

Requested Action:

Receive an update on the Project's Winter-Run Salmon Life Cycle Model (WRLCM) effects analysis conducted by the University of California, Santa Cruz (UCSC) and the National Marine Fisheries Service's (NMFS) Southwest Fisheries Science Center.

Detailed Description/Background:

In June of 2022, the Authority contracted with UCSC to have NMFS's Southwest Fisheries Science Center conduct an effects analysis of the Project using the WRLCM. While the Project has analyzed effects on salmon using other models, NMFS requested that this analysis be completed using this specific model. This model is unique because it is specific to the endangered winter-run Chinook salmon species in the Sacramento River and looks at the entire life-cycle of the species to estimate changes in population dynamics.

Overall, the results confirm that the Project is capable of improving conditions for the endangered winter-run salmon while creating new water supplies. Key findings that are important for Participants to be aware of include the following:

- The Project has a slightly positive effect on winter-run with the potential to increase the overall population over the life of the Project.
- Benefits to winter-run are associated with periodic reductions in summer water temperatures in critical water years that decrease salmon egg mortality in the upper Sacramento River.
- Alternative 3A (25% Reclamation investment) has slightly greater benefits when compared to Alternative 3B (16% Reclamation investment). Further evaluation is needed to determine if similar winter run benefits could be achieved with a lesser Reclamation investment substituted by a greater Participant exchange commitment while also achieving water supply objectives.
- The model takes into account the diversion of water as a result of the Project. The model applies parameters on the effect of diversions that may be overly conservative when compared with the more recent scientific literature used as the basis for the Board adopted diversion criteria.
- The Project results in a slightly positive mean change in abundance of in-river spawners when averaged across all years of the model.

- The average number of future spawning fish produced by each spawning adult is slightly higher with the Project (i.e., more offspring live to reproduce per spawning fish).

These results also are informative for our Prop 1 efforts around the environmental water manager because they show that positive outcomes are possible for these uses of the Prop 1 ecosystem assets in Sites when coordinated with Reclamation's operations of Shasta Lake and temperature control in the Sacramento River.

Staff and the Project team anticipate including the findings in the Project's Biological Assessment and Operations ITP application and will continue to discuss the results internally and coordinate with NMFS and CDFW to refine the analysis as appropriate.

Prior Action:

May 2022: Approved a sole source contract with the University of California-Santa Cruz to perform modeling services using the WRLCM.

Fiscal Impact/Funding Source:

None. Ongoing and future activities are currently budgeted for in Amendment 3.

Staff Contact:

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Primary Service Provider:

HDR

Attachments:

None