

Draft Outline for the 2 Gates Review Panel Report (8/16/09)

Introduction

Positives

- (1) impressed with overall strategy
 - a. (nearly) state of the art biophysical modeling used and state-of-the-art technology proposed for monitoring
 - b. rare opportunity for doing a large scale adaptive mgmt experiment – 5 years is a good time frame
 - c. involves operational flexibility – the effects of the gate operations on circulation could be comparable to relatively large changes in exports
 - d. impacts on other species potentially relatively low (but not adequately spelled out)
- (2) commitment is there to make it work
- (3) used modeling up front; modeling was linked to a hypothesis based on existing data/knowledge – an impressive amount of thought/effort has gone into this already
- (4) recognition of importance of the monitoring and modeling - all one package
- (5) builds on existing knowledge, monitoring, etc.
- (6) laudable use of Bay-Delta-live website to distribute information and communicate – i.e. to provide full information about project to interested parties

Negatives

- (1) Project goals are vaguely defined – is this about reducing entrainment to aid Delta smelt recovery or is this about maintaining same level of protection while increasing exports to upper level of OCAP?
- (2) A critical element of project design, the smelt behavior model, is incomplete and not connected to large existing literature on fish behavior models, e.g. need alternative model that is multi-trigger, rate based (Jim Anderson can help rectify this).
- (3) The turbidity/behavior linkage is weakly statistical not mechanistic – again this is a central, defining aspect of the project that needs substantiation.
- (4) The hydrodynamic model needs better substantiation and quantification of uncertainty/reliability -
 - a. calibration quality was only shown for 2008 - results from other years should be included (even if turbidity data not available).
 - b. Comparisons with results from other Delta models, e.g. 3d models like UNTRIM or 1D models like DSM2, to check flow changes predicted by RMA would help confirm that model-predicted changes in residual flows are real.
 - c. Quantitative metrics of model quality not given in reports
- (5) Fish-turbidity studies are not clearly designed
 - a. the design for sampling is not sufficiently detailed - should be NSF quality and detail
 - b. performance metrics are needed in the experimental design

- c. Connections between fish and turbidity are only qualitative and anecdotal, esp. for places other than salvage.
- (6) The biggest issue - the adaptive management plan is vague and undefined
 - a. no decision tree (e.g. as was developed for EWA – something that took several years)
 - b. did not see predictions of outcomes - what if project is a success (assuming this is defined)? What will happen then?
 - c. Who is responsible for all aspects of the adaptive management plan?

Recommendations

- (1) The project goals should be clarified and made explicit [this comes out better in the report than it did in presentations]. To what extent is the project about helping Delta Smelt recover versus increasing (recovering?) exports while doing no additional harm?
- (2) A rigorous adaptive management plan needs to be formulated that includes the decision process and specification of who is responsible to make decisions [use EWA framework?]
- (3) Must commit funding for monitoring, analysis and synthesis of results – these should also be reviewed – e.g. by CALFED ISB
- (4) Testing of mechanistic linkage is key and must be strengthened
 - a. Need a more detailed plan for mechanistic sampling esp. for fish – these should be at the level of sophistication/detail of an NSF proposal. A targeted workshop should be held to help project scientists design experiments [the panel can help with this]
 - b. Construct several different behavior models and test them using an open/closed operations strategy on a week time scale – physics easy, but fish sampling (as above) needs some thought. Design needs to be based on a set of hypotheses.
- (5) Pay more attention to other species – e.g. how will revised flow affect salmonids?
- (6) CALFED Science program should be immediately engaged if project goes forward – why not use very focused PSP process to aid with science aspects of project? Continued participation of Science Program to publicly review project annually [like EWA].

Summary/Conclusions