

Talking Points – Shasta Stakeholder Workshop #4

February 8, 2018

NMFS Specific (with suggested edits by Reclamation)

- The winter-run escapement estimate of 1,155 in 2017, with >70% hatchery returns, is ongoing evidence of the low population of winter-run and the near-term challenges to stabilize and increase this species throughout all of its life history stages.
- There was an estimated 44% egg-to-fry survival of juvenile winter-run to Red Bluff Diversion Dam in 2017. This provides an indication that the operational study that targeted 53 degrees F daily average temperature at CCR in 2017 was effective at providing better water temperatures for egg and alevin incubation.
- NMFS appreciates the modeling work that Reclamation has put in to evaluating the potential system-wide effects of implementing the Shasta RPA amendment, to link the CalSim modeling outputs to the temperature model, and especially to link those outputs to the temperature-dependent mortality model.
- NMFS also appreciate the joint work of our biological staff to review the biology and science needs, and develop the draft joint science plan which is currently out for review.
- (we may find some way to re-state our original intentions on proposal here...)

Reclamation Specific

- Reclamation appreciates NMFS comments, and would like to recognize the work of our modeling and operations teams over this past year.
 - We believe the development of the new modeling tools and linkages will be valuable in ongoing efforts to look at how to best manage Shasta's cold water resource, while considering the system as a whole.
 - We were fortunate that the abundant water supply last year gave us an opportunity to conduct the operational temperature study, which provided insight into the management of water temperatures near the location of the redds.

Joint

- NMFS and Reclamation have worked diligently together over the course of a year further explore both the operational implications and biological metrics associated with Shasta operations and winter-run protections.
- 1. Operations: The results of the analyses conducted this year show that the operational elements of the draft proposal (storage targets, release restrictions) could effectuate system-wide changes.
 - For the purposes of the analyses, those changes were evaluated as a sensitivity analysis to develop an order of magnitude of the volume of potential changes, but the exact manner in which the changes would be manifested could be distributed in a variety of different ways depending on legal and policy determinations.
- 2. Biological metrics. The results of the 2017 operational study lead us to conclude that 53 degrees DAT over the redds is effective in protecting winter-run spawning, egg incubation and emergence. We also know that temperatures in 2014 and 2015 were lethal, We agree that there may be times when meeting 53 degrees DAT over the redds is not feasible and with this in mind: 1) we need to continue to work on year-round multi-

species considerations that will enhance the likelihood of meeting 53 degrees in more years and 2) we need to develop off-the shelf contingencies that minimize lethality when 53 degrees is not achievable. Furthermore, we have worked to summarize current management questions, ongoing science and potential future science needs in a draft science plan, which is currently out for review.

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- 3. Given these operational and biological conclusions, we agree to take the next steps as follows:
- A. NMFS and Reclamation agree that iterations to what was initially proposed by NMFS based on the recent modelling is warranted. This process of iterating on biological metrics and operational scenarios is the heart of the Section 7 consultation process, and at this time, we agree that ongoing efforts in this arena need to occur in the venue of the larger Reconsultation effort.
 - The recent reformulation of the Reconsultation effort provides an opportunity for the development of a specific focus group/activity within that realm to look at how to best accomplish the development of measures that provide for adequate water temperatures throughout the temperature management season.
 - We want to get our best and brightest minds, including those of our stakeholders, focused on ways to address the needs of Sacramento River winter run while considering the system as a whole, including the other species involved.
- B. At the same time, both agencies recognize the need to focus on the further evaluation of benefits and effects of targeting 53 DAT temperature management at the location of the redds,. And developing contingencies when that is not feasible.
 - With that in mind, we plan to continue our efforts to conduct operational studies in 2018 and beyond, and as a bridge to the completion of reinitiation of consultation.t, More focused evaluations should provide us the opportunity to refine the concepts to ensure we can make the best use of the cold water pool, while considering any potential impacts to the remainder of the system. This will involve focused evaluation of the specific temperature, target location, and metric.
 - In addition we need to recognize that not every year will provide the ability to meet optimal temperatures at the redds, so we need to focus on alternative mechanisms to address water-short and drought years, to optimize the use of limited cold water pool and maximize survival during those conditions.
 - These efforts will also be conducted under the focus group under the Reconsultation, but will involve the ongoing coordination of real-time operations.
 - As a starting point, the agencies are currently discussing the development of an additional operational study for 2018.
 - Recognizing that hydrologic conditions are much different than those in 2017, this may involve the development of plans for how to address a more limited cold water pool.

C. Both agencies agree to pursue a collaborative science effort to continue to prioritize science to address key management questions, and learn from each year's operational decisions. We are engaged in discussions with various stakeholders to take this effort to the next step.