

Sacramento River Temperature Task Group Meeting

July 26, 2012 1:00pm

Conference Line: 877-718-6527

Pass code: 1954134

Agenda

1. Introductions
2. Fishery update
3. Hydrology & Operations update
 - a. Daily CVP Water Supply Report ***
4. Discussion of recent temperature model runs
 - a. Temperature studies packet ***
5. Temperature Review for June and July
 - a. June and July monthly temp report ***
6. Up date on Matt Brown's -- Avoiding Full Power Peaking proposal:

Actions items:

- a. Update on the Oak Bottom TCC. (NCAO)
 - Conclusion that a dive inspection is not needed
 - b. Pilot program – not a good year for a power pilot program due to the Trinity Supplemental Releases and uncertainty of 2 units at Carr
-
7. Additional agenda items
 - a. 2012 Fall Flows on Trinity – (NCAO)
 8. Next meeting: Thursday, Aug 24th

***handouts

UNITED STATES DEPARTMENT OF THE INTERIOR
U.S. BUREAU OF RECLAMATION-CENTRAL VALLEY PROJECT-CALIFORNIA

DAILY CVP WATER SUPPLY REPORT

JULY 24, 2012

RUN DATE: July 25, 2012

RESERVOIR RELEASES IN CUBIC FEET/SECOND

RESERVOIR	DAM	WY 2011	WY 2012	15 YR MEDIAN
TRINITY	LEWISTON	705	564	450
SACRAMENTO	KESWICK	11,842	14,294	14,319
FEATHER	OROVILLE (SWP)	1,900	8,500	5,500
AMERICAN	NIMBUS	4,502	4,506	3,987
STANISLAUS	GOODWIN	2,012	378	358
SAN JOAQUIN	FRIANT	346	352	296

STORAGE IN MAJOR RESERVOIRS IN THOUSANDS OF ACRE-FEET

RESERVOIR	CAPACITY	15 YR AVG	WY 2011	WY 2012	% OF 15 YR AVG
TRINITY	2,448	1,968	2,394	2,105	107
SHASTA	4,552	3,362	4,131	3,410	101
OROVILLE (SWP)	3,538	2,575	3,523	2,797	109
FOLSOM	977	706	944	673	95
NEW MELONES	2,420	1,710	2,303	1,659	97
FED. SAN LUIS	966	360	807	175	49
MILLERTON	520	383	501	342	89
TOT. N. CVP	11,360	8,105	10,579	8,022	99

ACCUMULATED INFLOW FOR WATER YEAR TO DATE IN THOUSANDS OF ACRE-FEET

RESERVOIR	CURRENT WY 2012	DRIEST WY 1977	WETTEST WY 1983	15 YR AVG	% OF 15 YR AVG
TRINITY	992	195	2,747	1,408	70
SHASTA	3,586	2,154	10,137	5,468	66
FOLSOM	1,555	300	6,145	2,447	64
NEW MELONES	519	0	2,583	983	53
MILLERTON	823	253	4,105	1,527	54

ACCUMULATED PRECIPITATION FOR WATER YEAR TO DATE IN INCHES

RESERVOIR	CURRENT WY 2012	DRIEST WY 1977	WETTEST WY 1983	AVG (N YRS)	% OF AVG	LAST 24 HRS
TRINITY AT FISH HATCHERY	26.15	13.70	55.19	31.88 (50)	82	0.00
SACRAMENTO AT SHASTA DAM	43.65	17.28	112.58	61.64 (55)	71	0.00
AMERICAN AT BLUE CANYON	56.84	15.70	103.88	65.10 (37)	87	0.00
STANISLAUS AT NEW MELONES	23.70	0.00	45.33	27.15 (34)	87	0.70
SAN JOAQUIN AT HUNTINGTON LK	24.89	17.20	81.40	42.63 (37)	58	0.00

July 25, 2012

Upper Sacramento River – July 2012 Preliminary Temperature Analysis

Summary of Temperature Compliance Results by Month

Initial Compliance Location	JUL	AUG	SEP	OCT
July 50%-Exceedance Outlook				
Jellys Ferry (JLF)	JLF	JLF	JLF	JLF

Temperature Model Inputs, Assumptions, Limitations and Uncertainty:

1. Operation is based on the July 2012 Operation Outlook (monthly flows, reservoir release, and end-of-month reservoir storage).
2. The latest available profiles for Shasta, Trinity and Whiskeytown were taken on **July 12**, **July 18**, and **July 11**, respectively.
3. Guidance on forecasted flows from the creeks between Keswick Dam and Bend Bridge (e.g., Cow, Cottonwood, Battle, etc.) is not available beyond 5 days. Model input side flows (Cottonwood Cr & Bend Bridge local flow w/o Cottonwood Cr) were selected from the historical record, based on current flows and future 5-day trends. (**NOTE: Lacking further guidance, future side flows may differ significantly from those input into the model.**) The creek flows cause additional warming in the upper Sacramento River during spring.
4. Although mean daily flows and releases are temperature model inputs, they are based on the mean monthly values from the operation outlooks. Mean daily flow patterns are user defined.
5. Cottonwood Creek flows, Keswick to Bend Bridge local flows, and diversions are mean daily synthesized flows based on the available historical record for a 1922-2002 study period.
6. Meteorological inputs were derived from a database of 86 years of meteorological data (1920-2005). The NOAA-NWS Local Three-Month Temperature Outlook (L3MTO), as a means of estimating air temperature expectation, was used to select each month's meteorology from the database.
7. Meteorology, as well as flow volume and pattern, significantly influences reservoir inflow temperatures and downstream tributary temperatures; and consequently, the development of the cold-water pool during winter and early spring.

Temperature Analysis Results:

July 2012 50%-Exceedance (Figures 1-4):

Jellys Ferry: Jellys Ferry (Figure 1) is likely to be met through fall. The end-of-September lake volume below 56°F (~1.0 MAF) indicates that a Jellys Ferry compliance is possible through fall (mean daily water temperature at Jellys Ferry tends to be approximately 0.5-1.0°F warmer than at Balls Ferry, after September).

Figure 2 shows temperature results for Clear Creek at Igo.

Figure 3 includes results for the Trinity River at Lewiston Dam. The dashed lines are the 2011 mean daily temperatures at selected locations.

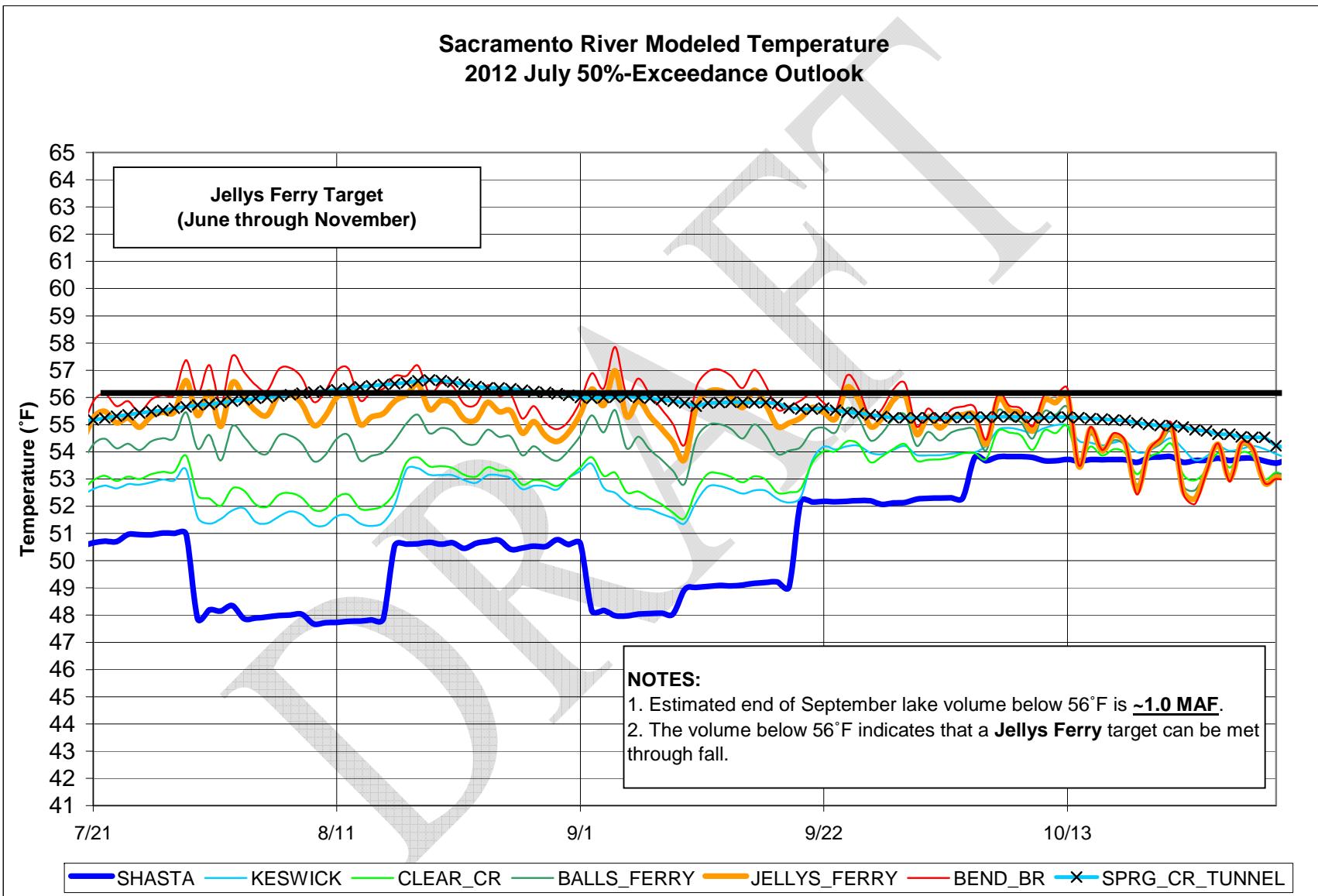


Figure 1

**Clear Creek - Igo Modeled Temperature
2012 July 50%-Exceedance Outlook**

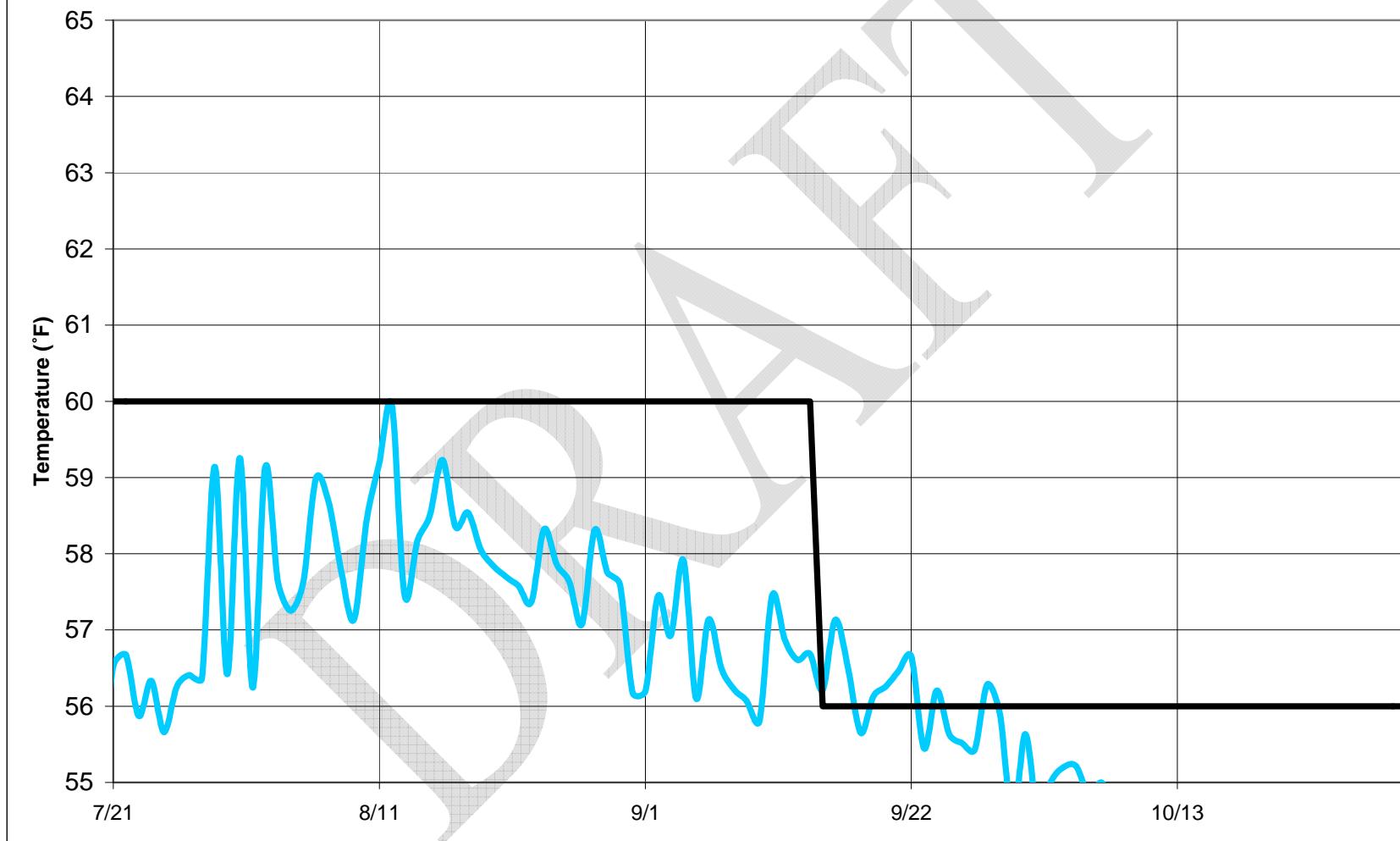


Figure 2

Trinity River - 2012 July 50%-Exceedance Outlook
"Normal Year" Release Schedule
Mean Daily Water Temperature

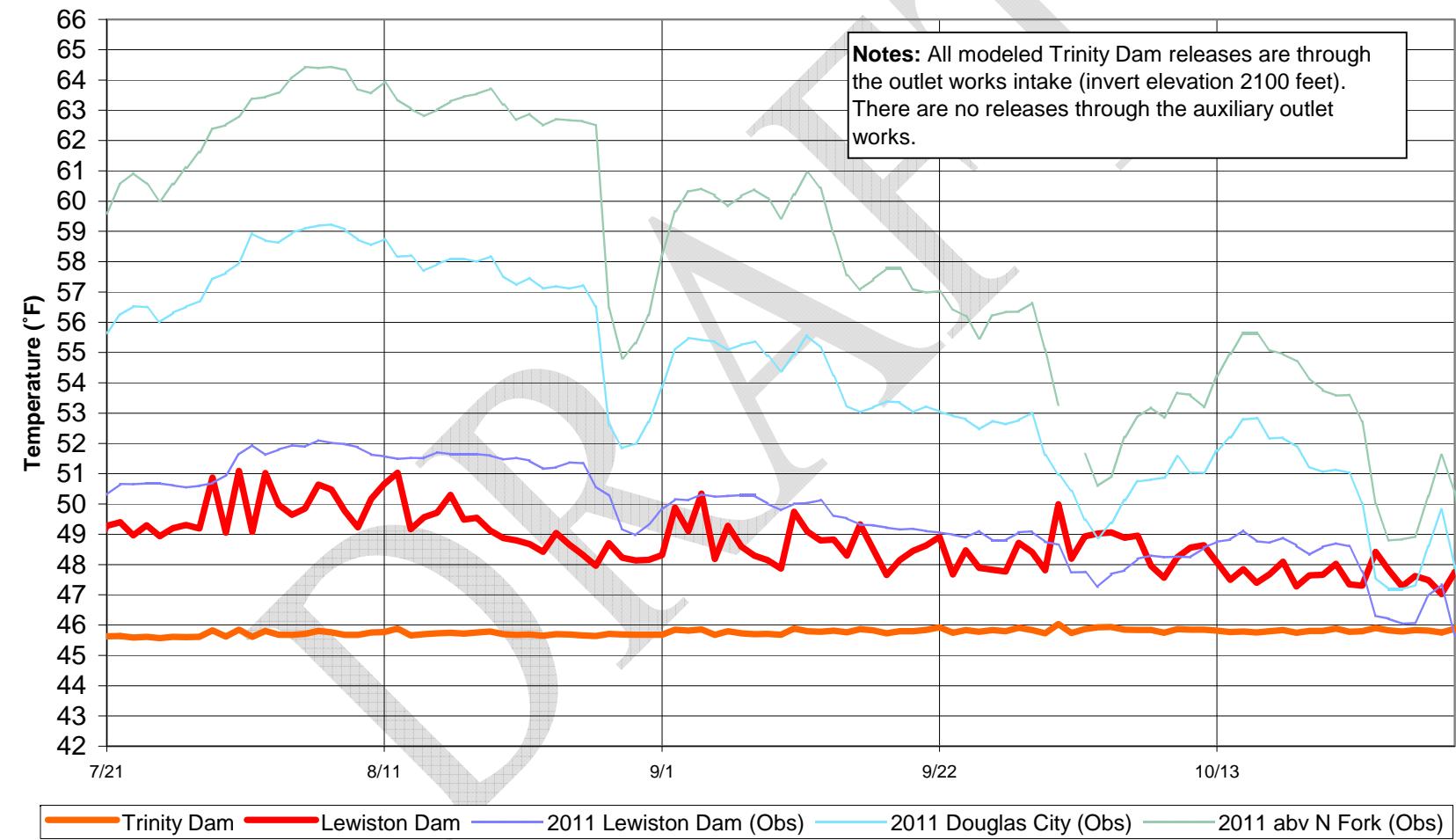
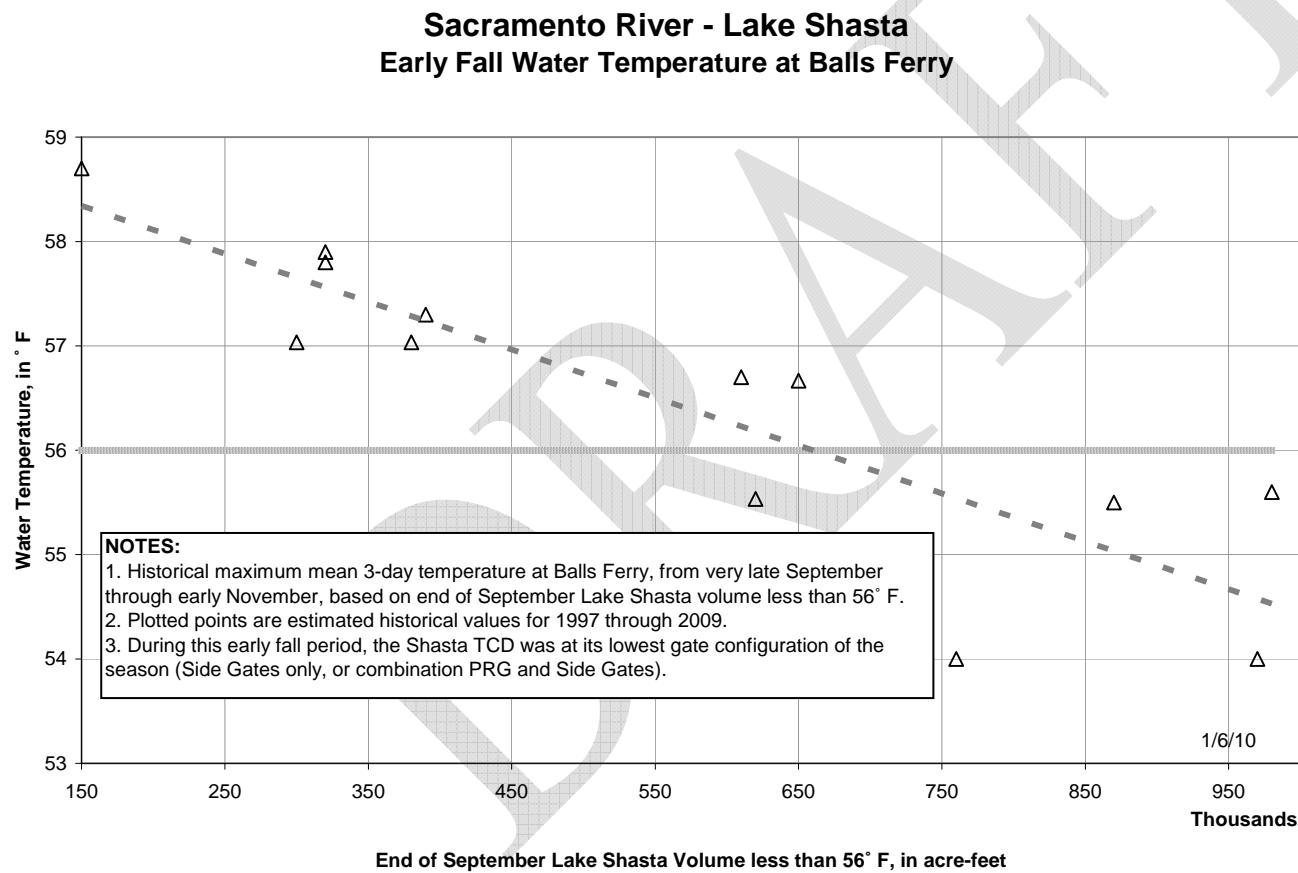


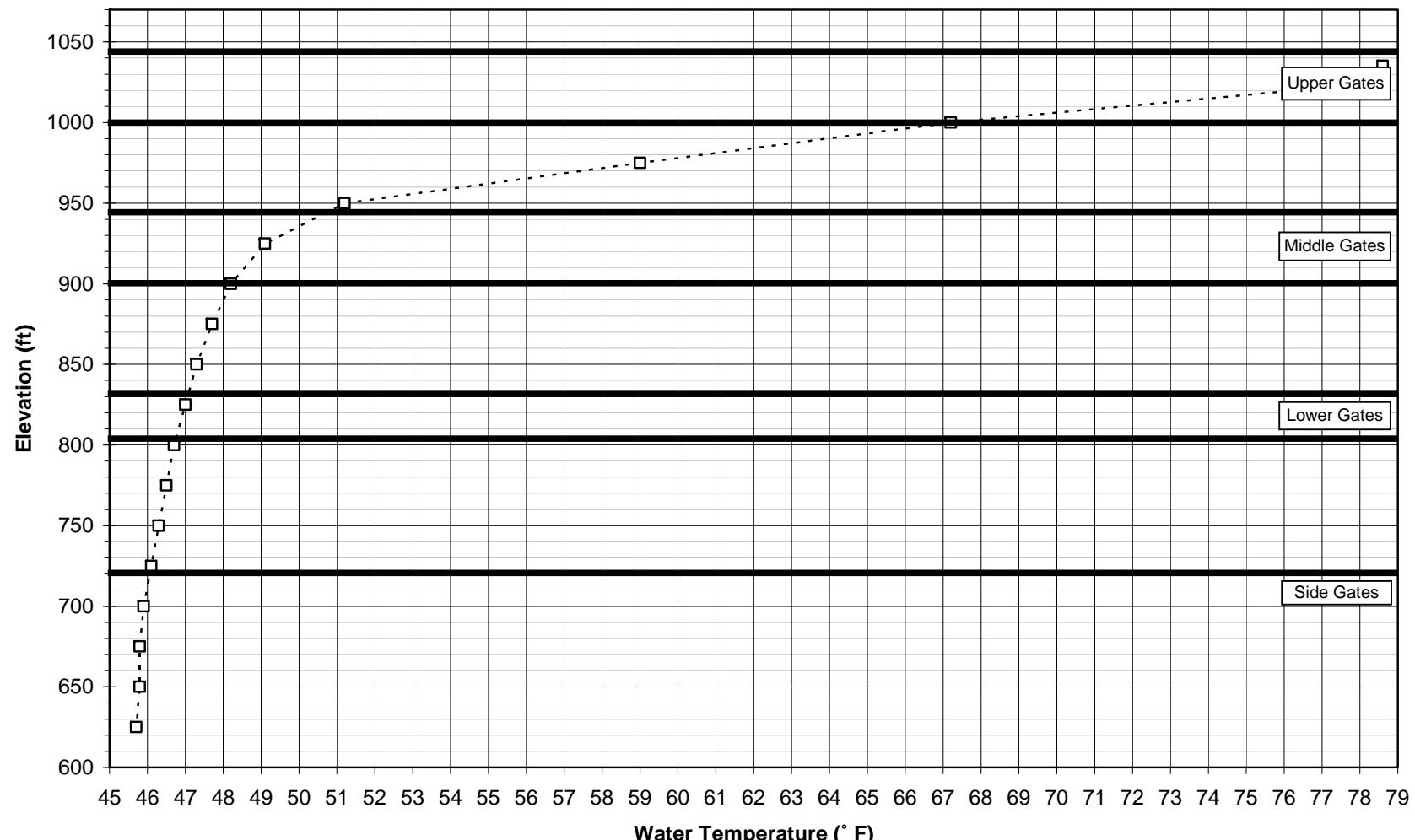
Figure 3

Model Performance and Fall Temperature Index:

1. Based on past analyses, the temperature model does not perform well in late September and October. One factor is that the modeled release temperatures are cooler than has historically been achieved when all release is through the side gates (lowest gates), especially when there's a large temperature gradient between the pressure relief gates (PRG) and the side gates.
2. Based on historical records, the end-of-September Lake Shasta volume below 56°F is a good indicator of fall water temperature in the river reach to Balls Ferry.
3. For river temperatures not to exceed 56 °F downstream to Balls Ferry, the end-of-September lake volume less than 56°F should be greater than about 600 TAF, see figure below:



Lake Shasta Temperature Profile - 07/12/12



7/10/2012

Temperature and Release Summary for Shasta and Trinity - June 2012
(Updated twice a week November through April)

Day	Sacramento River Water Temperatures in Degrees F Collected from CDEC (California Data Exchange Center)													Mean Daily Release in CFS			Mean Daily Air Temp Degrees F			
	TCD Wt. Avg.	SHD minus TCD (Diff)	Shd	Spp	Kwk	Control Point 4/16 to 5/31	Control Point 6/1 to 6/30	Bsf	Jlf	Bnd	Rdb	Lws	Ccr	Igo	Shasta Generation EI 815	Spring Crk Powerplant Release	Keswick Total Release	RDD	BSF	RDB
May	51.0		49.7	50.4	51.2	54.5	56.0	56.5	57.8	47.9	52.5	52.1		8,327	183	9,191	68.1	66.3	68.1	59.1
Jun																				
1	50.2	(1.5)	48.7	51.1	50.3	54.5	56.5	57.2	59.2	48.7	52.1	54.4		9,181	98	9,475	83.0	81.2	81.9	72.4
2	50.1	(1.3)	48.8	50.7	50.6	54.6	56.6	57.4	59.4	49.0	52.3	54.1		9,092	138	9,501	87.5	77.0	79.0	68.2
3	50.4	(1.5)	48.9	50.8	50.4	54.2	56.0	56.7	58.9	49.3	52.0	53.5		9,676	119	10,431	76.0	74.5	74.1	63.3
4	50.3	(1.3)	49.0	50.8	50.2	52.9	54.3	55.0	56.8	48.7	51.2	51.9		9,999	119	10,513	60.5	62.2	63.3	57.3
5	50.6	(1.5)	49.1	51.1	49.8	52.5	53.7	54.0	54.7	48.5	50.9	51.5		9,828	103	10,492	60.0	57.9	59.8	52.2
6	50.5	(1.5)	49.0	50.9	50.4	53.0	54.2	54.6	55.7	48.6	51.6	52.0		9,853	122	10,500	68.0	64.6	66.0	55.0
7	50.4	(1.4)	49.0	51.3	50.3	53.0	54.4	55.0	56.2	48.3	51.4	51.8		9,945	64	10,513	67.5	66.8	68.3	57.5
8	50.3	(1.3)	49.0	50.5	50.3	53.1	54.3	54.7	55.8	48.2	51.6	52.5		9,329	724	10,502	64.5	63.8	68.2	55.4
9	50.3	(1.2)	49.1	50.4	50.5	53.3	54.5	55.0	56.0	48.6	51.8	52.8		9,077	931	10,505	67.0	64.9	66.9	55.6
10	50.5	(1.3)	49.2	50.4	50.7	53.8	55.1	55.6	56.7	48.6	52.2	53.7		9,027	982	10,511	77.0	74.0	76.3	61.1
11	50.5	(1.3)	49.2	50.6	50.6	54.0	55.5	56.1	57.7	48.4	52.1	54.1		9,133	986	10,507	82.0	75.7	77.3	65.7
12	49.3	(0.9)	48.4	50.6	50.9	54.4	56.0	56.5	58.2	48.6	52.5	54.4		9,501	796	10,511	77.5	75.9	79.7	67.1
13	49.3	(0.9)	48.4	50.7	50.1	54.5	56.2	56.9	58.8	49.2	52.1	54.6		9,450	823	10,969	84.0	77.8	81.6	67.5
14	49.3	(0.9)	48.4	50.8	49.7	53.4	55.2	55.9	58.1	49.2	51.4	54.6		9,845	882	11,486	86.0	83.0	84.5	66.6
15	49.3	(1.0)	48.3	50.8	49.8	53.5	55.1	55.8	57.6	49.1	51.5	54.7		9,959	953	11,498	86.0	83.5	85.9	67.8
16	49.3	(0.9)	48.4	50.9	49.7	53.3	55.0	55.7	57.8	49.2	51.3	54.8		11,007	1,129	12,455	92.5	85.5	89.6	71.1
17	49.3	(0.9)	48.4	51.0	49.7	53.1	54.8	55.4	57.3	49.1	51.2	55.3		10,586	1,242	12,481	90.5	83.7	86.2	74.5
18	49.5	(1.0)	48.5	51.1	49.8	53.2	54.8	55.4	57.3	49.1	51.2	54.9		10,543	1,201	12,477	81.0	80.9	76.8	67.4
19	49.5	(0.9)	48.6	51.3	49.9	52.9	54.4	54.9	56.6	49.3	51.2	54.9		10,545	1,609	12,482	79.5	78.0	77.2	64.5
20	49.4	(1.0)	48.4	51.4	49.9	52.8	54.2	54.8	56.4	49.2	51.2	55.0		10,659	1,514	12,509	83.0	78.3	78.4	66.6
21	49.4	(1.0)	48.4	51.7	49.7	52.9	54.4	54.9	56.7	49.0	51.2	55.3		10,938	1,117	12,427	77.0	72.7	73.6	67.8
22	50.9	(1.5)	49.4	52.0	49.6	51.9	53.0	53.7	55.4	48.9	50.6	53.5		10,285	1,191	12,510	61.5	61.6	61.4	56.4
23	51.4	(1.6)	49.8	52.1	50.3	52.0	53.1	53.3	54.3	48.5	51.1	53.7		10,993	746	12,507	66.0	64.6	63.8	52.4
24	51.4	(1.4)	50.0	52.2	51.0	53.1	54.2	54.5	55.5	48.3	52.1	54.5		12,588	838	13,759	65.0	64.8	64.1	56.3
25	51.6	(1.4)	50.2	52.4	51.2	53.0	54.2	54.6	55.6	48.2	52.1	53.8		12,814	1,022	13,774	64.0	60.6	63.1	52.8
26	51.8	(1.4)	50.4	52.7	51.4	53.3	54.5	54.7	55.7	48.3	52.3	54.7		13,160	961	13,745	66.0	65.5	66.7	56.9
27	51.7	(1.4)	50.3	52.5	51.8	53.9	55.0	55.4	56.4	48.4	52.8	55.6		12,932	963	14,170	71.0	69.0	71.0	63.2
28	51.7	(1.4)	50.3	52.8	52.0	54.0	55.3	55.7	57.0	49.0	52.9	55.9		12,619	963	14,281	72.5	70.7	71.8	65.7
29	51.7	(1.5)	50.2	53.1	51.9	54.1	55.5	56.0	57.4	49.3	52.9	56.5		12,748	1,014	14,369	75.5	72.0	72.8	68.1
30	50.2	(1.0)	49.2	53.2	51.9	54.0	55.4	55.9	57.4	49.3	52.8	56.6		12,841	947	14,328	75.5	73.0	73.8	67.1
		0.0																		
Avg Tot cfs	50.3		49.1	51.4	50.5	53.4	54.8	55.4	56.9	48.8	51.8	54.2		10,605	810	11,873	74.9	72.1	73.4	62.8
														318,153	24,297	356,188	72.1			
														631,056	48,193	706,499				

= Station out of service

^ = estimated (7 hours or less available)

? = Avg. includes estimated data

! = 17 hours or less of readings

& = 18 to 23 hours of reading

ND = No hourly readings or incorrect

Control Point: Balls Ferry 4/16/2012 to 5/31/2012; Jellys Ferry 6/1/2012 to 6/30/2012.

Temperature and Release Summary for Shasta and Trinity - July 2012
(Updated twice a week November through April)

Day	Sacramento River Water Temperatures in Degrees F Collected from CDEC (California Data Exchange Center)													Mean Daily Release in CFS			Mean Daily Air Temp Degrees F			
	TCD Wt. Avg.	SHD minus TCD (Diff)	Shd	Spp	Kwk	Control Point 4/16 to 5/31	Control Point 6/1 to	Jlf	Bnd	Rdb	Lws	Ccr	Igo	Shasta Generation EI 815	Spring Crk Powerplant Release	Keswick Total Release	RDD	BSF	RDB	LWS
Jun	50.2		49.1	51.4	50.5	53.4	54.8	55.4	56.9	48.8	51.8	54.2		10,605	810	11,873	74.9	72.1	73.4	62.8
Jul																				
1	50.0	(1.1)	48.9	53.3	50.5	53.5	55.2	55.9	57.8	49.4	51.9	57.4		12,614	1,086	14,082	81.5	79.0	76.6	70.5
2	50.0	(1.1)	48.9	53.3	50.6	53.1	54.6	55.1	56.8	49.6	51.7	57.7		12,307	1,561	13,982	81.0	78.4	77.5	70.8
3	50.0	(1.0)	49.0	53.6	50.5	53.1	54.5	55.0	56.8	49.7	51.7	57.6		12,663	1,206	14,259	78.5	78.1	79.6	68.4
4	50.0	(1.0)	49.0	53.7	50.7	53.1	54.4	54.6	56.4	49.9	51.8	59.4		12,307	1,418	14,393	80.5	76.0	77.5	69.4
5	50.1	(1.0)	49.1	54.0	50.6	53.2	54.5	54.7	56.6	49.9	51.8	59.9		12,591	1,592	14,280	78.0	74.5	74.5	68.7
6	50.3	(1.0)	49.3	54.2	50.6	52.9	54.2	54.5	56.3	49.9	51.6	59.7		12,755	860	14,177	76.5	74.4	74.9	69.3
7	50.1	(0.9)	49.2	54.2	50.9	53.1	54.3	54.5	56.1	49.8	51.9	59.5		12,915	1,430	14,283	81.5	77.7	78.5	71.4
8	50.4	(1.0)	49.4	54.4	50.8	53.2	54.4	54.7	56.5	49.9	51.9	59.8		12,853	1,290	14,282	83.5	79.2	80.7	74.0
9	50.4	(1.0)	49.4	54.5	51.1	53.3	54.5	54.7	56.4	49.8	52.1	59.8		12,546	1,600	14,314	81.0	77.2	77.7	73.0
10	50.3	(0.9)	49.4	54.7	50.9	53.3	54.4	54.7	56.5	50.0	52.0	59.5		12,744	1,253	14,334	84.0	79.8	80.6	73.6
11	50.3	(0.8)	49.5	54.7	50.9	53.3	54.3	54.8	56.4	50.0	52.0	59.7		12,830	1,180	14,045	85.0	80.7	82.3	77.0
12	50.4	(0.9)	49.5	54.9	51.0	53.4	54.4	54.9	56.5	50.1	52.2	59.2		12,882	1,185	13,923	85.0	80.7	83.1	76.2
13	50.5	(0.9)	49.6	55.0	51.1	53.5	54.5	55.1	56.9	50.3	52.2	57.3		12,809	1,238	13,917	83.5	79.3	79.2	74.2
14	50.5	(0.9)	49.6	55.0	51.3	53.5	54.5	55.0	56.8	50.5	52.3	56.8		12,142	1,634	13,985	79.0	75.0	73.0	72.1
15	50.7	(1.0)	49.7	55.2	51.3	53.6	54.6	55.0	56.8	50.5	52.4	57.0		12,353	1,611	14,139	82.0	77.8	77.8	73.0
16	50.8	(0.9)	49.9	55.3	51.3	53.7	54.7	55.2	57.0	50.6	52.4	57.0		13,070	1,187	14,115	76.5	72.8	72.7	66.9
17	51.0	(1.0)	50.0	55.5	51.2	53.0	53.9	54.4	56.2	50.0	52.1	55.6		12,860	1,230	14,126	66.5	66.0	63.8	59.0
18	51.0	(0.9)	50.1	55.6	51.4	53.2	54.0	54.4	55.8	49.9	52.2	56.5		12,857	1,227	14,178	72.5	70.2	70.4	63.7
19	51.0	(1.0)	50.0	55.6	51.6	53.0	54.7	55.1	56.5	49.8	52.6	56.9		12,404	1,269	14,174	74.5	76.4	72.8	64.8
20	51.3	(1.0)	50.3	55.7	51.6	53.8	54.6	55.1	56.7	50.3	52.6	57.2		12,829	1,266	14,155	76.5	74.5	75.0	67.9
21	51.3	(1.0)	50.3	55.7	51.9	54.1	55.0	55.4	56.9	50.8	52.9	57.8		12,952	1,237	14,177	84.5	79.2	81.0	71.5
22	51.4	(1.1)	50.3	55.7	52.1	54.3	55.3	55.7	57.4	51.3	53.1	57.9		12,384	1,550	14,151	85.5	81.7	83.6	73.8
23	51.0	(0.8)	50.2	55.9	52.2	54.5	55.5	56.0	57.8	51.6	53.3	58.1		12,442	1,553	14,202	86.0	81.6	81.5	73.8
24	50.7	(0.7)	50.0	56.0	51.6	54.4	55.5	56.1	58.0	52.0	53.0	56.3		12,646	1,188	14,294	82.0	77.6	76.5	75.5
25		0.0																		
26		0.0																		
27		0.0																		
28		0.0																		
29		0.0																		
30		0.0																		
31		0.0																		
Avg Tot cfs	50.6		49.6	54.8	51.2	53.5	54.6	55.0	56.7	50.2	52.2	58.1		12,656 303,755 602,498	1,327 31,851 63,176	14,165 339,967 674,325	80.2	77.0	77.1	70.8
Total af																				

= Station out of service

^ = estimated (7 hours or less available)

? = Avg. includes estimated data

! = 17 hours or less of readings

& = 18 to 23 hours of reading

ND = No hourly readings or incorrect

Control Point: Balls Ferry 4/16/2012 to 5/31/2012; Jelley's Ferry 6/1/2012 to

PRELIMINARY