

Water-Data Report 2009

## 11390500 Sacramento River below Wilkins Slough, near Grimes, CA

Sacramento River Basin

LOCATION.--Lat 39°00'36", long 121°49'25" referenced to North American Datum of 1927, in NW ¼ NE ¼ sec.2, T.13 N., R.1 E., Colusa County, CA, Hydrologic Unit 18020104, on right bank, 1,200 ft downstream from Wilkins Slough, 5.8 mi southeast of Grimes, and at mile 62.9 upstream from Sacramento.

DRAINAGE AREA.--12,915 mi<sup>2</sup>.

### **SURFACE-WATER RECORDS**

PERIOD OF RECORD.--August 1931 to current year (prior to October 1938, low-water periods only). Monthly discharge only for some periods, published in WSP 1315-A. Prior to October 1965, published as "below Wilkins Slough."

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 3.00 ft below NGVD of 1929.

REMARKS.--Records good. Natural flow of stream affected by storage reservoirs, power development, bypassing for flood control, diversions for irrigation, and return flow from irrigated areas. When discharge exceeds about 23,000 ft<sup>3</sup>/s, flow begins over Tisdale Weir, 1.0 mi upstream on left bank, into Sutter Bypass. Records tabulated below do not include flow over Tisdale Weir. See schematic diagram of lower Sacramento River Basin available from the California Water Science Center.

EXTREMES FOR PERIOD OF RECORD.--Maximum discharge (since water year 1939), 32,700 ft<sup>3</sup>/s, Feb. 20, 1986, gage height, 52.50 ft, maximum gage height, 52.75 ft, Mar. 1, 1940; minimum daily, 645 ft<sup>3</sup>/s, Aug. 9, 1939.

## 11390500 Sacramento River below Wilkins Slough, near Grimes, CA—Continued

**DISCHARGE, CUBIC FEET PER SECOND**  
**WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**  
**DAILY MEAN VALUES**

Day	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	5,450	5,970	4,160	6,070	5,780	14,300	7,030	4,280	4,900	5,530	7,080	6,930
2	5,360	6,680	4,200	5,820	5,610	16,000	6,670	4,700	4,830	5,750	7,060	7,150
3	5,320	7,280	4,260	5,560	5,300	25,000	7,030	5,920	4,910	6,130	6,950	7,640
4	5,430	7,630	4,280	5,730	5,390	25,600	7,160	7,890	5,020	6,280	6,870	7,290
5	5,470	7,830	4,230	5,900	5,310	24,300	6,910	9,820	5,810	6,290	6,910	6,660
6	5,590	7,680	4,270	5,410	5,330	22,700	6,710	11,600	5,720	6,450	6,960	6,420
7	5,620	6,950	4,250	5,200	5,330	19,500	6,490	13,800	6,400	6,460	6,970	6,480
8	5,420	6,430	4,240	5,100	5,440	16,300	6,440	12,000	6,830	6,530	6,930	6,500
9	5,190	6,250	4,250	5,060	5,560	14,000	6,390	9,850	6,850	6,590	7,010	6,700
10	5,140	6,130	4,230	5,030	5,800	12,600	6,830	8,240	6,650	6,650	7,010	6,640
11	5,000	6,110	4,120	5,050	6,100	11,600	7,270	7,110	6,290	6,640	6,930	6,560
12	5,020	5,950	4,090	4,950	6,040	10,800	7,620	6,170	6,230	6,670	6,920	6,750
13	5,100	5,920	4,100	4,750	6,640	10,200	7,410	5,430	6,440	6,900	6,910	6,920
14	5,020	5,850	4,200	4,680	7,600	9,710	7,160	4,970	5,940	6,840	6,870	6,910
15	4,470	5,830	4,380	4,690	8,770	9,340	6,840	4,750	6,060	6,880	6,910	6,840
16	4,210	5,720	4,610	4,580	11,700	9,070	6,570	5,050	5,470	6,810	6,830	6,620
17	4,280	5,380	4,760	4,500	22,500	9,220	6,390	5,480	5,380	6,670	6,620	6,590
18	4,380	5,030	4,810	4,420	25,700	12,100	5,830	5,710	5,420	6,700	6,580	6,620
19	4,670	4,850	4,860	4,370	25,400	11,800	5,540	5,690	5,170	6,750	6,540	6,500
20	4,590	4,690	4,870	4,290	21,500	10,500	5,600	5,670	5,100	6,750	6,640	6,280
21	4,650	4,500	5,020	4,150	15,900	9,770	5,290	5,420	5,310	6,580	6,690	6,240
22	4,780	4,370	5,120	4,210	12,600	9,430	4,860	5,360	5,240	6,530	6,810	6,230
23	4,840	4,250	5,210	4,660	16,900	9,140	4,590	5,380	5,250	6,640	6,870	6,010
24	4,820	4,250	5,650	5,010	24,900	8,860	4,540	5,410	5,210	6,840	6,720	5,910
25	4,610	4,250	5,810	5,540	24,900	8,380	4,530	5,330	5,430	6,730	6,880	5,910
26	4,380	4,240	8,070	8,730	22,700	8,070	4,480	5,420	5,330	6,790	6,880	5,740
27	4,700	4,200	9,570	8,820	19,100	7,800	4,460	5,500	5,360	6,820	7,010	5,480
28	4,840	4,170	7,340	7,530	16,800	7,660	4,310	5,450	5,560	6,990	7,230	5,380
29	4,920	4,110	6,350	6,690	---	7,600	4,330	5,240	5,490	7,050	7,300	5,360
30	4,890	4,130	6,060	6,230	---	7,430	4,220	5,120	5,380	7,130	7,100	5,310
31	5,190	---	6,130	5,970	---	7,240	---	5,020	---	7,090	7,050	---
<b>Total</b>	153,350	166,630	157,500	168,700	350,600	386,020	179,500	202,780	168,980	205,460	214,040	192,570
<b>Mean</b>	4,947	5,554	5,081	5,442	12,520	12,450	5,983	6,541	5,633	6,628	6,905	6,419
<b>Max</b>	5,620	7,830	9,570	8,820	25,700	25,600	7,620	13,800	6,850	7,130	7,300	7,640
<b>Min</b>	4,210	4,110	4,090	4,150	5,300	7,240	4,220	4,280	4,830	5,530	6,540	5,310
<b>Ac-ft</b>	304,200	330,500	312,400	334,600	695,400	765,700	356,000	402,200	335,200	407,500	424,500	382,000

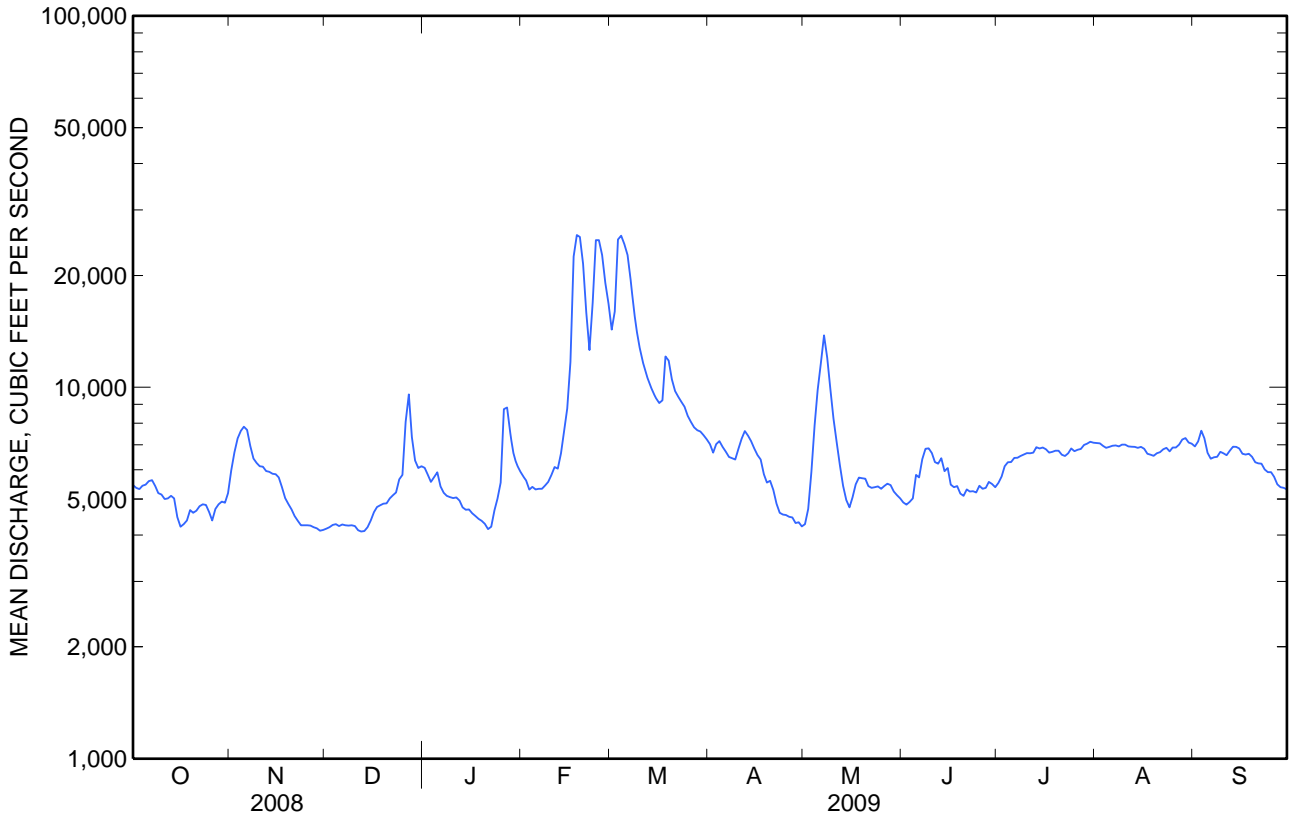
**STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1946 - 2009, BY WATER YEAR (WY)**

	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
<b>Mean</b>	6,439	8,120	12,230	15,160	16,750	15,450	11,410	9,585	7,980	7,628	7,325	7,254
<b>Max</b>	11,800	20,510	27,430	27,310	29,090	29,490	28,100	23,110	20,670	12,500	10,940	10,620
<b>(WY)</b>	(1958)	(1974)	(1984)	(1997)	(1998)	(1983)	(2006)	(1983)	(1998)	(1998)	(1998)	(1967)
<b>Min</b>	3,330	3,839	4,103	5,281	5,012	5,152	4,201	3,397	3,451	3,784	4,086	4,065
<b>(WY)</b>	(1978)	(1993)	(1977)	(1991)	(1991)	(1977)	(1994)	(1992)	(1992)	(1992)	(1947)	(1977)

11390500 Sacramento River below Wilkins Slough, near Grimes, CA—Continued

SUMMARY STATISTICS

	Calendar Year 2008		Water Year 2009		Water Years 1946 - 2009	
<b>Annual total</b>	2,784,800		2,546,130			
<b>Annual mean</b>	7,609		6,976		10,420	
<b>Highest annual mean</b>					17,980	1983
<b>Lowest annual mean</b>					5,109	1977
<b>Highest daily mean</b>	25,800	Jan 27	25,700	Feb 18	32,600	Feb 20, 1986
<b>Lowest daily mean</b>	4,090	Dec 12	4,090	Dec 12	2,720	May 7, 1992
<b>Annual seven-day minimum</b>	4,170	Nov 26	4,170	Nov 26	2,880	Oct 12, 1977
<b>Maximum peak flow</b>			26,200	Feb 19	32,700	Feb 20, 1986
<b>Maximum peak stage</b>			47.39	Feb 19	52.68	Jan 4, 1997
<b>Annual runoff (ac-ft)</b>	5,524,000		5,050,000		7,546,000	
<b>10 percent exceeds</b>	11,900		9,630		22,200	
<b>50 percent exceeds</b>	6,400		6,100		7,990	
<b>90 percent exceeds</b>	4,640		4,400		5,070	



**11390500 Sacramento River below Wilkins Slough, near Grimes, CA—Continued****WATER-QUALITY RECORDS**

PERIOD OF DAILY RECORD.--October 1966 to current year.

WATER TEMPERATURE: October 1966 to current year.

INSTRUMENTATION.--Water-temperature recorder since October 1966. Temperature recorder located at gaging station on right bank.

REMARKS.--Water-temperature records rated excellent. Water temperature is affected by regulation from dams upstream.

EXTREMES FOR PERIOD OF DAILY RECORD.--

WATER TEMPERATURE: Maximum recorded, 25.5°C, Sept. 6-8, 1977, June 3-5, 1992; minimum recorded, 3.5°C, Dec. 23-25, 1990.

EXTREMES FOR CURRENT YEAR.--

WATER TEMPERATURE: Maximum recorded, 23.1°C, June 29; minimum recorded, 6.6°C, Dec. 18-20.

**TEMPERATURE, WATER, DEGREES CELSIUS  
WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**

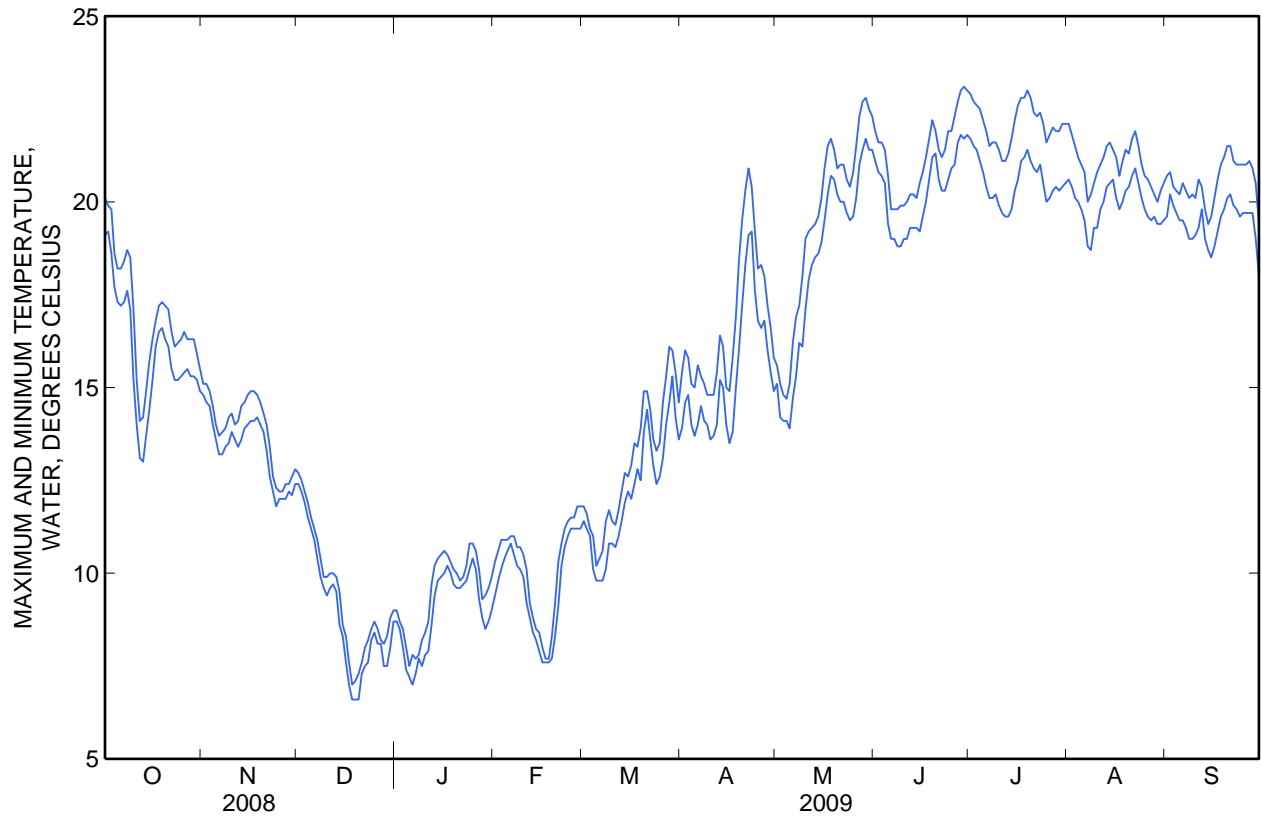
Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	October		November		December		January		February		March	
1	20.1	19.1	15.1	14.8	12.7	12.4	9.0	8.7	10.3	9.4	11.8	11.4
2	19.9	19.2	15.1	14.6	12.5	12.2	8.7	8.5	10.6	9.8	11.6	11.2
3	19.8	18.6	14.9	14.5	12.2	11.9	8.5	8.0	10.9	10.1	11.2	11.0
4	18.6	17.7	14.5	14.0	11.9	11.5	8.0	7.4	10.9	10.4	11.0	10.1
5	18.2	17.3	14.0	13.6	11.5	11.2	7.5	7.2	10.9	10.6	10.2	9.8
6	18.2	17.2	13.7	13.2	11.2	10.9	7.8	7.0	11.0	10.8	10.4	9.8
7	18.4	17.3	13.8	13.2	10.9	10.4	7.7	7.3	11.0	10.5	10.6	9.8
8	18.7	17.6	13.9	13.4	10.4	9.9	7.8	7.7	10.7	10.2	11.4	10.1
9	18.5	17.1	14.2	13.5	9.9	9.6	8.2	7.5	10.7	10.1	11.7	10.8
10	17.1	15.2	14.3	13.8	9.9	9.4	8.4	7.8	10.5	9.9	11.4	10.8
11	15.2	14.0	14.0	13.6	10.0	9.6	8.7	7.9	10.1	9.2	11.3	10.7
12	14.1	13.1	14.1	13.4	10.0	9.7	9.7	8.6	9.2	8.8	11.7	11.0
13	14.2	13.0	14.5	13.6	9.9	9.5	10.2	9.4	8.8	8.4	12.2	11.4
14	14.9	13.7	14.6	13.9	9.5	8.6	10.4	9.8	8.5	8.2	12.7	11.9
15	15.7	14.4	14.8	14.0	8.6	8.3	10.5	9.9	8.4	7.9	12.6	12.2
16	16.3	15.2	14.9	14.1	8.3	7.6	10.6	10.0	8.0	7.6	12.9	12.0
17	16.8	16.1	14.9	14.1	7.6	7.0	10.5	10.2	7.7	7.6	13.5	12.4
18	17.2	16.5	14.8	14.2	7.0	6.6	10.3	10.0	7.7	7.6	13.4	12.8
19	17.3	16.6	14.6	14.0	7.1	6.6	10.1	9.7	8.3	7.7	13.9	12.5
20	17.2	16.3	14.3	13.8	7.3	6.6	10.0	9.6	9.2	8.3	14.9	13.8
21	17.1	16.1	14.0	13.3	7.6	7.3	9.8	9.6	10.3	9.1	14.9	14.4
22	16.5	15.5	13.4	12.6	8.0	7.5	9.9	9.7	10.8	10.2	14.4	13.6
23	16.1	15.2	12.6	12.2	8.2	7.6	10.2	9.8	11.2	10.7	13.6	12.9
24	16.2	15.2	12.3	11.8	8.5	8.2	10.8	10.1	11.4	11.0	13.3	12.4
25	16.3	15.3	12.2	12.0	8.7	8.4	10.8	10.4	11.5	11.2	13.5	12.6
26	16.5	15.4	12.2	12.0	8.5	8.1	10.6	10.1	11.5	11.2	14.6	13.1
27	16.3	15.5	12.4	12.0	8.2	8.1	10.1	9.3	11.8	11.2	15.3	14.0
28	16.3	15.3	12.4	12.2	8.1	7.5	9.3	8.8	11.8	11.2	16.1	14.6
29	16.3	15.3	12.6	12.1	8.3	7.5	9.4	8.5	---	---	16.0	15.3
30	15.9	15.2	12.8	12.4	8.8	8.0	9.6	8.7	---	---	15.4	14.2
31	15.5	14.9	---	---	9.0	8.7	9.9	9.0	---	---	14.6	13.6
<b>Month</b>	20.1	13.0	15.1	11.8	12.7	6.6	10.8	7.0	11.8	7.6	16.1	9.8

## 11390500 Sacramento River below Wilkins Slough, near Grimes, CA—Continued

**TEMPERATURE, WATER, DEGREES CELSIUS**  
**WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**

Day	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
	April		May		June		July		August		September	
<b>1</b>	15.4	13.9	15.6	15.1	21.9	21.1	22.9	21.7	22.1	20.6	20.7	19.6
<b>2</b>	16.0	14.6	15.1	14.2	21.6	20.8	22.7	21.5	21.8	20.4	20.8	20.2
<b>3</b>	15.8	14.8	14.8	14.1	21.6	20.7	22.6	21.4	21.5	20.1	20.4	19.9
<b>4</b>	15.1	14.0	14.7	14.1	21.4	20.5	22.5	21.1	21.2	20.0	20.3	19.7
<b>5</b>	15.0	13.7	15.1	13.9	20.7	19.4	22.2	20.8	21.0	19.8	20.2	19.5
<b>6</b>	15.6	14.0	16.2	14.7	19.8	19.0	21.9	20.4	20.8	19.5	20.5	19.5
<b>7</b>	15.3	14.5	16.9	15.3	19.8	19.0	21.5	20.1	20.0	18.8	20.3	19.3
<b>8</b>	15.1	14.1	17.2	16.2	19.8	18.8	21.6	20.1	20.2	18.7	20.1	19.0
<b>9</b>	14.8	14.0	18.0	16.1	19.9	18.8	21.6	20.2	20.5	19.3	20.2	19.0
<b>10</b>	14.8	13.6	19.0	17.1	19.9	19.0	21.4	19.9	20.8	19.3	20.1	19.1
<b>11</b>	14.8	13.7	19.2	17.9	20.0	19.0	21.1	19.7	21.0	19.8	20.6	19.3
<b>12</b>	15.4	14.0	19.3	18.3	20.2	19.3	21.1	19.6	21.2	20.0	20.4	19.8
<b>13</b>	16.4	15.2	19.4	18.5	20.2	19.3	21.3	19.6	21.5	20.4	19.8	19.0
<b>14</b>	16.1	15.0	19.6	18.6	20.1	19.3	21.7	19.8	21.6	20.5	19.4	18.7
<b>15</b>	15.0	14.0	20.1	18.9	20.5	19.2	22.2	20.3	21.4	20.6	19.6	18.5
<b>16</b>	14.9	13.5	20.9	19.5	20.8	19.6	22.6	20.6	21.2	20.1	20.1	18.8
<b>17</b>	15.8	13.8	21.5	20.2	21.2	20.0	22.8	21.1	20.7	19.8	20.6	19.2
<b>18</b>	16.9	15.0	21.7	20.7	21.7	20.6	22.8	21.2	21.1	20.0	21.0	19.6
<b>19</b>	18.4	16.0	21.4	20.6	22.2	21.2	23.0	21.4	21.4	20.3	21.2	19.8
<b>20</b>	19.5	17.2	20.9	20.2	21.9	21.3	22.8	21.1	21.3	20.4	21.5	20.1
<b>21</b>	20.3	18.3	21.0	20.0	21.4	20.6	22.4	20.9	21.7	20.7	21.5	20.2
<b>22</b>	20.9	19.1	21.0	20.0	21.2	20.3	22.3	20.8	21.9	20.9	21.1	19.9
<b>23</b>	20.4	19.2	20.6	19.7	21.4	20.3	22.4	21.0	21.5	20.5	21.0	19.8
<b>24</b>	19.2	17.6	20.4	19.5	21.9	20.6	22.1	20.5	21.0	20.1	21.0	19.6
<b>25</b>	18.2	16.8	20.8	19.6	21.9	20.9	21.6	20.0	20.7	19.8	21.0	19.7
<b>26</b>	18.3	16.6	21.5	20.1	22.3	21.0	21.8	20.1	20.6	19.6	21.0	19.7
<b>27</b>	18.0	16.8	22.3	21.0	22.7	21.6	22.0	20.3	20.4	19.5	21.1	19.7
<b>28</b>	17.2	16.0	22.7	21.4	23.0	21.8	21.9	20.4	20.2	19.6	20.9	19.7
<b>29</b>	16.6	15.4	22.8	21.7	23.1	21.7	21.9	20.3	20.0	19.4	20.5	19.0
<b>30</b>	15.8	14.9	22.5	21.4	23.0	21.8	22.1	20.4	20.3	19.4	19.4	18.0
<b>31</b>	---	---	22.3	21.4	---	---	22.1	20.5	20.5	19.5	---	---
<b>Month</b>	20.9	13.5	22.8	13.9	23.1	18.8	23.0	19.6	22.1	18.7	21.5	18.0

11390500 Sacramento River below Wilkins Slough, near Grimes, CA—Continued



## 11390500 Sacramento River below Wilkins Slough, near Grimes, CA—Continued

**CROSS SECTION ANALYSES**  
**WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**

Part 1 of 2

Date	Time	Temperature, water, deg C (00010)	DepthTo bottom at sample location, feet (81903)	Sam- pling depth, feet (00003)	Stream width, feet (00004)	Loca- tion in X-sect. looking downstrm ft from l bank (00009)
<b>Jun</b>						
25...	1535	22.0	1.00	1.00	220	11.0
25...	1537	21.6	4.00	2.40	220	32.0
25...	1538	21.5	9.30	8.30	220	54.0
25...	1539	21.5	9.30	1.90	220	54.0
25...	1541	21.5	11.7	9.30	220	76.0
25...	1542	21.5	11.7	2.20	220	76.0
25...	1544	21.5	12.4	10.0	220	98.0
25...	1545	21.5	12.4	2.50	220	98.0
25...	1546	21.5	13.9	11.0	220	120
25...	1547	21.5	13.9	2.80	220	120
25...	1548	21.5	13.6	10.8	220	142
25...	1549	21.5	13.6	2.70	220	142
25...	1550	21.5	15.2	12.2	220	164
25...	1551	21.5	15.2	9.00	220	164
25...	1552	21.5	15.2	3.00	220	164
25...	1553	21.5	16.2	13.0	220	186
25...	1554	21.6	16.2	9.70	220	186
25...	1555	21.6	16.2	3.20	220	186
25...	1556	21.6	10.6	8.40	220	208
25...	1557	21.6	10.6	2.10	220	208

Note: Instantaneous discharge at the mean time of cross-sectional measurements: June 25, 5,560 ft<sup>3</sup>/s.

## 11390500 Sacramento River below Wilkins Slough, near Grimes, CA—Continued

**CROSS SECTION ANALYSES**  
**WATER YEAR OCTOBER 2008 TO SEPTEMBER 2009**

Part 2 of 2

Date	Time	Temperature, water, deg C (00010)	DepthTo bottom at sample location, feet (81903)	Sam- pling depth, feet (00003)	Stream width, feet (00004)	Loca- tion in X-sect. looking downstrm ft from l bank (00009)
<b>Aug</b>						
12...	1538	20.9	2.60	1.60	230	12.0
12...	1540	20.6	5.70	4.10	230	35.0
12...	1541	20.6	5.70	1.10	230	35.0
12...	1542	20.5	11.7	9.30	230	58.0
12...	1543	20.6	11.7	2.30	230	58.0
12...	1544	20.5	13.6	10.8	230	81.0
12...	1545	20.5	13.6	2.60	230	81.0
12...	1546	20.5	14.9	12.0	230	104
12...	1547	20.5	14.9	3.00	230	104
12...	1548	20.5	15.1	12.1	230	127
12...	1549	20.5	15.1	9.00	230	127
12...	1550	20.6	15.1	3.00	230	127
12...	1551	20.6	15.6	12.4	230	150
12...	1552	20.6	15.6	9.50	230	150
12...	1553	20.6	15.6	3.10	230	150
12...	1554	20.6	16.9	13.6	230	173
12...	1555	20.6	16.9	10.4	230	173
12...	1556	20.6	16.9	3.40	230	173
12...	1557	20.6	18.5	14.8	230	196
12...	1558	20.6	18.5	11.3	230	196
12...	1559	20.6	18.5	3.70	230	196
12...	1600	20.6	7.40	6.00	230	219
12...	1601	20.6	7.40	1.50	230	219

Note: Instantaneous discharge at the mean time of cross-sectional measurements: Aug. 12, 6,920 ft<sup>3</sup>/s.