



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240



FWS/R9/SCI

MAR 12 2009

Mr. Dan Keppen
Executive Director
Family Farm Alliance
P.O. Box 216
Klamath Falls, Oregon 97601

Subject: 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 (CVP) and the State Water Project (SWP)

Dear Mr. Keppen:

This is in response to the Family Farm Alliance's (FFA) December 14, 2008, letter request for Correction of Information under the Information Quality Act (IQA). The FFA's request was for corrections of information on the draft effects analysis of the biological opinion dated October 17, 2008, for the continued long-term operations of the CVP and SWP. The final effects analysis in the December 15, 2008, biological opinion was revised and updated from the October 17, 2008, draft version. Some of the revisions contained in the final effects analysis pertained to issues contained in your request.

The FFA letter included a number of correction requests (CR) to the draft effects analysis. In the "Summary of Request" document, the FFA states, "The EA (effects analysis) Fails in 3 Ways" and "The Requests for Correction fall into 3 categories." The IQA only requires the correction of information. Any allegations of violation of the Endangered Species Act cannot be addressed via the IQA mechanism. Therefore, any statements or requests that the FFA letter makes about the biological opinion not meeting the requirements of the ESA will not be addressed in this response.

CR1: Request that the Effects Analysis be corrected to remove all assumed effects, and address only those effects which are supported by data and analysis.

Response: This request is broad and seems to be covered in detail in later CRs. Therefore, no correction is required for CR1.

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CR2 (part 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.

Response: The Projects do have direct adverse effects through entrainment by taking adult delta smelt that would otherwise spawn and produce offspring. These effects are further articulated in the “Factors Affecting the Species” section starting on page 159 and the “Adult Entrainment” section of the Effects section of the biological opinion (starting on page 210 of the final biological opinion). The CR is commenting on a section that is an introduction to the effects analysis, no further detailed statement is needed here. Therefore, no correction is needed.

CR2 (part 2): 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.

Response: The effects analysis describes a subset of factors that are adversely affected or controlled by CVP/SWP operations. There are other factors that have affected the long-term decline of the delta smelt, but the CVP and SWP have played an important direct and indirect role in the decline. These factors and stressors are not “unknown, undefined, and unmeasured,” as the CR states. Therefore, no correction is needed.

CR3: 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.

Response: The statement the CVP and SWP operations directly affects delta smelt is a correct statement since delta smelt are entrained at these facilities. Even though there are direct effects to delta smelt in all years, entrainment may not drive delta smelt population trends in all years (see the “Factors Affecting the Species” section starting on page 159 and the “Adult Entrainment” section starting on page 210 of the final biological opinion). The statements in the biological opinion are accurate. Therefore, no correction is needed.

CR4: 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.

Response: The biological opinion discusses how there are a number of stressors affecting delta smelt abundance and distribution. While these stressors would have effects to the delta smelt in the absence of Project operations, the effects of these stressors are exacerbated by Project operations. The CR does not request specific corrections to the data nor provide new scientific literature citations supporting the request. Therefore, no correction is needed. In addition, the biological opinion discusses these stressors in detail within the baseline section. The last bullet will be discussed in the response to CR13.

CR5 (part 1): 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.

Response: The Service analysis described that any of the three major categories of effects described earlier (entrainment of delta smelt, habitat restriction, and entrainment of *Pseudodiaptomus forbesi*) will adversely affect delta smelt, either alone or in combinations. This approach is also consistent with Rose (2000), who used several different individual-based models to show how multiple interacting stressors can result in fish population declines that would not be readily discernable using linear regression-based approaches. Therefore, no correction is needed.

CR5 (part 2): Request correction of the Effects Analysis to acknowledge that Project operations do not have important adverse abundance effects on delta smelt due to entrainment.

Response: Project operations directly and/or indirectly can have adverse effects on delta smelt, (see the “Factors Affecting the Species” section starting on page 159 and the “Adult Entrainment” section starting on page 210 of the final biological opinion). Therefore, no correction is needed.

CR5 (part 3): 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.

Response: The Service used the best scientific and commercial data available, which is the standard under the Endangered Species Act when developing the biological opinion. Therefore, no correction is needed.

CR6 (part 1): Request correction of the Effects Analysis to recognize the data and analysis demonstrate no relationship between direct entrainment and abundance of delta smelt.

Response: The biological opinion states that direct entrainment can have adverse effects to delta smelt population numbers. The CR does not provide information or a scientific reference demonstrating that this statement is not accurate. Entrainment by the project does have an adverse effect on delta smelt. Therefore, no correction is needed.

CR6 (part 2): Request correction of the assumption that there is a linear relationship between flows in Old and Middle River (OMR) and delta smelt salvage.

Response: The Service used a linear model, as described in Grimaldo et al., an accepted manuscript in a scientific journal. The CR does not provide information demonstrating that this is not an appropriate evaluative tool. The Service continues to find this linear model is appropriate to be used under ESA standards. Therefore, no correction is needed.

CR6 (part 3): 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.

Response: The Service is required to use the best available scientific information when developing a biological opinion under §7(a)(2) of the ESA. Grimaldo et al. is an accepted manuscript. Regardless, the Service uses the best scientific and commercial data available and this standard does not imply that only published papers be used. The CR does not identify other, better supported peer reviewed or more well-established methodologies on this matter. Therefore, no correction is needed.

CR7 (part 1): 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.

Response: This section was revised in the final version of the biological opinion (see page 228). Therefore, no correction is needed.

CR7 (part 2): Request correction of the Effects Analysis to recognize that there are no data to support an assumption that entrainment is affecting delta smelt abundance.

Response: This CR is the same as CR6 (part 1). The biological opinion states that direct entrainment can have adverse effects to delta smelt population numbers. The CR does not provide information demonstrating that this is not accurate. Therefore, no correction is needed.

CR7 (part 3): Request correction of the Effects Analysis to recognize that *Pseudodiaptomus forbesi* densities in Suisun Bay are not correlated with Project exports.

Response: This section was revised in the final version of the biological opinion (see page 228). Therefore, no correction is needed.

CR8: 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.

Response: The biological opinion in the "Habitat Suitability" section starting on page 233 describes how the projects adversely affect the habitat of the delta smelt by various potential mechanisms. As described by Feyrer et al. 2007, during the fall, the amount of available delta smelt habitat is directly affected by operations. The final biological opinion discusses how operations are affecting habitat. Therefore, no correction is needed.

CR9: 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.

Response: The Service used the information on climate change that was presented in the biological assessment. All of the climate change scenarios presented in the biological assessment projected higher temperatures, and we used this analysis in the biological opinion.

While climate change will occur regardless of effects, this biological opinion covers a long period of operations and, as a result, the Service was required to look at the effects of the proposed action under the various climate change scenarios that may manifest themselves during the term of the proposed action. Therefore, no correction is needed.

CR10: 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.

Response: The Service used the best available scientific and commercial information available in its analysis. Grimaldo et al. is an accepted manuscript. Again, the CR does not demonstrate why Grimaldo et al. is based on an analytically flawed premise and the Service believes the analytical framework presented in Grimaldo et al. is not flawed. Therefore, no correction is needed.

CR11: 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.

Response: The Service used an analysis of the BA's model runs versus the historical data for a number of reasons. The BA did not include a modeling run that accurately demonstrated the projects' historical pumping amounts. For example, the model run 7.0, which was to represent the current conditions, had operations of the projects that were very different than historical operations. Therefore, an analysis that evaluated the relationship of the modeled runs to the historical data was used. This analysis was also done to evaluate how operations have changed from when delta smelt were more abundant, prior to the year 2000 to more recent operations. Therefore, no correction is needed.

CR12: 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).

Response: Food availability and low salinity habitat availability (X2) are two conditions that are affected by the Projects. The CR did not provide any information conclusively demonstrating that food availability is a more accurate predictor of delta smelt abundance, nor data demonstrating that use of X2 is an inaccurate predictor of delta smelt abundance. The Service used X2 for its analysis and no alternative or conflicting data are presented in the CR. Therefore, no correction is needed.

CR13: 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.

Response: The analysis presented in the biological opinion on pages 179 and in the “Habitat Suitability” section on page 233 indicates outflows in the fall are lower during wet hydrologic years than existed in the early 1990s. Fall outflows during wet and above normal years are now the same as dry and critical years and the variability that once existed with outflows being higher in the fall following wetter years no longer remains. All fall outflows are generally the same, regardless of the previous water year conditions, which limits the available habitat for delta smelt in all water years. Therefore, no correction is needed.

CR14: Request correction of proportional larvae-juvenile entrainment estimates by Kimmerer to account for mistakes in that analysis that caused estimates to be too high.

CR15: Request correction of Kimmerer (2008) estimates of proportional adult entrainment to account for mistakes in the analysis that caused estimates to be too high.

Response for CR 14 and CR15: Kimmerer 2008, a peer-reviewed and published paper, presents the best larval and juvenile entrainment estimates that have been conducted to date. The Service used Kimmerer 2008 as it was the best available science, as required under the ESA. The CR did not contain information or analysis demonstrating conclusively its assertion of inaccuracies in Kimmerer 2008. Therefore, no correction is needed.

CR16: Request correction of the discussion of Kimmerer 2008 to provide complete information in a manner consistent with that required by the IQA by:

- 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; and
- Acknowledging and correcting errors in Kimmerer’s estimates of adults and larval-juvenile proportional losses.

Response: Again, the Service used the analysis in Kimmerer 2008, a peer-reviewed and published paper, as a method to predict the proportion of the larval and juvenile entrainment that would occur based on the hydrologic predictions provided in the biological assessment. The

Service then used the estimates it prepared, using the method set out in Kimmerer 2008, to compare historical entrainment effects. The Service believes that Kimmerer 2008 is the best available scientific information on the subject. The CR does not demonstrate where there were any inaccuracies in its application by the Service. Therefore, no correction is needed.

CR17: 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.

Response: See the response to CR13. Parts 2 and 3 of the request discuss exposure to higher water toxicity. The stabilization of flows during the fall by the projects, no matter what the previous water year type, can result in exposure of delta smelt to higher water toxicities (see “Habitat Suitability” section of the biological opinion, page 233). Therefore, no correction is needed.

CR18: 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.

Response: See the response to CR13. The biological opinion provides a complete analysis of effects, see “Habitat Suitability” section of the biological opinion, page 233. Therefore, no correction is needed.

CR19: 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.

Response: See the response to CR13. The stabilization of flows during the fall by the projects, no matter what the previous water year type, can result in less varied salinities in the delta, which are beneficial to the clam, and since the clam needs brackish water to recruit, upstream movements of X2 can result in clams further upstream. Therefore, no correction is needed.

CR20 (part 1): 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.

Response: The operations of the Projects do result in entrainment of lower trophic levels. No information or data to support any corrections are cited, nor are any specific corrections provided. Therefore, no change is needed.

CR20 (part 2): 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.

Response: See the response to CR13. Therefore, no correction is needed.

CR21: 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.

CR22: 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.

Response for CR21 and CR22: See the response to CR13. The stabilization of flows during the fall by the projects, no matter what the previous water year type, can result in less varied salinities in the delta which affects delta smelt habitat and abundance and other ecological processes. No specific data is provided by the CR about agricultural diversions in the delta during different seasons. Therefore, no correction is needed.

CR23: 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.

CR24: Request that the Effects Analysis be corrected to explicitly consider the conservation and recovery efforts currently underway.

Response for CR23 and CR24: These are addressed in a conservation recommendation in the biological opinion, see page 296. Therefore, no correction is needed.

CR25: 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.

Response: The Service subjected the draft effects analysis to both internal and external peer review. External reviewers used by the Service were from academia, state, and federal agencies. In addition, the Service contracted with a consulting firm, PBS&J, to conduct an independent peer review using appropriate subject matter experts which they chose. No specifics are provided by the requestor as to what needs to be corrected. Therefore, no correction is required.

If you are dissatisfied with this response, you may appeal to the Director of the Fish and Wildlife Service within 21 calendar days of the decision. Appeals to the Director may be addressed to the Correspondence Control Unit, Attention: Information Quality Correction Request Processing, USFWS, 1849 C Street N.W., Mailstop 3238-MIB, Washington, D.C. 20240-0001. The Director will consider the appeal and make a final determination within 60 calendar days of receipt of the appeal.

Sincerely,

A handwritten signature in cursive script that reads "Ralph D. Moryenwek".

Senior Science Advisor