BUREAU OF RECLAMATION

Sacramento River Temperature Task Group Meeting Summary

June 27, 2024

Members Attending

- Bureau of Reclamation (Reclamation): Derek Rupert, John Hannon, Lisa Eliott, Liz Kiteck, Mechele Pacheco, Peggy Manza, Tom Patton
- U.S. Fish and Wildlife Service (USFWS): Craig Anderson, Bill Poytress, Craig Fleming, Kaitlin Dunham, Robert Null, Matt Brown
- California Department of Fish and Wildlife (CDFW): Marelle Arndt, Colby Hause, Doug Killam, Matt Johnson, Sheena Holley, Tracy Grimes
- National Marine Fisheries Service (NOAA, NMFS): Stephen Maurano
- Southwest Fisheries Science Center (NOAA, SWFSC): James Gilbert
- California Department of Water Resources (DWR): Kevin Reece, Mike Ford, Ryan Kurth
- California State Water Resources Control Board (SWRCB): Craig Williams, Claudia Bucheli, Matt Holland
- Sacramento River Settlement Contractors (SRSC): Catherine Morales-Sandoval, Mike Deas
- Western Area Power Administration: Jeff Trow
- Yurok Tribe: Christopher Laskodi, Kyle De Julio
- The following SRTTG members did not have a representative present: Hoopa Tribe
- Facilitation Team: Victoria Pebbles, Terra Alpaugh, and Jack Hughes, Kearns & West

Topics

Welcome, Agenda Review, and Purpose

Victoria Pebbles, Kearns & West, welcomed all participants. The objective for the meeting was to discuss the latest Sacramento River system forecasts and fisheries updates and their implications

for implementing the 2024 Sacramento River Temperature Management Plan (TMP). The purpose of the SRTTG is as follows:

> Sacramento River Temperature Task Group (SRTTG) consists of agency representatives having direct interest in cold water pool management on the Sacramento River and meets at least monthly February through October. The purpose of the SRTTG is to "share operational information monthly and improve technical dialogue to inform the development and the implementation of an annual Temperature Management Plan (TMP) for the Sacramento River." The TMP is developed by the U.S. Bureau of Reclamation (Reclamation) in accordance with California State Water Resources Control Board Water Rights Order 90-5 to assist with improving and stabilizing Chinook salmon populations in the Sacramento River.

Hydrology Update

Tom Patton, Reclamation, provided the latest forecast and implications for the Sacramento System and reported on current hydrologic conditions including flows. Patton noted that conditions were looking favorable and nothing unexpected was happening with water temperatures. The sections below correspond to groups of graphs, images and tables in the meeting packet provided by Reclamation.

Northen Sierra Precipitation as of June 26, 2024

- Total precipitation for the eight-station index was 47.2 inches, which was 90% of the average for this date.
- There has been little precipitation for the past six weeks.

California Snow Water Content as of June 17, 2024

- Snowpack was almost completely melted with 12% of the average to date remaining in the North.
- Inflows to reservoirs were reducing and the major water supply reservoirs statewide were at or above their historical averages. The three largest (Shasta, Oroville, Trinity) are fairly close to their total capacity (83-91% full).

Current Storage, Releases, Water Temperatures and Current Operations: Daily CVP Water Supply as of June 24, 2024.

- The Trinity River Record of Decision (ROD) designated flow was higher than average at 1,300 cfs.
- The latest release for Keswick was scheduled for 12,500 cfs on July 1, 2024. Flows may be as high as 12,500 cfs, but Reclamation will try to keep them as low as possible.
- Due to the recent hot summer air temperatures, there was high demand on the system for water.
- Folsom Reservoir has increased releases to help with supply in the Delta.
- Storage levels are above average for this time of year. Shasta Reservoir storage is more than 110% of historic average, and 80% of total capacity.

- Inflow is dwindling, and there will likely be minimum inflows through summer as most of the snow has melted.

Temperature Management

- Reclamation is including a new figure in the SRTTG meeting packets showing the Shasta Reservoir Temperature Control Device (TCD) configuration. It can also be viewed on Reclamation's website where viewers can scroll through to see how TCD operation changed over time.
- At the time of the meeting four middle and two upper gates were open.
- Water temperatures going out of the TCD under this configuration have remained steady for most of June at about 50°F.
- The water temperature at the CCR gage has been very flat (plus or minus 1°F) for most of the month with temperatures averaging 52.7°F. A few days early in the month they were higher at around 53.6°F, but since then have been remaining below the 53.5 °F target temperature.
- Maintaining the Sacramento River temperatures will get more challenging as the summer progresses, but so far there is no cause for concern. The current high flows in the system have helped stabilize temperatures.
- The Shasta River temperature profile from June 26, 2024, shows that things are progressing as expected. 50°F water was being released from the TCD, and as the temperature profile changes through the summer, Reclamation will close the upper gates and open the lower gates.
- Spring Creek Power Plant flows were around 1,000 cfs per day. Water temperatures there have been warming, bringing warmer water into Keswick Reservoir. However, overall for the season, the flow from Spring Creek helps Shasta Reservoir by reducing draw on its cold-water pool.
- Water temperature at IGO on Clear Creek was under 60°F. The pulse flow was complete at the time of the meeting, and flows were expected to remain steady at 150 cfs for the summer.
- Water temperatures were cool on the Trinity River system. Reclamation saw strange data from the North Fork gage and USGS was going to inspect it.
- Temperatures on the Trinity River have been steady. There was an issue with the data on June 10, 2024, so Reclamation removed that data point, but will try to recover the data.

Reservoir Profiles and Cold-Water Pool: Graphs on Isothermobaths-2024, Graphs on Cold Water Pool Volume, Percent Exceedances (1998-2023)

- Shasta:
    - The Shasta Reservoir Isothermobath Plot was typical for this time of year with warm water near the surface.
    - There were still good 52°F cold-water pool volumes.
    - The 48°F cold-water pool volume is not as large as some years like 2019 and

2023 but is still comparable to those in mid-range years like 2016 and 2018.

    - Nothing has changed much since the previous two Shasta Lake Cold Water Pool Volume Exceedance Plots.

- Trinity Lake:
    - Trinity Lake storage peaked at 2.1 MAF in May and is slowly decreasing, but still has plenty of cold-water volume.
- Whiskeytown Lake:
    - Whiskeytown Lake Isotherms Plots are typical for this time of year but may be slightly warmer than last year.

Seasonal Temperature and Precipitation Outlook:

- The current 30-day forecasts show July might not be extremely hot as previously predicted. There is an equal chance of temperatures being above and below average in California.
- Temperatures in July through September also have equal chances of being higher or lower than average for the coastal region but are forecasted to likely be above average in the mountains.
- The seasonal precipitation forecast for December through February shows equal chances of being above and below precipitation in Northern California, but more likely drier in Southern California.

50% Exceedance Forecast: Estimated Central Valley Project (CVP) Operations. This forecast relies on an average inflow scenario, i.e., there is a 50% chance actual streamflow volume will exceed the forecast and a 50% chance it will be less. The tables depict the resulting storages, releases and diversions under this forecast.

- There are not many changes from the previous forecast.
- Shasta Reservoir storage is peaking and will begin to reduce, ending at 2.97 MAF at end of September 2024.
- Trinity Lake was forecasted to be 1.7 MAF at the end of September.
- This forecast contains the current ROD flows for Trinity River and the remainder of ROD flows can be seen in the forecasted June and July releases.
- There is a placeholder in the forecasted Trinity River releases for potential Klamath augmentation flows in August and September. Wetter years may not need the Klamath flows, so they may not happen thereby allowing more water to stay in Trinity Reservoir.

90% Exceedance Forecast: Estimated CVP Operations. This forecast relies on a conservative inflow scenario, in which there is a 90% chance actual streamflow volume will exceed the forecast and a 10% chance it will be less. The tables depict the resulting storages, releases, and diversions under this forecast.

- This is a drier scenario with less reservoir storage overall.

- The 50% and 90% exceedance forecasts begin to converge at this time of year.
- Trinity Lake was forecasted to be at 1.65 MAF storage at the end of September.
- Shasta Reservoir's forecasted storage is 2.7 MAF. The lower storage is because of less inflow.
- Accretions are lower in the 90% exceedance forecast (compared to the 50% exceedance forecast), so more water needs to be released to supply adequate water to meet obligations. Therefore, Keswick releases are forecasted to be at 14,000 cfs in July.
- This forecast assumes a Carr Tunnel outage this winter, so diversions are near 0 cfs starting in November and continuing through the winter. That is just an estimate as the contract for the work is not finalized.

Temperature Modeling

- Reclamation used the 90% exceedance forecast to run the temperature model. The results are similar to modeling from the final TMP.
- At Shasta Reservoir, the first side gate opening moved a few days earlier but the full side gate opening date did not change.
    - The end of September cold-water pool volume less than 56°F decreased a little in this forecast because in this forecast more water is being moved, pulling hard on the cold-water pool.
    - This leaves a lower end-of-season storage estimate, but not a significant decrease.
- Clear Creek was running warmer than the model predicted. Reclamation will try to pull coldest water from Whiskeytown in mid-September to cool it.
- The modeling shows a good cold-water pool in Trinity Lake throughout the summer and into the fall.
- Reclamation will continue to make temperature model runs every month based on latest forecast and observed conditions to monitor progress.

Questions and Comments

- Yurok Tribe asked if Reclamation was going to adjust operations this year to meet the temperature target of 60°F at Douglas City since there is more water in the reservoir this year.
    - Reclamation responded that so far this year water temperature had been around 53°F. Reclamation started diverting a little water in late May and into June to get water through in addition to the ROD flow, so that is helping keep temperatures down. It seems right now that no additional actions need to be taken to keep the water temperature below 60°F at Douglas City.
- NMFS asked if any portions of the cold-water pools cannot be released downstream through the TCD.
    - Reclamation responded that the diagrams represent the total cold-water pool volumes to the bottom of the lake, but in theory some might be inaccessible.

- USFWS noted that the July releases from Shasta Reservoir peak at 14,000 cfs in the 90% exceedance forecast and asked if Reclamation will take any measures to smooth flows to benefit salmon redds and minimize their dewatering in the fall and winter.
    - Reclamation responded that peak diversions of 1,205 cfs was scheduled for early July. The amount of water diverted for settlement contractors is expected to lessen throughout the month of July. Also, Reclamation has Delta water quality and outflow standards that must be met in July. A lot will depend on accretion and depletion, but it seems that a 12,500 cfs peak release seems possible now since current conditions are closer to the 50% exceedance forecast. Reclamation is trying to balance the entire system.
- NMFS asked if the needs of Wilkins Slough were driving diversions or if it was to meet the Delta water quality Standards.
    - Reclamation responded that they were trying to target 5,000 cfs at Wilkins Slough and that was focused on diversion so the irrigators could draw what they needed. Now, the focus is on Delta needs for the month of July for water quality.
- NMFS asked if there was a need in July for a short-term release of 500 or 1,000 cfs (beyond the projected 12,000 cfs in the 50% exceedance forecast), and whether that could be met from other reservoirs like Folsom instead of Shasta?
    - Reclamation responded that this is a possibility, and it would be the first approach over Keswick releases. To meet flow requirements, the choice faced by operators is to add more flow through larger releases or to reduce pumping. The State is choosing to reduce pumping instead of adding more flow. And adding more flow can create other challenges. For example, when flows are too high, Reclamation may have to close the cross-channel gates to ensure recreational safety in the Delta.

USFWS Fish Conditions, Forecasts and Hatchery Updates

The SRTTG did not receive a steelhead update.

Bill Poytress, USFWS noted that it was between the winter-run and spring-run Chinook salmon seasons for the population upstream of Red Bluff Diversion Dam, so there was no update.

Kaitlin Dunham, USFWS Livingston Stone National Fish Hatchery, noted that Livingstone Stone Hatchery had spawned sixty-three females so far this year. They will send seventeen of the females' eggs to the McCloud River. There are three unclipped genetically confirmed spring-run Chinook salmon males. After operating the trap, they suspect they have a couple unclipped spring-run Chinook salmon females that will be confirmed with genetic testing. June collection goals have been met. They have collected 115 females and twenty-four males to date this season.

River Fish Monitoring: 1) carcass surveys 2) Redd counts 3) stranding and dewatering surveys

Doug Killam, CDFW, provided river fish monitoring updates noting that CDFW had collected sixty-four carcasses to date, which is the third lowest number since 2003. The average for this

time of year is 549 carcasses. Based on this, they are not expecting a big run this year. By this time of year, carcass numbers typically represent 20% of the run. The current area redd count to date was sixteen from aerial surveys and six shallow redds observed from boats. They will not continue stranding surveys until flows reduce. All data is on CalFish.org and the file is updated throughout the season.

Questions and Comments

- DWR asked if the six shallow redds were different from the ones seen from the air.
    - CDFW responded that they could be the same redds as those spotted in the aerial survey, but the shallow survey looks in shallow waters from a boat. Aerials surveys look in shallow and deep water. So, there is a chance some are counted twice.

Adjourn