



Figure 12. Location of surface-water stations in the Quinalt, Queets, Hoh, and Quillayute River Basins.

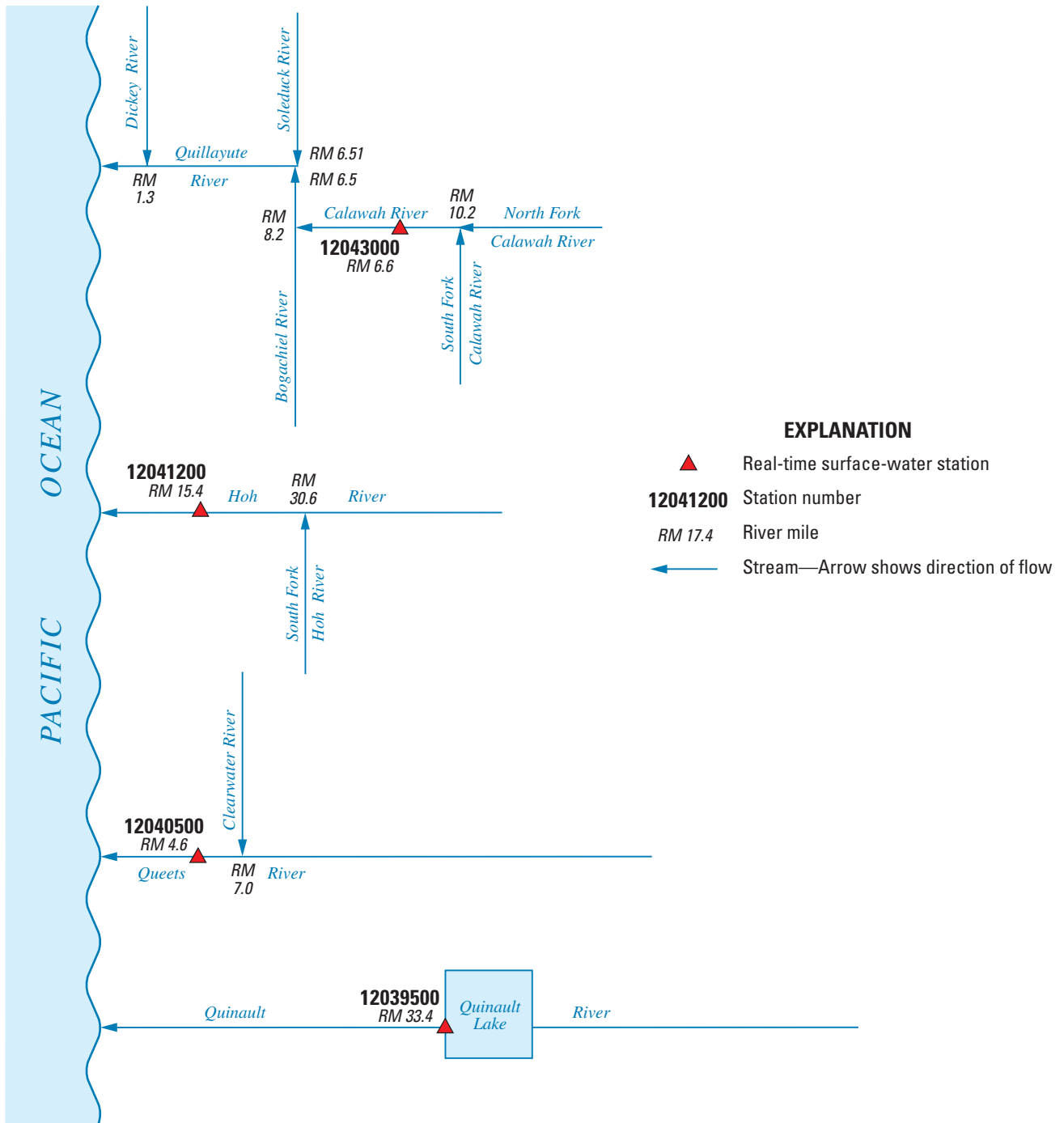


Figure 13. Schematic diagram showing surface-water stations in the Quinault, Queets, Hoh, and Quillayute River Basins.

12039500 QUINAULT RIVER AT QUINAULT LAKE, WA

LOCATION.--Lat 47°27'28", long 123°53'17", in SW¼NE¼ sec.25, T.23 N., R.10 W., Grays Harbor County, Hydrologic Unit 17100102, Quinault Indian Reservation, on left bank at outlet of Quinault Lake, 50 ft downstream from Olympic Highway bridge on U.S. Highway 101, 2.0 mi southwest of Quinault, and at mile 33.4.

DRAINAGE AREA.--264 mi².

PERIOD OF RECORD.--October 1911 to current year. Monthly discharge for some months during the 1923-25, 1933 water years, published in WSP 1316.

REVISED RECORDS.--WSP 442: Drainage area. WSP 1286: 1915-16(M), 1934, 1936-39(M). WSP 1316: 1923, 1925, 1933. WSP 1635: 1917.

GAGE.--Water-stage recorder. Datum of gage is 178.44 ft above NGVD of 1929. Prior to Sept. 30, 1916, nonrecording gages at sites within 4 mi northeast of present site, at different datum. Oct. 1, 1916, to May 2, 1935, water-stage recorder at site 300 ft downstream from present site at datum 0.36 ft higher than present datum.

REMARKS.--Records good except estimated daily discharges, which are fair. Flow affected by natural storage in Quinault Lake. No diversions upstream from station. Chemical analyses July 1959 to June 1960, October 1962 to September 1970 (partial-record station), October 1971 to September 1974. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--94 years (water years 1912-2005), 2,860 ft³/s, 147.12 in/yr, 2,072,000 acre-ft/yr. Includes mean discharges for water years 1923-25, 1933, which were estimated for WSP 1316.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,200 ft³/s, Nov. 4, 1955, gage height, 20.51 ft; minimum daily discharge, 250 ft³/s, Oct. 29, 30, 1987.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood in November 1909 reached a stage of approximately 22 ft, present datum, discharge, 52,600 ft³/s.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 12,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft ³ /s) | Gage height (ft) | Date | Time | Discharge (ft ³ /s) | Gage height (ft) |
|--------|------|--------------------------------|------------------|--------|------|--------------------------------|------------------|
| Dec 11 | 0115 | *29,700 | *15.03 | Jan 19 | 0100 | 18,800 | 11.73 |
| Dec 14 | 2130 | 12,400 | 9.50 | | | | |

Minimum daily discharge, 260 ft³/s, Sept. 25-27.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|---------|---------|---------|---------|--------|---------|---------|---------|--------|--------|--------|--------|
| 1 | 1,060 | 2,740 | 2,430 | 1,810 | 2,750 | 1,330 | 4,220 | 2,620 | 2,400 | 924 | 628 | 406 |
| 2 | 1,010 | 8,120 | 2,200 | 1,700 | 2,550 | 1,680 | 4,620 | 2,600 | 2,260 | 899 | 613 | 394 |
| 3 | 965 | 7,640 | 2,010 | 1,610 | 2,370 | 1,880 | 4,590 | 2,690 | 2,090 | 875 | 596 | 386 |
| 4 | 924 | 5,430 | 2,070 | 1,530 | 2,350 | 1,820 | 4,400 | 2,610 | 1,940 | 847 | 582 | 382 |
| 5 | 906 | 4,120 | 2,340 | 1,460 | 2,520 | 1,680 | 3,810 | 2,600 | 1,830 | 841 | 568 | e370 |
| 6 | 973 | 3,330 | 2,320 | 1,390 | 2,490 | 1,560 | 3,700 | 2,510 | 1,740 | 995 | 556 | e350 |
| 7 | 990 | 2,870 | 2,370 | 1,370 | 2,440 | 1,480 | 3,530 | 2,400 | 1,650 | 1,080 | 545 | e340 |
| 8 | 1,200 | 2,590 | 3,210 | 1,410 | 2,280 | 1,460 | 3,480 | 2,250 | 1,570 | 1,230 | 533 | e330 |
| 9 | 2,360 | 2,340 | 4,080 | 1,400 | 2,120 | 1,440 | 3,140 | 2,110 | 1,510 | 1,660 | 519 | e320 |
| 10 | 3,370 | 2,120 | 15,700 | 1,350 | 1,980 | 1,440 | 2,770 | 2,140 | 1,440 | 1,600 | 510 | e330 |
| 11 | 3,070 | 1,930 | 24,800 | 1,290 | 1,860 | 1,390 | 2,780 | 2,210 | 1,420 | 1,490 | 501 | e315 |
| 12 | 2,580 | 1,790 | 13,200 | 1,260 | 1,820 | 1,330 | 2,820 | 2,120 | 1,400 | 1,480 | 492 | e310 |
| 13 | 2,200 | 1,720 | 8,050 | 1,220 | 1,780 | 1,260 | 2,770 | 2,030 | 1,390 | 1,440 | 485 | e305 |
| 14 | 1,910 | 1,650 | 10,300 | 1,170 | 1,700 | 1,180 | 2,640 | 1,980 | 1,420 | 1,350 | 480 | e300 |
| 15 | 1,710 | 1,810 | 10,700 | 1,140 | 1,600 | 1,110 | 2,540 | 2,170 | 1,380 | 1,260 | 473 | e300 |
| 16 | 1,580 | 2,090 | 7,520 | 1,300 | 1,520 | 1,100 | 4,310 | 2,400 | 1,320 | 1,170 | 464 | e300 |
| 17 | 1,640 | 2,170 | 5,610 | 3,360 | 1,450 | 1,160 | 5,650 | 2,360 | 1,360 | 1,100 | 466 | e295 |
| 18 | 2,080 | 2,310 | 4,630 | 15,900 | 1,380 | 1,140 | 4,740 | 3,060 | 1,380 | 1,040 | 470 | e290 |
| 19 | 2,830 | 2,610 | 4,110 | 16,000 | 1,320 | 1,120 | 3,880 | 5,710 | 1,330 | 983 | 465 | e285 |
| 20 | 3,690 | 2,510 | 3,640 | 10,600 | 1,260 | 2,840 | 3,320 | 7,130 | 1,270 | 946 | 457 | e280 |
| 21 | 3,300 | 2,300 | 3,210 | 8,210 | 1,210 | 4,590 | 3,030 | 6,410 | 1,220 | 904 | 447 | e280 |
| 22 | 2,920 | 2,120 | 2,860 | 7,380 | 1,160 | 3,930 | 2,980 | 5,920 | 1,200 | 871 | 435 | e275 |
| 23 | 2,680 | 2,020 | 2,580 | 9,780 | 1,110 | 3,180 | 3,070 | 5,830 | 1,160 | 839 | 428 | e270 |
| 24 | 2,390 | 3,160 | 2,360 | 7,410 | 1,080 | 2,650 | 3,140 | 4,950 | 1,110 | 807 | 419 | e265 |
| 25 | 2,200 | 9,840 | 2,330 | 5,510 | 1,040 | 2,280 | 3,180 | 4,150 | 1,080 | 777 | 411 | e260 |
| 26 | 2,390 | 7,400 | 2,560 | 4,400 | 1,010 | 2,940 | 3,190 | 3,600 | 1,050 | 751 | 401 | e260 |
| 27 | 2,430 | 5,160 | 2,460 | 3,990 | 976 | 4,720 | 3,160 | 3,250 | 1,030 | 726 | 392 | e260 |
| 28 | 2,260 | 3,890 | 2,300 | 3,650 | 989 | 4,380 | 3,180 | 3,020 | 996 | 704 | 402 | e280 |
| 29 | 2,080 | 3,160 | 2,160 | 3,220 | --- | 4,100 | 3,000 | 2,850 | 964 | 681 | 420 | e800 |
| 30 | 2,420 | 2,750 | 2,050 | 2,910 | --- | 3,970 | 2,820 | 2,670 | 948 | 666 | 423 | 1,880 |
| 31 | 2,660 | --- | 1,920 | 2,800 | --- | 3,570 | --- | 2,500 | --- | 649 | 416 | --- |
| TOTAL | 64,778 | 103,690 | 158,080 | 127,530 | 48,115 | 69,710 | 104,460 | 100,850 | 42,858 | 31,585 | 14,997 | 11,418 |
| MEAN | 2,090 | 3,456 | 5,099 | 4,114 | 1,718 | 2,249 | 3,482 | 3,253 | 1,429 | 1,019 | 484 | 381 |
| MAX | 3,690 | 9,840 | 24,800 | 16,000 | 2,750 | 4,720 | 5,650 | 7,130 | 2,400 | 1,660 | 628 | 1,880 |
| MIN | 906 | 1,650 | 1,920 | 1,140 | 976 | 1,100 | 2,540 | 1,980 | 948 | 649 | 392 | 260 |
| AC-FT | 128,500 | 205,700 | 313,600 | 253,000 | 95,440 | 138,300 | 207,200 | 200,000 | 85,010 | 62,650 | 29,750 | 22,650 |
| CFSM | 7.92 | 13.1 | 19.3 | 15.6 | 6.51 | 8.52 | 13.2 | 12.3 | 5.41 | 3.86 | 1.83 | 1.44 |
| IN. | 9.13 | 14.61 | 22.27 | 17.97 | 6.78 | 9.82 | 14.72 | 14.21 | 6.04 | 4.45 | 2.11 | 1.61 |

e Estimated

QUEETS RIVER BASIN

12040500 QUEETS RIVER NEAR CLEARWATER, WA

LOCATION.--Lat 47°32'17", long 124°18'52", in NE $\frac{1}{4}$ SW $\frac{1}{4}$ sec.36, T.24 N., R.13 W., Jefferson County, Hydrologic Unit 17100102, Quinault Indian Reservation, on right bank 2.4 mi downstream from mouth of Clearwater River, 0.8 mi east of Queets, and at mile 4.6.

DRAINAGE AREA.--445 mi².

PERIOD OF RECORD.--September 1930 to November 1949, water years 1950-67 (annual maximum), April 1974 to current year.

REVISED RECORDS.--WSP 1316: 1931-49(m).

GAGE.--Water-stage recorder. Datum of gage is 14.5 ft above NGVD of 1929 (river-profile survey). Sept. 15, 1930, to Jan. 22, 1935, at datum 4.0 ft higher.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. U.S. Geological Survey satellite telemeter at station. Chemical analyses October 1977 to September 1993.

AVERAGE DISCHARGE.--50 years (water years 1931-49, 1975-2005), 4,353 ft³/s, 132.91 in/yr, 3,154,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 133,000 ft³/s, Dec. 15, 1999, gage height, 27.18 ft, minimum discharge, 281 ft³/s, Sept. 25-28, 2005.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 42,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft ³ /s) | Gage height (ft) | Date | Time | Discharge (ft ³ /s) | Gage height (ft) |
|--------|------|-----------------------------------|---------------------|--------|------|-----------------------------------|---------------------|
| Nov 25 | 0000 | 51,100 | 19.60 | Jan 17 | 2300 | *74,700 | *22.69 |
| Dec 10 | 2215 | 64,800 | 21.46 | | | | |

Minimum discharge, 281 ft³/s, Sept. 25-28, gage height, 6.15 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|--------|--------|--------|--------|
| 1 | 1,130 | 5,250 | 3,330 | 2,410 | 3,970 | 4,630 | 11,800 | 2,120 | 2,610 | 907 | 720 | 423 |
| 2 | 1,070 | 20,600 | 2,930 | 2,190 | 3,390 | 4,440 | 8,160 | 2,480 | 2,350 | 867 | 696 | 409 |
| 3 | 1,020 | 8,010 | 2,700 | 2,020 | 3,050 | 3,560 | 10,400 | 2,500 | 2,050 | 831 | 653 | 401 |
| 4 | 977 | 5,280 | 4,620 | 1,890 | 3,970 | 2,660 | 7,820 | 2,230 | 1,880 | 795 | 631 | 392 |
| 5 | 996 | 4,070 | 5,380 | 1,770 | 4,360 | 2,300 | 6,240 | 2,330 | 1,750 | 867 | 621 | 389 |
| 6 | 1,830 | 3,430 | 4,180 | 1,690 | 4,600 | 2,050 | 7,220 | 2,040 | 1,700 | 2,930 | 615 | 376 |
| 7 | 1,400 | 3,280 | 4,740 | 2,060 | 4,330 | 1,990 | 6,050 | 1,880 | 1,630 | 1,750 | 610 | 360 |
| 8 | 5,570 | 2,910 | 9,360 | 2,370 | 3,510 | 1,910 | 5,700 | 1,710 | 1,490 | 5,010 | 594 | 356 |
| 9 | 7,870 | 2,540 | 7,680 | 2,180 | 3,060 | 2,170 | 4,380 | 1,650 | 1,410 | 4,190 | 582 | 354 |
| 10 | 6,530 | 2,250 | 46,300 | 1,870 | 2,750 | 1,960 | 3,770 | 1,940 | 1,360 | 2,480 | 580 | 366 |
| 11 | 3,930 | 2,030 | 29,000 | 1,700 | 2,540 | 1,680 | 5,910 | 1,940 | 1,500 | 2,200 | 566 | 350 |
| 12 | 2,930 | 1,880 | 11,700 | 1,890 | 2,780 | 1,570 | 5,160 | 1,700 | 1,570 | 2,550 | 552 | 337 |
| 13 | 2,430 | 1,890 | 8,660 | 1,850 | 2,780 | 1,430 | 5,300 | 1,590 | 1,640 | 2,150 | 552 | 331 |
| 14 | 2,100 | 1,780 | 22,900 | 1,650 | 2,640 | 1,330 | 4,590 | 1,610 | 1,740 | 1,820 | 542 | 326 |
| 15 | 1,880 | 4,540 | 14,100 | 1,580 | 2,340 | 1,250 | 4,310 | 3,090 | 1,440 | 1,620 | 528 | 325 |
| 16 | 2,120 | 4,200 | 8,710 | 3,380 | 2,130 | 1,540 | 14,600 | 3,560 | 1,330 | 1,500 | 520 | 322 |
| 17 | 2,800 | 4,080 | 6,540 | 37,100 | 1,980 | 2,000 | 9,690 | 2,910 | 1,590 | 1,380 | 541 | 316 |
| 18 | 4,550 | 4,890 | 5,630 | 45,500 | 1,870 | 1,570 | 7,100 | 6,220 | 1,500 | 1,300 | 576 | 311 |
| 19 | 5,580 | 4,570 | 4,900 | 20,300 | 1,760 | 1,730 | 5,380 | 9,770 | 1,310 | 1,210 | 525 | 308 |
| 20 | 4,410 | 3,410 | 4,240 | 17,600 | 1,650 | 17,800 | 4,480 | 9,540 | 1,220 | 1,120 | 487 | 304 |
| 21 | 3,180 | 2,840 | 3,800 | 12,100 | 1,560 | 10,200 | 4,030 | 8,090 | 1,210 | 1,060 | 473 | 302 |
| 22 | 3,660 | 2,610 | 3,420 | 22,500 | 1,470 | 6,000 | 3,800 | 8,710 | 1,330 | 1,010 | 461 | 294 |
| 23 | 3,360 | 2,640 | 3,020 | 19,800 | 1,400 | 4,310 | 3,620 | 7,870 | 1,220 | 966 | 450 | 291 |
| 24 | 2,800 | 17,900 | 2,750 | 9,910 | 1,350 | 3,480 | 3,340 | 5,710 | 1,100 | 917 | 433 | 287 |
| 25 | 3,210 | 24,500 | 4,590 | 6,970 | 1,310 | 2,960 | 3,270 | 4,470 | 1,050 | 877 | 423 | 281 |
| 26 | 4,040 | 9,200 | 5,960 | 5,650 | 1,260 | 11,800 | 3,030 | 3,770 | 1,020 | 846 | 413 | 281 |
| 27 | 2,980 | 6,570 | 4,030 | 5,860 | 1,210 | 10,700 | 2,830 | 3,360 | 1,080 | 813 | 409 | 281 |
| 28 | 2,510 | 4,890 | 3,360 | 4,650 | 1,250 | 7,510 | 2,790 | 3,090 | 980 | 793 | 437 | 285 |
| 29 | 2,230 | 4,080 | 3,140 | 3,890 | --- | 8,510 | 2,460 | 2,840 | 950 | 775 | 559 | 7,520 |
| 30 | 5,000 | 3,880 | 2,990 | 3,840 | --- | 7,420 | 2,350 | 2,600 | 936 | 747 | 517 | 8,490 |
| 31 | 3,950 | --- | 2,610 | 4,500 | --- | 6,190 | --- | 2,490 | --- | 731 | 451 | --- |
| TOTAL | 98,043 | 170,000 | 247,270 | 252,670 | 70,270 | 138,650 | 169,580 | 115,810 | 43,946 | 47,012 | 16,717 | 25,368 |
| MEAN | 3,163 | 5,667 | 7,976 | 8,151 | 2,510 | 4,473 | 5,653 | 3,736 | 1,465 | 1,517 | 539 | 846 |
| MAX | 7,870 | 24,500 | 46,300 | 45,500 | 4,600 | 17,800 | 14,600 | 9,770 | 2,610 | 5,010 | 720 | 8,490 |
| MIN | 977 | 1,780 | 2,610 | 1,580 | 1,210 | 1,250 | 2,350 | 1,590 | 936 | 731 | 409 | 281 |
| AC-FT | 194,500 | 337,200 | 490,500 | 501,200 | 139,400 | 275,000 | 336,400 | 229,700 | 87,170 | 93,250 | 33,160 | 50,320 |
| CFSM | 7.11 | 12.7 | 17.9 | 18.3 | 5.64 | 10.1 | 12.7 | 8.40 | 3.29 | 3.41 | 1.21 | 1.90 |
| IN. | 8.20 | 14.21 | 20.67 | 21.12 | 5.87 | 11.59 | 14.18 | 9.68 | 3.67 | 3.93 | 1.40 | 2.12 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1931 - 2005, BY WATER YEAR (WY)

| | 3,561 | 7,476 | 8,267 | 7,586 | 6,668 | 5,352 | 4,143 | 3,138 | 2,402 | 1,586 | 1,028 | 1,363 |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MEAN | 3,561 | 7,476 | 8,267 | 7,586 | 6,668 | 5,352 | 4,143 | 3,138 | 2,402 | 1,586 | 1,028 | 1,363 |
| MAX | 10,260 | 20,100 | 18,140 | 23,500 | 14,040 | 13,360 | 7,093 | 6,263 | 4,642 | 4,543 | 4,396 | 4,531 |
| (WY) | (2004) | (1991) | (1980) | (1935) | (1999) | (1997) | (1937) | (1948) | (1997) | (1997) | (1991) | (1997) |
| MIN | 348 | 754 | 2,435 | 1,787 | 1,818 | 1,876 | 1,546 | 1,588 | 980 | 682 | 469 | 439 |
| (WY) | (1988) | (1937) | (1986) | (1937) | (1993) | (1992) | (1998) | (2004) | (1992) | (1992) | (1938) | (1993) |

12040500 QUEETS RIVER NEAR CLEARWATER, WA—Continued

| SUMMARY STATISTICS | FOR 2004 CALENDAR YEAR | | FOR 2005 WATER YEAR | | WATER YEARS 1931 - 2005 | |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|--------------|
| ANNUAL TOTAL | 1,341,110 | | 1,395,336 | | 4,353 | |
| ANNUAL MEAN | 3,664 | | 3,823 | | 6,595 | |
| HIGHEST ANNUAL MEAN | | | | | 1999 | |
| LOWEST ANNUAL MEAN | | | | | 1944 | |
| HIGHEST DAILY MEAN | 46,300 | Dec 10 | 46,300 | Dec 10 | 91,100 | Mar 19, 1997 |
| LOWEST DAILY MEAN | 520 | Aug 20 | 281 | Sep 25 | 281 | Sep 25, 2005 |
| ANNUAL SEVEN-DAY MINIMUM | 553 | Aug 15 | 286 | Sep 22 | 286 | Sep 22, 2005 |
| ANNUAL RUNOFF (AC-FT) | 2,660,000 | | 2,768,000 | | 3,154,000 | |
| ANNUAL RUNOFF (CFSM) | 8.23 | | 8.59 | | 9.78 | |
| ANNUAL RUNOFF (INCHES) | 112.11 | | 116.64 | | 132.91 | |
| 10 PERCENT EXCEEDS | 7,340 | | 7,930 | | 9,280 | |
| 50 PERCENT EXCEEDS | 2,450 | | 2,340 | | 2,530 | |
| 90 PERCENT EXCEEDS | 864 | | 468 | | 711 | |

12041200 HOH RIVER AT U.S. HIGHWAY 101, NEAR FORKS, WA

LOCATION.--Lat 47°48'25", long 124°14'59", in NE $\frac{1}{4}$ NE $\frac{1}{4}$ sec.33, T.27 N., R.12 W., Jefferson County, Hydrologic Unit 17100101, on left bank 250 ft downstream from U.S. Highway 101, 1.0 mi downstream from Hell Roaring Creek, 11.5 mi southeast of Forks, and at mile 15.4.

DRAINAGE AREA.--253 mi².

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

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 163.64 ft above NGVD of 1929.

REMARKS.--Records good, except for estimated daily discharges, which are fair. No regulation or diversion upstream from station. Chemical analyses July 1960 to September 1961, November 1961 to September 1970 (partial-record station), October 1971 to September 1974. U.S. Geological Survey satellite telemeter at station. Water temperatures November 1970 to April 1971.

AVERAGE DISCHARGE.--45 years (water years 1961-2005), 2,538 ft³/s, 136.28 in/yr, 1,838,000 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 62,100 ft³/s, Oct. 17, 2003, gage height, 20.20 ft, from rating curve extended above 46,000 ft³/s, on basis of slope-area measurement at gage height 17.74 ft; minimum discharge, 249 ft³/s, Oct. 23, 1987, gage height, 2.13 ft.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 16,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft ³ /s) | Gage height (ft) | Date | Time | Discharge (ft ³ /s) | Gage height (ft) |
|--------|------|-----------------------------------|---------------------|--------|------|-----------------------------------|---------------------|
| Nov 2 | 0545 | 18,200 | 9.89 | Jan 17 | 2345 | 27,500 | 12.54 |
| Nov 25 | 0000 | 21,400 | 10.85 | Jan 22 | 2030 | 17,200 | 9.58 |
| Dec 10 | 2145 | *32,700 | *13.87 | | | | |

Minimum daily discharge, 340 ft³/s, Sept. 27.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|---------|---------|---------|---------|--------|---------|---------|---------|--------|--------|--------|--------|
| 1 | 907 | 2,920 | 2,120 | 1,610 | 2,170 | 1,640 | 4,980 | 1,690 | 2,130 | 1,180 | 1,080 | 645 |
| 2 | 877 | 11,500 | 1,940 | 1,510 | 1,990 | 1,710 | 3,820 | 1,920 | 1,920 | 1,070 | 952 | 694 |
| 3 | 857 | 4,450 | 1,810 | 1,440 | 1,870 | 1,430 | 4,110 | 2,000 | 1,700 | 979 | 848 | 651 |
| 4 | 842 | 2,950 | 2,210 | 1,360 | 2,390 | 1,200 | 3,320 | 1,820 | 1,570 | 978 | 841 | 584 |
| 5 | 876 | 2,380 | 2,360 | 1,300 | 2,410 | 1,110 | 2,900 | 1,910 | 1,460 | 1,100 | 932 | 543 |
| 6 | 1,500 | 2,120 | 2,030 | 1,260 | 2,320 | 1,040 | 3,260 | 1,720 | 1,390 | 2,230 | 979 | 508 |
| 7 | 1,130 | 2,420 | 2,030 | 1,330 | 2,110 | 1,110 | 3,080 | 1,620 | 1,300 | 1,630 | 925 | 512 |
| 8 | 3,430 | 2,180 | 3,310 | 1,330 | 1,850 | 1,190 | 3,010 | 1,460 | 1,220 | 2,750 | 897 | 527 |
| 9 | 4,590 | 1,850 | 3,390 | 1,260 | 1,700 | 1,420 | 2,440 | 1,400 | 1,160 | 2,610 | 899 | 575 |
| 10 | 3,800 | 1,620 | 23,200 | 1,170 | 1,580 | 1,330 | 2,130 | 1,640 | 1,170 | 1,690 | 899 | 516 |
| 11 | 2,400 | 1,470 | 15,200 | 1,130 | 1,500 | 1,170 | 2,730 | 1,790 | 1,380 | 1,610 | 836 | 463 |
| 12 | 1,920 | 1,360 | 6,320 | 1,200 | 1,550 | 1,110 | 2,470 | 1,530 | 1,520 | 1,890 | 825 | 462 |
| 13 | 1,770 | 1,320 | 4,730 | 1,140 | 1,560 | 1,010 | 2,380 | 1,450 | 1,520 | 1,560 | 888 | 457 |
| 14 | 1,610 | 1,300 | 11,700 | 1,070 | 1,500 | 933 | 2,160 | 1,610 | 1,570 | 1,350 | 930 | 470 |
| 15 | 1,470 | 2,560 | 7,160 | 1,050 | 1,370 | 885 | 2,070 | 2,570 | 1,360 | 1,310 | 941 | 470 |
| 16 | 1,620 | 2,350 | 4,640 | 1,750 | 1,280 | 1,010 | 6,080 | 2,580 | 1,250 | 1,270 | 908 | 439 |
| 17 | 1,650 | 2,150 | 3,710 | 13,000 | 1,220 | 1,070 | 4,370 | 2,030 | 1,550 | 1,250 | 969 | 420 |
| 18 | 2,400 | 2,550 | 3,590 | 18,800 | 1,170 | 948 | 3,330 | 2,760 | 1,480 | 1,250 | 943 | 403 |
| 19 | 2,410 | 2,420 | 3,360 | 10,500 | 1,120 | 1,030 | 2,650 | 5,010 | 1,320 | 1,230 | 830 | 407 |
| 20 | 2,110 | 1,970 | 2,920 | 8,090 | 1,070 | 5,910 | 2,320 | 4,740 | 1,300 | 1,080 | 794 | 424 |
| 21 | 1,650 | 1,730 | 2,610 | 5,740 | 1,030 | 3,770 | 2,230 | 4,140 | 1,370 | 1,040 | 797 | 393 |
| 22 | 1,650 | 1,690 | 2,370 | 9,940 | 996 | 2,440 | 2,300 | 4,430 | 1,470 | 1,070 | 768 | e375 |
| 23 | 1,630 | 1,730 | 2,150 | 9,560 | 962 | 1,940 | 2,360 | 4,360 | 1,310 | 1,060 | 696 | e370 |
| 24 | 1,430 | 9,170 | 2,000 | 5,160 | 935 | 1,660 | 2,280 | 3,250 | 1,220 | 982 | 641 | e360 |
| 25 | 1,610 | 11,800 | 2,690 | 3,690 | 913 | 1,480 | 2,260 | 2,640 | 1,170 | 944 | 634 | e350 |
| 26 | 1,710 | 5,040 | 2,940 | 3,110 | 894 | 4,670 | 2,240 | 2,360 | 1,150 | 945 | 631 | e350 |
| 27 | 1,410 | 3,680 | 2,300 | 3,120 | 874 | 4,480 | 2,220 | 2,350 | 1,140 | 951 | 679 | e340 |
| 28 | 1,270 | 2,890 | 2,050 | 2,600 | 898 | 3,490 | 2,220 | 2,390 | 1,070 | 1,030 | 805 | e350 |
| 29 | 1,200 | 2,520 | 1,950 | 2,280 | --- | 3,660 | 1,960 | 2,350 | 1,130 | 1,020 | 869 | 4,210 |
| 30 | 1,980 | 2,360 | 1,840 | 2,170 | --- | 3,230 | 1,820 | 2,210 | 1,220 | 988 | 713 | 5,100 |
| 31 | 1,990 | --- | 1,710 | 2,420 | --- | 2,840 | --- | 2,120 | --- | 1,010 | 648 | --- |
| TOTAL | 55,699 | 96,450 | 132,340 | 121,090 | 41,232 | 61,916 | 85,500 | 75,850 | 41,520 | 41,057 | 25,997 | 22,368 |
| MEAN | 1,797 | 3,215 | 4,269 | 3,906 | 1,473 | 1,997 | 2,850 | 2,447 | 1,384 | 1,324 | 839 | 746 |
| MAX | 4,590 | 11,800 | 23,200 | 18,800 | 2,410 | 5,910 | 6,080 | 5,010 | 2,130 | 2,750 | 1,080 | 5,100 |
| MIN | 842 | 1,300 | 1,710 | 1,050 | 874 | 885 | 1,820 | 1,400 | 1,070 | 944 | 631 | 340 |
| AC-FT | 110,500 | 191,300 | 262,500 | 240,200 | 81,780 | 122,800 | 169,600 | 150,400 | 82,350 | 81,440 | 51,570 | 44,370 |
| CFSM | 7.10 | 12.7 | 16.9 | 15.4 | 5.82 | 7.89 | 11.3 | 9.67 | 5.47 | 5.23 | 3.31 | 2.95 |
| IN. | 8.19 | 14.18 | 19.46 | 17.80 | 6.06 | 9.10 | 12.57 | 11.15 | 6.10 | 6.04 | 3.82 | 3.29 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 2005, BY WATER YEAR (WY)

| | 2,193 | 3,966 | 4,177 | 3,825 | 3,323 | 2,694 | 2,132 | 2,029 | 2,084 | 1,681 | 1,241 | 1,148 |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MEAN | 2,193 | 3,966 | 4,177 | 3,825 | 3,323 | 2,694 | 2,132 | 2,029 | 2,084 | 1,681 | 1,241 | 1,148 |
| MAX | 6,831 | 10,690 | 8,701 | 6,780 | 6,214 | 5,697 | 3,248 | 2,915 | 3,117 | 2,820 | 2,557 | 2,266 |
| (WY) | (2004) | (1991) | (1980) | (1974) | (1982) | (1972) | (1981) | (1997) | (1964) | (1999) | (1991) | (1969) |
| MIN | 381 | 1,022 | 1,282 | 992 | 1,121 | 1,261 | 925 | 1,392 | 1,285 | 1,012 | 760 | 603 |
| (WY) | (1988) | (1994) | (1986) | (1979) | (1993) | (1992) | (1975) | (2003) | (1992) | (1992) | (1994) | (1993) |

12041200 HOH RIVER AT U.S. HIGHWAY 101, NEAR FORKS, WA—Continued

| SUMMARY STATISTICS | FOR 2004 CALENDAR YEAR | | FOR 2005 WATER YEAR | | WATER YEARS 1961 - 2005 | |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|--------------|
| ANNUAL TOTAL | 829,616 | | 801,019 | | | |
| ANNUAL MEAN | 2,267 | | 2,195 | | 2,538 | |
| HIGHEST ANNUAL MEAN | | | | | 3,452 | |
| LOWEST ANNUAL MEAN | | | | | 1,645 | |
| HIGHEST DAILY MEAN | 23,200 | Dec 10 | 23,200 | Dec 10 | 40,000 | Oct 17, 2003 |
| LOWEST DAILY MEAN | 680 | Aug 20 | 340 | Sep 27 | 252 | Oct 23, 1987 |
| ANNUAL SEVEN-DAY MINIMUM | 743 | Aug 15 | 356 | Sep 22 | 259 | Oct 19, 1987 |
| ANNUAL RUNOFF (AC-FT) | 1,646,000 | | 1,589,000 | | 1,838,000 | |
| ANNUAL RUNOFF (CFSM) | 8.96 | | 8.67 | | 10.0 | |
| ANNUAL RUNOFF (INCHES) | 121.98 | | 117.78 | | 136.28 | |
| 10 PERCENT EXCEEDS | 3,620 | | 3,810 | | 4,630 | |
| 50 PERCENT EXCEEDS | 1,740 | | 1,610 | | 1,800 | |
| 90 PERCENT EXCEEDS | 1,050 | | 784 | | 876 | |

e Estimated

QUILLAYUTE RIVER BASIN

12043000 CALAWAH RIVER NEAR FORKS, WA

LOCATION.--Lat 47°57'37", long 124°23'30", in NW¼SW¼, sec.4, T.28 N., R.13 W., Clallam County, Hydrologic Unit 17100101, on left bank 30 ft downstream from U.S. Highway 101 bridge, 0.8 mi northwest of Forks, and at mile 6.6.

DRAINAGE AREA.--129 mi².

PERIOD OF RECORD.--November 1897 to December 1901, October to December 1975 (discharge measurements and peak discharges), January 1976 to September 1980, March 1984 to current year. Monthly and peak discharge only, November 1897 and August 1898, published in WSP 1316. Published as Calowa River at Forks, November 1897 to December 1899; as Calowa River near Forks, 1900; and as Kalawa River near Forks, 1901.

REVISED RECORDS.--WSP 1316: 1898-1902. WSP 1736: Drainage area.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 201.58 ft above NGVD of 1929. November 1897 to December 1901, nonrecording gage at same site but at different datum; October to December 1975, nonrecording gage and crest-stage gage at same site and datum.

REMARKS.--No estimated daily discharges. Records good. No regulation or diversion upstream from station. Chemical analyses October 1976 to September 1978. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE.--28 years (water years 1899-1901, 1977-80, 1985-2005), 1,038 ft³/s, 109.34 in/yr, 752,100 acre-ft/yr.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 37,100 ft³/s, Oct. 16, 2003, gage height, 21.27 ft, from rating curve extended above 10,000 ft³/s on basis of step-backwater analysis; minimum discharge, 15 ft³/s, Sept. 28, 1899.

EXTREMES FOR CURRENT YEAR.--Peak discharges greater than base discharge of 10,000 ft³/s and maximum (*):

| Date | Time | Discharge (ft ³ /s) | Gage height (ft) | Date | Time | Discharge (ft ³ /s) | Gage height (ft) |
|--------|------|--------------------------------|------------------|--------|------|--------------------------------|------------------|
| Nov 2 | 0200 | 10,900 | 12.39 | Dec 10 | 1930 | *19,400 | *15.87 |
| Nov 24 | 2100 | 15,000 | 14.19 | Jan 17 | 2045 | 18,000 | 15.37 |

Minimum discharge, 53 ft³/s, Sept. 26-28, gage height, 2.49 ft.

DISCHARGE, CUBIC FEET PER SECOND
WATER YEAR OCTOBER 2004 TO SEPTEMBER 2005
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|--------|---------|---------|--------|--------|--------|--------|--------|--------|-------|-------|
| 1 | 230 | 1,730 | 819 | 697 | 779 | 622 | 3,430 | 399 | 473 | 215 | 168 | 85 |
| 2 | 220 | 5,870 | 733 | 638 | 729 | 648 | 2,390 | 421 | 435 | 217 | 161 | 81 |
| 3 | 211 | 2,150 | 676 | 590 | 666 | 600 | 2,500 | 393 | 401 | 208 | 156 | 80 |
| 4 | 204 | 1,380 | 1,000 | 547 | 1,090 | 512 | 2,120 | 384 | 379 | 199 | 151 | 79 |
| 5 | 241 | 1,040 | 1,210 | 512 | 1,220 | 465 | 1,780 | 369 | 366 | 211 | 147 | 79 |
| 6 | 431 | 918 | 999 | 493 | 1,140 | 434 | 1,790 | 342 | 374 | 499 | 143 | 75 |
| 7 | 293 | 897 | 935 | 498 | 1,030 | 428 | 1,610 | 326 | 385 | 339 | 140 | 73 |
| 8 | 1,470 | 814 | 1,680 | 468 | 889 | 400 | 1,430 | 316 | 346 | 957 | 135 | 71 |
| 9 | 2,260 | 724 | 1,900 | 434 | 783 | 449 | 1,140 | 307 | 330 | 835 | 132 | 70 |
| 10 | 1,950 | 651 | 14,600 | 412 | 702 | 408 | 981 | 300 | 320 | 568 | 130 | 68 |
| 11 | 1,160 | 592 | 6,720 | 398 | 643 | 382 | 1,310 | 293 | 382 | 501 | 128 | 67 |
| 12 | 816 | 543 | 2,870 | 443 | 677 | 363 | 1,200 | 281 | 397 | 504 | 124 | 66 |
| 13 | 648 | 511 | 2,070 | 420 | 665 | 345 | 1,150 | 272 | 418 | 449 | 120 | 65 |
| 14 | 544 | 485 | 6,230 | 391 | 618 | 330 | 1,070 | 266 | 432 | 404 | 116 | 65 |
| 15 | 479 | 1,160 | 3,680 | 383 | 565 | 317 | 1,030 | 375 | 403 | 372 | 112 | 65 |
| 16 | 504 | 1,130 | 2,250 | 871 | 529 | 398 | 3,840 | 386 | 373 | 353 | 109 | 63 |
| 17 | 476 | 1,160 | 1,650 | 8,230 | 499 | 413 | 2,480 | 366 | 399 | 325 | 113 | 61 |
| 18 | 785 | 1,450 | 1,360 | 8,200 | 474 | 364 | 1,860 | 556 | 358 | 299 | 113 | 60 |
| 19 | 868 | 1,420 | 1,150 | 4,180 | 450 | 405 | 1,430 | 1,370 | 332 | 280 | 104 | 60 |
| 20 | 776 | 1,100 | 1,030 | 3,710 | 425 | 3,620 | 1,150 | 1,530 | 311 | 264 | 100 | 59 |
| 21 | 643 | 907 | 967 | 2,770 | 404 | 2,440 | 964 | 1,320 | 303 | 250 | 97 | 58 |
| 22 | 617 | 823 | 888 | 4,850 | 385 | 1,440 | 836 | 2,010 | 302 | 240 | 94 | 57 |
| 23 | 565 | 775 | 818 | 4,370 | 369 | 1,050 | 739 | 2,420 | 280 | 228 | 92 | 56 |
| 24 | 529 | 6,710 | 764 | 2,320 | 356 | 848 | 662 | 1,550 | 265 | 219 | 89 | 55 |
| 25 | 677 | 5,640 | 1,350 | 1,610 | 343 | 724 | 602 | 1,090 | 257 | 211 | 87 | 54 |
| 26 | 767 | 2,390 | 1,770 | 1,260 | 331 | 3,190 | 545 | 838 | 253 | 202 | 85 | 54 |
| 27 | 639 | 1,690 | 1,330 | 1,110 | 320 | 3,010 | 502 | 691 | 263 | 195 | 83 | 53 |
| 28 | 557 | 1,290 | 1,090 | 926 | 327 | 2,040 | 466 | 595 | 240 | 188 | 92 | 54 |
| 29 | 515 | 1,080 | 965 | 810 | --- | 2,270 | 445 | 526 | 230 | 182 | 116 | 1,590 |
| 30 | 1,070 | 950 | 854 | 762 | --- | 2,140 | 427 | 473 | 223 | 177 | 104 | 1,030 |
| 31 | 904 | --- | 762 | 830 | --- | 1,760 | --- | 488 | --- | 171 | 91 | --- |
| TOTAL | 22,049 | 47,980 | 65,120 | 54,133 | 17,408 | 32,815 | 41,879 | 21,253 | 10,230 | 10,262 | 3,632 | 4,453 |
| MEAN | 711 | 1,599 | 2,101 | 1,746 | 622 | 1,059 | 1,396 | 686 | 341 | 331 | 117 | 148 |
| MAX | 2,260 | 6,710 | 14,600 | 8,230 | 1,220 | 3,620 | 3,840 | 2,420 | 473 | 957 | 168 | 1,590 |
| MIN | 204 | 485 | 676 | 383 | 320 | 317 | 427 | 266 | 223 | 171 | 83 | 53 |
| AC-FT | 43,730 | 95,170 | 129,200 | 107,400 | 34,530 | 65,090 | 83,070 | 42,160 | 20,290 | 20,350 | 7,200 | 8,830 |
| CFSM | 5.51 | 12.4 | 16.3 | 13.5 | 4.82 | 8.21 | 10.8 | 5.31 | 2.64 | 2.57 | 0.91 | 1.15 |
| IN. | 6.36 | 13.84 | 18.78 | 15.61 | 5.02 | 9.46 | 12.08 | 6.13 | 2.95 | 2.96 | 1.05 | 1.28 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1898 - 2005, BY WATER YEAR (WY)

| | 760 | 1,931 | 2,157 | 1,889 | 1,748 | 1,453 | 1,005 | 633 | 415 | 216 | 152 | 207 |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| MEAN | 760 | 1,931 | 2,157 | 1,889 | 1,748 | 1,453 | 1,005 | 633 | 415 | 216 | 152 | 207 |
| MAX | 2,544 | 4,706 | 4,395 | 3,428 | 3,782 | 3,583 | 1,532 | 1,161 | 1,128 | 788 | 766 | 812 |
| (WY) | (2004) | (1991) | (1980) | (1997) | (1999) | (1997) | (1997) | (1984) | (1900) | (1997) | (1991) | (1978) |
| MIN | 49.3 | 439 | 585 | 476 | 405 | 419 | 389 | 190 | 124 | 95.9 | 62.9 | 59.0 |
| (WY) | (1988) | (1994) | (1986) | (1979) | (1993) | (1992) | (2004) | (2004) | (1995) | (1995) | (2003) | (1998) |

12043000 CALAWAH RIVER NEAR FORKS, WA—Continued

| SUMMARY STATISTICS | FOR 2004 CALENDAR YEAR | | FOR 2005 WATER YEAR | | WATER YEARS 1898 - 2005 | |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|--------------|
| ANNUAL TOTAL | 307,304 | | 331,214 | | | |
| ANNUAL MEAN | 840 | | 907 | | 1,038 | |
| HIGHEST ANNUAL MEAN | | | | | 1,555 | |
| LOWEST ANNUAL MEAN | | | | | 665 | |
| HIGHEST DAILY MEAN | 14,600 | Dec 10 | 14,600 | Dec 10 | 22,900 | Dec 14, 1979 |
| LOWEST DAILY MEAN | 50 | Aug 20 | 53 | Sep 27 | 15 | Sep 28, 1899 |
| ANNUAL SEVEN-DAY MINIMUM | 53 | Aug 14 | 55 | Sep 22 | 26 | Sep 22, 1899 |
| ANNUAL RUNOFF (AC-FT) | 609,500 | | 657,000 | | 752,100 | |
| ANNUAL RUNOFF (CFSM) | 6.51 | | 7.03 | | 8.05 | |
| ANNUAL RUNOFF (INCHES) | 88.62 | | 95.51 | | 109.34 | |
| 10 PERCENT EXCEEDS | 1,810 | | 1,970 | | 2,390 | |
| 50 PERCENT EXCEEDS | 538 | | 499 | | 549 | |
| 90 PERCENT EXCEEDS | 110 | | 96 | | 94 | |