

APR 08 1996

**Memorandum**

To : Mr. Lester Snow, Executive Director  
CALFED Bay-Delta Program

Date : April 5, 1996

From : Department of Fish and Game

Subject: Draft Level of Detail and Development of Analytical Tools

We have reviewed the subject documents and have the following general and specific comments. In addition, we have included suggestions for additional analytical tools and key analytical relationships. We have provided the best review possible in the time allotted and expect there will be continuing opportunity to provide suggestions as the environmental analysis of program alternatives progresses.

**LEVEL OF DETAIL ANALYSIS FOR THE CALFED TIER 1 EIS/EIR****General Comments**

The Tier 1 EIS/EIR should, to the extent possible, provide specific documentation sufficient to begin implementation of some of the site specific actions. For example, selection of a specific size and location of an isolated transfer facility and a detailed analysis of it should be considered. The approach selected, general or specific, will affect the "minimum threshold analysis". For instance, a minimum threshold of 3,000 cfs is probably not refined enough. A threshold of 500-1,000 cfs should be used instead. Using 100,000 AF for in-Delta storage is also too coarse. Using 50 TAF would be more practical considering the size of the islands that may be used and a more conservative estimate of the potential yield of that island.

**Specific Comments**

**Table 4-2**, Contains a number of errors and omissions. For example:

"Obtain Water for Environment". The table lists 100,000 acres of storage in the Delta. This has nothing to do with obtaining 100 TAF of San Joaquin water. Restoring the upper Sacramento River channel is not related to Bay and Delta Habitat Restoration.

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Upper Sacramento Restoration: This element does not provide a useful minimum threshold for analysis because it lacks specificity. We suggest using acres and river miles as measurements and using 1,000 acres and 10 river miles as a minimum threshold.

Relocate Export Diversion Point: Use 500 cfs instead of 3,000 cfs as the minimum threshold.

Screening Diversions: The threshold should be in terms of numbers of diversions for different areas of the Estuary and upstream water shed.

**Table 4-3:** This table doesn't coordinate well with the alternatives displayed in Table 4-1. For instance, Alternative J is listed as moderate at 10,000-15,000 cfs, yet it is described as 15,000-20,000 cfs. Is that defined as extensive?

**Page 11:** We recommend that data be presented for all months not just selected months. Habitat Indices for the Delta and Bay should include entrainment indices, cross Delta flow parameters, and QWest. Those data should be shown in monthly time steps.

**Page 12:** Consider adding agricultural types to types of data required for Upland/Agricultural lands.

**Page 16:** It may be reasonable to add a reference to DWR's recently developed methodology to assess service areas impacts.

#### SELECTING ANALYTICAL TOOLS AND INFORMATION FOR ASSESSMENT OF CALFED BAY-DELTA ALTERNATIVES

##### General Comments

Assuming that this section will form the basis of a chapter in the Tier 1 EIS/EIR, the discussion may be overly complex and should be simplified to target as broad an audience as possible. The example given at the end of the first paragraph on page one is helpful and this chapter would benefit by using other examples to guide the reader.

The primary focus of this paper is on quantitative analytical approaches. Unfortunately, some of the more complex biological relationships have not been rendered into the type of quantitative analytical approach described. In some cases, evaluations of the biological merits or impacts of a particular alternative will rest on qualitative analyses and on inference

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from the information that scientists do have about how the Estuary functions. This approach should also be described as one of the assessment tools that will be used.

#### Specific Comments

**Page 2, First Bullet:** The uncertainty referred to should be clarified since it could be statistical uncertainty or uncertainty about the success in meeting program objectives.

**Page 2, Paragraph 3:** To ensure the Tier 1 EIS/EIR is a full disclosure document, consideration should be given to using any alternate analytical tools that are strongly advocated by some scientists, even though they may not have been given an unanimous endorsement by all estuarine researchers.

**Page 3, Paragraph 4:** GIS based data on the historical distribution of wetlands and riparian in the estuary should also be included.

**Page 3, Paragraph 5:** Figure 1 referenced in this section was not included in the draft received.

**Page 4, Paragraph 2:** The approach described, which included the preparation of a one page summary of each analytical tool, is good. We wouldn't expect to see results with these descriptions as stated in the first sentence. Perhaps that word should be changed to output.

**Page 4, Paragraph 2:** Sophisticated computer software packages are available to assess the connectivity, patchiness, and heterogeneity of habitats in the Estuary. While these packages would clearly help in the next stage of project specific environmental documentation, it could also be used in the Tier 1 EIS/EIR.

**Page 5, Paragraph 3:** Figure 2 was not included for review.

**Page 5, Paragraph 4:** While the example given is likely to be illustrative only, since it is potentially based on a faulty premise, I would recommend using a different example.

This is particularly true since, as described on page 6 in the second paragraph, outflow/x2 relationships were developed under current conditions and it isn't possible now to know if or how that relationship would change if Delta channels or export locations were changed.

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**Page 6, Paragraph 3:** The process for making those modifications or enhancements should be described. A key component is review and acceptance by scientists working in the Estuary.

**Page 6, Paragraph 4:** Figure 3 was not included for review.

**Page 7, First Bullet:** It isn't clear why these "site specific effects" aren't appropriate to be addressed in the Tier 1 EIS/EIR.

**Page 7, Last Paragraph:** The statement that the "secondary analytical relationships" can't be used to evaluate the overall effects of the CALFED alternatives is not correct. For instance, hydrodynamic models and particle tracking models may prove to be some of the most effective, primary tools for assessing alternatives, particularly since unfavorable interior Delta hydrodynamics is one of the most important issues needing to be solved by the CALFED alternative selected.

**Page 8, Third Bullet:** Modify to read "Delta particle tracking model."

**Page 8, Paragraph 1:** In my view, the "supporting analysis" should be included in the Tier 1 EIS/EIR. The appropriate stakeholders should have input into these analyses but they should be included in the programmatic document.

**Pages 9 and 10, Table 1:** Consider adding the following issues and conditions:

Water Resources:	Environmental Water Supplies
Delta Hydrodynamics:	Cross Delta and Reverse Flows
Vegetation and Wildlife:	Seasonal Wetlands & Upland Transition
Levee and Infrastructure:	Subsidence

It isn't clear that Systems Analysis should be a Resource Category. Consider moving this to a different part of the report.

We assume water supply demands include demands upstream, in, and south of the Delta. Perhaps adding qualifying terms such as upstream, regional, and service area demands in the issues column would help clarify the intent.

Page 11: Change "Results" to "Output". Before this tool is used for CALFED, the years addressed should be expanded past 1991 and the model modified so it allows individual islands to be operated independently.

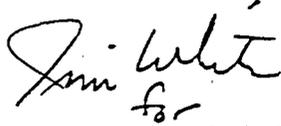
**RECOMMENDATION FOR ANALYTICAL TOOLS  
AND SUGGESTED KEY ANALYTICAL RELATIONSHIPS**

The CALFED Bay-Delta Program should also consider the following tools and take into consideration the following key analytical relationships:

- Use particle transport modelling to calculate entrainment indices for the north, central, and south Delta, the lower San Joaquin River, and lower Sacramento River.
- Calculate Cross Delta Flow Parameters under the various alternatives and compare to pre-SWP values.
- USFWS salmon smolt survival model, with potential modifications so it can be used for winter-run and spring-run chinook salmon.
- Correlations for sturgeon, splittail, longfin smelt, and starry flounder.
- QWest calculations correlated with salvage.
- - Optimal salinity habitat models modified to take into account the volume of shallow shoal habitat that is not within the influence of the export facilities.
- DFG striped bass model.
- DWR's Suisun Marsh Model.
- Use DFG models for preferred habitat descriptions for black rail, Swainson's hawk, greater sandhill crane, giant garter snake, riparian bush rabbit, and southwestern pond turtle.

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This concludes our comments. Should you or your staff have any follow-up questions, please contact Mr. Frank Wernette of the Department of Fish and Game's Bay-Delta and Special Water Projects Division at CALNET 8/423-7800.

A handwritten signature in cursive script, appearing to read "Pete Chadwick", with a small "for" written below it.

Pete Chadwick  
DFG/CALFED Bay-Delta  
Program Liaison

cc: Mr. Frank Wernette  
Department of Fish and Game  
Stockton, California