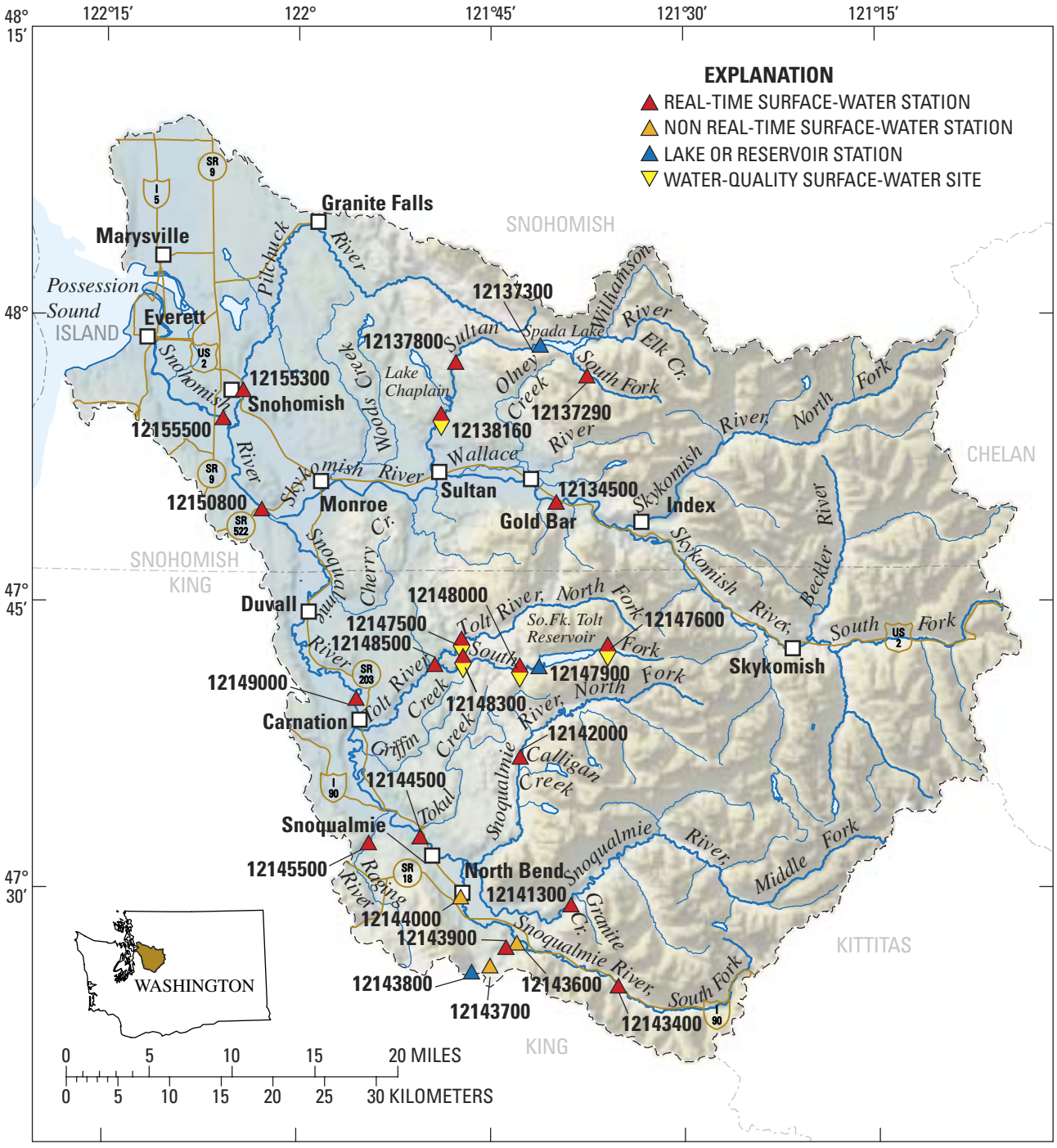


**Figure 21**. Location of surface-water stations in the Snohomish River Basin.

## 12134500 SKYKOMISH RIVER NEAR GOLD BAR, WA

LOCATION.--Lat 47°50'15", long 121°39'56", in SW¼SW¼, sec.9, T.27 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on right bank 2.0 mi southeast of Gold Bar, 7.3 mi upstream from Wallace River, and at mile 43.0.

DRAINAGE AREA.--535 $mi^2$.

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

REVISED RECORDS.--WSP 1316: 1932-35(M), 1944(M).

GAGE.--Water-stage recorder and crest-stage gages. Datum of gage is 209.26 ft above NGVD of 1929. Prior to Oct. 1, 1996 at site 275 ft downstream at same datum.

REMARKS.--Records good, except for estimated daily discharges, which are fair. No regulation. Several small diversions upstream from station. Chemical analyses July 1959 to September 1970, October 1977 to June 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--76 years (water years 1929-2004), 3,957 $ft^3/s$, 100.49 in/yr, 2,867,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 102,000 $ft^3/s$, Nov. 24, 1990, gage height, 22.49 ft, from rating curve extended above 53,000 $ft^3/s$; minimum discharge, 298 $ft^3/s$, Oct. 30, 1987; minimum gage height, 2.73 ft, Dec. 1, 1936.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 19,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 17 | 1115 | 22,100 | 11.95 | Nov 29 | 0515 | 23,300 | 12.36 |
| Oct 20 | 2300 | *86,500 | *20.73 | Jan 29 | 2315 | 25,100 | 12.72 |
| Nov 18 | 1000 | 60,100 | 17.92 | | | | |

Minimum discharge, 400 $ft^3/s$, Oct. 6, gage height, 3.12 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 | 460 | 3,740 | 6,140 | 1,590 | 6,490 | 1,640 | 3,810 | 6,870 | 7,340 | 2,360 | 768 | 1,310 |
| 2 | 442 | 3,170 | 5,270 | 1,520 | 4,890 | 1,590 | 3,290 | 8,130 | 6,160 | 2,240 | 731 | 2,510 |
| 3 | 432 | 2,770 | 6,710 | 1,470 | 4,000 | 1,600 | 3,270 | 7,590 | 6,190 | 2,150 | 704 | 2,290 |
| 4 | 420 | 2,480 | 5,210 | 1,340 | 3,580 | 1,980 | 3,920 | 7,170 | 6,920 | 2,090 | 695 | 1,760 |
| 5 | 410 | 2,210 | 5,240 | 1,250 | 3,140 | 2,270 | 4,110 | 7,330 | 7,040 | 1,910 | 674 | 1,560 |
| 6 | 406 | 2,010 | 5,740 | e1,050 | 2,850 | 2,410 | 3,790 | 5,690 | 8,170 | 1,870 | e679 | 1,400 |
| 7 | 448 | 1,880 | 4,800 | e1,230 | 2,750 | 3,380 | 4,170 | 5,320 | 6,420 | 2,280 | e1,220 | 1,260 |
| 8 | 559 | 1,790 | 4,090 | 1,560 | 2,560 | 7,060 | 4,180 | 6,190 | 5,320 | 1,980 | 1,070 | 1,160 |
| 9 | 1,170 | 1,700 | 3,520 | 1,540 | 2,360 | 8,130 | 4,290 | 5,620 | 5,350 | 1,710 | 852 | 1,250 |
| 10 | 1,420 | 1,910 | 3,140 | 1,810 | 2,190 | 6,860 | 4,600 | 5,130 | 5,640 | 1,600 | 769 | 1,300 |
| 11 | 1,410 | 7,510 | 2,840 | 1,900 | 2,090 | 5,110 | 5,430 | 4,550 | 5,470 | 1,630 | 719 | 5,310 |
| 12 | 3,330 | 4,760 | 2,720 | 1,920 | 2,020 | 4,540 | e6,300 | 4,720 | 4,550 | 1,540 | 687 | 3,300 |
| 13 | 6,960 | 3,510 | 2,830 | 2,260 | 1,940 | 3,980 | e6,150 | 4,660 | 5,400 | 1,480 | 664 | 3,110 |
| 14 | 3,020 | 2,910 | 3,000 | 3,270 | 1,960 | 3,630 | e6,100 | 4,600 | 5,800 | 1,440 | 647 | 11,700 |
| 15 | 2,010 | 2,600 | 2,900 | 9,530 | 1,980 | 3,540 | 5,470 | 4,760 | 5,090 | 1,410 | 636 | e10,500 |
| 16 | 8,750 | 2,940 | 2,940 | 9,260 | 2,020 | 3,330 | 4,740 | 4,780 | 4,580 | 1,360 | 619 | e9,500 |
| 17 | 15,700 | 6,490 | 3,860 | 5,500 | 2,050 | 3,240 | 4,230 | 4,560 | 4,690 | 1,290 | 608 | e10,000 |
| 18 | 7,130 | 43,500 | 3,150 | 4,240 | 2,160 | 3,630 | 3,880 | 5,230 | 4,840 | 1,260 | 597 | e6,500 |
| 19 | 4,360 | 33,200 | 2,780 | 3,930 | 2,440 | 3,860 | 3,580 | 6,280 | 4,490 | 1,250 | 578 | e5,250 |
| 20 | 28,300 | 12,900 | 2,800 | 3,520 | 2,310 | 3,260 | 3,710 | 5,870 | 4,110 | 1,200 | 562 | e4,140 |
| 21 | 38,900 | 7,960 | 3,070 | 3,090 | 2,120 | 2,940 | 3,560 | 5,940 | 4,090 | 1,110 | 556 | 3,400 |
| 22 | 11,800 | 5,800 | 2,830 | 2,750 | 1,970 | 3,120 | 3,330 | 6,270 | 4,180 | 1,060 | 1,140 | 2,830 |
| 23 | 10,900 | 4,770 | 2,560 | 3,040 | 1,860 | 4,220 | 3,860 | 6,150 | 4,240 | 1,020 | 1,230 | 2,550 |
| 24 | 7,400 | 4,560 | 2,480 | 4,230 | 1,810 | 4,670 | 4,110 | 5,480 | 4,080 | 991 | 3,190 | 2,280 |
| 25 | 5,360 | 4,200 | 2,580 | 3,610 | 1,780 | 4,460 | 3,720 | 5,110 | 3,780 | 970 | 8,050 | 2,020 |
| 26 | 4,270 | 3,960 | 2,400 | 3,280 | 1,740 | 4,160 | 4,530 | 7,600 | 3,400 | 945 | 7,800 | 1,830 |
| 27 | 3,540 | 3,500 | 2,170 | 3,260 | 1,690 | 4,280 | 6,820 | 9,830 | 3,000 | 894 | 3,910 | 1,690 |
| 28 | 7,930 | 4,630 | 2,070 | 4,630 | 1,690 | 4,450 | 6,420 | 8,700 | 2,740 | 857 | 2,620 | 1,560 |
| 29 | 9,850 | 17,600 | 1,890 | 14,300 | 1,690 | 4,210 | 5,390 | 7,380 | 2,620 | 831 | 2,050 | 1,460 |
| 30 | 5,920 | 8,990 | 1,710 | 19,300 | --- | 4,710 | 5,470 | 10,400 | 2,550 | 812 | 1,690 | 1,370 |
| 31 | 4,490 | --- | 1,690 | 9,810 | --- | 4,560 | --- | 10,200 | --- | 803 | 1,430 | --- |
| TOTAL | 197,497 | 209,950 | 105,130 | 130,990 | 72,130 | 120,820 | 136,230 | 198,110 | 148,250 | 44,343 | 48,145 | 106,100 |
| MEAN | 6,371 | 6,998 | 3,391 | 4,225 | 2,487 | 3,897 | 4,541 | 6,391 | 4,942 | 1,430 | 1,553 | 3,537 |
| MAX | 38,900 | 43,500 | 6,710 | 19,300 | 6,490 | 8,130 | 6,820 | 10,400 | 8,170 | 2,360 | 8,050 | 11,700 |
| MIN | 406 | 1,700 | 1,690 | 1,050 | 1,690 | 1,590 | 3,270 | 4,550 | 2,550 | 803 | 556 | 1,160 |
| AC-FT | 391,700 | 416,400 | 208,500 | 259,800 | 143,100 | 239,600 | 270,200 | 393,000 | 294,100 | 87,950 | 95,500 | 210,400 |
| CFSM | 11.9 | 13.1 | 6.34 | 7.90 | 4.65 | 7.28 | 8.49 | 11.9 | 9.24 | 2.67 | 2.90 | 6.61 |
| IN. | 13.73 | 14.60 | 7.31 | 9.11 | 5.02 | 8.40 | 9.47 | 13.78 | 10.31 | 3.08 | 3.35 | 7.38 |

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

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 2,764 | 4,819 | 4,770 | 4,133 | 3,646 | 3,278 | 4,464 | 6,719 | 6,694 | 3,499 | 1,363 | 1,353 |
| MAX | 6,658 | 16,370 | 14,490 | 11,030 | 8,940 | 9,565 | 7,553 | 10,860 | 13,610 | 8,413 | 3,606 | 4,942 |
| (WY) | (1934) | (1991) | (1934) | (1953) | (1996) | (1972) | (1959) | (1972) | (1974) | (1974) | (1964) | (1959) |
| MIN | 346 | 534 | 1,231 | 945 | 791 | 1,469 | 1,908 | 3,425 | 1,955 | 971 | 535 | 465 |
| (WY) | (1988) | (1937) | (1986) | (1937) | (1929) | (1955) | (1975) | (1941) | (1992) | (1941) | (2003) | (1998) |

12134500 SKYKOMISH RIVER NEAR GOLD BAR, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1929 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 1,545,667 | | 1,517,695 | | | |
| ANNUAL MEAN | 4,235 | | 4,147 | | 3,957 | |
| HIGHEST ANNUAL MEAN | | | | | 5,884 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 2,210 | 1941 |
| HIGHEST DAILY MEAN | 43,500 | Nov 18 | 43,500 | Nov 18 | 88,400 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 373 | Sep 7 | 406 | Oct 6 | 303 | Oct 29, 1987 |
| ANNUAL SEVEN-DAY MINIMUM | 381 | Sep 2 | 431 | Oct 1 | 310 | Oct 25, 1987 |
| ANNUAL RUNOFF (AC-FT) | 3,066,000 | | 3,010,000 | | 2,867,000 | |
| ANNUAL RUNOFF (CFSM) | 7.92 | | 7.75 | | 7.40 | |
| ANNUAL RUNOFF (INCHES) | 107.47 | | 105.53 | | 100.49 | |
| 10 PERCENT EXCEEDS | 8,020 | | 7,390 | | 8,190 | |
| 50 PERCENT EXCEEDS | 3,100 | | 3,280 | | 2,810 | |
| 90 PERCENT EXCEEDS | 515 | | 1,040 | | 854 | |

e Estimated

## 12137290 SOUTH FORK SULTAN RIVER NEAR SULTAN, WA

LOCATION.--Lat 47°56'51", long 121°37'32", in NE¼NE¼, sec.3, T.28 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on left bank, 0.3 mi downstream from bridge, 14 mi northeast of Sultan, and 2 mi upstream from mouth.

DRAINAGE AREA.--11.6 $mi^2$.

PERIOD OF RECORD.--October 1991 to current year.

REVISED RECORDS.--WDR WA-98-1: Maximum discharge outside period of record.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,450.53 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records fair, except flows below 15 $ft^3/s$ and above 2,500 $ft^3/s$, which are poor. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--13 years (water years 1992-2004), 122 $ft^3/s$, 142.37 in/yr, 88,060 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 5,910 $ft^3/s$, Oct. 20, 2003, gage height, 12.95 ft; maximum gage height, 13.58 ft, Oct. 20, 2003, from crest-stage gage; minimum discharge, 4.6 $ft^3/s$, Oct. 9, 1991.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 24, 1990, reached a stage of 13.6 ft, from floodmark, discharge, 7,000 $ft^3/s$, from slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 20 | 1915 | *5,910 | *12.95 | Nov 18 | 0600 | 1,820 | 11.04 |
| Oct 28 | 1515 | 1,370 | 10.67 | Nov 28 | 2315 | 1,650 | 10.91 |

Minimum discharge, 6.7 $ft^3/s$, Oct. 6, gage height, 7.19 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 | 8.2 | 81 | 142 | 43 | 151 | 54 | 100 | 162 | 193 | 37 | 11 | 53 |
| 2 | 7.7 | 67 | 205 | 40 | 111 | 50 | 87 | 161 | 156 | 35 | 11 | 121 |
| 3 | 7.6 | 57 | 246 | 39 | 92 | 49 | 99 | 130 | 165 | 34 | 11 | 68 |
| 4 | 7.2 | 49 | 133 | 35 | 87 | 57 | 114 | 151 | 167 | 31 | 11 | 50 |
| 5 | 7.0 | 43 | 193 | 56 | 72 | 72 | 100 | 162 | 151 | 28 | 10 | 42 |
| 6 | 7.1 | 39 | 223 | 53 | 72 | 59 | 92 | 97 | 290 | 33 | 19 | 35 |
| 7 | 13 | 36 | 133 | 57 | 72 | 325 | 100 | 102 | 150 | 62 | 91 | 31 |
| 8 | 18 | 35 | 103 | 112 | 63 | 420 | 96 | 106 | 162 | 36 | 30 | 29 |
| 9 | 28 | 32 | 85 | 117 | 57 | 394 | 98 | 102 | 185 | 29 | 20 | 42 |
| 10 | 42 | 247 | 72 | 187 | 52 | 221 | 114 | 89 | 210 | 28 | 16 | 36 |
| 11 | 35 | 433 | 65 | 134 | 53 | 145 | 148 | 90 | 197 | 28 | 14 | 259 |
| 12 | 328 | 135 | 70 | 135 | 54 | 119 | 159 | 104 | 127 | 25 | 13 | 81 |
| 13 | 344 | 91 | 95 | 185 | 54 | 99 | 132 | 99 | 229 | 25 | 12 | 246 |
| 14 | 84 | 74 | 82 | 394 | 74 | 98 | 124 | 95 | 153 | 23 | 12 | 302 |
| 15 | 58 | 71 | 70 | 804 | 83 | 97 | 104 | 92 | 129 | 22 | 11 | 305 |
| 16 | 189 | 145 | 129 | 335 | 86 | 90 | 98 | 93 | 118 | 20 | 11 | 380 |
| 17 | 481 | 287 | 140 | 170 | 81 | 90 | 92 | 93 | 121 | 19 | 11 | 465 |
| 18 | 130 | 1,080 | 94 | 136 | 127 | 133 | 83 | 118 | 127 | 19 | 10 | 251 |
| 19 | 120 | 596 | 101 | 132 | 131 | 109 | 79 | 128 | 97 | 18 | 10 | 183 |
| 20 | 1,660 | 222 | 167 | 106 | 92 | 85 | 98 | 101 | 88 | 17 | 10 | 118 |
| 21 | 1,080 | 140 | 143 | 88 | 76 | 86 | 87 | 104 | 86 | 16 | 11 | 90 |
| 22 | 325 | 103 | 105 | 76 | 67 | 110 | 83 | 217 | 88 | 15 | 117 | 75 |
| 23 | 362 | 97 | 91 | 127 | 62 | 142 | 112 | 145 | 83 | 15 | 75 | 69 |
| 24 | 169 | 97 | 105 | 163 | 63 | 155 | 105 | 115 | 69 | 14 | 258 | 58 |
| 25 | 113 | 84 | 98 | 104 | 60 | 124 | 87 | 116 | 61 | 14 | 499 | 50 |
| 26 | 85 | 76 | 77 | 90 | 55 | 118 | 132 | 388 | 52 | 13 | 272 | 44 |
| 27 | 68 | 69 | 67 | 102 | 56 | 159 | 176 | 563 | 46 | 13 | 115 | 40 |
| 28 | 589 | 342 | 60 | 249 | 58 | 128 | 132 | 375 | 45 | 12 | 74 | 36 |
| 29 | 310 | 768 | 54 | 962 | 58 | 145 | 105 | 364 | 44 | 12 | 58 | 34 |
| 30 | 151 | 229 | 49 | 717 | --- | 182 | 123 | 516 | 41 | 12 | 45 | 32 |
| 31 | 102 | --- | 47 | 245 | --- | 137 | --- | 331 | --- | 11 | 37 | --- |
| TOTAL | 6,928.8 | 5,825 | 3,444 | 6,193 | 2,219 | 4,252 | 3,259 | 5,509 | 3,830 | 716 | 1,905 | 3,625 |
| MEAN | 224 | 194 | 111 | 200 | 76.5 | 137 | 109 | 178 | 128 | 23.1 | 61.5 | 121 |
| MAX | 1,660 | 1,080 | 246 | 962 | 151 | 420 | 176 | 563 | 290 | 62 | 499 | 465 |
| MIN | 7.0 | 32 | 47 | 35 | 52 | 49 | 79 | 89 | 41 | 11 | 10 | 29 |
| AC-FT | 13,740 | 11,550 | 6,830 | 12,280 | 4,400 | 8,430 | 6,460 | 10,930 | 7,600 | 1,420 | 3,780 | 7,190 |
| CFSM | 19.3 | 16.7 | 9.58 | 17.2 | 6.60 | 11.8 | 9.36 | 15.3 | 11.0 | 1.99 | 5.30 | 10.4 |
| IN. | 22.22 | 18.68 | 11.04 | 19.86 | 7.12 | 13.64 | 10.45 | 17.67 | 12.28 | 2.30 | 6.11 | 11.62 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 121 | 182 | 149 | 172 | 118 | 123 | 143 | 170 | 139 | 64.0 | 29.8 | 49.2 |
| MAX | 245 | 394 | 274 | 254 | 255 | 224 | 226 | 274 | 285 | 157 | 65.3 | 121 |
| (WY) | (1996) | (1996) | (2000) | (1997) | (1996) | (1997) | (2002) | (1997) | (2002) | (1999) | (1995) | (2004) |
| MIN | 17.1 | 60.1 | 64.6 | 65.5 | 41.2 | 43.8 | 82.2 | 90.4 | 34.6 | 15.6 | 6.48 | 7.83 |
| (WY) | (1992) | (1994) | (1993) | (2000) | (2001) | (1992) | (1995) | (1992) | (1992) | (2003) | (2003) | (1998) |

12137290 SOUTH FORK SULTAN RIVER NEAR SULTAN, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1991 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 42,231.3 | | 47,705.8 | | | |
| ANNUAL MEAN | 116 | | 130 | | 122 | |
| HIGHEST ANNUAL MEAN | | | | | 176 | 1997 |
| LOWEST ANNUAL MEAN | | | | | 81.2 | 2001 |
| HIGHEST DAILY MEAN | 1,660 | Oct 20 | 1,660 | Oct 20 | 2,190 | Feb 8, 1996 |
| LOWEST DAILY MEAN | 5.0 | Sep 4 | 7.0 | Oct 5 | 5.0 | Sep 4, 2003 |
| ANNUAL SEVEN-DAY MINIMUM | 5.1 | Aug 31 | 8.3 | Oct 1 | 5.1 | Aug 31, 2003 |
| ANNUAL RUNOFF (AC-FT) | 83,770 | | 94,620 | | 88,060 | |
| ANNUAL RUNOFF (CFSM) | 9.97 | | 11.2 | | 10.5 | |
| ANNUAL RUNOFF (INCHES) | 135.43 | | 152.99 | | 142.37 | |
| 10 PERCENT EXCEEDS | 235 | | 263 | | 260 | |
| 50 PERCENT EXCEEDS | 77 | | 92 | | 78 | |
| 90 PERCENT EXCEEDS | 7.4 | | 18 | | 16 | |

## 12137300 SPADA LAKE NEAR STARTUP, WA

LOCATION.--Lat 47°58'28", long 121°41'10", in NW$^1/_4$, sec.29, T.29 N., R.9 E., Snohomish County, Hydrologic Unit 17110009, on right bank at Culmback Dam on Sultan River, 1.7 mi downstream from South Fork, 7.8 mi north of Startup, and at mile 16.5.

DRAINAGE AREA.--68.3 mi$^2$.

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

REVISED RECORDS.--WDR WA-79-1: 1975-76(M). WA-95-1: 1994.

GAGE.--Nonrecording gage. Datum of gage is NGVD of 1929 (levels by Snohomish County P.U.D. No. 1).

REMARKS.--Reservoir is formed by earthfill dam originally completed to elevation 1,408 ft in 1965. Storage began April 5, 1965 for water supply for the City of Everett. During 1983 the dam was raised to elevation 1,470 ft with storage beginning November 1983. Capacity was increased to 153,260 acre-feet at elevation 1,450 ft, crest of spillway. Normal operating pool is between elevations 1,420 ft and 1,450 ft. Figures given herein represent total contents. Spada Lake is used to provide water for the City of Everett, and since June 1, 1984, power generation for Snohomish County Public Utility District No. 1.

COOPERATION.--Elevation at 1200 and 2400 hours and capacity table furnished by Snohomish County Public Utility District No. 1.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents observed, 164,599 acre-ft, Nov. 23, 1990, elevation, 1,455.8 ft; minimum contents observed since reservoir was first filled, 4,250 acre-ft, Sept. 30, 1967, elevation, 1,301.28 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents observed, 150,894 acre-ft, May 31, elevation, 1,448.7 ft; minimum contents observed, 76,755 acre-ft, Oct. 11, elevation, 1,401.7 ft.

MONTH-END ELEVATION AND CONTENTS AT 2400
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004

| Date | Elevation (feet) | Contents (acre-feet) | Change in contents (acre-feet) |
|---|---|---|---|
| September 30 | 1,405.7 | 82,061 | -14,091 |
| October 31 | 1,440.0 | 135,031 | +52,970 |
| November 30 | 1,439.6 | 134,350 | -681 |
| December 31 | 1,422.6 | 106,330 | -28,020 |
| Calender Year 2003 | -- | -- | +1,736 |
| January 31 | 1,436.9 | 129,756 | +23,426 |
| February 29 | 1,421.4 | 104,436 | -25,320 |
| March 31 | 1,435.6 | 127,544 | +23,108 |
| April 30 | 1,437.6 | 130,947 | +3,403 |
| May 31 | 1,448.7 | 150,894 | +19,947 |
| June 30 | 1,446.0 | 145,968 | -4,926 |
| July 31 | 1,432.7 | 122,609 | -23,359 |
| August 31 | 1,432.8 | 122,780 | +171 |
| September 30 | 1,438.9 | 133,159 | +10,379 |
| Water Year 2004 | -- | -- | +51,098 |

## 12137800 SULTAN RIVER BELOW DIVERSION DAM, NEAR SULTAN, WA

LOCATION.--Lat 47°57'34", long 121°47'46", in SE¼NE¼, sec.32, T.29 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on right bank 50 ft upstream from City of Everett diversion dam on Sultan River, 6.8 mi north of Sultan, and at mile 9.4.

DRAINAGE AREA.--77.1 $mi^2$.

PERIOD OF RECORD.--May 1983 to current year.

GAGE.--Water-stage recorder and square notch sharp-crested weir in gate of dam. Datum of gage is 600.00 ft above NGVD of 1929 (City of Everett). Prior to Oct. 1, 1989, recording gage at site 350 ft downstream at different datum, Mar. 16 to Sept. 21, 1993, Jan. 7-10, 1994, Feb. 18 to Sept. 21, 1995, Dec. 3-7, 1995, Mar. 14 to Sept. 3, 1996, Mar. 13 to June 24, 1997, recording gage at site 1,200 ft downstream, at different datum.

REMARKS.--No estimated daily discharges. Records fair. Flow regulated at Spada Lake (station 12137300) since Apr. 5, 1965, unadjusted for storage. Since May 1984, water is diverted at Spada Lake through a 10-ft diameter pipeline for power generation at the Jackson Project, and for municipal water supply at Lake Chaplain. Since July 1984, undetermined flows are returned to river at diversion dam by pipeline from Lake Chaplain for maintenance of instream flow requirements. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--21 years (water years 1984-2004), 205 $ft^3/s$, 148,700 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 19,000 $ft^3/s$, Nov. 24, 1990, gage height, 63.79 ft, from rating curve extended above 3,200 $ft^3/s$; minimum recorded discharge, 23 $ft^3/s$, Oct. 30, 1988, result of regulation, but may have been lower Dec. 13, 14, 2001; minimum daily discharge, 35 $ft^3/s$, Aug. 23-25, 1983.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 1,870 $ft^3/s$, Oct. 20, gage height, 57.15 ft; minimum discharge, 96 $ft^3/s$, Aug. 22.

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 | 158 | 129 | 103 | 102 | 172 | 194 | 190 | 188 | 188 | 103 | 100 | 101 |
| 2 | 158 | 102 | 103 | 102 | 157 | 192 | 192 | 188 | 189 | 103 | 100 | 100 |
| 3 | 158 | 102 | 106 | 102 | 152 | 193 | 196 | 188 | 189 | 103 | 100 | 100 |
| 4 | 158 | 102 | 111 | 102 | 153 | 192 | 196 | 188 | 190 | 103 | 100 | 100 |
| 5 | 158 | 102 | 147 | 102 | 152 | 192 | 196 | 188 | 190 | 103 | 100 | 100 |
| 6 | 158 | 103 | 102 | 102 | 153 | 191 | 192 | 188 | 189 | 103 | 100 | 100 |
| 7 | 158 | 102 | 102 | 113 | 153 | 192 | 190 | 188 | 190 | 103 | 100 | 100 |
| 8 | 158 | 102 | 102 | 143 | 152 | 191 | 188 | 188 | 191 | 103 | 100 | 100 |
| 9 | 159 | 102 | 103 | 102 | 152 | 191 | 188 | 188 | 189 | 103 | 100 | 100 |
| 10 | 159 | 177 | 103 | 108 | 152 | 191 | 188 | 188 | 190 | 103 | 100 | 100 |
| 11 | 159 | 235 | 102 | 102 | 152 | 192 | 188 | 188 | 188 | 103 | 100 | 100 |
| 12 | 165 | 102 | 103 | 102 | 153 | 192 | 188 | 189 | 188 | 103 | 100 | 100 |
| 13 | 161 | 102 | 103 | 103 | 153 | 191 | 188 | 196 | 189 | 103 | 100 | 101 |
| 14 | 159 | 102 | 103 | 104 | 153 | 190 | 188 | 191 | 189 | 102 | 100 | 124 |
| 15 | 159 | 102 | 102 | 263 | 153 | 190 | 188 | 187 | 189 | 100 | 100 | 156 |
| 16 | 159 | 102 | 103 | 161 | 153 | 190 | 188 | 187 | 135 | 100 | 100 | 159 |
| 17 | 263 | 119 | 106 | 158 | 152 | 190 | 188 | 187 | 100 | 100 | 100 | 182 |
| 18 | 158 | 594 | 102 | 158 | 153 | 190 | 187 | 187 | 100 | 100 | 100 | 156 |
| 19 | 159 | 486 | 103 | 158 | 152 | 190 | 188 | 187 | 100 | 100 | 100 | 156 |
| 20 | 674 | 197 | 103 | 159 | 157 | 190 | 188 | 188 | 100 | 100 | 100 | 156 |
| 21 | 873 | 118 | 103 | 159 | 159 | 189 | 187 | 187 | 100 | 100 | 100 | 159 |
| 22 | 292 | 103 | 103 | 159 | 159 | 190 | 188 | 187 | 100 | 100 | 119 | 167 |
| 23 | 338 | 111 | 103 | 160 | 159 | 189 | 188 | 187 | 100 | 100 | 104 | 167 |
| 24 | 249 | 171 | 102 | 159 | 159 | 189 | 187 | 187 | 100 | 100 | 186 | 167 |
| 25 | 225 | 132 | 102 | 158 | 159 | 188 | 187 | 187 | 100 | 100 | 197 | 167 |
| 26 | 192 | 141 | 102 | 162 | 160 | 189 | 187 | 223 | 100 | 100 | 134 | 167 |
| 27 | 194 | 104 | 102 | 173 | 162 | 190 | 188 | 222 | 100 | 100 | 100 | 167 |
| 28 | 544 | 210 | 102 | 429 | 170 | 189 | 187 | 200 | 101 | 100 | 100 | 167 |
| 29 | 448 | 572 | 102 | 740 | 197 | 187 | 188 | 270 | 109 | 100 | 100 | 167 |
| 30 | 265 | 115 | 102 | 451 | --- | 189 | 188 | 187 | 104 | 100 | 100 | 167 |
| 31 | 172 | --- | 102 | 249 | --- | 189 | --- | 186 | --- | 100 | 100 | --- |
| TOTAL | 7,590 | 5,041 | 3,237 | 5,545 | 4,563 | 5,902 | 5,670 | 5,990 | 4,387 | 3,141 | 3,340 | 4,053 |
| MEAN | 245 | 168 | 104 | 179 | 157 | 190 | 189 | 193 | 146 | 101 | 108 | 135 |
| MAX | 873 | 594 | 147 | 740 | 197 | 194 | 196 | 270 | 191 | 103 | 197 | 182 |
| MIN | 158 | 102 | 102 | 102 | 152 | 187 | 187 | 186 | 100 | 100 | 100 | 100 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 227 | 386 | 172 | 218 | 227 | 234 | 222 | 241 | 183 | 163 | 119 | 165 |
| MAX | 726 | 1,606 | 306 | 898 | 715 | 610 | 484 | 675 | 652 | 983 | 162 | 448 |
| (WY) | (1986) | (1996) | (1996) | (1984) | (1984) | (1984) | (1984) | (1984) | (1983) | (1983) | (1985) | (1983) |
| MIN | 159 | 91.9 | 93.8 | 117 | 155 | 176 | 179 | 175 | 118 | 101 | 60.6 | 127 |
| (WY) | (1988) | (1988) | (1988) | (1988) | (2003) | (2002) | (1987) | (2002) | (1996) | (2004) | (1983) | (2003) |

12137800 SULTAN RIVER BELOW DIVERSION DAM, NEAR SULTAN, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1983 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 57,267 | | 58,459 | | | |
| ANNUAL MEAN | 157 | | 160 | | 205 | |
| HIGHEST ANNUAL MEAN | | | | | 433 | 1984 |
| LOWEST ANNUAL MEAN | | | | | 144 | 1988 |
| HIGHEST DAILY MEAN | 873 | Oct 21 | 873 | Oct 21 | 16,600 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 95 | Jun 26 | 100 | Jun 17 | 35 | Aug 23, 1983 |
| ANNUAL SEVEN-DAY MINIMUM | 96 | Jul 23 | 100 | Jun 17 | 42 | Aug 5, 1983 |
| 10 PERCENT EXCEEDS | 190 | | 192 | | 245 | |
| 50 PERCENT EXCEEDS | 154 | | 158 | | 174 | |
| 90 PERCENT EXCEEDS | 96 | | 100 | | 108 | |

## 12138160 SULTAN RIVER BELOW POWERPLANT, NEAR SULTAN, WA

LOCATION.--Lat 47°54'27", long 121°48'51", in SW¼SW¼, sec.17, T.28 N., R.8 E., Snohomish County, Hydrologic Unit 17110009, on left bank, just downstream from Henry M. Jackson powerplant, 3.2 mi north of Sultan, and at mile 4.5.

DRAINAGE AREA.--94.2 $mi^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1983 to current year.

GAGE.--Water-stage recorder. Datum of gage is 267.0 ft above NGVD of 1929 (levels by Snohomish County Public Utility District). Prior to Oct. 1, 1991, at site on right bank, 100 ft downstream at same datum.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Flow regulated at Spada Lake (station 12137300) since April 5, 1965; unadjusted for storage. Since May 1984, water is diverted from Spada Lake through a 14 ft diameter, 4 mile long tunnel and a 10 ft diameter, 4 mi long pipeline for power production and returned to the river upstream from the station, at the powerplant. Since July 1984, an undetermined flow was returned to river at upstream diversion dam by pipeline from Lake Chaplain for instream flow requirement. Some flows diverted into Lake Chaplain from municipal use by City of Everett. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--21 years (water years 1984-2004), 741 $ft^3/s$, 536,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 22,300 $ft^3/s$, Nov. 24, 1990, gage height, 15.03 ft, from rating curve extended above 4,500 $ft^3/s$; minimum discharge, 124 $ft^3/s$, July 14, 15, 1995.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 3,040 $ft^3/s$, Jan. 29, gage height, 8.56 ft; minimum discharge, 228 $ft^3/s$, Aug. 2-6.

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 | 239 | 1,330 | 1,530 | 717 | 1,710 | 377 | 796 | 341 | 1,460 | 268 | 245 | 249 |
| 2 | 237 | 1,280 | 1,530 | 714 | 1,650 | 366 | 964 | 341 | 1,340 | 278 | 237 | 254 |
| 3 | 239 | 1,280 | 1,560 | 711 | 1,610 | 383 | 968 | 340 | 1,280 | 287 | 233 | 253 |
| 4 | 238 | 1,280 | 1,530 | 1,170 | 1,630 | 457 | 963 | 340 | 904 | 286 | 233 | 249 |
| 5 | 240 | 1,280 | 1,600 | 1,500 | 1,610 | 475 | 757 | 432 | 667 | 380 | 233 | 248 |
| 6 | 239 | 1,280 | 1,580 | 1,480 | 1,600 | 464 | 540 | 395 | 664 | 404 | e244 | 247 |
| 7 | 238 | 1,270 | 1,540 | 1,500 | 1,630 | 476 | 418 | 338 | 660 | 317 | e259 | 607 |
| 8 | 238 | 1,280 | 1,530 | 1,010 | 1,630 | 471 | 382 | 339 | 663 | 302 | e246 | 757 |
| 9 | 238 | 1,280 | 1,520 | 641 | 1,550 | 450 | 381 | 340 | 656 | 281 | e251 | 761 |
| 10 | 238 | 1,060 | 1,510 | 597 | 1,400 | 435 | 382 | 338 | 1,080 | 275 | 251 | 761 |
| 11 | 239 | 1,090 | 1,490 | 577 | 1,220 | 421 | 382 | 340 | 1,410 | 277 | 242 | 779 |
| 12 | 243 | 1,150 | 1,480 | 481 | 1,050 | 407 | 367 | 345 | 1,270 | 266 | 237 | 775 |
| 13 | 255 | 1,300 | 1,490 | 427 | 836 | 396 | 356 | 346 | 1,270 | 259 | 237 | 640 |
| 14 | 243 | 1,290 | 1,480 | 441 | 812 | 390 | 358 | 343 | 1,100 | 257 | 236 | 514 |
| 15 | 238 | 1,300 | 1,500 | 646 | 812 | 380 | 357 | 339 | 952 | 260 | 236 | 502 |
| 16 | 242 | 1,310 | 1,530 | 499 | 813 | 372 | 417 | 339 | 700 | 266 | 236 | 512 |
| 17 | 376 | 1,340 | 1,540 | 408 | 818 | 371 | 406 | 340 | 396 | 264 | 237 | 593 |
| 18 | 270 | 2,130 | 1,510 | 391 | 821 | 369 | 403 | 340 | 412 | 265 | 238 | 571 |
| 19 | 251 | 2,240 | 1,490 | 380 | 822 | 365 | 392 | 339 | 367 | 251 | 238 | 565 |
| 20 | 892 | 1,790 | 1,490 | 370 | 811 | 358 | 384 | 338 | 352 | 239 | 238 | 555 |
| 21 | 2,410 | 1,580 | 1,490 | 361 | 786 | 358 | 415 | 337 | 353 | 239 | 238 | 564 |
| 22 | 1,750 | 1,520 | 1,120 | 358 | 780 | 360 | 360 | 344 | 352 | 721 | 281 | 585 |
| 23 | 1,820 | 1,510 | 605 | 542 | 680 | 360 | 345 | 352 | 345 | 985 | 282 | 603 |
| 24 | 1,670 | 1,640 | 457 | 756 | 614 | 357 | 345 | 351 | 338 | 991 | 430 | 584 |
| 25 | 1,630 | 1,620 | 489 | 710 | 523 | 359 | 344 | 347 | 339 | 988 | 540 | 562 |
| 26 | 1,610 | 1,620 | 433 | 970 | 452 | 361 | 345 | 541 | 340 | 853 | 447 | 558 |
| 27 | 1,530 | 1,540 | 325 | 1,550 | 405 | 367 | 341 | 912 | 338 | 617 | 318 | 559 |
| 28 | 1,870 | 1,590 | 325 | 2,010 | 366 | 368 | 342 | 1,390 | 338 | 384 | 259 | 556 |
| 29 | 1,910 | 2,240 | 565 | 2,680 | 392 | 364 | 342 | 1,730 | 312 | 246 | 254 | 557 |
| 30 | 1,570 | 1,600 | 721 | 2,260 | --- | 367 | 343 | 1,620 | 272 | 244 | 250 | 556 |
| 31 | 1,410 | --- | 719 | 1,850 | --- | 456 | --- | 1,560 | --- | 245 | 248 | --- |
| TOTAL | 24,813 | 44,020 | 37,679 | 28,707 | 29,833 | 12,260 | 13,895 | 16,437 | 20,930 | 12,195 | 8,354 | 16,076 |
| MEAN | 800 | 1,467 | 1,215 | 926 | 1,029 | 395 | 463 | 530 | 698 | 393 | 269 | 536 |
| MAX | 2,410 | 2,240 | 1,600 | 2,680 | 1,710 | 476 | 968 | 1,730 | 1,460 | 991 | 540 | 779 |
| MIN | 237 | 1,060 | 325 | 358 | 366 | 357 | 341 | 337 | 272 | 239 | 233 | 247 |
| AC-FT | 49,220 | 87,310 | 74,740 | 56,940 | 59,170 | 24,320 | 27,560 | 32,600 | 41,510 | 24,190 | 16,570 | 31,890 |
| STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 2004, BY WATER YEAR (WY) | | | | | | | | | | | | |
| MEAN | 625 | 1,311 | 1,059 | 1,023 | 895 | 750 | 736 | 768 | 709 | 422 | 264 | 344 |
| MAX | 1,630 | 3,080 | 1,787 | 1,766 | 1,586 | 1,223 | 1,284 | 1,257 | 1,314 | 925 | 833 | 635 |
| (WY) | (1998) | (1991) | (1996) | (1999) | (1996) | (1997) | (1988) | (1984) | (1999) | (1997) | (1999) | (1995) |
| MIN | 227 | 246 | 261 | 396 | 310 | 335 | 276 | 305 | 256 | 198 | 167 | 203 |
| (WY) | (1984) | (1988) | (1986) | (2001) | (1985) | (2001) | (1992) | (1995) | (1992) | (1987) | (1985) | (1985) |

12138160 SULTAN RIVER BELOW POWERPLANT, NEAR SULTAN, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1984 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 265,789 | | 265,199 | | | |
| ANNUAL MEAN | 728 | | 725 | | 741 | |
| HIGHEST ANNUAL MEAN | | | | | 1,065 | 1997 |
| LOWEST ANNUAL MEAN | | | | | 464 | 2001 |
| HIGHEST DAILY MEAN | 2,410 | Oct 21 | 2,680 | Jan 29 | 20,100 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 187 | Jul 23 | 233 | Aug 3 | 157 | Aug 24, 1985 |
| ANNUAL SEVEN-DAY MINIMUM | 188 | Jul 23 | 237 | Aug 12 | 157 | Aug 23, 1985 |
| ANNUAL RUNOFF (AC-FT) | 527,200 | | 526,000 | | 536,600 | |
| 10 PERCENT EXCEEDS | 1,600 | | 1,560 | | 1,560 | |
| 50 PERCENT EXCEEDS | 522 | | 454 | | 514 | |
| 90 PERCENT EXCEEDS | 189 | | 246 | | 213 | |

e Estimated

12138160 SULTAN RIVER BELOW POWERPLANT, NEAR SULTAN, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: June 1984 to current year.

INSTRUMENTATION.--Temperature recorder since June 1984.

REMARKS.--Records are poor.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 17.5°C (rounded), Sept. 5-7, 1986; minimum, 1.0°C (rounded), Feb. 2-5, 1989.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 14.9°C, Oct. 3, but may have been higher during period of missing record; minimum, 2.8°C, Jan. 9, and Feb. 22.

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

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
| 1 | 14.7 | 13.5 | 14.2 | 10.1 | 9.6 | 9.8 | 6.4 | 6.1 | 6.2 | 4.3 | 3.8 | 4.0 |
| 2 | 14.4 | 13.8 | 14.1 | 9.9 | 9.7 | 9.8 | 6.4 | 6.1 | 6.2 | 4.2 | 3.8 | 3.9 |
| 3 | 14.9 | 13.9 | 14.4 | 9.8 | 9.2 | 9.5 | 6.3 | 5.9 | 6.1 | 4.2 | 3.7 | 3.9 |
| 4 | 14.4 | 13.5 | 14.1 | 9.4 | 8.9 | 9.2 | 6.1 | 5.7 | 5.9 | 4.4 | 3.9 | 4.1 |
| 5 | 14.6 | 13.5 | 14.2 | 9.2 | 8.7 | 9.0 | 6.0 | 5.8 | 5.9 | 4.1 | 3.3 | 3.7 |
| 6 | 14.8 | 13.9 | 14.4 | 8.9 | 8.5 | 8.8 | 6.1 | 5.8 | 5.9 | 3.3 | 2.9 | 3.1 |
| 7 | 14.6 | 13.6 | 14.3 | 8.8 | 8.3 | 8.7 | 6.0 | 5.5 | 5.8 | 3.2 | 3.0 | 3.1 |
| 8 | 14.6 | 13.9 | 14.3 | 8.9 | 8.6 | 8.8 | 6.0 | 5.5 | 5.8 | 3.1 | 2.9 | 3.0 |
| 9 | 14.0 | 13.2 | 13.7 | 8.8 | 8.7 | 8.8 | 5.6 | 5.3 | 5.4 | 3.3 | 2.8 | 3.1 |
| 10 | 13.9 | 12.8 | 13.6 | 8.9 | 7.6 | 8.6 | 5.7 | 5.2 | 5.5 | 3.6 | 3.2 | 3.4 |
| 11 | 13.6 | 13.1 | 13.5 | 8.3 | 7.5 | 8.1 | 5.6 | 5.1 | 5.3 | 3.7 | 3.4 | 3.5 |
| 12 | 13.4 | 12.2 | 12.9 | 8.4 | 8.0 | 8.2 | 5.4 | 5.1 | 5.2 | 4.2 | 3.4 | 3.8 |
| 13 | 12.4 | 10.6 | 11.2 | 8.3 | 7.9 | 8.1 | 5.3 | 4.9 | 5.1 | 4.4 | 4.0 | 4.1 |
| 14 | 11.8 | 11.2 | 11.4 | 8.3 | 7.9 | 8.1 | 5.2 | 5.0 | 5.1 | 5.0 | 4.1 | 4.4 |
| 15 | 11.6 | 10.8 | 11.2 | 8.3 | 8.0 | 8.2 | 5.2 | 4.7 | 5.1 | 5.6 | 4.8 | 5.2 |
| 16 | 11.7 | 10.9 | 11.4 | 8.3 | 8.0 | 8.2 | 5.3 | 4.9 | 5.0 | 5.3 | 4.6 | 4.9 |
| 17 | 11.5 | 10.3 | 11.0 | 8.1 | 7.5 | 7.8 | 5.2 | 4.8 | 5.0 | 5.0 | 4.5 | 4.7 |
| 18 | 11.2 | 10.5 | 10.9 | 8.2 | 7.7 | 8.0 | 4.9 | 4.7 | 4.8 | 5.0 | 4.7 | 4.8 |
| 19 | 11.0 | 10.5 | 10.7 | 8.3 | 6.6 | 7.1 | 5.0 | 4.6 | 4.8 | 5.0 | 4.7 | 4.9 |
| 20 | 12.6 | 10.5 | 11.2 | 7.0 | 6.6 | 6.8 | 5.0 | 4.7 | 4.9 | 4.8 | 4.1 | 4.3 |
| 21 | 13.0 | 11.6 | 12.5 | 7.1 | 6.8 | 7.0 | 5.2 | 4.9 | 5.0 | 4.2 | 3.5 | 3.9 |
| 22 | 11.7 | 11.1 | 11.4 | 6.9 | 6.7 | 6.9 | 5.1 | 4.8 | 4.9 | 4.2 | 3.7 | 4.0 |
| 23 | 11.4 | 10.9 | 11.1 | 6.9 | 6.6 | 6.8 | 5.3 | 4.8 | 5.0 | 4.9 | 4.1 | 4.4 |
| 24 | 11.4 | 10.6 | 10.9 | 6.7 | 6.3 | 6.5 | 5.4 | 5.0 | 5.2 | 5.1 | 3.5 | 4.3 |
| 25 | 11.0 | 10.5 | 10.8 | 6.6 | 6.2 | 6.5 | 5.5 | 4.7 | 5.2 | 4.2 | 3.4 | 3.8 |
| 26 | 11.1 | 10.3 | 10.9 | 6.7 | 6.3 | 6.4 | 4.8 | 4.4 | 4.6 | 4.2 | 3.9 | 4.0 |
| 27 | 11.1 | 10.7 | 11.0 | 6.6 | 6.3 | 6.5 | 4.8 | 4.5 | 4.7 | 4.3 | 3.7 | 3.9 |
| 28 | 11.2 | 10.2 | 10.9 | 6.5 | 6.2 | 6.4 | 4.8 | 4.4 | 4.6 | 4.2 | 3.6 | 4.0 |
| 29 | 10.6 | 9.4 | 10.2 | 6.6 | 6.0 | 6.4 | 4.5 | 4.0 | 4.3 | 5.1 | 4.2 | 4.7 |
| 30 | 10.5 | 10.0 | 10.3 | 6.5 | 6.1 | 6.3 | 4.6 | 4.3 | 4.5 | 5.1 | 4.2 | 4.6 |
| 31 | 10.2 | 9.8 | 9.9 | --- | --- | --- | 4.6 | 4.1 | 4.4 | 4.3 | 3.8 | 4.1 |
| MONTH | 14.9 | 9.4 | 12.1 | 10.1 | 6.0 | 7.8 | 6.4 | 4.0 | 5.2 | 5.6 | 2.8 | 4.1 |

12138160 SULTAN RIVER BELOW POWERPLANT, NEAR SULTAN, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—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 | 3.9 | 3.6 | 3.7 | 4.5 | 3.8 | 4.2 | --- | --- | --- | --- | --- | --- |
| 2 | 3.6 | 3.4 | 3.5 | 4.2 | 3.4 | 3.8 | --- | --- | --- | --- | --- | --- |
| 3 | 3.5 | 3.3 | 3.4 | 3.8 | 3.5 | 3.6 | --- | --- | --- | --- | --- | --- |
| 4 | 3.6 | 3.3 | 3.5 | 4.2 | 3.5 | 3.8 | --- | --- | --- | --- | --- | --- |
| 5 | 3.6 | 3.2 | 3.3 | 4.3 | 3.7 | 4.0 | --- | --- | --- | --- | --- | --- |
| 6 | 3.6 | 3.2 | 3.4 | 4.4 | 3.6 | 4.0 | --- | --- | --- | --- | --- | --- |
| 7 | 3.8 | 3.5 | 3.6 | 5.0 | 4.1 | 4.5 | --- | --- | --- | --- | --- | --- |
| 8 | 3.6 | 3.3 | 3.5 | 5.7 | 4.6 | 5.1 | --- | --- | --- | --- | --- | --- |
| 9 | 3.5 | 3.3 | 3.4 | 5.5 | 5.1 | 5.3 | --- | --- | --- | --- | --- | --- |
| 10 | 3.4 | 3.2 | 3.3 | 5.1 | 4.4 | 4.8 | --- | --- | --- | --- | --- | --- |
| 11 | 3.4 | 3.0 | 3.2 | 5.0 | 3.5 | 4.5 | --- | --- | --- | --- | --- | --- |
| 12 | 3.4 | 3.0 | 3.2 | 4.9 | 4.0 | 4.6 | --- | --- | --- | --- | --- | --- |
| 13 | 3.5 | 3.0 | 3.2 | 5.1 | 4.1 | 4.6 | --- | --- | --- | --- | --- | --- |
| 14 | 3.6 | 3.2 | 3.4 | 4.8 | 4.4 | 4.7 | --- | --- | --- | --- | --- | --- |
| 15 | 3.6 | 3.3 | 3.5 | 5.0 | 4.4 | 4.7 | --- | --- | --- | --- | --- | --- |
| 16 | 3.5 | 3.2 | 3.3 | 5.0 | 4.2 | 4.5 | --- | --- | --- | --- | --- | --- |
| 17 | 3.6 | 3.3 | 3.4 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | 3.7 | 3.5 | 3.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | 3.8 | 3.5 | 3.6 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 3.6 | 3.2 | 3.4 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | 3.4 | 3.0 | 3.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | 3.3 | 2.8 | 3.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | 3.5 | 3.0 | 3.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | 3.5 | 3.2 | 3.4 | --- | --- | --- | --- | --- | --- | 9.5 | 8.7 | 9.0 |
| 25 | 3.7 | 3.0 | 3.3 | --- | --- | --- | --- | --- | --- | 9.5 | 9.0 | 9.1 |
| 26 | 3.8 | 3.2 | 3.5 | --- | --- | --- | --- | --- | --- | 10.1 | 8.9 | 9.5 |
| 27 | 4.5 | 3.6 | 4.0 | --- | --- | --- | --- | --- | --- | 10.3 | 9.1 | 9.8 |
| 28 | 4.4 | 4.0 | 4.2 | --- | --- | --- | --- | --- | --- | 9.2 | 8.8 | 9.0 |
| 29 | 4.4 | 3.8 | 4.1 | --- | --- | --- | --- | --- | --- | 9.4 | 8.1 | 8.8 |
| 30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.7 | 8.0 | 8.3 |
| 31 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 9.0 | 7.8 | 8.3 |
| MONTH | 4.5 | 2.8 | 3.5 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 9.0 | 8.0 | 8.3 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | 9.8 | 8.3 | 9.1 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 9.7 | 8.6 | 9.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 9.6 | 8.8 | 9.2 | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MONTH | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

## 12141300 MIDDLE FORK SNOQUALMIE RIVER NEAR TANNER, WA

LOCATION.--Lat 47°29'10", long 121°38'48", in SW¼SE¼, sec.10, T.23 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.7 mi downstream from Granite Creek, 6.4 mi east of North Bend, and at mile 55.6.

DRAINAGE AREA.--154 $mi^2$.

PERIOD OF RECORD.--February 1961 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 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. Water temperatures June 1979 to September 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--43 years (water years 1962-2004), 1,229 $ft^3/s$, 108.42 in/yr, 890,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 30,200 $ft^3/s$, Dec. 2, 1977, gage height, 14.93 ft; maximum gage height, 14.97 ft, Nov. 24, 1990; minimum discharge, 91 $ft^3/s$, Oct. 29-31, 1987, gage height, 0.61 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 23, 1959, reached a stage of 18.7 ft from floodmarks, discharge, 49,000 $ft^3/s$ by slope-area measurement at site 6 mi downstream.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 8,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 21 | 0000 | *18,400 | *12.03 | Jan 29 | 1915 | 12,500 | 10.20 |
| Nov 18 | 1430 | 16,900 | 11.60 | Aug 25 | 2015 | 8,710 | 8.80 |
| Nov 29 | 0330 | 13,300 | 10.48 | | | | |

Minimum discharge, 127 $ft^3/s$, Oct. 6, gage height, 0.83 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 | 148 | 856 | 1,770 | 431 | 1,870 | 454 | 922 | 1,620 | 2,130 | 617 | 226 | 538 |
| 2 | 142 | 732 | 1,610 | 409 | 1,390 | 428 | 794 | 1,890 | 1,620 | 586 | 214 | 1,060 |
| 3 | 139 | 632 | 2,210 | 395 | 1,110 | 455 | 803 | 1,740 | 1,560 | 601 | 207 | 813 |
| 4 | 134 | 557 | 1,410 | 357 | 1,080 | 896 | 991 | 1,630 | 1,760 | 602 | 206 | 625 |
| 5 | 131 | 497 | 1,720 | 317 | 919 | 854 | 1,010 | 1,700 | 1,830 | 522 | 199 | 542 |
| 6 | 129 | 453 | 1,810 | 321 | 824 | 768 | 903 | 1,230 | 3,070 | 520 | 211 | 478 |
| 7 | 162 | 421 | 1,310 | 366 | 823 | 1,000 | e990 | 1,160 | 2,170 | 664 | 418 | 429 |
| 8 | 188 | 399 | 1,100 | 575 | 771 | 2,000 | e980 | 1,430 | 1,720 | 551 | 341 | 395 |
| 9 | 503 | 375 | 927 | 738 | 685 | 2,380 | e990 | 1,260 | 1,570 | 474 | 261 | 490 |
| 10 | 838 | 860 | 800 | 1,040 | 629 | 1,760 | 1,120 | 1,110 | 1,650 | 437 | 233 | 474 |
| 11 | 667 | 4,700 | 712 | 949 | 604 | 1,280 | 1,380 | 1,020 | 1,620 | 584 | 217 | 2,290 |
| 12 | 1,510 | 1,760 | 717 | 912 | 579 | 1,140 | 1,640 | 990 | 1,300 | 521 | 208 | 1,220 |
| 13 | 1,930 | 1,150 | 939 | 1,070 | 551 | 966 | 1,590 | 971 | 1,710 | 479 | 202 | 1,090 |
| 14 | 980 | 904 | 984 | 1,470 | 588 | 903 | 1,370 | 977 | 1,740 | 459 | 198 | 3,120 |
| 15 | 676 | 798 | 946 | 3,930 | 585 | 883 | 1,170 | 1,050 | 1,440 | 442 | 196 | 3,120 |
| 16 | 2,770 | 1,050 | 891 | 3,120 | 589 | 800 | 1,020 | 1,080 | 1,230 | 413 | 189 | 3,090 |
| 17 | 3,230 | 1,700 | 1,090 | 1,660 | 604 | 794 | 903 | 1,020 | 1,230 | 380 | 186 | 2,830 |
| 18 | 1,600 | 11,800 | 831 | 1,310 | 689 | 899 | 831 | 1,090 | 1,270 | 371 | 183 | 2,000 |
| 19 | 1,030 | 7,050 | 779 | 1,280 | 929 | 910 | 766 | 1,370 | 1,160 | 368 | 177 | 1,600 |
| 20 | 5,290 | 2,930 | 870 | 1,060 | 763 | 763 | 856 | 1,300 | 1,040 | 351 | 173 | 1,250 |
| 21 | 9,610 | 1,740 | 1,050 | 884 | 639 | 722 | 833 | 1,290 | 1,040 | 326 | 174 | 995 |
| 22 | 2,840 | 1,240 | 851 | 773 | 567 | 886 | 765 | 1,770 | 1,070 | 309 | 347 | 830 |
| 23 | 2,130 | 1,040 | 744 | 1,100 | 527 | 1,180 | 931 | 1,650 | 1,100 | 298 | 485 | 743 |
| 24 | 1,510 | 1,130 | 734 | 1,850 | 510 | 1,240 | 1,010 | 1,310 | 1,070 | 293 | 3,310 | 661 |
| 25 | 1,110 | 1,150 | 778 | 1,230 | 495 | 1,100 | 865 | 1,180 | 992 | 289 | 5,770 | 586 |
| 26 | 897 | 1,330 | 673 | 1,140 | 467 | 1,010 | 1,130 | 2,970 | 873 | 283 | 4,650 | 529 |
| 27 | 747 | 1,050 | 598 | 1,120 | 468 | 1,090 | 1,700 | 3,280 | 752 | 262 | 2,160 | 483 |
| 28 | 2,130 | 1,940 | 571 | 1,780 | 493 | 1,010 | 1,500 | 2,990 | 705 | 248 | 1,300 | 447 |
| 29 | 2,750 | 8,110 | 516 | 8,550 | 489 | 960 | 1,220 | 3,630 | 678 | 242 | 939 | 416 |
| 30 | 1,450 | 2,870 | 467 | 6,060 | --- | 1,220 | 1,250 | 4,490 | 660 | 240 | 729 | 391 |
| 31 | 1,050 | --- | 459 | 2,790 | --- | 1,170 | --- | 3,510 | --- | 240 | 600 | --- |
| TOTAL | 48,421 | 61,224 | 30,867 | 48,987 | 21,237 | 31,921 | 32,233 | 53,708 | 41,760 | 12,972 | 24,909 | 33,535 |
| MEAN | 1,562 | 2,041 | 996 | 1,580 | 732 | 1,030 | 1,074 | 1,733 | 1,392 | 418 | 804 | 1,118 |
| MAX | 9,610 | 11,800 | 2,210 | 8,550 | 1,870 | 2,380 | 1,700 | 4,490 | 3,070 | 664 | 5,770 | 3,120 |
| MIN | 129 | 375 | 459 | 317 | 467 | 428 | 765 | 971 | 660 | 240 | 173 | 391 |
| AC-FT | 96,040 | 121,400 | 61,220 | 97,170 | 42,120 | 63,320 | 63,930 | 106,500 | 82,830 | 25,730 | 49,410 | 66,520 |
| CFSM | 10.1 | 13.3 | 6.47 | 10.3 | 4.76 | 6.69 | 6.98 | 11.3 | 9.04 | 2.72 | 5.22 | 7.26 |
| IN. | 11.70 | 14.79 | 7.46 | 11.83 | 5.13 | 7.71 | 7.79 | 12.97 | 10.09 | 3.13 | 6.02 | 8.10 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 864 | 1,639 | 1,581 | 1,551 | 1,296 | 1,056 | 1,329 | 1,799 | 1,806 | 953 | 420 | 493 |
| MAX | 1,978 | 4,534 | 3,997 | 3,070 | 2,941 | 2,836 | 2,231 | 3,060 | 4,012 | 2,370 | 1,218 | 1,241 |
| (WY) | (1991) | (1996) | (1976) | (1984) | (1982) | (1972) | (1989) | (1972) | (1974) | (1974) | (1964) | (1968) |
| MIN | 105 | 298 | 441 | 427 | 387 | 549 | 601 | 996 | 553 | 342 | 152 | 135 |
| (WY) | (1988) | (1980) | (1986) | (1979) | (1969) | (1962) | (1967) | (1992) | (1992) | (2003) | (2003) | (1998) |

12141300 MIDDLE FORK SNOQUALMIE RIVER NEAR TANNER, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1961 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 424,338 | | 441,774 | | | |
| ANNUAL MEAN | 1,163 | | 1,207 | | 1,229 | |
| HIGHEST ANNUAL MEAN | | | | | 1,832 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 774 | 2001 |
| HIGHEST DAILY MEAN | 11,800 | Nov 18 | 11,800 | Nov 18 | 23,100 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 116 | Sep 6 | 129 | Oct 6 | 91 | Oct 29, 1987 |
| ANNUAL SEVEN-DAY MINIMUM | 118 | Sep 1 | 141 | Oct 1 | 92 | Oct 24, 1987 |
| ANNUAL RUNOFF (AC-FT) | 841,700 | | 876,300 | | 890,300 | |
| ANNUAL RUNOFF (CFSM) | 7.55 | | 7.84 | | 7.98 | |
| ANNUAL RUNOFF (INCHES) | 102.50 | | 106.71 | | 108.42 | |
| 10 PERCENT EXCEEDS | 2,250 | | 2,140 | | 2,440 | |
| 50 PERCENT EXCEEDS | 852 | | 920 | | 872 | |
| 90 PERCENT EXCEEDS | 160 | | 306 | | 270 | |

e Estimated

## 12142000 NORTH FORK SNOQUALMIE RIVER NEAR SNOQUALMIE FALLS, WA

LOCATION.--Lat 47°36'54", long 121°42'44", in NW¼NW¼, sec.31, T.25 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi upstream from Calligan Creek, 7.0 mi northeast of town of Snoqualmie Falls, and at mile 9.2.

DRAINAGE AREA.--64.0 $mi^2$.

PERIOD OF RECORD.--August 1929 to October 1949, water years 1950-60 (annual maximum), February 1961 to current year.

REVISED RECORDS.--WSP 1346: 1930-31(M), 1932, 1935, 1936-37(M), 1938, 1939-42(M), 1944, 1945-46(P), 1947, 1948(P), 1949(M). WSP 1736: 1932-34(M), 1935, 1938(M), 1943-45(M), 1947(M), drainage area. WSP 1932: 1950-54(M), 1956-57(M), 1959(M).

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,130 ft above NGVD of 1929, from topographic map. Prior to Oct. 19, 1949, water-stage recorder, and October 1949 to February 1961, crest-stage gage, at site 1,500 ft downstream at different datum.

REMARKS.--Records good except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. Daily water temperatures June 1979 to August 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--63 years (water years 1930-49, 1962-2004), 501 $ft^3/s$, 106.46 in/yr, 363,300 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 15,800 $ft^3/s$, Feb. 26, 1932, gage height, 17.5 ft, site and datum then in use, from rating curve extended above 2,200 $ft^3/s$, on basis of slope-area measurement at gage height 16.47 ft; minimum discharge observed, 30 $ft^3/s$, Sept. 17-19, 1929.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 4,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 21 | 0045 | *11,400 | *11.33 | Nov 29 | 0400 | 7,120 | 9.32 |
| Oct 28 | 1945 | 5,380 | 8.32 | Jan 29 | 2045 | 6,830 | 9.16 |
| Nov 18 | 1245 | 7,010 | 9.26 | Sep 14 | 0700 | 4,180 | 7.52 |

Minimum discharge, 47 $ft^3/s$, Aug. 21, gage height, 1.64 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 | 63 | 360 | 809 | 202 | 878 | 249 | 436 | 628 | 807 | 172 | 59 | 231 |
| 2 | 59 | 303 | 826 | 193 | 661 | 231 | 368 | 686 | 635 | 162 | 58 | 723 |
| 3 | 56 | 261 | 1,280 | 185 | 535 | 235 | 368 | 598 | 624 | 168 | 57 | 401 |
| 4 | 53 | 230 | 729 | 165 | 523 | 371 | 461 | 594 | 650 | 165 | 56 | 290 |
| 5 | 52 | 205 | 968 | e150 | 452 | e365 | 434 | 654 | 631 | 146 | 54 | 245 |
| 6 | 50 | 186 | 1,050 | e153 | 419 | e335 | 376 | 437 | 1,120 | 147 | 62 | 211 |
| 7 | 55 | 171 | 679 | e230 | 464 | e630 | 413 | 427 | 780 | 239 | 158 | 186 |
| 8 | 71 | 162 | 551 | 451 | 418 | e1,180 | 401 | 522 | 591 | 192 | 118 | 167 |
| 9 | 228 | 152 | 456 | 610 | 364 | e1,350 | 400 | 446 | 549 | 159 | 87 | 235 |
| 10 | 246 | 230 | 390 | 831 | 326 | 872 | 457 | 400 | 624 | 149 | 79 | 227 |
| 11 | 245 | 2,110 | 345 | 651 | 309 | 610 | 553 | 388 | 607 | 234 | 74 | 1,470 |
| 12 | 598 | 796 | 343 | 566 | 301 | 536 | 635 | 404 | 491 | 198 | 70 | 586 |
| 13 | 655 | 481 | 433 | 689 | 290 | 450 | 574 | 403 | 796 | 157 | 66 | 499 |
| 14 | 321 | 370 | 468 | 942 | 332 | 434 | 522 | 393 | 701 | 137 | 62 | 2,570 |
| 15 | 219 | 323 | 408 | 2,580 | 374 | 439 | 483 | 395 | 552 | 125 | 59 | 1,430 |
| 16 | 1,130 | 428 | 404 | 1,620 | 373 | 391 | 421 | 410 | 484 | 116 | 56 | 1,430 |
| 17 | 1,010 | 665 | 600 | 823 | 418 | 386 | 390 | 387 | 483 | 109 | 53 | 1,380 |
| 18 | 524 | 4,660 | 416 | 655 | 437 | 482 | 370 | 430 | 486 | e105 | 52 | 899 |
| 19 | 383 | 2,450 | 396 | 679 | 582 | 486 | 345 | 508 | 421 | e100 | 50 | 755 |
| 20 | 2,760 | 1,050 | 515 | 541 | 447 | 377 | 412 | 431 | 373 | e95 | 48 | 592 |
| 21 | 4,850 | 686 | 587 | 439 | 361 | 352 | 391 | 423 | 361 | e90 | 49 | 460 |
| 22 | 1,160 | 508 | 446 | 376 | 311 | 460 | 344 | 743 | 357 | e85 | 180 | 383 |
| 23 | 1,330 | 440 | 370 | 593 | 284 | 582 | 407 | 666 | 353 | e80 | 215 | 340 |
| 24 | 779 | 500 | 382 | 1,100 | 275 | 592 | 446 | 514 | 324 | e75 | 1,530 | 300 |
| 25 | 521 | 477 | 421 | 651 | 270 | 534 | 360 | 459 | 295 | e73 | 2,150 | 263 |
| 26 | 398 | 493 | 343 | 542 | 252 | 477 | 480 | 1,180 | 259 | e72 | 1,430 | 235 |
| 27 | 319 | 417 | 293 | 535 | 252 | 540 | 688 | 1,320 | 231 | 70 | 828 | 213 |
| 28 | 1,570 | 764 | 272 | 841 | 276 | 549 | 606 | 1,290 | 213 | 67 | 524 | 195 |
| 29 | 1,430 | 4,110 | 244 | 4,460 | 275 | 499 | 473 | 1,330 | 200 | 65 | e380 | 180 |
| 30 | 656 | 1,300 | 219 | 3,210 | --- | 628 | 490 | 1,740 | 189 | 63 | e295 | 167 |
| 31 | 456 | --- | 216 | 1,320 | --- | 585 | --- | 1,250 | --- | 61 | e240 | --- |
| TOTAL | 22,247 | 25,288 | 15,859 | 26,983 | 11,459 | 16,207 | 13,504 | 20,456 | 15,187 | 3,876 | 9,199 | 17,263 |
| MEAN | 718 | 843 | 512 | 870 | 395 | 523 | 450 | 660 | 506 | 125 | 297 | 575 |
| MAX | 4,850 | 4,660 | 1,280 | 4,460 | 878 | 1,350 | 688 | 1,740 | 1,120 | 239 | 2,150 | 2,570 |
| MIN | 50 | 152 | 216 | 150 | 252 | 231 | 344 | 387 | 189 | 61 | 48 | 167 |
| AC-FT | 44,130 | 50,160 | 31,460 | 53,520 | 22,730 | 32,150 | 26,790 | 40,570 | 30,120 | 7,690 | 18,250 | 34,240 |
| CFSM | 11.2 | 13.2 | 7.99 | 13.6 | 6.17 | 8.17 | 7.03 | 10.3 | 7.91 | 1.95 | 4.64 | 8.99 |
| IN. | 12.93 | 14.70 | 9.22 | 15.68 | 6.66 | 9.42 | 7.85 | 11.89 | 8.83 | 2.25 | 5.35 | 10.03 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1930 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 394 | 680 | 704 | 655 | 524 | 479 | 589 | 714 | 634 | 300 | 133 | 211 |
| MAX | 906 | 1,894 | 1,856 | 1,310 | 1,295 | 1,250 | 968 | 1,248 | 1,338 | 733 | 439 | 575 |
| (WY) | (1935) | (1991) | (1934) | (1934) | (1982) | (1972) | (2002) | (1936) | (1974) | (1972) | (1964) | (2004) |
| MIN | 38.3 | 85.4 | 209 | 124 | 201 | 225 | 279 | 327 | 145 | 70.3 | 41.5 | 44.2 |
| (WY) | (1988) | (1937) | (1986) | (1937) | (1938) | (1992) | (1975) | (1992) | (1934) | (1940) | (2003) | (1938) |

12142000 NORTH FORK SNOQUALMIE RIVER NEAR SNOQUALMIE FALLS, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1930 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 184,110 | | 197,528 | | | |
| ANNUAL MEAN | 504 | | 540 | | 501 | |
| HIGHEST ANNUAL MEAN | | | | | 736 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 335 | 1930 |
| HIGHEST DAILY MEAN | 4,850 | Oct 21 | 4,850 | Oct 21 | 9,580 | Oct 25, 1934 |
| LOWEST DAILY MEAN | 34 | Sep 5 | 48 | Aug 20 | 31 | Sep 16, 1998 |
| ANNUAL SEVEN-DAY MINIMUM | 35 | Sep 1 | 52 | Aug 15 | 32 | Sep 11, 1998 |
| ANNUAL RUNOFF (AC-FT) | 365,200 | | 391,800 | | 363,300 | |
| ANNUAL RUNOFF (CFSM) | 7.88 | | 8.43 | | 7.84 | |
| ANNUAL RUNOFF (INCHES) | 107.01 | | 114.81 | | 106.46 | |
| 10 PERCENT EXCEEDS | 1,050 | | 1,060 | | 1,000 | |
| 50 PERCENT EXCEEDS | 368 | | 411 | | 357 | |
| 90 PERCENT EXCEEDS | 47 | | 86 | | 92 | |

e Estimated

## 12143400 SOUTH FORK SNOQUALMIE RIVER ABOVE ALICE CREEK, NEAR GARCIA, WA

LOCATION.--Lat 47°24'55", long 121°35'10", in SW¼SW¼, sec.6, T.22 N., R.10 E. King County, Hydrologic Unit 17110010, Snoqualmie National Forest, on left bank, 50 ft downstream from bridge, 0.4 mi upstream from Alice Creek, 1.5 mi southeast of Garcia, 11 mi southeast of North Bend, and at mile 17.3.

DRAINAGE AREA.--41.6 $mi^2$.

PERIOD OF RECORD.--October 1960 to current year.

REVISED RECORDS.--WDR WA-80-1: 1978.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 1,437.67 ft above Washington Highway Department datum. Oct. 1, 1960, to Sept. 30, 1987, recording gage at same site at datum 10.00 ft higher.

REMARKS.--Records good. No regulation or diversion upstream from station. Chemical analyses October to November 1971. Water temperatures May 1979 to September 1980. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--44 years (water years 1961-2004), 300 $ft^3/s$, 97.99 in/yr, 217,400 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 8,450 $ft^3/s$, Nov. 23, 1986, gage height, 8.33 ft, datum then in use; minimum discharge, 18 $ft^3/s$, Sept. 3-7, 2003, Aug. 18, 19, 2004.

EXTREMES OUTSIDE PERIOD OF RECORD.--Floods in November and December 1959 reached stages of 14.7 ft and 13.4 ft, respectively, from floodmarks, discharges not determined.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,500 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 16 | 1245 | 2,040 | 13.74 | Nov 29 | 0545 | 2,250 | 13.96 |
| Oct 21 | 0015 | 2,940 | 14.61 | Jan 29 | 1700 | 2,970 | 14.64 |
| Nov 18 | 1400 | *5,450 | *16.56 | Aug 25 | 1115 | 1,550 | 13.20 |

Minimum discharge, 18 $ft^3/s$, Aug. 18, 19, gage height, 9.96 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 | 27 | 170 | 531 | 114 | 480 | 71 | 281 | 619 | 618 | 109 | 31 | 132 |
| 2 | 26 | 151 | 443 | 110 | 350 | 68 | 242 | 666 | 510 | 103 | 29 | 225 |
| 3 | 26 | 133 | 419 | 106 | 269 | 71 | 282 | 590 | 499 | 106 | 28 | 174 |
| 4 | 25 | 120 | 343 | 91 | 243 | 111 | 374 | 570 | 504 | 97 | 28 | 140 |
| 5 | 25 | 109 | 378 | 74 | 194 | 127 | 360 | 526 | 493 | 90 | 28 | 125 |
| 6 | 25 | 99 | 397 | 81 | 165 | 109 | 320 | 388 | 615 | 94 | 37 | 108 |
| 7 | 36 | 94 | 329 | 90 | 151 | 134 | 370 | 404 | 529 | 107 | 101 | 97 |
| 8 | 46 | 90 | 293 | 97 | 133 | 329 | 371 | 444 | 463 | 93 | 54 | 90 |
| 9 | 119 | 86 | 258 | 104 | 115 | 525 | 392 | 394 | 446 | 85 | 38 | 114 |
| 10 | 184 | 176 | 233 | 119 | 102 | 430 | 446 | 344 | 405 | 85 | 32 | 101 |
| 11 | 135 | 832 | 212 | 112 | 94 | 322 | 580 | 309 | 359 | 122 | 28 | 625 |
| 12 | 463 | 387 | 205 | 111 | 89 | 282 | 656 | 288 | 310 | 91 | 26 | 327 |
| 13 | 442 | 268 | 241 | 116 | 84 | 233 | 620 | 278 | 478 | 81 | 25 | e312 |
| 14 | 207 | 216 | 240 | 140 | 80 | 215 | 522 | 290 | 416 | 74 | 25 | 525 |
| 15 | 158 | 195 | 240 | 445 | 77 | 215 | 435 | 308 | 351 | 70 | 24 | 711 |
| 16 | 891 | 238 | 215 | 518 | 75 | 203 | 386 | 305 | 327 | 66 | 23 | 722 |
| 17 | 536 | 383 | 213 | 345 | 75 | 223 | 339 | 288 | 317 | 62 | 22 | 762 |
| 18 | 286 | 3,380 | 189 | 294 | 88 | 248 | 310 | 322 | 298 | 59 | 20 | 591 |
| 19 | 202 | 1,700 | 181 | 283 | 108 | 237 | 288 | 388 | 264 | 59 | 19 | 481 |
| 20 | 933 | 783 | 191 | 246 | 92 | 191 | 331 | 346 | 243 | 55 | 20 | 381 |
| 21 | 1,670 | 537 | 219 | 220 | 82 | 180 | 301 | 331 | 232 | 51 | 21 | 306 |
| 22 | 571 | 411 | 196 | 199 | 75 | 231 | 289 | 428 | 227 | 48 | 87 | 263 |
| 23 | 403 | 354 | 184 | 257 | 72 | 356 | 372 | 361 | 219 | 45 | 116 | 234 |
| 24 | 292 | 325 | 186 | 393 | 71 | 373 | 372 | 280 | 201 | 42 | 720 | 205 |
| 25 | 224 | 302 | 192 | 307 | 70 | 313 | 337 | 274 | 185 | 41 | 1,230 | 180 |
| 26 | 183 | 297 | 174 | 279 | 67 | 284 | 468 | 763 | 166 | 40 | 883 | 162 |
| 27 | 157 | 265 | 159 | 274 | 68 | 301 | 634 | 676 | 148 | 38 | 484 | 144 |
| 28 | 342 | 456 | 150 | 470 | 75 | 279 | 535 | 678 | 136 | 36 | 305 | 132 |
| 29 | 427 | 1,620 | 137 | 1,910 | 75 | 312 | 445 | 997 | 129 | 34 | 223 | 121 |
| 30 | 261 | 758 | 125 | 1,600 | --- | 408 | 495 | 1,090 | 120 | 34 | 177 | 113 |
| 31 | 201 | --- | 122 | 742 | --- | 368 | --- | 926 | --- | 33 | 145 | --- |
| TOTAL | 9,523 | 14,935 | 7,595 | 10,247 | 3,719 | 7,749 | 12,153 | 14,871 | 10,208 | 2,150 | 5,029 | 8,603 |
| MEAN | 307 | 498 | 245 | 331 | 128 | 250 | 405 | 480 | 340 | 69.4 | 162 | 287 |
| MAX | 1,670 | 3,380 | 531 | 1,910 | 480 | 525 | 656 | 1,090 | 618 | 122 | 1,230 | 762 |
| MIN | 25 | 86 | 122 | 74 | 67 | 68 | 242 | 274 | 120 | 33 | 19 | 90 |
| AC-FT | 18,890 | 29,620 | 15,060 | 20,320 | 7,380 | 15,370 | 24,110 | 29,500 | 20,250 | 4,260 | 9,980 | 17,060 |
| CFSM | 7.38 | 12.0 | 5.89 | 7.95 | 3.08 | 6.01 | 9.74 | 11.5 | 8.18 | 1.67 | 3.90 | 6.89 |
| IN. | 8.52 | 13.36 | 6.79 | 9.16 | 3.33 | 6.93 | 10.87 | 13.30 | 9.13 | 1.92 | 4.50 | 7.69 |

12143400 SOUTH FORK SNOQUALMIE RIVER ABOVE ALICE CREEK, NEAR GARCIA, WA—Continued

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

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 179 | 386 | 369 | 354 | 316 | 276 | 389 | 536 | 451 | 187 | 72.4 | 90.2 |
| MAX | 420 | 1,271 | 1,115 | 743 | 764 | 715 | 660 | 858 | 1,208 | 615 | 212 | 287 |
| (WY) | (1998) | (1991) | (1976) | (1984) | (1982) | (1972) | (1990) | (1997) | (1974) | (1974) | (1964) | (2004) |
| MIN | 21.2 | 61.3 | 77.7 | 87.7 | 77.0 | 125 | 171 | 259 | 95.6 | 56.5 | 27.5 | 26.0 |
| (WY) | (1988) | (1988) | (1986) | (1979) | (1969) | (1962) | (1967) | (1992) | (1992) | (2003) | (2003) | (1998) |

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1961 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 104,490 | | 106,782 | | | |
| ANNUAL MEAN | 286 | | 292 | | 300 | |
| HIGHEST ANNUAL MEAN | | | | | 430 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 189 | 2001 |
| HIGHEST DAILY MEAN | 3,380 | Nov 18 | 3,380 | Nov 18 | 6,950 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 18 | Sep 6 | 19 | Aug 19 | 18 | Sep 6, 2003 |
| ANNUAL SEVEN-DAY MINIMUM | 20 | Sep 1 | 21 | Aug 15 | 20 | Sep 1, 2003 |
| ANNUAL RUNOFF (AC-FT) | 207,300 | | 211,800 | | 217,400 | |
| ANNUAL RUNOFF (CFSM) | 6.88 | | 7.01 | | 7.21 | |
| ANNUAL RUNOFF (INCHES) | 93.44 | | 95.49 | | 97.99 | |
| 10 PERCENT EXCEEDS | 541 | | 570 | | 646 | |
| 50 PERCENT EXCEEDS | 201 | | 224 | | 205 | |
| 90 PERCENT EXCEEDS | 30 | | 47 | | 50 | |

e Estimated

## 12143600 SOUTH FORK SNOQUALMIE RIVER AT EDGEWICK, WA

LOCATION.--Lat 47°27'10", long 121°43'00", in NE¼NE¼, sec.25, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank at upstream side of highway bridge in Edgewick, 3 mi downstream from Change Creek, and at mile 8.6.

DRAINAGE AREA.--65.9 $mi^2$.

PERIOD OF RECORD.--July to September 1962, March 1963 to September 1965, October 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 571.24 ft above NGVD of 1929. Prior to August 3, 1983, gage at site 45 ft downstream at datum 5.90 ft higher. Prior to March 17, 2004, gage at site on left bank at same datum.

REMARKS.--No estimated daily discharges. Records good. Minor regulation at Twin Falls and Weeks hydroelectric project, upstream from station. No diversions.

AVERAGE DISCHARGE.--23 years (water years 1964-65, 1984-2004), 436 $ft^3/s$, 89.81 in/yr, 315,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 10,800 $ft^3/s$, Nov. 24, 1990, gage height, 13.85 ft; minimum discharge, 23 $ft^3/s$, Sept. 28, 2001, result of regulation.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,150 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 16 | 1530 | 2,670 | 10.28 | Nov 29 | 0645 | 3,050 | 10.53 |
| Oct 21 | 0300 | 5,160 | 11.67 | Jan 29 | 2030 | 4,620 | 11.41 |
| Nov 18 | 1445 | *8,030 | *12.85 | | | | |

Minimum discharge, 44 $ft^3/s$, Oct. 6.

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 | 54 | 241 | 750 | 198 | 807 | 169 | 415 | 711 | 862 | 160 | 67 | 182 |
| 2 | 53 | 216 | 620 | 189 | 609 | 163 | 358 | 804 | 672 | 152 | 66 | 263 |
| 3 | 52 | 194 | 639 | 185 | 488 | 169 | 378 | 717 | 628 | 154 | 64 | 234 |
| 4 | 52 | 175 | 520 | 168 | 446 | 234 | 475 | 677 | 628 | 147 | 64 | 192 |
| 5 | 51 | 159 | 609 | 136 | 380 | 264 | 479 | 652 | 611 | 139 | 64 | 174 |
| 6 | 50 | 148 | 660 | 141 | 338 | 253 | 419 | 479 | 803 | 134 | 68 | 156 |
| 7 | 58 | 142 | 533 | 168 | 317 | 258 | 472 | 468 | 699 | 144 | 129 | 139 |
| 8 | 66 | 136 | 462 | 177 | 295 | 465 | 470 | 531 | 609 | 136 | 95 | 134 |
| 9 | 132 | 129 | 407 | 196 | 266 | 721 | 494 | 480 | 593 | 125 | 76 | 153 |
| 10 | 213 | 183 | 366 | 233 | 243 | 654 | 541 | 427 | 533 | 124 | 69 | 145 |
| 11 | 183 | 998 | 332 | 224 | 228 | 501 | 686 | 389 | 470 | 166 | 65 | 729 |
| 12 | 473 | 521 | 324 | 227 | 217 | 445 | 811 | 368 | 410 | 143 | 62 | 455 |
| 13 | 547 | 357 | 431 | 244 | 205 | 384 | 776 | 362 | 583 | 119 | 60 | 383 |
| 14 | 282 | 287 | 428 | 291 | 203 | 351 | 656 | 364 | 550 | 114 | 59 | 588 |
| 15 | 206 | 256 | 395 | 724 | 196 | 347 | 552 | 394 | 460 | 109 | 59 | 750 |
| 16 | 1,080 | 312 | 356 | 865 | 195 | 332 | 499 | 388 | 422 | 105 | 57 | 902 |
| 17 | 787 | 468 | 354 | 553 | 196 | 352 | 439 | 372 | 401 | 101 | 56 | 922 |
| 18 | 419 | 4,550 | 317 | 457 | 217 | 386 | 406 | 391 | 380 | 99 | 55 | 721 |
| 19 | 292 | 2,290 | 300 | 447 | 251 | 385 | 378 | 478 | 341 | 98 | 53 | 596 |
| 20 | 1,000 | 1,100 | 308 | 394 | 232 | 324 | 419 | 433 | 312 | 94 | 52 | 481 |
| 21 | 2,980 | 738 | 372 | 348 | 211 | 298 | 398 | 423 | 296 | 90 | 53 | 385 |
| 22 | 918 | 561 | 336 | 315 | 193 | 328 | 370 | 515 | 283 | 86 | 105 | 331 |
| 23 | 600 | 480 | 310 | 378 | 182 | 477 | 448 | 489 | 275 | 82 | 155 | 297 |
| 24 | 427 | 461 | 304 | 628 | 177 | 523 | 474 | 378 | 258 | 78 | 768 | 260 |
| 25 | 328 | 430 | 308 | 497 | 173 | 462 | 420 | 355 | 240 | 76 | 1,490 | 225 |
| 26 | 270 | 422 | 284 | 445 | 167 | 428 | 527 | 917 | 220 | 76 | 1,240 | 204 |
| 27 | 230 | 378 | 262 | 431 | 167 | 441 | 758 | 969 | 200 | 75 | 667 | 187 |
| 28 | 339 | 564 | 250 | 655 | 177 | 421 | 669 | 920 | 187 | 73 | 410 | 175 |
| 29 | 622 | 2,180 | 230 | 2,740 | 177 | 433 | 541 | 1,610 | 179 | 71 | 299 | 162 |
| 30 | 362 | 1,100 | 213 | 2,550 | --- | 555 | 569 | 1,470 | 171 | 70 | 237 | 153 |
| 31 | 282 | --- | 209 | 1,210 | --- | 525 | --- | 1,350 | --- | 69 | 199 | --- |
| TOTAL | 13,408 | 20,176 | 12,189 | 16,414 | 7,953 | 12,048 | 15,297 | 19,281 | 13,276 | 3,409 | 6,963 | 10,678 |
| MEAN | 433 | 673 | 393 | 529 | 274 | 389 | 510 | 622 | 443 | 110 | 225 | 356 |
| MAX | 2,980 | 4,550 | 750 | 2,740 | 807 | 721 | 811 | 1,610 | 862 | 166 | 1,490 | 922 |
| MIN | 50 | 129 | 209 | 136 | 167 | 163 | 358 | 355 | 171 | 69 | 52 | 134 |
| AC-FT | 26,590 | 40,020 | 24,180 | 32,560 | 15,770 | 23,900 | 30,340 | 38,240 | 26,330 | 6,760 | 13,810 | 21,180 |
| CFSM | 6.56 | 10.2 | 5.97 | 8.03 | 4.16 | 5.90 | 7.74 | 9.44 | 6.72 | 1.67 | 3.41 | 5.40 |
| IN. | 7.57 | 11.39 | 6.88 | 9.27 | 4.49 | 6.80 | 8.64 | 10.88 | 7.49 | 1.92 | 3.93 | 6.03 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1962 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 276 | 668 | 483 | 554 | 481 | 439 | 601 | 698 | 550 | 225 | 107 | 118 |
| MAX | 610 | 1,792 | 986 | 1,137 | 1,149 | 829 | 921 | 1,196 | 1,254 | 653 | 282 | 356 |
| (WY) | (1986) | (1991) | (2000) | (1984) | (1996) | (1997) | (1989) | (1997) | (1964) | (1964) | (1964) | (2004) |
| MIN | 44.1 | 99.2 | 138 | 180 | 179 | 255 | 357 | 321 | 132 | 89.2 | 53.2 | 50.9 |
| (WY) | (1988) | (1988) | (1986) | (1985) | (2001) | (1985) | (1986) | (1992) | (1992) | (2003) | (2003) | (1998) |

12143600 SOUTH FORK SNOQUALMIE RIVER AT EDGEWICK, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1962 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 149,840 | | 151,092 | | | |
| ANNUAL MEAN | 411 | | 413 | | 436 | |
| HIGHEST ANNUAL MEAN | | | | | 614 | 1997 |
| LOWEST ANNUAL MEAN | | | | | 276 | 2001 |
| HIGHEST DAILY MEAN | 4,880 | Jan 31 | 4,550 | Nov 18 | 9,520 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 43 | Sep 6 | 50 | Oct 6 | 42 | Oct 21, 1987 |
| ANNUAL SEVEN-DAY MINIMUM | 44 | Sep 1 | 53 | Oct 1 | 42 | Oct 21, 1987 |
| ANNUAL RUNOFF (AC-FT) | 297,200 | | 299,700 | | 315,600 | |
| ANNUAL RUNOFF (CFSM) | 6.23 | | 6.26 | | 6.61 | |
| ANNUAL RUNOFF (INCHES) | 84.58 | | 85.29 | | 89.81 | |
| 10 PERCENT EXCEEDS | 775 | | 732 | | 898 | |
| 50 PERCENT EXCEEDS | 308 | | 338 | | 308 | |
| 90 PERCENT EXCEEDS | 56 | | 85 | | 75 | |

## 12143700 BOXLEY CREEK NEAR CEDAR FALLS, WA

LOCATION.--Lat 47°25'58", long 121°45'04", in NE¼SW¼, sec.35, T.23 N., R.8 E., King County, Hydrologic Unit 17110012, on left bank 1.7 mi northeast of town of Cedar Falls, and 2.5 mi upstream from mouth.

DRAINAGE AREA.--1.57 $mi^2$.

PERIOD OF RECORD.--September 1945 to current year. Prior to October 1960 published in WSP 1932.

GAGE.--Water-stage recorder. Elevation of gage is 1,220 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. Flow is mostly seepage from Chester Morse Lake.

AVERAGE DISCHARGE.--59 years (water years 1946-2004), 23.8 $ft^3/s$, 17,230 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 189 $ft^3/s$, Dec. 19, 1977, gage height, 2.88 ft, maximum gage height, 3.52 ft, June 22, 2004; no flow at times during water years 1967, 1968, and 1988.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 128 $ft^3/s$, June 22, gage height, 3.52 ft; minimum discharge, 0.51 $ft^3/s$, Nov. 4-10.

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 | 1.2 | 0.67 | 6.8 | 13 | 6.0 | 17 | 11 | 15 | 30 | 95 | 40 | 22 |
| 2 | 1.1 | 0.58 | 7.5 | 12 | 5.7 | 16 | 11 | 15 | 30 | 92 | 39 | 22 |
| 3 | 1.0 | 0.58 | 8.3 | 12 | 5.5 | 16 | 10 | 15 | 32 | 89 | 38 | 22 |
| 4 | 1.0 | 0.55 | 9.6 | 12 | 5.4 | 16 | 10 | 16 | 35 | 86 | 37 | 22 |
| 5 | 1.0 | 0.51 | 11 | 11 | 5.2 | 16 | 10 | 17 | 41 | 84 | 36 | 22 |
| 6 | 0.96 | 0.51 | 12 | 11 | 5.3 | 16 | 10 | 17 | 46 | 82 | 36 | 22 |
| 7 | 0.96 | 0.51 | 13 | 11 | 5.5 | 15 | 10 | 18 | 53 | 79 | 34 | 22 |
| 8 | 0.93 | 0.51 | 13 | 11 | 5.6 | 15 | 10 | 18 | 59 | 77 | 33 | 22 |
| 9 | 0.94 | 0.51 | 14 | 11 | 6.2 | 15 | 10 | 19 | 66 | 73 | 33 | 22 |
| 10 | 0.91 | 0.72 | 15 | 10 | 6.9 | 15 | 10 | 19 | 75 | 70 | 32 | 22 |
| 11 | 0.85 | 0.74 | 15 | 10 | 7.9 | 14 | 11 | 20 | 79 | 67 | 31 | 22 |
| 12 | 0.89 | 0.73 | 17 | 9.6 | 9.1 | 14 | 11 | 21 | 81 | 65 | 31 | 22 |
| 13 | 0.95 | 0.73 | 17 | 9.6 | 10 | 14 | 11 | 21 | 88 | 64 | 30 | 22 |
| 14 | 0.81 | 0.78 | 17 | 9.6 | 11 | 13 | 11 | 22 | 95 | 61 | 29 | 22 |
| 15 | 0.81 | 0.92 | 17 | 9.5 | 12 | 13 | 11 | 22 | 101 | 59 | 29 | 22 |
| 16 | 0.98 | 1.3 | 17 | 9.2 | 13 | 13 | 11 | 23 | 105 | 58 | 29 | 22 |
| 17 | 0.84 | 1.7 | 17 | 8.7 | 14 | 12 | 11 | 24 | 108 | 56 | 28 | 22 |
| 18 | 0.81 | 2.5 | 17 | 8.2 | 15 | 12 | 11 | 24 | 113 | 55 | 28 | 22 |
| 19 | 0.81 | 2.5 | 17 | 7.7 | 16 | 12 | 11 | 25 | 116 | 53 | 27 | 22 |
| 20 | 1.4 | 2.4 | 17 | 7.3 | 16 | 12 | 12 | 26 | 118 | 52 | 26 | 22 |
| 21 | 1.6 | 2.4 | 17 | 7.1 | 17 | 12 | 12 | 26 | 120 | 51 | 26 | 22 |
| 22 | 1.3 | 2.7 | 16 | 6.8 | 17 | 11 | 12 | 27 | 120 | 50 | 26 | 22 |
| 23 | 1.2 | 3.2 | 16 | 6.8 | 17 | 11 | 12 | 27 | 115 | 49 | 25 | 22 |
| 24 | 1.0 | 3.5 | 16 | 6.7 | 17 | 11 | 13 | 27 | 113 | 48 | 25 | 22 |
| 25 | 0.95 | 3.8 | 15 | 6.5 | 17 | 11 | 13 | 28 | 110 | 47 | 25 | 22 |
| 26 | 0.85 | 3.8 | 15 | 6.5 | 17 | 11 | 13 | 28 | 108 | 46 | 24 | 22 |
| 27 | 0.81 | 4.3 | 14 | 6.1 | 17 | 11 | 13 | 28 | 107 | 44 | 23 | 22 |
| 28 | 0.89 | 4.9 | 14 | 6.1 | 17 | 11 | 14 | 29 | 103 | 43 | 22 | 22 |
| 29 | 0.82 | 5.6 | 14 | 6.9 | 17 | 11 | 14 | 29 | 102 | 42 | 22 | 22 |
| 30 | 0.79 | 6.1 | 13 | 6.9 | --- | 11 | 15 | 29 | 99 | 42 | 22 | 22 |
| 31 | 0.73 | --- | 13 | 6.4 | --- | 11 | --- | 29 | --- | 41 | 22 | --- |
| TOTAL | 30.09 | 60.25 | 441.2 | 276.2 | 334.3 | 408 | 344 | 704 | 2,568 | 1,920 | 908 | 660 |
| MEAN | 0.97 | 2.01 | 14.2 | 8.91 | 11.5 | 13.2 | 11.5 | 22.7 | 85.6 | 61.9 | 29.3 | 22.0 |
| MAX | 1.6 | 6.1 | 17 | 13 | 17 | 17 | 15 | 29 | 120 | 95 | 40 | 22 |
| MIN | 0.73 | 0.51 | 6.8 | 6.1 | 5.2 | 11 | 10 | 15 | 30 | 41 | 22 | 22 |
| AC-FT | 60 | 120 | 875 | 548 | 663 | 809 | 682 | 1,400 | 5,090 | 3,810 | 1,800 | 1,310 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 4.16 | 7.75 | 22.8 | 25.0 | 25.6 | 21.4 | 18.4 | 31.4 | 49.9 | 43.1 | 25.2 | 10.4 |
| MAX | 34.5 | 78.4 | 94.5 | 79.1 | 103 | 79.5 | 68.3 | 82.2 | 129 | 93.0 | 74.8 | 40.3 |
| (WY) | (1960) | (1948) | (1991) | (1950) | (1953) | (1950) | (1950) | (1993) | (1946) | (1993) | (1955) | (1955) |
| MIN | 0.09 | 0.01 | 0.11 | 0.25 | 0.34 | 0.16 | 1.21 | 3.37 | 7.58 | 11.0 | 2.18 | 0.29 |
| (WY) | (1988) | (1988) | (1988) | (2003) | (2001) | (2001) | (1962) | (1999) | (1963) | (1978) | (1992) | (1987) |

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1945 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 7,484.16 | | 8,654.04 | | | |
| ANNUAL MEAN | 20.5 | | 23.6 | | 23.8 | |
| HIGHEST ANNUAL MEAN | | | | | 51.9 | 1950 |
| LOWEST ANNUAL MEAN | | | | | 6.75 | 1977 |
| HIGHEST DAILY MEAN | 74 | Mar 31 | 120 | Jun 21 | 177 | Dec 1, 1990 |
| LOWEST DAILY MEAN | 0.13 | Jan 20 | 0.51 | Nov 5 | 0.00 | Oct 31, 1966 |
| ANNUAL SEVEN-DAY MINIMUM | 0.15 | Jan 15 | 0.53 | Nov 3 | 0.00 | Oct 31, 1966 |
| ANNUAL RUNOFF (AC-FT) | 14,840 | | 17,170 | | 17,230 | |
| 10 PERCENT EXCEEDS | 45 | | 60 | | 59 | |
| 50 PERCENT EXCEEDS | 16 | | 15 | | 16 | |
| 90 PERCENT EXCEEDS | 0.51 | | 0.99 | | 1.2 | |

## 12143800 RATTLESNAKE LAKE AT CEDAR FALLS, WA

LOCATION.--Lat 47°25'39", long 121°46'29", in SW¼SW¼, sec.34, T.23 N., R.8 E., King County, Hydrologic Unit 17110012, on southeast shore, and 0.6 mi northeast of town of Cedar Falls.

DRAINAGE AREA.--1.86 $mi^2$.

PERIOD OF RECORD.--November to December 1945 (fragmentary), January 1953 to current year. Extremes prior to October 1960 published in WSP 1932 and daily gage heights are available in files of the U.S. Geological Survey.

GAGE.--Nonrecording gage. Datum of gage is 7.25 ft above NGVD of 1929 (levels by City of Seattle).

REMARKS.--No diversions. Inflow is mostly seepage from Chester Morse Lake. Most outflow from lake is seepage; however, when the lake level exceeds 906 ft gage height, surface-water discharge flows through Rattlesnake Ditch toward Boxley Creek.

COOPERATION.--Gage readings furnished by City of Seattle Water Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height observed, 911.80 ft, Nov. 25, 26, 1959; minimum observed, 852.80 ft, Jan. 9, 1953, but may have been less during Dec. 13, 1965, to Jan. 3, 1966, and Nov. 10 to Dec. 23, 1970, when water was below gage.

EXTREMES FOR CURRENT YEAR.--Maximum gage height observed, 905.37 ft, July 11; minimum, 872.26 ft, Nov. 19.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY OBSERVATION AT 0800 HOURS

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 885.50 | 877.21 | 876.68 | 895.25 | 899.98 | 900.08 | 899.07 | 896.21 | 899.57 | 904.81 | 904.05 | 902.66 |
| 2 | 885.16 | 876.88 | 877.70 | 895.42 | 900.25 | 900.08 | 898.94 | 896.18 | 899.82 | 904.93 | 903.96 | 902.68 |
| 3 | 884.78 | 876.48 | 878.76 | 895.51 | 900.35 | 900.12 | 898.82 | 896.17 | 900.20 | 905.02 | 903.88 | 902.60 |
| 4 | 884.40 | 876.08 | 879.50 | 895.62 | 900.41 | 900.25 | 898.70 | 896.17 | 900.16 | 905.11 | 903.81 | 902.53 |
| 5 | 884.00 | 875.72 | 880.66 | 895.70 | 900.37 | 900.30 | 898.58 | 896.19 | 900.29 | 905.15 | 903.71 | 902.45 |
| 6 | 883.60 | 875.30 | 881.68 | 895.80 | 900.34 | 900.40 | 898.48 | 896.21 | 900.48 | 905.18 | 903.64 | 902.36 |
| 7 | 883.26 | 874.80 | 882.45 | 895.80 | 900.28 | 900.48 | 898.37 | 896.24 | 900.58 | 905.26 | 903.64 | 902.25 |
| 8 | 882.88 | 874.50 | 883.20 | 895.90 | 900.22 | 900.54 | 898.22 | 896.29 | 900.70 | 905.30 | 903.55 | 902.14 |
| 9 | 882.60 | 874.21 | 884.00 | 896.00 | 900.12 | 900.62 | 898.09 | 896.36 | 900.81 | 905.33 | 903.46 | 902.06 |
| 10 | 882.30 | 873.88 | 884.75 | 896.20 | 900.02 | 900.68 | 897.98 | 896.40 | 900.95 | 905.33 | 903.38 | 901.96 |
| 11 | 881.96 | 873.66 | 885.51 | 896.24 | 899.90 | 900.71 | 897.80 | 896.49 | 901.09 | 905.37 | 903.30 | 902.00 |
| 12 | 881.64 | 873.64 | 886.30 | 896.30 | 899.85 | 900.71 | 897.71 | 896.55 | 901.27 | 905.35 | 903.21 | 901.94 |
| 13 | 881.32 | 873.50 | 887.04 | 896.34 | 899.70 | 900.70 | 897.59 | 896.65 | 901.50 | 905.30 | 903.12 | 901.91 |
| 14 | 881.00 | 873.14 | 887.80 | 896.36 | 899.66 | 900.66 | 897.49 | 896.71 | 901.70 | 905.28 | 903.04 | 901.88 |
| 15 | 880.65 | 872.80 | 888.50 | 896.51 | 899.58 | 900.62 | 897.42 | 896.77 | 901.92 | 905.22 | 902.94 | 901.89 |
| 16 | 880.48 | 872.52 | 889.16 | 896.72 | 899.50 | 900.54 | 897.33 | 896.86 | 902.14 | 905.19 | 902.84 | 901.84 |
| 17 | 880.22 | 872.28 | 889.84 | 896.85 | 899.48 | 900.46 | 897.24 | 896.94 | 902.36 | 905.14 | 902.74 | 902.05 |
| 18 | 879.88 | 872.28 | 890.42 | 897.08 | 899.54 | 900.41 | 897.14 | 897.02 | 902.60 | 905.07 | 902.65 | 902.05 |
| 19 | 879.50 | 872.26 | 891.00 | 897.23 | 899.57 | 900.39 | 897.02 | 897.07 | 902.81 | 905.02 | 902.55 | 902.14 |
| 20 | 879.22 | 872.42 | 891.53 | 897.29 | 899.59 | 900.35 | 896.96 | 897.15 | 903.02 | 904.96 | 902.47 | 902.20 |
| 21 | 879.52 | 872.41 | 892.00 | 897.30 | 899.62 | 900.30 | 896.87 | 897.24 | 903.24 | 904.89 | 902.37 | 902.29 |
| 22 | 879.33 | 872.42 | 892.40 | 897.27 | 899.75 | 900.12 | 896.75 | 897.33 | 903.42 | 904.80 | 902.36 | 902.37 |
| 23 | 879.25 | 872.50 | 892.80 | 897.30 | 899.70 | 899.98 | 896.66 | 897.49 | 903.62 | 904.75 | 902.40 | 902.46 |
| 24 | 879.12 | 872.66 | 893.20 | 897.34 | 899.78 | 899.90 | 896.58 | 897.56 | 903.80 | 904.66 | 902.46 | 902.51 |
| 25 | 879.96 | 872.89 | 893.56 | 897.38 | 899.85 | 899.83 | 896.49 | 897.64 | 903.98 | 904.57 | 902.56 | 902.55 |
| 26 | 879.76 | 873.34 | 893.88 | 897.46 | 899.87 | 899.75 | 896.41 | 897.80 | 904.16 | 904.49 | 902.63 | 902.55 |
| 27 | 878.52 | 873.86 | 894.15 | 897.53 | 899.90 | 899.64 | 896.35 | 898.02 | 904.32 | 904.42 | 902.68 | 902.55 |
| 28 | 878.30 | 874.02 | 894.40 | 897.64 | 900.00 | 899.52 | 896.34 | 898.27 | 904.46 | 904.35 | 902.72 | 902.65 |
| 29 | 878.08 | 874.80 | 894.65 | 897.96 | 900.04 | 899.40 | 896.28 | 898.58 | 904.60 | 904.27 | 902.74 | 902.52 |
| 30 | 877.82 | 875.68 | 894.90 | 898.68 | --- | 899.28 | 896.25 | 898.91 | 904.72 | 904.18 | 902.73 | 902.49 |
| 31 | 877.54 | --- | 895.06 | 899.44 | --- | 899.19 | --- | 899.30 | --- | 904.11 | 902.70 | --- |
| MAX | 885.50 | 877.21 | 895.06 | 899.44 | 900.41 | 900.71 | 899.07 | 899.30 | 904.72 | 905.37 | 904.05 | 902.68 |
| MIN | 877.54 | 872.26 | 876.68 | 895.25 | 899.48 | 899.19 | 896.25 | 896.17 | 899.57 | 904.11 | 902.36 | 901.84 |

CAL YR 2003 MAX 907.97 MIN 865.46
WTR YR 2004 MAX 905.37 MIN 872.26

## 12143900 BOXLEY CREEK NEAR EDGEWICK, WA

LOCATION.--Lat 47°26'56", long 121°43'50", in SW¼SE¼NW¼, sec.25, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 4.0 mi southeast of North Bend, and at mile 0.9.

DRAINAGE AREA.--3.64 $mi^2$.

PERIOD OF RECORD.--August 1981 to current year.

REVISED RECORDS.--WDR WA-90-1: 1982 (M), 1988 (M).

GAGE.--Water-stage recorder. Elevation of gage is 650 ft above NGVD of 1929, from topographic map.

REMARKS.--Records fair. Many small diversions for domestic use upstream from station. No regulation; flow is mostly seepage from Chester Morse Lake. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--23 years (water years 1982-2004), 41.2 $ft^3/s$, 29,860 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 256 $ft^3/s$, Dec. 3, 1995, gage height, 5.20 ft; minimum discharge, 8.3 $ft^3/s$, Nov. 10, 1986.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 134 $ft^3/s$, June 20-22, gage height, 4.70 ft; minimum discharge, 12 $ft^3/s$, Oct. 13-16, gage height, 3.94 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 | 15 | 16 | 23 | 26 | 32 | 31 | 31 | 31 | 48 | 103 | 47 | 39 |
| 2 | 14 | 15 | 23 | 26 | 32 | 30 | 31 | 32 | 47 | 104 | 47 | 42 |
| 3 | 14 | 15 | 24 | 26 | 32 | 32 | 30 | 32 | 48 | 104 | 47 | 38 |
| 4 | 14 | 14 | 24 | 26 | 32 | 33 | 30 | 32 | 52 | 104 | 47 | 38 |
| 5 | 14 | 14 | 26 | 25 | 32 | 33 | 30 | 32 | 58 | 103 | 46 | 37 |
| 6 | 14 | 14 | 26 | 25 | 32 | 31 | 30 | 31 | 69 | 100 | 47 | 37 |
| 7 | 14 | 13 | 26 | 25 | 32 | 32 | 30 | 31 | 73 | 97 | 47 | 36 |
| 8 | 15 | 13 | 26 | 26 | 32 | 31 | 30 | 31 | 78 | 95 | 47 | 36 |
| 9 | 15 | 13 | 26 | 26 | 32 | 31 | 30 | 31 | 83 | 92 | 47 | 37 |
| 10 | 15 | 19 | 26 | 26 | 32 | 31 | 30 | 31 | 89 | 90 | 47 | 36 |
| 11 | 14 | 15 | 26 | 25 | 32 | 31 | 30 | 31 | 93 | 86 | 47 | 44 |
| 12 | 15 | 13 | 26 | 25 | 32 | 31 | 29 | 31 | 100 | 84 | 48 | 44 |
| 13 | 13 | 13 | 27 | 25 | 32 | 31 | 29 | 31 | 101 | 81 | 48 | 41 |
| 14 | 12 | 13 | 25 | 26 | 32 | 31 | 30 | 31 | 99 | 79 | 49 | 39 |
| 15 | 13 | 13 | 26 | 26 | 32 | 31 | 29 | 32 | 102 | 77 | 50 | 41 |
| 16 | e20 | 17 | 26 | 26 | 31 | 31 | 30 | 33 | 108 | 76 | 51 | 40 |
| 17 | 15 | 16 | 26 | 26 | 31 | 31 | 30 | 37 | 115 | 74 | 52 | 41 |
| 18 | 13 | 27 | 26 | 26 | 31 | 31 | 30 | 39 | 121 | 74 | 52 | 40 |
| 19 | 13 | 26 | 26 | 25 | 32 | 30 | 30 | 41 | 124 | 73 | 51 | 39 |
| 20 | e26 | 21 | 26 | 25 | 32 | 31 | 31 | 44 | 130 | 72 | 50 | 38 |
| 21 | e31 | 22 | 26 | 24 | 32 | 31 | 31 | 45 | 129 | 71 | 46 | 38 |
| 22 | 27 | 20 | 26 | 23 | 32 | 31 | 31 | 47 | 120 | 70 | 50 | 38 |
| 23 | 25 | 21 | 25 | 25 | 33 | 31 | 31 | 47 | 124 | 69 | 48 | 37 |
| 24 | 22 | 20 | 25 | 26 | 33 | 31 | 31 | 47 | 123 | 67 | 51 | 36 |
| 25 | 20 | 22 | 25 | 26 | 33 | 31 | 31 | 48 | 122 | 67 | 51 | 36 |
| 26 | 19 | 22 | 25 | 26 | 32 | 31 | 31 | 49 | 113 | 66 | 50 | 36 |
| 27 | 18 | 21 | 25 | 25 | 32 | 31 | 32 | 49 | 109 | 64 | 46 | 36 |
| 28 | 21 | 23 | 25 | 26 | 33 | 31 | 32 | 50 | 110 | 62 | 44 | 35 |
| 29 | 21 | 26 | 25 | 42 | 32 | 31 | 32 | 50 | 107 | 56 | 43 | 35 |
| 30 | 18 | 24 | 25 | 43 | --- | 31 | 32 | 48 | 105 | 50 | 41 | 34 |
| 31 | 16 | --- | 25 | 32 | --- | 31 | --- | 47 | --- | 48 | 40 | --- |
| TOTAL | 536 | 541 | 787 | 830 | 929 | 965 | 914 | 1,191 | 2,900 | 2,458 | 1,477 | 1,144 |
| MEAN | 17.3 | 18.0 | 25.4 | 26.8 | 32.0 | 31.1 | 30.5 | 38.4 | 96.7 | 79.3 | 47.6 | 38.1 |
| MAX | 31 | 27 | 27 | 43 | 33 | 33 | 32 | 50 | 130 | 104 | 52 | 44 |
| MIN | 12 | 13 | 23 | 23 | 31 | 30 | 29 | 31 | 47 | 48 | 40 | 34 |
| AC-FT | 1,060 | 1,070 | 1,560 | 1,650 | 1,840 | 1,910 | 1,810 | 2,360 | 5,750 | 4,880 | 2,930 | 2,270 |
| CFSM | 4.75 | 4.95 | 6.97 | 7.36 | 8.80 | 8.55 | 8.37 | 10.6 | 26.6 | 21.8 | 13.1 | 10.5 |
| IN. | 5.48 | 5.53 | 8.04 | 8.48 | 9.49 | 9.86 | 9.34 | 12.17 | 29.64 | 25.12 | 15.09 | 11.69 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 20.6 | 24.1 | 35.4 | 36.9 | 43.0 | 43.5 | 43.2 | 53.1 | 67.3 | 59.4 | 40.7 | 27.6 |
| MAX | 33.9 | 62.4 | 121 | 65.0 | 93.1 | 114 | 85.7 | 113 | 106 | 108 | 76.9 | 42.0 |
| (WY) | (1991) | (1991) | (1991) | (1991) | (1996) | (1982) | (1988) | (1988) | (1993) | (1993) | (1993) | (1997) |
| MIN | 11.0 | 11.9 | 12.9 | 11.4 | 15.0 | 13.0 | 13.6 | 20.9 | 29.8 | 22.9 | 16.4 | 12.2 |
| (WY) | (1988) | (1988) | (1988) | (1988) | (1988) | (2001) | (2001) | (1999) | (1992) | (1992) | (1992) | (1987) |

12143900 BOXLEY CREEK NEAR EDGEWICK, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1982 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 14,568 | | 14,672 | | | |
| ANNUAL MEAN | 39.9 | | 40.1 | | 41.2 | |
| HIGHEST ANNUAL MEAN | | | | | 66.6 | 1991 |
| LOWEST ANNUAL MEAN | | | | | 28.1 | 1992 |
| HIGHEST DAILY MEAN | 98 | Mar 31 | 130 | Jun 20 | 247 | Dec 4, 1995 |
| LOWEST DAILY MEAN | 11 | Jan 20 | 12 | Oct 14 | 8.6 | Nov 10, 1986 |
| ANNUAL SEVEN-DAY MINIMUM | 13 | Jan 15 | 14 | Nov 3 | 10 | Jan 2, 1988 |
| ANNUAL RUNOFF (AC-FT) | 28,900 | | 29,100 | | 29,860 | |
| ANNUAL RUNOFF (CFSM) | 11.0 | | 11.0 | | 11.3 | |
| ANNUAL RUNOFF (INCHES) | 148.88 | | 149.94 | | 153.83 | |
| 10 PERCENT EXCEEDS | 75 | | 78 | | 74 | |
| 50 PERCENT EXCEEDS | 28 | | 31 | | 34 | |
| 90 PERCENT EXCEEDS | 15 | | 18 | | 17 | |

e Estimated

## 12144000 SOUTH FORK SNOQUALMIE RIVER AT NORTH BEND, WA

LOCATION.--Lat 47°29'35", long 121°47'20", in SW¼NE¼, sec.9, T.23 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank on upstream side of Bendigo Street crossing at North Bend, and at mile 2.0.

DRAINAGE AREA.--81.7 $mi^2$.

PERIOD OF RECORD.--July 1907 to September 1926, February 1929 to September 1938, June 1945 to April 1950, October 1960 to August 1974, February 1984 to current year. Monthly and yearly discharge only for water years 1908, 1910 and 1913, published in WSP 1316.

REVISED RECORDS.--WSP 1316: 1918-19(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 423.01 ft above NGVD of 1929 (February 1984 through September 1996 incorrectly published as 439.33 ft). Prior to Apr. 11, 1950, nonrecording gage or water-stage recorder at several sites within 0.5 mi upstream from present site at various datums. Oct. 1, 1960 to Mar. 10, 1965, at site 0.46 mi upstream at datum 1.86 ft lower. Mar. 10, 1965 to Aug. 31, 1974, at site 0.46 mi upstream at datum 6.86 ft lower.

REMARKS.--Records good, except for estimated daily discharges, which are fair. City of North Bend diverts about 0.8 $ft^3/s$ daily from Clough Creek for municipal use. Minor regulation at Twin Falls and Weeks Falls projects upstream from station.

AVERAGE DISCHARGE.--65 years (water years 1908-26, 1930-38, 1946-49, 1961-73, 1985-2004), 548 $ft^3/s$, 91.17 in/yr, 397,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge recorded, 10,900 $ft^3/s$, Nov. 24, 1990, gage height, 19.09 ft, from rating curve extended above 3,900 $ft^3/s$; minimum discharge, 63 $ft^3/s$, Oct. 22, 1925.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 22, 1959, reached a stage of 14.49 ft, site and datum then in use, from floodmarks, discharge, 13,000 $ft^3/s$, slope-area measurement.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,200 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 16 | 1545 | 2,630 | 11.24 | Nov 29 | 0645 | 3,630 | 12.25 |
| Oct 21 | 0300 | 5,720 | 14.30 | Jan 29 | 2145 | 5,290 | 13.87 |
| Nov 18 | 1515 | *8,520 | *16.86 | | | | |

Minimum discharge, 82 $ft^3/s$, Oct. 6.

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 | 319 | 926 | 278 | 1,110 | 310 | 513 | 766 | 930 | 291 | 159 | e291 |
| 2 | 90 | 294 | 762 | 271 | 867 | 302 | 455 | 861 | 741 | 282 | 157 | e359 |
| 3 | 89 | 275 | 791 | 267 | 717 | 315 | 465 | 784 | 687 | 281 | 154 | e314 |
| 4 | 88 | 256 | 629 | 251 | 665 | 380 | 557 | 747 | 684 | 273 | 153 | e274 |
| 5 | 88 | 240 | 728 | 224 | 570 | 415 | 565 | 727 | 680 | 262 | 152 | e251 |
| 6 | 87 | 228 | 784 | 225 | 518 | 404 | 502 | 556 | 866 | 255 | 158 | e234 |
| 7 | 92 | 219 | 639 | 239 | 491 | 405 | 550 | 533 | 782 | 264 | 207 | e219 |
| 8 | 103 | 213 | 556 | 251 | 460 | 599 | 550 | 596 | 695 | 253 | 181 | e211 |
| 9 | 156 | 206 | 491 | 272 | 427 | 878 | 571 | 549 | 681 | 242 | 161 | e219 |
| 10 | 241 | 252 | 447 | 311 | 404 | 822 | 609 | 497 | 629 | 241 | 153 | e212 |
| 11 | 232 | 1,050 | 411 | 304 | 382 | 647 | 745 | 461 | 574 | 273 | 149 | e803 |
| 12 | 473 | 588 | 407 | 306 | 368 | 581 | 881 | 440 | 519 | 251 | 145 | e541 |
| 13 | 570 | 409 | 532 | 318 | 357 | 505 | 845 | 434 | 680 | 230 | 143 | e441 |
| 14 | 321 | 345 | 537 | 355 | 359 | 467 | 735 | 433 | 660 | 223 | 141 | e648 |
| 15 | 252 | 318 | 487 | 797 | 351 | 459 | 635 | 460 | 574 | 217 | 140 | e800 |
| 16 | 1,090 | 365 | 444 | 988 | 353 | 442 | 577 | 455 | 536 | 211 | 138 | e988 |
| 17 | 861 | 521 | 436 | 629 | 351 | 454 | 517 | 441 | 519 | 205 | 136 | e1,030 |
| 18 | 458 | 5,000 | 397 | 521 | 371 | 491 | 481 | 451 | 499 | 203 | 135 | e846 |
| 19 | 334 | 3,050 | 381 | 503 | 402 | 491 | 453 | 535 | 463 | 200 | 132 | e672 |
| 20 | 1,110 | 1,470 | 387 | 447 | 386 | 431 | 491 | 499 | 437 | 196 | 132 | e550 |
| 21 | 3,460 | 989 | 438 | 403 | 361 | 403 | 473 | 491 | 422 | 193 | 133 | e460 |
| 22 | 1,140 | 740 | 402 | 376 | 343 | 423 | 443 | 577 | 411 | 188 | 185 | e410 |
| 23 | 739 | 625 | 379 | 442 | 333 | 561 | 516 | 563 | 405 | 184 | 233 | e370 |
| 24 | 519 | 605 | 379 | 710 | 326 | 627 | 546 | 452 | 392 | 179 | 797 | e345 |
| 25 | 408 | 574 | 381 | 576 | 319 | 571 | 487 | 430 | 375 | 176 | 1,470 | e315 |
| 26 | 349 | 558 | 360 | 538 | 313 | 537 | 581 | 923 | 356 | 174 | e1,250 | e295 |
| 27 | 314 | 498 | 341 | 510 | 313 | 543 | 814 | 1,020 | 336 | 171 | e720 | e275 |
| 28 | 396 | 711 | 332 | 757 | 321 | 521 | 740 | 985 | 322 | 168 | e480 | e265 |
| 29 | 713 | 2,670 | 311 | 3,310 | 320 | 522 | 610 | 1,590 | 312 | 165 | e380 | e250 |
| 30 | 429 | 1,360 | 293 | 3,160 | --- | 650 | 627 | 1,460 | 302 | 163 | e362 | e240 |
| 31 | 353 | --- | 288 | 1,580 | --- | 626 | --- | 1,360 | --- | 162 | e308 | --- |
| TOTAL | 15,645 | 24,948 | 15,076 | 20,119 | 12,858 | 15,782 | 17,534 | 21,076 | 16,469 | 6,776 | 9,344 | 13,128 |
| MEAN | 505 | 832 | 486 | 649 | 443 | 509 | 584 | 680 | 549 | 219 | 301 | 438 |
| MAX | 3,460 | 5,000 | 926 | 3,310 | 1,110 | 878 | 881 | 1,590 | 930 | 291 | 1,470 | 1,030 |
| MIN | 87 | 206 | 288 | 224 | 313 | 302 | 443 | 430 | 302 | 162 | 132 | 211 |
| AC-FT | 31,030 | 49,480 | 29,900 | 39,910 | 25,500 | 31,300 | 34,780 | 41,800 | 32,670 | 13,440 | 18,530 | 26,040 |
| CFSM | 6.18 | 10.2 | 5.95 | 7.94 | 5.43 | 6.23 | 7.15 | 8.32 | 6.72 | 2.68 | 3.69 | 5.36 |
| IN. | 7.12 | 11.36 | 6.86 | 9.16 | 5.85 | 7.19 | 7.98 | 9.60 | 7.50 | 3.09 | 4.25 | 5.98 |

12144000 SOUTH FORK SNOQUALMIE RIVER AT NORTH BEND, WA—Continued

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

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1907 - 2004, BY WATER YEAR (WY) | | | | | | | | | | | | |
| MEAN | 333 | 647 | 692 | 713 | 626 | 599 | 700 | 850 | 741 | 354 | 173 | 175 |
| MAX | 843 | 2,164 | 2,267 | 1,579 | 1,398 | 1,516 | 1,171 | 1,313 | 1,763 | 940 | 405 | 438 |
| (WY) | (1934) | (1991) | (1934) | (1934) | (1996) | (1972) | (1932) | (1997) | (1974) | (1974) | (1964) | (2004) |
| MIN | 76.5 | 92.4 | 213 | 218 | 178 | 190 | 352 | 354 | 210 | 100 | 84.8 | 76.8 |
| (WY) | (1988) | (1930) | (1931) | (1937) | (1922) | (1922) | (1967) | (1915) | (1992) | (1926) | (1910) | (1910) |

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1907 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 192,241 | | 188,755 | | | |
| ANNUAL MEAN | 527 | | 516 | | 548 | |
| HIGHEST ANNUAL MEAN | | | | | 809 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 334 | 1915 |
| HIGHEST DAILY MEAN | 5,600 | Jan 31 | 5,000 | Nov 18 | 10,100 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 82 | Sep 5 | 87 | Oct 6 | 65 | Oct 22, 1925 |
| ANNUAL SEVEN-DAY MINIMUM | 83 | Sep 1 | 89 | Oct 1 | 66 | Oct 17, 1925 |
| ANNUAL RUNOFF (AC-FT) | 381,300 | | 374,400 | | 397,100 | |
| ANNUAL RUNOFF (CFSM) | 6.45 | | 6.31 | | 6.71 | |
| ANNUAL RUNOFF (INCHES) | 87.53 | | 85.94 | | 91.17 | |
| 10 PERCENT EXCEEDS | 966 | | 829 | | 1,040 | |
| 50 PERCENT EXCEEDS | 396 | | 432 | | 435 | |
| 90 PERCENT EXCEEDS | 99 | | 180 | | 132 | |

e Estimated

## 12144500 SNOQUALMIE RIVER NEAR SNOQUALMIE, WA

LOCATION.--Lat 47°32'43", long 121°50'28", in SW¼SW¼, sec.19, T.24 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 0.3 mi downstream from Snoqualmie Falls, 0.4 mi upstream from Tokul Creek, 1.5 mi northwest of Snoqualmie, and at mile 40.0.

DRAINAGE AREA.--375 $mi^2$.

PERIOD OF RECORD.--May 1898 to July 1899; August to September 1899 (monthly discharge only); January to July 1900, September 1902 to July 1904; August to September 1904 (monthly discharge only); October 1904 to September 1905 and November to December 1906 (gage heights only); August 1907 to May 1926 (monthly discharge only); June 1926 to September 1927; October 1927 to September 1932 (monthly discharge only); August 1958 to current year. Published as "near Snoqualmie Falls" 1904-06.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 120 ft above NGVD of 1929, from river-profile map. Prior to Nov. 3, 1902, and Nov. 1 to Dec. 31, 1906, nonrecording gages upstream and downstream from Snoqualmie Falls at different datum. Nov. 3, 1902, to Sept. 30, 1905, nonrecording gage at site 4 mi upstream and 300 ft downstream from South Fork, at different datum. Prior to Sept. 9, 1999, at site on opposite bank, at same datum.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Medium and low flows affected by powerplant 0.1 mi upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--74 years (water years 1899, 1903-04, 1908-32, 1959-2004), 2,594 $ft^3/s$, 93.94 in/yr, 1,879,000 acre-ft/yr, includes monthly discharge figures, see PERIOD OF RECORD. 46 years (water years 1959-2004), 2,683 $ft^3/s$, 97.21 in/yr, 1,944,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 78,800 $ft^3/s$, Nov. 24, 1990, gage height, 21.55 ft, from inside high-water mark; minimum discharge, 9.7 $ft^3/s$, Aug. 14, 27, 1958, gage height, -0.53 ft; minimum daily discharge, 88 $ft^3/s$, Aug. 8, 1960.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 29,200 $ft^3/s$, Oct. 21, gage height, 15.74 ft; minimum discharge, 164 $ft^3/s$, July 6.

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 | 419 | 1,730 | 4,360 | 1,050 | 4,840 | 1,310 | 2,360 | 3,170 | 4,510 | 1,280 | 505 | 1,270 |
| 2 | 405 | 1,460 | 3,810 | 1,010 | 3,760 | 1,240 | 2,060 | 3,660 | 3,540 | 1,220 | 493 | 2,240 |
| 3 | 396 | 1,250 | 4,980 | 977 | 3,090 | 1,270 | 1,990 | 3,430 | 3,270 | 1,210 | 467 | 1,880 |
| 4 | 385 | 1,110 | 3,490 | 914 | 2,930 | 1,920 | 2,330 | 3,210 | 3,450 | 1,240 | 468 | 1,470 |
| 5 | 385 | 1,010 | 4,000 | 806 | 2,600 | 2,000 | 2,390 | 3,440 | 3,490 | 1,110 | 456 | e1,300 |
| 6 | 380 | 931 | 4,470 | 811 | 2,360 | 2,040 | 2,160 | 2,630 | 5,090 | 1,070 | 473 | e1,200 |
| 7 | 402 | 878 | 3,380 | 936 | 2,340 | 2,130 | 2,290 | 2,390 | 4,220 | 1,330 | 780 | e1,050 |
| 8 | 475 | 837 | 2,810 | 1,370 | 2,220 | 4,140 | 2,280 | 2,840 | 3,510 | 1,210 | 783 | 936 |
| 9 | 878 | 796 | 2,400 | 1,840 | 2,010 | 4,900 | 2,290 | 2,610 | 3,240 | 1,040 | 599 | 1,050 |
| 10 | 1,330 | 901 | 2,070 | 2,550 | 1,850 | 4,130 | 2,460 | 2,350 | 3,230 | 983 | 532 | 1,130 |
| 11 | 1,350 | 7,410 | 1,850 | 2,380 | 1,750 | 3,120 | 2,900 | 2,230 | 3,230 | 1,220 | 497 | 4,190 |
| 12 | 2,350 | 3,670 | 1,830 | 2,150 | 1,680 | 2,770 | 3,410 | 2,150 | 2,770 | 1,160 | 475 | 2,820 |
| 13 | 3,530 | 2,300 | 2,210 | 2,420 | 1,600 | 2,420 | 3,350 | 2,150 | 3,300 | 1,050 | 453 | 2,200 |
| 14 | 1,880 | 1,750 | 2,470 | 2,930 | 1,650 | 2,230 | 3,010 | 2,110 | 3,550 | 967 | 444 | 5,980 |
| 15 | 1,310 | 1,500 | 2,240 | 7,030 | 1,730 | 2,220 | 2,710 | 2,200 | 3,020 | 922 | 441 | 5,170 |
| 16 | 4,280 | 1,770 | 2,030 | 7,050 | 1,720 | 2,050 | 2,400 | 2,240 | 2,640 | 872 | 427 | 5,910 |
| 17 | 5,400 | 2,970 | 2,550 | 3,980 | 1,820 | 1,990 | 2,190 | 2,180 | 2,560 | 810 | 412 | 5,460 |
| 18 | 3,140 | 17,800 | 2,020 | 3,080 | 1,860 | 2,210 | 2,040 | 2,230 | 2,590 | 792 | 401 | 4,160 |
| 19 | 1,960 | 16,000 | 1,870 | 3,010 | 2,350 | 2,340 | 1,910 | 2,650 | 2,410 | 782 | 390 | 3,560 |
| 20 | 5,960 | 6,700 | 1,990 | 2,550 | 2,090 | 2,000 | 2,060 | 2,550 | 2,170 | 752 | 375 | 2,910 |
| 21 | 21,200 | 4,270 | 2,430 | 2,130 | 1,810 | 1,840 | 2,070 | 2,490 | 2,110 | 689 | 377 | 2,340 |
| 22 | 6,640 | 3,100 | 2,060 | 1,860 | 1,630 | 2,060 | 1,890 | 3,120 | 2,100 | 681 | 689 | 1,990 |
| 23 | 4,910 | 2,530 | 1,790 | 2,280 | 1,510 | 2,650 | 2,080 | 3,380 | 2,130 | 659 | 1,090 | 1,870 |
| 24 | 3,490 | 2,700 | 1,750 | 4,350 | 1,450 | 2,830 | 2,380 | 2,690 | 2,090 | 634 | 4,930 | 1,650 |
| 25 | 2,480 | 2,600 | 1,860 | 3,160 | 1,420 | 2,710 | 2,050 | 2,410 | 1,950 | e622 | 9,070 | 1,430 |
| 26 | 1,940 | 2,840 | 1,640 | 2,760 | 1,350 | 2,480 | 2,360 | 4,760 | 1,760 | e620 | 8,480 | 1,300 |
| 27 | 1,590 | 2,380 | 1,450 | 2,660 | 1,350 | 2,550 | 3,380 | 6,060 | 1,570 | e610 | 4,560 | 1,200 |
| 28 | 3,050 | 2,910 | 1,370 | 3,560 | 1,390 | 2,530 | 3,260 | 5,640 | 1,460 | e580 | 2,960 | 1,120 |
| 29 | 6,060 | 14,900 | 1,240 | 14,100 | 1,400 | 2,350 | 2,680 | 6,940 | 1,400 | e550 | 2,190 | 1,050 |
| 30 | 3,080 | 6,820 | 1,120 | 15,700 | --- | 2,820 | 2,620 | 7,740 | 1,350 | e530 | 1,730 | 989 |
| 31 | 2,180 | --- | 1,100 | 7,120 | --- | 2,910 | --- | 6,850 | --- | 524 | 1,420 | --- |
| TOTAL | 93,235 | 117,823 | 74,640 | 108,524 | 59,560 | 76,160 | 73,360 | 104,500 | 83,710 | 27,719 | 47,367 | 70,825 |
| MEAN | 3,008 | 3,927 | 2,408 | 3,501 | 2,054 | 2,457 | 2,445 | 3,371 | 2,790 | 894 | 1,528 | 2,361 |
| MAX | 21,200 | 17,800 | 4,980 | 15,700 | 4,840 | 4,900 | 3,410 | 7,740 | 5,090 | 1,330 | 9,070 | 5,980 |
| MIN | 380 | 796 | 1,100 | 806 | 1,350 | 1,240 | 1,890 | 2,110 | 1,350 | 524 | 375 | 936 |
| AC-FT | 184,900 | 233,700 | 148,000 | 215,300 | 118,100 | 151,100 | 145,500 | 207,300 | 166,000 | 54,980 | 93,950 | 140,500 |
| CFSM | 8.02 | 10.5 | 6.42 | 9.34 | 5.48 | 6.55 | 6.52 | 8.99 | 7.44 | 2.38 | 4.07 | 6.30 |
| IN. | 9.25 | 11.69 | 7.40 | 10.77 | 5.91 | 7.56 | 7.28 | 10.37 | 8.30 | 2.75 | 4.70 | 7.03 |

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

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 1,842 | 3,606 | 3,619 | 3,563 | 3,022 | 2,546 | 3,041 | 3,746 | 3,487 | 1,810 | 864 | 1,097 |
| MAX | 3,931 | 10,100 | 8,886 | 6,414 | 6,676 | 6,735 | 4,696 | 6,055 | 7,568 | 4,393 | 2,263 | 3,937 |
| (WY) | (1960) | (1991) | (1976) | (1984) | (1982) | (1972) | (1989) | (1972) | (1974) | (1974) | (1964) | (1959) |
| MIN | 348 | 716 | 1,211 | 1,162 | 1,215 | 1,367 | 1,478 | 1,895 | 1,077 | 731 | 392 | 342 |
| (WY) | (1988) | (1980) | (2001) | (1979) | (1969) | (1962) | (1967) | (1992) | (1992) | (2003) | (2003) | (1998) |

12144500 SNOQUALMIE RIVER NEAR SNOQUALMIE, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1959 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 902,346 | | 937,423 | | | |
| ANNUAL MEAN | 2,472 | | 2,561 | | 2,683 | |
| HIGHEST ANNUAL MEAN | | | | | 3,939 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 1,739 | 2001 |
| HIGHEST DAILY MEAN | 21,200 | Oct 21 | 21,200 | Oct 21 | 54,700 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 304 | Sep 6 | 375 | Aug 20 | 88 | Aug 8, 1960 |
| ANNUAL SEVEN-DAY MINIMUM | 309 | Sep 1 | 396 | Oct 1 | 274 | Oct 9, 1991 |
| ANNUAL RUNOFF (AC-FT) | 1,790,000 | | 1,859,000 | | 1,944,000 | |
| ANNUAL RUNOFF (CFSM) | 6.59 | | 6.83 | | 7.15 | |
| ANNUAL RUNOFF (INCHES) | 89.51 | | 92.99 | | 97.21 | |
| 10 PERCENT EXCEEDS | 4,670 | | 4,480 | | 5,040 | |
| 50 PERCENT EXCEEDS | 1,870 | | 2,140 | | 2,080 | |
| 90 PERCENT EXCEEDS | 416 | | 674 | | 623 | |

e Estimated

## 12145500 RAGING RIVER NEAR FALL CITY, WA

LOCATION.--Lat 47°32'24", long 121°54'28", on west line, sec.27, T.24 N., R.7 E., King County, Hydrologic Unit 17110010, on right bank at highway bridge 2.0 mi southwest of Fall City, and 2.6 mi upstream from mouth.

DRAINAGE AREA.--30.6 $mi^2$.

PERIOD OF RECORD.--July 1945 to September 1950, water years 1951, and 1953-63 (annual maximum), December 1963 to June 1973, October 1973 to April 1974, October 1974 to current year.

REVISED RECORDS.--WSP 1316: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 250 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1950, water-stage recorder on left bank at present site and datum. August 1951 and January 1953 to February 1963, crest-stage gage only on left bank at present site and datum.

REMARKS.--No estimated daily discharges. Records good. Some small diversions for irrigation and domestic use upstream from station. No regulation. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--43 years (water years 1946-50, 1965-72, 1975-2004), 131 $ft^3/s$, 58.03 in/yr, 94,680 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,220 $ft^3/s$, Nov. 24, 1990, gage height, 6.56 ft; maximum gage height, 6.75 ft, Feb. 9, 1951; minimum daily discharge, 4.4 $ft^3/s$, Aug. 21, 1967.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 1,300 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 20 | 2300 | *2,970 | *5.94 | Jan 29 | 1430 | 2,500 | 5.60 |
| Nov 18 | 1245 | 1,980 | 5.18 | | | | |

Minimum discharge, 9.5 $ft^3/s$, Aug. 17-21.

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 | 55 | 261 | 72 | 315 | 72 | 72 | 28 | 141 | 24 | 12 | 37 |
| 2 | 12 | 51 | 211 | 66 | 237 | 67 | 65 | 27 | 109 | 24 | 11 | 39 |
| 3 | 12 | 46 | 301 | 64 | 187 | 85 | 60 | 26 | 90 | 24 | 11 | 36 |
| 4 | 12 | 42 | 211 | 56 | 247 | 141 | 55 | 26 | 75 | 23 | 11 | 32 |
| 5 | 12 | 40 | 366 | 53 | 199 | 162 | 52 | 28 | 75 | 23 | 11 | 30 |
| 6 | 12 | 37 | 367 | 52 | 181 | 146 | 50 | 26 | 111 | 23 | 12 | 28 |
| 7 | 13 | 35 | 250 | 135 | 187 | 151 | 48 | 24 | 103 | 23 | 16 | 26 |
| 8 | 15 | 33 | 223 | 236 | 176 | 136 | 46 | 24 | 91 | 22 | 13 | 25 |
| 9 | 24 | 32 | 185 | 278 | 151 | 129 | 44 | 27 | 77 | 21 | 11 | 27 |
| 10 | 25 | 70 | 154 | 328 | 131 | 116 | 43 | 25 | 74 | 21 | 11 | 26 |
| 11 | 24 | 88 | 137 | 238 | 115 | 104 | 41 | 31 | 69 | 22 | 10 | 134 |
| 12 | 51 | 61 | 182 | 199 | 102 | 93 | 40 | 28 | 63 | 21 | 10 | 94 |
| 13 | 47 | 52 | 271 | 177 | 91 | 84 | 39 | 26 | 86 | 20 | 10 | 83 |
| 14 | 31 | 47 | 284 | 184 | 101 | 76 | 40 | 23 | 74 | 19 | 9.9 | 71 |
| 15 | 27 | 47 | 210 | 369 | 105 | 70 | 40 | 22 | 64 | 19 | 10 | 88 |
| 16 | 101 | 95 | 177 | 317 | 121 | 66 | 40 | 22 | 57 | 18 | 9.9 | 103 |
| 17 | 90 | 105 | 149 | 221 | 125 | 64 | 39 | 22 | 52 | 18 | 9.8 | 136 |
| 18 | 57 | 1,130 | 125 | 183 | 136 | 69 | 38 | 21 | 46 | 17 | 9.7 | 117 |
| 19 | 50 | 921 | 109 | 164 | 139 | 76 | 37 | 19 | 42 | 17 | 9.6 | 103 |
| 20 | 719 | 455 | 116 | 136 | 120 | 69 | 40 | 19 | 39 | 16 | 9.5 | 86 |
| 21 | 1,530 | 278 | 110 | 117 | 107 | 62 | 38 | 19 | 36 | 16 | 9.7 | 67 |
| 22 | 454 | 195 | 97 | 104 | 95 | 57 | 36 | 24 | 34 | 15 | 25 | 56 |
| 23 | 305 | 201 | 89 | 202 | 86 | 55 | 36 | 28 | 33 | 15 | 57 | 53 |
| 24 | 181 | 304 | 98 | 341 | 80 | 87 | 38 | 23 | 33 | 15 | 326 | 47 |
| 25 | 128 | 295 | 118 | 237 | 74 | 101 | 35 | 21 | 32 | 14 | 290 | 41 |
| 26 | 99 | 262 | 100 | 310 | 74 | 122 | 33 | 119 | 31 | 14 | 236 | 37 |
| 27 | 80 | 199 | 96 | 277 | 92 | 114 | 33 | 145 | 29 | 13 | 144 | 35 |
| 28 | 77 | 293 | 97 | 344 | 88 | 95 | 35 | 256 | 27 | 13 | 87 | 32 |
| 29 | 90 | 761 | 87 | 1,810 | 81 | 83 | 32 | 342 | 27 | 13 | 61 | 33 |
| 30 | 74 | 388 | 78 | 974 | --- | 86 | 30 | 245 | 26 | 12 | 47 | 31 |
| 31 | 62 | --- | 77 | 464 | --- | 84 | --- | 191 | --- | 12 | 38 | --- |
| TOTAL | 4,426 | 6,618 | 5,336 | 8,708 | 3,943 | 2,922 | 1,275 | 1,907 | 1,846 | 567 | 1,538.1 | 1,753 |
| MEAN | 143 | 221 | 172 | 281 | 136 | 94.3 | 42.5 | 61.5 | 61.5 | 18.3 | 49.6 | 58.4 |
| MAX | 1,530 | 1,130 | 367 | 1,810 | 315 | 162 | 72 | 342 | 141 | 24 | 326 | 136 |
| MIN | 12 | 32 | 77 | 52 | 74 | 55 | 30 | 19 | 26 | 12 | 9.5 | 25 |
| AC-FT | 8,780 | 13,130 | 10,580 | 17,270 | 7,820 | 5,800 | 2,530 | 3,780 | 3,660 | 1,120 | 3,050 | 3,480 |
| CFSM | 4.67 | 7.21 | 5.63 | 9.18 | 4.44 | 3.08 | 1.39 | 2.01 | 2.01 | 0.60 | 1.62 | 1.91 |
| IN. | 5.38 | 8.05 | 6.49 | 10.59 | 4.79 | 3.55 | 1.55 | 2.32 | 2.24 | 0.69 | 1.87 | 2.13 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 71.9 | 214 | 253 | 265 | 223 | 183 | 147 | 86.7 | 64.2 | 31.7 | 19.6 | 31.8 |
| MAX | 266 | 602 | 472 | 458 | 476 | 389 | 255 | 168 | 158 | 106 | 51.2 | 96.7 |
| (WY) | (1948) | (1991) | (1976) | (1971) | (1972) | (1950) | (1950) | (1997) | (1964) | (1997) | (1976) | (1964) |
| MIN | 7.77 | 23.7 | 90.1 | 94.7 | 53.7 | 58.4 | 42.5 | 38.0 | 19.0 | 11.8 | 7.04 | 9.71 |
| (WY) | (1988) | (1988) | (2003) | (1985) | (1977) | (1992) | (2004) | (1947) | (1992) | (2003) | (1967) | (1987) |

12145500 RAGING RIVER NEAR FALL CITY, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1945 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 44,339.5 | | 40,839.1 | | | |
| ANNUAL MEAN | 121 | | 112 | | 131 | |
| HIGHEST ANNUAL MEAN | | | | | 206 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 77.8 | 1977 |
| HIGHEST DAILY MEAN | 1,530 | Oct 21 | 1,810 | Jan 29 | 3,340 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 7.6 | Sep 1 | 9.5 | Aug 20 | 4.4 | Aug 21, 1967 |
| ANNUAL SEVEN-DAY MINIMUM | 7.6 | Sep 1 | 9.7 | Aug 15 | 4.9 | Aug 15, 1967 |
| ANNUAL RUNOFF (AC-FT) | 87,950 | | 81,000 | | 94,680 | |
| ANNUAL RUNOFF (CFSM) | 3.97 | | 3.65 | | 4.27 | |
| ANNUAL RUNOFF (INCHES) | 53.90 | | 49.65 | | 58.03 | |
| 10 PERCENT EXCEEDS | 283 | | 252 | | 294 | |
| 50 PERCENT EXCEEDS | 67 | | 64 | | 76 | |
| 90 PERCENT EXCEEDS | 9.5 | | 15 | | 14 | |

## 12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°42'45", long 121°47'15", in SW ¼ NE ¼ sec.28, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 2.9 mi upstream from confluence with South Fork, 7.4 mi northeast of Carnation, and at mile 11.7.

DRAINAGE AREA.--39.9 $mi^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1952 to December 1963, November 1967 to current year.

REVISED RECORDS.--WSP 1566: 1957. WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 600 ft above NGVD of 1929, from river-profile map.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--47 years (water years 1953-63, 1969-2004), 354 $ft^3/s$, 120.59 in/yr, 256,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 9,560 $ft^3/s$, Dec. 15, 1959, gage height, 13.15 ft, from rating curve extended above 2,800 $ft^3/s$; minimum discharge, 31 $ft^3/s$, Sept. 22, 23, 1986.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 20 | 2100 | *8,640 | *12.64 | Nov 29 | 0200 | 4,410 | 9.88 |
| Nov 18 | 0900 | 5,650 | 10.79 | Jan 29 | 0900 | 4,200 | 9.71 |

Minimum discharge, 42 $ft^3/s$, Oct. 4-6; minimum gage height, 3.16 ft, Aug. 20, 21.

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 | 46 | 249 | 522 | 233 | 599 | 257 | 304 | 319 | 398 | e137 | 75 | 154 |
| 2 | 45 | 225 | 564 | 224 | 496 | 243 | 274 | 321 | 325 | 135 | 73 | 208 |
| 3 | 44 | 207 | 715 | 219 | 436 | 244 | 279 | 289 | 307 | 150 | 72 | 176 |
| 4 | 42 | 194 | 481 | 206 | 469 | 371 | 314 | 293 | 299 | 142 | 70 | 152 |
| 5 | 42 | 183 | 666 | 196 | 411 | 364 | 289 | 345 | 287 | 131 | 69 | 142 |
| 6 | 42 | 174 | 672 | 196 | 410 | 327 | 268 | 250 | 385 | 135 | 82 | 132 |
| 7 | 48 | 168 | 482 | 315 | 445 | 512 | 283 | 243 | 314 | 192 | 199 | 125 |
| 8 | 51 | 162 | 419 | 447 | 398 | 711 | 270 | 249 | 270 | 149 | 127 | 121 |
| 9 | 100 | 157 | 376 | 480 | 360 | 662 | 268 | 229 | 267 | 131 | 92 | 157 |
| 10 | 136 | 435 | 346 | 638 | 338 | 470 | 296 | 218 | 372 | 141 | 80 | 155 |
| 11 | 122 | 1,110 | 331 | 473 | 327 | 371 | 330 | 215 | 374 | 164 | 74 | 678 |
| 12 | 305 | 378 | 347 | 421 | 320 | 346 | 344 | 234 | 305 | 136 | 70 | 285 |
| 13 | 337 | 277 | 387 | 485 | 314 | 313 | 309 | 229 | 365 | 126 | 68 | 355 |
| 14 | 155 | 235 | 376 | 712 | 350 | 320 | 304 | 220 | 331 | 120 | 65 | 1,340 |
| 15 | 113 | 221 | 350 | 1,510 | 354 | 330 | 293 | 219 | 300 | 115 | 63 | 716 |
| 16 | 445 | 316 | 387 | 790 | 362 | 300 | 288 | 225 | 266 | 112 | 61 | 695 |
| 17 | 625 | 620 | 490 | 490 | 368 | 300 | 294 | 214 | 254 | 107 | 60 | 787 |
| 18 | 254 | 3,070 | 364 | 445 | 393 | 351 | 264 | 233 | 247 | 105 | 59 | 507 |
| 19 | 175 | 1,260 | 352 | 483 | 480 | 327 | 249 | 241 | 224 | 103 | 57 | 431 |
| 20 | 2,940 | 612 | 495 | 395 | 369 | 278 | 294 | 214 | 211 | 101 | 55 | 341 |
| 21 | 2,550 | 449 | 486 | 346 | 324 | 272 | 284 | 207 | 205 | 97 | 56 | 289 |
| 22 | 684 | 376 | 373 | 319 | 298 | 312 | 254 | 402 | 200 | 94 | 375 | 260 |
| 23 | 1,150 | 381 | 336 | 556 | 284 | 354 | 284 | 327 | 199 | 92 | 242 | 244 |
| 24 | 522 | 470 | 341 | 700 | 278 | 364 | 288 | 274 | 195 | 89 | 763 | 226 |
| 25 | 357 | 418 | 370 | 441 | 269 | 339 | 251 | 236 | e187 | 87 | 833 | 210 |
| 26 | 287 | 413 | 318 | 392 | 257 | 329 | 301 | 555 | e176 | 86 | 609 | 198 |
| 27 | 246 | 372 | 292 | 429 | 277 | 375 | 346 | 585 | e163 | 84 | 396 | 189 |
| 28 | 899 | 639 | 277 | 938 | 282 | 387 | 298 | 660 | e152 | 82 | 264 | 181 |
| 29 | 630 | 2,240 | 261 | 3,370 | 280 | 358 | 263 | 639 | e146 | 79 | 219 | 174 |
| 30 | 365 | 718 | 247 | 1,760 | --- | 442 | 279 | 785 | e143 | 78 | 185 | 169 |
| 31 | 284 | --- | 241 | 803 | --- | 377 | --- | 575 | --- | 76 | 162 | --- |
| TOTAL | 14,041 | 16,729 | 12,664 | 19,412 | 10,548 | 11,306 | 8,662 | 10,245 | 7,867 | 3,576 | 5,675 | 9,797 |
| MEAN | 453 | 558 | 409 | 626 | 364 | 365 | 289 | 330 | 262 | 115 | 183 | 327 |
| MAX | 2,940 | 3,070 | 715 | 3,370 | 599 | 711 | 346 | 785 | 398 | 192 | 833 | 1,340 |
| MIN | 42 | 157 | 241 | 196 | 257 | 243 | 249 | 207 | 143 | 76 | 55 | 121 |
| AC-FT | 27,850 | 33,180 | 25,120 | 38,500 | 20,920 | 22,430 | 17,180 | 20,320 | 15,600 | 7,090 | 11,260 | 19,430 |
| CFSM | 11.4 | 14.0 | 10.2 | 15.7 | 9.12 | 9.14 | 7.24 | 8.28 | 6.57 | 2.89 | 4.59 | 8.18 |
| IN. | 13.09 | 15.60 | 11.81 | 18.10 | 9.83 | 10.54 | 8.08 | 9.55 | 7.33 | 3.33 | 5.29 | 9.13 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1953 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 258 | 487 | 526 | 528 | 445 | 374 | 428 | 418 | 341 | 193 | 114 | 155 |
| MAX | 536 | 1,145 | 1,065 | 1,160 | 1,008 | 898 | 709 | 646 | 731 | 496 | 222 | 563 |
| (WY) | (1960) | (1991) | (1976) | (1953) | (1982) | (1972) | (1959) | (1972) | (1955) | (1955) | (1955) | (1959) |
| MIN | 38.5 | 69.0 | 192 | 222 | 166 | 172 | 249 | 214 | 136 | 67.8 | 43.3 | 49.6 |
| (WY) | (1988) | (1953) | (1986) | (1957) | (1969) | (1992) | (1992) | (1992) | (1992) | (2003) | (2003) | (1998) |

12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1953 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 118,878 | | 130,522 | | | |
| ANNUAL MEAN | 326 | | 357 | | 354 | |
| HIGHEST ANNUAL MEAN | | | | | 526 | 1959 |
| LOWEST ANNUAL MEAN | | | | | 247 | 2001 |
| HIGHEST DAILY MEAN | 3,070 | Nov 18 | 3,370 | Jan 29 | 5,560 | Dec 15, 1959 |
| LOWEST DAILY MEAN | 33 | Sep 4 | 42 | Oct 4 | 31 | Sep 22, 1986 |
| ANNUAL SEVEN-DAY MINIMUM | 34 | Aug 31 | 44 | Oct 1 | 34 | Sep 16, 1986 |
| ANNUAL RUNOFF (AC-FT) | 235,800 | | 258,900 | | 256,600 | |
| ANNUAL RUNOFF (CFSM) | 8.16 | | 8.94 | | 8.88 | |
| ANNUAL RUNOFF (INCHES) | 110.83 | | 121.69 | | 120.59 | |
| 10 PERCENT EXCEEDS | 627 | | 626 | | 655 | |
| 50 PERCENT EXCEEDS | 245 | | 289 | | 277 | |
| 90 PERCENT EXCEEDS | 46 | | 93 | | 84 | |

e Estimated

12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: February 1995 to current year.

INSTRUMENTATION.--Temperature recorder since February 1995.

REMARKS.--Records excellent, except Oct. 1 to Mar. 13, and Apr. 28 to Sept. 8, which are good.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum, 16.0°C (rounded), July 18, 19, 1995, July 26-28, 1998; minimum, 2.0°C (rounded), Dec. 29, 1996.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 15.7°C, July 24; minimum, 2.5°C, Jan. 5.

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

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
| 1 | 11.3 | 9.7 | 10.5 | 6.6 | 5.6 | 6.1 | 6.3 | 5.3 | 5.9 | 5.0 | 4.1 | 4.7 |
| 2 | 10.8 | 10.0 | 10.3 | 6.6 | 5.7 | 6.2 | 6.6 | 5.9 | 6.3 | 5.2 | 4.0 | 4.6 |
| 3 | 10.7 | 9.9 | 10.3 | 6.1 | 5.2 | 5.6 | 5.9 | 4.9 | 5.3 | 4.6 | 3.7 | 4.2 |
| 4 | 10.4 | 9.2 | 9.8 | 5.9 | 4.9 | 5.3 | 6.0 | 5.0 | 5.5 | 4.1 | 3.0 | 3.6 |
| 5 | 10.5 | 10.1 | 10.3 | 5.6 | 4.4 | 4.9 | 6.1 | 5.6 | 5.8 | 3.7 | 2.5 | 3.1 |
| 6 | 10.9 | 9.9 | 10.4 | 5.6 | 4.3 | 4.9 | 6.0 | 5.6 | 5.8 | 4.1 | 3.2 | 3.5 |
| 7 | 10.9 | 10.4 | 10.7 | 6.5 | 4.8 | 5.6 | 6.1 | 5.2 | 5.7 | 4.5 | 3.3 | 3.7 |
| 8 | 10.6 | 9.6 | 10 | 6.9 | 6.1 | 6.4 | 6.2 | 5.4 | 5.8 | 4.2 | 3.5 | 3.9 |
| 9 | 10.1 | 9.4 | 9.7 | 7.2 | 6.2 | 6.6 | 5.9 | 5.1 | 5.5 | 5.0 | 4.2 | 4.6 |
| 10 | 10.2 | 9.3 | 9.7 | 7.1 | 6.3 | 6.8 | 6.2 | 5.7 | 5.9 | 4.7 | 4.3 | 4.5 |
| 11 | 9.7 | 9.0 | 9.3 | 7.2 | 6.4 | 6.7 | 6.6 | 5.9 | 6.2 | 5.3 | 4.4 | 4.8 |
| 12 | 9.5 | 9.1 | 9.3 | 6.8 | 5.9 | 6.3 | 6.3 | 5.9 | 6.1 | 5.6 | 4.8 | 5.2 |
| 13 | 10.0 | 9.1 | 9.5 | 6.5 | 5.5 | 5.9 | 6.1 | 5.6 | 5.9 | 5.8 | 5.1 | 5.4 |
| 14 | 9.6 | 8.8 | 9.1 | 7.0 | 5.8 | 6.6 | 5.8 | 5.5 | 5.6 | 5.6 | 4.8 | 5.4 |
| 15 | 8.9 | 7.8 | 8.4 | 7.2 | 6.7 | 6.9 | 6.0 | 5.6 | 5.7 | 5.4 | 4.7 | 5.0 |
| 16 | 9.6 | 8.5 | 9.0 | 7.0 | 6.6 | 6.8 | 6.2 | 5.6 | 5.9 | 5.5 | 4.5 | 5.0 |
| 17 | 10.3 | 9.6 | 10 | 6.7 | 6.2 | 6.4 | 6.0 | 5.1 | 5.4 | 6.0 | 5.0 | 5.4 |
| 18 | 10.2 | 8.9 | 9.5 | 7.6 | 6.3 | 6.9 | 6.2 | 5.2 | 5.7 | 6.1 | 5.7 | 5.8 |
| 19 | 10.1 | 9.3 | 9.7 | 7.7 | 4.6 | 5.6 | 6.6 | 5.7 | 6.1 | 6.5 | 5.4 | 5.9 |
| 20 | 11.8 | 9.7 | 10.7 | 5.7 | 5.2 | 5.5 | 6.4 | 5.9 | 6.2 | 5.7 | 4.8 | 5.2 |
| 21 | 11.5 | 10.8 | 11.2 | 5.7 | 4.9 | 5.4 | 6.5 | 5.7 | 6.0 | 5.7 | 4.7 | 5.1 |
| 22 | 10.8 | 10.5 | 10.7 | 5.5 | 4.8 | 5.2 | 6.3 | 5.2 | 5.7 | 6.1 | 5.0 | 5.5 |
| 23 | 10.6 | 8.8 | 9.7 | 5.8 | 5.2 | 5.6 | 6.6 | 5.9 | 6.2 | 5.9 | 5.2 | 5.7 |
| 24 | 9.2 | 8.2 | 8.6 | 5.5 | 4.2 | 5.0 | 6.6 | 6.1 | 6.3 | 5.4 | 3.6 | 4.5 |
| 25 | 9.1 | 7.8 | 8.4 | 5.4 | 5.0 | 5.3 | 6.2 | 4.4 | 5.7 | 5.1 | 3.7 | 4.4 |
| 26 | 9.4 | 8.1 | 8.6 | 5.9 | 5.3 | 5.6 | 5.4 | 4.2 | 4.9 | 4.8 | 4.2 | 4.5 |
| 27 | 9.7 | 8.4 | 9.0 | 6.3 | 5.5 | 5.9 | 5.4 | 5.0 | 5.2 | 5.6 | 4.6 | 5.0 |
| 28 | 10.0 | 8.6 | 9.2 | 6.1 | 4.3 | 5.8 | 5.3 | 4.4 | 5.0 | 5.2 | 4.2 | 4.6 |
| 29 | 8.7 | 7.5 | 8.2 | 5.7 | 3.8 | 5.1 | 4.7 | 3.9 | 4.2 | 5.0 | 3.8 | 4.4 |
| 30 | 7.5 | 6.2 | 6.9 | 5.6 | 5.0 | 5.3 | 4.9 | 3.7 | 4.3 | 5.1 | 4.0 | 4.5 |
| 31 | 6.6 | 5.7 | 6.0 | --- | --- | --- | 5.1 | 4.4 | 4.7 | 5.2 | 4.4 | 4.8 |
| MONTH | 11.8 | 5.7 | 9.4 | 7.7 | 3.8 | 5.9 | 6.6 | 3.7 | 5.6 | 6.5 | 2.5 | 4.7 |

12147500 NORTH FORK TOLT RIVER NEAR CARNATION, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—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 | 5.6 | 4.7 | 5.0 | 7.3 | 5.8 | 6.4 | 7.7 | 4.8 | 6.0 | 11.1 | 7.7 | 9.2 |
| 2 | 5.6 | 4.9 | 5.3 | 7.0 | 5.2 | 5.9 | 8.8 | 5.0 | 6.6 | 10.3 | 8.1 | 9.0 |
| 3 | 6.1 | 5.3 | 5.7 | 5.7 | 5.2 | 5.5 | 9.4 | 5.9 | 7.3 | 10.4 | 7.6 | 8.9 |
| 4 | 5.8 | 5.0 | 5.5 | 5.6 | 4.8 | 5.2 | 8.3 | 6.2 | 7.2 | 9.0 | 8.1 | 8.5 |
| 5 | 5.9 | 4.7 | 5.2 | 5.6 | 4.8 | 5.2 | 7.5 | 6.3 | 6.9 | 8.9 | 7.3 | 7.9 |
| 6 | 6.0 | 5.5 | 5.7 | 6.2 | 4.7 | 5.4 | 8.8 | 6.6 | 7.5 | 10.5 | 6.6 | 8.3 |
| 7 | 5.8 | 5.3 | 5.5 | 5.9 | 5.0 | 5.5 | 8.1 | 6.9 | 7.4 | 9.4 | 7.7 | 8.5 |
| 8 | 6.2 | 5.3 | 5.6 | 6.8 | 4.6 | 5.5 | 9.1 | 6.0 | 7.2 | 10.1 | 7.5 | 8.6 |
| 9 | 6.0 | 4.9 | 5.3 | 6.1 | 5.2 | 5.6 | 9.7 | 6.0 | 7.6 | 9.9 | 7.4 | 8.5 |
| 10 | 5.9 | 4.7 | 5.2 | 6.9 | 4.7 | 5.6 | 9.9 | 6.4 | 7.9 | 8.6 | 7.3 | 8.0 |
| 11 | 6.3 | 4.9 | 5.4 | 7.2 | 4.9 | 5.9 | 10.2 | 6.4 | 8.0 | 8.5 | 7.4 | 7.8 |
| 12 | 6.2 | 4.7 | 5.3 | 6.5 | 5.5 | 6.0 | 9.1 | 6.7 | 7.7 | 9.7 | 7.4 | 8.3 |
| 13 | 6.4 | 4.7 | 5.5 | 7.4 | 5.0 | 6.0 | 8.7 | 7.1 | 7.8 | 11.0 | 7.4 | 8.9 |
| 14 | 6.2 | 5.6 | 5.8 | 6.5 | 6.1 | 6.3 | 7.8 | 6.7 | 7.2 | 11.7 | 7.3 | 9.2 |
| 15 | 6.1 | 5.3 | 5.7 | 6.9 | 5.9 | 6.3 | 7.6 | 6.4 | 6.9 | 9.4 | 7.7 | 8.6 |
| 16 | 5.9 | 5.1 | 5.6 | 7.2 | 6.0 | 6.5 | 7.8 | 6.4 | 7.0 | 9.0 | 8.0 | 8.4 |
| 17 | 6.0 | 5.1 | 5.6 | 7.0 | 6.2 | 6.6 | 8.7 | 6.5 | 7.2 | 11.1 | 7.7 | 9.1 |
| 18 | 6.1 | 5.5 | 5.8 | 6.5 | 5.2 | 6.1 | 8.2 | 6.5 | 7.3 | 11.7 | 7.9 | 9.7 |
| 19 | 5.9 | 5.1 | 5.4 | 6.4 | 5.1 | 5.6 | 9.1 | 6.3 | 7.5 | 10.0 | 8.7 | 9.2 |
| 20 | 6.1 | 4.7 | 5.2 | 7.6 | 4.7 | 5.9 | 8.0 | 6.7 | 7.3 | 9.4 | 8.4 | 8.9 |
| 21 | 6.2 | 4.6 | 5.3 | 8.3 | 5.8 | 6.9 | 8.3 | 6.2 | 7.2 | 8.9 | 8.4 | 8.6 |
| 22 | 6.7 | 5.1 | 5.7 | 8.5 | 6.4 | 7.2 | 10.1 | 6.0 | 7.7 | 8.5 | 8.0 | 8.3 |
| 23 | 6.9 | 5.5 | 6.1 | 7.6 | 6.5 | 6.9 | 8.0 | 6.9 | 7.3 | 9.6 | 7.7 | 8.5 |
| 24 | 6.8 | 5.7 | 6.2 | 6.7 | 5.7 | 6.2 | 9.3 | 6.1 | 7.4 | 10.8 | 7.6 | 8.9 |
| 25 | 6.3 | 5.3 | 5.8 | 6.8 | 5.4 | 6.1 | 10.4 | 6.0 | 7.9 | 10.4 | 7.8 | 9.0 |
| 26 | 6.8 | 5.5 | 6.1 | 6.5 | 5.7 | 6.1 | 11.2 | 6.9 | 8.7 | 9.1 | 8.4 | 8.7 |
| 27 | 6.8 | 5.9 | 6.2 | 6.5 | 5.7 | 6.0 | 8.6 | 6.9 | 7.6 | 8.9 | 8.1 | 8.5 |
| 28 | 6.5 | 6.0 | 6.2 | 8.1 | 5.2 | 6.4 | 9.9 | 6.7 | 7.9 | 8.3 | 7.7 | 8.0 |
| 29 | 7.0 | 5.6 | 6.2 | 9.3 | 6.1 | 7.3 | 10.8 | 6.5 | 8.4 | 8.2 | 7.6 | 7.8 |
| 30 | --- | --- | --- | 7.0 | 5.6 | 6.5 | 11.4 | 7.2 | 9.0 | 8.9 | 7.6 | 8.0 |
| 31 | --- | --- | --- | 7.0 | 5.1 | 5.9 | --- | --- | --- | 8.6 | 7.6 | 8.0 |
| MONTH | 7.0 | 4.6 | 5.6 | 9.3 | 4.6 | 6.1 | 11.4 | 4.8 | 7.5 | 11.7 | 6.6 | 8.6 |
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 10.1 | 7.5 | 8.7 | 14.4 | 10.1 | 12.1 | 14.6 | 11.3 | 13.1 | 13.1 | 11.6 | 12.1 |
| 2 | 12.0 | 7.7 | 9.6 | 12.9 | 10.5 | 11.4 | 14.3 | 11.3 | 13.0 | 12.3 | 11.1 | 11.6 |
| 3 | 12.9 | 8.4 | 10.3 | 11.9 | 10.5 | 11.1 | 13.9 | 11.7 | 12.6 | 12.6 | 10.9 | 11.7 |
| 4 | 13.4 | 9.0 | 10.9 | 11.6 | 10.4 | 11.0 | 13.0 | 11.4 | 12.3 | 11.8 | 11.1 | 11.4 |
| 5 | 10.9 | 9.5 | 10.0 | 13.6 | 9.9 | 11.4 | 12.6 | 11.2 | 11.8 | 12.9 | 10.6 | 11.5 |
| 6 | 10.8 | 8.9 | 9.7 | 12.5 | 10.3 | 10.8 | 12.0 | 10.9 | 11.3 | 12.6 | 10.0 | 11.2 |
| 7 | 10.1 | 8.8 | 9.3 | 12.4 | 10.1 | 11.0 | 13.9 | 11.3 | 12.4 | 12.8 | 10.2 | 11.4 |
| 8 | 12.8 | 8.8 | 10.4 | 13.3 | 10.1 | 11.4 | 15.1 | 11.1 | 12.9 | 11.7 | --- | --- |
| 9 | 10.4 | 9.5 | 9.8 | 11.9 | 10.2 | 10.9 | 15.0 | 11.5 | 13.3 | 12.2 | 10.7 | 11.3 |
| 10 | 9.5 | 8.7 | 9.2 | 11.7 | 10.0 | 10.8 | 14.9 | 11.8 | 13.4 | 12.2 | 10.0 | 11.0 |
| 11 | 9.3 | 8.3 | 8.8 | 13.8 | 10.2 | 11.6 | 14.9 | 11.8 | 13.4 | 12.4 | 11.4 | 11.9 |
| 12 | 10.3 | 8.2 | 9.1 | 14.9 | 10.0 | 12.2 | 14.7 | 12.1 | 13.5 | 11.8 | 10.8 | 11.2 |
| 13 | 9.9 | 8.7 | 9.2 | 14.5 | 10.9 | 12.5 | 14.7 | 11.9 | 13.4 | 10.8 | 10.1 | 10.5 |
| 14 | 10.2 | 8.4 | 9.1 | 14.8 | 10.9 | 12.7 | 14.5 | 12.1 | 13.1 | 11.3 | 10.1 | 10.6 |
| 15 | 12.4 | 7.8 | 9.7 | 14.5 | 11.0 | 12.6 | 14.3 | 11.8 | 13.1 | 10.5 | 10.1 | 10.3 |
| 16 | 13.2 | 8.3 | 10.5 | 15.1 | 10.8 | 12.8 | 14.2 | 11.9 | 13.2 | 10.4 | 9.9 | 10.1 |
| 17 | 13.7 | 9.2 | 11.1 | 14.1 | 11.1 | 12.7 | 14.2 | 11.9 | 13.2 | 10.9 | 9.8 | 10.2 |
| 18 | 13.2 | 9.8 | 11.4 | 14.5 | 11.2 | 12.7 | 14.2 | 11.7 | 13.1 | 9.9 | 9.3 | 9.5 |
| 19 | 13.5 | 9.4 | 11.2 | 13.8 | 11.5 | 12.7 | 14.3 | 11.9 | 13.2 | 10.2 | 9.1 | 9.5 |
| 20 | 14.3 | 9.5 | 11.6 | 13.2 | 11.4 | 12.2 | 14.2 | 11.9 | 13.1 | 10.3 | 9.2 | 9.6 |
| 21 | 14.6 | 9.9 | 11.9 | 14.8 | 10.8 | 12.6 | 13.5 | 12.0 | 12.8 | 10.7 | 8.9 | 9.6 |
| 22 | 14.7 | 10.2 | 12.2 | 15.3 | 11.0 | 13.1 | 13.9 | 12.5 | 13.4 | 10.1 | 9.2 | 9.6 |
| 23 | 12.5 | 10.8 | 11.2 | 15.5 | 11.5 | 13.5 | 14.5 | 12.5 | 13.3 | 10.7 | 9.4 | 9.9 |
| 24 | 10.9 | 10.2 | 10.6 | 15.7 | 11.7 | 13.7 | 13.4 | 12.6 | 13.0 | 10.9 | 8.8 | 9.7 |
| 25 | 12.0 | 10.0 | 10.8 | 15.0 | 11.7 | 12.7 | 12.6 | 12.1 | 12.4 | 11.0 | 8.9 | 9.7 |
| 26 | 13.9 | 9.8 | 11.5 | 14.4 | 11.1 | 12.6 | 13.1 | 11.8 | 12.3 | 10.3 | 9.1 | 9.6 |
| 27 | 13.6 | 9.6 | 11.4 | 14.5 | 11.0 | 12.8 | 12.6 | 11.8 | 12.1 | 10.8 | 8.9 | 9.7 |
| 28 | 14.4 | 9.6 | 11.8 | 14.8 | 11.3 | 13.1 | 13.1 | 11.6 | 12.2 | 10.7 | 9.0 | 9.7 |
| 29 | 14.4 | 10.0 | 12.1 | 14.9 | 11.4 | 13.2 | 14.0 | 11.7 | 12.6 | 9.9 | 9.0 | 9.4 |
| 30 | 13.6 | 10.2 | 11.9 | 14.4 | 11.6 | 12.7 | 14.2 | 11.2 | 12.5 | 9.8 | 9.3 | 9.5 |
| 31 | --- | --- | --- | 14.6 | 11.6 | 12.9 | 14.3 | 11.4 | 12.6 | --- | --- | --- |
| MONTH | 14.7 | 7.5 | 10.5 | 15.7 | 9.9 | 12.2 | 15.1 | 10.9 | 12.8 | 13.1 | --- | --- |

## 12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA

LOCATION.--Lat 47°42'25", long 121°35'56", in NE¼SW¼, sec.25, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.6 mi upstream from Phelps Creek, 8.1 mi south of Index, and at mile 12.9.

DRAINAGE AREA.--5.34 $mi^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1959 to December 1963, November 1967 to current year.

REVISED RECORDS.--WDR WA-02-1: 1999-2000(P).

GAGE.--Water-stage recorder. Elevation of gage is 1,850 ft above NGVD of 1929, from topographic map. Prior to Oct. 1, 1961, at datum 0.85 ft higher. Oct. 1, 1961 to Sept. 30, 1992, at datum 1.00 ft higher.

REMARKS.--Records fair, except for estimated daily discharges and those above 900 $ft^3/s$ and below 15 $ft^3/s$, which are poor. No regulation or diversion upstream from station. A portion of flow is within the gravel streambed and is unmeasurable. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--39 years (water years 1961-63, 1969-2004), 54.8 $ft^3/s$, 139.47 in/yr, 39,710 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 2,240 $ft^3/s$, Dec. 15, 1999; gage height 4.54 ft, possible result from debris dam break up; maximum gage height, 8.13 ft, present datum, Dec. 14, 1959; minimum discharge, 2.2 $ft^3/s$, Oct. 9, 10, 1989, Sept. 9, 10, 1997, Sept. 14-17, 1998.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 550 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 16 | 1215 | 782 | 3.41 | Nov 29 | 0130 | 1,310 | 3.93 |
| Oct 20 | 2130 | 2,150 | 4.49 | Jan 15 | 1345 | 673 | 3.27 |
| Oct 28 | 1615 | 758 | 3.38 | Jan 29 | 1700 | 1,390 | 3.99 |
| Nov 11 | 0045 | 608 | 3.18 | Sep 11 | 0345 | 636 | 3.22 |
| Nov 18 | 0745 | *2,190 | *4.51 | Sep 14 | 0330 | 896 | 3.54 |

Minimum discharge, 3.8 $ft^3/s$, Aug. 20, 21.

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 | 5.5 | 25 | 55 | e8.5 | 57 | 18 | 41 | 86 | 74 | 15 | 4.7 | 17 |
| 2 | 5.4 | 20 | 65 | e7.5 | 40 | 16 | 32 | 90 | 55 | 15 | 4.6 | 53 |
| 3 | 5.2 | 17 | 104 | e6.0 | 32 | 16 | 39 | 74 | 58 | 20 | 4.5 | 30 |
| 4 | 4.9 | 14 | 53 | e5.0 | 30 | 32 | 53 | 76 | 62 | 17 | 4.5 | 21 |
| 5 | 4.9 | 12 | 88 | e7.0 | 25 | 34 | 46 | 73 | 61 | 14 | 4.5 | 18 |
| 6 | 5.0 | 11 | 87 | e7.2 | 23 | 25 | 40 | 48 | 123 | 16 | 7.3 | 15 |
| 7 | 8.6 | 10 | 49 | e8.5 | 26 | 128 | 45 | 50 | 71 | 33 | 29 | 13 |
| 8 | 18 | 10 | 35 | e10 | 23 | 192 | 43 | 58 | 55 | 20 | 13 | 12 |
| 9 | 35 | 9.5 | 27 | 23 | 20 | 160 | 45 | 48 | 56 | 15 | 8.1 | 25 |
| 10 | 39 | 98 | 23 | 52 | 19 | 89 | 57 | 43 | 98 | 20 | 6.3 | 20 |
| 11 | 27 | 288 | 20 | 43 | 21 | 58 | 74 | 40 | 102 | 21 | 5.7 | 234 |
| 12 | 116 | 67 | 20 | 41 | 21 | 50 | 83 | 48 | 74 | 16 | 5.3 | 57 |
| 13 | 115 | 39 | 31 | 59 | 20 | 38 | 71 | 46 | 116 | 13 | 5.0 | 213 |
| 14 | 41 | 28 | 28 | 132 | 26 | 41 | 63 | 44 | 87 | 12 | 4.7 | 387 |
| 15 | 28 | 25 | 24 | 427 | 29 | 46 | 57 | 45 | 69 | 11 | 4.5 | 253 |
| 16 | 255 | 54 | 36 | 163 | 33 | 38 | 50 | 52 | 55 | 10 | 4.4 | 201 |
| 17 | 193 | 155 | 55 | 66 | 32 | 41 | 46 | 46 | 55 | 9.3 | 4.3 | 192 |
| 18 | 61 | 1,220 | 30 | 51 | 46 | 67 | 40 | 53 | 53 | 9.0 | 4.0 | 95 |
| 19 | 42 | 247 | 27 | 60 | 59 | 56 | 36 | 65 | 44 | 8.9 | 4.0 | 75 |
| 20 | 743 | 77 | 54 | 46 | 38 | 37 | 48 | 49 | 38 | 8.5 | 3.9 | 54 |
| 21 | 616 | 45 | 60 | 35 | 27 | 32 | 42 | 47 | 37 | 7.8 | 4.1 | 38 |
| 22 | 112 | 31 | 39 | 29 | 22 | 44 | 36 | 132 | 38 | 7.2 | 68 | 30 |
| 23 | 208 | 30 | 29 | 75 | 20 | 61 | 51 | 83 | 37 | 6.8 | 48 | 26 |
| 24 | 78 | 39 | 30 | 114 | 21 | 63 | 53 | 60 | 32 | 6.5 | 230 | 22 |
| 25 | 44 | 33 | 33 | 55 | 20 | 52 | 43 | 55 | 28 | 6.2 | 281 | 19 |
| 26 | 31 | 29 | 24 | 41 | 18 | 46 | 67 | 174 | 23 | 5.9 | 147 | 16 |
| 27 | 24 | 24 | 20 | 42 | 18 | 60 | 96 | 174 | 20 | 5.6 | 73 | 15 |
| 28 | 252 | 192 | 18 | 150 | 22 | 60 | 84 | 139 | 19 | 5.4 | 44 | 14 |
| 29 | 130 | 559 | 15 | 847 | 21 | 59 | 60 | 166 | 18 | 5.2 | 31 | 13 |
| 30 | 50 | 103 | 13 | 350 | --- | 78 | 65 | 248 | 17 | 5.1 | 23 | 13 |
| 31 | 32 | --- | e11 | 96 | --- | 62 | --- | 134 | --- | 5.0 | 17 | --- |
| TOTAL | 3,329.5 | 3,511.5 | 1,203 | 3,056.7 | 809 | 1,799 | 1,606 | 2,546 | 1,675 | 370.4 | 1,098.4 | 2,191 |
| MEAN | 107 | 117 | 38.8 | 98.6 | 27.9 | 58.0 | 53.5 | 82.1 | 55.8 | 11.9 | 35.4 | 73.0 |
| MAX | 743 | 1,220 | 104 | 847 | 59 | 192 | 96 | 248 | 123 | 33 | 281 | 387 |
| MIN | 4.9 | 9.5 | 11 | 5.0 | 18 | 16 | 32 | 40 | 17 | 5.0 | 3.9 | 12 |
| AC-FT | 6,600 | 6,970 | 2,390 | 6,060 | 1,600 | 3,570 | 3,190 | 5,050 | 3,320 | 735 | 2,180 | 4,350 |
| CFSM | 20.1 | 21.9 | 7.27 | 18.5 | 5.22 | 10.9 | 10.0 | 15.4 | 10.5 | 2.24 | 6.64 | 13.7 |
| IN. | 23.19 | 24.46 | 8.38 | 21.29 | 5.64 | 12.53 | 11.19 | 17.74 | 11.67 | 2.58 | 7.65 | 15.26 |

12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA—Continued

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

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 2004, BY WATER YEAR (WY) | | | | | | | | | | | | |
| MEAN | 45.2 | 79.8 | 73.3 | 73.8 | 60.9 | 48.1 | 63.9 | 79.8 | 67.4 | 30.8 | 14.1 | 25.2 |
| MAX | 107 | 181 | 165 | 154 | 150 | 109 | 116 | 140 | 160 | 81.3 | 37.4 | 73.0 |
| (WY) | (1986) | (1991) | (1976) | (1990) | (1982) | (2003) | (1988) | (1972) | (1974) | (1974) | (1975) | (2004) |
| MIN | 6.24 | 14.0 | 20.0 | 19.8 | 9.41 | 18.6 | 28.6 | 26.0 | 13.1 | 7.32 | 3.83 | 3.56 |
| (WY) | (1988) | (1980) | (1986) | (1981) | (1969) | (1962) | (1975) | (1992) | (1992) | (2003) | (2003) | (1998) |

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1960 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 21,347.1 | | 23,195.5 | | | |
| ANNUAL MEAN | 58.5 | | 63.4 | | 54.8 | |
| HIGHEST ANNUAL MEAN | | | | | 77.8 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 34.3 | 2001 |
| HIGHEST DAILY MEAN | 1,220 | Nov 18 | 1,220 | Nov 18 | 1,220 | Nov 18, 2003 |
| LOWEST DAILY MEAN | 3.1 | Sep 4 | 3.9 | Aug 20 | 2.2 | Sep 9, 1997 |
| ANNUAL SEVEN-DAY MINIMUM | 3.2 | Aug 31 | 4.2 | Aug 15 | 2.2 | Sep 11, 1998 |
| ANNUAL RUNOFF (AC-FT) | 42,340 | | 46,010 | | 39,710 | |
| ANNUAL RUNOFF (CFSM) | 11.0 | | 11.9 | | 10.3 | |
| ANNUAL RUNOFF (INCHES) | 148.71 | | 161.59 | | 139.47 | |
| 10 PERCENT EXCEEDS | 112 | | 131 | | 115 | |
| 50 PERCENT EXCEEDS | 29 | | 38 | | 33 | |
| 90 PERCENT EXCEEDS | 4.2 | | 7.2 | | 7.7 | |

e Estimated

12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1994 to current year.

INSTRUMENTATION.--Temperature recorder since October 1994.

REMARKS.--Records excellent, except for periods Oct. 16 to Jan. 24, Mar. 27 to May 6, and July 28 to Sept. 24, which are good.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURE: Maximum, 18.0°C (rounded), July 27-29, 1998; minimum recorded, 0.0°C, at times during most winter periods.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 17.9°C, July 24; minimum, 0.0°C, Jan. 7, 8.

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

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
| 1 | 11.3 | 9.9 | 10.6 | 5.2 | 4.3 | 4.7 | 4.0 | 3.5 | 3.8 | 1.5 | 0.8 | 1.1 |
| 2 | 10.9 | 9.7 | 10.4 | 4.6 | 3.8 | 4.2 | 4.3 | 3.8 | 4.1 | 1.9 | 1.0 | 1.5 |
| 3 | 10.6 | 9.3 | 10 | 4.2 | 3.4 | 3.8 | 3.9 | 3.2 | 3.6 | 1.4 | 0.1 | 0.7 |
| 4 | 10.4 | 9.3 | 9.9 | 3.6 | 2.9 | 3.2 | 3.3 | 2.7 | 3.1 | 0.6 | 0.1 | 0.2 |
| 5 | 10.9 | 9.9 | 10.3 | 2.9 | 2.3 | 2.6 | 4.0 | 3.1 | 3.5 | 0.2 | 0.1 | 0.1 |
| 6 | 10.8 | 9.7 | 10.3 | 2.8 | 2.0 | 2.4 | 4.0 | 3.6 | 3.8 | 0.2 | 0.1 | 0.1 |
| 7 | 10.8 | 9.8 | 10.5 | 3.8 | 2.6 | 3.2 | 3.8 | 3.2 | 3.5 | 0.1 | 0.0 | 0.1 |
| 8 | 9.8 | 9.0 | 9.4 | 4.4 | 3.8 | 4.1 | 3.7 | 3.0 | 3.4 | 0.4 | 0.0 | 0.1 |
| 9 | 9.1 | 8.4 | 8.8 | 5.4 | 4.3 | 4.9 | 3.2 | 2.8 | 3.0 | 2.3 | 0.3 | 1.4 |
| 10 | 8.6 | 7.9 | 8.4 | 5.3 | 4.9 | 5.1 | 3.4 | 2.9 | 3.2 | 2.6 | 1.9 | 2.3 |
| 11 | 8.4 | 7.7 | 8.0 | 5.8 | 5.1 | 5.5 | 3.6 | 2.9 | 3.2 | 3.2 | 2.5 | 2.8 |
| 12 | 8.0 | 7.8 | 7.9 | 5.2 | 4.8 | 5.0 | 3.3 | 2.4 | 2.9 | 3.3 | 2.8 | 3.0 |
| 13 | 8.2 | 7.7 | 7.9 | 5.1 | 4.6 | 4.9 | 3.3 | 2.8 | 3.1 | 3.3 | 2.8 | 3.1 |
| 14 | 8.3 | 7.1 | 7.8 | 5.5 | 4.7 | 5.2 | 3.2 | 2.5 | 2.8 | 3.3 | 2.2 | 2.9 |
| 15 | 7.6 | 7.1 | 7.4 | 5.4 | 5.1 | 5.2 | 3.6 | 2.9 | 3.3 | 3.0 | 2.4 | 2.7 |
| 16 | 8.5 | 7.3 | 7.8 | 5.2 | 4.8 | 5.1 | 3.6 | 3.3 | 3.5 | 3.4 | 2.9 | 3.1 |
| 17 | 9.1 | 8.3 | 8.8 | 5.4 | 4.7 | 4.9 | 3.6 | 3.2 | 3.4 | 3.5 | 3.0 | 3.2 |
| 18 | 8.6 | 7.8 | 8.2 | 6.6 | 5.3 | 6.0 | 3.7 | 3.3 | 3.4 | 3.4 | 3.3 | 3.3 |
| 19 | 8.8 | 8.1 | 8.4 | 6.7 | 3.1 | 4.4 | 4.1 | 3.4 | 3.8 | 3.6 | 3.0 | 3.3 |
| 20 | 10.5 | 8.5 | 9.4 | 4.0 | 3.9 | 4.0 | 4.1 | 3.8 | 3.9 | 3.0 | 2.7 | 2.8 |
| 21 | 9.9 | 9.5 | 9.8 | 4.0 | 3.1 | 3.7 | 4.1 | 3.5 | 3.8 | 3.1 | 2.6 | 2.8 |
| 22 | 9.9 | 9.4 | 9.7 | 3.5 | 3.0 | 3.3 | 3.8 | 3.3 | 3.6 | 3.5 | 2.7 | 3.1 |
| 23 | 9.4 | 7.5 | 8.4 | 3.7 | 3.2 | 3.5 | 3.9 | 3.5 | 3.7 | 3.6 | 3.1 | 3.3 |
| 24 | 7.7 | 7.2 | 7.4 | 3.6 | 2.2 | 3.2 | 4.0 | 3.5 | 3.8 | 3.2 | 1.0 | 2.2 |
| 25 | 7.8 | 7.0 | 7.4 | 3.2 | 2.4 | 2.8 | 3.6 | 2.7 | 3.4 | 2.5 | 1.2 | 2.1 |
| 26 | 8.3 | 7.4 | 7.8 | 3.6 | 2.9 | 3.3 | 3.1 | 1.8 | 2.7 | 2.2 | 1.3 | 1.7 |
| 27 | 8.8 | 7.8 | 8.3 | 4.0 | 3.5 | 3.7 | 2.8 | 1.8 | 2.5 | 2.8 | 2.2 | 2.5 |
| 28 | 9.3 | 7.7 | 8.5 | 3.8 | 1.7 | 3.4 | 2.3 | 1.3 | 1.9 | 2.6 | 2.4 | 2.5 |
| 29 | 7.7 | 6.5 | 7.2 | 4.2 | 2.7 | 3.7 | 1.5 | 0.7 | 1.2 | 3.1 | 2.3 | 2.7 |
| 30 | 6.5 | 5.1 | 5.7 | 3.8 | 3.4 | 3.6 | 1.8 | 0.7 | 1.2 | 3.2 | 1.8 | 2.3 |
| 31 | 5.1 | 4.4 | 4.7 | --- | --- | --- | 1.4 | 0.4 | 0.9 | 2.5 | 1.8 | 2.2 |
| MONTH | 11.3 | 4.4 | 8.6 | 6.7 | 1.7 | 4.1 | 4.3 | 0.4 | 3.1 | 3.6 | 0.0 | 2.1 |

12147600 SOUTH FORK TOLT RIVER NEAR INDEX, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—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 | 2.5 | 1.6 | 2.1 | 4.2 | 3.0 | 3.5 | 4.6 | 2.5 | 3.5 | 8.1 | 5.3 | 6.5 |
| 2 | 2.1 | 1.4 | 1.9 | 3.9 | 2.4 | 3.0 | 5.9 | 2.9 | 4.2 | 7.0 | 5.4 | 6.0 |
| 3 | 2.6 | 1.9 | 2.3 | 2.5 | 1.4 | 1.9 | 6.6 | 4.2 | 5.2 | 7.5 | 4.9 | 6.1 |
| 4 | 2.4 | 1.7 | 2.2 | 3.0 | 1.7 | 2.4 | 5.7 | 3.8 | 4.7 | 6.1 | 5.4 | 5.8 |
| 5 | 2.6 | 1.7 | 2.1 | 2.7 | 2.1 | 2.4 | 4.7 | 4.1 | 4.3 | 5.8 | 4.8 | 5.3 |
| 6 | 2.3 | 1.8 | 2.1 | 3.4 | 2.3 | 2.8 | 6.5 | 4.0 | 5.0 | 7.6 | 4.4 | 5.9 |
| 7 | 2.5 | 1.8 | 2.2 | 3.1 | 2.4 | 2.7 | 5.1 | 4.3 | 4.8 | 7.2 | 5.7 | 6.3 |
| 8 | 2.6 | 2.1 | 2.4 | 4.0 | 2.4 | 3.1 | 6.2 | 3.7 | 4.9 | 6.7 | 5.1 | 5.8 |
| 9 | 2.8 | 1.9 | 2.3 | 3.7 | 3.0 | 3.4 | 6.9 | 3.9 | 5.2 | 7.1 | 5.3 | 6.1 |
| 10 | 2.5 | 1.8 | 2.1 | 3.8 | 2.6 | 3.1 | 7.0 | 4.3 | 5.4 | 5.9 | 5.1 | 5.5 |
| 11 | 2.9 | 2.3 | 2.6 | 4.2 | 2.6 | 3.3 | 7.1 | 4.6 | 5.6 | 5.7 | 5.2 | 5.5 |
| 12 | 2.7 | 1.9 | 2.3 | 3.8 | 2.8 | 3.4 | 6.3 | 4.1 | 5.1 | 7.0 | 5.2 | 6.0 |
| 13 | 3.0 | 1.9 | 2.4 | 4.3 | 2.7 | 3.4 | 5.5 | 4.5 | 4.9 | 7.6 | 5.2 | 6.4 |
| 14 | 3.1 | 2.5 | 2.8 | 3.8 | 3.5 | 3.6 | 4.9 | 4.1 | 4.5 | 8.0 | 5.3 | 6.6 |
| 15 | 3.2 | 2.6 | 2.9 | 4.4 | 3.4 | 3.8 | 5.1 | 3.9 | 4.4 | 7.3 | 5.8 | 6.4 |
| 16 | 2.9 | 2.5 | 2.7 | 4.4 | 3.4 | 3.8 | 5.2 | 4.0 | 4.5 | 6.4 | 5.9 | 6.1 |
| 17 | 3.3 | 2.6 | 3.0 | 4.4 | 3.6 | 3.9 | 5.3 | 4.0 | 4.5 | 8.7 | 5.5 | 6.9 |
| 18 | 3.3 | 2.9 | 3.0 | 3.9 | 2.2 | 3.3 | 5.4 | 4.1 | 4.7 | 9.0 | 6.2 | 7.6 |
| 19 | 3.3 | 2.6 | 2.9 | 3.2 | 2.2 | 2.6 | 6.5 | 3.9 | 5.0 | 7.6 | 6.7 | 7.0 |
| 20 | 3.1 | 2.4 | 2.7 | 4.0 | 2.2 | 3.0 | 5.5 | 4.4 | 4.9 | 7.3 | 6.5 | 6.9 |
| 21 | 3.3 | 2.5 | 2.8 | 5.2 | 3.3 | 4.1 | 6.0 | 3.9 | 4.8 | 6.9 | 6.6 | 6.7 |
| 22 | 3.3 | 2.4 | 2.8 | 5.6 | 3.8 | 4.5 | 7.5 | 3.8 | 5.4 | 6.6 | 5.9 | 6.2 |
| 23 | 4.0 | 2.9 | 3.4 | 4.8 | 3.9 | 4.3 | 5.4 | 4.3 | 4.9 | 7.1 | 5.8 | 6.3 |
| 24 | 3.9 | 2.9 | 3.4 | 3.9 | 3.1 | 3.6 | 6.4 | 3.8 | 4.9 | 8.2 | 5.8 | 6.8 |
| 25 | 3.2 | 2.5 | 2.9 | 4.0 | 3.0 | 3.4 | 7.9 | 4.1 | 5.7 | 8.1 | 6.1 | 7.1 |
| 26 | 3.9 | 2.7 | 3.2 | 4.0 | 3.1 | 3.5 | 8.4 | 5.4 | 6.6 | 7.2 | 6.7 | 6.9 |
| 27 | 4.0 | 3.1 | 3.5 | 3.9 | 3.3 | 3.6 | 5.8 | 4.1 | 5.0 | 6.8 | 6.2 | 6.5 |
| 28 | 3.6 | 3.1 | 3.3 | 5.3 | 3.1 | 4.1 | 6.3 | 4.0 | 5.0 | 6.4 | 5.8 | 6.1 |
| 29 | 3.9 | 2.8 | 3.3 | 6.1 | 3.9 | 4.8 | 7.7 | 4.2 | 5.8 | 6.1 | 5.8 | 5.9 |
| 30 | --- | --- | --- | 4.4 | 3.3 | 4.1 | 8.3 | 5.2 | 6.5 | 6.5 | 5.9 | 6.1 |
| 31 | --- | --- | --- | 4.2 | 3.0 | 3.5 | --- | --- | --- | 6.4 | 5.7 | 6.1 |
| MONTH | 4.0 | 1.4 | 2.7 | 6.1 | 1.4 | 3.4 | 8.4 | 2.5 | 5.0 | 9.0 | 4.4 | 6.3 |
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 7.2 | 5.7 | 6.5 | 14.5 | 10.2 | 12.1 | 17.0 | 13.6 | 15.0 | 12.0 | 10.7 | 11.4 |
| 2 | 9.4 | 5.9 | 7.5 | 13.2 | 10.7 | 11.8 | 16.5 | 13.5 | 14.8 | 10.9 | 10.4 | 10.7 |
| 3 | 10.6 | 7.0 | 8.7 | 11.7 | 10.9 | 11.2 | 15.1 | 13.9 | 14.5 | 11.4 | 10.2 | 10.7 |
| 4 | 11.2 | 7.7 | 9.2 | 11.0 | 10.5 | 10.7 | 14.5 | 13.0 | 13.9 | 11.1 | 10.4 | 10.7 |
| 5 | 9.2 | 7.8 | 8.4 | 13.8 | 10.0 | 11.5 | 13.7 | 12.9 | 13.4 | 12.1 | 10.2 | 10.9 |
| 6 | 8.1 | 7.0 | 7.5 | 11.9 | 10.8 | 11.1 | 12.9 | 12.0 | 12.4 | 11.6 | 9.5 | 10.5 |
| 7 | 7.7 | 6.9 | 7.3 | 11.1 | 10.0 | 10.5 | 13.1 | 11.7 | 12.3 | 12.0 | 9.8 | 10.8 |
| 8 | 9.8 | 6.8 | 8.2 | 12.7 | 9.8 | 10.9 | 15.6 | 11.4 | 13.2 | 11.6 | 10.0 | 10.8 |
| 9 | 8.4 | 8.0 | 8.1 | 11.0 | 10.1 | 10.6 | 16.2 | 12.7 | 14.2 | 11.4 | 10.4 | 10.9 |
| 10 | 8.1 | 6.9 | 7.5 | 11.1 | 9.9 | 10.3 | 16.6 | 13.3 | 14.7 | 11.5 | 9.6 | 10.5 |
| 11 | 6.9 | 6.6 | 6.8 | 12.6 | 9.8 | 10.9 | 17.0 | 13.7 | 15.1 | 11.7 | 10.2 | 10.7 |
| 12 | 7.7 | 6.6 | 7.1 | 14.6 | 9.8 | 11.9 | 17.0 | 14.2 | 15.4 | 10.6 | 9.8 | 10.1 |
| 13 | 7.5 | 6.8 | 7.2 | 14.6 | 11.0 | 12.4 | 17.1 | 14.3 | 15.6 | 10.0 | 9.4 | 9.7 |
| 14 | 7.2 | 6.5 | 6.8 | 15.2 | 11.2 | 12.9 | 15.8 | 14.6 | 15.2 | 9.5 | 8.8 | 9.2 |
| 15 | 9.6 | 5.9 | 7.7 | 14.7 | 11.6 | 13.0 | 16.9 | 14.3 | 15.4 | 9.6 | 8.7 | 9.2 |
| 16 | 10.8 | 7.1 | 8.8 | 15.6 | 11.2 | 13.2 | 16.6 | 14.5 | 15.5 | 9.2 | 8.7 | 8.9 |
| 17 | 11.5 | 8.3 | 9.7 | 14.4 | 11.9 | 13.2 | 17.0 | 14.6 | 15.5 | 9.2 | 8.7 | 9.0 |
| 18 | 11.6 | 8.9 | 10 | 15.1 | 12.1 | 13.4 | 16.6 | 14.1 | 15.2 | 8.7 | 8.3 | 8.4 |
| 19 | 11.7 | 8.7 | 10 | 14.2 | 12.6 | 13.4 | 16.8 | 14.3 | 15.4 | 9.0 | 8.0 | 8.4 |
| 20 | 12.7 | 8.7 | 10.4 | 13.7 | 12.3 | 12.8 | 16.1 | 14.4 | 15.3 | 9.0 | 8.2 | 8.6 |
| 21 | 13.1 | 9.2 | 10.9 | 15.8 | 12.0 | 13.6 | 15.5 | 14.6 | 15.0 | 9.2 | 7.9 | 8.5 |
| 22 | 13.7 | 9.8 | 11.5 | 16.5 | 12.4 | 14.2 | 14.8 | 11.8 | 13.0 | 9.3 | 8.2 | 8.7 |
| 23 | 11.4 | 10.3 | 10.8 | 17.3 | 13.3 | 15.0 | 12.3 | 11.6 | 11.8 | 9.7 | 8.7 | 9.1 |
| 24 | 10.5 | 10.0 | 10.2 | 17.9 | 14.0 | 15.7 | 11.7 | 10.8 | 11.4 | 9.8 | 8.1 | 8.9 |
| 25 | 11.0 | 9.8 | 10.3 | 16.4 | 14.0 | 15.1 | 10.8 | 10.4 | 10.7 | 10.1 | 8.4 | 9.2 |
| 26 | 13.0 | 9.7 | 11.0 | 16.2 | 13.2 | 14.5 | 11.1 | 10.2 | 10.5 | 10.1 | 8.7 | 9.3 |
| 27 | 13.8 | 9.6 | 11.4 | 16.1 | 12.7 | 14.2 | 11.0 | 10.4 | 10.6 | 10.0 | 8.3 | 9.1 |
| 28 | 14.1 | 9.7 | 11.7 | 16.7 | 13.2 | 14.8 | 11.3 | 10.5 | 10.8 | 10.2 | 8.6 | 9.3 |
| 29 | 14.3 | 10.2 | 12.0 | 17.0 | 13.6 | 15.1 | 12.5 | 10.7 | 11.4 | 9.4 | 8.6 | 9.0 |
| 30 | 13.2 | 10.3 | 11.6 | 16.5 | 13.8 | 15.0 | 13.0 | 10.5 | 11.6 | 9.7 | 9.0 | 9.2 |
| 31 | --- | --- | --- | 17.0 | 14.0 | 15.2 | 13.3 | 10.8 | 11.9 | --- | --- | --- |
| MONTH | 14.3 | 5.7 | 9.2 | 17.9 | 9.8 | 12.9 | 17.1 | 10.2 | 13.6 | 12.1 | 7.9 | 9.7 |
| YEAR | 17.9 | 0.0 | 6.7 | | | | | | | | | |

## 12147900 SOUTH FORK TOLT RESERVOIR NEAR CARNATION, WA

LOCATION.--Lat 47°41'38", long 121°41'16", in NW¼SW¼, sec.32, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on top and near the center of the dam, 11.4 mi northeast of Carnation, and at mile 8.4.

DRAINAGE AREA.--18.8 $mi^2$.

PERIOD OF RECORD.--October 1991 to current year.

REVISED RECORDS.--WA-98-1: 1997.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929 (Seattle Water Department benchmark).

REMARKS.--Reservoir is formed by earthfill dam, with a concrete glory hole spillway, completed in 1962. Water used for municipal water supply by Seattle Water Department. Usable capacity, 15,600 acre-ft between elevations 1,749 ft (minimum pool) and 1,765 ft (maximum normal pool). Top of dam is at 1,775 ft with top of spillway at 1,757 ft. Flood control between elevations 1,749 and 1,757 ft. U.S. Geological Survey satellite telemeter at station.

COOPERATION.--Capacity table furnished by Seattle Water Department.

EXTREMES FOR PERIOD OF RECORD.--Maximum contents, 59,500 acre-ft, July 9, 1997, elevation, 1,766.53 ft; minimum contents observed, 16,280 acre-ft, Oct. 12, 2003, elevation, 1,711.77 ft.

EXTREMES FOR CURRENT YEAR.--Maximum contents, 52,400 acre-ft, June 14, elevation, 1,759.49 ft; minimum contents observed, 16,280, Oct. 12, elevation, 1,711.77 ft.

ELEVATION OF RESERVOIR WATER SURFACE ABOVE DATUM, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY OBSERVATION AT 2400 HOURS

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1,714.84 | 1,729.86 | 1,743.88 | 1,746.78 | 1,759.44 | 1,754.94 | 1,757.45 | 1,757.13 | 1,759.21 | 1,755.97 | 1,746.62 | 1,742.92 |
| 2 | 1,714.45 | 1,729.77 | 1,744.29 | 1,746.63 | 1,759.33 | 1,754.65 | 1,757.45 | 1,757.14 | 1,759.19 | 1,755.64 | 1,746.24 | 1,742.94 |
| 3 | 1,714.01 | 1,729.62 | 1,744.74 | 1,746.50 | 1,759.12 | 1,754.53 | 1,757.40 | 1,757.18 | 1,759.14 | 1,755.51 | 1,745.91 | 1,742.85 |
| 4 | 1,713.58 | 1,729.49 | 1,744.99 | 1,746.37 | 1,758.93 | 1,754.63 | 1,757.39 | 1,757.23 | 1,759.07 | 1,755.24 | 1,745.57 | 1,742.70 |
| 5 | 1,713.22 | 1,729.34 | 1,745.53 | 1,746.17 | 1,758.73 | 1,754.71 | 1,757.36 | 1,757.22 | 1,758.98 | 1,755.00 | 1,745.23 | 1,742.56 |
| 6 | 1,713.06 | 1,729.20 | 1,745.87 | 1,746.02 | 1,758.39 | 1,754.64 | 1,757.23 | 1,757.10 | 1,759.18 | 1,754.74 | 1,745.03 | 1,742.41 |
| 7 | 1,712.88 | 1,729.04 | 1,746.01 | 1,746.07 | 1,758.13 | 1,755.07 | 1,757.14 | 1,757.02 | 1,759.19 | 1,754.59 | 1,744.91 | 1,742.19 |
| 8 | 1,712.25 | 1,728.87 | 1,746.11 | 1,746.10 | 1,757.81 | 1,755.63 | 1,757.06 | 1,756.96 | 1,759.10 | 1,754.41 | 1,744.68 | 1,742.01 |
| 9 | 1,712.14 | 1,728.73 | 1,746.09 | 1,746.11 | 1,757.41 | 1,756.07 | 1,756.98 | 1,756.82 | 1,759.06 | 1,754.16 | 1,744.36 | 1,741.88 |
| 10 | 1,711.95 | 1,729.53 | 1,746.05 | 1,746.39 | 1,757.16 | 1,756.35 | 1,756.93 | 1,756.71 | 1,759.10 | 1,754.00 | 1,743.99 | 1,741.84 |
| 11 | 1,711.83 | 1,730.89 | 1,746.03 | 1,746.53 | 1,756.93 | 1,756.46 | 1,756.89 | 1,756.65 | 1,759.20 | 1,753.84 | 1,743.62 | 1,742.65 |
| 12 | 1,711.77 | 1,731.14 | 1,745.99 | 1,746.70 | 1,756.67 | 1,756.48 | 1,756.88 | 1,756.65 | 1,759.24 | 1,753.59 | 1,743.25 | 1,742.71 |
| 13 | 1,712.44 | 1,731.19 | 1,746.15 | 1,746.96 | 1,756.37 | 1,756.48 | 1,756.91 | 1,756.58 | 1,759.42 | 1,753.29 | 1,742.90 | 1,744.17 |
| 14 | 1,712.54 | 1,731.18 | 1,746.24 | 1,747.71 | 1,756.31 | 1,756.56 | 1,757.00 | 1,756.46 | 1,759.47 | 1,753.01 | 1,742.53 | 1,746.47 |
| 15 | 1,712.50 | 1,731.21 | 1,746.25 | 1,749.74 | 1,756.22 | 1,756.50 | 1,757.12 | 1,756.35 | 1,759.46 | 1,752.68 | 1,742.17 | 1,747.49 |
| 16 | 1,712.61 | 1,731.53 | 1,746.33 | 1,750.45 | 1,756.13 | 1,756.48 | 1,757.12 | 1,756.32 | 1,759.40 | 1,752.40 | 1,741.80 | 1,748.42 |
| 17 | 1,714.69 | 1,732.15 | 1,746.55 | 1,750.69 | 1,756.13 | 1,756.47 | 1,757.14 | 1,756.27 | 1,759.26 | 1,752.05 | 1,741.44 | 1,749.18 |
| 18 | 1,714.88 | 1,736.61 | 1,746.66 | 1,750.89 | 1,756.18 | 1,756.50 | 1,757.16 | 1,756.15 | 1,759.08 | 1,751.73 | 1,741.07 | 1,749.59 |
| 19 | 1,714.85 | 1,738.00 | 1,746.65 | 1,751.13 | 1,756.29 | 1,756.57 | 1,757.08 | 1,756.02 | 1,758.92 | 1,751.39 | 1,740.71 | 1,749.80 |
| 20 | 1,721.01 | 1,738.31 | 1,746.98 | 1,751.21 | 1,756.32 | 1,756.52 | 1,757.14 | 1,755.86 | 1,758.75 | 1,751.05 | 1,740.33 | 1,749.87 |
| 21 | 1,725.04 | 1,738.48 | 1,747.23 | 1,751.26 | 1,756.26 | 1,756.45 | 1,757.11 | 1,755.69 | 1,758.56 | 1,750.68 | 1,740.05 | 1,749.89 |
| 22 | 1,725.81 | 1,738.53 | 1,747.33 | 1,751.27 | 1,756.10 | 1,756.43 | 1,757.10 | 1,755.96 | 1,758.27 | 1,750.33 | 1,740.41 | 1,749.86 |
| 23 | 1,727.16 | 1,738.74 | 1,747.31 | 1,751.77 | 1,755.97 | 1,756.44 | 1,757.13 | 1,756.05 | 1,758.07 | 1,749.95 | 1,740.36 | 1,749.80 |
| 24 | 1,727.51 | 1,739.00 | 1,747.29 | 1,752.40 | 1,755.80 | 1,756.58 | 1,757.16 | 1,755.92 | 1,757.85 | 1,749.57 | 1,741.55 | 1,749.75 |
| 25 | 1,727.68 | 1,739.20 | 1,747.37 | 1,752.63 | 1,755.63 | 1,756.64 | 1,757.09 | 1,755.84 | 1,757.68 | 1,749.18 | 1,742.60 | 1,749.62 |
| 26 | 1,727.68 | 1,739.39 | 1,747.37 | 1,752.85 | 1,755.50 | 1,756.67 | 1,757.10 | 1,756.31 | 1,757.49 | 1,748.81 | 1,743.13 | 1,749.50 |
| 27 | 1,727.63 | 1,739.45 | 1,747.34 | 1,752.97 | 1,755.38 | 1,756.90 | 1,757.19 | 1,756.81 | 1,757.17 | 1,748.48 | 1,743.38 | 1,749.37 |
| 28 | 1,729.10 | 1,740.47 | 1,747.28 | 1,753.71 | 1,755.28 | 1,757.11 | 1,757.19 | 1,757.30 | 1,756.86 | 1,748.11 | 1,743.43 | 1,749.25 |
| 29 | 1,729.73 | 1,743.12 | 1,747.14 | 1,757.86 | 1,755.14 | 1,757.16 | 1,757.16 | 1,757.89 | 1,756.59 | 1,747.74 | 1,743.36 | 1,749.12 |
| 30 | 1,729.83 | 1,743.70 | 1,746.96 | 1,759.28 | --- | 1,757.36 | 1,757.10 | 1,758.72 | 1,756.28 | 1,747.36 | 1,743.21 | 1,748.97 |
| 31 | 1,729.85 | --- | 1,746.90 | 1,759.46 | --- | 1,757.47 | --- | 1,759.12 | --- | 1,746.99 | 1,743.03 | --- |
| MEAN | 1,718.66 | 1,734.19 | 1,746.35 | 1,750.02 | 1,756.86 | 1,756.18 | 1,757.14 | 1,756.76 | 1,758.61 | 1,751.98 | 1,743.12 | 1,746.33 |
| MAX | 1,729.85 | 1,743.70 | 1,747.37 | 1,759.46 | 1,759.44 | 1,757.47 | 1,757.45 | 1,759.12 | 1,759.47 | 1,755.97 | 1,746.62 | 1,749.89 |
| MIN | 1,711.77 | 1,728.73 | 1,743.88 | 1,746.02 | 1,755.14 | 1,754.53 | 1,756.88 | 1,755.69 | 1,756.28 | 1,746.99 | 1,740.05 | 1,741.84 |
| † | 26,700 | 37,660 | 40,470 | 52,380 | 48,190 | 50,450 | 50,090 | 52,050 | 49,290 | 40,550 | 37,070 | 42,290 |
| ‡ | +8,550 | +10,960 | +2,810 | +11,910 | -4,190 | +2,260 | -360 | +1,960 | -2,760 | -8,740 | -3,480 | +5,220 |

CAL YR 2003 MEAN 1,742.90 MAX 1,761.82 MIN 1,711.77 AC-FT‡ +10,730
WTR YR 2004 MEAN 1,747.96 MAX 1,759.47 MIN 1,711.77 AC-FT‡ +24,140

† Contents, in acre-feet, at 2400, on last day of month.
‡ Change in contents, in acre-feet.

## 12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°41'22", long 121°42'44", in SW¼SW¼, sec.31, T.26 N., R.9 E., King County, Hydrologic Unit 17110010, on left bank 0.1 mi upstream from private road bridge, 1.6 mi downstream from South Fork Tolt Reservoir, 9.8 mi northeast of Carnation, and at mile 6.8.

DRAINAGE AREA.--19.7 $mi^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1952 to December 1963, June 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,300 ft above NGVD of 1929, from river-profile map.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Regulation by South Fork Tolt Reservoir since September 1963. During the current water year the Seattle Water Department diverted an average daily discharge of about 81 $ft^3/s$ upstream from the station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--11 years (water years 1953-63), 198 $ft^3/s$, 143,300 acre-ft/yr (unregulated). 35 years (water years 1970-2004), 102 $ft^3/s$, 74,010 acre-ft/yr (regulated).

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 6,500 $ft^3/s$, Dec. 15, 1959, gage height, 7.45 ft, from rating curve extended above 2,700 $ft^3/s$; maximum gage height, 7.62 ft, Nov. 20, 1958, backwater from debris; minimum discharge, 8.4 $ft^3/s$, Sept. 12, 1963, minimum gage height, 0.81 ft, Aug. 23-27, 1958.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 289 $ft^3/s$, Sept. 13, gage height, 3.12 ft; minimum discharge, 43 $ft^3/s$, Jan. 6, gage height, 1.92 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 | 59 | 64 | 66 | 48 | 70 | 62 | 70 | 72 | 83 | 67 | 67 | 67 |
| 2 | 59 | 63 | 65 | 47 | 66 | 62 | 70 | 72 | 80 | 66 | 67 | 65 |
| 3 | 58 | 62 | 65 | 47 | 64 | 65 | 72 | 72 | 80 | 67 | 67 | 63 |
| 4 | 56 | 59 | 62 | 45 | 66 | 73 | 72 | 72 | 78 | 66 | 67 | 62 |
| 5 | 56 | 56 | 68 | 45 | 63 | 69 | 72 | 72 | 74 | 66 | 67 | 61 |
| 6 | 56 | 53 | 65 | 47 | 139 | 67 | 71 | 71 | 74 | 67 | 67 | 61 |
| 7 | 56 | 51 | 62 | 52 | 148 | 70 | 71 | 72 | 73 | 70 | 68 | 61 |
| 8 | 57 | 50 | 61 | 56 | 142 | 68 | 71 | 72 | 68 | 68 | 67 | 61 |
| 9 | 56 | 49 | 58 | 58 | 138 | 68 | 71 | 72 | 67 | 67 | 67 | 61 |
| 10 | 55 | 53 | 56 | 61 | 81 | 65 | 72 | 72 | 68 | 67 | 67 | 61 |
| 11 | 56 | 56 | 55 | 60 | 58 | 64 | 72 | 73 | 69 | 67 | 66 | 71 |
| 12 | 57 | 52 | 55 | 60 | 56 | 64 | 72 | 72 | 68 | 67 | 66 | 64 |
| 13 | 56 | 49 | 57 | 58 | 55 | 63 | 70 | 72 | 70 | 66 | 66 | 99 |
| 14 | 56 | 47 | 57 | 62 | 56 | 65 | e71 | 72 | 69 | 66 | 66 | 129 |
| 15 | 56 | 47 | 56 | 75 | 55 | 64 | e70 | 72 | 68 | 66 | 67 | 95 |
| 16 | 60 | 50 | 57 | 64 | 56 | 64 | e70 | 72 | 67 | 66 | 67 | 93 |
| 17 | 61 | 50 | 57 | 59 | 55 | 64 | e70 | 72 | 67 | 66 | 67 | 94 |
| 18 | 59 | 75 | 55 | 57 | 56 | 64 | 69 | 72 | 67 | 67 | 66 | 89 |
| 19 | 58 | 67 | 55 | 56 | 58 | 64 | 69 | 72 | 67 | 67 | 64 | 85 |
| 20 | 117 | 58 | 56 | 54 | 55 | 64 | e72 | 71 | 67 | 67 | 64 | 83 |
| 21 | 105 | 54 | 55 | 53 | 55 | 64 | e71 | 71 | 67 | 67 | 65 | 80 |
| 22 | 74 | 53 | 54 | 53 | 55 | 64 | 69 | 73 | 66 | 67 | 74 | 80 |
| 23 | 79 | 55 | 52 | 61 | 56 | 64 | 69 | 72 | 67 | 67 | 66 | 79 |
| 24 | 68 | 56 | 51 | 63 | 56 | 67 | 69 | 72 | 67 | 67 | 87 | 77 |
| 25 | 65 | 58 | 52 | 57 | 55 | 67 | 68 | 75 | 67 | 67 | 82 | 77 |
| 26 | 63 | 58 | 51 | 60 | 55 | 67 | 69 | 86 | 67 | 67 | 77 | 77 |
| 27 | 62 | 55 | 51 | 60 | 56 | 69 | 69 | 87 | 66 | 67 | 73 | 77 |
| 28 | 77 | 65 | 51 | 68 | 55 | 68 | 69 | 88 | 67 | 66 | 71 | 74 |
| 29 | 70 | 96 | 50 | 132 | 59 | 67 | 69 | 87 | 67 | 66 | 69 | 72 |
| 30 | 66 | 70 | 49 | 95 | --- | 71 | 70 | e88 | 66 | 66 | 69 | 70 |
| 31 | 64 | --- | 49 | 76 | --- | 71 | --- | 86 | --- | 67 | 68 | --- |
| TOTAL | 1,997 | 1,731 | 1,753 | 1,889 | 2,039 | 2,048 | 2,109 | 2,324 | 2,091 | 2,070 | 2,131 | 2,288 |
| MEAN | 64.4 | 57.7 | 56.5 | 60.9 | 70.3 | 66.1 | 70.3 | 75.0 | 69.7 | 66.8 | 68.7 | 76.3 |
| MAX | 117 | 96 | 68 | 132 | 148 | 73 | 72 | 88 | 83 | 70 | 87 | 129 |
| MIN | 55 | 47 | 49 | 45 | 55 | 62 | 68 | 71 | 66 | 66 | 64 | 61 |
| AC-FT | 3,960 | 3,430 | 3,480 | 3,750 | 4,040 | 4,060 | 4,180 | 4,610 | 4,150 | 4,110 | 4,230 | 4,540 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 68.9 | 136 | 157 | 172 | 132 | 96.1 | 94.5 | 106 | 93.8 | 63.6 | 51.3 | 62.2 |
| MAX | 161 | 499 | 481 | 436 | 468 | 326 | 247 | 235 | 282 | 176 | 150 | 196 |
| (WY) | (1972) | (1991) | (1976) | (1984) | (1982) | (1972) | (1989) | (1974) | (1974) | (1969) | (1969) | (1972) |
| MIN | 32.9 | 35.1 | 43.7 | 42.3 | 34.9 | 33.5 | 31.1 | 47.3 | 37.8 | 29.7 | 29.5 | 33.0 |
| (WY) | (1988) | (1988) | (1988) | (1988) | (1977) | (1978) | (1978) | (1978) | (1973) | (1982) | (1977) | (1987) |

12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1969 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 23,898 | | 24,470 | | | |
| ANNUAL MEAN | 65.5 | | 66.9 | | 102 | |
| HIGHEST ANNUAL MEAN | | | | | 195 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 52.3 | 1977 |
| HIGHEST DAILY MEAN | 230 | Apr 2 | 148 | Feb 7 | 3,500 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 47 | Jan 18 | 45 | Jan 4 | 21 | Sep 1, 1977 |
| ANNUAL SEVEN-DAY MINIMUM | 49 | Jan 15 | 47 | Dec 31 | 25 | Aug 27, 1977 |
| ANNUAL RUNOFF (AC-FT) | 47,400 | | 48,540 | | 74,010 | |
| 10 PERCENT EXCEEDS | 74 | | 77 | | 182 | |
| 50 PERCENT EXCEEDS | 64 | | 67 | | 64 | |
| 90 PERCENT EXCEEDS | 54 | | 55 | | 40 | |

e Estimated

12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1994 to current year.

INSTRUMENTATION.--Temperature recorder since October 1994.

REMARKS.--Records excellent Oct. 1 to Sept. 25; records good Sept. 26-30.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURE: Maximum recorded, 18.1°C, Sept. 5, 2003; minimum, 1.0°C (rounded), Feb. 3, 1996, Dec. 29, 1996, Jan. 27, 1997.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 15.8°C, Oct. 1 and 6; minimum, 0.6°C, Jan. 7.

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

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
| 1 | 15.8 | 14.5 | 15.0 | 9.2 | 8.7 | 8.9 | 6.1 | 5.8 | 6.0 | 4.1 | 3.3 | 3.7 |
| 2 | 15.2 | 14.7 | 14.9 | 8.8 | 8.2 | 8.6 | 6.5 | 5.9 | 6.3 | 4.1 | 3.5 | 3.8 |
| 3 | 15.6 | 14.4 | 14.9 | 8.5 | 7.9 | 8.2 | 5.9 | 5.2 | 5.6 | 3.8 | 3.0 | 3.4 |
| 4 | 15.5 | 14.4 | 14.8 | 8.1 | 7.6 | 7.8 | 5.4 | 5.1 | 5.3 | 3.1 | 2.1 | 2.8 |
| 5 | 15.2 | 14.7 | 14.9 | 7.8 | 7.2 | 7.5 | 5.8 | 5.4 | 5.6 | 2.1 | 1.5 | 1.8 |
| 6 | 15.8 | 14.6 | 15.1 | 7.7 | 7.1 | 7.3 | 5.8 | 5.3 | 5.6 | 1.7 | 1.0 | 1.4 |
| 7 | 15.2 | 14.5 | 14.9 | 7.8 | 7.1 | 7.4 | 5.7 | 5.0 | 5.4 | 2.6 | 0.6 | 1.9 |
| 8 | 14.9 | 14.2 | 14.5 | 7.8 | 7.3 | 7.5 | 5.7 | 5.0 | 5.4 | 2.9 | 2.5 | 2.7 |
| 9 | 14.4 | 14.0 | 14.2 | 8.0 | 7.5 | 7.6 | 5.2 | 4.9 | 5.1 | 3.2 | 2.8 | 3.0 |
| 10 | 14.3 | 13.6 | 13.9 | 7.6 | 7.3 | 7.4 | 5.4 | 5.0 | 5.2 | 3.4 | 2.9 | 3.1 |
| 11 | 13.9 | 13.4 | 13.6 | 7.7 | 6.8 | 7.3 | 5.5 | 4.9 | 5.2 | 3.6 | 3.0 | 3.3 |
| 12 | 13.5 | 13.2 | 13.3 | 7.2 | 6.6 | 6.9 | 5.5 | 5.0 | 5.2 | 3.8 | 3.3 | 3.5 |
| 13 | 13.6 | 12.5 | 13.3 | 7.3 | 6.6 | 6.8 | 5.4 | 5.0 | 5.2 | 4.3 | 3.6 | 3.9 |
| 14 | 12.7 | 11.9 | 12.4 | 7.5 | 6.8 | 7.3 | 5.2 | 4.9 | 5.1 | 4.3 | 4.0 | 4.2 |
| 15 | 12.7 | 11.8 | 12.4 | 7.3 | 7.1 | 7.1 | 5.4 | 5.0 | 5.1 | 4.7 | 4.2 | 4.4 |
| 16 | 12.9 | 12.1 | 12.6 | 7.2 | 7.0 | 7.1 | 5.5 | 5.0 | 5.3 | 4.4 | 3.6 | 4.0 |
| 17 | 12.9 | 12.1 | 12.7 | 7.3 | 6.7 | 7.0 | 5.3 | 4.8 | 5.1 | 4.4 | 3.8 | 4.1 |
| 18 | 12.6 | 11.8 | 12.1 | 7.9 | 7.3 | 7.6 | 5.3 | 4.8 | 5.0 | 4.4 | 4.1 | 4.2 |
| 19 | 12.4 | 11.9 | 12.1 | 7.9 | 4.9 | 6.0 | 5.4 | 5.0 | 5.2 | 4.8 | 3.9 | 4.3 |
| 20 | 12.8 | 11.9 | 12.4 | 6.2 | 5.9 | 6.0 | 5.6 | 5.3 | 5.4 | 4.2 | 3.7 | 3.9 |
| 21 | 12.4 | 11.8 | 12.1 | 6.4 | 5.5 | 6.0 | 5.6 | 4.9 | 5.3 | 4.3 | 3.6 | 3.9 |
| 22 | 12.5 | 11.5 | 12.3 | 6.0 | 5.5 | 5.8 | 5.3 | 4.7 | 5.0 | 4.5 | 3.9 | 4.1 |
| 23 | 11.5 | 10.5 | 10.9 | 6.2 | 5.9 | 6.0 | 5.3 | 4.9 | 5.1 | 4.7 | 4.1 | 4.4 |
| 24 | 11.1 | 10.4 | 10.7 | 6.2 | 4.9 | 5.8 | 5.3 | 5.1 | 5.2 | 4.6 | 2.3 | 3.7 |
| 25 | 11.3 | 10.4 | 10.8 | 6.0 | 5.6 | 5.8 | 5.2 | 4.4 | 5.0 | 4.1 | 3.1 | 3.8 |
| 26 | 11.7 | 10.9 | 11.2 | 6.1 | 5.7 | 5.9 | 4.7 | 3.6 | 4.4 | 4.2 | 3.7 | 3.9 |
| 27 | 11.9 | 11.1 | 11.4 | 6.3 | 5.7 | 5.9 | 4.7 | 4.2 | 4.4 | 4.6 | 4.1 | 4.3 |
| 28 | 11.4 | 9.9 | 10.9 | 6.3 | 5.8 | 6.1 | 4.6 | 3.9 | 4.3 | 4.6 | 4.2 | 4.4 |
| 29 | 10.3 | 9.6 | 10.0 | 6.4 | 5.9 | 6.1 | 4.0 | 3.6 | 3.8 | 5.5 | 4.5 | 5.1 |
| 30 | 9.6 | 8.8 | 9.3 | 5.9 | 5.4 | 5.6 | 4.2 | 3.5 | 3.8 | 5.4 | 4.2 | 4.8 |
| 31 | 9.2 | 8.6 | 8.8 | --- | --- | --- | 4.1 | 3.4 | 3.8 | 4.9 | 4.4 | 4.6 |
| MONTH | 15.8 | 8.6 | 12.7 | 9.2 | 4.9 | 6.9 | 6.5 | 3.4 | 5.1 | 5.5 | 0.6 | 3.7 |

12148000 SOUTH FORK TOLT RIVER NEAR CARNATION, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—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 | 5.0 | 4.3 | 4.5 | 5.0 | 4.1 | 4.5 | 7.2 | 5.2 | 5.9 | 9.5 | 7.5 | 8.2 |
| 2 | 4.5 | 4.0 | 4.3 | 4.8 | 3.8 | 4.2 | 7.5 | 5.4 | 6.2 | 8.7 | 7.4 | 8.1 |
| 3 | 4.8 | 4.2 | 4.5 | 4.3 | 3.7 | 4.1 | 8.0 | 5.8 | 6.7 | 8.9 | 7.4 | 8.0 |
| 4 | 4.7 | 4.0 | 4.4 | 4.9 | 4.1 | 4.4 | 7.3 | 6.0 | 6.6 | 8.5 | 7.5 | 7.9 |
| 5 | 4.6 | 3.9 | 4.2 | 4.6 | 4.2 | 4.3 | 7.0 | 6.1 | 6.4 | 8.1 | 7.2 | 7.7 |
| 6 | 4.4 | 3.0 | 3.7 | 5.0 | 4.2 | 4.5 | 7.8 | 6.3 | 6.9 | 9.2 | 7.1 | 7.8 |
| 7 | 3.5 | 3.2 | 3.3 | 5.2 | 4.4 | 4.9 | 6.9 | 6.2 | 6.5 | 8.8 | 7.4 | 8.1 |
| 8 | 3.5 | 3.2 | 3.3 | 6.1 | 4.7 | 5.2 | 8.0 | 6.3 | 6.8 | 8.5 | 7.5 | 7.8 |
| 9 | 3.5 | 3.0 | 3.2 | 5.5 | 4.7 | 5.1 | 8.2 | 6.0 | 6.9 | 8.5 | 7.5 | 7.9 |
| 10 | 4.1 | 3.3 | 3.7 | 5.7 | 4.4 | 4.9 | 8.9 | 6.2 | 7.2 | 8.1 | 7.5 | 7.7 |
| 11 | 4.8 | 3.7 | 4.3 | 5.9 | 4.4 | 5.0 | 10.2 | 6.4 | 8.0 | 8.2 | 7.5 | 7.8 |
| 12 | 4.7 | 3.9 | 4.2 | 5.3 | 4.5 | 4.9 | 8.4 | 7.0 | 7.4 | 8.8 | 7.5 | 7.9 |
| 13 | 4.8 | 3.9 | 4.3 | 5.8 | 4.4 | 5.0 | 8.0 | 6.8 | 7.3 | 11.5 | 7.6 | 9.0 |
| 14 | 5.0 | 4.3 | 4.6 | 5.4 | 5.0 | 5.1 | 7.9 | 6.7 | 7.1 | 12.1 | 9.3 | 10.7 |
| 15 | 4.8 | 4.2 | 4.5 | 5.7 | 5.0 | 5.2 | 7.3 | 6.5 | 6.9 | 11.4 | 9.1 | 10.5 |
| 16 | 4.5 | 4.1 | 4.4 | 5.9 | 5.0 | 5.3 | 7.9 | 6.6 | 7.1 | 10.9 | 9.7 | 10.5 |
| 17 | 4.7 | 4.2 | 4.5 | 5.8 | 5.1 | 5.3 | 7.8 | 6.7 | 7.1 | 11.9 | 10.7 | 11.1 |
| 18 | 5.0 | 4.4 | 4.6 | 5.4 | 4.5 | 5.2 | 7.6 | 6.6 | 7.1 | 12.1 | 10.2 | 11.2 |
| 19 | 4.8 | 4.2 | 4.5 | 5.6 | 4.6 | 5.0 | 8.5 | 6.6 | 7.2 | 11.5 | 10.6 | 11.0 |
| 20 | 4.8 | 3.9 | 4.3 | 6.1 | 4.6 | 5.2 | 7.5 | 6.5 | 7.0 | 11.5 | 10.5 | 11.1 |
| 21 | 4.8 | 4.0 | 4.3 | 6.6 | 5.2 | 5.8 | 8.0 | 6.6 | 7.2 | 11.5 | 9.9 | 10.9 |
| 22 | 4.9 | 4.0 | 4.4 | 7.0 | 5.5 | 5.9 | 9.2 | 6.5 | 7.5 | 11.1 | 9.3 | 10.4 |
| 23 | 5.0 | 4.2 | 4.6 | 6.2 | 5.5 | 5.8 | 7.6 | 6.7 | 7.1 | 11.7 | 10.4 | 10.9 |
| 24 | 5.0 | 4.2 | 4.6 | 5.9 | 5.4 | 5.5 | 8.8 | 6.6 | 7.3 | 12.2 | 11.1 | 11.4 |
| 25 | 4.5 | 4.0 | 4.3 | 6.0 | 5.3 | 5.6 | 9.6 | 6.5 | 7.7 | 11.9 | 10.8 | 11.3 |
| 26 | 5.1 | 4.2 | 4.5 | 6.0 | 5.4 | 5.6 | 9.6 | 7.0 | 7.9 | 11.1 | 10.8 | 10.9 |
| 27 | 5.1 | 4.4 | 4.6 | 6.2 | 5.5 | 5.7 | 7.7 | 7.0 | 7.3 | 11.6 | 10.0 | 10.9 |
| 28 | 4.9 | 4.5 | 4.6 | 7.0 | 5.2 | 6.0 | 9.1 | 7.0 | 7.8 | 11.0 | 9.8 | 10.4 |
| 29 | 5.0 | 4.3 | 4.5 | 7.7 | 5.8 | 6.5 | 9.3 | 6.9 | 7.8 | 10.5 | 9.5 | 10.0 |
| 30 | --- | --- | --- | 6.4 | 5.5 | 6.2 | 9.4 | 7.1 | 8.1 | 10.8 | 9.2 | 9.9 |
| 31 | --- | --- | --- | 6.6 | 5.4 | 5.8 | --- | --- | --- | 10.7 | 9.2 | 10.1 |
| MONTH | 5.1 | 3.0 | 4.3 | 7.7 | 3.7 | 5.2 | 10.2 | 5.2 | 7.1 | 12.2 | 7.1 | 9.6 |
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 11.7 | 10.0 | 10.6 | 15.1 | 12.8 | 13.6 | 13.1 | 10.1 | 11.4 | 12.1 | 11.0 | 11.5 |
| 2 | 12.0 | 10.0 | 10.7 | 14.7 | 12.9 | 13.7 | 13.1 | 10.1 | 11.5 | 11.6 | 11.1 | 11.3 |
| 3 | 12.6 | 10.3 | 11.0 | 14.3 | 12.9 | 13.6 | 11.9 | 10.3 | 11.3 | 11.9 | 11.1 | 11.4 |
| 4 | 12.7 | 10.6 | 11.4 | 14.3 | 12.9 | 13.7 | 12.2 | 10.6 | 11.5 | 11.8 | 11.2 | 11.4 |
| 5 | 11.2 | 10.5 | 10.9 | 15.4 | 13.5 | 14.1 | 12.5 | 10.6 | 11.4 | 12.5 | 11.0 | 11.5 |
| 6 | 11.9 | 9.9 | 10.8 | 14.1 | 13.4 | 13.8 | 12.0 | 10.9 | 11.3 | 12.4 | 10.7 | 11.4 |
| 7 | 11.2 | 10.2 | 10.7 | 13.8 | 11.2 | 12.6 | 12.4 | 11.1 | 11.8 | 12.7 | 10.9 | 11.5 |
| 8 | 12.8 | 10.8 | 11.4 | 11.7 | 9.1 | 10.6 | 13.2 | 11.1 | 12.1 | 12.5 | 10.9 | 11.5 |
| 9 | 11.7 | 10.5 | 11.1 | 9.2 | 8.8 | 9.1 | 13.7 | 11.6 | 12.5 | 12.3 | 11.2 | 11.6 |
| 10 | 11.2 | 9.8 | 10.6 | 9.8 | 8.8 | 9.1 | 13.5 | 11.9 | 12.8 | 12.4 | 11.0 | 11.5 |
| 11 | 10.9 | 10.3 | 10.6 | 10.7 | 8.8 | 9.4 | 13.9 | 12.2 | 13.0 | 12.2 | 11.2 | 11.7 |
| 12 | 11.7 | 10.6 | 11.1 | 11.2 | 8.7 | 9.6 | 14.0 | 12.2 | 13.2 | 11.9 | 10.9 | 11.3 |
| 13 | 11.1 | 10.3 | 10.7 | 11.2 | 9.3 | 9.9 | 14.4 | 12.3 | 13.4 | 11.6 | 10.8 | 11.1 |
| 14 | 11.4 | 10.1 | 10.7 | 11.1 | 9.2 | 10.1 | 14.2 | 12.5 | 13.5 | 11.2 | 10.0 | 10.5 |
| 15 | 13.1 | 10.3 | 11.2 | 11.1 | 9.1 | 10.0 | 14.8 | 12.6 | 13.7 | 10.7 | 10.0 | 10.5 |
| 16 | 13.0 | 10.4 | 11.5 | 11.3 | 8.9 | 10.1 | 15.0 | 12.7 | 13.9 | 10.6 | 10.2 | 10.4 |
| 17 | 14.1 | 11.1 | 12.4 | 11.1 | 9.2 | 10.1 | 15.2 | 12.9 | 14.1 | 10.7 | 10.0 | 10.3 |
| 18 | 14.7 | 11.0 | 12.6 | 11.3 | 9.5 | 10.2 | 14.6 | 11.7 | 12.9 | 10.1 | 9.8 | 9.9 |
| 19 | 13.3 | 11.3 | 12.1 | 10.8 | 9.4 | 10.1 | 13.0 | 11.0 | 11.8 | 10.3 | 9.8 | 10.0 |
| 20 | 14.1 | 11.6 | 12.6 | 10.5 | 9.4 | 9.9 | 12.7 | 11.1 | 11.8 | 10.6 | 9.8 | 10.2 |
| 21 | 14.1 | 11.7 | 12.6 | 11.6 | 9.5 | 10.3 | 12.2 | 11.1 | 11.7 | 10.8 | 9.8 | 10.2 |
| 22 | 14.1 | 12.0 | 12.8 | 11.8 | 9.3 | 10.6 | 12.0 | 11.1 | 11.6 | 10.7 | 10.0 | 10.3 |
| 23 | 12.7 | 12.1 | 12.5 | 12.0 | 9.6 | 10.7 | 12.5 | 10.9 | 11.6 | 10.8 | 10.3 | 10.5 |
| 24 | 12.8 | 12.0 | 12.4 | 12.0 | 9.8 | 11.1 | 12.2 | 11.4 | 11.8 | 11.1 | 9.9 | 10.4 |
| 25 | 13.2 | 12.1 | 12.6 | 11.9 | 9.6 | 10.6 | 11.8 | 11.1 | 11.5 | 11.2 | 10.2 | 10.5 |
| 26 | 13.8 | 12.2 | 12.8 | 12.3 | 9.5 | 10.8 | 11.9 | 11.2 | 11.6 | 10.9 | 10.0 | 10.4 |
| 27 | 14.5 | 12.2 | 12.9 | 12.3 | 9.6 | 10.9 | 11.8 | 11.3 | 11.5 | 11.2 | 10.0 | 10.5 |
| 28 | 14.9 | 12.2 | 13.2 | 12.4 | 9.9 | 11.2 | 12.2 | 11.3 | 11.6 | 11.1 | 10.2 | 10.5 |
| 29 | 15.1 | 12.6 | 13.4 | 12.8 | 10.0 | 11.3 | 12.7 | 11.5 | 11.8 | 10.6 | 10.3 | 10.5 |
| 30 | 14.8 | 12.7 | 13.5 | 12.6 | 9.9 | 11.0 | 12.9 | 11.3 | 11.8 | 10.6 | 10.3 | 10.5 |
| 31 | --- | --- | --- | 12.9 | 10.1 | 11.3 | 13.0 | 11.5 | 11.9 | --- | --- | --- |
| MONTH | 15.1 | 9.8 | 11.8 | 15.4 | 8.7 | 11.1 | 15.2 | 10.1 | 12.2 | 12.7 | 9.8 | 10.8 |
| YEAR | 15.8 | 0.6 | 8.4 | | | | | | | | | |

## 12148300 SOUTH FORK TOLT RIVER BELOW REGULATING BASIN, NEAR CARNATION, WA

LOCATION.--Lat 47°41'49", long 121°47'10", in SW¼NE¼, sec.33, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 2.3 mi upstream from mouth and 6.5 mi northeast of Carnation.

DRAINAGE AREA.--29.6 $mi^2$.

### WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1982 to current year. Published as "South Fork Tolt River below regulating pond, near Carnation" March 1982 through September 1983.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 670 ft above NGVD of 1929, from topographic map.

REMARKS.--No estimated daily discharges. Records good. Flow regulated by South Fork Tolt Reservoir 6.1 mi upstream since September 1963. During the current water year the Seattle Water Department diverted an average daily discharge of 81 $ft^3/s$. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--22 years (water years 1983-2004), 144 $ft^3/s$, 104,400 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge not determined, Nov. 24, 1990; maximum daily discharge, 3,700 $ft^3/s$, Nov. 24, 1990; minimum discharge, 36 $ft^3/s$ on many days during July and August, 1982.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 768 $ft^3/s$, Oct. 20, gage height, 5.50 ft; minimum discharge, 61 $ft^3/s$, Oct. 4, 6-11, 13, gage height, 3.08 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 | 63 | 100 | 158 | 72 | 345 | 156 | 105 | 88 | 124 | 73 | 70 | 79 |
| 2 | 63 | 96 | 139 | 71 | 302 | 154 | 102 | 88 | 113 | 73 | 69 | 79 |
| 3 | 63 | 91 | 144 | 70 | 279 | 153 | 102 | 88 | 107 | 76 | 69 | 75 |
| 4 | 62 | 87 | 122 | 68 | 285 | 131 | 100 | 90 | 102 | 74 | 69 | 72 |
| 5 | 62 | 82 | 137 | 66 | 264 | 124 | 98 | 89 | 96 | 73 | 69 | 71 |
| 6 | 61 | 77 | 134 | 67 | 345 | 118 | 96 | 89 | 95 | 74 | 71 | 70 |
| 7 | 61 | 73 | 121 | 78 | 385 | 123 | 95 | 90 | 95 | 80 | 73 | 70 |
| 8 | 62 | 72 | 117 | 93 | 364 | 121 | 94 | 89 | 88 | 75 | 70 | 69 |
| 9 | 62 | 71 | 106 | 108 | 352 | 121 | 93 | 88 | 85 | 73 | 69 | 70 |
| 10 | 61 | 78 | 99 | 124 | 269 | 113 | 93 | 88 | 89 | 74 | 68 | 69 |
| 11 | 62 | 91 | 95 | 115 | 234 | 107 | 93 | 91 | 88 | 75 | 68 | 96 |
| 12 | 63 | 81 | 94 | 110 | 227 | 104 | 92 | 90 | 86 | 73 | 68 | 81 |
| 13 | 63 | 76 | 97 | 106 | 196 | 100 | 90 | 89 | 90 | 72 | 68 | 173 |
| 14 | 62 | 73 | 95 | 114 | 161 | 101 | 92 | 87 | 87 | 72 | 68 | 427 |
| 15 | 62 | 73 | 93 | 175 | 159 | 99 | 90 | 87 | 85 | 71 | 69 | 211 |
| 16 | 67 | 78 | 157 | 158 | 159 | 97 | 90 | 88 | 84 | 71 | 68 | 178 |
| 17 | 71 | 79 | 95 | 129 | 158 | 96 | 91 | 87 | 82 | 71 | 68 | 176 |
| 18 | 68 | 175 | 90 | 117 | 159 | 95 | 90 | 86 | 83 | 72 | 67 | 156 |
| 19 | 68 | 209 | 88 | 108 | 171 | 94 | 89 | 85 | 80 | 72 | 67 | 140 |
| 20 | 256 | 159 | 93 | 100 | 162 | 93 | 93 | 85 | 79 | 72 | 67 | 126 |
| 21 | 457 | 130 | 92 | 95 | 158 | 92 | 92 | 85 | 78 | 71 | 67 | 115 |
| 22 | 194 | 111 | 88 | 91 | 155 | 91 | 89 | 91 | 77 | 71 | 93 | 109 |
| 23 | 223 | 108 | 84 | 113 | 155 | 91 | 90 | 90 | 78 | 70 | 74 | 104 |
| 24 | 153 | 126 | 83 | 141 | 153 | 97 | 89 | 89 | 78 | 70 | 125 | 100 |
| 25 | 124 | 134 | 85 | 120 | 150 | 97 | 87 | 91 | 78 | 70 | 121 | 96 |
| 26 | 108 | 138 | 82 | 130 | 148 | 99 | 86 | 114 | 77 | 70 | 108 | 93 |
| 27 | 99 | 124 | 80 | 131 | 152 | 103 | 88 | 123 | 75 | 69 | 101 | 91 |
| 28 | 140 | 142 | 79 | 153 | 153 | 107 | 87 | 139 | 75 | 69 | 93 | 87 |
| 29 | 138 | 339 | 76 | 537 | 154 | 102 | 86 | 143 | 74 | 69 | 88 | 84 |
| 30 | 115 | 203 | 74 | 477 | --- | 110 | 87 | 145 | 73 | 69 | 84 | 81 |
| 31 | 105 | --- | 73 | 412 | --- | 109 | --- | 137 | --- | 70 | 81 | --- |
| TOTAL | 3,318 | 3,476 | 3,170 | 4,449 | 6,354 | 3,398 | 2,769 | 3,009 | 2,601 | 2,234 | 2,410 | 3,448 |
| MEAN | 107 | 116 | 102 | 144 | 219 | 110 | 92.3 | 97.1 | 86.7 | 72.1 | 77.7 | 115 |
| MAX | 457 | 339 | 158 | 537 | 385 | 156 | 105 | 145 | 124 | 80 | 125 | 427 |
| MIN | 61 | 71 | 73 | 66 | 148 | 91 | 86 | 85 | 73 | 69 | 67 | 69 |
| AC-FT | 6,580 | 6,890 | 6,290 | 8,820 | 12,600 | 6,740 | 5,490 | 5,970 | 5,160 | 4,430 | 4,780 | 6,840 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 85.9 | 201 | 212 | 256 | 175 | 152 | 145 | 160 | 126 | 80.4 | 63.4 | 69.8 |
| MAX | 147 | 597 | 598 | 579 | 389 | 320 | 380 | 307 | 241 | 187 | 77.7 | 115 |
| (WY) | (1986) | (1991) | (2000) | (1984) | (1996) | (2002) | (1989) | (1984) | (1990) | (1997) | (2004) | (2004) |
| MIN | 41.2 | 43.5 | 70.2 | 66.3 | 83.8 | 73.2 | 73.1 | 68.0 | 53.7 | 41.9 | 38.5 | 42.4 |
| (WY) | (1988) | (1988) | (1988) | (1988) | (2001) | (1992) | (1992) | (1992) | (1992) | (1982) | (1982) | (1987) |

12148300 SOUTH FORK TOLT RIVER BELOW REGULATING BASIN, NEAR CARNATION, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1982 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 37,358 | | 40,636 | | | |
| ANNUAL MEAN | 102 | | 111 | | 144 | |
| HIGHEST ANNUAL MEAN | | | | | 225 | 1997 |
| LOWEST ANNUAL MEAN | | | | | 84.7 | 1994 |
| HIGHEST DAILY MEAN | 457 | Oct 21 | 537 | Jan 29 | 3,700 | Nov 24, 1990 |
| LOWEST DAILY MEAN | 61 | Oct 6 | 61 | Oct 6 | 36 | Jul 27, 1982 |
| ANNUAL SEVEN-DAY MINIMUM | 62 | Oct 4 | 62 | Oct 4 | 36 | Aug 6, 1982 |
| ANNUAL RUNOFF (AC-FT) | 74,100 | | 80,600 | | 104,400 | |
| 10 PERCENT EXCEEDS | 156 | | 159 | | 310 | |
| 50 PERCENT EXCEEDS | 85 | | 91 | | 89 | |
| 90 PERCENT EXCEEDS | 67 | | 69 | | 63 | |

12148300 SOUTH FORK TOLT RIVER BELOW REGULATING BASIN, NEAR CARNATION, WA—Continued

WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: October 1994 to current year.

INSTRUMENTATION.--Temperature recorder since October 1994.

REMARKS.--Records excellent, except for periods Oct. 1 to Mar. 13, and May 10 to Sept. 2, which are good.

EXTREMES FOR PERIOD OF RECORD.--
WATER TEMPERATURE: Maximum recorded, 17.9°C, Sept. 4, 2003; minimum, 0.5°C (rounded), Feb. 3, 1996, Dec. 29, 1996.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum, 16.4°C, July 1; minimum, 0.9°C, Jan. 6.

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

| DAY | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | | JANUARY | | |
| 1 | 15.2 | 12.9 | 14.0 | 7.9 | 6.6 | 7.2 | 6.8 | 5.9 | 6.4 | 4.3 | 3.3 | 3.9 |
| 2 | 14.5 | 13.2 | 13.9 | 7.7 | 6.7 | 7.3 | 7.5 | 6.6 | 7.1 | 4.4 | 3.3 | 3.9 |
| 3 | 14.8 | 13.4 | 14.1 | 7.2 | 6.0 | 6.5 | 6.9 | 5.4 | 6.0 | 4.0 | 2.7 | 3.4 |
| 4 | 14.5 | 12.6 | 13.6 | 6.8 | 5.8 | 6.2 | 5.9 | 5.3 | 5.6 | 2.7 | 1.7 | 2.4 |
| 5 | 14.4 | 13.7 | 14.0 | 6.5 | 5.5 | 5.9 | 6.6 | 5.9 | 6.3 | 1.8 | 1.3 | 1.5 |
| 6 | 15.3 | 13.3 | 14.3 | 6.4 | 5.2 | 5.8 | 6.7 | 6.0 | 6.4 | 2.0 | 0.9 | 1.3 |
| 7 | 14.7 | 13.7 | 14.3 | 7.4 | 6.0 | 6.7 | 6.3 | 5.5 | 5.9 | 2.8 | 1.8 | 2.3 |
| 8 | 13.8 | 12.9 | 13.3 | 7.8 | 7.0 | 7.4 | 6.4 | 5.4 | 6.0 | 3.8 | 2.8 | 3.3 |
| 9 | 13.2 | 12.4 | 12.8 | 8.1 | 7.3 | 7.6 | 5.7 | 5.0 | 5.4 | 4.6 | 3.8 | 4.2 |
| 10 | 13.2 | 12.4 | 12.7 | 7.9 | 7.6 | 7.7 | 6.1 | 5.6 | 5.8 | 4.8 | 4.2 | 4.4 |
| 11 | 12.9 | 11.9 | 12.4 | 8.2 | 7.1 | 7.8 | 6.4 | 5.6 | 6.0 | 5.1 | 4.1 | 4.6 |
| 12 | 12.7 | 12.1 | 12.4 | 7.2 | 6.2 | 6.7 | 6.3 | 5.7 | 5.9 | 5.4 | 4.8 | 5.1 |
| 13 | 13.1 | 12.1 | 12.6 | 7.0 | 5.7 | 6.2 | 6.1 | 5.6 | 5.9 | 6.0 | 5.1 | 5.5 |
| 14 | 12.2 | 11.0 | 11.8 | 7.7 | 6.2 | 7.1 | 5.8 | 5.5 | 5.7 | 6.2 | 5.9 | 6.0 |
| 15 | 11.8 | 10.0 | 11.1 | 7.7 | 7.3 | 7.5 | 6.1 | 5.6 | 5.8 | 6.2 | 5.8 | 6.0 |
| 16 | 12.7 | 11.3 | 11.9 | 7.4 | 7.2 | 7.3 | 6.3 | 4.6 | 5.5 | 5.8 | 4.7 | 5.2 |
| 17 | 13.1 | 12.1 | 12.8 | 7.4 | 7.1 | 7.3 | 6.3 | 5.2 | 5.7 | 5.9 | 5.0 | 5.4 |
| 18 | 12.4 | 10.9 | 11.7 | 8.5 | 7.4 | 8.1 | 6.2 | 5.5 | 5.8 | 5.9 | 5.6 | 5.8 |
| 19 | 12.6 | 11.6 | 12.0 | 8.6 | 5.1 | 6.2 | 6.6 | 5.8 | 6.2 | 6.4 | 5.5 | 5.9 |
| 20 | 13.0 | 11.9 | 12.4 | 6.0 | 5.3 | 5.8 | 6.9 | 6.4 | 6.6 | 5.5 | 4.4 | 4.8 |
| 21 | 12.7 | 12.1 | 12.4 | 6.0 | 5.2 | 5.7 | 6.8 | 5.7 | 6.4 | 5.1 | 4.1 | 4.6 |
| 22 | 12.3 | 11.7 | 12.0 | 5.6 | 5.0 | 5.3 | 6.2 | 5.4 | 5.7 | 5.6 | 4.4 | 5.0 |
| 23 | 11.7 | 9.8 | 10.7 | 6.1 | 5.5 | 5.8 | 6.3 | 5.8 | 6.0 | 6.0 | 5.3 | 5.7 |
| 24 | 10.3 | 9.1 | 9.6 | 6.0 | 4.9 | 5.5 | 6.4 | 6.1 | 6.2 | 5.9 | 3.4 | 4.6 |
| 25 | 10.4 | 8.9 | 9.6 | 6.0 | 5.7 | 5.8 | 6.1 | 4.9 | 5.8 | 4.7 | 3.6 | 4.2 |
| 26 | 11.0 | 9.3 | 10.1 | 6.3 | 5.8 | 6.0 | 5.0 | 4.2 | 4.6 | 4.9 | 4.5 | 4.7 |
| 27 | 11.5 | 9.8 | 10.6 | 6.6 | 5.8 | 6.2 | 5.1 | 4.6 | 4.8 | 5.8 | 4.9 | 5.3 |
| 28 | 11.2 | 9.5 | 10.7 | 6.9 | 6.2 | 6.6 | 5.0 | 4.0 | 4.6 | 5.8 | 5.3 | 5.6 |
| 29 | 9.6 | 8.6 | 9.3 | 6.9 | 6.4 | 6.7 | 4.0 | 3.1 | 3.6 | 6.5 | 5.6 | 6.1 |
| 30 | 8.6 | 7.2 | 8.0 | 6.5 | 5.6 | 5.9 | 4.3 | 2.9 | 3.6 | 6.6 | 4.5 | 5.6 |
| 31 | 7.6 | 6.5 | 7.0 | --- | --- | --- | 4.4 | 3.7 | 4.1 | 4.6 | 4.3 | 4.4 |
| MONTH | 15.3 | 6.5 | 11.9 | 8.6 | 4.9 | 6.6 | 7.5 | 2.9 | 5.7 | 6.6 | 0.9 | 4.5 |

12148300 SOUTH FORK TOLT RIVER BELOW REGULATING BASIN, NEAR CARNATION, WA—Continued

TEMPERATURE, WATER, DEGREES CELSIUS—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 | 4.5 | 3.9 | 4.2 | 5.3 | 4.4 | 4.8 | 7.9 | 4.9 | 6.2 | 11.6 | 8.0 | 9.6 |
| 2 | 4.1 | 3.8 | 3.9 | 5.0 | 3.8 | 4.4 | 8.8 | 5.0 | 6.7 | 10.7 | 8.6 | 9.4 |
| 3 | 4.4 | 3.9 | 4.1 | 5.1 | 4.0 | 4.3 | 9.6 | 5.9 | 7.6 | 10.7 | 7.9 | 9.1 |
| 4 | 4.3 | 3.7 | 4.1 | 6.0 | 5.1 | 5.4 | 8.6 | 6.5 | 7.6 | 9.2 | 8.4 | 8.8 |
| 5 | 4.0 | 3.4 | 3.7 | 5.6 | 5.0 | 5.3 | 8.0 | 6.6 | 7.2 | 9.3 | 8.0 | 8.5 |
| 6 | 4.6 | 3.6 | 3.9 | 6.1 | 4.9 | 5.4 | 9.2 | 7.0 | 7.9 | 10.7 | 6.8 | 8.6 |
| 7 | 4.0 | 3.6 | 3.8 | 6.6 | 5.5 | 6.0 | 8.2 | 7.1 | 7.7 | 9.8 | 7.9 | 8.8 |
| 8 | 4.0 | 3.6 | 3.8 | 7.9 | 5.7 | 6.7 | 9.2 | 6.3 | 7.5 | 9.9 | 7.9 | 8.7 |
| 9 | 3.7 | 3.2 | 3.4 | 7.1 | 6.0 | 6.6 | 9.8 | 5.9 | 7.7 | 9.9 | 7.5 | 8.6 |
| 10 | 3.8 | 3.1 | 3.4 | 7.1 | 5.0 | 6.0 | 10.4 | 6.5 | 8.3 | 9.1 | 7.5 | 8.3 |
| 11 | 4.1 | 3.2 | 3.7 | 7.4 | 4.9 | 6.0 | 11.6 | 7.0 | 9.0 | 8.9 | 7.9 | 8.3 |
| 12 | 4.1 | 3.4 | 3.7 | 6.6 | 5.2 | 6.0 | 9.9 | 7.5 | 8.6 | 10.4 | 8.1 | 8.9 |
| 13 | 4.7 | 3.4 | 4.0 | 7.3 | 4.6 | 5.9 | 9.4 | 7.6 | 8.4 | 12.0 | 7.9 | 9.6 |
| 14 | 5.0 | 4.3 | 4.6 | 6.7 | 6.0 | 6.3 | 8.7 | 7.4 | 8.0 | 13.6 | 8.8 | 10.9 |
| 15 | 4.9 | 4.2 | 4.5 | 7.0 | 6.0 | 6.4 | 8.4 | 7.1 | 7.6 | 11.6 | 9.3 | 10.4 |
| 16 | 4.6 | 4.1 | 4.3 | 7.2 | 5.9 | 6.4 | 8.6 | 7.0 | 7.7 | 11.1 | 9.5 | 10.3 |
| 17 | 4.7 | 4.1 | 4.4 | 7.1 | 6.1 | 6.5 | 9.2 | 7.3 | 8.0 | 13.4 | 10.2 | 11.4 |
| 18 | 4.8 | 4.3 | 4.6 | 6.5 | 5.4 | 6.3 | 8.8 | 7.1 | 7.9 | 13.8 | 10.3 | 11.8 |
| 19 | 4.9 | 4.2 | 4.7 | 6.6 | 5.1 | 5.7 | 9.9 | 6.8 | 8.1 | 11.6 | 10.7 | 11.1 |
| 20 | 4.7 | 3.7 | 4.2 | 7.3 | 4.7 | 5.9 | 8.5 | 7.3 | 7.8 | 12.1 | 11.0 | 11.4 |
| 21 | 4.7 | 3.5 | 4.1 | 8.3 | 5.9 | 7.0 | 9.0 | 7.0 | 7.9 | 11.2 | 10.5 | 10.9 |
| 22 | 4.9 | 4.0 | 4.4 | 8.6 | 6.5 | 7.4 | 10.7 | 6.3 | 8.2 | 10.9 | 10.0 | 10.6 |
| 23 | 5.2 | 4.3 | 4.7 | 7.7 | 6.8 | 7.2 | 8.4 | 7.4 | 7.8 | 12.4 | 10.3 | 11.2 |
| 24 | 5.1 | 4.4 | 4.7 | 6.9 | 6.1 | 6.6 | 9.9 | 6.8 | 8.1 | 13.5 | 10.4 | 11.6 |
| 25 | 4.6 | 4.0 | 4.3 | 7.1 | 5.9 | 6.4 | 11.1 | 6.3 | 8.4 | 12.8 | 10.2 | 11.4 |
| 26 | 5.1 | 4.1 | 4.5 | 6.9 | 6.0 | 6.4 | 11.8 | 7.3 | 9.3 | 11.5 | 11.0 | 11.2 |
| 27 | 5.2 | 4.4 | 4.7 | 7.1 | 6.2 | 6.5 | 9.2 | 7.5 | 8.1 | 11.4 | 10.5 | 10.9 |
| 28 | 5.0 | 4.6 | 4.8 | 8.5 | 5.5 | 7.0 | 10.7 | 7.3 | 8.6 | 10.8 | 9.7 | 10.2 |
| 29 | 5.2 | 4.4 | 4.8 | 9.6 | 6.6 | 7.9 | 11.3 | 6.8 | 8.9 | 10.2 | 9.6 | 9.9 |
| 30 | --- | --- | --- | 7.7 | 6.3 | 7.2 | 11.9 | 7.4 | 9.4 | 11.2 | 9.8 | 10.3 |
| 31 | --- | --- | --- | 7.5 | 5.7 | 6.4 | --- | --- | --- | 10.7 | 9.4 | 10.1 |
| MONTH | 5.2 | 3.1 | 4.2 | 9.6 | 3.8 | 6.2 | 11.9 | 4.9 | 8.0 | 13.8 | 6.8 | 10.0 |
| | | JUNE | | | JULY | | | AUGUST | | | SEPTEMBER | |
| 1 | 12.2 | 9.5 | 10.7 | 16.4 | 12.1 | 14.0 | 14.5 | 11.0 | 12.6 | 13.1 | 11.7 | 12.4 |
| 2 | 13.5 | 9.7 | 11.3 | 14.6 | 12.7 | 13.6 | 14.3 | 11.1 | 12.6 | 12.4 | 11.5 | 11.9 |
| 3 | 14.3 | 10.0 | 11.8 | 14.2 | 13.1 | 13.6 | 13.2 | 11.5 | 12.4 | 13.0 | 11.3 | 12.0 |
| 4 | 14.8 | 10.8 | 12.4 | 14.2 | 13.1 | 13.6 | 13.2 | 11.5 | 12.3 | 12.4 | 11.6 | 11.9 |
| 5 | 12.1 | 10.8 | 11.4 | 16.1 | 12.6 | 14.2 | 12.9 | 11.6 | 12.2 | 13.2 | 11.4 | 12.1 |
| 6 | 12.4 | 10.4 | 11.2 | 14.4 | 13.1 | 13.6 | 12.4 | 11.4 | 11.9 | 13.0 | 10.2 | 11.5 |
| 7 | 11.7 | 10.4 | 11.0 | 14.6 | 12.2 | 13.2 | 13.8 | 11.7 | 12.5 | 13.2 | 10.6 | 11.8 |
| 8 | 14.0 | 10.8 | 12.0 | 14.0 | 11.2 | 12.2 | 15.0 | 11.1 | 12.8 | 13.0 | 10.6 | 11.8 |
| 9 | 11.8 | 11.2 | 11.5 | 11.2 | 10.0 | 10.4 | 15.4 | 12.0 | 13.5 | 13.1 | 11.6 | 12.2 |
| 10 | 11.4 | 10.4 | 10.8 | 11.4 | 9.8 | 10.5 | 15.5 | 12.5 | 13.8 | 13.0 | 10.6 | 11.8 |
| 11 | 10.9 | 10.2 | 10.6 | 12.7 | 9.8 | 11.0 | 15.6 | 12.7 | 14.0 | 13.1 | 12.1 | 12.6 |
| 12 | 12.3 | 10.3 | 11.1 | 13.8 | 9.4 | 11.3 | 15.6 | 13.0 | 14.1 | 12.5 | 11.4 | 11.9 |
| 13 | 11.7 | 10.7 | 11.1 | 13.7 | 10.5 | 11.7 | 15.7 | 13.1 | 14.2 | 11.9 | 10.8 | 11.2 |
| 14 | 11.7 | 10.2 | 10.9 | 13.7 | 10.6 | 11.8 | 14.6 | 13.4 | 14.0 | 12.0 | 10.9 | 11.4 |
| 15 | 14.1 | 9.6 | 11.6 | 13.3 | 10.7 | 11.7 | 15.8 | 13.4 | 14.5 | 11.3 | 10.8 | 11.0 |
| 16 | 14.8 | 9.9 | 12.1 | 14.1 | 10.1 | 11.8 | 15.6 | 13.3 | 14.5 | 11.1 | 10.6 | 10.9 |
| 17 | 15.7 | 11.1 | 13.1 | 13.2 | 10.5 | 11.7 | 16.0 | 13.6 | 14.8 | 11.5 | 10.5 | 10.9 |
| 18 | 15.6 | 11.5 | 13.4 | 13.5 | 10.8 | 11.9 | 16.0 | 13.1 | 14.3 | 10.7 | 10.1 | 10.3 |
| 19 | 15.3 | 11.1 | 13.0 | 12.7 | 10.9 | 11.7 | 14.7 | 11.9 | 13.2 | 10.9 | 9.8 | 10.3 |
| 20 | 16.0 | 11.4 | 13.4 | 12.3 | 10.8 | 11.4 | 14.2 | 11.9 | 13.0 | 11.1 | 10.0 | 10.5 |
| 21 | 16.2 | 11.5 | 13.5 | 14.0 | 10.3 | 11.9 | 13.7 | 12.2 | 12.8 | 11.2 | 9.7 | 10.5 |
| 22 | 16.1 | 11.9 | 13.7 | 14.4 | 10.3 | 12.1 | 13.1 | 12.4 | 12.8 | 11.1 | 10.1 | 10.5 |
| 23 | 13.5 | 12.5 | 12.8 | 14.6 | 10.8 | 12.6 | 13.9 | 11.9 | 12.7 | 11.6 | 10.6 | 10.9 |
| 24 | 12.7 | 12.3 | 12.5 | 14.8 | 11.4 | 12.8 | 13.4 | 12.2 | 12.9 | 11.6 | 9.7 | 10.6 |
| 25 | 13.4 | 12.2 | 12.7 | 12.7 | 11.0 | 11.8 | 12.8 | 12.4 | 12.6 | 11.8 | 9.9 | 10.8 |
| 26 | 15.6 | 12.2 | 13.5 | 13.7 | 10.8 | 12.1 | 13.1 | 12.1 | 12.5 | 11.3 | 10.2 | 10.7 |
| 27 | 15.7 | 11.7 | 13.4 | 13.9 | 10.6 | 12.2 | 12.8 | 12.2 | 12.5 | 11.7 | 10.2 | 10.8 |
| 28 | 16.3 | 11.4 | 13.6 | 14.3 | 11.1 | 12.6 | 13.3 | 12.0 | 12.6 | 11.7 | 10.1 | 10.7 |
| 29 | 16.3 | 11.9 | 13.9 | 14.5 | 11.2 | 12.8 | 13.9 | 12.2 | 12.9 | 11.1 | 9.9 | 10.5 |
| 30 | 15.7 | 12.1 | 13.7 | 13.1 | 11.3 | 12.2 | 14.3 | 11.5 | 12.7 | 10.9 | 10.5 | 10.7 |
| 31 | --- | --- | --- | 14.4 | 11.5 | 12.7 | 14.3 | 11.8 | 12.9 | --- | --- | --- |
| MONTH | 16.3 | 9.5 | 12.3 | 16.4 | 9.4 | 12.3 | 16.0 | 11.0 | 13.1 | 13.2 | 9.7 | 11.2 |
| YEAR | 16.4 | 0.9 | 8.9 | | | | | | | | | |

## 12148500 TOLT RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°41'45", long 121°49'22", in SE¼NE¼, sec.31, T.26 N., R.8 E., King County, Hydrologic Unit 17110010, on right bank 500 ft downstream from the forks, 0.4 mi upstream from Stossel Creek, 5.5 mi northeast of Carnation, and at mile 8.7.

DRAINAGE AREA.--81.4 $mi^2$.

PERIOD OF RECORD.--August 1928 to January 1932, September 1937 to current year. Prior to October 1951, published as "near Tolt."

REVISED RECORDS.--WSP 1286: 1929(M), 1930, 1938(M), 1939, 1943(M), 1945(M), 1951(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Elevation of gage is 348 ft above NGVD of 1929 (river-profile survey). Prior to Oct. 31, 1928, nonrecording gage, and Oct. 31, 1928, to Jan. 3, 1932, water-stage recorder at site 350 ft upstream at datum 7.1 ft higher (river-profile survey). Sept. 1 to Oct. 6, 1937, nonrecording gage at present site at datum 1.64 ft higher.

REMARKS.--Records good. Some regulation by South Fork Reservoir, capacity, 57,830 acre-ft, and by Seattle City Light hydroelectric project, upstream from station. During the current water year City of Seattle Water Department diverted an average daily discharge of about 81 $ft^3/s$ upstream from station for municipal use. Chemical analyses July 1960 to September 1970. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--70 years (water years 1929-31, 1938-2004), 574 $ft^3/s$, 415,600 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,400 $ft^3/s$, Dec. 15, 1959, gage height, 13.04 ft; minimum discharge, 53 $ft^3/s$, Sept. 22, 23, 1951, gage height, 3.84 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 3,400 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 20 | 2100 | *11,100 | *11.11 | Jan 29 | 1815 | 6,420 | 9.67 |
| Nov 18 | 0945 | 6,110 | 9.55 | Sep 14 | 0515 | 3,900 | 8.57 |
| Nov 29 | 0215 | 5,270 | 9.21 | | | | |

Minimum discharge, 104 $ft^3/s$, Oct. 6, gage height, 4.24 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 | 109 | 382 | 780 | 317 | 1,100 | 467 | 458 | 412 | 581 | 201 | 139 | 228 |
| 2 | 109 | 348 | 781 | 307 | 916 | 454 | 413 | 420 | 487 | 197 | 137 | 277 |
| 3 | 108 | 317 | 981 | 300 | 806 | 470 | 413 | 382 | 447 | 214 | 136 | 247 |
| 4 | 105 | 295 | 674 | 280 | 853 | 577 | 454 | 376 | 429 | 208 | 135 | 215 |
| 5 | 105 | 275 | 908 | 265 | 761 | 573 | 419 | 455 | 406 | 193 | 134 | 203 |
| 6 | 105 | 260 | 931 | 265 | 809 | 539 | 388 | 338 | 517 | 197 | 151 | 192 |
| 7 | 109 | 249 | 684 | 439 | 881 | 728 | 401 | 324 | 447 | 263 | 258 | 184 |
| 8 | 111 | 242 | 601 | 653 | 807 | 949 | 383 | 334 | 375 | 217 | 190 | 179 |
| 9 | 158 | 235 | 539 | 742 | 745 | 891 | 377 | 311 | 367 | 194 | 154 | 208 |
| 10 | 196 | 474 | 520 | 999 | 647 | 658 | 404 | 298 | 481 | 199 | 143 | 213 |
| 11 | 187 | 1,240 | 494 | 759 | 597 | 540 | 444 | 300 | 504 | 229 | 137 | 833 |
| 12 | 370 | 506 | 514 | 655 | 575 | 522 | 467 | 316 | 413 | 198 | 134 | 384 |
| 13 | 427 | 387 | 542 | 714 | 547 | 475 | 420 | 313 | 482 | 187 | 132 | 529 |
| 14 | 226 | 333 | 532 | 996 | 555 | 474 | 409 | 297 | 445 | 180 | 130 | 2,100 |
| 15 | 176 | 318 | 511 | 1,980 | 553 | 485 | 401 | 296 | 401 | 176 | 130 | 1,190 |
| 16 | 517 | 431 | 581 | 1,140 | 567 | 441 | 389 | 304 | 357 | 172 | 129 | 1,100 |
| 17 | 738 | 741 | 622 | 730 | 573 | 434 | 398 | 292 | 338 | 169 | 127 | 1,140 |
| 18 | 350 | 3,320 | 478 | 645 | 594 | 481 | 364 | 309 | 332 | 167 | 125 | 763 |
| 19 | 253 | 1,720 | 483 | 670 | 710 | 465 | 343 | 316 | 302 | 164 | 123 | 663 |
| 20 | 3,410 | 960 | 627 | 558 | 573 | 398 | 394 | 288 | 282 | 162 | 122 | 549 |
| 21 | 3,660 | 689 | 607 | 520 | 528 | 381 | 390 | 279 | e274 | 159 | 124 | 516 |
| 22 | 1,110 | 557 | 477 | 480 | 505 | 424 | 349 | 503 | e266 | 156 | 518 | 455 |
| 23 | 1,530 | 554 | 439 | 740 | 483 | 479 | 375 | 440 | 266 | 154 | 318 | 412 |
| 24 | 799 | 691 | 444 | 1,000 | 472 | 499 | 391 | 370 | 259 | 151 | 982 | 373 |
| 25 | 572 | 646 | 493 | 666 | 457 | 481 | 339 | 322 | 249 | 150 | 1,080 | 339 |
| 26 | 477 | 645 | 431 | 634 | 441 | 478 | 385 | 719 | 235 | 148 | 806 | 315 |
| 27 | 401 | 565 | 392 | 694 | 475 | 522 | 457 | 780 | 224 | 146 | 554 | 296 |
| 28 | 1,020 | 808 | 379 | 1,280 | 492 | 551 | 398 | 919 | 215 | 143 | 382 | 281 |
| 29 | 849 | 2,780 | 357 | 4,920 | 494 | 512 | 351 | 899 | 211 | 142 | 315 | 266 |
| 30 | 526 | 1,080 | 338 | 2,710 | --- | 602 | 362 | 1,060 | 207 | 141 | 270 | 256 |
| 31 | 432 | --- | 327 | 1,440 | --- | 546 | --- | 804 | --- | 140 | 239 | --- |
| TOTAL | 19,245 | 22,048 | 17,467 | 28,498 | 18,516 | 16,496 | 11,936 | 13,776 | 10,799 | 5,517 | 8,454 | 14,906 |
| MEAN | 621 | 735 | 563 | 919 | 638 | 532 | 398 | 444 | 360 | 178 | 273 | 497 |
| MAX | 3,660 | 3,320 | 981 | 4,920 | 1,100 | 949 | 467 | 1,060 | 581 | 263 | 1,080 | 2,100 |
| MIN | 105 | 235 | 327 | 265 | 441 | 381 | 339 | 279 | 207 | 140 | 122 | 179 |
| AC-FT | 38,170 | 43,730 | 34,650 | 56,530 | 36,730 | 32,720 | 23,680 | 27,320 | 21,420 | 10,940 | 16,770 | 29,570 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1928 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 439 | 778 | 874 | 851 | 733 | 606 | 665 | 675 | 547 | 295 | 181 | 246 |
| MAX | 933 | 1,965 | 1,897 | 2,058 | 1,634 | 1,472 | 1,275 | 1,208 | 1,204 | 802 | 485 | 954 |
| (WY) | (1960) | (1996) | (1976) | (1953) | (1982) | (1972) | (1959) | (1948) | (1964) | (1955) | (1964) | (1959) |
| MIN | 79.5 | 123 | 305 | 246 | 163 | 267 | 289 | 310 | 205 | 120 | 74.9 | 72.9 |
| (WY) | (1988) | (1953) | (1986) | (1929) | (1929) | (1992) | (1941) | (1992) | (1992) | (1958) | (1958) | (1940) |

12148500 TOLT RIVER NEAR CARNATION, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1928 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 170,559 | | 187,658 | | | |
| ANNUAL MEAN | 467 | | 513 | | 574 | |
| HIGHEST ANNUAL MEAN | | | | | 922 | 1959 |
| LOWEST ANNUAL MEAN | | | | | 365 | 1994 |
| HIGHEST DAILY MEAN | 3,660 | Oct 21 | 4,920 | Jan 29 | 11,400 | Feb 9, 1951 |
| LOWEST DAILY MEAN | 100 | Sep 6 | 105 | Oct 4 | 53 | Sep 22, 1951 |
| ANNUAL SEVEN-DAY MINIMUM | 103 | Aug 31 | 107 | Oct 1 | 56 | Sep 17, 1951 |
| ANNUAL RUNOFF (AC-FT) | 338,300 | | 372,200 | | 415,600 | |
| 10 PERCENT EXCEEDS | 855 | | 884 | | 1,110 | |
| 50 PERCENT EXCEEDS | 363 | | 420 | | 444 | |
| 90 PERCENT EXCEEDS | 112 | | 155 | | 141 | |

e Estimated

## 12149000 SNOQUALMIE RIVER NEAR CARNATION, WA

LOCATION.--Lat 47°39'58", long 121°55'27", in NW¼SW¼, sec.9, T.25 N., R.7 E., King County, Hydrologic Unit 17110010, on left bank 40 ft downstream from highway bridge, 1.3 mi northwest of Carnation, 1.9 mi downstream from Tolt River, and at mile 23.0.

DRAINAGE AREA.--603 $mi^2$.

PERIOD OF RECORD.--October 1928 to current year. Monthly discharge only for October 1928 to February 1929, published in WSP 870. Prior to October 1951, published as "near Tolt."

REVISED RECORDS.--WSP 1316: 1932-33(M). WSP 1446: 1934(M). WSP 1932: Drainage area.

GAGE.--Water-stage recorder. Datum of gage is NGVD of 1929. Prior to Dec. 20, 1933, nonrecording gage on old bridge, 100 ft upstream and Dec. 20, 1933, to Sept. 30, 1939, water-stage recorder at present site, at datum 42.96 ft higher.

REMARKS.--Records good. During the current water year, Seattle Water Department diverted an average daily discharge of 81 $ft^3/s$ upstream from station from South Fork Tolt River for municipal use. Several small diversions for irrigation and domestic use upstream from station. Low flow diverted for operation of powerplant at Snoqualmie Falls but returned to river upstream from station. Some pondage at Snoqualmie Falls and some diurnal fluctuation caused by powerplant. Chemical analyses October 1966 to June 1969. Water temperatures October 1966 to June 1969. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--75 years (water years 1930-2004), 3,719 $ft^3/s$, 83.80 in/yr, 2,694,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 65,200 $ft^3/s$, Nov. 24, 1990, gage height, 60.70 ft, from inside high-water mark; minimum discharge, 239 $ft^3/s$, Aug. 21, 1945, but may have been less sometime during period of faulty intake action Sept. 13 or 14, 1949; minimum daily discharge, 341 $ft^3/s$, Sept. 15, 1973.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 21 | 1800 | 31,100 | 56.84 | Nov 29 | 1730 | 18,800 | 53.81 |
| Nov 19 | 1000 | *33,800 | *57.20 | Jan 30 | 1030 | 31,000 | 56.83 |

Minimum discharge, 564 $ft^3/s$, Aug. 21, gage height, 45.06 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 | 620 | 2,510 | 6,430 | 1,870 | 7,870 | 2,060 | 2,930 | 3,270 | 5,550 | e1,690 | 756 | 1,710 |
| 2 | 608 | 2,230 | 5,270 | 1,810 | 5,890 | 1,960 | 2,550 | 3,830 | 4,240 | e1,630 | 726 | 2,300 |
| 3 | 600 | 2,020 | 6,760 | 1,750 | 4,780 | 1,960 | 2,420 | 3,730 | 3,780 | e1,620 | 704 | 2,300 |
| 4 | 593 | 1,850 | 5,120 | 1,670 | 4,530 | 2,540 | 2,650 | 3,390 | 3,850 | 1,660 | 688 | 1,890 |
| 5 | 585 | 1,720 | 5,440 | 1,540 | 4,140 | 2,830 | 2,760 | 3,720 | 3,850 | 1,570 | 688 | 1,690 |
| 6 | 584 | 1,610 | 6,600 | 1,500 | 3,750 | 2,960 | 2,560 | 3,010 | 5,240 | 1,480 | 704 | 1,580 |
| 7 | 591 | 1,520 | 5,180 | 1,750 | 3,800 | 2,810 | e2,560 | 2,590 | 4,840 | e1,680 | 993 | 1,440 |
| 8 | 658 | 1,440 | 4,290 | 2,500 | 3,610 | 4,930 | e2,610 | 2,930 | 4,020 | e1,700 | 1,200 | 1,330 |
| 9 | 1,010 | 1,370 | 3,750 | 3,080 | 3,270 | 5,780 | 2,600 | 2,870 | 3,600 | 1,520 | 901 | 1,360 |
| 10 | 1,580 | 1,390 | 3,300 | 4,060 | 2,980 | 5,320 | 2,720 | 2,600 | e3,580 | 1,380 | 794 | 1,570 |
| 11 | 1,860 | 7,620 | 3,040 | 3,990 | 2,790 | 3,920 | 3,110 | 2,490 | e3,650 | 1,510 | 736 | 4,340 |
| 12 | 2,140 | 4,850 | 3,010 | 3,440 | 2,660 | 3,410 | 3,640 | 2,400 | 3,280 | 1,610 | 701 | 3,610 |
| 13 | 4,080 | 2,980 | 3,290 | 3,600 | 2,510 | 3,040 | 3,640 | 2,450 | 3,390 | 1,450 | 680 | 2,600 |
| 14 | 2,560 | 2,380 | 3,900 | 4,000 | 2,470 | 2,750 | 3,330 | 2,350 | 4,060 | 1,330 | 665 | 7,190 |
| 15 | 1,860 | 2,120 | 3,440 | 7,980 | 2,570 | 2,760 | 3,090 | 2,420 | 3,490 | 1,290 | 661 | 6,040 |
| 16 | 3,560 | 2,270 | 3,200 | 10,100 | 2,550 | 2,570 | 2,770 | 2,460 | 3,050 | 1,230 | 637 | e7,010 |
| 17 | 6,580 | 3,600 | 3,730 | 5,900 | 2,750 | 2,460 | 2,550 | 2,470 | 2,890 | 1,160 | 628 | 6,590 |
| 18 | 4,060 | 13,200 | 3,160 | 4,500 | 2,690 | 2,590 | 2,370 | 2,480 | 2,910 | 1,110 | 605 | 5,160 |
| 19 | 2,530 | 29,100 | 2,870 | 4,300 | 3,210 | 2,880 | 2,260 | 2,820 | 2,780 | 1,100 | 599 | 4,420 |
| 20 | 5,610 | 13,900 | 2,980 | 3,750 | 2,990 | 2,510 | e2,330 | 2,850 | 2,530 | 1,080 | 586 | 3,590 |
| 21 | 25,000 | 6,820 | 3,480 | 3,210 | 2,620 | 2,300 | e2,440 | 2,720 | 2,420 | 1,030 | 572 | 2,950 |
| 22 | 14,700 | 4,820 | 3,090 | 2,850 | 2,400 | 2,390 | 2,280 | 3,150 | 2,380 | 957 | 1,110 | 2,540 |
| 23 | 7,610 | 3,890 | 2,710 | 3,180 | 2,250 | 2,920 | 2,310 | 3,970 | 2,400 | 929 | 1,610 | 2,330 |
| 24 | 5,160 | 4,280 | 2,640 | 6,030 | 2,160 | e3,160 | e2,690 | 3,100 | 2,370 | 899 | 4,530 | 2,140 |
| 25 | 3,660 | 4,030 | 2,800 | 4,880 | 2,100 | 3,310 | 2,430 | 2,740 | 2,260 | 875 | 9,430 | 1,960 |
| 26 | 2,890 | 4,300 | 2,620 | 4,230 | 2,030 | 3,060 | 2,530 | 4,530 | 2,120 | 870 | 9,980 | 1,810 |
| 27 | 2,450 | 3,740 | 2,370 | 4,210 | 2,100 | 3,040 | 3,450 | 7,070 | 1,950 | 854 | 5,600 | 1,700 |
| 28 | 2,890 | 3,810 | 2,280 | 4,940 | 2,140 | 3,180 | 3,630 | 6,730 | 1,840 | 818 | 3,500 | 1,630 |
| 29 | 7,950 | 15,800 | 2,150 | 14,200 | 2,160 | 2,870 | 3,040 | e8,400 | 1,790 | 793 | 2,640 | 1,530 |
| 30 | 4,120 | 11,500 | 1,990 | 27,200 | --- | 3,230 | 2,840 | e10,800 | 1,770 | 777 | 2,180 | 1,450 |
| 31 | 3,010 | --- | 1,940 | 14,600 | --- | 3,550 | --- | e9,200 | --- | 774 | 1,880 | --- |
| TOTAL | 121,709 | 162,670 | 112,830 | 162,620 | 91,770 | 95,050 | 83,090 | 119,540 | 95,880 | 38,376 | 57,684 | 87,760 |
| MEAN | 3,926 | 5,422 | 3,640 | 5,246 | 3,164 | 3,066 | 2,770 | 3,856 | 3,196 | 1,238 | 1,861 | 2,925 |
| MAX | 25,000 | 29,100 | 6,760 | 27,200 | 7,870 | 5,780 | 3,640 | 10,800 | 5,550 | 1,700 | 9,980 | 7,190 |
| MIN | 584 | 1,370 | 1,940 | 1,500 | 2,030 | 1,960 | 2,260 | 2,350 | 1,770 | 774 | 572 | 1,330 |
| AC-FT | 241,400 | 322,700 | 223,800 | 322,600 | 182,000 | 188,500 | 164,800 | 237,100 | 190,200 | 76,120 | 114,400 | 174,100 |
| CFSM | 6.51 | 8.99 | 6.04 | 8.70 | 5.25 | 5.08 | 4.59 | 6.39 | 5.30 | 2.05 | 3.09 | 4.85 |
| IN. | 7.51 | 10.04 | 6.96 | 10.03 | 5.66 | 5.86 | 5.13 | 7.37 | 5.91 | 2.37 | 3.56 | 5.41 |

12149000 SNOQUALMIE RIVER NEAR CARNATION, WA—Continued

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

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1929 - 2004, BY WATER YEAR (WY) | | | | | | | | | | | | |
| MEAN | 2,558 | 4,870 | 5,449 | 5,094 | 4,390 | 3,817 | 4,308 | 4,968 | 4,460 | 2,304 | 1,107 | 1,373 |
| MAX | 5,811 | 12,850 | 14,530 | 11,140 | 9,743 | 9,979 | 6,797 | 7,847 | 8,983 | 5,629 | 2,992 | 5,128 |
| (WY) | (1948) | (1991) | (1934) | (1953) | (1982) | (1932) | (1932) | (1936) | (1974) | (1955) | (1964) | (1959) |
| MIN | 407 | 619 | 1,694 | 1,291 | 1,860 | 1,933 | 2,230 | 2,434 | 1,362 | 840 | 492 | 484 |
| (WY) | (1988) | (1953) | (1986) | (1937) | (1973) | (1941) | (1941) | (1992) | (1992) | (1940) | (1930) | (1998) |

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1929 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 1,217,510 | | 1,228,979 | | | |
| ANNUAL MEAN | 3,336 | | 3,358 | | 3,719 | |
| HIGHEST ANNUAL MEAN | | | | | 5,439 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 2,314 | 1941 |
| HIGHEST DAILY MEAN | 29,100 | Nov 19 | 29,100 | Nov 19 | 54,500 | Nov 29, 1995 |
| LOWEST DAILY MEAN | 476 | Sep 7 | 572 | Aug 21 | 341 | Sep 15, 1973 |
| ANNUAL SEVEN-DAY MINIMUM | 491 | Sep 1 | 597 | Oct 1 | 359 | Sep 11, 1973 |
| ANNUAL RUNOFF (AC-FT) | 2,415,000 | | 2,438,000 | | 2,694,000 | |
| ANNUAL RUNOFF (CFSM) | 5.53 | | 5.57 | | 6.17 | |
| ANNUAL RUNOFF (INCHES) | 75.11 | | 75.82 | | 83.80 | |
| 10 PERCENT EXCEEDS | 6,380 | | 5,660 | | 6,950 | |
| 50 PERCENT EXCEEDS | 2,620 | | 2,690 | | 2,960 | |
| 90 PERCENT EXCEEDS | 653 | | 949 | | 832 | |

e Estimated

## 12150800 SNOHOMISH RIVER NEAR MONROE, WA

LOCATION.--Lat 47°49'52", long 122°02'50", in NE¼NW¼, sec.16, T.27 N., R.6 E., Snohomish County, Hydrologic Unit 17110011, on left bank 150 ft upstream from State Highway 522 bridge, 0.1 mi downstream from confluence of Snoqualmie and Skykomish Rivers, 3.6 mi southwest of Monroe, and 6.0 mi south of Snohomish.

DRAINAGE AREA.--1,537 $mi^2$.

PERIOD OF RECORD.--February 1963 to current year. Water years 1932, 1934, 1951, 1960, 1962-63 (annual maximum stage only) published in WSP 1932. Approximate annual maximum stages for water years 1921, 1949-50, 1952-59, and 1961 are on file in Washington Water Science Center.

GAGE.--Water-stage recorder. Datum of gage is 13.25 ft above NGVD of 1929. Prior to February 1963, crest-stage gage only at site about 800 ft downstream and Feb. 8, 1963, to May 27, 1964, water-stage recorder at site 100 ft upstream, at NGVD of 1929.

REMARKS.--Records good, except for estimated daily discharges, which are fair. Some regulation by powerplant at Snoqualmie Falls, 40 mi upstream, and by Spada Lake, 30 mi upstream. Minor diversions for irrigation returned to river upstream from gage. During the current water year, City of Seattle Water Department diverted an average daily discharge of about 81 $ft^3/s$ upstream from station from South Fork Tolt River for municipal use and the City of Everett diverted an undetermined amount of discharge upstream from the station from Sultan River for municipal use. Chemical analyses December 1974 to January 1976, July 1979 to September 1986. Unpublished records of water temperature and suspended-sediment concentration are available in the Washington Water Science Center of the U.S. Geological Survey. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--41 years (water years 1964-2004), 9,557 $ft^3/s$, 84.48 in/yr, 6,924,000 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height, 35.8 ft, Feb. 10, 1951, datum then in use (discharge not determined); maximum discharge since February 1963, 150,000 $ft^3/s$, Nov. 25, 1990, gage height, 25.30 ft, from rating curve extended above 80,000 $ft^3/s$; minimum discharge, 763 $ft^3/s$, Oct. 30, 31, 1987, gage height, 0.51 ft.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of December 1921 reached a discharge of approximately 180,000 $ft^3/s$. Floods in November or December 1897 and November 1906 are believed to be higher.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 33,000 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 21 | 1030 | *67,900 | *17.06 | Nov 29 | 1200 | 37,400 | 10.74 |
| Nov 19 | 1030 | 64,300 | 16.34 | Jan 30 | 0830 | 48,000 | 13.00 |

Minimum discharge, 1,270 $ft^3/s$, Oct. 6, 7, gage height, 0.80 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 | 1,430 | 9,130 | 18,900 | 5,170 | 24,900 | 5,170 | 9,180 | 10,600 | 17,600 | 4,460 | 2,050 | 3,720 |
| 2 | 1,400 | 7,930 | 15,100 | 4,930 | 18,900 | 4,860 | 8,270 | 12,700 | 14,100 | 4,270 | 1,960 | 4,720 |
| 3 | 1,370 | 7,040 | 17,100 | 4,770 | 15,200 | 4,810 | 7,800 | 12,600 | 12,700 | 4,160 | 1,890 | 5,780 |
| 4 | 1,340 | 6,380 | 15,100 | 4,790 | 13,400 | 6,090 | 8,440 | 11,700 | 12,800 | 4,170 | 1,840 | 4,450 |
| 5 | 1,310 | 5,850 | 14,500 | 4,920 | 12,200 | 7,270 | 8,900 | 12,500 | 12,800 | 3,990 | 1,820 | 3,900 |
| 6 | 1,280 | 5,430 | 16,800 | 4,700 | 10,900 | 7,840 | 8,170 | 10,600 | 14,200 | 3,930 | 1,840 | 3,580 |
| 7 | 1,290 | 5,100 | 14,800 | 5,200 | 10,800 | 7,680 | 8,100 | 9,040 | 14,100 | 4,210 | 2,440 | 3,470 |
| 8 | 1,410 | 4,870 | 12,600 | 6,700 | 10,400 | 13,400 | 8,280 | 9,980 | 11,600 | 4,320 | 3,000 | 3,510 |
| 9 | 1,950 | 4,670 | 11,200 | 7,390 | 9,530 | 15,700 | 8,250 | 9,760 | 11,100 | 3,800 | 2,470 | 3,460 |
| 10 | 2,940 | 4,430 | 10,000 | 8,960 | 8,640 | 15,400 | 8,520 | 8,980 | 11,200 | 3,560 | 2,150 | 3,750 |
| 11 | 3,620 | 14,600 | 9,180 | 9,430 | 7,890 | 12,000 | 9,600 | 8,230 | 12,400 | 3,570 | 1,990 | 8,160 |
| 12 | 4,090 | 14,300 | 8,800 | 8,260 | 7,330 | 10,300 | 11,200 | 8,110 | 10,800 | 3,680 | 1,870 | 9,820 |
| 13 | 11,400 | 9,600 | 9,160 | 8,300 | 6,780 | 9,230 | 12,000 | 8,200 | 10,600 | 3,460 | 1,800 | 6,580 |
| 14 | 7,350 | 7,800 | 10,100 | 9,280 | 6,560 | 8,290 | 11,200 | 7,880 | 12,300 | 3,330 | 1,740 | 17,400 |
| 15 | 4,670 | 6,880 | 9,560 | 17,800 | 6,800 | 8,100 | 10,200 | 8,010 | 11,000 | e3,220 | 1,710 | 16,800 |
| 16 | 7,520 | 7,040 | 9,170 | 23,700 | 6,840 | 7,620 | 9,140 | 8,090 | 9,610 | e3,020 | 1,670 | 19,000 |
| 17 | 22,200 | 11,400 | 10,900 | 16,100 | 7,320 | 7,240 | 8,360 | 8,020 | 8,830 | e2,880 | 1,640 | 18,000 |
| 18 | 14,500 | 38,700 | 9,790 | 12,200 | 7,200 | 7,450 | 7,660 | 8,290 | 8,910 | e2,840 | 1,600 | 15,000 |
| 19 | 8,150 | 60,700 | 8,760 | 11,000 | 8,100 | 8,390 | 7,090 | 9,580 | 8,520 | e2,820 | 1,560 | 12,600 |
| 20 | 16,200 | 40,200 | 8,720 | 9,900 | 7,970 | 7,440 | 7,060 | 9,680 | 7,670 | e2,800 | 1,520 | 10,200 |
| 21 | 60,700 | 26,200 | 9,570 | 8,590 | 7,100 | 6,640 | 7,420 | 9,490 | 7,340 | 2,710 | 1,490 | 8,350 |
| 22 | 36,300 | 18,800 | 8,860 | 7,590 | 6,510 | 6,630 | 6,820 | 9,860 | 7,280 | 2,810 | 2,580 | 7,050 |
| 23 | 26,600 | 15,000 | 7,340 | 7,990 | 6,040 | 8,110 | 6,910 | 11,700 | 7,370 | 3,220 | 3,600 | 6,310 |
| 24 | 19,800 | 14,300 | 6,730 | 13,400 | 5,680 | 9,180 | 7,990 | 10,100 | 7,260 | 3,160 | 5,360 | 5,730 |
| 25 | 14,600 | 13,200 | 7,310 | 13,400 | 5,490 | 9,680 | 7,330 | 9,020 | 6,860 | 3,100 | 17,400 | 5,160 |
| 26 | 11,300 | 13,000 | 7,100 | 11,700 | 5,200 | 9,000 | 7,560 | 11,600 | 6,320 | 3,010 | 20,300 | 4,690 |
| 27 | 9,190 | 11,700 | 6,340 | 12,100 | 5,260 | 8,940 | 10,600 | 19,300 | 5,700 | 2,740 | 13,200 | 4,360 |
| 28 | 11,100 | 11,000 | 6,100 | 13,600 | 5,310 | 9,630 | 11,700 | 19,300 | 5,190 | 2,460 | 8,390 | 4,130 |
| 29 | 22,700 | 31,300 | 5,850 | 28,800 | 5,400 | 8,820 | 10,000 | 19,200 | 4,890 | 2,190 | 6,080 | 3,920 |
| 30 | 15,000 | 27,500 | 5,600 | 46,000 | --- | 9,340 | 9,310 | 21,500 | 4,670 | 2,110 | 4,850 | 3,780 |
| 31 | 11,100 | --- | 5,340 | 35,400 | --- | 10,300 | --- | 22,900 | --- | 2,070 | 4,130 | --- |
| TOTAL | 353,810 | 454,050 | 316,380 | 382,070 | 259,650 | 270,550 | 263,060 | 356,520 | 295,720 | 102,070 | 125,940 | 227,380 |
| MEAN | 11,410 | 15,140 | 10,210 | 12,320 | 8,953 | 8,727 | 8,769 | 11,500 | 9,857 | 3,293 | 4,063 | 7,579 |
| MAX | 60,700 | 60,700 | 18,900 | 46,000 | 24,900 | 15,700 | 12,000 | 22,900 | 17,600 | 4,460 | 20,300 | 19,000 |
| MIN | 1,280 | 4,430 | 5,340 | 4,700 | 5,200 | 4,810 | 6,820 | 7,880 | 4,670 | 2,070 | 1,490 | 3,460 |
| AC-FT | 701,800 | 900,600 | 627,500 | 757,800 | 515,000 | 536,600 | 521,800 | 707,200 | 586,600 | 202,500 | 249,800 | 451,000 |
| CFSM | 7.43 | 9.85 | 6.64 | 8.02 | 5.83 | 5.68 | 5.71 | 7.48 | 6.41 | 2.14 | 2.64 | 4.93 |
| IN. | 8.56 | 10.99 | 7.66 | 9.25 | 6.28 | 6.55 | 6.37 | 8.63 | 7.16 | 2.47 | 3.05 | 5.50 |

12150800 SNOHOMISH RIVER NEAR MONROE, WA—Continued

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

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 2004, BY WATER YEAR (WY) | | | | | | | | | | | | |
| MEAN | 6,122 | 12,410 | 13,200 | 12,970 | 11,070 | 9,405 | 10,390 | 13,060 | 12,570 | 6,819 | 3,057 | 3,450 |
| MAX | 13,340 | 34,800 | 29,580 | 22,000 | 24,300 | 25,700 | 16,050 | 20,450 | 24,730 | 15,290 | 7,885 | 7,646 |
| (WY) | (1996) | (1991) | (1976) | (1984) | (1982) | (1972) | (1989) | (1972) | (1974) | (1964) | (1964) | (1978) |
| MIN | 894 | 2,624 | 3,966 | 4,401 | 4,606 | 4,859 | 5,340 | 7,743 | 4,070 | 2,683 | 1,388 | 1,133 |
| (WY) | (1988) | (1988) | (1986) | (1979) | (1973) | (1985) | (1975) | (1992) | (1992) | (1987) | (2003) | (1987) |

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1963 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 3,339,150 | | 3,407,200 | | | |
| ANNUAL MEAN | 9,148 | | 9,309 | | 9,557 | |
| HIGHEST ANNUAL MEAN | | | | | 13,670 | 1972 |
| LOWEST ANNUAL MEAN | | | | | 6,308 | 2001 |
| HIGHEST DAILY MEAN | 60,700 | Oct 21 | 60,700 | Oct 21 | 132,000 | Nov 25, 1990 |
| LOWEST DAILY MEAN | 1,010 | Sep 7 | 1,280 | Oct 6 | 777 | Oct 30, 1987 |
| ANNUAL SEVEN-DAY MINIMUM | 1,050 | Sep 2 | 1,340 | Oct 2 | 796 | Oct 25, 1987 |
| ANNUAL RUNOFF (AC-FT) | 6,623,000 | | 6,758,000 | | 6,924,000 | |
| ANNUAL RUNOFF (CFSM) | 5.95 | | 6.06 | | 6.22 | |
| ANNUAL RUNOFF (INCHES) | 80.82 | | 82.46 | | 84.48 | |
| 10 PERCENT EXCEEDS | 17,200 | | 16,100 | | 18,200 | |
| 50 PERCENT EXCEEDS | 7,530 | | 8,100 | | 7,640 | |
| 90 PERCENT EXCEEDS | 1,440 | | 2,780 | | 2,270 | |

e Estimated

## 12155300 PILCHUCK RIVER NEAR SNOHOMISH, WA

LOCATION.--Lat 47°56'06", long 122°04'19", in NW¼NW¼, sec.8, T.28 N., R.6 E., Snohomish County, Hydrologic Unit 17110011, on right bank, 1.8 mi northeast of Snohomish, and at mile 3.6.

DRAINAGE AREA.--127 $mi^2$.

PERIOD OF RECORD.--May 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 30.00 ft above NGVD of 1929.

REMARKS.--No estimated daily discharges. Records good, except for period of April 27 to July 8, which is fair. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--12 years (water years 1993-2004), 474 $ft^3/s$, 50.67 in/yr, 343,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 7,480 $ft^3/s$, Dec. 16, 1999, gage height, 19.16 ft; minimum discharge, 35 $ft^3/s$, Sept. 6, 2003.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Nov. 24, 1990, reached a stage of 18.75 ft, from high-water mark at former bridge, discharge, 7,100 $ft^3/s$ (from slope-area measurement of peak flow).

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 2,600 $ft^3/s$ and maximum (*):

| Date | Time | Discharge ($ft^3/s$) | Gage height (ft) | Date | Time | Discharge ($ft^3/s$) | Gage height (ft) |
|---|---|---|---|---|---|---|---|
| Oct 21 | 0445 | *5,260 | *16.73 | Nov 29 | 0830 | 4,240 | 15.40 |
| Oct 28 | 2130 | 3,740 | 14.73 | Jan 29 | 1330 | 4,490 | 15.73 |
| Nov 19 | 1130 | 5,080 | 16.51 | | | | |

Minimum discharge, 41 $ft^3/s$, Aug. 21.

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 | 43 | 348 | 710 | 352 | 1,450 | 428 | 357 | 207 | 732 | 87 | 54 | 124 |
| 2 | 42 | 277 | 602 | 325 | 1,100 | 383 | 320 | 209 | 528 | 87 | 53 | 186 |
| 3 | 43 | 229 | 1,010 | 306 | 872 | 402 | 291 | 191 | 416 | 85 | 53 | 188 |
| 4 | 43 | 197 | 730 | 275 | 882 | 905 | 287 | 181 | 347 | 85 | 52 | 146 |
| 5 | 43 | 173 | 990 | 247 | 855 | 1,030 | 267 | 279 | 300 | 83 | 53 | 129 |
| 6 | 43 | 156 | 1,440 | 242 | 724 | 921 | 245 | 191 | 302 | 83 | 61 | 114 |
| 7 | 49 | 144 | 1,050 | 335 | 849 | 825 | 233 | 157 | 307 | 105 | 146 | 105 |
| 8 | 61 | 136 | 806 | 841 | 870 | 968 | 222 | 162 | 259 | 100 | 138 | 99 |
| 9 | 69 | 128 | 650 | 915 | 714 | 838 | 212 | 155 | 310 | 85 | 81 | 128 |
| 10 | 69 | 135 | 544 | 1,100 | 603 | 701 | 214 | 147 | 414 | 81 | 65 | 162 |
| 11 | 72 | 1,190 | 484 | 949 | 539 | 546 | 219 | 133 | 658 | 87 | 57 | 336 |
| 12 | 116 | 510 | 503 | 686 | 493 | 481 | 223 | 130 | 386 | 82 | 53 | 228 |
| 13 | 674 | 340 | 603 | 632 | 450 | 433 | 207 | 138 | 395 | 76 | 51 | 167 |
| 14 | 237 | 263 | 560 | 643 | 466 | 399 | 210 | 123 | 393 | 73 | 50 | 392 |
| 15 | 150 | 226 | 581 | 1,330 | 541 | 410 | 238 | 121 | 350 | 73 | 48 | 320 |
| 16 | 162 | 293 | 572 | 1,000 | 587 | 367 | 240 | 148 | 275 | 73 | 46 | 599 |
| 17 | 1,310 | 677 | 820 | 611 | 703 | 353 | 250 | 152 | 235 | 71 | 45 | 693 |
| 18 | 545 | 2,020 | 566 | 510 | 681 | 379 | 219 | 140 | 204 | 69 | 45 | 631 |
| 19 | 254 | 3,880 | 470 | 501 | 928 | 374 | 194 | 140 | 182 | 70 | 43 | 622 |
| 20 | 1,040 | 2,300 | 491 | 427 | 771 | 316 | 201 | 123 | 161 | 69 | 43 | 371 |
| 21 | 4,090 | 1,360 | 505 | 369 | 616 | 288 | 231 | 110 | 144 | 66 | 43 | 269 |
| 22 | 1,280 | 876 | 437 | 330 | 525 | 285 | 218 | 321 | 137 | 64 | 190 | 218 |
| 23 | 1,070 | 667 | 375 | 433 | 462 | 307 | 203 | 327 | 131 | 63 | 211 | 194 |
| 24 | 612 | 1,070 | 353 | 1,310 | 424 | 328 | 204 | 301 | 124 | 61 | 506 | 178 |
| 25 | 394 | 985 | 557 | 1,320 | 393 | 384 | 180 | 194 | 119 | 60 | 827 | 158 |
| 26 | 291 | 998 | 555 | 1,050 | 372 | 401 | 178 | 781 | 114 | 61 | 864 | 144 |
| 27 | 233 | 778 | 496 | 1,120 | 431 | 503 | 207 | 1,220 | 106 | 59 | 392 | 134 |
| 28 | 1,350 | 708 | 531 | 1,490 | 481 | 482 | 205 | 1,630 | 99 | 57 | 259 | 127 |
| 29 | 1,980 | 2,570 | 477 | 3,370 | 477 | 392 | 184 | 1,670 | 94 | 56 | 199 | 119 |
| 30 | 874 | 1,110 | 411 | 3,600 | --- | 388 | 188 | 1,250 | 91 | 55 | 163 | 113 |
| 31 | 491 | --- | 375 | 2,080 | --- | 453 | --- | 1,070 | --- | 55 | 134 | --- |
| TOTAL | 17,730 | 24,744 | 19,254 | 28,699 | 19,259 | 15,670 | 6,847 | 12,101 | 8,313 | 2,281 | 5,025 | 7,394 |
| MEAN | 572 | 825 | 621 | 926 | 664 | 505 | 228 | 390 | 277 | 73.6 | 162 | 246 |
| MAX | 4,090 | 3,880 | 1,440 | 3,600 | 1,450 | 1,030 | 357 | 1,670 | 732 | 105 | 864 | 693 |
| MIN | 42 | 128 | 353 | 242 | 372 | 285 | 178 | 110 | 91 | 55 | 43 | 99 |
| AC-FT | 35,170 | 49,080 | 38,190 | 56,920 | 38,200 | 31,080 | 13,580 | 24,000 | 16,490 | 4,520 | 9,970 | 14,670 |
| CFSM | 4.50 | 6.49 | 4.89 | 7.29 | 5.23 | 3.98 | 1.80 | 3.07 | 2.18 | 0.58 | 1.28 | 1.94 |
| IN. | 5.19 | 7.25 | 5.64 | 8.41 | 5.64 | 4.59 | 2.01 | 3.54 | 2.43 | 0.67 | 1.47 | 2.17 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 2004, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MEAN | 341 | 659 | 873 | 850 | 695 | 672 | 514 | 413 | 270 | 168 | 101 | 120 |
| MAX | 697 | 1,140 | 1,467 | 1,532 | 1,110 | 1,084 | 738 | 597 | 543 | 378 | 209 | 246 |
| (WY) | (1996) | (1996) | (2000) | (1997) | (1996) | (1997) | (2002) | (1999) | (1999) | (1997) | (1995) | (2004) |
| MIN | 75.3 | 179 | 379 | 434 | 264 | 418 | 228 | 208 | 118 | 69.4 | 45.5 | 52.8 |
| (WY) | (2003) | (1994) | (2001) | (2001) | (1993) | (1993) | (2004) | (1994) | (1992) | (2003) | (2003) | (1998) |

12155300 PILCHUCK RIVER NEAR SNOHOMISH, WA—Continued

| SUMMARY STATISTICS | FOR 2003 CALENDAR YEAR | | FOR 2004 WATER YEAR | | WATER YEARS 1992 - 2004 | |
|---|---|---|---|---|---|---|
| ANNUAL TOTAL | 155,597 | | 167,317 | | | |
| ANNUAL MEAN | 426 | | 457 | | 474 | |
| HIGHEST ANNUAL MEAN | | | | | 721 | 1997 |
| LOWEST ANNUAL MEAN | | | | | 314 | 2001 |
| HIGHEST DAILY MEAN | 4,090 | Oct 21 | 4,090 | Oct 21 | 5,050 | Jan 1, 1997 |
| LOWEST DAILY MEAN | 36 | Sep 4 | 42 | Oct 2 | 36 | Sep 4, 2003 |
| ANNUAL SEVEN-DAY MINIMUM | 37 | Aug 31 | 44 | Oct 1 | 37 | Aug 31, 2003 |
| ANNUAL RUNOFF (AC-FT) | 308,600 | | 331,900 | | 343,100 | |
| ANNUAL RUNOFF (CFSM) | 3.36 | | 3.60 | | 3.73 | |
| ANNUAL RUNOFF (INCHES) | 45.58 | | 49.01 | | 50.67 | |
| 10 PERCENT EXCEEDS | 880 | | 1,000 | | 1,010 | |
| 50 PERCENT EXCEEDS | 313 | | 302 | | 331 | |
| 90 PERCENT EXCEEDS | 45 | | 66 | | 70 | |

## 12155500 SNOHOMISH RIVER AT SNOHOMISH, WA

LOCATION.--Lat 47°54'38", long 122°05'52", in NE¼SE¼, sec.13, T.28 N., R.5 E., at right bank pier of bridge on State Highway 9 in Snohomish.

DRAINAGE AREA.--1,714 $mi^2$.

PERIOD OF RECORD.--February 1941 to September 1966 (high-water discharges only). High-water elevations prior to 1932 and high-water profiles on flood peaks since that time are available at the Seattle office of Corps of Engineers. October 1998 to current year (stage only).

REVISED RECORDS.--WDR WA-00-1: 1999 (m).

GAGE.--Water-stage recorder. Datum of gage is 9.86 ft below NGVD of 1929. Prior to February 3, 1960, at site half a mile upstream at datum 0.14 ft lower (corrected).

REMARKS.--Large diurnal fluctuation because of tides. Some regulation by powerplants above station. Minor diversions for irrigation returned to river above gage. A slight amount of storage in Lake Chaplain by the City of Everett. Data for period of June 8 to Sept. 30 provided by National Weather Service. National Weather Service telephone telemeter at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage height 30.12 ft, Feb. 10, 1951, site and datum then in use.

EXTREMES OUTSIDE PERIOD OF RECORD.--Maximum stage known, 35 ft at former site in 1906, from flood profile furnished by Corps of Engineers.

EXTREMES FOR CURRENT YEAR.--Maximum gage height, 28.53 ft, Oct. 21; minimum gage height, unknown.

GAGE HEIGHT, FEET
WATER YEAR OCTOBER 2003 TO SEPTEMBER 2004
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 11.17 | 12.40 | 15.72 | 12.49 | 18.05 | 12.06 | 12.40 | 12.60 | 15.35 | 12.46 | 11.95 | 12.01 |
| 2 | 10.91 | 12.04 | 14.21 | 12.26 | 16.06 | 11.80 | 12.23 | 13.19 | 14.44 | 12.49 | 11.84 | 11.93 |
| 3 | 10.86 | 11.77 | 14.79 | 12.26 | 15.01 | 11.96 | 12.51 | 13.45 | 14.21 | 12.48 | 11.53 | 12.17 |
| 4 | 10.78 | 11.71 | 14.49 | 12.07 | 14.39 | 12.61 | 12.64 | 13.58 | 14.24 | 12.30 | 11.42 | 11.89 |
| 5 | 10.64 | 11.68 | 14.69 | 11.89 | 13.87 | 12.97 | 12.61 | 13.93 | 14.20 | 11.95 | 11.35 | 11.53 |
| 6 | 10.96 | 11.70 | 15.78 | 12.39 | 13.90 | 12.51 | 12.56 | 13.61 | 14.35 | 11.71 | 11.51 | 11.31 |
| 7 | 11.13 | 11.97 | 15.22 | 13.03 | 13.47 | 12.51 | 12.53 | 13.18 | 14.23 | 11.62 | 11.27 | 11.21 |
| 8 | 11.62 | 12.13 | 14.34 | 13.36 | 13.11 | 13.61 | 12.54 | 13.23 | 13.30 | 11.58 | 11.35 | 11.39 |
| 9 | 11.33 | 12.22 | 14.00 | 13.56 | 12.65 | 14.29 | 12.40 | 12.93 | 13.18 | 11.61 | 11.33 | 11.43 |
| 10 | 11.43 | 12.14 | 13.89 | 13.51 | 12.26 | 14.12 | 12.33 | 12.65 | 13.00 | 11.55 | 11.27 | 11.68 |
| 11 | 11.91 | 14.16 | 13.51 | 13.70 | 12.09 | 13.21 | 12.63 | 12.23 | 13.33 | 11.56 | 11.18 | 12.46 |
| 12 | 11.89 | 14.24 | 13.65 | 13.22 | 12.14 | 12.78 | 12.90 | 12.04 | 13.06 | 11.76 | 11.20 | 13.13 |
| 13 | 12.81 | 13.14 | 13.69 | 12.79 | 12.26 | 12.45 | 13.13 | 12.16 | 13.06 | 11.82 | 11.20 | 12.66 |
| 14 | 12.44 | 12.61 | 13.41 | 12.93 | 12.27 | 12.17 | 13.21 | 12.15 | 13.44 | 11.80 | 11.24 | 14.82 |
| 15 | 12.07 | 12.42 | 12.83 | 15.05 | 12.59 | 12.01 | 13.04 | 12.35 | 13.17 | 11.74 | 11.32 | 15.14 |
| 16 | 12.33 | 12.63 | 13.06 | 17.24 | 13.10 | 12.06 | 12.77 | 12.47 | 12.86 | 11.72 | 11.34 | 15.71 |
| 17 | 16.43 | 13.04 | 13.10 | 14.99 | 13.32 | 12.25 | 12.64 | 12.63 | 12.80 | 11.72 | 11.28 | 15.52 |
| 18 | 14.99 | 19.43 | 12.98 | 14.12 | 13.51 | 12.98 | 12.56 | 12.70 | 12.89 | 11.72 | 11.24 | 14.92 |
| 19 | 12.78 | 27.49 | 13.11 | 14.03 | 13.43 | 12.65 | 12.69 | 12.87 | 12.85 | 11.70 | --- | 14.21 |
| 20 | 14.33 | 23.13 | 13.42 | 13.72 | 13.30 | 12.31 | 12.74 | 12.95 | 12.65 | 11.53 | --- | 13.27 |
| 21 | 26.54 | 18.62 | 13.82 | 13.38 | 13.01 | 12.34 | 12.72 | 12.92 | 12.54 | 11.36 | 11.46 | 12.62 |
| 22 | 21.98 | 15.87 | 13.84 | 13.18 | 12.93 | 12.33 | 12.25 | 12.99 | 12.49 | 11.26 | 11.81 | 12.32 |
| 23 | 18.26 | 14.88 | 14.09 | 13.42 | 12.66 | 12.69 | 12.22 | 13.28 | 12.31 | 11.37 | 12.04 | 12.00 |
| 24 | 16.06 | 15.05 | 14.31 | 14.60 | 12.62 | 13.00 | 12.08 | 12.71 | 11.99 | 11.48 | 12.27 | 11.89 |
| 25 | 14.33 | 15.12 | 13.89 | 14.38 | 12.67 | 13.21 | 11.74 | 12.32 | 11.88 | 11.33 | 15.07 | 11.90 |
| 26 | 13.40 | 14.58 | 13.35 | 13.76 | 12.71 | 12.98 | 11.62 | 12.89 | 11.87 | 11.40 | 16.16 | 11.83 |
| 27 | 13.28 | 13.86 | 12.85 | 13.69 | 12.47 | 12.67 | 12.47 | 15.32 | 11.99 | 11.54 | 14.20 | 11.90 |
| 28 | 14.24 | 13.87 | 12.47 | 14.08 | 12.00 | 12.53 | 12.50 | 15.53 | 12.06 | 11.62 | 13.02 | 11.95 |
| 29 | 17.34 | 18.91 | 12.21 | 18.48 | 12.08 | 12.57 | 12.21 | 15.43 | 12.32 | 11.71 | 12.58 | 11.90 |
| 30 | 14.75 | 18.78 | 11.95 | 24.19 | --- | 12.66 | 12.16 | 16.09 | 12.44 | 11.81 | 12.33 | 11.90 |
| 31 | 13.12 | --- | 12.17 | 21.46 | --- | 12.71 | --- | 16.77 | --- | 11.93 | 12.09 | --- |
| MEAN | 13.75 | 14.72 | 13.70 | 14.30 | 13.24 | 12.68 | 12.50 | 13.33 | 13.08 | 11.73 | --- | 12.62 |
| MAX | 26.54 | 27.49 | 15.78 | 24.19 | 18.05 | 14.29 | 13.21 | 16.77 | 15.35 | 12.49 | --- | 15.71 |
| MIN | 10.64 | 11.68 | 11.95 | 11.89 | 12.00 | 11.80 | 11.62 | 12.04 | 11.87 | 11.26 | --- | 11.21 |

CAL YR 2003 MEAN 13.06 MAX 27.49 MIN 10.52