

Sacramento River Temperature Task Group

Special Meeting on 6/28/12

Objective: Provide advice to the Water Operations Management Team (WOMT) and National Marine Fisheries Service (NMFS) on measures to assist with improving and stabilizing Chinook population in the Sacramento River. Annually, Reclamation develops temperature operation plans for the Shasta and Trinity divisions of the CVP. These plans consider impacts on winter-run and other races of Chinook salmon, and associated project operations. SRTTG meets to discuss biological, hydrologic, and operational information, objectives, and alternative operations plans for temperature control. Once SRTTG has recommended an operation plan for temperature control, Reclamation then submits a report to the SWRCB. After implementation of the operation plan, the SRTTG may perform additional studies and commonly holds meetings as needed typically monthly through summer and into fall to develop revisions based on updated biological data, reservoir temperature profiles and operations data.

Attendees:

FWS: Craig Anderson, Matt Brown, Jim Smith

DFG: Patricia Bratcher, Mike Berry

Reclamation: Thuy Washburn, Tracy Vermeyen, Liz Kiteck, Rod Wittler

SWRCB: Kari Kyler

NOAA: Bruce Oppenheim, Garwin Yip, Seth Naman

WAPA: Tom Patton

FWD: not present

Hoopa: Shawn Ledwin

Note Taker: Barbara Rocco, Independent Contractor

Agenda:

1. Introductions
2. Fishery update
3. Hydrology & operations update
 - a. daily CVP water supply report ***
 - b. reservoir conditions***
4. Discussion of recent temperature model runs
 - a. may not be available
5. Temperature review from April
 - a. April-to-June monthly temperature report***
 - b. Review of daily temperatures not met***
6. Update on Matt Brown's proposal:
Action item: Update on the oak bottom TCC (Thuy or NCAO); pictures & update***
7. Additional agenda items proposed from last meeting
 - a. NMFS temp model: Oppenheim will put a small group together and assess the model
 - b. Update on contracts that Garcia is working on for the water modeler for Sacramento River. Updates from Garcia***

***Handouts

Introduction:

The meeting began at 1:00 p.m. and roll call was taken.

Fisheries updates:

There has been a good increase in the number of salmon redds in the river since our last meeting. We've seen 101 winter-run redds as of 6/21; they have not peaked yet and will spawn into July and August. There were only 18 counted for the entire year in 2011; however, the counts are still well below counts for 2008–2010. This year might be considered “poor” but not “extremely poor.” Mark-recapture carcass surveys are being done and those numbers have also increased and are better than last year. This year, there were 96 fish observed compared to last year at 32 fish. Last year's run was significantly late; we don't know whether this year's run is late. It's too early to tell what the numbers are in terms of total count but we're guessing that it will be larger than last year at this point.

The distribution on redds is as follows: most (72%) are spawning above the ACID dam to Keswick and there has been one seen between Airport Road and Balls Ferry bridge. None have been seen below Balls Ferry at this point. Within the last week, the ratio of wild to hatchery fish has shifted from 68% to 37% hatchery fish. The farthest downstream redd (one) was found in the Balls Ferry to Battle Creek section.

CVP Daily Ops (see handouts):

Washburn reported on the CVP daily operations, which are included in the attached handouts. Reservoirs are in good shape. Trinity is at 91% of capacity, Shasta is at 87%, Folsom is at 86%, etc. (see handout “Reservoir Conditions”), and most are near or above historical averages.

Temperature Model:

The current temperature profile was from Tuesday, 6/26, for Shasta. Multiple runs were not done. One run was done with Jellys Ferry as the target and this is still consistent with the May analysis. The only difference in operations between May and June was the initial conditions of storage. Releases of 14,500 cfs were held at Keswick through July. Operations look pretty much the same as those of the May forecast. We are still on track for the Jellys Ferry target for this year and conditions remain good maintaining Jellys Ferry through the season.

Daily Temps not met:

March: There were no unmet temperatures in March. From 4/20 through 4/23, temperature compliance was not met. Actions were taken to meet temperatures by increasing flows. During that time period, there was a 17-degree fluctuation in air temperature; therefore, it was difficult to get the temperatures back in compliance. It was pointed out that the reports for 6/1 and 6/2 list Jellys Ferry as the compliance point; it should be Bend Bridge.

On 5/7 and 5/8, we were out of compliance with 56.5 and 56.6°F at Balls Ferry. A letter has been written to the State Board about this. It might be important to the State Board whether it's a 2-day or 4-day exceedance. The letter to the State Board was written for the April, May, and June exceedances. There is a separate letter sent to the State Board each time the temperature

compliance point is exceeded for 3 days or 1 day over 56.5°C It is difficult to meet a temperature compliance point the day it changes when it moves downstream. On 6/30, Reclamation opened the middle gate (#4).

The SRTTG was under the impression that it was not a Jellys Ferry compliance point. We were operating under our previous meeting's information, where it was recommended that the compliance point be continued at Bend Bridge.

We were taking action to meet Jellys Ferry/Bend Bridge so if we were targeting Bend Bridge, Washburn did not know whether Reclamation would make any further adjustments. Washburn doesn't think it matters where the compliance point is at this point; however, in terms of process when SRTTG members are attempting to track what's going on in the river, it does matter. Concern was expressed that it would be prudent to let the team know in advance of any changes. Reclamation's unilateral change of the temperature compliance point upstream. This kind of action has not happened in the past; this is new to us.

It was requested that the notes reflect that Reclamation's decision was contrary to the SRTTG's recommendation. SRTTG's assumption was that the change in the compliance point was not going to be made immediately; Reclamation's assumption was that it would make the change on 6/1. Reclamation admitted that it did not get the word from management to alert SRTTG to the immediate change.

Update on the "Avoiding Full Power Peaking" proposal:

The only update item to the proposal was to the information on the Oak Bottom curtain. Pictures of the curtain are included in today's packet of information. Matt spoke with people at the Northern California Area Office of Reclamation about the status of the curtain. They described the curtain as being in "crappy" shape, but no other information was provided. Currently, only 90% of curtain is submerged. Some areas have holes above and below the water. The damages to this curtain are different from those to the Spring Creek curtain, which were from the top to the bottom. In this case, the damage is probably functionally insignificant; however it is important to note that much of the curtain is not deployed across the channel and that the last section is probably not fully functioning. Some part of the curtain deployed on the northern side are actually submerged; on the southern side, the curtain has been pulled back and not in the channel. The length seems to cover only 1/3 of the lake; it should go all the way across the lake with an opening to allow boats to pass through (16 ft. wide and 6 ft. deep). Curtains are designed so that cold water from the reservoir goes to the bottom. We need to have a dive team document the conditions so that we can figure out the correct fix for the curtain.

Funding is not available for this; other projects take priority at this point. Reclamation is attempting to get the curtain issue moved up on the priority list. If there is a need to dive, can we fund out of some other source of funding or is this what Reclamation does? Reclamation's recommendation is to find funding for the dive and fix the curtain. If a funding source is found, possibly from the fisheries agencies, Reclamation can do the dive. At Red Bluff, a local contractor was used to provide divers. Reclamation has a Denver dive team but the team out of Boise usually works in that area. Sometimes, we can only do the inspections and not the repairs.

Are we looking for work or just an inspection? For now, we would want just an inspection. For the local contract, it was several thousand dollars/day for each diver. We don't know what the Denver team charges. If a report on findings is included, it would be in the \$5,000 range.

Washburn suggested a budget of about \$150,000 for the dive and some minor work according to the Reclamation office but that is questionable. This should be only a 1-day project to inspect the curtain; however, it might be more complicated given that it is partially folded over on itself. Even so, \$150,000 sounds really high. It was noted that that price included some maintenance work. In any case, we need to figure out the issues and costs before moving forward. The fisheries agencies should find a funding source. Walt Heyder from Reclamation's Denver office was suggested as a contact person.

Brown was asked to contact sources for help.

If we assume that replacing the curtain is a priority, what's the process and can anyone in this group do anything to help? Washburn didn't know the answer but encouraged anyone to contact the Northern California Area Office and express how important this is or write a letter to them with concerns. It was noted that a letter would be a good idea to get Reclamation to consider moving this up on the priority list. Each office has to justify why they think it should be where it is on the list. Letters would be helpful to them. Items are ranked according to severity. Usually, infrastructure and safety of dams comes first.

Power peaking

This issue went to the WOMT meeting this week; WOMT agreed that NMFS (Garwin) and Reclamation (Ron Milligan) should discuss further. To clarify a technical question: Is there still a temperature benefit of avoiding full power peaking given that the curtain not working? Would there be a benefit of avoiding full power peaking this year?

Vermeyen (Reclamation): There would still be a benefit at Lewiston based on limited information that I have regarding the condition of the Lewiston curtain. If it's in good condition, it should perform as it did back in 1993/94. Similar performance should be expected.

Washburn: Reclamation looked at 1994 vs. 2012 operations. Trinity in 1994 was at 1,685 TAF vs. 2,212 TAF this year. At the end of September, it was 1,216 TAF vs 1,838 TAF. We're looking at 2012 releases through Trinity with that high of a volume each month; we won't have much of an opportunity to power peak. At WOMT, we discussed that we believe this year's power peaking might be a moot point because with so much water, we might not be peaking.

It was noted that we're talking about "full" power peaking, which is different from power peaking. With full power peaking, you interrupt the flow completely for a period of time each day so that there's no flow. This is unlikely. The generators are out for maintenance and only one unit at Carr and one at Spring Creek are working this summer.

Russ' modeling shows us barely going over 50°F out of Lewiston in late July/early August and that's our rule of thumb for meeting downriver temperature criteria. We're less than 51°F today

at Douglas City and on Sunday the compliance point will be 60°F. We've had a cool spring so far; temperature conditions don't show anything out of the historical norm.

Wittler (Reclamation): As reported at our last meeting, there is a temperature logger at Trinity power plant. They will pull that next week. It should have all of the April through June data on it. There are data from that logger from past years as well. Reclamation will send this information to Naman; we can discuss this after the meeting.

Reclamation wants to evaluate flows. Matt Brown suggests to deploy temperature strings similar to what Reclamation did 20 years ago and put them up and downstream of the Oak Bottom curtain in areas curtained and not curtained. A curtain up- and downstream of the Lewiston curtain would make sense. We could also get an acoustic profiler to measure velocities in transects up- and downstream of the curtains to see where the water is flowing and how the curtain is functioning.

We're also thinking about a GPS unit on the curtain itself. The curtain moves during flows and relaxes when there are no flows. We can pick up the movements with a GPS movement. We also need to know the temperatures at a number of locations: Trinity outflow, Lewiston outflow, Spring Creek outflow. It would be nice if Trinity data were reported in real time—like a remote sensor.

It was noted that Lewiston outflow and Spring Creek temperature data are available on CDEC each day. Trinity would be pretty boring data; doesn't vary much day to day because of the huge thermal inertia; however, there could be years when the data would be interesting. There was a question about Carr data on CDEC as well and it was noted that Mortimeyer (Reclamation) was going to check on whether there was a data logger there. If we're doing profile transects under different conditions, we need to know whether the power plant operations are full or only partially running. Shasta logs that data and submits it to the hydraulic database. We also do have hourly flow Carr data, but that mean daily flows don't tell us whether there are two generators on half the time, one on full time, etc. We sample outflows for water chemistry and should ask the operators what the conditions are for the day. It is time consuming to have to always check that; we need to know the conditions and when to deploy the boats, etc. It appears that we can get the hourly flow data but would need to go elsewhere to get the hourly temperature data. Mortimeyer has talked to the controllers and requested hourly temperature recordings from the penstock. We don't know the status on that at this point; however, when available, we would begin recording that information and keeping it in our database.

Mortimeyer will provide an update to the group on the status.

Another aspect is trying to replicate the power-peaking studies done in the '90s. There were about 12 to 14 days in each mode (partial power, full power). If we avoid full power peaking from 7/15 to some date in August, it could be used as a baseline condition for either partial or full peaking. In some water years, it might be greater or lesser.

Several questions were considered: In terms of operations, how low can we go in flows and still get that temperature benefit? Can you do partial power peaking and still maintain a temperature

benefit? At some point in August, can you decrease the minimum flow stepwise for the day and monitor the temperatures to see at what flows mixing begins to occur? How much water do you need to put through to maintain a temperature benefit?

Washburn: From August operations from the amount of water we're bringing through, we're not able to do that. For Trinity, we'll be full. Carr will be 96,000 af in August, which is basically one unit. We'll have two Carr units available but Spring Creek will have only one unit. When Carr power house comes back on, that could leave Spring Creek outlet the same and double the amount putting through Carr for half the day.

There was a concern about how this would affect water elevation at Whiskeytown. On a daily basis, you'd pass the same amount of water. Imagining that, for part of the day, you'd have both power plants on and offline. Spring Creek would be operated all day. There would most likely be a change to the Whiskeytown elevation and this would most likely not fit into Reclamation's criteria. Washburn will check on whether there is some "wobble room" throughout the day where these operations would be doable without an impact on Whiskeytown. It all depends on what water is available and what Reclamation decides to do in terms of operations. There's less variability with one unit so things aren't jumping all over; this is a good opportunity to get some data for at least a baseline condition and when the curtain should work most efficiently. We might not have another chance to do this.

Is there closure on the proposal to limit full power peaking—is the group sending this to WOMT?

The impression is that it is with WOMT and the Sacramento River Temperature Task Group is waiting for decisions. It sounds as though Reclamation is saying that avoiding full power peaking is going to occur this summer. Washburn confirmed that this appears to be true. In that case, would the proposal suggest a way to full power peak?

According to Brown, Reclamation believes that there is a lot to be learned from a year like this that might not come very often. This proposal stands but maybe not for implementation this year. Reclamation may or may not choose to operate that way. When the other power plant comes back on line, there may be some opportunity later.

Washburn: We may be able to get another unit at Carr the first of August but it's going back out again in September if we get the second one back on. It's uncertain right now. The point is that this summer, we'll have only one unit and won't be able to peak in any case. The group can consider the proposal, but it appears to be a moot issue at this point. The question is whether Reclamation can do this in the future; we should have those discussions because we want to do power peaking in summer. The policy question is still a valid issue.

Brown: Regardless, we want to evaluate the conditions to see how the existing curtains are working. We will deploy temperature loggers up- and downstream of the curtains.

NMFS temperature modeling:

Oppenheim (NMFS) was to put a small group together to assess the NMFS temperature model. Only Oppenheim and Lee are working on the model at the NMFS office; not much has been done so far. Oppenheim (NMFS) provided information to the group and the latest link to the temperature model. Questions should be directed to Lee at NMFS (li-ming.he@noaa.gov). The objective from NMFS' standpoint would be that Reclamation operators would have this model available and in our mind, it is available. Washburn confirmed that Reclamation does have it and Yaworsky (Reclamation) has run it more than a handful of times. Reclamation has been looking at both NMFS and Reclamation's models to see which is tracking closer. It depends on the accuracy of the high and low weather forecasts. NOAA updates the weather model every hour for the most part.

Contracts for water modeler for the Sacramento River:

Brown had asked about some modeling for Clear Creek and Donna Garcia (Reclamation) is working on it. Garcia provided an update to Washburn. Washburn will pass the information on to the group. Funding is available for working on the Sacramento and American rivers; no funding is available for modeling at Clear Creek.

What is the management process for this? Yip will coordinate with Garcia on this.

This is something Oppenheim wanted to include in the annual review last year but it wasn't ready. We were recommending an integrated model but had to understand the complexity to get it to work. This temperature management information is a report and not a model. We don't know of any "model" being worked on.

NMFS pointed out that the BiOp RPA actions call for water temperature modeling on Clear Creek and that this should have happened in the first year. This is the third year and this hasn't been addressed yet and we don't know why.

Washburn: It comes down to funding and we don't have the funding.

Oppenheim: Regarding modeling and Whiskeytown, there's a proposal from the Trinity River Council to increase flows out of Trinity this fall. The proposal would be to release more water this year on the Trinity to avoid temperature impacts on the Klamath River because fall-run Chinook are expected to be high in the Klamath Basin this year and there is an expected loss of fish. The releases would be from August 15 to September 23. August 15 would be an additional 200–300 cfs; end of September would be an additional 600 cfs. If there's an emergency because of imminent fish kill, additional flows would be necessary. How will that affect temperatures in Clear Creek and the Sacramento River if that happens?

The proposal is with Reclamation now; they are considering it. Wittler explained that the proposal is to send Trinity water down in late August/early September to ameliorate low flows because of dry conditions in the basin. The water would come out of Trinity Reservoir to reach the Klamath during that time. The idea is to maintain minimum flows at the Klamath estuary of 3,200 cfs; natural flows would be augmented to get up to 3,200 cfs so that volumes fluctuate on daily basis as forecast flows are updated. There could be 48,000 af instead of 38,000 af but that has not yet been built into the forecast.

NMFS noted that if we know far enough ahead of time, can we figure out whether there is an impact on the Sacramento River and Clear Creek temperatures. There would be a positive impact on residence time in Lewiston and water entering Whiskeytown would be cooler.

It was agreed that this information would be a good topic for the SRTTG next call.

Next meeting: Conference call on 7/26/12 at 2:00 p.m.

Adjourn: The meeting was adjourned at 2:29 p.m.