Date: August 19, 2011

From: Karen Schwinn, US EPA

To: Federico Barajas, US BOR

Subject: Review of ICF Appendix A

EPA appreciates the opportunity to comment at this early stage of preparing the Effects Analysis for the BDCP. The Conceptual Model and Analytical Framework is appropriately large scale in most of its discussions but several statements are made that suggest the application of the framework may not yield the results needed to evaluate the effects on listed species. Overall, it doesn't inspire confidence that the consultant team has an approach that is inadequate to the task.

1 - In reviewing this document, we were specifically interested in how ICF would analyze how the various BDCP measures, especially conveyance and operations changes, would impact the suite of water quality parameters of most import to aquatic species in the Delta. We are no clearer having seen this document, and frankly, I'm not sure what to make of a couple of statements on page A-45:

> *"BDCP conservation measures have* ***limited direct effect*** *on water quality because most of the causes of declining water quality are outside the domain of the BDCP"(emphasis added)*
>
> *"Best professional judgment will be used to discuss and synthesize information related to BDCP impacts on these parameters."*

2 - ICF appears to have already made an inappropriate conclusion about the BDCP's impact on salmon:

> *"****Salmon****, on the other hand, spend limited periods in the BDCP Plan Area. While conditions in the Study Area are important to salmon, their success is dependent on conditions across a much wider geography and* ***cannot be affected by BDCP*** *(page A-28, emphasis added).*

At present, only about 2% of outmigrant listed salmon ever encounter the large structures, predation and entrainment at the south delta. With the BDCP, this will change dramatically. An assessment of that impact is clearly warranted but appears to be excluded by this document.

3 - ICF appropriately references the DRERIP models. However, the document fails to reflect the prioritization of factors that the DRERIP models include. For instance, ICF suggests restoration of tidal marsh habitat is important in restoring the population of delta smelt, even though no evidence is provided (and none exists in the qualitative DRERIP model) that tidal marsh habitat limits the abundance, spawning success or any other aspect of smelt population dynamics. This would be addressed by the use of a quantitative life-cycle model, as the document suggests. ICF only refers to the Derisso model, however, which is written at too abstract a level for this use.

ICF makes no reference to the model currently in development by FWS that is designed to be applied to such questions.

4 - In regard to water quality, ICF proposes to address salinity, temperature and turbidity using the DSM2 and CALSIM models. Changes in salinity fields, temperature and turbidity are not analyzed as changes in habitat per se, but only as changes in the quality of habitat (which seems to be purely conceived as tidal marsh).

> *"The focus of this section is habitat quantity and BDCP actions that increase or decrease extent (e.g., acres or volume) of aquatic environments defined as key habitat for different species. Aspects of habitat quality attributes such as flow, nutrients, salinity, turbidity, pollutants, temperature, entrainment, food supply, and other factors will be considered under other conservation measures."(page A-40).*

5-That tidal marsh is the only form of ecologically valuable habitat is reflected by the absence of any discussion of the papers that have defined delta smelt pelagic habitat in terms of salinity, temperature and turbidity.

> *"The program will restore or protect up to 113,000 acres of aquatic and terrestrial habitat including 65,000 acres of tidal marsh in the Delta and improve floodplain environments on the Sacramento River, especially the Yolo Bypass. These will approximately double the amount of tidal and intertidal wetland habitat now available in the Delta."(page A-9)*

This seems to omit any consideration of Estuarine Habitat as understood under the CWA or in the scientific papers describing the habitat of delta smelt.

6 - ICF asserts *"Turbidity may increase because of an influx of organic debris from restored tidal wetlands." (page A-45),* which they suggest will improve conditions for delta smelt. This proposed impact of wetland restoration is contrary to the impacts of most other wetland restoration efforts that are frequently touted for their beneficial decreases in turbidity.

7 - ICF states that restoration of wetlands will take agricultural lands out of production and thereby reduce the loadings of agricultural contaminants. No effort is made to address the fates of chemicals (except mercury) now in the soils of those islands.

8 - Ammonia from sewage treatment is identified as a driver of phytoplankton communities based on the paper of Glibert 2010 (which is cited 7 times despite having been refuted as statistically invalid.) Interestingly, the respected and abundant work by Dugdale and his co-workers on impacts of ammonia on the foodweb is not cited at all.

9 - The document does not address water quality issues resulting from selenium, salts, boron and contaminant loading from the San Joaquin into the south delta, although some issues could be included as *"other stressors, [that] go beyond issues associated with water operations and physical habitats." (page A-9)* The export of higher quality water from the Sacramento River by the dual facility and its direct effect on the fate and transport of these water quality constituents in the delta is excluded from analysis.