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Sent: Wednesday, March 24, 2010 2:22 PM
To: Barbara Byrne; Fujitani, Paul E; Garwin.Yip@noaa.gov; Merriweather, Audrey; Milligan, Ronald E; Rhonda Reed; Vasquez, Elizabeth A
Subject: 3 Day Average Maximum Stanislaus River Temperature (March 2010) 2

Greetings:

This e-mail serves as formal notification, as required by the 2009 NMFS BiOp, that the Exception criteria under Action III.1.2 (Stanislaus River temperature objective at Orange Blossom Bridge) was triggered on 03/16/10 on a three-day average daily maximum temperature, and on 3/18/10 on the seven-day average daily maximum temperature. Immediate verbal notification was provided during the Stanislaus Operations Group (SOG) meeting on 3/17/10. It was advised by the SOG that the target temperature (between Jan 1 and May 31) for Orange Blossom Bridge be the more conservative of the two targets listed, 55 °F, rather than 57 °F (NMFS BiOp, p. 621). A table of maximum daily temperatures at Orange Blossom Bridge is provided below in Table 1. (As discussed via conference call between Reclamation and NMFS staff on July 13, 2009 requesting direction on BiOp RPA procedural actions.)

In the last seven days, the Orange Blossom Bridge seven-day average daily maximum temperatures ranged from 54.9 °F to 57.7°F.

Releases from Goodwin have been held constant at 200 cfs from 3/7/10 to the present day. At the current release rate, it is expected the three-day running average and seven-day average daily maximum temperature criteria may continue to exceed at Orange Blossom Bridge.

Relevant information is reviewed again from the 3/5/10 notification of Knights Ferry temperatures: Reclamation is actively coordinating data collection efforts to receive reservoir temperature profile information. Although temperature profiles are not yet accessible to Reclamation, it is still early spring and the reservoirs are assumed to be generally destratified. Releases from the reservoirs are expected to be the coldest obtainable. It has also been observed that instream temperatures can rise following storm events due to accretions and mixing of the reservoirs or as a response to warmer weather. Currently, Reclamation has limited flexibility to control downstream temperature. We experienced marginal temperature benefit with increased flow rates from Goodwin Dam (a new statistical relationship was formed between Knights Ferry and Orange Blossom Bridge and flows of 800 cfs from Goodwin Dam did not offer an estimated 3-day average daily maximum temperature protection below 52 °F at Knights Ferry). Based on Reclamation's modeling of the March 2010 90% exceedence forecast, low storage conditions at New Melones appear to be a concern for the fall months. Reclamation is taking conservative actions to reduce winter and early spring reservoir releases, when possible, to build storage and develop a cold water pool to help meet summer and fall BiOp RPA temperature criteria.

As experienced in mid-February and early March, higher flows did not achieve desired temperature protection during periods of warmer weather. Historical March and April temperatures downstream of Goodwin Dam range between 48.5 °F and 55.2 °F, average temperatures were 51.5 °F (Figure 1). Based on recent experience and observed historical data, Reclamation would not expect the desired temperature criteria to be consistently met under higher flows and it is unlikely to consistently meet the temperature requirement at both Knights Ferry and Orange Blossom Bridge for the remainder of March and April.

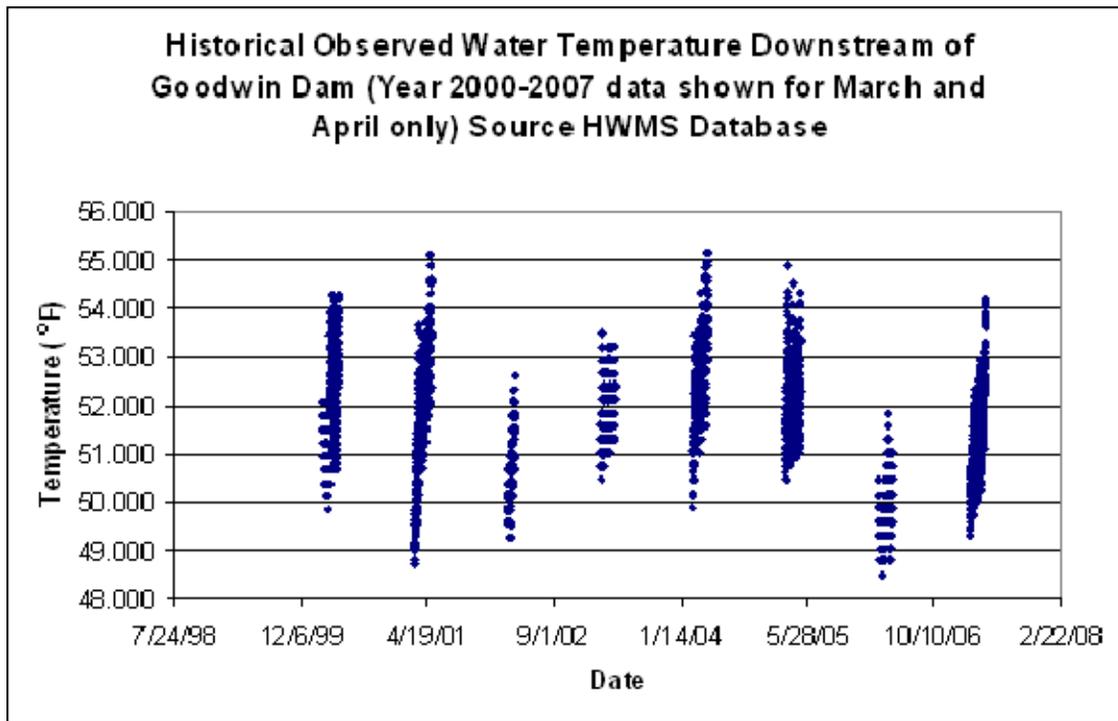


Figure 1 – Historical water temperature downstream of Goodwin Dam.

Reclamation cannot determine, with certainty, the magnitude or duration of actual temperature exceedence because of the limitations of meteorological forecasts (accuracy of meteorological forecasts degrade after approximately 5 days or less). However, estimates of future temperature performance can be inferred from model simulations. A representative temperature simulation was evaluated at Knights Ferry and Orange Blossom Bridge using the HMWS temperature tool (Figure 2). The results indicate difficulty consistently meeting both the Knights Ferry and Orange Blossom temperature targets through the end of March and April. This information should be used cautiously, it is not the past or a forecast of future meteorological conditions and reservoir temperature profile data are not available; the inputs, assumptions, and model have limitations which affect the accuracy of the output.

**Preliminary - Stanislaus River - 2010
March 50% Exceedence Outlook
Medium Mean 6-Hour Temperature**

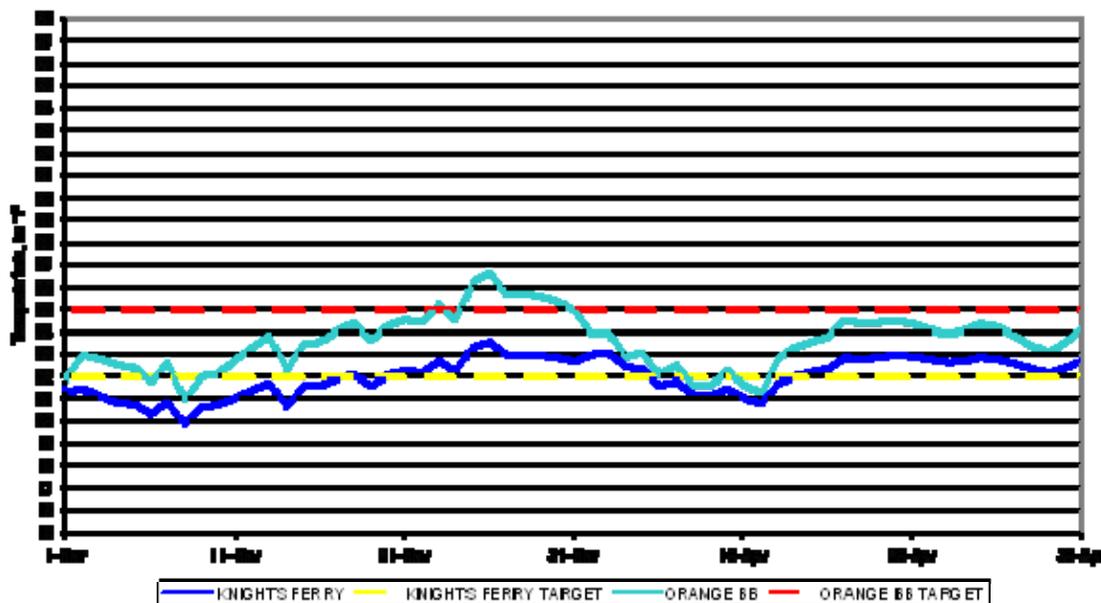


Figure 2. Preliminary HWSM temperature model results for a representative March and April at Knights Ferry and Orange Blossom Bridge.

Table 1. Recent Stanislaus River data.

Date	Orange Blossom Daily Maximum Temp. (°F)	Est. Knights Ferry Daily Maximum Temp. (°F)	Goodwin Release (cfs)	Total Canal Diversions (cfs)	Tulloch Release (cfs)	New Melones Storage (AF)	Comments
15-Feb-10	52.3	51.6	1008	36	966	1,226,808	
16-Feb-10	52.6	51.7	1001	35	964	1,225,908	
17-Feb-10	52.8	51.9	1007	34	978	1,225,171	Goodwin Releases are over 1000 cfs and the max. temp. at Knights Ferry is 0.1 degree from 52 °F
18-Feb-10	52.6	51.7	1006	34	950	1,225,171	
19-Feb-10	51.9	51.3	1004	35	981	1,224,188	
20-Feb-10	51.6	51.2	1003	36	993	1,224,025	
21-Feb-10	51.2	50.9	1008	36	997	1,224,188	
22-Feb-10	52.1	51.5	1006	37	996	1,222,551	
23-Feb-10	50.9	50.7	1009	37	994	1,222,714	
24-Feb-10	51.5	51.1	1005	17	962	1,223,779	
25-Feb-10	52.7	51.8	1001	0	945	1,224,598	
26-Feb-10	51.6	51.2	1005	0	947	1,225,416	
27-Feb-10	52.7	51.8	1003	0	940	1,231,738	
28-Feb-10	52.9	51.9	938	0	875	1,234,122	
1-Mar-10	53.6	52.3	838	0	784	1,235,684	Goodwin Release is over 800 cfs and the max. temp. at Knights Ferry is greater than 52 °F.
2-Mar-10	52.4	51.6	742	2	678	1,236,756	
3-Mar-10	51.7	51.2	587	11	528	1,240,719	
4-Mar-10	52.8	51.9	505	3	457	1,244,519	
5-Mar-10	52.9	51.9	365	0	328	1,247,172	
6-Mar-10	53.8	52.5	304	0	286	1,249,328	
7-Mar-10	55.2	53.3	238	0	219	1,251,152	
8-Mar-10	53.9	52.5	201	3	189	1,252,811	
9-Mar-10	53.3	52.2	203	36	243	1,254,476	
10-Mar-10	53.4	52.2	204	42	250	1,256,391	
11-Mar-10	53.9	52.5	204	41	251	1,258,223	
12-Mar-10	53.1	52.0	216	469	679	1,259,805	Canal diversions have no apparent effect on temperatures.
13-Mar-10	53.8	52.5	203	705	906	1,261,639	
14-Mar-10	54.3	52.7	203	661	865	1,262,475	
15-Mar-10	55.3	53.3	203	659	865	1,263,228	
16-Mar-10	56.5	54.0	202	658	868	1,263,813	
17-Mar-10	57.7	54.8	203	653	863	1,263,980	
18-Mar-10	57.9	54.9	203	660	869	1,264,816	
19-Mar-10	57.6	54.7	204	659	872	1,264,983	
20-Mar-10	57.5	54.6	206	659	872	1,266,154	
21-Mar-10	57.4	54.6	204	673	873	1,267,073	
22-Mar-10	57.9	54.9	211	734	941	1,267,491	

Data Source: 3/23/10 CDEC and Reclamation

Thank you,
Randi Field

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