Water-Data Report 2013

# 11276600 Tuolumne River above Early Intake, near Mather, CA

San Joaquin River Basin

LOCATION.--Lat 37°52′46″, long 119°56′46″ referenced to North American Datum of 1927, in SE ¼ SW ¼ sec.1, T.1 S., R.18 E., Tuolumne County, CA, Hydrologic Unit 18040009, in Stanislaus National Forest, on right bank, 0.5 mi upstream from Early Intake, 2.4 mi upstream from Cherry Creek, and 5.0 mi west of Mather.

DRAINAGE AREA.--484 $mi^2$.

## SURFACE-WATER RECORDS

PERIOD OF RECORD.--October 1970 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,420 ft above NGVD of 1929, from topographic map. Prior to Sept. 5, 2007, at site on left bank.

REMARKS.--Records fair. Flow regulated by Hetch Hetchy Reservoir (station 11275500) 12 mi upstream. Flow diverted upstream from station through tunnel to Robert C. Kirkwood Powerplant and Hetch Hetchy Aqueduct. See schematic diagram of Tuolumne River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge, 17,700 $ft^3/s$, Jan. 3, 1997, gage height, 22.98 ft; minimum daily, 25 $ft^3/s$, Oct. 11, 1988.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of June 1, 1943, reached a stage of 22.1 ft, discharge, 12,900 $ft^3/s$.



Suggested citation: U.S. Geological Survey, 2014, Water-resources data for the United States, Water Year 2013: U.S. Geological Survey Water-Data Report WDR-US-2013, site 11276600, accessed at http://wdr.water.usgs.gov/wy2013/pdfs/11276600.2013.pdf

**11276600 Tuolumne River above Early Intake, near Mather, CA—Continued**

**DISCHARGE, CUBIC FEET PER SECOND**
**WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**
**DAILY MEAN VALUES**

| Day | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 77 | 60 | 107 | 105 | 114 | 95 | 200 | 212 | 217 | 135 | 135 | 136 |
| 2 | 64 | 60 | 150 | 102 | 114 | 95 | 212 | 193 | 221 | 136 | 135 | 107 |
| 3 | 61 | 60 | 143 | 99 | 114 | 97 | 217 | 193 | 224 | 134 | 135 | 103 |
| 4 | 61 | 62 | 91 | 100 | 113 | 101 | 191 | 194 | 226 | 133 | 135 | 102 |
| 5 | 61 | 62 | 91 | 101 | 113 | 99 | 235 | 195 | 228 | 132 | 134 | 102 |
| 6 | 61 | 62 | 95 | 116 | 112 | 105 | 197 | 197 | 229 | 132 | 134 | 102 |
| 7 | 60 | 62 | 84 | 111 | 112 | 112 | 195 | 198 | 222 | 131 | 133 | 101 |
| 8 | 60 | 63 | 79 | 109 | 114 | 110 | 200 | 197 | 158 | 132 | 134 | 101 |
| 9 | 60 | 64 | 77 | 111 | 112 | 110 | 187 | 189 | 166 | 135 | 135 | 101 |
| 10 | 60 | 63 | 75 | 120 | 111 | 107 | 119 | 189 | 218 | 134 | 139 | 101 |
| 11 | 60 | 62 | 74 | 114 | 110 | 106 | 114 | 188 | 214 | 136 | 137 | 101 |
| 12 | 61 | 62 | 81 | 110 | 109 | 105 | 113 | 188 | 194 | 135 | 137 | 101 |
| 13 | 61 | 63 | 87 | 107 | 109 | 104 | 111 | 189 | 185 | 134 | 137 | 101 |
| 14 | 61 | 63 | 81 | 105 | 109 | 103 | 111 | 190 | 149 | 136 | 137 | 101 |
| 15 | 61 | 62 | 79 | 104 | 99 | 102 | 114 | 191 | 145 | 135 | 137 | 100 |
| 16 | 60 | 64 | 77 | 103 | 104 | 103 | 185 | 193 | 148 | 135 | 137 | 87 |
| 17 | 60 | 74 | 86 | 103 | 105 | 103 | 187 | 200 | 145 | 133 | 137 | 83 |
| 18 | 60 | 77 | 147 | 103 | 104 | 102 | 187 | 191 | 143 | 132 | 137 | 82 |
| 19 | 60 | 67 | 107 | 103 | 106 | 101 | 187 | 191 | 143 | 137 | 137 | 82 |
| 20 | 60 | 65 | 94 | 103 | 110 | 103 | 186 | 191 | 144 | 135 | 137 | 75 |
| 21 | 60 | 65 | 89 | 102 | 106 | 103 | 186 | 191 | 144 | 134 | 137 | 75 |
| 22 | 63 | 65 | 159 | 102 | 104 | 102 | 186 | 191 | 137 | 135 | 136 | 80 |
| 23 | 64 | 64 | 193 | 102 | 103 | 93 | 186 | 190 | 135 | 136 | 136 | 75 |
| 24 | 61 | 64 | 233 | 108 | 103 | 91 | 187 | 190 | 137 | 135 | 137 | 77 |
| 25 | 61 | 63 | 170 | 123 | 103 | 90 | 188 | 116 | 136 | 133 | 137 | 78 |
| 26 | 61 | 63 | 196 | 121 | 102 | 95 | 189 | 108 | 136 | 136 | 137 | 77 |
| 27 | 61 | 63 | 160 | 117 | 101 | 169 | 191 | 109 | 136 | 135 | 137 | 77 |
| 28 | 61 | 67 | 134 | 113 | 95 | 175 | 192 | 113 | 136 | 135 | 138 | 78 |
| 29 | 61 | 68 | 121 | 109 | --- | 177 | 193 | 114 | 135 | 135 | 137 | 77 |
| 30 | 61 | 113 | 115 | 107 | --- | 174 | 197 | 117 | 135 | 136 | 137 | 77 |
| 31 | 61 | --- | 109 | 107 | --- | 192 | --- | 127 | --- | 136 | 137 | --- |
| Total | 1,904 | 1,972 | 3,584 | 3,340 | 3,011 | 3,524 | 5,343 | 5,435 | 5,086 | 4,168 | 4,225 | 2,740 |
| Mean | 61.4 | 65.7 | 116 | 108 | 108 | 114 | 178 | 175 | 170 | 134 | 136 | 91.3 |
| Max | 77 | 113 | 233 | 123 | 114 | 192 | 235 | 212 | 229 | 137 | 139 | 136 |
| Min | 60 | 60 | 74 | 99 | 95 | 90 | 111 | 108 | 135 | 131 | 133 | 75 |
| Ac-ft | 3,780 | 3,910 | 7,110 | 6,620 | 5,970 | 6,990 | 10,600 | 10,780 | 10,090 | 8,270 | 8,380 | 5,430 |

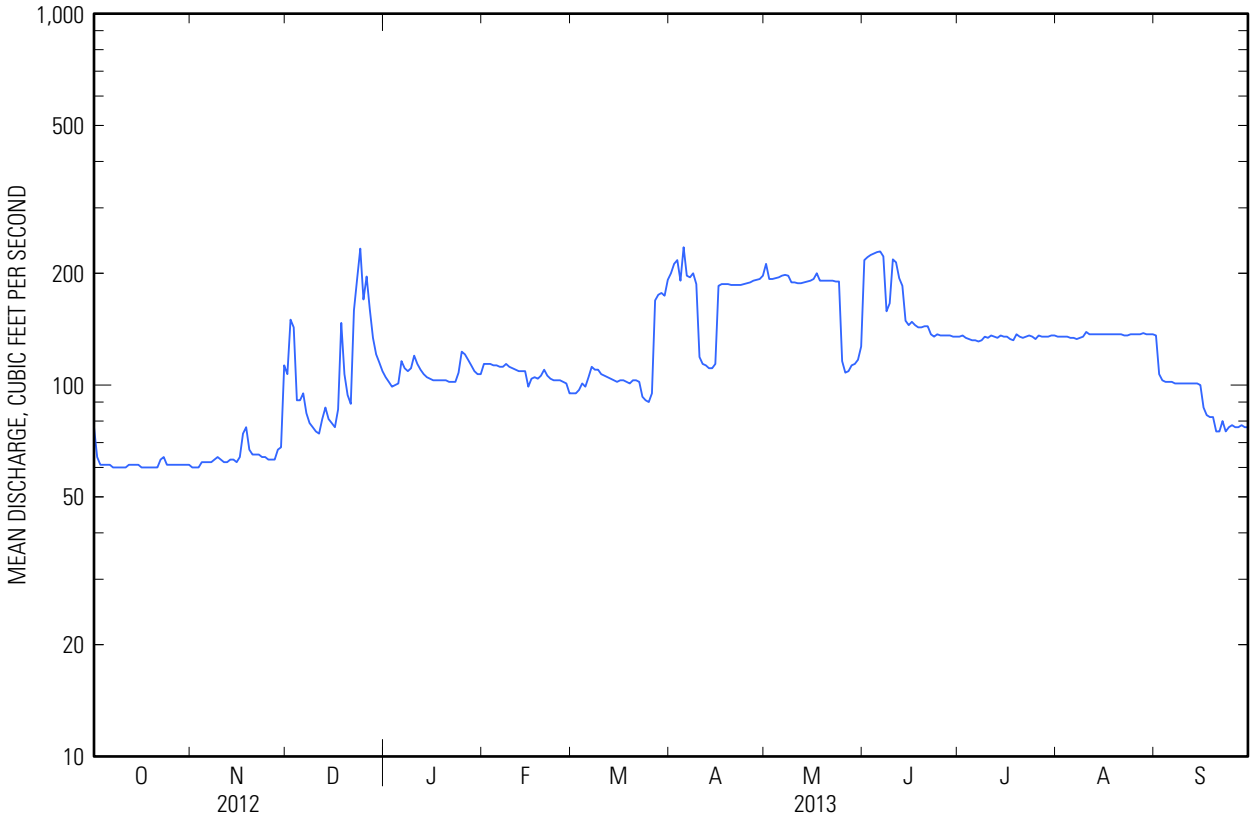
**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 2013, BY WATER YEAR (WY)**

| | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 56.7 | 73.2 | 110 | 167 | 142 | 163 | 271 | 1,196 | 1,741 | 802 | 166 | 88.1 |
| Max | 142 | 552 | 801 | 2,501 | 375 | 814 | 1,564 | 3,397 | 6,142 | 5,424 | 1,319 | 132 |
| (WY) | (1987) | (1987) | (1997) | (1997) | (1998) | (1983) | (1983) | (2006) | (1983) | (1995) | (1983) | (1989) |
| Min | 33.3 | 36.6 | 38.7 | 39.7 | 38.5 | 38.5 | 39.7 | 55.8 | 78.0 | 74.3 | 73.7 | 56.7 |
| (WY) | (1989) | (1991) | (1991) | (1977) | (1977) | (1977) | (1977) | (1992) | (1977) | (1977) | (1977) | (1977) |

**11276600 Tuolumne River above Early Intake, near Mather, CA—Continued**

**SUMMARY STATISTICS**

| | Calendar Year 2012 | | Water Year 2013 | | Water Years 1971 - 2013 | |
|---|---|---|---|---|---|---|
| **Annual total** | 65,029 | | 44,332 | | | |
| **Annual mean** | 178 | | 121 | | 415 | |
| **Highest annual mean** | | | | | 1,584 | 1983 |
| **Lowest annual mean** | | | | | 53.5 | 1977 |
| **Highest daily mean** | 2,190 | May 15 | 235 | Apr 5 | 14,500 | Jan 3, 1997 |
| **Lowest daily mean** | 39 | Jan 12 | 60 | Oct 7 | 25 | Oct 11, 1988 |
| **Annual seven-day minimum** | 39 | Jan 11 | 60 | Oct 15 | 27 | Oct 11, 1988 |
| **Maximum peak flow** | | | 286 | Dec 22 | 17,700 | Jan 3, 1997 |
| **Maximum peak stage** | | | 13.45 | Dec 22 | 22.98 | Jan 3, 1997 |
| **Annual runoff (ac-ft)** | 129,000 | | 87,930 | | 300,900 | |
| **10 percent exceeds** | 230 | | 191 | | 894 | |
| **50 percent exceeds** | 93 | | 112 | | 93 | |
| **90 percent exceeds** | 57 | | 62 | | 44 | |



**11276600 Tuolumne River above Early Intake, near Mather, CA—Continued**

## WATER-QUALITY RECORDS

PERIOD OF DAILY RECORD.--October 1971 to June 1972, August 1987 to current year.
WATER TEMPERATURE: October 1971 to June 1972, August 1987 to current year.

INSTRUMENTATION.--Water-temperature recorder October 1971 to June 1972, and since Aug. 12, 1987. Prior to Sept. 5, 2007, at site 600 ft upstream.

REMARKS.--Water-temperature records rated excellent except for Sept. 19-30, which are rated good. Water temperature is affected by regulation from O'Shaughnessy Dam.

EXTREMES FOR PERIOD OF DAILY RECORD.--
WATER TEMPERATURE: Maximum recorded, 25.5°C, June 1, 1992; minimum recorded, 0.0°C, several days in January 1972, Dec. 24, 25, 1990.

EXTREMES FOR CURRENT YEAR.--
WATER TEMPERATURE: Maximum recorded, 24.2°C, July 5; minimum recorded, 2.6°C, Jan. 15.

**TEMPERATURE, WATER, DEGREES CELSIUS**
**WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**

| Day | Max | Min | Median | Max | Min | Median | Max | Min | Median | Max | Min | Median |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | October | | | November | | | December | | | January | |
| 1 | 18.0 | 14.9 | 16.3 | 12.3 | 11.2 | 11.5 | 10.2 | 9.4 | 10.0 | 5.7 | 4.9 | 5.2 |
| 2 | 18.2 | 15.0 | 16.5 | 12.2 | 10.3 | 11.2 | 10.4 | 10.0 | 10.2 | 5.0 | 4.4 | 4.7 |
| 3 | 18.1 | 15.0 | 16.6 | 12.0 | 10.1 | 11.0 | 10.6 | 10.3 | 10.4 | 4.8 | 4.2 | 4.5 |
| 4 | 17.9 | 15.1 | 16.5 | 11.8 | 10.0 | 10.8 | 10.4 | 9.7 | 10.2 | 4.7 | 4.1 | 4.4 |
| 5 | 17.5 | 15.0 | 16.1 | 11.8 | 9.9 | 10.7 | 10.8 | 10.2 | 10.4 | 5.4 | 4.2 | 4.7 |
| 6 | 17.1 | 14.3 | 15.7 | 11.8 | 9.9 | 10.7 | 10.5 | 9.8 | 10.1 | 6.0 | 5.0 | 5.7 |
| 7 | 16.8 | 14.0 | 15.4 | 11.8 | 9.9 | 10.7 | 9.8 | 8.8 | 9.4 | 6.2 | 5.1 | 5.6 |
| 8 | 16.2 | 13.8 | 15.1 | 10.6 | 9.8 | 10.2 | 8.8 | 8.0 | 8.4 | 6.1 | 5.5 | 5.8 |
| 9 | 15.9 | 13.7 | 14.6 | 9.9 | 8.9 | 9.4 | 8.2 | 7.5 | 7.9 | 6.9 | 5.6 | 6.4 |
| 10 | 15.3 | 12.9 | 14.2 | 9.2 | 7.9 | 8.4 | 7.6 | 7.0 | 7.4 | 6.5 | 5.5 | 6.2 |
| 11 | 14.4 | 12.8 | 13.7 | 8.2 | 6.9 | 7.4 | 7.2 | 6.5 | 6.9 | 5.5 | 4.6 | 5.2 |
| 12 | 13.6 | 12.9 | 13.2 | 8.0 | 6.4 | 7.0 | 7.4 | 6.8 | 7.1 | 4.6 | 3.9 | 4.3 |
| 13 | 14.6 | 12.4 | 13.2 | 7.8 | 6.2 | 7.0 | 7.1 | 6.6 | 6.8 | 4.0 | 3.2 | 3.7 |
| 14 | 14.6 | 12.0 | 13.3 | 8.0 | 6.4 | 7.3 | 6.9 | 5.9 | 6.6 | 3.5 | 2.7 | 3.1 |
| 15 | 14.7 | 12.1 | 13.4 | 8.1 | 6.7 | 7.6 | 6.9 | 6.0 | 6.5 | 3.8 | 2.6 | 3.2 |
| 16 | 15.0 | 12.3 | 13.6 | 8.7 | 7.9 | 8.4 | 6.7 | 5.9 | 6.4 | 4.0 | 2.9 | 3.5 |
| 17 | 15.1 | 12.5 | 13.9 | 9.5 | 8.7 | 9.2 | 7.2 | 6.7 | 7.0 | 4.2 | 3.1 | 3.8 |
| 18 | 15.3 | 12.9 | 14.0 | 10.3 | 9.4 | 10.0 | 7.6 | 6.7 | 7.2 | 4.8 | 3.5 | 4.2 |
| 19 | 15.2 | 12.7 | 13.9 | 10.6 | 9.7 | 10.0 | 6.7 | 5.5 | 6.1 | 5.1 | 3.9 | 4.5 |
| 20 | 15.0 | 12.5 | 13.7 | 10.1 | 9.0 | 9.5 | 5.5 | 4.8 | 5.2 | 5.4 | 4.2 | 4.8 |
| 21 | 14.3 | 12.4 | 13.2 | 10.3 | 9.3 | 9.9 | 5.7 | 4.6 | 5.3 | 5.7 | 4.3 | 5.0 |
| 22 | 12.9 | 12.0 | 12.5 | 10.0 | 8.9 | 9.4 | 6.2 | 5.7 | 6.0 | 6.0 | 4.6 | 5.3 |
| 23 | 12.3 | 11.3 | 11.8 | 9.3 | 8.2 | 8.7 | 6.6 | 5.8 | 6.4 | 6.7 | 5.2 | 6.2 |
| 24 | 11.9 | 10.5 | 11.0 | 9.0 | 7.9 | 8.5 | 6.3 | 5.6 | 6.1 | 7.7 | 6.6 | 7.2 |
| 25 | 12.6 | 10.3 | 11.0 | 8.5 | 7.6 | 8.1 | 6.3 | 5.5 | 6.1 | 8.5 | 7.4 | 8.2 |
| 26 | 11.9 | 9.8 | 10.8 | 8.2 | 7.2 | 7.7 | 6.4 | 6.0 | 6.3 | 8.4 | 7.7 | 8.2 |
| 27 | 11.9 | 9.7 | 10.8 | 8.8 | 7.1 | 8.2 | 6.1 | 5.4 | 5.7 | 8.3 | 7.1 | 7.8 |
| 28 | 12.3 | 10.0 | 11.0 | 8.9 | 8.2 | 8.5 | 6.0 | 5.0 | 5.6 | 7.4 | 6.1 | 6.7 |
| 29 | 12.3 | 10.0 | 11.1 | 9.4 | 8.7 | 9.2 | 6.4 | 5.7 | 5.8 | 7.2 | 5.8 | 6.1 |
| 30 | 12.4 | 10.3 | 11.3 | 9.4 | 9.2 | 9.2 | 5.9 | 5.3 | 5.7 | 6.6 | 5.2 | 5.8 |
| 31 | 12.2 | 10.4 | 11.3 | --- | --- | --- | 5.3 | 4.8 | 5.2 | 6.6 | 5.1 | 5.8 |
| Max | 18.2 | 15.1 | 16.6 | 12.3 | 11.2 | 11.5 | 10.8 | 10.3 | 10.4 | 8.5 | 7.7 | 8.2 |
| Min | 11.9 | 9.7 | 10.8 | 7.8 | 6.2 | 7.0 | 5.3 | 4.6 | 5.2 | 3.5 | 2.6 | 3.1 |

**11276600 Tuolumne River above Early Intake, near Mather, CA—Continued**

**TEMPERATURE, WATER, DEGREES CELSIUS**
**WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**

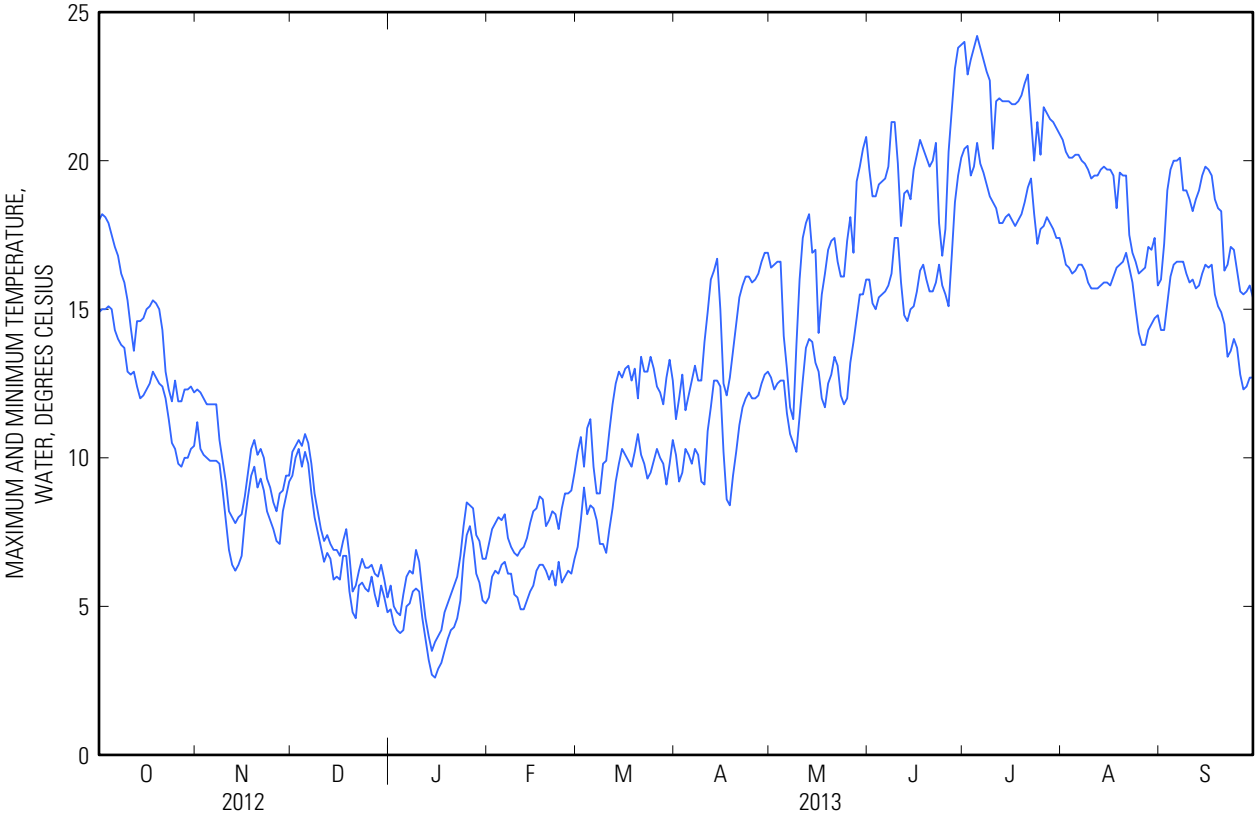
| Day | Max | Min | Median | Max | Min | Median | Max | Min | Median | Max | Min | Median |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | February | | | March | | | April | | | May | |
| 1 | 7.1 | 5.3 | 6.2 | 10.2 | 7.0 | 8.6 | 11.3 | 10.1 | 10.6 | 16.4 | 12.7 | 14.1 |
| 2 | 7.6 | 6.0 | 6.9 | 10.7 | 7.9 | 9.4 | 12.0 | 9.2 | 10.3 | 16.5 | 12.3 | 14.0 |
| 3 | 7.8 | 6.2 | 6.8 | 9.7 | 9.0 | 9.4 | 12.8 | 9.5 | 11.0 | 16.6 | 12.5 | 14.2 |
| 4 | 8.0 | 6.1 | 7.0 | 11.0 | 8.1 | 9.6 | 11.6 | 10.3 | 10.8 | 16.6 | 12.6 | 14.2 |
| 5 | 7.9 | 6.4 | 7.3 | 11.3 | 8.4 | 9.8 | 12.1 | 10.1 | 10.7 | 14.1 | 12.6 | 13.3 |
| 6 | 8.1 | 6.5 | 7.1 | 9.7 | 8.3 | 9.0 | 12.6 | 9.8 | 10.8 | 13.0 | 11.5 | 12.2 |
| 7 | 7.3 | 6.1 | 6.6 | 8.8 | 7.9 | 8.2 | 13.1 | 10.3 | 11.4 | 11.7 | 10.8 | 11.2 |
| 8 | 7.0 | 6.1 | 6.4 | 8.8 | 7.1 | 7.8 | 12.6 | 10.1 | 10.9 | 11.3 | 10.5 | 10.8 |
| 9 | 6.8 | 5.4 | 6.0 | 9.8 | 7.1 | 8.1 | 12.6 | 9.2 | 10.5 | 13.8 | 10.2 | 12.2 |
| 10 | 6.7 | 5.3 | 5.8 | 9.9 | 6.8 | 8.5 | 13.9 | 9.1 | 11.1 | 16.0 | 11.4 | 13.8 |
| 11 | 6.9 | 4.9 | 5.6 | 10.9 | 7.6 | 8.9 | 14.9 | 10.9 | 12.7 | 17.4 | 12.6 | 15.0 |
| 12 | 7.0 | 4.9 | 5.8 | 11.8 | 8.3 | 9.8 | 16.0 | 11.7 | 13.7 | 17.9 | 13.7 | 15.5 |
| 13 | 7.3 | 5.2 | 6.2 | 12.5 | 9.2 | 10.6 | 16.3 | 12.6 | 14.0 | 18.2 | 14.0 | 15.6 |
| 14 | 7.8 | 5.5 | 6.5 | 12.9 | 9.8 | 11.3 | 16.7 | 12.6 | 13.9 | 16.9 | 13.9 | 15.1 |
| 15 | 8.2 | 5.7 | 6.9 | 12.7 | 10.3 | 11.3 | 15.0 | 12.4 | 13.2 | 17.0 | 13.2 | 14.5 |
| 16 | 8.3 | 6.2 | 7.2 | 13.0 | 10.1 | 11.4 | 12.5 | 10.2 | 11.6 | 14.2 | 12.9 | 13.5 |
| 17 | 8.7 | 6.4 | 7.3 | 13.1 | 9.9 | 11.2 | 12.1 | 8.6 | 10.0 | 15.5 | 12.0 | 13.2 |
| 18 | 8.6 | 6.4 | 7.7 | 12.6 | 9.7 | 11.1 | 12.7 | 8.4 | 10.4 | 16.2 | 11.7 | 13.9 |
| 19 | 7.7 | 6.2 | 7.3 | 13.0 | 10.2 | 11.4 | 13.6 | 9.4 | 11.2 | 17.0 | 12.5 | 14.5 |
| 20 | 7.9 | 5.9 | 6.7 | 12.0 | 10.8 | 11.1 | 14.5 | 10.2 | 12.2 | 17.3 | 12.8 | 14.8 |
| 21 | 8.2 | 6.2 | 6.8 | 13.4 | 10.1 | 11.3 | 15.4 | 11.1 | 13.1 | 17.4 | 13.4 | 14.9 |
| 22 | 8.1 | 5.7 | 6.9 | 12.9 | 9.8 | 11.0 | 15.8 | 11.7 | 13.5 | 16.6 | 13.1 | 14.4 |
| 23 | 7.6 | 6.5 | 6.8 | 12.9 | 9.3 | 10.8 | 16.1 | 12.0 | 13.7 | 16.1 | 12.1 | 13.6 |
| 24 | 8.3 | 5.8 | 7.0 | 13.4 | 9.5 | 11.3 | 16.1 | 12.2 | 13.8 | 16.1 | 11.8 | 13.6 |
| 25 | 8.8 | 6.0 | 7.2 | 13.0 | 9.9 | 11.3 | 15.9 | 12.0 | 13.6 | 17.3 | 12.0 | 14.5 |
| 26 | 8.8 | 6.2 | 7.4 | 12.4 | 10.3 | 11.1 | 16.0 | 12.0 | 13.6 | 18.1 | 13.2 | 15.2 |
| 27 | 8.9 | 6.1 | 7.5 | 12.2 | 10.0 | 10.8 | 16.2 | 12.1 | 13.9 | 16.9 | 13.9 | 15.2 |
| 28 | 9.5 | 6.6 | 8.0 | 11.8 | 9.8 | 10.5 | 16.6 | 12.5 | 14.2 | 19.3 | 14.7 | 16.4 |
| 29 | --- | --- | --- | 12.7 | 9.1 | 10.6 | 16.9 | 12.8 | 14.4 | 19.8 | 15.5 | 16.9 |
| 30 | --- | --- | --- | 13.3 | 9.8 | 11.3 | 16.9 | 12.9 | 14.4 | 20.4 | 15.5 | 17.4 |
| 31 | --- | --- | --- | 12.6 | 10.6 | 11.3 | --- | --- | --- | 20.8 | 16.0 | 17.9 |
| Max | 9.5 | 6.6 | 8.0 | 13.4 | 10.8 | 11.4 | 16.9 | 12.9 | 14.4 | 20.8 | 16.0 | 17.9 |
| Min | 6.7 | 4.9 | 5.6 | 8.8 | 6.8 | 7.8 | 11.3 | 8.4 | 10.0 | 11.3 | 10.2 | 10.8 |

**11276600 Tuolumne River above Early Intake, near Mather, CA—Continued**

**TEMPERATURE, WATER, DEGREES CELSIUS**
**WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**

| Day | Max | Min | Median | Max | Min | Median | Max | Min | Median | Max | Min | Median |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | June | | | July | | | August | | | September | |
| 1 | 19.7 | 16.0 | 17.5 | 24.0 | 20.4 | 21.8 | 20.7 | 17.0 | 18.4 | 16.0 | 14.3 | 14.8 |
| 2 | 18.8 | 15.2 | 16.6 | 22.9 | 20.5 | 21.4 | 20.3 | 16.5 | 18.0 | 17.2 | 14.3 | 15.8 |
| 3 | 18.8 | 15.0 | 16.6 | 23.4 | 19.5 | 21.2 | 20.1 | 16.4 | 17.8 | 19.0 | 15.2 | 16.6 |
| 4 | 19.2 | 15.4 | 16.8 | 23.8 | 19.8 | 21.7 | 20.1 | 16.2 | 17.8 | 19.7 | 16.1 | 17.6 |
| 5 | 19.3 | 15.5 | 17.0 | 24.2 | 20.6 | 21.7 | 20.2 | 16.3 | 18.0 | 20.0 | 16.5 | 17.8 |
| 6 | 19.4 | 15.6 | 17.1 | 23.8 | 19.9 | 21.4 | 20.2 | 16.5 | 17.9 | 20.0 | 16.6 | 17.8 |
| 7 | 19.8 | 15.8 | 17.5 | 23.4 | 19.6 | 21.0 | 20.0 | 16.5 | 17.8 | 20.1 | 16.6 | 17.9 |
| 8 | 21.3 | 16.2 | 18.7 | 23.0 | 19.2 | 20.6 | 19.9 | 16.3 | 17.6 | 19.0 | 16.6 | 17.7 |
| 9 | 21.3 | 17.4 | 19.3 | 22.7 | 18.8 | 20.2 | 19.7 | 15.9 | 17.3 | 19.0 | 16.2 | 17.3 |
| 10 | 19.9 | 17.4 | 18.6 | 20.4 | 18.6 | 19.8 | 19.4 | 15.7 | 17.2 | 18.7 | 15.9 | 17.1 |
| 11 | 17.8 | 15.9 | 16.8 | 22.0 | 18.4 | 19.5 | 19.5 | 15.7 | 17.2 | 18.3 | 16.0 | 16.8 |
| 12 | 18.9 | 14.8 | 16.3 | 22.1 | 17.9 | 19.5 | 19.5 | 15.7 | 17.2 | 18.7 | 15.7 | 16.8 |
| 13 | 19.0 | 14.6 | 16.6 | 22.0 | 17.9 | 19.6 | 19.7 | 15.8 | 17.4 | 19.0 | 15.8 | 17.2 |
| 14 | 18.7 | 15.0 | 16.7 | 22.0 | 18.1 | 19.6 | 19.8 | 15.9 | 17.4 | 19.5 | 16.2 | 17.6 |
| 15 | 19.7 | 15.1 | 17.1 | 22.0 | 18.2 | 19.6 | 19.7 | 15.9 | 17.4 | 19.8 | 16.5 | 17.8 |
| 16 | 20.2 | 15.6 | 17.8 | 21.9 | 18.0 | 19.4 | 19.7 | 15.8 | 17.4 | 19.7 | 16.4 | 17.8 |
| 17 | 20.7 | 16.3 | 18.1 | 21.9 | 17.8 | 19.4 | 19.5 | 16.1 | 17.6 | 19.5 | 16.5 | 17.6 |
| 18 | 20.4 | 16.5 | 17.9 | 22.0 | 18.0 | 19.6 | 18.4 | 16.4 | 17.5 | 18.7 | 15.5 | 16.9 |
| 19 | 20.1 | 16.0 | 17.5 | 22.2 | 18.2 | 19.9 | 19.6 | 16.5 | 17.8 | 18.4 | 15.1 | 16.6 |
| 20 | 19.8 | 15.6 | 17.3 | 22.6 | 18.6 | 20.4 | 19.5 | 16.6 | 17.9 | 18.3 | 14.9 | 16.4 |
| 21 | 20.0 | 15.6 | 17.4 | 22.9 | 19.1 | 20.6 | 19.5 | 16.9 | 17.6 | 16.3 | 14.5 | 15.5 |
| 22 | 20.6 | 15.9 | 17.9 | 21.4 | 19.4 | 20.3 | 17.5 | 16.4 | 16.9 | 16.5 | 13.4 | 14.8 |
| 23 | 17.9 | 16.5 | 17.3 | 20.0 | 18.2 | 19.2 | 16.9 | 15.9 | 16.3 | 17.1 | 13.6 | 15.2 |
| 24 | 16.8 | 15.8 | 16.2 | 21.3 | 17.2 | 18.9 | 16.6 | 15.0 | 15.6 | 17.0 | 14.0 | 15.2 |
| 25 | 17.7 | 15.5 | 15.8 | 20.2 | 17.7 | 18.7 | 16.2 | 14.2 | 14.8 | 16.3 | 13.7 | 14.8 |
| 26 | 20.3 | 15.1 | 17.6 | 21.8 | 17.8 | 19.4 | 16.3 | 13.8 | 14.5 | 15.6 | 12.8 | 14.1 |
| 27 | 21.7 | 16.8 | 19.1 | 21.6 | 18.1 | 19.4 | 16.4 | 13.8 | 14.5 | 15.5 | 12.3 | 13.8 |
| 28 | 23.1 | 18.6 | 20.7 | 21.4 | 17.9 | 19.2 | 17.1 | 14.3 | 15.3 | 15.6 | 12.4 | 13.9 |
| 29 | 23.8 | 19.5 | 21.4 | 21.3 | 17.7 | 19.1 | 17.0 | 14.5 | 15.4 | 15.8 | 12.7 | 14.1 |
| 30 | 23.9 | 20.1 | 21.6 | 21.1 | 17.4 | 18.9 | 17.4 | 14.7 | 15.5 | 15.4 | 12.7 | 14.0 |
| 31 | --- | --- | --- | 20.9 | 17.4 | 18.8 | 15.8 | 14.8 | 15.2 | --- | --- | --- |
| Max | 23.9 | 20.1 | 21.6 | 24.2 | 20.6 | 21.8 | 20.7 | 17.0 | 18.4 | 20.1 | 16.6 | 17.9 |
| Min | 16.8 | 14.6 | 15.8 | 20.0 | 17.2 | 18.7 | 15.8 | 13.8 | 14.5 | 15.4 | 12.3 | 13.8 |

**11276600 Tuolumne River above Early Intake, near Mather, CA—Continued**



**11276600 Tuolumne River above Early Intake, near Mather, CA—Continued**

**CROSS SECTION ANALYSES**
**WATER YEAR OCTOBER 2012 TO SEPTEMBER 2013**
[ft, feet; °C, degrees Celsius]

| Sample date-time | Temperature, water, °C (00010) | Depth to bottom at sample location, ft (81903) | Sampling depth, ft (00003) | Stream width, ft (00004) | Location in cross section, distance from left bank looking downstream, ft (00009) |
|---|---|---|---|---|---|
| **10-04-2012 1246** | 16.4 | 1.18 | 0.71 | 24.3 | 23.1 |
| **10-04-2012 1247** | 16.4 | 1.48 | .89 | 24.3 | 20.7 |
| **10-04-2012 1248** | 16.4 | 1.45 | .87 | 24.3 | 18.3 |
| **10-04-2012 1249** | 16.4 | 1.72 | 1.03 | 24.3 | 15.9 |
| **10-04-2012 1250** | 16.3 | .68 | .41 | 24.3 | 13.5 |
| **10-04-2012 1251** | 16.3 | 1.67 | 1.00 | 24.3 | 11.1 |
| **10-04-2012 1252** | 16.3 | .65 | .39 | 24.3 | 8.70 |
| **10-04-2012 1253** | 16.3 | 1.94 | 1.16 | 24.3 | 6.30 |
| **10-04-2012 1254** | 16.3 | 2.42 | 1.45 | 24.3 | 3.90 |
| **10-04-2012 1255** | 16.3 | .62 | .37 | 24.3 | 1.50 |
| **07-23-2013 1647** | 19.2 | 1.82 | 1.09 | 70.0 | 66.5 |
| **07-23-2013 1648** | 19.1 | 1.78 | 1.07 | 70.0 | 59.5 |
| **07-23-2013 1649** | 19.1 | 2.32 | 1.39 | 70.0 | 52.5 |
| **07-23-2013 1650** | 19.1 | .60 | .36 | 70.0 | 45.5 |
| **07-23-2013 1651** | 19.0 | 2.28 | 1.37 | 70.0 | 38.5 |
| **07-23-2013 1652** | 19.0 | 1.67 | 1.00 | 70.0 | 31.5 |
| **07-23-2013 1653** | 19.0 | 1.91 | 1.15 | 70.0 | 24.5 |
| **07-23-2013 1654** | 19.0 | 2.31 | 1.39 | 70.0 | 17.5 |
| **07-23-2013 1655** | 19.0 | 2.13 | 1.28 | 70.0 | 10.5 |
| **07-23-2013 1656** | 19.0 | 2.03 | 1.22 | 70.0 | 3.50 |

Note: Instantaneous discharge at the mean time of cross-sectional measurements: Oct. 4, 61 $ft^3/s$; July 23, 137 $ft^3/s$.