

**Sacramento River Temperature Task Group (SRTTG) Meeting**  
**April 7, 2022, | 1:00 PM – 2:45 PM**  
**Meeting Summary**

***Participants***

Ammon Danielson, WAPA  
Bill Poytress, USFWS  
Chris Laskodi, Yurok Tribe  
Crystal Rigby, CDFW  
Craig Williams, SWRCB  
Cyril Michel, SWFSC  
Doug Killam, CDFW  
Donald Bader, Reclamation  
Diane Riddle, SWRCB  
Erica Meyers, CDFW  
James Gilbert, SWFSC  
Jo Anna Beck, Reclamation  
John Hannon, Reclamation  
Jonathan Williams, CDFW  
Josh Israel, Reclamation  
Kevin Reece, DWR  
Kristin White, Reclamation

Lee Bergfeld, MBK Engineers/SRSC  
Liz Kiteck, Reclamation  
Mary Suppiger, Reclamation  
Matt Brown, USFWS  
Matt Holland, SWRCB  
Michael Macon, SWRCB  
Mike Prowatzke, WAPA  
Mike Ford, DWR  
Stephen Maurano, NMFS  
Suzanne Manugian, Reclamation  
Seth Naman, NMFS  
Tom Patton, Reclamation

***Facilitation Team***

Mia Schiappi, Kearns & West  
Terra Alpaugh, Kearns & West

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

**Action Items:**

- All SRTTG to send Tom Patton comments on the TMP with focus on how to shape the available cold water, as well as any text that should be included in the plan for context (since the draft text was significantly pared down). Send comments by April 21<sup>st</sup>, so that they can be considered and incorporated into the final draft (target submission date: May 2).
- Reclamation requested comparative model runs from SWFSC and SRSC, so that the SRTTG can compare results across models.
- KW to schedule additional SRTTG meetings on 4/14 and 4/21 to further discuss topics related to the TMP. (Note: you should have received calendar invites for both these meetings from Mia; please let us know if you have not, or there is any confusion!) Below are the topics that were raised at the 4/7 meeting, which we have tried to sequence for discussion over the course of two meetings; please send any thoughts you have on the proposed sequence below.
  - a. *Preliminary Topics for 4/14*
    - i. Confirm common model assumptions (e.g., redd distribution, exceedance percentage, temperature target)
      - 1. Including discussion of assumptions related to Trinity exports (e.g., decreased exports from February to March, relationship between exports and Trinity temperature)
    - ii. How shaping might impact TDM
    - iii. Question: should USBR operate to 55 degrees at the SAC gage in the late April through May timeframe?
    - iv.
  - b. *Preliminary Topics for 4/21*
    - i. Using common assumptions established 4/14, how do models (USBR, SWFSC, SRSC)

- compare?
- ii. Calibration of Clear Creek modeling
- iii. Trinity: look at different options for use of the auxiliary outlets; modeling CWP left under different outlet operations; impacts on temperature compliance in the fall.

## 1. Prior Action Items

Terra Alpaugh, Kearns & West reviewed action items from the previous meeting on February 24, 2022:

1. **SRTTG participants** - Please email Tom ([tpatton@usbr.gov](mailto:tpatton@usbr.gov)) with your input and suggestions /options for the Jellys Ferry temperature gage. The gage was removed when the Jellys Ferry bridge was replaced, and a new site is needed for the gage. Reclamation would like input on the importance of a temperature gage thirty-four miles downstream from Keswick between Balls Ferry and Bend Bridge and suggestions on potential sites for the gage. Reclamation is currently considering a replacement gage on the bank at Jellys Ferry but has concerns about vandalism. – **Addressed**
2. **Suzanne Manugian, Reclamation** - Work with Charlie Chamberlin, USFWS, to include Clear Creek fisheries information in the Clear Creek Fisheries Outlook. – **Addressed**
3. **Diane Riddle, SWRCB** - Summarize Trinity requirements in 90-5. – **Addressed**
4. **Chris Laskodi, Yurok and Tom Patton, Reclamation** - Consider requirements, need, and timing for emergency consultation required in the Trinity River ROD and 2000 BiOp. Please include NMFS Trinity representative Justin Ly ([justin.ly@noaa.gov](mailto:justin.ly@noaa.gov)) communications.
  - a. The tribes have sent letters regarding Trinity operations. The tribes would like to be involved but it is not required under the ROD

## 2. Interim Operations Plan and SRTTG

Reclamation updated the SRTTG on the recently completed IOP, including:

- The IOP requires a temperature management plan that meets 55° F in a dry year and if that is not possible, shapes the water in a way to get closest to that goal. The IOP also limits the releases of stored water and focuses on certain priorities, with public health and safety identified as the highest priority, followed by fisheries.
- The IOP sets up the Shasta planning group to discuss appropriate operations of Shasta, including temperature, releases, and priorities.
- In recent weeks, the directors of the agencies that were involved in the litigation<sup>1</sup> convened to discuss various options and decided on a plan that caps Keswick releases at 4,500 cfs through the temperature management season. There is broad acknowledgement that there are significant uncertainties around the impacts of these operations.
  - a. For instance, Keswick has rarely released less than 6,800 cfs in the summer<sup>2</sup>, and there may be unknown impacts on intakes for health and human safety flows downstream. Usually, a release this low only occurs in the winter when there is additional water coming into the system.
  - b. A range of monthly average flows from 4,000 cfs to 5,000 cfs was analyzed and ultimately landed on 4,500 cfs. The TDM difference between 4,000 cfs and 4,500 cfs was small, and the difference between 4,500 cfs and 5,000 cfs was much larger.

<sup>1</sup> USBR, DWR, CDFW, USFWS, NMFS, SRSC, and CalEPA with SWRCB providing technical advice

<sup>2</sup> KWK was 6,542 cfs on August 28, 1997, and <6,800 cfs after September 4, 2014.

- c. The releases will be 3,500 cfs in April, will increase to 4,500 cfs until the end of August, and then decrease to 4,000 cfs in September.
  - d. Currently, the releases are holding at 3,250 cfs with additional water coming off the system.
  - e. We are expecting record breaking Redding air temperatures for the date throughout the weekend, so there may be downstream side flows from snow melt soon which would allow us to wait to increase releases until later in April.
  - f. These releases are going to be based on monthly averages, which will allow flexibility; however, it is unclear whether an average of 3,500 cfs is mathematically possible considering releases are still at 3,250 cfs.
- There was an agreement that Reclamation will operate Wilkins Slough flows between 3,000 cfs and 3,200 cfs.
    - a. Reclamation will keep the SRTTG informed of changes that are made; however, there will not be emergency meetings held because time will be of the essence. A lot can happen when operations occur at a level that has never occurred.
    - b. SRTTG will be asked for general ideas regarding a release schedule with some general direction for fish conditions and temperature; SRTTGs main goal will be to help shape the use of cold water.

### 3. Draft Temperature Management Plan Overview

- The draft TMP is different than those done in the past. Reclamation described their process, including:
  - a. Reclamation revised all their numbers and the increased depletions; the forecast from DWR cannot be used, because it is based on historical depletions.
  - b. Reclamation has been working with the SRSCs to revise the depletion forecast.
  - c. The draft TMP has not had input from other SRTTG parties on cold water pool management.
  - d. Reclamation requested that SRSC and the SWFSC model the plan to help QA/QC Reclamation's outputs.
  - e. Reclamation cut out quite a bit of content in the draft TMP that is normally included because there was not enough time to collaborate with all the agencies to wordsmith the language. If there is something critical that an agency feels is missing, please let Reclamation know.
  - f. Reclamation will be adding some of the regulatory monitoring sections back into the document.
- SWRCB clarified their role participating in the Shasta Planning group was as technical advisors to CalEPA. The SWRCB is not part of the litigation; however, they are involved in the review and approval of the TMP.
- Reclamation plans to have the final TMP done by May 1 which is dictated in the Reconsideration Order (RO) from the approval of last year's Sacramento River TMP. However, the RO also states that there is the possibility to ask the SWRCB for more time if necessary.
- Reclamation requests comments on the Draft TMP by April 21<sup>st</sup>.

### 4. River fish Monitoring: 1) Carcass surveys 2) Redd counts 3) Stranding and dewatering

Doug Killam, CDFW, presented the river fish monitoring update.

- Winter run carcass surveys/spawning, redd surveys, and dewatering surveys will start at near the end of April and into May.
- The plan is to have increased capacity at the hatchery this year, though it is unclear what the exact numbers and management strategies will be. Currently, there are 73 females and 60 males, and we are successfully operating the Keswick trap three times a week and will continue operating at that rate until fish stop coming in. The current plan is to increase production of juveniles at Livingston Stone Hatchery.

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

Bill Poytress, USFWS, presented the fish distributions/forecasts update for RBDD.

- Last year's winter-run Chinook passage is at 99.9% of expected numbers; USFWS does not anticipate any additional winter run until July.
- USFWS are still catching fall-run Chinook; so far this year's passage of wild fish (excluding hatchery fish) is estimated at 79% +/- about 20% based on historical averages.
- Spring-run Chinook passage is estimated at 69% +/- about 18% based on historical averages.
- Young-of-year steelhead passage is currently at 3.2%.

**6. Hydrology, Operations and Forecasts, and Temperature Management**

Tom Patton, Reclamation, provided an update on hydrology, operations and forecasts, and temperature management. For more detailed information, please refer to meeting packet. Key takeaways included:

Hydrology

- Conditions are dry, but there is potential for storms during the week of 4/11 in Northern California. The long-range forecast predicts dry weather.
- It has been the driest three months on record, and this has been affecting water storage. This is exacerbated by last year's dry conditions.
- The warm weather is causing snowmelt in the Trinity River, but it has not affected Shasta Lake's storage.
- Storage:
  - a. Shasta Reservoir storage - just above 1.7 MAF - 52% of the 15-year average.
  - b. Trinity Reservoir - 52% of 15-year average
  - c. Folsom Reservoir - 112% of the 15-year average.
  - d. New Melones – 64 % of 15-year average.

Monitoring Gages

- The Jellys Ferry water temperature gage (JLF) has been removed, but requests have been made to continue monitoring temperature at Jellys Ferry in some way. Reclamation will continue working on the best way to meet that need.
- Spring Creek Power Plant releases will remain low throughout the summer. Temperatures are now measured by gauging directly on the penstocks in the power plant. This requires a different way of computing the data, which will be noted in the records.
- The water that has been moving through Spring Creek Power Plant over the last week has been for studies USGS and SWRCB are doing on water quality.
- The SAC gage at Highway 44 is currently measuring 55° F. When temperatures rise throughout the season, there is the assumption the gage will measure increases similar to last year. Reclamation's goal is to release warm water in a way that will not significantly impact fish early in the season and preserve as much colder water for critical times.

Operations

- Reclamation has been adjusting the Temperature Control Device (TCD) and is releasing 50° F water with all the middle gates open. The upper gates will not be opened this year because the reservoir will not get high enough to utilize them.

- Monthly average Shasta releases will top out at 4,500 cfs from May to August and will decrease to 4,000 cfs in September.
- Forecasted diversions are minimal through early summer with a slight increase in the fall when the Whiskeytown drawdown occurs.

## 7. Temperature Management

Tom Patton, Reclamation, asked participants to refer to the meeting materials for details and to ask any follow-up/clarifying questions. He provided a brief update, including:

- There is a lot of uncertainty as to how the TCD will perform this year; these are best guesses based on last year. The initial plan is to keep water warm earlier in the season at an estimated 57° F at SAC.
- In April, the models will use the national weather service based L3MTO, which looks at a conservative 25 percent warm scenario.
- There is a big water temperature drop in the middle of June when the lower gates are opened, which will decrease the release temperature at Keswick Dam.
- There were no specific temperature targets set when running the models; Reclamation modelers tried a possible operational scenario that pulls the first side gate on July 16, and then slowly closes all of the lower gates throughout August.
- Starting in late September, the output from the HEC5Q is not reliable and it is necessary to use CE-QUAL-W2 model.
- At the end of September, cold water less than 56° F is projected to be 183 TAF. Preferably storage at that time would be 300 TAF in order to have confidence in the modeling.
- The design criteria for the TCD requires 35 feet of head on the gate sills. When the water level drops below 935 ft, the PRGs would need to be opened.
- A panel on one of the middle gates is missing, which has been an issue and will not be fixed in the near term.
- Reclamation stated that the temperature curtain will likely not be deployed this year.
- Based on the models, temperatures at the Clear Creek gage will not reach 58° F until the end of October.
- The Trinity model forecasts temperature releases at Lewiston for April are 48.3° F, and the current average water temperatures at Lewiston is 51° F. This may improve with the ROD volumes. As it stands now, the Lewiston temperatures are three degrees warmer than the model.
- Not as much time has been spent on the Whiskeytown/Clear Creek modeling results, and it impossible to modify the code within the model.
- The Trinity Reservoir modeling assumes no bypasses; however, it may be possible that the Trinity River auxiliary bypass can be used to get cooler water then would come through the power plant.
- SRSC did not provide any modeling updates.

Group discussion on the Trinity forecast included:

- The forecasted 91 TAF diversions from October to February the Trinity is the first estimate of what type of flows will be needed to keep Lewiston cool and specifically 25 TAF in October. If there are additional modeling capabilities, Reclamation will look at those estimated volumes as well. The diversions are also intended to support minimum flows for Clear Creek. If there is low natural flow into Whiskeytown, there will need to be support from the Trinity system. For now, diversions can be assumed to be zero.
  - a. 91 TAF at the beginning of Water Year 2023 is concerning because it may not rain again next year. The Trinity is out of water, and there is going to be severe temperature related mortality this year. If

20 TAF are being diverted every month at the beginning of 2023, the level at which it will fill next year is being reduced significantly.

- Rather than planning based on average conditions as is normally done on the Trinity side, there should be a plan to not have any flows coming into the reservoir next year, because that is a real possibility.
  - a. Reclamation can do everything to maintain a high reservoir level; the forecasted numbers are functionally zero even if they do not appear to be zero.
  - b. Trinity releases for August and September have the potential to be 50 TAF for the Klamath. It is being used as a place holder in the forecast and was needed last year. If it is not needed this year, that storage that could be recouped.

## **8. Draft Temperature Management Plan Technical Input**

- It would be helpful to have the SWFSC run comparative runs so that the SRTTG can look at them alongside Reclamation's model runs. It is important because operations are outside the normal range, and the more data the better for physical models. The group should come to agreement on modeling assumptions so that they model runs are comparable.
- SRTTG could focus on exploring options that may reduce the temperature dependent mortality through more targeted use of the cold water.
- A request was made for temperature dependent mortality (TDM) results for scenarios that were modeled at 4,000 cfs to 4,500 cfs, and 5,000 cfs. There is an increase in TDM from March to what is estimated in the TMP likely due to different modeling assumptions.
- There is a table that shows all the assumptions that were used in the modeling.
- Raw temperature output data from SacPas was inputted into the model using the assumptions listed.
- A suggestion was made to use the 2021 redd distribution provided by the SWFSC and to use the 99% exceedance forecast.
- The TDM distribution done in March used a 2020-2021 redd distribution which was going to have a lower TDM compared to the broader historical distribution used in the TMP; analysis shows that a 10% to 15% change in TDM can be anticipated by changing redd distribution.
- Cooler water is being targeted at Highway 44 (SAC) to protect earlier season redds knowing that there will be no more cold water by the end of the season.
- From an operational standpoint, if there is a heat wave in April and 55° F cannot be maintained at the SAC gage, there may be another higher temperature that needs to be considered. Reclamation asked the SRTTG whether they should operate to 55° F at the SAC gage during early April.
- Concerns were expressed about the ability to meet fall compliance standards in the Trinity. There was interest in exploring different options for using the auxiliary outlet and whether or not the volume of the cold-water pool left under various scenarios of auxiliary outlet operation can be modeled

## **9. Upper Sacramento Scheduling Team**

- During the last SRTTG spring pulse subgroup meeting, attendees were briefed on current condition operations.
- The group decided not to recommend a spring pulse flow to SRTTG for April.