

Sacramento River Temperature Task Group (SRTTG) Call
Thursday, July 23, 2015 | 1:00 p.m. – 2:00 p.m.

MEETING SUMMARY

Participants:

- Craig Anderson, FWS
- Mike Berry, CDFW
- Matt Brown, FWS
- Charlie Chamberlain, USBR
- Robert Franklin, Hoopa Valley Tribal Fisheries
- Tim Hayden, Yurok Tribe
- Bob Hughes, CDFW
- Sara John, NMFS
- Tim Kimball, SWRCB
- Liz Kiteck, USBR
- Scott Ligare, SWRCB
- Seth Naman, NMFS
- Joe Pisciotto, CDFW
- John Rueth, FWS
- Diane Riddle, SWRCB
- Rich Satkowski, SWRCB
- Jim Smith, FWS
- Stacey Smith, USBR
- Thuy Washburn, USBR

Note-taking:

- Kelsey Rugani, Kearns & West

Action Items

- Reclamation to circulate TCD-weighted average temperature data once the data and computer drives can be accessed.
- Reclamation will continue to share the Shasta Dam TCD graphics side by side.
- NCAO will compile the data into an environmental assessment that should be available for review around the end of July.
- Reclamation to look into providing a Trinity Reservoir isothermobath and will look into circulating an excel file as an example.
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- Participants to contact Jim Smith (jim_smith@fws.gov) to receive information from the Juveniles Monitoring Program.
- Reclamation to consider including a sentence clarifying the average daily temperature at compliance discrepancy in the monitoring that goes to the SWRCB.

Key Discussion Topics with Summary of Outcomes and Agreements:

Fisheries Update

Regarding the aerial redd and carcass surveys, CDFW opines that spawning is probably peaking within the next week or two.

The general spawning distribution (based on aerial redd flights) is the same as previous weeks.

As of Monday, July 20, fish are still spawning upstream with 47% of the carcasses observed between Keswick (*KWK*) and ACID Dam, 29% between ACID and the Highway 44 Bridge, 20% between the Highway 44 Bridge and Clear Creek (*CCR*), and 4% below Clear Creek (*CCR*).

Livingstone Stone National Fish Hatchery has spawned 94 females and 71 males to date, with approximately 7 left to spawn. Spawning should be completed within the next two weeks. Currently, there are approximately 197,000 eggs; the first six female eggs are in tanks and on feed. The Hatchery has picked up close to 100 spring-run juveniles. July 31st will be the last day that the Hatchery will run the trap.

The FWS Juvenile Monitoring Program at Red Bluff has captured winter-run juveniles 17 out of the last 18 days. FWS releases an estimate every two weeks and will circulate the next estimate next week. Although FWS believes it is unusual to see such a consistent catch this early in the season, it is too early to tell what this means for the fish. FWS will continue to monitor.

Operations Update – Temperature Summary

Reclamation shared that Keswick (*KWK*) is running at 7,200 cfs, Wilkin Slough is running at approximately 3,200 cfs. In the Delta, Reclamation is pumping 300 cfs with an outflow in the Delta at 3,400 cfs. Reclamation advised that the WQ in the Delta is improving and the Cross Channel gates will be open on Friday, July 24.

Clear Creek (*CCR*) has been cooling off since the PRG #2 was opened on July 15. At the Whiskeytown Dam, Reclamation switched to the lower outlet and the temperature has since cooled.

Reclamation reported that they are having satellite issues and cannot access their computer drives. Because of this, the TCD-weighted average temperature data are currently not available. Once the data are available and the drives can be accessed, Reclamation will pull the data and update accordingly. Reclamation also clarified that the data come into Reclamation and they send it into CDEC which explains why CDEC does not currently have the data either.

Action: Reclamation to circulate TCD-weight average temperature data once the data and drives can be accessed.

Operations Update – Shasta Dam TCD Configuration

Reclamation provided a graphic showing a schematic profile of Shasta Dam and the TCD configuration comparing 2015 to 2014. The graphic shows that there are three PRG gates open currently while four were open at this point in 2014. At middle gate, there was one gate open in 2014 and there are currently three open. The water at the middle gates was warmer this time last year.. This graphic includes the latest profile data from Tuesday, July 21.

Participants appreciated having the 2014 and 2015 graphics shown side by side rather than on top of each other.

Action: Reclamation will continue to share the Shasta graphics side by side.

Operations Update – Lake Shasta Isothermobaths

Reclamation provided graphs that illustrated how the 2015 Lake Shasta isothermobaths are trending compared to past critical years. In the April/May timeframe, the lake starts to cool which causes the cold water density to drop. A similar dip has occurred in the past.

Operations Update – Shasta Profile

Reclamation will begin Sacramento River modeling for Shasta once the current Whiskeytown data are available. Reclamation completed some preliminary Trinity modeling on four different scenarios:

- Scenario #1 includes the 90% water operations forecast with the HTV flows included
- Scenario #2 is the same as #1 but includes the bypass at the auxiliary outlet in the fall
- Scenario #3 includes the fall augmentation flows
- Scenario #4 includes the fall augmentation flows and the fall bypass

Action: NCAO will compile the data into an environmental assessment that should be available for review around the end of July.

Reclamation noted that the timing for the fall bypass is mid-September. Reclamation also shared that they used the 50% L3MPO meteorology information for the modeling.

Robert Franklin, Hoopa Valley Tribal Fisheries, shared that the boat dance flows are approximately 2,650 cfs at Lewiston on the morning of August 17th.

Action: Matt Brown to send a previous Clear Creek (CCR) temperature model to Thuy that includes both output and target information.

Reclamation shared that the water temperature site is up and running at Douglas City and is showing the partial day temperature to be 58.5°F.

Trinity River – Water Temperature Modeling

Reclamation has completed four model runs for Trinity River temperatures below Lewiston Reservoir, to be integrated to environmental compliance (EA) regarding lower Klamath supplemental flows for 2015. Meteorology for all runs = L3MPO 50% condition.

- Scenario #1 Hoopa Boatdance release, no power bypass
- Scenario #2 Hoopa Boatdance release + power bypass
- Scenario #3 Hoopa Boatdance release + lower Klamath supplementation, no power bypass
- Scenario #4 Hoopa Boatdance release + lower Klamath supplementation + power bypass

Oak Bottom Curtain Update – NCAO

It is expected that the Oak Bottom Curtain bid will be available in September, awarded in early November, and completed by May 1, 2016.

Action: Reclamation to look into providing a Trinity Reservoir isothermobath and will look into circulating an excel file as an example.

Action: Participants to contact Jim Smith (jim_smith@fws.gov) to receive information from the Juveniles Monitoring Program.

It was clarified that in Order 90-5, the average daily temperature at compliance could not exceed 58°F.

Action: Reclamation to consider including a sentence clarifying the average daily temperature at compliance discrepancy in the monitoring that goes to the SWRCB.

Participants were reminded that the annual science panel review report is to be drafted from July 1 to August 30. ***Next meeting***

The next meeting of the SRTTG is scheduled for July 30th at 1:00 p.m.

Sacramento River Temperature Task Group Meeting

July 23, 2015

1:00 pm

Conference Line: 877-718-6527

Pass code: 1954134

Agenda

1. Introductions
2. Fishery update
3. Operation update
 - a. Temperature Summary ***
 - b. TCD Config ***
 - c. Lake Shasta Isothermobaths ***
 - d. Shasta profile ***
4. Oak Bottom Curtain Update -- NCAO
5. Next meeting

***handout

Temperature and Release Summary for Shasta and Trinity - July 2015
 (Updated twice a week November through April)

Day	Sacramento River Water Temperatures in Degrees F Collected from CDEC (California Data Exchange Center) except for TCD, SPP and Control Point														Mean Daily Release in CFS			Mean Daily Air Temp Degrees F				
	TCD Wt. Avg.	SHD minus TCD (Diff)	Shd	SPP Wt. Avg	Kwk	Bsf	Jlf	Bnd	Rdb	Lws	Control Point 4/1	Ccr	Igo	Sac	Dgc	Shasta Generation El 815	Spring Crk Powerplant Release	Keswick Total Release	RDD	BSF	RDB	LWS
Jun	54.6		53.1	54.2	55.6	59.0	61.1	61.9	63.9	52.8	57.3	57.5	59.6		na	6,022	844	6,994	84.2	79.6	80.0	71.9
Jul																						
1	54.5	(2.6)	51.9	55.3	55.7	59.5	61.4	62.4	64.5	54.8	57.4	58.8	56.7	%	5,034	1,261	7,095	94.0	85.7	87.5	81.5	
2	54.7	(2.7)	52.0	55.4	55.9	59.6	61.6	62.5	64.7	55.3	57.6	59.0	57.0	%	5,391	1,542	7,105	92.5	85.8	86.2	84.0	
3	54.9	(2.6)	52.3	55.6	56.0	59.8	61.8	62.8	64.9	55.1	57.7	59.0	57.0	%	5,725	1,554	7,109	91.0	86.4	83.9	81.8	
4	54.4	(2.0)	52.4	55.9	55.9	59.9	61.9	62.9	65.0	54.9	57.8	59.4	57.0	%	6,337	821	7,109	91.0	85.1	85.0	79.9	
5	54.8	(2.0)	52.8	56.0	55.9	60.1	62.2	63.2	65.5	54.9	57.8	59.3	57.0	%	5,909	810	7,109	90.5	84.7	82.7	80.0	
6	55.2	(2.7)	52.5	56.3	56.2	59.7	61.6	62.5	64.6	54.8	57.9	59.2	57.2	%	5,945	1,172	7,110	85.5	80.0	78.0	76.1	
7	55.2	(2.7)	52.5	56.3	56.2	59.7	61.6	62.5	64.6	54.8	57.9	59.2	57.2	%	5,617	1,224	7,105	85.0	77.4	77.2	74.3	
8	53.6	(2.0)	51.6	56.4	56.3	59.7	61.5	62.2	64.0	54.8	57.9	59.0	57.2	%	5,863	490	7,107	83.5	75.0	74.5	70.6	
9	52.9	(1.7)	51.2	56.3	55.4	59.0	60.4	61.2	62.7	53.6	57.1	57.7	56.3	%	5,457	973	7,073	73.5	70.2	69.2	64.5	
10	54.0	(1.9)	52.1	56.6	54.2	58.4	60.1	60.9	62.6	54.2	56.1	58.5	55.3	%	5,768	968	7,065	76.0	71.6	69.7	67.8	
11	54.4	(1.6)	52.8	56.6	54.4	57.7	59.5	60.4	62.6	53.9	55.9	58.8	55.5	%	6,037	956	7,059	78.5	74.2	73.3	69.3	
12	54.0	(1.3)	52.7	56.8	55.1	58.1	60.0	60.8	62.5	53.7	56.5	58.4	55.9	%	6,229	849	7,116	79.0	75.8	75.0	68.5	
13	54.3	(1.6)	52.7	57.0	55.1	58.2	60.0	60.6	62.5	54.0	56.8	58.9	56.2	%	5,849	1,168	7,106	81.0	76.2	77.4	70.1	
14	54.7	(1.8)	52.9	57.0	55.5	58.6	60.6	61.3	63.1	54.7	57.2	59.4	56.6	%	6,111	1,168	7,097	83.5	78.1	77.3	72.4	
15	53.5	(1.5)	52.0	57.1	55.9	59.0	61.2	62.0	63.9	55.1	57.5	59.5	57.0	%	5,731	1,243	7,027	85.5	80.7	80.6	74.4	
16	53.4	(1.8)	51.6	57.2	55.8	59.5	61.8	62.7	64.7	55.2	57.9	59.5	57.1	%	5,693	1,077	7,021	88.0	83.7	84.0	76.8	
17	53.6	(1.8)	51.8	57.3	55.1	59.4	61.7	62.8	65.2	55.0	57.2	59.7	56.5	%	5,749	902	6,999	90.5	84.0	83.8	78.5	
18	53.9	(2.1)	51.8	57.4	55.1	59.1	61.2	62.2	64.6	54.9	56.8	59.6	56.2	%	5,895	1,038	6,980	88.0	81.2	80.1	76.4	
19	53.3	(1.8)	51.5	57.6	55.2	58.7	60.8	61.7	63.9	54.9	56.9	59.4	56.3	%	5,001	1,127	6,984	84.0	80.5	79.8	74.7	
20	53.9	(1.9)	52.0	57.6	55.4	59.1	61.2	62.1	64.2	54.9	57.2	59.8	56.6	%	5,965	1,222	6,938	91.0	84.6	84.8	76.9	
21	53.1	(1.5)	51.6	57.8	55.0	59.2	61.5	62.5	64.8	55.0	57.0	59.9	56.3	%	4,840	786	6,953	89.5	85.0	84.1	76.2	
22		0.0																				
23		0.0																				
24		0.0																				
25		0.0																				
26		0.0																				
27		0.0																				
28		0.0																				
29		0.0																				
30		0.0																				
Avg	54.1		52.1	56.6	55.5	59.2	61.1	62.0	64.1	54.7	57.2	59.1			5,721	1,064	7,060	85.8	79.0	79.7	75.0	
Tot cfs															120,146	22,351	148,267					
Tot af															238,310	44,333	294,088					

? = Average includes 1-9 estimated hourly readings
 # = Station out of service

! = No Average (10-17 hours missing)
 ND = No hourly readings or incorrect

& = No Average (18 to 23 hours missing)
 % = Data will be down loaded from site at later date by NCAO staff.

When available:
 ^ = Redding Air Temp Record High
 * = Redding Air Temp Record Low

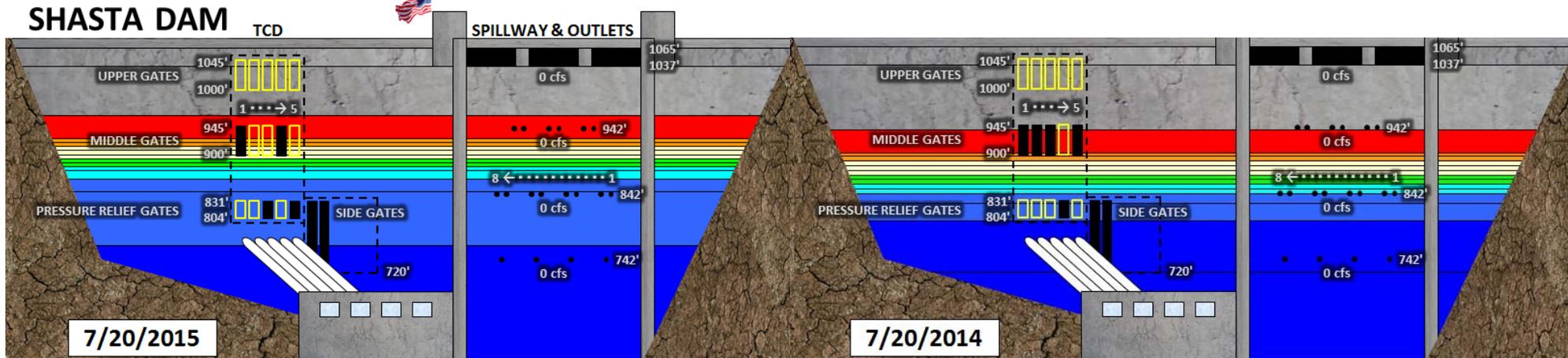
Control Point: Clear Creek 4/1/2015 to 4/17/2015 at 56.0 degrees; 4/18/2015 to 5/14/2015 at 58.0 degrees; 5/15/2015 to 6/4/2015 56.0; 6/5/2015 to present 58.0 degrees.

PRELIMINARY

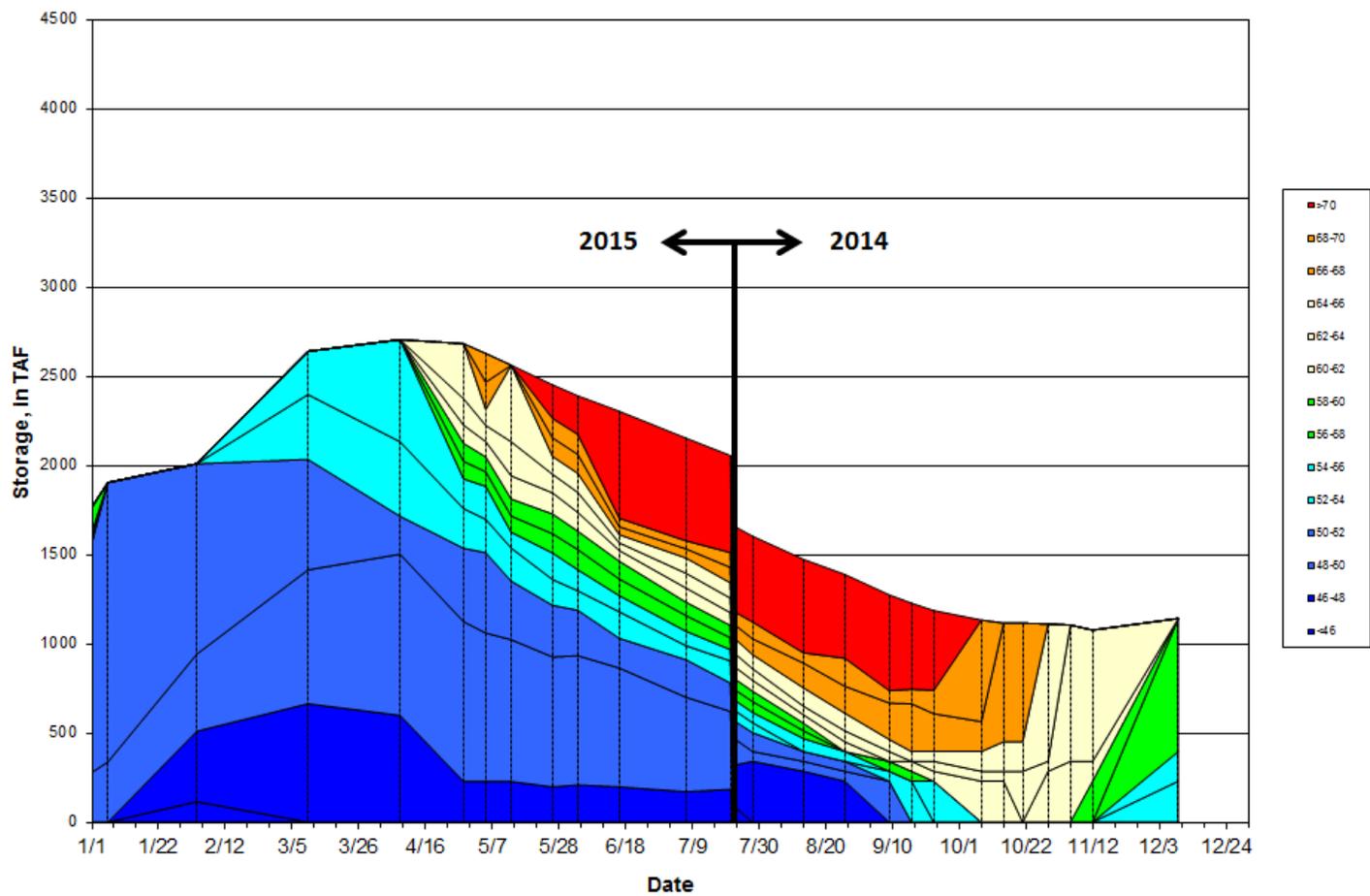
SHASTA DAM

TCD

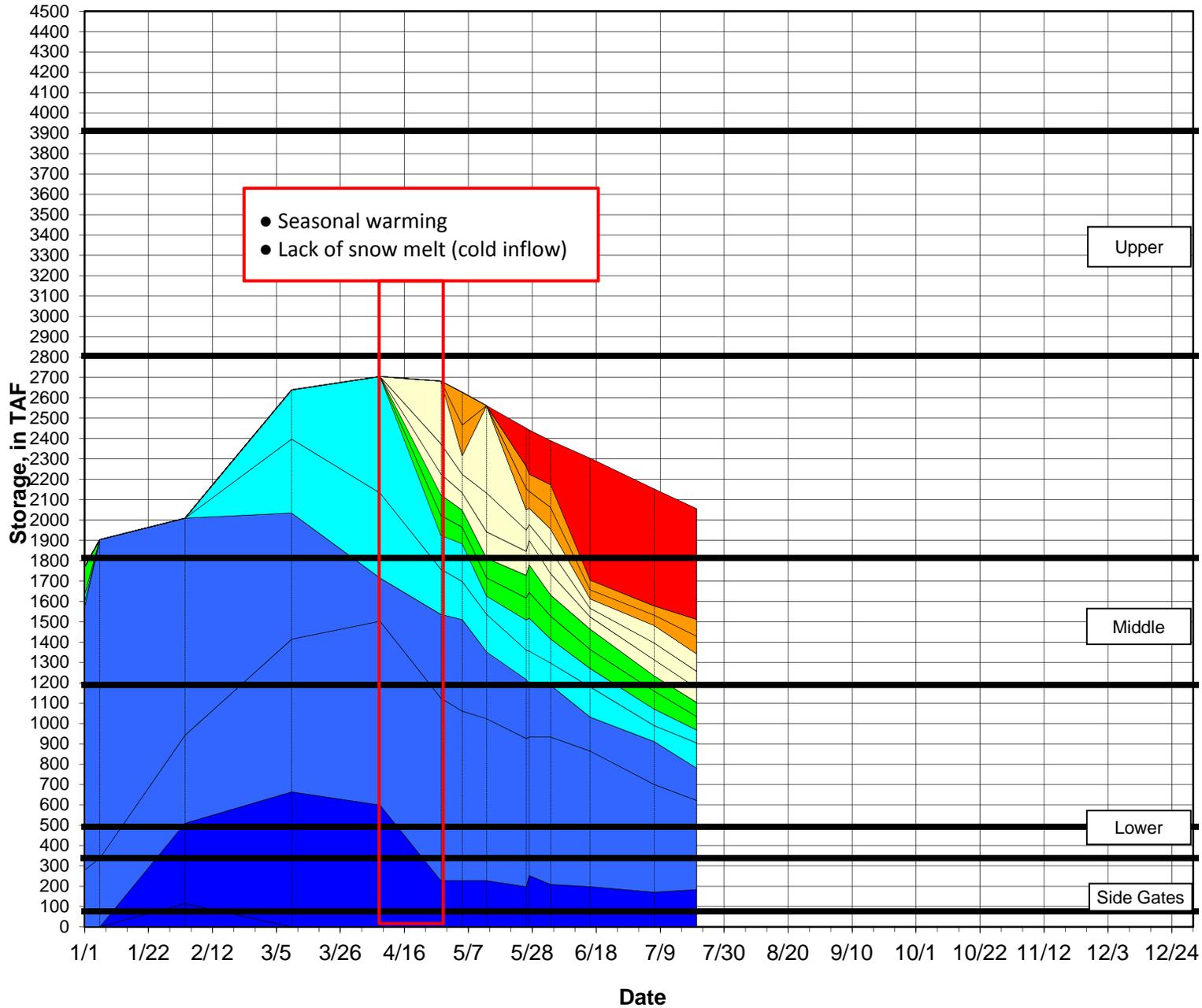
SPILLWAY & OUTLETS



Lake Shasta Isothermobaths
(Water Temperature, in ° F)



Lake Shasta Isothermobaths - 2015 (Water Temperature, in ° F)



● Seasonal warming
 ● Lack of snow melt (cold inflow)

Upper

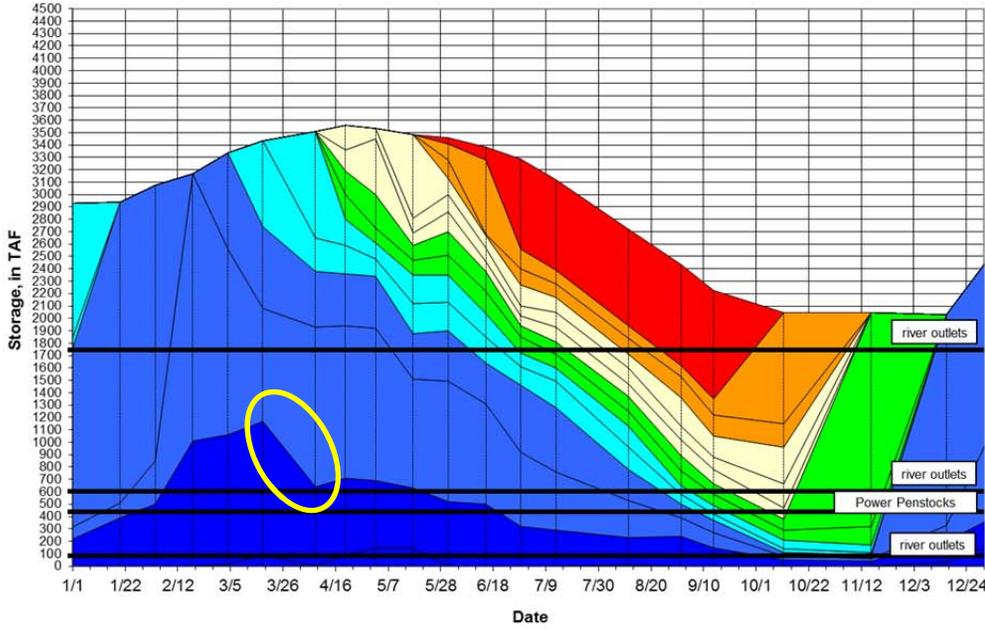
Middle

Lower

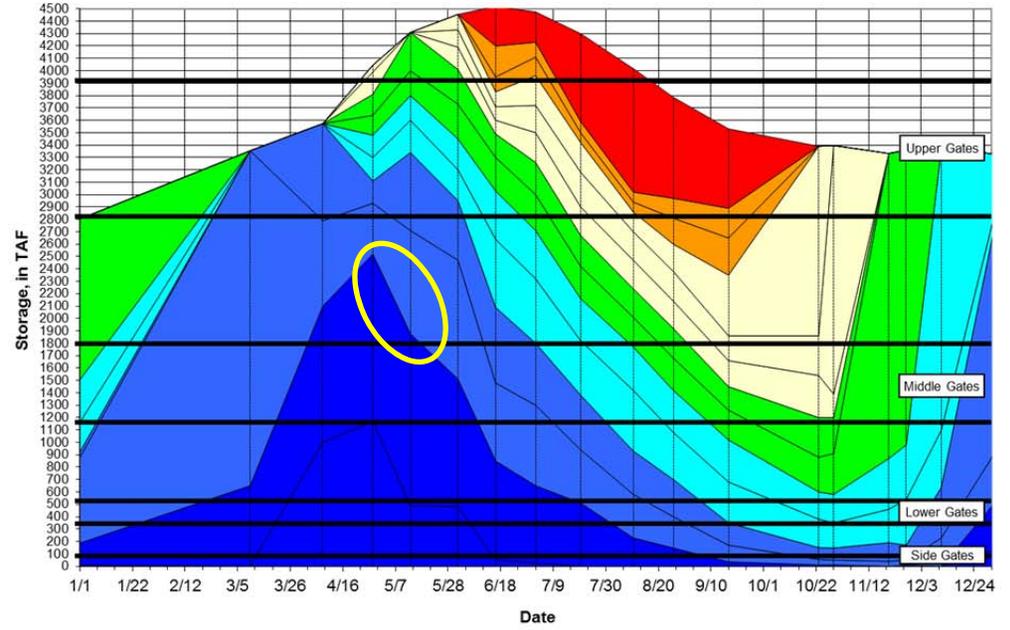
Side Gates

- >70
- 68-70
- 66-68
- 64-66
- 62-64
- 60-62
- 58-60
- 56-58
- 54-56
- 52-54
- 50-52
- 48-50
- 46-48
- <46

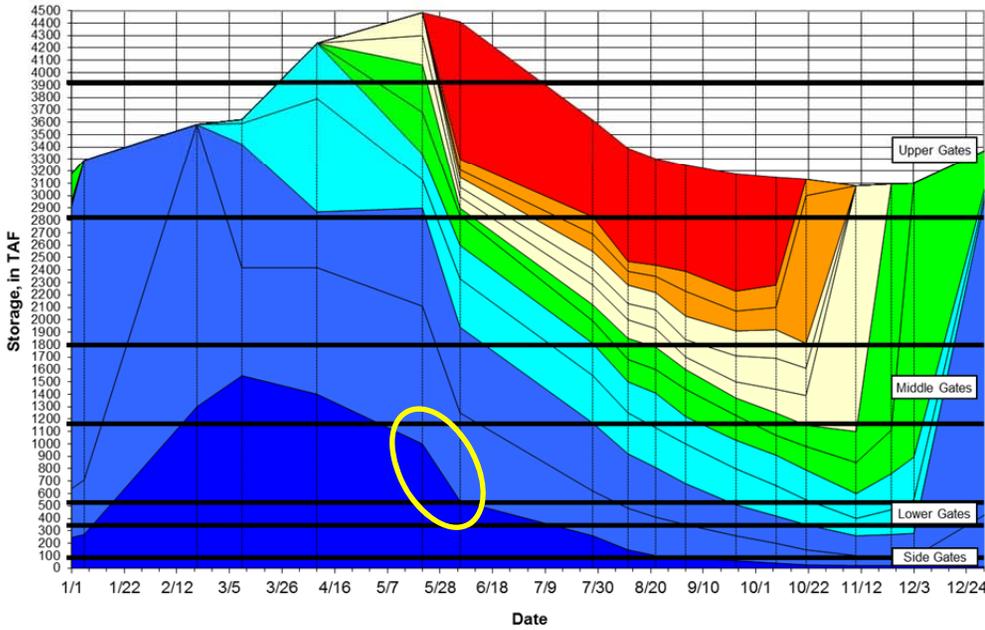
Lake Shasta Isothermobaths - 1994
(Water Temperature, in ° F)



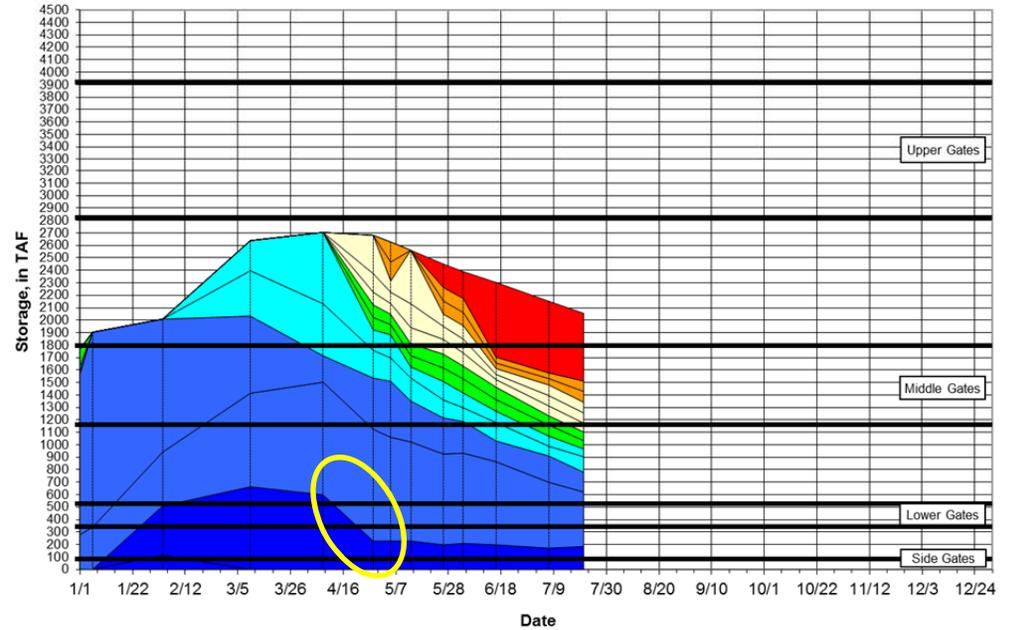
Lake Shasta Isothermobaths - 1998
(Water Temperature, in ° F)



Lake Shasta Isothermobaths - 2003
(Water Temperature, in ° F)



Lake Shasta Isothermobaths - 2015
(Water Temperature, in ° F)



**Department of the Interior
Bureau of Reclamation
NCAO**

Shasta Lake Profile

Date: 7/21/2015 Time: 10:30 Observer: Gotham & Martin
 Precipitation Last 48 Hours: 0 Weather: clear & calm
 Thermometer ID: YSI 6600A Air Temperature (Degrees F): 90 Storet Code: SH21

Lake Surface Elevation: 960.59

All Elevations in M.S.L.
(Mean Sea Level)

**Temperature
400 Feet Upstream
of Dam**

**Turbidity
400 Feet Upstream
of Dam**

	Surface: <u>81.4</u>	Surface: <u>0.5</u>
	Elevation 1050': _____	Elevation 1050': _____
	1025': _____	1025': _____
	1000': _____	1000': _____
	975': _____	975': _____
	950': <u>81.0</u>	950': <u>0.6</u>
	925': <u>69.4</u>	925': <u>0.6</u>
	900': <u>61.8</u>	900': <u>0.5</u>
	875': <u>53.6</u>	875': <u>0.6</u>
	850': <u>50.2</u>	850': <u>1.0</u>
	825': <u>49.3</u>	825': <u>1.8</u>
	800': <u>48.6</u>	800': <u>2.2</u>
Spillway Outlet (Elevation = 942)':	<u>0</u>	775': <u>2.3</u>
Spillway Outlet (Elevation = 842)':	<u>0</u>	750': <u>2.3</u>
Spillway Outlet (Elevation = 742)':	<u>0</u>	725': <u>2.3</u>
Power (Elevation = 815)':	<u>5172</u>	700': <u>2.2</u>
Tailbay Water Surface Elevation:	<u>582.04</u>	675': <u>2.4</u>
Tailbay Water Temperature:	<u>51</u>	650': <u>2.7</u>
Tailbay Water Turbidity:	<u>2.4</u>	625': <u>2.9</u>

Remarks: Secchi = 19'. TCD: upper -clsd mid - 1 & 4 clsd lower - 3 & 5 clsd side - clsd