



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE  
Sacramento Area Office  
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**APR 14 2010**

Mr. Phillip Crader  
Senior Environmental Scientist  
Division of Water Rights  
State Water Resources Control Board  
P.O. Box 2000  
Sacramento, California 95812-2000

Dear Mr. Crader:

We thank the State Water Resources Control Board (SWRCB) members and staff for the opportunity to participate in the Delta Flow Criteria Informational Proceeding on March 22-24, 2010. With jurisdiction over marine resources, including anadromous salmon, steelhead, and sturgeon that migrate through and rear in the Sacramento-San Joaquin Delta (Delta), NOAA's National Marine Fisheries Service (NMFS) is providing these closing comments in our role of offering technical assistance. We are ready to assist the SWRCB in its efforts to develop criteria for flow, temperature, and other conditions necessary for a Delta ecosystem that can support viable fish populations.

Adequate flows are an essential component of habitat for all life stages of listed and non-listed anadromous fish, both upstream in rivers and spawning habitats, and in the Delta. Flows affect cues for both upstream and downstream migration; affect access to and quality and quantity of rearing habitat; affect temperatures necessary for maintaining spawning, egg incubation and juvenile rearing; and are positively correlated with juvenile salmon survival. Delta flow criteria (as well as upstream flow needs) necessary to protect public trust resources in the Delta are summarized below and referenced to relevant exhibits in the materials submitted by NMFS on February 16, 2010.

### **FLOW RECOMMENDATIONS FROM THE NMFS OPINION<sup>1</sup>**

*The Biological and Conference Opinion on the Long-Term Operations of the Central Valley Project (CVP) and State Water Project (SWP) (Opinion) issued by NMFS in June of 2009*

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<sup>1</sup> The Opinion was submitted to the SWRCB as NMFS Exhibit 3 on 2/16/2010.



provides many flow-related actions within its Reasonable and Prudent Alternative (RPA) to protect species listed under the Federal ESA for which NMFS has jurisdiction.<sup>2,3</sup>

- In the Sacramento River Basin, the Opinion includes actions to manage the cold water pool in Shasta Reservoir in order to provide suitable habitat for winter-run Chinook salmon and spring-run Chinook salmon in most years, without sacrificing the potential for cold water management in a subsequent year (Action Suite I.2, p.590-603).
- The Opinion includes a flow schedule for the American River to provide minimum flows for all steelhead life stages (Action II.1, p. 612)
- In the San Joaquin River Basin, the Opinion provides a minimum in-stream flow schedule throughout the year for the Stanislaus River, to protect Central Valley steelhead (Action III.1.3, p. 622-625; Appendix 2-E).
- The Opinion provides an interim minimum flow schedule for the San Joaquin River at Vernalis during April and May (Action IV.2.1, p. 641-645), effective through 2011. These flows are based on maintaining a minimum status quo for San Joaquin River basin salmonids populations. Long term flow schedules for the San Joaquin River are expected to result from the SWRCB proceedings on San Joaquin flows.
- Additionally, in order to improve the outmigration success of San Joaquin River steelhead (as well as Sacramento River salmonids diverted into the interior Delta), Action IV.2.1 of the NMFS Opinion protects a fraction of San Joaquin River flow by means of an inflow (at Vernalis):export (combined CVP and SWP) ratio during April and May. This inflow to export ratio is responsive to water year type and has additional flexibility in the case of multiple dry years or health and safety concerns.

#### **FLOW RECOMMENDATIONS FROM THE NMFS DRAFT RECOVERY PLAN<sup>4</sup>**

In October of 2009, NMFS released a *Public Draft Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-Run Chinook Salmon and Central Valley Spring-Run Chinook Salmon and the Distinct Population Segment of Central Valley Steelhead* (NMFS

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<sup>2</sup> It is important to note that the flow protections described in the project description and RPA are the minimum flows necessary to avoid jeopardy. The Delta flow criteria necessary to “protect public trust resources” may not be the same as those called for in the NMFS Opinion, and will likely be greater than those described in the opinion. In addition, NMFS considered provision of water to senior water rights holders to be non-discretionary for purposes of the federal ESA as it applies to Section 7 consultation with the Bureau of Reclamation. This constrained development of RPA actions related to Shasta storage actions and flow schedules on the Sacramento River and Stanislaus River. This constraint may not apply to the SWRCB flow criteria process. Vernalis flows in the Opinion were constrained by the Opinion’s scope extending only to CVP New Melones operations. Operations on other San Joaquin tributaries were not within the scope of the consultation.

<sup>3</sup> Many of the actions described in the Opinion and NMFS Draft Recovery Plan to improve conditions for ESA-listed species will also improve conditions for fall-run Chinook salmon.

<sup>4</sup> The NMFS Draft Recovery Plan was submitted to the SWRCB as NMFS Exhibit 5 on 2/16/2010.

Draft Recovery Plan). There are numerous actions in the plan that call for improvements to flows for specific life stages and locations. For example, one of the priority actions of the NMFS Draft Recovery Plan is to implement a Sacramento River flow management plan that balances carryover storage need with instream flow and water temperature needs for winter-run Chinook salmon, spring-run Chinook salmon, and steelhead<sup>3</sup> based on runoff and storage conditions, including flow fluctuation and ramping criteria (Action 1.6.6 on p. 159, see also p. 194). Also, the plan calls for development of ecological flows to inundate floodplains and create rearing habitat.

### **FLOW RECOMMENDATIONS FROM THE NMFS EFH CONSULTATION**<sup>5</sup>

In addition to its authority under the Federal ESA, NMFS has authorities under the Magnuson-Stevens Fishery Conservation and Management Act to identify and describe Essential Fish Habitat (EFH) in fishery management plans, and to provide conservation recommendations to any agency taking an action that may adversely affect EFH. NMFS concluded that the proposed long-term operations of the CVP and SWP would adversely affect EFH for Pacific salmon, and offered conservation recommendations (p. 21-29) which include actions upstream of the Delta as well as in the Delta (p. 26-29). Many of the conservation recommendations include flow provisions to protect the habitat of all life history stages of Pacific salmon.

### **OTHER FLOW RECOMMENDATIONS**

As was noted by other participants in the proceeding, many species that live in or migrate through the Delta are affected not just by the amount of flow, but also by the timing, location, and frequency of flows. For example, pulse flows on the Sacramento River drive juvenile abundance and migration patterns of winter-run Chinook salmon in the Delta<sup>6</sup> and flows are also important in improving the production and migration of green sturgeon and white sturgeon<sup>7</sup>. In setting Delta flow criteria, NMFS urges the board to consider the importance of spatial and temporal connectivity of appropriate habitat conditions such that the criteria establish effective rearing and migratory corridors in and through the Delta.

### **NEEDS UPSTREAM OF THE DELTA MUST BE CONSIDERED WHEN SETTING DELTA FLOW CRITERIA**<sup>8</sup>

In order to protect all life history stages of Central Valley salmon, steelhead, and sturgeon, Delta flow criteria must not preclude the ability to meet upstream requirements for flow and temperature maintenance. For example, in the Bay Delta Conservation Plan process, NMFS has recommended the following end of April (and September) Shasta storage numbers deemed necessary to support adequate water temperatures for winter-run Chinook salmon, spring-run Chinook salmon, and fall-run Chinook salmon below Shasta Dam:

<sup>5</sup> The EFH Conservation Recommendations were submitted to the SWRCB as NMFS Exhibit 6 on 2/16/2010.

<sup>6</sup> Submitted to the SWRCB as NMFS Exhibit 7 on 2/16/2010.

<sup>7</sup> Submitted to the SWRCB as NMFS Exhibit 9 on 2/16/2010.

<sup>8</sup> This discussion of upstream needs is excerpted from the NMFS Written Summary, submitted to the SWRCB on 2/16/2010.

End of April storage in Shasta Reservoir:

Minimum end of April storage for all water year types other than those specified below: 3.8 million acre-feet (MAF; objective to meet Balls Ferry temperature compliance point (TCP) through management of cold water pool releases).

Minimum end of April storage for wet years: 4.2 MAF (objective to meet Jelly's Ferry TCP through adaptive management of cold water pool releases).

Minimum end of April storage for third (or more) year in a series of dry and/or critically dry of years (*i.e.*, a prolonged drought): 3.3 MAF (objective to meet Clear Creek TCP through management of cold water pool releases).

End of September storage in Shasta Reservoir:

Minimum end of September storage: 2.2 MAF (objective to meet 3.8 MAF in end of April in the following year).

Minimum end of September storage for second (or more) year in a series of dry and or critically dry years: 1.9 MAF (objective to meet 3.3 MAF in end of April in the following year).

Similar storage recommendations are included in the Opinion (Action I.2, p 590-603), with consultation among fishery agencies and Bureau of Reclamation built in to develop release schedules that optimize use of the cold water pool and help to maintain sufficient carryover storage.

We look forward to continued collaboration with the SWRCB, the California Department of Fish and Game, the U.S. Fish and Wildlife Service and other interested parties to develop flow criteria and other resource management options that can be used throughout the Delta watershed to provide effective protection of resources held in the public trust.

Please contact Barbara Byrne, of my staff, at (916) 930-5612, or via e-mail at [barbara.byrne@noaa.gov](mailto:barbara.byrne@noaa.gov) if you need additional information.

Sincerely,



Maria Rea  
Sacramento Area Office Supervisor