

Panel Scientific and Technical Review
(Note: Review comments will be anonymous, but public.)

Proposal number: 2001-F201 Short Proposal Title: Se Risk Assessment and Biofouling

1a) Are the objectives and hypotheses clearly stated?

Summary of Reviewers comments:

The reviewers felt they were clearly stated, one felt the objectives were clearly stated but the hypotheses were garbled.

Panel Summary:

The objectives and hypotheses are not clearly stated.

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

Summary of Reviewers comments:

The reviewers felt that the conceptual models for the two tasks were clear.

Panel Summary:

The conceptual model is not clear. There are many pages on microbial techniques and analytical techniques under the misnomer of conceptual model. The conceptual model presented in the figure is a model of the project tasks and not the microbial dynamics.

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

Summary of Reviewers comments:

One of the reviewers raised substantial negative comments about the proposal including:

- BIOLOG is useful only for looking at aerobic heterotrophic microbes and excludes all other types. The investigators plan to use only BIOLOG gram negative plates which will miss organisms like selenite-reducing *Bacillus subtilis*. A large portion of the microbes in the environment are dormant and will not respond to BIOLOG fingerprints. Therefore, BIOLOG is not the best technique to use, DGGE is much more appropriate for the proposed analysis.
- There is a very low potential for isolating environmentally relevant organisms.
- The results of the food chain transfer experiments will depend on the types of microbes cultured and if Se-accumulating microbes are used that are not dominant in the water column, the results will be irrelevant.

Panel Summary:

The panel agrees with the comments of the reviewers. The panel expressed concern about the qualifications of the team given the criticisms of the reviewers. There is no ecotoxicology aspect in the proposal. Under task 1.4, it is unclear how the biomass component term is incorporated into the flux equation.

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

Summary of Reviewers comments:

Yes, it is research

Panel Summary:

Yes, it is research.

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

Summary of Reviewers comments:

One reviewer says yes. Another reviewer indicates that the proposal does not adequately link the results from the work to ecosystem restoration in the San Joaquin River Basin.

Panel Summary:

It is unclear how the project will be used for decision making. The project is too abstract and given the technical problems, it is doubtful that this project will provide any relevant information.

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

Summary of Reviewers comments:

Too few details are provided to adequately judge.

Panel Summary:

There is no monitoring as a part of this project.

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:

The primary issue is the quantity of the data to be collected.

Panel Summary:

The proposal is unclear how often data is collected. There is limited information to evaluate. Task 2 is unclear as to how much data is generated. The short descriptions make it difficult to evaluate.

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

Summary of Reviewers comments:

The approach is feasible but not appropriate to the proposed work or objectives. There are significant problems associated with the primary approach that addresses Objective 1, i.e., the use of BIOLOG and BIOLOG community-level physiological profiles (CLPP) to provide information on the identities, functions and variations in microbial populations as a function of drainage operating parameters. In fact, molecular methods, such as denaturing gradient gel electrophoresis (DGGE), are much more useful (van Elsas et al., 1998, J. Microbiol. Methods 32: 133-154). This reviewer listed other technical problems (see above).

Panel Summary:

The panel agreed with the reviewers.

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

Summary of Reviewers comments:

The project team has the necessary training and experience to carry out the proposed research, and the institutions involved have adequate facilities to perform the work.

Task 1 – The team appears to be well qualified with experience directly relevant to the proposed project. Task 2- The team does not appear to have a specialist or industry representative with wide ranging experience in dealing with biofouling of sensors.

Panel Summary:

It is unclear if the team has expertise in the proposed area.

5)Other comments

**Overall Evaluation
PANEL SUMMARY COMMENTS**

The proposal seems to emphasize technology development, although one of the reviewers presented concerns with some of the technical methods. Task 2 did not demonstrate a methodology to lead to a solution for the biofouling problems. The two main tasks in the proposal are not well linked. In Section D, the proposal does not clearly answer the question whether the investigators have received previous funding.

Summary Rating

- Excellent
- Very Good
- Good
- Fair
- Poor

Your Rating: FAIR