

## Questions on Clear Creek (Trinity Division) elements of the 2019 ROConLTO BA

February 26 meeting. Katrina Harrison, Evan Sawyer, Barbara Byrne, Sarah Gallagher, Charlie Chamberlain, Paul Zedonis

- 1) Proposed temperature management is 56 F for spring-run spawning and described as **suboptimal** for survival, especially for early spawning or downstream of the compliance point. **5.1.14**“However, any eggs incubating in Clear Creek prior to September 15 or downstream of the compliance point at IGO could be subjected to water temperatures in the chronic to acute stress range (above 58°F), especially at lower exceedance probabilities (< 50%), and certain water year types. Furthermore, the incubation period (September 15-November) temperature threshold used in this action (56°F at IGO gage) falls within the suboptimal temperature range for incubating Spring-run Chinook Salmon eggs, which could result in less than optimal survival” To evaluate the effects of temperatures on egg to fry survival under PA, requested temperature output modeling to show years critical and dry years when base flows may be below 150 cfs. **Resolution during call:** Reclamation is running model at 50 cfs scenario.
- 2) Proposed action include 20 TAF for pulse flows (10 TAF for spring attraction; 10 TAF for geomorphic; occurrence and timing depending on water year types). CALSIM model run only includes 10 TAF (Appendix D) and effects analysis combines pulse flows into one action 10 TAF. **Resolution during call:** Verified 20 TAF total (10 TAF each type) for pulse flows annually, dependent upon year type (10 TAF for geomorphic flows). Asked if the Calsim model should be run with the 20 TAF, Reclamation said this small amount would not change things.
- 3) Asked to describe gravel maintenance for year without geomorphic flows. Discussion of gravel maintenance and requested more details of what is means. Reclamation clarified that it was for years when geomorphic flows did not occur and to mechanically move gravel (via ripping techniques). Some discussion of how, when, and where it should occur, and if more measures should be taken to plan and reshape the channel because the proposed flows would be much less than the 3,000 needed to reshape and form the channel. Preparation the summer before would be necessary in anticipation, and within the normal work window for Clear Creek in-channel activities. **Resolution during call:** Reclamation will provide additional discussion or clarifying details of gravel maintenance (frequency, magnitude, duration) for effects analysis of the actions. Based on our discussion, it may also be something similar to pulse flows, plan developed by the technical team with annual development and assessment. **Q: Follow up question: I am not sure that this is included in the effects analysis (see related questions below)**

### **Additional topics and questions not covered on call. Follow up questions from NMFS.**

1. **Q: Can the PA wording be changed to say meet a daily average temperature for June 1-Sept 15, and be less than 56 F from September 15-October 31?**

**4.9.2.5** Clear Creek Flows: “Whiskeytown releases to meet a daily average water temperature of: (1) 60°F at the IGO gage from June 1 through September 15; and (2) 56°F at the IGO gage from September 15 to October 31.”**Q:** Can the proposed action be more specific to say 60 F and 56 F degrees or less? For example, in the summer, there is a desire to have temperatures closer to 60 F

for cold water pool conservation, and keeping temperatures close to 60 F to encourage spring run to move upstream. In fall, because 56 is suboptimal for egg to fry survival, it is better to have temperatures colder if possible.

2. **Q:** The Clear Creek Restoration program includes several components but it appears as if Reclamation is only proposing channel maintenance, and stated as placement of large woody debris, and gravel augmentation in the effects analysis. **Q:** What exactly is being proposed under the B12 Clear Creek restoration program? **Q:** If the Restoration project is not being consulted on; why is in the effects analysis? Is this section referring to the proposed gravel maintenance to account for lack of geomorphic flows?

Under status of the species (*realizing this is not the PA but defines B2 and B12*), the goals of the Clear Creek Restoration Program are to:

**2.3.5 Water Operations Management:** *On Clear Creek, Reclamation has a requirement from its 2002 water right as well as the 2000 Reclamation / USFWS / CDFW agreement to provide 50 cfs flow year-round, increasing to 70 cfs in November and December of critical years and increasing to 100 cfs in November and December of normal years. In addition to these flows, Reclamation makes releases as part of the CVPIA b(2) and (b)(12) program. Reclamation's operations follow the CVPIA AFRP guidelines (USFWS 2001) which, for Clear Creek, are: "200 cfs October 1 to June 1 from Whiskeytown dam for Spring-Run, Fall-Run, and Late Fall-Run Salmon spawning, egg incubation, emigration, gravel restoration, spring flushing and channel maintenance; and release 150 cfs or less, from July through September to maintain less than 60°F temperatures in stream sections utilized by Spring-Run Chinook Salmon."*

**2.3.6.1 Clear Creek Restoration Program:** *Reclamation annually expends funding for the CVPIA, Section 3406(b)(12) Clear Creek Restoration Program. The goals of the Clear Creek Restoration Program are to (1) provide flows to allow sufficient spawning, incubation, rearing, and outmigration for Salmon and Steelhead; (2) restore the stream channel and associated instream habitat; and (3) determine impacts of restoration actions on anadromous fish and geomorphology. The program manages flows and temperatures through releases from Whiskeytown Dam on a year-round basis to support the different life stages of Salmon and Steelhead in Clear Creek. The amounts of water, considering timing, magnitude, and duration, and water temperature are controlled to meet this goal. The Clear Creek Restoration Program is working on restoration of a 2-mile section of Clear Creek floodplain and stream channel degraded by aggregate and gold mining, dams and diversions, and annually injects gravel to recharge and maintain the system (approximately 8,000 to 10,000 tons of gravel per year). The Clear Creek Restoration Program aims to create and maintain 347,288 square feet of usable spawning habitat in Clear Creek*

Under PA and Effects:

**4.9.2.7** Clear Creek Restoration Program, *"Reclamation and DWR propose to continue channel maintenance under the Clear Creek Restoration Program"*

**5.8.4.8** Clear Creek Restoration Program: *Reclamation proposes to enhance Chinook salmon spawning and rearing habitat within Clear Creek. This action includes placement of large woody*

debris and gravel augmentation. This action is expected to enhance habitat complexity, benefiting salmonids that use Clear Creek and improving the habitat conservation value. The benefits from implementation of restoration projects include (1) complex channels and floodplain habitats, and (2) spawning habitat. In some years, over one hundred Spring-run Chinook Salmon have been observed in Clear Creek, so the restoration is anticipated to have beneficial effects to Spring-run Chinook Salmon spawning and rearing habitat over WOA, where no restoration would occur.

**5.8.4.8** *“Construction-related effects include increased sedimentation and turbidity. As side channel creation and flood plain enhancement projects are implemented as a part of the restoration, construction-related activities have the potential to result in injury or death to listed fish species. Construction-related effects may include debris falling into the active channel, tools and/or equipment falling into the active channel or noise generated by displaced rock and sediment and the operation of construction machinery”*

3. **Q:** The appendix D modeling conflicts with the 150 cfs base in PA. Model is run at 200 cfs from Oct 1-June 1, and the table on page 54 says PA is same as COS . Should the model reflect the 150 cfs base flow? Clear Creek is specifically included in the PA in table on page 54 (see language below) to be the same as COS for modeling. Please clarify.

- **Appendix D: Clear Creek flows (pg 35)** *“the regulated condition under the PA is assumed to be similar to the COS, therefore the model implementation has been assumed to be same as the COS Scenario. This includes B2 flows. Says modeled at 150 year round and pulse flow (10 TAF); COS has 200 cfs Oct 1-June 1. Model uses 200 cfs*
- **B2 Assumptions for CalSim modeling:** *“The CalSim II implementation used for modeling does not dynamically account for the use of (b)(2) water, but rather assumes pre-determined USFWS BO upstream fish objectives for Clear Creek and American River below Nimbus Dam, and a pulse period exports limit”.*
- **CalSim Model table (pg 50) for Clear Creek :** *“Minimum flow below Whiskeytown Dam (WOA)= None (COS)=Downstream water rights, 1963 USBR Proposal to USFWS and NPS, predetermined CVPIA 3406(b)(2) flows, and NMFS BO (Jun 2009) Action I.1.1 (PA)= Same as COS*
- **CalSim Model table (pg 54) for CVPIA 3406(b)(2):** *(WOA) = No B2 Action; (COS)= Pre-determined upstream fish flow objectives below Whiskeytown Dam, non-discretionary NMFS BO (Jun2009) actions for the American and Stanislaus Rivers, and NMFS BO (Jun2009) and FWS BO (Dec2008) actions leading to export restrictions; (PA) = Pre-determined upstream fish flow objectives below Whiskeytown Dam*