

**USGS Water-Year Summary**

[**11303500**](https://waterdata.usgs.gov/nwis/inventory?agency_code=USGS&site_no=11303500) **San Joaquin River**

**near Vernalis, CA**

**LOCATION** - Lat 37°40'34", long 121°15'55" referenced to North American Datum of 1927, San Joaquin County, CA, Hydrologic Unit 18040002, in El Pescadero Grant, on left bank, 12 ft downstream from Airport Way bridge, 2.6 mi downstream from Stanislaus River, and 3.2 mi northeast of Vernalis.

DRAINAGE AREA - 13,539 mi², includes about 2,100 mi² in James Bypass.

**SURFACE-WATER RECORDS**

**PERIOD OF RECORD** - July 1922 to current year (1922-23 and 1925-29, low-flow records only – Not included in chart below).

**GAGE** - Water-stage recorder and crest-stage gage. Datum of gage is NGVD of 1929. See WSP 2130 for history of changes prior to Nov. 30, 1967.

**REMARKS** - Records rated good except for estimated record, which are rated fair. Natural flow of stream affected by storage reservoirs (particularly Millerton Lake (station 11250100) beginning in 1941), power developments, ground-water withdrawals, and diversions for irrigation; low flows normally consist mainly of return flow from irrigated areas. See schematic diagram of Sacramento-San Joaquin Delta available from the California Water Science Center.

**EXTREMES FOR PERIOD OF RECORD** - Maximum discharge recorded, 79,000 ft³/s, Dec. 9, 1950, elevation, 32.81 ft, present datum, including flow through breaks in levee, maximum elevation, 34.88 ft, Jan. 5, 1997; minimum daily discharge, 30 ft³/s, Aug. 10, 1961.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **00060, Discharge, cubic feet per second,** | | | | | | | | | | | | | |
| **YEAR** | **Monthly mean in ft3/s   (Calculation Period: 1923-10-01 -> 2017-10-31)  Period-of-record for statistical calculation restricted by user** | | | | | | | | | | | |
| **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** |
| **1923** |  |  |  |  |  |  |  |  |  | 2,592 | 1,316 | 1,573 |
| **1924** | 1,478 | 1,399 | 1,035 | 1,476 | 1,276 | 575.1 | 419.7 | 419.7 | 417.0 |  |  |  |
| **1929** |  |  |  |  |  |  |  |  |  | 1,408 | 1,234 | 1,285 |
| **1930** | 1,799 | 1,701 | 2,454 | 2,581 | 2,214 | 2,754 | 1,237 | 919.5 | 1,433 | 1,669 | 1,644 | 1,914 |
| **1931** | 1,546 | 1,602 | 880.6 | 389.2 | 443.7 | 392.2 | 232.5 | 227.7 | 319.5 | 477.5 | 642.8 | 1,251 |
| **1932** | 3,340 | 10,770 | 4,887 | 4,814 | 11,590 | 15,100 | 5,793 | 1,164 | 1,067 | 1,671 | 1,897 | 1,869 |
| **1933** | 2,007 | 3,005 | 1,737 | 1,147 | 1,384 | 5,308 | 1,114 | 666.0 | 1,150 | 1,534 | 1,528 | 2,409 |
| **1934** | 2,745 | 2,240 | 1,695 | 702.0 | 638.9 | 627.0 | 395.3 | 383.5 | 500.5 | 849.3 | 1,291 | 1,606 |
| **1935** | 3,638 | 3,535 | 4,075 | 14,760 | 16,380 | 15,780 | 2,698 | 994.5 | 1,350 | 2,033 | 1,939 | 2,535 |
| **1936** | 3,304 | 12,410 | 14,170 | 13,020 | 16,780 | 11,120 | 3,048 | 1,121 | 1,281 | 1,890 | 1,960 | 2,855 |
| **1937** | 3,291 | 12,390 | 13,210 | 14,460 | 20,050 | 15,560 | 3,260 | 1,129 | 1,396 | 1,899 | 1,979 | 5,308 |
| **1938** | 6,199 | 23,420 | 34,150 | 22,410 | 28,350 | 36,650 | 14,610 | 3,359 | 2,224 | 2,665 | 3,798 | 3,700 |
| **1939** | 4,091 | 4,171 | 2,026 | 2,467 | 2,036 | 990.8 | 756.2 | 715.3 | 1,033 | 1,485 | 1,436 | 1,586 |
| **1940** | 4,131 | 8,582 | 14,950 | 16,910 | 14,300 | 10,850 | 1,995 | 1,186 | 1,688 | 1,604 | 1,715 | 3,012 |
| **1941** | 7,134 | 13,110 | 21,170 | 17,090 | 21,280 | 22,300 | 9,142 | 2,095 | 1,686 | 2,199 | 2,329 | 4,776 |
| **1942** | 8,431 | 12,730 | 8,675 | 13,410 | 16,530 | 22,240 | 7,776 | 1,685 | 1,916 | 2,237 | 2,333 | 4,366 |
| **1943** | 5,647 | 13,070 | 23,120 | 18,060 | 14,970 | 11,650 | 2,208 | 1,542 | 1,689 | 2,108 | 1,952 | 2,388 |
| **1944** | 2,689 | 2,861 | 4,793 | 2,300 | 3,827 | 3,384 | 1,245 | 1,091 | 1,199 | 1,648 | 2,473 | 3,788 |
| **1945** | 3,864 | 10,880 | 9,216 | 8,987 | 13,920 | 11,320 | 3,880 | 1,780 | 2,031 | 2,759 | 3,483 | 5,733 |
| **1946** | 9,510 | 5,955 | 3,734 | 6,015 | 13,060 | 5,783 | 1,465 | 1,224 | 1,483 | 1,815 | 2,616 | 3,617 |
| **1947** | 2,782 | 2,407 | 2,260 | 1,487 | 2,046 | 942.5 | 526.7 | 569.4 | 1,074 | 1,314 | 1,773 | 1,695 |
| **1948** | 1,384 | 826.6 | 598.8 | 1,393 | 5,001 | 8,606 | 1,328 | 725.1 | 1,088 | 1,549 | 1,492 | 1,487 |
| **1949** | 1,741 | 1,415 | 3,469 | 2,058 | 3,530 | 2,003 | 562.6 | 602.0 | 714.6 | 1,267 | 1,582 | 1,571 |
| **1950** | 1,998 | 3,542 | 2,205 | 5,367 | 5,012 | 5,014 | 687.4 | 620.7 | 945.7 | 1,324 | 8,102 | 25,130 |
| **1951** | 10,280 | 10,810 | 7,769 | 2,652 | 6,525 | 3,338 | 870.1 | 759.5 | 1,035 | 1,785 | 1,763 | 3,136 |
| **1952** | 8,851 | 11,510 | 13,750 | 20,200 | 27,640 | 23,340 | 3,498 | 1,355 | 1,620 | 1,866 | 2,176 | 3,664 |
| **1953** | 5,947 | 3,674 | 1,162 | 1,520 | 3,059 | 4,914 | 1,604 | 747.6 | 1,093 | 1,630 | 1,662 | 1,762 |
| **1954** | 1,656 | 2,359 | 4,459 | 5,059 | 6,716 | 1,286 | 542.1 | 546.4 | 753.9 | 1,043 | 1,386 | 1,814 |
| **1955** | 2,965 | 2,451 | 1,561 | 916.7 | 1,150 | 1,496 | 416.3 | 430.9 | 609.5 | 799.4 | 1,071 | 10,910 |
| **1956** | 27,050 | 17,280 | 7,486 | 6,261 | 13,980 | 12,250 | 3,483 | 1,902 | 1,885 | 1,999 | 2,212 | 2,505 |
| **1957** | 1,921 | 1,763 | 3,054 | 1,326 | 2,581 | 3,759 | 874.8 | 752.8 | 1,149 | 2,056 | 2,248 | 2,494 |
| **1958** | 2,421 | 5,434 | 12,090 | 27,920 | 22,420 | 15,620 | 4,092 | 1,535 | 2,242 | 2,835 | 3,632 | 2,955 |
| **1959** | 2,332 | 3,268 | 2,069 | 811.9 | 790.9 | 532.8 | 312.3 | 402.4 | 785.5 | 876.6 | 1,051 | 1,184 |
| **1960** | 1,395 | 1,722 | 595.0 | 517.3 | 617.8 | 292.9 | 222.4 | 267.5 | 384.9 | 712.6 | 1,013 | 1,287 |
| **1961** | 1,338 | 1,118 | 443.9 | 199.7 | 379.7 | 207.1 | 103.7 | 150.6 | 321.1 | 409.7 | 593.0 | 711.5 |
| **1962** | 804.2 | 5,778 | 5,933 | 2,085 | 2,621 | 3,497 | 856.0 | 693.9 | 993.2 | 1,454 | 1,643 | 2,435 |
| **1963** | 1,754 | 8,185 | 2,607 | 8,616 | 9,339 | 6,663 | 1,822 | 1,095 | 1,515 | 2,677 | 3,021 | 3,533 |
| **1964** | 2,872 | 1,697 | 928.9 | 764.2 | 703.3 | 650.1 | 383.0 | 440.0 | 899.6 | 1,411 | 2,355 | 6,037 |
| **1965** | 14,380 | 7,927 | 5,326 | 9,859 | 5,296 | 5,650 | 1,973 | 1,221 | 1,678 | 2,944 | 3,644 | 6,233 |
| **1966** | 5,268 | 4,091 | 1,915 | 981.6 | 863.1 | 569.8 | 439.7 | 499.9 | 725.3 | 1,101 | 1,330 | 4,375 |
| **1967** | 3,208 | 6,363 | 6,536 | 14,490 | 20,360 | 20,000 | 10,450 | 2,021 | 2,029 | 2,725 | 3,473 | 3,635 |
| **1968** | 2,940 | 2,617 | 3,093 | 1,435 | 891.1 | 591.5 | 502.9 | 768.3 | 938.1 | 1,384 | 1,604 | 2,533 |
| **1969** | 13,810 | 32,550 | 30,870 | 22,120 | 24,610 | 27,890 | 5,803 | 2,325 | 3,255 | 4,462 | 4,628 | 4,012 |
| **1970** | 11,120 | 9,191 | 7,180 | 1,673 | 2,393 | 2,704 | 1,330 | 1,044 | 1,319 | 1,466 | 1,655 | 5,044 |
| **1971** | 5,204 | 4,391 | 2,589 | 1,961 | 1,833 | 2,322 | 1,066 | 891.7 | 1,097 | 2,253 | 1,646 | 2,398 |
| **1972** | 3,117 | 2,701 | 1,380 | 1,037 | 744.4 | 587.0 | 481.2 | 543.0 | 1,563 | 1,992 | 2,216 | 2,502 |
| **1973** | 4,059 | 7,988 | 7,611 | 4,203 | 2,937 | 2,576 | 1,082 | 1,067 | 1,471 | 2,546 | 2,281 | 3,586 |
| **1974** | 7,781 | 5,094 | 4,817 | 5,850 | 4,106 | 3,860 | 1,636 | 1,615 | 2,846 | 3,497 | 3,891 | 4,162 |
| **1975** | 3,766 | 6,212 | 5,685 | 3,957 | 3,972 | 5,708 | 1,718 | 1,680 | 2,652 | 4,543 | 3,906 | 3,745 |
| **1976** | 3,326 | 2,115 | 1,823 | 1,293 | 939.4 | 797.5 | 671.2 | 1,055 | 1,067 | 1,274 | 1,136 | 964.8 |
| **1977** | 1,091 | 788.5 | 523.7 | 212.1 | 399.8 | 118.0 | 92.8 | 124.2 | 178.7 | 246.2 | 429.7 | 505.7 |
| **1978** | 2,276 | 7,319 | 11,470 | 20,030 | 19,120 | 7,069 | 1,908 | 1,418 | 2,730 | 3,327 | 3,498 | 2,812 |
| **1979** | 5,233 | 7,138 | 8,652 | 3,506 | 2,524 | 2,254 | 1,334 | 1,451 | 1,841 | 2,790 | 2,311 | 2,487 |
| **1980** | 13,070 | 18,780 | 25,300 | 10,250 | 9,912 | 5,305 | 3,384 | 1,969 | 3,802 | 4,072 | 3,278 | 2,949 |
| **1981** | 3,251 | 2,879 | 3,122 | 2,532 | 1,967 | 1,499 | 1,265 | 1,269 | 1,181 | 1,386 | 1,564 | 1,852 |
| **1982** | 3,889 | 6,645 | 10,060 | 22,960 | 18,650 | 7,584 | 6,163 | 4,017 | 6,129 | 8,179 | 6,974 | 16,490 |
| **1983** | 19,070 | 31,600 | 40,040 | 36,450 | 31,770 | 26,080 | 19,230 | 9,035 | 11,310 | 13,320 | 10,680 | 19,130 |
| **1984** | 25,630 | 10,830 | 7,502 | 4,285 | 3,240 | 2,297 | 1,904 | 2,179 | 2,917 | 3,814 | 2,822 | 4,771 |
| **1985** | 4,065 | 3,241 | 2,736 | 2,466 | 2,132 | 1,748 | 2,557 | 2,601 | 1,925 | 2,072 | 1,929 | 2,205 |
| **1986** | 2,060 | 8,744 | 25,040 | 19,590 | 8,764 | 6,233 | 2,894 | 3,183 | 4,181 | 3,741 | 2,808 | 3,706 |
| **1987** | 2,305 | 2,136 | 3,415 | 2,867 | 2,178 | 1,990 | 1,632 | 1,627 | 1,597 | 1,370 | 1,548 | 1,278 |
| **1988** | 1,483 | 1,389 | 2,241 | 2,146 | 1,781 | 1,711 | 1,357 | 1,557 | 1,452 | 1,127 | 1,274 | 1,372 |
| **1989** | 1,255 | 1,234 | 2,023 | 1,915 | 1,949 | 1,583 | 1,284 | 1,169 | 1,353 | 1,401 | 1,404 | 1,381 |
| **1990** | 1,242 | 1,365 | 1,760 | 1,309 | 1,279 | 1,116 | 1,009 | 1,033 | 875.9 | 993.2 | 1,115 | 918.4 |
| **1991** | 816.3 | 757.9 | 1,779 | 1,168 | 1,049 | 568.2 | 594.0 | 537.4 | 574.1 | 788.5 | 1,084 | 894.8 |
| **1992** | 959.3 | 2,091 | 1,470 | 1,418 | 891.5 | 480.6 | 446.7 | 482.9 | 634.6 | 848.7 | 955.7 | 981.5 |
| **1993** | 4,120 | 3,035 | 2,702 | 3,421 | 3,610 | 2,341 | 1,510 | 1,998 | 2,771 | 3,041 | 1,759 | 1,628 |
| **1994** | 1,773 | 1,987 | 2,206 | 1,863 | 1,973 | 1,109 | 1,135 | 867.1 | 869.0 | 1,370 | 1,288 | 1,295 |
| **1995** | 4,599 | 6,559 | 14,610 | 19,930 | 22,190 | 14,010 | 9,881 | 3,925 | 4,734 | 5,692 | 2,428 | 2,250 |
| **1996** | 2,431 | 11,470 | 15,070 | 7,500 | 8,422 | 3,739 | 2,209 | 2,034 | 2,164 | 2,691 | 2,715 | 12,190 |
| **1997** | 30,380 | 35,060 | 13,030 | 4,728 | 4,785 | 2,647 | 1,756 | 1,875 | 2,069 | 2,706 | 1,981 | 2,116 |
| **1998** | 6,025 | 28,120 | 19,350 | 21,940 | 17,950 | 17,760 | 13,190 | 5,442 | 5,758 | 6,153 | 3,290 | 4,331 |
| **1999** | 4,730 | 11,700 | 8,332 | 6,437 | 5,551 | 3,016 | 2,094 | 1,969 | 2,037 | 2,532 | 2,158 | 1,688 |
| **2000** | 2,136 | 7,559 | 12,100 | 5,013 | 4,814 | 2,772 | 1,898 | 2,171 | 2,330 | 2,826 | 2,526 | 2,238 |
| **2001** | 2,442 | 3,092 | 3,430 | 3,008 | 3,527 | 1,549 | 1,400 | 1,330 | 1,376 | 2,003 | 2,096 | 2,064 |
| **2002** | 2,662 | 1,898 | 2,134 | 2,598 | 2,739 | 1,407 | 1,227 | 1,116 | 1,175 | 1,705 | 1,715 | 1,988 |
| **2003** | 1,913 | 1,879 | 2,193 | 2,668 | 2,625 | 2,034 | 1,321 | 1,281 | 1,308 | 1,999 | 1,647 | 1,503 |
| **2004** | 1,792 | 2,201 | 3,361 | 2,751 | 2,647 | 1,404 | 1,147 | 1,125 | 1,121 | 1,753 | 1,632 | 1,578 |
| **2005** | 4,918 | 5,303 | 8,065 | 10,060 | 10,410 | 9,979 | 4,155 | 2,615 | 2,412 | 2,619 | 2,038 | 3,521 |
| **2006** | 13,170 | 6,458 | 11,700 | 27,940 | 26,050 | 15,690 | 5,547 | 3,697 | 3,316 | 3,851 | 2,538 | 2,354 |
| **2007** | 2,587 | 2,534 | 2,555 | 2,225 | 2,898 | 1,745 | 1,138 | 1,008 | 1,014 | 1,570 | 1,711 | 1,503 |
| **2008** | 2,319 | 2,369 | 2,115 | 2,409 | 2,755 | 1,033 | 863.8 | 868.7 | 901.5 | 1,235 | 1,140 | 1,128 |
| **2009** | 1,105 | 1,427 | 1,422 | 1,516 | 2,130 | 1,099 | 606.0 | 608.7 | 947.7 | 1,845 | 1,394 | 1,319 |
| **2010** | 1,955 | 2,426 | 2,934 | 4,277 | 5,065 | 4,000 | 1,933 | 1,288 | 1,842 | 2,390 | 1,902 | 6,942 |
| **2011** | 11,790 | 8,699 | 13,640 | 26,380 | 12,650 | 10,660 | 8,586 | 5,391 | 4,272 | 5,027 | 2,755 | 1,816 |
| **2012** | 1,821 | 1,584 | 1,615 | 2,499 | 2,992 | 1,592 | 951.9 | 777.6 | 956.2 | 1,789 | 1,295 | 1,961 |
| **2013** | 1,839 | 2,230 | 1,510 | 2,162 | 2,318 | 737.4 | 576.0 | 525.3 | 849.1 | 1,439 | 1,087 | 935.4 |
| **2014** | 789.1 | 821.9 | 847.2 | 1,779 | 1,534 | 325.3 | 281.2 | 279.8 | 324.9 | 538.0 | 956.3 | 1,212 |
| **2015** | 884.4 | 912.1 | 638.5 | 874.8 | 338.9 | 191.2 | 121.9 | 150.0 | 212.7 | 515.9 | 892.2 | 773.5 |
| **2016** | 1,623 | 1,049 | 1,993 | 1,766 | 1,957 | 609.5 | 312.0 | 285.3 | 282.6 | 1,259 | 1,147 | 1,064 |
| **2017** | 13,350 | 28,960 | 29,700 | 23,530 | 19,180 | 14,020 | 7,986 | 4,698 | 3,215 | 2,260 |  |  |
| **Mean of monthly Discharge** | 4,980 | 6,820 | 7,210 | 7,210 | 7,420 | 6,100 | 2,580 | 1,470 | 1,740 | 2,240 | 2,200 | 3,330 |