

**Alternatives to Old and Middle River Flow Management
for Reclamation to Consider in Its Initial Actions Environmental Assessment**

NMFS -- August 2, 2018 -- **DRAFT**

Reclamation has shared a draft Environmental Assessment (EA) for “*Initial Actions for the Reinitiation of Consultation on the Coordinated Long-term Operation of the Central Valley Project and State Water Project*,” including proposing specific actions to replace current Reasonable and Prudent Alternative (RPA) actions in the NMFS 2009 Biological Opinion on the long-term operations of the Central Valley Project (CVP) and State Water Project (SWP; 2009 NMFS BiOp). The EA states that, based on Reclamation’s interpretation of recent science, the Proposed Action will not create “...additional adverse effects to listed species beyond those analyzed in the 2008 and 2009 [Biological Opinions]....”.

NMFS, however, has concerns that many of the proposed elements may not meet this standard. For example, Reclamation proposes that the -5,000 cfs OMR limit and loss-density triggers in Action IV.2.3 (OMR management) in the 2009 NMFS BiOp would be implemented only in certain circumstances when (a) conditions for a risk assessment are met, and (b) the risk assessment (conducted by Reclamation, in coordination with DWR) concludes that implementation of the 2009 NMFS BiOp is necessary to avoid additional adverse effects. While the details in the draft EA on when and how the risk assessments would be conducted are not totally clear, NMFS has the impression that the -5,000 cfs OMR limit and the more positive OMR limits associated with the loss-density triggers would be implemented less often, even during times when rearing or migrating ESA-listed salmonids are present in the Delta.

Reclamation has conducted multiple brainstorming meetings, workshops, and technical teams in the development of the near-term actions currently in the draft EA. NMFS thinks that some of those brainstormed alternatives (not exhaustive) should be included and considered within the EA to provide a broader range of alternatives to Reclamation’s proposed OMR flow requirement. Therefore, NMFS offers some potential alternatives¹ to be considered in the EA.

**NEAR-TERM IDEAS FOR ALTERNATIVES TO THE OMR MANAGEMENT IN
ACTION IV.2.3**

The current implementation of Action IV.2.3 (OMR limit of -5,000 cfs from January 1 to June 15; short-term OMR limits of -2,500 cfs or -3,500 cfs required based on first- and second-stage loss-density triggers) is covered by the “No Action Alternative” in the EA.

In order to meet timeframes and intent of near-term operations, the changes to the current RPA need to be non-controversial and equally protective as current RPA measures. The following three actions could be pursued independently or jointly.

¹ Note that NMFS has not conducted effects analyses on any of the suggested alternatives. Reclamation will need to conduct the effects analyses in order to determine if they are equally or more protective to the listed species than RPA Action IV.2.3.

1. Clarify the risk assessment procedure and provide sideboards that:
 - Do not modify OMR management per RPA Action IV.2.3 if ESA-listed salmonids have been detected in the south Delta or at the export facilities within two weeks of the proposed period of modified operations, and
 - Offramp any modified operations if ESA-listed salmonids are detected in the south Delta or at the export facilities during the proposed period of modified operations.
2. Seek options to increase inflow from the San Joaquin River. The higher the Vernalis flow, the higher the exports that can still meet the requirements of RPA Action IV.2.3 in the 2009 NMFS BiOp and thus provide equal or greater protection based on resulting hydrodynamics in the south Delta. Two options shared with Reclamation in July 2018 as alternatives to the I:E ratio apply:
 - Operationalize/streamline WIIN Act Section 4001 on transfers, voluntary sales, and releases *from sources upstream of Vernalis*.
 - Implement phase I of RPA Action IV.2.1 to provide higher flows at Vernalis.

PREPARING FOR ALTERNATIVES TO OMR MANAGEMENT IN LONG-TERM OPS CONSULTATION:

NMFS recommends that Reclamation consider building an alternative for the long-term consultation based on a new adaptive management approach with a sound experimental design to test key alternative hypotheses relating water-project-related changes in hydrodynamics in the south Delta to juvenile salmonid behavior. This experimental approach should build on lessons learned from VAMP, the six-year steelhead study, and the CSAMP/CAMT gap analysis report and recent Delta salmonid research workshop (that occurred on May 22, 2018). The experiment would likely need to test both more restrictive and less restrictive approaches to the current RPA, given low survival rates in the South Delta. A power analysis should be conducted to determine the sample size necessary in order to detect the results we are looking for. This experimental operational approach could be paired with habitat restoration and or predator management actions/studies in the Delta.

NMFS recommends that an expert team be convened within the next 2 months and given a charge to develop this experimental design by a date certain. NMFS would like to offer names of key scientists that should be involved in this effort, if Reclamation decides to use this approach.

In addition to an experimental operational regime, NMFS encourages Reclamation to consider actions in the January 1-June 15 period to reduce risk of additional adverse effects to listed species due to modifications to implementation of Action IV.2.3, or increase learning, or both:

1. Preferential pumping through the CVP.
2. Increase San Joaquin River flows.
3. Consider diurnal radial gate operations at Clifton Court Forebay to minimized openings during the daytime (ideally, linked with study to determine whether listed species are more active at night near the facilities)
4. Establish daily or cumulative loss triggers to off-ramp the alternative implementation.

5. Design an experiment to go along with flexed OMR operations, as done in the 2012 Joint Stipulation for flexed I:E ratio operations.
6. Improve habitat within the Delta, especially considering heat map approach in SST report.
7. If the fish collection facility is undergoing maintenance and salvage is not 100% functional, then exports should be reduced or loss density triggers made more sensitive.
8. Accelerate design and construction of barriers or guidance structures at key junctions in the north Delta (Sutter Slough, Steamboat Slough, Georgiana Slough) or the south Delta (Head of Old River, perhaps other junctions along the San Joaquin River) to keep a greater proportion of rearing or migrating juvenile salmonids from entering the south Delta where export and OMR effects are strongest.