

**Sacramento River Temperature Task Group (SRTTG) Meeting**  
**October 22, 2020 | 1:00 – 3:00 PM**  
**Meeting Summary**

***Participants***

Alyson Scurlock, Kearns & West  
Charlie Chamberlain, USFWS  
Chris Laskodi, Yurok Tribe  
Craig Williams, SWRCB  
Diane Riddle, SWRCB  
Doug Killam, CDFW  
Duane Linander, CDFW  
Erica Meyers, CDFW  
Eric Danner, NMFS  
Jim Earley, USFWS  
Jo Anna Beck, Reclamation  
Jonathan Williams, CDFW  
Julie Leimbach, Kearns & West  
Lauren McNabb, CDFW  
Lee Bergfield, MBK/SRSC

Liz Kiteck, Reclamation  
Matt Holland, SWRCB  
Michael Macon, SWRCB  
Mike Harris, CDFW  
Mike Prowatzke, WAPA  
Mike Wright, Reclamation  
Miles Daniels, NMFS  
Randi Field, Reclamation  
Sheena Holley, CDFW  
Taylor Libscomb, USFWS  
Thad Bettner, Glenn Colusa Irrigation  
District/SRSC  
Tom Patton, Reclamation

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

**Action items**

1. KW – Distribute Upper Sacramento Scheduling Team Fall Flow Reduction Schedule and updated TDM table from Mike Wright.
2. Mike Wright, Reclamation – Apply TDM table to an example model scenario and develop a draft TDM table glossary.
3. Eric Danner – Develop context to introduce the TDM documentation for further collaborative input.
4. KW – Convene the TDM Model Documentation Subgroup – Meet to update the TDM model documentation based on input from the SRTTG and report back at the next monthly SRTTG meeting. Participants will include Eric Danner, Miles Daniels, Mike Wright, and Matt Holland.

**1. Introductions**

Julie Leimbach, Kearns & West, noted that she would be facilitating the SRTTG monthly meetings. There is a transition between operators happening from Randi Field to Tom Patton.

## **2. Purpose and Objectives**

The objective and purpose of this meeting is to share understanding of the Temperature Dependent Mortality (TDM) Models, assumptions, and documentation.

## **3. Prior Action Items**

Julie reviewed the prior action items and status:

1. Josh Israel, Reclamation – Contact Cindy re: adding SWRCB to the outreach regarding the drought toolkit – *Complete*.
2. Randi Field, Reclamation – Clear Creek temperatures at IGO: Due to vandalism, operations needs more HOBO data and will plan a follow up meeting with the Clear Creek Tech Team if temperatures exceed the threshold. If there is trouble getting the HOBO temperature tomorrow, Randi will reach out to Matt Brown and Jim Earley and Charlie Chamberlain, FWS – *Complete*.

## **4. Current Operations and Temperature Management**

Tom Patton, Reclamation, presented the operations update.

- A short heat wave is just ending; temperatures look good.
- There was a quick Upper Sacramento Scheduling Team (USST) meeting on 10/20 in which the groups discussed and supported plans for flow reductions to 5,000 cfs.
- Flows are currently being held at 5,000 cfs at Keswick and there are no plans to make any further reductions.
- Reclamation is keeping an eye on downstream conditions, specifically from Wilkins Slough to Verona.
- Diversions are picking up for rice decomposition.
- Reclamation will continue to monitor the situation and make further reductions if possible.

## **5. Upper Sacramento Scheduling Team – Recommendations for Final Fall Flows Coordination Schedule**

The Fall Flows Guidance Document specifies that the USST will recommend a final flow schedule to the SRTTG.

- The USST has finalized the preferred schedule of Alternative 6a.
- KW will distribute the proposed Alternative 6a to the SRTTG for those SRTTG members who are not on the USST.

## **6. Temperature Dependent Mortality**

Eric Danner (NMFS), Miles Daniels (NMFS) reviewed the proposed TDM table for documenting model run assumptions.

Mike Wright (Reclamation) reviewed his input to document an example model run in the TDM table.

The SRTTG made the following comments to update the TDM documentation:

- Add a comment/opinion component.
- Modelers need to fill in the table after doing a model run and provide the table with the model results.
- Identify static and variable cells of the TDM table. After the first model run, much of the table will remain static; only be a few cells that will be variable.
- Add an executive summary or table to describe the key variables of each model run.
- Identify common assumptions and/or range of common assumptions between the two models and identify divergence or variability in assumptions.
- Add glossary of definitions to describe the TDM headings.

Individual group members made the following comments:

- Thad Bettner –Evaluation of TDM performance and accuracy.
  - Comparison between predictions vs. actual results? If the models are not accurately predicting TDM, we should consider other options or look at different models. It would be great to have one model we could all agree on.
  - Eric – That is the goal, but it is complicated for TDM because we do not know the accuracy of the models until the final egg-to-fry estimates are received at the end of the season. There are multiple models and it is difficult to validate one model as being right and the other as being wrong. Estimates of water temperature could be compared along the way to validate in real time.
  - Miles – With TDM, it really comes down to how well we predicted water temperature. We are not validating the theories behind TDM.
- Matt Holland – Timing of availability of prior year or current year information to put into hindcast?
  - Miles Daniels – In the past, there has not been a request to incorporate redd timing and distribution in real time, so it has only been done at the end of the year. The process includes getting the aerial surveys from CDFW, having someone in the lab digitize them, and then add them to the model. If we want to do that, we need to make sure the pipeline is set up to input each week’s aerial surveys to put into the model.
- Lee Bergfield – If we were to start incorporating real time numbers, would that make those estimates of TDM incomparable to anything estimated in the TDM management plan that year?
  - Eric Danner – If we had perfect information for the distribution of redds, we could make a better estimate of TDM.
  - Miles Daniels – Not every year’s precision is the same for aerial surveys because there are turbidity issues and other things that come into play.
  - Doug Killam – That is correct. During some years during which the water is clear, there are very good aerial redd counts. It is not the intent of surveys to document

100% of the redds' locations. Instead, surveys can be used as an index of where fish are spawning in some years.

- Eric Danner – There are two different issues. The management plan is designed to protect a certain amount of spawning habitat over the course of a season and these models can be used to evaluate how well we did with that goal. On the other hand, the actual TDM impact on this year's cohort could produce very different results. The actual application of the models for management or evaluating actual TDM impact needs to be very clear.
- Matt Holland – Variability of temperature inputs.
  - What were the temperature inputs to the TDM model that Reclamation was using for the forecast period when we got into the fall? It was done two different ways over the season.
  - Mike Wright - Used the linear regression relationship between storage from 9/16 onward. Mike will update the TDM table.
  - Randi Field - Suggested a long-term action of continuing to document the exploration of parameters. The group can consider when to change input variables to benefit from exploration.

## **7. Review Action Items**

Julie reviewed the action items.

- 8.** The TDM Subgroup, consisting of Eric Danner, Miles Daniels, Mike Wright, and Matt Holland, will meet to test application of the TDM documentation, identification of common assumptions between the models, and add a glossary and executive summary to give the table context. The outcomes of the TDM Subgroup will be brought to the next SRTTG meeting.

## **9. Next Meeting Scheduling**

The next SRTTG teleconference is tentatively scheduled for November 19, 2020, due to the Thanksgiving holiday occurring on the 4<sup>th</sup> Thursday.