

Draft Individual Review Form

Proposal number:2001-F204-2

Short Proposal Title: Monitoring and assessing the ecosystem/water quality in the San Francisco/Sacramento-San Joaquin bay-delta-valley region using remote sensing and GIS techniques.

1a) Are the objectives and hypotheses clearly stated?

Yes, the objectives are clearly stated in the objectives and background section. This section discusses the current financial and logistical hurdles of collecting high quality spatial data in the Bay-Delta region and how remote sensing and GIS provide a potential avenue for broad ecosystem and water quality assessment. It is proposed that the results of this project would aid planners as well as scientists in making decisions about projects in the Bay-Delta region.

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

Yes, the authors clearly explain the motivation for the proposed work. Once the algorithms and analytical tools have been developed, they can continue to be applied to future remote sensing images. These images can provide information regarding how the environmental quality of the region has changed over time as well as a spatial distribution of specific environmental parameters.

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

Yes, the only major concerns that I have are 1) the spatial resolution of the remote sensing images, 2) timely availability of the remote sensing images, and 3) concurrent timing of field data and remote sensing data.

- 1) The spatial resolution of many remote sensing images (eg AVHRR) is often quite coarse. For example, trying to characterize the water quality in the Delta channels using an image with a 1 km² grid may prove to be impossible due to land interference.
- 2) In my work I found that remote sensing images often were not immediately available for use at a reasonable cost. It appears that the project members have worked with this type of data extensively in the past and may have an extensive library of images already available to work with, but this was not explicitly stated in the proposal nor does the budget specifically identify them as a line item.
- 3) In order to calibrate the spectral signals it is important to have concurrent field and remote sensing measurements. Certain parameters vary dramatically over short time periods and concurrent measurements are crucial, it was unclear if the researchers have identified which parameters required significant additional field data.

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

Yes, this is a research project. Although there will be some field work associated with ground truthing the data provided in numerous data bases, the majority of the work will be completed in

the office. Completion of this project may lead to additional guidance for other project teams proposing field-oriented projects.

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

Yes, the fundamental product of this project is a spatial description of the ecosystem and water quality in the Bay-Delta region. This spatial data should guide researchers and planners to the areas requiring additional research, immediate attention, or other action.

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

Several articles will be written by the project team during each year of the proposed 3 year project. Seminars will also be conducted at the end of the project to disseminate the results to the public. It is not apparent if there will be quarterly progress reports or other forms to project monitoring in the interim to assess progress.

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

These items were not described at length in the proposal. Algorithms for data extraction from the remote sensing images is described at length; data availability from various data bases is also discussed for ground truthing purposes. However, data management and reporting plans are not specifically mentioned.

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

Yes, as mentioned above in item 1b2 there are some issues that should be considered when working with remote sensing images, but overall I believe that the project is technically feasible. The project team has the computer resources and technical expertise to complete the project

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

Yes, the project team is highly qualified to complete the project. An interdisciplinary group of academic researchers with significant past experience in the area.

Miscellaneous comments

The cost estimate provided breaks out the project into “Task 1, subtask 1a” etc but these tasks are never identified so it is unclear what each of these line items is specifically for. The tasks and subtasks do not seem to be related to the items detailed in “Section 4: work plan and time table”.

**Overall Evaluation
Summary Rating**

- Excellent
- Very Good
- Good
- Fair
- Poor

Provide a brief explanation of your summary rating

I think that this proposal merits an overall rating of “very good”. The project team is highly qualified, and they will be contributing valuable information that can be used today and in the future by both technical and non-technical decision makers. Moreover, many of the techniques that they develop here may be applicable to other areas. My only reservations are those listed in 1b2 above.