

**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, 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 -> 2016-10-31)** | | | | | | | | | | | |
| **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 | 416.5 |  |  |  |
| **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 | 419.7 |  |  |
| **Mean of monthly Discharge** | 4,880 | 6,560 | 6,950 | 7,020 | 7,290 | 6,010 | 2,520 | 1,440 | 1,720 | 2,240 | 2,210 | 3,350 |