Sacramento River Temperature Task Group (SRTTG) Meeting
April 23, 2020 | 1:00 – 3:00 pm
Meeting Summary

Participants

Charles Chamberlain, FWS
Chris Laskodi, Yurok Tribe
Craig Anderson, USFWS
Craig Williams, SWRCB
Crystal Davis-Fadtke, CDFW
Cyril Michel, Southwest Fisheries Science Center
Diane Riddle, SWRCB
Duane Linander, CDFW
Elissa Buttermore, Reclamation
Eric Danner, Southwest Fisheries Science Center
Erica Meyers, CDFW
Garwin Yip, NMFS
George Kautsky, Hoopa Valley Tribe
James Gilbert, Southwest Fisheries Science Center
Jim Earley, USFWS
Jim Smith, USFWS
Jerry Robbins, WAPA
Jo Anna Beck, Reclamation
John Hannon, Reclamation
Jonathan Williams, CDFW
Josh Israel, Reclamation
Julie Leimbach, Kearns & West
Ken Kundargi, CDFW
Liz Kiteck, Reclamation
Mario Manzo, Reclamation
Matt Brown, USFWS
Matt Johnson, CDFW
Michael Macon, SWRCB
Miles Daniels, Southwest Fisheries Science Center
Mike Harris, CDFW
Mike Prowatzke, WAPA
Mike Wright, Reclamation
Randi Field, Reclamation
Vadim Demchuk, SWRCB
Sheena Holley, CDFW
Stephen Maurano, NMFS
Suzanne Manugian, Reclamation

Key Discussion Topics with
Summary of Outcomes and Agreements

Action items

1. Reclamation – Meet with George Kautsky, Hoopa re: Trinity agenda items for the May meeting.
2. Reclamation – Set up a meeting with SWRCB technical staff.
3. Reclamation – Set up a submeeting with SRTTG participants to review theory of approach for manual procedure for temperature tier selection protocol.
4. Reclamation - Start crafting the rationale for air temperature conditions in relation to 10% meteorology to include in the Temperature Management Plan.
5. Jim Smith, USFWS - Will send current numbers on broodstock at Livingston Hatchery to SRTTG – completed 4/24

1. Introductions

The goal for our the SRTTG meeting is to host a professional meeting and hear our differences of opinion with respectful disagreements. Thank you for everyone for your patience in getting information and meeting materials out for the SRTTG meetings. Thank you to Ken Kundargi, Miles Daniels, and Stephen Maurano for feedback, logistics, and analysis support.

2. Purpose and Objectives

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. Reclamation's objective is to solicit feedback from agencies on the Sacramento River temperature management and operations. Diane Riddle, SWRCB, conveyed that the SWRCB will respond to Reclamation in a written letter to be included in the record. The SWRCB is in the middle of litigation on this issue. The SWRCB has a different view of which actions are within Reclamation's control. The SWRCB has a different set of constraints than Reclamation and will need to evaluate temperature control under 90-5. Recognizing that conditions have improved this year compared to earlier months, SWRCB is looking at how to evaluate different scenarios.

3. Prior Action Items

Julie and Randi reviewed Prior Action Items and status including:

1. Randi Field – Send SRTTG Tier Management ppt. in pdf form. – Complete
2. Randi and Josh - Work with George Kautsky, Hoopa Valley Tribe, to address requested information on BiOp effects on Trinity objectives and including this topic in future SRTTG meetings. – Complete. Randi sent email to Kautsky, additional follow up, this meeting's presentation will address Trinity.
3. Reclamation staff - Work with SWRCB to 1) Respond to the anticipated SWRCB letter (expected in the next week), and 2) Randi send SRTTG Shasta Cold Water Pool Management guidance document. – Complete
4. Diane Riddle, SWRCB - outline specific information needed by SWRCB. – will be covered in the next agenda item in this meeting.
5. Randi - Update agenda items and materials for April SRTTG meeting including 1) Include an update on evaluation / assessment of tier 2 and 3; and 2) Move the Summary of Temperature Dependent Egg Mortality by the Southwest Fisheries Science Center to agenda item #6c subset of temperature management agenda. – Complete. Randi sent SRTTG materials packet on Tier 2&3 and made the corresponding agenda updates.

4. 2020 Meeting Logistics

The SRTTG will meet by teleconference during the COVID-19 shelter-in-place orders.

5. Communications between SWRCB and Reclamation

Randi summarized SWRCB requests in its letter to Reclamation:

a. Distribution of additional information.
b. Evaluation different water delivery actions including actions within Reclamation control
c. Update protocols for planning for temperature management

Reclamation shares the SWRCB's concern about temperature management. There is a difference of opinion about what actions are within Reclamation's control. Reclamation appreciates the SWRCB's concerns and understands if they are not satisfied with the level of response from the Reclamation. Reclamation continues to be open to meeting with the SWRCB and set this as an action item.

6. Long Term Operations Implementation - Update

Overall, there is not a lot of projected inflow and Reclamation expects to have relatively low storage in Shasta Reservoir at the end of the season.

Various SRTTG members confirmed they are interested in participating in a subgroup meeting to review the spreadsheet and analysis to provide technical support for the Temperature Tier Selection Protocol Proposal. Reclamation took convening the subgroup meeting as an action item.

7. Hydrology Update

Randi provided an overview of the hydrology, including Storage/Release Management Conditions and Temperature Management. See SRTTG Agenda Packet for full details.

8. Operations Update and Forecasts

8a. Storage / Release Management Conditions

Randi reviewed the CVP Northern System Operations Outlooks. Please see the SRTTG April Agenda packet for more detailed information.

Randi made the following key observations:

- In early April, Reclamation solicited input from SRTTG and Sacramento River Settlement Contractors to consider an operational change at Keswick. Fisheries agencies agreed with the proposal, which included a slight reduction for coldwater pool development. More specifically, the proposal included a release for an 8-day period and in addition to inflow, was enough in storage gains to get us from 1033' to 1038' elevation at Shasta Reservoir. This was a significant storage gain above 1035' to use the Shasta TCD Upper Gates exclusively which will help meet temperature targets in the future.

Reclamation is assessing whether to classify this year as a Shasta Critical Year. Reclamation decided to notified and specifically the Sacramento River Settlement Contractors, San Joaquin River Exchange Contractors and San Joaquin River Settlement Contractors, and wildlife refuges. The notification included an update of the likely identification of Shasta Critical Year, which would reduce their deliveries by 25%.

Discussion among SRTTG members focused on the source and assumptions in DWR's accretion and depletion figures. DWR develops the values for accretion and depletion and Reclamation uses those figures to develop their forecasts. Conditions for Shasta Critical year are embedded in the accretion/depletion values based the historical year type. The accretion and depletion assumptions included in the 90% inflow exceedance probability Operation Outlook (also used in the presented temperature modeling) are: 1) embedded 25% delivery reduction to Sacramento River Settlement Contractors 2) embedded reductions for water rights users on Feather and Sacramento Rivers including all in-basin uses, 3) Reclamation's CVP agricultural contractors South-of-Delta reduced to a 15% allocation, and 4) assumed 100% water rights of American River and South-of-Delta users to capture a conservative estimate of upstream releases.

b. Temperature Management

The group discussed temperatures, trends, Lake Shasta cold water pool volume, TCD configuration, and Lake Shasta isothermobaths as well as the Draft Temperature Management Plan.

Randi reminded everyone it is likely the temperature model is underpredicting the temperature in the late Fall (shaded portion of the graphics) and that Reclamation uses the historical end of September cold water pool and in-river temperature performance relationships to supplement the

output to determine more confident projections of temperature performance. The results of the presented scenarios are close in similarity of performance on the Sacramento River and the Trinity River. Expected residence time in Whiskeytown and Lewiston Reservoirs will be short this year, likely resulting in less warming of water moving through those reservoirs.

Temperature Management Plan

Josh Israel gave an overview of the Draft Temperature Management Plan and Reclamation's sections and new approach:

1. Communication and Coordination – In this section, Reclamation describes the meetings between agencies and Reclamation to inform the guidance documents.
2. Monitoring and Reporting – In this section, Reclamation proposes monitoring and reporting activities. This section also includes temperature profile measurements in the Sacramento Reservoirs as well as carcass and redd surveys.
3. Proposed Temperature Tier Selection Protocol –
    a. Reclamation developed a set of 358 scenarios to evaluate potential temperature tiers as part of a Temperature Tier Scenario Protocol (TTSP)
    b. This protocol is similar to the one used by the American River Group.
    c. This TTSP is not automated and is being utilized with a set of criteria to evaluate feasible scenarios.
    d. All 358 scenarios are considered in an iterative fashion
    e. The assessment includes the following biological and facility configuration to avoid loss of temperature control:
        i. Stage-dependent mortality (i.e., Anderson model; TDM)
        ii. Stage-independent temperature dependent mortalities (i.e., Martin model; TDM)
        iii. End of September Cold Water Pool less than 56^{O}F
        iv. Timing of opening of the first TCD side gate
    f. The Tier 2 or Tier 3 scenario that minimizes temperature-dependent mortality and presents feasible TCD operations will be selected for the Temperature Management Plan.
    g. Reclamation will avoid activities that would result in a shift into a warmer Tier.
    h. The evaluation will result in selection of a draft scenario that balances the most protective temperature tier with what is achievable and sustainable for the duration of the temperature control period through October 31, 2020.

In response to questions about supporting documentation for the Plan, Josh explained that this year's plan will also include enclosures documenting modeled output, forecasts, and outlook information. Group members suggested that Reclamation include the Operations and Conditions from the April SRTTG meeting package.

On behalf of Reclamation, Josh requested feedback from the SRTTG on the draft Temperature Management Plan (submitted as a separate attachment to the meeting materials).

Proposed Schedule for Temperature Management Plan

- April 23 – Reclamation solicits comments on Draft Plan.
- NLT April 30 - Reclamation to send draft to SWRCB.

- TBD - SWRCB post draft and open 2-week comment period

Preliminary Temperature Analysis

During last month's SRTTG meeting, Randi presented model runs bounding the tiering system with two model runs with CCR target temperature at 53.5°F and 56°F. These runs did not represent proposed temperature management operations. The preliminary simulation results showed the temperature target at 53.5°F run could not maintain the temperature for the entire temperature management season. However, the simulation targeting 56°F yielded an achievable temperature management season.

Reclamation then used these model results to inform the evaluation of potential feasible scenarios in Tier 2 and 3 and anticipates selecting a temperature management tier. Reclamation is committed to a selection and operations that avoid causing a shift into a warmer tier unless there is an emergency or unforeseen condition. Reclamation reviewed 358 modeled scenarios and selected four scenarios (presented) for additional scrutiny.

Reclamation and participants discussed and clarified side gate use and historical operation:

- Timing of operations of the side gate is critical to avoid losing temperature management control.
- Reclamation has diminishing control over temperature during October at the end of the temperature management season when side gates are in use.
- In support of selecting a conservative scenario, by October, the cold water pool has typically been utilized and temperatures at the end of October are historically variable and challenging for the National Weather Service to predict.
- There is a historically short timeframe between opening the first gate and then the second side gate. The model is not refined enough to predict the difference in timing between use of the first and second side gates. In Reclamation's proposed scenario in the draft Temperature Management Plan, both side gates will be utilized during the operation.
- The timing of opening of the first side gate is more important than the timing of the second side gate opening.
- Reclamation can open a side gate in conjunction with the pressure relief gates, depending on the conditions and the desired outcomes. Reclamation would modulate with the pressure relief gates open to allow warmer water to mix.

Group members commented:

- Request for 1) side-by-side comparison of the scenarios, 2) graph that incorporates all 4-5 scenarios, 3) description of the significance of the difference in ranking, 4) description of difference in the operations.
- Request to explore the significance in difference of mortality in Scenario 71. Reclamation is uncomfortable with July 30 for a side gate pull and wants a more conservative end of Sept. coldwater pool. The model prediction is a data point to be taken with the experience of operating the system.
- Josh suggested moving a number of rows from the temperature tier selection that indicate the monthly average temperature into a new spreadsheet. This allows viewing of the differences in the temperature control period in the early fall.
- Concern that automation of tier selection will make the process rigid and prefer flexibility and adaptation based on real-time input.

c. Temperature Dependent Mortality

The group discussed temperature dependent mortality figures in relation to the temperature tier selection in the agenda item above.

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

Matt Johnson reported that CDFW has conducted:

- Limited field work working through COVID restrictions.
- Carcass surveys: Balls Ferry to Keswick - no carcasses discovered last two weeks.
- Boat-based survey ACID - Cow Creek.
- Contracting but no scheduling for aerial winter-run Chinook salmon redd flights.
- Planning to start 7 days / week scouring river for evidence of first spawned out winter-run Chinook fish beginning May 4.

10. 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.

Jim Smith reported that USFWS has:

- Suspended rotary screwtrap operations for COVID.
- Reassessed on a regular basis. Suspects that they will start back up no later than July 1 when they expect to see the first winter-run Chinook migrate downstream.
- Assessed the broodstock collection at Livingston Stone National Fish Hatchery and will send out the latest information.
- Increased hatchery production this year in coordination with CDFW, NMFS, and USFWS. The interagency group considered potential negative impacts of temperatures in the mainstem Sacramento River and thiamine deficiencies.

11. Seasonal Topics

11a. Spring Pulse Flow

Cyril Michel presented the Southwest Science Center's proposal for a spring pulse flow as articulated in the Spring Pulse Flow documents distributed in preparation for the meeting.

Randi discussed some of Reclamation's concerns with the proposed spring pulse flow:
1. Temperature Management
2. Timing and flows in relation to ACID diversion dam and Reclamation deliveries.

ACID infrastructure anticipated May release from Keswick Dam of 9,750 cfs
Reclamation's estimate of Spring Pulse Flow release from Keswick Dam: – 15,000-16,000 cfs. (for Spring Pulse Flow target at Wilkins Slough of 11,200 cfs)
Reclamation must notify ACID of potential risk when Reclamation plans to increase flows above 15,000 cfs. ACID conducts its own risk assessment for its infrastructure when flows exceed 15,000 cfs. ACID flashboards removal requires flows reductions to 4,500 cfs over 2 days, including a 7-day ramp down.

12. Discussion Topics

None

13. Review Action Items

The group did not review action items due to lack of time before participants needed to leave the meeting.

14. Next Meeting Scheduling

The next SRTTG teleconference will be held on the 4th Thursday of next month, May 28, 2020.