Individual Review Form

Proposal number:_2001-F208-2____ Short Proposal Title:_Sediment and Hg Fate & Transport Models

1a) Are the objectives and hypotheses clearly stated?
Yes. The modeling effort is trying to tie together a number of components of mercury and field research. Based on calibration with field data, the model will try to simulate the effects of mercury clean up in the upper watershed on Delta species and determine whether location of wetlands in the Delta is a determinant in mercury exposure. The project will also attempt to show, of the mercury transported to the Delta, how much actually impacts wildlife.

1b1) Does the conceptual model clearly explain the underlying basis for the proposed work?

Yes. The conceptual model is well described and includes the primary components to model mercury including mercury transport (including sediment transport), mercury cycling, speciation, and biouptake.

1b2) Is the approach well designed and appropriate for meeting the objectives of the project?

Generally, yes. The proponents have correctly identified sediment fate and transport as a key to understanding and locating mercury "hot spots" in the Delta. The time steps and discretization of the Delta channels appears to be appropriate. It is not clear from the description whether the effects of Delta barriers or exports will be modeled. The approach is comprehensive, but limited as indicated by a number of qualifiers. For example, the biouptake model will be applied at a "few representative locations" (page 6) and it is also noted that for the link between Hg sources and fish levels "…is clear but results of this initial modeling effort must be considered first approximations." These statements indicate that the modeling effort may fall short in addressing the first hypotheses – clean up will have a significant impact on fish and wildlife exposure. There are significant sources of mercury outside of the Cache Creek watershed that would also influence mercury transport and uptake and it is not clear how those sources are being considered.

1c1) Has the applicant justified the selection of research, pilot or demonstration project, or a full-scale implementation project?

Yes. No modeling of mercury transport and transformation has taken place for the Delta. Although I am not familiar with it, I had understood that some type of sediment transport modeling effort was going on for the Delta – this should be checked.

1c2) Is the project likely to generate information that can be used to inform future decision making?

The national peer review panel that reviewed CALFED's mercury research project indicated that modeling was an underfunded aspect of that research. Without some type of model to tie together the various pieces aspects of the mercury data collection and research efforts, it would be difficult to make key management decisions regarding appropriate mercury clean up levels and the impacts of wetlands.

2a) Are the monitoring and information assessment plans adequate to assess the outcome of the project?

There is no field data being collected as part of this project, but the modeling effort would likely inform future data collection efforts.

2b) Are data collection, data management, data analysis, and reporting plans well-described, scientifically sound and adequate to meet the proposed objectives?

Yes. The project team will keep all data in a specific data base and will include metadata. Reports will be provided through a number of existing forums that include many of our regions mercury experts.

3) Is the proposed work likely to be technically feasible?

It should be technically feasible, but as the proponents imply, the modeling effort will likely need further refinement. This is to be expected, since this type of modeling has not been performed for the Delta previously.

4) Is the proposed project team qualified to efficiently and effectively implement the proposed project?

Dr. Bale does have experience in mercury modeling and the collaborators and DHI appear to have a great deal of experience. Although I am not familiar with all of the players in Bay-Delta modeling, it seems that this project would be stronger with additional collaborators with more direct experience in Delta modeling.

Miscellaneous comments

	Provide a brief explanation of your summary rating
Overall Evaluation Summary Rating ☐ Excellent ☐ Very Good xxx☐xx Good ☐ Fair ☐ Poor	Overall the project provides a necessary first step in modeling mercury fate and transport in the Delta. The project does not appear to discuss the potential effect of Delta barriers or exports on sediment transport. The project could benefit from greater explicit collaboration with scientists with greater experience in Delta flow modeling.