

Sacramento River Temperature Task Group (SRTTG) Meeting
June 23, 2022, | 1:00 PM – 2:45 PM
Meeting Summary

Participants

Bill Poytress, USFWS
Craig Fleming, USFWS
Craig Williams, SWRCB
Charles Chamberlain, USFWS
Chris Laskodi, Yurok Tribe
Claudia Bucheli, SWRCB
Crystal Rigby, CDFW
Diane Riddle, SWRCB
Doug Killam, CDFW
Elissa Buttermore, Reclamation
Eric Danner, SWFSC
Erica Meyers, CDFW
Garwin Yip, NMFS
Gabe Singer, CDFW
Jeff Laird, SWRCB
James Earley, USFWS
James Gilbert, SWFSC
Jonathan Williams, CDFW

Josh Israel, Reclamation
Justin Alvarez, Hoopa Valley Tribe
Kevin Reece, DWR
Lauren McNabb, CDFW
Lee Bergfeld, SRSC
Lewis Bair, SRSC
Liz Kiteck, Reclamation
Matt Brown, USFWS
Matt Holland, SWRCB
Michael Macon, SWRCB
Michael Wright, Reclamation
Mike Ford, DWR
Mike Deas, SRSC
Stephen Maurano, NMFS
Seth Naman, NMFS
Taylor Lipscomb, USFWS
Thad Bettner, SRSC
Tom Patton, Reclamation
Vanessa Kollmar, CDFW

Facilitation Team

Terra Alpaugh, Kearns & West
Adam Fullerton, Kearns & West
Maria Bone, Kearns & West

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

Action Items

1. Adam Fullerton, Kearns and West – will include discussion of SWFSC modeling approach on a future agenda
2. Tom Patton, Reclamation will add Seth Naman (NMFS) and Chris Laskodi (Yurok Tribe) to the Trinity temperature profile distribution list
3. Tom Patton, Reclamation – will schedule a Trinity River Temperature Task Group (TRTTG) meeting in July
4. All SRTTG members – will contact Kearns and West Team if they would like to join the TRTTG

Welcome, Agenda Review, and Purpose

Adam Fullerton, Kearns and West, welcomed all participants and suggested adjustments to the agenda order including the addition of an agenda item to discuss Reclamation’s response letter to the Hoopa Valley Tribe and Yurok Tribe.

Purpose and Objective

The purpose of the SRTTG is to “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.”

Prior Action Items

- Tom Patton, Reclamation – Will check about regularly updating Spring Creek Powerplant temperature data on CDEC.
 - i. Tom Patton reported that there are currently no plans to send Spring Creek data to CDEC. There are calibrations and revisions that need to be done before it can be posted; he will coordinate with Information Technology department to complete this task, but there is no timeline at this time.
- Tom Patton, Reclamation – Will look into and report back on the reason the model run from March projected a 4.2°F higher temperature for Lewiston in October than the June model run.
 - i. Tom Patton reported that the difference in actual conditions in May versus the forecast from the March model resulted in the change. May was cooler than expected and inflows to Trinity Reservoir were higher, which resulted in the model predicting a cooler temperature in the fall. Reclamation will continue to track the results and report back to the SRTTG.
- Adam Fullerton, Kearns and West – Set aside time in the next meeting to discuss Southwest Fisheries Science Center (SWFSC) request for feedback on whether to change their modeling approach for the implementation season.
 - i. Further discussion of this item was postponed for a future meeting.
- All SRTTG Members: Provide feedback on the SWFSC's modeling approach, i.e., what information (planning vs. implementation approach) is most useful to your agencies in decision-making throughout the rest of the temperature management season. Email feedback to Miles Daniels (miles.daniels@noaa.gov)
 - i. Complete – please continue to send feedback if you have additional comments.

Other Updates

- Tom Patton reported that the Pitt River Gauge is now back to functioning correctly. In the last SRTTG meeting, he had reported that it was down.

Hydrology, Operations, Forecasts, and Temperature Management

Tom Patton, Reclamation, reviewed the SRTTG Packet. Please see the SRTTG Packet for the graphs. Tom reviewed the following topics and made the following observations highlighting key information:

- Precipitation
 - a. No major change from the last meeting. There has been a total of 41.2 inches of precipitation this season which is approximately 80% of the average for this date.
- CA Snowmelt
- Air Temperature Forecasts
 - a. National Weather Service forecasts that there is an equal chance of above or below average temperatures, and precipitation for the next month.
- Daily CVP Water Supply Report
 - a. Storages
 - Shasta is at 55% of 15-year average.
 - Folsom is at 71% of 15-year average.
 - b. Accumulated Inflows for Water Year
 - Shasta is at 60% of average inflows.
 - Trinity is at 49% of average.

c. Flow releases

- Releases are slightly below the 15-year average.
- Reclamation increased Keswick releases to 4,250 cfs.
- Temperature Control Device (TCD) changes:
 - Reclamation made a TCD change on June 13th to close 4 middle gates.
 - Most of middle gates are now closed – one is still open.
 - One PRG remains closed.
 - Reclamation will look at opening this final PRG if heat wave progresses before opening a side gate.
 - Starting on June 7, the target temperature at the Sacramento gage (SAC) is 54.5°F; opening the PRGs has kept the Shasta release temperatures consistently below 52°F, providing cool water through Keswick and bringing the temperature at the (SAC) gage just below the target of 54.5°F.
 - Reclamation is monitoring how sustained heat and low flow will impact temperatures in Shasta Lake. The temperature in Shasta Lake is currently more concerning than the warming between KES and the SAC gage. The temperature at the SAC gage is just below the target.
- Clear Creek conditions:
 - Temperatures remain below 60°F.
 - Whiskeytown Reservoir is releasing a pulse flow and then ramping down.
 - It is currently at 325 cfs.
 - It will be reduced to 150 cfs by Monday.
 - Increased Keswick Reservoir flows will backfill overall flow as Whiskeytown Reservoir flows are reduced.
- Trinity – temperatures are warm for this time of year (54°F to 55°F).
 - The Trinity is very sensitive to air temperatures because of the very little water flowing through Lewiston Reservoir.
 - Diversions through Spring Creek Powerplant were reduced during pulse flow on Clear Creek.
 - Reclamation will be increase flows back to the same levels prior to Spring Creek pulse.

b. Profiles: Reservoir Temperature & Storage

- Shasta Reservoir
 - Temperatures are stratified: 71°F on the surface and will continue to warm. The profile is typical to past years. TCD weighted average temperature release was 55°F.
- Shasta Reservoir Isothermobaths
 - Reservoir stratification is comparable to 2014, 2015, and 2021.
 - There is slightly more of the coldest water than in 2015 but volume is comparable to 2014 and 2021.
- Isothermobaths for Trinity system
 - The surface of reservoirs in the Trinity system is not warming to the same extent as Shasta Reservoir.
 - The reduced volume being released is conserving the Trinity Reservoir cold water pool.
- Expected End of September Trinity Reservoir storage

- End of September (EOS) storage estimate 480 TAF.
- Tom reported that the latest forecast was slightly better than the May forecast.

Temperature Management and Temperature Dependent Mortality Modeling

James Gilbert, Southwest Fishery Science Center (SWFSC), reported on the most recent SWFSC modeling. SWFSC ran modeling using both the planning phase and implementation phase approaches introduced at the last meeting. Please see the SRTTG Packet for the graphs. Highlights included:

- Planning Phase assumptions:
 - SWFSC modeling approach that uses CQUAL W2 for Keswick and RAFT for Sac River; yields four panel plots.
 - Assumptions consistent with what SWFSC has included this season but using the temperature profile from last week.
- Planning Phase outputs:
 - SWFSC model results from the June 16 model run:
 - TDM is 39-46% depending on which redd distribution is used, which reflects a 10% drop from June 9th.
 - Release and river temperatures are a little colder at end of September in this model run, which translated into the 10% reduction in TDM. The changes between the June 9th and June 16th model runs that impacted this shift included:
 - Observed air temperature cooler than meteorology used as input on June 9th
 - Observed inflows greater than those in the forecast used on June 9th
 - Observed outflow less than forecast, which increased water in the reservoir
 - How model updates have changed redd temperature exposure this season:
 - TDM number is composite of all the redds and exposure of all the redds through time and space.
 - Temperature traces start on the date the redd is detected by CDFW and end at date of emergence – i.e., they look at temperatures the redd experiences through time.
 - Only temperature exposure above 53.5°F will affect TDM.
 - See graphs for details on temperature exposure of specific redds.
 - Analysis shows that changes in TDM become increasingly more important throughout the season, because more of the overall population is already on the ground; any change is therefore weighted more in calculation of TDM.
- Implementation phase assumptions:
 - Redd distribution is based on 2016-2021.
 - The model is targeting 54.5° F.
 - Meteorology – The model does really good job with meteorology to meet target temperature; meteorology is latest forecast from NWS L3MTO with 25% exceedance.
- Implementation phase outputs:
 - TDM is 47%; this is the same TDM number calculated on June 9; it is also consistent with planning phase models with same initialization dates.

- A member asked the reason that the implementation phase output did not show the 10% reduction in TDM that was forecast in the planning phase output.
 - SWFSC reported that the implementation phase model was run using Reclamations HEC 5Q outputs. Those outputs didn't change between the June 9th and June 16th model runs, so the only difference in the model inputs was meteorology and the actual versus assumed distribution. SWFSC understanding is that because Keswick releases didn't change, there were not enough other inputs to change the TDM.
- Temperature target –
 - Projected temperatures at the SAC gage still look good in near term.
- Side gate use –
 - The model shows the last full side gate opening at the end of August; there is then some uncertainty in what the model predicts will happen in late summer/early fall.
- Flows -
 - Reclamation is releasing slightly less water from Shasta reservoir than forecasted.
- Storage -
 - The June 16 model run is forecasting 221 TAF for end of September cold water pool.
 - End of September (EOS) total Shasta storage of 1.32 MAF
 - The Shasta EOS volume will probably be even higher in next month's modeling due to continued reduced Keswick releases and late rains which are increasing inflows.
- Updated projections for Clear Creek and Trinity below Lewiston:
 - Digging into both sets of results to see if there are calibration issues.
 - Previous results were based on forecasted very warm meteorology; now models are showing air temperatures warmer earlier in summer and a little cooler later in the summer.
 - The model does not include any low-level bypass at the Trinity Dam.

Discussion: SWFSC Seasonal Modeling Approach

Science Center staff members were not available to discuss the Center's Seasonal Modeling Approach with the Shasta Planning Group at their June 24 meeting. Therefore, the Center will present and discuss the approach at an upcoming Shasta Planning Group meeting.

A member suggested that the SRTTG also postpone further discussion on this item until a future meeting. Kearns and West will include this item on a future meeting agenda.

River Fish Monitoring

Doug Killam, CDFW reported out on data that is posted on a weekly basis including shallow redds, stranding, and the aerial redd surveys.¹

¹

https://www.calfish.org/ProgramsData/ConservationandManagement/CentralValleyMonitoring/CDFWUpperSacRiverBasinSalmonidMonitoring/tabid/357/Agg2208_SelectTab/2/Default.aspx

1) Carcass surveys

2) Redd counts

- Similar distribution to 2021: all redds observed above Highway 44 near the SAC gauge.
- 112 redds observed to date
- Tracking 15 shallow redds

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, reported that:

- There is not much to report for fish passage at RBDD. There is typically a lull during this time period between Chinook runs.
- 97% of average cumulative passage rate for fall-run Chinook by this date, resulting in low catch.
- 37% +/- 21% of cumulative passage, on average, for Steelhead with low catch
- USFWS captured a fry that falls in late fall-run Chinook size expectation; it had been over a month since USFWS has seen other late-fall fry, so this may be a winter-run Chinook fry, but genetics were not taken to verify run.

Taylor Lipscomb, Livingston Stone National Fish Hatchery, reported the following:

- There are 223 winter run Chinook for brood stock.
- 72 females with 70 males have spawned.
- Livingston Stone Hatchery chilling capabilities have doubled this year to 3,000 tons of chilling; chilling should come online late next week or early the following week.
- The hatchery is pulling from penstock 4.

Reclamation response letter to Yurok Tribe and Hoopa Valley Tribe letter related to Trinity River Management

Chris Laskodi, Yurok Tribe, reported that the Yurok Tribe and Hoopa Valley Tribe had sent a letter to Reclamation a couple of months ago regarding Trinity River conditions, and recently received a response letter that had relevant information for SRTTG members. The full text of the letter is included in the SRTTG Meeting Packet.

- The letter includes the following six bullets outlining actions Reclamation will take this year, 2022:
 - We have set up the Trinity River Temperature Task Group (TRTTG) to meet on interim actions for Trinity River temperature management.
 - We have entered into discussions with the National Marine Fisheries Service (NMFS) for actions on the Trinity River.
 - We have made the greatest possible reductions to trans-basin diversions to ensure enough flow is maintained through Lewiston Reservoir in support of temperature control on the Trinity River.
 - We will explore utilizing the Trinity Dam auxiliary bypass to support temperature management later in the season.
 - We are exploring 3D modeling and other tools for analyzing Lewiston Reservoir and Trinity River temperature management.

- We are exploring ways to modify and/or coordinate State Water Resources Control Board Order 90-5 requirements in the fall to prioritize and provide colder water for Coho spawning in November and December.
 - We will begin technical discussions this month to analyze the potential need for fall augmentation flows.
- Invitation to participate
 - The Yurok Tribe wanted to specifically notify and invite the SRTTG to participate in the Trinity River Temperature Task Group (TRTTG).
- Modeling capacities for Lewiston Reservoir and the Trinity River
 - Reclamation noted that the currently available modeling gives a pretty good idea of when coldwater will runout.
 - Reclamation produces temperature profiles available for Lewiston and Whiskeytown Reservoirs. Reclamation will add any member who would like to receive these profiles to the distribution list.
- TRTTG Schedule
 - Reclamation agreed to the suggestion to schedule the TRTTG kickoff meeting in July.
 - The group discussed the need for a meeting soon to discuss the following topics:
 - Utilizing auxiliary outlet at Trinity Dam which can change diversion patterns
 - Flow rate through Lewiston Reservoir
 - SRTTG can request to join TTRG by sending their request to the Kearns and West Facilitation Team.

Review Action Items and Meeting Scheduling

Kearns and West reviewed the action items listed at the top of the meeting summary.

The next SRTTG meeting is scheduled on July 14, 2022.