



Figure 28. Location of surface-water stations in the Pend Oreille River Basin.

## PEND OREILLE RIVER BASIN

## 12395500 PEND OREILLE RIVER AT NEWPORT, WA

LOCATION.--Lat 48°10'56", long 117°02'00", in SE<sup>1</sup>/<sub>4</sub>SE<sup>1</sup>/<sub>4</sub>SW<sup>1</sup>/<sub>4</sub>, sec.24, T.56 N., R.6 W. (Boise Meridian), Bonner County, Newport quad., Hydrologic Unit 17010216, on left bank, at Newport, 0.2 mi upstream from bridge on U.S. Highway 2, 0.2 mi east of Idaho-Washington State line, 1.6 mi downstream from Albeni Falls Dam, and at mile 88.5.

DRAINAGE AREA.--24,200 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--June 1903 to September 1912, October 1929 to October 1941, October 1952 to current year. Prior to October 1921, published as "Clark Fork at Newport, Wash.," October 1921 to September 1937, as "Clark Fork at Priest River, Idaho," and October 1937 to September 1941, as "Pend Oreille River at Priest River, Idaho."

REVISED RECORDS.--WSP 532: 1903-11.

GAGE.--Water-stage recorder. Datum of gage is 1,999.7 ft above NGVD of 1929. Prior to Sept. 22, 1928, nonrecording gages at Priest River, Newport, or Metaline Falls at various datums (see description, WSP 532, p. 92). Sept. 22, 1928, to Sept. 30, 1935, at datum 40.44 ft higher, and Oct. 1, 1935, to Sept. 30, 1941, water-stage recorder at datum 0.30 ft higher. Since December 1952, auxiliary water-stage recorder 2.74 mi downstream from base gage.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated at Albeni Falls Dam and affected by storage in Pend Oreille Lake (see 12392500), Flathead Lake, Hungry Horse Reservoir, and several smaller reservoirs. Diversions above station for irrigation of about 354,000 acres. Stage-discharge relation affected by backwater from Box Canyon dam 54 mi downstream. Discharge computed from slope and conveyance of reach between base and auxiliary gage.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 136,000 ft<sup>3</sup>/s, June 15, 1933, June 21, 1933, June 12, 1972; minimum, 1,280 ft<sup>3</sup>/s, Sept. 1, 1961,

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of about 64.0 ft, present site and datum, (from water surface profiles) discharge, about 200,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 50,500 ft<sup>3</sup>/s, May 30, gage height, 40.47 ft; maximum gage height, 40.67 ft, June 1; minimum daily discharge, 7,830 ft<sup>3</sup>/s, Jan. 13.

DAY	DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004											
	DAILY MEAN VALUES											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	13600	25600	13500	16100	15900	14200	20500	20000	48300	36500	12800	21400
2	15300	26100	14800	13100	14200	15400	17600	19700	42700	32900	12200	20600
3	15200	26900	15200	11700	13400	15500	16400	22500	40700	30300	11900	19000
4	15200	27800	14700	11200	13400	15400	16200	25000	38400	29800	11900	16700
5	15200	27700	13700	e14000	13000	15200	16100	27900	34700	29300	11900	14800
6	15200	27800	13900	e16000	12000	15300	16900	30000	34600	29100	11900	14300
7	15300	28300	14000	e14000	11400	15200	17300	31200	37900	30000	11800	14000
8	15400	27600	14000	e12000	11300	16100	17500	31700	42900	28800	11600	14000
9	15400	25400	15000	e9500	11200	16600	17500	31800	41700	26700	11500	14100
10	15500	20100	15400	e8500	11300	16500	17700	32000	39000	26000	11000	14000
11	15400	19800	15400	e8000	11300	16700	17700	34700	36900	25900	10700	13300
12	15300	18900	14600	e8000	11300	16700	17800	36800	35300	23700	10900	12600
13	15500	18800	14300	7830	11300	16600	17800	36800	35400	21700	10800	11500
14	16200	18700	14900	8110	11300	16500	17800	36800	35300	20400	10800	12200
15	16900	15100	15300	8810	12300	16500	19800	36900	35300	21800	10700	16300
16	17300	14100	15600	9200	13400	16500	22000	36800	34600	20600	10900	17800
17	17700	12200	17200	9210	14600	16400	22000	35100	34100	18100	11400	13500
18	17800	13500	18200	9030	15500	16500	22100	33400	34800	18200	13100	10700
19	17900	14300	15900	10000	15700	16500	22100	31200	35200	19400	12600	14700
20	17900	14200	14100	11200	15700	17700	21800	31000	35300	20600	11100	22900
21	17700	14500	13500	11500	15400	18400	20800	31800	34500	19300	10900	24200
22	17700	14600	13200	11400	15300	18300	19900	32000	32000	17700	10900	23900
23	17800	15000	13400	11400	15300	18300	17500	32300	29700	16200	10400	25400
24	18000	15400	13100	11400	15300	18400	15200	36200	28500	14700	10100	26200
25	18100	16800	13300	11500	15200	18400	15300	41800	27800	14600	13200	26000
26	18100	19100	13600	12900	14700	18600	18000	42800	28500	14500	17800	26300
27	18000	17200	13600	13700	13600	21100	19500	45200	29600	14600	19500	26400
28	17900	15100	13600	14700	13300	22200	20000	47500	33100	14500	20400	26100
29	17700	13900	14600	15700	13300	22300	20700	47600	37200	13600	21100	26200
30	17900	13400	17400	15500	---	22300	20200	48700	37900	13100	21300	26400
31	22400	---	18600	15600	---	22200	---	49800	---	13100	20900	---
TOTAL	520500	577900	457600	360790	390900	542500	561700	1077000	1071900	675700	408000	565500
MEAN	16790	19260	14760	11640	13480	17500	18720	34740	35730	21800	13160	18850
MAX	22400	28300	18600	16100	15900	22300	22100	49800	48300	36500	21300	26400
MIN	13600	12200	13100	7830	11200	14200	15200	19700	27800	13100	10100	10700
AC-FT	1032000	1146000	907600	715600	775400	1076000	1114000	2136000	2126000	1340000	809300	1122000

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1903 - 2004, BY WATER YEAR (WY)												
MEAN	17610	18350	16260	15460	16360	19060	27310	49300	61420	31880	14090	13500
MAX	31330	32280	36790	40010	41290	42260	56940	97850	114900	73730	45210	21990
(WY)	1960	1960	1996	1934	1996	1996	1956	1997	1933	1907	1907	1907
MIN	6208	6049	5987	4271	4380	6622	5507	15320	15220	7295	5875	6353
(WY)	1932	1937	1937	1937	1936	1937	1977	1977	1977	1977	1988	1931

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1903 - 2004	
ANNUAL TOTAL	7552220		7209990			
ANNUAL MEAN	20690		19700		25000	
HIGHEST ANNUAL MEAN					38600	
LOWEST ANNUAL MEAN					12920	
HIGHEST DAILY MEAN	68500	Jun 4	49800	May 31	135000	Jun 19 1933
LOWEST DAILY MEAN	5100	Sep 1	7830	Jan 13	2420	Sep 19 1962
ANNUAL SEVEN-DAY MINIMUM	6030	Aug 28	8350	Jan 10	3280	Aug 28 1962
ANNUAL RUNOFF (AC-FT)	14980000		14300000		18110000	
10 PERCENT EXCEEDS	39800		34600		52100	
50 PERCENT EXCEEDS	15700		16600		18800	
90 PERCENT EXCEEDS	8660		11400		8620	

e Estimated

12396500 PEND OREILLE RIVER BELOW BOX CANYON, NEAR IONE, WA

LOCATION.--Lat 48°46'52", long 117°24'55", in SE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, sec.19, T.38 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 1,000 ft downstream from Box Canyon Dam, 2.8 mi north of Ione, and at mile 34.3.

DRAINAGE AREA.--24,900 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1952 to current year.

REVISED RECORDS.--WSP 1933: Drainage area. WDR WA-81-2: 1976.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Mar. 29, 1954, nonrecording gage at site 300 ft upstream at same datum. Mar. 29 to Aug. 25, 1954, nonrecording gage at present site and datum. Since Aug. 20, 1967, auxiliary water-stage recorder 1.2 mi downstream at same datum.

REMARKS.--Records fair except those below 10,000 ft<sup>3</sup>/s, which are poor. Flow regulated by Box Canyon Reservoir, 1,000 ft upstream, since June 1955 and by Pend Oreille Lake, Flathead Lake, Hungry Horse Reservoir, and by several smaller reservoirs and powerplants. Numerous diversions upstream from station for irrigation.

AVERAGE DISCHARGE.--52 years (water years 1953-2004), 26,360 ft<sup>3</sup>/s, 19,100,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum daily discharge, 136,000 ft<sup>3</sup>/s, June 13, 14, 1972; maximum daily elevation, 2,015.44 ft, June 5, 7, 1997 (mean of surge), (backwater from Boundary Dam); minimum daily discharge, 82 ft<sup>3</sup>/s, Oct. 5, 1985 (result of regulation).

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1948 reached an elevation of 2,018.00 ft, from floodmarks, discharge, 167,000 ft<sup>3</sup>/s.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 51,300 ft<sup>3</sup>/s, June 1; maximum elevation, 1,996.59 ft, June 1, backwater from Boundary Dam; minimum daily discharge, 8,200 ft<sup>3</sup>/s, Jan. 13, 14, result of regulation.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12,900	24,500	13,500	17,900	15,200	14,200	23,600	21,300	49,900	37,800	13,300	21,400
2	15,200	25,500	14,200	15,100	15,700	14,700	21,100	20,900	46,600	35,400	13,000	21,500
3	16,100	27,200	15,700	13,000	13,900	16,100	18,300	22,000	42,800	32,200	13,000	20,400
4	16,100	27,700	15,200	11,100	12,900	15,800	16,900	24,000	41,300	30,300	12,300	18,900
5	16,100	28,000	15,200	11,500	13,200	15,700	17,100	26,500	37,800	29,600	11,900	16,200
6	16,100	28,000	14,500	15,000	12,700	15,400	17,400	29,400	35,500	29,600	12,100	15,200
7	16,200	28,100	14,300	14,400	11,900	15,100	18,600	30,600	35,700	29,200	12,300	15,200
8	15,900	28,700	14,500	12,500	11,300	16,100	18,100	31,600	39,400	29,900	12,400	14,700
9	16,500	27,900	14,500	e11,800	11,600	16,800	18,600	31,400	42,600	27,900	12,700	14,600
10	16,000	24,100	15,700	9,710	11,300	17,000	19,200	31,800	40,800	26,700	12,300	14,000
11	16,200	21,200	15,800	e8,400	11,000	17,000	19,000	33,000	39,100	26,400	12,200	14,000
12	16,200	20,600	15,700	e8,300	11,300	17,000	18,600	36,100	36,500	25,900	11,000	14,000
13	15,900	19,700	15,000	e8,200	11,400	17,600	18,800	36,300	35,600	23,300	11,300	12,900
14	16,100	19,500	14,900	e8,200	12,100	17,000	19,100	36,500	35,300	21,900	11,100	11,900
15	17,300	18,200	15,300	8,410	11,500	17,100	19,700	36,800	35,000	21,600	11,800	13,800
16	17,900	16,200	15,900	9,000	12,800	16,800	22,400	36,900	35,300	22,700	12,000	17,400
17	18,400	13,900	16,300	9,460	14,700	16,800	22,900	36,600	34,500	20,000	11,900	17,400
18	18,200	13,100	17,600	9,150	15,000	17,000	23,400	34,900	34,500	18,400	12,300	13,400
19	18,900	15,100	17,600	10,100	16,000	16,800	23,600	33,600	35,200	18,600	13,800	12,100
20	18,900	14,700	15,000	10,900	15,800	17,100	23,500	31,300	35,400	20,500	11,900	17,500
21	18,200	14,700	14,000	10,900	15,700	18,300	22,200	31,700	34,800	20,800	11,400	24,100
22	18,300	15,700	13,300	11,100	15,300	19,200	21,700	32,800	34,300	19,200	11,700	24,200
23	18,700	15,000	13,200	11,000	15,400	19,400	20,800	32,800	31,400	17,800	12,300	24,500
24	18,300	16,000	12,800	11,000	15,200	19,200	16,700	33,600	30,200	16,300	11,800	26,100
25	18,800	16,400	13,600	10,300	15,400	19,300	16,100	38,000	28,900	15,600	12,200	26,300
26	18,800	17,800	13,400	12,500	15,300	19,600	16,900	41,600	28,300	14,900	15,600	26,300
27	18,800	19,100	13,600	13,400	14,700	20,600	19,900	42,700	28,800	15,100	19,600	26,600
28	18,800	16,400	13,500	14,000	13,800	22,700	20,700	46,200	30,200	14,500	19,900	26,700
29	18,400	14,800	13,500	14,900	13,400	23,400	20,800	47,000	34,300	13,800	20,700	26,100
30	18,400	13,800	15,800	15,600	---	23,300	21,100	47,600	36,600	13,900	21,500	26,700
31	19,800	---	18,100	15,600	---	23,600	---	49,200	---	13,800	21,100	---
TOTAL	536,400	601,600	461,200	362,430	395,500	555,700	596,800	1,064,700	1,086,600	703,600	422,400	574,100
MEAN	17,300	20,050	14,880	11,690	13,640	17,930	19,890	34,350	36,220	22,700	13,630	19,140
MAX	19,800	28,700	18,100	17,900	16,000	23,600	23,600	49,200	49,900	37,800	21,500	26,700
MIN	12,900	13,100	12,800	8,200	11,000	14,200	16,100	20,900	28,300	13,800	11,000	11,900
AC-FT	1,064,000	1,193,000	914,800	718,900	784,500	1,102,000	1,184,000	2,112,000	2,155,000	1,396,000	837,800	1,139,000
CAL YR 2003	TOTAL	7,867,400	MEAN	21,550	MAX	69,200	MIN	6,200	AC-FT	15,600,000		
WTR YR 2004	TOTAL	7,361,030	MEAN	20,110	MAX	49,900	MIN	8,200	AC-FT	14,600,000		

e Estimated



12397100 OUTLET CREEK NEAR METALINE FALLS, WA

LOCATION.--Lat 48°50'42", long 117°17'12", in SW¼SE¼, sec.30, T.39 N., R.44 E., Pend Oreille County, Hydrologic Unit 17010216, Colville National Forest, on right bank 0.1 mi upstream from mouth, 0.4 mi downstream from Sullivan Lake Dam, and 4 mi east of Metaline Falls.

DRAINAGE AREA.--51.5 mi<sup>2</sup>.

PERIOD OF RECORD.--January 1959 to current year.

REVISED RECORDS.--WSP 1933: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is 2,540.2 ft above NGVD of 1929.

REMARKS.--Records good except for estimated daily discharges, which are fair. Flow regulated by Sullivan Lake 0.4 mi upstream (station 12397000). No diversions upstream from station.

AVERAGE DISCHARGE.--45 years (water years 1960-2004), 73.7 ft<sup>3</sup>/s, 53,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 924 ft<sup>3</sup>/s, May 31, 1969, gage height, 12.26 ft; minimum discharge, 1.5 ft<sup>3</sup>/s, part or all of each day Mar. 4-10, 1990; minimum gage height, 8.76 ft, part of each day Apr. 9-12, 1973, and Mar. 4-10, 1980.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 230 ft<sup>3</sup>/s, Nov. 3, gage height, 10.49 ft, result of regulation; minimum discharge, 5.6 ft<sup>3</sup>/s, Apr. 24-26, May 17, 18, result of regulation.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	117	211	87	e18	16	15	25	10	9.8	12	14	14
2	206	207	72	e18	16	15	17	11	9.8	12	14	14
3	204	219	66	e18	16	14	12	11	10	12	14	14
4	203	225	61	e18	16	15	12	11	10	13	14	14
5	202	223	57	e17	15	15	12	10	11	13	14	14
6	215	219	52	e17	15	15	11	9.8	11	13	14	14
7	225	215	47	e17	15	16	8.9	9.9	11	13	14	14
8	223	210	43	e16	15	16	9.4	10	11	13	14	13
9	220	204	41	e16	15	15	10	10	11	13	14	13
10	218	206	40	e16	15	15	10	11	11	13	14	13
11	215	213	40	e16	15	15	11	11	11	13	14	13
12	213	207	40	e16	15	15	8.4	11	9.8	13	14	13
13	210	201	40	e16	15	15	8.4	11	10	13	14	13
14	208	196	37	e15	15	15	11	11	10	13	14	13
15	206	190	32	e15	15	15	10	11	11	13	14	13
16	204	185	31	e15	15	15	10	11	11	13	14	13
17	202	180	29	e15	14	15	11	8.9	11	14	14	13
18	199	175	29	15	15	15	11	8.7	11	14	14	13
19	197	170	29	15	14	15	10	9.3	11	13	13	13
20	209	166	29	15	14	16	9.8	8.6	11	13	14	13
21	214	161	26	15	14	15	8.8	8.9	11	13	14	13
22	211	159	22	14	14	15	8.2	8.9	11	13	14	13
23	209	151	22	15	14	15	7.1	9.2	11	13	13	13
24	205	144	22	15	14	16	5.7	9.3	11	13	14	13
25	202	130	21	15	14	17	5.6	9.7	11	13	14	13
26	200	124	20	15	14	18	7.8	9.2	11	14	14	13
27	215	116	e20	15	15	19	9.7	9.4	11	14	14	13
28	225	110	e20	15	15	20	9.8	9.5	11	14	14	13
29	223	104	e19	16	15	20	10	9.7	11	14	14	13
30	219	93	e19	17	---	21	10	9.8	11	14	14	13
31	215	---	e19	16	---	23	---	9.8	---	14	14	---
TOTAL	6,434	5,314	1,132	492	430	501	310.6	308.6	322.4	408	432	397
MEAN	208	177	36.5	15.9	14.8	16.2	10.4	9.95	10.7	13.2	13.9	13.2
MAX	225	225	87	18	16	23	25	11	11	14	14	14
MIN	117	93	19	14	14	14	5.6	8.6	9.8	12	13	13
AC-FT	12,760	10,540	2,250	976	853	994	616	612	639	809	857	787

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1959 - 2004, BY WATER YEAR (WY)

MEAN	207	203	81.6	42.3	30.4	31.8	23.5	37.4	143	44.4	23.7	26.4
MAX	395	343	382	201	130	323	132	239	437	133	63.1	157
(WY)	(1991)	(1985)	(1960)	(1984)	(1984)	(1959)	(1974)	(1961)	(1974)	(1999)	(1999)	(1965)
MIN	15.7	18.0	16.2	13.4	8.15	2.07	1.93	3.60	5.51	6.58	6.93	6.99
(WY)	(1974)	(1962)	(1976)	(1979)	(1981)	(1990)	(1973)	(1977)	(1977)	(1977)	(1977)	(1977)

## PEND OREILLE RIVER BASIN

12397100 OUTLET CREEK NEAR METALINE FALLS, WA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1959 - 2004	
ANNUAL TOTAL	22,503		16,481.6			
ANNUAL MEAN	61.7		45.0		73.7	
HIGHEST ANNUAL MEAN					132	1974
LOWEST ANNUAL MEAN					42.7	1993
HIGHEST DAILY MEAN	225	Oct 7	225	Oct 7	842	Jun 2, 1997
LOWEST DAILY MEAN	11	Apr 14	5.6	Apr 25	1.5	Mar 5, 1990
ANNUAL SEVEN-DAY MINIMUM	12	Apr 23	7.6	Apr 21	1.5	Mar 4, 1990
ANNUAL RUNOFF (AC-FT)	44,630		32,690		53,400	
10 PERCENT EXCEEDS	202		202		242	
50 PERCENT EXCEEDS	25		14		25	
90 PERCENT EXCEEDS	15		10		6.1	

e Estimated



12398000 SULLIVAN CREEK AT METALINE FALLS, WA—Continued

## SUMMARY STATISTICS

WATER YEARS 1954 - 2004

ANNUAL MEAN	239	
HIGHEST ANNUAL MEAN	386	1997
LOWEST ANNUAL MEAN	121	2001
HIGHEST DAILY MEAN	4,020	Jun 1, 1997
LOWEST DAILY MEAN	27	Jan 1, 1958
ANNUAL SEVEN-DAY MINIMUM	30	Dec 31, 1957
ANNUAL RUNOFF (AC-FT)	172,800	
ANNUAL RUNOFF (CFSM)	1.68	
ANNUAL RUNOFF (INCHES)	22.82	
10 PERCENT EXCEEDS	549	
50 PERCENT EXCEEDS	114	
90 PERCENT EXCEEDS	56	



12398550 BOUNDARY DAM RESERVOIR NEAR METALINE FALLS, WA

LOCATION.--Lat 48°59'20", long 117°20'55", in NE<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub> sec.10, T.40 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, at Boundary Dam 1.0 mi upstream from international boundary, 8.8 mi north of Metaline Falls, and at mile 17.

DRAINAGE AREA.--25,200 mi<sup>2</sup>, approximately.

WATER-QUALITY RECORDS

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

REVISED RECORDS.--WDR WA-03-1: Revised figures of maximum, minimum, and mean of total partial pressure for 1999 and 2000 water years.

PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: April 1999 to current year.  
TOTAL DISSOLVED GAS: April 1999 to current year.

INSTRUMENTATION.--Water-quality monitor since April 1999.

REMARKS.--Temperature records rated excellent. Total dissolved gas records rated good, except for Feb. 17-20, Mar. 8, May 25, and Aug. 11, which are fair, and Feb. 16, Mar. 26, 27, and Aug. 24, which are poor.

EXTREMES FOR PERIOD OF RECORD.--

WATER TEMPERATURE: Maximum recorded, 25.2°C, Aug. 5, 2003, but may have been higher during periods of missing record; minimum recorded, 0.0°C, at times during winter periods.

TOTAL DISSOLVED GAS: Maximum recorded, 137 percent, June 22, 2002; minimum, 90 percent, Sept. 2, 2003, but may have been lower during periods of missing record.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 24.5°C, July 29, Aug. 19; minimum, 0.0°C, several days during January.  
TOTAL DISSOLVED GAS: Maximum, 122 percent, May 29; minimum, 94 percent, Jan. 21.

TOTAL PARTIAL PRESSURE OF DISSOLVED GASES, WATER, UNFILTERED, PERCENT OF SATURATION  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	101	97	99	97	97	97	96	95	96	102	99	100
2	101	98	100	97	97	97	97	96	96	100	98	99
3	101	99	100	97	96	97	97	96	96	98	96	97
4	101	100	100	96	96	96	97	95	96	96	95	96
5	100	100	100	96	96	96	99	97	98	96	95	96
6	102	99	100	97	96	96	99	99	99	97	96	97
7	101	100	100	97	96	97	99	98	98	97	97	97
8	101	100	100	97	97	97	98	97	98	97	95	96
9	100	100	100	99	97	98	98	97	98	96	95	96
10	99	98	99	99	99	99	98	98	98	97	96	96
11	99	98	99	99	97	98	99	97	98	97	96	96
12	99	98	98	97	97	97	100	99	100	96	96	96
13	98	97	97	98	97	98	100	99	100	96	95	95
14	98	96	97	99	98	98	100	98	99	96	95	95
15	99	96	98	99	99	99	98	97	98	96	95	96
16	98	97	98	101	99	100	98	97	98	95	95	95
17	99	97	98	101	99	100	97	96	97	95	95	95
18	98	98	98	100	99	100	97	97	97	96	95	95
19	98	97	98	101	99	100	98	97	97	96	95	96
20	98	96	97	99	98	99	99	98	98	95	95	95
21	99	97	98	99	99	99	98	97	98	95	94	94
22	100	98	99	99	98	98	98	97	97	95	94	95
23	100	98	99	99	97	98	99	98	99	96	95	95
24	98	97	98	99	98	99	100	99	100	97	96	97
25	97	97	97	99	98	99	100	99	99	97	95	96
26	98	96	98	98	96	97	99	98	98	97	95	96
27	99	98	99	95	95	95	98	97	98	97	96	97
28	102	98	100	97	95	96	99	98	99	98	97	97
29	101	99	100	97	96	97	99	98	99	99	97	98
30	99	97	98	96	95	96	99	98	98	100	99	100
31	98	97	97	---	---	---	100	99	99	99	98	99
MONTH	102	96	99	101	95	98	100	95	98	102	94	96



12398550 BOUNDARY DAM RESERVOIR NEAR METALINE FALLS, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	17.3	16.9	17.0	10.5	9.5	10.1	3.0	2.9	2.9	1.3	1.1	1.2
2	17.2	16.9	16.9	9.5	8.4	9.0	2.9	2.8	2.9	1.1	0.6	0.9
3	17.1	16.7	16.8	8.4	7.6	7.9	2.9	2.6	2.8	0.6	0.3	0.4
4	17.0	16.5	16.7	7.6	7.0	7.3	2.9	2.7	2.9	0.3	0.3	0.3
5	16.6	16.4	16.5	7.0	6.2	6.6	3.0	2.7	2.8	0.3	0.2	0.3
6	16.8	16.3	16.4	6.2	5.2	5.6	2.8	2.8	2.8	0.2	0.1	0.1
7	16.3	16.1	16.2	5.2	4.9	5.0	2.8	2.7	2.8	0.1	0.0	0.0
8	16.1	16.0	16.1	4.9	4.5	4.7	2.8	2.8	2.8	0.0	0.0	0.0
9	16.0	15.8	15.9	4.5	4.1	4.3	2.9	2.8	2.8	0.0	0.0	0.0
10	15.8	15.5	15.7	4.3	4.0	4.1	2.9	2.7	2.8	0.0	0.0	0.0
11	15.5	15.1	15.4	4.8	4.3	4.6	2.7	2.4	2.6	0.0	0.0	0.0
12	15.1	14.7	15.0	5.0	4.8	4.9	2.4	2.1	2.3	0.0	0.0	0.0
13	14.8	14.3	14.6	5.1	5.0	5.0	2.2	2.0	2.1	0.0	0.0	0.0
14	14.3	13.7	14.1	5.0	4.9	5.0	2.1	1.9	2.0	0.0	0.0	0.0
15	13.8	13.3	13.5	4.9	4.8	4.9	2.0	1.8	1.9	0.0	0.0	0.0
16	13.3	13.0	13.2	4.9	4.8	4.8	2.0	1.8	1.9	0.0	0.0	0.0
17	13.1	12.9	13.0	4.8	4.7	4.8	2.1	2.0	2.1	0.0	0.0	0.0
18	12.9	12.6	12.7	5.0	4.8	4.9	2.1	2.0	2.1	0.0	0.0	0.0
19	12.7	12.4	12.6	5.2	5.0	5.1	2.0	1.5	1.8	0.0	0.0	0.0
20	12.4	12.3	12.4	5.4	5.2	5.3	1.6	1.2	1.3	0.0	0.0	0.0
21	12.7	12.3	12.5	5.4	5.4	5.4	1.2	1.1	1.1	0.1	0.0	0.0
22	12.8	12.5	12.7	5.4	5.2	5.3	1.2	1.1	1.1	0.1	0.0	0.0
23	13.0	12.8	12.9	5.2	5.1	5.2	1.5	1.1	1.3	0.0	0.0	0.0
24	12.9	12.8	12.9	5.1	4.6	4.9	1.7	1.3	1.5	0.0	0.0	0.0
25	12.8	12.7	12.8	4.6	4.0	4.4	1.9	1.5	1.7	0.1	0.0	0.0
26	12.7	12.4	12.6	4.1	3.4	3.8	2.0	1.8	1.9	0.3	0.0	0.1
27	12.4	12.0	12.3	3.5	3.3	3.4	2.2	2.0	2.1	0.9	0.2	0.5
28	12.2	11.7	11.9	3.4	3.1	3.3	2.3	2.2	2.3	1.2	0.5	0.9
29	11.7	11.5	11.6	3.3	3.1	3.3	2.2	1.8	2.1	1.3	1.1	1.2
30	11.5	11.1	11.3	3.1	2.9	3.0	1.9	1.5	1.7	1.5	1.2	1.4
31	11.1	10.4	10.8	---	---	---	1.5	1.3	1.4	1.6	1.5	1.6
MONTH	17.3	10.4	14.0	10.5	2.9	5.2	3.0	1.1	2.1	1.6	0.0	0.3
	FEBRUARY			MARCH			APRIL			MAY		
1	1.8	1.6	1.7	3.9	3.6	3.7	7.1	6.9	6.9	12.2	11.7	11.9
2	2.0	1.7	1.9	4.2	3.9	4.0	7.4	6.9	7.1	12.5	12.0	12.2
3	2.0	1.9	2.0	4.2	3.9	4.1	7.2	7.0	7.1	12.9	12.4	12.6
4	2.0	2.0	2.0	4.4	4.1	4.2	7.9	7.1	7.3	13.4	12.8	13.1
5	2.0	1.9	1.9	4.2	4.0	4.1	7.9	7.2	7.4	13.7	13.3	13.5
6	1.9	1.7	1.8	4.1	3.9	4.0	8.2	7.4	7.8	13.8	13.5	13.6
7	1.8	1.7	1.7	4.0	3.8	3.9	8.5	7.9	8.2	13.8	13.4	13.5
8	1.8	1.7	1.7	3.9	3.7	3.8	8.7	8.4	8.5	13.5	13.3	13.4
9	1.9	1.6	1.8	3.8	3.7	3.7	9.3	8.6	8.8	13.4	13.1	13.3
10	2.0	1.9	2.0	3.9	3.5	3.7	9.1	8.6	8.8	13.1	12.7	13.0
11	2.0	1.9	2.0	4.0	3.7	3.8	9.9	9.0	9.3	12.7	12.4	12.6
12	2.0	1.8	1.9	4.2	3.8	4.0	10.5	9.4	9.8	12.6	12.3	12.4
13	1.9	1.7	1.8	4.9	4.1	4.4	10.5	10.0	10.2	12.5	12.0	12.3
14	1.7	1.5	1.6	4.8	4.4	4.5	10.6	10.4	10.5	12.2	11.7	11.9
15	1.6	1.4	1.5	4.8	4.4	4.6	10.8	10.5	10.6	12.0	11.6	11.7
16	1.6	1.4	1.5	4.9	4.6	4.7	10.9	10.6	10.7	12.4	11.6	12.0
17	1.4	1.4	1.4	5.2	4.8	4.9	10.9	10.8	10.8	13.2	12.2	12.6
18	1.6	1.4	1.5	5.2	5.0	5.1	11.0	10.4	10.6	13.5	12.7	13.1
19	1.8	1.5	1.7	5.4	5.1	5.3	10.4	10.1	10.3	13.9	13.2	13.5
20	2.2	1.8	2.0	5.8	5.3	5.4	10.1	9.9	10.0	14.0	13.6	13.8
21	2.5	2.1	2.3	6.1	5.4	5.6	10.2	9.8	9.9	14.1	13.9	14.0
22	2.6	2.4	2.5	6.7	5.5	5.9	10.1	9.6	9.8	14.0	13.9	13.9
23	2.8	2.6	2.7	6.0	5.7	5.8	9.9	9.7	9.8	14.1	13.9	14.0
24	2.8	2.7	2.8	6.1	5.8	5.9	10.0	9.7	9.8	14.1	13.5	13.8
25	2.9	2.8	2.8	6.5	6.1	6.2	10.6	9.9	10.2	13.5	13.2	13.4
26	3.0	2.9	2.9	6.5	6.2	6.3	11.0	10.2	10.5	14.0	13.3	13.7
27	3.2	3.0	3.1	6.8	6.5	6.5	11.0	10.7	10.8	14.2	13.8	14.0
28	3.5	3.2	3.3	6.6	6.2	6.3	11.6	11.0	11.1	14.0	13.7	13.9
29	3.6	3.4	3.5	6.8	6.2	6.4	11.8	11.1	11.3	13.7	13.1	13.5
30	---	---	---	6.9	6.5	6.7	12.0	11.5	11.6	13.1	12.8	13.0
31	---	---	---	7.0	6.7	6.8	---	---	---	13.1	12.8	12.9
MONTH	3.6	1.4	2.1	7.0	3.5	5.0	12.0	6.9	9.5	14.2	11.6	13.1



12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY

LOCATION.--Lat 48°59'56", long 117°21'09", in SW¼NE¼, sec.3, T.40 N., R.43 E., Pend Oreille County, Hydrologic Unit 17010216, on left bank 0.1 mi upstream from international boundary, 0.9 mi downstream from Boundary Dam, 6.0 mi downstream from Slate Creek, 9.7 mi north of Metaline Falls, and at mile 16.1.

DRAINAGE AREA.--25,200 mi<sup>2</sup>, approximately.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1908 to September 1910 (gage heights only), December 1912 to October 1995, October 1996 to current year. Prior to October 1928, published as "Clark Fork at Metaline Falls," October 1928 to September 1937 as "Clark Fork below Z Canyon, near Metaline Falls," and October 1938 to September 1964 as "below Z Canyon, near Metaline Falls." Concurrent records published for present site December 1962 to September 1964.

REVISED RECORDS.--WSP 442: 1913, WSP 1716: 1919.

GAGE.--Daily discharge determined from flow through turbines plus spillway flow when present. Datum of gage is 1,700.00 ft above NGVD of 1929 (City of Seattle Boundary Dam datum). Prior to Dec. 20, 1928, nonrecording gage at Metaline Falls at datum approximately 1,983.4 ft above NGVD of 1929. Dec. 20, 1928, to Sept. 30, 1964, water-stage recorder at site 1.3 mi upstream at datum 1,721.18 ft NGVD of 1929 (levels by Corps of Engineers).

REMARKS.--Flow regulated by Boundary Reservoir 0.9 mi upstream beginning April 1967, Box Canyon Reservoir beginning June 1955, Pend Oreille Lake beginning June 1952, Flathead Lake beginning April 1938, Hungry Horse Reservoir beginning September 1951, and by several smaller reservoirs and powerplants. In 1980 there were diversions for irrigation of 429,700 acres upstream from the station and there probably has not been any appreciable change since that time. Chemical analyses October 1973 to September 1986. Specific conductance records January 1974 to September 1981. Water temperature records April 1974 to September 1981.

COOPERATION.--Discharge records at Boundary Dam provided by Seattle City Light's Power Resources Branch. The U.S. Geological Survey made 6 discharge measurements at this site during the year.

AVERAGE DISCHARGE.--91 years (water years 1913-95, 1997-2004), 26,480 ft<sup>3</sup>/s, 19,180,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 171,300 ft<sup>3</sup>/s June 13, 1948, gage height, 60.25 ft, site and datum then in use; minimum daily discharge, no flow Aug. 14, 21, 28, Sept. 4, 1988, Aug. 7, 1994, result of regulation.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1894 reached a stage of 69.0 ft, from floodmarks, at site and datum 1.3 mi upstream.

EXTREMES FOR CURRENT YEAR.--Maximum daily discharge, 48,600 ft<sup>3</sup>/s, June 1; minimum daily discharge, 4,160 ft<sup>3</sup>/s, Jan. 11.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	12,400	23,200	12,600	17,300	12,200	15,700	22,100	25,000	48,600	34,900	13,600	20,100
2	14,600	25,200	15,000	19,300	16,200	14,700	21,000	19,000	46,900	35,700	9,580	21,400
3	17,100	27,500	15,500	12,600	14,200	16,900	20,500	24,300	43,100	35,600	13,500	20,000
4	17,100	27,900	18,500	5,530	13,500	16,500	13,500	23,500	41,400	29,500	12,200	18,700
5	14,600	28,300	15,100	16,800	14,300	16,500	17,600	27,100	39,000	29,800	12,700	15,600
6	17,600	26,700	16,300	12,000	13,100	15,900	16,500	29,400	35,700	28,700	13,500	13,100
7	15,600	26,200	9,710	14,500	12,000	11,900	19,900	31,500	35,900	29,600	12,500	16,000
8	14,700	30,200	14,800	13,800	7,050	15,600	19,500	32,600	38,700	30,500	7,820	13,900
9	18,300	28,400	17,200	10,800	12,700	18,400	18,600	31,600	41,100	27,300	13,300	15,200
10	14,700	24,500	15,300	9,810	12,500	19,500	19,700	32,400	43,000	27,100	12,900	15,300
11	17,100	22,000	14,700	4,160	10,200	16,000	17,400	32,800	38,700	25,400	12,000	13,600
12	14,800	21,300	15,800	10,700	11,700	18,000	17,000	36,100	37,200	26,000	12,700	11,300
13	17,500	20,300	17,300	8,940	15,000	15,700	22,100	36,100	35,100	23,200	10,300	13,700
14	15,300	19,400	11,100	9,180	11,400	14,200	21,100	34,600	37,600	21,400	9,170	11,400
15	17,700	19,400	18,500	8,820	6,640	18,700	16,700	37,000	34,500	20,800	9,100	12,800
16	19,500	18,100	13,700	8,520	10,500	17,900	21,900	37,200	35,400	22,800	12,300	18,400
17	15,600	16,800	14,300	11,600	15,300	16,500	20,500	35,700	34,900	19,400	13,300	21,800
18	19,800	14,100	16,700	6,080	14,100	17,000	25,600	35,600	35,100	16,400	13,000	15,000
19	18,900	15,900	18,600	8,510	19,100	18,600	25,200	34,800	34,400	18,900	14,000	6,110
20	20,000	12,800	18,300	11,900	19,200	16,900	24,000	32,200	36,700	20,100	12,300	20,800
21	15,600	14,400	10,300	11,800	16,400	13,200	21,900	31,800	35,200	20,200	10,400	22,200
22	17,100	13,900	13,600	11,900	8,980	20,500	20,900	34,600	34,500	19,000	8,150	23,700
23	20,100	15,100	14,200	11,600	16,600	19,700	20,700	30,200	32,400	18,300	10,600	24,400
24	19,400	17,100	9,330	10,900	14,900	20,000	18,200	36,800	30,000	16,400	12,700	25,100
25	22,300	15,500	15,500	7,390	16,600	19,700	11,500	38,300	27,900	13,400	13,800	25,000
26	18,500	19,100	13,200	10,800	13,600	22,500	20,100	40,200	28,900	14,700	16,100	26,700
27	18,300	18,600	16,800	15,200	14,600	19,400	20,100	43,800	28,100	17,100	18,400	25,500
28	20,500	15,600	10,600	16,200	15,000	18,400	18,800	45,600	29,900	12,700	18,800	25,700
29	16,100	16,700	18,800	14,400	11,300	25,900	20,900	43,300	34,400	13,700	19,900	24,200
30	17,900	14,500	15,200	16,500	---	23,800	20,800	47,100	37,000	---	13,600	22,500
31	20,100	---	14,000	15,500	---	22,600	---	48,400	---	15,400	21,000	---
TOTAL	538,800	608,700	460,540	363,040	388,870	556,800	594,300	1,068,600	1,091,300	697,600	412,120	564,910
MEAN	17,380	20,290	14,860	11,710	13,410	17,960	19,810	34,470	36,380	22,500	13,290	18,830
MAX	22,300	30,200	18,800	19,300	19,200	25,900	25,600	48,400	48,600	35,700	22,500	28,200
MIN	12,400	12,800	9,330	4,160	6,640	11,900	11,500	19,000	27,900	12,700	7,820	6,110
AC-FT	1,069,000	1,207,000	913,500	720,100	771,300	1,104,000	1,179,000	2,120,000	2,165,000	1,384,000	817,400	1,120,000
CAL YR	2003	TOTAL 7,834,630	MEAN 21,460	MAX 66,600	MIN 3,440	AC-FT 15,540,000						
WTR YR	2004	TOTAL 7,345,580	MEAN 20,070	MAX 48,600	MIN 4,160	AC-FT 14,570,000						

## 12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA—Continued

## WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1974 to 1981 (National Stream-quality Accounting Network Station). Water-quality monitor April 1999 to current year.

PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: January 1974 to September 1981.

WATER TEMPERATURE: April 1974 to September 1981; April 1999 to current year.

TOTAL DISSOLVED GAS: May 1999 to current year.

INSTRUMENTATION.--Water-quality monitor April 1974 to September 1981; April 1999 to current year.

REMARKS.--Interruptions in the record were due to malfunctions of the instrument. Temperature records excellent, except the following days that contain partial record: Dec. 7, Feb. 29, Mar. 22, May 7, 8, 26, June 8, 28, and July 1 are considered good and Mar. 14 and Apr. 12, 14 are considered fair. Total dissolved gas records good, except Oct. 28, 30, 31, Nov. 25, 26, 28, Dec. 7, 8, 14, Feb. 29, Mar. 22-24, 29, 31, May 1, 4, 5, 7, 8, 11, 14, 25, 26, June 8, 15-17, 22, 28, July 1 and 3, which are fair, and Oct. 19, Dec. 15, Mar. 14, Apr. 12, 14, July 4-9, and Sept. 17, which are poor. In addition to the water-quality monitor record, samples were collected approximately once a month from 1974 to 1981.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SPECIFIC CONDUCTANCE: Maximum, 242 micromhos, July 17, 1974; minimum, 62 micromhos, Apr. 25, 1975.

WATER TEMPERATURE: Maximum, 24.5°C (rounded), July 28-30, 1975, (unrounded), Aug. 2, 4, 2003; minimum, 0.0°C, at times during winter periods.

TOTAL DISSOLVED GAS: Maximum, 142 percent saturation, Aug. 7, 15, 2000, and July 15, 2001, but may have been higher during periods of missing record; minimum, 92 percent saturation, Dec. 18, 20, 28, 2000, but may have been lower during periods of missing record.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum, 24.2°C, Aug. 19; minimum, 0.0°C, many days in January.

TOTAL DISSOLVED GAS: Maximum, 131 percent saturation, July 20; minimum, 94 percent saturation, Nov. 27 and Jan. 21, but may have been lower during periods of missing record.

TOTAL PARTIAL PRESSURE OF DISSOLVED GASES, WATER, UNFILTERED, PERCENT OF SATURATION  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	OCTOBER			NOVEMBER			DECEMBER			JANUARY		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	101	98	99	97	96	97	99	95	96	---	---	---
2	100	99	100	98	96	96	98	95	96	---	---	---
3	104	99	100	97	95	96	98	95	96	---	---	---
4	102	99	100	96	95	95	103	95	96	---	---	---
5	102	99	100	95	95	95	100	97	98	---	---	---
6	101	99	100	96	94	95	101	98	99	---	---	---
7	104	100	101	97	95	96	100	97	98	---	---	---
8	104	100	101	97	96	96	98	97	97	---	---	---
9	105	99	100	98	97	97	98	97	97	98	95	96
10	101	98	99	100	98	99	98	97	97	98	96	97
11	100	98	98	101	97	99	99	97	97	97	96	96
12	100	97	98	98	96	97	100	98	99	97	95	96
13	112	96	99	101	97	99	100	98	99	96	95	95
14	100	96	97	100	98	98	99	98	99	96	95	95
15	99	97	98	100	98	99	98	96	97	96	95	96
16	103	97	98	101	99	100	103	97	99	95	94	95
17	100	97	98	101	98	99	101	95	97	97	94	95
18	105	97	99	101	98	99	96	96	96	96	95	96
19	99	96	98	100	98	99	97	96	97	96	95	95
20	101	97	98	100	98	99	98	97	97	95	94	95
21	99	97	97	104	98	100	97	96	97	96	94	95
22	102	98	99	99	97	98	97	96	97	96	94	95
23	103	98	100	98	97	98	99	97	98	97	95	96
24	100	97	99	100	97	98	100	99	99	97	96	97
25	98	96	97	99	98	98	99	98	98	97	95	96
26	104	97	99	98	95	96	98	97	98	98	95	96
27	108	98	101	95	94	94	98	96	97	98	96	96
28	102	100	100	99	95	97	99	97	98	99	97	97
29	106	98	100	109	96	99	99	98	98	100	97	98
30	102	97	99	101	95	97	---	---	---	101	98	99
31	99	96	97	---	---	---	---	---	---	99	98	98
MONTH	112	96	99	109	94	98	---	---	---	---	---	---

12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA—Continued

TOTAL PARTIAL PRESSURE OF DISSOLVED GASES, WATER, UNFILTERED, PERCENT OF SATURATION—CONTINUED  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
	FEBRUARY			MARCH			APRIL			MAY		
1	99	97	98	102	101	101	---	---	---	104	103	104
2	100	97	99	103	101	102	---	---	---	106	103	104
3	102	98	100	103	101	102	---	---	---	107	105	106
4	101	99	99	103	102	103	---	---	---	109	106	107
5	100	97	98	104	102	103	---	---	---	109	106	107
6	101	98	99	103	100	101	---	---	---	107	104	105
7	99	98	98	101	99	100	---	---	---	108	104	106
8	99	97	97	99	98	99	---	---	---	107	105	106
9	100	96	98	101	99	100	---	---	---	109	106	107
10	100	98	98	99	98	98	---	---	---	109	107	108
11	100	98	99	101	99	100	---	---	---	109	106	107
12	100	98	99	104	100	102	108	106	107	111	106	108
13	101	99	100	105	101	102	---	---	---	114	109	111
14	103	100	100	104	102	103	109	106	108	112	110	111
15	101	99	100	103	101	102	108	106	107	---	---	---
16	101	100	100	103	101	102	108	106	107	---	---	---
17	102	100	101	104	102	103	107	104	106	---	---	---
18	105	101	102	106	103	104	106	102	103	---	---	---
19	102	100	101	103	100	102	103	102	103	---	---	---
20	101	100	100	101	100	100	104	103	104	---	---	---
21	102	101	101	102	99	101	106	103	104	---	---	---
22	103	101	102	104	101	102	106	103	104	---	---	---
23	104	102	103	103	102	103	107	104	105	110	108	109
24	104	102	103	104	102	103	106	102	104	115	106	108
25	104	102	103	104	102	103	103	101	102	112	105	108
26	104	102	103	104	103	103	105	101	103	116	110	113
27	103	101	102	104	101	103	105	104	105	117	114	115
28	102	101	101	103	101	102	105	104	104	118	115	117
29	102	101	101	105	101	103	105	103	104	120	117	119
30	---	---	---	105	103	104	105	103	104	117	116	117
31	---	---	---	105	103	104	---	---	---	118	117	117
MONTH	105	96	100	106	98	102	---	---	---	---	---	---
	JUNE			JULY			AUGUST			SEPTEMBER		
1	119	118	119	114	111	112	106	102	104	103	100	100
2	120	118	119	117	112	115	105	102	103	105	99	100
3	118	116	118	114	112	112	107	102	103	102	99	100
4	117	116	117	111	108	110	111	102	105	102	99	100
5	117	115	116	110	105	107	112	101	104	102	98	100
6	115	112	114	105	104	105	109	100	103	100	98	99
7	116	110	111	110	104	105	103	98	101	100	98	99
8	110	109	110	109	104	106	106	98	101	101	99	99
9	114	110	112	113	104	106	100	98	99	103	99	100
10	115	113	114	116	103	106	102	98	99	105	99	101
11	113	112	112	113	101	105	107	99	101	109	100	103
12	112	110	111	109	102	103	111	100	104	106	100	102
13	110	109	109	110	102	105	103	100	101	107	100	103
14	109	107	108	105	102	104	104	99	102	110	100	103
15	110	108	109	111	103	105	104	100	102	110	99	103
16	110	107	109	108	103	105	105	101	103	102	99	101
17	111	108	110	111	104	105	106	102	103	102	99	100
18	113	109	111	108	104	105	104	101	103	---	---	---
19	111	110	111	106	103	105	105	101	103	---	---	---
20	112	110	111	131	103	108	109	101	104	---	---	---
21	113	110	112	113	103	105	105	101	103	---	---	---
22	113	111	112	105	102	103	105	102	103	107	99	101
23	112	110	111	105	102	104	112	101	104	109	100	102
24	110	107	109	108	101	103	102	100	101	108	99	102
25	107	106	107	105	101	103	104	100	101	108	100	103
26	107	105	106	106	102	104	105	98	101	109	100	103
27	109	105	107	106	103	104	106	97	100	108	100	102
28	108	105	106	108	103	104	101	97	99	107	102	104
29	108	105	107	109	103	105	105	98	100	108	102	104
30	113	108	111	110	104	107	107	98	99	106	101	103
31	---	---	---	108	103	105	107	99	101	---	---	---
MONTH	120	105	111	131	101	106	112	97	102	---	---	---





12398600 PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—CONTINUED  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

DAY	JUNE			JULY			AUGUST			SEPTEMBER		
	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN	MAX	MIN	MEAN
1	13.2	13.0	13.1	20.5	20.0	20.4	23.4	23.0	23.3	20.9	20.8	20.9
2	13.1	12.8	13.0	20.7	20.3	20.5	23.5	23.1	23.3	20.9	20.5	20.8
3	13.4	12.9	13.2	20.3	19.6	20.0	23.4	23.0	23.3	20.6	20.1	20.4
4	14.2	13.4	13.9	19.6	---	---	23.6	23.1	23.4	20.1	19.7	19.9
5	14.8	14.2	14.6	19.4	---	---	23.5	23.3	23.5	19.7	19.3	19.6
6	15.0	14.7	14.9	19.5	---	---	23.4	22.8	23.3	19.3	19.1	19.2
7	15.0	14.8	14.9	19.8	---	---	23.4	23.1	23.3	19.1	18.8	19.0
8	14.9	14.6	14.8	19.9	---	---	23.2	22.9	23.1	18.9	18.6	18.8
9	14.7	14.4	14.6	19.8	---	---	23.1	22.7	22.9	18.9	18.7	18.9
10	14.4	13.9	14.2	19.5	19.1	19.2	22.7	22.4	22.6	19.0	18.7	18.9
11	13.9	13.4	13.8	19.3	19.0	19.2	22.6	22.1	22.5	19.0	18.8	18.9
12	13.4	13.3	13.3	19.8	19.1	19.5	22.6	22.2	22.5	19.0	18.7	18.9
13	13.7	13.3	13.5	20.1	19.4	19.8	22.7	22.2	22.5	18.9	18.7	18.9
14	14.0	13.6	13.8	20.1	19.8	20.0	23.1	21.9	22.7	18.8	18.6	18.7
15	14.2	13.8	14.1	20.4	19.8	20.1	23.4	21.8	22.9	18.6	18.3	18.4
16	14.2	13.9	14.1	20.8	20.2	20.5	23.8	23.2	23.6	18.3	17.8	18.1
17	14.2	13.6	14.0	21.3	20.6	20.9	24.0	23.5	23.8	17.8	---	---
18	14.8	14.0	14.5	21.6	21.1	21.4	24.1	23.7	24.0	---	---	---
19	15.3	14.7	15.1	21.7	21.5	21.6	24.2	23.8	24.1	---	---	---
20	15.6	15.2	15.5	21.9	21.5	21.7	24.1	23.8	24.0	---	---	---
21	15.9	15.4	15.7	22.0	21.6	21.9	24.0	23.7	23.9	---	16.1	---
22	16.6	15.8	16.3	22.1	21.5	21.9	23.8	23.5	23.7	16.1	15.8	15.9
23	17.2	16.5	16.9	22.3	21.8	22.1	23.7	23.5	23.6	15.8	15.6	15.6
24	17.7	17.0	17.5	22.4	22.0	22.3	23.5	23.2	23.4	15.7	15.4	15.6
25	18.1	17.6	17.9	22.6	22.1	22.4	23.2	22.6	22.9	15.8	15.5	15.7
26	18.5	18.0	18.3	22.9	22.3	22.7	22.7	22.4	22.5	16.1	15.8	15.9
27	18.7	18.3	18.5	23.2	22.7	23.0	22.4	21.7	22.1	16.3	15.9	16.1
28	19.0	18.5	18.9	23.3	22.7	23.1	21.7	21.0	21.4	16.4	16.0	16.2
29	19.4	18.9	19.2	23.5	22.8	23.3	21.0	20.7	20.8	16.4	16.0	16.3
30	20.1	---	---	23.6	23.0	23.4	20.8	20.6	20.7	16.4	16.3	16.3
31	---	---	---	23.5	23.0	23.4	21.0	20.6	20.8	---	---	---
MONTH	20.1	---	---	23.6	---	---	24.2	20.6	22.9	---	---	---

12399500 COLUMBIA RIVER AT INTERNATIONAL BOUNDARY  
(International gaging station)

LOCATION.--Lat 49°00'03", long 117°37'42", in NE ¼ SE ¼ sec.4, T.40 N., R.41 E., Stevens County, Hydrologic Unit 17020001, on left bank at international boundary, 0.5 mi downstream from Pend Oreille River, and at mile 745.0.

DRAINAGE AREA.--59,700 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--October 1937 to current year. Prior to March 1938, monthly discharge only, published in WSP 1316.

REVISED RECORDS.--WSP 932: 1937(m), 1938(M), 1939(m).

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Bureau of Reclamation datum). Prior to Apr. 27, 1939, nonrecording gage at same site and datum. Since May 31, 1942, auxiliary water-stage recorder and Jan. 1 to May 30, 1942, auxiliary nonrecording gage 2.2 mi downstream from base gage at same datum.

REMARKS.--No estimated daily discharges. Records good except for periods when the base gage height drops below 1,300 ft, which are fair. Flow regulated by numerous reservoirs. It was estimated that 436,400 acres were under irrigation in the United States in 1980 with diversions for irrigation of an additional 35,000 acres in Canada. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--67 years (water years 1938-2004), 99,270 ft<sup>3</sup>/s, 71,920,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 550,100 ft<sup>3</sup>/s June 12, 1948, elevation, 1,338.13 ft; minimum discharge, 18,000 ft<sup>3</sup>/s Feb. 7, 1954, elevation, 1,289.38 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in June 1894 reached a stage of 1,346 ft, from information by Bureau of Reclamation, discharge, 680,000 ft<sup>3</sup>/s. A discharge of about 12,900 ft<sup>3</sup>/s occurred Jan. 30 or 31, 1937, based on information from other gaging stations, elevation, 1,287.9 ft, from rating curve extended below 1,291.6 ft and may have been as low in January 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 145,000 ft<sup>3</sup>/s, June 16, elevation 1,308.51 ft; minimum discharge, 39,900 ft<sup>3</sup>/s, Feb. 27.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	90,100	77,300	92,200	72,700	84,300	57,100	72,300	86,500	117,000	132,000	82,900	104,000
2	91,200	90,800	90,800	80,600	82,100	55,300	58,800	80,200	120,000	132,000	83,000	96,900
3	95,000	92,500	91,600	81,800	69,800	59,100	64,600	92,700	116,000	133,000	82,200	99,400
4	93,300	93,800	101,000	76,300	63,100	56,900	63,200	93,500	115,000	123,000	80,100	93,000
5	88,600	93,600	99,800	81,700	59,000	60,000	57,300	93,500	118,000	122,000	86,400	87,600
6	84,200	95,700	97,800	81,200	55,500	56,300	61,500	102,000	121,000	116,000	73,000	87,700
7	83,300	95,800	94,200	79,800	54,600	53,100	65,000	101,000	124,000	112,000	74,200	87,800
8	78,600	94,400	100,000	77,200	52,500	59,900	70,300	99,000	130,000	112,000	67,400	88,000
9	75,600	94,500	103,000	69,900	56,700	57,600	67,400	102,000	130,000	112,000	80,700	91,500
10	79,900	93,200	107,000	58,800	55,700	63,400	68,000	105,000	130,000	109,000	78,400	90,300
11	75,300	88,600	105,000	60,000	56,100	60,700	64,500	103,000	131,000	107,000	79,600	82,900
12	73,200	86,900	110,000	66,000	56,700	58,100	71,000	106,000	132,000	107,000	83,400	79,500
13	72,000	82,400	114,000	62,800	58,500	58,100	74,000	105,000	133,000	105,000	88,300	86,400
14	74,500	82,300	112,000	61,900	54,200	59,400	79,700	96,900	136,000	105,000	86,900	82,000
15	75,700	82,800	119,000	60,100	51,500	63,600	77,300	96,100	133,000	96,800	81,800	81,800
16	78,600	83,400	119,000	62,000	59,200	63,000	76,400	102,000	133,000	95,300	96,800	89,800
17	75,600	79,300	119,000	65,200	58,900	64,200	78,200	105,000	130,000	93,400	96,900	96,300
18	75,700	77,600	120,000	60,300	55,100	61,200	76,900	97,500	127,000	87,800	98,400	92,700
19	80,100	80,100	123,000	66,000	63,300	61,400	82,800	101,000	126,000	90,100	102,000	92,300
20	75,700	85,700	120,000	74,400	64,200	62,900	79,300	99,200	122,000	85,200	100,000	101,000
21	78,800	81,900	113,000	77,300	62,300	57,800	80,100	98,700	123,000	89,700	91,200	101,000
22	79,500	78,300	109,000	82,100	53,400	63,600	76,000	103,000	122,000	76,000	80,500	97,000
23	82,400	71,300	97,400	80,800	58,800	67,000	72,100	97,300	119,000	84,500	98,700	98,400
24	85,400	79,200	89,200	83,900	56,900	67,300	74,500	104,000	123,000	86,100	105,000	99,600
25	85,500	80,000	95,200	83,800	57,100	69,300	67,500	103,000	124,000	86,100	105,000	92,900
26	84,100	84,700	91,700	86,200	56,700	68,200	72,300	106,000	126,000	92,200	109,000	92,700
27	85,700	91,100	97,900	88,300	54,400	73,300	74,800	110,000	127,000	83,200	112,000	89,400
28	80,200	98,100	91,200	87,300	56,900	73,600	77,800	112,000	127,000	83,900	109,000	84,000
29	73,900	95,300	88,200	90,400	54,600	72,700	78,800	105,000	131,000	81,900	105,000	79,000
30	69,700	84,300	82,100	84,600	---	75,600	80,300	108,000	132,000	80,800	108,000	77,000
31	72,500	---	70,200	85,700	---	76,100	---	109,000	---	77,100	107,000	---
TOTAL	2,493,900	2,594,900	3,163,500	2,329,100	1,722,100	1,955,800	2,162,700	3,123,100	3,778,000	3,097,100	2,832,800	2,721,900
MEAN	80,450	86,500	102,000	75,130	59,380	63,090	72,090	100,700	125,900	99,910	91,380	90,730
MAX	95,000	98,100	123,000	90,400	84,300	76,100	82,800	112,000	136,000	133,000	112,000	104,000
MIN	69,700	71,300	70,200	58,800	51,500	53,100	57,300	80,200	115,000	76,000	67,400	77,000
AC-FT	4,947,000	5,147,000	6,275,000	4,620,000	3,416,000	3,879,000	4,290,000	6,195,000	7,494,000	6,143,000	5,619,000	5,399,000
CAL YR	2003	TOTAL	32,196,600	MEAN	88,210	MAX	151,000	MIN	41,600	AC-FT	63,860,000	
WTR YR	2004	TOTAL	31,974,900	MEAN	87,360	MAX	136,000	MIN	51,500	AC-FT	63,420,000	

12401500 KETTLE RIVER NEAR FERRY, WA  
(International gaging station)

LOCATION.--Lat 48°58'53", long 118°45'55", in SE ¼ NW ¼ sec.10, T.40 N., R.32 E., Ferry County, Hydrologic Unit 17020002, on right bank 0.5 mi upstream from Catherine Creek, 1.3 mi south of international boundary and Ferry, 3.2 mi upstream from Toroda Creek, and at mile 84.02.

DRAINAGE AREA.--2,200 mi<sup>2</sup>, approximately.

PERIOD OF RECORD.--August 1928 to current year.

GAGE.--Water-stage recorder. Datum of gage is 1,836.8 ft above NGVD of 1929. Prior to Nov. 23, 1928, nonrecording gage at same site and datum.

REMARKS.--Records excellent except for estimated daily discharges, which are good. Several small diversions upstream from station for irrigation. No regulation. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--76 years (water years 1929-2004), 1,540 ft<sup>3</sup>/s, 1,116,000 acre-ft/yr.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 21,200 ft<sup>3</sup>/s May 29, 1948, gage height, 21.15 ft; minimum discharge, 14 ft<sup>3</sup>/s, discharge measurement, Jan. 23, 1930, but may have been less during period of ice effect Jan. 18-23, 1930.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,800 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)
June 6	1530	*9,030	*16.18				

Minimum discharge, 53 ft<sup>3</sup>/s, Dec. 30, Feb. 23, gage height, 9.06 ft.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	81	381	144	101	136	169	1,330	5,840	5,580	2,930	299	461
2	80	308	175	115	118	164	1,330	7,060	5,120	2,730	279	421
3	77	347	201	117	125	156	1,330	7,400	4,850	2,250	264	419
4	75	268	154	e95	140	155	1,430	7,310	4,960	1,960	266	650
5	74	168	161	e85	110	149	1,670	7,630	5,590	1,750	275	720
6	74	150	204	e95	121	145	2,060	6,880	7,730	1,590	306	657
7	74	154	211	e96	144	150	2,500	5,940	6,790	1,530	346	619
8	73	192	194	e97	138	156	2,940	5,870	5,950	1,460	392	576
9	74	183	182	e99	143	173	3,260	6,310	5,420	1,370	426	581
10	76	234	134	e101	137	190	3,380	5,630	5,100	1,260	365	571
11	78	275	121	104	126	197	3,620	5,040	5,380	1,190	316	587
12	85	285	138	118	110	208	4,170	5,180	4,770	1,220	283	697
13	89	279	130	142	108	226	5,020	4,680	4,550	1,140	259	841
14	89	260	149	147	123	241	6,140	4,170	5,280	1,030	240	736
15	91	238	156	152	141	249	6,970	3,960	4,380	939	228	771
16	100	238	170	158	140	254	5,900	4,110	3,790	856	213	882
17	113	244	165	160	143	258	5,170	4,720	3,450	782	201	1,100
18	115	243	168	164	148	264	4,640	5,050	3,270	721	194	1,340
19	305	257	167	169	150	276	4,270	5,460	3,070	678	189	1,770
20	367	257	145	169	152	283	4,050	5,640	2,860	653	184	1,850
21	343	187	164	166	146	280	3,910	5,800	2,730	706	182	1,650
22	482	94	164	161	137	288	3,690	6,490	2,720	655	193	1,450
23	447	129	169	156	133	306	3,740	7,480	2,600	586	234	1,390
24	377	172	169	150	144	363	3,850	6,200	2,420	532	340	1,310
25	391	192	169	137	151	451	3,650	5,340	2,230	487	433	1,200
26	345	184	155	111	162	509	3,710	6,180	2,190	446	531	1,100
27	311	199	117	145	169	557	4,740	7,370	3,170	414	664	1,020
28	297	215	132	140	171	575	5,500	6,970	4,060	384	600	945
29	303	222	119	137	171	581	5,220	7,740	3,010	359	550	883
30	583	182	69	143	---	637	5,200	7,010	2,550	337	511	823
31	493	---	79	137	---	907	---	6,320	---	318	510	---
TOTAL	6,562	6,737	4,775	4,067	4,037	9,517	114,390	186,780	125,570	33,263	10,273	28,020
MEAN	212	225	154	131	139	307	3,813	6,025	4,186	1,073	331	934
MAX	583	381	211	169	171	907	6,970	7,740	7,730	2,930	664	1,850
MIN	73	94	69	85	108	145	1,330	3,960	2,190	318	182	419
AC-FT	13,020	13,360	9,470	8,070	8,010	18,880	226,900	370,500	249,100	65,980	20,380	55,580

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	373	376	267	219	228	419	2,513	6,685	5,087	1,482	431	352
MAX	2,085	1,280	1,161	640	626	1,811	6,351	10,440	9,924	4,380	1,987	1,941
(WY)	(1942)	(1942)	(1942)	(1942)	(1935)	(1983)	(1934)	(1957)	(1974)	(1982)	(1948)	(1941)
MIN	90.9	84.3	78.2	40.3	72.5	110	300	2,222	1,338	346	97.3	79.9
(WY)	(1988)	(1930)	(1930)	(1930)	(1930)	(1930)	(1929)	(1930)	(1987)	(1934)	(2003)	(2003)

## KETTLE RIVER BASIN

12401500 KETTLE RIVER NEAR FERRY, WA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	449,121		533,991		1,540	
ANNUAL MEAN	1,230		1,459		2,543	1997
HIGHEST ANNUAL MEAN					659	1930
LOWEST ANNUAL MEAN					20,300	May 29, 1948
HIGHEST DAILY MEAN	11,100	May 26	7,740	May 29	15	Jan 16, 1930
LOWEST DAILY MEAN	51	Sep 6	69	Dec 30	15	Jan 16, 1930
ANNUAL SEVEN-DAY MINIMUM	53	Sep 2	74	Oct 4	15	Jan 16, 1930
ANNUAL RUNOFF (AC-FT)	890,800		1,059,000		1,116,000	
10 PERCENT EXCEEDS	4,670		5,210		5,200	
50 PERCENT EXCEEDS	183		317		376	
90 PERCENT EXCEEDS	79		117		129	

e Estimated

12404500 KETTLE RIVER NEAR LAURIER, WA  
(International gaging station)

LOCATION.--Lat 48°59'04", long 118°12'55", in SW ¼ NW ¼ sec.11, T.40 N., R.36 E., Ferry County, Hydrologic Unit 17020002, on right bank 1,000 ft downstream from Deep Creek, 1.1 mi south of international boundary, 1.1 mi southeast of Laurier, and at mile 29.71.

DRAINAGE AREA.--3,800 mi<sup>2</sup>, approximately.

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

REVISED RECORDS.--WSP 737: 1930-31. WSP 862: 1937. WSP 882: 1938.

GAGE.--Water-stage recorder. Datum of gage is 1,425.5 above NGVD of 1929. Prior to Jan. 3, 1930, nonrecording gage at same site and datum.

REMARKS.--Records excellent, except for estimated daily discharges, which are good. Diversions for irrigation of about 720 acres in the United States (for 1946 from United States reports), and 2,090 acres in Canada from the Canada Year Book for 1940. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--This station is maintained by the United States under agreement with Canada.

AVERAGE DISCHARGE.--75 years (water years 1930-2004), 2,919 ft<sup>3</sup>/s, 2,115,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 35,000 ft<sup>3</sup>/s May 29, 1948, gage height, 17.25 ft; minimum daily discharge, 70 ft<sup>3</sup>/s Jan. 11-31, 1930.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in May or June 1894 reached a stage of about 22 ft, from information by local residents.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 18,100 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)
June 7	0000	*14,600	*10.81				

Minimum daily discharge, 130 ft<sup>3</sup>/s, Dec. 31 and Jan. 5.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	151	720	e265	e140	326	392	3,270	9,580	9,890	4,450	607	757
2	150	605	e290	e160	297	390	3,350	11,500	9,040	4,760	570	706
3	146	547	e320	e160	290	388	3,250	12,900	8,630	4,080	535	661
4	144	547	e325	e145	298	392	3,370	12,700	8,700	3,590	514	708
5	141	e420	e280	e130	297	387	3,750	13,200	9,790	3,240	517	953
6	139	e300	e300	e140	254	382	4,370	12,700	12,700	2,970	529	992
7	139	e260	369	e155	304	371	5,120	10,700	12,800	2,800	574	938
8	139	e270	373	e160	304	377	5,880	10,000	10,700	2,690	618	883
9	139	e340	349	e165	310	386	6,460	11,000	9,920	2,530	659	857
10	139	e330	293	e170	308	408	6,670	10,400	9,370	2,350	664	859
11	141	e400	275	e195	295	448	6,860	9,170	9,530	2,180	591	872
12	150	454	277	e220	268	480	7,510	9,200	8,970	2,110	526	913
13	153	458	271	e245	250	513	8,710	8,850	8,230	2,060	487	1,120
14	156	438	288	e260	266	560	10,300	7,980	8,960	1,900	453	1,180
15	160	422	295	e280	297	607	11,900	7,470	8,210	1,750	424	1,120
16	174	410	306	e300	308	637	10,700	7,360	7,140	1,620	400	1,220
17	182	413	303	e310	314	661	9,340	7,980	6,580	1,500	378	1,470
18	194	414	312	e330	316	692	8,470	8,660	6,290	1,390	358	1,930
19	224	427	287	e360	318	753	7,830	9,360	6,010	1,320	346	2,570
20	339	440	275	e370	321	829	7,380	10,100	5,690	1,260	335	2,960
21	475	444	289	e370	324	847	7,120	10,200	5,430	1,240	323	2,820
22	554	e320	311	e360	315	855	6,770	10,900	5,420	1,240	341	2,510
23	690	e200	311	e350	306	919	6,650	12,500	5,310	1,160	366	2,370
24	652	e250	307	e330	305	1,180	6,940	11,200	5,000	1,060	411	2,300
25	597	e290	311	e310	320	1,470	6,750	9,500	4,680	981	528	2,150
26	579	e325	309	e250	342	1,580	6,580	9,510	4,420	902	724	1,980
27	531	e310	278	e280	360	1,700	7,580	12,300	5,030	837	868	1,830
28	507	e340	e215	e330	378	1,770	9,270	12,100	6,580	782	936	1,690
29	503	e360	e240	e325	388	1,790	9,160	13,100	5,680	733	860	1,580
30	619	e370	e220	e320	---	1,890	8,880	12,200	4,710	688	805	1,480
31	814	---	e130	340	---	2,430	---	11,000	---	646	779	---
TOTAL	9,821	11,824	8,974	7,960	8,979	26,484	210,190	325,320	229,410	60,819	17,026	44,379
MEAN	317	394	289	257	310	854	7,006	10,490	7,647	1,962	549	1,479
MAX	814	720	373	370	388	2,430	11,900	13,200	12,800	4,760	936	2,960
MIN	139	200	130	130	250	371	3,250	7,360	4,420	646	323	661
AC-FT	19,480	23,450	17,800	15,790	17,810	52,530	416,900	645,300	455,000	120,600	33,770	88,030

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY)

MEAN	666	745	601	512	557	1,079	5,226	12,100	9,222	2,787	823	629
MAX	3,815	2,600	2,652	1,450	1,407	4,247	12,170	18,620	17,650	6,928	3,140	3,773
(WY)	(1942)	(1942)	(1942)	(1942)	(1935)	(1983)	(1934)	(1997)	(1974)	(1982)	(1976)	(1941)
MIN	176	202	154	76.5	97.9	212	1,478	4,246	2,888	759	216	145
(WY)	(1988)	(1930)	(1930)	(1930)	(1930)	(1930)	(1937)	(1930)	(1987)	(1934)	(2003)	(2003)

## KETTLE RIVER BASIN

12404500 KETTLE RIVER NEAR LAURIER, WA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1929 - 2004	
ANNUAL TOTAL	893,558		961,186			
ANNUAL MEAN	2,448		2,626		2,919	
HIGHEST ANNUAL MEAN					4,725	
LOWEST ANNUAL MEAN					1,251	
HIGHEST DAILY MEAN	19,900	May 27	13,200	May 5	34,200	May 29, 1948
LOWEST DAILY MEAN	112	Sep 7	130	Dec 31	70	Jan 11, 1930
ANNUAL SEVEN-DAY MINIMUM	116	Sep 4	140	Oct 5	70	Jan 11, 1930
ANNUAL RUNOFF (AC-FT)	1,772,000		1,907,000		2,115,000	
10 PERCENT EXCEEDS	8,640		9,220		9,600	
50 PERCENT EXCEEDS	438		607		795	
90 PERCENT EXCEEDS	153		244		290	

e Estimated

## 12409000 COLVILLE RIVER AT KETTLE FALLS, WA

LOCATION.--Lat 48°35'40", Long 118°03'41", in NE ¼ NE ¼ sec.30, T.36 N., R.38, E., Stevens County, Hydrologic Unit 17020003, on right bank 600 ft downstream from hydroelectric plant at foot of Meyers Falls, 1.0 mi south of town of Kettle Falls, and at mile 5.0.

DRAINAGE AREA.--1,007 mi<sup>2</sup>.

PERIOD OF RECORD.--October 1922 to current year. Published as "at Meyer Falls" 1922-38.

REVISED RECORDS.--WSP 1316: 1938(M), 1941(M), 1948(M). WSP 1636: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 1,400 ft above NGVD of 1929, from topographic map. Prior to Oct. 21, 1932, nonrecording gage at site 500 ft upstream at different datum. Oct. 21, 1932, to Sept. 19, 1938, nonrecording gages at site 200 ft upstream at different datum. Sept. 20, 1938, to Mar. 20, 1949, nonrecording gage at present site and datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. Several diversions upstream from station for irrigation. Regulation at low flow by powerplant. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--82 years (water years 1923-2004), 308 ft<sup>3</sup>/s, 222,900 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 3,440 ft<sup>3</sup>/s Jan. 21, 1974, gage height, 9.84 ft; maximum gage height, 10.17 ft Apr. 23, 1956; minimum discharge observed, 0.5 ft<sup>3</sup>/s Aug. 15, 1930.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 716 ft<sup>3</sup>/s, July 12, gage height, 6.88 ft, result of regulation; minimum discharge, 13 ft<sup>3</sup>/s, July 16, result of regulation.

DISCHARGE, CUBIC FEET PER SECOND  
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004  
DAILY MEAN VALUES

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	91	111	141	e90	200	238	314	222	255	111	34	71
2	91	112	131	e92	176	226	303	213	241	121	28	70
3	91	116	134	e94	164	214	292	211	226	102	32	61
4	91	112	125	e90	160	210	287	204	213	100	29	63
5	92	90	131	e86	157	210	290	199	204	111	26	70
6	95	74	157	e90	140	204	296	195	221	116	33	67
7	96	89	195	e92	153	197	302	193	283	105	46	92
8	93	117	179	e96	150	197	304	183	273	105	41	64
9	93	120	152	108	146	198	311	187	246	108	43	51
10	94	128	134	110	141	206	311	185	241	92	36	44
11	98	126	136	133	139	215	301	182	237	83	28	65
12	103	126	131	152	128	212	293	181	235	93	32	67
13	108	126	127	162	125	212	288	178	225	77	30	96
14	116	120	134	165	125	214	288	172	215	70	29	91
15	110	121	123	164	145	215	287	178	208	65	29	84
16	117	126	128	166	149	215	297	166	198	59	29	66
17	125	136	120	165	148	215	314	181	184	57	29	89
18	125	150	122	158	164	221	303	202	176	54	29	103
19	118	149	107	157	196	233	299	185	164	55	54	93
20	114	167	105	157	208	242	309	184	157	64	47	92
21	113	144	136	147	205	229	321	189	151	61	37	84
22	122	115	130	142	197	224	323	225	143	55	48	83
23	120	95	125	144	190	227	302	322	133	50	59	80
24	109	120	117	146	186	241	284	314	118	47	71	81
25	111	128	127	148	188	253	274	273	120	46	74	78
26	111	134	130	135	211	262	257	256	116	46	101	71
27	116	137	127	143	237	281	250	274	123	42	99	73
28	114	134	e120	142	246	290	246	289	124	38	91	74
29	116	138	e100	141	244	285	243	278	115	38	86	73
30	113	154	e42	164	---	274	236	272	124	34	72	72
31	113	---	e70	210	---	286	---	261	---	34	73	---
TOTAL	3,319	3,715	3,936	4,189	5,018	7,146	8,725	6,754	5,669	2,239	1,495	2,268
MEAN	107	124	127	135	173	231	291	218	189	72.2	48.2	75.6
MAX	125	167	195	210	246	290	323	322	283	121	101	103
MIN	91	74	42	86	125	197	236	166	115	34	26	44
AC-FT	6,580	7,370	7,810	8,310	9,950	14,170	17,310	13,400	11,240	4,440	2,970	4,500

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1923 - 2004, BY WATER YEAR (WY)

MEAN	118	154	184	211	286	503	843	689	355	157	88.5	96.8
MAX	301	401	783	1,374	970	1,410	2,168	1,744	1,035	467	258	241
(WY)	(1928)	(1928)	(1974)	(1974)	(1974)	(1983)	(1969)	(1948)	(1948)	(1948)	(1948)	(1997)
MIN	35.8	49.5	56.3	32.9	65.8	127	128	93.8	48.4	20.6	12.0	22.7
(WY)	(1932)	(1932)	(1932)	(1930)	(1937)	(1930)	(1930)	(1930)	(1926)	(1977)	(1931)	(1931)

## COLVILLE RIVER BASIN

12409000 COLVILLE RIVER AT KETTLE FALLS, WA—Continued

SUMMARY STATISTICS	FOR 2003 CALENDAR YEAR		FOR 2004 WATER YEAR		WATER YEARS 1923 - 2004	
ANNUAL TOTAL	120,994		54,473			
ANNUAL MEAN	331		149		308	
HIGHEST ANNUAL MEAN					768	1974
LOWEST ANNUAL MEAN					70.5	1930
HIGHEST DAILY MEAN	1,480	Mar 24	323	Apr 22	3,360	Jan 20, 1974
LOWEST DAILY MEAN	42	Dec 30	26	Aug 5	0.50	Aug 15, 1930
ANNUAL SEVEN-DAY MINIMUM	60	Aug 11	29	Aug 11	5.3	Aug 14, 1930
ANNUAL RUNOFF (AC-FT)	240,000		108,000		222,900	
10 PERCENT EXCEEDS	990		273		725	
50 PERCENT EXCEEDS	186		131		175	
90 PERCENT EXCEEDS	70		55		65	

e Estimated