

Sacramento River Temperature Task Group (SRTTG) Meeting
July 22, 2021 | 1:00 PM – 2:45 PM
Meeting Summary

Participants

Alyson Scurlock, Kearns & West	Kristin White, Reclamation
Ammon Danielson, WAPA	Lauren McNabb, CDFW
Bill Poytress, USFWS	Liz Kiteck, Reclamation
Charlie Chamberlain, USFWS	Lee Bergfield, MBK Engineers/SRSC
Chris Laskodi, Yurok Tribe	Mario Manzo, Reclamation
Craig Anderson, USFWS	Matt Brown, USFWS
Crystal Rigby, CDFW	Michael Macon, SWRCB
Diane Riddle, SWRCB	Mike Deas, Watercourse Engineering/SRSC
Doug Killam, CDFW	Mike Harris, CDFW
Elissa Buttermore, Reclamation	Mike Prowatzke, WAPA
Eric Danner, SWFSC/NMFS	Mike Wright, Reclamation
Garwin Yip, NMFS	Miles Daniels, SWFSC/NMFS
James Gilbert, SWFSC/NMFS	Nora De Cuir, Kearns & West
Jeff Laird, SWRCB	Shaun Green, Hoopa Valley Tribe
Jeff Onsted, DWR	Stephen Maurano, NMFS
Jo Anna Beck, Reclamation	Suzanne Manugian, Reclamation
Josh Hoines, Whiskeytown National Recreation Area	Thad Bettner, GCID/SRSC
Ken Kundargi, CDFW	Tom Patton, Reclamation
Kevin Reece, DWR	Vanessa Kollmar, CDFW

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

Action items

1. **All** - Submit comments to Jo Anna Beck, Reclamation jbeck@usbr.gov until July 29 on the Water Year 2021 Whiskeytown Lake Drought Action EA.
2. **KW** - Schedule USST Fall Flows Reduction Meeting for week of July 26 to discuss redd dewatering; send meeting invite to USST and SRTTG distribution lists.
3. **Tom Patton, Reclamation** -
 - a. Distribute latest Shasta profile when available and send regular Sacramento temperature reports to SRTTG while there are website/data issues.
 - b. Correct May 90%-Exceedance Water Outlook to June 90%-Exceedance Water Outlook in July 22 model run.
 - c. Look into how vertical temperature profiles are progressing through time as simulated in the model and present at next SRTTG meeting.
4. **Eric Danner, Miles Daniels, James Gilbert, SWFSC** -

- a. Share July 15 SWFSC model run with the SRTTG and run SWFSC model with latest profile; present at next SRTTG meeting.
 - b. Share plots about the ability for the SWFSC model to match 2014 Shasta temperatures, which provides some assessment of the 2021 model.
 - c. Longer term action item: complete end of season evaluation of model performance.
5. **Michael Macon, SWRCB** - Discuss questions with SWRCB colleagues brought up at SRTTG regarding EOS storage targets and flexibility with water transfers.

1. Introductions

Nora De Cuir, Kearns & West, welcomed everyone and reviewed the meeting agenda.

2. Purpose and Objective

In the Shasta Cold Water Pool Management Guidance Document, Reclamation “proposes to convene the Sacramento River Temperature Task Group (SRTTG), consisting of agency representatives having direct interest on cold water pool management on the Sacramento River, at least monthly February through October, share operational information monthly, and improve technical dialogue on the implementation of the temperature management plan.” Reclamation provides “a draft temperature management plan to the SRTTG in April for its review and comment, consistent with WRO 90-5.”

3. Prior Action Items

Kearns & West reviewed action items from the previous weekly meeting (see below).

Action Items from July 15, 2021

Addressed

1. **KW** - convene modeling subgroup ASAP to discuss model calibration for Reclamation’s TDM model and the resulting discrepancies between estimates between the Reclamation/SWFSC TDM models, and recommend an approach for moving forward.
2. **Jo Anna Beck, Reclamation** - check with management if there is an opportunity for agency review of the Whiskeytown Lake Drought Action before it goes public; report back to SRTTG.
3. **Chris Laskodi, Yurok Tribe** - contact Jo Anna Beck, Reclamation (jbeck@usbr.gov) regarding the Yurok Tribe’s concerns about the Whiskeytown Lake Drought Action alternatives.
4. **Mike Deas, SRSC** - check on running similar analyses to SWFSC/Reclamation models to help inform the proposed approach to best represent anticipated temperatures and TDM conditions.
5. **Mike Harris, CDFW** - send an email update to SRTTG on river fish monitoring.

Ongoing

6. **Julie Leimbach, KW** - review the Fall Flows Guidance Document and discuss with Reclamation. Work with Reclamation to consider SRTTG and USST forums for discussing summertime flow smoothing.
7. **Liz Kiteck, Reclamation** - check if Reclamation has 2014/2015 temperature data that shows the effects of power peaking and the power bypass on temperatures during those years to understand the historical impacts on temperatures as delivered to the Livingston Stone Hatchery through various penstocks.

Outstanding

8. **Taylor Lipscomb, USFWS** - check to see if there is higher resolution of 2014/2015 temperature data at Livingston Stone Hatchery beyond the max-min thermograph data.
- 4. River Fish Monitoring: 1) carcass surveys 2) redd counts 3) stranding and dewatering surveys.**

Mike Harris, CDFW, presented the river fish monitoring update.

- As of July 18, CDFW crews have handled 20,869 winter-run Chinook carcasses and 724 hatchery fish; 63% of the season is typically complete by this date.
- This year is the third largest count on record since 2003; collections are around 69% of average.
- Peak spawning has likely concluded; total counts are declining slightly and will continue to decline until the survey ends in September. Pre-spawn mortality is at 7% to date; average at this time is typically 1.3%.
- 500 new winter-run redds were observed from helicopter flights; they are all concentrated in the upper six miles of the river. 59 of the 500 winter-run Chinook redds are currently in the shallow water category and are being closely monitored.

There were no questions or comments.

- 5. Fish Distribution/Forecasts: 1) Estimated percentage of the population upstream of Red Bluff Diversion Dam for steelhead, winter-run, and spring-run Chinook salmon 2) Sampling at rotary screw traps at Red Bluff Diversion Dam 3) Steelhead update 4) Livingston Stone Hatchery.**

Bill Poytress, USFWS, presented the fish distributions/forecasts update for Red Bluff Diversion Dam.

- USFWS is starting to see winter-run Chinook size fry at Red Bluff Diversion Dam (RBDD).
- USFWS counted 600 fish passing RBDD; some of the fish are falling into the late fall-run Chinook category.
- The last biweekly report that includes fish passage values was sent out on July 19.

Nobody was present to provide an update on the fish distribution/forecasts for Livingston Stone Hatchery.

The group discussed the following:

- Proposed hypothesis: releasing warmer water in April delays peak spawning for winter-run Chinook. In 2021, peak spawning for winter-run Chinook is in mid- to late-July. Historically, peak spawning was the first week of July.
 - CDFW and USFWS thought that made sense, but they would need to confer with others.

6. Questions/Comments on Hydrology Update, Operations Update and Forecasts, and Temperature Management

Tom Patton, Reclamation, asked participants to refer to the meeting materials for details and to ask any follow-up/clarifying questions. He noted the July meeting packet did not include the latest Shasta profile. He mentioned that Reclamation was experiencing technical issues updating some reports on the CVO website and that there were data transmission issues with the GOES satellite. Reclamation will send out regular Sacramento temperature reports by email in the meantime and send out the latest Shasta profile when it is available.

The group discussed the following:

- Updates to end-of-September storage targets?
 - Reclamation – The July forecast is not complete at this time, so estimates for end-of-September storage targets are based on the June forecast developed in late June/early July. Reclamation is still expecting the end-of-September storages for Trinity to be above 600 TAF.
- Forecasted Sacramento River releases in August through November.
 - USFWS – There will be impacts to redd dewatering with the forecasted Sacramento River releases in August and September. Suggestion for smoothing flows by using gradual transitions up and down from water transfers over September, October, and November. Keep September releases lower.
 - NMFS – Releases would have to be much higher than 7,100 cfs in October to equal the monthly average.
 - NMFS – Flows are being held as low as possible through September to increase the end-of-September storage, but storage in mid to late October will be the same whether releases occur in September or October. Is trying to get to the 1.25 MAF end-of-September storage target worth the unintended consequences to fisheries in September and October (e.g., higher fall-run redd dewatering)?
 - Reclamation – The USST can examine this further. Forecasts are done on a monthly average, but the releases might not be doable. They are analyzed on a daily basis.

7. Temperature Modeling

The Modeling Subgroup met on July 20 to discuss model calibration for Reclamation's TDM model and the resulting discrepancies between estimates from Reclamation's and SWFSC's TDM models. Tom Patton reported that Reclamation reverted back to the original calibration used earlier in the season for the HEC-5Q model to better represent field conditions. He presented Reclamation's July 21 model run that used the original calibration.

The group discussed the following:

- In the Lewiston modeled temperatures graph, when temperatures increase in October, is water released from the normal outlet or auxiliary outlet?
 - Reclamation will look into the model. There is spill happening at Trinity River that is projected to continue until the end of August. The model does not understand outages and only considers flow through the dam and down to Lewiston Reservoir.
- Differences between the temperature models run by Reclamation and SWFSC. Are the differences between the two models important for management decisions and will there be a point where the group can decide which model behaves more accurately based on results from empirical temperatures?
 - SWFSC – During the modeling subgroup meeting, the group discussed the rationale for improvements in May-June colder water temperatures in Reclamation's forecast from previous forecasts. The forecasts between the two models are still very different; the SWFSC model forecast projects warmer temperatures and an earlier loss of temperature control.
 - Reclamation – We are working on developing a new model, but it is not finished yet. There is a benefit to multiple models that provide different points of view.
 - SWFSC – Reclamation's July 21 model runs shows temperatures staying below 56°F until mid- to late-September, whereas the SWFSC's model projects temperatures start to elevate much higher than 56°F starting in mid- to late-August. The SWFSC noted that they can do an end of season evaluation of model performance.
 - NMFS – Shasta temperatures and their impacts on the hatchery are key pieces of information to understand since there is a large difference in Shasta temperatures between the two models. Can Reclamation operate above 56°F at the hatchery if the hatchery only has a cooling capacity of 10°F and diurnal fluctuations increase temperatures above 56°F after cooling?
 - Reclamation does not have control over the diurnal fluctuations at the hatchery because the penstocks heat up due to being in direct sunlight.
- Temperature management planning approaches
 - SWFSC – The “wait and see” approach for real-time management is risky for endangered species. If one of the models is right, there will be significantly higher mortality.

- Reclamation – One option for the group to consider is to target warmer water temperatures now to conserve colder water in late August and September to try to prolong the length of time that there is temperature control.
- SWFSC – The group might need to make some decisions on if there is a river vs. hatchery tradeoff that should be explored.
- Effects of power peaking on water temperatures
 - Reclamation – Power peaking typically provides a benefit to temperatures; power peaking pulls harder on the powerhouse and the cold water pool and reaches colder water by pulling water from deeper in the reservoir. Due to reduced flow through the powerhouse at night, water temperatures may be warmer coming through the powerhouse. However, during the night, the release from the powerhouse makes up a smaller portion of the overall release from Keswick, limiting its warming effects downstream. The highest power peaking typically coincides with the coldest and largest volume of water moving through the powerhouse.
 - USFWS – The hatchery needs to have cold water at all times of the day. There is a concern about warmer water trickling into the hatchery when power peaking is off, especially if it is at a time when the penstocks are in direct sunlight causing the water to heat up.
 - Reclamation – The hatchery pulls water all day from the penstocks and through the powerhouse during power peaking. Reclamation does not currently have a way to change the temperature of the inflow to the hatchery. They could consider ways to shade the penstocks to decrease warming.
- Suggestion to review modeled vertical temperature profiles over time
 - Reclamation will provide projected vertical temperature profiles from the model at specific intervals to present at future SRTTG meetings.

8. Upper Sacramento Scheduling Team

Reclamation and Kearns & West are working on scheduling a USST Fall Flows Reduction Meeting the week of July 26. The meeting invite will be sent to all participants on the USST and SRTTG distribution lists.

9. Whiskeytown Lake Drought Action

Jo Anna Beck, Reclamation, provided an update on the Whiskeytown Lake Drought Action and reviewed some of the modeling results included in the Environmental Assessment.

The group discussed the following:

- How much cold water will be available for release from Whiskeytown Reservoir?
 - Reclamation – In the Whiskeytown Action Alternatives 1, 2, and 4, the Whiskeytown cold water pool decreased. There were not large changes in temperature in river at the Clear Creek outlet elevations. Reclamation was

surprised that the modeled temperature at the lower reservoir elevations was only 0.1 °F different from the downstream in-river results at Igo.

- Recommend development of a new Alternative that meets the 1.25 MAF end-of-September storage target. Is the effort to meet the storage target worthwhile if it is unlikely to achieve it. Does it make sense to implement water transfers if the only purpose is to conserve water in September to achieve the end-of-September storage target?
 - SWRCB noted that they would follow up with their team on these questions.
- How was Kokanee handled in the Whiskeytown analysis?
 - Reclamation – We spoke with the Kokanee expert from CDFW. Kokanee was included in the recreation section; the focus is on a list of target species.

10. Review Action Items

Alyson Scurlock, Kearns & West, emailed out action items after the meeting.

11. Next Meeting Scheduling

The next weekly meeting will be on Thursday, July 29, 2021; the next monthly meeting will be held on the 4th Thursday of next month, August 26, 2021.