# Memorandum

**To:** Yumiko Henneberry

**From:** Chris Earle, Rick Wilder, Marin Greenwood (ICF), and Chandra Chilmakuri (CH2M)

**Date:** November 4, 2016

**Re:** Response to Independent Review Panel Question 3

---

## Question 3

The panel would benefit from information from ICF about what text and analyses received major, moderate, or minimal changes since spring. For example, most everything depends on hydrodynamics modeling. To what extent did it change? Were the fish models (e.g., salmon) modified?

## Response

Relative to the analysis presented in the January 2016 draft of the California WaterFix Biological Assessment, the following substantial changes occurred.

### Changes between the January 2016 Biological Assessment and the August 2016 Biological Assessment

A new section was added, clearly stating the activities for which Reclamation and DWR are seeking incidental take coverage. This change only served to clarify statements that appeared in the previous draft and thus is a minor change. Other, similar clarifying statements were added throughout the document; all represent minor changes. Similarly, many text changes were made to conform to standard usage for Endangered Species Act compliance documents, such as explicit determinations of which effects would be "negligible" or "discountable," or the circumstances under which they would cause incidental take or would affect designated critical habitat. These changes in regulatory language are not of biological significance.

Certain aspects of the proposed facilities, described in the January 2016 draft biological assessment were revised either because the initial description was inaccurate, or because, through a series of meetings with the fish and wildlife agencies, it was determined that project modifications could further reduce adverse effects on listed species. Many such small revisions occurred, but none resulted in changes sufficient to alter the conclusions of the effects analysis, and thus constitute minor changes.

Some changes were made to the effects analysis for terrestrial species to either clarify impacts discussed in the January 2016 draft biological assessment, or to consider additional impacts such as

sound and vibration effects. These revisions did not result in changes sufficient to alter the conclusions of the effects analysis, and thus constitute minor changes.

Four terrestrial species were added to the analysis based on their potential occurrence in Suisun Marsh. However, the project is not expected to result in incidental take of any of these species, so their addition constitutes a minor change.

The construction analysis was modified in many particulars regarding the effects of underwater noise on fish. The revised analysis did not substantially alter the conclusions of the effects analysis and thus is a minor change.

The construction analysis was modified to consider in greater detail the potential disturbance of existing contaminated sediments in association with in-water construction work. The revised analysis included more detailed procedures to detect and respond to such instances of contamination. These revisions did not substantially alter the conclusions of the effects analysis and thus are a minor change.

The construction and operations analyses were modified to consider the many uncertainties regarding how the proposed modifications to the Clifton Court Forebay will be performed and how the completed structure will function. The project proponents agreed to form a Clifton Court Forebay Technical Team, with charge and duties analogous to those of the Fish Facilities Technical Team that was formed to improve the design of the proposed north Delta diversions. This change provided the regulatory agencies with substantial confidence that the forebay design, construction, and operations procedures would demonstrably minimize adverse effects on listed species to the greatest extent practicable, but this did not substantially alter the conclusions of the effects analysis. It represents a moderately significant change.

Similarly, the project proponents agreed to form an HOR Gate Technical Team to consider the many uncertainties regarding how the HOR gate will be constructed and operated. This change also provided improved confidence that the HOR Gate design, construction, and operations procedures would demonstrably minimize adverse effects on listed species to the greatest extent practicable, but this did not substantially alter the conclusions of the effects analysis. It represents a moderately significant change.

Effects on spring-run Chinook salmon from the San Joaquin River basin were added to the analyses. This represents a moderately significant change, although it does not change the conclusions of the effects analysis. Inclusion of this species resulted in addition of a new quantitative analysis technique (Section 5.4.1.3.1.2.1.3.5 *SalSim Through-Delta Survival Function*); there were no other quantitative analyses with biological response outputs added to the submitted BA.

New analysis on the number of days of Delta Cross Channel openings and information on nonphysical barrier effectiveness was added to Chapter 5, although these represent a minor change that did not alter the conclusions of the effects analysis.

The analysis of water operations effects upon green sturgeon was modified in consideration of a variety of NMFS comments that called attention to new information that had not been evaluated in the January 2016 biological assessment. The new information did not substantially alter the conclusions of the effects analysis, and represents a minor change.

Section 5.4.1.4 *Assess Risk to Individuals* was completed; it had previously been left blank. Given that this is essentially summarizing information presented in Section 5.4.1.3 *Assess Species Response to the Proposed Action*, this represents a moderately significant change, but did not alter the conclusions of the effects analysis.

A number of panel recommendations from their review of the January 2016 draft BA were addressed, in particular related to representation of uncertainty: inclusion of prediction intervals on results figures (when possible) and acknowledgement of situations where plots did not incorporate uncertainty. This moderately significant change did not alter the conclusions of the effects analysis.

The analysis of water operations effects upon Southern Resident killer whale was modified in consideration of NMFS concerns that the project's effects on Central Valley salmonid populations, and thus on their utility as part of the whale's prey base, had not been considered in sufficient detail. The new information did not substantially alter the conclusions of the effects analysis, and represents a minor change.

The proposal to perform localized control of predatory fish as a conservation measure was withdrawn in response to agency concerns that the measure as proposed would have no demonstrable beneficial effects. In view of that conclusion, it represents a minor change.

For Delta Smelt, new analyses were added to assess potential effects of water operations on selenium concentration and X2 as an indicator of low salinity zone critical habitat. These moderately significant changes did not alter the conclusions of the effects analysis.

## Changes between the August 2016 Biological Assessment and the October 2016 2081(b) Application

Although largely drawing on the August 2016 biological assessment, the 2081(b) Application differs in some key respects, such as the inclusion of jeopardy analyses for each covered species. In addition, at CDFW's request, the DWR agreed to propose spring (March–May) outflow criteria for the proposed project to ensure that spring outflow under existing climate would be maintained during project operation in the future, i.e., regardless of the effects of climate change during that period. This change necessitated revisions to CalSimII modeling of the proposed project and discussion of resulting differences in selected key hydrological variables employed in the effects analysis that are predicated upon that modeling. A summary of the differences in these key hydrological variables is provided in Appendix 4.D of the 2081(b) Application, and the jeopardy analyses for each fish species consider that information as well. The effects of this measure turned out to be very small, so it amounts to a minor change.