

APPENDIX 8

Discussion Of U.S. Bureau Of Reclamation OCAP Biological Assessment Analysis Asserting Export Effects¹

The Biological Assessment (BA) of the effects of the Operations Criteria and Plan for the Central Valley Project (OCAP) states:

'A significant negative correlation between November-February delta smelt salvage and the residuals from a FMWT index at year one vs. FMWT index at year two stock-recruit relationship is evidence for an influence of adult entrainment on delta smelt population dynamics (Brown and Kimmerer 2001)'

The biological assessment references a 2001 report by Brown and Kimmerer entitled "Delta Smelt and CALFED's Environmental Water Account" which is a summary of the September 7, 2001 workshop at the University of California at Davis. The summary report references a presentation made by Bennett in which he developed a number of stock-recruit relationships which were then searched for correlations between residuals of those relationships and exports, salvage, inland silverside abundance, and X2. Of the nine stock-recruit residuals vs. salvage relationships examined by Bennet, only one produced a statistically significant relationship. That relationship is the one noted in the BA.

Essentially, the referenced analysis examined variations in the Fall midwater trawl (FMWT) data not explained by the FMWT index one year after the salvage occurred. The noted 'relationship' found that about 50% of the unexplained variation in the FMWT index two years after adult salvage that occurred in year zero is explained by salvage 2 years prior. **Neither the data nor the period of analysis are noted in Brown and Kimmerer's 2001 report.**

It is not clear what the BA is referring to in citing Brown and Kimmerer 2001 as evidence for a relationship between adult salvage and delta smelt population dynamics. There is no relationship either for the period

¹ This assertion is made in the biological assessment for the Operational Criteria and Plan for the Central Valley Project, U. S. Bureau of Reclamation, May 22, 2008

1980-2005 or the later period, 1987-2005. There is no hint of a Beverton-Holt relationship. Nor is there any relationship between the residuals of those relationships and adult salvage in year zero.

The BA references a Brown and Kimmerer report on the proceedings of a workshop as though it is research work. Actually the Brown and Kimmerer report merely summarizes a presentation by Bennett at the CALFED workshop. No data or information is presented on the analytical methods used by Bennett. **Data are not included and the period of analysis is not noted, no paper detailing Bennet's analysis is attached. Because of these limitations it is not possible to reproduce the work referenced².**

Finally, the BA does not recognize an important caution included in Brown and Kimmerer's report: "He [Bennett] emphasized that these conclusions were tentative and more work is needed to verify them and suggest causative mechanisms." This statement in the report particularly the note that the findings needed to be verified, suggests that this is simply another hypothesis waiting to be tested.

² Appendix 9 includes an independent analysis intended to replicate the work done by Bennet.