

Sacramento River Temperature Task Group (SRTTG) Meeting
Tuesday, May 3, 2016 | 1:00 pm – 3:30 pm

MEETING SUMMARY

Participants:

- Craig Anderson, FWS
- Vadim Demchuk, SWRCB
- Ken Emanuel, SWRCB
- Robert Franklin, Hoopa Tribal Fisheries
- Josh Israel, USBR
- Liz Kiteck, USBR
- Duane Linander, CDFW
- Ron Milligan, USBR
- Kyle Ochendusko, SWRCB
- Tom Patton, USBR
- Diane Riddle, SWRCB
- Jeff Rieker, USBR
- Jason Roberts, CDFW
- Rich Satkowski, SWRCB
- Jim Smith, FWS
- Stacey Smith, USBR
- Brycen Swart, NMFS
- Thuy Washburn, USBR
- Mike Wright, USBR
- Garwin Yip, NMFS
- Mike Harty, Kearns & West (Facilitator)

Note-taking:

- Gia Brazil, Kearns & West

Action Items:

- All agencies and other SRTTG members are welcome to comment on the 2-page 2016 SRTTG process document to USBR. The draft will be finalized and posted online.
- USBR and NMFS will update the SRTTG Membership list.
- USBR will update the existing SRTTG distribution list and send to partner agencies for review and feedback.
- USBR will work with NMFS, CDFW, and FWS to identify 1-2 representatives per agency for the SRTTG.
- SWRCB will post the Sacramento River Settlement Contractors and TCCA Estimated Spring 2016 Diversions graph on their website; USBR will send it out to the group via email.
- USBR will include a note in the model assumptions about using the original or modified temperature assumption.
- USBR will consider using the modified temperature assumption to see how it performs during the next model run (~May 18).
- USBR will consult internally about how to meet NMFS' temperature criterion question: how to make it through the 2016 season meeting the 52° F Keswick release temperature.
- USBR will send around to the group the historical data showing the 2 years when the 55° F 7 DADM at CCR was met and the cold water storage in those years.

- USBR will work with the other agencies to identify additional invitees for future meetings.

Key Discussion Topics with Summary of Outcomes and Agreements

Introductions and Overview for 2016

USBR expressed appreciation for the willingness of SRTTG members to kick off the 2016 water year at an in person meeting. Current signs indicate a better water year and there are some new tools and practices that will also be available this management season.

Review SRTTG process outline and membership

For 2016 USBR proposes some changes to the SRTTG structure and process. USBR emailed the proposed 2016 SRTTG process to the group in advance of the meeting. One proposed change is meeting monthly on the fourth Thursday of each month, with additional calls as needed. SWRCB suggested that meetings/calls might be tentatively scheduled for every Thursday and cancelled week-by-week if unnecessary. The group noted that the newly formed SWIM Team weekly meetings could suffice and SRTTG could still meeting monthly. The group agreed the monthly SRTTG meetings should include managers and technical staff and the weekly SWIM Team meetings would consist primarily of upper management.

USBR noted the possibility of expanding the SRTTG to include other groups (i.e., Sacramento River Settlement Contractors) that could provide additional data to the SRTTG, although no decision has been made. Another option would be to maintain the SRTTG membership but invite other groups to join specific meetings to present useful data. The membership of SRTTG is posted on [NMFS website](#) and should be reviewed and updated by each member agency. The group agreed that it will be efficient to have information channeled through the designated SRTTG members (the current distribution list is very large and out of date). CDFW noted it is important to clarify the purpose of the SRTTG – technical data review and recommendations for consideration by USBR – since the individual participants may change depending on the purpose for the SRTTG.

Actions:

- All will send comments on the 2-page 2016 SRTTG process document to USBR; a final version will be posted online.
- USBR and NMFS will update the SRTTG Membership list.
- USBR will update the existing SRTTG distribution list and send to partner agencies for review and feedback.
- USBR will work with NMFS, CDFW, and FWS to identify 1-2 representatives per agency for the SRTTG.

Fishery Update

CDFW stated that the adult carcass surveys started on May 2 and the first aerial redd flight will be on May 5. Spawning will likely start in mid-May; survey staff will inform supervisors as soon as they see a redd or carcass. The first redd should trigger the temperature control.

FWS reported on brood stock collection. They have been trapping since February/March and have collected 19 natural origin females and 6 natural origin males as well as 14 hatchery males for a total of 19 females and 20 males. The lack of natural origin males has been an issue this year, so they are keeping all natural origin fish and any hatchery males. Overall, so far there are not a lot of fish (the target is 100). FWS is trapping every weekday (not on the weekends), so this is not a great indication of run strength, as we would expect to see more fish by this time. More accurate information will come from carcass surveys.

CDFW placed a video camera in the ACID ladder to monitor adult passage and will use the CH2M Hill study that was produced when the ladders were put in place. When available, USFWS/CDFW staff will operate the trap during the week to help collect winter run. So far the trap has only captured one late fall run salmon and some trout.

Clear Creek updates provided by Matt Brown, FWS (via email prior to the meeting)

- Steelhead and late-fall Chinook are still in redds potentially for another 3 or 4 weeks.
- Lower numbers than usual of juvenile out-migrant Chinook perhaps due to high flows earlier in the season.
- Spring Chinook adults have started moving into the creek.

Hydrology & Operations update (See handouts; also available on CVO's webpage)

- a. Mean Daily Water Temperatures
- b. Reading 10-Day Forecasted Air Temperatures
- c. Sac River Gage temp plot and air temp plot
- d. Lake Shasta Isothermalbaths Plot
- e. Lake Shasta Current TCD Configuration

USBR is releasing 5,500 cfs Keswick and will increase to 6,000 cfs May 4. Flows will be increased to 6,500 on May 6 subject to effects of a small weather system due to arrive over the weekend. Wilkins Slough is dropping significantly: 3,200 cfs as of May 3. The additional 500 cfs has not hit downriver yet and USBR needs to keep it higher for the spring diversion demands. The demand patterns will peak between May 10-12 so by then needs to be ~700 cfs increase and then it will taper back down.

USBR reviewed temperature information that can be found on its website, including some new information. One new feature is the air temperature forecast (from NOAA). On the mean daily temperature graph of gauges, clicking on an active link will take you to the CDEC site.

The Lake Shasta isothermal bath profile will be updated every weekday. There is a dip in April, but then the temperature holds steady. This indicates the lake has stratified and the model forecast should be more reliable.

The Shasta TCD configuration handout shows where the water is being released and will be updated every weekday. Currently through the TCD the water is ~53.5° F. The next move will be to open one middle gate and close one upper gate (5 gates always have to be open). There is interest by the group to have historical TCD configuration information stored somewhere. USBR noted that it will be posted in the “past” section of the website.

Actions:

- SWRCB will post the Sacramento River Settlement Contractors and TCCA Estimated Spring 2016 Diversions graph on their website; USBR will send it out to the group via email.

Updates

The Oak Bottom Curtain work started ~April 23 and will be completed by May 6 or 9 (ahead of the May 30 schedule).

For the Trinity pulse flow, the Trinity ROD total annual release requires at least ~701,000 acre-feet (wet year water supply condition). There are two pulses that go up to ~10,000 cfs on May 9 and May 13, then it will slowly ramp back down to 450 cfs in August.

A Clear Creek pulse is coming in late May from 200 cfs to 400 cfs, then June 8-9 up to 400 cfs, June 23 up to 800 cfs, then back down to 200 cfs by end of June. This is ~4,800 acre feet total.

Trinity River 2015 Temperature Exceedences

Northcoast Regional Board Basin Plan Objectives for water temperature maxima between Lewiston Dam and North Fork Trinity River were exceeded in October 2015 for a total of 20 days; these exceedences occurred during peak spawning by salmon, which the Basin Plan Objectives intend to protect. Biological consequences of the temperature exceedences are not known at this time. The SRTTG was advised by Hoopa Tribal Fisheries representative, Robert Franklin, that specific temperature studies requested last year were not provided in a timely fashion. Consequently, the SRTTG was not able to fully consider

predictable impacts of Trinity River Division alternatives on the Tribe's fishery. In looking ahead, there is a need to ensure SRTTG attention to management of Trinity River temperatures, to avoid a repeat of 2015. Regular analysis of Trinity River Division operations' predicted impacts on Lewiston Dam to North Fork water temperatures is needed alongside the Sacramento River modeling for SRTTG to develop recommendations protective of Trinity River's ESA-listed coho salmon and the Tribe's mainstay fishery resources, spring- and fall-run Chinook salmon.

April Temperature Studies

April Temperature Packet

The model was run at a 90% and 50% runoff exceedance for Shasta and Trinity. The end of September storage for Trinity in the 90% case is ~980,000 acre feet, Shasta is about 2,801,000 acre feet, and releases on the Sacramento River are 6,500 cfs (90%) in May. After the summer and early fall, releases then ramp down to 5,500 cfs in November and 4,500 cfs in December. For the 50% exceedance September Trinity storage is over 1,000,000 acre-feet and Shasta is 3,100,000 acre-feet. For the Sacramento River, average releases in May are ~8,000 cfs. After the summer and early fall, releases ramp down to 4,500 cfs in November and December. The temperature model run takes all this information as inputs.

Input assumptions include:

1. Operation is based on the April 2016 Operation Outlooks (monthly flows, reservoir release, and end-of-month reservoir storage).
2. The initial profiles used for Shasta, Trinity and Whiskeytown were taken on April 7, April 12, and April 5, respectively.
3. Forecasted flows from the creeks (e.g., Cow, Cottonwood, Battle, etc.) between Keswick Dam and Bend Bridge are not available beyond 5 days. Model input side flows (Cottonwood Cr & Bend Bridge local flow w/o Cottonwood Cr) were selected from the historical record, and are consistent with the forecast exceedance frequency. During spring, the relatively warm creek flows can be a significant percentage of the flows at Bend Bridge.
4. Although mean daily flows and releases are temperature model inputs, they are based on the mean monthly values from the operation outlooks. Mean daily flow patterns are user defined.
5. Cottonwood Creek flows, Keswick to Bend Bridge local flows, and diversions are mean daily synthesized flows based on the available historical record for the 1922-2002 study period.
6. Meteorological inputs were derived from a database of 86 years of meteorological data (1920-2005). To be conservative, a 10% exceedance L3MTO was used (May '66, June '73, July '00, Aug '88, Sept '22, Oct '52, and Nov '62).
7. Meteorology, as well as flow volume and pattern, significantly influences reservoir inflow temperatures and downstream tributary temperatures; and consequently, the development of the cold-water pool during winter and early spring.

On the Sacramento River Temperature Model Graph, the assumption is that temperature changes are not made until May 15, when anticipated spawning occurs. This will be adjusted to the actual date when known. The model targets 52.5° F at Keswick, below 56° F at Balls Ferry, and ~53° F at Bonnyview Bridge (CCR); all temperatures mentioned are daily averages (DAT).

USBR noted this run used the “original” model (it was not modified with the temperature adjustment that was included last year). The model is targeting cooler temperatures than it did in the last two years, but USBR will be watching trends and modify the model assumptions if needed.

CDFW stated that the RAFT model shows a ~1.4° F difference from Keswick to CCR in the last two years, so USBR may need to consider using a modified model. CDFW suggested a 52.0° F DAT target at Keswick and 55° F 7DADM limit at CCR (to include the observed warming between Keswick and CCR), noting the NMFS concurrence letter. The March concurrence was based on a 52° F DAT Keswick release; which is a surrogate to the actual compliance of 55° F 7DADM. Jellys Ferry at 56° F DAT is another temperature surrogate. The goal is to get to the 55° F 7DADM at CCR. NMFS added that in historical observed data (1998-2015), the 55° F 7DADM at CCR was met 11 of 18 years. USBR’s information is different. It shows that between 1998-2015 only 2 years met the 55° F 7DADM at CCR (in 1999 and 2006). This year has one-half of the cold water storage volume as did the years when this was met. USBR will send this information around to the group.

UPDATE: After the May 3 meeting, USBR and NMFS have discussed the historical data and confirmed that NMFS’s data was not based on a 7DADM, but rather an average of the whole season. This is not an accurate representation because the compliance point USBR is asked to achieve is a 7 day running average (7DADM), not a seasonal running average. This explains why NMFS and USBR shared different results during the meeting.

USBR develops a water outlook forecast every month and then uses this information in the temperature model run. In the water outlook forecast the most recent data inputs (including hydrology) are put into the model and then forecasts are run looking forward with USBR balancing the whole system, not just Sacramento River. USBR does not look back at forecasts from previous months to inform future forecasts. USBR reiterated that March data are unreliable and that moving forward in 2016 the data inputs for the model will be more accurate. USBR did acknowledge that the monthly difference between Keswick and CCR observational data is 1° F DAT, so it may be appropriate to run the modified model to see if compliance can be achieved.

CDFW requested a model run of 52.0° F DAT at Keswick from May 15-October 31 regardless of other

elements. USBR advised this would involve a policy choice requiring discussion; USBR will follow up internally.

SWRCB noted it would be helpful to have a full ops summary (i.e., a forecast summary page) in the updates so that information provided by NMFS and USBR could be reconciled.

Temperature control point (currently and seasonally)

The group agreed to 58° F DAT at CCR until spawning triggers to 55° F 7DADM at CCR. The SWIM Team will have multiple meetings by May 15 (this date will be modified if spawning occurs before) to firm up this decision.

Actions:

- USBR will include a note in the model assumptions about whether it was run on the original or modified model.
- USBR will consider using the modified temperature assumption to see how it performs during the next model run (~May 18).
- USBR will consult internally about how to meet NMFS' temperature criterion question: how to make it through the 2016 season meeting the 52° F Keswick release temperature.
- USBR will send around to the group the historical data showing the 2 years when the 55° F 7DADM at CCR was met and the cold water storage in those years.

Next Meeting

The next meeting of the SRTTG is scheduled for Thursday, May 26 at 1pm. The group will schedule a technical call beforehand, if needed. The SWIM Team will also start meeting weekly on May 5. An additional SRTTG meeting will be organized sooner if items come out of the SWIM Team meeting that warrant attention.

Actions:

- USBR will work with the other agencies to determine others who will be invited to future meetings.