDS.--WSP 1935: 1956(M).

GAGE.--Water-stage recorder. Datum of gage is 682.60 ft above NGVD of 1929.

REMARKS.--Records good. Regulated since Oct. 7, 1985 by Galesville Reservoir (station 14308995). Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--31 years (water years 1955-85), 903 ft<sup>3</sup>/s, 654,200 acre-ft/yr.  
17 years (water years 1986-2002), 676 ft<sup>3</sup>/s, 489,700 acre-ft/yr, regulated.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 38,400 ft<sup>3</sup>/s Jan. 15, 1974, gage height, 28.17 ft; minimum discharge, 7.4 ft<sup>3</sup>/s Aug. 17-19, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 29, 1950, reached a stage of about 28.5 ft, present site and datum, from slope-area measurement, discharge, 41,100 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 9,350 ft<sup>3</sup>/s Feb. 7, 8, gage height, 11.32 ft; minimum discharge, 17 ft<sup>3</sup>/s Sept. 1, 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	33	115	2280	1490	948	495	445	241	112	48	21	18
2	33	97	2610	1470	984	466	425	227	108	47	20	18
3	33	86	2120	1510	1040	443	408	217	103	44	19	20
4	34	80	1360	1190	1110	421	389	209	98	42	20	21
5	35	78	3020	988	1020	408	375	200	94	41	22	19
6	36	76	3200	4000	937	427	363	194	90	39	23	20
7	38	71	1890	4700	3060	497	348	190	89	39	24	22
8	40	64	1210	5670	6650	472	329	188	87	38	25	24
9	41	59	988	3720	3510	445	323	191	94	36	e25	24
10	44	54	870	2350	2290	481	350	185	94	36	e25	24
11	48	53	1070	1750	1670	656	326	181	87	34	e24	25
12	51	59	1020	1390	1330	1100	312	176	83	33	e23	24
13	53	76	1100	1110	1120	1280	298	170	78	31	e22	23
14	54	92	5920	916	951	1350	383	165	73	30	e21	22
15	56	100	2990	798	833	1200	447	162	70	29	20	23
16	57	193	2140	682	769	1080	412	153	68	29	20	22
17	59	266	5360	609	715	1000	415	143	68	28	19	23
18	61	177	3200	546	666	947	443	140	72	27	19	26
19	64	109	2620	557	664	887	435	140	83	27	20	28
20	66	151	2090	609	895	1020	409	161	73	27	19	30
21	67	361	1600	1070	889	1210	383	191	66	28	20	28
22	68	894	1310	1630	835	1240	356	172	64	29	20	26
23	75	853	1200	1320	814	1080	326	157	62	31	22	26
24	86	446	1000	1150	742	939	298	145	60	26	23	26
25	81	1070	853	2560	662	822	285	139	58	26	23	25
26	79	1080	717	5590	610	724	274	134	55	25	21	24
27	76	528	643	2840	564	649	272	129	52	24	23	24
28	76	1520	923	1890	530	583	271	130	49	22	23	25
29	79	3920	1160	1430	---	535	255	130	49	22	20	25
30	84	1750	1430	1170	---	495	245	123	49	23	18	26
31	129	---	1540	1020	---	467	---	115	---	22	18	---
TOTAL	1836	14478	59434	57725	36808	23819	10600	5198	2288	983	662	711
MEAN	59.2	483	1917	1862	1315	768	353	168	76.3	31.7	21.4	23.7
MAX	129	3920	5920	5670	6650	1350	447	241	112	48	25	30
MIN	33	53	643	546	530	408	245	115	49	22	18	18
AC-FT	3640	28720	117900	114500	73010	47240	21030	10310	4540	1950	1310	1410

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 2002, BY WATER YEAR (WY)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	107	521	1304	1890	1651	1162	690	382	183	101	82.5	86.8					
MAX	249	1792	6225	4144	4420	2362	1833	1074	477	189	166	152					
(WY)	1998	1999	1997	1995	1999	1995	1993	1998	1998	1998	1993	1986					
MIN	55.4	88.5	210	189	285	253	194	98.8	47.2	27.6	20.7	21.6					
(WY)	1989	1988	1990	2001	2001	2001	1990	2001	2001	2001	2001	2001					

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1986 - 2002

ANNUAL TOTAL	112851	214542		
ANNUAL MEAN	309	588		
HIGHEST ANNUAL MEAN			676	
LOWEST ANNUAL MEAN			1221	1999
HIGHEST DAILY MEAN			152	2001
LOWEST DAILY MEAN			6650	23100
ANNUAL SEVEN-DAY MINIMUM	5920	Dec 14	6650	Feb 8
ANNUAL RUNOFF (AC-FT)	16	Aug 16	18	Aug 30
10 PERCENT EXCEEDS	17	Aug 13	19	Aug 30
50 PERCENT EXCEEDS	223800		425500	
90 PERCENT EXCEEDS	771		1480	489700
	97		157	1680
	20		23	211
				58

e Estimated

14312000 SOUTH UMPQUA RIVER NEAR BROCKWAY, OR

LOCATION.--Lat 43°08'00", long 123°23'50", in SW 1/4 sec.15, T.28 S., R.6 W., Douglas County, Hydrologic Unit 17100302, on right bank 10 ft upstream from Winston Bridge on State Highway 99, 2.5 mi northeast of Brockway, 4.2 mi downstream from Lookingglass Creek, and at mile 132.8.

DRAINAGE AREA.--1,670 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1905 to June 1912, October 1923 to September 1926, January 1942 to current year. Monthly discharge only for some periods, published in WSP 1318.

REVISED RECORDS.--WSP 1248: 1946(M), 1948(M), 1951. WSP 1448: Drainage area. WDR OR 72-1: 1965(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 462.52 ft above NGVD of 1929 (State Highway Department bench mark). Prior to June 24, 1949, nonrecording gage at several sites within 400 ft of present site at various datums. June 24, 1949, to Oct. 1, 1970, at datum 461.84 ft above sea level (State Highway Department bench mark).

REMARKS.--Records good. Regulation from Ben Irving Reservoir, since January 1980, on Berry Creek during summer months. Many small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--68 years (water years 1907-11, 1924-26, 1943-2002), 2,765 ft<sup>3</sup>/s, 22.49 in/yr, 2,003,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 125,000 ft<sup>3</sup>/s Dec. 23, 1964, gage height, 34.28 ft; minimum discharge, 16 ft<sup>3</sup>/s Aug. 23, 1977.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 21, 1927, reached a stage of about 31.2 ft, present site and datum, discharge, 89,500 ft<sup>3</sup>/s. Discharge for flood of February 1890, which reached a stage 1.9 ft higher, according to local resident who lived nearby at time of both floods, has been found to be in error and should not be used.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	1030	*29,000	*16.05	Jan. 8	1800	20,400	13.61
Dec. 17	1430	23,100	14.42	Feb. 8	0630	20,300	13.59

Minimum discharge, 33 ft<sup>3</sup>/s Aug. 18.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	101	334	4440	6860	3210	2500	2300	1310	e850	189	51	46
2	89	334	7350	6620	3180	2260	2260	1250	e770	179	48	47
3	84	274	5380	6810	3150	2050	2310	1220	e700	165	47	47
4	81	234	4030	5190	3200	1870	2380	1200	e650	154	52	46
5	78	209	7940	4150	3120	1750	2450	1150	e600	152	59	48
6	79	194	9520	7630	3020	1760	2450	1100	e550	143	65	54
7	79	186	8360	12800	4440	2020	2280	1050	e500	138	63	61
8	85	180	5080	15800	17100	2220	2070	992	444	136	65	64
9	90	175	4110	13800	10600	1960	1920	944	436	124	65	66
10	96	165	3590	8670	7270	1890	2070	905	428	121	62	68
11	105	158	3640	6210	5550	2000	2170	850	394	120	61	68
12	115	161	4240	5000	4640	2940	2100	802	367	110	58	64
13	133	176	4510	4270	4010	4600	2050	790	342	103	58	61
14	165	205	20800	3600	3630	4700	3970	821	320	103	e55	58
15	143	273	12800	3100	3280	4190	5580	803	309	103	e50	60
16	134	392	9080	2680	3070	3980	3830	784	303	90	e43	59
17	129	685	18300	2420	2950	3980	3450	753	297	86	35	62
18	127	861	13100	2170	2790	3760	3530	744	309	83	34	66
19	126	515	9180	2150	2690	3430	3290	776	399	80	39	73
20	e130	383	7290	2440	4670	3520	2950	850	412	79	42	155
21	e130	526	5960	4180	6200	4130	2650	878	326	79	42	127
22	e150	1850	4670	6930	5410	4650	2380	883	290	85	47	103
23	e250	3640	4040	5590	5210	4730	2180	826	277	79	51	90
24	e400	2020	3380	4700	4900	5360	1970	721	262	79	52	77
25	e350	2180	2920	5440	4180	5230	1790	666	241	74	57	69
26	250	3220	2560	15700	3520	4270	1690	651	228	69	59	64
27	209	2020	2370	10400	3080	3570	1640	e680	210	65	56	60
28	188	1840	3050	6980	2770	3100	1610	e750	200	60	48	59
29	182	8450	3900	5220	---	2760	1450	e850	194	61	48	62
30	190	5350	4890	4150	---	2540	1350	e900	189	60	48	68
31	203	---	6360	3520	---	2390	---	e920	---	56	46	---
TOTAL	4671	37190	206840	195180	130840	100110	74120	27819	11797	3225	1606	2052
MEAN	150.7	1240	6672	6296	4673	3229	2471	897.4	393.2	104.0	51.81	68.40
MAX	400	8450	20800	15800	17100	5360	5580	1310	850	189	65	155
MIN	78	158	2370	2150	2690	1750	1350	651	189	56	34	46
AC-FT	9260	73770	410300	387100	259500	198600	147000	55180	23400	6400	3190	4070
CFSM	0.09	0.74	4.00	3.77	2.80	1.93	1.48	0.54	0.24	0.06	0.03	0.04
IN.	0.10	0.83	4.61	4.35	2.91	2.23	1.65	0.62	0.26	0.07	0.04	0.05

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 2002, BY WATER YEAR (WY)

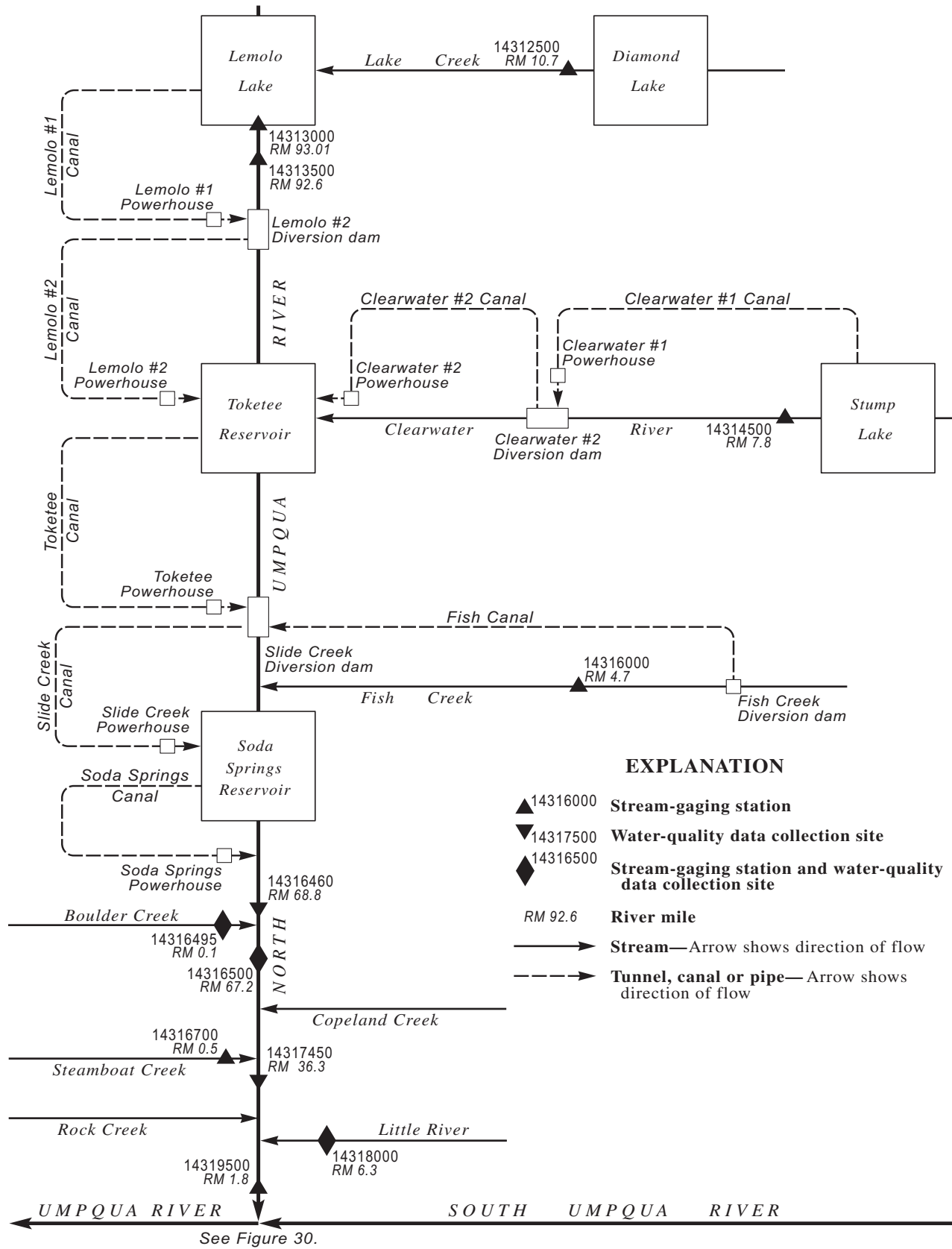
	MEAN	457.9	2676	5659	6884	6267	4720	3224	1968	868.7	266.0	137.3	149.3
MAX (WY)	6045	13590	19950	16010	15370	10950	7378	6909	3312	576	392	587	
MIN (WY)	1951	1974	1997	1956	1958	1974	1963	1963	1953	1953	1993	1986	
MIN (WY)	103	190	184	262	341	882	589	446	142	52.6	40.2	50.0	
MIN (WY)	1988	1953	1977	1977	1977	1992	1926	1926	1926	1926	1973	2001	

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	FOR 2003 WATER YEAR	FOR WATER YEARS 1907 - 2002
ANNUAL TOTAL	432615	795450	2765	
ANNUAL MEAN	1185	2179	2765	
HIGHEST ANNUAL MEAN			5567	1974
LOWEST ANNUAL MEAN			562	1977
HIGHEST DAILY MEAN	20800	20800	90200	Oct 29 1950
LOWEST DAILY MEAN	33	34	17	Aug 20 1977
ANNUAL SEVEN-DAY MINIMUM	37	40	18	Aug 17 1977
ANNUAL RUNOFF (AC-FT)	858100	1578000	2003000	
ANNUAL RUNOFF (CFSM)	0.71	1.30	1.66	
ANNUAL RUNOFF (INCHES)	9.64	17.72	22.49	
10 PERCENT EXCEEDS	2760	5390	6740	
50 PERCENT EXCEEDS	544	802	1050	
90 PERCENT EXCEEDS	45	60	114	

e Estimated





**Figure 31.** Schematic diagram showing gaging stations and diversions in the North Umpqua River Basin.

## UMPQUA RIVER BASIN

14313000 LEMOLO LAKE NEAR TOKETEE FALLS, OR

LOCATION.--Lat 43°19'10", long 122°11'20", in SE 1/4 NW 1/4 sec.11, T.26 S., R.5 E., Douglas County, Hydrologic Unit 17100301, at Lemolo No. 1 diversion dam on North Umpqua River, 0.8 mi downstream from Lake Creek, 13.0 mi east of town of Toketee Falls, and at mile 93.01.

DRAINAGE AREA.--170 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1954 to current year. Prior to October 1960, published as Lemolo Reservoir near Toketee Falls.

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929 (levels by PacifiCorp).

REMARKS.--Lake is formed by Lemolo No 1 diversion dam. Storage began July 15, 1954. Usable capacity for normal operation, 12,520 acre-ft between elevations 4,097.0 ft and 4,148.5 ft. Dead storage below 4,097.0 ft, 1,040 acre-ft. Water is used for power generation. Figures given herein represent total contents.

COOPERATION.--Gage readings furnished by PacifiCorp.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 14,000 acre-ft Dec. 24, 1964, elevation, 4,149.5 ft; minimum observed, 11 acre-ft Mar. 5, 1955, elevation, 4,055.4 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 13,560 acre-ft June 7, 17, 23, 25, Sept. 4, elevation, 4,148.50 ft; minimum observed, 5,100 acre-ft Mar. 1, 15, elevation, 4,123.35 ft.

## MONTHEND ELEVATION AND CONTENTS AT 0900, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Elevation (feet)	Contents (acre-feet)	Change in contents (acre-feet)
Sept. 30.....	4,147.70	13,220	--
Oct. 31.....	4,136.50	9,050	-4,170
Nov. 30.....	4,125.85	5,790	-3,260
Dec. 31.....	4,129.50	6,840	+1,050
CAL YR 2001.....	--	--	+580
Jan. 31.....	4,127.30	6,200	-640
Feb. 28.....	4,124.00	5,280	-920
Mar. 31.....	4,124.97	5,540	+260
Apr. 30.....	4,143.40	11,500	+5,960
May 31.....	4,147.93	13,320	+1,820
June 30.....	4,148.05	13,370	+50
July 31.....	4,148.18	13,430	+60
Aug. 31.....	4,148.30	13,480	+50
Sept. 30.....	4,147.10	12,970	-510
WTR YR 2002.....	--	--	-250



14313500 NORTH UMPQUA RIVER BELOW LEMOLO LAKE, NEAR TOKETEE FALLS, OR

LOCATION.--Lat 43°19'20", long 122°11'40", in NW 1/4 NW 1/4 sec.11, T.26 S., R.5 E., Douglas County, Hydrologic Unit 17100301, Umpqua National Forest, on right bank 0.4 mi downstream from Lemolo Lake, 13 mi east of town of Toketee Falls, and at mile 92.6.

DRAINAGE AREA.--170 mi<sup>2</sup> (see REMARKS).

PERIOD OF RECORD.--October 1927 to December 1945, March 1946 to current year. Records since October 1983 are equivalent to earlier records if diversion to Lemolo No. 1 power canal is added to flow past station. Published as "below Lake Creek" prior to October 1952, as "below Lake Creek, near Toketee Falls" October 1952 to September 1953, and as "below Lemolo Reservoir near Toketee Falls" October 1953 to September 1960.

REVISED RECORDS.--WSP 1448: Drainage area. WDR OR-75-1: 1964(M).

GAGE.--Water-stage recorder. Elevation of gage is 4,025 ft above NGVD of 1929, from river-profile map. Prior to July 15, 1954, at site 1 mi upstream at datum about 65 ft higher. July 15, 1954, to Sept. 25, 1955, at site 400 ft upstream at datum 14.11 ft higher.

REMARKS.--Records good. Flow regulated since 1954 by Lemolo Lake (station 14313000); also slightly regulated by Diamond Lake. Records given herein do not include flow in Lemolo No. 1 power canal which, beginning July 1955, diverts 0.4 mi upstream from station for power generation with return flow 4.3 mi downstream.

AVERAGE DISCHARGE.--55 years (water years 1928-83), 423 ft<sup>3</sup>/s, 33.79 in/yr, 306,500 acre-ft/yr, adjusted for storage. 35 years (water years 1968-2002), 58.9 ft<sup>3</sup>/s, 42,700 acre-ft/yr (river only).

EXTREMES FOR PERIOD OF RECORD.--River only, maximum discharge, 4,600 ft<sup>3</sup>/s Dec. 25, 1964, from rating curve extended above 450 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow, gage height, 9.20 ft, from floodmark; minimum discharge, 6.4 ft<sup>3</sup>/s July 17, 1954.

Combined flow, maximum discharge, 4,680 ft<sup>3</sup>/s Dec. 25, 1964, from river rating curve extended above 450 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum daily, 9.7 ft<sup>3</sup>/s May 13, 1955.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 484 ft<sup>3</sup>/s Dec. 23, gage height, 6.41 ft; minimum discharge, 28 ft<sup>3</sup>/s Nov. 7-14, Jan. 22 to Feb 15, 17.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	31	29	30	29	28	29	29	40	43	32	33	34
2	31	29	29	29	28	29	30	42	42	32	33	34
3	31	29	29	29	28	29	31	43	40	32	33	34
4	31	29	29	29	28	29	33	44	40	32	33	34
5	30	29	29	29	28	29	34	44	39	32	33	35
6	30	29	30	29	28	29	36	43	38	33	33	35
7	30	28	29	30	28	29	38	42	38	32	33	34
8	30	28	29	33	28	29	39	42	38	32	33	34
9	30	28	29	33	28	29	41	41	36	32	32	34
10	30	28	30	33	28	29	46	40	35	32	32	34
11	30	28	29	33	28	29	47	39	34	32	32	33
12	30	28	29	33	28	29	49	40	34	32	32	33
13	30	28	30	33	28	29	55	42	34	32	32	33
14	30	29	30	33	28	29	89	42	33	32	32	33
15	30	30	30	32	28	29	76	43	33	32	32	33
16	30	30	30	32	29	29	64	43	33	32	32	33
17	30	29	30	31	28	29	56	44	34	32	32	33
18	30	29	30	30	29	29	50	45	35	32	32	33
19	30	30	30	30	29	29	47	44	34	32	32	33
20	30	30	29	29	29	29	43	43	33	32	32	34
21	30	30	29	29	29	29	42	42	33	32	32	33
22	30	30	29	e28	29	29	41	41	33	32	32	33
23	30	30	259	e28	29	29	41	40	33	32	33	33
24	29	30	394	e28	29	29	41	40	33	32	33	33
25	29	30	230	e28	29	29	41	40	33	33	33	33
26	29	30	218	e28	29	29	42	41	33	33	33	33
27	29	30	162	e28	29	29	42	44	33	33	33	33
28	29	30	29	e28	29	29	41	47	33	33	33	33
29	29	30	29	e28	---	29	40	47	33	33	33	33
30	29	30	29	e28	---	29	40	46	33	33	34	33
31	29	---	29	e28	---	29	---	45	---	33	34	---
TOTAL	926	877	2027	928	796	899	1344	1319	1056	1000	1011	1003
MEAN	29.9	29.2	65.4	29.9	28.4	29.0	44.8	42.5	35.2	32.3	32.6	33.4
MAX	31	30	394	33	29	29	89	47	43	33	34	35
MIN	29	28	29	28	28	29	29	39	33	32	32	33
AC-FT	1840	1740	4020	1840	1580	1780	2670	2620	2090	1980	2010	1990

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1968 - 2002, BY WATER YEAR (WY)

	37.7	34.4	40.3	42.8	34.5	37.5	41.1	109	135	82.1	65.5	46.6
MEAN	37.7	34.4	40.3	42.8	34.5	37.5	41.1	109	135	82.1	65.5	46.6
MAX	126	150	185	307	144	200	119	301	687	301	321	225
(WY)	1979	1979	1997	1997	1996	1972	1987	1972	1974	1996	1979	1985
MIN	19.8	19.1	19.5	19.6	19.8	19.8	22.2	22.2	22.6	24.2	20.8	20.9
(WY)	1973	1973	1971	1985	1973	1973	1973	1973	1973	1968	1971	1972

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1968 - 2002

ANNUAL TOTAL	14319	13186	
ANNUAL MEAN	39.2	36.1	
HIGHEST ANNUAL MEAN			58.9
LOWEST ANNUAL MEAN			125
HIGHEST DAILY MEAN	394	Dec 24	24.1
LOWEST DAILY MEAN	28	Feb 2	1070
ANNUAL SEVEN-DAY MINIMUM	28	Feb 20	15
ANNUAL RUNOFF (AC-FT)	28400	26150	42700
10 PERCENT EXCEEDS	36	42	113
50 PERCENT EXCEEDS	30	32	30
90 PERCENT EXCEEDS	28	29	23

e Estimated

UMPQUA RIVER BASIN

14314500 CLEARWATER RIVER ABOVE TRAP CREEK, NEAR TOKETEE FALLS, OR

LOCATION.--Lat 43°14'40", long 122°17'10", in SW 1/4 sec.1, T.27 S., R.4 E., Douglas County, Hydrologic Unit 17100301, Umpqua National Forest, on right bank 900 ft downstream from Clearwater No. 1 diversion dam, 0.4 mi upstream from Trap Creek, 8.7 mi east of town of Toketee Falls, and at mile 7.8.

DRAINAGE AREA.--41.6 mi<sup>2</sup> (see REMARKS).

PERIOD OF RECORD.--October 1927 to December 1945, March 1946 to current year. Records since October 1983 are equivalent to earlier records if diversion to Clearwater No. 1 power canal is added to flow past station. Monthly discharge only December 1927 to March 1928, published in WSP 1318. Prior to October 1952, published as "above Trap Creek."

REVISED RECORDS.--WSP 1124: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 3,862.84 ft above NGVD of 1929 (levels by Pacific Power & Light Co.). Prior to Dec. 1, 1953, at two sites about 0.4 mi downstream at different datums.

REMARKS.--No estimated daily discharges. Records fair. Records after September 1983 do not include flow in Clearwater No. 1 power canal, completed in June 1953, which diverts 900 ft upstream from station for generation of power and returns water to Clearwater River 2.5 mi downstream from station.

AVERAGE DISCHARGE.--55 years (water years 1928-83), 173 ft<sup>3</sup>/s, 125,300 acre-ft/yr.  
19 years (water years 1984-2002), 19.7 ft<sup>3</sup>/s, 14,270 acre-ft/yr (river only).

EXTREMES FOR PERIOD OF RECORD.--River only, maximum discharge, 848 ft<sup>3</sup>/s Dec. 23, 1964, gage height, 7.19 ft; maximum gage height, 7.87 ft Dec. 23, 1964, log jam; minimum discharge, 0.08 ft<sup>3</sup>/s Sept. 21, 1977, result of beavers plugging release gate at diversion dam 900 ft upstream.

Combined flow, maximum discharge, 1,020 ft<sup>3</sup>/s Dec. 23, 1964; minimum daily, 91 ft<sup>3</sup>/s Nov. 4-6, 1931.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 169 ft<sup>3</sup>/s Apr. 14, gage height, 4.24 ft; minimum discharge, 5.4 ft<sup>3</sup>/s Jan. 22.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64	132	6.9	7.7	7.1	7.7	8.3	11	7.9	6.7	7.7	7.7
2	132	131	6.8	8.8	6.7	7.5	9.1	13	7.5	6.7	7.7	7.7
3	133	130	6.8	7.5	6.6	7.2	10	14	7.2	6.9	7.7	7.7
4	132	130	6.8	7.5	6.5	7.1	9.6	12	7.1	7.1	7.7	7.7
5	132	130	7.0	6.9	7.1	7.3	8.7	11	7.5	7.1	7.7	7.7
6	132	130	7.6	22	7.0	9.2	14	9.1	7.9	7.1	7.7	7.8
7	131	130	7.2	15	11	9.6	12	8.1	7.5	7.1	7.7	7.8
8	132	129	7.1	24	9.1	7.3	10	7.5	7.2	7.1	7.7	7.7
9	133	129	7.1	12	7.4	7.1	21	7.3	7.0	7.1	7.7	7.7
10	133	129	7.1	11	7.4	7.0	41	7.3	6.8	7.1	7.7	7.7
11	140	129	7.0	8.3	7.1	7.5	40	7.1	6.8	7.1	7.7	7.7
12	134	130	7.1	9.1	7.1	12	39	7.7	7.0	7.1	7.7	7.7
13	133	131	11	8.2	7.1	7.5	55	9.5	8.3	7.1	7.7	7.7
14	133	131	12	8.0	7.1	6.9	152	8.6	10	7.1	7.7	7.7
15	133	130	6.9	7.4	6.9	6.8	121	9.0	8.1	7.1	7.7	7.7
16	132	138	8.8	8.4	7.1	6.8	84	8.3	7.8	7.1	7.7	7.7
17	131	97	12	7.7	7.1	6.8	60	9.0	7.5	7.2	7.7	9.4
18	131	7.3	7.0	6.3	6.9	6.8	39	9.8	18	7.4	7.7	7.8
19	131	7.2	7.6	6.3	7.4	6.8	27	8.9	7.6	7.4	7.7	7.6
20	131	7.3	8.0	6.2	8.5	6.8	21	7.5	7.1	7.4	7.7	7.4
21	131	8.0	6.9	6.8	7.8	6.8	17	7.4	7.1	7.4	7.7	7.4
22	136	9.5	7.3	6.2	8.2	6.8	13	7.0	7.1	7.4	7.7	7.4
23	138	7.1	6.9	6.8	12	7.2	12	6.6	7.2	7.5	7.7	7.4
24	133	7.0	7.2	6.8	9.8	7.3	11	6.5	7.1	7.7	7.7	7.4
25	131	7.1	7.7	9.6	8.7	6.9	11	6.5	7.1	7.7	7.7	7.4
26	131	7.1	7.7	9.0	8.4	6.9	11	6.8	7.2	7.6	7.7	7.4
27	131	6.9	7.8	8.2	8.2	7.5	11	8.4	7.1	7.5	7.7	7.4
28	131	7.2	8.0	8.0	8.1	7.8	9.0	14	7.0	7.4	7.7	7.4
29	131	7.1	7.0	8.0	---	8.5	8.9	22	7.1	7.4	7.7	7.6
30	135	6.9	7.4	8.0	---	9.1	9.5	16	6.9	7.4	7.7	7.7
31	134	---	9.5	7.8	---	9.1	---	8.7	---	7.6	7.7	---
TOTAL	4045	2281.7	241.2	283.5	219.4	235.6	895.1	295.6	232.7	224.6	238.7	230.1
MEAN	130	76.1	7.78	9.15	7.84	7.60	29.8	9.54	7.76	7.25	7.70	7.67
MAX	140	138	12	24	12	12	152	22	18	7.7	7.7	9.4
MIN	64	6.9	6.8	6.2	6.5	6.8	8.3	6.5	6.8	6.7	7.7	7.4
AC-FT	8020	4530	478	562	435	467	1780	586	462	445	473	456

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	23.2	20.7	15.0	16.8	21.1	13.9	22.1	42.2	15.7	20.7	15.1	9.89
MEAN	23.2	20.7	15.0	16.8	21.1	13.9	22.1	42.2	15.7	20.7	15.1	9.89
MAX	130	177	68.5	143	177	45.0	66.1	125	56.8	88.3	100	59.4
(WY)	2002	2001	1997	1997	1996	1997	1997	1984	1999	1993	1996	1994
MIN	4.91	5.04	3.48	5.43	5.32	5.56	5.98	5.10	5.56	5.43	5.04	5.02
(WY)	1989	1988	1998	1987	1990	1988	1991	1992	1992	1990	1986	1987

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1984 - 2002

ANNUAL TOTAL	8524.8	9423.2	
ANNUAL MEAN	23.4	25.8	19.7
HIGHEST ANNUAL MEAN			52.0
LOWEST ANNUAL MEAN			5.85
HIGHEST DAILY MEAN	140	Oct 11	659
LOWEST DAILY MEAN	5.3	Apr 3	2.0
ANNUAL SEVEN-DAY MINIMUM	5.5	Apr 3	3.2
ANNUAL RUNOFF (AC-FT)	16910	18690	14270
10 PERCENT EXCEEDS	130	130	45
50 PERCENT EXCEEDS	6.6	7.7	6.6
90 PERCENT EXCEEDS	5.9	6.9	5.3

14316000 FISH CREEK AT BIG CAMAS RANGER STATION, NEAR TOKETEE FALLS, OR

LOCATION.--Lat 43°13'50", long 122°26'45", in SE 1/4 sec.10, T.27 S., R.3 E., Douglas County, Hydrologic Unit 17100301, Umpqua National Forest, 0.2 mi upstream from Camas Creek, 0.7 mi east of Big Camas ranger station, 3.2 mi south of town of Toketee Falls, and at mile 4.7.

DRAINAGE AREA.--68.8 mi<sup>2</sup> (see REMARKS).

PERIOD OF RECORD.--October 1947 to current year. Records since October 1983 are equivalent to earlier records if diversion to Fish Creek power canal is added to flow past station. Prior to October 1952, published as "at Big Camas ranger station."

REVISED RECORDS.--WSP 1448: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,858.52 ft above NGVD of 1929 (levels by PacifiCorp). Prior to July 10, 1951, water-stage recorder and July 10 to Aug. 10, 1951, nonrecording gage at site 1,000 ft upstream at datum 13.72 ft higher. Aug. 11 to Nov. 3, 1951, nonrecording gage at site 200 ft downstream at different datum. Nov. 4, 1951, to Sept. 30, 1956, water-stage recorder at present site at datum 1.92 ft higher.

REMARKS.--No estimated daily discharges. Records good. Records given herein do not include flow in Fish Creek power canal (diversion began June 18, 1952), which diverts water 2 mi upstream from station for power generation at Fish Creek powerplant; diversion discharged to North Umpqua River 600 ft downstream from Toketee powerplant.

AVERAGE DISCHARGE.--36 years (water years 1947-83), 237 ft<sup>3</sup>/s, 46.78 in/yr, 171,700 acre-ft/yr.  
19 years (water years 1984-2002), 125 ft<sup>3</sup>/s, 24.68 in/yr, 90,540 acre-ft/yr (river only).

EXTREMES FOR PERIOD OF RECORD.--River only, maximum discharge, 12,100 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 13.9 ft, from floodmark; minimum discharge, 2.3 ft<sup>3</sup>/s Sept. 25, 1957.

Combined flow, maximum discharge, 12,100 ft<sup>3</sup>/s Dec. 22, 1964; minimum daily, 19 ft<sup>3</sup>/s July 30, 1979, result of diversion dam manipulation.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 2,000 ft<sup>3</sup>/s Apr. 14, gage height, 7.16 ft; minimum discharge, 10 ft<sup>3</sup>/s Nov. 1.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18	13	32	152	40	69	94	118	239	32	30	44
2	17	13	29	294	34	54	140	146	202	32	30	44
3	17	14	27	265	32	44	209	163	170	32	30	43
4	17	14	33	170	30	37	275	158	156	32	31	44
5	17	14	28	123	32	35	351	158	158	30	47	42
6	17	15	180	518	33	50	351	151	144	32	61	41
7	17	17	101	594	67	72	306	134	118	32	60	45
8	17	16	47	1010	77	50	263	118	93	32	59	42
9	18	16	33	655	49	41	339	110	75	32	58	40
10	17	17	30	406	40	37	507	99	64	30	57	39
11	34	17	25	278	36	54	459	94	62	30	57	33
12	16	19	22	239	34	193	456	109	64	31	56	31
13	17	27	168	190	32	137	608	140	70	30	54	27
14	16	31	362	146	32	96	1530	139	71	30	53	23
15	17	18	139	111	33	73	917	142	64	32	52	21
16	18	50	208	86	35	57	579	138	58	32	52	19
17	18	32	263	67	39	43	414	156	63	33	52	39
18	18	22	139	49	41	35	308	173	177	32	51	30
19	18	25	83	41	61	33	245	166	85	31	51	20
20	18	46	58	37	123	32	200	151	61	31	51	19
21	18	110	42	43	180	34	167	148	51	31	52	21
22	29	207	36	32	213	46	151	126	44	30	50	21
23	58	67	54	31	308	86	145	106	39	31	48	21
24	20	33	66	38	256	99	131	106	35	30	48	22
25	20	25	54	63	184	92	134	129	32	30	48	22
26	21	20	46	61	137	82	140	172	31	30	48	22
27	20	19	44	47	108	77	136	210	30	31	47	22
28	23	63	61	42	88	70	120	277	30	31	47	22
29	19	57	53	57	---	70	111	327	36	30	46	22
30	33	30	58	48	---	71	111	317	32	31	45	27
31	22	---	183	42	---	77	---	271	---	31	45	---
TOTAL	645	1067	2704	5935	2374	2046	9897	4952	2554	964	1516	908
MEAN	20.8	35.6	87.2	191	84.8	66.0	330	160	85.1	31.1	48.9	30.3
MAX	58	207	362	1010	308	193	1530	327	239	33	61	45
MIN	16	13	22	31	30	32	94	94	30	30	30	19
AC-FT	1280	2120	5360	11770	4710	4060	19630	9820	5070	1910	3010	1800
CFSM	0.30	0.52	1.27	2.78	1.23	0.96	4.80	2.32	1.24	0.45	0.71	0.44
IN.	0.35	0.58	1.46	3.21	1.28	1.11	5.35	2.68	1.38	0.52	0.82	0.49

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	28.2	95.9	163	182	163	183	219	231	134	39.5	35.0	29.4							
MAX	78.8	387	747	682	545	581	434	505	429	111	74.5	74.5							
(WY)	1987	1997	1997	1997	1986	1993	1989	1993	1999	1999	1985	1986							
MIN	11.7	17.2	24.1	21.1	22.6	31.0	57.9	36.4	28.9	23.5	23.3	13.6							
(WY)	1984	1990	2001	2001	2001	1992	2001	1992	1987	1996	1992	1990							

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1984 - 2002

ANNUAL TOTAL	15627	35562		
ANNUAL MEAN	42.8	97.4	125	
HIGHEST ANNUAL MEAN			247	1997
LOWEST ANNUAL MEAN			36.8	2001
HIGHEST DAILY MEAN	493	May 16	1530	Apr 14
LOWEST DAILY MEAN	13	Nov 1	13	Nov 1
ANNUAL SEVEN-DAY MINIMUM	14	Nov 1	14	Nov 1
ANNUAL RUNOFF (AC-FT)	31000	70540	90540	
ANNUAL RUNOFF (CFSM)	0.62	1.42	1.82	
ANNUAL RUNOFF (INCHES)	8.45	19.23	24.68	
10 PERCENT EXCEEDS	82	209	309	
50 PERCENT EXCEEDS	27	47	45	
90 PERCENT EXCEEDS	18	19	17	

## UMPQUA RIVER BASIN

14316460 NORTH UMPQUA RIVER AT SODA SPRINGS, NEAR TOKETEETEE FALLS, OR

LOCATION.--Lat 43°18'22", long 122°30'42", in NE 1/4 SW 1/4 sec.18, T.26 S., R.3 E., Douglas County, Hydrologic Unit 17100301, on right bank 0.9 mi upstream from Boulder Creek, 4.5 mi west of Toketee Falls, and at mile 68.8.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: October 1997 to current year.

pH: October 1997 to current year.

WATER TEMPERATURE: October 1997 to current year.

DISSOLVED OXYGEN: October 1997 to current year.

TURBIDITY: October 1999 to current year.

INSTRUMENTATION.--Water-quality monitor and data logger.

## REMARKS.--

SPECIFIC CONDUCTANCE: Records good except for the period Apr. 5 to July 31, which are fair.

pH: Records good.

WATER TEMPERATURE: Records good.

DISSOLVED OXYGEN: Records good.

TURBIDITY: Records good. The probe was checked using a polymer bead standard.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 83 microsiemens May 24, 2001; minimum recorded, 30 microsiemens Apr. 14, 2002.

pH: Maximum recorded, 8.4 units July 30, Aug. 1-5, 2002; minimum recorded, 6.9 units Dec. 19, 2001.

WATER TEMPERATURE: Maximum recorded, 15.5°C Aug. 11, 2001, but may have been higher during period of missing record; minimum recorded, 1.9°C Jan. 29, 2002.

DISSOLVED OXYGEN: Maximum recorded, 15.2 mg/L Nov. 19, 2000; minimum recorded, 6.9 mg/L July 11, 2001, but may have been lower during period of missing record.

TURBIDITY: Maximum, 42 NTU Nov. 29, 2001; minimum, &lt;1 many days each year.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum, 69 microsiemens Sept. 16; minimum, 30 microsiemens Apr. 14.

pH: Maximum recorded, 8.4 units July 30, Aug. 1-5; minimum recorded, 6.9 units Dec. 19.

WATER TEMPERATURE: Maximum recorded, 15.3°C July 13; minimum recorded, 1.9°C Jan. 29.

DISSOLVED OXYGEN: Maximum recorded, 14.1 mg/L Jan. 30; minimum recorded, 9.8 mg/L Aug. 14, but may have been lower during period of missing record.

TURBIDITY: Maximum, 42 NTU Nov. 29; minimum, &lt;1 many days throughout the year.

## SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	63	61	62	62	60	61	57	56	57	49	48	48
2	62	61	62	61	59	60	59	54	56	48	45	47
3	62	61	61	61	60	60	60	56	57	47	45	46
4	63	61	62	61	59	60	59	56	57	48	47	47
5	62	61	62	61	59	60	59	55	57	49	46	48
6	63	61	62	61	59	60	59	51	54	49	41	44
7	63	61	62	60	59	59	54	52	53	44	41	43
8	63	61	62	61	58	59	56	54	55	41	37	38
9	63	61	62	59	58	59	59	56	57	41	38	40
10	63	62	62	58	58	58	59	55	57	44	41	42
11	63	61	62	59	58	58	59	55	57	45	44	44
12	62	61	61	59	58	59	59	55	57	45	45	45
13	63	61	62	59	57	58	58	43	55	48	45	46
14	64	60	62	58	57	58	49	41	46	49	46	47
15	64	60	62	59	58	59	51	49	50	50	46	48
16	63	60	61	59	58	59	51	47	50	49	48	48
17	63	61	62	61	58	58	49	43	46	50	47	49
18	63	60	61	62	59	60	51	47	49	50	49	49
19	63	60	61	61	59	60	51	49	51	50	49	50
20	63	60	61	61	58	59	52	50	51	51	50	50
21	62	60	61	60	56	58	53	51	52	50	49	49
22	62	59	61	58	52	53	53	51	52	51	49	50
23	61	58	59	59	54	56	54	52	52	53	49	51
24	62	60	61	60	58	59	54	52	53	53	51	52
25	63	60	61	58	56	57	54	52	53	52	49	51
26	63	60	62	59	56	57	55	53	54	51	48	50
27	62	59	60	58	56	57	55	53	55	53	50	51
28	62	59	60	56	52	55	55	53	54	54	51	52
29	62	59	60	56	51	53	55	51	53	56	52	53
30	62	59	60	58	56	57	54	51	52	55	51	53
31	62	59	60	---	---	---	53	47	49	55	52	54
MONTH	64	58	61	62	51	58	60	41	53	56	37	48

14316460 NORTH UMPQUA RIVER AT SODA SPRINGS, NEAR TOKETEE FALLS, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	54	52	54	50	47	48	50	48	49	47	45	46
2	55	53	54	51	48	49	50	47	48	47	43	45
3	56	52	54	50	48	49	48	45	47	47	40	44
4	55	53	54	50	48	49	46	43	45	46	44	45
5	56	54	55	50	48	49	44	43	44	63	45	48
6	56	53	54	53	49	51	43	41	42	46	45	46
7	55	51	53	53	49	51	43	43	43	48	45	46
8	52	49	51	52	49	50	44	42	43	51	47	49
9	54	50	52	51	50	50	44	41	43	50	49	49
10	55	51	53	51	49	50	41	39	40	51	50	50
11	55	53	54	51	49	50	40	39	40	50	44	48
12	54	53	54	49	46	47	46	39	42	51	49	50
13	54	52	53	48	45	46	40	35	39	50	48	49
14	55	52	53	49	46	47	35	30	31	50	46	49
15	55	52	53	51	47	48	35	32	34	51	42	48
16	55	52	53	49	47	48	37	35	36	49	47	48
17	55	52	53	50	48	49	39	37	38	50	43	48
18	54	52	53	51	49	50	41	39	40	49	47	48
19	53	50	52	52	49	50	42	41	41	52	47	48
20	52	49	50	52	49	50	43	42	43	49	47	48
21	51	47	49	52	49	51	45	43	44	52	47	48
22	50	47	48	52	49	50	45	43	44	44	41	43
23	48	45	46	49	47	48	46	43	44	47	46	46
24	47	45	46	49	47	48	46	43	45	48	46	47
25	47	46	46	49	47	48	---	---	---	48	45	47
26	49	46	47	49	48	48	43	41	42	47	43	45
27	49	47	48	50	49	49	44	42	43	46	41	45
28	49	47	48	50	48	50	45	43	44	45	41	44
29	---	---	---	51	48	49	46	44	44	44	42	43
30	---	---	---	52	48	49	46	44	45	44	42	43
31	---	---	---	50	48	49	---	---	---	44	42	43
MONTH	56	45	51	53	45	49	---	---	---	63	40	47

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	45	43	44	58	55	57	63	61	62	65	63	64
2	45	44	44	---	---	---	63	61	62	64	61	63
3	47	44	45	59	57	58	63	61	62	64	62	63
4	47	44	46	59	57	59	63	61	62	64	61	63
5	42	40	41	60	58	59	64	61	62	64	62	63
6	47	46	46	60	58	59	64	61	62	64	62	63
7	48	46	47	60	59	60	64	61	62	65	60	63
8	49	47	48	61	59	60	66	61	62	63	61	62
9	49	47	48	62	59	61	63	58	61	63	60	62
10	49	47	48	63	61	62	63	57	61	68	60	63
11	50	43	48	65	62	63	63	62	62	63	61	62
12	50	48	49	65	59	63	65	62	63	63	62	62
13	50	45	48	64	62	63	64	61	63	63	62	62
14	52	47	48	64	59	61	64	62	63	63	60	62
15	49	47	48	65	58	62	64	62	63	62	61	62
16	49	46	48	65	59	64	64	62	63	69	60	61
17	50	47	48	65	62	64	64	62	63	61	59	60
18	48	45	46	57	52	54	64	62	63	61	59	60
19	45	39	43	63	61	62	64	61	63	63	60	61
20	53	50	52	63	61	62	63	61	62	63	54	59
21	54	52	53	63	61	62	63	61	62	61	57	59
22	55	52	53	63	62	62	67	60	63	61	59	60
23	55	53	54	63	62	62	62	60	61	60	54	55
24	56	52	54	63	62	62	62	60	61	61	57	60
25	55	54	55	63	59	62	63	60	61	63	60	61
26	58	54	56	63	62	62	63	61	62	63	61	62
27	57	56	56	64	62	63	63	59	61	63	62	62
28	57	56	56	64	62	63	64	60	62	63	61	62
29	57	52	54	64	62	63	65	63	64	63	60	62
30	58	51	56	64	62	63	65	62	63	64	61	62
31	---	---	---	61	52	56	65	63	63	---	---	---
MONTH	58	39	49	---	---	---	67	57	62	69	54	62

UMPQUA RIVER BASIN

14316460 NORTH UMPQUA RIVER AT SODA SPRINGS, NEAR TOKETEE FALLS, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	7.8	7.4	7.5	7.5	7.3	7.4	7.4	7.2	7.3	7.1	7.1	7.1
2	7.8	7.3	7.5	7.5	7.3	7.4	7.4	7.2	7.3	7.1	7.0	7.1
3	7.6	7.3	7.4	7.5	7.4	7.4	7.3	7.2	7.3	7.1	7.1	7.1
4	7.6	7.3	7.4	7.6	7.4	7.4	7.3	7.2	7.3	7.2	7.1	---
5	7.8	7.3	7.4	7.7	7.4	7.5	7.3	7.2	7.2	7.2	7.2	7.2
6	7.7	7.3	7.4	7.7	7.5	7.5	7.2	7.1	7.2	7.2	7.1	7.2
7	7.7	7.3	7.4	7.6	7.5	7.5	7.2	7.1	7.2	7.2	7.1	7.2
8	7.6	7.3	7.4	7.7	7.5	7.5	7.3	7.2	7.2	7.2	7.1	7.1
9	7.6	7.3	7.4	7.9	7.3	7.4	7.3	7.2	7.2	7.2	7.2	7.2
10	7.8	7.3	7.4	7.4	7.2	7.3	7.3	7.2	7.2	7.3	7.2	7.3
11	7.8	7.3	7.5	7.4	7.2	7.2	7.3	7.2	7.2	7.4	7.3	7.3
12	7.8	7.4	7.5	7.3	7.2	7.2	7.3	7.2	7.2	7.4	7.3	7.4
13	7.6	7.4	7.5	7.3	7.1	7.2	7.2	7.0	7.2	7.5	7.4	7.4
14	7.7	7.3	7.4	7.3	7.1	7.2	7.1	7.0	7.0	7.5	7.4	7.5
15	7.7	7.3	7.4	7.2	7.1	7.2	7.1	7.0	7.1	7.5	7.4	7.5
16	7.7	7.3	7.4	7.3	7.1	7.2	7.1	7.1	7.1	7.6	7.5	7.5
17	7.6	7.3	7.4	7.3	7.1	7.2	7.1	7.0	7.1	7.6	7.5	7.6
18	7.6	7.3	7.3	7.3	7.2	7.2	7.1	7.0	7.0	7.7	7.6	7.6
19	7.5	7.2	7.3	7.3	7.2	7.2	7.2	6.9	---	7.7	7.6	7.7
20	7.5	7.3	7.3	---	---	---	7.2	7.1	7.1	7.7	7.7	7.7
21	7.6	7.2	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.7	7.7	7.7
22	7.4	7.2	7.3	7.2	7.2	7.2	7.2	7.1	7.1	7.8	7.7	7.8
23	7.4	7.2	7.3	7.3	7.2	7.2	7.2	7.1	7.1	7.8	7.8	7.8
24	7.4	7.1	7.2	7.3	7.2	7.3	7.2	7.1	7.1	7.9	7.7	7.8
25	7.4	7.2	7.2	7.4	7.2	7.3	7.2	7.1	7.2	---	---	---
26	7.4	7.2	7.2	7.4	7.2	7.3	7.2	7.1	7.2	7.8	7.6	7.7
27	7.6	7.2	7.3	---	---	---	7.2	7.1	7.2	7.8	7.6	7.7
28	7.6	7.3	7.3	7.3	7.2	7.3	7.2	7.1	7.2	7.7	7.6	7.7
29	7.5	7.3	7.3	7.3	7.2	7.2	7.2	7.1	7.2	7.8	7.6	7.6
30	7.5	7.3	7.3	7.3	7.2	7.3	7.2	7.1	7.2	7.8	7.6	7.6
31	7.5	7.3	7.4	---	---	---	7.2	7.1	7.1	7.7	7.6	7.6
MAX	7.8	7.4	7.5	---	---	---	7.4	7.2	---	---	---	---
MIN	7.4	7.1	7.2	---	---	---	7.1	6.9	---	---	---	---

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	7.7	7.5	7.6	7.4	7.3	7.4	7.7	7.4	7.5	7.8	7.7	7.8
2	7.7	7.5	7.6	7.5	7.3	7.4	7.6	7.4	7.5	7.8	7.7	7.8
3	7.6	7.5	7.5	7.5	7.4	7.4	7.6	7.4	7.5	7.9	7.8	7.8
4	7.6	7.5	7.5	7.6	7.4	7.5	7.6	7.4	7.4	7.8	7.7	7.8
5	7.6	7.5	7.5	7.6	7.4	7.5	---	---	---	7.8	7.7	7.8
6	7.6	7.4	7.5	7.6	7.4	---	7.5	7.3	7.5	7.8	7.7	7.8
7	7.6	7.4	7.5	7.5	7.4	7.5	7.5	7.4	7.5	7.8	7.7	7.8
8	7.5	7.4	7.5	7.5	7.4	7.5	7.5	7.4	7.5	7.8	7.7	7.8
9	7.5	7.4	7.5	7.5	7.4	7.5	7.5	7.5	7.5	7.8	7.7	7.8
10	7.5	7.4	7.5	7.5	7.5	7.5	7.5	7.4	7.5	7.8	7.7	7.8
11	7.5	7.4	7.4	7.6	7.4	7.5	7.6	7.5	7.5	7.8	7.7	7.8
12	7.5	7.4	7.4	7.5	7.4	7.5	7.6	7.5	7.5	7.8	7.7	7.8
13	7.5	7.4	7.4	7.5	7.4	7.5	7.6	7.5	7.5	7.8	7.7	7.8
14	7.4	7.3	7.4	7.6	7.5	7.5	7.5	7.3	7.3	7.8	7.7	7.8
15	7.4	7.3	7.3	7.6	7.5	7.5	7.5	7.3	7.4	7.8	7.7	7.8
16	7.4	7.3	7.3	7.6	7.5	7.5	7.6	7.5	7.5	7.8	7.7	7.8
17	7.4	7.2	7.3	7.6	7.5	7.5	7.6	7.5	7.6	7.8	7.7	7.8
18	7.4	7.2	7.2	7.6	7.5	7.6	7.7	7.6	7.7	7.9	7.7	7.8
19	7.2	7.1	7.2	7.6	7.5	7.6	7.8	7.6	7.7	7.8	7.7	7.8
20	---	---	---	7.7	7.5	---	7.8	7.7	7.8	7.8	7.7	7.8
21	7.3	7.2	7.2	7.8	7.6	7.6	7.9	7.7	7.8	7.8	7.7	7.8
22	7.3	7.1	7.2	7.7	7.6	7.6	7.9	7.7	7.9	7.8	7.7	7.8
23	7.3	7.2	7.2	7.7	7.5	7.6	8.0	7.8	7.9	7.8	7.7	7.8
24	7.3	7.2	7.2	7.7	7.5	7.5	8.0	7.8	7.9	7.9	7.8	7.8
25	7.3	7.2	7.2	7.6	7.5	7.5	---	---	---	7.9	7.7	7.8
26	7.3	7.2	7.3	7.6	7.4	7.5	7.8	7.7	7.8	7.9	7.8	7.8
27	7.3	7.2	7.3	7.6	7.5	7.5	7.8	7.7	7.8	7.9	7.8	7.8
28	7.4	7.3	7.3	7.6	7.4	7.5	7.8	7.7	7.8	7.8	7.7	7.8
29	---	---	---	7.7	7.5	7.5	7.8	7.7	7.8	7.8	7.7	7.8
30	---	---	---	7.7	7.4	7.5	7.8	7.7	7.8	7.8	7.7	7.8
31	---	---	---	7.7	7.4	7.5	---	---	---	7.9	7.7	7.8
MAX	---	---	---	7.8	7.6	---	---	---	---	7.9	7.8	7.8
MIN	---	---	---	7.4	7.3	---	---	---	---	7.8	7.7	7.8

14316460 NORTH UMPQUA RIVER AT SODA SPRINGS, NEAR TOKETEE FALLS, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.9	7.7	7.8	8.2	8.0	8.0	8.4	8.0	8.1	8.2	7.8	7.9
2	7.9	7.7	7.8	---	---	---	8.4	7.9	8.0	8.3	7.8	7.9
3	7.9	7.8	7.8	8.1	8.0	8.0	8.4	7.9	8.0	8.3	7.8	7.9
4	7.9	7.8	7.8	8.1	7.9	8.0	8.4	8.0	8.1	8.3	7.8	8.0
5	7.9	7.8	7.9	8.1	8.0	8.0	8.4	7.9	8.1	8.3	7.8	8.0
6	7.9	7.8	7.9	8.1	7.9	8.0	8.3	7.9	8.0	8.2	7.8	8.0
7	7.9	7.8	7.9	8.1	7.9	8.0	8.2	7.9	8.0	8.2	7.8	7.9
8	7.9	7.8	7.9	8.1	7.9	8.0	8.3	7.9	8.0	8.3	7.8	7.9
9	7.9	7.8	7.9	8.1	7.8	7.9	8.3	7.9	8.0	8.3	7.8	7.9
10	7.9	7.8	7.9	8.0	7.7	7.8	8.3	7.9	8.0	8.3	7.8	7.9
11	7.9	7.8	7.9	8.0	7.8	7.8	8.3	7.9	8.0	8.3	7.8	7.9
12	8.0	7.8	7.9	8.0	7.7	7.8	8.3	7.9	8.0	8.3	7.8	7.9
13	7.9	7.8	7.9	8.0	7.7	7.8	8.3	7.8	8.0	8.2	7.8	7.9
14	7.9	7.8	7.9	8.0	7.7	7.8	8.3	7.8	8.0	8.2	7.8	7.9
15	7.9	7.8	7.9	8.1	7.7	7.8	8.3	7.8	8.0	8.3	7.8	7.9
16	8.0	7.8	7.9	8.1	7.7	7.8	8.3	7.9	8.0	8.3	7.8	7.9
17	7.9	7.8	7.8	8.2	7.7	7.8	8.3	7.9	8.0	8.1	7.8	7.9
18	7.8	7.7	7.8	---	---	---	8.3	7.8	8.0	8.1	7.7	7.8
19	8.0	7.8	7.9	8.1	7.9	7.9	8.2	7.8	7.9	8.1	7.7	7.9
20	8.0	7.8	7.9	8.2	7.8	7.9	8.3	7.8	8.0	8.2	7.8	7.8
21	8.0	7.9	8.0	8.2	7.8	7.9	8.3	7.9	8.0	8.2	7.8	7.9
22	8.0	7.9	8.0	8.1	7.8	7.9	8.3	7.8	7.9	8.2	7.8	7.8
23	8.1	8.0	8.0	8.1	7.8	7.9	8.3	7.9	7.9	8.2	7.8	7.9
24	8.2	8.0	8.0	8.2	7.8	7.9	8.2	7.8	7.9	8.2	7.8	7.9
25	8.1	7.9	8.0	8.3	7.9	7.9	8.3	7.8	7.9	8.2	7.8	---
26	8.1	7.9	8.0	8.3	7.9	8.0	8.3	7.8	7.9	8.2	7.8	7.9
27	8.1	7.9	8.0	8.3	7.9	8.0	8.3	7.8	7.9	8.2	7.8	7.8
28	8.1	7.9	8.0	8.3	7.9	8.0	8.2	7.8	7.9	8.2	7.8	7.9
29	8.1	7.9	8.0	8.3	7.9	8.0	8.3	7.8	7.9	8.1	7.8	7.9
30	8.1	8.0	8.0	8.4	7.9	8.0	8.3	7.8	7.9	8.1	7.8	7.8
31	---	---	---	8.3	7.9	---	8.2	7.8	8.0	---	---	---
MAX	8.2	8.0	8.0	---	---	---	8.4	8.0	8.1	8.3	7.8	---
MIN	7.8	7.7	7.8	---	---	---	8.2	7.8	7.9	8.1	7.7	---

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	10.2	9.3	9.6	7.7	7.4	7.6	4.3	4.0	4.2	5.1	4.6	4.9
2	10.5	9.5	9.9	7.6	7.2	7.4	4.2	3.9	4.0	5.3	4.9	5.2
3	10.1	9.5	9.8	7.2	6.5	7.0	4.3	3.9	4.1	4.9	4.6	4.7
4	10.2	9.1	9.6	6.7	6.2	6.5	3.9	3.3	3.7	4.5	4.0	4.2
5	10.3	9.2	9.6	6.8	6.2	6.6	3.3	2.4	2.8	4.8	4.2	4.5
6	9.9	9.2	9.6	6.8	6.1	6.6	3.6	2.3	2.9	5.3	4.8	5.1
7	9.3	8.6	9.1	6.1	5.2	5.8	4.0	3.6	3.8	5.5	5.2	5.3
8	8.7	8.4	8.5	5.7	5.2	5.4	4.2	3.8	3.9	5.6	5.3	5.4
9	8.7	8.2	8.4	5.9	5.3	5.6	4.2	4.0	4.1	5.3	4.7	4.9
10	8.3	7.9	8.1	6.0	5.6	5.8	4.0	3.2	3.5	4.8	4.4	4.6
11	8.3	7.8	8.0	6.7	5.9	6.4	3.3	3.1	3.2	5.1	4.6	4.8
12	8.4	7.7	8.1	7.2	6.6	6.9	3.5	3.3	3.4	5.2	5.0	5.1
13	8.5	7.7	8.2	7.1	6.8	7.0	4.1	3.3	3.5	5.1	4.5	4.7
14	8.7	8.2	8.4	6.9	6.7	6.8	4.3	3.7	4.0	4.5	4.0	4.1
15	8.5	8.1	8.3	6.9	6.7	6.8	3.7	3.5	3.6	4.0	2.9	3.3
16	8.7	8.2	8.5	7.0	6.7	6.8	4.5	3.7	4.0	2.9	2.4	2.6
17	8.5	7.9	8.2	6.9	6.1	6.6	4.8	4.5	4.6	3.3	2.8	3.1
18	7.9	7.1	7.5	6.1	5.5	5.8	4.5	4.0	4.2	3.7	3.3	3.5
19	7.5	7.1	7.3	6.1	5.5	5.8	4.2	3.8	4.0	3.8	3.3	3.5
20	7.9	7.4	7.7	6.8	6.1	6.5	4.3	3.9	4.0	3.4	2.8	3.1
21	7.9	7.4	7.7	6.6	6.3	6.4	4.0	3.1	3.5	3.1	2.5	2.8
22	7.5	7.3	7.4	6.3	6.0	6.2	3.4	3.2	3.3	2.9	2.5	2.7
23	7.5	7.3	7.4	6.0	5.4	5.7	3.6	3.3	3.5	3.2	2.9	3.0
24	7.3	6.7	7.0	5.5	5.0	5.3	3.4	2.8	3.0	3.4	3.0	3.2
25	6.9	6.6	6.7	5.0	3.9	4.5	3.4	2.9	3.2	3.5	3.1	3.4
26	7.1	6.7	6.9	4.0	3.8	3.9	3.8	3.4	3.6	3.3	2.7	3.1
27	7.2	6.7	6.9	3.8	3.2	3.6	4.2	3.7	4.0	2.8	2.6	2.7
28	7.2	6.8	7.0	3.5	3.2	3.3	4.3	4.0	4.2	3.0	2.5	2.7
29	7.4	6.9	7.2	4.0	3.4	3.8	4.4	4.0	4.2	2.6	1.9	2.3
30	7.6	7.2	7.5	4.1	3.8	4.0	4.4	4.2	4.3	2.7	2.0	2.3
31	7.8	7.6	7.7	---	---	---	4.7	4.4	4.6	3.0	2.7	2.9
MONTH	10.5	6.6	8.1	7.7	3.2	5.9	4.8	2.3	3.8	5.6	1.9	3.8

## UMPQUA RIVER BASIN

14316460 NORTH UMPQUA RIVER AT SODA SPRINGS, NEAR TOKETEE FALLS, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.4	3.0	3.3	4.2	3.4	3.6	6.7	5.8	6.3	8.1	6.6	7.1
2	3.4	3.2	3.3	3.8	3.4	3.6	7.0	6.0	6.5	8.6	7.9	8.3
3	3.5	3.2	3.4	4.1	3.7	3.9	7.1	6.2	6.7	8.9	8.0	8.3
4	3.6	3.0	3.3	4.7	4.0	4.3	7.3	6.2	6.7	8.4	7.3	7.8
5	3.3	3.1	3.2	4.7	4.4	4.5	7.2	6.3	6.5	8.5	7.6	7.8
6	3.6	3.1	3.3	4.9	4.4	4.7	6.6	6.0	6.3	8.3	7.4	7.7
7	3.7	3.3	3.5	4.8	3.7	4.3	6.9	5.9	6.4	8.1	7.0	7.3
8	3.7	3.5	3.6	3.8	3.3	3.5	7.3	5.9	6.4	8.0	6.7	7.1
9	3.6	3.4	3.5	3.9	3.5	3.7	7.4	6.2	6.6	8.3	7.5	7.8
10	3.9	3.5	3.7	4.4	3.9	4.1	6.6	5.8	6.1	8.2	7.2	7.6
11	4.1	3.8	4.0	5.2	4.4	4.8	6.9	6.1	6.4	8.6	7.2	7.7
12	4.0	3.8	3.9	5.2	4.0	4.8	7.4	6.1	6.6	9.5	8.3	8.7
13	4.2	3.8	4.0	4.0	3.5	3.7	7.4	6.4	6.7	9.8	8.2	9.0
14	4.1	3.8	4.0	4.3	3.6	3.9	6.5	5.2	5.8	8.7	7.4	7.9
15	4.0	3.7	3.9	4.3	3.8	4.0	5.3	4.6	5.0	9.2	8.2	8.5
16	4.5	4.0	4.3	4.1	3.1	3.5	5.0	4.5	4.8	9.4	7.7	8.3
17	4.5	4.2	4.3	3.2	2.8	3.0	5.0	4.3	4.6	10.0	8.7	9.3
18	4.8	4.3	4.7	3.8	3.2	3.5	5.9	4.5	5.1	10.2	9.0	9.4
19	4.9	4.4	4.7	4.9	3.8	4.2	6.6	5.2	5.8	9.4	7.9	8.4
20	4.6	4.1	4.4	4.9	4.3	4.7	7.1	5.6	6.3	8.0	7.5	7.8
21	5.3	4.8	5.1	5.4	5.0	5.2	7.7	5.9	6.6	8.0	7.2	7.6
22	5.4	4.8	5.1	5.4	5.1	5.3	8.0	6.2	7.0	7.9	7.2	7.5
23	5.5	5.2	5.4	5.4	5.2	5.3	8.0	6.7	7.2	9.1	7.1	7.8
24	5.5	5.0	5.1	5.6	5.0	5.4	7.9	6.0	6.8	9.3	8.6	8.9
25	5.0	4.2	4.4	5.6	5.0	5.4	---	---	---	9.6	8.9	9.3
26	5.0	4.3	4.6	5.9	4.9	5.4	8.3	7.1	7.5	10.1	9.5	9.8
27	5.0	4.2	4.5	6.3	5.5	5.9	7.4	6.3	6.7	10.1	9.1	9.6
28	4.9	4.0	4.2	6.3	5.4	5.8	7.3	5.9	6.4	9.2	8.8	9.0
29	---	---	---	6.3	5.5	5.9	7.5	6.7	7.0	10.8	8.9	9.6
30	---	---	---	6.3	5.5	5.9	7.4	6.9	7.1	11.1	9.8	10.4
31	---	---	---	6.3	5.5	6.0	---	---	---	10.9	9.6	10.1
MONTH	5.5	3.0	4.1	6.3	2.8	4.6	---	---	---	11.1	6.6	8.4

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	11.0	9.8	10.2	13.5	12.8	13.1	14.5	13.5	13.8	12.5	11.3	11.9
2	10.4	9.1	9.7	---	---	---	14.0	12.6	13.0	12.7	11.4	12.0
3	9.9	9.1	9.6	13.8	13.0	13.2	13.5	12.5	12.8	12.4	11.3	12.0
4	10.8	9.6	10.2	13.4	12.5	12.8	12.9	11.8	12.0	11.8	10.7	11.5
5	11.3	10.6	11.0	13.0	12.2	12.5	11.8	11.1	11.3	11.4	10.3	10.9
6	11.3	10.6	11.0	13.4	12.3	12.7	11.6	10.6	10.9	10.6	9.8	10.3
7	10.9	9.8	10.1	13.5	12.8	13.1	12.4	10.9	11.4	10.7	9.6	10.0
8	10.2	8.4	9.1	13.6	13.1	13.2	12.6	11.3	11.7	10.2	9.4	9.8
9	9.1	8.1	8.6	13.7	12.8	13.1	13.0	11.6	12.1	10.7	9.4	9.8
10	10.3	8.8	9.5	14.5	13.2	13.5	13.7	12.0	12.6	11.3	9.7	10.4
11	11.1	10.1	10.6	14.7	13.8	14.1	14.0	12.6	13.1	11.7	10.3	10.9
12	11.9	10.8	11.4	14.9	14.2	14.5	14.0	12.9	13.3	11.9	10.7	11.3
13	12.3	11.4	11.9	15.3	13.8	14.5	14.3	12.9	13.4	11.9	11.2	11.6
14	12.6	11.9	12.2	15.0	13.9	14.4	14.4	13.2	13.7	11.9	11.1	11.6
15	12.5	11.7	12.1	14.6	13.6	14.0	14.4	13.2	13.6	11.6	10.7	11.2
16	12.4	11.7	12.1	14.2	13.4	13.7	14.2	13.1	13.4	11.1	10.3	10.8
17	12.2	10.1	11.1	14.3	13.3	13.6	13.8	12.7	13.0	10.8	10.3	10.6
18	10.7	9.7	10.2	14.3	13.4	13.7	13.1	11.9	12.3	11.2	10.3	10.6
19	11.3	9.9	10.4	14.2	13.1	13.5	12.3	11.4	11.7	11.2	10.3	10.7
20	11.8	10.5	11.2	14.6	13.2	13.7	12.2	11.1	11.6	11.4	10.4	10.8
21	12.2	11.6	11.9	14.6	13.6	14.0	12.4	11.3	11.6	11.3	10.4	10.7
22	12.4	11.6	12.0	14.3	13.7	13.9	12.6	11.2	11.8	11.2	10.3	10.5
23	13.1	12.2	12.7	14.1	13.2	13.5	12.6	11.4	11.9	11.2	10.3	10.6
24	12.9	12.3	12.6	14.3	13.5	13.9	12.2	11.2	11.8	11.1	10.4	10.7
25	13.0	12.4	12.7	13.9	13.1	13.4	12.4	11.2	11.8	10.8	10.2	10.4
26	13.5	12.7	13.1	14.1	13.0	13.4	12.9	11.4	12.1	10.5	9.8	10.2
27	13.6	13.0	13.3	14.4	13.3	13.7	12.8	11.8	12.3	10.2	9.6	9.8
28	13.3	12.5	12.9	14.4	13.4	13.6	13.0	12.1	12.4	10.2	9.6	9.8
29	12.8	12.1	12.6	14.3	13.4	13.6	13.2	12.0	12.5	9.8	9.2	9.6
30	13.4	12.4	12.9	14.6	13.4	13.9	13.2	11.8	12.5	9.2	8.6	8.9
31	---	---	---	14.6	13.6	14.0	12.6	11.3	12.1	---	---	---
MONTH	13.6	8.1	11.3	---	---	---	14.5	10.6	12.4	12.7	8.6	10.7



14316460 NORTH UMPQUA RIVER AT SODA SPRINGS, NEAR TOKETEE FALLS, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	10.4	10.1	10.2	10.6	10.0	10.2	11.8	11.6	11.7	11.4	11.1	11.3
2	10.4	10.0	10.2	10.5	10.0	10.2	11.8	11.6	11.7	11.3	11.1	11.1
3	10.4	10.0	10.2	10.6	10.1	10.3	12.0	11.6	11.8	11.5	11.2	11.3
4	10.4	10.1	10.2	10.6	10.2	10.4	12.1	11.9	12.0	11.7	11.4	11.6
5	10.6	10.1	10.3	10.5	10.0	10.3	12.4	12.0	12.3	11.7	11.4	11.6
6	10.6	10.2	10.4	10.4	10.0	10.2	12.4	12.0	12.3	11.6	11.4	11.5
7	10.7	10.3	10.5	11.0	10.2	10.5	12.3	12.0	12.1	11.9	11.4	11.5
8	10.9	10.4	10.6	10.8	10.3	10.5	12.2	11.9	12.1	11.9	11.6	11.8
9	10.9	10.6	10.7	---	---	---	12.2	11.9	12.1	12.1	11.8	12.0
10	11.2	10.6	10.9	---	---	---	12.3	12.0	12.1	12.2	11.9	12.0
11	11.4	10.9	11.1	---	---	---	12.3	12.0	12.2	12.1	11.9	12.0
12	11.4	11.0	11.2	---	---	---	12.2	12.0	12.1	12.1	11.9	12.0
13	11.3	11.1	11.2	---	---	---	12.2	11.5	11.9	12.4	12.1	12.2
14	11.3	11.0	11.1	---	---	---	11.8	11.5	11.6	12.5	12.2	12.4
15	11.5	11.1	11.2	---	---	---	11.8	11.7	11.8	12.8	12.4	12.6
16	11.4	11.0	11.2	---	---	---	11.8	11.4	11.6	13.1	12.8	12.9
17	11.5	11.1	11.3	---	---	---	11.6	11.4	11.5	12.9	12.7	12.9
18	11.7	11.3	11.5	---	---	---	11.6	11.5	11.5	12.9	12.7	12.8
19	11.8	11.5	11.6	---	---	---	11.9	11.5	11.7	13.1	12.6	12.8
20	11.7	11.4	11.5	---	---	---	12.0	11.7	11.8	13.2	12.9	13.0
21	11.8	11.3	11.6	11.7	11.3	11.5	12.1	11.8	12.0	13.3	12.8	13.1
22	11.8	11.4	11.6	11.4	11.2	11.3	12.2	12.0	12.1	13.4	13.2	13.3
23	11.9	11.4	11.7	11.9	11.4	11.6	12.3	12.0	12.2	13.7	13.3	13.4
24	12.0	11.7	11.9	11.6	11.4	11.5	12.6	12.2	12.4	13.6	13.2	13.4
25	12.1	11.8	12.0	12.0	11.5	11.8	12.4	12.2	12.3	13.4	13.1	13.3
26	---	---	---	12.3	12.0	12.1	12.3	12.0	12.2	13.6	13.3	13.5
27	11.1	10.4	10.7	12.2	11.9	12.0	12.0	11.8	11.9	13.8	13.6	13.7
28	11.0	10.3	10.7	12.1	11.8	11.9	11.9	11.6	11.7	13.8	13.6	13.7
29	11.1	10.2	10.6	12.0	11.7	11.8	11.8	11.5	11.7	14.0	13.7	13.9
30	10.7	10	10.3	12.0	11.7	11.8	11.7	11.5	11.6	14.1	13.7	13.9
31	10.5	10	10.2	---	---	---	11.5	11.2	11.4	13.7	13.5	13.6
MONTH	---	---	---	---	---	---	12.6	11.2	11.9	14.1	11.1	12.6
	FEBRUARY			MARCH			APRIL			MAY		
1	13.6	13.3	13.5	12.5	12.0	12.3	11.6	11.3	11.4	11.9	11.4	11.6
2	13.5	13.3	13.4	12.7	12.4	12.6	11.6	11.2	11.4	11.7	11.1	11.4
3	13.4	13.2	13.3	12.7	12.2	12.3	11.5	11.1	11.3	11.7	11.1	11.4
4	13.4	13.2	13.2	12.3	11.9	12.1	11.6	11.1	11.3	12.0	11.4	11.7
5	13.3	13.2	13.3	12.1	11.8	12.0	11.8	11.1	11.5	12.0	11.3	11.7
6	13.2	12.9	13.1	12.3	11.7	11.9	11.8	11.5	11.7	11.9	11.4	11.7
7	12.9	12.6	12.8	12.5	12.0	12.3	11.8	11.5	11.7	12.1	11.5	11.8
8	13.1	12.6	12.9	12.8	11.2	12.3	11.8	11.4	11.6	12.0	11.4	11.8
9	13.1	12.9	13.0	12.5	11.4	12.4	11.7	11.3	11.5	11.7	11.1	11.4
10	13.0	12.7	12.9	12.3	12.1	12.3	11.9	11.6	11.7	11.8	11.2	11.5
11	12.9	12.6	12.8	12.1	11.8	12.0	11.8	11.6	11.7	11.8	11.3	11.5
12	12.8	12.6	12.7	12.2	11.8	11.9	11.8	11.5	11.7	11.5	11.0	11.3
13	12.7	12.5	12.6	12.4	12.2	12.3	11.7	11.5	11.6	11.4	10.8	11.2
14	12.7	12.4	12.6	12.4	12.0	12.2	12.1	11.1	11.5	11.9	11.3	11.6
15	12.7	12.3	12.5	12.2	11.9	12.0	12.1	11.7	12.0	11.6	11.0	11.3
16	12.4	12.1	12.3	12.2	11.9	12.1	12.3	12.1	12.2	11.7	10.8	11.3
17	12.2	12.0	12.1	12.4	12.1	12.2	12.4	12.0	12.2	11.3	10.9	11.1
18	12.1	11.7	11.9	12.2	11.9	12.1	12.2	11.7	12.0	11.2	10.7	11.0
19	11.9	11.7	11.8	11.9	11.4	11.7	11.9	11.4	11.7	11.4	10.9	11.2
20	12.8	11.8	12.2	11.7	11.4	11.5	11.6	11.0	11.3	11.6	11.2	11.4
21	12.4	11.8	12.2	11.6	11.3	11.4	11.3	10.7	11.0	11.7	11.3	11.5
22	12.3	11.8	12.1	11.6	11.3	11.5	11.0	10.5	10.8	11.8	11.5	11.6
23	12.0	11.8	11.9	11.6	11.3	11.4	10.8	10.4	10.6	12.0	11.4	11.8
24	12.3	11.9	12.1	11.6	11.3	11.4	10.9	10.5	10.7	11.6	11.0	11.4
25	12.5	12.1	12.3	11.7	11.4	11.5	---	---	---	11.5	11.2	11.4
26	12.5	12.1	12.3	11.7	11.4	11.5	11.6	11.0	11.3	11.4	11.0	11.2
27	12.4	12.0	12.2	11.6	11.2	11.4	11.8	11.3	11.6	11.3	11.0	11.2
28	12.3	11.9	12.2	11.6	11.3	11.5	12.1	11.6	11.8	11.6	11.2	11.4
29	---	---	---	11.7	11.3	11.5	11.8	11.3	11.6	11.6	11.0	11.3
30	---	---	---	11.7	11.4	11.6	11.6	11.3	11.5	11.3	10.9	11.1
31	---	---	---	11.7	11.3	11.5	---	---	---	11.3	10.9	11.1
MONTH	13.6	11.7	12.6	12.8	11.2	11.9	---	---	---	12.1	10.7	11.4

UMPQUA RIVER BASIN

14316460 NORTH UMPQUA RIVER AT SODA SPRINGS, NEAR TOKETEE FALLS, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	11.2	10.8	11.1	---	---	---	10.5	9.9	10.2	11.5	10.6	10.9
2	11.4	11.0	11.2	---	---	---	10.6	10.1	10.3	11.1	10.6	10.7
3	11.5	11.0	11.3	---	---	---	10.7	9.9	10.3	11.1	10.5	10.7
4	11.3	11.0	11.1	---	---	---	10.8	10.2	10.5	11.2	10.6	10.8
5	11.7	10.8	11.0	---	---	---	11.0	10.5	10.7	11.4	10.7	11.0
6	11.2	10.8	11.0	---	---	---	11.1	10.6	10.8	11.7	10.8	11.0
7	11.5	10.9	11.3	---	---	---	11.1	10.4	10.7	11.8	10.9	11.2
8	11.9	11.3	11.6	---	---	---	11.1	10.5	10.8	11.7	11.0	11.3
9	12.0	11.7	11.8	---	---	---	11.0	10.4	10.7	12.1	11.0	11.3
10	11.9	11.3	11.6	---	---	---	10.9	10.4	10.6	11.7	10.9	11.1
11	11.6	11.2	11.4	---	---	---	10.8	10.2	10.5	11.3	10.7	10.9
12	11.4	11.0	11.2	---	---	---	10.8	10.2	10.4	11.3	10.6	10.8
13	11.2	10.8	11.0	---	---	---	10.8	10.2	10.4	11.2	10.5	10.7
14	11.1	10.8	11.0	---	---	---	10.8	9.8	10.3	11.2	10.6	10.8
15	11.1	10.8	11.0	---	---	---	10.9	10.1	10.4	11.3	10.6	10.9
16	11.1	10.8	11.0	---	---	---	11.0	10.1	10.4	11.5	10.7	11.0
17	11.1	10.8	11.0	---	---	---	11.1	10.2	10.5	11.3	10.8	10.9
18	11.2	11.1	11.1	---	---	---	11.1	10.4	10.6	11.3	10.7	10.9
19	11.7	11.1	11.3	---	---	---	11.2	10.6	10.8	11.2	10.7	10.9
20	11.4	11.0	11.2	---	---	---	11.2	10.6	10.8	11.3	10.8	10.9
21	11.2	10.9	11.0	---	---	---	11.4	10.6	10.9	11.3	10.8	11.0
22	11.2	10.9	11.0	---	---	---	11.3	10.6	10.9	11.4	10.8	11.0
23	---	---	---	---	---	---	11.3	10.6	10.8	11.3	10.9	11.0
24	---	---	---	---	---	---	11.3	10.6	10.9	11.4	10.8	11.0
25	---	---	---	---	---	---	11.3	10.7	10.9	11.3	10.5	10.9
26	---	---	---	---	---	---	11.4	10.6	10.9	11.4	10.8	11.0
27	---	---	---	---	---	---	11.3	10.5	10.8	11.5	10.8	11.1
28	---	---	---	---	---	---	11.0	10.4	10.7	11.4	10.9	11.1
29	---	---	---	---	---	---	11.0	10.4	10.6	11.7	11.0	11.2
30	---	---	---	---	---	---	11.1	10.4	10.6	11.9	11.2	11.5
31	---	---	---	---	---	---	11.4	10.5	10.8	---	---	---
MONTH	---	---	---	---	---	---	11.4	9.8	10.6	12.1	10.5	11.0

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	<1	<1	<1	4	1	2	16	9	13	2	2	2
2	<1	<1	<1	4	1	2	26	13	15	4	2	3
3	<1	<1	<1	5	2	3	18	9	11	3	1	2
4	1	<1	<1	7	2	4	20	6	8	29	2	20
5	<1	<1	<1	8	1	2	26	6	8	---	---	---
6	1	<1	<1	19	2	6	32	4	5	---	---	---
7	<1	<1	<1	23	5	13	4	2	3	20	15	20
8	<1	<1	<1	28	2	7	2	2	2	---	---	---
9	<1	<1	<1	28	<1	<1	2	1	2	---	---	---
10	<1	<1	<1	<1	<1	<1	2	<1	1	---	---	---
11	<1	<1	<1	<1	<1	<1	1	<1	1	---	---	---
12	<1	<1	<1	2	<1	<1	1	<1	1	---	---	---
13	2	<1	<1	4	<1	2	40	<1	1	---	---	---
14	<1	<1	<1	2	<1	1	40	7	13	---	---	---
15	<1	<1	<1	1	<1	<1	7	3	4	---	---	---
16	<1	<1	<1	1	<1	<1	4	2	3	36	15	22
17	<1	<1	<1	1	<1	<1	7	4	5	---	---	---
18	<1	<1	<1	1	<1	<1	4	3	4	---	---	---
19	<1	<1	<1	<1	<1	<1	4	2	2	---	---	---
20	<1	<1	<1	1	1	1	4	1	2	---	---	---
21	1	<1	<1	2	<1	<1	5	1	2	---	---	---
22	<1	<1	<1	6	1	4	2	1	1	---	---	---
23	2	<1	<1	3	1	2	2	<1	1	---	---	---
24	1	<1	<1	2	<1	<1	3	<1	2	---	---	---
25	<1	<1	<1	2	<1	<1	2	<1	1	---	---	---
26	1	<1	<1	1	<1	<1	<1	<1	<1	5	2	3
27	<1	<1	<1	10	1	4	<1	<1	<1	3	2	2
28	1	<1	<1	40	3	7	2	<1	1	2	1	1
29	2	<1	<1	42	18	25	1	<1	1	2	1	1
30	4	<1	<1	25	10	14	2	<1	1	1	<1	1
31	4	1	2	---	---	---	2	1	2	1	<1	1
MAX	4	1	2	42	18	25	40	13	15	---	---	---
MIN	<1	<1	<1	<1	<1	<1	<1	<1	<1	---	---	---

14316460 NORTH UMPQUA RIVER AT SODA SPRINGS, NEAR TOKETEE FALLS, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	FEBRUARY			MARCH			APRIL			MAY		
1	1	<1	<1	2	1	1	1	<1	<1	<1	<1	<1
2	1	<1	<1	2	1	1	1	<1	1	1	<1	<1
3	3	<1	<1	2	1	1	2	1	1	<1	<1	<1
4	2	<1	<1	1	1	1	2	1	2	<1	<1	<1
5	1	<1	<1	2	<1	1	4	2	2	1	<1	<1
6	1	<1	<1	2	1	1	5	2	2	1	<1	<1
7	5	<1	2	2	1	1	2	2	2	2	<1	<1
8	6	4	4	2	2	2	5	1	2	5	<1	2
9	4	3	3	2	2	2	4	1	2	4	2	3
10	3	3	3	2	2	2	5	2	3	3	2	2
11	3	2	3	2	2	2	6	2	3	3	2	2
12	3	2	2	3	2	2	4	2	2	2	2	2
13	3	2	2	3	2	2	17	2	2	2	2	2
14	3	2	2	2	2	2	---	---	---	2	1	2
15	3	2	2	3	2	2	26	9	14	2	1	1
16	3	2	2	2	2	2	9	4	6	3	1	2
17	3	2	2	2	2	2	9	3	4	3	1	1
18	2	2	2	2	2	2	3	2	3	9	1	1
19	3	2	2	2	2	2	3	2	2	2	1	1
20	4	2	3	2	<1	<1	6	2	2	5	<1	1
21	4	2	3	1	<1	<1	4	2	2	2	<1	<1
22	3	2	2	2	1	1	2	1	1	2	1	1
23	5	2	3	2	1	2	2	1	1	2	<1	<1
24	7	2	3	3	2	2	2	1	1	1	<1	<1
25	6	2	2	2	1	1	---	---	---	1	<1	<1
26	3	1	2	2	<1	1	<1	<1	<1	1	<1	<1
27	2	1	1	1	<1	1	2	<1	<1	<1	<1	<1
28	4	1	1	2	<1	1	2	<1	<1	2	<1	1
29	---	---	---	3	<1	<1	2	<1	<1	3	<1	2
30	---	---	---	2	<1	<1	1	<1	<1	5	2	3
31	---	---	---	1	<1	<1	---	---	---	3	1	2
MAX	7	4	4	3	2	2	---	---	---	9	2	3
MIN	1	<1	<1	1	<1	<1	---	---	---	<1	<1	<1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	3	<1	1	1	<1	<1	2	<1	<1	2	<1	<1
2	2	<1	<1	---	---	---	<1	<1	<1	<1	<1	<1
3	6	<1	<1	5	<1	2	<1	<1	<1	<1	<1	<1
4	2	<1	<1	<1	<1	<1	<1	<1	<1	3	<1	<1
5	1	<1	1	1	<1	<1	<1	<1	<1	2	<1	<1
6	1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
7	2	<1	<1	<1	<1	<1	1	<1	<1	2	<1	<1
8	1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1
9	<1	<1	<1	2	<1	1	<1	<1	<1	2	<1	<1
10	<1	<1	<1	2	<1	1	1	<1	<1	1	<1	<1
11	<1	<1	<1	2	<1	1	<1	<1	<1	2	<1	2
12	<1	<1	<1	3	1	1	<1	<1	<1	2	2	2
13	<1	<1	<1	7	1	2	<1	<1	<1	2	1	2
14	1	<1	<1	2	1	1	3	<1	<1	2	1	1
15	1	<1	<1	2	1	2	3	2	2	2	1	1
16	<1	<1	<1	2	1	2	2	2	2	2	1	1
17	<1	<1	<1	3	1	2	2	2	2	2	1	1
18	2	<1	<1	---	---	---	2	2	2	2	1	1
19	2	1	2	<1	<1	<1	2	2	2	2	<1	1
20	2	2	2	<1	<1	<1	2	1	2	2	<1	<1
21	2	1	1	1	<1	<1	2	1	1	1	<1	<1
22	3	1	1	1	<1	<1	2	1	1	1	<1	<1
23	2	1	1	<1	<1	<1	4	1	1	1	<1	<1
24	1	<1	1	1	<1	<1	3	<1	1	1	<1	<1
25	1	<1	1	1	<1	<1	1	<1	<1	---	---	---
26	2	<1	<1	<1	<1	<1	2	<1	<1	1	<1	<1
27	1	<1	<1	1	<1	<1	4	<1	<1	3	<1	<1
28	1	<1	<1	2	<1	<1	2	<1	<1	<1	<1	<1
29	2	<1	<1	2	<1	<1	<1	<1	<1	5	<1	<1
30	2	<1	<1	2	<1	1	<1	<1	<1	3	<1	<1
31	---	---	---	---	---	---	<1	<1	<1	---	---	---
MAX	6	2	2	---	---	---	4	2	2	---	---	---
MIN	<1	<1	<1	---	---	---	<1	<1	<1	---	---	---

UMPQUA RIVER BASIN

14316495 BOULDER CREEK NEAR TOKETE FALLS, OR

LOCATION.--Lat 43°18'13", long 122°31'45", in NE 1/4 SW 1/4 sec.13, T.26 S., R.2 E., Douglas County, Hydrologic Unit 17100301, Umpqua National Forest, and at mile 0.1.

DRAINAGE AREA.--30.4 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1997 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,640 ft above NGVD of 1929, from topographic map.

REMARKS.--Records good.

AVERAGE DISCHARGE.--5 years (water years 1998-2002), 95.3 ft<sup>3</sup>/s, 42.60 in/yr, 69,060 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,370 ft<sup>3</sup>/s Nov. 21, 1998, gage height, 6.98 ft; minimum discharge, 1.9 ft<sup>3</sup>/s Oct. 5-8, 2001.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 600 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 13	2330	1,170	5.65	Jan. 8	0800	962	5.36
Dec. 17	0600	731	4.98	Apr. 14	0930	*1,290	*5.80

Minimum discharge, 1.9 ft<sup>3</sup>/s Oct. 5-8.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.4	23	112	373	61	e125	191	94	111	25	8.0	4.4
2	2.2	18	114	451	63	103	214	109	93	23	7.7	4.4
3	2.1	14	90	347	65	88	241	117	81	22	7.6	4.3
4	2.0	11	73	241	70	81	254	108	74	21	7.5	4.4
5	1.9	9.9	69	187	79	81	269	103	72	20	7.5	4.3
6	1.9	8.9	259	477	73	99	235	96	68	20	7.6	4.5
7	2.0	8.0	237	502	147	148	201	87	60	19	7.4	5.7
8	2.0	7.3	158	750	229	117	175	81	53	18	7.1	4.9
9	2.4	6.8	132	492	158	98	189	77	47	17	6.8	4.7
10	2.4	6.3	107	307	136	87	234	71	44	17	6.6	4.6
11	14	5.9	88	235	144	105	245	68	43	16	6.3	4.5
12	6.4	6.6	79	234	137	276	241	76	42	16	6.1	4.3
13	4.3	11	326	194	141	226	311	91	43	15	5.8	4.3
14	3.5	26	645	160	152	179	967	88	42	14	5.4	4.2
15	3.1	17	264	131	150	153	538	88	41	14	5.1	4.1
16	2.8	31	416	107	169	131	344	91	39	13	5.0	4.1
17	2.5	48	579	89	182	109	268	e105	43	13	4.9	12
18	2.4	28	317	78	161	89	222	e100	74	13	4.9	24
19	2.4	22	221	73	214	86	193	95	50	12	4.9	7.6
20	2.4	23	189	72	265	119	178	87	43	12	5.0	6.2
21	2.3	93	161	101	343	206	161	83	40	11	5.4	5.5
22	16	229	134	88	385	272	151	77	38	11	5.1	5.1
23	49	154	101	75	407	347	145	69	35	11	4.9	4.9
24	18	98	84	68	322	360	130	68	33	10	4.8	4.7
25	12	86	78	134	235	280	130	73	31	10	4.8	4.6
26	8.9	73	75	194	186	225	132	85	30	9.8	4.8	4.5
27	7.4	57	93	133	e165	197	120	96	28	9.5	4.7	4.4
28	7.3	86	195	96	e145	174	100	115	27	9.1	4.6	4.4
29	7.6	130	200	76	---	168	93	138	29	8.8	4.5	4.5
30	19	92	243	65	---	169	97	141	26	8.6	4.5	7.1
31	32	---	432	58	---	177	---	127	---	8.3	4.4	---
TOTAL	244.6	1429.7	6271	6588	4984	5075	6969	2904	1480	447.1	179.7	171.2
MEAN	7.89	47.7	202	213	178	164	232	93.7	49.3	14.4	5.80	5.71
MAX	49	229	645	750	407	360	967	141	111	25	8.0	24
MIN	1.9	5.9	69	58	61	81	93	68	26	8.3	4.4	4.1
AC-FT	485	2840	12440	13070	9890	10070	13820	5760	2940	887	356	340
CFSM	0.26	1.57	6.65	6.99	5.86	5.39	7.64	3.08	1.62	0.47	0.19	0.19
IN.	0.30	1.75	7.67	8.06	6.10	6.21	8.53	3.55	1.81	0.55	0.22	0.21

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1998 - 2002, BY WATER YEAR (WY)

	1998	1999	2000	2001	2002	1998	1999	2000	2001	2002		
MEAN	18.8	76.7	151	203	158	148	152	142	67.5	17.5	7.22	4.77
MAX	60.3	189	239	311	256	181	232	287	144	34.6	13.1	7.16
(WY)	1998	1999	1999	1999	1999	1999	2002	1999	1999	1999	1999	1999
MIN	7.89	22.3	63.3	36.3	41.9	92.0	83.8	84.0	18.6	7.95	4.15	3.08
(WY)	2002	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1998 - 2002

ANNUAL TOTAL	19238.6	36743.3		
ANNUAL MEAN	52.7	101		95.3
HIGHEST ANNUAL MEAN				155
LOWEST ANNUAL MEAN				38.8
HIGHEST DAILY MEAN	645	Dec 14	967	Apr 14
LOWEST DAILY MEAN	1.9	Oct 5	1.9	Oct 5
ANNUAL SEVEN-DAY MINIMUM	2.0	Oct 2	2.0	Oct 2
ANNUAL RUNOFF (AC-FT)	38160		72880	69060
ANNUAL RUNOFF (CFSM)	1.73		3.31	3.14
ANNUAL RUNOFF (INCHES)	23.54		44.96	42.60
10 PERCENT EXCEEDS	118		241	232
50 PERCENT EXCEEDS	28		73	60
90 PERCENT EXCEEDS	3.1		4.5	4.8

e Estimated

14316495 BOULDER CREEK NEAR TOKETEE FALLS, OR--Continued

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: February 1999 to current year.

INSTRUMENTATION.--Water-quality monitor and data logger.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum, 22.1°C July 13, 2002; minimum, 1.2°C Jan. 17, Feb. 13, 2001.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 22.1°C July 13; minimum, 2.1°C Jan. 20.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	13.4	11.6	12.4	9.8	9.4	9.6	6.1	5.5	5.8	6.6	6.2	6.4
2	13.5	11.9	12.6	9.6	9.1	9.4	6.4	5.8	6.1	6.8	6.3	6.6
3	13.4	11.8	12.5	9.1	8.1	8.4	6.1	5.4	5.7	6.4	5.8	6.2
4	13.5	11.8	12.6	8.1	7.3	7.7	5.5	4.3	4.8	5.9	5.2	5.6
5	13.1	11.7	12.4	8.2	7.4	7.8	4.3	2.6	3.4	6.2	5.6	5.9
6	13.2	11.9	12.4	8.0	6.8	7.6	6.1	4.0	5.0	6.7	6.0	6.4
7	12.1	11.0	11.6	6.8	5.7	6.1	6.3	5.8	6.1	6.7	6.5	6.6
8	11.5	10.6	11.1	5.7	4.8	5.2	6.0	5.5	5.8	6.9	6.3	6.6
9	11.3	10.2	10.6	5.7	4.8	5.3	5.8	5.2	5.6	6.3	5.6	6.0
10	10.2	9.2	9.8	6.3	5.5	5.9	5.2	4.1	4.5	6.2	5.4	5.8
11	10.4	9.7	10.1	7.4	6.3	6.9	4.7	4.2	4.5	6.4	5.5	5.9
12	9.9	8.8	9.5	8.2	7.4	7.8	4.8	4.4	4.6	6.2	5.9	6.1
13	10.9	9.7	10.2	8.2	8.0	8.1	6.0	4.7	5.2	5.9	5.0	5.3
14	10.4	9.2	9.9	8.9	8.2	8.5	6.4	5.6	6.0	5.1	4.4	4.6
15	10.6	9.4	10.0	8.8	8.5	8.6	5.6	5.4	5.5	4.4	3.4	3.7
16	11.0	9.9	10.4	8.8	8.3	8.6	6.4	5.5	6.0	3.6	2.6	3.1
17	10.5	9.3	9.9	8.3	6.7	7.6	6.8	6.2	6.5	3.5	3.2	3.4
18	9.3	8.0	8.6	6.7	5.9	6.2	6.2	5.7	6.0	3.9	3.4	3.6
19	9.2	7.9	8.6	7.8	6.4	7.1	5.9	5.6	5.8	3.8	3.0	3.3
20	9.6	8.4	8.9	7.8	7.5	7.6	5.8	5.4	5.6	3.3	2.1	2.6
21	9.1	8.1	8.7	7.5	7.3	7.3	5.4	4.8	5.0	3.1	2.6	2.9
22	9.4	8.8	9.0	7.7	7.2	7.5	5.4	4.7	5.0	3.5	3.1	3.2
23	9.4	8.3	8.9	7.3	7.0	7.1	5.1	4.4	4.8	3.5	3.0	3.2
24	8.3	7.4	7.8	7.0	5.7	6.4	4.4	3.9	4.1	3.7	3.2	3.4
25	7.6	7.0	7.4	5.7	4.8	5.1	4.9	4.2	4.5	4.3	3.6	3.9
26	7.8	7.0	7.5	5.4	4.9	5.1	5.1	4.4	4.7	4.9	4.2	4.5
27	8.1	7.2	7.7	5.2	4.7	4.9	5.5	4.7	5.0	4.2	3.7	3.9
28	8.4	7.7	8.1	5.3	4.1	4.6	5.9	5.3	5.5	3.9	3.2	3.4
29	9.0	8.4	8.7	5.9	5.3	5.7	6.3	5.4	5.9	3.2	2.2	2.6
30	9.5	8.9	9.2	5.8	5.6	5.7	6.4	5.6	6.0	3.0	2.3	2.6
31	9.6	9.2	9.4	---	---	---	6.6	6.2	6.3	3.3	2.7	3.0
MONTH	13.5	7.0	9.9	9.8	4.1	7.0	6.8	2.6	5.3	6.9	2.1	4.5

## UMPQUA RIVER BASIN

14316495 BOULDER CREEK NEAR TOKETEE FALLS, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.7	3.1	3.4	4.0	---	---	7.0	5.0	6.0	7.2	6.7	6.9
2	3.7	3.1	3.4	4.2	3.0	3.5	7.3	5.1	6.1	9.0	6.2	7.4
3	4.1	3.6	3.8	4.4	3.1	3.9	7.6	5.4	6.4	9.3	6.8	8.0
4	3.9	3.3	3.6	4.4	3.6	4.0	7.4	5.6	6.4	8.3	6.4	7.5
5	4.2	3.5	3.8	4.9	3.6	4.2	7.5	5.6	6.5	8.2	5.1	6.7
6	4.5	3.9	4.2	4.9	4.0	4.4	6.9	6.2	6.5	7.8	5.9	6.9
7	4.9	4.3	4.5	5.3	4.8	5.0	6.8	6.0	6.4	7.6	5.9	6.7
8	5.3	4.4	4.8	5.1	3.3	4.2	7.1	5.8	6.4	6.8	4.5	5.8
9	5.1	4.3	4.7	3.6	2.8	3.2	7.4	5.3	6.3	7.2	3.9	5.5
10	5.2	4.3	4.7	4.2	3.1	3.6	7.2	6.3	6.6	7.1	5.6	6.4
11	5.4	4.5	4.9	4.5	3.9	4.2	7.0	6.1	6.5	6.8	5.2	6.1
12	5.2	4.2	4.7	5.4	4.5	4.9	7.1	6.2	6.6	8.6	5.0	6.8
13	5.4	4.6	4.9	5.4	4.4	5.0	7.6	6.2	6.8	10.0	6.5	8.2
14	5.1	4.1	4.6	4.6	4.2	4.4	7.2	6.6	6.8	9.4	7.4	8.1
15	5.3	4.3	4.8	4.7	4.1	4.4	7.1	5.3	6.2	9.0	6.0	7.5
16	5.7	4.8	5.2	4.5	3.9	4.2	5.5	4.7	5.1	8.6	6.2	7.6
17	5.8	4.7	5.2	3.9	2.9	3.5	5.0	4.5	4.7	10.2	5.9	8.3
18	5.9	5.2	5.5	3.2	2.4	2.9	5.3	4.3	4.7	9.2	7.7	8.5
19	5.6	5.4	5.4	3.5	2.9	3.2	6.1	4.4	5.1	8.3	7.4	7.8
20	6.3	5.4	5.8	4.6	3.4	3.9	6.9	4.9	5.7	8.4	7.0	7.7
21	6.6	5.8	6.1	5.3	3.9	4.5	7.4	5.1	6.1	7.8	6.7	7.3
22	6.6	5.6	6.0	6.2	4.7	5.3	7.9	4.9	6.3	7.5	6.3	6.9
23	6.4	5.9	6.1	6.1	5.1	5.6	8.4	5.4	6.8	9.0	5.4	7.1
24	6.0	5.2	5.7	6.2	5.4	5.7	7.5	5.6	6.6	9.5	7.2	8.4
25	5.5	4.6	5.0	6.3	5.2	5.7	8.1	4.6	6.3	10.4	8.0	9.2
26	5.8	4.6	5.1	6.5	5.0	5.7	8.6	5.9	7.2	10.9	8.7	9.9
27	---	---	---	6.8	5.1	5.9	7.6	5.8	6.6	10.2	8.9	9.4
28	---	---	---	6.7	5.6	6.1	6.4	5.3	5.8	9.6	8.7	9.2
29	---	---	---	6.8	5.2	6.0	6.9	4.4	5.6	12.0	8.8	10.1
30	---	---	---	6.9	5.1	6.0	7.3	5.2	6.3	11.7	9.1	10.3
31	---	---	---	6.9	4.9	5.9	---	---	---	11.1	8.9	10.0
MONTH	---	---	---	6.9	---	---	8.6	4.3	6.2	12.0	3.9	7.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	10.5	9.2	9.9	17.0	14.4	15.6	19.6	17.0	18.3	17.7	15.0	16.3
2	10.5	8.6	9.6	17.3	14.4	15.7	18.9	16.2	17.6	17.3	15.4	16.4
3	10.7	8.0	9.5	16.6	14.4	15.4	17.4	15.5	16.5	16.7	15.3	16.0
4	12.4	9.2	10.7	16.3	14.0	14.9	16.3	14.9	15.5	15.7	14.2	14.9
5	12.6	10.2	11.4	16.6	13.5	14.9	15.5	13.7	14.6	14.7	13.2	14.0
6	11.8	9.5	10.8	17.4	14.3	15.7	15.5	13.2	14.3	14.4	12.3	13.2
7	10.6	8.1	9.5	17.1	15.3	16.1	15.8	12.8	14.3	13.9	12.0	12.8
8	9.4	7.6	8.1	17.5	14.6	15.9	16.3	13.3	14.8	12.9	11.2	12.2
9	9.6	7.3	8.3	18.3	14.6	16.4	17.2	14.0	15.6	14.1	11.4	12.6
10	10.8	7.7	9.4	20.0	16.2	17.9	18.3	15.2	16.7	14.5	12.1	13.3
11	12.6	9.5	11.1	21.2	17.6	19.2	18.9	15.9	17.3	15.2	12.8	13.9
12	13.7	10.8	12.4	21.4	18.4	19.9	19.1	15.9	17.6	15.7	13.4	14.5
13	14.6	11.8	13.4	22.1	19.1	20.3	20.0	16.8	18.3	16.1	13.8	14.9
14	14.5	12.1	13.6	20.8	18.1	19.4	20.4	17.4	18.8	16.1	14.3	15.2
15	14.5	12.0	13.5	20.1	17.3	18.7	20.1	17.3	18.7	15.5	14.2	14.9
16	14.3	12.4	13.5	19.9	17.0	18.5	19.8	16.8	18.2	15.6	13.8	14.6
17	13.7	11.3	12.3	20.1	17.2	18.6	18.7	16.9	17.8	14.8	13.9	14.3
18	11.6	10.8	11.2	19.6	17.2	18.4	17.4	15.6	16.6	14.5	13.3	13.9
19	12.3	9.1	10.8	19.8	17.2	18.4	17.4	15.4	16.3	14.5	12.7	13.6
20	13.5	10.7	12.2	19.8	16.6	18.2	16.5	15.3	15.9	14.6	12.7	13.6
21	14.3	11.8	13.2	19.6	16.6	18.3	17.1	14.8	15.8	14.4	12.3	13.3
22	15.0	12.8	13.9	19.3	17.6	18.6	16.9	14.6	15.7	14.5	12.4	13.3
23	15.5	13.1	14.4	20.6	17.8	19.2	17.0	14.7	15.8	14.7	12.4	13.4
24	15.6	13.1	14.5	20.2	18.1	19.2	16.8	14.9	15.9	14.6	12.4	13.4
25	16.5	13.8	15.2	19.9	17.9	18.9	17.5	15.5	16.4	14.3	12.1	13.1
26	17.2	14.9	16.1	20.3	17.4	18.9	18.1	15.7	16.7	13.7	11.7	12.7
27	17.0	15.4	16.3	20.1	17.5	18.8	17.7	15.2	16.4	13.4	11.3	12.3
28	16.6	15.5	16.0	19.8	16.6	18.3	18.4	15.6	16.9	13.2	11.2	12.1
29	17.1	15.1	15.9	20.3	17.2	18.8	18.7	16.2	17.3	12.0	11.2	11.5
30	16.8	15.1	15.9	20.5	17.8	19.1	18.5	16.3	17.1	11.2	10.2	10.8
31	---	---	---	20.5	18.0	19.1	17.3	14.7	16.0	---	---	---
MONTH	17.2	7.3	12.4	22.1	13.5	17.9	20.4	12.8	16.6	17.7	10.2	13.7



14316500 NORTH UMPQUA RIVER ABOVE COPELAND CREEK, NEAR TOKETEE FALLS, OR--Continued

## WATER-QUALITY RECORDS

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: June 1998 to current year.  
 pH: June 1998 to current year.  
 TEMPERATURE: June 1998 to current year.  
 DISSOLVED OXYGEN: June 1998 to current year.  
 TURBIDITY: June 2000 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Records good. Seasonal records only (June to September).

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 69 microsiemens Sept. 24, 25, 2001; minimum recorded, 35 microsiemens June 15, 1999.  
 pH FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 8.4 units July 28-30, 2001, July 30, Aug. 13, 2002; minimum recorded, 7.1 units Aug. 22, 1998.  
 TEMPERATURE FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 15.8°C Aug. 11, 2001; minimum recorded, 6.5°C June 9, 1999.  
 DISSOLVED OXYGEN FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 12.6 mg/L June 8, 9, 1999; minimum recorded, 6.6 mg/L July 30, 1998.  
 TURBIDITY FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 89 NTU June 22, 2001; minimum recorded, <1 many days most years.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 65 microsiemens several days in July and August; minimum recorded, 49 microsiemens June 1, 2.  
 pH FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 8.4 units July 30, Aug. 13; minimum recorded, 7.6 units June 10, 17, 18, July 11, 12.  
 TEMPERATURE FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 15.7°C July 13; minimum recorded, 5.7°C Apr. 28.  
 DISSOLVED OXYGEN FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 11.7 mg/L June 9, Sept. 30, minimum recorded, 9.8 mg/L July 12, 13.  
 TURBIDITY FOR PERIOD JUNE TO SEPTEMBER: Maximum recorded, 20 NTU July 7; minimum recorded, <1 NTU many days during June, July, August, and September.

## SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), JUNE TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	50	49	50	62	60	60	64	61	62	63	62	62
2	50	49	50	62	60	61	64	62	63	63	62	62
3	52	50	51	62	61	61	64	61	62	63	62	62
4	52	51	51	62	61	61	64	62	63	63	61	62
5	52	50	51	63	61	62	64	62	63	63	62	62
6	51	50	50	62	61	62	64	61	63	63	61	62
7	52	50	51	63	61	62	64	61	62	63	61	62
8	53	51	52	63	62	62	64	61	63	63	61	62
9	54	52	53	63	63	63	64	62	63	63	61	62
10	55	53	54	63	63	63	64	62	63	64	61	62
11	56	54	55	63	63	63	64	62	63	63	62	62
12	56	54	55	63	63	63	64	62	63	63	62	62
13	56	55	55	63	62	63	65	63	63	63	62	62
14	56	54	55	63	62	63	65	63	64	63	61	62
15	56	54	55	63	62	63	65	63	63	62	61	61
16	56	55	55	63	62	63	65	63	63	62	61	61
17	57	55	55	63	62	63	65	63	64	62	61	62
18	55	52	53	63	62	63	65	63	64	62	59	60
19	55	53	54	64	62	63	64	62	63	62	60	60
20	55	54	55	64	62	63	64	62	63	62	60	61
21	57	55	56	64	63	63	63	61	62	62	60	60
22	58	55	56	64	62	63	63	61	62	61	60	60
23	58	56	57	64	63	63	63	61	62	61	60	60
24	59	57	58	64	62	63	63	61	62	61	60	60
25	59	58	59	64	62	63	62	60	61	62	60	61
26	60	58	59	64	63	63	62	60	61	63	61	62
27	61	59	60	65	63	63	62	61	61	63	61	62
28	60	59	60	64	63	63	63	61	62	63	61	62
29	61	59	60	65	63	63	63	61	62	63	61	62
30	61	59	60	65	63	64	63	61	62	62	61	62
31	---	---	---	65	62	63	63	61	62	---	---	---
MONTH	61	49	55	65	60	63	65	60	63	64	59	61



14316500 NORTH UMPQUA RIVER ABOVE COPELAND CREEK, NEAR TOKETEE FALLS, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, JUNE TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.8	7.7	7.7	8.0	7.7	7.8	8.3	7.8	7.9	8.2	7.8	7.9
2	7.8	7.7	7.7	---	---	---	8.2	7.8	7.9	8.3	7.8	7.9
3	7.8	7.7	7.7	---	---	---	8.3	7.8	8.0	8.3	7.8	7.9
4	7.8	7.7	7.7	---	---	---	8.3	7.9	8.0	8.3	7.8	8.0
5	7.8	7.7	7.7	---	---	---	8.3	7.8	8.0	8.3	7.8	7.9
6	7.8	7.7	7.8	8.0	7.7	7.8	8.2	7.8	7.9	8.2	7.8	7.9
7	7.8	7.7	7.7	8.0	7.7	7.8	8.2	7.8	7.9	8.2	7.8	7.9
8	7.8	7.7	7.7	8.0	7.7	7.8	8.3	7.8	7.9	8.2	7.8	7.9
9	7.8	7.7	7.7	7.9	7.7	7.7	8.2	7.8	7.9	8.2	7.8	7.9
10	7.8	7.6	7.7	8.0	7.7	7.7	8.3	7.8	7.9	8.3	7.8	7.9
11	7.8	7.7	7.7	8.0	7.6	7.7	8.3	7.8	7.9	8.2	7.8	7.9
12	7.8	7.7	7.7	8.0	7.6	7.7	8.3	7.8	7.9	8.2	7.8	7.9
13	7.8	7.7	7.7	8.0	7.7	7.8	8.4	7.8	7.9	8.2	7.8	7.9
14	7.8	7.7	7.7	8.1	7.7	7.8	8.3	7.8	7.8	8.2	7.8	7.9
15	7.8	7.7	7.7	8.1	7.7	7.7	8.3	7.8	7.9	8.2	7.8	7.9
16	7.8	7.7	7.8	8.2	7.7	7.8	8.3	7.8	7.9	8.2	7.8	7.9
17	7.7	7.6	7.7	8.2	7.7	7.7	8.3	7.8	7.9	8.1	7.8	7.9
18	7.7	7.6	7.7	8.1	7.7	7.8	8.2	7.8	7.9	8.1	7.8	7.8
19	7.8	7.7	7.7	8.1	7.8	7.9	8.2	7.8	7.9	8.1	7.8	7.8
20	7.8	7.6	7.7	8.1	7.8	7.9	8.2	7.8	7.9	8.1	7.8	7.8
21	7.9	7.7	7.8	8.2	7.8	7.9	8.2	7.8	7.9	8.1	7.8	7.8
22	7.9	7.7	7.8	8.1	7.8	7.8	8.2	7.8	7.9	8.1	7.8	7.8
23	7.9	7.8	7.8	8.2	7.8	7.8	8.3	7.8	7.9	8.1	7.8	7.8
24	7.9	7.7	7.8	8.2	7.8	7.9	8.2	7.8	7.9	8.2	7.8	7.9
25	7.9	7.7	7.8	8.2	7.8	7.9	8.3	7.8	7.9	8.1	7.7	7.8
26	7.9	7.7	7.8	8.2	7.8	7.9	8.3	7.8	7.9	8.2	7.7	7.8
27	7.9	7.7	7.8	8.3	7.8	7.9	8.3	7.8	7.9	8.1	7.7	7.8
28	7.9	7.8	7.8	8.3	7.8	7.9	8.2	7.8	7.9	8.1	7.7	7.8
29	7.9	7.7	7.8	8.3	7.8	7.9	8.3	7.8	7.9	8.0	7.7	7.8
30	8.0	7.7	7.8	8.4	7.8	7.9	8.3	7.8	7.9	8.0	7.7	7.8
31	---	---	---	8.3	7.8	7.9	8.2	7.8	7.9	---	---	---
MAX	8.0	7.8	7.8	---	---	---	8.4	7.9	8.0	8.3	7.8	8.0
MIN	7.7	7.6	7.7	---	---	---	8.2	7.8	7.8	8.0	7.7	7.8

TEMPERATURE, WATER (DEG. C), JUNE TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	10.7	9.8	10.1	14.1	13.0	13.4	14.3	12.6	13.6	12.8	11.3	12.0
2	10.2	9.1	9.6	14.4	13.1	13.6	13.8	12.4	12.9	13.0	11.4	12.2
3	9.7	9.0	9.5	13.9	12.8	13.4	13.2	11.9	12.6	12.7	11.3	12.1
4	10.8	9.6	10.2	13.6	12.6	13.0	12.3	11.2	11.9	12.0	10.7	11.5
5	11.5	10.6	11.0	13.7	12.4	12.8	11.9	10.7	11.2	11.5	10.3	11.0
6	11.3	10.4	10.9	14.0	12.6	13.2	11.9	10.6	11.1	10.9	9.9	10.4
7	10.7	9.6	10.0	14.1	13.1	13.5	12.6	11.0	11.6	10.9	9.6	10.1
8	9.9	8.3	9.0	14.2	13.0	13.5	12.9	11.2	11.8	10.4	9.5	9.9
9	8.9	8.1	8.6	14.4	13.0	13.5	13.4	11.5	12.3	10.8	9.4	9.9
10	10.2	8.8	9.5	15.3	13.5	14.1	14.0	12.0	12.8	11.5	9.7	10.5
11	11.3	10.2	10.7	15.4	14.0	14.5	14.5	12.5	13.4	11.8	10.3	11.1
12	12.2	10.9	11.5	15.6	14.5	14.9	14.5	12.9	13.5	12.1	10.7	11.4
13	12.8	11.7	12.2	15.7	14.2	14.8	14.7	13.0	13.8	12.2	11.2	11.7
14	12.8	12.2	12.5	15.3	14.1	14.6	14.9	13.3	13.9	12.2	11.1	11.7
15	12.9	12.0	12.4	14.9	13.6	14.2	14.6	13.2	13.7	11.7	10.7	11.4
16	12.8	12.0	12.3	14.8	13.6	13.9	14.2	12.8	13.4	11.4	10.4	10.9
17	12.3	10.4	11.4	14.9	13.5	13.9	13.5	12.2	12.9	10.9	10.4	10.7
18	11.1	10.1	10.5	14.6	13.4	13.9	12.8	11.5	12.2	11.5	10.5	10.8
19	11.4	10.2	10.7	14.7	13.4	13.9	12.5	11.2	11.8	11.5	10.5	10.9
20	12.0	10.8	11.5	15.1	13.5	14.1	12.4	11.2	11.7	11.7	10.5	11.0
21	12.9	11.9	12.3	14.9	13.8	14.2	12.7	11.2	11.8	11.4	10.5	10.8
22	12.8	12.0	12.4	14.4	13.5	14.0	12.7	11.2	11.9	11.4	10.4	10.7
23	13.6	12.4	13.0	14.6	13.4	13.8	12.9	11.5	12.1	11.4	10.4	10.8
24	13.4	12.6	12.9	14.7	13.2	14.0	12.4	11.3	11.9	11.5	10.5	10.8
25	13.7	12.6	13.1	14.2	13.1	13.6	12.7	11.3	11.9	11.2	10.4	10.6
26	14.2	13.1	13.5	14.6	13.1	13.7	13.2	11.5	12.2	10.9	10.0	10.4
27	13.9	13.4	13.7	14.8	13.4	13.9	13.1	11.8	12.4	10.6	9.6	10
28	13.6	12.9	13.3	14.4	13.4	13.7	13.3	12.1	12.5	10.5	9.6	9.9
29	13.4	12.6	13.0	14.6	13.4	13.7	13.4	12.1	12.7	9.9	9.2	9.6
30	14.0	12.8	13.3	14.9	13.4	14.0	13.5	11.9	12.6	9.2	8.6	9.0
31	---	---	---	14.9	13.5	14.0	12.9	11.3	12.2	---	---	---
MONTH	14.2	8.1	11.5	15.7	12.4	13.8	14.9	10.6	12.5	13.0	8.6	10.8

## UMPQUA RIVER BASIN

14316500 NORTH UMPQUA RIVER ABOVE COPELAND CREEK, NEAR TOKETEE FALLS, OR--Continued

## OXYGEN DISSOLVED (MG/L), JUNE TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	11.3	10.9	11.2	10.5	10	10.3	10.4	10.0	10.2	10.9	10.5	10.7
2	11.6	11.2	11.4	10.4	10.1	10.3	10.5	10.3	10.4	10.8	10.4	10.6
3	11.6	11.3	11.5	10.5	10.3	10.4	10.6	10.3	10.4	10.8	10.5	10.6
4	11.5	11.2	11.3	10.6	10.4	10.5	10.9	10.5	10.7	11.0	10.6	10.8
5	11.3	11.1	11.2	10.7	10.4	10.5	11.0	10.8	10.9	11.1	10.8	11.0
6	11.3	10.7	11.0	10.6	10.3	10.5	11.1	10.8	10.9	11.2	10.9	11.1
7	11.1	10.7	11.0	10.5	10.3	10.4	11.0	10.7	10.8	11.4	11.1	11.2
8	11.5	11.0	11.3	10.6	10.4	10.5	11.0	10.7	10.8	11.5	11.2	11.3
9	11.7	11.3	11.5	10.6	10.3	10.4	10.8	10.5	10.7	11.4	11.1	11.3
10	11.4	10.9	11.2	10.5	10.2	10.3	10.6	10.3	10.5	11.2	10.9	11.1
11	11.1	10.7	10.9	10.3	10.0	10.2	10.5	10.2	10.4	11.3	10.6	10.9
12	10.9	10.5	10.7	10.3	9.8	10.0	10.5	10.2	10.3	10.8	10.5	10.7
13	10.7	10.4	10.5	10.2	9.8	9.9	10.4	10.0	10.3	10.8	10.4	10.6
14	10.6	10.3	10.5	10.2	9.9	10.0	10.4	10.1	10.2	10.8	10.5	10.6
15	10.7	10.4	10.5	10.3	9.9	10.1	10.4	10.1	10.3	10.9	10.5	10.7
16	10.7	10.5	10.6	10.4	10.1	10.2	10.5	10.2	10.3	11.1	10.7	10.9
17	11.0	10.5	10.8	10.4	10.1	10.2	10.7	10.3	10.5	11.1	10.7	10.9
18	11.2	10.8	11.0	10.4	10.1	10.3	10.8	10.5	10.6	11.1	10.8	10.9
19	11.1	10.6	10.9	10.4	10.1	10.3	10.9	10.6	10.7	11.1	10.7	10.9
20	10.8	10.4	10.6	10.3	10	10.1	10.9	10.7	10.8	11.0	10.8	10.9
21	10.5	10.3	10.4	10.3	10.0	10.1	11.0	10.6	10.8	11.1	10.8	10.9
22	10.6	10.3	10.4	10.3	10	10.1	10.9	10.6	10.7	11.1	10.8	11.0
23	10.4	10.1	10.3	10.4	10.0	10.2	10.9	10.6	10.7	11.1	10.8	10.9
24	10.4	10.2	10.3	10.3	10.0	10.2	10.9	10.6	10.7	11.1	10.8	10.9
25	10.5	10.2	10.3	10.5	10.2	10.3	11.0	10.6	10.8	11.1	10.8	10.9
26	10.4	10.1	10.2	10.5	10.2	10.3	10.9	10.5	10.7	11.1	10.8	10.9
27	10.3	10.0	10.2	10.4	10.1	10.3	10.8	10.4	10.6	11.2	10.9	11.0
28	10.3	10.1	10.2	10.5	10.2	10.3	10.6	10.2	10.5	11.2	10.9	11.0
29	10.5	10.2	10.3	10.5	10.2	10.3	10.6	10.3	10.5	11.3	11.0	11.2
30	10.5	10.2	10.3	10.4	10.1	10.2	10.7	10.3	10.5	11.7	11.2	11.4
31	---	---	---	10.3	10.1	10.2	10.8	10.5	10.6	---	---	---
MONTH	11.7	10.0	10.8	10.7	9.8	10.3	11.1	10.0	10.6	11.7	10.4	10.9

## TURBIDITY (NTU), JUNE TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	1	<1	<1	<1	<1	<1	2	<1	<1	<1	<1	<1
2	2	<1	<1	---	---	---	1	<1	<1	<1	<1	<1
3	<1	<1	<1	---	---	---	1	<1	<1	<1	<1	<1
4	1	<1	<1	---	---	---	2	<1	<1	<1	<1	<1
5	<1	<1	<1	---	---	---	1	<1	<1	<1	<1	<1
6	<1	<1	<1	3	<1	<1	1	<1	1	1	<1	<1
7	2	<1	<1	20	<1	<1	2	<1	<1	2	<1	<1
8	3	<1	<1	3	<1	<1	1	<1	<1	2	<1	<1
9	<1	<1	<1	2	<1	1	2	<1	<1	1	<1	<1
10	1	<1	<1	2	<1	<1	2	<1	<1	13	<1	<1
11	<1	<1	<1	1	<1	<1	1	<1	<1	1	<1	<1
12	1	<1	<1	2	<1	<1	2	<1	<1	<1	<1	<1
13	3	<1	<1	1	<1	<1	1	<1	<1	1	<1	<1
14	<1	<1	<1	3	<1	1	2	<1	<1	2	<1	<1
15	<1	<1	<1	3	<1	1	1	<1	<1	1	<1	<1
16	2	<1	<1	1	<1	<1	3	<1	<1	<1	<1	<1
17	2	<1	<1	2	<1	<1	<1	<1	<1	3	<1	<1
18	1	<1	<1	2	<1	<1	1	<1	<1	1	<1	<1
19	2	<1	<1	1	<1	<1	2	<1	<1	2	<1	<1
20	1	<1	<1	1	<1	<1	<1	<1	<1	2	<1	<1
21	<1	<1	<1	3	<1	1	3	<1	<1	2	<1	<1
22	2	<1	<1	2	<1	<1	1	<1	<1	1	<1	<1
23	<1	<1	<1	1	<1	<1	3	<1	<1	2	<1	<1
24	<1	<1	<1	1	<1	<1	2	<1	<1	1	<1	<1
25	<1	<1	<1	1	<1	<1	2	<1	<1	3	<1	<1
26	1	<1	<1	3	<1	<1	<1	<1	<1	<1	<1	<1
27	<1	<1	<1	1	<1	<1	2	<1	<1	3	<1	<1
28	<1	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1
29	<1	<1	<1	<1	<1	<1	<1	<1	<1	4	<1	<1
30	1	<1	<1	2	<1	<1	<1	<1	<1	2	<1	<1
31	---	---	---	3	<1	<1	2	<1	<1	---	---	---
MAX	3	<1	<1	---	---	---	3	<1	1	13	<1	<1
MIN	<1	<1	<1	---	---	---	<1	<1	<1	<1	<1	<1



## UMPQUA RIVER BASIN

14317450 NORTH UMPQUA RIVER NEAR IDLEYLD PARK, OR.

LOCATION.--Lat 43°19'29", long 122°59'55", IN SW 1/4 NE 1/4 sec.12, T.26 S., R.3 W., Douglas County, Hydrologic Unit 17100301, on right bank 0.5 mi upstream from Rock Creek bridge, 2 mi east of Idleyld Park, and at mile 36.3.

DRAINAGE AREA.--886 mi<sup>2</sup>, at former site 0.5 mi downstream.

## PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1998 to current year.  
 pH: January 1998 to current year.  
 WATER TEMPERATURE: January 1998 to current year.  
 DISSOLVED OXYGEN: January 1998 to current year.  
 TURBIDITY: October 1999 to current year.

INSTRUMENTATION.--Water-quality monitor and data logger since January 1998.

## REMARKS.--

SPECIFIC CONDUCTANCE: Records good except for the period Apr. 5 to July 30, which are fair.  
 Ph: Records good.  
 WATER TEMPERATURE: Records excellent.  
 DISSOLVED OXYGEN: Records fair.  
 TURBIDITY: Records good. The probe was checked using a polymer bead standard.

## EXTREMES FOR PERIOD OF RECORD.--

SPECIFIC CONDUCTANCE: Maximum recorded, 76 microsiemens June 22, 2001; minimum recorded, 26 microsiemens Nov. 21, 1998, but may have been lower during period of missing record.  
 pH: Maximum, 8.7 units July 23, 2002; minimum recorded, 6.1 units Dec. 18, 1999, but may have been lower during period of missing record.  
 WATER TEMPERATURE: Maximum recorded, 21.0°C Aug. 9, 2001; minimum recorded, 2.2°C Nov. 18, 19, 2000.  
 DISSOLVED OXYGEN: Maximum recorded, 14.5 mg/L Feb. 10, 1999, but may have been higher during period of missing record; minimum recorded, 6.4 mg/L Aug. 14, 2001.  
 TURBIDITY: Maximum recorded, 220 NTU Dec. 14, 2001; minimum recorded, <1 many days each year.

## EXTREMES FOR CURRENT YEAR.--

SPECIFIC CONDUCTANCE: Maximum recorded, 73 microsiemens Aug. 18, 19, 26; minimum, 31 microsiemens Apr. 14.  
 pH: Maximum recorded, 8.7 units July 23; minimum recorded, 6.7 units Nov. 22, but may have been lower during period of missing record.  
 WATER TEMPERATURE: Maximum recorded, 20.8°C July 11; minimum recorded, 3.0°C Jan. 30.  
 DISSOLVED OXYGEN: Maximum recorded, 13.3 mg/L Mar. 2, 18; minimum recorded, 8.8 mg/L several days in June and July, but may have been lower during period of missing record.  
 TURBIDITY: Maximum recorded, 220 NTU Dec. 14; minimum, <1 many days during year.

## SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	66	65	65	59	58	59	50	45	48	40	39	40
2	65	64	65	61	59	60	46	43	44	40	37	38
3	66	64	65	61	60	60	49	46	48	42	38	39
4	66	64	65	61	60	61	50	49	50	42	41	42
5	67	65	66	62	61	61	50	50	49	---	---	---
6	67	65	66	62	61	61	49	38	44	---	---	---
7	66	65	66	62	60	60	42	38	40	---	---	---
8	66	65	66	63	60	61	44	42	43	---	---	---
9	67	65	66	63	61	61	46	44	45	---	---	---
10	68	65	66	63	61	62	48	46	47	---	---	---
11	68	65	66	62	61	62	49	47	48	---	---	---
12	72	68	70	63	62	62	49	48	48	---	---	---
13	68	66	67	63	62	62	48	38	45	---	---	---
14	67	65	66	64	61	62	---	---	---	---	---	---
15	67	65	66	61	59	60	42	38	40	---	---	---
16	67	65	66	61	59	60	42	37	40	---	---	---
17	66	65	65	59	56	57	37	34	36	---	---	---
18	66	64	65	59	56	57	40	37	39	---	---	---
19	66	64	65	60	58	59	42	40	41	---	---	---
20	66	64	65	60	59	59	43	42	42	---	---	---
21	67	64	65	60	52	57	44	43	43	---	---	---
22	67	63	65	52	38	46	46	44	45	---	---	---
23	67	61	64	47	38	43	47	46	47	---	---	---
24	65	60	61	50	47	49	48	47	48	---	---	---
25	64	61	62	51	50	50	49	48	48	---	---	---
26	64	62	63	53	51	52	50	48	49	40	36	38
27	64	63	63	54	53	54	50	49	50	42	40	41
28	65	62	63	54	40	52	49	43	46	45	42	44
29	65	63	64	44	39	41	44	43	44	46	45	46
30	65	63	64	49	44	47	44	42	43	47	46	47
31	65	59	63	---	---	---	43	38	40	49	47	48
MONTH	72	59	65	64	38	57	---	---	---	---	---	---

UMPQUA RIVER BASIN

14317450 NORTH UMPQUA RIVER NEAR IDLEYLD PARK, OR--Continued

SPECIFIC CONDUCTANCE (MICROSIEMENS/CM AT 25 DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	48	48	48	46	45	46	---	---	---	47	47	47
2	49	48	48	47	46	47	---	---	---	48	47	47
3	51	49	49	48	47	47	---	---	---	48	45	46
4	50	48	49	49	47	48	---	---	---	46	45	45
5	49	48	48	49	48	49	41	38	39	46	45	45
6	50	48	49	49	47	48	40	38	39	46	45	46
7	48	39	45	48	44	45	41	39	40	43	42	43
8	41	38	39	48	44	46	42	40	41	47	46	46
9	43	41	42	48	45	47	42	41	42	48	46	48
10	---	---	---	48	47	47	42	38	39	48	47	48
11	---	---	---	48	45	47	39	38	38	49	48	49
12	---	---	---	45	37	40	39	37	38	50	48	49
13	---	---	---	42	39	40	39	38	38	49	48	49
14	---	---	---	45	42	43	38	31	33	48	47	47
15	---	---	---	45	44	44	35	32	34	48	47	47
16	---	---	---	47	44	44	37	35	36	49	48	48
17	---	---	---	45	44	45	39	37	38	49	48	48
18	---	---	---	46	45	46	41	39	40	52	47	49
19	---	---	---	48	46	47	43	41	42	48	47	47
20	41	39	40	48	46	48	44	42	43	48	47	47
21	42	40	41	46	44	45	45	44	44	44	42	44
22	40	39	40	45	42	43	46	44	45	48	46	47
23	40	38	39	43	40	41	46	45	46	48	48	48
24	41	39	40	42	40	41	---	---	---	49	48	49
25	42	40	41	44	42	42	46	45	46	49	49	49
26	44	42	43	44	43	43	46	45	46	49	48	49
27	45	44	44	45	44	44	46	45	45	48	47	48
28	46	45	45	45	44	45	46	45	46	47	45	46
29	---	---	---	46	45	45	47	46	46	46	44	45
30	---	---	---	46	45	45	47	47	47	45	43	44
31	---	---	---	---	---	---	---	---	---	44	43	44
MONTH	---	---	---	---	---	---	---	---	---	52	42	47
	JUNE			JULY			AUGUST			SEPTEMBER		
1	45	43	44	62	60	61	66	64	65	67	66	66
2	46	44	45	64	61	62	66	65	65	67	66	66
3	46	45	46	---	---	---	67	65	66	67	65	66
4	47	46	47	56	56	56	67	65	66	67	66	67
5	48	47	48	64	63	63	67	64	65	67	66	66
6	43	42	43	64	63	64	66	65	65	68	66	66
7	50	48	49	64	63	63	66	65	66	66	65	66
8	50	49	49	63	63	63	67	65	66	67	65	66
9	51	50	51	63	62	62	67	65	66	71	65	67
10	52	51	51	63	62	63	67	65	66	70	65	67
11	53	51	52	63	63	63	67	65	66	66	65	65
12	53	52	53	65	63	63	67	66	66	66	65	65
13	53	53	53	64	63	64	67	62	66	67	65	65
14	53	53	53	65	63	64	67	67	67	68	65	66
15	53	52	53	65	64	65	70	67	67	65	65	65
16	53	52	53	65	64	65	70	66	67	66	65	65
17	56	53	54	56	56	56	70	66	67	65	63	64
18	55	53	54	66	65	66	73	67	67	72	64	69
19	54	51	52	67	66	66	73	67	69	72	66	69
20	53	52	53	67	67	67	70	68	69	67	66	66
21	54	53	54	68	67	67	69	68	68	68	66	66
22	56	54	55	68	67	68	72	68	69	67	66	66
23	57	56	56	68	68	68	69	68	68	67	66	66
24	58	56	57	69	68	68	71	68	70	67	65	66
25	58	57	57	69	68	68	71	68	69	66	65	65
26	59	57	58	69	68	69	73	69	70	68	65	66
27	60	57	59	70	68	69	---	---	---	67	66	66
28	61	59	60	71	68	69	67	65	66	68	66	66
29	61	60	60	70	68	69	66	65	66	68	65	66
30	62	60	61	65	59	61	70	65	66	67	66	67
31	---	---	---	65	64	64	67	65	66	---	---	---
MONTH	62	42	53	---	---	---	---	---	---	72	63	66



14317450 NORTH UMPQUA RIVER NEAR IDLEYLD PARK, OR--Continued

PH, WATER, WHOLE, FIELD, STANDARD UNITS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	7.9	7.6	7.7	8.6	7.7	7.9	8.5	7.6	8.0	8.4	7.6	7.9
2	8.0	7.6	7.7	8.6	7.7	8.0	8.5	7.6	8.0	8.4	7.6	7.8
3	8.0	7.6	7.7	---	---	---	8.6	7.6	8.0	8.4	7.6	7.9
4	8.0	7.6	7.7	---	---	---	8.5	7.7	8.0	8.6	7.6	8.0
5	8.0	7.6	7.8	---	---	---	8.4	7.6	8.0	8.4	7.6	7.9
6	8.2	7.6	7.9	8.4	7.4	7.8	8.4	7.7	8.0	8.4	7.6	7.9
7	8.1	7.7	7.9	8.4	7.4	7.8	8.4	7.6	7.9	8.4	7.6	7.9
8	8.1	7.7	7.9	8.4	7.5	7.8	8.4	7.6	7.9	8.4	7.6	7.9
9	8.1	7.7	7.9	8.4	7.5	7.8	8.4	7.6	7.9	8.3	7.6	7.9
10	8.1	7.7	7.8	8.5	7.4	7.8	8.4	7.6	7.9	8.4	7.6	7.8
11	8.2	7.7	7.8	8.6	7.5	7.9	8.5	7.6	7.9	8.4	7.6	7.9
12	8.2	7.7	7.8	8.5	7.5	7.9	8.4	7.6	7.9	8.4	7.6	7.8
13	8.2	7.6	7.9	8.5	7.5	8.0	8.5	7.6	7.7	8.4	7.6	7.8
14	8.3	7.7	7.9	8.6	7.6	8.0	8.4	7.6	7.9	8.4	7.6	7.8
15	8.3	7.7	7.9	8.6	7.6	8.0	8.4	7.5	7.9	8.5	7.6	7.9
16	8.3	7.7	7.9	8.6	7.6	8.0	8.6	7.6	8.0	8.4	7.6	7.9
17	8.0	7.7	7.8	8.6	7.7	8.0	8.5	7.7	8.0	8.2	7.6	7.8
18	8.1	7.7	7.8	8.6	7.6	8.0	8.6	7.7	8.1	8.2	7.6	7.8
19	8.1	7.6	7.7	8.5	7.6	8.0	8.5	7.7	8.1	8.2	7.6	7.7
20	8.2	7.6	7.8	8.6	7.6	8.0	8.5	7.7	8.0	8.2	7.6	7.7
21	8.2	7.6	7.8	8.6	7.6	7.9	8.5	7.7	8.0	8.2	7.6	7.7
22	8.3	7.6	7.8	8.6	7.6	8.0	8.6	7.7	8.1	8.2	7.6	7.7
23	8.4	7.6	7.9	8.7	7.6	8.0	8.6	7.7	8.1	8.2	7.6	7.7
24	8.4	7.6	7.8	8.6	7.6	8.0	8.6	7.7	8.1	8.2	7.6	7.7
25	8.4	7.6	7.9	8.6	7.6	8.0	8.6	7.7	8.1	8.2	7.6	7.8
26	8.4	7.6	7.9	8.6	7.6	8.0	8.5	7.7	8.1	8.4	7.6	7.8
27	8.5	7.6	7.9	8.6	7.6	8.0	---	7.7	7.9	8.2	7.6	7.8
28	8.4	7.7	7.9	8.6	7.6	8.0	8.5	7.6	7.9	8.2	7.6	7.8
29	8.5	7.7	8.0	8.6	7.6	8.0	8.5	7.5	7.9	8.3	7.6	7.8
30	8.6	7.7	8.0	8.5	7.6	8.0	8.4	7.6	8.0	8.2	7.6	7.8
31	---	---	---	8.6	7.6	8.0	8.5	7.6	7.9	---	---	---
MAX	8.6	7.7	8.0	---	---	---	---	7.7	8.1	8.6	7.6	8.0
MIN	7.9	7.6	7.7	---	---	---	---	7.5	7.7	8.2	7.6	7.7

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	12.5	11.0	11.7	9.9	9.6	9.8	6.9	6.4	6.5	7.0	6.5	6.7
2	12.6	11.2	11.8	9.7	9.1	9.5	6.9	6.7	6.8	7.3	7.0	7.2
3	12.6	11.2	11.8	9.1	8.1	8.6	6.8	6.1	6.4	7.1	6.9	6.4
4	12.5	11.3	11.8	8.3	7.6	8.0	6.1	5.1	5.4	5.9	5.3	5.4
5	11.8	11.1	11.4	8.3	7.6	7.9	5.1	4.3	4.6	---	---	---
6	11.8	11.1	11.4	8.2	7.1	7.9	6.9	4.8	5.8	---	---	---
7	11.5	10.4	10.9	7.1	5.7	6.5	6.9	6.5	6.7	---	---	---
8	10.8	10.0	10.4	5.9	5.2	5.6	6.5	5.9	6.1	---	---	---
9	10.7	9.6	10.1	5.9	5.2	5.5	6.2	5.7	6.0	---	---	---
10	9.8	9.2	9.4	6.6	5.5	6.1	5.7	4.8	5.1	---	---	---
11	10.2	9.1	9.6	7.2	6.2	6.8	5.3	4.7	4.9	---	---	---
12	9.9	9.1	9.6	8.0	7.1	7.7	5.5	5.1	5.3	---	---	---
13	10.7	9.3	10	8.2	7.9	8.1	6.7	5.5	5.8	---	---	---
14	10.2	9.5	9.8	8.8	8.2	8.5	---	---	---	---	---	---
15	10.3	9.1	9.7	8.7	8.5	8.6	6.2	5.8	5.9	---	---	---
16	10.4	9.6	9.9	8.7	8.5	8.6	7.1	5.9	6.3	---	---	---
17	10.1	9.1	9.7	8.7	7.9	8.4	7.2	6.8	7.1	---	---	---
18	9.1	8.3	8.7	7.9	6.7	7.1	6.8	6.3	6.5	---	---	---
19	8.7	7.8	8.2	7.5	6.7	7.1	6.4	6.1	6.2	---	---	---
20	9.1	7.8	8.4	7.6	7.4	7.5	6.2	6.0	6.1	---	---	---
21	9.6	8.6	9.1	7.9	7.5	7.8	6.0	5.1	5.5	---	---	---
22	9.4	9.0	9.2	8.5	7.9	8.2	5.4	4.8	5.1	---	---	---
23	9.5	9.1	9.3	8.3	7.7	8.0	5.4	4.7	5.0	---	---	---
24	9.2	8.0	8.7	7.7	6.6	7.2	4.7	3.9	4.2	---	---	---
25	8.2	7.6	7.9	6.6	6.2	6.3	4.3	3.8	4.0	---	---	---
26	8.0	7.4	7.7	6.2	5.7	5.9	4.7	4.3	4.5	5.8	5.2	5.6
27	8.2	7.4	7.8	5.7	5.2	5.3	5.1	4.7	4.9	5.2	4.6	4.7
28	8.8	7.8	8.3	6.4	5.1	5.3	5.7	5.1	5.5	4.6	3.9	4.2
29	8.9	8.4	8.7	7.0	6.4	6.9	6.1	5.5	5.7	3.9	3.1	3.4
30	9.3	8.7	9.0	6.8	6.5	6.6	6.3	6.0	6.1	3.3	3.0	3.1
31	9.9	9.2	9.6	---	---	---	6.8	6.3	6.6	3.9	3.2	3.4
MONTH	12.6	7.4	9.7	9.9	5.1	7.4	---	---	---	---	---	---

## UMPQUA RIVER BASIN

14317450 NORTH UMPQUA RIVER NEAR IDLEYLD PARK, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	4.3	3.9	4.1	4.2	3.4	3.8	---	---	---	9.7	7.9	8.6
2	4.3	3.9	4.2	3.8	3.0	3.4	---	---	---	11.4	8.9	10.0
3	4.5	4.2	4.4	4.1	3.2	3.6	---	---	---	11.2	9.5	10.5
4	4.4	3.9	4.1	4.6	3.8	4.2	---	---	---	10.8	8.7	9.8
5	4.1	3.7	3.9	4.9	4.4	4.6	8.3	7.4	7.8	10.2	8.5	9.3
6	4.7	4.1	4.3	5.6	4.9	5.3	8.0	7.1	7.5	10.0	8.5	9.3
7	5.5	4.7	5.0	5.5	4.1	4.9	8.1	7.0	7.7	9.7	7.9	9.0
8	5.8	5.2	5.5	4.1	3.6	3.9	8.2	6.9	7.7	9.8	7.4	8.7
9	5.6	4.9	5.2	4.2	3.4	3.8	8.4	7.6	8.0	9.7	7.9	8.6
10	---	---	---	4.9	4.1	4.4	7.9	7.1	7.6	10.2	8.2	9.0
11	---	---	---	6.2	4.9	5.5	7.9	7.3	7.7	10.8	8.3	9.6
12	---	---	---	6.2	5.3	5.9	8.7	7.4	8.1	12.1	9.3	10.6
13	---	---	---	5.3	4.7	4.8	8.4	8.1	8.2	12.1	10.1	10.8
14	---	---	---	5.1	4.3	4.8	8.2	6.4	7.4	11.4	9.1	10.3
15	---	---	---	4.9	4.4	4.7	6.4	5.6	5.9	11.4	9.1	10.4
16	---	---	---	4.6	3.6	4.1	5.8	5.4	5.6	11.6	9.0	10.5
17	---	---	---	3.9	3.1	3.5	5.8	5.2	5.5	12.7	9.9	11.3
18	---	---	---	4.2	3.4	3.8	6.3	5.2	5.7	12.6	10.7	11.5
19	---	---	---	5.1	4.0	4.6	7.3	5.7	6.5	11.5	10.1	10.7
20	6.3	5.5	5.8	5.8	4.6	5.2	8.1	6.4	7.2	10.5	9.3	10.0
21	6.6	6.0	6.3	6.3	5.2	5.8	8.6	6.5	7.6	10.3	9.0	9.6
22	6.6	6.1	6.3	6.5	5.6	6.1	9.2	7.1	8.2	10.4	8.8	9.6
23	6.7	6.2	6.5	6.5	6.0	6.3	9.4	7.5	8.5	11.3	8.5	9.9
24	6.5	5.6	6.0	6.8	5.8	6.3	---	---	---	12.0	9.6	10.8
25	5.6	4.8	5.0	6.9	5.8	6.4	10.4	7.9	9.1	12.9	10.8	11.8
26	5.2	4.5	4.9	7.0	5.8	6.5	10.0	8.3	8.9	13.9	11.7	12.8
27	5.1	4.5	4.8	7.5	6.3	6.9	8.9	7.7	8.3	13.8	12.1	12.5
28	4.8	4.2	4.6	7.5	6.2	6.9	8.8	6.9	7.9	12.2	11.2	11.6
29	---	---	---	7.8	6.5	7.2	9.2	7.3	8.4	13.6	10.8	12.1
30	---	---	---	7.6	6.3	7.0	9.0	8.0	8.4	14.6	12.1	13.3
31	---	---	---	---	---	---	---	---	---	14.0	12.0	13.2
MONTH	---	---	---	---	---	---	---	---	---	14.6	7.4	10.5
	JUNE			JULY			AUGUST			SEPTEMBER		
1	14.2	11.9	13.1	18.2	16.2	17.1	19.5	17.0	18.0	17.2	14.9	16.0
2	13.8	11.5	12.9	18.5	16.7	17.4	19.0	16.9	17.7	17.4	15.2	16.2
3	13.4	11.3	12.4	18.0	16.5	17.2	17.7	15.9	16.7	16.6	15.1	15.7
4	14.6	11.8	13.1	17.5	16.2	16.7	16.3	14.9	15.6	15.2	13.3	14.4
5	15.4	13.1	14.3	17.5	15.7	16.5	15.1	14.1	14.5	14.8	13.2	14.0
6	15.3	13.5	14.5	17.9	16.1	16.8	16.1	13.6	14.6	14.3	12.8	13.5
7	14.6	12.4	13.4	17.2	16.3	16.8	16.3	13.6	14.8	14.1	12.7	13.2
8	13.5	10.9	11.7	18.6	16.0	17.1	17.1	14.3	15.5	13.2	12.1	12.6
9	12.3	10.3	11.2	19.3	17.0	17.9	17.8	14.8	16.1	13.7	11.3	12.4
10	13.5	10.9	12.1	20.4	17.8	18.9	18.8	15.7	17.1	14.2	12.2	13.0
11	14.8	12.6	13.6	20.8	18.8	19.5	19.2	16.4	17.6	14.9	12.8	13.8
12	15.9	13.9	15.0	20.6	19.1	19.6	19.3	16.5	17.7	15.4	13.3	14.3
13	16.4	14.8	15.8	20.7	19.1	19.8	18.9	17.0	17.7	15.7	13.8	14.7
14	16.4	15.1	16.0	20.0	18.5	19.2	20.1	16.9	18.3	15.5	14.2	14.8
15	16.3	15.0	15.9	19.9	18.1	18.8	19.9	17.5	18.5	15.4	13.8	14.5
16	16.3	14.9	15.7	19.8	17.8	18.6	19.3	17.0	18.0	14.8	13.9	14.4
17	15.9	13.6	14.6	19.8	17.8	18.5	18.5	16.4	17.3	14.3	13.5	13.9
18	13.7	12.6	13.2	19.6	17.8	18.5	17.2	15.7	16.3	14.9	13.1	13.9
19	14.5	12.1	13.3	18.6	17.6	18.0	16.5	14.4	15.4	14.8	13.7	14.1
20	15.3	12.9	14.1	19.8	17.3	18.3	16.1	14.9	15.5	14.7	13.2	13.8
21	16.0	14.0	14.9	20.1	17.7	18.7	16.6	14.2	15.3	14.3	12.9	13.5
22	16.3	14.8	15.5	19.6	18.1	18.7	16.6	14.9	15.6	14.2	12.6	13.3
23	16.9	15.3	16.0	19.9	17.5	18.5	17.0	14.5	15.6	14.0	12.7	13.2
24	17.6	16.2	16.8	19.9	17.8	18.7	17.3	15.1	16.0	13.9	12.4	13.0
25	17.8	16.2	17.0	19.7	17.8	18.6	16.7	15.5	16.0	13.9	12.4	13.0
26	17.9	16.8	17.3	19.8	17.5	18.4	17.5	15.2	16.2	13.5	12.2	12.7
27	17.8	16.7	17.2	19.8	17.7	18.5	17.3	15.4	16.1	13.2	11.9	12.4
28	17.4	16.2	16.9	19.8	17.3	18.3	17.9	15.5	16.6	12.7	11.5	12.0
29	17.1	16.0	16.5	20.5	17.7	18.8	18.1	16.1	17.0	12.1	11.2	11.6
30	17.4	16.3	16.8	20.6	18.2	19.0	17.5	15.8	16.6	11.6	10.7	11.2
31	---	---	---	19.8	18.1	18.7	17.0	15.0	16.0	---	---	---
MONTH	17.9	10.3	14.7	20.8	15.7	18.3	20.1	13.6	16.4	17.4	10.7	13.6



UMPQUA RIVER BASIN

14317450 NORTH UMPQUA RIVER NEAR IDLEYLD PARK, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	11.3	10	10.4	10.6	10.2	10.4	12.2	12.0	12.1	11.6	11.3	11.5
2	11.3	9.8	10.3	10.7	10.2	10.4	12.1	12.0	12.0	11.4	11.3	11.4
3	11.4	9.8	10.3	11.1	10.3	10.6	12.5	12.0	12.3	11.8	11.3	11.6
4	11.3	9.7	10.1	11.4	10.6	10.8	12.8	12.4	12.6	11.6	11.4	11.6
5	11.4	9.6	10.3	11.2	10.5	10.8	13.1	12.6	12.8	---	---	---
6	11.0	9.7	10.1	11.4	10.4	10.7	12.8	12.6	12.8	---	---	---
7	11.2	9.8	10.3	12.0	10.8	11.2	12.8	12.5	12.6	---	---	---
8	11.1	9.9	10.4	12.3	11.2	11.8	12.7	12.4	12.5	---	---	---
9	11.6	10.0	10.6	12.3	12.0	12.2	12.7	12.4	12.6	---	---	---
10	11.0	10.2	10.5	12.0	11.7	11.9	12.9	12.5	12.7	---	---	---
11	11.0	10.3	10.6	11.7	11.2	11.5	12.9	12.6	12.8	---	---	---
12	11.2	10.4	10.7	11.3	10.9	11.1	12.8	12.6	12.7	---	---	---
13	11.1	10.2	10.5	11.1	10.8	10.9	12.6	12.2	12.5	---	---	---
14	11.2	10.2	10.5	11.0	10.6	10.8	---	---	---	---	---	---
15	11.3	10.1	10.6	10.7	10.5	10.6	12.3	12.1	12.2	---	---	---
16	11.3	10.1	10.5	10.7	10.4	10.6	12.2	11.8	12.0	---	---	---
17	11.3	10.2	10.6	10.8	10.5	10.7	12.1	11.8	12.0	---	---	---
18	11.8	10.3	10.8	11.6	10.7	11.4	12.0	11.9	11.9	---	---	---
19	11.8	10.5	10.9	11.8	11.3	11.5	12.0	11.8	11.9	---	---	---
20	11.8	10.2	10.8	11.8	11.6	11.7	12.0	11.8	11.9	---	---	---
21	11.3	10.1	10.5	11.7	11.4	11.5	12.3	11.9	12.2	---	---	---
22	10.6	10.1	10.3	11.9	11.4	11.6	12.4	12.2	12.3	---	---	---
23	10.8	10.2	10.5	12.0	11.8	11.9	12.5	12.2	12.4	---	---	---
24	11.4	10.5	10.9	12.0	11.7	11.8	12.7	12.5	12.6	---	---	---
25	11.8	10.8	11.1	12.4	11.9	12.2	12.8	12.5	12.7	---	---	---
26	11.4	10.8	11.0	12.8	12.3	12.6	12.5	12.3	12.4	11.4	11.1	11.3
27	11.3	10.8	11.0	13.0	12.6	12.7	12.3	12.0	12.1	11.9	11.3	11.7
28	11.2	10.6	10.9	12.6	12.3	12.5	12.1	11.8	11.9	12.2	11.6	12.0
29	11.0	10.5	10.7	12.3	12.1	12.2	12.1	11.8	11.9	12.9	12.1	12.6
30	10.6	10.3	10.4	12.4	12.1	12.2	11.9	11.7	11.8	13.0	12.5	12.8
31	10.6	10.3	10.4	---	---	---	11.7	11.5	11.6	12.8	12.2	12.6
MONTH	11.8	9.6	10.6	13.0	10.2	11.4	---	---	---	---	---	---
	FEBRUARY			MARCH			APRIL			MAY		
1	12.3	11.7	12.1	13.1	12.7	12.9	---	---	---	12.5	11.8	12.2
2	12.1	11.6	11.9	13.3	12.8	13.1	---	---	---	12.2	11.2	11.8
3	12.0	11.6	11.8	13.2	12.8	13.0	---	---	---	12.1	11.3	11.7
4	12.2	11.7	11.9	13.0	12.5	12.8	---	---	---	12.3	11.4	11.9
5	12.3	11.8	12.1	12.7	12.3	12.6	11.2	10.9	11.1	12.3	11.6	12.0
6	11.9	11.6	11.8	12.3	12.1	12.2	11.5	11.2	11.3	12.4	11.7	12.0
7	11.9	11.7	11.8	12.8	12.1	12.5	11.5	11.1	11.3	12.5	11.5	11.9
8	12.1	11.9	12.0	13.2	12.8	13.0	11.5	11.0	11.3	12.3	11.4	11.8
9	---	---	---	13.1	12.7	12.9	11.3	11.1	11.2	12.2	11.4	11.9
10	---	---	---	12.9	12.5	12.8	11.6	11.2	11.4	12.2	11.5	11.9
11	---	---	---	12.6	12.1	12.4	11.5	11.3	11.4	12.2	11.2	11.7
12	---	---	---	12.5	12.1	12.3	11.6	11.2	11.4	11.9	10.9	11.4
13	---	---	---	12.8	12.5	12.7	11.4	11.2	11.3	11.7	10.9	11.4
14	---	---	---	13.0	12.6	12.8	11.9	11.2	11.6	12.0	11.1	11.6
15	---	---	---	12.8	12.6	12.7	12.1	11.9	12.0	11.9	11.1	11.5
16	---	---	---	13.0	12.6	12.9	12.1	12.0	12.0	11.9	11.0	11.5
17	---	---	---	13.2	13.0	13.1	12.2	12.0	12.1	11.7	10.7	11.2
18	---	---	---	13.3	12.9	13.1	12.3	12.0	12.2	11.4	10.7	11.1
19	---	---	---	13.0	12.4	12.7	12.2	11.7	12.0	11.5	10.9	11.2
20	12.4	12.1	12.2	12.7	12.1	12.4	12.0	11.4	11.7	11.7	11.2	11.4
21	12.2	11.9	12.1	12.3	11.8	12.1	11.9	11.3	11.6	11.9	11.3	11.6
22	12.1	11.8	12.0	12.1	11.7	11.9	11.8	11.2	11.5	11.9	11.3	11.6
23	12.0	11.8	11.9	11.9	11.7	11.8	11.8	11.2	11.5	11.9	11.0	11.5
24	12.3	12.0	12.2	12.0	11.6	11.8	---	---	---	11.7	10.8	11.3
25	12.7	12.3	12.6	12.0	11.5	11.8	12.5	11.6	12.1	11.2	10.4	10.9
26	12.8	12.4	12.6	11.9	11.4	11.7	12.4	11.7	12.1	10.9	10.2	10.6
27	12.7	12.4	12.6	11.8	11.3	11.5	12.5	11.9	12.2	10.8	10.2	10.6
28	12.8	12.5	12.6	11.8	11.2	11.5	12.8	12.1	12.4	11.0	10.6	10.8
29	---	---	---	11.6	11.0	11.3	12.6	11.9	12.2	11.1	10.3	10.8
30	---	---	---	11.6	11.0	11.3	12.4	11.9	12.2	10.8	10.2	10.5
31	---	---	---	---	---	---	---	---	---	10.9	10.2	10.5
MONTH	---	---	---	---	---	---	---	---	---	12.5	10.2	11.4

## UMPQUA RIVER BASIN

14317450 NORTH UMPQUA RIVER NEAR IDLEYLD PARK, OR--Continued

OXYGEN DISSOLVED (MG/L), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	10.8	10.2	10.5	---	---	---	9.8	9.1	9.4	10.3	9.4	9.8
2	10.9	10.2	10.5	---	---	---	9.9	9.1	9.4	10.2	9.3	9.7
3	11.1	10.3	10.6	---	---	---	10.2	9.3	9.7	10.3	9.3	9.8
4	10.9	10.0	10.5	---	---	---	10.4	9.6	10	10.7	9.7	10.2
5	10.6	9.9	10.2	---	---	---	10.7	9.9	10.2	10.7	9.9	10.3
6	10.6	9.9	10.2	10.2	9.4	9.7	10.8	9.9	10.3	10.9	10.1	10.4
7	10.9	10.0	10.5	10.1	9.3	9.7	10.7	9.9	10.2	11.0	10.2	10.5
8	11.3	10.3	10.9	10.3	9.3	9.8	10.6	9.8	10.1	11.2	10.4	10.7
9	11.4	10.6	11.1	10.1	9.2	9.6	10.5	9.5	10	11.3	10.5	10.9
10	11.3	10.3	10.8	9.8	9.0	9.3	10.2	9.3	9.7	11.2	10.2	10.7
11	10.9	10.0	10.5	9.8	8.9	9.2	10.1	9.2	9.6	10.9	10.0	10.5
12	10.6	9.8	10.2	9.7	8.8	9.2	10.1	9.2	9.6	10.9	9.9	10.3
13	10.4	9.7	10.0	9.6	8.8	9.1	10.0	9.2	9.6	10.8	9.9	10.2
14	10.4	9.7	10.0	9.8	8.8	9.3	10.5	9.3	9.7	10.7	9.9	10.2
15	10.4	9.7	10.0	9.9	9.0	9.4	---	---	---	10.8	10	10.3
16	10.4	9.7	10.0	10	9.1	9.4	---	---	---	10.9	10.0	10.4
17	10.4	9.7	10.1	10	9.1	9.4	---	---	---	10.8	10.1	10.4
18	11.2	10.0	10.4	9.9	9.1	9.4	---	---	---	10.9	10.2	10.5
19	10.6	9.7	10.2	10.0	9.1	9.4	---	---	---	10.8	10.2	10.5
20	10.3	9.4	9.9	9.9	9.1	9.4	---	---	---	10.9	10.3	10.5
21	10.1	9.2	9.7	9.8	9.0	9.3	---	---	---	11.1	10.3	10.6
22	9.8	9.1	9.4	9.8	8.9	9.3	---	---	---	11.2	10.4	10.7
23	9.6	8.9	9.3	9.8	9.0	9.4	---	---	---	11.1	10.5	10.7
24	9.4	8.8	9.0	9.9	9.0	9.4	---	---	---	11.1	10.3	10.6
25	---	---	---	9.8	9.0	9.4	---	---	---	11.0	10.3	10.6
26	---	---	---	9.9	9.1	9.4	---	---	---	11.1	10.3	10.6
27	---	---	---	9.9	9.1	9.4	---	---	---	11.0	10.4	10.7
28	---	---	---	9.9	9.1	9.4	10.0	9.1	9.5	11.1	10.5	10.8
29	---	---	---	9.8	8.9	9.3	9.9	9.1	9.4	11.2	10.6	10.9
30	---	---	---	9.7	8.8	9.2	10.1	9.2	9.5	11.4	10.8	11.1
31	---	---	---	9.7	8.8	9.2	10.2	9.3	9.7	---	---	---
MONTH	---	---	---	---	---	---	---	---	---	11.4	9.3	10.5

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
OCTOBER			NOVEMBER			DECEMBER			JANUARY			
1	2	<1	1	2	<1	1	9	5	6	6	4	5
2	2	<1	<1	1	<1	<1	9	6	8	8	5	5
3	<1	<1	<1	2	<1	<1	7	4	5	7	4	5
4	<1	<1	<1	<1	<1	<1	4	3	4	4	2	3
5	1	<1	<1	1	<1	<1	11	4	8	3	2	2
6	2	<1	<1	<1	<1	<1	52	8	28	22	2	6
7	<1	<1	<1	1	<1	<1	31	9	14	23	7	8
8	<1	<1	<1	<1	<1	<1	9	6	7	45	7	29
9	<1	<1	<1	1	<1	<1	6	4	5	22	9	13
10	<1	<1	<1	3	<1	<1	5	3	4	9	4	6
11	1	<1	<1	2	<1	<1	7	3	4	5	3	4
12	2	<1	<1	2	<1	<1	6	4	4	4	3	3
13	<1	<1	<1	2	<1	<1	127	4	6	3	2	2
14	<1	<1	<1	5	1	3	220	24	61	2	2	2
15	2	<1	<1	2	1	2	30	12	15	3	1	2
16	2	<1	<1	6	1	2	17	10	13	2	1	1
17	1	<1	<1	9	3	5	38	16	24	2	<1	1
18	2	<1	<1	3	<1	2	17	8	11	1	<1	<1
19	1	<1	<1	6	<1	<1	9	5	7	1	<1	1
20	<1	<1	<1	1	<1	<1	7	4	5	4	1	2
21	<1	<1	<1	12	<1	8	4	4	4	11	3	9
22	3	<1	1	55	8	25	5	3	4	9	5	6
23	14	3	10	40	8	14	3	2	3	5	3	4
24	6	2	3	8	4	5	3	2	2	4	2	3
25	2	<1	1	7	4	6	3	2	2	27	3	4
26	<1	<1	<1	7	5	6	2	1	2	28	11	16
27	1	<1	<1	5	3	4	2	1	2	11	6	8
28	1	<1	<1	35	3	4	4	2	3	6	4	5
29	<1	<1	<1	35	10	17	3	2	2	4	3	3
30	3	<1	<1	11	6	8	3	2	3	3	2	3
31	8	2	4	---	---	---	8	3	6	2	2	2
MAX	14	3	10	55	10	25	220	24	61	45	11	29
MIN	<1	<1	<1	<1	<1	<1	2	1	2	1	<1	<1

14317450 NORTH UMPQUA RIVER NEAR IDLEYLD PARK, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY			MARCH			APRIL			MAY			
1	2	2	2	---	---	---	---	---	---	2	1	1
2	3	2	2	---	---	---	---	---	---	2	<1	1
3	3	2	2	---	---	---	---	---	---	1	1	1
4	2	2	2	---	---	---	---	---	---	2	<1	1
5	3	2	2	---	---	---	---	---	---	1	<1	1
6	2	2	2	---	---	---	---	---	---	1	<1	1
7	14	2	4	---	---	---	---	---	---	2	1	1
8	16	8	12	2	<1	1	---	---	---	1	<1	1
9	9	5	7	<1	<1	<1	---	---	---	2	<1	1
10	6	4	4	<1	<1	<1	---	---	---	1	<1	1
11	4	3	3	2	<1	<1	---	---	---	2	<1	<1
12	3	2	3	8	2	6	---	---	---	2	<1	<1
13	3	2	2	6	4	4	---	---	---	1	<1	<1
14	2	2	2	4	3	3	---	---	---	2	<1	<1
15	3	1	2	3	2	3	---	---	---	2	<1	<1
16	3	1	2	2	2	2	---	---	---	1	<1	<1
17	3	1	2	2	1	2	---	---	---	1	<1	<1
18	2	1	1	2	1	1	---	---	---	2	<1	1
19	6	1	2	---	1	1	---	---	---	2	<1	<1
20	8	4	5	---	---	---	---	---	---	1	<1	<1
21	4	3	4	---	---	---	---	---	---	2	<1	<1
22	6	3	4	---	---	---	---	---	---	2	<1	<1
23	6	4	5	---	---	---	---	---	---	1	<1	<1
24	5	2	3	---	---	---	---	---	---	2	<1	<1
25	---	2	---	---	---	---	2	1	2	1	<1	<1
26	---	---	---	---	---	---	2	1	2	<1	<1	<1
27	---	---	---	---	---	---	4	1	2	1	<1	<1
28	---	---	---	---	---	---	3	1	1	2	<1	<1
29	---	---	---	---	---	---	2	1	1	3	<1	1
30	---	---	---	---	---	---	2	1	1	3	1	2
31	---	---	---	---	---	---	---	---	---	2	1	2
MAX	---	---	---	---	---	---	---	---	---	3	1	2
MIN	---	---	---	---	---	---	---	---	---	<1	<1	<1

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE			JULY			AUGUST			SEPTEMBER			
1	2	<1	1	3	<1	<1	1	<1	<1	1	<1	<1
2	1	<1	1	2	<1	<1	2	<1	<1	2	<1	<1
3	2	<1	1	---	---	---	2	<1	<1	1	<1	<1
4	2	<1	<1	---	---	---	2	<1	<1	1	<1	<1
5	2	<1	<1	---	<1	---	1	<1	<1	1	<1	<1
6	2	<1	<1	1	<1	<1	1	<1	<1	<1	<1	<1
7	1	<1	<1	1	<1	<1	2	<1	<1	1	<1	<1
8	1	<1	<1	<1	<1	<1	2	<1	1	1	<1	<1
9	1	<1	<1	2	<1	<1	2	<1	1	<1	<1	<1
10	3	<1	<1	1	<1	<1	1	<1	<1	2	<1	<1
11	2	<1	<1	<1	<1	<1	2	<1	1	<1	<1	<1
12	2	<1	<1	<1	<1	<1	2	<1	1	<1	<1	<1
13	<1	<1	<1	<1	<1	<1	1	<1	1	<1	<1	<1
14	4	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1
15	1	<1	<1	<1	<1	<1	1	<1	<1	<1	<1	<1
16	2	<1	<1	1	<1	<1	<1	<1	<1	2	<1	<1
17	1	<1	<1	1	<1	<1	<1	<1	<1	2	<1	1
18	2	<1	1	<1	<1	<1	<1	<1	<1	3	<1	2
19	2	1	2	<1	<1	<1	<1	<1	<1	2	<1	<1
20	2	<1	1	<1	<1	<1	2	<1	<1	1	<1	<1
21	2	<1	1	1	<1	<1	2	<1	<1	2	<1	<1
22	3	<1	1	2	<1	<1	<1	<1	<1	2	<1	<1
23	2	<1	1	<1	<1	<1	<1	<1	<1	<1	<1	<1
24	2	<1	<1	1	<1	<1	<1	<1	<1	<1	<1	<1
25	1	<1	1	2	<1	<1	<1	<1	<1	<1	<1	<1
26	2	<1	1	2	<1	<1	1	<1	<1	2	<1	<1
27	1	<1	<1	3	<1	<1	1	<1	<1	<1	<1	<1
28	2	<1	<1	2	<1	<1	1	<1	<1	<1	<1	<1
29	2	<1	<1	2	<1	<1	2	<1	<1	<1	<1	<1
30	2	<1	<1	<1	<1	<1	2	<1	<1	1	<1	<1
31	---	---	---	1	<1	<1	1	<1	<1	---	---	---
MAX	4	1	2	---	---	---	2	<1	1	3	<1	2
MIN	<1	<1	<1	---	---	---	<1	<1	<1	<1	<1	<1



14318000 LITTLE RIVER AT PEEL, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--

WATER TEMPERATURE: June 1999 to current year.

INSTRUMENTATION.--Temperature recorder since June 1999.

REMARKS.--Record excellent.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum 24.3°C July 11, 2002; minimum, 0.5°C Nov. 19, 2000.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum 24.3°C July 11; minimum, 2.5°C Mar. 2.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	14.4	12.1	13.3	11.1	10.2	10.6	7.3	6.9	7.1	7.7	6.8	7.3
2	14.7	12.7	13.8	11.3	10.5	10.9	7.4	6.6	7.0	7.8	6.9	7.6
3	14.2	12.4	13.4	10.5	9.4	9.8	7.0	6.0	6.5	6.9	6.1	6.4
4	14.1	12.1	13.2	9.4	8.4	8.8	6.0	5.5	5.7	6.2	5.2	5.7
5	13.5	12.1	12.9	9.2	8.3	8.7	6.3	5.3	5.8	7.2	5.9	6.4
6	13.1	12.3	12.7	9.0	7.8	8.6	7.0	6.3	6.7	7.9	7.2	7.6
7	12.5	11.1	11.7	7.8	5.8	6.4	6.7	6.1	6.4	8.0	7.7	7.9
8	11.6	10.7	11.1	5.8	4.4	5.0	6.7	5.6	6.1	7.8	7.4	7.7
9	11.8	10.4	11.1	5.2	4.2	4.8	6.5	5.5	6.1	7.4	6.3	6.7
10	11.0	9.6	10.0	6.1	4.8	5.5	5.5	4.9	5.1	6.8	5.7	6.3
11	11.4	10.0	10.6	8.0	6.1	7.1	6.2	5.1	5.6	7.3	6.2	6.7
12	10.6	9.2	10.0	9.0	8.0	8.5	6.4	5.3	5.9	7.4	7.0	7.2
13	11.9	10.3	11.0	9.0	8.6	8.8	7.3	6.4	6.8	7.0	5.7	6.3
14	11.8	10.5	11.1	10.1	8.9	9.5	7.0	6.0	6.4	5.7	4.9	5.2
15	11.7	10.4	11.1	10.2	9.4	9.9	6.4	5.9	6.2	4.9	4.3	4.6
16	12.0	10.9	11.5	10.1	9.1	9.7	7.4	6.4	7.0	4.3	3.8	4.0
17	12.0	10.8	11.3	9.1	7.1	8.3	7.4	6.5	7.0	4.3	3.4	3.8
18	10.8	8.9	9.6	7.1	5.9	6.5	6.9	6.4	6.6	4.9	3.8	4.3
19	9.3	7.8	8.6	8.9	6.7	7.9	6.9	6.2	6.6	4.8	4.3	4.5
20	9.0	8.0	8.6	8.9	8.5	8.6	6.8	6.2	6.5	4.9	4.1	4.4
21	10.4	8.9	9.5	8.5	8.0	8.2	6.2	5.1	5.4	5.0	4.0	4.3
22	10.6	10.1	10.3	8.6	8.0	8.4	6.5	5.0	5.7	4.8	4.1	4.5
23	10.6	9.2	9.8	8.0	7.5	7.7	6.1	4.8	5.4	5.0	4.3	4.6
24	9.2	7.4	8.2	7.6	6.4	7.1	4.8	4.0	4.3	5.4	4.2	4.8
25	8.7	7.3	7.9	6.8	6.2	6.4	5.2	4.3	4.7	5.8	5.2	5.5
26	8.6	7.0	7.9	6.7	6.0	6.3	5.7	4.7	5.1	6.1	5.2	5.7
27	8.6	7.5	8.1	6.0	5.0	5.4	6.6	5.4	5.9	5.3	4.8	5.0
28	9.2	8.4	8.9	6.8	5.6	6.2	6.6	6.0	6.2	4.8	4.1	4.4
29	9.8	9.0	9.4	7.0	6.7	6.9	7.1	5.9	6.5	4.2	3.3	3.6
30	10.4	9.7	10.0	7.2	6.6	6.9	7.1	6.1	6.5	4.0	3.1	3.5
31	10.8	9.9	10.4	---	---	---	7.2	7.0	7.0	4.2	3.0	3.6
MONTH	14.7	7.0	10.5	11.3	4.2	7.8	7.4	4.0	6.1	8.0	3.0	5.5

## UMPQUA RIVER BASIN

14318000 LITTLE RIVER AT PEEL, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.2	4.1	4.6	4.4	3.0	3.8	8.8	6.1	7.3	9.7	7.4	8.4
2	---	3.5	---	4.5	2.5	3.5	9.3	6.4	7.8	11.5	7.2	9.4
3	---	---	---	5.0	2.8	3.9	9.6	6.6	8.0	11.4	8.8	10.2
4	---	---	---	5.7	3.5	4.6	9.8	6.8	8.3	11.0	7.3	9.3
5	5.0	3.7	4.3	5.6	4.1	4.9	8.7	7.8	8.2	10.2	8.0	9.0
6	5.9	4.5	5.1	6.9	5.5	6.1	8.9	7.4	8.1	10.1	8.1	9.2
7	6.1	5.6	5.8	6.4	4.0	5.2	9.8	7.5	8.5	9.8	6.8	8.5
8	6.3	5.3	5.7	4.5	3.2	3.9	9.8	6.8	8.4	10.0	6.1	8.3
9	5.9	4.8	5.3	5.2	3.3	4.3	9.8	8.4	9.0	9.7	7.7	8.4
10	6.3	4.8	5.6	6.1	4.5	5.3	9.3	7.9	8.7	10.5	7.2	8.7
11	6.3	5.6	6.0	7.2	5.8	6.5	9.7	8.2	8.9	11.6	7.3	9.6
12	6.0	4.8	5.6	7.0	5.3	6.3	10.6	8.2	9.3	13.4	9.0	11.3
13	6.1	5.1	5.6	5.3	4.4	4.9	9.8	9.2	9.5	13.2	10.0	11.3
14	5.1	3.9	4.5	5.6	4.3	4.9	9.5	6.9	8.2	12.1	8.1	10.3
15	5.5	3.8	4.6	5.2	4.2	4.7	6.9	6.0	6.4	12.0	9.1	10.8
16	6.0	5.0	5.5	4.7	3.8	4.2	6.4	5.5	6.0	12.8	8.8	11.0
17	6.1	5.6	5.9	4.7	3.3	4.0	6.3	5.4	5.8	14.0	10.8	12.5
18	6.7	5.8	6.2	5.0	3.5	4.3	7.5	5.1	6.2	13.5	11.3	12.1
19	6.4	6.0	6.3	6.7	4.4	5.4	8.0	5.6	6.6	11.8	10.6	11.1
20	7.2	6.0	6.6	6.9	4.5	5.7	8.9	6.2	7.3	11.8	9.8	10.9
21	7.7	6.8	7.2	7.3	5.2	6.2	9.3	5.7	7.4	11.2	9.9	10.6
22	7.7	6.4	7.1	7.2	5.4	6.3	9.9	6.6	8.1	11.4	9.1	10.3
23	7.6	6.8	7.2	7.0	5.7	6.4	10.2	7.5	8.7	12.5	8.3	10.6
24	7.0	5.5	6.4	7.1	5.8	6.4	9.8	6.0	7.9	13.5	9.9	11.7
25	5.7	4.5	5.1	7.4	5.2	6.3	10.8	7.2	8.9	14.6	11.3	13.0
26	6.3	4.7	5.4	7.9	5.3	6.5	9.5	7.4	8.3	16.4	12.7	14.5
27	5.6	4.3	5.0	8.0	6.4	7.1	8.3	7.0	7.6	15.8	13.6	14.3
28	5.3	4.1	4.7	7.8	5.4	6.5	9.2	5.7	7.4	13.8	12.6	13.4
29	---	---	---	8.4	6.2	7.1	9.7	6.4	8.1	17.2	13.1	14.8
30	---	---	---	8.2	5.6	6.8	9.1	8.0	8.4	16.2	14.6	15.4
31	---	---	---	8.1	5.5	6.7	---	---	---	16.9	13.7	15.3
MONTH	---	---	---	8.4	2.5	5.4	10.8	5.1	7.9	17.2	6.1	11.1
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.1	13.9	15.4	21.4	18.1	19.9	21.7	19.2	20.7	19.4	16.9	18.2
2	17.1	13.9	15.5	21.1	17.9	19.8	21.2	18.8	20.1	20.0	17.5	18.8
3	16.0	13.2	14.7	20.6	17.8	19.3	20.0	17.6	18.8	19.4	17.6	18.5
4	18.2	13.9	16.0	19.7	17.4	18.8	18.8	17.5	18.1	17.6	15.6	16.5
5	18.7	15.6	17.1	20.0	16.7	18.6	17.8	16.2	17.1	16.6	14.4	15.6
6	18.2	15.5	17.0	20.6	17.7	19.4	18.7	15.8	17.2	16.3	14.0	15.2
7	16.4	13.4	15.1	20.2	18.6	19.4	18.6	15.7	17.3	16.4	14.2	15.4
8	14.8	11.9	13.0	21.0	17.8	19.5	19.0	16.2	17.8	15.6	13.4	14.5
9	14.2	10.9	12.3	22.2	18.4	20.4	20.0	16.9	18.6	15.6	13.0	14.5
10	16.6	12.0	14.2	24.1	20.4	22.3	21.4	18.3	20.0	16.6	13.9	15.4
11	18.5	13.8	16.1	24.3	21.9	23.3	22.1	19.0	20.6	17.2	14.8	16.1
12	20.3	15.5	17.9	24.0	22.0	23.2	21.5	18.6	20.3	18.1	15.6	16.9
13	21.1	17.0	19.1	24.2	22.2	23.3	21.5	19.3	20.6	18.4	16.1	17.4
14	20.0	16.9	18.6	23.1	20.6	21.9	22.8	19.6	21.3	18.1	16.7	17.5
15	19.6	16.3	18.1	22.3	20.0	21.3	22.5	19.8	21.3	17.4	16.3	16.7
16	19.3	16.7	18.1	22.5	20.0	21.4	21.8	19.2	20.6	17.3	15.7	16.5
17	18.7	15.4	16.6	22.6	20.3	21.6	21.2	18.4	19.9	17.0	16.1	16.5
18	16.5	14.5	15.3	22.6	20.3	21.5	20.2	18.4	19.4	17.1	15.2	16.2
19	17.3	13.0	15.2	21.9	20.4	20.9	19.3	17.0	18.3	16.8	14.6	15.9
20	18.3	14.6	16.5	21.7	18.5	20.3	19.0	17.4	18.2	16.2	14.7	15.6
21	17.8	15.6	16.7	22.4	19.5	21.1	19.7	17.2	18.4	15.5	14.1	14.9
22	17.5	16.1	16.5	22.7	20.6	21.8	19.3	16.9	18.2	15.8	13.8	14.8
23	19.3	15.2	17.1	23.2	20.9	22.1	19.6	17.0	18.4	16.0	14.0	15.1
24	20.6	17.1	18.7	23.1	21.0	22.2	19.7	17.4	18.7	15.6	13.6	14.7
25	21.7	17.4	19.6	22.8	20.9	22.0	19.4	18.1	18.8	15.3	13.2	14.4
26	22.2	18.6	20.5	23.4	20.7	22.2	20.7	18.0	19.3	15.1	13.1	14.3
27	21.8	19.1	20.6	22.8	20.7	21.9	20.4	17.9	19.3	15.4	13.5	14.4
28	21.0	18.8	19.8	22.3	19.5	21.1	20.7	18.1	19.5	14.8	13.0	14.0
29	20.9	18.7	19.8	23.5	20.6	22.2	21.3	18.9	20.1	14.1	12.7	13.2
30	21.1	18.7	20.0	24.0	21.3	22.8	20.6	18.4	19.5	13.2	12.1	12.6
31	---	---	---	23.3	21.2	22.2	19.2	16.8	18.2	---	---	---
MONTH	22.2	10.9	17.0	24.3	16.7	21.2	22.8	15.7	19.2	20.0	12.1	15.7

14319500 NORTH UMPQUA RIVER AT WINCHESTER, OR

LOCATION.--Lat 43°16'20", long 123°24'40", in NW 1/4 NE 1/4 sec.33, T.26 S., R.6 W., Douglas County, Hydrologic Unit 17100301, on left bank 300 ft downstream from county bridge, 3.0 mi west of Winchester, and at mile 1.8.

DRAINAGE AREA.--1,344 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1908 to December 1913, October 1923 to September 1929, August 1954 to current year. Prior to December 1908, monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1448: 1909-12, drainage area. WDR OR-65-1: 1954(M). WDR OR-72-1: 1965(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 372.97 ft above NGVD of 1929 (Douglas County Road Department bench mark). Oct. 1, 1908, to Dec. 31, 1913, and Oct. 1, 1923, to Sept. 30, 1929, nonrecording gage at site 4.8 mi upstream at different datums. Aug. 27, 1954, to Aug. 12, 1965, water-stage recorder on right bank at same datum.

REMARKS.--No estimated daily discharges. Records good. Occasional regulation caused by upstream powerplants; slight regulation by Lemolo Lake and Diamond Lake. Several small diversions for irrigation upstream from station. Continuous water-quality records for water years 1967-69, 1971-91, have been collected at this site.

AVERAGE DISCHARGE.--59 years (water years 1909-13, 1924-29, 1955-2002), 3,718 ft<sup>3</sup>/s, 37.59 in/yr, 2,694,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 150,000 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 34.2 ft, from floodmark; minimum discharge, 235 ft<sup>3</sup>/s Aug. 27, 1987, result of regulation at Winchester Dam 5.2 mi upstream.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Oct. 29, 1950, reached a stage of 23.2 ft, from floodmark, at site 4.8 mi upstream at different datum, discharge, 88,000 ft<sup>3</sup>/s. Flood of Nov. 23, 1953, reached a stage of 28.4 ft, from floodmarks, present site and datum, discharge, 93,300 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 20,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0630	*35,400	*14.27	Apr. 14	1500	21,100	10.33
Dec. 17	1030	22,900	10.86				

Minimum discharge, 664 ft<sup>3</sup>/s Sept. 2.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	756	1700	5990	7330	3530	3710	3740	2830	2440	1150	807	686
2	752	1440	7660	8100	3620	3290	3810	2780	2340	1090	801	682
3	744	1220	5310	7960	3570	2920	4040	2780	2110	1070	802	681
4	744	1110	4490	6180	3640	2750	4240	2820	2030	1070	805	685
5	714	1060	6790	4990	3620	2620	4470	2770	1940	1080	813	688
6	720	1040	9690	7480	3580	2760	4580	2700	1890	1110	815	691
7	723	1010	12500	10900	5590	4070	4310	2590	1840	1080	810	718
8	728	996	6930	15600	12100	3880	3960	2500	1820	1020	807	747
9	736	982	5780	12600	8440	3380	3780	2410	1770	998	789	738
10	738	976	4910	8170	6250	3060	4520	2330	1680	989	758	722
11	775	1020	4530	6130	5420	3210	4970	2220	1570	984	750	711
12	990	1030	5130	5240	5000	6860	5050	2170	1510	1000	739	700
13	871	1100	6320	4840	4530	7340	4870	2220	1510	1010	736	695
14	822	1340	25400	4420	4400	6370	14500	2330	1470	1000	731	698
15	790	1520	12300	3990	4160	5610	12400	2360	1450	978	727	698
16	816	1540	11900	3460	4030	5200	8490	2330	1480	958	725	695
17	843	2940	19300	3300	4130	4740	7460	2300	1490	945	728	749
18	842	2060	12600	3110	3980	4080	7110	2340	1680	925	729	1010
19	845	1530	9070	3220	4210	3770	6260	2390	2060	934	730	960
20	813	1420	7590	3600	7210	4050	5580	2420	1830	930	741	819
21	814	2280	6350	7410	7170	5030	4950	2390	1530	901	740	781
22	824	6610	5260	7140	7330	6120	4420	2420	1400	889	742	769
23	1660	8630	4420	5360	8070	6520	4090	2290	1340	890	740	761
24	1620	3980	3680	4410	7590	8400	3800	2100	1290	882	728	754
25	1140	4140	3250	6200	6210	7720	3510	1960	1300	877	722	752
26	997	4490	3050	14500	5210	6310	3350	1930	1280	867	721	752
27	945	3380	2930	8420	4570	5450	3420	2010	1290	858	718	751
28	926	4190	3840	5980	4140	4750	3280	2180	1250	840	715	752
29	939	11200	4520	4680	---	4240	3040	2340	1260	829	721	763
30	996	6460	4890	3890	---	3990	2920	2690	1250	824	715	778
31	1810	---	6850	3430	---	3810	---	2720	---	815	701	---
TOTAL	28433	82394	233230	202040	151300	146010	154920	74620	49100	29793	23306	22386
MEAN	917.2	2746	7524	6517	5404	4710	5164	2407	1637	961.1	751.8	746.2
MAX	1810	11200	25400	15600	12100	8400	14500	2830	2440	1150	815	1010
MIN	714	976	2930	3110	3530	2620	2920	1930	1250	815	701	681
AC-FT	56400	163400	462600	400700	300100	289600	307300	148000	97390	59090	46230	44400
CFSM	0.68	2.04	5.60	4.85	4.02	3.50	3.84	1.79	1.22	0.72	0.56	0.56
IN.	0.79	2.28	6.46	5.59	4.19	4.04	4.29	2.07	1.36	0.82	0.65	0.62

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1909 - 2002, BY WATER YEAR (WY)

MEAN	1355	4101	6332	6734	6234	5566	4818	3860	2444	1338	997.1	982.8
MAX	2752	12550	23640	15220	13250	12880	8881	7147	4992	2824	1578	1689
(WY)	1963	1974	1965	1965	1986	1972	1993	1963	1984	1913	1976	1986
MIN	683	931	1005	1125	1019	1681	1605	1401	913	717	635	695
(WY)	1988	1994	1977	1977	1977	1992	1926	1926	1926	1926	1992	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1909 - 2002

ANNUAL TOTAL	818370	1197532										
ANNUAL MEAN	2242	3281										
HIGHEST ANNUAL MEAN			3718									
LOWEST ANNUAL MEAN			6116									1974
HIGHEST DAILY MEAN			1639									1977
LOWEST DAILY MEAN												
HIGHEST SEVEN-DAY MINIMUM				25400	Dec 14		25400	Dec 14	117000	Dec 23	1964	
ANNUAL RUNOFF (AC-FT)				636	Sep 7		681	Sep 3	549	Aug 22	1994	
ANNUAL RUNOFF (CFSM)				640	Sep 4		688	Aug 31	600	Oct 1	1908	
ANNUAL RUNOFF (INCHES)				1.67			2.44					
ANNUAL RUNOFF (INCHES)				22.65			33.15					
10 PERCENT EXCEEDS				4430			7190			7530		
50 PERCENT EXCEEDS				1640			2330			2420		
90 PERCENT EXCEEDS				714			739			886		

UMPQUA RIVER BASIN

14321000 UMPQUA RIVER NEAR ELKTON, OR

LOCATION.--Lat 43°35'10", long 123°33'15", in NW 1/4 sec.8, T.23 S., R.7 W., Douglas County, Hydrologic Unit 17100303, on left bank 3.5 mi south of Elkton, 8.3 mi upstream from Elk Creek, and at mile 56.9.

DRAINAGE AREA.--3,683 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1905 to current year.

REVISED RECORDS.--WSP 1184: 1927(M), 1938(M), 1943(M), 1946(M). WSP 1448: 1911-13, drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 90.42 ft above NGVD of 1929. Prior to June 29, 1972, at site 2,400 ft downstream at same datum. See WSP 1931 or 2135 for history of changes prior to June 29, 1972.

REMARKS.--Records good. Regulation by powerplants on North Umpqua River ordinarily does not affect discharge at this station. Diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--97 years (water years 1906-2002), 7,391 ft<sup>3</sup>/s, 27.27 in/yr, 5,355,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 265,000 ft<sup>3</sup>/s Dec. 23, 1964, gage height, 51.95 ft, from floodmarks; minimum discharge observed, 640 ft<sup>3</sup>/s July 18, 1926.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least December 1861, 51.95 ft on Dec. 23, 1964.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 52,000 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	1830	*65,200	*22.06	No other peak greater than base discharge.			
Minimum recorded discharge, 850 ft <sup>3</sup> /s Sept. 4.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1010	2070	11700	16900	8330	6900	6430	4420	3400	1480	970	871
2	1000	1980	17500	15600	8310	6210	6280	4270	3100	1400	967	868
3	977	1850	13700	17100	8040	5580	6330	4180	2940	1330	951	868
4	952	1580	10900	13900	7830	5080	6590	4120	2690	1300	954	859
5	939	1440	15700	11000	7750	4770	6810	4110	2580	1280	964	866
6	922	1350	21300	12600	e7590	4740	7150	3990	2430	1270	976	874
7	910	1300	25900	29600	e11500	5500	6930	3870	2350	1300	978	885
8	919	1270	16600	31600	e33600	6930	6470	3700	2290	1280	979	905
9	919	1240	12200	34600	27200	6240	5990	e3860	2260	1230	973	939
10	931	1220	10500	21600	18200	5650	5980	e3720	2190	1200	962	960
11	953	1210	9690	15300	13800	5570	7060	3310	2100	1180	939	951
12	961	1240	10100	12100	e11100	7870	7140	3150	1980	1160	921	934
13	1120	1290	11400	10600	e9820	14300	7100	3070	1900	1170	912	928
14	1120	1380	43600	9360	e9230	14600	11600	3100	1850	1180	904	923
15	1060	1610	38500	8390	e8560	12500	22300	3200	1800	1170	895	916
16	1060	1880	23400	7350	7980	11300	14900	3200	1770	1150	891	912
17	1050	2290	36500	6600	7710	11100	12000	3150	1790	1130	888	954
18	1060	3600	37100	6180	7590	10400	11600	e3550	1810	1120	895	978
19	1050	2910	27000	5880	7130	9260	10900	e3630	1980	1090	898	1110
20	1050	2190	20400	6740	9460	8610	9600	e3760	2330	1090	899	1230
21	1040	1980	16300	12900	12800	9270	8600	e3750	2210	1090	904	1070
22	1060	e9730	12700	21100	13300	10900	7670	e3800	1880	1070	888	1040
23	1110	e14100	10500	16400	13100	11800	6890	e3580	1730	1060	890	1050
24	1740	e6900	8840	12900	13500	13000	6380	3140	1650	1050	895	1030
25	1800	e7270	7600	12900	11800	14700	5870	2860	1590	1050	889	998
26	1540	e8870	6750	32500	9760	12300	5430	2660	e1730	1050	889	981
27	1380	7880	6180	27300	8460	10300	7620	2620	e1730	1040	888	968
28	1270	6460	6240	17800	7580	8940	5280	2740	1530	1030	888	964
29	1230	18200	8480	13300	---	7880	5000	2940	1500	1010	888	964
30	1270	18000	9630	10500	---	7190	4620	3130	1490	999	880	966
31	1370	---	12100	8870	---	6720	---	3480	---	977	878	---
TOTAL	34773	134290	519010	479470	321030	276110	240170	108060	62580	35936	28493	28760
MEAN	1122	4476	16740	15470	11470	8907	8006	3486	2086	1159	919	959
MAX	1800	18200	43600	34600	33600	14700	22300	4420	3400	1480	979	1230
MIN	910	1210	6180	5880	7130	4740	4620	2620	1490	977	878	859
AC-FT	68970	266400	1029000	951000	636800	547700	476400	214300	124100	71280	56520	57050
CFSM	0.30	1.22	4.55	4.20	3.11	2.42	2.17	0.95	0.57	0.31	0.25	0.26
IN.	0.35	1.36	5.24	4.84	3.24	2.79	2.43	1.09	0.63	0.36	0.29	0.29

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1906 - 2002, BY WATER YEAR (WY)

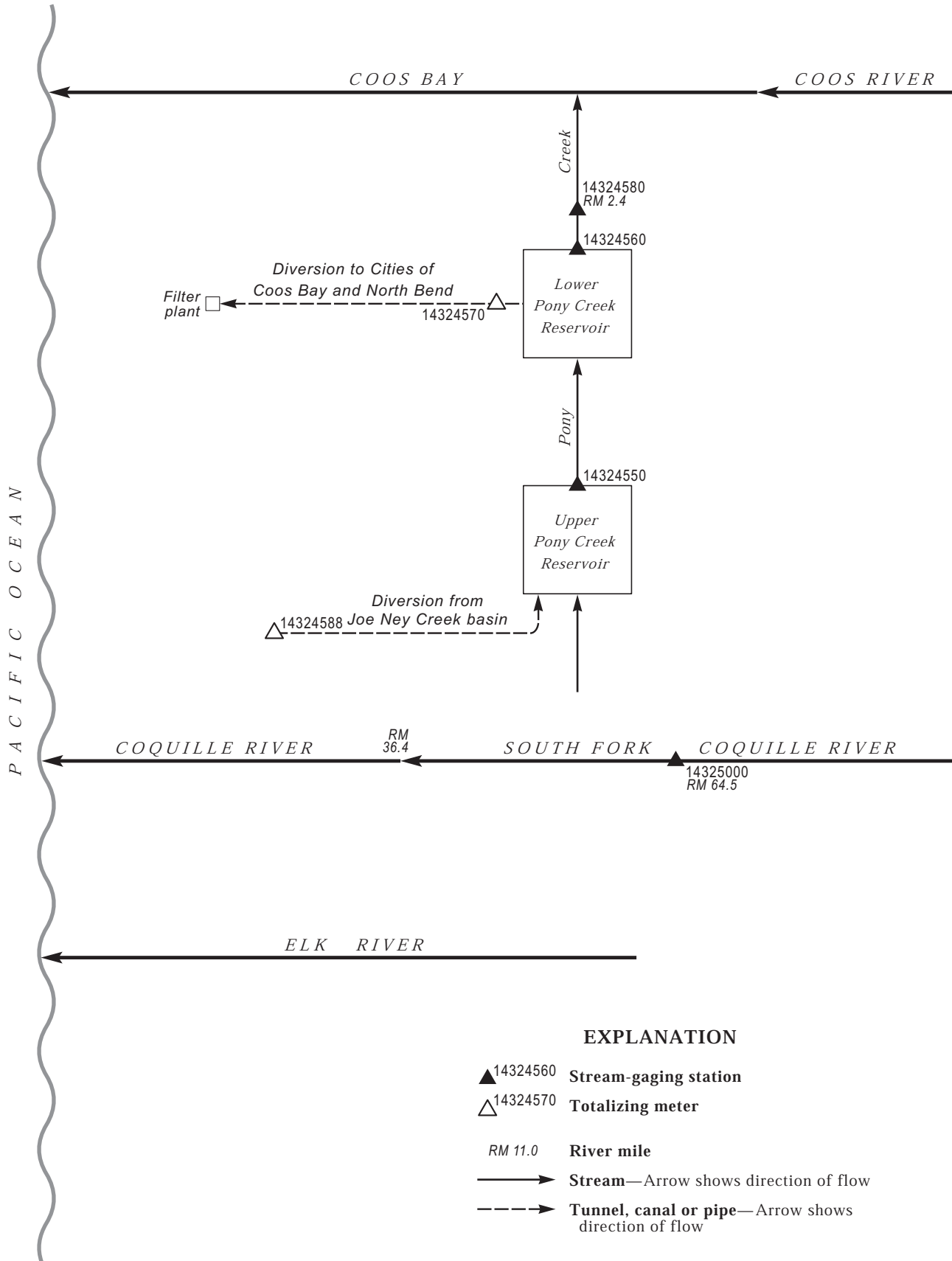
MEAN	1868	7027	13420	15840	14980	12140	9510	6497	3730	1722	1177	1196
MAX	14200	29500	51220	34900	32800	27100	20480	15800	9526	5063	1867	3475
(WY)	1951	1974	1965	1956	1907	1972	1937	1921	1953	1913	1976	1920
MIN	857	832	1238	1440	1365	2909	2432	1934	1053	742	703	740
(WY)	1930	1930	1977	1977	1977	1992	1926	1934	1926	1926	1931	1931

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1906 - 2002
ANNUAL TOTAL	1399223	2268682	
ANNUAL MEAN	3833	6216	
HIGHEST ANNUAL MEAN			7391
LOWEST ANNUAL MEAN			13360
HIGHEST DAILY MEAN	43600	Dec 14	43600
LOWEST DAILY MEAN	899	Sep 11	859
ANNUAL SEVEN-DAY MINIMUM	902	Sep 5	869
ANNUAL RUNOFF (AC-FT)	27750000	45000000	53550000
ANNUAL RUNOFF (CFSM)	1.04	1.69	2.01
ANNUAL RUNOFF (INCHES)	14.13	22.91	27.27
10 PERCENT EXCEEDS	7930	14200	17100
50 PERCENT EXCEEDS	2300	3150	3910
90 PERCENT EXCEEDS	938	930	1060

e Estimated





**EXPLANATION**

- ▲<sup>14324560</sup> Stream-gaging station
- △<sup>14324570</sup> Totalizing meter
- RM 11.0 River mile
- Stream—Arrow shows direction of flow
- - - → Tunnel, canal or pipe—Arrow shows direction of flow

**Figure 32.** Schematic diagram showing gaging stations and diversions in the Pony Creek Basin.

14324580 PONY CREEK AT COOS BAY, OR

LOCATION.--Lat 43°22'44", long 124°14'29", in NE 1/4 NE 1/4 sec.28, T.25 S., R.13 W., Coos County, Hydrologic Unit 17100304, at spillway for Lower Pony Creek Reservoir, in Coos Bay, and at mile 2.3.

DRAINAGE AREA.--3.88 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1975 to current year.

REVISED RECORDS.--WDR OR-93-1: Drainage Area.

GAGE.--Water-stage recorder. Datum of gage is NAVD of 1988 (Coos Bay-North Bend Water Board bench mark). Oct. 1, 1982 to September 30, 1987, gage at site 500 ft downstream at datum 2.9 ft higher. July 1975 to Sept. 30, 1982 and Oct. 1, 1987 to Sept. 30, 1992, at site 0.1 mi downstream, at datum 15.13 ft above NGVD of 1929. Oct. 1, 1992 to July 19, 2001 at same site at datum 2.9 ft higher.

REMARKS.--No estimated daily discharges. Records good. Records prior to 1993 were computed for site at the lower end of culvert under Ocean Boulevard. Flow regulated by Upper and Lower Pony Creek Reservoirs (stations 14324550 and 14324560), diversion upstream from station from Lower Pony Creek Reservoir to municipal water supply of Coos Bay-North Bend (station 14323570) and diversion into the basin from Joe Ney Creek (station 14324590). Approximately 5.5 ft<sup>3</sup>/s is diverted to the Coos Bay-North Bend water treatment plant, maximum capacity, 10.8 ft<sup>3</sup>/s.

COOPERATION.--Data for diversion from Joe Ney Creek into Pony Creek (14324590), diversion from Lower Pony Creek Reservoir to City of Coos Bay (14324570) and contents of Upper Pony Creek Reservoir provided by Coos Bay-North Bend Water Board.

AVERAGE DISCHARGE.--27 years (water years 1976-2002), 10.24 ft<sup>3</sup>/s, 35.66 in/yr, 7,400 acre-ft/yr, adjusted for Joe Ney diversion into Pony Creek, Coos Bay-North Bend diversion, and change in contents in Upper and Lower Pony Creek Reservoirs.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 181 ft<sup>3</sup>/s Dec. 6, 1981, gage height, 6.19 ft; no flow many days each year.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 31 ft<sup>3</sup>/s Feb. 7, 8, gage height, 41.85 ft; minimum discharge, no flow many days during year.

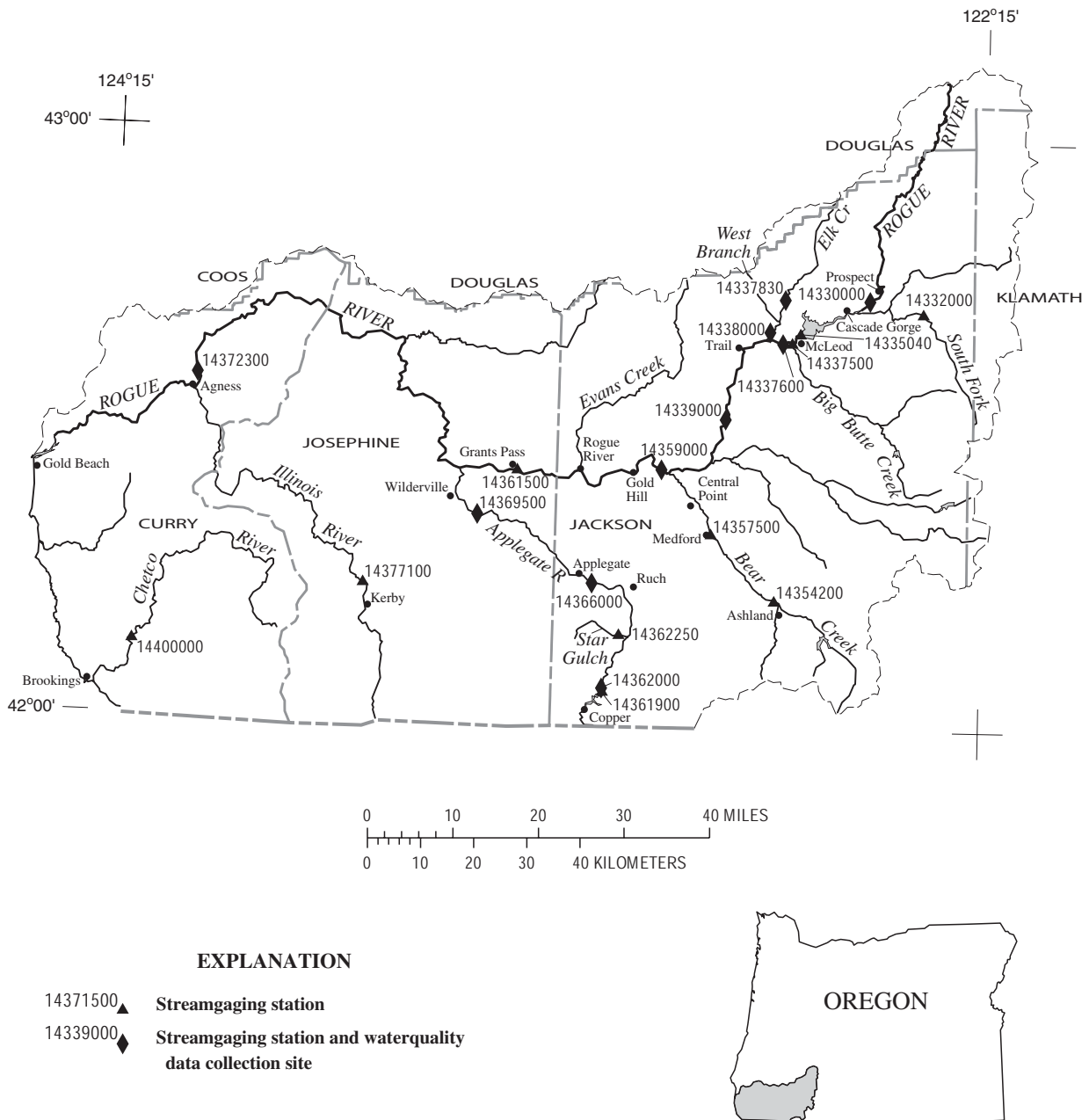
MONTHLY DISCHARGE OF PONY CREEK, JOE NEY CREEK DIVERSION, PONY CREEK DIVERSION AND MONTHLY CHANGE IN CONTENTS OF RESERVOIRS NEAR COOS BAY, OR, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

	14324588 Diversion from Joe Ney Creek into Pony Creek (acre-feet)	14324580 Pony Creek at Coos Bay (acre-feet)	14324570 Diversion from Lower Pony Creek Reservoir to City of Coos Bay (acre-feet)	14324560 Lower Pony Creek Reservoir Change in Contents (acre-feet)	14324550 Upper Pony Creek Reservoir Change in Contents (acre-feet)	Pony Creek adjusted for diversion and change in contents (acre-feet) (inches)	
October.....	0	0	307.8	+9.5	-197.0	120.3	0.58
November.....	32.9	0	209.5	+35.6	+6.0	284.0	1.37
December.....	44.0	54.1	285.1	-4.1	+953.0	1,332.1	6.41
CAL YR 2001...	1117.6	54.1	3,965.4	+37.6	+669.0	5,843.7	28.10
January.....	59.7	274.9	276.9	+53.1	+1,400.0	2,064.6	9.93
February.....	0	740.4	262.2	-15.7	+630.0	1,616.9	7.78
March.....	0.4	514.0	297.4	0	+40.0	851.8	4.10
April.....	0	162.8	319.9	-3.6	+110.0	589.1	2.83
May.....	0	152.4	395.6	+2.7	-110.0	440.7	2.12
June.....	0	312.3	424.7	+8.8	-340.0	405.8	1.95
July.....	0	640.1	519.6	+9.6	-700.0	469.3	2.26
August.....	0	318.0	514.5	-66.2	-1,060.0	-293.7	-1.41
September.....	0	0	426.4	+1.8	-460.0	-31.8	-0.16
WTR YR 2002...	137.0	3,169.0	4,239.6	+31.5	+272	7,849.1	37.75

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.00	0.00	0.00	0.00	17	2.1	3.2	1.9	4.4	7.4	16	0.00
2	0.00	0.00	0.00	0.00	16	2.2	2.1	2.0	6.0	7.8	14	0.00
3	0.00	0.00	0.07	0.00	15	2.7	2.5	1.2	3.9	9.3	18	0.00
4	0.00	0.00	0.53	0.00	13	1.7	2.7	1.4	1.3	8.7	19	0.00
5	0.00	0.00	3.2	0.00	12	0.95	2.7	2.9	1.3	8.4	14	0.00
6	0.00	0.00	2.8	0.85	12	5.1	2.6	2.2	0.92	8.4	4.0	0.00
7	0.00	0.00	1.1	12	22	6.6	3.2	0.92	0.62	8.9	0.00	0.00
8	0.00	0.00	0.54	10	26	4.0	2.5	1.4	1.2	6.8	1.4	0.00
9	0.00	0.00	1.3	5.5	23	3.9	2.3	2.7	3.3	5.3	6.7	0.00
10	0.00	0.00	0.77	3.0	21	5.4	3.5	3.0	2.1	9.6	9.9	0.00
11	0.00	0.00	0.45	1.4	18	7.6	3.0	3.3	0.47	9.1	10	0.00
12	0.00	0.00	0.17	0.86	20	7.2	2.4	4.6	0.55	10	9.1	0.00
13	0.00	0.00	0.27	0.45	20	12	2.0	3.6	1.1	8.8	5.0	0.00
14	0.00	0.00	2.4	0.25	19	16	7.4	2.0	1.8	10	2.4	0.00
15	0.00	0.00	2.1	0.06	17	15	3.0	2.5	3.5	10	2.0	0.00
16	0.00	0.00	1.8	0.00	12	16	3.7	1.9	6.1	9.6	2.8	0.00
17	0.00	0.00	1.9	0.00	10	16	6.2	2.2	4.1	10	3.0	0.00
18	0.00	0.00	1.3	0.37	8.8	14	4.9	2.3	3.3	8.3	2.9	0.00
19	0.00	0.00	3.1	0.36	8.0	13	3.2	3.4	7.1	7.6	2.1	0.00
20	0.00	0.00	2.3	1.1	8.1	12	2.9	2.2	9.4	7.6	2.7	0.00
21	0.00	0.00	0.66	6.8	8.5	12	2.9	1.7	10	7.4	2.0	0.00
22	0.00	0.00	0.26	4.6	8.1	12	1.8	2.1	10	9.2	2.5	0.00
23	0.00	0.00	0.27	5.6	9.1	13	0.84	2.4	12	6.5	2.2	0.00
24	0.00	0.00	0.00	6.5	9.2	15	0.56	2.3	9.0	12	1.8	0.00
25	0.00	0.00	0.00	14	7.8	12	0.89	2.5	7.1	13	2.5	0.00
26	0.00	0.00	0.00	15	6.0	9.4	1.2	3.3	7.5	15	3.8	0.00
27	0.00	0.00	0.00	12	3.9	7.5	2.0	1.9	7.3	17	0.54	0.00
28	0.00	0.00	0.00	11	2.8	4.9	3.2	1.5	9.1	19	0.00	0.00
29	0.00	0.00	0.00	10	---	3.6	1.6	3.5	11	19	0.00	0.00
30	0.00	0.00	0.00	8.3	---	3.2	1.1	4.3	12	18	0.00	0.00
31	0.00	---	0.00	8.6	---	3.1	---	3.7	---	15	0.00	---
TOTAL	0.00	0.00	27.29	138.60	373.3	259.15	82.09	76.82	157.46	322.7	160.34	0.00
MEAN	0.000	0.000	0.880	4.471	13.33	8.360	2.736	2.478	5.249	10.41	5.172	0.000
MAX	0.00	0.00	3.2	15	26	16	7.4	4.6	12	19	19	0.00
MIN	0.00	0.00	0.00	0.00	2.8	0.95	0.56	0.92	0.47	5.3	0.00	0.00
AC-FT	0.00	0.00	54	275	740	514	163	152	312	640	318	0.00
CAL YR 2001	TOTAL	27.29	MEAN	0.075	MAX	3.2	MIN	0.00	AC-FT	54		
WTR YR 2002	TOTAL	1597.75	MEAN	4.377	MAX	26	MIN	0.00	AC-FT	3170		

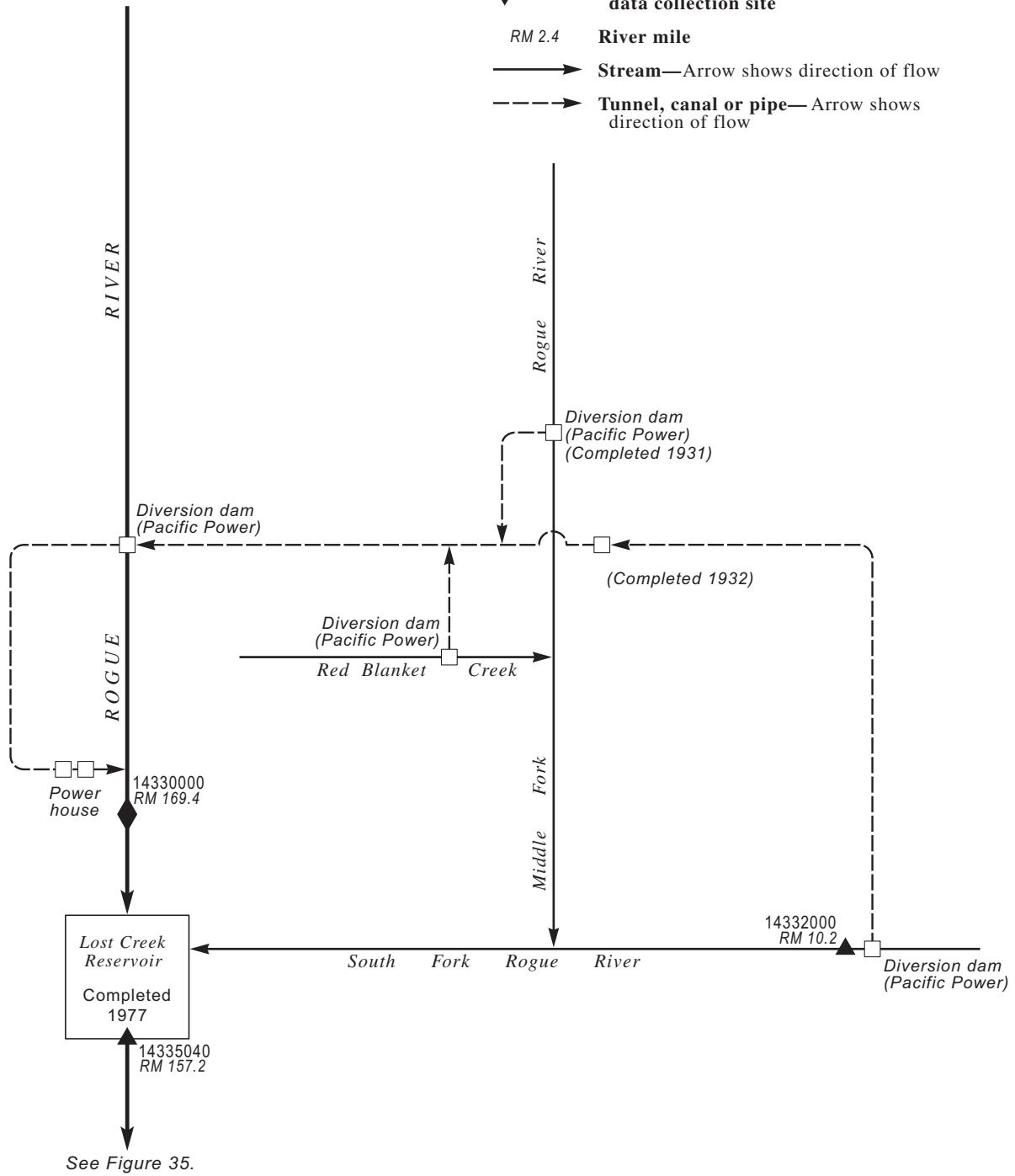




**Figure 33.** Location of surface-water and water-quality stations in the Rogue and Chetco River Basins.

**EXPLANATION**

- ▲ 14332000 **Stream-gaging station**
- ◆ 14330000 **Stream-gaging station and water-quality data collection site**
- RM 2.4 **River mile**
- **Stream**—Arrow shows direction of flow
- - - → **Tunnel, canal or pipe**— Arrow shows direction of flow



**Figure 34.** Schematic diagram showing gaging stations in the Rogue River Basin, upstream from Lost Creek Reservoir.

## ROGUE RIVER BASIN

14330000 ROGUE RIVER BELOW PROSPECT, OR

LOCATION.--Lat 42°43'50", long 122°30'55", in SE 1/4 NW 1/4 sec.6, T.33 S., R.3 E., Jackson County, Hydrologic Unit 17100307, on right bank 600 ft downstream from Prospect No. 1 powerplant, 1.4 mi downstream from Mill Creek, 2.0 mi southwest of Prospect, 2.1 mi upstream from South Fork Rogue River, and at mile 169.4.

DRAINAGE AREA.--379 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1913 to September 1930, October 1968 to current year.

REVISED RECORDS.--WSP 1518: 1914-23, 1924(M), 1925, 1928.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,964.56 ft above NGVD of 1929 (Pacific Power and Light Co. bench mark). Prior to September 1927 nonrecording gage at site 1,000 ft upstream, above powerplants, at different datum, also concurrent nonrecording gage on headrace to obtain equivalent combined flow.

REMARKS.--Records fair. Fluctuations caused by powerplant 600 ft upstream from station. Small diversions for irrigation upstream from station.

AVERAGE DISCHARGE.--34 years, (water years 1969-2002), 1,463 ft<sup>3</sup>/s, 1,060,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,200 ft<sup>3</sup>/s Jan. 1, 1997, gage height, 8.15 ft; minimum discharge, 166 ft<sup>3</sup>/s Sept. 29, 1992, result of regulation by upstream diversion gates.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1890, 12.4 ft Dec. 22, 1964, from floodmarks, discharge, 25,000 ft<sup>3</sup>/s, from records for station upstream from Prospect (station 14328000) and for station downstream from South Fork Rogue River near Prospect (station 14335000) after adjusting for estimated intervening tributary inflow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,130 ft<sup>3</sup>/s Apr. 14, gage height 5.59 ft; minimum discharge, 371 ft<sup>3</sup>/s July 28, result of regulation by upstream diversion gates.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	639	736	880	1690	1060	1530	1730	1530	1730	1030	812	690
2	641	704	881	2110	1030	1450	1890	1630	1650	1010	809	690
3	647	686	856	2130	1020	1390	2080	1760	1580	1000	807	731
4	648	679	836	1720	999	1360	1730	1730	1540	993	803	731
5	645	676	739	1520	992	1350	2530	1730	1540	978	804	738
6	645	676	1120	1990	990	1430	2500	1600	1530	962	806	730
7	644	658	1330	2300	1140	1600	2340	1560	1450	953	803	739
8	644	664	1060	2660	1360	1480	2190	1470	1390	947	794	728
9	640	659	980	2440	1220	1410	2080	1460	1350	935	794	722
10	645	660	947	1980	e1150	1360	2310	1530	1310	923	784	719
11	730	659	917	1750	e1140	1420	2380	1510	1300	916	782	711
12	696	676	888	1650	e1140	1780	2500	1540	1300	907	780	708
13	667	728	1090	1600	e1130	1720	2660	1480	1300	905	769	707
14	657	826	2100	1510	1130	1570	5040	1380	1290	900	754	702
15	654	718	1430	1400	1130	1490	3580	1400	1280	885	740	702
16	651	847	1410	1320	1140	1440	2610	1370	1260	884	746	702
17	651	888	1770	1270	1170	1390	2240	1510	1250	878	740	758
18	644	762	1480	1240	1170	1320	1920	1610	1570	873	742	831
19	641	739	1310	1250	1300	1290	1820	1580	1380	873	735	738
20	644	801	e1300	1220	1720	1270	1810	1400	1270	866	735	721
21	639	967	e1250	1260	1940	1290	1750	1330	1240	860	738	714
22	661	1490	e1150	1180	1900	1360	1660	1290	1210	856	733	712
23	969	1130	e1050	1140	2120	1520	1660	1220	1190	860	732	706
24	736	958	e1000	1110	2090	1640	1590	e1300	1170	855	726	656
25	690	918	e950	1160	1870	1590	1670	e1500	1150	846	726	613
26	675	855	e900	1220	1730	1550	1820	e1700	1090	841	722	607
27	671	805	e950	1160	1650	1570	1800	e1800	1040	840	724	608
28	678	854	997	1110	1570	1560	1680	e1800	1050	810	685	609
29	671	884	1060	1010	---	1610	1540	e1800	1060	825	647	605
30	722	835	1140	1060	---	1680	1540	1800	1050	821	673	624
31	800	---	1630	1060	---	1750	---	1770	---	818	694	---
TOTAL	20985	24138	35401	47220	38001	46170	65180	48090	39520	27850	23339	20952
MEAN	676.9	804.6	1142	1523	1357	1489	2173	1551	1317	898.4	752.9	698.4
MAX	969	1490	2100	2660	2120	1780	5040	1800	1730	1030	812	831
MIN	639	658	739	1010	990	1270	1540	1220	1040	810	647	605
AC-FT	41620	47880	70220	93660	75370	91580	129300	95390	78390	55240	46290	41560

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2002, BY WATER YEAR (WY)

	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002			
MEAN	949.4	1228	1557	1688	1674	1817	1894	2022	1624	1183	1001	935.7																									
MAX	1342	2100	3312	3012	2728	3627	2668	3282	2923	1660	1356	1267																									
(WY)	1985	1974	1997	1997	1996	1972	1989	1971	1974	1971	1984	1984																									
MIN	606	728	926	946	946	1045	1268	933	765	717	623	560																									
(WY)	1993	1995	1991	1977	1977	1977	2001	1992	1992	1992	2001	2001																									

## SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1969 - 2002
ANNUAL TOTAL	340622	436846	
ANNUAL MEAN	933.2	1197	1463
HIGHEST ANNUAL MEAN			2053
LOWEST ANNUAL MEAN			957
HIGHEST DAILY MEAN	2100	Dec 14	5040
LOWEST DAILY MEAN	499	Sep 12	605
ANNUAL SEVEN-DAY MINIMUM	506	Sep 6	617
ANNUAL RUNOFF (AC-FT)	675600	866500	1060000
10 PERCENT EXCEEDS	1340	1800	2270
50 PERCENT EXCEEDS	918	1090	1300
90 PERCENT EXCEEDS	639	674	831

e Estimated

14330000 ROGUE RIVER BELOW PROSPECT, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: November 1976 to September 1981.  
 pH: November 1976 to September 1981.  
 WATER TEMPERATURE: October 1968 to current year.  
 DISSOLVED OXYGEN: October 1979 to September 1981.  
 SUSPENDED SEDIMENT DISCHARGE: November 1976 to September 1981 (October to April only, 1980 water year, November to April only, 1981 water year).

INSTRUMENTATION.--Water-quality monitor since November 1976. Automatic pumping sediment sampler November 1976 to April 1981.

REMARKS.--Records good. During low flows and warm weather, water temperatures may be influenced by return flows from hydroelectric plant 600 ft upstream.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 73 microsiemens Sept. 22, 1980; minimum recorded, 28 microsiemens Jan. 13, 1980, may have been lower during period of missing record Jan. 14-17, 1980.  
 pH: Maximum recorded, 8.3 units Aug. 10, 1981, may have been higher during period of no record in July and August 1981; minimum, 7.0 units Nov. 30, 1976.  
 WATER TEMPERATURE: Maximum, 20.5°C July 20, 1979 (result of regulation); minimum, 0.0°C at times most years.  
 DISSOLVED OXYGEN: Maximum, 13.6 mg/L Dec. 8, 1980, Feb. 21, 1981; minimum, 7.2 mg/L June 21, 1980, result of regulation.  
 SEDIMENT CONCENTRATION: Maximum daily mean (water years 1977-79), 1,270 mg/L (estimated) Jan. 11, 1979; minimum, 0 mg/L on many days each year. Maximum daily mean (period October 1979 to April 1981), 716 mg/L Oct. 25, 1979; minimum daily mean, 0 mg/L on several days in October and December 1979, Nov. 15-21, 28, Dec. 1, 1980, Jan. 19, 1981.  
 SEDIMENT DISCHARGE: Maximum daily (water years 1977-79), 17,790 tons Dec. 15, 1977; minimum daily, 0 tons on many days each year. Maximum daily (period October 1979 to April 1981), 5,570 tons Jan. 13, 1980; minimum daily, 0 tons on several days in October and December 1979, Nov. 15-21, 28, Dec. 1, 1980, Jan. 19, 1981.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 16.5°C July 13; minimum, 0.4°C Feb. 27.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	9.7	8.1	8.9	7.9	7.2	7.6	3.0	2.6	2.8	4.9	4.4	4.7
2	9.8	8.5	9.2	7.7	7.1	7.4	3.4	2.5	2.9	5.2	4.6	4.9
3	9.7	8.4	9.1	7.2	6.1	6.6	3.4	3.0	3.2	4.7	4.2	4.5
4	9.4	8.2	8.9	6.3	5.5	6.0	3.4	2.6	2.9	4.6	4.0	4.3
5	9.2	8.0	8.7	6.4	5.6	6.0	3.9	1.1	2.1	4.8	4.1	4.5
6	9.0	7.8	8.5	6.7	5.6	6.2	3.0	1.8	2.1	5.1	4.5	4.8
7	8.7	7.5	8.1	5.6	4.6	5.0	2.8	1.9	2.4	5.2	4.6	4.9
8	8.2	7.3	7.8	4.7	3.9	4.4	3.5	2.4	2.9	5.3	4.6	5.0
9	7.6	6.4	7.0	5.0	4.0	4.5	3.8	3.1	3.4	4.7	4.2	4.5
10	7.0	6.0	6.5	5.7	4.6	5.1	3.2	2.6	2.8	4.4	3.9	4.2
11	7.6	6.7	7.1	6.7	5.5	6.1	3.0	2.6	2.8	4.8	4.0	4.4
12	7.6	6.3	7.0	7.0	6.5	6.8	3.4	2.8	3.1	5.1	4.4	4.7
13	7.8	6.6	7.2	6.9	6.5	6.8	3.5	3.2	3.3	4.6	4.2	4.4
14	7.8	6.6	7.3	7.1	6.5	6.8	3.3	2.5	2.8	4.3	3.6	4.0
15	7.8	6.8	7.4	6.9	6.4	6.7	3.3	2.7	3.0	3.8	2.3	2.9
16	8.1	7.2	7.7	7.1	6.7	6.9	4.2	3.3	3.7	2.5	---	---
17	7.9	7.2	7.6	6.9	5.7	6.4	4.3	3.6	4.1	2.8	2.1	2.5
18	7.2	5.9	6.5	5.7	5.1	5.4	3.9	3.4	3.6	3.1	2.3	2.7
19	6.7	5.6	6.2	6.2	5.3	5.7	3.9	3.4	3.7	3.3	2.6	3.0
20	7.2	6.1	6.6	6.2	5.7	6.0	3.9	3.5	---	3.1	2.1	2.5
21	7.2	6.1	6.7	6.2	5.7	6.0	---	2.8	---	2.8	1.8	2.2
22	7.4	6.8	7.0	5.9	5.4	5.7	---	---	---	2.3	0.5	2.0
23	7.6	6.8	7.2	5.4	4.8	5.1	---	---	---	2.8	1.9	2.3
24	6.8	5.8	6.3	4.9	3.6	4.3	---	---	---	3.1	2.3	2.7
25	6.1	5.1	5.7	3.8	2.8	3.2	---	---	---	3.5	3.1	3.3
26	6.3	5.1	5.7	3.3	2.6	3.0	---	---	---	3.2	2.5	2.8
27	6.4	5.5	5.9	3.3	2.6	3.0	4.2	---	---	2.7	1.6	2.4
28	6.9	6.2	6.5	3.2	1.8	2.2	4.3	3.8	4.0	---	---	---
29	7.3	6.5	6.9	2.4	2.0	2.2	4.6	3.8	4.2	---	---	---
30	7.7	7.1	7.4	3.0	2.2	2.6	4.7	3.9	4.3	---	---	---
31	7.8	7.2	7.5	---	---	---	4.9	4.4	4.6	---	---	---
MONTH	9.8	5.1	7.3	7.9	1.8	5.3	---	---	---	---	---	---

## ROGUE RIVER BASIN

14330000 ROGUE RIVER BELOW PROSPECT, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	3.0	2.2	2.6	4.6	3.5	4.0	7.2	5.4	6.4	8.5	6.3	7.2
2	2.9	0.7	2.4	4.5	3.1	3.7	7.3	5.8	6.6	8.8	7.6	8.2
3	3.8	2.7	3.2	4.9	3.2	4.0	7.3	5.7	6.7	8.7	7.4	8.0
4	3.4	1.2	2.9	5.2	3.5	4.3	7.5	5.7	6.7	8.4	6.8	7.6
5	3.0	2.0	2.7	4.6	3.8	4.2	7.2	5.9	6.6	8.6	7.1	7.8
6	3.7	2.6	3.2	5.4	4.3	4.8	6.8	6.1	6.4	8.3	7.0	7.6
7	3.9	3.2	3.7	5.1	3.6	4.4	7.0	5.4	6.3	7.9	6.4	7.1
8	3.7	2.8	3.2	4.0	2.9	3.4	7.2	5.5	6.5	7.7	6.0	6.8
9	3.8	2.6	3.2	4.1	3.2	3.7	7.2	6.3	6.7	8.2	6.7	7.3
10	---	---	---	4.6	3.7	4.1	7.0	5.8	6.4	7.7	6.6	7.1
11	---	---	---	5.4	4.4	4.9	7.0	6.2	6.6	8.7	6.2	7.3
12	---	---	---	5.4	4.5	5.1	7.4	5.9	6.7	9.8	7.7	8.6
13	4.9	---	---	4.5	3.5	3.8	7.3	6.1	6.5	9.4	7.8	8.9
14	4.4	3.4	3.9	4.7	3.2	3.9	6.6	4.8	5.6	8.9	6.8	7.8
15	4.4	3.2	3.8	4.6	3.9	4.2	5.6	4.6	5.2	9.1	8.2	8.5
16	5.0	3.7	4.3	4.0	2.9	3.4	5.4	4.7	5.0	9.3	7.7	8.4
17	4.8	4.0	4.4	3.8	2.2	2.9	4.9	4.4	4.6	10.5	8.7	9.5
18	5.4	4.3	4.8	4.0	2.7	3.4	6.1	4.5	5.2	9.9	8.8	9.3
19	5.1	4.4	4.8	5.7	3.7	4.6	6.7	5.1	5.9	8.9	7.4	8.3
20	4.8	4.1	4.5	5.7	4.2	5.0	7.1	5.6	6.4	8.1	6.8	7.4
21	5.5	4.6	5.0	5.9	4.6	5.2	7.6	5.9	6.8	7.9	7.0	7.4
22	5.8	4.7	5.2	5.7	4.9	5.4	8.0	6.3	7.2	7.9	6.9	7.3
23	5.6	5.2	5.4	6.0	4.9	5.4	7.9	6.7	7.3	9.2	6.8	7.8
24	5.7	4.8	5.2	6.0	5.0	5.5	7.7	6.2	7.0	11.0	8.4	9.4
25	5.1	0.9	4.3	6.2	4.5	5.4	8.3	6.9	7.6	---	---	---
26	5.4	4.1	4.7	6.4	4.5	5.5	7.8	6.7	7.3	---	---	---
27	5.2	0.4	4.4	6.9	5.1	5.9	7.1	5.8	6.6	---	---	---
28	5.3	1.0	4.3	6.9	5.0	5.9	6.8	5.2	6.0	---	---	---
29	---	---	---	7.0	5.2	6.1	6.7	6.0	6.4	11.2	---	---
30	---	---	---	7.0	5.1	6.1	7.1	6.5	6.7	11.6	10.4	10.9
31	---	---	---	7.2	5.3	6.2	---	---	---	11.2	9.7	10.3
MONTH	---	---	---	7.2	2.2	4.7	8.3	4.4	6.4	---	---	---
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	10.8	9.6	10.2	14.4	11.2	12.7	12.8	11.2	12.0	12.1	9.8	10.9
2	10.5	8.7	9.5	14.7	11.3	12.9	12.3	10.4	11.4	12.3	10.2	11.2
3	10.6	9.1	9.7	14.4	11.4	12.8	11.8	10.3	10.9	11.7	9.8	11.1
4	11.9	9.3	10.4	13.7	10.8	12.2	10.9	9.9	10.3	11.1	9.0	10.2
5	12.8	10.4	11.3	13.7	10.5	12.0	10.3	8.7	9.6	10.0	8.5	9.4
6	12.2	10.3	11.1	14.3	10.9	12.5	10.3	8.1	9.2	9.4	7.9	8.7
7	11.2	9.3	10.1	13.8	11.7	12.8	10.9	8.4	9.6	9.2	7.4	8.4
8	9.3	7.5	8.5	14.0	11.2	12.5	11.3	8.9	10.1	8.9	7.3	8.2
9	9.4	6.7	8.0	14.7	11.2	12.7	12.3	9.4	10.7	9.5	7.4	8.5
10	11.0	7.8	9.1	15.7	12.1	13.7	12.8	10.2	11.4	10.1	8.0	9.1
11	12.3	9.0	10.4	16.3	12.9	14.5	13.3	10.6	11.8	10.6	8.7	9.7
12	13.4	10.0	11.6	16.0	13.5	14.7	13.4	10.9	12.1	11.0	9.1	10.1
13	14.2	11.0	12.4	16.5	13.5	14.7	13.9	11.3	12.6	11.2	9.5	10.4
14	14.4	11.4	12.7	16.0	13.4	14.6	13.4	11.6	12.7	10.9	9.6	10.3
15	14.5	11.4	12.8	15.7	12.9	14.2	13.0	11.3	12.3	10.4	9.3	9.9
16	14.2	11.4	12.7	15.5	12.7	14.0	12.8	10.6	11.8	10.2	8.9	9.7
17	12.6	10.0	11.2	15.3	12.6	13.9	12.2	10.6	11.5	10.0	9.3	9.6
18	11.6	9.5	10.4	15.2	12.6	13.8	11.9	10.0	11.0	10.6	9.2	9.9
19	12.3	9.6	10.8	15.0	12.4	13.7	11.5	9.7	10.7	10.6	8.8	9.8
20	13.4	10.0	11.5	14.8	12.0	13.4	11.1	9.7	10.5	10.3	8.8	9.7
21	13.8	10.8	12.1	14.9	12.1	13.5	11.3	9.1	10.2	10.3	8.7	9.6
22	14.2	11.1	12.4	14.0	12.3	13.1	11.6	9.1	10.3	10.4	8.6	9.6
23	14.3	11.6	12.8	14.6	11.8	13.1	11.6	9.8	10.8	10.3	8.8	9.6
24	14.5	11.2	12.8	14.1	12.0	13.1	12.2	9.9	11.0	10.2	8.7	9.6
25	15.1	11.8	13.2	14.0	11.7	12.9	12.1	10.0	11.1	9.8	8.5	9.3
26	15.2	12.3	13.6	14.1	11.6	12.8	11.9	10.0	11.0	9.4	7.9	8.8
27	14.9	12.6	13.7	13.7	11.6	12.7	12.2	9.9	11.0	9.3	7.9	8.8
28	14.0	12.4	13.2	13.5	11.0	12.2	12.6	10.5	11.5	9.2	7.9	8.6
29	14.2	11.9	12.9	14.0	11.3	12.6	12.8	10.9	11.8	8.7	7.8	8.1
30	14.2	11.6	12.8	13.8	11.9	12.8	12.6	10.8	11.8	8.2	7.3	7.7
31	---	---	---	13.6	11.8	12.7	12.2	9.8	11.1	---	---	---
MONTH	15.2	6.7	11.5	16.5	10.5	13.2	13.9	8.1	11.1	12.3	7.3	9.5



14332000 SOUTH FORK ROGUE RIVER NEAR PROSPECT, OR

LOCATION.--Lat 42°42'30", long 122°23'30", in SE 1/4 SW 1/4 sec.7, T.33 S., R.4 E., Jackson County, Hydrologic Unit 17100307, in Rogue River National Forest, on left bank 0.3 mi downstream from South Fork dam and intake of South Fork power canal, 0.31 mi downstream from Imnaha Creek, 5.6 mi southeast of Prospect, and at mile 10.2.

DRAINAGE AREA.--83.8 mi<sup>2</sup>. Drainage area at site upstream from Imnaha Creek was used October 1931 to September 1949, 61.3 mi<sup>2</sup>; and Imnaha Creek near Prospect, 22.2 mi<sup>2</sup>.

PERIOD OF RECORD.--April 1924 to September 1931, October 1949 to current year. Equivalent records for period October 1931 to September 1949 may be obtained by combining flow of South Fork Rogue River above Imnaha Creek, near Prospect and Imnaha Creek near Prospect. Records for period October 1949 to September 1983 included flow of South Fork power canal.

REVISED RECORDS.--WSP 1318: 1925(M), 1927(M), 1930(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 3,300 ft above NGVD of 1929, from topographic map. Prior to Sept. 10, 1965, at site 1,000 ft upstream at different datum.

REMARKS.--No estimated daily discharges. Records fair. All records given herein do not include flow in South Fork power canal (completed in March 1932) which diverts 1,500 ft upstream from station and returns water to main stem Rogue River upstream from South Fork Rogue River; practically no storage upstream from diversion dam.

AVERAGE DISCHARGE.--59 years (water years 1925-83), 178 ft<sup>3</sup>/s, 129,000 acre-ft/yr (includes flow of South Fork power canal). 19 years (water years 1984-2002), 76.9 ft<sup>3</sup>/s, 55,680 acre-ft/yr (river only).

EXTREMES FOR PERIOD OF RECORD.--River only, maximum discharge, 7,010 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 11.1 ft, from floodmark, from rating curve extended above 410 ft<sup>3</sup>/s on basis of measurement of flow over dam of 3,180 ft<sup>3</sup>/s; no flow Jan. 31, 1950, Sept. 29, 30, 1967 (entire flow diverted to canal).

Combined flow, maximum discharge, 7,010 ft<sup>3</sup>/s Dec. 22, 1964 (no flow in canal); minimum daily, about 38 ft<sup>3</sup>/s Aug. 1-31, 1931.

EXTREMES FOR CURRENT YEAR.--River only, maximum discharge, 1,400 ft<sup>3</sup>/s Apr. 14, gage height, 5.09 ft; minimum discharge, 9.4 ft<sup>3</sup>/s Oct. 12.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12	12	12	15	18	75	68	102	118	12	14	17
2	12	12	12	53	16	65	86	114	93	12	16	17
3	12	12	12	64	15	56	106	129	76	12	18	16
4	12	12	12	34	15	50	130	123	66	12	18	16
5	12	12	13	21	16	47	183	126	66	16	18	16
6	12	13	13	92	15	49	207	129	62	18	18	16
7	12	12	12	115	25	63	196	115	50	17	17	17
8	12	12	12	191	24	47	178	93	37	16	16	15
9	12	12	12	166	20	42	209	84	30	15	16	15
10	12	12	12	101	19	38	339	73	24	14	15	15
11	12	12	12	68	18	40	316	58	21	14	15	16
12	11	13	12	57	18	72	310	65	18	14	14	15
13	12	13	16	46	18	64	354	93	16	13	14	15
14	12	13	50	35	17	52	1090	95	15	13	16	15
15	12	12	14	27	17	47	717	96	14	14	18	14
16	12	14	14	21	18	43	442	90	13	15	18	14
17	12	12	14	20	19	38	328	102	13	14	17	19
18	12	12	13	18	19	33	252	119	23	15	17	17
19	12	13	14	18	26	31	205	111	16	15	17	12
20	12	13	13	15	74	30	178	86	13	15	17	12
21	12	14	13	16	85	29	156	77	13	15	17	12
22	13	13	13	20	81	30	142	64	13	16	17	12
23	13	12	12	23	130	34	139	51	13	16	16	12
24	12	12	12	21	169	38	133	54	12	15	16	12
25	13	12	12	23	131	38	132	74	12	15	16	12
26	13	12	12	24	111	36	144	91	12	16	15	12
27	12	12	13	19	98	34	134	109	12	16	15	12
28	12	13	13	19	88	37	117	134	12	15	41	11
29	12	12	13	30	---	43	88	150	12	15	57	12
30	13	12	13	20	---	50	99	160	12	15	34	12
31	12	---	14	19	---	58	---	133	---	14	18	---
TOTAL	376	372	434	1411	1320	1409	7178	3100	907	454	591	428
MEAN	12.1	12.4	14.0	45.5	47.1	45.5	239	100	30.2	14.6	19.1	14.3
MAX	13	14	50	191	169	75	1090	160	118	18	57	19
MIN	11	12	12	15	15	29	68	51	12	12	14	11
AC-FT	746	738	861	2800	2620	2790	14240	6150	1800	901	1170	849

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	23.6	40.7	89.3	92.9	91.9	102	143	166	102	26.8	18.9	26.1
MEAN	23.6	40.7	89.3	92.9	91.9	102	143	166	102	26.8	18.9	26.1
MAX	116	161	526	435	323	238	345	347	301	155	121	115
(WY)	1998	1997	1997	1997	1996	1993	1989	1997	1984	1997	1997	1997
MIN	1.85	5.38	3.80	2.87	3.42	9.91	19.9	12.8	5.23	5.30	4.11	1.16
(WY)	1984	1986	1987	1985	1985	1985	1988	1992	1987	1988	1986	1984

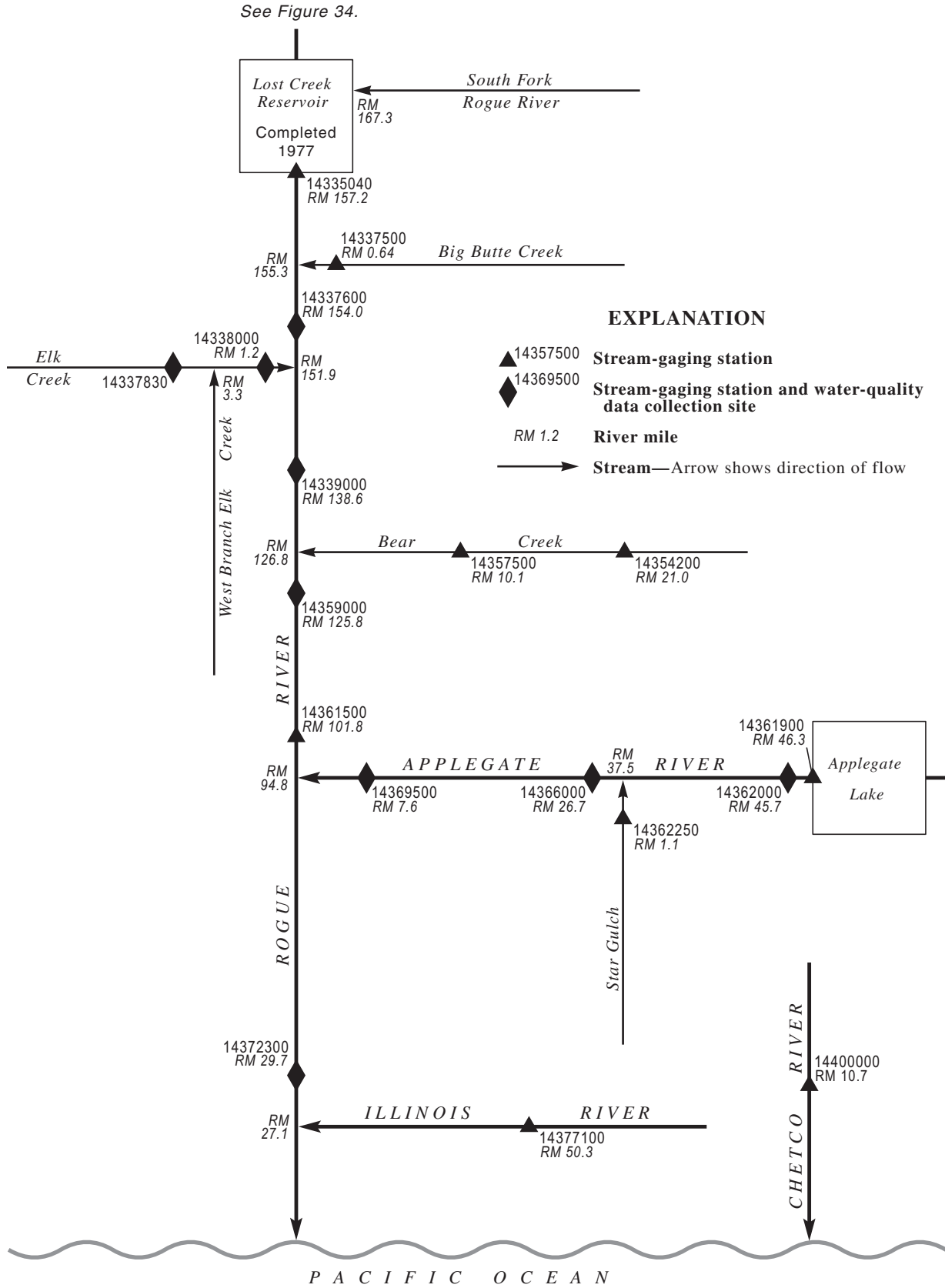
SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1984 - 2002

ANNUAL TOTAL	9111	17980	
ANNUAL MEAN	25.0	49.3	
HIGHEST ANNUAL MEAN			76.9
LOWEST ANNUAL MEAN			224
HIGHEST DAILY MEAN	452	May 16	1090
LOWEST DAILY MEAN	11	Aug 26	11
ANNUAL SEVEN-DAY MINIMUM	12	Aug 21	12
ANNUAL RUNOFF (AC-FT)	18070		35660
10 PERCENT EXCEEDS	47		124
50 PERCENT EXCEEDS	14		16
90 PERCENT EXCEEDS	12		12
			55680
			208
			18
			4.6



**Figure 35.** Schematic diagram showing surface-water and water-quality stations in the Rogue River Basin, downstream from Lost Creek Reservoir.

14335040 LOST CREEK LAKE NEAR MCLEOD, OR

LOCATION.--Lat 42°40'16", long 122°40'25", in SW 1/4 sec.26, T.33 S., R. 1 E., Jackson County, Hydrologic Unit 17100307, in outlet structure of Lost Creek Dam on Rogue River, 1.0 mi northeast of McLeod and at mile 157.2.

DRAINAGE AREA.--686 mi<sup>2</sup>.

PERIOD OF RECORD.--February 1977 to current year.

REVISED RECORDS.--WDR OR-85-2: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers). Prior to Nov. 28, 1977, nonrecording gage at same site and datum.

REMARKS.--Reservoir is formed by earthfill dam completed in October 1976. Storage began in February 1977. Total capacity, 465,000 acre-ft between elevations 1,551.0 ft and 1,872.0 ft, maximum pool elevation. Elevation of gated spillway crest, 1,823.0 ft. Usable storage, 315,000 acre-ft between elevation 1,751.0 ft and 1,872.0 ft. Water is used for flood control, recreation, power generation, pollution abatement, domestic use and other purposes.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 466,500 acre-ft May 22, 2000, elevation, 1,872.43 ft; minimum contents since first filling, 100,800 acre-ft Oct. 29, 1977, elevation, 1,720.50 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 465,000 acre-ft May 18, elevation, 1,871.99 ft; minimum contents, 198,400 acre-ft Oct. 10, 11, elevation, 1,775.63 ft.

Capacity table (elevation, in feet, and contents, in acre-feet)

1,720	100,100	1,850	393,100
1,750	148,200	1,872	465,000
1,800	254,600	1,899	562,900

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1776.26	1776.75	1782.61	1804.27	1823.70	1845.58	1862.11	1871.88	1871.16	1855.00	1843.33	1822.88
2	1776.18	1776.80	1782.98	1806.04	1824.08	1846.36	1862.49	1871.90	1870.88	1854.72	1842.86	1822.12
3	1776.11	1776.83	1783.28	1807.82	1824.43	1847.09	1862.87	1871.92	1870.34	1854.43	1842.38	1821.37
4	1776.01	1776.86	1783.55	1809.13	1824.78	1847.77	1863.19	1871.92	1869.75	1854.13	1841.92	1820.62
5	1775.92	1776.88	1783.94	1810.22	1825.11	1848.47	1863.42	1871.92	1869.15	1853.83	1841.45	1819.83
6	1775.85	1776.90	1784.82	1811.86	1825.43	1849.21	1863.81	1871.92	1868.55	1853.52	1840.97	1819.03
7	1775.77	1776.80	1785.68	1813.74	1826.12	1850.11	1864.15	1871.91	1867.89	1853.21	1840.32	1818.23
8	1775.70	1776.92	1786.19	1816.12	1826.98	1850.88	1864.45	1871.91	1867.14	1852.89	1839.66	1817.42
9	1775.64	1776.92	1786.58	1818.15	1827.66	1851.60	1864.85	1871.92	1866.36	1852.56	1838.99	1816.60
10	1775.63	1776.93	1786.95	1818.94	1828.27	1852.27	1865.35	1871.91	1865.54	1852.23	1838.35	1815.80
11	1775.74	1776.94	1787.29	1819.03	1828.83	1852.96	1865.67	1871.92	1864.70	1851.91	1837.70	1814.98
12	1775.80	1777.00	1787.60	1819.04	1829.35	1853.94	1865.93	1871.95	1863.88	1851.56	1837.03	1814.17
13	1775.82	1777.07	1788.45	1819.04	1829.86	1854.90	1866.34	1871.98	1863.04	1851.22	1836.38	1813.44
14	1775.84	1777.23	1790.44	1819.02	1830.35	1855.76	1868.74	1871.97	1862.21	1850.85	1835.72	1812.80
15	1775.85	1777.31	1791.47	1818.93	1830.88	1856.55	1869.01	1871.96	1861.41	1850.47	1835.05	1812.23
16	1775.87	1777.55	1792.48	1818.82	1831.38	1857.28	1868.10	1871.92	1860.65	1850.09	1834.37	1811.71
17	1775.87	1777.78	1793.91	1818.76	1831.92	1857.91	1867.40	1871.94	1859.97	1849.70	1833.71	1811.31
18	1775.88	1777.88	1795.02	1818.80	1832.45	1858.30	1867.00	1871.98	1859.61	1849.30	1833.04	1811.03
19	1775.88	1777.98	1795.93	1819.05	1833.18	1858.55	1867.16	1871.95	1859.13	1848.90	1832.35	1810.76
20	1775.88	1778.16	1796.76	1819.41	1834.40	1858.64	1867.81	1871.93	1858.62	1848.49	1831.68	1810.57
21	1775.88	1778.56	1797.48	1819.88	1835.79	1858.74	1868.41	1871.94	1858.14	1848.09	1830.97	1810.43
22	1775.92	1779.53	1798.11	1820.17	1837.12	1858.98	1868.99	1871.89	1857.69	1847.67	1830.25	1810.37
23	1776.24	1780.01	1798.64	1820.48	1838.69	1859.44	1869.56	1871.80	1857.27	1847.26	1829.52	1810.31
24	1776.31	1780.40	1799.10	1820.80	1840.29	1860.02	1870.00	1871.71	1856.88	1846.85	1828.79	1810.24
25	1776.33	1780.71	1799.51	1821.31	1841.59	1860.38	1870.28	1871.66	1856.54	1846.43	1828.07	1810.20
26	1776.36	1780.94	1799.90	1821.82	1842.73	1860.55	1870.61	1871.65	1856.25	1845.99	1827.34	1810.16
27	1776.37	1781.10	1800.30	1822.12	1843.76	1860.62	1870.95	1871.51	1855.98	1845.55	1826.61	1810.11
28	1776.40	1781.56	1800.73	1822.34	1844.71	1860.70	1871.21	1871.48	1855.75	1845.10	1825.88	1810.06
29	1776.42	1781.92	1801.27	1822.51	---	1861.03	1871.44	1871.50	1855.52	1844.68	1825.13	1810.02
30	1776.52	1782.15	1801.91	1822.87	---	1861.39	1871.68	1871.47	1855.27	1844.22	1824.38	1809.98
31	1776.68	---	1803.04	1823.28	---	1861.75	---	1871.34	---	1843.78	1823.63	---
MAX	1776.68	1782.15	1803.04	1823.28	1844.71	1861.75	1871.68	1871.98	1871.16	1855.00	1843.33	1822.88
MIN	1775.63	1776.75	1782.61	1804.27	1823.70	1845.58	1862.11	1871.34	1855.27	1843.78	1823.63	1809.98
(†)	200600	212600	262100	315100	376900	430600	463900	462700	409700	374100	316100	279800
(‡)	+300	+12000	+49500	+53000	+61800	+53700	+33300	-1200	-53000	-35600	-58000	-36300

CAL YR 2001 MAX 1856.42 MIN 1775.63 AC-FT† -21300  
WTR YR 2002 MAX 1871.98 MIN 1775.63 AC-FT† +79500

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.



14337600 ROGUE RIVER NEAR MCLEOD, OR

LOCATION.--Lat 42°39'20", long 122°42'50", in SW 1/4 sec.33, T.33 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on left bank at Obstinate J Ranch, 1.3 mi downstream from Big Butte Creek, 1.6 mi southwest of McLeod, and at mile 154.0.

DRAINAGE AREA.--938 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1965 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,489.08 ft above NGVD of 1929.

REMARKS.--Records good. Flow regulated since February 1977 by Lost Creek Lake (station 14335040). Diversions for irrigation upstream from station; most of low flow of Big Butte Creek is diverted near Butte Falls.

AVERAGE DISCHARGE.--12 years (water years 1966-77), 2,176 ft<sup>3</sup>/s, 1,577,000 acre-ft/yr.  
25 years (water years 1978-2002), 2,060 ft<sup>3</sup>/s, 1,493,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,000 ft<sup>3</sup>/s Mar. 3, 1972, gage height, 12.24 ft; minimum discharge, 468 ft<sup>3</sup>/s Feb. 18, 1977, result of closure of Lost Creek Dam.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage since at least 1928, 20.35 ft Dec. 22, 1964, from floodmarks, discharge, 74,300 ft<sup>3</sup>/s, from slope-area measurement of peak flow.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 6,650 ft<sup>3</sup>/s Apr. 15, gage height, 5.43 ft; minimum discharge, 760 ft<sup>3</sup>/s Mar. 11.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e1020	822	1040	e1000	913	826	1830	1940	2660	1660	1670	1860
2	e980	819	972	e1150	905	836	2010	2420	2680	1660	1640	1860
3	e940	814	936	e1100	902	807	2330	2490	3020	1650	1660	1850
4	e960	814	893	e1000	899	812	2680	2470	3070	1660	1660	1860
5	e960	813	1210	e1000	898	804	3120	2430	3060	1650	1670	1880
6	957	815	1190	e1500	895	810	2810	2390	3020	1630	1690	1950
7	952	816	959	e1300	934	908	2670	2300	3030	1650	1950	1950
8	948	818	898	e1800	992	851	2560	2170	3070	1670	1930	1950
9	931	818	891	e1700	926	833	2510	2100	3060	1660	1940	1970
10	880	819	876	e2100	913	838	2920	2090	3070	1620	1930	1940
11	888	818	896	e2500	900	854	3200	1960	3030	1600	1940	1920
12	870	825	936	e2450	e900	821	3370	1990	3010	1600	1940	1930
13	e840	816	1170	e2350	e900	797	3370	2120	3010	e1610	1930	1810
14	e830	819	1750	e2250	e900	804	4330	2170	3020	e1620	1930	1660
15	e840	814	1000	e2150	e900	802	6000	2200	2930	e1630	1920	1540
16	e840	821	922	2040	e900	832	6290	2180	2820	1630	1910	1490
17	e840	828	1050	1880	e900	975	5370	2110	2740	1620	1910	1430
18	e830	816	1000	1620	910	1200	4230	2210	2600	1640	1850	1350
19	e820	811	1010	1320	933	1410	2770	2300	2480	1640	1870	1220
20	812	820	983	1150	1150	1650	1760	2170	2410	1640	1860	1120
21	818	837	882	1480	1090	1650	1810	2130	2300	1640	1870	1020
22	826	885	831	1410	983	1520	1710	2120	2200	1640	1900	931
23	839	841	833	1210	1060	1410	1620	2050	2130	1630	1890	929
24	832	851	809	1130	990	1560	1790	2060	2040	1630	1890	930
25	e830	876	801	1040	945	1790	2050	2060	1930	1630	1890	918
26	826	859	791	1270	911	2020	2050	2100	1800	1640	1890	912
27	829	834	789	1310	879	2140	1970	2460	1730	1630	1880	927
28	824	1040	790	1280	855	2050	1890	2460	1640	1670	1870	930
29	823	1050	e850	1210	---	1650	1890	2480	1620	1660	1870	970
30	825	889	e950	1010	---	1630	1910	2680	1630	1640	1890	993
31	824	---	e1050	898	---	1720	---	2670	---	1660	1880	---
TOTAL	27034	25318	29958	46608	26183	37610	84820	69480	76810	50810	57520	44000
MEAN	872	844	966	1503	935	1213	2827	2241	2560	1639	1855	1467
MAX	1020	1050	1750	2500	1150	2140	6290	2680	3070	1670	1950	1970
MIN	812	811	789	898	855	797	1620	1940	1620	1600	1640	912
AC-FT	53620	50220	59420	92450	51930	74600	168200	137800	152400	100800	114100	87270

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2002, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	1249	1652	2269	2181	1733	2035	2364	2750	2474	2152	2152	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683	1683
MAX	1905	3544	6464	7584	4131	3557	3821	4024	3755	3447	2921	2195	2195	2195	2195	2195	2195	2195	2195	2195	2195	2195	2195	2195	2195
(WY)	1984	1985	1997	1997	1996	1986	1989	1996	1984	1999	1984	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983	1983
MIN	872	844	964	1038	842	820	823	1578	1492	1123	1761	1290	1290	1290	1290	1290	1290	1290	1290	1290	1290	1290	1290	1290	
(WY)	2002	2002	1993	2001	2001	2001	2001	1992	2001	1992	1994	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980	1980

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1978 - 2002

ANNUAL TOTAL	452130	576151	
ANNUAL MEAN	1239	1578	2060
HIGHEST ANNUAL MEAN			3224
LOWEST ANNUAL MEAN			1314
HIGHEST DAILY MEAN	3310	6290	16500
LOWEST DAILY MEAN	730	789	730
ANNUAL SEVEN-DAY MINIMUM	799	806	734
ANNUAL RUNOFF (AC-FT)	896800	1143000	1493000
10 PERCENT EXCEEDS	1880	2500	3290
50 PERCENT EXCEEDS	1000	1620	1860
90 PERCENT EXCEEDS	813	824	998

e Estimated

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1970 to current year.

INSTRUMENTATION.--Temperature recorder since August 1970.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 18.0°C July 17, 18, Aug. 7, 1973; minimum, 0.5°C Jan. 3-5, 14, 15, 1971. Maximum since full operation of Lost Creek Lake, 16.5°C Sept. 14, 1999, but may have been higher during period of missing record Sept. 21-30; minimum, 2.5°C Jan. 10, 1999.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 14.7°C Sept. 15; minimum, 4.3°C Feb. 9, Mar. 1, 2.

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	---	---	---	7.1	6.4	6.7	7.5	7.0	7.3	---	---	---
2	---	---	---	7.3	6.2	6.6	7.4	6.8	7.1	---	---	---
3	---	---	---	7.2	5.9	6.4	7.4	6.9	7.1	---	---	---
4	---	---	---	7.3	5.9	6.4	7.2	6.9	7.0	---	---	---
5	9.6	8.0	8.6	7.0	6.2	6.5	7.0	5.7	6.1	---	---	---
6	8.7	6.7	7.8	7.3	6.1	6.6	7.1	5.5	6.5	---	---	---
7	7.9	6.4	6.9	7.0	5.7	6.2	7.1	6.5	6.7	---	---	---
8	7.9	6.3	6.9	7.2	5.7	6.3	7.1	6.3	6.7	---	---	---
9	7.6	6.1	6.7	7.2	5.9	6.4	7.0	6.3	6.7	---	---	---
10	7.5	6.1	6.6	7.4	6.1	6.6	6.6	6.0	6.3	---	---	---
11	7.8	6.5	7.1	7.6	6.7	7.0	6.8	6.3	6.5	---	---	---
12	7.9	6.0	6.7	7.4	6.9	7.1	6.6	6.2	6.4	---	---	---
13	---	6.3	---	7.1	6.8	6.9	6.6	6.2	6.4	---	---	---
14	---	---	---	7.6	6.9	7.1	6.2	5.7	5.9	---	---	---
15	---	---	---	7.3	6.9	7.1	6.2	5.7	6.0	---	---	---
16	7.2	---	---	7.5	7.1	7.2	6.8	6.1	6.5	6.0	5.5	5.7
17	---	6.0	---	7.6	6.9	7.2	6.7	6.0	6.5	6.0	5.4	5.7
18	---	---	---	7.6	6.8	7.1	6.1	5.7	5.9	6.1	5.5	5.7
19	7.4	---	---	7.9	7.1	7.4	6.1	5.7	5.9	6.0	5.5	5.7
20	7.5	6.0	6.5	7.6	7.1	7.5	6.4	5.8	6.1	5.8	5.3	5.6
21	7.3	5.7	6.3	7.6	7.2	7.5	6.2	5.6	5.9	5.6	5.1	5.4
22	6.6	6.2	6.4	7.9	7.5	7.7	6.5	5.5	5.9	5.6	5.0	5.2
23	7.0	6.0	6.4	8.0	7.2	7.7	6.3	5.5	5.9	5.8	5.2	5.4
24	6.9	5.7	6.1	7.7	7.1	7.4	5.9	5.1	5.4	5.8	5.1	5.4
25	7.2	5.6	6.1	7.7	7.1	7.4	6.2	5.3	5.7	5.7	5.3	5.5
26	7.2	5.7	6.3	7.9	7.3	7.5	6.2	5.6	5.8	5.7	5.1	5.4
27	6.9	5.8	6.3	7.8	7.1	7.4	6.2	5.6	5.9	5.5	4.9	5.1
28	7.1	6.2	6.5	7.5	6.1	6.8	6.3	5.6	5.9	5.6	4.7	5.0
29	7.0	6.2	6.5	7.6	6.2	7.0	---	5.8	---	5.5	4.6	5.0
30	6.9	6.5	6.6	7.8	7.1	7.3	---	---	---	5.5	4.6	4.9
31	7.4	6.4	6.7	---	---	---	---	---	---	5.4	4.4	4.9
MONTH	---	---	---	8.0	5.7	7.0	---	---	---	---	---	---

ROGUE RIVER BASIN

143376600 ROGUE RIVER NEAR MCLEOD, OR--Continued

TEMPERATURE, WATER (DEG. C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	6.0	5.1	5.3	6.3	4.3	5.1	8.3	6.7	7.4	9.3	7.3	8.2
2	5.8	4.6	5.1	6.4	4.3	5.2	8.5	6.9	7.6	9.2	7.6	8.5
3	6.0	5.0	5.3	6.7	4.4	5.3	8.0	6.8	7.4	9.4	7.6	8.5
4	5.8	4.5	5.0	6.9	4.8	5.6	8.0	7.0	7.4	9.7	7.6	8.9
5	5.3	4.5	4.8	5.7	4.8	5.4	8.0	7.0	7.4	9.6	8.2	9.0
6	5.7	4.6	5.1	6.4	5.4	5.8	7.9	6.7	7.3	10.1	8.1	9.0
7	5.6	5.2	5.4	6.5	5.0	5.7	8.0	6.9	7.5	9.8	8.0	8.9
8	5.7	4.9	5.2	6.2	4.6	5.3	8.2	7.0	7.6	10.2	8.3	9.3
9	5.9	4.3	5.0	6.2	4.8	5.5	7.7	6.8	7.3	10.5	8.5	9.6
10	6.0	4.5	5.1	6.8	5.4	6.2	7.9	6.9	7.4	10.9	8.4	9.9
11	5.9	4.6	5.2	7.2	6.1	6.6	7.8	6.7	7.3	11.0	9.2	10.3
12	6.1	4.5	5.1	7.1	5.7	6.4	8.0	7.0	7.4	11.4	10.0	10.7
13	---	---	---	6.3	5.5	5.8	7.6	7.2	7.4	11.6	9.8	10.4
14	---	---	---	7.1	5.5	6.1	8.5	7.0	7.5	11.5	9.5	10.5
15	---	---	---	6.9	5.7	6.1	7.6	6.5	6.9	11.1	9.2	10.3
16	---	---	---	6.3	5.1	5.7	7.6	6.7	7.0	11.7	9.8	10.8
17	---	---	---	6.4	4.8	5.5	7.3	6.6	6.9	11.9	9.9	10.9
18	6.3	5.2	5.7	6.8	5.3	5.9	7.6	6.8	7.3	11.4	9.5	10.5
19	6.0	5.5	5.8	7.3	5.9	6.4	7.9	6.7	7.4	10.9	9.1	10.1
20	6.9	5.9	6.3	7.0	6.0	6.4	8.3	6.5	7.4	11.1	9.5	10.3
21	6.8	6.2	6.5	7.1	6.1	6.5	8.5	6.7	7.6	11.4	9.6	10.5
22	7.2	5.7	6.4	7.1	5.9	6.5	9.5	7.1	8.4	11.6	9.4	10.6
23	7.0	6.3	6.6	7.4	6.2	6.8	10.0	8.0	9.1	12.2	9.9	11.2
24	7.4	5.7	6.4	7.8	6.6	7.0	9.7	7.5	8.7	11.9	9.9	11.1
25	6.8	5.0	5.7	7.9	6.3	7.0	9.7	7.8	8.9	12.3	10.4	11.3
26	7.0	5.0	5.8	8.2	6.7	7.2	9.3	7.9	8.7	12.0	9.9	11.0
27	6.9	5.0	5.8	7.7	6.7	7.1	8.7	7.4	8.1	11.2	10.4	10.8
28	6.6	4.9	5.5	8.2	6.9	7.4	9.2	7.9	8.4	11.5	10.5	10.8
29	---	---	---	8.6	7.0	7.7	8.8	7.9	8.3	12.3	10.4	11.1
30	---	---	---	8.6	7.1	7.6	8.6	7.5	8.0	12.2	10.0	11.1
31	---	---	---	8.3	6.9	7.5	---	---	---	12.4	10.0	11.2
MONTH	---	---	---	8.6	4.3	6.3	10.0	6.5	7.7	12.4	7.3	10.2
	JUNE			JULY			AUGUST			SEPTEMBER		
1	11.6	9.9	10.8	12.7	11.0	11.9	11.9	10.6	11.3	13.8	12.4	13.2
2	11.9	10.1	11.1	13.2	10.9	12.2	12.0	10.4	11.3	14.3	12.4	13.4
3	11.8	9.5	10.8	13.1	11.0	12.2	12.1	10.1	11.3	13.9	12.4	13.4
4	11.6	9.9	10.9	13.2	11.0	12.2	12.2	10.5	11.5	13.6	12.1	12.9
5	11.6	10.1	11.1	13.1	11.0	12.2	12.0	11.1	11.5	13.5	12.3	12.9
6	12.0	10.2	11.0	13.3	10.8	12.2	12.9	9.9	11.7	13.7	12.3	13.0
7	11.6	9.7	10.8	12.9	11.3	12.1	12.6	10.5	11.8	13.7	12.7	13.1
8	11.4	9.9	10.8	13.2	11.1	12.2	12.6	10.6	11.8	13.0	11.9	12.5
9	11.1	10.0	10.6	13.3	11.4	12.3	12.9	10.8	12.0	13.0	11.6	12.2
10	11.6	10.2	11.1	13.6	11.1	12.4	12.9	11.0	12.1	12.6	11.5	12.0
11	11.9	10.2	11.2	13.7	11.1	12.4	13.2	10.8	12.2	13.1	11.5	12.3
12	12.0	10.4	11.4	13.3	10.9	12.1	13.5	11.0	12.4	13.5	12.0	12.7
13	12.1	10.6	11.5	13.4	11.2	12.2	13.5	11.3	12.5	13.8	12.2	13.0
14	12.0	9.9	11.1	---	---	---	13.3	11.7	12.6	13.8	12.8	13.4
15	12.0	9.7	11.0	13.2	---	---	13.5	12.0	12.8	14.7	13.1	13.9
16	12.4	10.2	11.4	13.2	11.3	12.5	13.7	11.6	12.9	14.2	13.0	13.5
17	11.6	10.5	11.2	13.4	11.3	12.6	13.9	11.6	12.9	13.4	12.7	13.0
18	12.7	10.6	11.2	13.4	11.6	12.6	13.7	12.1	13.0	13.9	12.7	13.3
19	11.7	10.6	11.2	13.7	11.5	12.7	13.7	12.0	13.0	14.2	12.0	13.2
20	11.7	10.0	11.1	13.4	11.5	12.8	13.7	12.1	13.0	14.2	12.6	13.3
21	12.0	10.2	11.2	13.6	11.7	12.8	13.8	11.9	13.1	14.2	12.6	13.2
22	12.4	10.8	11.5	12.9	11.6	12.4	13.7	11.8	12.9	13.6	11.8	12.7
23	12.4	10.6	11.5	13.6	11.6	12.4	13.9	11.7	13.0	12.8	11.2	11.8
24	12.8	10.7	11.9	13.1	10.6	12.2	13.8	12.0	13.1	12.8	10.9	11.7
25	12.9	10.9	12.0	12.7	10.4	11.9	13.8	12.1	13.0	12.7	10.8	11.7
26	13.0	10.6	11.9	12.2	10.2	11.5	13.7	12.4	13.1	12.5	10.1	11.5
27	12.5	10.5	11.7	11.8	10.1	11.2	14.0	12.3	13.2	12.8	11.0	11.7
28	12.5	10.5	11.6	11.6	10.1	10.9	13.8	12.7	13.3	12.7	10.8	11.7
29	12.5	10.8	11.6	11.7	9.7	11.0	13.9	12.5	13.4	12.1	10.9	11.5
30	13.0	10.9	12.4	12.1	10.0	11.2	13.8	12.4	13.2	11.8	10.8	11.2
31	---	---	---	12.2	10.2	11.3	13.8	12.3	13.1	---	---	---
MONTH	13.0	9.5	11.3	---	---	---	14.0	9.9	12.5	14.7	10.1	12.6

14337830 ELK CREEK BELOW ALCO CREEK, NEAR TRAIL, OR

LOCATION.--Lat 42°40'46", long 122°42'37", in NW 1/4 sec.4, T.33 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on Corps of Engineers' Land, on right bank 500 ft downstream from Alco Creek, and 7.5 mi northeast of Trail.

DRAINAGE AREA.--111 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1986 to current year (operated as a low-flow station only).

GAGE.--Water-stage recorder. Elevation of gage is 1,680 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation. Some diversions upstream from station for irrigation. Operated as a low-flow station only. Discharges above 440 ft<sup>3</sup>/s not published. U.S. Geological Survey satellite telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Minimum discharge recorded, 0.54 ft<sup>3</sup>/s Sept. 23, 1992, but may have been less during period of estimated discharge during that year.

EXTREMES FOR CURRENT YEAR.--Minimum discharge, 1.3 ft<sup>3</sup>/s Aug. 16-18.DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	3.2	10	---	---	154	195	186	98	30	7.2	2.4	2.6
2	2.8	8.2	---	---	138	169	208	90	29	6.7	2.6	2.5
3	2.6	7.1	277	---	132	149	206	86	27	5.6	2.6	2.1
4	2.5	6.5	159	---	141	136	220	84	25	5.2	2.6	2.2
5	2.3	6.5	151	---	149	131	220	80	24	5.5	2.9	2.7
6	2.3	6.7	---	---	161	143	200	73	23	5.2	2.7	2.8
7	2.4	6.7	---	---	---	172	174	67	22	4.9	2.8	5.6
8	2.6	6.7	248	---	---	158	163	63	21	4.5	2.8	5.9
9	2.7	6.8	232	---	---	149	153	60	22	4.4	2.8	5.1
10	2.9	6.8	174	---	---	139	159	57	20	4.0	2.5	4.1
11	4.0	7.0	130	374	369	156	154	55	19	3.5	2.6	3.5
12	6.3	8.3	123	339	317	297	153	54	18	3.4	2.6	2.7
13	4.2	13	---	289	309	320	164	53	17	3.3	2.3	3.1
14	3.5	17	---	242	300	301	---	52	15	3.6	2.1	2.9
15	3.4	15	---	189	263	281	291	50	14	3.6	1.7	2.6
16	3.3	23	---	156	242	246	230	48	14	3.4	1.4	2.6
17	3.4	30	---	140	250	215	243	47	14	2.8	1.4	3.1
18	3.4	18	---	118	225	199	281	47	19	2.7	1.4	14
19	3.3	13	---	112	---	187	266	45	17	2.4	1.7	9.0
20	3.4	15	---	107	---	226	226	44	15	2.5	1.9	6.5
21	3.4	38	---	270	---	362	204	46	14	2.7	2.0	6.1
22	3.9	154	304	277	---	---	182	49	14	2.4	2.6	5.6
23	13	80	239	209	---	---	164	42	12	2.2	2.8	4.9
24	11	56	198	180	---	---	145	38	11	2.0	2.9	3.7
25	7.6	74	171	---	---	---	136	36	9.9	1.8	2.6	3.7
26	6.0	71	166	---	330	353	126	35	8.8	2.0	2.4	3.2
27	5.4	49	214	---	273	292	117	35	8.2	1.9	2.6	3.5
28	5.5	---	397	364	231	232	103	38	7.8	2.1	2.7	3.6
29	5.7	270	---	259	---	210	104	37	8.0	2.6	2.3	3.2
30	7.0	146	---	194	---	195	101	34	7.9	2.6	2.2	3.7
31	11	---	---	163	---	187	---	31	---	2.1	2.3	---
TOTAL	144.0	---	---	---	---	---	---	1674	506.6	108.8	73.2	126.8
MEAN	4.65	---	---	---	---	---	---	54.0	16.9	3.51	2.36	4.23
MAX	13	---	---	---	---	---	---	98	30	7.2	2.9	14
MIN	2.3	---	---	---	---	---	---	31	7.8	1.8	1.4	2.1
AC-FT	286	---	---	---	---	---	---	3320	1000	216	145	252
CFSM	0.04	---	---	---	---	---	---	0.49	0.15	0.03	0.02	0.04
IN.	0.05	---	---	---	---	---	---	0.56	0.17	0.04	0.02	0.04



14337830 ELK CREEK BELOW ALCO CREEK, NEAR TRAIL, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--  
 WATER TEMPERATURE: April 1986 to current year.  
 TURBIDITY: October 2000 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Water temperature records good. Available turbidity records fair. Turbidity values are considered relative to this site. The probe was checked using a polymer bead standard.

EXTREMES FOR PERIOD OF DAILY RECORD.--  
 WATER TEMPERATURE: Maximum recorded, 31.5°C June 22, 1992, but may have been higher during period of missing record in August 1992; minimum, 0.0°C at times during most winter periods.  
 TURBIDITY: Maximum, >100 NTU many days during 2002 water year; minimum, <1 NTU many days most years.

EXTREMES FOR CURRENT YEAR.--  
 WATER TEMPERATURE: Maximum, 30.9°C July 13; minimum, 1.9°C Jan. 16.  
 TURBIDITY: Maximum recorded, >100 NTU many days during the year; minimum, <1 many days during the year.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	20.2	13.0	16.3	12.2	10.3	11.3	6.2	5.6	5.9	7.1	6.4	6.8
2	20.4	13.6	16.8	13.3	9.9	11.1	6.9	5.9	6.4	7.4	6.5	7.0
3	19.7	13.3	16.4	12.0	7.7	9.6	6.5	5.6	6.1	7.0	6.0	6.5
4	19.5	13.0	16.1	11.4	6.8	8.9	5.6	4.9	5.3	6.2	5.3	5.8
5	18.4	13.0	15.7	10.8	8.1	9.2	5.0	2.6	3.7	6.9	5.8	6.3
6	17.9	12.7	15.2	10.9	7.5	9.4	5.6	4.4	5.1	7.4	6.7	7.0
7	15.4	11.7	13.9	8.8	5.0	6.9	6.0	5.2	5.5	7.5	6.8	7.2
8	15.8	11.4	13.4	8.3	4.0	6.1	5.9	4.6	5.3	7.5	6.6	7.2
9	14.6	9.3	11.9	8.1	4.4	6.2	5.7	4.7	5.3	6.8	5.8	6.3
10	12.6	9.2	11.2	9.6	5.1	7.2	4.7	3.6	4.0	6.3	5.2	5.8
11	14.5	11.3	12.6	10.8	7.9	9.2	4.9	4.0	4.4	6.6	5.2	5.9
12	14.3	8.9	11.4	10.8	9.9	10.3	4.8	4.0	4.4	7.0	5.7	6.2
13	15.8	9.7	12.4	9.9	9.3	9.6	5.3	4.6	4.9	5.8	4.7	5.3
14	15.5	9.7	12.4	10.7	9.2	9.9	6.2	5.3	5.9	5.3	4.2	4.7
15	15.0	10.2	12.5	10.1	8.8	9.6	5.8	5.4	5.6	4.2	2.8	3.4
16	14.3	11.1	12.6	10.2	9.1	9.8	6.4	5.4	5.8	3.3	1.9	2.7
17	14.2	9.9	12.0	9.4	6.9	8.3	6.9	6.0	6.4	3.6	2.5	3.1
18	12.8	7.9	10.5	8.4	6.0	7.0	6.1	5.5	5.8	4.1	2.9	3.4
19	13.1	7.9	10.6	9.4	7.2	8.2	6.2	5.5	5.7	4.0	2.5	3.2
20	14.3	9.4	11.8	8.6	7.8	8.1	6.1	5.3	5.8	3.4	2.4	2.8
21	12.6	8.9	11.1	8.1	7.6	7.8	5.6	5.0	5.2	3.9	2.9	3.4
22	11.8	10.8	11.3	8.3	7.5	7.8	5.9	4.7	5.3	4.4	3.8	4.0
23	12.4	9.1	10.8	8.1	7.1	7.6	5.5	4.2	4.9	4.9	3.8	4.2
24	10.7	7.1	8.7	7.4	5.3	6.4	4.2	3.3	3.9	4.4	3.2	3.8
25	11.1	6.2	8.3	6.1	5.2	5.7	4.9	3.8	4.3	4.7	4.0	4.4
26	11.8	6.6	8.9	6.9	5.7	6.1	5.3	4.2	4.7	5.8	4.7	5.3
27	10.0	7.2	8.6	5.7	4.1	4.9	6.0	4.5	5.2	5.2	4.2	4.7
28	10.8	8.8	9.7	4.9	2.8	3.5	6.1	5.0	5.6	4.4	3.3	3.8
29	11.3	9.3	10.2	6.1	4.4	5.4	6.8	5.5	6.1	3.4	2.0	2.8
30	11.4	10.4	10.8	6.4	5.4	5.8	6.8	5.7	6.2	3.8	2.0	2.9
31	12.0	10.1	11.0	---	---	---	7.1	6.4	6.7	3.6	2.0	2.9
MONTH	20.4	6.2	12.1	13.3	2.8	7.9	7.1	2.6	5.3	7.5	1.9	4.8
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.0	3.4	4.0	5.5	2.6	4.0	10.6	5.3	7.9	12.3	7.5	9.6
2	4.1	2.4	3.3	5.9	2.4	4.1	11.2	6.0	8.5	13.1	7.7	10.5
3	5.3	3.2	4.0	6.3	2.6	4.5	11.4	6.3	8.8	13.3	8.5	10.9
4	4.0	2.0	3.1	6.9	3.2	5.0	11.7	6.4	8.9	13.0	7.3	10.3
5	3.8	2.1	2.9	5.5	3.5	4.6	10.1	7.3	8.7	13.2	8.1	10.7
6	5.1	3.0	4.0	7.0	5.3	6.1	9.7	7.4	8.3	12.5	8.1	10.2
7	5.2	4.3	4.8	6.3	3.3	5.0	10.9	6.0	8.0	11.8	6.6	9.3
8	6.3	5.0	5.5	4.9	2.4	3.5	10.6	5.8	8.3	11.9	5.9	9.0
9	6.1	4.4	5.1	5.0	2.8	4.0	9.6	7.8	8.7	10.9	7.2	9.0
10	6.4	4.4	5.2	5.7	3.7	4.8	10.5	7.2	8.7	11.9	6.5	9.0
11	6.3	4.3	5.2	6.6	5.2	5.8	10.5	7.9	8.9	13.4	6.8	10.1
12	6.4	3.9	5.1	6.5	4.9	5.9	12.0	7.6	9.6	15.2	8.9	12.0
13	6.9	4.8	5.6	4.9	4.0	4.4	10.0	8.4	9.0	13.7	10.9	12.2
14	6.2	3.8	4.9	5.8	3.8	4.6	9.2	7.0	8.5	14.4	8.2	11.2
15	6.5	3.6	5.0	5.6	3.8	4.6	7.7	5.4	6.4	13.8	9.4	11.7
16	7.0	4.7	5.9	4.3	3.6	3.9	6.5	5.0	5.7	14.9	8.7	11.8
17	6.1	4.6	5.4	5.3	2.8	4.0	6.3	4.9	5.4	16.9	11.3	13.8
18	6.8	5.2	5.9	5.4	3.0	4.2	8.4	4.7	6.2	15.2	11.7	13.5
19	6.4	5.8	6.1	7.8	4.1	5.7	9.6	4.6	6.9	13.0	10.8	11.8
20	7.0	5.8	6.3	7.3	3.7	5.5	10.1	5.0	7.3	12.6	9.2	10.8
21	7.4	6.3	6.8	7.8	4.8	6.2	10.8	5.2	7.8	12.9	9.9	11.1
22	8.1	6.0	6.9	7.4	5.3	6.3	11.6	5.9	8.6	13.1	8.5	10.7
23	7.1	6.5	6.8	7.3	5.6	6.4	11.5	6.5	9.0	15.1	8.2	11.5
24	7.3	5.4	6.3	8.1	5.7	6.5	11.7	5.6	8.7	16.9	10.2	13.4
25	6.8	4.2	5.4	8.2	4.4	6.1	12.4	7.0	9.7	16.6	12.3	14.6
26	7.5	4.4	5.8	8.7	4.6	6.6	11.0	7.0	9.2	18.3	13.0	15.6
27	7.1	4.1	5.6	8.8	4.8	6.7	9.4	7.1	8.2	16.3	14.5	15.2
28	6.3	3.9	5.1	9.2	4.7	6.8	9.9	5.3	7.7	16.0	13.4	14.7
29	---	---	---	9.8	4.9	7.3	9.5	6.5	8.3	20.0	14.0	16.6
30	---	---	---	10.0	4.9	7.3	9.2	8.3	8.7	20.6	15.1	17.4
31	---	---	---	10.0	4.9	7.4	---	---	---	19.9	14.0	16.8
MONTH	8.1	2.0	5.2	10.0	2.4	5.4	12.4	4.6	8.2	20.6	5.9	12.1



14337830 ELK CREEK BELOW ALCO CREEK, NEAR TRAIL, OR--Continued

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
FEBRUARY												
1	10	6	8	>100	>100	>100	4	2	4	---	---	---
2	8	5	6	>100	>100	>100	4	3	3	---	---	---
3	6	5	6	>100	15	52	5	3	4	---	---	---
4	6	4	5	---	---	---	4	3	4	---	---	---
5	5	4	5	---	---	---	4	3	4	---	---	---
6	5	4	4	---	---	---	4	4	4	---	---	---
7	57	3	7	---	---	---	4	2	4	2	<1	<1
8	38	21	24	20	11	15	4	3	4	1	<1	<1
9	21	19	20	13	8	11	4	3	4	2	<1	1
10	21	17	20	8	6	8	4	3	4	2	<1	<1
11	20	17	19	6	4	5	4	3	4	3	<1	<1
12	19	16	18	6	3	4	4	2	4	---	---	---
13	17	15	16	6	4	5	4	3	4	4	<1	1
14	18	15	16	5	4	5	5	3	4	1	<1	<1
15	19	16	17	5	4	4	5	4	5	2	<1	<1
16	16	14	15	5	4	4	5	4	4	3	<1	<1
17	15	14	14	4	4	4	5	4	4	2	<1	<1
18	15	14	15	4	4	4	5	4	4	18	<1	<1
19	14	13	13	4	3	4	5	4	4	28	<1	<1
20	23	14	17	4	3	4	4	3	4	1	<1	<1
21	17	16	17	4	3	4	4	3	4	1	<1	<1
22	16	15	16	4	4	4	31	3	4	2	<1	<1
23	16	14	15	4	4	4	11	4	7	3	<1	<1
24	16	14	15	4	4	4	9	3	6	2	<1	2
25	---	---	---	4	4	4	6	2	5	7	1	2
26	---	---	---	4	4	4	9	3	4	7	<1	2
27	---	---	---	4	3	4	27	4	4	10	<1	<1
28	>100	30	>100	4	2	4	38	5	20	3	<1	1
29	---	---	---	4	2	4	---	---	---	4	<1	1
30	---	---	---	4	2	3	---	---	---	2	<1	<1
31	---	---	---	4	2	4	---	---	---	4	<1	<1
MAX	---	---	---	---	---	---	---	---	---	---	---	---
MIN	---	---	---	---	---	---	---	---	---	---	---	---
MARCH												
APRIL												
MAY												
DAY	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
JUNE												
JULY												
AUGUST												
SEPTEMBER												
1	2	<1	<1	2	<1	<1	>100	63	>100	>100	5	7
2	3	<1	<1	86	<1	2	---	---	---	>100	9	23
3	2	<1	<1	14	<1	1	---	---	---	53	5	11
4	6	<1	<1	3	<1	1	---	---	---	---	---	---
5	3	<1	1	>100	2	4	---	---	---	---	---	---
6	8	<1	<1	26	4	5	---	---	---	25	<1	<1
7	7	<1	1	43	3	4	---	---	---	26	<1	<1
8	6	<1	<1	13	3	4	>100	<1	1	3	<1	<1
9	2	<1	<1	22	<1	<1	83	<1	<1	4	<1	<1
10	2	<1	<1	2	<1	<1	25	<1	<1	23	<1	<1
11	4	<1	<1	2	<1	<1	>100	<1	<1	14	<1	<1
12	2	<1	<1	2	<1	<1	27	<1	<1	4	<1	<1
13	3	<1	<1	19	<1	<1	6	<1	<1	73	<1	1
14	4	<1	<1	2	<1	<1	95	<1	2	>100	<1	33
15	2	<1	<1	<1	<1	<1	16	<1	<1	>100	<1	1
16	3	<1	<1	3	<1	<1	10	<1	1	---	---	---
17	1	<1	<1	16	<1	<1	13	1	3	---	---	---
18	2	<1	<1	6	<1	<1	15	3	5	6	<1	<1
19	2	<1	<1	10	<1	1	>100	5	14	2	<1	<1
20	6	<1	<1	2	<1	<1	>100	4	10	40	<1	<1
21	12	<1	<1	1	<1	<1	>100	3	4	>100	2	>100
22	3	<1	<1	1	<1	<1	38	2	5	>100	>100	>100
23	3	<1	<1	36	<1	<1	>100	4	15	>100	3	>100
24	---	---	---	41	<1	6	>100	5	11	61	4	9
25	---	---	---	>100	2	9	26	7	9	76	3	6
26	---	---	---	30	5	9	>100	7	10	>100	5	6
27	2	<1	<1	>100	18	>100	88	5	10	>100	3	5
28	1	<1	<1	>100	>100	>100	40	2	5	26	3	6
29	<1	<1	<1	>100	>100	>100	57	3	6	>100	3	5
30	1	<1	<1	>100	>100	>100	71	3	7	>100	4	5
31	---	---	---	>100	>100	>100	18	3	5	---	---	---
MAX	---	---	---	>100	>100	>100	---	---	---	---	---	---
MIN	---	---	---	<1	<1	<1	---	---	---	---	---	---

14338000 ELK CREEK NEAR TRAIL, OR

LOCATION.--(revised)Lat 42°40'44", long 122°44'27", in NE 1/4 NW 1/4 sec.30, T.33 S., R.1 E., Jackson County, Hydrologic Unit 17100307, on right bank 4.5 mi northeast of Trail and at mile 1.5.

DRAINAGE AREA.--129 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1945 to current year. Prior to March 1946 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WDR OR-89-2: Drainage area. WDR OR-92-1: 1989(M), 1990(M), 1991(M).

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,493.91 ft above NGVD of 1929. Prior to July 5, 1946, nonrecording gage at various sites within 1.0 mi of present site at different datums. July 5, 1946, to June 22, 1950, nonrecording gage, and June 23, 1950, to May 23, 1954, water-stage recorder, at site 0.5 mi downstream at datum 25.21 ft lower, May 24, 1954, to Sept. 30, 1988 at site 0.8 mi downstream at datum 37.35 ft lower.

REMARKS.--No estimated daily discharges. Records poor. Diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--56 years (water years 1947-2002), 217 ft<sup>3</sup>/s, 156,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,200 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 18.84 ft, from rating curve extended above 4,700 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow, site and datum then in use; minimum discharge, 0.01 ft<sup>3</sup>/s Oct. 8, 1987, result of dam construction 1.3 mi upstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,700 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0100	*4,060	*8.80	No other peak greater than base discharge.			
Minimum discharge, 0.65 ft <sup>3</sup> /s Aug. 18.							

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	2.8	12	457	904	203	218	205	95	36	12	2.6	1.4
2	2.5	10	435	1060	189	188	214	94	35	11	2.7	1.5
3	2.2	8.6	319	938	179	163	223	92	33	9.7	2.9	1.3
4	2.0	8.0	196	625	183	144	228	88	31	9.5	2.9	1.3
5	1.9	7.6	192	474	198	138	235	84	30	9.5	3.1	1.4
6	1.8	7.6	527	813	209	147	216	82	29	9.0	3.4	1.8
7	1.9	7.2	465	973	708	186	189	77	28	8.5	3.4	2.2
8	2.0	7.2	274	1100	1360	171	167	73	27	7.9	2.9	5.0
9	2.3	7.3	252	938	826	152	163	70	28	7.4	2.9	4.0
10	2.6	7.2	203	580	504	153	167	67	27	6.6	2.7	3.2
11	3.6	7.2	158	428	408	168	160	64	24	5.7	2.1	2.7
12	6.7	8.1	157	383	353	287	155	61	23	5.2	2.3	2.3
13	5.6	11	639	336	327	332	161	62	21	5.1	2.2	2.1
14	4.5	14	2090	284	312	320	306	61	20	5.1	1.8	1.8
15	4.2	13	676	237	278	306	321	58	18	5.5	1.5	1.7
16	4.0	20	680	200	260	281	247	56	18	5.0	1.1	1.6
17	3.6	35	1480	180	261	256	245	54	19	4.5	0.89	2.0
18	3.5	23	852	159	235	229	290	54	23	3.9	0.74	6.7
19	3.5	17	609	150	285	215	282	53	22	3.8	0.78	6.8
20	3.5	18	667	145	591	248	256	52	20	3.4	1.0	4.7
21	3.5	39	509	335	754	334	225	54	18	3.6	1.2	3.9
22	3.9	160	367	376	628	397	197	58	18	3.5	1.4	3.4
23	9.5	103	291	293	592	442	173	49	16	3.0	1.8	2.9
24	14	71	240	248	566	523	152	45	15	2.7	1.8	2.7
25	11	93	208	364	450	505	139	43	14	2.3	1.8	2.4
26	8.2	92	200	1170	349	419	133	42	13	2.1	1.6	2.4
27	7.1	66	238	712	290	317	126	41	12	2.4	1.6	2.2
28	6.8	160	433	444	253	263	113	45	12	2.3	1.7	2.4
29	6.9	317	564	329	---	232	105	44	13	2.9	1.5	2.6
30	8.2	183	670	261	---	215	101	40	12	3.2	1.5	3.1
31	11	---	1040	221	---	208	---	38	---	2.8	1.3	---
TOTAL	154.8	1533.0	16088	15660	11751	8157	5894	1896	655	169.1	61.11	83.5
MEAN	4.99	51.1	519	505	420	263	196	61.2	21.8	5.45	1.97	2.78
MAX	14	317	2090	1170	1360	523	321	95	36	12	3.4	6.8
MIN	1.8	7.2	157	145	179	138	101	38	12	2.1	0.74	1.3
AC-FT	307	3040	31910	31060	23310	16180	11690	3760	1300	335	121	166

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1947 - 2002, BY WATER YEAR (WY)

	29.8	182	436	516	504	413	282	162	59.0	14.7	6.40	7.03
MEAN	29.8	182	436	516	504	413	282	162	59.0	14.7	6.40	7.03
MAX	404	1008	1851	1283	1131	1074	565	358	254	36.1	25.1	43.7
(WY)	1951	1974	1965	1965	1958	1972	1956	1975	1953	1953	1976	1986
MIN	3.17	8.92	13.1	19.8	23.1	45.4	65.8	21.6	7.42	1.39	0.21	0.60
(WY)	1953	1994	1977	1977	1977	1977	1968	1992	1992	1994	1994	1992

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1947 - 2002

ANNUAL TOTAL	28612.36	62102.51	
ANNUAL MEAN	78.4	170	217
HIGHEST ANNUAL MEAN			438
LOWEST ANNUAL MEAN			38.4
HIGHEST DAILY MEAN	2090	Dec 14	2090
LOWEST DAILY MEAN	0.13	Aug 22	0.74
ANNUAL SEVEN-DAY MINIMUM	0.14	Aug 18	1.0
ANNUAL RUNOFF (AC-FT)	56750		123200
10 PERCENT EXCEEDS	181		469
50 PERCENT EXCEEDS	29		49
90 PERCENT EXCEEDS	0.44		2.2
			546
			66
			4.6

14338000 ELK CREEK NEAR TRAIL, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--June 1973 to current year.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: June 1973 to current year.

TURBIDITY: October 1999 to current year.

INSTRUMENTATION.--Water-quality monitor.

REMARKS.--Water temperature records good. Turbidity records good November through May and fair the rest of the year.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 33.0°C Aug. 24, 1999; minimum, 0.0°C at times during most winter periods.

TURBIDITY: Maximum recorded, 100 NTU Jan. 10, 2000 but may have been higher during periods of missing record; minimum recorded, <1 NTU many times during most years.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 29.3°C July 13; minimum, 2.4°C Jan. 16 but may have been lower during period of missing record.

TURBIDITY: Maximum recorded, 81 NTU Dec. 1, 2, but may have been higher during periods of missing record; minimum recorded, <1 NTU many times during the year.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	19.0	14.6	16.9	12.2	11.0	11.5	6.4	6.1	6.3	7.8	7.0	7.4
2	19.6	15.2	17.5	12.8	10.9	11.7	7.1	6.1	6.5	8.1	7.2	7.6
3	19.5	14.8	17.1	12.5	9.7	10.8	6.8	6.1	6.5	7.6	6.8	7.1
4	19.7	14.7	16.9	11.8	8.9	10	6.1	5.4	5.7	6.9	5.7	6.3
5	18.8	14.7	16.6	10.7	9.3	9.9	5.7	3.5	4.3	7.5	6.3	6.8
6	18.9	14.0	16.0	11.7	8.9	10.1	6.0	4.8	5.4	8.1	7.3	7.7
7	17.5	13.6	15.4	11.0	7.9	9.0	6.4	5.5	5.9	8.1	7.4	7.8
8	16.6	13.4	14.6	10.1	7.0	8.2	6.3	4.9	5.6	8.2	7.5	7.9
9	17.1	12.1	14.0	8.9	6.6	7.5	6.2	5.3	5.7	7.6	6.3	6.9
10	15.3	11.9	13.4	9.1	6.5	7.7	5.3	4.2	4.6	6.9	5.7	6.4
11	15.8	12.8	13.9	9.5	8.0	8.5	5.3	4.3	4.8	7.0	5.7	6.4
12	14.4	11.8	12.9	10.7	9.5	10.1	5.3	4.5	4.9	7.4	5.6	6.8
13	15.2	11.8	13.4	10.3	9.8	10.0	5.7	5.2	5.4	---	---	---
14	15.8	11.5	13.4	10.6	9.7	10.2	6.6	5.7	6.3	---	---	---
15	15.4	11.7	13.3	10.3	9.8	10.1	6.3	5.8	6.0	---	---	---
16	14.5	12.3	13.2	10.4	9.8	10.2	6.9	5.8	6.2	3.6	2.4	3.1
17	15.4	11.5	13.0	9.8	8.8	9.3	7.3	6.4	6.7	4.3	3.0	3.6
18	14.2	10.5	12.0	8.8	7.7	8.1	6.5	5.9	6.2	4.6	3.5	4.0
19	14.4	10.5	12.1	9.1	8.0	8.4	6.6	5.8	6.2	4.4	3.3	3.9
20	14.8	11.0	12.6	8.9	8.4	8.6	6.6	5.8	6.2	4.2	3.2	3.5
21	14.0	10.7	12.2	8.5	8.1	8.3	6.1	5.3	5.7	4.4	3.3	3.9
22	12.4	11.6	12.0	8.5	7.9	8.2	---	---	---	5.1	4.3	4.6
23	12.9	10.9	11.7	8.4	7.6	8.0	---	---	---	5.5	4.4	4.8
24	11.6	9.6	10.5	8.0	6.2	7.1	---	---	---	5.0	3.8	4.5
25	11.4	8.7	9.8	6.6	5.8	6.2	---	---	---	5.3	4.6	4.9
26	11.8	8.4	9.8	7.0	6.1	6.4	---	---	---	6.2	5.2	5.7
27	10.4	8.7	9.5	6.2	4.9	5.4	---	---	---	5.8	4.8	5.3
28	10.7	9.4	10	5.3	3.6	4.0	6.6	4.0	5.9	5.0	4.0	4.4
29	11.1	9.7	10.4	6.2	4.1	5.4	7.3	6.0	6.6	4.1	2.7	3.4
30	11.4	10.6	11.0	6.6	5.5	6.0	7.4	6.1	6.7	4.1	2.5	3.3
31	11.6	10.7	11.2	---	---	---	7.7	7.0	7.3	3.9	2.6	3.2
MONTH	19.7	8.4	13.1	12.8	3.6	8.5	---	---	---	---	---	---
DAY	FEBRUARY			MARCH			APRIL			MAY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	5.4	3.9	4.5	5.8	3.2	4.6	10.9	6.6	8.8	12.6	8.5	10.2
2	4.8	3.3	4.1	6.1	3.1	4.6	11.6	7.5	9.6	13.5	9.6	11.6
3	5.6	3.8	4.6	6.5	3.2	5.0	11.9	7.7	9.9	14.0	10.3	12.1
4	4.8	3.0	3.9	7.1	4.0	5.6	12.2	7.8	10.1	13.6	9.7	11.7
5	3.9	2.6	3.3	6.3	4.5	5.2	11.5	8.7	9.9	13.9	10.3	12.1
6	5.5	3.3	4.3	7.3	5.6	6.4	10.4	8.5	9.4	13.2	10.1	11.7
7	5.7	5.0	5.3	7.1	5.0	6.0	10.9	7.2	9.0	12.5	9.1	10.9
8	6.6	5.4	5.9	5.5	3.2	4.4	11.1	7.3	9.3	12.5	8.4	10.5
9	6.5	4.8	5.5	5.4	3.6	4.6	10.9	9.0	9.7	11.9	9.3	10.3
10	6.6	4.7	5.6	6.2	4.5	5.3	11.4	8.3	9.8	12.0	8.3	10.2
11	6.5	4.7	5.6	7.2	6.0	6.5	11.0	9.1	10.1	13.7	9.1	11.3
12	6.6	4.3	5.5	7.3	6.0	6.8	12.6	8.8	10.6	15.6	11.0	13.2
13	7.3	5.2	6.1	6.0	4.7	5.2	12.0	9.8	10.4	15.2	13.0	14.0
14	6.4	4.2	5.4	6.5	4.3	5.2	10.0	9.0	9.5	14.8	10.4	12.5
15	6.7	4.0	5.3	6.2	4.4	5.3	9.0	6.3	7.3	14.6	11.6	13.2
16	7.2	5.3	6.4	5.3	4.2	4.6	7.4	5.8	6.5	15.2	11.0	13.1
17	6.7	5.2	5.9	6.3	3.5	4.6	7.2	5.5	6.2	17.1	13.2	15.0
18	7.3	5.7	6.5	6.0	3.6	4.8	8.8	5.1	6.6	16.3	14.0	15.2
19	7.1	6.5	6.8	8.4	4.8	6.4	9.9	5.5	7.6	15.3	12.6	13.6
20	7.5	6.4	6.9	7.6	4.6	6.3	10.5	6.1	8.2	12.8	10.9	12.0
21	7.9	6.9	7.4	8.2	5.4	6.8	11.2	6.3	8.7	13.1	11.1	12.1
22	8.6	6.8	7.6	7.9	6.0	7.0	12.0	7.3	9.6	13.3	10.3	11.9
23	8.1	7.2	7.5	8.2	6.3	7.2	12.1	8.0	10.2	14.9	10.4	12.6
24	7.9	6.4	7.1	8.4	6.3	7.2	12.0	7.4	9.8	16.8	12.3	14.4
25	7.2	4.6	5.9	8.4	5.3	6.7	13.0	8.7	10.9	17.2	14.6	15.9
26	7.7	4.8	6.2	9.0	5.5	7.2	12.1	8.9	10.7	18.2	15.2	16.7
27	7.4	4.7	6.2	9.3	5.8	7.6	11.0	8.6	9.6	17.8	16.1	16.7
28	6.7	4.6	5.8	9.5	5.6	7.6	10.8	6.8	8.7	16.6	15.0	15.9
29	---	---	---	10.1	6.0	8.1	10.1	8.0	9.2	20.0	15.7	17.6
30	---	---	---	10.3	6.2	8.3	10.1	9.1	9.6	20.4	17.4	18.8
31	---	---	---	10.4	6.1	8.3	---	---	---	19.4	17.1	18.3
MONTH	8.6	2.6	5.8	10.4	3.1	6.1	13.0	5.1	9.2	20.4	8.3	13.4

ROGUE RIVER BASIN

14338000 ELK CREEK NEAR TRAIL, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	18.8	16.9	17.8	25.4	20.7	22.8	23.3	19.1	20.8	25.0	18.3	21.2
2	18.9	16.1	17.5	25.3	20.5	22.8	23.1	18.7	20.4	25.5	18.9	21.7
3	18.4	16.0	17.2	24.7	20.4	22.3	22.4	18.1	19.6	25.0	18.8	21.2
4	20.1	16.3	18.1	24.4	19.7	21.7	21.3	17.5	18.7	24.2	17.4	20.1
5	20.8	17.9	19.3	24.3	19.2	21.7	22.2	16.6	18.7	23.5	16.7	19.3
6	20.1	17.7	18.9	25.1	19.9	22.5	21.4	16.7	18.7	22.0	16.8	18.5
7	18.4	16.5	17.4	24.0	20.8	22.2	21.8	16.1	18.8	22.1	16.6	18.6
8	16.5	14.8	15.7	25.0	19.7	22.2	21.4	16.3	18.8	20.3	16.7	18.2
9	16.5	13.6	15.0	26.1	20.1	23.2	22.5	16.6	19.6	20.5	15.7	18.2
10	18.4	14.3	16.2	27.9	21.7	24.7	23.5	18.1	20.5	20.9	16.0	18.6
11	20.6	16.1	18.3	28.7	23.1	25.8	23.9	18.4	20.9	21.8	16.6	19.2
12	22.3	18.0	20.1	28.9	23.7	26.1	24.8	18.5	21.4	22.6	17.2	19.8
13	23.3	19.5	21.4	29.3	23.9	26.3	26.7	19.7	22.9	23.3	17.8	20.3
14	23.5	19.9	21.6	27.8	22.9	25.1	26.9	20.9	23.5	22.3	18.3	20.1
15	23.6	19.7	21.5	27.3	22.4	24.7	26.6	20.1	22.8	22.3	17.7	19.5
16	23.1	19.9	21.5	27.0	22.0	24.4	26.5	18.8	22.1	22.2	16.8	19.0
17	21.1	17.7	19.3	27.4	22.0	24.5	26.2	18.5	21.7	20.0	17.9	18.8
18	19.7	17.0	18.3	27.6	22.0	24.6	25.3	17.9	21.0	20.5	17.3	18.7
19	20.6	16.9	18.6	27.5	22.0	24.4	24.5	17.2	20.2	21.2	17.0	18.9
20	21.7	17.7	19.6	27.9	21.5	24.4	24.2	17.5	20.0	20.9	16.7	18.8
21	22.6	18.6	20.6	27.6	21.7	24.6	24.1	16.7	19.9	21.1	16.3	18.7
22	23.7	19.6	21.5	25.1	22.2	23.8	24.7	17.3	20.4	20.9	16.3	18.7
23	23.5	19.8	21.5	28.1	21.7	24.6	24.2	18.3	20.9	21.2	16.2	18.6
24	24.3	19.8	21.8	28.1	22.2	24.8	24.7	18.6	21.2	20.9	15.9	18.3
25	25.0	20.2	22.4	28.2	22.0	24.6	24.4	19.2	21.4	21.4	15.7	18.2
26	25.7	21.2	23.3	28.0	21.8	24.2	24.1	18.5	20.9	19.4	15.3	17.3
27	25.5	21.6	23.5	25.6	21.6	23.2	24.6	18.1	21.0	19.8	14.8	17.0
28	23.7	21.5	22.6	24.7	20.4	22.2	25.9	18.9	22.1	19.6	14.6	16.8
29	24.5	21.3	22.7	23.8	20.4	22.0	24.9	19.8	22.0	17.1	14.4	15.6
30	25.2	21.0	22.9	26.1	20.3	22.4	24.9	19.1	21.4	16.9	13.8	14.8
31	---	---	---	23.8	20.5	21.9	24.8	17.6	20.7	---	---	---
MONTH	25.7	13.6	19.9	29.3	19.2	23.7	26.9	16.1	20.7	25.5	13.8	18.8

TURBIDITY (NTU), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN	MAX	MIN	MEDIAN
1	2	<1	<1	6	<1	<1	81	9	29	12	9	10
2	---	---	---	6	<1	<1	81	14	17	19	10	12
3	---	---	---	5	<1	<1	18	11	12	13	8	10
4	---	---	---	3	<1	<1	18	8	10	9	6	7
5	---	---	---	<1	<1	<1	24	7	8	6	5	6
6	---	---	---	5	<1	<1	22	10	18	13	5	11
7	---	---	---	1	<1	<1	19	10	12	11	8	9
8	---	---	---	<1	<1	<1	10	7	8	21	8	14
9	---	---	---	2	<1	<1	8	6	7	12	8	10
10	3	<1	1	<1	<1	<1	7	5	6	12	5	6
11	2	<1	1	2	<1	<1	6	5	5	6	4	5
12	4	<1	<1	<1	<1	<1	6	5	5	5	4	4
13	2	<1	<1	1	<1	<1	---	---	---	4	3	4
14	3	<1	<1	6	<1	<1	---	---	---	4	3	3
15	<1	<1	<1	8	<1	<1	38	14	20	3	2	3
16	1	<1	<1	7	<1	<1	32	12	14	4	2	2
17	<1	<1	<1	8	2	3	54	20	27	5	2	2
18	6	<1	<1	15	<1	1	21	12	16	4	2	2
19	2	<1	<1	2	<1	<1	19	10	13	2	2	2
20	6	<1	<1	<1	<1	<1	18	9	11	2	2	2
21	<1	<1	<1	7	<1	1	10	8	9	19	2	12
22	<1	<1	<1	27	7	19	10	7	7	14	8	11
23	8	<1	<1	13	4	7	8	5	6	9	6	7
24	4	<1	<1	4	2	3	8	5	5	7	5	6
25	6	<1	1	8	2	3	5	4	5	29	5	5
26	6	<1	3	19	4	6	6	4	4	41	16	24
27	13	<1	5	18	3	4	5	4	4	19	10	12
28	---	---	---	---	---	---	9	5	7	10	7	8
29	---	---	---	---	---	---	13	6	8	7	5	6
30	<1	<1	<1	14	9	11	11	8	9	8	4	5
31	4	<1	<1	---	---	---	25	10	16	5	4	4
MAX	---	---	---	---	---	---	---	---	---	41	16	24
MIN	---	---	---	---	---	---	---	---	---	2	2	2



ROGUE RIVER BASIN

14339000 ROGUE RIVER AT DODGE BRIDGE, NEAR EAGLE POINT, OR

LOCATION.--Lat 42°31'30", long 122°50'30", in SE 1/4 sec.17, T.35 S., R.1 W., Jackson County, Hydrologic Unit 17100307, on right bank 50 ft upstream from Dodge Bridge, 0.7 mi downstream from Reese Creek, 4.3 mi northwest of Eagle Point, and at mile 138.6.

DRAINAGE AREA.--1,215 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year.

REVISED RECORDS.--WSP 1094: 1942 (M), 1943, 1945 (M), 1946. WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,271.99 ft above NGVD of 1929. Prior to Dec. 21, 1938, nonrecording gage, Dec. 21, 1938, to Aug. 15, 1968, water-stage recorder, at datum 2.27 ft higher, Aug. 16, 1968, to Sept. 30, 1976, water-stage recorder, at datum 1.00 ft higher.

REMARKS.--Records good. Flow regulated since February 1977 by Lost Creek Lake (station 14335040). Diversions for irrigation upstream from station; most of low flow of Big Butte Creek (station 14337500) is diverted near Butte Falls. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--39 years (water years 1939-77), 2,636 ft<sup>3</sup>/s, 1,910,000 acre-ft/yr.  
25 years (water years 1978-2002), 2,405 ft<sup>3</sup>/s, 1,742,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 87,600 ft<sup>3</sup>/s Dec. 22, 1964, gage height, 12.78 ft, datum then in use, from rating curve extended above 23,000 ft<sup>3</sup>/s; minimum discharge, 567 ft<sup>3</sup>/s Feb. 18, 1977, result of closure of Lost Creek dam, minimum prior to that time, 611 ft<sup>3</sup>/s Aug. 6, 14, 29, Sept. 9, 1940.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 11,000 ft<sup>3</sup>/s Dec. 14, gage height, 6.85 ft; minimum discharge, 819 ft<sup>3</sup>/s Oct. 18-20.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1210	865	1990	2270	1230	1160	2060	2030	2680	1720	1730	1940
2	1020	864	1880	2640	1190	1130	2180	2440	2670	1720	1740	1930
3	978	865	1540	2540	1160	1070	2510	2520	2970	1710	1740	1920
4	990	864	1310	1940	1150	1050	2810	2510	3050	1720	1750	1920
5	983	865	2140	1660	1150	1030	3250	2460	3050	1710	1740	1930
6	967	865	2470	2850	1140	1060	3130	2450	3040	1700	1740	e2000
7	962	865	1970	2620	1700	1210	2790	2410	3050	1710	1980	e2100
8	958	868	1530	3140	3150	1150	2730	2240	3060	1710	2010	e2050
9	957	870	1350	2630	2140	1060	2610	2170	3060	1690	2000	e2000
10	901	873	1270	2700	1670	1040	2900	2160	3050	1690	2000	1980
11	899	874	1230	3220	1500	1070	3280	2040	3040	1680	1980	1970
12	894	890	1310	3060	1400	1200	3380	2020	3040	1690	1970	1970
13	859	883	2350	2870	1340	1230	3400	2140	3030	1710	1960	1870
14	849	885	6130	2650	1330	1240	4250	2230	3020	1710	1960	1750
15	846	883	2200	2480	1260	1230	6100	2230	2940	1710	1960	1640
16	849	908	1870	2330	1220	1220	6660	2240	2840	1710	1940	1580
17	849	928	3410	2170	1220	1300	5780	2190	2720	1710	1940	1520
18	838	913	2480	1890	1190	1560	4710	2230	2620	1710	1930	1440
19	834	893	2160	1620	1260	1630	3380	2320	2530	1720	1930	1320
20	830	905	2200	1400	2090	2000	2110	2250	2470	1720	1950	1210
21	833	937	1730	2270	2130	2080	1990	2190	2340	1720	1960	1120
22	848	1150	1430	2190	1840	2090	1930	2190	2250	1720	1980	1020
23	865	1100	1300	1770	1890	2030	1880	2090	2200	1710	1970	997
24	865	1040	1190	1570	1770	2210	1920	2100	2080	1710	1980	992
25	867	1120	1130	1540	1580	2340	2220	2110	1970	1710	1970	975
26	865	1080	1090	2960	1410	2510	2200	2100	1870	1710	1950	972
27	869	1000	1100	2430	1300	2530	2150	2480	1820	1720	1940	966
28	865	1400	1290	2000	1220	2420	2030	2500	1730	1730	1930	969
29	863	1930	1540	1760	---	2040	2010	2500	1700	1730	1930	1030
30	869	1330	1790	1460	---	1900	2020	2660	1700	1730	1950	1050
31	867	---	2630	1230	---	1960	---	2690	---	1730	1940	---
TOTAL	27949	29713	59010	69860	42630	48750	90370	70890	77590	53070	59450	46131
MEAN	902	990	1904	2254	1522	1573	3012	2287	2586	1712	1918	1538
MAX	1210	1930	6130	3220	3150	2530	6660	2690	3060	1730	2010	2100
MIN	830	864	1090	1230	1140	1030	1880	2020	1700	1680	1730	966
AC-FT	55440	58940	117000	138600	84560	96700	179200	140600	153900	105300	117900	91500

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2002, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	1293	1933	3077	2976	2579	2595	2748	2964	2566	2194	2198	1732													
MAX	1931	4925	9909	9857	6045	4645	4520	4658	3939	3777	3092	2200													
(WY)	1983	1985	1997	1997	1982	1989	1996	1984	1999	1984	1983	1983													
MIN	874	928	1274	1084	924	920	969	1577	1566	1116	1795	1288													
(WY)	1993	1988	1990	2001	2001	1992	1992	1992	2001	1992	1994	1980													

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1978 - 2002

ANNUAL TOTAL	508541	675413																							
ANNUAL MEAN	1393	1850																							
HIGHEST ANNUAL MEAN										2405															
LOWEST ANNUAL MEAN										4012														1997	
HIGHEST DAILY MEAN				6130	Dec 14		6660	Apr 16		23000														Dec 15	1977
LOWEST DAILY MEAN				830	Oct 20		830	Oct 20		823														Feb 12	1981
ANNUAL SEVEN-DAY MINIMUM				840	Oct 15		840	Oct 15		840														Oct 15	2001
ANNUAL RUNOFF (AC-FT)				1009000			1340000			1742000															
10 PERCENT EXCEEDS				2180			2800			3930															
50 PERCENT EXCEEDS				1170			1770			2010															
90 PERCENT EXCEEDS				878			897			1140															

e Estimated



14339000 ROGUE RIVER AT DODGE BRIDGE, NEAR EAGLE POINT, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1973 to current year.  
TURBIDITY: October 1999 to current year.

INSTRUMENTATION.--Water-quality monitor since August 1973.

REMARKS.--Water temperature records good. Available turbidity records (March to September) poor. The probe was checked using a polymer bead standard.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE:

Prior to construction of Lost Creek Dam and Lake: Maximum, 20.0°C July 27, 28, 1975; minimum, 0.0°C Jan. 6-8, 10, 11, 1974, Jan. 6-9, 1977.

After full operation of Lost Creek Dam and Lake: Maximum, 21.0°C July 26-29, 1992; minimum, 0.5°C Feb. 5, 6, 1989.

TURBIDITY: Maximum, 98 NTU Jan. 11, 2000; minimum, <1 many days most years.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 18.5°C July 11; minimum, 2.5°C Jan. 30, 31.

TURBIDITY: Maximum, 29 NTU May 25, but may have been higher during period of missing record; minimum, <1 NTU many days.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	12.5	8.2	10.3	8.2	6.6	7.4	7.1	6.1	6.7	7.3	6.3	6.8
2	12.7	8.4	10.7	8.5	6.2	7.3	7.0	5.6	6.3	7.6	6.6	7.1
3	12.3	8.3	10.5	7.8	5.2	6.7	7.2	6.0	6.5	6.9	6.0	6.4
4	11.9	8.2	10.3	7.9	5.1	6.6	6.6	5.6	6.1	6.1	5.0	5.7
5	11.9	8.0	10.1	7.9	5.9	6.9	6.2	4.5	5.3	6.7	5.5	6.0
6	11.9	8.1	10.0	8.2	6.1	7.1	6.4	5.1	5.7	7.6	6.5	7.0
7	10.0	6.6	8.3	7.0	4.0	5.7	6.4	5.1	5.8	7.6	7.0	7.2
8	9.8	6.5	8.2	7.0	4.1	5.8	6.3	5.0	5.7	8.2	7.0	7.5
9	9.7	5.6	7.8	7.2	4.7	6.1	6.5	5.1	5.8	7.2	6.0	6.5
10	8.8	5.6	7.5	7.9	5.1	6.7	5.7	4.4	5.1	6.3	5.1	5.8
11	10.1	7.4	8.6	8.9	6.5	7.7	6.1	4.9	5.4	6.3	5.1	5.7
12	9.5	5.8	7.8	8.2	7.2	7.5	5.9	5.0	5.5	6.7	5.4	5.9
13	10.0	6.5	8.4	7.6	6.6	7.1	6.2	5.4	5.7	6.3	4.9	5.6
14	9.8	6.1	8.3	8.4	6.7	7.5	6.2	5.3	5.7	6.0	4.9	5.4
15	9.5	6.4	8.1	7.8	6.4	7.3	5.9	5.0	5.5	5.9	4.2	5.0
16	9.2	6.7	8.1	7.9	7.1	7.5	6.8	5.4	6.0	5.7	3.8	4.7
17	9.2	6.4	7.9	8.4	6.6	7.4	6.7	5.8	6.3	5.9	4.3	5.0
18	8.5	4.9	7.0	7.7	5.8	6.8	6.2	5.1	5.6	6.0	4.5	5.2
19	8.6	5.2	7.1	8.6	6.8	7.6	6.1	5.1	5.6	5.8	4.4	5.0
20	9.2	6.1	7.8	7.8	6.7	7.1	6.3	5.1	5.9	5.3	4.1	4.8
21	8.4	5.3	7.3	7.5	6.9	7.2	6.2	5.2	5.6	5.1	4.2	4.8
22	8.1	6.6	7.4	8.1	7.1	7.5	6.2	4.5	5.4	5.3	4.0	4.6
23	8.0	6.2	7.1	8.3	6.8	7.5	6.2	4.9	5.4	5.8	4.2	4.9
24	7.6	4.7	6.2	7.6	6.2	6.7	5.2	3.8	4.5	5.4	3.8	4.6
25	8.1	4.6	6.4	7.3	6.1	6.7	5.9	4.0	4.9	5.5	4.5	4.9
26	8.3	5.0	6.8	7.8	6.3	6.9	6.0	4.7	5.3	5.8	4.5	5.1
27	7.5	5.5	6.7	7.1	5.7	6.3	6.1	4.8	5.4	5.4	4.0	4.6
28	7.8	6.3	7.1	6.5	5.2	5.7	6.2	4.9	5.7	5.2	3.5	4.3
29	7.7	6.1	6.9	7.0	5.0	5.9	7.0	5.5	6.2	4.8	3.0	3.8
30	7.8	6.6	7.2	7.2	5.7	6.5	6.7	5.4	6.1	5.0	2.5	3.7
31	8.2	6.4	7.4	---	---	---	7.4	6.3	6.8	4.5	2.5	3.7
MONTH	12.7	4.6	8.0	8.9	4.0	6.9	7.4	3.8	5.7	8.2	2.5	5.4

ROGUE RIVER BASIN

14339000 ROGUE RIVER AT DODGE BRIDGE, NEAR EAGLE POINT, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.9	4.0	4.9	6.6	3.3	5.1	10.6	6.8	8.4	11.3	7.1	9.1
2	5.5	3.5	4.5	7.0	3.3	5.2	11.2	6.9	8.7	11.6	7.4	9.3
3	6.4	4.1	5.1	7.2	3.3	5.5	10.7	7.2	8.6	11.3	8.0	9.4
4	5.7	3.2	4.5	7.8	4.1	6.0	10.6	7.1	8.6	12.4	7.8	9.7
5	4.7	3.0	3.9	6.6	4.5	5.4	9.5	7.1	8.0	12.6	7.7	9.8
6	5.8	3.2	4.5	7.2	5.4	6.2	8.7	7.2	7.9	11.7	8.3	9.6
7	5.6	4.9	5.2	7.3	5.2	6.2	10.2	7.0	8.2	11.6	8.0	9.5
8	6.2	4.7	5.2	6.9	3.7	5.3	10.3	7.0	8.3	12.7	7.6	9.8
9	5.9	4.1	5.0	5.9	4.1	5.1	9.3	7.4	8.1	11.4	8.0	9.5
10	6.1	4.0	5.1	7.1	4.6	5.9	9.7	6.8	8.1	12.6	8.6	10.2
11	6.0	4.1	5.2	8.0	6.1	7.1	9.4	7.3	8.1	14.2	8.7	11.1
12	6.4	4.0	5.3	8.1	6.3	7.1	10.2	6.8	8.2	14.8	9.2	11.7
13	7.2	5.0	6.0	6.6	5.3	6.0	8.6	7.3	7.9	12.2	10.0	11.0
14	6.5	4.2	5.4	7.4	4.7	6.0	8.8	7.2	7.9	14.1	9.0	11.2
15	6.3	3.8	5.2	7.2	5.2	6.1	7.5	6.3	7.0	13.5	9.8	11.2
16	7.3	4.7	6.0	6.3	4.8	5.6	7.6	6.4	7.0	14.6	9.2	11.5
17	6.2	4.7	5.6	6.8	4.3	5.4	7.6	6.3	6.8	14.5	10.2	12.1
18	7.1	5.1	6.1	7.0	4.0	5.7	8.7	6.2	7.3	13.4	10.4	11.5
19	6.8	5.9	6.3	9.1	5.4	7.1	9.6	6.4	7.7	11.9	9.8	10.7
20	7.6	6.0	6.7	7.9	5.4	6.7	10.5	6.6	8.2	12.6	8.9	10.8
21	7.5	6.5	7.0	---	---	---	10.9	6.5	8.5	12.2	9.2	10.8
22	8.3	6.1	7.3	7.7	5.8	6.9	11.8	7.1	9.2	13.2	9.9	11.3
23	7.8	6.7	7.3	9.1	6.1	7.4	12.4	8.0	10.0	15.2	9.9	12.1
24	8.3	5.9	7.0	8.8	6.4	7.6	12.3	8.0	9.7	15.2	10.0	12.3
25	7.3	4.8	6.1	9.2	5.8	7.3	12.4	8.2	9.9	14.7	10.5	12.5
26	7.6	4.5	6.2	9.6	6.1	7.7	11.5	7.9	9.5	15.2	10.7	12.7
27	7.7	4.6	6.3	9.5	5.9	7.6	9.8	7.9	8.7	12.5	10.9	11.6
28	7.2	4.5	5.9	9.9	6.1	7.8	11.6	7.0	9.0	13.1	11.0	11.9
29	---	---	---	10.6	6.5	8.3	10.3	7.3	8.6	14.9	10.8	12.6
30	---	---	---	10.4	6.5	8.4	9.1	7.7	8.4	14.9	11.0	12.6
31	---	---	---	10.6	6.4	8.3	---	---	---	15.2	10.3	12.5
MONTH	8.3	3.0	5.7	---	---	---	12.4	6.2	8.3	15.2	7.1	11.0
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	14.2	10.7	12.2	17.2	11.3	14.0	14.6	10.6	12.5	17.0	12.3	14.4
2	15.3	10.6	12.3	17.6	10.9	14.0	14.7	10.5	12.5	17.2	12.7	14.6
3	14.0	9.7	11.7	17.4	11.2	13.9	14.5	10.0	12.3	16.8	12.3	14.4
4	14.9	10.4	12.3	17.0	10.6	13.8	14.2	10.5	12.2	16.0	11.5	13.7
5	14.7	10.6	12.4	17.3	11.0	13.8	14.8	10.5	12.4	16.1	11.8	13.4
6	14.3	10.5	12.1	17.6	11.3	14.0	15.5	10.4	12.7	15.4	11.7	13.1
7	14.2	9.7	11.7	16.5	11.8	13.8	15.6	10.5	12.9	16.0	11.6	13.4
8	12.9	9.8	11.3	17.3	11.2	13.9	15.8	10.6	12.9	14.8	11.3	12.9
9	13.3	9.9	11.4	18.0	11.3	14.3	15.9	10.9	13.2	15.4	10.7	12.8
10	14.7	10.1	12.0	18.4	11.7	14.7	16.0	11.1	13.4	15.0	10.4	12.5
11	15.2	10.5	12.4	18.5	12.1	15.1	16.1	11.3	13.6	15.0	10.6	12.7
12	15.1	10.9	12.7	17.1	11.9	14.3	16.8	11.1	13.8	15.3	11.0	12.8
13	15.5	11.0	12.8	17.8	12.0	14.6	17.2	11.7	14.3	15.7	11.2	13.1
14	15.2	10.4	12.4	17.3	11.5	14.2	16.8	12.1	14.3	14.9	11.3	12.9
15	15.0	9.9	12.3	17.8	11.4	14.4	16.9	12.0	14.2	14.3	11.2	12.6
16	15.1	10.2	12.5	17.5	11.4	14.3	16.7	11.5	14.1	13.7	10.1	11.9
17	12.2	10.8	11.6	17.9	11.7	14.6	16.9	11.7	14.2	12.2	10.1	11.1
18	14.5	11.0	12.5	18.1	11.9	14.7	16.7	12.0	14.1	14.2	9.7	11.7
19	15.3	10.2	12.4	18.0	11.9	14.8	16.5	11.7	14.0	14.4	9.7	11.9
20	15.4	10.0	12.3	18.0	11.5	14.7	16.0	11.9	13.9	14.6	9.8	12.1
21	15.8	10.2	12.8	17.9	11.8	14.8	16.8	11.7	14.2	14.5	9.8	12.2
22	15.9	10.6	13.0	15.6	12.1	13.9	16.8	11.8	14.2	14.6	9.8	12.3
23	15.7	10.4	13.0	17.8	12.0	14.6	17.0	12.0	14.1	13.7	9.1	11.6
24	16.7	10.8	13.4	17.6	11.5	14.5	17.0	12.3	14.5	13.6	8.8	11.3
25	17.1	10.9	13.7	16.9	11.5	14.1	16.7	12.5	14.4	13.1	8.7	11.1
26	16.9	11.3	13.9	16.2	10.8	13.5	16.7	12.3	14.4	12.6	8.6	10.8
27	16.4	10.7	13.6	15.0	10.4	12.8	17.1	12.2	14.5	13.0	8.8	11.0
28	15.4	11.3	13.1	14.6	10.2	12.3	17.6	12.7	14.8	12.9	8.5	10.9
29	16.1	11.1	13.4	14.7	10.3	12.5	16.9	12.9	14.7	11.6	8.8	10
30	17.0	10.6	13.6	15.4	10.8	12.9	16.6	12.6	14.5	11.6	8.0	9.7
31	---	---	---	15.1	10.8	12.9	16.9	11.9	14.2	---	---	---
MONTH	17.1	9.7	12.6	18.5	10.2	14.0	17.6	10.0	13.7	17.2	8.0	12.3



ROGUE RIVER BASIN

14354200 BEAR CREEK BELOW ASHLAND CREEK, AT ASHLAND, OR

LOCATION.--Lat 42°12'58", long 122°43'16", in SE 1/4 SE 1/4 sec.32, T.38 S., R.1 E, Jackson County, Hydrologic Unit 17100308, on left bank, 0.1 mi downstream from Ashland Creek, and at mile 21.0.

DRAINAGE AREA.--168 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1990 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,686.64 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated since 1924 by Emigrant Lake. Water is diverted into basin from the Klamath River basin. Many diversions for irrigation and municipal use upstream from station.

AVERAGE DISCHARGE.--12 years (water years 1991-2002) 91.9 ft<sup>3</sup>/s, 66,560 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 12,000 ft<sup>3</sup>/s Jan. 1, 1997, gage height 11.00 ft; minimum discharge, 0.33 ft<sup>3</sup>/s Oct. 18, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 451 ft<sup>3</sup>/s Apr. 30, gage height, 2.54 ft; minimum daily discharge, 3.5 ft<sup>3</sup>/s Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	4.0	9.0	59	92	36	55	66	121	45	61	35	31
2	6.6	9.1	38	137	36	52	69	85	49	50	35	31
3	7.3	8.7	49	93	36	50	76	68	46	50	36	30
4	6.3	8.7	32	78	37	48	81	60	45	51	37	32
5	6.4	9.2	38	66	38	47	82	56	42	50	37	32
6	6.4	9.0	41	78	38	49	78	53	41	43	38	33
7	6.4	9.0	35	80	70	63	76	51	40	44	38	34
8	6.5	9.2	30	88	83	52	69	51	44	43	39	31
9	6.5	9.4	30	74	60	50	62	48	43	49	41	30
10	6.5	9.3	30	65	54	49	61	47	41	58	53	27
11	8.6	9.4	30	59	51	50	62	45	37	67	53	28
12	7.3	11	31	59	49	52	61	42	32	68	50	27
13	7.0	11	60	53	49	50	60	39	33	70	46	29
14	6.7	11	105	57	50	50	79	39	39	70	31	29
15	6.5	10	49	60	47	52	74	39	39	60	31	30
16	6.8	17	44	53	49	53	74	41	40	40	34	31
17	6.6	16	67	48	54	52	83	39	42	35	36	33
18	6.7	12	47	46	54	49	79	40	43	36	36	29
19	6.6	13	44	46	59	55	75	39	42	36	37	27
20	6.6	16	51	44	111	69	71	48	41	39	37	25
21	6.7	31	40	59	104	76	65	68	43	40	36	24
22	6.4	26	37	49	98	76	58	53	48	39	36	24
23	7.7	17	35	44	103	81	54	43	49	40	34	21
24	7.0	25	33	42	92	105	53	38	50	47	34	18
25	7.3	29	32	44	85	91	46	35	53	56	33	18
26	7.5	23	31	52	75	78	54	36	54	65	35	15
27	7.3	18	35	45	66	73	69	36	64	59	44	16
28	7.9	55	45	39	60	67	54	37	71	56	45	17
29	8.6	35	69	37	---	65	63	40	74	52	43	20
30	8.7	26	68	36	---	66	248	39	68	47	40	23
31	11	---	97	36	---	65	---	38	---	35	35	---
TOTAL	218.4	502.0	1432	1859	1744	1890	2202	1514	1398	1556	1195	795
MEAN	7.05	16.7	46.2	60.0	62.3	61.0	73.4	48.8	46.6	50.2	38.5	26.5
MAX	11	55	105	137	111	105	248	121	74	70	53	34
MIN	4.0	8.7	30	36	36	47	46	35	32	35	31	15
AC-FT	433	996	2840	3690	3460	3750	4370	3000	2770	3090	2370	1580

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2002, BY WATER YEAR (WY)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	17.3	40.0	132	188	134	133	134	125	72.3	50.5	49.5	28.2
MAX	29.2	214	791	1091	607	343	326	465	197	70.1	72.1	43.5
(WY)	1998	1999	1997	1997	1996	1998	1998	1998	1998	1998	2000	1998
MIN	4.93	9.70	14.4	16.4	16.9	13.6	12.7	22.3	34.8	23.6	35.2	8.33
(WY)	1991	1993	1991	2001	1992	1992	1992	1992	1994	1992	1994	1992

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1991 - 2002

ANNUAL TOTAL	11559.8	16305.4										
ANNUAL MEAN	31.7	44.7								91.9		
HIGHEST ANNUAL MEAN										226		1997
LOWEST ANNUAL MEAN										22.0		1992
HIGHEST DAILY MEAN	121	Mar 28				248	Apr 30		6910	Jan 1		1997
LOWEST DAILY MEAN	4.0	Sep 30				4.0	Oct 1		0.90	Oct 20		1990
ANNUAL SEVEN-DAY MINIMUM	5.3	Sep 26				6.2	Oct 1		1.4	Oct 23		1990
ANNUAL RUNOFF (AC-FT)	22930					32340			66560			
10 PERCENT EXCEEDS	53					74			213			
50 PERCENT EXCEEDS	31					43			43			
90 PERCENT EXCEEDS	7.8					9.2			13			



14359000 ROGUE RIVER AT RAYGOLD, NEAR CENTRAL POINT, OR

LOCATION.--Lat 42°26'15", long 122°59'10", in SW 1/4 sec.18, T.36 S., R.2 W., Jackson County, Hydrologic Unit 17100308, on right bank at Raygold, 0.1 mi downstream from Gold Ray Dam, 1.0 mi downstream from Bear Creek, 5.6 mi northwest of Central Point, and at mile 125.8.

DRAINAGE AREA.--2,053 mi<sup>2</sup>.

## WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1905 to current year. Prior to October 1921, published as "near Tolo."

REVISED RECORDS.--WSP 1248: 1906, 1914(M), 1915. WSP 1398: 1910(M). WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 1,121.78 ft above NGVD of 1929. Prior to Sept. 19, 1914, nonrecording gage and Sept. 19, 1914, to Sept. 30, 1956, water-stage recorder, at site 300 ft upstream at same datum.

REMARKS.--Records good. Flow regulated since February 1977 by Lost Creek Lake (station 14335040). Slight regulation by Fish Lake and Emigrant Lake. Many diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--72 years (water years 1906-77), 2,976 ft<sup>3</sup>/s, 2,156,000 acre-ft/yr.  
25 years (water years 1978-2002), 2,879 ft<sup>3</sup>/s, 2,086,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 131,000 ft<sup>3</sup>/s Dec. 23, 1964, gage height, 23.43 ft, from rating curve extended above 63,000 ft<sup>3</sup>/s on basis of slope-area measurement of 113,000 ft<sup>3</sup>/s; minimum discharge recorded, 418 ft<sup>3</sup>/s Sept. 19, 1968, as result of regulation, but may have been lower during periods of no record during water years 1931-34.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 16,000 ft<sup>3</sup>/s Dec. 14, gage height, 7.61 ft; minimum discharge, 847 ft<sup>3</sup>/s Oct. 19.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1240	936	2250	3180	1510	1590	2490	2920	2670	1610	1600	1910
2	1050	920	2620	3660	1470	1520	2560	2990	2670	1580	1610	1880
3	955	919	2190	3690	1430	1440	2880	2980	2920	1580	1620	1890
4	958	914	1760	2710	1410	1390	3180	2910	3020	1590	1640	1880
5	954	911	3080	2270	1400	1360	3640	2800	3020	1590	1650	1880
6	945	911	3750	3650	1390	1390	3690	2740	2990	1560	1650	1980
7	945	912	2530	3470	1710	1710	3210	2670	2990	1560	1830	2060
8	953	910	1820	4090	3950	1630	3170	2450	3020	1550	1900	2030
9	953	912	1660	3600	2740	1440	3010	2370	3040	1520	1880	2000
10	905	914	1550	3180	2150	1400	3270	2350	3000	1510	1880	1980
11	916	909	1550	3780	1910	1390	3690	2240	2960	1510	1880	1970
12	916	953	1710	3550	1770	1540	3770	2140	2960	1520	1870	1950
13	878	941	2190	3350	1690	1600	3800	2230	2930	1550	1850	1860
14	874	930	9640	3050	1670	1670	4670	2320	2920	1600	1840	1740
15	885	940	3430	2860	1580	1660	6440	2290	2850	1580	1820	1650
16	888	1060	2460	2670	1530	1670	7060	2290	2760	1570	1830	1580
17	899	1040	4140	2510	1520	1830	6320	2240	2660	1560	1820	1530
18	900	981	3390	2250	1510	2060	5380	2240	2560	1550	1840	1470
19	889	965	3110	2010	1580	2060	4120	2360	2470	1570	1840	1360
20	898	979	3100	1720	3330	2490	2650	2380	2360	1570	1850	1220
21	883	1110	2410	2960	3270	2590	2450	2380	2260	1570	1880	1120
22	898	1410	1940	3030	2670	2710	2340	2370	2160	1580	1910	1000
23	917	1260	1710	2320	2760	2700	2230	2230	2110	1570	1910	960
24	929	1330	1540	2030	2540	3290	2190	2190	1990	1560	1900	952
25	934	1430	1430	1880	2250	3200	2480	2170	1870	1560	1900	930
26	924	1330	1360	3350	2010	3220	2420	2160	1760	1570	1900	927
27	922	1160	1340	3010	1830	3150	2450	2460	1690	1590	1890	937
28	921	1520	1560	2440	1700	2980	2340	2560	1620	1610	1880	939
29	924	2730	2030	2150	---	2590	2310	2550	1600	1600	1890	995
30	944	1670	2440	1830	---	2390	3360	2650	1610	1600	1910	1030
31	938	---	3800	1540	---	2390	---	2680	---	1600	1900	---
TOTAL	28935	33807	79490	87790	56280	64050	103570	76310	75440	48640	56570	45610
MEAN	933	1127	2564	2832	2010	2066	3452	2462	2515	1569	1825	1520
MAX	1240	2730	9640	4090	3950	3290	7060	2990	3040	1610	1910	2060
MIN	874	909	1340	1540	1390	1360	2190	2140	1600	1510	1600	927
AC-FT	57390	67060	157700	174100	111600	127000	205400	151400	149600	96480	112200	90470

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2002, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	1431	2352	4069	3868	3492	3397	3506	3436	2737	2224	2209	1848													
MAX	2110	6184	14680	13750	8461	6151	5596	5605	4426	3589	3115	2508													
(WY)	1984	1985	1997	1997	1996	1989	1983	1998	1993	1999	1984	1983													
MIN	932	1089	1512	1255	1095	1111	1125	1605	1555	1117	1744	1434													
(WY)	1995	1988	1990	2001	2001	1992	1992	1992	2001	1992	1994	1980													

## SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1978 - 2002
ANNUAL TOTAL	555102	756492	
ANNUAL MEAN	1521	2073	2879
HIGHEST ANNUAL MEAN			5098
LOWEST ANNUAL MEAN			1491
HIGHEST DAILY MEAN	9640	Dec 14	9640
LOWEST DAILY MEAN	874	Oct 14	874
ANNUAL SEVEN-DAY MINIMUM	888	Oct 13	888
ANNUAL RUNOFF (AC-FT)	1101000	1501000	2086000
10 PERCENT EXCEEDS	2420	3190	5050
50 PERCENT EXCEEDS	1280	1880	2210
90 PERCENT EXCEEDS	945	939	1290

14359000 ROGUE RIVER AT RAYGOLD, NEAR CENTRAL POINT, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1973 to current year.

INSTRUMENTATION.--Temperature recorder since August 1973.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, prior to operation of Lost Creek Dam, 22.0°C July 25, 26, 1976; minimum, 0.0°C Jan. 7, 1974. Maximum since full operation of Lost Creek Dam, 26.0°C July 26, 1996; minimum, 1.0°C Dec. 30, 1978, Jan. 30, 1980, Feb. 5, 6, 1989, Dec. 26, 1989, Dec. 21, 1990.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 19.8°C July 11, 12; minimum, 2.7°C Jan. 30.

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	12.8	11.8	12.3	9.7	9.2	9.4	7.5	6.8	7.2	7.6	7.2	7.4
2	13.2	12.2	12.7	9.7	8.7	9.1	7.0	6.3	6.6	8.0	7.5	7.7
3	13.2	12.3	12.8	9.1	7.9	8.5	7.0	6.5	6.8	7.7	6.6	6.9
4	12.9	12.0	12.6	8.5	7.5	7.9	6.8	6.1	6.4	6.6	5.7	6.0
5	12.7	11.9	12.4	8.3	7.8	8.0	6.4	5.5	6.0	6.9	5.8	6.2
6	12.4	11.6	12.1	9.1	8.2	8.5	6.5	5.7	6.1	8.0	6.9	7.4
7	12.1	10.5	11.2	8.4	6.2	7.3	6.3	5.7	6.0	8.0	7.6	7.8
8	10.6	10.0	10.3	6.8	6.0	6.3	6.2	5.7	5.9	8.4	7.8	8.0
9	10.4	9.3	9.7	6.7	5.9	6.4	6.2	5.6	5.9	8.0	6.7	7.3
10	9.6	8.8	9.3	7.5	6.4	6.9	6.0	4.8	5.2	6.7	5.7	6.1
11	10.6	9.6	10.2	9.5	7.5	8.5	5.7	5.0	5.3	6.2	5.4	5.8
12	10.5	9.4	9.9	9.9	9.0	9.4	5.9	5.6	5.7	6.6	5.5	6.0
13	10.6	9.5	10.1	9.0	8.1	8.5	6.3	5.8	5.9	6.3	5.2	5.7
14	11.0	10.0	10.5	9.4	8.2	8.7	6.3	5.6	5.9	5.9	5.1	5.5
15	10.8	9.9	10.3	9.2	8.3	8.6	5.8	5.3	5.6	5.4	4.3	4.9
16	10.8	10.2	10.4	9.1	8.5	8.8	6.8	5.8	6.2	5.0	3.7	4.3
17	10.9	9.7	10.2	9.0	8.2	8.5	6.8	6.3	6.6	5.2	4.3	4.7
18	10.0	8.5	9.2	8.5	7.1	7.7	6.4	5.7	5.9	5.6	4.7	5.1
19	9.3	8.0	8.7	8.9	7.7	8.3	6.0	5.3	5.8	5.4	4.6	5.0
20	10.1	8.7	9.4	8.9	7.7	8.2	6.3	5.9	6.1	5.2	4.7	5.0
21	10.1	9.2	9.6	8.2	7.6	7.8	6.3	5.8	6.1	5.2	4.6	5.0
22	10.0	9.4	9.7	8.8	8.0	8.4	6.3	5.2	5.7	5.0	4.0	4.5
23	9.8	8.6	9.2	8.4	7.6	7.8	6.2	5.8	6.0	5.6	4.5	5.0
24	8.6	7.1	7.8	8.1	7.0	7.5	5.8	4.4	4.9	5.3	4.1	4.6
25	8.2	6.8	7.4	7.1	6.4	6.7	5.7	4.6	5.0	5.4	4.4	4.8
26	8.7	7.3	7.9	7.1	6.7	6.9	6.0	5.4	5.6	5.5	5.0	5.2
27	8.6	7.9	8.2	7.0	6.0	6.4	6.3	5.6	5.9	5.0	4.2	4.7
28	8.8	8.2	8.5	6.4	5.7	5.9	6.5	5.7	6.1	4.8	3.5	4.2
29	8.9	8.5	8.7	6.7	5.6	6.1	7.4	6.3	6.7	4.3	2.9	3.6
30	9.3	8.6	9.0	7.2	6.4	6.8	7.1	6.4	6.7	4.0	2.7	3.4
31	9.3	8.8	9.0	--	--	--	7.6	6.8	7.2	3.9	2.9	3.4
MONTH	13.2	6.8	10.0	9.9	5.6	7.8	7.6	4.4	6.0	8.4	2.7	5.5





14361500 ROGUE RIVER AT GRANTS PASS, OR

LOCATION.--Lat 42°25'50", long 123°19'00", in NW 1/4 sec.20, T.36 S., R.5 W., Josephine County, Hydrologic Unit 17100308, on right bank at city of Grants Pass filter plant, 0.6 mi upstream from bridge on State Highway 99 at Grants Pass, and at mile 101.8. Prior to Sept. 3, 1983, at site 300 ft upstream.

DRAINAGE AREA.--2,459 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1938 to current year. Prior to January 1939 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WSP 1738: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 884.28 ft above NGVD of 1929. Prior to Aug. 8, 1957, at site 300 ft upstream at datum 4.00 ft higher and Aug. 8, 1957, to Sept. 2, 1983, at site 300 ft upstream at datum 1.00 ft higher.

REMARKS.--No estimated daily discharges. Records good. Flow regulated since February 1977 by Lost Creek Lake (station 14355040), slight regulation by Fish Lake and Emigrant Lake. Large fluctuations at times caused by Savage Rapids Dam 5.5 mi upstream from station. Many diversions from Rogue River and tributaries upstream from station, the largest of which is at Savage Rapids Dam of Grants Pass Irrigation District, 5.5 mi upstream from station. Continuous water-quality records for the period August 1973 to September 1987 have been collected at this location. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--39 years (water years 1939-77), 3,543 ft<sup>3</sup>/s, 2,566,000 acre-ft/yr.  
25 years (water years 1978-2002), 3,253 ft<sup>3</sup>/s, 2,357,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 152,000 ft<sup>3</sup>/s Dec. 23, 1964, gage height, 35.15 ft, present datum, from rating curve extended above 93,000 ft<sup>3</sup>/s; minimum discharge, 195 ft<sup>3</sup>/s Jan. 30, 1961; minimum daily, 606 ft<sup>3</sup>/s Sept. 10, 1968.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in December 1861 reached a stage of about 43 ft, present datum (information furnished by Corps of Engineers). Flood in February 1890 reached a stage of about 36 ft, present datum, and that of Feb. 21, 1927, about 32 ft, present datum, according to local resident.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 13,000 ft<sup>3</sup>/s Dec. 14, gage height, 7.43 ft; minimum discharge, 919 ft<sup>3</sup>/s Oct. 13, result of regulation at Savage Rapids Dam.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1320	1120	2320	4080	1730	1750	2540	3340	2700	1580	1560	1810
2	1240	1100	4180	4300	1670	1630	2610	2930	2680	1580	1560	1810
3	1110	1090	3000	4780	1600	1560	2930	3010	2890	1560	1580	1790
4	1110	1090	2330	3420	1570	1490	3280	2630	3130	1580	1590	1800
5	1150	1090	3440	2740	1550	1460	3750	2830	3130	1580	1610	1800
6	1120	1090	5450	5680	1530	1480	4040	2790	3120	1570	1590	1850
7	1120	1080	3680	5410	1880	1740	3400	2740	3130	1560	1660	1990
8	1120	1080	2350	6340	5680	1800	3410	2380	3150	1560	1850	1990
9	1230	1080	1950	5470	4090	1540	3140	2210	3210	1530	1820	1950
10	1450	1080	1820	4200	3020	1500	3300	2200	3180	1510	1810	1910
11	1080	1080	1760	4570	2480	1480	3890	2100	3130	1500	1820	1900
12	1070	1120	1890	4270	2200	1620	3940	1940	3100	1520	1810	1880
13	1020	1130	2170	3980	2020	1740	4040	1970	3090	1530	1770	1840
14	975	1110	10200	3560	1920	1830	4640	2150	3050	1580	1750	1710
15	1020	1120	5070	3290	1840	1830	6680	2090	3030	1600	1730	1620
16	1040	1230	3100	3000	1730	1830	7890	2090	2910	1570	1730	1540
17	1050	1240	5570	2780	1680	1950	7240	2080	2820	1570	1730	1500
18	1050	1180	4840	2480	1660	2210	6170	2000	2690	1550	1730	1460
19	1040	1140	4460	2180	1710	2170	4810	2210	2570	1560	1750	1400
20	1060	1170	4150	1830	3790	2640	2990	2300	2390	1570	1740	1300
21	1040	1240	3220	3040	4380	2830	2510	2280	2310	1570	1780	1220
22	1060	1620	2390	4200	3440	3000	2350	2270	2190	1570	1800	1170
23	1060	1600	2000	2880	3380	3020	2220	2150	2120	1570	1820	1090
24	1080	1460	1750	2380	3160	3520	2110	2070	2030	1550	1810	1040
25	1080	1700	1590	2250	2700	3580	2380	2020	1880	1550	1810	1040
26	1070	1570	1490	4620	2340	3610	2390	2020	1760	1550	1810	1050
27	1070	1380	1450	4310	2070	3460	2430	2230	1650	1570	1790	1050
28	1070	1500	1590	3280	1900	3290	2330	2500	1580	1580	1790	1060
29	1090	3800	2040	2710	---	2900	2280	2510	1570	1580	1780	1070
30	1120	2180	2870	2240	---	2470	3190	2590	1580	1570	1810	1100
31	1120	---	4370	1840	---	2450	---	2690	---	1570	1810	---
TOTAL	34235	40470	98490	112110	68720	69380	108880	73320	77770	48390	54000	45740
MEAN	1104	1349	3177	3616	2454	2238	3629	2365	2592	1561	1742	1525
MAX	1450	3800	10200	6340	5680	3610	7890	3340	3210	1600	1850	1990
MIN	975	1080	1450	1830	1530	1460	2110	1940	1570	1500	1560	1040
AC-FT	67910	80270	195400	222400	136300	137600	216000	145400	154300	95980	107100	90730

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2002, BY WATER YEAR (WY)

	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	1488	2682	4836	4838	4528	4097	4017	3697	2807	2160	2144	1806													
MAX	2282	7669	17620	16600	10960	8119	6843	6428	4572	3485	3080	2642													
(WY)	1984	1985	1997	1997	1983	1983	1998	1993	1999	1984	1983	1983													
MIN	1008	1160	1557	1348	1250	1099	1211	1857	1549	1059	1620	1333													
(WY)	1995	1988	1990	2001	2001	1992	1994	1992	1992	1992	1994	1980													

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1978 - 2002
ANNUAL TOTAL	623025	831505	
ANNUAL MEAN	1707	2278	3253
HIGHEST ANNUAL MEAN			5840
LOWEST ANNUAL MEAN			1538
HIGHEST DAILY MEAN	10200	Dec 14	69000
LOWEST DAILY MEAN	975	Oct 14	744
ANNUAL SEVEN-DAY MINIMUM	1030	Oct 13	799
ANNUAL RUNOFF (AC-FT)	1236000	1649000	2357000
10 PERCENT EXCEEDS	2800	3840	6050
50 PERCENT EXCEEDS	1390	1840	2260
90 PERCENT EXCEEDS	1120	1100	1310

## 14361900 APPLGATE LAKE NEAR COPPER, OR

LOCATION.--Lat 42°03'25", long 123°06'30", in SE 1/4 sec.25, T.40 S., R.4 W., Jackson County, Hydrologic Unit 17100309, in outlet structure of Applegate Dam on Applegate River, 2.5 mi northeast of former town of Copper, 13 mi south of Ruch, and at mile 46.3.

DRAINAGE AREA.--223 mi<sup>2</sup>.

PERIOD OF RECORD.--December 1980 to current year.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Reservoir is formed by earthfill dam completed in October 1980. Storage began Dec. 2, 1980. Total capacity, 82,200 acre-ft between elevations 1,763.0 ft and 1,987.0 ft, maximum pool elevation. Elevation of gated spillway crest, 1,943.7 ft. Usable contents, 75,200 acre-ft between elevations 1,854.0 ft and 1,987.0 ft. Water is used for flood control, recreation, pollution abatement, irrigation, and other purposes. U.S. Army Corps of Engineers satellite telemeter at station.

COOPERATION.--Capacity table furnished by Corps of Engineers.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 82,610 acre-ft May 11, 1997, elevation, 1,987.41 ft; minimum contents since first filling, 7,230 acre-ft Jan. 11, 1991, elevation, 1,855.1 ft, from graph of gage readings furnished by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 82,190 acre-ft May 2, 15, 16, 20, 21, 30, elevation, 1,986.99 ft; minimum observed contents, 11,730 acre-ft Nov. 15, 16, elevation, 1,872.98 ft.

ELEVATION, in FT (NGVD), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY OBSERVATION AT 2400 HOURS

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1887.72	1877.48	1889.43	1890.26	1891.18	1932.38	1959.30	1986.98	1986.92	1979.59	1967.41	1952.25
2	1887.48	1877.02	1890.93	1892.38	1892.10	1933.48	1960.50	1986.88	1986.87	1979.29	1966.94	1951.72
3	1887.24	1876.62	1891.75	1892.26	1892.93	1934.49	1962.04	1986.91	1986.76	1978.97	1966.47	1951.19
4	1887.00	1876.22	1891.78	1891.61	1893.68	1935.43	1963.92	1986.89	1986.63	1978.66	1966.02	1950.65
5	1886.74	1875.79	1891.88	1891.82	1894.40	1936.36	1965.94	1986.89	1986.48	1978.32	1965.55	1950.11
6	1886.48	1875.37	1892.90	1901.68	1895.13	1937.36	1967.70	1986.91	1986.32	1977.97	1965.10	1949.57
7	1886.22	1874.97	1893.08	1907.63	1897.72	1938.48	1969.16	1986.91	1986.09	1977.62	1964.63	1949.04
8	1885.97	1874.60	1892.72	1913.77	1900.52	1939.37	1970.45	1986.90	1985.82	1977.27	1964.16	1948.49
9	1885.72	1874.23	1892.12	1910.74	1902.42	1940.24	1971.60	1986.92	1985.51	1976.91	1963.68	1947.95
10	1885.46	1873.85	1891.78	1904.21	1903.98	1941.08	1972.10	1986.90	1985.18	1976.54	1963.22	1947.39
11	1885.24	1873.48	1891.73	1896.30	1905.32	1941.98	1972.83	1986.89	1984.83	1976.18	1962.74	1946.84
12	1885.04	1873.29	1891.46	1890.77	1906.50	1943.54	1973.64	1986.90	1984.47	1975.81	1962.27	1946.27
13	1884.80	1873.17	1892.76	1890.12	1907.62	1944.77	1974.56	1986.95	1984.09	1975.42	1961.80	1945.69
14	1884.56	1873.12	1894.60	1890.04	1908.67	1945.80	1975.36	1986.96	1983.69	1975.04	1961.32	1945.11
15	1884.32	1872.98	1891.34	1890.04	1909.67	1946.76	1975.80	1986.99	1983.27	1974.64	1960.84	1944.52
16	1884.07	1873.88	1889.59	1889.88	1910.62	1947.62	1976.56	1986.94	1982.92	1974.25	1960.35	1943.94
17	1883.80	1874.38	1890.60	1889.87	1911.56	1948.42	1977.34	1986.95	1982.65	1973.87	1959.85	1943.36
18	1883.55	1874.41	1890.20	1889.85	1912.45	1949.12	1978.10	1986.94	1982.51	1973.48	1959.36	1942.79
19	1883.30	1874.40	1890.08	1889.83	1913.62	1949.79	1978.90	1986.94	1982.37	1973.09	1958.87	1942.20
20	1883.04	1875.02	1890.03	1889.83	1916.68	1950.44	1979.76	1986.99	1982.19	1972.67	1958.37	1941.59
21	1882.79	1878.03	1889.64	1889.85	1919.77	1951.10	1980.55	1986.92	1982.01	1972.27	1957.87	1941.00
22	1882.54	1881.61	1889.65	1889.60	1922.69	1951.82	1981.35	1986.86	1981.85	1971.85	1957.36	1940.39
23	1882.16	1882.68	1889.62	1889.57	1925.64	1952.60	1982.16	1986.75	1981.65	1971.46	1956.86	1939.78
24	1881.64	1883.36	1889.72	1889.54	1927.20	1953.35	1982.71	1986.63	1981.44	1971.03	1956.35	1939.16
25	1881.10	1883.84	1889.74	1889.75	1928.10	1954.06	1983.32	1986.58	1981.21	1970.59	1955.85	1938.54
26	1880.57	1884.14	1889.69	1889.72	1928.81	1954.74	1984.08	1986.59	1980.97	1970.14	1955.35	1937.90
27	1880.02	1884.37	1889.80	1889.66	1929.74	1955.40	1984.81	1986.63	1980.72	1969.69	1954.85	1937.28
28	1879.47	1885.97	1890.06	1889.63	1931.13	1956.06	1985.53	1986.79	1980.44	1969.23	1954.34	1936.65
29	1878.93	1887.27	1890.12	1889.43	---	1956.76	1986.28	1986.97	1980.17	1968.78	1953.83	1936.02
30	1878.41	1887.90	1890.22	1889.33	---	1957.54	1986.92	1986.95	1979.89	1968.32	1953.31	1935.37
31	1877.99	---	1890.21	1890.19	---	1958.36	---	1986.95	---	1967.87	1952.77	---
MAX	1887.72	1887.90	1894.60	1913.77	1931.13	1958.36	1986.92	1986.99	1986.92	1979.59	1967.41	1952.25
MIN	1877.99	1872.98	1889.43	1889.33	1891.18	1932.38	1959.30	1986.58	1979.89	1967.87	1952.77	1935.37
(†)	13240	16600	17450	17450	37340	56700	82130	82160	75370	64590	52330	40010
(‡)	-3390	+3360	+850	0	+19890	+19360	+25430	+30	-6780	-10780	-12260	-12320

CAL YR 2001 MAX --- MIN --- AC-FT† +6870  
WTR YR 2002 MAX 1986.99 MIN 1872.98 AC-FT† +23390

† Contents, in acre-feet, at 2400, on last day of month.  
‡ Change in contents, in acre-feet.

14362000 APPLGATE RIVER NEAR COPPER, OR

LOCATION.--Lat 42°03'50", long 123°06'37", in SW 1/4 NW 1/4 sec.30, T.40 S., R.3 W., Jackson County, Hydrologic Unit 17100309, U.S. Corps of Engineers land, on left bank 0.1 mi downstream from Brushy Gulch, 0.6 mi downstream from Applegate Dam, 3.1 mi northeast of former town of Copper, and at mile 45.7.

DRAINAGE AREA.--225 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year. Prior to January 1939 monthly discharge only, published in WSP 1318.

REVISED RECORDS.--WDR OR-78-1: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,747.51 ft above NGVD of 1929. Prior to Oct. 1, 1977, at site 0.6 mi upstream at datum 12.15 ft higher.

REMARKS.--Records good. Flow regulated since December 1980 by Applegate Lake (station 14361900). Some storage during winter in Squaw Lakes Reservoir, capacity, 1,100 acre-ft on Squaw Creek upstream from station. Diversions upstream from station from Carberry Creek for irrigation in Thompson Creek basin. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--43 years (water years 1939-81), 438 ft<sup>3</sup>/s, 317,300 acre-ft/yr.  
21 years (water years 1982-2002), 428 ft<sup>3</sup>/s, 310,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 29,800 ft<sup>3</sup>/s Jan. 15, 1974, gage height, 25.38 ft, site and datum then in use, from high-water mark in well, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of four slope-area measurements of peak flows made in 1950, 1955, 1964, and 1974; minimum discharge, 1.5 ft<sup>3</sup>/s Dec. 20, 1980, result of regulation at Applegate dam, 0.6 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,200 ft<sup>3</sup>/s Jan. 10, gage height, 6.11 ft; minimum discharge, 61 ft<sup>3</sup>/s Oct. 17, 18.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	65	110	72	785	104	101	102	513	431	243	242	240
2	65	103	72	1190	103	101	102	613	411	239	242	239
3	65	89	134	1220	104	99	101	544	400	238	242	239
4	65	90	203	953	104	99	101	544	401	238	242	239
5	66	92	234	698	103	99	102	544	401	240	242	239
6	66	91	361	860	103	99	100	523	400	241	242	239
7	65	87	362	1150	104	100	106	507	399	241	241	239
8	65	80	361	1330	102	100	159	468	399	241	241	241
9	65	80	360	2750	103	100	373	438	398	240	241	240
10	65	80	272	3090	101	101	753	438	399	241	241	240
11	65	80	200	2980	102	101	608	408	398	240	240	239
12	65	80	226	2100	103	101	554	407	398	240	240	238
13	65	79	347	879	104	101	598	438	398	242	239	240
14	65	80	872	668	103	102	1330	466	397	241	239	240
15	65	81	1210	598	102	102	882	464	396	241	239	240
16	65	78	872	555	102	99	457	464	351	241	238	240
17	69	69	967	485	101	100	318	452	301	240	238	240
18	64	69	800	450	100	100	229	480	249	240	238	241
19	64	71	637	412	101	100	164	435	241	240	238	242
20	65	71	597	393	101	101	101	437	240	240	239	241
21	65	72	536	438	103	101	101	449	241	240	241	240
22	65	73	408	417	111	101	101	404	241	241	242	239
23	90	74	356	349	193	101	105	404	240	242	241	239
24	110	72	281	328	358	102	234	404	240	242	240	239
25	111	71	281	337	423	100	228	405	240	242	240	240
26	111	71	270	474	394	99	172	405	240	242	239	239
27	110	71	264	409	281	100	156	406	240	242	239	239
28	109	72	375	365	101	101	102	406	240	242	239	238
29	110	70	463	366	---	101	103	454	240	243	241	240
30	111	70	494	323	---	101	313	509	240	243	241	241
31	110	---	917	127	---	102	---	440	---	242	240	---
TOTAL	2406	2376	13804	27479	4014	3115	8855	14269	9810	7468	7447	7190
MEAN	77.6	79.2	445	886	143	100	295	460	327	241	240	240
MAX	111	110	1210	3090	423	102	1330	613	431	243	242	242
MIN	64	69	72	127	100	99	100	404	240	238	238	238
AC-FT	4770	4710	27380	54500	7960	6180	17560	28300	19460	14810	14770	14260

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2002, BY WATER YEAR (WY)

	328	378	539	669	548	514	418	617	399	234	224	271
MEAN	328	378	539	669	548	514	418	617	399	234	224	271
MAX	506	1033	2374	3542	1685	1481	909	1416	1026	376	389	435
(WY)	1984	1985	1982	1997	1983	1998	1982	1983	1983	1999	1999	1983
MIN	77.6	79.2	121	115	112	100	118	134	69.0	58.1	65.7	65.4
(WY)	2002	2002	1995	1991	2001	2002	1994	2001	2001	2001	2001	2001

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1982 - 2002

ANNUAL TOTAL	44231	108233	
ANNUAL MEAN	121	297	428
HIGHEST ANNUAL MEAN			829
LOWEST ANNUAL MEAN			127
HIGHEST DAILY MEAN	1210	Dec 15	3090
LOWEST DAILY MEAN	51	Jul 1	64
ANNUAL SEVEN-DAY MINIMUM	55	Jul 1	65
ANNUAL RUNOFF (AC-FT)	87730		214700
10 PERCENT EXCEEDS	144		517
50 PERCENT EXCEEDS	99		240
90 PERCENT EXCEEDS	65		73
			310000
			869
			260
			119
			15500
			51
			55
			1997
			2001
			2001

14362000 APPLGATE RIVER NEAR COPPER, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1973 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: September 1980 to September 1987.

pH: September 1980 to September 1987.

WATER TEMPERATURE: January 1977 to current year.

DISSOLVED OXYGEN: September 1980 to September 1987.

INSTRUMENTATION.--Water-quality monitor since September 1980.

REMARKS.--Record good. Temperatures are affected by releases from Applegate Lake.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 188 microsiemens Sept. 13, 1980; minimum, 61 microsiemens Dec. 3, 1980, Dec. 20, 1981, June 19, 20, 1983.

pH: Maximum, 9.0 units Sept. 4, 1980; minimum recorded, 7.1 units Oct. 8-10, 13, 16, 17, 1986.

WATER TEMPERATURE: Maximum, 26.5°C Aug. 7, 1978; minimum, 0.0°C on many days during winter periods prior to filling of Applegate Lake.

DISSOLVED OXYGEN: Maximum, 15.2 mg/L Feb. 17, 18, 1986; minimum, 4.9 mg/L Sept. 28-30, 1981.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 20.3°C Oct. 1; minimum, 3.9°C Jan. 31, Feb. 11-16.

WATER TEMPERATURE FROM THE DCP, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	20.3	17.6	18.4	14.4	13.5	13.8	8.6	7.8	8.2	5.7	5.1	5.5
2	20.0	17.4	18.3	14.4	13.2	13.6	7.9	7.3	7.7	5.9	5.7	5.8
3	19.8	17.4	18.1	14.5	13.0	13.4	7.7	6.4	7.2	6.0	5.8	5.9
4	19.9	17.3	18.1	14.3	12.8	13.2	7.3	7.0	7.1	6.0	5.9	5.9
5	19.6	17.3	18.0	13.1	12.8	12.9	7.5	6.3	7.1	6.1	5.9	6.0
6	19.4	17.3	17.9	13.4	12.3	12.7	6.6	6.3	6.4	5.9	5.7	5.8
7	18.9	17.1	17.7	13.5	12.0	12.4	6.5	6.2	6.3	6.3	5.8	6.0
8	19.2	17.0	17.6	13.3	11.7	12.2	6.4	6.1	6.3	6.1	6.0	6.0
9	18.8	16.7	17.3	13.1	11.6	12.1	6.1	5.9	6.0	6.2	6.0	6.2
10	18.5	16.4	17.1	12.7	11.6	12.0	6.0	5.8	5.9	6.4	6.2	6.3
11	17.7	16.3	16.9	12.5	11.7	12.1	6.1	5.8	5.9	6.4	6.2	6.3
12	18.5	16.0	16.7	12.0	11.7	11.8	6.0	5.8	5.9	6.2	6.0	6.1
13	18.3	15.9	16.6	12.3	11.6	11.8	6.4	5.8	6.1	6.0	5.9	5.9
14	18.2	15.7	16.4	12.4	11.7	11.9	6.4	6.2	6.3	6.0	5.5	5.8
15	18.0	15.6	16.4	12.0	11.6	11.8	6.4	6.1	6.2	5.5	5.2	5.3
16	16.7	15.9	16.1	11.8	11.3	11.6	6.5	6.1	6.3	5.3	5.1	5.2
17	16.6	15.4	15.9	12.2	10.8	11.3	6.4	6.0	6.2	5.2	4.8	5.0
18	17.0	15.1	15.7	11.7	10.7	11.0	6.3	5.9	6.1	4.8	4.5	4.7
19	17.2	14.9	15.6	11.7	10.7	11.1	6.1	5.9	6.0	4.7	4.5	4.6
20	16.9	14.9	15.5	11.3	10.8	10.9	6.1	5.8	5.9	5.2	4.4	4.8
21	16.9	14.8	15.3	10.8	10.4	10.6	5.9	5.7	5.8	5.1	4.7	4.8
22	15.8	14.9	15.2	10.7	9.2	10.1	6.0	5.7	5.9	4.9	4.6	4.8
23	15.9	14.7	15.0	9.5	9.0	9.2	5.8	5.5	5.7	4.8	4.5	4.6
24	15.5	14.4	14.7	9.0	8.4	8.8	5.5	5.2	5.4	4.6	4.4	4.5
25	15.5	14.1	14.5	9.1	8.5	8.7	5.4	5.1	5.2	5.1	4.5	4.9
26	15.3	13.9	14.3	9.0	8.2	8.6	5.1	5.0	5.0	5.0	4.5	4.8
27	14.6	13.9	14.1	8.8	8.2	8.4	5.1	4.9	5.0	4.7	4.5	4.6
28	14.8	13.8	14.0	8.7	8.0	8.4	5.1	4.8	5.0	4.7	4.4	4.5
29	14.5	13.8	13.9	8.9	8.0	8.4	5.2	5.0	5.1	4.5	4.3	4.4
30	14.4	13.7	13.9	8.4	7.8	8.0	5.4	5.2	5.2	4.5	4.2	4.3
31	14.6	13.7	13.9	---	---	---	5.5	5.3	5.4	4.5	3.9	4.2
MONTH	20.3	13.7	16.1	14.5	7.8	11.1	8.6	4.8	6.1	6.4	3.9	5.3



14362250 STAR GULCH NEAR RUCH, OR

LOCATION.--Lat 42°09'15", long 123°04'27", in NE 1/4 NE 1/4 sec.29, T.39 S., R.3 W., Jackson County, Hydrologic Unit 17100309, Bureau of Land Management land, on left bank 1.0 mi downstream from Benson Gulch, 6.0 mi southwest of Ruch, and at mile 1.1.

DRAINAGE AREA.--16.0 mi<sup>2</sup>.

PERIOD OF RECORD.--July 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,667.04 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records fair.

AVERAGE DISCHARGE.--19 years (water years 1984-2002), 5.05 ft<sup>3</sup>/s, 3,660 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 1,050 ft<sup>3</sup>/s Jan. 1, 1997, gage height, 5.43 ft; no flow at times most years.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 40 ft<sup>3</sup>/s and maximum (\*):

Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)	Date	Time	Discharge (ft <sup>3</sup> /s)	Gage height (ft)
Dec. 14	0130	*65	*2.24	No other peak greater than base discharge.			
Minimum discharge, no flow ft <sup>3</sup> /s many days in October, July, August, and September.							

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	0.12	0.90	7.2	7.8	4.4	3.7	3.1	3.6	0.98	0.15	0.00	0.00
2	0.0	0.89	8.2	8.2	4.2	3.6	3.0	3.1	0.97	0.11	0.00	0.00
3	0.00	0.89	8.8	8.3	3.9	3.3	2.8	2.8	0.95	0.06	0.00	0.00
4	0.00	0.89	5.4	7.2	3.7	3.2	2.8	2.5	0.91	0.05	0.00	0.00
5	0.00	0.92	5.4	6.4	3.6	3.2	2.6	2.4	0.89	0.05	0.00	0.00
6	0.00	0.97	7.6	15	3.4	3.2	2.6	2.3	0.84	0.02	0.00	0.00
7	0.00	1.0	5.5	24	8.3	3.3	2.6	2.2	0.83	0.00	0.00	0.00
8	0.00	1.1	3.8	19	29	3.1	2.5	2.2	0.85	0.00	0.00	0.00
9	0.05	1.1	3.0	18	21	3.1	2.5	2.1	0.89	0.00	0.00	0.00
10	0.17	1.1	2.6	14	15	3.2	2.4	2.0	0.85	0.00	0.00	0.00
11	0.28	1.1	2.4	10	11	3.2	2.3	1.9	0.77	0.00	0.00	0.00
12	0.37	1.4	2.1	8.0	9.2	3.3	2.3	1.9	0.67	0.00	0.00	0.00
13	0.40	1.4	6.3	6.6	7.9	3.5	2.2	1.8	0.59	0.00	0.00	0.00
14	0.41	1.3	38	5.7	6.8	3.6	2.3	1.7	0.50	0.00	0.00	0.00
15	0.40	1.2	13	5.1	6.0	3.6	2.4	1.7	0.45	0.00	0.00	0.00
16	0.36	2.1	7.6	4.5	5.5	3.7	2.4	1.6	0.42	0.00	0.00	0.00
17	0.32	2.1	24	4.2	5.2	3.6	2.3	1.6	0.46	0.00	0.00	0.00
18	0.35	1.5	17	3.8	4.8	3.5	2.3	1.6	0.59	0.00	0.00	0.00
19	0.41	1.4	15	3.8	4.6	3.4	2.2	1.6	0.54	0.00	0.00	0.00
20	0.44	1.6	13	3.6	5.2	3.7	2.2	1.8	0.47	0.00	0.00	0.00
21	0.46	2.7	9.7	5.0	5.4	4.1	2.2	1.8	0.39	0.00	0.00	0.00
22	0.45	4.4	7.8	6.0	5.5	4.5	2.1	1.7	0.36	0.00	0.00	0.00
23	0.51	2.3	6.4	5.5	5.5	4.8	2.0	1.6	0.32	0.00	0.00	0.00
24	0.58	2.0	5.5	5.0	4.9	4.7	1.9	1.4	0.30	0.00	0.00	0.00
25	0.67	2.5	4.9	5.1	4.5	4.5	1.9	1.4	0.26	0.00	0.00	0.00
26	0.74	2.2	4.4	6.4	4.3	4.3	1.9	1.4	0.18	0.00	0.00	0.00
27	0.75	1.7	4.1	6.7	4.1	4.1	2.1	1.3	0.11	0.00	0.00	0.00
28	0.76	6.1	4.2	6.2	3.8	3.8	2.0	1.3	0.09	0.00	0.00	0.00
29	0.80	6.6	6.0	5.5	---	3.6	1.9	1.2	0.11	0.00	0.00	0.00
30	0.87	3.6	7.1	4.9	---	3.3	4.1	1.1	0.16	0.00	0.00	0.00
31	0.90	---	7.8	4.6	---	3.2	---	1.0	---	0.00	0.00	---
TOTAL	11.57	58.96	263.8	244.1	200.7	112.9	71.9	57.6	16.70	0.44	0.00	0.00
MEAN	0.373	1.965	8.510	7.874	7.168	3.642	2.397	1.858	0.557	0.014	0.000	0.000
MAX	0.90	6.6	38	24	29	4.8	4.1	3.6	0.98	0.15	0.00	0.00
MIN	0.00	0.89	2.1	3.6	3.4	3.1	1.9	1.0	0.09	0.00	0.00	0.00
AC-FT	23	117	523	484	398	224	143	114	33	0.9	0.00	0.00

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2002, BY WATER YEAR (WY)

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
MEAN	0.837	3.117	7.849	12.21	12.35	11.07	6.618	3.353	1.846	0.871	0.457	0.406							
MAX	1.98	18.0	50.7	75.3	49.3	34.0	19.6	9.08	6.07	3.11	1.61	1.09							
(WY)	1984	1985	1997	1997	1999	1999	1995	1998	1998	1998	1998	1998							
MIN	0.021	0.23	0.87	1.13	1.30	0.95	1.00	0.22	0.012	0.000	0.000	0.000							
(WY)	1993	1993	1990	1992	2001	1992	1994	1992	1994	1994	1988	1991							

SUMMARY STATISTICS

	FOR 2001 CALENDAR YEAR	FOR 2002 WATER YEAR	WATER YEARS 1984 - 2002
ANNUAL TOTAL	506.39	1038.67	
ANNUAL MEAN	1.387	2.846	5.050
HIGHEST ANNUAL MEAN			15.1
LOWEST ANNUAL MEAN			0.60
HIGHEST DAILY MEAN	38	Dec 14	621
LOWEST DAILY MEAN	0.00	Jun 21	0.00
ANNUAL SEVEN-DAY MINIMUM	0.00	Jul 4	0.00
ANNUAL RUNOFF (AC-FT)	1000		3660
10 PERCENT EXCEEDS	2.3		12
50 PERCENT EXCEEDS	0.84		1.5
90 PERCENT EXCEEDS	0.00		0.05

14366000 APPLGATE RIVER NEAR APPLGATE, OR

LOCATION.--Lat 42°14'30", long 123°08'20", in NE 1/4 sec.26, T.38 S., R.4 W., Jackson County, Hydrologic Unit 17100309, on left bank 0.9 mi downstream from Keeler Creek, 1.8 mi southeast of Applegate, and at mile 26.7.

DRAINAGE AREA.--483 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to current year.

RECORDS.--WSP 1738: Drainage area. WSP 1935: 1953(M). WDR OR-76-1: 1956(M), 1965(M).

GAGE.--Water-stage recorder. Datum of gage is 1,285.33 ft above NGVD of 1929. Prior to Dec. 23, 1938, nonrecording gage at same site and datum.

REMARKS.--Records good. Flow regulated since December 1980 by Applegate Lake (station 14361900). Many diversions for irrigation upstream from station. McDonald Creek Canal diverts from McDonald Creek upstream from station for irrigation in Bear Creek basin. Thompson Creek Irrigation Association ditch diverts upstream from station for irrigation in Thompson Creek basin. Fowler-Keeler and Berryman ditches divert upstream from station for irrigation downstream. U.S. Army Corps of Engineers satellite telemeter at station.

AVERAGE DISCHARGE.--42 years (water years 1939-80), 548 ft<sup>3</sup>/s, 397,000 acre-ft/yr.  
22 years (water years 1981-2002), 517 ft<sup>3</sup>/s, 374,900 acre-ft/yr, regulated.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,200 ft<sup>3</sup>/s Jan. 15, 1974, gage height, 20.41 ft, from rating curve extended above 18,000 ft<sup>3</sup>/s on basis of slope-area measurements of flow at gage heights 18.00 ft and 19.57 ft; minimum discharge, 4.6 ft<sup>3</sup>/s Sept. 22-25, 1979. Minimum since first filling of Applegate Lake, 22 ft<sup>3</sup>/s July 24, 2001.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Feb. 20, 1927, reached a stage of 18.7 ft, from floodmarks.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,260 ft<sup>3</sup>/s Jan. 9, gage height, 5.29 ft; minimum discharge, 42 ft<sup>3</sup>/s Oct. 2.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	45	127	e240	945	182	183	171	657	525	240	210	214
2	44	126	e340	1380	174	178	177	729	513	237	211	211
3	47	106	e340	1440	172	174	182	673	480	235	209	211
4	48	102	285	1190	169	171	189	664	472	236	211	210
5	49	106	298	848	167	168	205	662	469	238	211	213
6	50	106	451	1010	165	169	201	644	463	236	214	212
7	51	106	450	1410	191	175	195	624	457	236	213	214
8	50	97	431	1580	308	167	253	569	448	233	213	218
9	49	96	427	2730	261	167	343	542	441	226	212	215
10	47	97	377	3140	238	167	884	530	432	228	213	215
11	51	97	255	3030	223	166	755	496	426	230	214	215
12	58	103	261	2440	212	171	697	480	421	223	210	216
13	56	105	349	1100	206	170	686	507	419	222	209	218
14	55	99	1120	835	200	168	1400	555	417	227	206	219
15	56	97	1370	721	193	168	1260	547	416	223	207	220
16	58	113	1110	684	188	169	638	556	388	226	208	221
17	60	106	1140	605	185	167	457	536	343	219	207	223
18	59	93	1030	544	181	164	357	573	290	216	206	223
19	57	91	830	513	182	166	290	525	268	218	206	224
20	56	98	765	470	203	167	176	518	260	219	207	223
21	57	116	706	532	213	173	171	559	256	219	211	224
22	60	145	541	543	216	181	173	490	261	220	212	220
23	69	114	475	446	296	186	172	481	256	215	213	220
24	107	112	388	423	428	194	224	476	253	208	212	220
25	103	e110	372	407	528	188	376	474	248	211	212	221
26	99	e110	360	565	525	181	200	477	242	211	209	222
27	102	e110	337	516	418	177	252	478	234	211	210	223
28	104	e200	429	456	212	176	158	491	237	211	210	223
29	105	e350	558	442	---	175	159	530	238	208	210	225
30	114	e200	602	413	---	174	363	633	238	209	216	226
31	125	---	984	269	---	171	---	535	---	210	215	---
TOTAL	2091	3638	17621	31627	6836	5371	11764	17211	10811	6901	6527	6559
MEAN	67.5	121	568	1020	244	173	392	555	360	223	211	219
MAX	125	350	1370	3140	528	194	1400	729	525	240	216	226
MIN	44	91	240	269	165	164	158	474	234	208	206	210
AC-FT	4150	7220	34950	62730	13560	10650	23330	34140	21440	13690	12950	13010

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2002, BY WATER YEAR (WY)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	
MEAN	318	418	707	862	778	707	566	735	453	227	200	251											
MAX	507	1261	3077	4904	2552	1892	1304	1705	1237	441	413	425											
(WY)	1983	1985	1982	1997	1983	1995	1982	1983	1983	1998	1999	1983											
MIN	51.6	97.8	149	133	141	142	139	155	48.2	35.2	36.9	43.7											
(WY)	1981	1981	1995	2001	2001	1992	1992	2001	2001	2001	2001	2001											

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1981 - 2002

ANNUAL TOTAL	52228	126957	
ANNUAL MEAN	143	348	517
HIGHEST ANNUAL MEAN			1072
LOWEST ANNUAL MEAN			139
HIGHEST DAILY MEAN	1370	3140	24400
LOWEST DAILY MEAN	27	44	17
ANNUAL SEVEN-DAY MINIMUM	31	48	21
ANNUAL RUNOFF (AC-FT)	103600	251800	374900
10 PERCENT EXCEEDS	221	649	1120
50 PERCENT EXCEEDS	125	219	273
90 PERCENT EXCEEDS	36	103	136

e Estimated

14366000 APPLEGATE RIVER NEAR APPLEGATE, OR--Continued

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: August 1973 to current year.

INSTRUMENTATION.--Temperature recorder since August 1973.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 28.0°C July 29, 30, Aug. 3, 4, 1974; minimum, 0.0°C on several days during winter periods most years. Maximum since full operation of Applegate Lake, 25.5°C July 5, 1984, July 16, 19, 27, 1992; minimum, 0.0°C on several days during winter periods most years.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 23.9°C July 11; minimum, 2.2°C Jan. 30.

DAY	WATER TEMPERATURE FROM THE DCP, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002											
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	18.9	15.1	17.1	13.5	11.5	12.6	---	---	---	6.6	5.9	6.2
2	18.9	15.6	17.4	13.5	11.4	12.4	---	---	---	7.1	5.8	6.4
3	18.3	15.1	16.9	12.3	9.8	11.2	---	---	---	6.5	5.6	5.9
4	18.1	14.8	16.6	11.6	8.8	10.4	6.9	5.8	6.4	6.5	5.5	5.9
5	17.4	14.4	16.1	11.1	9.9	10.5	7.6	6.6	7.1	7.1	5.7	6.4
6	17.0	14.6	15.9	12.0	10.1	11.1	7.6	6.6	7.4	7.5	6.6	6.9
7	15.9	13.4	14.9	10.1	7.5	8.9	6.8	5.2	6.1	7.3	6.5	6.9
8	16.4	14.2	15.3	9.4	6.5	8.1	6.8	5.2	6.1	7.3	6.6	6.9
9	15.2	12.5	14.0	9.5	6.7	8.2	6.8	5.4	6.3	6.9	6.3	6.6
10	14.5	11.7	13.2	10.2	7.3	8.8	6.2	4.9	5.6	6.9	6.1	6.5
11	15.8	14.2	14.9	11.9	9.4	10.6	6.6	5.5	6.1	6.8	6.3	6.5
12	15.0	12.1	13.7	11.5	10.9	11.1	6.5	5.9	6.2	7.0	5.7	6.4
13	15.3	12.2	13.9	11.0	9.9	10.5	7.1	6.1	6.6	6.5	5.3	5.8
14	15.1	12.2	13.8	12.3	10.8	11.4	7.0	6.1	6.4	6.2	5.3	5.7
15	15.1	12.4	13.9	11.7	10.4	11.1	6.8	6.1	6.4	6.0	4.5	5.2
16	15.1	13.6	14.4	11.8	11.1	11.6	7.4	6.2	6.8	5.2	3.6	4.4
17	14.8	12.9	13.9	11.2	9.6	10.7	7.2	6.1	6.7	5.9	4.3	4.8
18	13.5	10.9	12.3	10.1	8.1	9.2	6.7	5.8	6.2	5.5	3.6	4.5
19	13.5	10.5	12.1	11.5	9.8	10.5	7.2	6.3	6.6	5.1	3.9	4.4
20	14.1	11.6	13.0	10.4	9.2	9.6	6.5	6.0	6.3	5.9	4.0	4.9
21	13.7	11.6	12.9	9.5	9.1	9.3	6.5	5.5	6.0	5.6	4.7	5.3
22	14.1	12.6	13.4	9.5	8.9	9.3	7.0	5.1	5.9	5.5	4.0	4.7
23	13.8	12.7	13.3	8.9	7.6	8.2	6.5	5.3	5.8	6.2	4.1	4.9
24	12.7	10.1	11.4	8.1	6.2	7.2	5.7	4.2	5.1	5.2	3.4	4.3
25	12.4	9.2	10.7	7.5	6.1	6.7	6.1	4.3	5.2	6.1	4.2	5.2
26	13.1	9.8	11.4	---	---	---	6.3	5.1	5.7	5.8	4.4	5.2
27	12.6	10.6	11.7	---	---	---	6.7	5.4	6.0	5.0	3.4	4.2
28	13.4	11.7	12.5	---	---	---	6.3	4.9	5.7	4.9	3.0	3.9
29	13.4	11.6	12.6	---	---	---	6.9	5.8	6.2	5.1	3.1	3.9
30	13.9	12.7	13.2	---	---	---	6.3	5.7	6.1	4.6	2.2	3.4
31	14.1	12.2	13.1	---	---	---	6.6	5.8	6.1	4.3	2.3	3.4
MONTH	18.9	9.2	13.9	---	---	---	---	---	---	7.5	2.2	5.3



14366000 APPLEGATE RIVER NEAR APPLEGATE, OR--Continued

WATER TEMPERATURE FROM THE DCP, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.9	3.6	4.4	7.1	2.9	4.9	13.2	7.1	10.0	12.3	7.7	9.7
2	5.4	3.5	4.2	7.5	2.8	5.0	14.4	8.1	11.0	13.2	7.9	10.2
3	6.7	3.7	4.8	8.2	3.4	5.6	14.7	8.6	11.5	12.9	8.0	10.1
4	5.9	2.9	4.3	8.9	4.2	6.3	14.9	8.9	11.7	13.2	7.2	10.0
5	5.2	2.6	3.8	6.6	4.8	5.7	12.3	9.6	11.0	13.3	7.6	10.3
6	5.8	3.3	4.6	8.2	5.4	6.8	12.3	9.3	10.7	12.8	8.1	10.3
7	6.2	5.2	5.7	7.6	5.4	6.5	14.0	7.7	10.6	12.6	7.4	9.8
8	6.4	4.2	5.0	8.0	4.0	5.7	12.2	8.0	10.2	13.1	6.7	9.8
9	6.1	3.2	4.5	7.0	4.3	5.5	11.3	8.5	10.2	13.4	7.4	10.2
10	6.8	3.5	5.0	8.0	4.3	6.1	10.6	7.1	8.5	12.5	8.0	10.0
11	6.8	4.2	5.3	10.1	6.4	8.1	10.6	7.6	8.9	14.3	7.4	10.8
12	7.2	3.8	5.3	8.9	6.6	7.9	11.1	6.8	8.9	15.2	8.4	11.8
13	8.1	5.2	6.3	7.5	5.4	6.4	9.8	7.4	8.6	13.7	9.9	11.6
14	7.1	3.9	5.5	8.2	4.9	6.4	8.7	6.1	7.6	14.5	8.4	11.3
15	6.8	3.6	5.2	8.1	5.5	6.6	8.4	5.8	7.0	14.1	8.5	11.3
16	7.9	5.0	6.2	7.5	4.9	6.0	8.6	6.0	7.3	15.3	8.5	11.7
17	6.9	5.3	6.0	7.2	4.7	5.8	9.3	5.9	7.5	15.8	10.0	12.8
18	7.3	5.3	6.3	7.9	3.8	6.0	9.8	6.2	7.8	13.8	10.0	11.8
19	7.2	6.0	6.6	10.3	5.2	7.6	11.6	6.0	8.8	12.4	10.1	11.1
20	8.5	6.4	7.3	10.4	6.0	8.1	13.1	7.2	10.1	12.6	10.0	11.3
21	8.8	6.8	7.7	11.1	6.3	8.6	14.0	7.6	10.7	13.0	9.9	11.2
22	9.6	6.6	7.9	8.8	6.6	7.8	15.0	8.5	11.6	15.0	9.6	12.1
23	8.2	6.7	7.5	9.4	7.1	8.1	15.4	9.3	12.2	16.0	9.0	12.5
24	8.2	5.8	6.7	11.4	6.7	8.8	14.8	8.6	11.7	17.0	9.7	13.4
25	7.1	3.5	5.3	10.8	6.3	8.4	14.1	8.1	11.3	16.1	11.0	13.6
26	7.5	3.8	5.5	11.4	5.8	8.4	14.1	9.5	11.5	16.7	11.1	13.9
27	7.6	3.6	5.6	12.3	6.9	9.3	11.5	8.8	10.3	13.9	11.8	13.0
28	7.4	3.7	5.5	12.0	6.6	9.2	13.6	8.0	10.6	15.2	12.2	13.7
29	---	---	---	12.6	6.9	9.5	13.2	8.6	10.8	17.5	13.2	15.1
30	---	---	---	12.6	6.8	9.5	10.6	8.2	9.1	16.8	12.4	14.5
31	---	---	---	12.9	6.8	9.7	---	---	---	17.0	11.3	14.2
MONTH	9.6	2.6	5.6	12.9	2.8	7.2	15.4	5.8	9.9	17.5	6.7	11.7
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	17.5	11.9	14.5	21.8	15.6	18.8	19.9	15.6	17.8	19.7	14.7	17.2
2	17.9	11.7	14.7	21.9	15.2	18.6	19.4	15.5	17.4	20.3	15.4	17.8
3	17.4	11.2	14.2	21.4	16.1	18.7	18.4	14.4	16.5	19.7	15.6	17.7
4	18.7	11.8	15.2	21.0	15.2	18.1	18.6	14.8	16.3	18.0	14.3	16.2
5	19.3	12.7	16.0	21.6	15.1	18.3	17.2	13.9	15.6	18.0	13.3	15.6
6	18.3	12.7	15.4	21.9	16.0	19.0	20.0	14.1	16.8	16.7	13.8	15.2
7	17.0	11.4	14.2	21.1	16.6	18.7	19.6	14.2	16.9	17.9	12.9	15.1
8	14.7	10.6	12.8	21.8	15.6	18.6	19.7	14.5	17.1	17.6	13.0	15.3
9	17.1	10.9	13.6	22.6	15.3	18.9	20.8	15.2	17.9	18.4	13.4	15.9
10	18.3	11.2	14.8	23.5	17.0	20.2	20.5	15.8	18.2	18.9	14.0	16.4
11	19.4	12.2	15.8	23.9	17.9	20.9	20.9	15.9	18.3	19.3	14.5	16.9
12	19.8	12.9	16.3	22.7	17.9	20.4	21.3	15.6	18.5	19.5	14.9	17.2
13	19.7	13.3	16.6	23.8	18.2	20.8	21.8	16.3	19.0	19.7	15.2	17.5
14	19.3	12.7	16.1	21.5	17.1	19.4	22.1	16.8	19.4	17.6	14.8	16.4
15	19.6	12.7	16.1	22.3	16.5	19.3	21.7	16.4	19.0	18.4	14.6	16.5
16	18.8	12.6	15.7	22.5	17.0	19.6	21.4	15.9	18.7	18.0	14.9	16.5
17	16.1	12.8	14.2	22.2	17.2	19.7	21.0	15.9	18.5	16.8	15.6	16.3
18	19.9	14.2	16.6	22.5	17.1	19.8	20.0	15.2	17.6	19.3	15.0	16.8
19	19.2	12.8	16.0	22.4	17.3	19.8	20.2	15.1	17.6	18.6	14.1	16.3
20	19.3	13.1	16.3	22.4	16.1	19.3	20.0	15.5	17.7	18.3	14.0	16.2
21	20.6	14.3	17.5	22.8	16.8	19.9	20.1	14.9	17.4	18.3	13.7	16.0
22	20.9	14.9	18.0	20.6	17.5	19.1	19.9	14.7	17.3	18.5	14.0	16.2
23	20.5	15.1	17.8	22.9	17.1	19.8	20.2	15.6	17.9	18.5	14.1	16.3
24	21.3	15.0	18.2	22.2	17.2	19.7	20.4	15.8	18.1	18.0	13.8	15.9
25	22.1	15.3	18.7	22.0	16.7	19.4	20.2	15.9	18.1	17.6	13.3	15.5
26	22.6	16.7	19.7	22.3	16.7	19.5	20.1	15.7	17.8	16.7	12.9	14.9
27	21.6	16.6	19.2	21.6	16.9	19.2	20.2	15.1	17.7	16.8	12.9	14.9
28	19.7	16.4	18.3	20.8	15.7	18.3	21.0	16.0	18.4	16.9	12.8	14.8
29	22.4	16.9	19.3	21.5	16.6	19.0	20.2	16.3	18.3	14.8	12.9	13.7
30	21.5	15.8	18.7	22.2	17.0	19.5	19.8	16.0	17.8	15.1	11.4	13.2
31	---	---	---	21.3	17.1	19.1	19.3	14.3	16.9	---	---	---
MONTH	22.6	10.6	16.4	23.9	15.1	19.3	22.1	13.9	17.8	20.3	11.4	16.0

14369500 APPLGATE RIVER NEAR WILDERVILLE, OR

LOCATION.--Lat 42°21'15", long 123°24'20", in SE 1/4 NE 1/4 sec.16, T.37 S., R.6 W., Josephine County, Hydrologic Unit 17100309, on left bank 0.3 mi downstream from Jackson Creek, 3.6 mi southeast of Wilderville, and at mile 7.6.

DRAINAGE AREA.--698 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1938 to September 1955, September 1978 to current year.

REVISED RECORDS.--WSP 1318: 1943. WSP 1738: 1951, 1953, drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 947.18 ft above NGVD of 1929 (Corps of Engineers bench mark). Prior to Sept. 1, 1978, nonrecording gage at site 1,100 ft upstream at datum 2.36 ft higher.

REMARKS.--Records good. Flow regulated since December 1980 by Applegate Lake (station 14361900). Many diversions for irrigation upstream from station. Wilderville ditch diverts up to 16 ft<sup>3</sup>/s 0.3 mi upstream and at the mouth of Jackson Creek. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--19 years (water years 1939-55, 1979, 1980), 717 ft<sup>3</sup>/s, 519,500 acre-ft/yr.  
22 years (water years 1981-2002), 712 ft<sup>3</sup>/s, 516,000 acre-ft/yr, regulated period.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 47,500 ft<sup>3</sup>/s Jan. 18, 1953, gage height, 18.3 ft, from floodmark, site and datum then in use, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow; minimum discharge, 0.78 ft<sup>3</sup>/s Aug. 22-24, 1979. Minimum since first filling of Applegate Lake, 7.0 ft<sup>3</sup>/s July 26-28, Aug. 11, 12, 2001.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 22, 1955, reached a stage of 20.3 ft, from floodmark, former site and datum, discharge, 66,500 ft<sup>3</sup>/s, from rating curve extended above 12,000 ft<sup>3</sup>/s on basis of slope-area measurement of peak flow.

Flood of February 1927 reached a stage of 22 ft at former site, from local resident. Floods of Dec. 22, 1964, and Jan. 15, 1974, are known to have exceeded the December 1955 flood.

No flow was observed at present site during the late summer of 1977.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,580 ft<sup>3</sup>/s Jan. 9, gage height, 6.03 ft; minimum discharge, 44.0 ft<sup>3</sup>/s Oct. 3, 4.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	e50	155	418	1180	428	404	305	647	504	208	181	201
2	48	153	596	1420	398	378	303	721	501	203	183	201
3	45	147	593	1650	392	359	307	719	475	201	182	191
4	58	131	499	1470	386	342	309	688	460	200	186	189
5	58	129	707	1130	374	342	319	679	450	204	189	193
6	60	130	954	2050	364	343	319	672	452	203	187	196
7	63	130	794	2160	669	435	307	633	449	205	189	207
8	66	129	661	2510	1320	408	324	591	442	214	197	211
9	66	122	601	2920	933	389	349	547	429	208	198	216
10	66	122	557	3370	750	401	828	532	419	192	193	212
11	70	121	412	3200	629	424	821	511	406	187	189	193
12	73	129	372	2860	560	561	771	483	394	188	192	194
13	69	130	505	1550	512	619	716	483	388	189	184	194
14	67	128	2060	1150	474	558	1150	536	381	190	182	199
15	73	125	1680	963	443	517	1500	528	379	190	176	203
16	77	148	1510	911	420	494	810	544	369	190	179	203
17	78	157	1570	809	402	459	642	513	348	190	180	205
18	80	134	1600	730	385	426	517	523	303	195	184	210
19	81	125	1470	704	423	403	431	533	251	198	193	216
20	83	129	1240	636	728	394	340	528	236	195	193	217
21	85	166	1070	830	697	401	290	555	228	188	182	218
22	85	256	883	906	620	411	281	513	227	181	187	213
23	90	225	772	753	674	419	272	490	227	180	185	212
24	102	185	642	671	734	414	262	481	225	174	185	205
25	123	201	564	753	820	397	423	473	218	177	185	203
26	125	193	530	1280	808	376	287	478	212	179	185	204
27	134	167	491	1070	691	359	321	484	213	177	185	205
28	129	334	518	882	523	346	259	494	216	184	187	208
29	128	625	678	784	---	334	226	484	215	191	193	212
30	136	332	748	706	---	324	295	583	206	192	194	222
31	144	---	1000	594	---	315	---	522	---	182	202	---
TOTAL	2612	5358	26695	42602	16557	12752	14284	17168	10223	5955	5807	6153
MEAN	84.3	179	861	1374	591	411	476	554	341	192	187	205
MAX	144	625	2060	3370	1320	619	1500	721	504	214	202	222
MIN	45	121	372	594	364	315	226	473	206	174	176	189
AC-FT	5180	10630	52950	84500	32840	25290	28330	34050	20280	11810	11520	12200

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 2002, BY WATER YEAR (WY)

	347	589	1126	1356	1315	1090	824	809	480	215	179	246
MEAN	347	589	1126	1356	1315	1090	824	809	480	215	179	246
MAX	569	2099	4769	6633	4241	2715	2177	1916	1333	439	393	482
(WY)	1984	1985	1997	1997	1983	1983	1982	1983	1983	1998	1999	1983
MIN	80.4	156	196	187	190	209	173	147	32.9	17.2	17.9	34.5
(WY)	1981	1981	1991	2001	2001	2001	1994	2001	2001	2001	2001	2001

SUMMARY STATISTICS

FOR 2001 CALENDAR YEAR

FOR 2002 WATER YEAR

WATER YEARS 1981 - 2002

ANNUAL TOTAL	66844.8	166166	
ANNUAL MEAN	183	455	712
HIGHEST ANNUAL MEAN			1546
LOWEST ANNUAL MEAN			160
HIGHEST DAILY MEAN	2060	Dec 14	3370
LOWEST DAILY MEAN	7.7	Jul 27	45
ANNUAL SEVEN-DAY MINIMUM	9.9	Jul 5	55
ANNUAL RUNOFF (AC-FT)	132600	329600	516000
10 PERCENT EXCEEDS	254	829	1590
50 PERCENT EXCEEDS	144	332	344
90 PERCENT EXCEEDS	18	129	139

e Estimated

14369500 APPLGATE RIVER NEAR WILDERVILLE, OR--Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: September 1978 to current year.

INSTRUMENTATION.--Temperature recorder since September 1978.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 29.0°C June 22, 1992; minimum, 0.0°C Feb. 6, 7, 1989.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 26.6°C July 11; minimum, 3.5°C Jan. 30.

WATER TEMPERATURE in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
1	19.6	16.5	18.2	13.9	13.0	13.5	8.5	8.2	8.4	7.7	7.0	7.3
2	19.7	17.0	18.5	14.0	12.5	13.1	8.2	7.6	7.8	7.9	7.3	7.7
3	19.3	16.6	18.1	13.0	11.5	12.2	8.0	7.4	7.7	7.3	6.2	6.6
4	18.9	16.5	17.8	12.4	10.9	11.4	7.6	7.0	7.3	6.8	5.6	6.2
5	18.6	16.2	17.4	12.0	10.9	11.5	8.3	7.3	7.7	7.8	6.4	6.9
6	18.2	16.3	17.3	12.8	10.8	11.8	9.1	8.0	8.6	8.9	7.8	8.3
7	17.7	15.2	16.3	10.8	9.1	10	8.0	6.6	7.1	8.7	8.0	8.3
8	16.8	15.5	16.1	10.1	8.3	9.0	7.0	6.6	6.9	8.9	8.0	8.5
9	15.9	13.6	14.8	9.7	8.0	8.8	7.5	6.8	7.1	8.0	7.1	7.7
10	15.5	13.1	14.2	10.2	8.2	9.1	6.8	5.9	6.4	7.4	6.5	7.0
11	16.5	15.2	15.7	11.4	9.6	10.5	7.8	6.6	7.1	7.2	6.5	6.9
12	16.4	13.5	14.9	11.9	11.0	11.4	7.7	7.2	7.5	7.8	6.7	7.1
13	16.6	13.4	15.0	11.6	11.1	11.4	8.1	7.3	7.6	7.2	5.6	6.5
14	16.6	13.3	15.0	12.6	11.2	11.8	7.9	6.8	7.2	6.5	5.9	6.2
15	16.3	13.5	14.9	12.0	11.4	11.7	7.2	6.4	6.8	6.0	5.2	5.6
16	16.2	14.3	15.3	12.2	11.3	11.9	8.1	7.0	7.5	5.3	4.1	4.7
17	15.8	13.8	14.7	11.8	10.6	11.1	8.1	7.3	7.7	5.8	4.9	5.2
18	14.9	12.0	13.4	10.9	9.8	10.3	7.3	6.3	6.7	5.6	5.0	5.4
19	14.8	11.6	13.1	11.5	10.3	10.9	7.7	7.1	7.4	5.8	5.0	5.4
20	15.7	12.7	14.1	10.8	10.2	10.4	7.6	7.1	7.3	6.8	5.0	5.8
21	15.4	12.7	14.1	10.3	10.0	10.1	7.2	6.7	7.1	6.7	5.8	6.4
22	15.8	13.6	14.7	10.6	9.6	10.1	7.4	6.1	6.7	6.0	5.0	5.5
23	15.4	13.8	14.5	10.6	9.3	9.7	7.3	6.7	7.1	6.5	5.1	5.8
24	13.8	11.3	12.5	9.3	8.4	9.0	6.7	5.9	6.2	6.1	4.9	5.5
25	13.0	10.4	11.5	9.1	8.1	8.6	6.6	5.7	6.2	6.8	5.4	6.0
26	13.5	10.6	11.7	8.9	8.2	8.6	7.0	6.1	6.6	6.7	5.7	6.4
27	13.0	11.0	12.0	8.4	7.9	8.2	7.4	6.5	6.9	5.7	4.7	5.2
28	12.9	12.2	12.6	8.2	7.3	7.7	7.3	6.4	6.9	5.6	4.8	5.2
29	13.6	12.6	13.0	8.8	7.9	8.3	8.2	7.0	7.5	5.9	4.3	4.9
30	14.2	13.1	13.6	8.5	7.9	8.3	7.8	7.0	7.4	5.0	3.5	4.3
31	14.3	13.0	13.6	---	---	---	8.0	7.3	7.5	5.1	3.6	4.3
MONTH	19.7	10.4	14.8	14.0	7.3	10.3	9.1	5.7	7.2	8.9	3.5	6.2



14372300 ROGUE RIVER NEAR AGNESS, OR

LOCATION.--Lat 42°34'50", long 124°03'30", in NE 1/4 NW 1/4 sec.6, T.35 S., R.11 W., Curry County, Hydrologic Unit 17100310, on left bank 0.8 mi upstream from Shasta Costa Creek, 1.5 mi north of Agness, 2.6 mi upstream from Illinois River, and at mile 29.7.

DRAINAGE AREA.--3,939 mi<sup>2</sup>.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1960 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 113.81 ft above NGVD of 1929 (levels by U.S. Bureau of Public Roads).

REMARKS.--Records good. Flow regulated since February 1977 by Lost Creek Lake (station 14335040), since December 1980 by Applegate Lake (station 14361900), slight regulation by Fish Lake and Emigrant Lake. Many diversions for irrigation and mining. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--17 years, (water years 1961-77), 6,326 ft<sup>3</sup>/s, 4,583,000 acre-ft/yr.  
25 years (water years 1978-2002), 5,473 ft<sup>3</sup>/s, 3,965,000 acre-ft/yr (since operation began at Lost Creek Lake).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 290,000 ft<sup>3</sup>/s Dec. 23, 1964, from slope-area measurement; maximum gage height, 68.03 ft Dec. 23, 1964, from floodmark (backwater from Illinois River); minimum discharge, 608 ft<sup>3</sup>/s July 9, 10, 1968.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 26,800 ft<sup>3</sup>/s Dec. 14, gage height, 11.69 ft; minimum discharge, 837 ft<sup>3</sup>/s Oct. 15.

DISCHARGE, in CFS, WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	1350	1300	7440	9440	5420	4280	4220	4580	3520	1910	1760	2140
2	1350	1220	10100	9300	5100	3950	4240	4420	3500	1900	1760	2160
3	1220	1170	9610	10500	5230	3720	4280	4490	3490	1870	1780	2150
4	1080	1130	7160	9080	5030	3510	4560	4150	3730	1850	1810	2130
5	1080	1110	9730	7550	4780	3380	4830	3980	e3750	1880	1850	2130
6	1090	1100	12800	16800	4620	3510	5230	4070	e3730	1890	1870	2140
7	1050	1100	9890	19300	7860	3770	5050	4000	e3730	1860	1870	2260
8	1050	1090	7010	21600	17800	4130	4660	3880	e3740	1850	2000	2390
9	1060	1090	5600	17700	13600	3830	4630	3550	3750	1850	2150	2380
10	1220	1080	4980	13600	9940	3930	4690	3410	3770	1780	2130	2330
11	1450	1080	4670	11800	7920	4520	e5250	3380	3700	1740	2120	2300
12	1030	1170	4400	10900	6810	6160	e5400	3220	3610	1730	2130	2270
13	1010	1480	5900	9270	6120	6520	e5500	3060	3580	1740	2110	2250
14	926	1750	18200	7700	5580	6240	e6000	3150	3530	1740	2060	2180
15	877	1600	14900	6870	5200	5850	e8000	3270	3520	1800	2030	2070
16	931	2140	10200	6290	4870	5530	e10000	3220	3430	1810	2010	1980
17	938	2050	13800	5850	4600	5310	e9000	3210	3360	1780	2010	1910
18	951	1690	13600	5380	4400	5170	e8000	3120	3280	1780	2000	1860
19	966	1580	12100	4970	4560	5130	6940	3160	3070	1750	2040	1800
20	954	1880	10900	4650	6100	5130	5560	3400	2940	1780	2060	1720
21	969	3000	9450	5580	8330	5680	4190	3460	2760	1780	2050	1540
22	1030	5820	7790	8530	7380	5880	3880	3440	2680	1790	2090	1430
23	1050	4900	6940	7180	6920	5920	3650	3310	2580	1780	2130	1350
24	1020	3490	6000	6120	6910	5830	3470	3140	2520	1770	2130	1230
25	1050	4840	5230	7940	6330	6280	3390	3080	2390	1730	2110	1160
26	1070	4510	4660	13200	5790	5890	3770	3000	2240	1720	2120	1180
27	1070	3370	4360	12000	5290	5680	3560	2990	2100	1730	2130	1180
28	1080	4640	4830	9230	4790	5420	3600	3330	1980	1740	2130	1210
29	1080	11200	5380	7540	---	5090	3390	3460	1950	1780	2130	1230
30	1370	7590	6500	6500	---	4560	3370	3420	1930	1780	2130	1270
31	1430	---	7740	5670	---	4300	---	3600	---	1760	2140	---
TOTAL	33802	81170	261870	298040	187280	154100	152310	108950	93860	55650	62840	55330
MEAN	1090	2706	8447	9614	6689	4971	5077	3515	3129	1795	2027	1844
MAX	1450	11200	18200	21600	17800	6520	10000	4580	3770	1910	2150	2390
MIN	877	1080	4360	4650	4400	3380	3370	2990	1930	1720	1760	1160
AC-FT	67050	161000	519400	591200	371500	305700	302100	216100	186200	110400	124600	109700

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 2002, BY WATER YEAR (WY)

	1971	4680	9303	10020	9982	7920	6530	5162	3529	2426	2295	2096
MEAN	1971	4680	9303	10020	9982	7920	6530	5162	3529	2426	2295	2096
MAX	3497	16650	37410	33800	30280	17750	15090	8905	6292	3849	3370	3187
(WY)	1983	1985	1997	1997	1983	1983	1982	1996	1993	1999	1984	1983
MIN	1090	1386	2124	1922	1969	2023	2083	2124	1679	1106	1671	1346
(WY)	2002	1988	1990	2001	2001	2001	1994	1992	2001	2001	1994	1980

SUMMARY STATISTICS FOR 2001 CALENDAR YEAR FOR 2002 WATER YEAR WATER YEARS 1978 - 2002

ANNUAL TOTAL	908194	1545202	
ANNUAL MEAN	2488	4233	
HIGHEST ANNUAL MEAN			5473
LOWEST ANNUAL MEAN			10180
HIGHEST DAILY MEAN	18200	Dec 14	21600
LOWEST DAILY MEAN	877	Oct 15	877
ANNUAL SEVEN-DAY MINIMUM	935	Oct 14	935
ANNUAL RUNOFF (AC-FT)	1801000		3065000
10 PERCENT EXCEEDS	4440		8130
50 PERCENT EXCEEDS	1830		3440
90 PERCENT EXCEEDS	1080		1180

e Estimated

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: October 1960 to September 1987, January 1995 to current year.

INSTRUMENTATION.--Temperature recorder.

REMARKS.--Records good.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum, 26.5°C on several days in 1962, Aug. 3, 6, 9-11, 1977; minimum, 1.0°C Jan. 22-25, 1962, Dec. 9-16, 1972, Jan. 9, 10, 1977, Jan. 1-3, 1979, Dec. 23, 24, 1999.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 25.7°C July 13; minimum, 4.8°C Jan. 31, Feb. 1.

## WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.1	14.9	15.9	11.8	11.2	11.5	8.3	7.9	8.1	8.8	8.3	8.6
2	17.4	15.0	16.0	12.7	11.6	12.0	8.3	7.7	8.2	9.2	8.7	8.9
3	17.4	15.0	16.1	12.5	11.6	12.0	7.8	7.4	7.6	8.9	8.0	8.6
4	17.4	14.9	16.0	12.3	11.3	11.8	7.6	7.3	7.5	8.1	7.6	7.9
5	17.0	15.3	16.1	12.1	11.2	11.6	8.0	7.3	7.6	7.8	7.3	7.6
6	16.7	15.0	15.9	11.4	10.3	10.9	8.4	8.0	8.2	9.4	7.8	8.6
7	16.1	14.8	15.5	10.3	9.2	9.8	8.1	7.5	7.9	9.8	9.4	9.6
8	16.0	14.3	15.3	9.5	8.6	9.0	7.6	7.2	7.3	9.8	9.6	9.7
9	15.2	13.6	14.5	9.2	8.2	8.6	7.2	6.8	7.0	9.6	8.9	9.2
10	14.3	13.0	13.6	8.8	7.8	8.2	6.8	6.5	6.7	9.0	8.2	8.6
11	14.8	13.3	13.9	8.9	7.8	8.3	6.9	6.3	6.6	8.3	7.7	8.0
12	14.5	13.0	13.7	9.1	8.2	8.6	7.1	6.8	7.0	7.8	7.3	7.6
13	14.2	12.4	13.3	9.5	8.5	8.9	8.1	7.1	7.5	7.6	7.0	7.4
14	14.2	12.2	13.2	10.3	9.4	9.9	8.0	7.0	7.6	7.2	6.6	6.9
15	14.0	12.5	13.3	10.9	10.2	10.6	7.1	6.8	7.0	6.7	5.8	6.3
16	13.8	12.4	13.3	11.3	10.8	11.0	7.9	7.1	7.5	5.8	5.2	5.5
17	13.5	12.3	13.0	11.0	10.0	10.7	8.3	7.8	8.1	5.7	5.0	5.3
18	13.3	11.9	12.6	10.3	9.7	10	8.0	7.5	7.7	5.7	5.0	5.4
19	13.2	11.6	12.3	10.4	9.8	10.1	7.6	7.4	7.5	6.0	5.6	5.8
20	13.2	11.6	12.4	10.2	9.9	10.1	7.8	7.4	7.6	6.4	5.7	6.0
21	13.0	11.6	12.3	10.1	9.7	9.9	7.7	7.4	7.5	6.6	6.1	6.3
22	12.9	11.8	12.3	10.0	9.4	9.8	7.6	7.2	7.4	6.2	5.7	5.9
23	12.9	12.1	12.5	9.5	9.1	9.3	7.5	7.1	7.3	6.3	5.6	5.9
24	12.3	11.2	11.6	9.3	8.6	9.0	7.3	7.0	7.2	6.6	5.8	6.2
25	12.3	11.0	11.6	8.7	8.2	8.5	7.2	6.8	7.0	7.1	6.2	6.6
26	12.0	10.8	11.4	8.5	7.9	8.2	7.1	6.6	6.8	7.0	6.5	6.8
27	11.2	10.3	10.7	8.0	7.4	7.8	7.3	6.7	7.0	6.6	5.8	6.1
28	11.3	10.0	10.6	8.2	7.3	7.7	7.7	7.2	7.4	6.2	5.5	5.9
29	10.7	10.1	10.4	8.3	7.9	8.1	8.0	7.4	7.7	6.2	5.3	5.6
30	11.2	10.2	10.6	8.1	7.8	7.9	8.4	7.8	8.1	5.5	4.9	5.2
31	11.7	10.9	11.3	--	--	--	8.6	8.2	8.4	5.2	4.8	5.0
MONTH	17.4	10.0	13.3	12.7	7.3	9.7	8.6	6.3	7.5	9.8	4.8	7.0

ROGUE RIVER BASIN

14372300 ROGUE RIVER NEAR AGNESS, OR--Continued

WATER TEMPERATURE, in (DEGREES C), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	5.7	4.8	5.3	7.9	6.8	7.3	12.5	10.9	11.7	13.1	12.2	12.5
2	6.3	5.4	5.8	7.6	6.3	6.9	13.0	11.3	12.2	13.8	11.5	12.6
3	6.9	6.1	6.4	7.5	6.2	6.8	13.3	11.7	12.6	14.6	12.5	13.5
4	7.1	6.3	6.7	7.7	6.4	7.0	13.5	12.3	13.0	14.6	12.6	13.8
5	6.9	6.2	6.5	7.6	7.1	7.4	13.4	12.4	12.9	14.5	12.8	13.7
6	6.9	6.3	6.6	8.1	7.5	7.9	13.1	11.8	12.5	14.4	13.0	13.9
7	7.1	6.6	6.9	8.2	7.5	7.8	12.7	11.0	11.9	14.6	12.8	13.8
8	7.3	6.8	7.1	7.8	7.2	7.6	12.8	11.0	11.9	14.3	12.5	13.5
9	7.1	6.8	7.0	7.5	6.8	7.1	12.8	11.5	12.1	14.1	12.5	13.3
10	7.3	6.8	7.0	7.4	7.0	7.2	12.7	11.4	12.1	13.6	12.6	13.1
11	7.6	6.7	7.1	8.2	7.2	7.6	12.9	11.8	12.3	14.3	12.1	13.1
12	7.4	6.8	7.1	8.3	7.8	8.1	13.6	11.7	12.5	15.3	12.8	13.9
13	7.9	7.0	7.4	8.2	7.5	7.9	13.3	12.0	12.6	15.5	14.3	14.7
14	7.7	6.9	7.3	8.2	7.3	7.8	12.6	11.4	12.1	16.3	14.4	15.1
15	7.6	6.7	7.2	8.1	7.3	7.7	11.4	10.0	10.8	16.1	14.0	15.0
16	8.2	7.2	7.7	7.7	7.0	7.2	10.0	8.7	9.3	16.2	14.3	15.2
17	8.2	7.6	7.9	7.7	6.6	7.1	9.0	8.4	8.7	17.1	15.0	15.9
18	8.2	7.6	7.9	7.2	6.6	6.9	9.5	8.4	8.8	16.8	15.5	16.1
19	8.5	7.9	8.2	8.0	6.6	7.3	10.0	8.4	9.2	15.5	14.6	15.2
20	8.7	8.1	8.4	8.7	7.3	8.1	11.5	8.9	10.1	15.1	14.0	14.5
21	9.7	8.6	9.1	9.6	8.2	9.0	12.1	9.6	10.8	14.0	13.4	13.6
22	10.1	8.9	9.5	9.6	8.9	9.3	13.1	11.1	12.1	15.3	12.8	13.9
23	9.9	9.2	9.5	9.5	8.9	9.2	13.7	12.0	12.8	15.8	13.7	14.7
24	10.1	9.0	9.4	10.1	8.9	9.4	14.3	12.3	13.2	17.0	14.7	15.7
25	9.3	8.2	8.8	10.4	8.8	9.6	14.9	12.9	13.7	17.7	16.0	16.7
26	8.8	7.9	8.3	11.0	9.1	9.9	14.4	13.2	13.6	18.9	16.8	17.6
27	8.5	7.5	8.0	11.1	9.1	10	13.5	12.6	13.1	17.8	17.1	17.5
28	8.2	7.2	7.7	11.1	9.1	10.2	13.7	12.3	12.8	17.1	16.6	17.0
29	---	---	---	11.4	9.4	10.5	13.4	11.9	12.6	17.8	16.2	16.9
30	---	---	---	11.4	9.8	10.7	12.9	12.2	12.6	18.9	16.5	17.6
31	---	---	---	11.9	10.3	11.2	---	---	---	19.3	17.6	18.4
MONTH	10.1	4.8	7.6	11.9	6.2	8.3	14.9	8.4	11.9	19.3	11.5	14.9

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	JUNE			JULY			AUGUST			SEPTEMBER		
1	19.2	17.7	18.4	23.6	20.1	21.6	23.4	19.9	22.1	22.3	18.6	20.5
2	18.9	17.1	18.0	23.8	20.0	21.7	22.7	20.0	21.3	22.2	19.3	20.5
3	18.6	17.1	17.8	23.1	20.0	21.4	21.8	18.5	20.6	21.4	19.5	20.2
4	18.9	17.0	18.0	23.0	19.6	21.2	21.8	18.7	19.9	20.9	18.6	19.6
5	---	---	---	24.2	19.6	21.4	19.7	16.9	18.8	20.5	18.0	19.0
6	---	---	---	23.2	19.7	21.4	19.8	16.7	18.4	19.6	17.4	18.3
7	---	---	---	23.3	20.2	21.6	20.2	16.0	18.4	18.8	16.6	17.6
8	---	---	---	23.5	18.7	21.5	20.9	16.2	18.8	18.2	16.0	17.0
9	16.7	14.6	15.8	24.8	19.3	22.0	21.9	17.0	19.5	18.5	16.3	17.2
10	17.0	14.5	15.9	24.8	20.3	22.8	22.6	18.5	20.2	18.9	16.5	17.6
11	18.3	15.4	16.9	25.3	22.0	23.6	22.6	18.6	20.8	19.6	17.3	18.2
12	19.4	16.7	18.2	25.4	22.9	24.1	23.1	19.9	21.2	20.3	17.6	18.7
13	20.2	18.0	19.1	25.7	23.2	24.3	22.6	20.3	21.2	20.6	18.0	19.1
14	20.0	18.4	19.3	25.1	22.1	23.6	23.7	19.2	21.4	19.8	17.9	18.6
15	20.1	18.3	19.2	24.6	21.9	23.3	23.5	20.0	21.6	19.8	17.4	18.4
16	19.8	18.2	19.1	24.7	20.9	22.9	23.7	19.5	21.7	18.7	16.9	17.7
17	19.1	17.3	18.1	25.1	21.5	23.1	23.7	20.5	21.9	18.5	17.0	17.7
18	18.5	16.9	17.7	25.2	20.9	23.2	21.6	19.8	20.7	19.1	16.7	17.9
19	19.2	16.4	17.7	25.2	21.8	23.2	22.1	19.1	20.3	19.3	17.1	18.1
20	19.3	17.0	18.2	24.9	20.8	23.2	21.2	18.8	20.0	19.0	17.1	18.0
21	20.4	17.9	18.9	25.2	20.9	23.2	21.4	18.6	19.8	18.8	16.7	17.7
22	21.1	18.4	19.5	23.8	20.7	22.7	20.8	18.1	19.4	19.0	16.9	17.9
23	21.8	19.0	20.1	24.9	21.1	22.9	21.1	18.3	19.4	19.8	16.9	18.2
24	22.4	19.4	20.8	24.6	20.9	22.9	20.9	17.8	19.5	19.9	16.9	18.3
25	23.1	20.2	21.4	24.9	20.7	23.0	21.8	18.7	19.9	19.6	16.9	18.3
26	23.9	20.6	21.9	24.9	21.6	23.3	22.0	19.0	20.4	19.4	16.9	18.1
27	23.4	20.9	22.0	24.9	21.8	23.2	22.5	19.6	20.8	19.3	16.9	17.9
28	22.7	20.7	21.6	25.1	21.1	23.3	22.9	19.7	20.9	18.8	16.6	17.7
29	22.9	20.1	21.3	25.1	21.0	23.4	22.2	19.6	20.9	17.9	16.2	17.1
30	22.9	19.8	21.3	25.1	22.0	23.4	22.2	18.4	20.5	17.1	15.5	16.3
31	---	---	---	24.3	21.5	22.8	22.9	19.4	20.5	---	---	---
MONTH	---	---	---	25.7	18.7	22.7	23.7	16.0	20.3	22.3	15.5	18.2







## CHEMICAL QUALITY OF PRECIPITATION

## SANDY RIVER BASIN

452650122091801 BULL RUN RESERVOIR NUMBER TWO, OR

LOCATION.--Lat 45°26'55", long 122°08'45", in SE 1/4 SE 1/2 sec.26, T.1 S., R.5 E., Clackamas County, Hydrologic Unit 17080001, in Mount Hood National Forest, on headworks dam on Bull Run River, 4.4 mi northeast of town of Bull Run, and approximately 20 mi east of Portland.

PERIOD OF RECORD.--June 1980 to September 1981 (event sampling), September 1981 to November 1981 (weekly composite), July 1982 to current year (weekly composite).

INSTRUMENTATION.--A bulk-type plastic double cylinder with receiving funnel directing deposition to inner cylinder was used for the period of record June 1980 to September 1981. The wet-deposition sample collector is an Aerochem Model 301 wet/dry deposition collector. Refer to WDR OR-92-1 for further description of instrumentation.

REMARKS.--The sample collector is located in the restricted access area of the city of Portland's Bull Run River Watershed. Samples are collected by Bull Run Headworks Water Quality Laboratory personnel and analyzed by the Illinois supply Central Analytical Laboratory.

## WATER-QUALITY DATA

Date	TOTAL PRECIP- ITATION FOR	PH FIELD	PH LAB	SPEC. CONduc- TANCE FIELD	SPEC. CONduc- TANCE LAB	CALCIUM ATM DEP	MAG- NESIUM ATM DEP	POTAS- SIUM ATM DEP	SODIUM ATM DEP	CHLO- RIDE ATM DEP	SULFATE ATM DEP	NI- TROGEN AMMON.	NI- TROGEN NITRATE
	DEFINED PERIOD (IN) (00193)	ATM DEP WET T (UNITS) (83106)	ATM DEP WET T (UNITS) (83107)	ATM DEP WET TOT (US/CM) (83154)	ATM DEP WET TOT (US/CM) (83156)	WET DIS (MG/L) (82932)	WET DIS (MG/L) (83002)	WET DIS (MG/L) (83120)	WET DIS (MG/L) (83138)	WET DIS (MG/L) (82944)	WET DIS AS SO4 (MG/L) (83160)	WET DIS AS NH4 (MG/L) (83047)	WET DIS AS NO3 (MG/L) (83071)
OCT 2001													
02-09	.53	4.87	4.95	21.3	21.7	.12	.182	.080	1.71	2.87	1.32	.36	1.36
OCT 09-16	2.65	5.34	5.17	4.6	13.0	.07	.130	.052	1.14	2.14	.56	.15	.50
OCT 16-23	1.84	5.10	5.28	11.9	7.4	.03	.021	.014	.188	.33	.24	.09	.32
OCT 23-30	1.64	5.09	5.17	6.6	7.4	.04	.051	.022	.475	.88	.34	.07	.30
OCT 30- NOV 06	3.22	5.14	5.14	5.9	6.6	.04	.040	.027	.428	.75	.27	.04	.19
NOV 06-13	.74	5.24	5.34	3.7	2.7	.02	<.003	.006	.008	.02	.07	.04	.21
NOV 13-20	2.53	5.19	5.19	4.7	4.1	.02	.009	.007	.101	.17	.14	.02	.25
NOV 20-27	3.08	5.28	5.30	4.6	4.4	.01	.020	.011	.200	.36	.16	.05	.25
NOV 27- DEC 04	5.75	5.34	5.32	5.4	4.8	.03	.035	.014	.334	.58	.17	<.02	.14
DEC 04-11	4.46	5.53	5.54	6.2	7.0	.04	.062	.020	.579	1.08	.27	.04	.24
DEC 11-18	4.87	5.36	5.47	4.8	4.4	.02	.029	.011	.355	.62	.15	<.02	.11
DEC 18-26	.41	5.28	5.11	8.8	8.7	.04	.074	.025	.676	1.24	.28	.04	.31
DEC 26 2001- JAN 02 2002	.67	4.36	5.22	3.8	3.8	.01	.007	.012	.076	.12	.11	.03	.26
JAN 02-08	1.59	5.23	5.21	5.4	7.9	.02	.035	.006	.332	.57	.17	<.02	.24
JAN 08-15	.71	5.11	5.19	7.8	8.8	.05	.056	.022	.540	.96	.40	.14	.67
JAN 15-22	3.61	5.09	5.19	11.6	7.6	.04	.053	.018	.472	.86	.37	.05	.27
JAN 22-29	3.86	4.63	5.24	4.0	4.6	.01	.018	.005	.208	.37	.12	<.02	.10
JAN 29- FEB 05	1.41	5.39	5.19	3.8	4.2	.01	.010	.003	.119	.20	.12	.03	.24
FEB 05-12	2.17	5.26	5.37	4.6	3.8	.02	.018	.006	.190	.31	.13	.03	.17
FEB 12-19	.70	5.10	5.23	6.7	5.0	.02	.006	.003	.058	.08	.26	.14	.59
FEB 19-26	1.48	5.28	5.35	5.2	4.1	.02	.014	.018	.169	.27	.15	.08	.31
FEB 26- MAR 05	.11	5.22	5.63	17.8	16.5	.35	.143	.069	1.24	1.58	1.48	.49	2.01
MAR 05-12	3.86	5.26	5.35	4.6	4.4	.02	.020	.004	.187	.31	.16	.02	.24
MAR 12-19	3.40	5.17	5.31	7.3	8.8	.04	.068	.031	.656	1.17	.38	.08	.29
MAR 19-26	.37	5.13	5.28	8.7	8.3	.06	.029	.034	.220	.37	.70	.33	.87
MAR 26- APR 02	.23	5.76	6.12	10.9	10.9	.11	.069	.045	.629	1.00	.76	.61	.86
APR 02-09	.53	5.56	6.12	6.6	7.1	.10	.014	.014	.055	.09	.45	.62	1.06
APR 09-16	3.30	5.67	5.60	9.7	3.8	.04	.022	.015	.188	.33	.21	.08	.18
APR 16-23	.55	5.27	5.13	6.0	6.7	.03	.011	.006	.079	.14	.25	.10	.55
APR 23-30	.75	5.37	5.40	3.8	3.5	.02	.006	.008	.044	.08	.16	.09	.30
APR 30- MAY 07	.62	4.96	5.2	13.0	13.9	--	--	--	--	--	--	--	--
MAY 07-14	.14	4.64	4.91	14.6	11.6	.08	.029	.019	.186	.31	.77	.39	1.56
MAY 14-21	.61	4.85	4.91	10.9	10.5	.08	.018	.018	.096	.15	.54	.29	1.40
MAY 21-28	.82	5.25	5.31	5.2	4.7	.03	.013	.011	.120	.19	.33	.18	.45
MAY 28- JUN 04	.84	5.38	5.43	7.3	2.6	<.01	<.003	.004	<.003	.01	.09	.06	.21

< Actual value is known to be less than the value shown.

CHEMICAL QUALITY OF PRECIPITATION

519

SANDY RIVER BASIN

452650122091801 BULL RUN RESERVOIR NUMBER TWO, OR--Continued

WATER-QUALITY DATA

Date	TOTAL PRECIP- ITATION FOR DEFINED PERIOD (IN) (00193)	PH FIELD ATM DEP WET T (UNITS) (83106)	PH LAB ATM DEP WET T (UNITS) (83107)	SPEC. CONduc- TANCE FIELD ATM DEP WET TOT (US/CM) (83154)	SPEC. CONduc- TANCE LAB ATM DEP WET TOT (US/CM) (83156)	CALCIUM ATM DEP WET DIS (MG/L) (82932)	MAG- NESIUM ATM DEP WET DIS (MG/L) (83002)	POTAS- SIUM ATM DEP WET DIS (MG/L) (83120)	SODIUM ATM DEP WET DIS (MG/L) (83138)	CHLO- RIDE ATM DEP WET DIS (MG/L) (82944)	SULFATE ATM DEP AS SO4 (MG/L) (83160)	NI- TROGEN AMMON. ATM DEP AS NH4 (MG/L) (83047)	NI- TROGEN NITRATE ATM DEP AS NO3 (MG/L) (83071)
JUN 2002													
04-11	.52	4.99	5.23	11.3	10.1	.07	.059	.036	.492	.83	.62	.30	.94
JUN													
11-18	1.15	5.06	5.34	4.3	3.1	.03	.003	.003	.023	.05	.12	.04	.25
JUN													
18-25	<.01	--	--	--	--	--	--	--	--	--	--	--	--
JUN 25-													
JUL 02	1.90	5.17	5.29	9.9	2.8	<.01	.003	<.003	.021	.05	.11	<.02	.16
JUL													
02-09	.35	4.74	4.80	10.1	11.2	.05	.023	.048	.118	.15	.71	.24	1.15
JUL													
09-16	.00	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
16-23	.00	--	--	--	--	--	--	--	--	--	--	--	--
JUL													
23-30	.02	--	--	--	--	--	--	--	--	--	--	--	--
JUL 30-													
AUG 06	.06	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
06-13	.00	--	--	--	--	--	--	--	--	--	--	--	--
AUG													
13-20	.07	4.98	5.05	10.6	7.7	.06	.005	.010	.032	.07	.90	.28	.50
AUG													
20-27	.00	--	--	--	--	--	--	--	--	--	--	--	--
AUG 27-													
SEP 03	.09	4.98	4.76	21.8	18.1	.09	.078	.043	.728	1.25	1.73	.42	1.11
SEP													
03-10	.00	--	--	--	--	--	--	--	--	--	--	--	--
SEP													
10-17	.85	5.17	5.09	5.6	5.1	.02	.008	.006	.063	.10	.27	.06	.37
SEP													
17-24	.00	--	--	--	--	--	--	--	--	--	--	--	--
SEP 24-													
OCT 01	1.85	5.65	5.33	6.8	7.0	.03	.051	.020	.483	.86	.37	.12	.25

< Actual value is known to be less than the value shown.

## SILVER LAKE BASIN

430701121040001 SILVER LAKE RANGER STATION, OR

LOCATION.--Lat 43°07'01", Long 121°04'00", in NE 1/4 SW 1/4 sec.21, T.28 S., R.14 E., Lake County, Hydrologic Unit 17120005, at Silver Lake Ranger Station, 0.5 mi south of State Highway 31, and 1 mi southwest of town of Silver Lake.

PERIOD OF RECORD.--August 1983 to current year (weekly composite).

INSTRUMENTATION.--The wet-deposition sample collector is an Aerochem Metrics Model 301 wet/dry deposition collector. Refer to WDR OR-92-1 for further description of instrumentation.

REMARKS.--Inches of precipitation obtained from an on-site recording weighing-bucket gage. Samples are collected by Silver Lake Ranger Station personnel and analyzed by the Illinois State Water Survey Central Analytical Laboratory.

## WATER-QUALITY DATA

Date	TOTAL PRECIPITATION FOR PERIOD (IN)	PH FIELD ATM DEP (UNITS)	PH LAB ATM DEP (UNITS)	SPEC. CONDUCTANCE FIELD (US/CM)	SPEC. CONDUCTANCE LAB (US/CM)	CALCIUM ATM DEP (MG/L)	MAGNESIUM ATM DEP (MG/L)	POTASSIUM ATM DEP (MG/L)	SODIUM ATM DEP (MG/L)	CHLORIDE ATM DEP (MG/L)	SULFATE ATM DEP (MG/L)	NI-TROGEN AMMON. ATM DEP (MG/L)	NI-TROGEN NITRATE ATM DEP (MG/L)
	(00193)	(83106)	(83107)	(83154)	(83156)	(82932)	(83002)	(83120)	(83138)	(82944)	(83160)	(83047)	(83071)
OCT 2001													
02-09	<.01	--	--	--	--	--	--	--	--	--	--	--	--
OCT 09-16	.05	4.97	5.55	5.6	2.8	.09	.011	.006	.012	.05	.17	.02	.18
OCT 16-23	.00	--	--	--	--	--	--	--	--	--	--	--	--
OCT 23-30	.08	4.98	5.43	3.3	2.2	.03	.003	<.003	.019	.05	.03	<.02	.15
OCT 30-NOV 06	.03	--	5.90	--	3.0	.07	<.011	.011	.011	.10	.06	.16	.28
NOV 06-13	.03	--	--	--	--	--	--	--	--	--	--	--	--
NOV 13-20	.18	5.02	5.45	2.8	3.0	.02	<.003	.008	.003	.03	.07	.08	.28
NOV 20-27	.74	5.20	5.37	3.3	2.3	.01	<.003	.008	.014	.03	.03	<.02	.11
NOV 27-DEC 04	.41	5.34	5.25	3.2	3.6	.02	<.003	<.003	.014	.05	.07	.05	.14
DEC 04-11	.18	5.21	5.41	3.4	3.1	.05	.003	<.003	.028	.05	.13	.05	.24
DEC 11-18	.37	5.29	5.17	2.7	3.5	<.01	<.003	<.003	<.003	.02	.03	.03	.18
DEC 18-26	.21	5.35	5.46	4.6	2.2	.01	<.003	<.003	<.003	.02	.04	.07	.15
DEC 26 2001- JAN 02 2002	.61	5.36	5.32	4.3	2.7	.01	<.003	<.003	<.003	.03	.02	.02	.09
JAN 02-08	.09	5.17	5.36	2.9	3.2	.01	.003	<.003	.011	.03	.05	.07	.18
JAN 08-15	.00	--	--	--	--	--	--	--	--	--	--	--	--
JAN 15-22	.30	5.27	5.54	2.3	2.0	<.01	<.003	<.003	<.003	.02	.05	.03	.07
JAN 22-29	.04	--	5.49	--	3.2	.04	.003	<.003	.015	.04	.08	.11	.47
JAN 29-FEB 05	.00	--	--	--	--	--	--	--	--	--	--	--	--
FEB 05-12	.17	5.25	5.38	2.3	2.8	.01	<.003	<.003	.027	.02	.02	.03	.07
FEB 12-19	.01	--	--	--	--	--	--	--	--	--	--	--	--
FEB 19-26	.27	4.89	5.13	3.7	4.4	.02	<.003	<.003	.008	.02	.08	.05	.32
FEB 26-MAR 05	.00	--	--	--	--	--	--	--	--	--	--	--	--
MAR 05-12	.08	5.14	5.30	3.7	3.4	.04	.005	<.003	.010	.03	.04	.06	.21
MAR 12-19	.06	--	5.72	--	6.3	.27	.037	.038	.159	.22	.97	.16	.39
MAR 19-26	.10	4.90	5.28	5.4	3.8	.03	.006	<.003	.013	.04	.08	.05	.52
MAR 26-APR 02	.00	--	--	--	--	--	--	--	--	--	--	--	--
APR 02-09	.11	5.26	5.59	6.3	4.1	.06	.007	.006	.018	.04	.26	.16	.48
APR 09-16	.35	5.06	5.30	2.7	3.3	.02	.005	<.003	.009	.02	.07	.05	.14
APR 16-23	.05	--	5.59	--	2.8	.04	.007	.007	.016	.05	.14	.07	.13
APR 23-30	.03	--	--	--	--	--	--	--	--	--	--	--	--
APR 30-MAY 07	.06	5.19	5.80	10.6	10.4	.38	.058	.084	.092	.13	1.27	.71	1.90
MAY 07-14	.00	--	--	--	--	--	--	--	--	--	--	--	--
MAY 14-21	.00	--	--	--	--	--	--	--	--	--	--	--	--
MAY 21-28	.00	--	--	--	--	--	--	--	--	--	--	--	--
MAY 28-JUN 04	.30	4.98	4.98	2.9	8.1	.08	.017	.029	.045	.07	.53	.20	.93

< Actual value is known to be less than the value shown.

CHEMICAL QUALITY OF PRECIPITATION

521

SILVER LAKE BASIN

430701121040001 SILVER LAKE RANGER STATION, OR--Continued

WATER-QUALITY DATA

Date	TOTAL PRECIPITATION FOR DEFINED PERIOD	PH FIELD ATM DEP WET T	PH LAB ATM DEP WET T	SPEC. CONDUCTANCE FIELD WET TOT	SPEC. CONDUCTANCE LAB WET TOT	CALCIUM ATM DEP WET DIS	MAGNESIUM ATM DEP WET DIS	POTASSIUM ATM DEP WET DIS	SODIUM ATM DEP WET DIS	CHLORIDE ATM DEP WET DIS	SULFATE ATM DEP WET DIS AS SO4	NI-TROGEN AMMON. ATM DEP WET DIS AS NH4	NI-TROGEN NITRATE ATM DEP WET DIS AS NO3
	(00193)	(83106)	(83107)	(83154)	(83156)	(82932)	(83002)	(83120)	(83138)	(82944)	(83160)	(83047)	(83071)
JUN 2002													
04-11	.00	--	--	--	--	--	--	--	--	--	--	--	--
JUN 11-18	<.01	--	--	--	--	--	--	--	--	--	--	--	--
JUN 18-24	.23	4.57	4.88	16.8	8.7	.07	.012	.032	.043	.06	.38	.12	.86
JUN 24-JUL 02	.08	--	--	--	--	--	--	--	--	--	--	--	--
JUL 02-09	.00	--	--	--	--	--	--	--	--	--	--	--	--
JUL 09-16	.04	--	7.70	--	160.4	5.14	.325	2.32	26.3	6.78	6.10	<.12	8.07
JUL 16-23	.09	5.39	6.85	41.4	34.8	1.42	.182	.410	.520	.27	.98	2.78	2.14
JUL 23-30	.00	--	--	--	--	--	--	--	--	--	--	--	--
JUL 30-AUG 06	.02	--	4.61	--	16.9	.17	.028	.028	.062	.20	.72	.42	1.31
AUG 06-13	.00	--	--	--	--	--	--	--	--	--	--	--	--
AUG 13-20	.00	--	--	--	--	--	--	--	--	--	--	--	--
AUG 20-27	.03	--	5.04	--	6.0	.12	.023	<.003	.016	.13	.15	<.02	.24
AUG 27-SEP 03	.06	4.60	4.52	17.8	20.7	.36	.049	.057	.071	.18	.98	.18	2.13
SEP 03-10	.10	4.75	4.80	17.3	15.0	.23	.062	.151	.343	.36	1.16	.32	1.77
SEP 10-17	.00	--	--	--	--	--	--	--	--	--	--	--	--
SEP 17-24	.16	5.39	5.35	2.7	2.8	.01	<.003	<.003	<.003	.02	.05	.05	.09
SEP 24-OCT 01	.01	--	--	--	--	--	--	--	--	--	--	--	--

< Actual value is known to be less than the value shown.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are usable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to these events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Records collected at crest-stage partial-record stations are presented in the following table. Discharge measurements made at low-flow partial-record sites and at miscellaneous sites and for special studies are given in separate tables.

## Crest-stage partial-record stations

The following table contains annual maximum discharge for crest-stage stations. A crest-stage gage is a device which will register the peak stage occurring between inspections of the gage. A stage-discharge relation for each gage is developed from discharge measurements made by indirect measurements of peak flow or by current meter. The date of the maximum discharge is not always certain but is usually determined by comparison with nearby continuous-record stations, weather records, or local inquiry. Only the maximum discharge for each water year is given. Information on some lower floods may have been obtained but is not published herein. The years given in the period of record represent water years for which the annual maximum has been determined.

## Annual maximum discharge at crest-stage partial-record stations during water year 2002

Station name and number	Location and drainage area	Period of record	Date	Water year 2002 maximum		Period of record maximum		Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
				Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)			
WILLAMETTE RIVER BASIN										
Wilson Creek near Hazelia (14207100)	Lat 45°22'56", long 122°40'49", in SE 1/4 SE 1/4 sec.72, T.2 S., R.1E., Clackamas County, Hydrologic Unit 17090010, at Long Farm Road, 0.7 mi southeast of Hazelia. Drainage area is 1.24 mi <sup>2</sup> .	2002	01/08/02	8.04	31	01/08/02	8.04	31		
Rock Creek at Sunnyside Road, near Damascus (14210830)	Lat 45°25'38", long 122°29'31", in NW 1/4 SW 1/4 sec.6, T.2 S., R.3E., Clackamas County, Hydrologic Unit 17090011, at private bridge 300 ft north of Sunnyside Road, 2 mi northwest of Damascus, and 1.75 upstream from confluence with Clackamas River. Drainage area is 6.46 mi <sup>2</sup> .	2002	01/25/02	7.06	507	01/25/02	7.06	507		
Rock Creek near Carver (14210850)	Lat 45°24'35", long 122°30'18", in SE 1/4 SE 1/4 sec.12, T.2 S., R.3E., Clackamas County, Hydrologic Unit 17090011, on private land adjacent to Hwy 212/224, 0.3 mi east of 142nd, 0.2 mi upstream from confluence with Clackamas River. Drainage area 9.59 mi <sup>2</sup> .	2002	01/25/02	6.38	409	01/25/02	6.38	409		
Kellogg Creek above Mt. Scott Creek near Milwaukie (14211330)	Lat 45°25'18", long 122°36'01", in NE 1/4 SW 1/4 sec.55, T.2 S., R. 2E., Clackamas County, Hydrologic Unit 17090012, on Parmenter Ct., 250 ft downstream from culvert. Drainage area is 2.26 mi <sup>2</sup> .	2002	01/25/02	8.02	59	01/25/02	8.02	59		
Mt. Scott Creek near Milwaukie (14211350)	Lat 45°25'37", long 122°36'30", in SW 1/4 SW 1/4 sec.54, T. 2 S., R.2E., Clackamas County, Hydrologic Unit 17090012, in North Clackamas Central Park, south of highway 224. Drainage area 11.82 mi <sup>2</sup> .	2002	01/25/02	7.99	308	01/25/02	7.99	308		

## Annual maximum discharge at crest-stage partial-record stations during water year 2002--Continued

Station name and number	Location and drainage area	Period of record	Date	Water year 2002 maximum		Period of record maximum		
				Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)	Date	Gage height (ft)	Dis-charge (ft <sup>3</sup> /s)
NESTUCCA RIVER BASIN								
Walker Creek near Fairdale (14302850)	Lat 45°18'12", long 123°24'51", in SW 1/4 SW 1/4 sec.15, T. 3 S., R.6 W., Yamhill County, Hydrologic Unit 17100203, at culvert, 5.3 mi southwest of Fairdale, and at mile 0.5. Drainage area is 2.72 mi <sup>2</sup> .	1992-2002	01/25/02	5.76	325	02-08-96	unknown	450
UMPQUA RIVER BASIN								
Elk Creek near Drew (14308500)	Lat 42°53'25", long 122°55'00", in SW 1/4 sec.11, T.31 S., R.2 W., Douglas County, Hydrologic Unit 17100302, 100 ft downstream from Dixon Creek, 0.1 mi upstream from Drew Creek, 1.3 mi northwest of Drew, Drew, 3.3 mi south of Tiller, and at mile 4.1. Drainage area is 54.4 mi <sup>2</sup> .	1955-82 1987-2002	12/14/01	7.28	2,560	01/09/95	11.09	9,120
Lookingglass Creek at Brockway (14311500)	Lat 43°07'50", long 123°27'50", in SE 1/4 SE 1/4 sec.13, T.28 S., R.7 W., Douglas County, Hydrologic Unit 17100302, on left bank, 1.7 mi northwest of Brockway, and at mile 2.85. Drainage area is 158 mi <sup>2</sup> .	1956-2002	12/14/01	7.70	2,760	12/26/55	24.93	35,000

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Measurements of streamflow at points other than gaging stations or partial-record stations are given in the following table. Discharge measurements made at miscellaneous sites during water year 2002.

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
KLAMATH RIVER BASIN						
Keno Power Canal	Link River	Lat 42°13'16", long 121°47'35", in SW 1/4 NW 1/4 sec.32, T.38 S., R.9 E., Klamath County, Hydrologic Unit 18010204, 600 ft downstream from Link River gage, and 1,200 ft upstream from Main Street Bridge.	3,810	1961-2001	10/24/01	270
					01/30/02	266
					04/17/02	287
					07/10/02	269
GRANDE RONDE RIVER BASIN						
13324280 Lookingglass Creek below Intake, near Looking Glass	Grande Ronde River	Lat 45°44'05", long 117°51'48", in SE 1/4 SW 1/4 sec.18, T.3 N., R.40 E., Union County, Hydrologic Unit 17060104, on right bank, 150 ft downstream from intake to Looking Glass Fish Hatchery, 1,300 ft upstream from gaging station (13324300), 2.5 mi northwest of Looking Glass, and at mile 2.5.	---	1999-2001	10/10/01 07/28/02	25 20
UMATILLA RIVER BASIN						
14020760 Cottonwood Creek near Mission	Umatilla River	Lat 45°39'38", long 118°33'52", in SW 1/4 SW 1/4 sec.8 T.2 N., R.34 E., Umatilla County, Hydrologic Unit 17070103, Umatilla Indian Reservation, on right bank, on downstream side of county road crossing, 4.5 mi west of Mission, and at mile 1.3.	4.01	1992-97‡ 1998-2001	11/14/01	no flow
					12/06/01	0.8
					01/25/02	3.0
					03/27/02	13
					05/21/02	0.1
		07/10/02	no flow			
DESCHUTES RIVER BASIN						
Badger Creek near Warm Springs	Warm Springs River	Lat 44°57'00", long 121°28'30", in NE 1/4 SW 1/4 sec.20 T.7 S., R.11 E., Wasco County, Hydrologic Unit 17070306	37.2	1973, 1977 1987	06/24/02	19
SANDY RIVER BASIN						
14131400 Zig Zag River near Rhododendron	Sandy River	Lat 45°18'32", long 121°51'31", in NE 1/4 SE 1/4 sec.18, T.3 S., R.8 E., Clackamas County, Hydrologic Unit 17080001, in Mt. Hood National Forest, at bridge, 0.5 mi upstream from Devil Canyon Creek, 1.2 mi downstream from Lady Creek, and 2.8 mi southeast of Rhododendron.	14.8	1981-93‡ 1999-2001	10/05/01	40
					12/03/01	75
					02/11/02	67
					08/19/02	57
WILLAMETTE RIVER BASIN						
14144800 Middle Fork Willamette River near Oakridge	Willamette River	Lat 43°35'50", long 122°27'20", in NW 1/4 NE 1/4 sec.9, T.23 E., Lane County, Hydrologic Unit 17090001, in Willamette National Forest, on right bank 0.2 mi upstream from Windfall Creek, 8.3 mi upstream from Hills Creek Dam, 10.2 mi south of Oakridge, and at mile 240.8.	258	---	08/02/02	255
Coast Fork Willamette River near London	Middle Fork Willamette River	Lat 43°38'55", long 123°04'54", in NE 1/4 SE 1/4 sec.42, T.22 S., R.3 W., Lane County, Hydrologic Unit 17090002, at London Road bridge, at London School (CF:Willamette River at London-14152500).	75.2	---	08/02/02	8.8
Horse Creek below Foley Springs	McKenzie River	Lat 44°09'44", long 122°09'14", in Se 1/4 NW 1/4 sec.24, T.15 S., R.5 E., Lane County, at Horse Creek Campground, approximately 300 ft upstream from Horse Creek Road bridge.	149.6	---	07/02/02	31
Quartz Creek near Blue River	.....do.....	Lat 44°11'20", long 122°19'50", in NW 1/4 SE 1/4 sec.9, T.16 S., R.4 E., Lane County, 150 ft upstream from Blue River Reservoir.	3.5	---	07/02/02	1.7
Coyote Creek	Long Tom River	Lat 44°09'19", long 123°17'22", Lane County, Hydrologic Unit 17090003, at downstream end of culvert, underneath Franklin Road.	---	---	08/21/02	3.1
Bear Creek at High Pass Road	.....do.....	Lat 44°12'08", long 123°17'11", Lane County, Hydrologic Unit 17090003, underneath High Pass Road bridge.	---	---	08/19/02	0.35
Amazon Creek at High Pass Road	.....do.....	Lat 44°11'37", long 123°14'51", Lane County, Hydrologic Unit 17090003, beneath High Pass Road bridge.	---	---	08/19/02	1.6
Ferguson Creek	.....do.....	Lat 44°14'52", long 123°17'10", Lane County, Hydrologic Unit 17090003, at Territorial Rd., 4.3 mi northwest of Junction City, and at mile 1.5.	---	---	05/09/02 08/20/02	14 1.0
Ferguson Creek	.....do.....	Lat 44°15'08", long 123°16'01", Lane County, Hydrologic Unit 17090003, at Ferguson Rd., 3.6 mi northwest of Junction City, and at mile 0.1.	---	---	05/08/02 08/20/02	94 28
Diversion at Ferguson Dam	.....do.....	Lat 44°15'05", long 123°15'34", Lane County, Hydrologic Unit 17090003, measured in flume.	---	---	08/20/02	15
Willamette River near Peoria	Columbia River	Lat 44°26'47", long 123°12'22", Linn/Benton Counties, Hydrologic Unit 17090003, near Peoria Park, and at mile 141.5.	---	---	06/12/02	6,740

‡ Operated as a continuous record gaging station.



## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
WILLAMETTE RIVER BASIN--Continued						
Willamette River near Corvallis	Columbia River	Lat 44°34'04", long 123°15'16", Linn/Benton Counties, Hydrologic Unit 17090003, 900 ft below Hwy 34 bridge, at Corvallis, and at mile 131.3.	---	---	09/24/02	5,290
Willamette River at Adair	.....do.....	Lat 44°38'16", long 123°09'32", Linn/Benton Counties, HKydrologic Unit 17090003, at Adair, and at mile 121.9.	---	---	06/11/02	7,090
Willamette River near mouth of Santiam River	.....do.....	Lat 44°44'11", long 122°08'06", Marion County, Hydrologic Unit 17090003, just upstream from mouth of Santiam River, and at mile 108.	---	---	06/11/02	7,270
North Santiam River near Marion Forks	Santiam River	Lat 44°30'03", long 122°00'08", Linn County, 50 ft downstream from OR 22 bridge, south of Marion Forks.	21.2	---	08/02/02	12
Breitenbush River below Breitenbush Hot Springs	North Santiam River	Lat 44°46'49", long 121°59'47", in SE 1/4 NE 1/4 sec.19, T.9 S., R.7 E., Marion County, at Breitenbush Campground, approximately 0.3 mi upstream from bridge to Breitenbush Hot Springs, near Detroit.	62.2	---	08/02/02	148
Canal Creek near Cascadia	South Santiam River	Lat 44°35'16", long 122°20'47", in NE 1/4 NE 1/4 sec.29, T.11 S., R.4 E., Linn County, 70 ft downstream from Forest Service road 11 bridge.	23.6	---	08/02/02	7.2
Santiam River near Talbot	Willamette River	Lat 44°45'05", long 123°07'27", Marion County, Hydrologic Unit 17090005, near Talbot, and 0.75 mi upstream from mouth.	---	---	09/25/02	1,870
Willamette River at Independence	Columbia River	Lat 44°50'41", long 123°10'43", Polk/Marion Counties, Hydrologic Unit 17090007, 350 ft upstream from South River Road bridge, at Independence, and at mile 96.3.	---	---	09/24/02	7,810
14206435 Beaverton Creek at SW 216th Ave., near Orenco	Tualatin River	Lat 45°31'15", long 122°53'54", in SW 1/4 SW 1/4 sec.47, T.1 N., R.,2 W., Washington County, at bridge at SW 216th Avenue, near Orenco.	36.0	---	08/02/02	6.2
14207100 Wilson Creek near Hazelia	Tualatin River	Lat 45°22'56", long 122°40'49", in SE 1/4 SE 1/4 sec.72, T.2 S., R.1E, Clackamas County, Hydrologic Unit 17090010, at Long Farm Road, 0.7 mi southeast of Hazelia.	1.24	---	09/10/01 09/27/01 11/14/01 12/13/01 03/14/02 09/09/02	no flow 0.02 0.68 9.2 5.9 no flow
14208000 Clackamas River at Big Bottom	Willamette River	Lat 45°01'00", long 121°55'10", in NW 1/4 SE 1/4 sec.26, T.6 S., R.7 E., Clackamas County, Mount Hood National Forest, on right bank at lower end of Big Bottom, 0.5 mi downstream from Pot Creek, 28 mi southeast of Estacada, and at mile 65.1.	136	1920-70‡, 1997-2001	11/28/01 04/25/02 07/10/02	600 712 311
Upper Clackamas River at Two Rivers Campground	Willamette River	Lat 45°01'55", long 122°03'31", in NW 1/4 SE 1/4 sec.22, T.6 S., R.6 E., Clackamas County, 250 ft from Forest Service Road 63 bridge, at Two Rivers Campground.	157.3	---	07/02/02	289
Oak Grove Fork	Clackamas River	Lat 45°04'48", long 122°02'30", in NE 1/4 SE 1/4 sec.2 T.6 S., R.6 E., Clackamas County, at OR 224 bridge, at Rainbow Campground.	140.8	---	07/02/02	15
14210830 Rock Creek at Sunnyside Road, near Damascus	Clackamas River	Lat 45°25'38", long 122°29'31", in NW 1/4 SW 1/4 sec.6, T.2 S., R.3 E., Clackamas County, Hydrologic Unit 17090011, at private bridge, 300 ft north of Sunnyside Road, 2 mi northwest of Damascus and 1.75 mi upstream from confluence with Clackamas River.	6.46	---	09/10/01 09/22/01 11/14/01 12/12/01 03/14/02 03/19/02	0.07 0.17 11 22 32 100
14210850 Rock Creek near Carver	.....do.....	Lat 45°24'35", long 122°30'18", in SE 1/4 SE 1/4, sec.12, T.2 S., R.3 E., Clackamas County, Hydrologic unit 17090011, on private land adjacent to Hwy 212/224, 0.3 mi east of 142nd, 0.2 mi upstream from confluence with Clackamas River.	9.59	2001	09/10/01 09/27/01 11/14/01 12/12/01 01/25/02 03/14/02 03/19/02	a0.77 a1.0 19 31 409 49 141
14211330 Kellogg Creek above Mt. Scott Creek, near Milwaukie	Willamette River	Lat 45°25'18", long 122°36'01", in NE 1/4 SW 1/4 sec.55, T.2 S., R.2 E., Clackamas County, Hydrologic unit 17090012 on Parmenter Ct., 250 ft downstream from culvert.	2.26	2001	09/10/01 09/27/01 11/14/01 12/13/01 03/14/02 03/19/02 05/17/02	a1.2 a1.2 5.5 33 6.5 14 2.5

‡ Operated as a continuous record gaging station.

a Not previously published.

## DISCHARGE AT PARTIAL-RECORD STATIONS AND MISCELLANEOUS SITES

Discharge measurements made at miscellaneous sites during water year 2002--Continued

Stream	Tributary to	Location	Drainage area (mi <sup>2</sup> )	Measured previously (water years)	Measurements	
					Date	Discharge (ft <sup>3</sup> /s)
WILLAMETTE RIVER BASIN--Continued						
14211350 Mt. Scott Creek near Milwaukie	Kellogg Creek	Lat 45°25'37", long 122°36'30", in SW 1/4 SW 1/4 sec. 54, T.2 S., R.2 E., Clackamas County, Hydrologic unit 17090010, in North Clackamas Central Park, south of Hwy 224.	11.82	2001	09/10/01	a1.7
					09/27/01	a3.6
					11/14/01	43
					12/05/01	213
					12/11/01	33
					01/25/02	308
	03/14/02	37				
	03/19/02	115				
Johnson Creek	Clackamas River	Lat 45°28'23", long 122°24'06", Multnomah County, Hydrologic Unit 17090012, at Palmbled Road, 2.1 mi southeast of Gresham, and at mile 17.2.	---	1987-88 1998-2001	01/25/02	446
					03/13/02	89
Johnson Creek	.....do.....	Lat 45°27'43", long 122°36'54", Multnomah County, Hydrologic Unit 17090012, at 45th Avenue, and at mile 3.2.	---	1988, 1997-2001	01/25/02 03/13/02	884 206
Errol Spring	Johnson Creek	Lat 45°27'49", long 122°37'00", Multnomah County, Hydrologic Unit 17090012, at 44th Avenue in Portland, at mouth.	---	1988, 1998-2001	09/13/02	0.34
14211546 Crystal Springs Creek	.....do	Lat 45°27'39", long 122°38'30", Multnomah County, Hydrologic Unit 17090012, at mouth.	---	1987-90 1997-2001	04/23/02	12
					09/13/02	10
NESTUCCA RIVER BASIN						
14302850 Walker Creek	Nestucca River	Lat 45°18'12", long 123°24'51", in SW 1/4 SW 1/4 sec.15, T.3 S., R.6 W., Yamhill County, Hydrologic Unit 17100203, 5.3 mi southwest of Fairdale, and at mile 0.5.	2.72	1991-2001	10/11/01	0.92
					12/21/01	36
					02/15/02	13
					04/11/02	19
					06/12/02	2.1
UMPQUA RIVER BASIN						
14308500 Elk Creek near Drew	South Umpqua River	Lat 42°53'25", long 122°55'00", in SW 1/4 sec. 11, T.31 S., R.2 W., Douglas County, Hydrologic Unit 17100302, 100 ft downstream from Dixon Creek, 0.1 mi upstream from Drew Creek, 1.3 mi north of Drew, 3.3 mi southeast of Tiller, and at mile 4.1.	54.4	1955-82‡, 1987-2001‡	11/29/01	171
					03/14/02	85

‡ Operated as a continuous record gaging station.

## DISCHARGE AT VARIOUS WILLAMETTE AND SANTIAM RIVER SITES

Measurements were made in March 2002 as part of a hydrologic and water temperature modeling study of the main stem and major tributaries of the Willamette River, Oregon. Measurements of streamflow at points other than gaging stations are given in the following table. Measurements were made by the U.S. Geological Survey (USGS).

Willamette River Date	River Mile	Longitude	Latitude	Measurements of Discharge (ft <sup>3</sup> /s)
3/19/02	175	123 06.4462	44 07.5828	10,200
3/19/02	174	123 07.2424	44 08.0848	10,600
3/18/02	172	123 07.8735	44 09.4089	10,900
3/18/02	170	123 07.8363	44 10.8349	11,200
3/18/02	168.9	123 08.7614	44 11.2817	11,200
3/18/02	168	123 09.3911	44 11.8970	11,000
3/18/02	167	123 09.8838	44 12.2464	11,000
3/19/02	166	123 09.4235	44 13.0377	10,800
3/19/02	163.6	123 09.9620	44 14.3049	10,800
3/19/02	161	123 10.4752	44 16.4395	10,400
3/20/02	160	123 11.0525	11 17.0942	11,000
3/20/02	158	123 11.8311	44 18.5147	11,100
3/20/02	157	123 12.9649	44 18.6465	10,900
3/20/02	156	123 13.0345	44 19.3874	10,500
3/20/02	154	123 14.7337	44 19.9842	11,200
3/20/02	153	123 13.9034	44 20.4035	11,100
3/20/02	151	123 13.1142	44 21.6784	11,300
3/20/02	150	123 13.9111	44 22.2647	10,800
3/20/02	148	123 14.2193	44 23.0808	11,700
3/20/02	147	123 13.4006	44 23.7526	12,100
3/20/02	146	123 13.6764	44 24.5047	11,800
3/21/02	144	123 13.6917	44 25.8357	11,300
3/21/02	143	123 12.8245	44 26.0815	11,600
3/21/02	142	123 12.4831	44 26.8030	11,300
3/21/02	141	123 12.7373	44 27.4950	12,000
3/21/02	140	123 13.0384	44 28.3507	11,800
3/21/02	139	123 13.1069	44 28.8939	11,800
3/21/02	138	123 12.9158	44 29.5677	11,700
3/21/02	137	123 12.7944	44 30.3694	11,800
3/21/02	136	123 13.7550	44 31.1693	11,900
3/21/02	135	123 14.5852	44 31.6235	11,900
3/21/02	134	123 14.9456	44 32.1676	11,100
3/21/02	133	123 14.6312	44 32.9250	12,500
3/21/02	132	123 15.6533	44 33.4146	14,200
3/21/02	131	123 15.2800	44 34.2731	14,300
3/21/02	130	123 14.4337	44 34.7353	14,200
3/21/02	129	123 13.3484	44 35.0814	14,300
3/21/02	128	123 12.0818	44 35.1723	14,600
3/21/02	127	123 10.0335	44 35.3661	14,200
3/22/02	126.3	123 11.4162	44 35.7371	14,400
3/22/02	125.4	123 11.8867	44 36.1528	14,700
3/22/02	124.5	123 10.9787	44 36.6462	14,700
3/22/02	123.5	123 10.4439	44 37.2074	14,300
3/22/02	122.8	123 10.3358	44 37.9130	14,400
3/22/02	121.8	123 09.3014	44 38.2270	14,300
3/22/02	121	123 08.07	44 38.26	14,600
3/22/02	119.6	123 06.51	44 38.36	15,800
3/25/02	119	123 05.9805	44 38.4211	18,800
3/25/02	118	123 04.9051	44 38.7525	19,300
3/25/02	117	123 04.3944	44 39.4446	19,200
3/25/02	116	123 05.1607	44 40.0491	19,500
3/14/02	115	123 05.7794	44 40.5722	29,100
3/14/02	114	123 06.9857	44 40.5972	29,400
3/14/02	113	123 07.3766	44 41.5036	31,000
3/14/02	112	123 08.3118	44 42.1913	29,100
3/14/02	110	123 09.0844	44 43.4817	29,700
3/14/02	109	123 08.1271	44 44.2505	29,600
3/14/02	108.4	123 08.0363	44 44.6704	30,200
3/14/02	107.6	123 08.8502	44 45.0744	50,700
3/14/02	107	123 08.9108	44 45.5705	52,500

## DISCHARGE AT VARIOUS WILLAMETTE RIVER SITES

Willamette River Date	River Mile	Longitude	Latitude	Measurements of Discharge (ft <sup>3</sup> /s)
3/14/02	106.4	123 08.7455	44 46.2308	51,200
3/14/02	105	123 07.9518	44 47.1293	50,400
3/14/02	104	123 06.9422	44 47.7142	50,800
3/14/02	103	123 05.7544	44 48.0653	51,200
3/14/02	102	123 05.6667	44 48.8671	51,600
3/15/02	101.9	123 05.7429	44 48.9279	45,200
3/15/02	101	123 06.6915	44 49.2997	44,400
3/15/02	100	123 07.8390	44 49.6040	44,200
3/15/02	97.8	123 09.6523	44 49.7461	44,300
3/15/02	96.8	123 10.2582	44 49.7377	44,800
3/15/02	96	123 10.8561	44 51.0217	45,000
3/15/02	95	123 10.5210	44 51.7601	43,500
3/15/02	94	123 09.5535	44 51.6605	44,300
3/15/02	93	123 08.9161	44 51.9308	44,400
3/15/02	91	123 08.0618	44 53.3556	44,600
3/15/02	90	123 07.7324	44 45.3370	44,600
3/15/02	89	123 06.7239	44 45.9525	43,900
3/25/02	77.1	123 04.5317	45 01.2664	30,700
3/25/02	76	123 04.1508	45 02.5320	31,200
3/25/02	75	123 04.0841	45 03.4165	30,700
3/25/02	74	123 03.9783	45 04.2841	31,300
3/25/02	73	123 03.8125	45 04.8906	31,200
3/26/02	44	122 51.6825	45 15.2334	32,800
3/26/02	43	122 50.6627	45 15.7726	32,400
3/8/02	42	122 50.0954	45 16.4657	33,800
3/8/02	41	122 48.8583	45 16.8800	34,300
3/8/02	40	122 47.5642	45 17.4131	34,200
3/8/02	38.6	122 46.3064	45 17.5300	34,600
3/8/02	37.8	122 45.2165	45 17.7930	34,200
3/8/02	36.6	122 44.0215	45 18.1520	33,600
3/8/02	35	122 42.2170	45 17.8082	40,300
3/7/02	33.8	122 41.0406	45 17.8133	39,000
3/7/02	32.5	122 39.8615	45 17.1432	35,300
3/7/02	31.5	122 39.5744	45 17.8895	37,400
3/6/02	30.5	122 39.9078	45 18.6664	20,000
3/6/02	29.0	122 39.4617	45 19.8920	20,000
3/6/02	28.3	122 38.8956	45 20.2577	20,900

Santiam River Date	River Mile	Longitude	Latitude	Measurements of Discharge (ft <sup>3</sup> /s)
3/13/02	6	123 02.9919	44 44.3079	20,000
3/13/02	5	123 03.6670	44 44.8288	20,800
3/13/02	4	123 04.7201	44 44.5756	20,000
3/13/02	3	123 05.9022	44 44.7702	21,500
3/13/02	2	123 06.0978	44 45.5438	19,400
3/13/02	1	123 07.6279	44 45.0821	20,800
3/13/02	0.3	123 08.3738	44 44.9875	20,900

# Oregon Wells

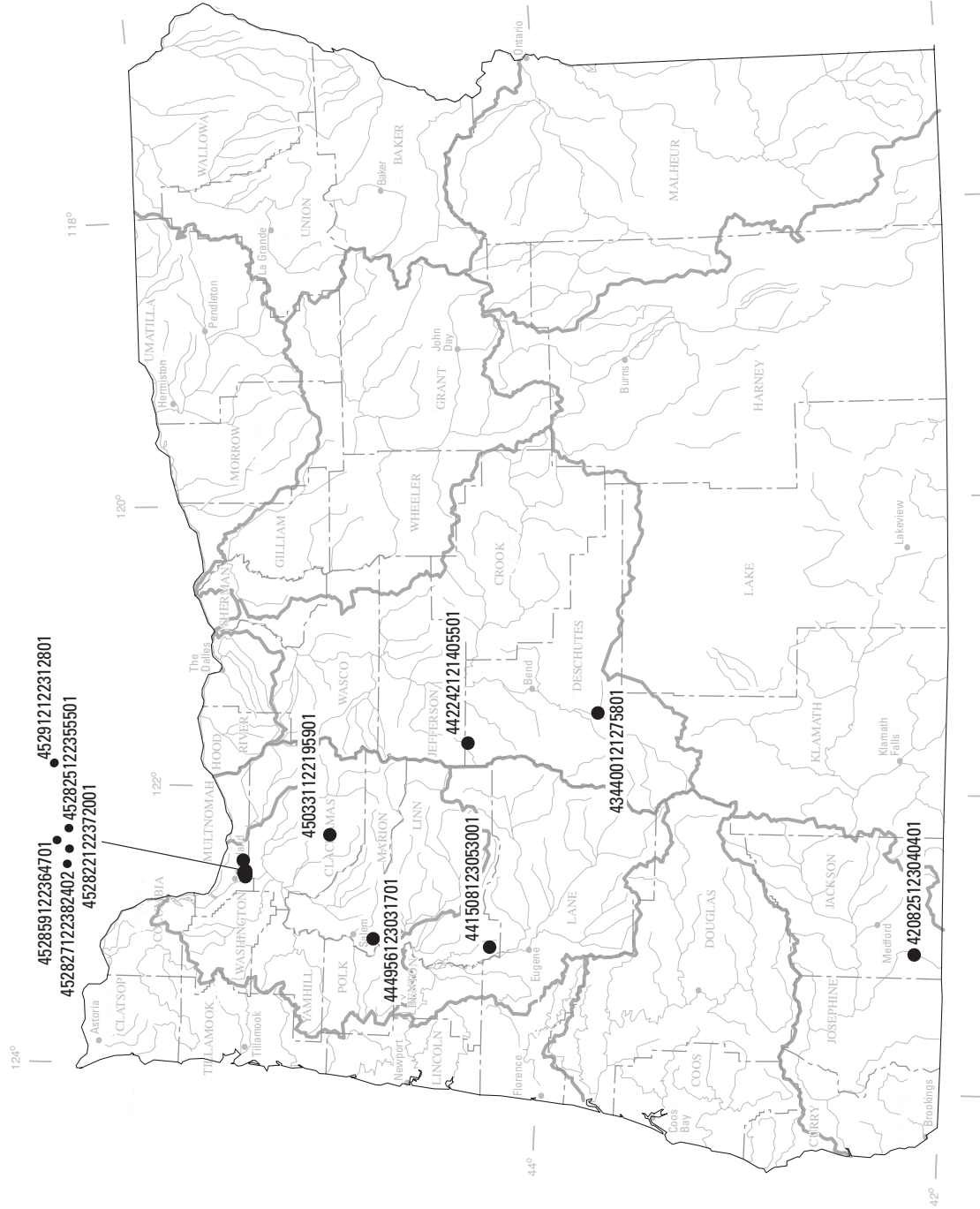


Figure 36. Location of observation wells in Oregon.

## GROUND WATER LEVELS

## CLACKAMAS COUNTY

452033122195901. Local number, 02S/04E-29DAD

LOCATION.--Lat 45°21'56", long 122°20'00", Hydrologic Unit 17090011, 5 mi north of Estacada.

Owner: Polly and Michael Lohrey.

AQUIFER.--Sandy River Mudstone/Troutdale Gravel Aquifer. Tertiary.

WELL CHARACTERISTICS.--Drilled irrigation well, 6 inch casing to 176.3 ft, completed depth of 177 ft, perforated 95 to 110 ft, 129 to 149 ft.

INSTRUMENTATION.--Periodic measurements with chalked steel tape by USGS and Oregon Water Resources Department personnel from Feb. 1998 to Sept. 2001; periodic measurements using electric sounder tape and chalked steel tape by Oregon Water Resources Department personnel from Mar. 1962 to Jan. 1998; electronic data logger 120-minute interval, since Sept. 7, 2001.

DATUM.--Elevation of land surface is 712 ft above National Geodetic Vertical Datum of 1929 (from topographic map).

Measuring point: westside bottom of pump base, 0.4 ft above land-surface datum before recorder installed. After recorder installed, measuring point: top of measuring point hole in recorder shelf, 2.43 ft above land-surface datum.

REMARKS.--Unused. State observation well number 37. State well identification CLAC 6388 and CLAC 6389 (deepening). Entire record from May 1958 to September 1998 published in the 1998 Water Data Report (WDR-OR-98-1).

PERIOD OF RECORD.--May 1958, March 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 54.17 ft below land-surface datum, October 27, 1998; lowest measurement, 91.96 ft below land-surface datum, July 20, 1970 (recovering).

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 61.92 ft below land-surface datum, June 20; lowest water level measured, 66.81 ft below land-surface datum, Oct. 17.

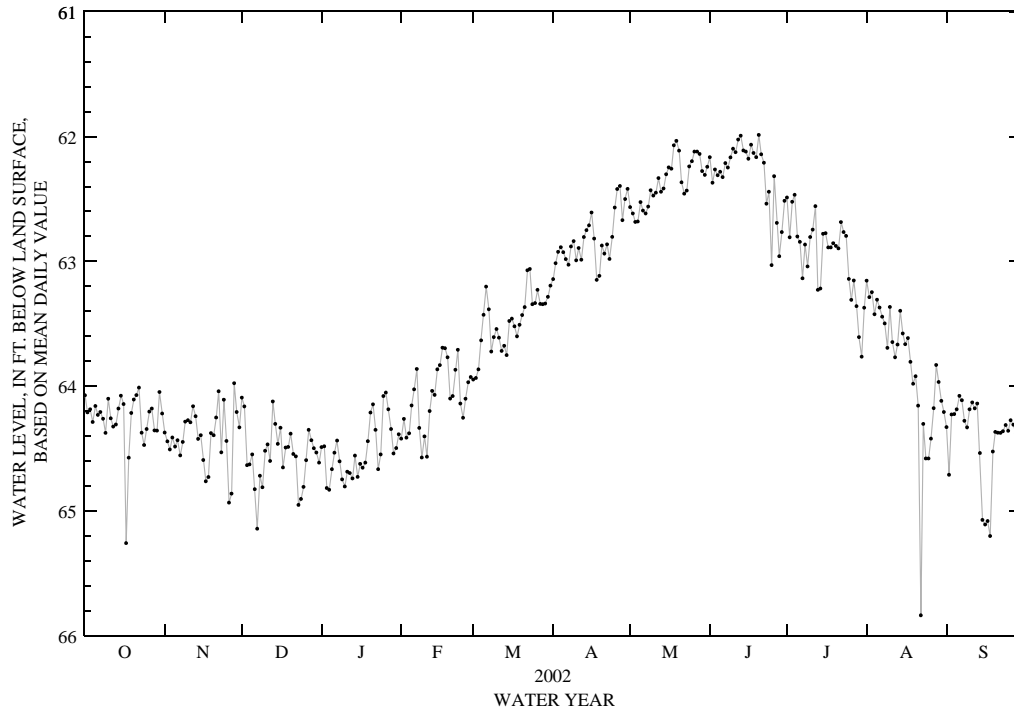
DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	64.07	64.37	64.09	64.49	64.42	63.95	63.14	62.57	62.17	62.49	63.16	64.33
2	64.21	64.44	64.16	64.48	64.26	63.94	63.02	62.62	62.37	62.81	63.29	64.71
3	64.19	64.51	64.63	64.82	64.41	63.87	62.92	62.68	62.27	62.52	63.25	64.23
4	64.29	64.41	64.63	64.83	64.38	63.63	62.89	62.68	62.31	62.47	63.42	64.23
5	64.16	64.48	64.55	64.67	64.16	63.43	62.93	62.53	62.28	62.80	63.31	64.19
6	64.23	64.43	64.83	64.53	64.03	63.20	62.98	62.59	62.33	62.84	63.37	64.08
7	64.21	64.56	65.14	64.44	63.86	63.38	63.03	62.62	62.21	63.14	63.44	64.11
8	64.26	64.45	64.72	64.60	64.33	63.72	62.88	62.56	62.25	62.87	63.50	64.28
9	64.38	64.28	64.81	64.75	64.57	63.61	62.84	62.43	62.17	63.04	63.69	64.33
10	64.10	64.27	64.52	64.80	64.40	63.54	62.99	62.47	62.10	62.81	63.37	64.19
11	64.26	64.29	64.47	64.69	64.57	63.61	62.89	62.45	62.13	62.75	63.65	64.13
12	64.33	64.16	64.60	64.70	64.20	63.72	62.99	62.33	62.03	62.56	63.77	64.18
13	64.31	64.24	64.12	64.74	64.04	63.68	62.81	62.44	61.99	63.23	63.67	64.14
14	64.18	64.42	64.30	64.56	64.07	63.75	62.75	62.42	62.11	63.22	63.40	64.54
15	64.08	64.39	64.46	64.73	63.87	63.48	62.71	62.30	62.12	62.78	63.58	65.07
16	64.14	64.59	64.33	64.62	63.83	63.46	62.61	62.25	62.18	62.78	63.66	65.11
17	65.26	64.76	64.65	64.65	63.69	63.52	62.82	62.26	62.07	62.89	63.62	65.08
18	64.57	64.73	64.49	64.61	63.70	63.60	63.15	62.07	62.13	62.89	63.81	65.20
19	64.22	64.38	64.49	64.44	63.77	63.51	63.12	62.03	62.17	62.85	63.98	64.52
20	64.11	64.39	64.38	64.21	64.10	63.43	62.87	62.11	61.99	62.88	63.92	64.37
21	64.07	64.25	64.54	64.15	64.08	63.37	62.94	62.37	62.14	62.90	64.16	64.37
22	64.01	64.04	64.56	64.35	63.87	63.07	62.87	62.46	62.21	62.69	65.84	64.38
23	64.37	64.53	64.95	64.67	63.71	63.06	62.98	62.43	62.54	62.77	64.30	64.36
24	64.47	64.11	64.91	64.55	64.14	63.34	62.80	62.24	62.44	62.80	64.58	64.31
25	64.34	64.44	64.81	64.08	64.25	63.34	62.57	62.20	63.03	63.14	64.58	64.36
26	64.21	64.93	64.59	64.05	64.10	63.23	62.42	62.12	62.32	63.31	64.42	64.27
27	64.18	64.86	64.35	64.19	63.97	63.34	62.40	62.12	62.69	63.15	64.18	64.31
28	64.36	63.98	64.43	64.34	63.93	63.34	62.67	62.14	62.96	63.36	63.83	64.38
29	64.36	64.21	64.50	64.54	---	63.34	62.50	62.28	62.77	63.61	63.97	64.42
30	64.05	64.33	64.53	64.50	---	63.28	62.42	62.31	62.52	63.77	64.12	64.53
31	64.22	---	64.61	64.39	---	63.20	---	62.24	---	63.37	64.21	---
MEAN	64.26	64.41	64.55	64.52	64.10	63.48	62.83	62.37	62.30	62.95	63.84	64.42
MAX	65.26	64.93	65.14	64.83	64.57	63.95	63.15	62.68	63.03	63.77	65.84	65.20
MIN	64.01	63.98	64.09	64.05	63.69	63.06	62.40	62.03	61.99	62.47	63.16	64.08

GROUND WATER LEVELS

CLACKAMAS COUNTY--Continued

Well identifier continued: 452033122195901. Local number, 02S/04E-29DAD



## GROUND WATER LEVEL

## DESCHUTES COUNTY

434400121275801. Local number, 21S/11E-19CCC. Formerly 21S/10E-25A1.

LOCATION.--Lat 43°44'01", long 121°27'57", Hydrologic Unit 17070302, 4.7 mi north of La Pine.

Owner: Luis Arena.

AQUIFER.--Valley-fill deposits. Quaternary.

WELL CHARACTERISTICS.--Drilled domestic well deepened from 37 to 100 ft in 1964, 6 inch casing 0 to 69.5 ft, completed depth of 100 ft, sounded depth of 92.5 ft on Feb. 26, 1998.

INSTRUMENTATION.--Periodic measurements with chalked steel tape by USGS and Oregon Water Resources Department personnel May 1998 to May 1999; periodic measurements using electric sounder tape and chalked steel tape by Oregon Water Resources Department personnel from October 1964 to March 1998; electronic data logger 120 minute interval May 14, 1999 to current year.

DATUM.--Elevation of land surface is 4220 ft above National Geodetic Vertical Datum of 1929 (from topographic map).

Measuring point: top of recorder shelf, 2.42 ft above land surface datum.

REMARKS.--Unused. State observation well number 118. State well identification DESC 7620. Historical record prior to deepening available in USGS WSP 1845, pg. 77 and depicted on a hydrograph in USGS OFR 97-197, pg. 24, Figure 8. Entire historical record post-deepening, up to 1999 water year, available in the 1998 Water Data Report (WDR-OR-98-1).

PERIOD OF RECORD.--October 1964 to current year. Records between October 1964 and October 1965 are published in USGS WSP 1845, pg. 77; records between February 1966 and October 1970 are published in USGS WSP 1980, pg. 81; and records between January 1971 and October 1974 are published in USGS WSP 2161. Records between October 1964 and October 1997 are depicted on a hydrograph in USGS OFR 97-197, pg. 24, Fig. 8. Record for October 1985 is published in same OFR, pg. 65, Table 1.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 11.98 ft below land-surface datum, Oct. 24, 1984; lowest measurement, 41.63 ft below land-surface datum, Oct. 23, 1964.

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 22.07 ft below land-surface datum, Oct. 27; lowest measurement, 27.13 ft below land-surface datum, Mar. 8-11, 13, 14.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	22.70	22.22	24.35	25.75	26.61	27.07	26.53	25.17	25.00	23.69	23.63	23.97
2	22.70	22.28	24.41	25.78	26.63	27.09	26.47	25.14	24.92	23.66	23.61	23.98
3	22.69	22.34	24.52	25.84	26.68	27.09	26.41	25.13	24.83	23.64	23.58	23.98
4	22.68	22.37	24.56	25.87	26.70	27.09	26.35	25.11	24.74	23.63	23.56	24.01
5	22.66	22.42	24.60	25.89	26.71	27.09	26.29	25.08	24.66	23.61	23.54	24.04
6	22.65	22.48	24.68	25.91	26.72	27.08	26.26	25.07	24.57	23.60	23.52	24.05
7	22.65	22.60	24.76	25.94	26.74	27.09	26.23	25.06	24.48	23.59	23.51	24.08
8	22.64	22.67	24.78	25.97	26.79	27.13	26.18	25.05	24.39	23.61	23.50	24.12
9	22.64	22.73	24.85	26.00	26.82	27.12	26.15	25.04	24.30	23.59	23.48	24.14
10	22.60	22.81	24.88	26.04	26.83	27.13	26.14	25.05	24.22	23.55	23.45	24.15
11	22.56	22.87	24.94	26.07	26.86	27.13	26.10	25.07	24.14	23.51	23.45	24.17
12	22.57	22.96	25.01	26.09	26.86	27.12	26.09	25.09	24.08	23.48	23.45	24.20
13	22.54	23.07	25.03	26.12	26.87	27.12	26.04	25.10	24.01	23.48	23.46	24.23
14	22.50	23.16	25.06	26.13	26.91	27.13	25.97	25.11	23.96	23.47	23.45	24.26
15	22.47	23.24	25.13	26.18	26.92	27.10	25.94	25.12	23.92	23.46	23.45	24.28
16	22.43	23.33	25.17	26.21	26.93	27.09	25.90	25.14	23.89	23.46	23.47	24.32
17	22.42	23.43	25.23	26.23	26.94	27.09	25.87	25.16	23.86	23.49	23.49	24.34
18	22.40	23.50	25.25	26.26	26.97	27.09	25.84	25.17	23.82	23.51	23.51	24.39
19	22.34	23.56	25.29	26.28	26.98	27.08	25.77	25.20	23.82	23.53	23.52	24.41
20	22.29	23.64	25.31	26.29	27.01	27.07	25.70	25.22	23.79	23.55	23.56	24.44
21	22.24	23.69	25.36	26.31	27.02	27.05	25.65	25.27	23.78	23.57	23.60	24.48
22	22.19	23.76	25.41	26.36	27.01	27.01	25.60	25.30	23.78	23.59	23.63	24.51
23	22.17	23.87	25.48	26.40	27.01	26.98	25.56	25.32	23.77	23.61	23.67	24.53
24	22.17	23.89	25.51	26.41	27.05	26.97	25.50	25.33	23.77	23.65	23.70	24.55
25	22.14	24.01	25.54	26.41	27.07	26.93	25.43	25.34	23.76	23.66	23.75	24.59
26	22.11	24.12	25.57	26.42	27.06	26.89	25.37	25.34	23.75	23.67	23.79	24.61
27	22.08	24.16	25.59	26.46	27.05	26.85	25.33	25.33	23.74	23.68	23.81	24.64
28	22.11	24.13	25.63	26.50	27.05	26.79	25.30	25.31	23.72	23.70	23.82	24.67
29	22.13	24.20	25.66	26.54	---	26.73	25.24	25.26	23.71	23.70	23.85	24.71
30	22.11	24.31	25.70	26.56	---	26.67	25.19	25.20	23.71	23.67	23.89	24.75
31	22.16	---	25.73	26.59	---	26.60	---	25.11	---	23.66	23.93	---
MEAN	22.41	23.26	25.13	26.19	26.89	27.02	25.88	25.17	24.10	23.59	23.60	24.32
MAX	22.70	24.31	25.73	26.59	27.07	27.13	26.53	25.34	25.00	23.70	23.93	24.75
MIN	22.08	22.22	24.35	25.75	26.61	26.60	25.19	25.04	23.71	23.46	23.45	23.97

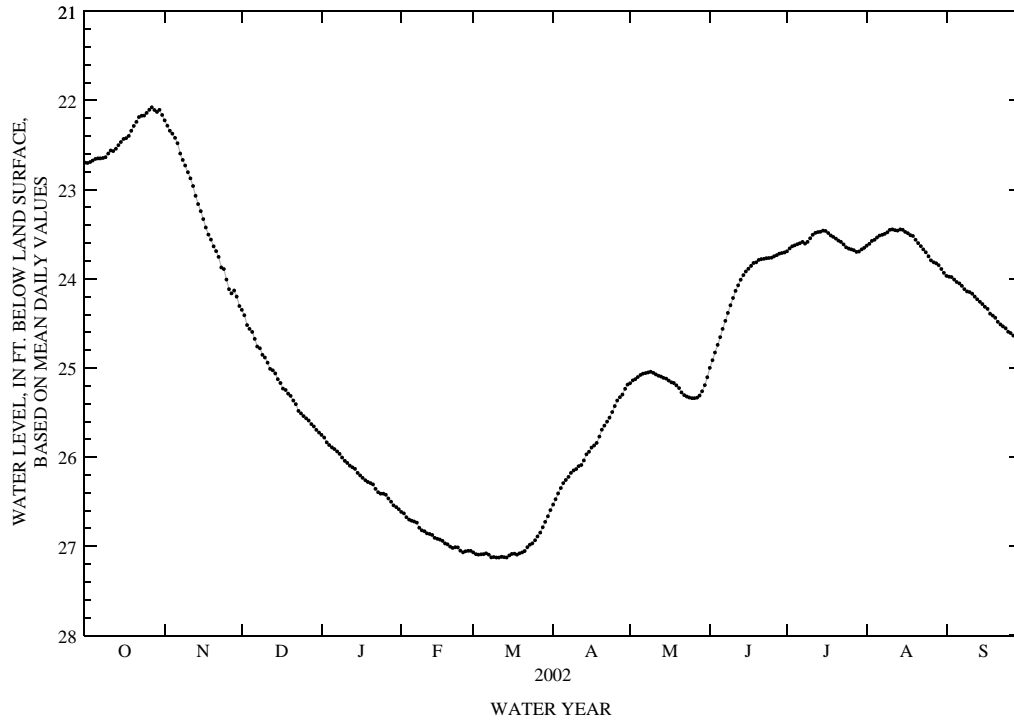


GROUND WATER LEVELS

GROUND WATER LEVELS

DESCHUTES COUNTY--Continued

Well identifier continued: 434400121275801. Local number, 21S/11E-19CCC



## GROUND WATER LEVELS

## DESCHUTES COUNTY

442242121405501. Local number, 14S/09E-08ABA

LOCATION.--Lat 44°22'42", long 121°40'59", Hydrologic Unit 17070301, 2.8 mi southwest of the peak of Black Butte.

Owner: Kiewit Pacific Company.

AQUIFER.--Volcanic rock. Quarternary.

WELL CHARACTERISTICS.--Drilled industrial well, 6 inch casing to 335 ft, completed depth of 403 ft.

INSTRUMENTATION.--Electronic data logger 120-minute interval by Oregon Water Resources Department personnel from November 1993 to May 1999 and by USGS personnel from May 1999 to current year.

DATUM.--Elevation of land surface is 3380 ft above National Geodetic Vertical Datum of 1929 (from topographic map).

Measuring point: top of casing 1.65 ft above land-surface datum.

REMARKS.--Unused. State well identification DESC 1804. Water levels prior to Oct. 1, 1998 subject to variation of up to 0.32ft due to differences in measurement method. Mean monthly water level December 1993 to September 1998 available in 1998 Water Data Report (WDR-OR-98-1). A graph of unit value water levels from November 1993 to December 1996 is shown in USGS (Open File Report) OFR 97-197, pg. 10. Measurement August 1993 published in same publication, pg. 35, Table 1.

PERIOD OF RECORD.--May 1985; August 1993 to current year. Electronic data logger with 120-minute recording interval November 23 to December 16, 1993; 15-minute interval December 16, 1993 to February 2, 1994; 120-minute interval Feb. 2, 1994 to Aug. 13, 2002; 10-minute interval Aug. 13, 2002 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 284.20 ft below land-surface datum, Oct. 8, 1997; lowest measurement, 304.17 ft below land-surface datum, Feb. 1, 1995

EXTREMES FOR CURRENT YEAR.--Highest water level measured, 292.34 ft below land-surface datum, Oct. 1, lowest measurement, 295.79 ft below land-surface datum, July 27.

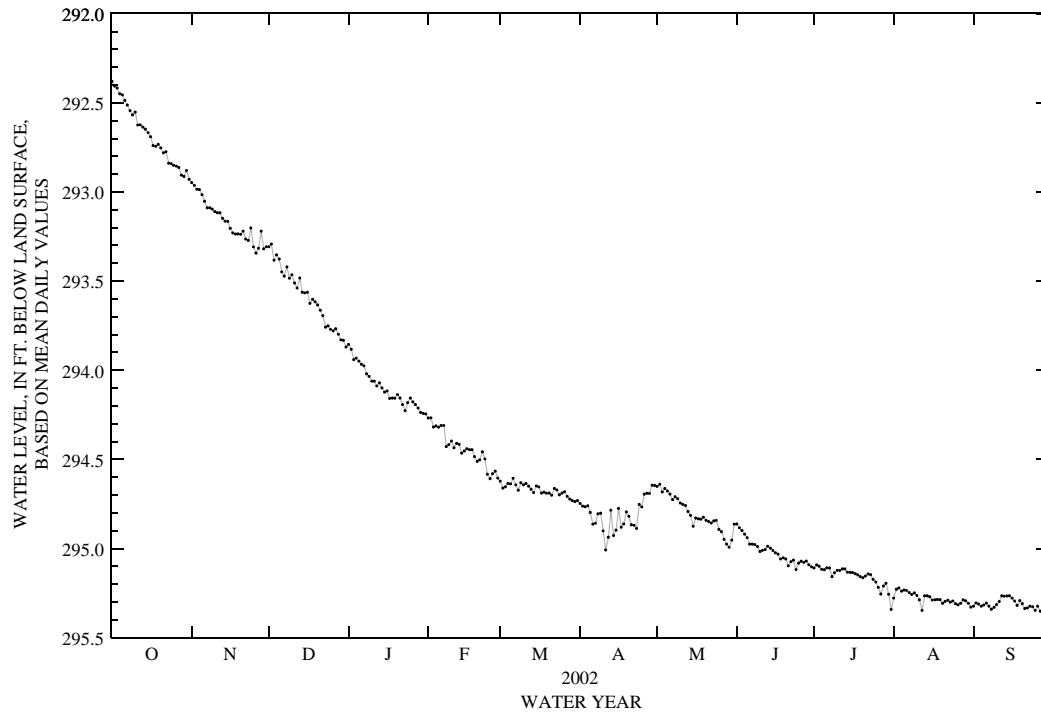
DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	292.38	292.95	293.31	293.86	294.27	294.62	294.75	294.65	294.86	295.11	295.28	295.32
2	292.41	292.96	293.29	293.88	294.27	294.66	294.76	294.64	294.88	295.09	295.23	295.30
3	292.42	292.99	293.38	293.94	294.32	294.65	294.77	294.68	294.90	295.10	295.22	295.31
4	292.45	292.99	293.35	293.93	294.31	294.63	294.76	294.66	294.92	295.12	295.24	295.32
5	292.46	293.02	293.38	293.95	294.32	294.64	294.80	294.68	294.94	295.12	295.23	295.32
6	292.49	293.05	293.45	293.97	294.31	294.61	294.86	294.69	294.98	295.11	295.24	295.31
7	292.51	293.09	293.47	293.98	294.31	294.64	294.86	294.73	294.98	295.11	295.25	295.32
8	292.54	293.09	293.42	294.02	294.43	294.67	294.81	294.71	294.98	295.16	295.26	295.34
9	292.57	293.10	293.48	294.03	294.42	294.63	294.80	294.72	294.99	295.14	295.25	295.33
10	292.55	293.11	293.46	294.06	294.40	294.64	294.90	294.75	295.02	295.12	295.26	295.31
11	292.62	293.12	293.51	294.06	294.44	294.63	295.01	294.75	295.01	295.12	295.29	295.30
12	292.62	293.12	293.54	294.09	294.41	294.65	294.94	294.76	295.01	295.11	295.35	295.27
13	292.64	293.15	293.48	294.07	294.42	294.67	294.79	294.79	294.99	295.11	295.26	295.27
14	292.65	293.16	293.56	294.10	294.46	294.69	294.93	294.81	295.00	295.13	295.27	295.27
15	292.67	293.17	293.57	294.12	294.45	294.65	294.90	294.88	295.01	295.13	295.27	295.26
16	292.69	293.20	293.56	294.12	294.44	294.65	294.78	294.83	295.02	295.13	295.29	295.28
17	292.74	293.23	293.63	294.16	294.45	294.69	294.88	294.83	295.03	295.14	295.29	295.29
18	292.74	293.24	293.60	294.16	294.45	294.68	294.86	294.84	295.06	295.15	295.29	295.32
19	292.73	293.24	293.62	294.16	294.49	294.69	294.80	294.83	295.05	295.16	295.29	295.29
20	292.75	293.24	293.63	294.14	294.51	294.69	294.82	294.84	295.06	295.16	295.31	295.31
21	292.78	293.22	293.66	294.16	294.50	294.70	294.87	294.85	295.10	295.15	295.30	295.34
22	292.77	293.26	293.69	294.19	294.46	294.66	294.87	294.86	295.07	295.14	295.29	295.33
23	292.84	293.27	293.76	294.23	294.50	294.67	294.89	294.85	295.07	295.15	295.30	295.32
24	292.84	293.20	293.75	294.18	294.58	294.70	294.75	294.84	295.12	295.17	295.29	295.33
25	292.85	293.31	293.77	294.16	294.61	294.69	294.77	294.89	295.08	295.19	295.31	295.35
26	292.85	293.34	293.78	294.18	294.58	294.68	294.70	294.91	295.07	295.22	295.32	295.32
27	292.86	293.32	293.77	294.19	294.57	294.71	294.69	294.95	295.08	295.26	295.31	295.35
28	292.91	293.22	293.80	294.21	294.60	294.72	294.69	294.98	295.07	295.21	295.29	295.34
29	292.91	293.32	293.83	294.24	---	294.73	294.65	294.99	295.09	295.19	295.29	295.36
30	292.88	293.31	293.83	294.24	---	294.74	294.65	294.95	295.10	295.26	295.31	295.38
31	292.93	---	293.87	294.25	---	294.73	---	294.86	---	295.34	295.33	---
MEAN	292.68	293.17	293.59	294.10	294.44	294.67	294.81	294.81	295.02	295.15	295.28	295.32
MAX	292.93	293.34	293.87	294.25	294.61	294.74	295.01	294.99	295.12	295.34	295.35	295.38
MIN	292.38	292.95	293.29	293.86	294.27	294.61	294.65	294.64	294.86	295.09	295.22	295.26

GROUND WATER LEVELS

DESCHUTES COUNTY--Continued

Well identifier continued: 442242121405501. Local number, 14S/09E-08ABA



## GROUND WATER LEVELS

## JACKSON COUNTY

420825123040401. Local number, 39S/03E-33BBA1.

LOCATION.--Lat 42°08'25", long 123°04'04", Hydrologic Unit 17100309, 1 mi north of McKee Bridge.

Owner: Jackson County Fire District.

AQUIFER.--Triassic and Permian volcanic and metovolcanic, rocks.

WELL CHARACTERISTICS.--Drilled domestic well, 6 inch casing 0 to 38 ft, completed depth of 260 ft.

INSTRUMENTATION.--Periodic measurements with chalked steel tape by USGS personnel since April 1999; periodic measurements with chalked steel tape by USGS personnel from June 1989 to August 1995.

DATUM.--Elevation of land surface is 1650 ft above National Geodetic Vertical Datum of 1929 (from topographic map).

Measuring point: top of south bolt hole in cap, 1.10 ft above land surface datum.

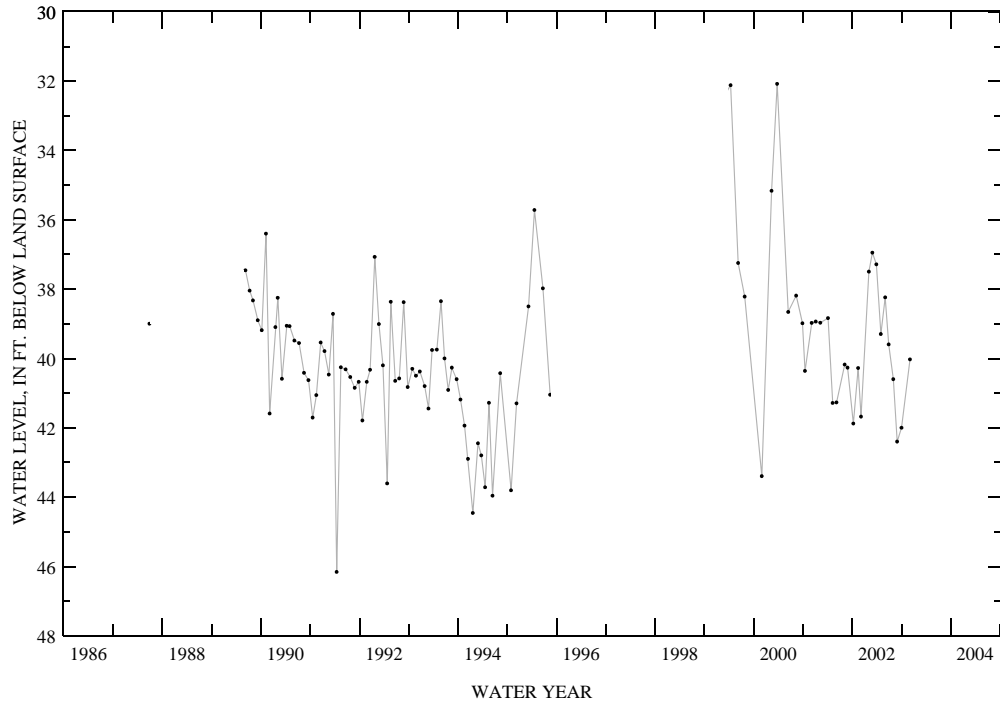
REMARKS.--Used. State well identification JACK 18427. Entire record from June 1987 to July 1999 published in the 1999 Water Data Report (WDR-OR-99-1).

PERIOD OF RECORD.--June 1987, June 1989 to June 1995, April 1999 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 32.08 ft below land-surface datum, Mar.23, 2000; lowest measurement, 46.16 ft below land-surface datum, Apr. 15, 1991.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM  
WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL	DATE	WATER LEVEL
OCT 09	41.88	FEB 01	37.50	MAY 01	39.30	AUG 02	40.60
NOV 14	40.28	28	36.95	JUN 03	38.24	30	42.40
DEC 06	41.68	MAR 29	37.29	28	39.60		



## GROUND WATER LEVELS

## LINN COUNTY

441508123053001. Local number, 15S/03W-19ACD

LOCATION.--Lat 44°15'08", long 123°05'31", Hydrologic Unit 17090003, 4 mi east of Harrisburg.

Owner: Roy Grimes.

AQUIFER.--Valley-fill deposits. Quarternary.

WELL CHARACTERISTICS.--Drilled irrigation well, 10 inch casing to 69 ft, completed depth of 98 ft, sounded depth of 82 ft on Sept. 23, 1998, perforated 21 to 29 ft, 34 to 65 ft.

INSTRUMENTATION.--Periodic measurements with chalked steel tape by USGS and Oregon Water Resources Department personnel since Feb. 1998; periodic measurements using electric sounder tape and steel tape by Oregon Water Resources Department personnel from June 1962 to January 1998.

DATUM.--Elevation of land surface is 327 ft above National Geodetic Vertical Datum of 1929 (from topographic map).

Measuring point: southside top of casing 1.27 ft above land-surface datum.

REMARKS.--Unused. State observation well number 510. State well identification LINN 14047. Entire record from July 1959 to

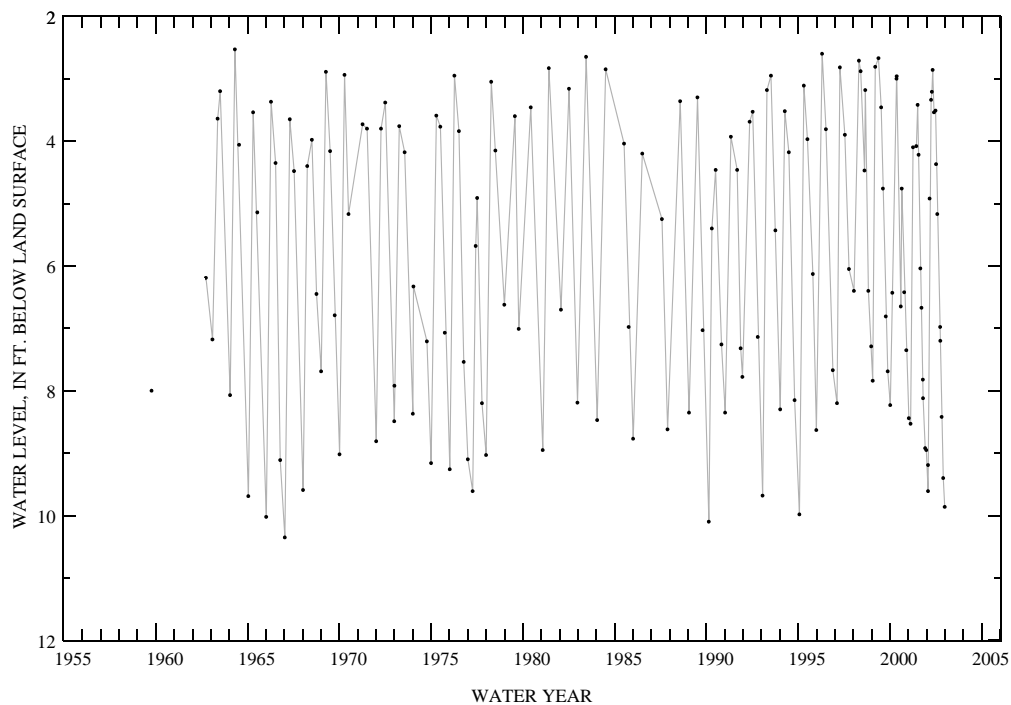
September 1998 published in the 1998 Water Data Report (WDR-OR-98-1).

PERIOD OF RECORD.--July 1959, June 1962 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 2.53 ft below land-surface datum, Jan. 21, 1964; lowest measurement, 10.35 ft below land-surface datum, Oct. 11, 1966.

WATER LEVEL, IN FEET BELOW LAND SURFACE DATUM  
WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 29	9.61	JAN 14	3.21	APR 08	4.37	JUL 26	8.42
OCT 31	9.19	29	2.86	30	5.17	AUG 28	9.40
NOV 28	4.92	FEB 26	3.54	JUN 27	6.98	SEP 26	9.86
DEC 28	3.34	MAR 26	3.51	JUL 02	7.20		



GROUND WATER LEVELS

MARION COUNTY

444956123031701. Local number, 08S/03W-33DAB

LOCATION.--Lat 44°49'55", long 123°03'16", Hydrologic Unit 17090007, 1 mile east of the summit of Bunker Hill.

Owner: Carma Myers.

AQUIFER.--Columbia River Basalt. Tertiary.

WELL CHARACTERISTICS.--Drilled domestic well, 8 inch casing to 83 ft, completed depth of 125 ft, sounded depth of 125 ft on Feb. 26, 1998.

INSTRUMENTATION.--Periodic measurements with chalked steel tape by USGS and Oregon Water Resources Department personnel since Feb. 26, 1998; periodic measurements using electric sounder tape and steel tape by Oregon Water Resources Department personnel from Sept. 1962 to Jan. 1998.

DATUM.--Elevation of land surface is 615 ft above National Geodetic Vertical Datum of 1929 (from topographic map).  
Measuring point: eastside access porthole in steel cap atop casing, 0.6 ft above land-surface datum.

REMARKS.--Used for domestic supply year round. State observation well number 622. State well identification MARI 12958.

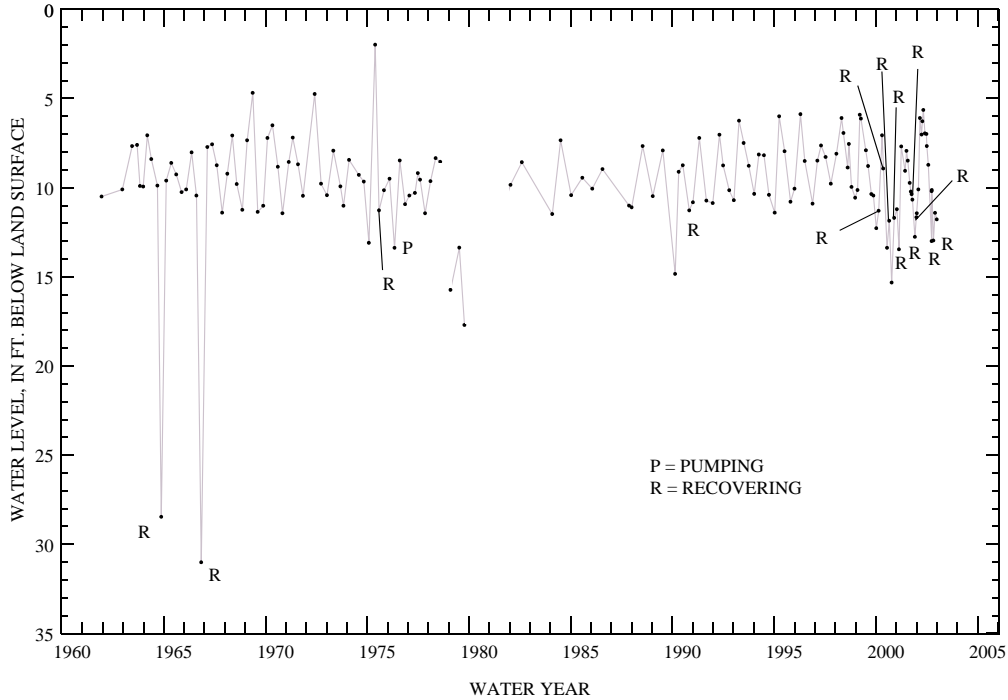
Entire record from September 1961 to September 1998 published in the 1998 Water Data Report (WDR-OR-98-1).

PERIOD OF RECORD.--September 1961 to July 1979, October 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.98 ft below land-surface datum, Feb. 20, 1975; lowest measurement, 31.02 ft below land-surface datum, Aug. 5, 1966 (recovering).

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM  
WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002

Date	Water Level	Date	Water Level	Date	Water Level	Date	Water Level
OCT 03	11.44	JAN 11	6.28	APR 01	7.67	JUL 01	10.13
31	10.10	29	5.64	30	8.72	26	12.97
NOV 28	6.10	FEB 26	6.96	JUN 27	13.00	AUG 28	11.42
DEC 28	7.02	MAR 26	6.99	28	10.20	SEP 26	11.78



## GROUND WATER LEVELS

## MULTNOMAH COUNTY

452822122372001. Local number, 01.00S/01.00E-24ADB01.

LOCATION.--Lat 45°28'22", long 122°37'20", Hydrologic Unit 17090012, in Berkeley Park, in Portland.

AQUIFER.--Unconsolidated sediments.

WELL CHARACTERISTICS.--Open interval from 102 ft to 122 ft, completed depth 124 ft.

INSTRUMENTATION.--Electronic data logger with 60-minute interval.

DATUM.--Elevation of land surface is 198 ft above NGVD of 1929 (from 2-foot contour map, City of Portland).

Measuring point: top of casing, 0.4 ft below land-surface datum.

REMARKS.--Unused. State well identification MULT 63234.

PERIOD OF RECORD.--July 2001 through current year. Periodic measurements from February to July 2001 are available at the Oregon District office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 98.39 ft below land-surface datum, July 14, 2001; lowest recorded, 101.25 ft below land-surface datum, April 14, 2002.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 99.44 ft below land-surface datum, Oct. 3; lowest recorded, 101.25 ft below land-surface datum, Apr.14.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), JULY TO SEPTEMBER 2001  
DAILY MEAN VALUES

DAY	JUL	AUG	SEP
1	---	98.69	99.12
2	---	98.70	99.11
3	---	98.71	99.15
4	---	98.74	99.15
5	---	98.76	99.19
6	---	98.77	99.18
7	---	98.76	99.18
8	---	98.75	99.17
9	---	98.78	99.20
10	---	98.82	99.25
11	---	98.81	99.24
12	98.49	98.84	99.24
13	98.51	98.87	99.28
14	98.49	98.86	99.27
15	98.50	98.89	99.28
16	98.55	98.92	99.32
17	98.56	98.92	99.32
18	98.55	98.96	99.33
19	98.54	98.91	99.34
20	98.59	98.95	99.34
21	98.60	98.97	99.38
22	98.60	98.99	99.35
23	98.60	99.03	99.38
24	98.63	99.01	99.42
25	98.63	98.99	99.43
26	98.65	99.05	99.45
27	98.66	99.06	99.44
28	98.67	99.04	99.47
29	98.62	99.06	99.48
30	98.69	99.11	99.45
31	98.68	99.11	---
MEAN	---	98.90	99.30
MAX	---	99.11	99.48
MIN	---	98.69	99.11

## GROUND WATER LEVELS

MULTNOMAH COUNTY--Continued

Well identifier continued: 452822122372001. Local number, 01.00S/01.00E-24ADB01.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	99.50	99.88	100.21	100.43	100.80	101.00	101.13	101.06	100.86	100.62	100.36	100.23
2	99.52	99.90	100.18	100.56	100.77	101.04	101.11	101.03	100.87	100.57	100.38	100.18
3	99.49	99.90	100.30	100.57	100.88	101.02	101.11	101.08	100.85	100.61	100.35	100.22
4	99.52	99.89	100.18	100.47	100.77	100.98	101.10	101.01	100.86	100.61	100.38	100.22
5	99.54	99.93	100.24	100.53	100.81	101.00	101.15	101.02	100.86	100.56	100.34	100.21
6	99.56	99.94	100.33	100.53	100.80	101.01	101.13	101.02	100.82	100.58	100.36	100.17
7	99.57	99.94	100.23	100.56	100.83	101.09	101.14	101.03	100.81	100.60	100.35	100.20
8	99.61	99.91	100.19	100.64	101.01	101.09	101.08	100.97	100.81	100.62	100.34	100.20
9	99.60	99.92	100.28	100.59	100.85	101.01	101.16	100.99	100.79	100.51	100.30	100.17
10	99.55	99.95	100.21	100.60	100.90	101.08	101.16	101.00	100.78	100.56	100.30	100.15
11	99.68	99.97	100.29	100.55	100.88	101.06	101.12	100.97	100.78	100.55	100.30	100.15
12	99.60	99.97	100.28	100.67	100.80	101.09	101.13	100.95	100.79	100.52	100.30	100.18
13	99.64	100.0	100.18	100.57	100.91	101.11	101.07	101.01	100.79	100.55	100.29	100.15
14	99.63	100.03	100.39	100.63	100.89	101.08	101.13	100.94	100.81	100.55	100.30	100.17
15	99.63	100.04	100.29	100.66	100.88	101.04	101.11	100.95	100.77	100.50	100.28	100.16
16	99.72	100.07	100.31	100.61	100.89	101.07	101.10	100.94	100.78	100.51	100.29	100.15
17	99.72	100.06	100.41	100.68	100.93	101.16	101.18	100.94	100.72	100.52	100.29	100.16
18	99.69	100.03	100.32	100.63	100.90	101.09	101.16	100.92	100.78	100.50	100.24	100.18
19	99.68	100.04	100.31	100.65	101.01	101.11	101.07	100.92	100.69	100.50	100.27	100.12
20	99.70	100.06	100.39	100.62	100.97	101.11	101.06	100.97	100.68	100.46	100.28	100.14
21	99.75	100.02	100.40	100.69	100.94	101.10	101.10	100.97	100.70	100.44	100.25	100.14
22	99.73	100.17	100.42	100.74	100.87	101.08	101.11	100.94	100.72	100.45	100.23	100.12
23	99.85	100.11	100.45	100.75	101.02	101.13	101.10	100.90	100.70	100.48	100.24	100.10
24	99.76	100.04	100.39	100.65	101.05	101.17	101.04	100.88	100.67	100.46	100.24	100.11
25	99.77	100.24	100.44	100.67	100.98	101.11	101.06	100.90	100.65	100.45	100.27	100.11
26	99.78	100.19	100.39	100.75	100.97	101.11	101.02	100.88	100.65	100.42	100.25	100.09
27	99.84	100.08	100.38	100.78	100.95	101.14	101.10	100.90	100.66	100.42	100.22	100.12
28	99.84	100.00	100.46	100.79	101.01	101.13	101.08	100.91	100.61	100.41	100.21	100.07
29	99.81	100.27	100.49	100.79	---	101.12	101.01	100.94	100.68	100.38	100.27	100.13
30	99.79	100.13	100.44	100.77	---	101.11	101.05	100.89	100.65	100.41	100.25	100.12
31	99.91	---	100.50	100.77	---	101.13	---	100.85	---	100.39	100.25	---
MEAN	99.68	100.02	100.33	100.64	100.90	101.08	101.10	100.96	100.75	100.51	100.29	100.15
MAX	99.91	100.27	100.50	100.79	101.05	101.17	101.18	101.08	100.87	100.62	100.38	100.23
MIN	99.49	99.88	100.18	100.43	100.77	100.98	101.01	100.85	100.61	100.38	100.21	100.07

WTR YR 2002 MEAN 100.53 HIGH 99.49 LOW 101.18



## GROUND WATER LEVELS

## MULTNOMAH COUNTY

452825122355501. Local number, 01.00S/02.00E-19AAD01

LOCATION.--Lat 45°28'25", long 122°35'55", Hydrologic Unit 17090012, in Brentwood Park, in Portland.

AQUIFER.--Unconsolidated sediments.

WELL CHARACTERISTICS.--Open interval from 134 ft to 154 ft, completed depth 156 ft.

INSTRUMENTATION.--Electronic data logger with 60-minute interval.

DATUM.--Elevation of land surface is 258 ft above NGVD of 1929 (from 2-foot contour map, City of Portland).

Measuring point: top of casing, 0.3 ft below land-surface datum.

REMARKS.--Unused. State well identification MULT 63294

PERIOD OF RECORD.--July 2001 to current year. Periodic measurements from February to July 2001 are available at the Oregon District office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 119.60 ft below land-surface datum, July 21, 2002; lowest recorded, 124.35 ft below land-surface datum, Dec. 16, 2001.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 119.60 ft below land-surface datum, July 21; lowest recorded, 124.35 ft below land-surface datum, Dec. 16.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), JULY TO SEPTEMBER 2001  
DAILY MEAN VALUES

DAY	JUL	AUG	SEP
1	---	121.99	122.51
2	---	122.01	122.52
3	---	122.02	122.54
4	---	122.04	122.57
5	---	122.05	122.58
6	---	122.07	122.59
7	---	122.08	122.61
8	---	122.10	122.63
9	---	122.11	122.65
10	---	122.13	122.67
11	---	122.15	122.68
12	121.72	122.18	122.70
13	121.75	122.19	122.72
14	121.76	122.20	122.74
15	121.78	122.23	122.75
16	121.80	122.24	122.77
17	121.82	122.25	122.78
18	121.84	122.28	122.80
19	121.84	122.29	122.82
20	121.87	122.31	122.84
21	121.87	122.33	122.85
22	121.88	122.35	122.87
23	121.89	122.36	122.89
24	121.91	122.37	122.90
25	121.92	122.39	122.92
26	121.94	122.41	122.94
27	121.95	122.42	122.96
28	121.94	122.44	122.98
29	121.94	122.47	123.00
30	121.97	122.49	123.02
31	121.98	122.50	---
MEAN	---	122.24	122.76
MAX	---	122.50	123.02
MIN	---	121.99	122.51

## GROUND WATER LEVELS

MULTNOMAH COUNTY--Continued

Well identifier continued: 452825122355501. Local number, 01.00S/02.00E-19AAD01.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	123.03	123.59	124.12	124.27	123.92	123.26	122.24	121.07	120.18	119.75	119.66	119.85
2	123.05	123.61	124.12	124.28	123.91	123.25	122.21	121.02	120.16	119.73	119.66	119.85
3	123.07	123.63	124.13	124.27	123.90	123.22	122.16	121.00	120.14	119.73	119.65	119.86
4	123.10	123.65	124.14	124.25	123.86	123.17	122.11	120.97	120.12	119.72	119.67	119.88
5	123.11	123.67	124.16	124.26	123.85	123.14	122.09	120.93	120.09	119.71	119.67	119.89
6	123.12	123.68	124.18	124.26	123.83	123.12	122.04	120.90	120.07	119.71	119.68	119.89
7	123.14	123.70	124.17	124.26	123.81	123.09	122.01	120.87	120.05	119.71	119.69	119.91
8	123.17	123.71	124.19	124.25	123.81	123.06	121.96	120.82	120.03	119.72	119.69	119.92
9	123.18	123.73	124.20	124.24	123.77	123.03	121.93	120.79	120.02	119.69	119.68	119.93
10	123.20	123.76	124.21	124.23	123.77	123.01	121.89	120.76	119.99	119.70	119.69	119.94
11	123.22	123.78	124.23	124.21	123.72	122.97	121.84	120.73	119.98	119.68	119.70	119.94
12	123.23	123.79	124.23	124.22	123.70	122.94	121.81	120.69	119.96	119.66	119.70	119.97
13	123.25	123.80	124.22	124.19	123.68	122.91	121.76	120.68	119.94	119.66	119.70	119.98
14	123.27	123.82	124.25	124.19	123.65	122.88	121.72	120.64	119.93	119.66	119.71	120.00
15	123.29	123.84	124.25	124.18	123.63	122.84	121.68	120.61	119.91	119.65	119.72	120.01
16	123.31	123.85	124.27	124.17	123.60	122.81	121.65	120.58	119.90	119.65	119.73	120.02
17	123.33	123.88	124.27	124.16	123.58	122.79	121.61	120.55	119.88	119.65	119.74	120.04
18	123.34	123.90	124.28	124.14	123.54	122.75	121.57	120.52	119.88	119.65	119.73	120.06
19	123.36	123.90	124.28	124.13	123.54	122.72	121.52	120.48	119.85	119.65	119.75	120.07
20	123.36	123.92	124.30	124.12	123.51	122.70	121.48	120.47	119.84	119.64	119.76	120.09
21	123.40	123.93	124.29	124.11	123.48	122.66	121.44	120.44	119.83	119.63	119.77	120.10
22	123.41	123.96	124.30	124.09	123.44	122.61	121.41	120.41	119.83	119.64	119.77	120.11
23	123.43	123.96	124.30	124.08	123.43	122.59	121.37	120.39	119.82	119.66	119.78	120.12
24	123.44	123.98	124.29	124.05	123.41	122.55	121.32	120.36	119.80	119.66	119.79	120.13
25	123.46	124.02	124.30	124.03	123.38	122.50	121.28	120.33	119.78	119.67	119.80	120.15
26	123.48	124.03	124.29	124.03	123.34	122.47	121.23	120.31	119.78	119.65	119.80	120.15
27	123.50	124.03	124.29	124.01	123.31	122.43	121.20	120.29	119.77	119.65	119.80	120.18
28	123.53	124.04	124.29	124.00	123.30	122.39	121.17	120.28	119.74	119.66	119.79	120.18
29	123.54	124.08	124.29	123.98	---	122.35	121.13	120.26	119.76	119.65	119.82	120.21
30	123.55	124.08	124.28	123.96	---	122.31	121.10	120.24	119.76	119.65	119.82	120.23
31	123.58	---	124.29	123.94	---	122.28	---	120.21	---	119.67	119.84	---
MEAN	123.30	123.84	124.24	124.15	123.63	122.80	121.66	120.60	119.93	119.67	119.73	120.02
MAX	123.58	124.08	124.30	124.28	123.92	123.26	122.24	121.07	120.18	119.75	119.84	120.23
MIN	123.03	123.59	124.12	123.94	123.30	122.28	121.10	120.21	119.74	119.63	119.65	119.85
WTR YR 2002	MEAN	121.96	HIGH	119.63	LOW	124.30						

## GROUND WATER LEVELS

## MULTNOMAH COUNTY

452827122382402. Local number, 01.00S/01.00E-24BBC02.

LOCATION.--Lat 45°28'27", long 122°38'24", Hydrologic Unit 17090012, in Westmoreland Park, in Portland.

AQUIFER.--Unconsolidated sediments.

WELL CHARACTERISTICS.--Open interval from 76 ft to 96 ft, completed depth 98 ft.

INSTRUMENTATION.--Electronic data logger with 60-minute interval.

DATUM.--Elevation of land surface is 53 ft above NGVD of 1929 (from 2-foot contour map, City of Portland).

Measuring point: top of casing, 0.3 ft below land-surface datum.

REMARKS.--Unused. State well identification MULT 63239.

PERIOD OF RECORD.--August 2001 to current year. Periodic measurements from February to July 2001 are available at the Oregon District office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.30 ft below land-surface datum, March 13, 2002; lowest recorded, 11.96 ft below land-surface datum, Oct. 9, 2001.

EXTREMES FOR CURRENT YEAR.-- Highest water level recorded, 9.30 ft below land-surface datum, March 13; lowest recorded, 11.96 ft below land-surface datum, Oct. 9.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), AUGUST TO SEPTEMBER 2001  
DAILY MEAN VALUES

DAY	AUG	SEP
1	---	11.61
2	---	11.59
3	---	11.62
4	---	11.62
5	---	11.66
6	---	11.67
7	---	11.64
8	---	11.61
9	---	11.61
10	---	11.67
11	---	11.69
12	---	11.68
13	---	11.72
14	---	11.72
15	---	11.70
16	11.59	11.72
17	11.60	11.73
18	11.62	11.72
19	11.58	11.72
20	11.56	11.70
21	11.56	11.73
22	11.54	11.70
23	11.53	11.68
24	11.53	11.73
25	11.51	11.71
26	11.54	11.68
27	11.59	11.66
28	11.57	11.69
29	11.55	11.80
30	11.56	11.78
31	11.61	---
MEAN	---	11.69
MAX	---	11.80
MIN	---	11.59

## GROUND WATER LEVELS

MULTNOMAH COUNTY--Continued

Well identifier continued: 452827122382402. Local number, 01.00S/01.00E-24BBC02.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	11.82	11.44	9.99	10.32	9.85	10.29	10.12	10.11	10.17	10.22	10.85	11.22
2	11.87	11.44	9.88	10.22	9.86	10.35	10.12	10.09	10.21	10.19	10.90	11.17
3	11.85	11.45	10.06	10.34	10.0	10.37	10.11	10.19	10.20	10.21	10.88	11.19
4	11.81	11.44	9.96	10.30	10.02	10.34	10.12	10.18	10.25	10.28	10.93	11.22
5	11.87	11.42	9.81	10.27	10.00	10.31	10.19	10.15	10.24	10.28	10.94	11.23
6	11.92	11.35	10.01	10.07	9.98	10.09	10.22	10.20	10.23	10.32	10.96	11.19
7	11.91	11.42	10.10	9.66	9.77	9.97	10.26	10.25	10.15	10.38	10.96	11.22
8	11.91	11.40	10.0	9.49	9.69	10.08	10.24	10.22	10.12	10.48	10.98	11.25
9	11.92	11.38	10.18	9.62	9.72	10.00	10.25	10.20	10.10	10.44	10.94	11.25
10	11.83	11.40	10.14	9.73	9.74	10.05	10.26	10.25	10.11	10.45	10.91	11.22
11	11.85	11.38	10.23	9.78	9.90	9.87	10.15	10.27	10.12	10.51	10.93	11.21
12	11.90	11.35	10.31	9.91	9.86	9.45	10.16	10.24	10.13	10.50	10.95	11.25
13	11.87	11.33	10.03	10.00	9.94	9.36	10.08	10.33	10.16	10.51	10.97	11.27
14	11.82	11.18	9.80	10.02	10.06	9.43	9.97	10.33	10.23	10.57	10.98	11.30
15	11.79	11.12	9.86	10.17	10.05	9.40	9.91	10.30	10.25	10.56	11.02	11.32
16	11.80	11.12	9.75	10.17	10.09	9.46	9.85	10.29	10.27	10.57	11.06	11.30
17	11.84	11.08	9.68	10.23	10.13	9.63	9.85	10.32	10.25	10.62	11.06	11.26
18	11.75	11.06	9.65	10.24	10.21	9.73	9.86	10.26	10.24	10.63	11.07	11.32
19	11.67	10.98	9.70	10.22	10.24	9.57	9.78	10.26	10.23	10.64	11.07	11.26
20	11.66	10.93	9.72	10.14	10.28	9.48	9.72	10.32	10.16	10.64	11.10	11.27
21	11.68	10.85	9.82	10.07	10.24	9.56	9.77	10.38	10.15	10.63	11.11	11.27
22	11.65	10.69	9.87	10.05	10.16	9.59	9.85	10.38	10.19	10.62	11.08	11.28
23	11.75	10.74	10.10	10.12	9.91	9.71	9.93	10.33	10.22	10.70	11.09	11.28
24	11.73	10.60	10.12	10.05	10.03	9.89	9.90	10.25	10.23	10.74	11.11	11.27
25	11.68	10.82	10.21	9.62	10.10	9.94	9.89	10.24	10.22	10.77	11.15	11.30
26	11.67	10.96	10.23	9.47	10.14	9.97	9.87	10.25	10.23	10.76	11.15	11.27
27	11.66	10.90	10.20	9.46	10.18	10.04	9.91	10.26	10.29	10.79	11.10	11.30
28	11.66	10.41	10.29	9.52	10.23	10.06	10.02	10.28	10.24	10.81	11.08	11.31
29	11.62	10.32	10.35	9.67	---	10.08	10.00	10.26	10.18	10.82	11.12	11.35
30	11.43	10.27	10.37	9.74	---	10.09	10.03	10.24	10.19	10.84	11.19	11.37
31	11.42	---	10.44	9.78	---	10.10	---	10.20	---	10.88	11.21	---
MEAN	11.76	11.07	10.03	9.95	10.01	9.88	10.01	10.25	10.20	10.56	11.03	11.26
MAX	11.92	11.45	10.44	10.34	10.28	10.37	10.26	10.38	10.29	10.88	11.21	11.37
MIN	11.42	10.27	9.65	9.46	9.69	9.36	9.72	10.09	10.10	10.19	10.85	11.17

WTR YR 2002 MEAN 10.50 HIGH 9.36 LOW 11.92

## GROUND WATER LEVELS

## MULTNOMAH COUNTY

452859122364701. Local number, 01.00S/02.00E-18CAB01

LOCATION.--Lat 45°28'59", long 122°36'47", Hydrologic Unit 17090012, in Woodstock Park, in Portland.

AQUIFER.--Unconsolidated sediments.

WELL CHARACTERISTICS.--Open interval from 147 ft to 167 ft, completed depth 169 ft.

INSTRUMENTATION.--Electronic data logger with 60-minute interval.

DATUM.--Elevation of land surface is 241 ft above NGVD of 1929 (from 2-foot contour map, City of Portland).

Measuring point: top of casing, 0.3 ft below land-surface datum.

REMARKS.--Unused. State well identification MULT 63237.

PERIOD OF RECORD.--July 2001 to current year. Periodic measurements from February to July 2001 are available at the Oregon District office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 130.04 ft below land-surface datum, July 12, 2001; lowest recorded, 133.26 ft below land-surface datum, Feb. 23, 2002.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 131.17 ft below land-surface datum, Sept. 26; lowest recorded, 133.26 ft below land-surface datum, Feb. 23.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), JULY TO SEPTEMBER 2001  
DAILY MEAN VALUES

DAY	JUL	AUG	SEP
1	---	130.37	130.90
2	---	130.38	130.89
3	---	130.40	130.93
4	---	130.43	130.94
5	---	130.45	130.97
6	---	130.47	130.97
7	---	130.46	130.97
8	---	130.46	130.97
9	---	130.50	130.99
10	---	130.54	131.04
11	---	130.53	131.04
12	130.09	130.56	131.05
13	130.12	130.59	131.09
14	130.12	130.58	131.09
15	130.13	130.62	131.10
16	130.17	130.65	131.13
17	130.19	130.64	131.14
18	130.19	130.67	131.15
19	130.19	130.65	131.16
20	130.24	130.69	131.17
21	130.24	130.70	131.21
22	130.25	130.73	131.19
23	130.25	130.77	131.22
24	130.29	130.76	131.25
25	130.29	130.76	131.27
26	130.31	130.81	131.29
27	130.32	130.81	131.28
28	130.33	130.80	131.32
29	130.30	130.82	131.33
30	130.36	130.87	131.32
31	130.36	130.87	---
MEAN	---	130.62	131.11
MAX	---	130.87	131.33
MIN	---	130.37	130.89

## GROUND WATER LEVELS

MULTNOMAH COUNTY--Continued

Well identifier continued: 452859122364701. Local number, 01.00S/02.00E-18CAB01

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002												
DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	131.38	131.86	132.33	132.70	133.04	133.11	132.89	132.52	132.09	131.71	131.43	131.29
2	131.39	131.89	132.30	132.80	133.02	133.13	132.87	132.48	132.08	131.67	131.44	131.25
3	131.38	131.90	132.39	132.81	133.10	133.11	132.86	132.51	132.06	131.70	131.42	131.28
4	131.41	131.89	132.32	132.73	133.01	133.07	132.83	132.44	132.05	131.69	131.44	131.29
5	131.43	131.93	132.37	132.78	133.05	133.08	132.88	132.44	132.06	131.65	131.41	131.27
6	131.45	131.95	132.46	132.79	133.03	133.08	132.85	132.44	132.02	131.65	131.43	131.25
7	131.46	131.94	132.39	132.82	133.05	133.13	132.84	132.44	132.00	131.67	131.41	131.28
8	131.50	131.94	132.37	132.87	133.18	133.12	132.78	132.39	131.99	131.68	131.40	131.28
9	131.50	131.95	132.44	132.85	133.06	133.05	132.84	132.39	131.98	131.59	131.37	131.25
10	131.46	131.98	132.41	132.85	133.11	133.10	132.82	132.39	131.96	131.63	131.38	131.25
11	131.57	132.00	132.48	132.81	133.08	133.07	132.78	132.36	131.94	131.62	131.37	131.24
12	131.52	132.01	132.47	132.92	133.02	133.08	132.77	132.34	131.94	131.59	131.37	131.27
13	131.55	132.04	132.40	132.83	133.11	133.09	132.72	132.38	131.94	131.61	131.36	131.25
14	131.56	132.07	132.57	132.89	133.09	133.05	132.76	132.31	131.95	131.61	131.37	131.28
15	131.55	132.09	132.51	132.91	133.08	133.01	132.73	132.30	131.91	131.57	131.36	131.27
16	131.64	132.11	132.52	132.88	133.08	133.02	132.71	132.28	131.91	131.57	131.37	131.25
17	131.64	132.11	132.60	132.93	133.11	133.08	132.76	132.27	131.86	131.57	131.36	131.27
18	131.63	132.11	132.54	132.90	133.08	133.01	132.73	132.25	131.90	131.56	131.32	131.29
19	131.63	132.11	132.53	132.92	133.17	133.02	132.66	132.25	131.82	131.56	131.35	131.24
20	131.65	132.13	132.62	132.90	133.14	133.01	132.64	132.28	131.81	131.52	131.35	131.27
21	131.70	132.10	132.62	132.95	133.11	132.99	132.67	132.26	131.82	131.50	131.33	131.27
22	131.69	132.24	132.64	132.99	133.05	132.97	132.66	132.23	131.83	131.51	131.32	131.26
23	131.78	132.18	132.66	133.00	133.16	133.00	132.64	132.19	131.80	131.54	131.32	131.25
24	131.72	132.15	132.62	132.92	133.18	133.02	132.58	132.17	131.78	131.52	131.32	131.26
25	131.73	132.30	132.66	132.94	133.11	132.96	132.57	132.17	131.76	131.51	131.35	131.25
26	131.74	132.27	132.63	133.00	133.10	132.95	132.53	132.16	131.76	131.49	131.32	131.23
27	131.79	132.20	132.64	133.03	133.08	132.96	132.59	132.15	131.75	131.48	131.28	131.27
28	131.80	132.13	132.70	133.04	133.12	132.93	132.56	132.15	131.71	131.48	131.27	131.24
29	131.79	132.35	132.73	133.03	---	132.92	132.50	132.16	131.76	131.45	131.32	131.29
30	131.78	132.25	132.70	133.02	---	132.90	132.53	132.12	131.74	131.47	131.31	131.29
31	131.87	---	132.75	133.02	---	132.90	---	132.08	---	131.45	131.30	---
MEAN	131.60	132.07	132.53	132.90	133.09	133.03	132.72	132.30	131.90	131.57	131.36	131.26
MAX	131.87	132.35	132.75	133.04	133.18	133.13	132.89	132.52	132.09	131.71	131.44	131.29
MIN	131.38	131.86	132.30	132.70	133.01	132.90	132.50	132.08	131.71	131.45	131.27	131.23

WTR YR 2002 MEAN 132.19 HIGH 131.23 LOW 133.18

## GROUND WATER LEVELS

## MULTNOMAH COUNTY

452912122312801 Local number, 01.00S/02.00E-14ABC01

LOCATION.--Lat 45°29'12", long 122°31'28", Hydrologic Unit 17090012, 1.0 mile west of Powell Butte.

AQUIFER.--Unconsolidated sediments.

WELL CHARACTERISTICS.--Unused domestic well, open interval from 50 ft to 58 f., completed depth 59 ft.

INSTRUMENTATION.--Electronic data logger with 60-minute interval.

DATUM.--Elevation of land surface is 229 ft above National Geodetic Vertical Datum of 1929 (from 2-foot contour map, City of Portland).

Measuring point: top of instrument shelf, 1.4 ft above land-surface datum.

REMARKS.--Unused. State well identification MULT 2881.

PERIOD OF RECORD.--October 1998 to current year. Periodic measurements with steel tape from 1987-89, and 1998 are available at the Oregon District office.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.43 ft below land-surface datum, March 8, 1999; lowest recorded, 48.70 ft below land-surface datum, Oct. 29, 2001.

EXTREMES FOR 1999 WATER YEAR. -- Highest water level recorded, 36.43 ft below land-surface datum, March 8; lowest recorded, 45.04 ft below land-surface datum, Nov. 1-2.

EXTREMES FOR 2000 WATER YEAR. -- Highest water level recorded, 40.61 ft below land-surface datum, April 3; lowest recorded, 46.16 ft below land-surface datum, Sept. 29-30.

EXTREMES FOR 2001 WATER YEAR. -- Highest water level recorded, 45.06 ft below land-surface datum, May 11; lowest recorded, 48.35 ft below land-surface datum, Sept. 26.

EXTREMES FOR CURRENT YEAR.--Highest water level recorded, 39.86 ft below land-surface datum, March 22; lowest recorded, 48.70 ft below land-surface datum, Oct. 29.

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1998 TO SEPTEMBER 1999  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	44.96	43.32	41.54	39.77	37.41	37.64	38.51	39.44	40.97	42.70	43.64
2	44.52	44.91	43.19	41.47	39.47	36.93	37.59	38.39	39.50	41.03	42.81	43.66
3	44.53	44.79	43.12	41.41	39.23	36.94	37.60	38.43	39.59	41.12	42.89	43.69
4	44.57	44.74	43.11	41.42	39.32	36.99	37.59	38.64	39.65	41.25	42.91	43.69
5	44.56	44.74	42.90	41.39	39.32	36.88	37.55	38.69	39.67	41.28	42.93	43.67
6	44.48	44.60	42.97	41.38	39.04	36.70	37.63	38.64	39.75	41.36	42.90	43.70
7	44.46	---	42.79	41.34	38.98	36.71	37.52	38.78	39.77	41.51	42.85	43.73
8	44.56	---	42.94	41.21	38.80	36.54	37.65	38.77	39.82	41.49	42.84	43.80
9	44.54	---	42.83	41.30	38.53	36.59	37.82	38.77	39.90	41.56	42.91	43.94
10	44.62	---	42.75	41.31	38.67	36.55	37.71	38.74	40.08	41.64	43.02	43.98
11	44.60	---	42.65	41.28	38.66	36.82	37.73	38.74	40.18	41.65	43.16	43.99
12	44.61	---	42.57	41.42	38.66	36.86	37.85	38.81	40.32	---	43.16	43.99
13	44.62	---	42.46	41.36	38.75	36.74	38.12	38.91	40.45	---	43.15	44.08
14	44.61	---	42.55	41.26	38.71	36.82	38.19	38.94	40.46	---	43.07	44.09
15	44.64	---	42.46	41.24	38.54	36.83	38.07	39.04	40.59	---	43.09	44.17
16	44.66	---	42.42	41.19	38.45	37.06	38.12	39.03	40.60	---	43.16	44.19
17	44.61	44.71	42.36	40.89	38.67	36.99	38.18	39.00	40.66	---	43.29	44.22
18	44.67	44.78	42.35	40.77	38.41	37.01	38.20	38.99	40.66	---	43.24	44.23
19	44.72	44.76	42.33	40.60	38.60	37.08	38.22	39.00	40.55	---	43.40	44.27
20	44.76	44.67	42.51	40.37	38.24	37.04	38.35	39.04	40.47	---	43.47	44.36
21	44.69	44.54	42.43	40.48	38.35	37.08	38.42	39.12	40.50	---	43.42	44.37
22	44.72	44.55	42.42	40.18	38.30	37.06	38.57	39.13	40.57	---	43.35	44.39
23	44.74	44.41	42.35	40.12	38.15	37.18	38.59	39.07	40.51	---	43.47	44.42
24	44.72	44.39	42.32	40.13	37.93	37.24	38.62	39.15	40.50	---	43.57	44.44
25	44.83	44.16	42.22	39.80	38.00	37.38	38.61	39.28	40.55	42.44	43.61	44.54
26	44.82	44.04	42.32	39.99	37.98	37.49	38.60	39.26	40.54	42.44	43.64	44.56
27	44.81	43.81	42.07	39.96	37.70	37.53	38.65	39.30	40.57	42.49	43.64	44.56
28	44.85	43.63	41.94	39.82	37.52	37.48	38.80	39.34	40.63	42.55	43.64	44.59
29	44.89	43.62	41.70	39.78	---	37.38	38.62	39.41	40.80	42.59	43.63	44.62
30	44.94	43.42	41.50	39.68	---	37.34	38.53	39.48	40.91	42.66	43.66	44.70
31	44.94	---	41.56	39.72	---	37.50	---	39.46	---	42.66	43.63	---
MEAN	---	---	42.50	40.77	38.60	37.04	38.11	38.96	40.27	---	43.23	44.14
MAX	---	---	43.32	41.54	39.77	37.53	38.80	39.48	40.91	---	43.66	44.70
MIN	---	---	41.50	39.68	37.52	36.54	37.52	38.39	39.44	---	42.70	43.64

## GROUND WATER LEVELS

## MULTNOMAH COUNTY--Continued

Well identifier continued: 452912122312801Local number, 01.00S/02.00E-14ABC01

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 1999 TO SEPTEMBER 2000												
DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	44.74	45.55	44.91	44.10	43.00	41.99	40.74	40.96	---	42.70	44.23	45.35
2	44.79	45.56	44.94	44.18	42.93	42.00	40.71	40.94	---	42.68	44.24	45.39
3	44.84	45.56	44.99	44.18	42.77	41.91	40.65	40.97	---	42.75	44.24	45.41
4	44.88	45.59	44.91	44.16	42.76	41.80	40.74	41.00	---	42.68	44.30	45.43
5	44.92	45.58	44.93	44.20	42.74	41.72	40.73	41.02	41.55	42.71	44.37	45.55
6	44.98	45.44	44.86	44.11	42.79	41.69	40.75	41.01	41.56	42.77	44.39	45.55
7	45.04	45.42	44.84	44.08	42.72	41.51	40.77	41.01	41.54	42.94	44.43	45.50
8	45.06	45.37	44.67	44.08	42.58	41.44	40.70	41.03	41.56	43.07	44.43	45.51
9	45.11	45.28	44.65	43.99	42.35	41.46	40.78	40.99	41.59	43.15	44.49	45.53
10	45.08	45.38	44.62	43.89	42.40	41.41	40.78	41.02	41.64	43.20	44.55	45.52
11	45.12	45.40	44.56	43.88	42.38	41.48	40.75	41.09	41.62	43.26	44.49	45.62
12	45.19	45.45	44.46	43.86	42.36	41.35	40.76	41.07	41.65	43.31	44.59	45.61
13	45.21	45.43	44.54	43.63	42.26	41.33	40.72	40.99	41.74	43.41	44.63	45.63
14	45.26	45.39	44.47	43.53	42.21	41.52	40.68	40.95	41.73	43.46	44.68	45.72
15	45.30	45.37	44.46	43.36	42.22	41.45	40.70	41.04	41.76	43.47	44.77	45.79
16	45.24	45.22	44.43	43.28	42.05	41.54	40.71	41.09	41.71	43.47	44.75	45.62
17	45.31	45.19	44.24	43.35	42.22	41.57	40.68	41.20	41.67	43.56	44.74	45.58
18	45.34	45.26	44.31	43.26	42.25	41.25	40.79	41.19	41.74	43.66	44.83	45.66
19	45.38	45.25	44.24	43.17	42.15	41.14	40.88	41.21	41.83	43.67	44.82	45.79
20	45.41	45.31	44.18	43.05	42.06	41.13	40.87	41.20	41.84	43.68	44.88	45.76
21	45.43	45.34	44.12	43.08	42.11	41.01	40.79	41.20	41.90	43.70	44.91	45.77
22	45.37	45.37	44.14	43.14	42.11	40.86	40.90	41.23	41.95	43.81	44.96	45.90
23	45.33	45.41	44.19	43.09	42.17	40.90	40.96	41.25	42.02	43.86	45.03	45.96
24	45.22	45.36	44.18	43.06	42.17	40.74	40.93	41.23	42.11	43.86	45.14	45.96
25	45.24	45.17	44.17	43.09	42.18	40.81	40.93	41.23	42.12	43.90	45.18	46.01
26	45.44	45.00	44.11	43.14	42.07	40.75	40.89	41.24	42.19	43.91	45.22	46.04
27	45.36	44.91	44.16	43.14	42.00	40.70	40.85	41.30	42.43	43.98	45.26	46.07
28	45.43	44.89	44.15	43.06	42.02	40.74	40.99	41.37	42.57	44.03	45.31	46.12
29	45.50	44.83	44.13	43.03	42.01	40.79	41.00	---	42.60	44.06	45.35	46.15
30	45.49	44.86	44.13	42.98	---	40.82	40.96	---	42.63	44.10	45.37	46.16
31	45.61	---	44.13	43.03	---	40.81	---	---	---	44.19	45.40	---
MEAN	45.21	45.30	44.45	43.52	42.35	41.28	40.80	---	---	43.45	44.77	45.72
MAX	45.61	45.59	44.99	44.20	43.00	42.00	41.00	---	---	44.19	45.40	46.16
MIN	44.74	44.83	44.11	42.98	42.00	40.70	40.65	---	---	42.68	44.23	45.35

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2000 TO SEPTEMBER 2001												
DAILY MEAN VALUES												
DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	46.19	46.73	46.29	45.86	45.99	45.93	45.58	45.41	45.26	45.80	46.93	47.59
2	46.20	46.76	46.29	45.89	46.01	45.96	45.59	45.39	45.21	45.86	46.95	47.60
3	46.22	46.75	46.29	45.89	45.99	45.93	45.61	45.30	45.21	45.91	46.97	47.63
4	46.24	46.75	46.31	45.87	45.93	45.90	45.63	45.26	45.15	45.95	47.00	47.65
5	46.25	46.78	46.29	45.92	45.90	46.00	45.49	45.30	45.16	46.02	47.04	47.70
6	46.27	46.84	46.26	45.87	45.75	46.01	45.47	45.25	45.19	46.08	47.09	47.72
7	46.30	46.83	46.24	45.83	45.82	46.01	45.53	45.27	45.16	46.12	47.11	47.70
8	46.32	46.76	46.23	45.90	45.76	46.04	45.58	45.25	45.14	46.17	47.10	47.68
9	46.30	46.77	46.25	45.84	45.76	46.00	45.60	45.23	45.18	46.19	47.11	47.69
10	46.32	46.83	46.27	45.86	45.73	46.01	45.50	45.23	45.16	46.23	47.16	47.75
11	46.36	46.89	46.25	45.91	45.79	46.03	45.54	45.14	45.15	46.28	47.17	47.79
12	46.41	46.89	46.26	45.99	45.88	46.04	45.55	45.12	45.16	46.33	47.19	47.82
13	46.46	46.86	46.19	45.99	45.87	46.00	45.57	45.14	45.15	46.39	47.24	47.85
14	46.47	46.89	46.18	46.04	45.86	46.04	45.53	45.11	45.15	46.40	47.25	47.88
15	46.47	46.92	46.27	46.03	45.85	45.98	45.51	45.13	45.17	46.41	47.27	47.86
16	46.48	46.95	46.20	46.02	45.88	45.99	45.49	45.19	45.19	46.44	47.31	47.90
17	46.50	46.79	46.30	46.04	45.83	45.96	45.56	45.16	45.20	46.49	47.33	47.94
18	46.55	46.71	46.21	45.99	45.88	45.92	45.50	45.20	45.20	46.53	47.37	48.01
19	46.55	46.67	46.20	45.97	45.84	45.94	45.50	45.21	45.18	46.52	47.36	48.06
20	46.54	46.61	46.15	45.94	45.89	45.89	45.48	45.24	45.21	46.58	47.36	48.11
21	46.60	46.60	46.08	45.96	45.89	45.87	45.54	45.19	45.22	46.63	47.38	48.15
22	46.59	46.60	46.09	45.94	45.87	45.85	45.60	45.16	45.22	46.66	47.38	48.16
23	46.57	46.58	46.01	45.89	45.87	45.83	45.59	45.23	45.20	46.69	47.43	48.19
24	46.58	46.58	46.02	45.92	45.86	45.79	45.54	45.28	45.22	46.72	47.46	48.21
25	46.58	---	45.96	45.86	46.00	45.83	45.46	45.27	45.19	46.74	47.45	48.27
26	46.60	---	45.92	45.93	46.03	45.86	45.49	45.24	45.16	46.79	47.48	48.29
27	46.58	---	45.92	45.95	46.02	45.76	45.43	45.26	45.19	46.83	47.51	48.30
28	46.56	---	45.88	45.90	45.98	45.77	45.44	45.33	45.38	46.86	47.50	48.30
29	46.62	46.36	45.84	46.03	---	45.72	45.44	45.40	45.60	46.86	47.49	48.27
30	46.69	46.34	45.82	46.04	---	45.68	45.42	45.41	45.67	46.88	47.52	48.20
31	46.74	---	45.84	46.02	---	45.61	---	45.31	---	46.92	47.57	---
MEAN	46.46	---	46.14	45.94	45.88	45.91	45.53	45.25	45.22	46.43	47.27	47.94
MAX	46.74	---	46.31	46.04	46.03	46.04	45.63	45.41	45.67	46.92	47.57	48.30
MIN	46.19	---	45.82	45.83	45.73	45.61	45.42	45.11	45.14	45.80	46.93	47.59



## GROUND WATER LEVELS

MULTNOMAH COUNTY--Continued

Well identifier continued: 452912122312801Local number, 01.00S/02.00E-14ABC01

DEPTH BELOW LAND SURFACE (WATER LEVEL) (FEET), WATER YEAR OCTOBER 2001 TO SEPTEMBER 2002  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	48.26	48.47	---	43.61	41.72	40.85	40.32	40.44	41.28	43.53	45.75	47.38
2	48.35	48.42	---	43.64	41.60	40.90	40.30	40.41	41.38	43.58	45.85	47.36
3	48.35	48.37	46.45	43.72	41.73	40.87	40.31	40.55	41.40	43.69	45.81	47.40
4	48.39	48.32	46.27	43.58	41.62	40.82	40.29	40.53	41.46	43.69	45.93	47.44
5	48.44	48.30	46.08	43.52	41.53	40.80	40.39	40.52	41.53	43.83	45.91	47.51
6	48.45	48.19	46.08	43.41	41.43	40.63	40.44	40.59	41.72	43.83	46.01	47.50
7	48.44	48.19	45.94	43.27	41.33	40.64	40.48	40.66	41.79	43.86	46.11	47.55
8	48.50	48.17	45.65	43.20	41.50	40.76	40.42	40.63	41.84	43.93	46.18	47.63
9	48.57	48.13	45.70	43.11	41.31	40.56	40.44	40.66	41.89	43.92	46.20	47.64
10	48.50	48.08	45.47	43.07	41.20	40.63	40.40	40.71	41.92	44.13	46.23	47.64
11	48.49	48.04	45.45	42.81	41.23	40.57	40.30	40.72	41.92	44.33	46.28	47.66
12	48.45	48.00	45.40	42.82	40.97	40.50	40.35	40.69	41.98	44.38	46.35	47.71
13	48.45	47.98	45.08	42.80	41.00	40.47	40.24	40.81	42.05	44.46	46.41	47.77
14	48.38	47.93	45.12	42.77	41.01	40.47	40.24	40.82	42.18	44.58	46.46	47.84
15	48.44	47.87	44.88	42.79	40.90	40.25	40.19	40.82	42.21	44.59	46.48	47.88
16	48.52	47.88	44.68	42.65	40.87	40.20	40.15	40.82	42.27	44.65	46.59	47.90
17	48.62	47.83	44.74	42.65	40.86	40.31	40.30	40.86	42.23	44.80	46.62	47.78
18	48.63	47.75	44.47	42.56	40.85	40.28	40.44	40.81	42.59	44.86	46.66	47.73
19	48.63	47.68	44.40	42.50	40.93	40.22	40.39	40.82	42.72	44.94	46.73	47.71
20	48.62	47.61	44.37	42.36	41.05	40.12	40.27	40.91	42.57	44.90	46.81	47.72
21	48.62	47.49	44.36	42.34	40.97	40.06	40.31	41.04	42.89	44.99	46.87	47.81
22	48.54	47.50	44.13	42.41	40.86	39.93	40.37	41.11	43.10	45.08	46.88	47.78
23	48.54	47.45	44.22	42.44	40.85	39.97	40.46	41.11	43.19	45.20	46.92	47.86
24	48.47	47.26	44.06	42.27	41.02	40.14	40.37	41.06	43.26	45.32	47.00	47.90
25	48.46	47.39	44.05	42.05	40.98	40.13	40.33	41.09	43.34	45.40	47.10	47.96
26	48.55	47.39	43.92	42.00	40.88	40.13	40.26	41.11	43.40	45.44	47.13	48.01
27	48.60	47.36	43.78	41.99	40.83	40.23	40.27	41.13	43.49	45.50	47.13	47.99
28	48.65	47.32	43.81	41.92	40.84	40.26	40.39	41.18	43.37	45.54	47.15	47.96
29	48.66	---	43.81	41.90	---	40.30	40.30	41.24	43.39	45.57	47.21	48.02
30	48.46	---	43.75	41.80	---	40.31	40.33	41.29	43.50	45.66	47.28	48.03
31	48.56	---	43.78	41.71	---	40.30	---	41.29	---	45.73	47.33	---
MEAN	48.50	---	---	42.70	41.14	40.41	40.34	40.85	42.40	44.64	46.56	47.74
MAX	48.66	---	---	43.72	41.73	40.90	40.48	41.29	43.50	45.73	47.33	48.03
MIN	48.26	---	---	41.71	40.83	39.93	40.15	40.41	41.28	43.53	45.75	47.36



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