

Sacramento River Temperature Task Group (SRTTG) Meeting
February 25, 2021 | 1:00 PM – 2:45 PM
Meeting Summary

Participants

Alessia Siclari, SWRCB	Ken Kundargi, CDFW
Alyson Scurlock, Kearns & West	Lee Bergfield, SRSC
Bill Poytress, USFWS	Levi Johnson, Reclamation
Chris Laskodi, Yurok Tribe	Liz Kiteck, Reclamation
Craig Williams, SWRCB	Matt Brown, USFWS
Elissa Buttermore, Reclamation	Matt Holland, SWRCB
Eric Danner, NMFS	Matt Johnson, CDFW
Erica Meyers, CDFW	Michael Macon, SWRCB
Erik Ekdahl, SWRCB	Mike Prowatzke, WAPA
George Kautsky, Hoopa Valley Tribe	Mike Wright, Reclamation
James Gilbert, NMFS	Miles Daniels, NMFS
Jim Earley, USFWS	Stephen Maurano, NMFS
John Hannon, Reclamation	Suzanne Manugian, Reclamation
Jonathan Williams, CDFW	Taylor Lipscomb, USFWS
Josh Israel, Reclamation	Terra Alpaugh, Kearns & West
Julie Leimbach, Kearns & West	Tom Patton, Reclamation

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

Action items

1. **All** - contact Alyson Scurlock, Kearns & West (KW) to be added to SRTTG meeting invites.
2. **Elissa Buttermore, Reclamation** - provide access to SRTTG reports from previous years and **KW** to distribute.
3. **KW** - work with Reclamation to distribute meeting materials day before meeting.
4. **All** - email Elissa Buttermore if interested in work with NMFS on Non-Flow Action Charter.
5. **KW** - check in with Reclamation on outcome of March 4 LTO meeting with regards to discussion of Non-flow Action Charter for Spring Management of Spawning Locations.
6. **All** - reach out to Suzanne Manugian if curious about suite of spring pulse flow scenarios being proposed.
7. **Suzanne Manugian, Reclamation** - run scenarios exercise on historic year in which Shasta storage is just below 4 MAF to see if tiers change.
8. **Liz Kiteck, Reclamation** - check flows less than 3,250 cfs in March 2014 and March 2015 and verify 3,250 cfs minimum flow requirement.

9. **NMFS** - evaluate if there was fisheries reason for keeping flows at 3,250 cfs in previous years.

1. Introductions

Julie Leimbach, Kearns & West, welcomed everyone, conducted introductions, and reviewed the meeting agenda. Tom Patton, Reclamation, is the new Sacramento operator for this year's temperature management season.

2. Purpose and Objective

The purpose and objective for this meeting is to focus on the Sacramento River temperature management. The Sacramento River Temperature Management Plan is developed and monitored as part of State Water Board Order 90-5, the 2019 Proposed Action of the Coordinated Long-Term Operation of the CVP and SWP, and NMFS Biological Opinion Reasonable and Prudent Measures.

3. Planning for the Season

Kearns & West will be facilitating the SRTTG meetings this season. Meetings are scheduled for the 4th Thursday of each month. Weekly update meetings can occur on an as-needed basis.

The group discussed the following items:

- Access to the annual SRTTG reports from previous years.
 - Reclamation will check how SRTTG members can access reports from previous years, and KW will distribute the SRTTG annual report from last year.
- Request to distribute the SRTTG meeting materials the day before the meeting to allow participants time to discuss the information internally.
 - Tom Patton, Reclamation will make an effort to distribute meeting materials the day before. KW will support.

4. Prior Action Items

None.

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

Matt Johnson, CDFW, presented the river fish monitoring update.

- Carcass surveys are currently being done for late fall-run Chinook; these transition into the winter-run carcass surveys conducted with USFWS.
- Late fall-run surveys can give early warning of any winter-run spawning that occurs before the official start date of the winter-run survey. The survey crews have not detected any winter-run spawning yet.

- The dewatered redds program has been very quiet: all late fall-run activity has occurred since flows dropped down to 3,250 cfs out of Keswick, and there has been no change in the river since that time to affect existing redds.

6. 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 Hatchery

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

- Winter-run passage of last year's fish is winding down; the total fish at the Red Bluff Diversion Dam was about 99% of average based on the last 18 years.
 - Most winter-run are further down in the system.
- Fall-run passage is slowing down – totals are at about 69% of average based on the last 18 years, plus or minus about 22% so there could be a fair number of fish still to come down.
- The series of storms in late January/early February resulted in large passage of fall-run fry.

Taylor Lipscomb, USFWS, presented the fish distributions/forecasts update for the Livingston Stone Hatchery.

- Released 663 pre winter-run at the end of January; different families of fish were tagged to track outmigration, and most of fish are still in the system.
- Collections have begun for this coming year through a multi-agency panel which should increase production targets for the year.
- In a normal year, USFWS would collect 60 females and 100 males out of Keswick fish target, but they are anticipating 120 female and 180 males due to bad water year.

7. Hydrology Update

Tom presented the hydrology update (refer to meeting materials). Key takeaways included:

- Precipitation and snowpack do not look good. This is a critically dry water year.
- Releases out of Keswick are being held at 3,250 cfs.
- Temperatures have been pretty cold – currently releasing water out of the middle gates.
- Below average for volume of cold water pool below 52° F.

The group discussed the following:

- Request for estimate of tier selection based on the volume of water below 52° F.
 - Reclamation – We are likely in a Tier 4 year.

8. Operations Update and Forecasts

Tom presented the operations update and forecasts (refer to meeting materials). Key takeaways included:

- Reclamation is trying to conserve as much water as possible.
- Finalized February forecast shows Shasta storage is projected below 2.5 MAF by end of April and 1.4 MAF by end of September, which is similar to the recent drought years (2014, 2015).
- Flows for the season will ramp up starting in April to help downstream conditions, but the flows for season are very low based on the forecast.

9. Temperature Management

Tom presented the temperature management update (refer to meeting materials).

- Based on the February forecast, the 56° F temperature target cannot be met throughout the year.

10. Temperature Dependent Mortality (TDM)

Eric Danner, NMFS, provided an update on TDM:

- NMFS is working with Reclamation to generate three different redd distributions that managers can review and use for making predictions about forecast for the upcoming year. These will include the following redd distributions: 1) broad, 2) average, 3) constrained.
- The range of distributions can be run in the TDM models to provide more information about the impact of distribution assumptions on the model outcomes, given that the location and timing of redds is unknown.
- Southwest Fisheries Science Center (SWFSC) is continuing to develop models to better predict where the distribution will be based on conditions.

Elissa Buttermore, Reclamation, and Mike Wright, Reclamation, provided an update on TDM. Reclamation is taking the following steps:

- Meeting with University of Washington colleagues to figure out next steps to improve the SacPAS fish model and how it might be able to run multiple scenarios at same time to produce similar summary statistics to SWFSC's outputs.
- Working to set up pathway to present future TDM estimates, incorporating both Reclamation and NMFS' TDM estimates
- Continuing to document model assumptions for transparency.

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

The group discussed the following comments:

Reclamation's efforts to manage to conserve water and maintain cold water pool

- Review similar dry water years (2014/2015).
- Get the TCD curtain in to prevent any warm water leakage in the system at the middle gate level as soon as possible.

- Decide on the best operation under Tier 4 when we do not think we will meet the 56° F target through the entire season.
- NMFS - This year, we will likely have inadequate resources to meet temperature targets.

Early season temperature effects on spawning

- At this point, the Non-Flow Charter for Spring Management of Spawning Locations process is not going to yield specific tools to evaluate and propose management options for spring flow management of spawning locations.
- The Jennings/Hendrix¹ paper shows April and May temperatures had a strong effect on spawning.
- Tools in development
 - Non-flow Action Charter for Spring Management of Spawning Locations – Stephen Maurano, NMFS and Elissa Buttermore, Reclamation.
 - Temperature Dependent Mortality evaluation post-season (identified as an uncertainty).
 - Egg to fry survival (identified as an uncertainty).
- Requests
 - NMFS & USFWS – Could Reclamation integrate the relationship from the Jennings/Hendrix paper into the modeling framework to use for temperature planning? The question is what amount of temperature change would be needed to drive earlier spawning? The first step could be to run the models to see the effect of delaying releases to late April/early May on the cold water pool.
 - Reclamation – There would need to be a lot of modeling and examination of consequences before implementing into operations planning. Reclamation is discussing this topic at the next LTO meeting on March 4.
- The currently forecasted increase in releases in April is largely due to Delta outflow requirements.

SRSC demand & flexibility for late April / early May diversions before Shasta Reservoir and Sacramento River temperatures rise

- Potential flexibility in scheduling ramp up from winter-early spring base flows to higher flows to support depletions in the Central Valley.
- SRSC has some flexibility for the timing of its diversions.
- Refer to previous dry years (2014/2015), there was a request for the SRSCs to delay diversions in order to preserve cold water in Shasta Reservoir.
- Opportunities for flexibility
 - Change to forecasted ramp down rates.
 - Water transfers currently being processed by SWRCB.
- Risk of delaying diversions

¹ Jennings, E. D. and A. N. Hendrix. 2020. Spawn Timing of Winter-run Chinook in the Upper Sacramento River. San Francisco Estuary and Watershed Science. 18: 1-16
<https://doi.org/10.15447/sfews.2020v18iss2art5>

- Delaying diversions delays the planting, causing risk of later harvest and slowdown of crops.
- Increased competition in diversion capacity within individual districts and across the river. Normally, the southern part of the Central Valley starts diverting before the northern part of the Central Valley. When the timeframe for diversions is compressed, the entire valley can be seeking water at the same time.
- SRSC is working on all of these issues with Reclamation.

Temperature urgency change positions (TUCP)

- DWR and Reclamation initiate TUCPs. They have been discussing the topic but have come to no conclusions yet.

Incidental Take Permits (ITP)

- SWRCB – The state export operations in May in the 90% exceedance might not be consistent with the ITP. The outflows also look very low in August-October when more water has historically been needed to maintain water quality standards. Wanted to flag that there could be 30,000-60,000 AF that is not be accounted for that would be needed for outflow.
 - Reclamation – We do not have the State’s operations in all of the forecasts and did not take the ITP into consideration. For outflow requirements, we used the minimum thus far because pumping is very minimal.

12. Upper Sacramento Scheduling Team (USST)

Suzanne Manugian, Reclamation, and Tom provided an update on the USST.

- Shasta storage at the end of April needs to be at 4 MAF to implement a spring pulse flow, so it looks unlikely that a spring pulse flow will happen this year since the forecast is well below that storage target.
- USST is still walking through the process and is looking at scenarios that would be evaluated in a year where a spring pulse flow could be implemented.
- Spring Pulse Flow Study Plan has been finalized.
- Suzanne invited the SRTTG members to reach out to her if they are curious about the suite of scenarios being developed in the Spring Flows Subgroup.

Group members discussed the following comments:

- USFWS – Do any of the scenarios piggyback off of natural rain events?
 - Reclamation – The scenarios are currently built on a monthly timescale, but in real time, there would be a lot of conditions we would have to consider when placing spring pulse flows, such as an incoming rain event.
 - USFWS – There would be a much stronger biological response if a pulse flow were synchronized with a rain event because the precipitation would increase turbidity and other abiotic cues that would prompt fish to move downstream; in addition, a pulse flow under those conditions might require less water, potentially avoiding tier change, and thereby being more feasible.

- NMFS – The Proposed Action says that if there is less than 4 MAF storage, a spring pulse flow can be allowed if the USST thinks reasonable but that the pulse cannot cause a drop between tiers. Are you planning on doing that calculation to assess whether a spring pulse flow would send conditions into Tier 4 or whether a given year would have been Tier 4 even without a pulse flow?
- Reclamation – 4 MAF is probably not a hard threshold. We will need to evaluate as we go through different years. In the future, it may be beneficial to do smaller pulses and bring storage down slightly below 4 MAF. After evaluation, the USST would bring that kind of proposal to SRTTG to decide if it is worth it or not.
- NMFS – What drives the 3,250 cfs flow requirement?
 - Reclamation – Believe we just use 3,250 cfs as minimum flow year-round.
 - NMFS – Releases have been lower than that historically such as in March 2014 and March 2015. Was there a deviation in those years, and is that something we should evaluate?
 - Reclamation will go back and evaluate flows less than 3,250 cfs in March 2014 and March 2015.
 - NMFS will check if there was a fisheries reason keeping flows at 3,250 cfs in previous years.

13. Discussion

None.

14. Review Action Items

Alyson Scurlock, Kearns & West, reviewed the action items.

15. Next Meeting Scheduling

The next SRTTG meeting will be held on the 4th Thursday of next month, March 25, 2021.