

Water-Data Report 2006

**12089500 NISQUALLY RIVER AT MCKENNA, WA**

Puget Sound Basin  
Nisqually Subbasin

LOCATION.--Lat 46°56'01", long 122°33'35" referenced to North American Datum of 1927, in SE ¼ NW ¼ sec.28, T.17 N., R.2 E., Thurston County, WA, Hydrologic Unit 17110015, on left bank at downstream side of State Highway 507 bridge at McKenna, and at mile 21.8.

DRAINAGE AREA.--517 mi<sup>2</sup>.

**SURFACE-WATER RECORDS**

PERIOD OF RECORD.--October 1947 to September 1968, May 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 285.47 ft above NGVD of 1929. Oct. 1, 1947, to Sept. 30, 1968, water-stage recorder at site 80 ft downstream at present datum, and Oct. 1, 1968, to Oct. 11, 1985, water-stage recorder at site 20 ft upstream at present datum.

REMARKS.--Records good except for the period from Jan. 11 to Feb. 22 and estimated daily discharges which are fair. Flow regulated by Alder Reservoir (station 12085000) at mile 44.2 and La Grande Reservoir (station 12085500) at mile 42.5. Centralia Power Canal (station 12089208) diverts water 4.4 mi upstream from station, which is returned to river at powerplant 9.2 mi downstream from station. Centralia Power Canal was built in 1929 and put into operation in 1930. Minor diversions for irrigation upstream from station. U.S. Geological Survey satellite telemeter at station.

AVERAGE DISCHARGE FOR PERIOD OF RECORD.--50 years (water years 1948-68, 1978-2006), 1,287 ft<sup>3</sup>/s, 932,500 acre-ft/yr, unadjusted.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 50,000 ft<sup>3</sup>/s, Feb. 8 or 9, 1996, gage height, 17.13 ft, estimated based on comparison with upstream gaging stations; minimum discharge, 20 ft<sup>3</sup>/s, Sept. 10, 11, 1965, Aug. 31, 1966.

EXTREMES FOR CURRENT YEAR.--Maximum discharge, 15,400 ft<sup>3</sup>/s, Jan 11, gage height, 10.26 ft; minimum discharge, 363 ft<sup>3</sup>/s, Sep 7, gage height, 0.86 ft.

## 12089500 NISQUALLY RIVER AT MCKENNA, WA—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2005 TO SEPTEMBER 2006**  
**DAILY MEAN VALUES**

[e, estimated]

| Day          | Oct    | Nov    | Dec    | Jan     | Feb     | Mar    | Apr    | May    | Jun    | Jul    | Aug    | Sep    |
|--------------|--------|--------|--------|---------|---------|--------|--------|--------|--------|--------|--------|--------|
| 1            | 920    | 1,740  | 918    | 3,280   | 6,750   | 2,070  | 850    | 642    | 1,270  | 662    | 836    | 405    |
| 2            | 720    | 1,850  | 909    | 2,940   | 3,820   | 1,920  | 908    | 628    | 1,710  | 659    | 975    | 409    |
| 3            | 691    | 1,690  | 844    | 2,750   | 4,410   | 1,380  | 822    | 629    | 2,150  | 652    | 951    | 409    |
| 4            | 695    | 2,430  | 763    | 2,570   | 5,060   | 1,230  | 828    | 627    | 2,010  | 650    | 935    | 405    |
| 5            | 640    | 2,380  | 708    | 2,440   | 3,910   | 1,170  | 783    | 631    | 1,910  | 654    | 934    | 399    |
| 6            | 643    | 2,430  | 676    | 2,610   | 2,910   | 1,130  | 740    | 628    | 1,790  | 651    | 931    | 399    |
| 7            | 672    | 2,160  | 650    | 2,830   | 2,640   | 1,140  | 702    | 631    | 1,710  | 649    | 928    | 398    |
| 8            | 644    | 1,970  | 640    | 3,090   | 2,480   | 1,160  | 719    | 638    | 1,650  | 649    | 925    | 408    |
| 9            | 622    | 1,940  | 619    | 4,360   | 2,380   | 1,320  | 871    | 624    | 1,400  | 644    | 860    | 405    |
| 10           | 608    | 2,210  | 604    | 9,480   | 2,280   | 1,250  | 834    | 633    | 1,220  | 640    | 548    | 406    |
| 11           | 601    | 2,170  | 606    | 14,700  | 2,200   | 1,210  | 817    | 645    | 1,190  | 641    | 450    | 401    |
| 12           | 606    | 2,110  | 634    | 13,000  | 2,140   | 1,170  | 817    | 638    | 1,180  | 648    | 412    | 401    |
| 13           | 642    | 1,930  | 647    | 10,300  | 2,110   | 1,130  | 823    | 627    | 1,300  | 652    | 392    | 454    |
| 14           | 707    | 1,830  | 622    | 7,970   | 2,080   | 949    | 916    | 620    | 1,490  | 644    | 383    | 470    |
| 15           | 702    | 1,590  | 617    | 5,720   | 2,000   | 870    | 1,280  | 626    | 1,480  | 633    | 385    | 437    |
| 16           | 678    | 1,200  | 631    | 5,490   | 1,930   | 854    | 1,200  | 690    | 1,290  | 632    | 387    | 398    |
| 17           | 618    | 921    | 628    | 5,460   | 1,900   | 863    | 1,010  | 784    | 1,170  | 634    | 396    | 397    |
| 18           | 657    | 875    | 623    | 3,330   | 1,830   | 885    | 929    | 825    | 1,150  | 624    | 405    | 403    |
| 19           | 650    | 851    | 632    | 2,900   | 1,820   | 898    | 821    | 966    | 1,110  | 596    | 405    | 398    |
| 20           | 736    | 842    | 688    | 2,940   | 1,830   | 884    | 737    | 954    | 903    | 560    | 405    | 398    |
| 21           | 724    | 856    | 815    | 2,910   | 1,870   | 860    | 718    | 830    | 783    | e550   | 402    | 418    |
| 22           | 682    | 848    | 1,170  | 2,700   | 1,840   | 851    | 682    | 760    | 705    | e545   | 399    | 439    |
| 23           | 657    | 775    | 1,900  | 2,500   | 1,890   | 775    | 656    | 786    | 691    | e544   | 404    | 396    |
| 24           | 631    | 762    | 2,510  | 2,380   | 1,820   | 774    | 631    | 822    | 682    | e542   | 405    | 394    |
| 25           | 599    | 973    | 2,650  | 2,330   | 1,640   | 787    | 624    | 802    | 675    | e540   | 408    | 392    |
| 26           | 595    | 1,260  | 2,450  | 2,290   | 1,600   | 732    | 621    | 827    | 668    | e538   | 407    | 387    |
| 27           | e617   | 1,020  | 2,530  | 2,570   | 1,720   | 699    | 627    | 888    | 657    | 534    | 412    | 385    |
| 28           | 612    | 918    | 2,790  | 3,810   | 2,120   | 692    | 632    | 1,700  | 652    | 534    | 408    | 385    |
| 29           | 633    | 920    | 3,030  | 3,950   | ---     | 701    | 644    | 1,790  | 671    | 534    | 404    | 386    |
| 30           | 603    | 936    | 3,100  | 7,820   | ---     | 711    | 705    | 1,280  | 668    | 538    | 404    | 453    |
| 31           | 1,040  | ---    | 3,330  | 8,770   | ---     | 699    | ---    | 1,230  | ---    | 535    | 406    | ---    |
| <b>Total</b> | 20,845 | 44,387 | 39,934 | 150,190 | 70,980  | 31,764 | 23,947 | 25,401 | 35,935 | 18,708 | 17,302 | 12,235 |
| <b>Mean</b>  | 672    | 1,480  | 1,288  | 4,845   | 2,535   | 1,025  | 798    | 819    | 1,198  | 603    | 558    | 408    |
| <b>Max</b>   | 1,040  | 2,430  | 3,330  | 14,700  | 6,750   | 2,070  | 1,280  | 1,790  | 2,150  | 662    | 975    | 470    |
| <b>Min</b>   | 595    | 762    | 604    | 2,290   | 1,600   | 692    | 621    | 620    | 652    | 534    | 383    | 385    |
| <b>Ac-ft</b> | 41,350 | 88,040 | 79,210 | 297,900 | 140,800 | 63,000 | 47,500 | 50,380 | 71,280 | 37,110 | 34,320 | 24,270 |
| <b>Cfsm</b>  | 1.30   | 2.86   | 2.49   | 9.37    | 4.90    | 1.98   | 1.54   | 1.58   | 2.32   | 1.17   | 1.08   | 0.79   |
| <b>In.</b>   | 1.50   | 3.19   | 2.87   | 10.81   | 5.11    | 2.29   | 1.72   | 1.83   | 2.59   | 1.35   | 1.24   | 0.88   |

## STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1948 - 2006, BY WATER YEAR (WY)

|             | Oct    | Nov    | Dec    | Jan    | Feb    | Mar    | Apr    | May    | Jun    | Jul    | Aug    | Sep    |
|-------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| <b>Mean</b> | 822    | 1,607  | 2,275  | 2,175  | 2,176  | 1,571  | 1,321  | 1,139  | 890    | 571    | 438    | 521    |
| <b>Max</b>  | 1,693  | 4,071  | 5,516  | 4,845  | 6,198  | 3,398  | 2,714  | 2,659  | 1,894  | 1,419  | 1,104  | 1,167  |
| <b>(WY)</b> | (1956) | (1956) | (1978) | (2006) | (1996) | (1950) | (1991) | (1949) | (1950) | (1999) | (1999) | (1977) |
| <b>Min</b>  | 298    | 272    | 595    | 620    | 593    | 405    | 553    | 499    | 254    | 85.5   | 137    | 148    |
| <b>(WY)</b> | (1962) | (1953) | (2001) | (2001) | (2001) | (1962) | (1978) | (1978) | (1965) | (1965) | (1963) | (1965) |

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SUMMARY STATISTICS

|                                 | Calendar Year 2005 |        | Water Year 2006 |        | Water Years 1948 - 2006 |              |
|---------------------------------|--------------------|--------|-----------------|--------|-------------------------|--------------|
| <b>Annual total</b>             | 300,913            |        | 491,628         |        |                         |              |
| <b>Annual mean</b>              | 824                |        | 1,347           |        | 1,287                   |              |
| <b>Highest annual mean</b>      |                    |        |                 |        | 2,238                   | 1996         |
| <b>Lowest annual mean</b>       |                    |        |                 |        | 590                     | 2001         |
| <b>Highest daily mean</b>       | 3,940              | Jan 18 | 14,700          | Jan 11 | 27,300                  | Feb 9, 1996  |
| <b>Lowest daily mean</b>        | 348                | Aug 23 | 383             | Aug 14 | 22                      | Sep 11, 1965 |
| <b>Annual seven-day minimum</b> | 363                | Aug 17 | 389             | Sep 23 | 27                      | Sep 1, 1965  |
| <b>Annual runoff (ac-ft)</b>    | 596,900            |        | 975,100         |        | 932,500                 |              |
| <b>Annual runoff (cfsm)</b>     | 1.59               |        | 2.61            |        | 2.49                    |              |
| <b>Annual runoff (inches)</b>   | 21.65              |        | 35.37           |        | 33.83                   |              |
| <b>10 percent exceeds</b>       | 1,620              |        | 2,590           |        | 2,310                   |              |
| <b>50 percent exceeds</b>       | 630                |        | 786             |        | 893                     |              |
| <b>90 percent exceeds</b>       | 483                |        | 407             |        | 388                     |              |

