Preliminary Proposals for Adjustments of Various OCAP RPA Actions November 8, 2010

On June 4, 2009, NOAA's National Marine Fisheries Service (NMFS) issued a biological and conference opinion on the long-term operations of the Central Valley Project and State Water Project (CVP/SWP Opinion). Since issuance of the CVP/SWP Opinion, and especially during the development of the various technical team reports in preparation for the integrated annual review, NMFS identified several opportunities where Reasonable and Prudent Alternative (RPA) actions could be clarified, adaptively managed, or more efficiently implemented. The following provides NMFS' conceptual proposals for the Panel's consideration. These conceptual proposals are not intended to limit the Panel's review to only these items. The Panel will hear a broad range of presentations, and we welcome their input on any area of the RPA. We start by identifying the issue to be addressed, followed by NMFS' proposal, and its effect on NMFS' Endangered Species Act listed species and water supply. These proposals were developed in coordination with the U.S. Fish and Wildlife Service (FWS) and the U.S. Bureau of Reclamation (Reclamation).

I. Old and Middle River (OMR) Flow Management (joint proposal from the FWS and NMFS)

A. Transition language (2 parts):

Issue #1: Water was not exported at the maximum allowed last year when RPA Action IV.2.3 (OMR Flow Management, page 648) required OMR to be no more negative than -5,000 cfs. The operators were operating to a conservative OMR of no more negative than -4,000 cfs, because one swing of the tide can cause OMR to fluctuate by up to 1,000 cfs.

Issue #2: In situations when the required OMR flow drops several times in quick succession, project operators have expressed a concern that the protective standard has been set in a way that can be very difficult to meet [see example in the October 2010 Delta Operations for Salmonids and Sturgeon (DOSS) annual report, page 20].

Potential flexibility part 1:

- The California Department of Water Resources (DWR), U.S. Geological Survey, and Metropolitan Water District currently have formulas to predict OMR that could be used in lieu of actual OMR
- **NMFS proposal**: One of the formulas can be used to predict OMR in order to provide flexibility and enable operating OMR closer to the OMR limit. Actual OMR would need to monitored also in order to confirm that the predicted and actual OMRs track closely.

Potential flexibility part 2:

- DWR has drafted transition language, which is forthcoming pending Reclamation, FWS and NMFS review. They are concerned about operationally meeting the 5-day running average, not the 14-day running average.
- **NMFS proposal**:
  - To provide flexibility in operations, when a fish density trigger is met, the export reduction floor shall be 1,500 cfs (*i.e.*, the project operators would not be required to go below 1,500 cfs in order to meet OMR) until the required OMR limit (*e.g.*, no more negative than -3,500 cfs) is met
  - As long as the operators make all "good faith efforts," we could consider that compliance, even if the specific OMR limit is not met
  - There may be more flexibility in the OMR, and therefore, exports, later in the averaging period.
- **Effects on fish**: What the fish need is a rapid response (*e.g.*, combined exports quickly reduced to 1,500 cfs) to cease their migration towards the south delta and pumps. Since the operators have been operating more conservatively than the RPA allowed, there are no new adverse effects on fish if the operators are provided the flexibility to meet the RPA more frequently, and minimal effects of a slightly different averaging period. If there are significant excursions above the RPA limits, this flexibility will need to be re-visited in next year's annual adjustments.
- **Effects on water supply**: Some additional exports are likely, but the quantity is difficult to predict. Water supply reliability will be increased by clarifying that combined exports do not need to drop below 1,500 cfs (health and safety levels).

B. Calendar – based OMR Trigger

- Nothing new is proposed for this component of the RPA. Calendar-based trigger is necessary, as there is significant Sacramento winter-run Chinook salmon (winter-run) present in the Delta as of January 1st of each year. In addition, Central Valley (CV) spring-run Chinook salmon (spring-run) and CV steelhead from the San Joaquin River Basin continue their outmigration well into June. This action is necessary to keep the salmonids away from the zone of influence of the export facilities.

C. 2nd Trigger to reduce OMR to no more negative than -3,500 cfs (RPA Action IV.2.3, Opinion page 649)

Issue: The 2nd trigger, as written in RPA table, is not workable in its current form (see NMFS' March 12, 2010, Determination based on the DOSS advice from March 11, 2010 at http://swr.nmfs.noaa.gov/ocap/2010-03-12_NMFS_determination.pdf). A subgroup of DOSS convened several meetings to recreate the second trigger. The proposed second trigger has not been vetted through the DOSS group, and therefore,

DOSS has not provided advice to the Water Operations Management Team (WOMT) and NMFS (per process provided in Opinion pages 582-583) regarding the corrected second trigger.

NMFS proposal: Based on NMFS participation on the DOSS subgroup, NMFS believes the first stage of the second trigger is as follows:

- First stage: daily loss > 8 fish/thousand acre feet (TAF) exported multiplied by exports (in TAF); and
- Second stage: daily loss > 12 fish/TAF multiplied by exports (in TAF).

Effects on fish: The first trigger is based on the winter-run Juvenile Production Estimate (JPE), and therefore, a population-based trigger. That trigger was intended to ensure that the fish facilities do not salvage and lose a large proportion of the population. The 2nd trigger is intended to protect the fish against peak salvage events by reducing the influence of the pumps on high densities of fish entering the south delta and fish facilities. When the winter-run JPE is high, then 2nd trigger will be met first. When the winter-run JPE is low, the first trigger will be met first.

Effects on water supply: None. This is a technical adjustment to the RPA Action IV.2.3 trigger.

II. San Joaquin Inflow-to-Export Ratio Action (Action IV.2.1, starting on page 641)

Since: Louver efficiency is lower when pumping is lower; and high predation mortality is experienced in the Clifton Court Forebay (CCF):

NMFS proposal:

- Keep the CCF closed, and pump the water from south of the louvers at the Tracy (Federal) facility to the CCF to provide water for the Byron-Bethany Irrigation District and for the State to pump.
- This conceptual proposal will need engineering/feasibility review.
- With the intertie likely to be operational starting in 2012, there will be more flexibility to export water from the Tracy facility, especially during April and May

Effects on fish: Salvage and loss would be reduced.

Effects on water supply: No changes in RPA action proposed this year that would affect water supply. If survival can be shown to significantly increase through this re-operation, then future adjustments with water supply benefits may be proposed in future years.

III. Shasta Reservoir February Forecast (Action I.2.3, page 597) Using a 90% Exceedance Forecast

Issue: Reclamation's 90% exceedance forecast, as required in the RPA, is conservative for the benefit of fish, but is frustrating to agriculture as they cannot accurately plan and project their crops and water allocation. For example, Reclamation's initial water allocation for water year 2010 was 5%, and they eventually increased it to 40%.

NMFS proposal:

- Improve 90% exceedance forecast
- NOAA's National Weather Service (NWS), through its Climate Prediction Center (CPC), has a new tool that can predict climate over the next 90 days.
- Reclamation should initiate an effort to hindcast its 90% exceedance forecasts in previous years, and compare them to the NWS's 90-day climate prediction.
- During a 5-year trial period, have Reclamation continue to conduct February forecasts using the 90% exceedance forecast, and also use the NWS' 90-day climate prediction, for informational purposes only to see how the NWS' 90-day forecast tracks. If the NWS' 90-day forecast is fairly accurate, consider the adaptive management change to forecasts using that tool as the best available science.
- NMFS will work with NWS to issue a 90-day climate/weather prediction

Effects on fish: None. No change to the formal forecasting process.

Effects on water supply: None, but may increase water supply reliability by more accurately predicting future water availability in the February through April time frame. In addition, the NWS' 90-day climate prediction may be used by growers to secure loans for planting crops.

IV. Stanislaus Operations

A. Spring pulse flow in concert with Vernalis Adaptive Management Plan (VAMP) flows at Vernalis

Issue: The attached chart captures the interaction between RPA Actions III.1.3 (Opinion page 622) and IV.2.1 (Opinion page 641), and VAMP that was projected to occur in the spring of 2010. Implementation of the spring pulse flow on the Stanislaus River resulted in an inverted pulse at Vernalis.

NMFS proposal:

- The Stanislaus Operations Group (SOG), the San Joaquin River Group, and NMFS need to communicate to determine the flexibility within the RPA and to maximize the multipurpose use of water.
- Add text to RPA Action III.1.1 (Opinion page 620) that provides SOG with the flexibility needed to make minor refinements, as necessary, in conjunction with VAMP flows.

Effects on fish: Fish will benefit from real-time adjustments in response to availability of VAMP flows.

Effects on water supply: Difficult to predict but may provide some water savings from New Melones reservoir.

V. Immediate and Near-Term Significant Improvements to Increase Survival or Reduce Predation of Listed Species

Issue: The most direct benefit to listed species is to increase their survival, or reduce their predation, as they migrate through the Delta.

1. **NMFS Proposal #1**: Consider opportunities for a more successful barrier at the Head of Old River. This proposal is consistent with the engineering solutions prescribed in RPA Action IV.1.3 (Opinion page 640).

   Effects on fish: Survival of steelhead migrating down the San Joaquin River would likely increase as they stay in the mainstem.

   Effects on water supply: None, as NMFS assumed that Reclamation, in cooperation with DWR, would continue its obligation to install the spring Head of Old River Barrier or similar device for fish protection [section 3406(b)(15) of the Central Valley Project Improvement Act] for at least 31 days in the April to May time period (Opinion Appendix 3 page 21).

2. **NMFS Proposal #2**: Consider opportunities to significantly reduce predation rates at the pumping facilities themselves, immediately, or in the near term. For example, screening predators from entering the CCF to assist in the implementation of RPA Action IV.4.2(2) (Opinion page 656).

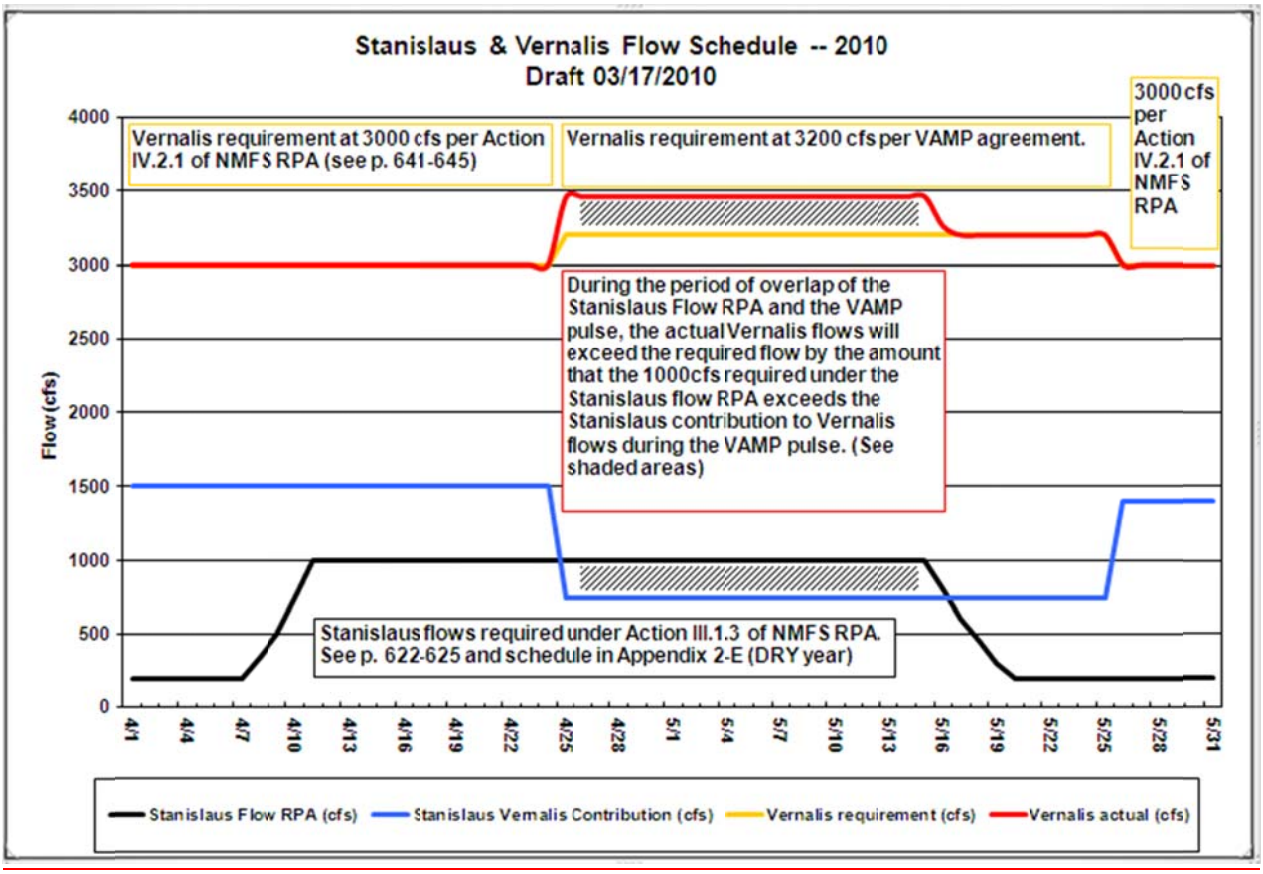
   Effects on fish: This effort would reduce predation mortality.

   Effects on water supply: None, as this proposal is provided pursuant to an RPA action.

3. **NMFS Proposal #3**: Accelerate the timing for implementation of RPA Actions IV.4.1-IV.4.3.

   Effects on fish: This would directly reduce the take of listed species associated with the Tracy and Skinner Fish Collection Facilities and the Capture, Handling, Trucking, and Release process.

   Effects on water supply: None, as this proposal is provided pursuant to RPA actions.


Stanislaus & Vernalis Flow Schedule -- 2010
Draft 03/17/2010
Vernalis requirement at 3000 cfs per Action IV.2.1 of NMFS RPA (see p. 641-645)
Vernalis requirement at 3200 cfs per VAMP agreement.
3000 cfs per Action IV.2.1 of NMFS RPA
During the period of overlap of the Stanislaus Flow RPA and the VAMP pulse, the actual Vernalis flows will exceed the required flow by the amount that the 1000 cfs required under the Stanislaus flow RPA exceeds the Stanislaus contribution to Vernalis flows during the VAMP pulse. (See shaded areas)
Stanislaus flows required under Action III.1.3 of NMFS RPA. See p. 622-625 and schedule in Appendix 2-E (DRY year)
Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
4/1
4/4
4/7
4/10
4/13
4/16
4/19
4/22
4/25
4/28
5/1
5/4
5/7
5/10
5/13
5/16
5/19
5/22
5/25
5/28
5/31
Stanislaus Flow RPA (cfs)
Stanislaus Vernalis Contribution (cfs)
Vernalis requirement (cfs)
Vernalis actual (cfs)