Panel Scientific and Technical Review

(Note: Review comments will be anonymous, but public.)

Proposal number: 2001-F204 **Short Proposal Title: GIS remote sensing**

1a) Are the objectives and hypotheses clearly stated?

Summary of Reviewers comments:
Both reviewers felt that the objectives are clearly stated. However, one reviewer felt that the authors failed to address hypotheses that this methodology may be able to test, or alternatively, how this methodology may be able to help frame management questions that can lead to testable hypotheses.

Panel Summary:
YES, very clearly stated objectives; however, a hypothesis was not explicitly stated in a testable form.

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

Summary of Reviewers comments:
This proposal does not contain a conceptual model in graphic format or in narrative form that would give the reader a sense of the proponents understanding of how their work may be used in a management context.

Panel Summary:
NO conceptual model, but there was some detail provided on how to proceed. A conceptual model would have made it easier to see the authors link to water quality, besides only sediment content. There was no substantial link to CalFed restoration actions.

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

Summary of Reviewers comments:
One reviewer felt that the authors used the term "water quality" very loosely and did not demonstrate a clear understanding of the water quality-related limiting factors for CalFed species of concern. This reviewer also felt that it was misleading to state that the methodology may be able to address contaminant issues or water quality parameters other than sediment and possibly water temperature.

The second reviewer had three concerns: 1) the spatial resolution of the remote sensing images; 2) timely availability of the remote sensing images; 3) concurrent timing of field data and remote sensing data.

Panel Summary:
NO, the proposal misses the primary objective of linking GIS data to water quality pollutants (besides sediment content in water bodies). Only vague information is provided on the ground truth aspects of the proposal, making it impossible to discern if approach is valid.

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

Summary of Reviewers comments:
Both reviewers felt that this was adequately described as research.

Panel Summary:
This has been a useful tool in other arenas, but over ambitious as a RESEARCH project.

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

Summary of Reviewers comments:
One reviewer commented that no mention is made about the ultimate uses of the project deliverables and how they may help CalFed managers in making better decisions.

The second reviewer thought that the spatial data should guide researchers and planners to the areas requiring additional research, immediate attention, or other action.

Panel Summary:
The panel was unanimous that this approach could be useful, but specific detail using the ground truth methodology was not included, an essential component in evaluating the utility of this technique.

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

Summary of Reviewers comments:
There is some concern that a lack of specificity in reporting plans and at what stages the project's success will be evaluated.

Panel Summary:
The panel felt NO. Assessment determinations are not clear.

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

Summary of Reviewers comments:
Both reviewers felt that the proposal is extremely vague regarding data management, analysis, and reporting plans.

Panel Summary:
NO, not enough specific information in how the approach would be ground truthed. Also, specific information on remote sensing was also lacking. Panel members agree with technical reviewers.

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

Summary of Reviewers comments:
One reviewer thought that although the authors only mention sediment, chlorophyll-a and temperature as example parameters, the implication is that they intend to address other "contaminants" (ie, mercury, registered pesticides) with remote sensing methodology, but fail to convince the reviewers how they may accomplish that objective.

The second reviewer thought that it was technically feasible, if the spatial scale was resolved.

Panel Summary:
Although the technical reviewers had opposite opinions, the review panel shares the misgivings of the more negative review. The proposal infers that water quality will be measured (contaminants are mentioned as one component of water quality), but methods are not specific enough to address the objective.

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

Summary of Reviewers comments:
Both reviewers thought that the applicants were very well qualified.

Panel Summary:
YES, all are well qualified, but the duties of several team members and collaborators were not described. Additional team members who are knowledgeable in water quality, Delta biology and processes would strengthen this proposal.

5)Other comments

Summary of Technical reviewers: The reviewers gave a "VERY GOOD" and a "POOR". Both felt that remote sensing has enormous potential, but the degree of realization of this potential from this proposal is different between the two. The "VERY GOOD" review looked at work from an engineering perspective only. The "POOR" reviewer felt that overall, the application of remote sensing techniques is a valuable and unfortunately underused tool among the mix of CalFed

ecosystem assessment efforts. However, the authors did not demonstrate a clear understanding of how to apply this tool in the assessment process that is relevant to environmental managers.

Overall Evaluation
PANEL SUMMARY COMMENTS

This is an ambitious project and there are potentially some positive attributes to this type of approach. However, the proposal has gaps in ground truthing which must be explained to allow linkage to ecological assessments. One major weakness is the gap in knowledge between contaminants and reflectivity that is assumed in the proposal. The proposal makes a link to water quality and contaminants that is weak and incomplete.

CALFED would benefit from application of landscape tools like GIS and remote sensing, but applicability to understanding contaminant effects is limited and may benefit from inclusion of other team members.

Summary Rating

Excellent
Very Good
Good
Fair
Poor

Your Rating: FAIR