

**CCVO SWFSC Science Support Needs for Reinitiation of Consultation**  
**Updated: December 19, 2018**

*When editing, please be sure to have track changes ON. To do this, click on the pen icon in the top right of the screen, and select "Suggesting: Edits become suggestions".*

**Item 1**

**Task Title:** Winter-run Chinook Life-Cycle Model (WRLCM) Support

**Task Details and Notes:** Execute runs of the WRLCM to characterize the Proposed Action (PA) or any alternative that NMFS provides to the PA. Reclamation's timeline does not allow time for the WRLCM to be completed to be submitted with the BA package on January 31, 2019. An option is to include in a supplement to the BA at a later time, but early enough to inform BiOp analyses (February). Challenges noted are accurate characterization of the PA in CalSim results that feed into the WRLCM; CalSim runs are expected to be completed by 12/4/2018, and will not reflect any revisions to the PA that result from technical assistance from NMFS between then and January 31, 2019. Transmission of results should be in a packaged email with description of interpretation, names of files used, figures considered, and spreadsheets including data needed to reproduce figures. See Daniels transmission of egg mortality results as example. **BA would include three scenarios (Without Action, Current Operations, and Proposed Action); NMFS is not sure yet how many if any additional scenarios would be needed for the BiOp. CCVO suggests assuming 3 additional runs specific to the BiOp.**

**Timeline:** (TENTATIVE PENDING DISCUSSION WITH RECLAMATION) ASAP. **SWFSC has indicated that in order to provide results to CCVO or USBR by mid-Feb, all input data (CalSim, DSM2, temperature modeling results) will need to be provided to the SWFSC by Jan 2.** Ideally, WRLCM would be run with CalSim inputs that best characterize the PA, including any revisions. NMFS CCVO would require results or a supplemental BA NLT mid-February 2019.

**Contact:** Eric Danner

**Next Steps:**

- **CCVO is elevating this need/timeline ask. Will be discussed on 12/21 with DOI. Cathy will report back.**
- **Eric to provide cost estimate required for three scenarios specific to BiOp.**
- **Cathy/Maria will discuss BiOp funding needs with WCR and report back.**
- **SWFSC should prepare to execute runs in early January until told otherwise.**

**Item 2**

**Task Title:** Temperature Modeling in Shasta Reservoir (CV-Temp/RAFT Modeling)

**Task Details and Notes:** Application of CVTemp/RAFT modeling to Shasta Lake and the upper Sacramento River to characterize effects of the PA. **Additionally, comparison of results from this temperature model vs. HEC-5Q to provide a check of USBR results.** Reliance on CalSim results will introduce similar constraints as for WRLCM with regards to characterizing any revisions to the PA that results from our technical assistance. Transmission of results should be in a packaged email with description of interpretation, names of files used, figures considered, and spreadsheets including data needed to reproduce figures. See Daniels transmission of egg mortality results as example. **SWFSC does not have a current contract to cover this work; their USBR funding for this effort expired. Therefore resources are needed to provide a line-item for this work to be billed to.**

**Timeline:** (TENTATIVE PENDING DISCUSSION WITH RECLAMATION). Ideally, models would be run with CalSim inputs that best characterize the PA, including any revisions. [Could

this also be in a supplemental BA?] **Timeline would be within the WRLCM timeline; if input data is provided for WRLCM, the CV-Temp/RAFT work would be completed before mid-Feb.**

**Contact:** Eric Danner

**Next Steps:**

Cathy to ask Reclamation if they are including this analysis in their BA effects analysis. Cathy and Eric coordinate to discuss with Reclamation whether current funding would cover SWFSC work on this for the BAVBiOp.

- Cathy will include need for line-item billing in resources discussion with WCR and will report back.
- Eric to provide estimate of line-item amount for evaluation of 3 BA scenarios and 3 BiOp scenarios.
- SWFSC should prepare to execute runs in early January until told otherwise.

**Item 3**

**Task Title:** Temperature-Dependent Egg Mortality Modeling (i.e., Martin model)

**Task Details and Notes:** Application of egg mortality modeling to the upper Sacramento River to characterize effects of the PA. Reliance on CalSim results will introduce similar constraints as for WRLCM and CVTemp with regards to characterizing any revisions to the PA that results from our technical assistance. Transmission of results should be in a packaged email with description of interpretation, names of files used, figures considered, and spreadsheets including data needed to reproduce figures. See Daniels transmission of egg mortality results as example.

**Timeline:** (TENTATIVE PENDING DISCUSSION WITH RECLAMATION) ASAP (?). Ideally, models would be run with CalSim inputs that best characterize the PA, including any revisions.

[Could this also be in a supplemental BA?] **Timeline would be within the WRLCM timeline; if input data is provided for WRLCM, the egg mortality work would be completed before mid-Feb.**

**Contact:** Miles Daniels

**Next Steps:**

- Cathy to confirm with Reclamation whether they are including this analysis in their BA effects analysis.
- Eric to provide determination of whether this work is covered under the current WRLCM SOW.
- SWFSC should prepare to execute runs in early January until told otherwise.

**Item 4**

**Task Title:** Synthesis of Best Available Science Regarding Climate Analysis

**Task Details and Notes:** SWFSC provide email to CCVO on the best-available science regarding climate analyses for large scale, long-term projects. Expected to include a summary of the latest reports and global climate models, and what that translates to when localized to the Central Valley. Can be used by CCVO to compare with what is provided in the BA (expected to be a characterization of climate, water demand, and build-out conditions at 2030-2040).

**Timeline:** January 31, 2019 (?)

**Contact:** Nate Mantua

**Next Steps:** Cathy coordinate with Steve and Nate regarding the ask.

**Item 5**

**Task Title:** Analysis of Additional CalSim Runs

**Task Details and Notes:** CCVO requires support in analysis and evaluation of CalSim runs reflecting 1) revised PA and 2) environmental baseline condition that reflects non-discretionary

actions of Reclamation. Because SWFSC doesn't have capacity to execute runs, CCVO will look into outside contractors (ICF, Ecorps) to do the runs.

**Timeline:** ASAP, but contingent upon revisions to PA and whether Reclamation will provide CalSim results that reflect any revisions to the PA due to technical assistance.

**Contact:** Eric Danner, Steve Lindley

**Next Steps:**

- Cathy to contact outside contractor regarding potential to complete runs and understand/interpret results.

### **Item 6**

**Task Title:** San Joaquin I:E Ratio Analyses

**Task Details and Notes:** Evaluation of existing studies (e.g., six-year studies) to provide a science component to developing alternative actions to the I:E ratio.

**Timeline:** March 2019

**Contact:** Andrew Hein

**Next Steps:**

- Dec 21 call with Andrew, Rachel, Barb (NMFS) and Dalton Hance and Adam Pope (USGS) to begin exploring the ask.

### **Item 7**

**Task Title:** Technical Review of CCVO Analyses

**Task Details and Notes:** SWFSC to be engaged at early stages of any CCVO analyses to review data sources and analytical approaches for any fatal flaws. SWFSC engaged at later point in analysis to provide a check on approach and results. SWFSC provide email (template can be provided by CCVO) indicating level of involvement, what specifically was reviewed, and their determination of whether approach is reasonable and standard practice.

**Timeline:** Ongoing after January 31, 2019

**Contact:** Rachel Johnson

**Next Steps:** Cathy coordinate with Rachel on setting up meetings and establishing the process.

### **Item 8**

**Task Title:** Synthesis of Best Available Science Regarding Fry Entry and Presence in Delta

**Task Details and Notes:** SWFSC provide email to CCVO on the best-available science regarding fry presence in the Delta for CCVO to use in support of exposure and risk analysis of BiOp.

**Timeline:** January 31, 2019

**Contact:** Rachel Johnson

**Next Steps:**

- Cathy coordinate with Rachel on the ask - set call for early January.
- Rachel to reach out to Correigh Greene and Will Satterthwaite.

**Updated: December 6, 2018**

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**Timeline:** (TENTATIVE PENDING DISCUSSION WITH RECLAMATION) ASAP. Ideally, WRLCM would be run with CalSim inputs that best characterize the PA, including any revisions. NMFS CCVO would require results or a supplemental BA NLT mid-February 2019.

**Contact:** Eric Danner

**Next Steps:** Cathy craft email for Maria to send to Barry and inform DOI discussions. CCVO work with SWFSC to identify timelines.

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**Contact:** Miles Daniels

**Next Steps:** Cathy to ask Reclamation if they are including this analysis in their BA effects analysis. Cathy, Eric, and Miles coordinate to discuss with Reclamation whether current funding would cover SWFSC work on this for the BA/BiOp.

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**Next Steps:** Cathy coordinate with Steve and Nate regarding the ask.

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**Timeline:** ASAP, but contingent upon revisions to PA and whether Reclamation will provide CalSim results that reflect any revisions to the PA due to technical assistance.

**Contact:** ???

**Next Steps:** Cathy coordinate with Steve and ??? regarding the analysis and timing. Cathy to contact outside contractor regarding potential to complete runs.

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**Task Details and Notes:** Evaluation of existing studies (e.g., six-year studies) to provide a science component to developing alternative actions to the I:E ratio.

**Timeline:** March 2019

**Contact:** Andrew Hein (perhaps include Russ Perry, Rachel Johnson)

**Next Steps:** Cathy coordinate with Andrew, Rachel, and Barb Byrne to begin exploring the ask.

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**Contact:** Rachel Johnson

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