

## Summary of Request

### Background

The effects analysis that is the subject of this IQA correction request is part of the biological opinion for the OCAP. A biological opinion (BO) prepared under the ESA has the following purposes and requirements:

- Identify and minimize the effects of the project on the species,
- Allow take, as long as there is no jeopardy to the species,
- Assure that the species' continued existence is not jeopardized,
- Avoid adverse modification of critical habitat (as distinguished from restoring habitat, which is not a purpose of a biological opinion),
- Consider recovery, but only in the context of effects that may preclude recovery.

A BO must meet the following requirements:

- BO is required to be based on best available data,
- BO is required to comply with peer review policy,
- BO is required to comply with IQA guidelines.

### Summary

Delta smelt abundance is declining. The declines are identified using abundance indices as there are no actual population estimates available. The best measure of population level is the abundance of spawning adults. While the abundance of all life stages of smelt is important, the most important life stage is usually considered to be the final one -- spawning adults. This is because it represents the net result of all the factors influencing smelt throughout their lives.

Many factors affect delta smelt throughout their one-year lifetimes. Entrainment by export pumps is only one of those factors. The fact that some adult smelt are entrained at the export pumps before they can spawn is well-known. However, no relationship between entrainment of adult smelt and the following year's adult smelt abundance can be found. In his 2008 paper Kimmerer compared adult delta smelt abundance across years and asked what effect export pumping had on abundance. Kimmerer noted that entrainment of all the life stages of delta smelt might be affecting the subsequent spawning abundance by 10 percent at most. However, based on the change in population indices, each year, other factors are having an effect 500 times greater. This means that only 0.2 percent of the total change in population is attributable to entrainment of **all** life stages of delta smelt (not just adults). This means that 99.8% of the effects on delta smelt abundance are due to factors independent of water project export pumping.

Exports are managed at great cost in an attempt to influence delta smelt abundance, but the data say the results of such management will be negligible. The EA misrepresents the importance of project operations. This IQA request for correction is designed to address the bias, inaccuracy, incompleteness and lack of clarity and data in the draft EA prepared by the FWS and disseminated by the FWS and Department of Justice.

**The EA Fails in 3 ways:**

## Request for Correction of Information in the Draft Effects Analysis of the Biological Opinion on the Continued Long-Term Operations of the Central Valley Project and the State Water Project

1. Does not meet the requirements of the ESA
  - ✓ Based on assumptions not data
  - ✓ Characterizes all adverse ecological conditions as direct or indirect effects of the projects; in violation of the ESA regulatory definitions of direct and indirect effects.
2. Does not meet the OMB IQA Guidelines
  - ✓ Incomplete
  - ✓ Inaccurate
  - ✓ Biased
  - ✓ Unclear
3. Does not meet the OMB Peer Review Guidelines
  - ✓ Reviewers are not independent
  - ✓ Scope of the review and the reviewers do not meet the standard required for highly influential scientific assessments

### The Requests for correction fall into 3 categories:

- ❖ Request for correction of critical failures of the EA to comply with the requirements of the ESA
- ❖ Request for correction of multiple failures of the EA to comply with the IQA requirements
- ❖ Request correction of the peer review of the EA to comply with the FWS and OMB Guidelines for highly influential scientific assessments.

#### Correction Request 1 (Effects Analysis pages 1-2)

Request that the Effects Analysis be corrected to remove all assumed effects, and address only those effects which are supported by data and analysis.

#### Correction Request 2 (Effects Analysis page 1)

Request that general assumptions and statements regarding direct adverse effects of entrainment by Delta export pumps on delta smelt abundance be removed and replaced with specific statements regarding only those effects whose existence is supported by data.

Request that general assumptions and statements regarding indirect water Project effects acting through multiple unknown, undefined, and unmeasured 'factors' or 'stressors' adverse effects be removed and replaced with specific statements regarding only those effects whose existence is supported by data.

#### Correction request 3 (Effects Analysis Pages 4-5)

Request that the statement that Central Valley Project and State Water Project (the "Projects") operations affect delta smelt directly through entrainment be corrected and replaced with the statement found later in the analysis that acknowledges data demonstrate entrainment is not driving population dynamics and that, while effects have been identified, they are unimportant.

**Correction Request 4 (pages 1 and 31)**

Request correction of statements in the Effects Analysis that attribute effects of independent factors such as predation, contaminants, introduced species, food supply, aquatic macrophytes, and micosystis to indirect effects of Project operations.

Request that unsupported Effects Analysis statements attributing adverse effects of other identified factors to Project operation be removed or clarified to recognize:

- These adverse factors would exist even if Project operations were to cease, and thus are not the indirect effects of Project operations;
- The FWS has no data as to either the existence or extent of the adverse effects of many of the listed factors;
- The FWS has no data to support the assertion that Project operations incrementally increase the adverse effects of the listed independent factors;
- The hydrodynamics of the Delta are largely controlled by the tides and weather;
- The FWS has no data to identify which, if any, hydrodynamic conditions result in adverse effects to delta smelt;
- The FWS has no data to support the assertion that direct and/or indirect adverse effects resulting from Project operations are having an important effect on delta smelt abundance; and
- Extremely stable low outflow conditions in the fall occur naturally, and CVP and SWP operations actually increase flow levels and alleviate conditions that may be caused by low outflow.

**Correction Request 5 (Effects Analysis page 2 and related references throughout the document)**

Request correction of the Effects Analysis to eliminate the assumption that three assumed Project effects will adversely affect delta smelt either alone or in combination.

Request correction of the Effects Analysis to acknowledge that Project operations do not have important adverse abundance effects on delta smelt due to entrainment.

Request Effects Analysis be revised to be consistent with the requirements of the ESA and identify only those effects whose existence is supported by the best scientific and commercial data available.

**Correction Request 6 (Effects Analysis pages 4-21 and related statements throughout the Effects Analysis)**

Request correction of the Effects Analysis to recognize the data and analysis demonstrate no relationship between direct entrainment and abundance of delta smelt.

Request correction of the assumption that there is a linear relationship between flows in Old and Middle River (OMR) and delta smelt salvage.

Request correction of the Effects Analysis by removal of references to *Grimaldo et al* as the work is not publicly available and thus does not meet the transparency and reproducibility standards of the IQA.

**Correction Request 7 (Effects Analysis pages 21 through 23 and related statements throughout the Effects Analysis)**

Request for Correction of Information in the Draft Effects Analysis of the Biological Opinion on the Continued Long-Term Operations of the Central Valley Project and the State Water Project

Request correction of the Effects Analysis to recognize that there are no data to support an assertion that Project operations are having important effects on densities of *Pseudodiaptomus forbesi* in delta smelt habitat areas in summer.

Request correction of the Effects Analysis to recognize that there are no data so support an assumption that entrainment is affecting delta smelt abundance.

Request correction of the Effects Analysis to recognize that *Pseudodiaptomus forbesi* densities in Suisun Bay are not correlated with Project exports.

**Correction Request 8 (Effects Analysis pages 27-31 and related statements throughout the Effects Analysis)**

Request correction of the Effects Analysis to recognize that there are no data to support an assumption that Project operations are affecting habitat suitability.

Request correction of the Effects Analysis to recognize that 'habitat' consists of many more variables than just X2, turbidity, and temperature.

Request correction of the Effects Analysis to recognize that the 'correlation' between delta smelt spawning abundance and previous fall X2 is based on a single data point.

Request correction of the Effects Analysis to recognize that previous fall X2 is not a predictor of the recent abundance decline.

Request correction of the Effects Analysis to recognize the referenced study which forms the basis of the statements regarding Project operation effects on habitat included in the Effects Analysis contained an explicit warning that other factors, particularly food limitation, could be important.

Request correction of the Effects Analysis to recognize that food limitation in the spring, which is independent of Project operations is a better predictor of future delta smelt abundance than previous fall X2.

Request correction of the Effects Analysis to recognize that food abundance is highly correlated with the recent decline in delta smelt abundance.

Request correction of the Effects Analysis to recognize that when food abundance is accounted for, the effect of previous fall X2 on delta smelt abundance is unimportant.

**Correction Request 9 (Effects Analysis pages 3-4 and related pages in the Effects Analysis)**

Request correction of the Effects Analysis to examine a range of temperature scenarios. Currently, the Effects Analysis assumes only higher temperatures.

Request correction of the Effects Analysis to include a discussion of the limitations of existing climate models.

Request correction of the Effects Analysis to recognize that climate change will occur independent of Project operations, and thus is not an 'effect' of the Projects.

**Correction Request 10 (Effects Analysis pages 2-27 and related statements)**

Request for Correction of Information in the Draft Effects Analysis of the Biological Opinion on the Continued Long-Term Operations of the Central Valley Project and the State Water Project

Request correction of the Effects Analysis to abandon its reliance on *Grimaldo et al.* which is not only unavailable, but which relies on an analytically flawed premise, thus violating the requirement of the ESA that the biological opinion be based on the best *available* data, and the requirement of the IQA that analysis be accurate.

**Correction Request 11 (Effects Analysis pages 2-27 and related statements)**

Request that the analytically flawed comparison of actual historical conditions to simulated conditions be removed.

Request correction that the flawed analytical approach comparing actual to modeled scenarios be replaced by the analytically correct comparison of modeled scenarios to modeled scenarios.

Request that the Effects Analysis estimate the effects of the proposed Project by comparing how predicted larval-juvenile entrainment in scenario 7.0 compares to the other studies.

**Correction Request 12 (Effects Analysis failure to include information)**

Request correction of the Effects Analysis to recognize superior scientific data demonstrating that food availability is a better predictor of delta smelt abundance than low salinity habitat availability (X2)

**Correction Request 13 (Effects Analysis page 31 and other related statements)**

**Request correction of the Effects Analysis statement that extremely stable low outflow conditions in the fall are the result of CVP and SWP operations;**

Request that:

- All statements, insinuations, and direct assertions that Project operations cause low flows in the fall be corrected to accurately represent that low flows occur naturally and Project flows increase naturally occurring flows in the fall;
- Recognize that the adverse effects of fall low flows occur independently of Project operations; and
- Recognize that Project operations likely provide a benefit in the fall by increasing naturally low flows.

**Correction Request 14**

Request correction of proportional larvae-juvenile entrainment estimates by Kimmerer to account for mistakes in that analysis that caused estimates to be too high;

**Correction Request 15**

Request correction of Kimmerer (2008) estimates of proportional adult entrainment to account for mistakes in the analysis that caused estimates to be too high;

**Correction Request 16**

Request correction of the discussion of Kimmerer 2008 to provide complete information in a manner consistent with that required by the IQA by:

Request for Correction of Information in the Draft Effects Analysis of the Biological Opinion on the Continued Long-Term Operations of the Central Valley Project and the State Water Project

- Listing the numerous and explicit assumptions made by Kimmerer, and which are not necessarily realistic;
- Disclosing the confidence intervals associated with the estimates;
- Clarifying that the cited 'losses' referenced by the Effects Analysis, are in fact, 'estimated cumulative losses';
- Disclosing that the Effects Analysis only identifies the two years of highest estimated cumulative losses;
- Disclosing the entire range of losses identified by Kimmerer
- Acknowledging and correcting errors in Kimmerer's estimates of adults and larval-juvenile proportional losses

**Correction request 17 (Effects Analysis page 31 and related statements)**

Request correction of the statement that an effect of Project operations is to cause stable low flows in the fall, by revising it to acknowledge that low outflows occur naturally and that Project flows increase flows beyond that which would occur normally.

Request correction of the statement that an indirect effect of Project operations is to contribute to toxicity, by revising it to acknowledge toxics are contributed independent of Project operations and that Project flows in the fall dilute independently occurring toxic loading.

Request correction of the Effects Analysis to recognize that Project flows provide a benefit by diluting toxic concentrations in the fall.

**Correction Request 18 (Effects Analysis page 31 and related statements)**

Request correction of the statement that an indirect effect of Project operations is to suppress phytoplankton production by causing stable low flows in the fall.

**Correction Request 19**

Request correction of the statement that an indirect effect of Project operations is to increase reproductive success of the invasive Amur River clam *Corbula amurensis* by causing stable low flows in the fall as available data contradict the assertion.

**Correction Request 20 (Effects Analysis page 31 and related statements)**

Request correction of the statement that an indirect effect of Project operations is elevated entrainment of lower trophic levels because no data support the statement.

Request correction of the statement that Project operations create stable low flows in the fall, to reflect that stable low flows occur naturally and that Project operations increase flows beyond that which would naturally occur.

**Correction Request 21 (Effects Analysis page 27-31 and related statements throughout the Effects Analysis)**

Request for Correction of Information in the Draft Effects Analysis of the Biological Opinion on the Continued Long-Term Operations of the Central Valley Project and the State Water Project

Request correction of the statement that Project operations create stable low flows in the fall, to reflect that stable low flows occur naturally and that Project operations increase flows beyond that which would naturally occur.

Request correction of the analysis to recognize fall Project operations cannot increase the risk of entrainment in agricultural diversions during a time when such diversions are not operating.

**Correction Request 22 (Effects Analysis page 31 and related statements throughout the Effects Analysis)**

Request correction of the statement that an indirect effect of Project operations is to provide environmental conditions for non-native fishes to thrive by causing stable low flows in the fall as the statement is not supported by data.

Request correction of the statement that Project operations create stable low flows in the fall, to reflect that stable low flows occur naturally and that Project operations increase flows beyond that which would naturally occur.

**Correction Request 23 (Omitted information)**

Request the Effects Analysis provide a discussion of the overall population level 'take' by export pumping as required by the ESA

Request that the Effects Analysis provide an explicit discussion of Kimmerer (2008) conclusions regarding the population level effect of export pumping on delta smelt.

Request the Effects Analysis provide an explicit discussion of Manly/Chotkowski (2006) conclusions regarding the population level effect of export pumping on delta smelt.

**Correction Request 24**

Request that the Effects Analysis be corrected to explicitly consider the conservation and recovery efforts currently underway.

**Correction Request 25**

Request correction of the peer review of the Effects Analysis to comply with the FWS and OMB Guidelines for Peer Review by using only reviewers who meet the NAS Policy for evaluating conflicts;

Request correction of the scope of the review instructions given to peer reviewers to be consistent with that required under the OMB and FWS Peer Review Guidelines