

## **Updated Charge for Science Program review of the NMFS OCAP Biological Opinion December 2008**

### **Background**

The U.S. Bureau of Reclamation operates the Central Valley Project and the California Department of Water Resources operates the State Water Project. These agencies are developing a plan to operate these projects in a coordinated manner. The plan is called the Federal Central Valley Project and State Water Project Operations Criteria and Plan (OCAP). The implementation of OCAP is partly conditioned by the need to comply with Endangered Species Act (ESA) section 7(a)(2) and the section 9 take prohibition. As part of the OCAP ESA consultation, the USBR and DWR have written a Biological Assessment (BA) that summarizes these agencies' perceived impacts on ESA-listed species. NOAA's National Marine Fisheries Service (NMFS) is evaluating the effects of the proposed OCAP on Sacramento River winter-run Chinook salmon, Central Valley spring-run Chinook salmon, Central Valley steelhead, Central California Coast steelhead, Southern Distinct Population Segment of North American green sturgeon, and Southern Resident killer whales. The NMFS will evaluate the BA as part of its development of a Biological Opinion (BO) regarding the OCAP. The purpose of this independent review is to obtain the views of experts not involved in the consultation on the use of the best available scientific and commercial information as it pertains to the development of the NMFS BO on OCAP.

### **Panel Charge**

The Review Panel has a two-part charge. The first part was to evaluate and comment on NMFS analytical framework, which forms the basis for their OCAP Opinion. The Panel had one week to review the draft analytical framework. The Panel also familiarized itself with the impacts analyses in the BA, but did not formally review them. The Panel also considered other relevant background information, including previous BOs that pertain to Central Valley Project/State Water Project water operations and the reviews of the 2004 NMFS OCAP BO. The panel met in Sacramento, California in August 2008 and had a follow up conference call then produced a written review of the NMFS analytical framework that is posted at [http://www.science.calwater.ca.gov/events/reviews/review\\_ocap.html](http://www.science.calwater.ca.gov/events/reviews/review_ocap.html) .

The charge to the panel for Part 2 is to review NMFS' draft OCAP BO. This document will be forwarded to the Panel by CALFED Science Program staff when it is completed in December 2008. The Panel will be given three to four weeks to review the BO. The Panel will meet in Sacramento, California in January 2009 to allow clarification with NMFS regarding any uncertainties arising from the review of the BO. Subsequent to this public meeting, the Panel will have three to four weeks to produce a written review of the BO (by February 6, 2009).

Note that the Panel is not being asked to critique the merits of the modeling tools used for the OCAP BA (*e.g.*, CALSIM II, DSM-2 ptm, SALMOD, *etc.*). The limitations of these tools have been discussed previously, for instance in the 2004 review of the NMFS OCAP BO ([http://www.science.calwater.ca.gov/pdf/workshops/OCAP\\_review\\_final\\_010606\\_v2.pdf](http://www.science.calwater.ca.gov/pdf/workshops/OCAP_review_final_010606_v2.pdf)) and in the 2008 review of water temperature modeling for OCAP ([http://www.science.calwater.ca.gov/pdf/workshops/workshop\\_tmm\\_final\\_report\\_4-1-08.pdf](http://www.science.calwater.ca.gov/pdf/workshops/workshop_tmm_final_report_4-1-08.pdf)). It is accepted that they are the presently best available modeling tools calibrated to the Bay-Delta watershed. However, the Panel is asked to consider whether these tools were used effectively during

the OCAP consultation and, conversely, whether conclusions drawn from the models exceed scientifically defensible inference.

This review will also be used to help ensure that the best available information is used for future ESA consultations, such as analytical components for future actions under OCAP.

**Part 1: Specific questions for review of the NMFS analytical approach (Note: this part completed as of October 2008, see url above):**

1. Does the analytical approach fully address the concerns described in the independent peer review reports of the NMFS 2004 OCAP biological opinion (CALFED Science Program, January 3, 2006 ; McMahan, CIE; Maguire, CIE, January 12, 2006; and NMFS Science Center, May 25, 2006)?
2. Does the analytical approach fully incorporate the framework presented by Lindley *et al.* (2007), "Framework for Assessing Viability of Threatened and Endangered Chinook and Steelhead in the Sacramento-San Joaquin Basin?"
3. Does the analytical approach fully explain how the exposure, response, and risk to listed individuals, populations, and diversity groups<sup>1</sup> resulting from project operations will be assessed?
4. Does the analytical approach describe a method that allows evaluation of combined project operations effects on the listed species?

**References for Part 1**

CALFED Science Program 2006:

[http://www.science.calwater.ca.gov/events/workshops/workshop\\_ocap.html#OCAP\\_05](http://www.science.calwater.ca.gov/events/workshops/workshop_ocap.html#OCAP_05)

Lindley *et al.* 2007: <http://repositories.cdlib.org/jmie/sfews/vol5/iss1/art4/>

Maguire CIE review:

[http://swr.nmfs.noaa.gov/news/Maguire\\_CALFED\\_Salmon\\_review\\_report-January\\_18\\_2006.pdf](http://swr.nmfs.noaa.gov/news/Maguire_CALFED_Salmon_review_report-January_18_2006.pdf)

McMahan CIE review:

<http://www.montana.edu/~wwwbi/staff/mcmahon/CALFED%20Review.pdf>

NMFS Science Center review:

<http://swr.nmfs.noaa.gov/pdf/ScienceCenterReportOnOCAPBiOpReviews.25May06.final.pdf>

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<sup>1</sup> Lindley *et al.* (2007) established salmonid ecoregions (*i.e.*, diversity groups) based on climatological, hydrological, and geological conditions in order to describe the population spatial structure of threatened and endangered Chinook salmon and steelhead in the Central Valley.

**Part 2: Specific questions for review of the draft NMFS Biological Opinion (BO)**

**Overarching question:** Is the NMFS BO scientifically sound and are the conclusions scientifically defensible?

5. Are assumptions clearly stated and reasonable based on current scientific thinking? What uncertainties and limitations were not addressed that might impact the analysis in the BO substantively? Are any of the current assumptions and uncertainties limiting or critically influencing future analysis?
6. Does the analytical framework adequately reflect comments and issues raised in Part 1 of this review? Is the framework effectively applied? Does the application of the framework adequately assess all potential responses of each fish species to all likely effects of the proposed action (*i.e.*, both direct and indirect effects of the project?)
7. Have any temporal or spatial aspects of fish or ecosystem needs been overlooked, exaggerated or in some other way not adequately addressed with the models and analytical approaches presented? If so, what are they and how could NMFS ensure they are adequately addressed in the BO?
8. Do the data, analyses, results, and conclusions presented in the BO lead to a thorough understanding of the risks to individuals and populations from the proposed action? If not, what risks have been overlooked and what other scientific information should be considered?
9. Were gaps in life history information considered?
10. Does the framework adequately allow future climate scenarios to be evaluated? Does the BA provide sufficient information for this climate change analysis? Does the BO adequately address likely future climate change effects on salmonid fishes and green sturgeon in the Central Valley?
11. Were statistical uncertainties in population numbers, survival, entrainment loss, etc. considered? Did the BO analyze the impacts of the proposed action in the proper perspective (*e.g.*, the appropriate time scale, or the likelihood that an event will happen *e.g.* climate change)?
12. Does the analysis in the Effects of the Proposed Action section present a clear argument that supports the conclusion? Are the arguments and information from the Effects section carried through the Integration and Synthesis section into scientifically supported conclusions?