

Sacramento River Temperature Task Group (SRTTG) Meeting
September 24, 2020 | 1:00 – 3:00 PM
Meeting Summary

Participants

Allison Febbo, Reclamation	Lee Bergfield, MBK/SRSC
Charlie Chamberlain, USFWS	Liz Kiteck, Reclamation
Chris Laskodi, Yurok Tribe	Matt Brown, USFWS
Craig Williams, SWRCB	Matt Johnson, CDFW
Diane Riddle, SWRCB	Michael Macon, SWRCB
Duane Linander, CDFW	Mike Harris, CDFW
Elissa Buttermore, Reclamation	Mike Prowatzke, WAPA
Erica Meyers, CDFW	Mike Wright, Reclamation
Garwin Yip, NMFS	Miles Daniels, NMFS
George Kautsky, Hoopa Tribe	Randi Field, Reclamation
James Gilbert, NMFS	Sheena Holley, CDFW
Jim Earley, USFWS	Stephen Maurano, NMFS
Jo Anna Beck, Reclamation	Taylor Libscomb, USFWS
Jonathan Williams, CDFW	Thad Bettner, Glenn Colusa Irrigation District/SRSC
Josh Israel, Reclamation	
Julie Leimbach, Kearns & West	
Kristin White, Reclamation	
Lauren McNabb, CDFW	

**Key Discussion Topics with
Summary of Outcomes and Agreements**

Action items

1. Josh Israel, Reclamation – Contact Cindy re: adding SWRCB to the outreach regarding the drought toolkit.
2. Randi Field, Reclamation – Clear Creek temperatures at IGO: Due to vandalism, operations needs more HOBO data and will plan a follow up meeting with the Clear Creek Tech Team if temperatures exceed the threshold. If there is trouble getting the HOBO temperature tomorrow, Randi will reach out to Matt Brown and Jim Earley and Charlie Chamberlain, FWS.

1. Introductions

Randi thanked everyone for everyone's collaborative efforts. We have all come a long way.

2. Purpose and Objectives

The objective and purpose of this meeting is to focus on the Sacramento River temperature management.

3. Prior Action Items

Julie Leimbach, Kearns & West, and Randi reviewed Prior Action Items and status:

1. Eric Danner, SFWSC will work with Randi to provide a table of temperature and temperature dependent mortality models and their assumptions for presentation next weekly SRTTG meeting. – *Complete*.
2. Randi Field – Agendize the topic of potential modifications of operations for potential extension of 54 degrees F for weekly discussion topics through Sept. 21 – *Complete*.

4. Communications

Randi reviewed the following communications:

- August 31 – SWRCB letter request for information for protocols for water temperature management

5. Long Term Operations Implementation – Update

Randi solicited updates from others on LTO implementation updates.

- There are a lot of real-time operations going on in the SRTTG, American River Group
- Starting to schedule discussions regarding the drought toolkit. An email went out today to Agencies participating in the LTO coordination group. SRTTG members will be contacted
 - SWRCB requested to be part of the discussion about the drought toolkit. The Board is not currently part of the LTO coordination group.
 - Josh Israel said he would contact Cindy, who is coordinating that outreach, to include the SWRCB.

6. River Fish Monitoring: carcass surveys, redd counts, stranding and dewatering surveys and sampling at rotary screw traps

Matt Johnson, CDFW reported the following:

- Carcass surveys – Joint CDFW / USFWS winter-run Chinook salmon survey ended on Sept. 9. CDFW will continue with limited weekly surveys. This week, they encountered

13 fresh fish and took tissue samples. None of the fish were coded wire-tagged fish. Right now, CDFW doesn't have funding to genetically identify the fish. In past years, the carcasses found at this time of year have been identified as a mix of winter-, spring-, and fall-run Chinook salmon. CDFW has the tissues archived in case anyone wants to fund the lab work for genetic identification.

- Aerial redd survey – Trying to get a flight scheduled for next week.
- Shallow redds – CDFW identified new redds from Sept. spawners. 11 shallow redds in 24 inches of water or less have been marked.
- Dewatered redds – Currently, there are 20-21 dewatered winter-run Chinook salmon redds at 6,800 cfs. (This is an estimate because Matt is currently traveling and the numbers are not in front of him.)
- Stranding surveys – A report on the stranding surveys was not available.

7. Fish Distribution/Forecasts: Estimated percentage of the population upstream of Red Bluff Diversion Dam for steelhead, winter-run and spring-run Chinook salmon, steelhead update and Livingston Stone National Fish Hatchery.

Jim Earley and Charlie Chamberlain provided the following updates:

- Red Bluff Diversion Dam (RBDD) – The last bi-weekly report on rotary screwtraps through Tues. Sept. 22, included 481,607 winter-run Chinook salmon, representing 35.3% of winter-run Chinook salmon that have passed RBDD.
- Livingston Stone National Fish Hatchery – Concluded trapping at Keswick on June 23. 80 females, 111 males, 9 of which were jacks. 347,000 eyed eggs resulting from fish collected at Keswick fish trap.
- Battle Creek fish are returning as a result of first stocking from Coleman Fish Hatchery 3 years ago. 33 females, 150,000 eyed eggs.
- Fall-, late-fall-, and winter-run Chinook salmon are all experiencing thiamine deficiency as a result of adults eating a lot more anchovies than usual in the ocean. Thiamine is critical for young developing fry. The thiamine deficiency has resulted in higher mortality and lethargy prior to mortality. Increased temperatures can increase thiamine deficiency complex. These issues in the Livingston Stone National Fish Hatchery are probably reflective of the same issues in the wild.
 - Taylor clarified he is referring to thiamine deficiency in the fry that are in the hatchery right now. It is unclear whether the returning fall-run Chinook salmon for this year will be thiamine deficient. There is a joint effort between NMFS, USFWS, and other groups to monitor and study this issue.
- Steelhead – No comments at this time on steelhead.

8. Recommendations: Agencies provide feedback and information to Reclamation regarding fish monitoring/operations.

Elissa Buttermore solicited feedback and input from agencies on fish monitoring and operations on the Sacramento River. The group asked some clarifying questions about what Reclamation was looking for in terms of recommendations. Reclamation clarified that they are looking for any comments and feedback on the current fish monitoring and operations for their current operation.

- SWRCB – Since we discuss redd dewatering in the Upper Sacramento Scheduling Team (USST) meetings, we won't address that topic here. Nothing further to add at this time.
- NMFS – As flows are dropped, recommend monitoring incrementally.
- USFWS – Nothing additional. There are other meetings covering this topic.
- CDFW – No additional comments at this time.
- Hoopa Valley Tribe – No comments at this time.
- Yurok Tribe – No comments at this time.
- Sacramento River Settlement Contractors – No comments at this time.
- WAPA – No comments at this time.
- Reclamation – Appreciate NMFS recommendations to monitor incremental changes as impacted by flow changes. These are being discussed in other meetings.

9. Hydrology Update

Randi reviewed hydrology information in the packet including current precipitation, Daily CVP Water Supply Report, Upper Sacramento River Summary Conditions, and the CVP Northern System Operations Outlook (see SRTTG packet).

- This water year has been very close to a Shasta Critical Year.
- Reclamation put in an order to reduce Keswick flows last week to 6,600 cfs but due to mechanical difficulties, Reclamation held flows at 6,800 cfs. They reissued order to hold at 6,800 cfs for this week.
- Observed September inflow is tracking with 90% exceedance.
- Active draw on cold water pool for temperature management
 - 2 PRGs are open and two side gates are open
- 8-14 days weather forecast predicts triple digits in Redding region.
- NEW – Reclamation's on-line Sac Temp Report is updated and now includes the lake isothermobath plots, cold water pool volumes, percent exceedances, and year-by-year comparisons for Shasta, Trinity, and Whiskeytown. These will no longer be distributed weekly, please check the weblink provided on the summary handout "Resources".
- CVP Northern System Operation Outlook
 - Forecasted Shasta volumes are based on historical data
 - Must wait for Dec. or Jan. for updates from DWR that have greater confidence for forecasted Shasta volumes for next year.
 - No changes for Trinity River Division.

10. Operations Update and Forecasts

Randi presented the operations update and forecasts.

- Reclamation plans to increase the temperature target at the CCR gage, per the Temperature Management Plan, but are waiting for the end of the heat wave to re-evaluate TCD configuration for meeting temperature targets at CCR and desired temperatures downstream.
- This summer air temperatures have jumped between extremes which has presented some challenges for in-river temperature management.
- NEW – Cold Water Pool Statistics with Isothermobaths in SRTTG packet for Trinity and Whiskeytown.
- Isothermobaths – well-defined strata in Shasta Reservoir
- Shasta TCD Configuration (p.45)
 - Deployed curtain on TCD at the middle gates, which successfully isolated warmer water that had been getting into the TCD at higher elevation
- Challenges that could disturb the current stratification of Shasta Reservoir:
 - Lower storage conditions
 - Wind events can break apart the thermal strata
 - Cold snaps in the weather also destratify the reservoir. The upper layers cool off and lose density and start mixing with lower strata.

11. Storage/Release Management Conditions

Randi reviewed storage and release management conditions.

- Isothermobaths show there is well-defined stratification that is very usual and expected.
- Cold water pool volumes are tracking pretty close to expected. Reclamation anticipates this trend to continue.

12. Temperature Management

- HEC-5Q Modeling –
 - This is the time when the model is challenged due to the direction of the water movement. Water is drawn vertically from lower in the lake up through the Side Gates, in contrast to laterally through the TCD for all other gates. The model does better predicting water movement horizontally.
 - The actual water temperatures will likely be warmer than what the model suggests. Reclamation looks at the coldwater pool volume and the historical relationships.
 - Temperature modeling assumption for September that is different from the Outlook – actual September flow release, likely average closer to 7,000 cfs for the month of September and is used in the temperature model instead of the forecasted.
 - Shading blue suggests limitations to the model, so Reclamation relies more heavily on the other information.
 - It may play out that the absence of warm water leakage with the curtain on TCD deployed will work to our advantage for temperature management.

- Stephen Maurano, Miles Daniels, and Randi Field discussed tracking the warm water signals. Randi made the following clarifications:
 - There was a warmwater signal pre and post deployment of the curtain on the TCD, those warm water signals were resolved. When the PRGs opened, the warm water signals started again.
 - Reclamation thought that the warm water signals indicated a mechanical problem and found that there were two gates that were open.
 - See CDEC group station SPS to identify the anomalous temperature signals and highlight which unit is being utilized.
- Weather forecast for higher than normal air temperatures next week.

13. Temperature Dependent Mortality

Elissa Buttermore reviewed summary temperature dependent egg mortality based on the stage dependent and independent models for Scenario 148.

- Stage Dependent – 9.5%
- State Independent – 24.7%

Mike Wright confirmed that the models are using the empirical relationship between the temperature in the river rather than the HEC-5Q from mid-September through the end of October.

There were no questions from the group at this time.

Miles Daniels presented the Summary Document for Shasta/Keswick Operational Scenarios:

- Confirmed that the SWFSC is using the un-adjusted HEC5Q and running it as input into the RAFT model.
- There were some interesting temperature fluctuations; it is unclear what impact they had on these results. There was a smoke shield in the last few weeks due to the wildfires.
- Lee Bergfeld - How does this differ from Reclamation's modeling?
 - There are two knobs in the Martin Model. You run a lot of different simulations using the same temperature input and same spatial and temporal distributions but changing those two knobs. You end up with the upper and lower bounds for uncertainty.

14. Trinity and Whiskeytown Updates

- Trinity River:
 - Douglas City and North Fork are added to p. 15 Mean Daily Water Temperatures
 - Water temperature at Douglas City exceeded the threshold of the Basin Plan in July.
 - Lewiston release has returned to the base flows now and water right requirements have begun at Douglas City.

- Clear Creek:
 - The temperature gage at Igo is close to returning to service
 - In the interim, a HOBO data logger system is in place.
 - Clear Creek temperature measurements difficulties at IGO gauge due to vandalism.
 - Reclamation made adjustments to meet temperature targets at Igo:
 - Reclamation increased flows a couple times, currently at 200 cfs downstream of Clear Creek.
 - Spring-run Chinook are in Clear Creek.
 - Reclamation Operators need more HOBO data and will plan a follow up meeting with the Clear Creek Tech Team if temperatures exceed the threshold. If there is trouble getting the HOBO temperature tomorrow, Randi will reach out to Matt Brown and Jim Earley and Charlie Chamberlain, FWS.

15. Recommendations: Agencies provide feedback and information to Reclamation regarding temperature management operations

Elissa Buttermore solicited recommendations from the agencies regarding temperature management and moving forward with reducing flows.

- SWRCB – No comment at this time.
- NMFS – Supportive of managing along the temperature management plan. Specifics of the flow is being discussed in the Upper Sacramento Scheduling Team and we look forward to refining the flows there.
- FWS – Similar to what NMFS has mentioned, the USST group is doing a good job of coordinating these competing needs. In addition, we are interested in temperatures at Clear Creek that we just discussed.
- CDFW – No additional comments at this time.
- Hoopa Valley Tribe – Did not respond when Hoopa Valley Tribe was called on.
- Yurok Tribe – No comments at this time.
- SRSC – No comments at this time.
- WAPA – No comments at this time.
- Reclamation – We echo the proposed continuation of the water management plan and flow scheduling through the Upper Sacramento Scheduling Team.

16. Seasonal Topics

- Clear Creek Phase 3C Project is close to wrapping up. They are requesting a slight extension due to clay producing turbidity issues.
- B13 Program is looking to complete a project on Anderson Park by November. Much of it would be off-river work that would not be impacted by flows. Depending on how the SRSC are going to meet their needs for their diversions, that might have unusually higher flows out of Keswick that might impact the in-river work.

17. Discussion

None.

18. Review Action Items

Julie reviewed the action items.

19. Next Meeting Scheduling

The next SRTTG teleconference will be held on the 4th Thursday of next month, October 22, 2020.

Randi announced that she is transitioning to the Delta operations and Tom Patton will become the Shasta Reservoir operator for the next 3-4 years. Randi told the group that it has been an honor and pleasure to work with the group during her tenure as operator for Shasta Reservoir.

Matt Brown, FWS and others thanked Randi for her work over the last 4 years, for her professionalism and perseverance.