Proposal Reviews

#128: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

San Francisco Estuary Institute

Initial Selection Panel Review	
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Initial Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Initial Selection Panel Review

Proposal Number: 128

Applicant Organization: San Francisco Estuary Institute

Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

Please provide an overall evaluation rating.

Explanation of Recommendation Categories: Fund

- **As Is** (a proposal recommended for funding as proposed)
- **In Part** (a proposal for which partial funding is recommended for selected project phases or components)
- **With Conditions** (a proposal for which funds are recommended if the applicant contractually agrees to meet the specified conditions)

Consider as Directed Action in Annual Workplan (a proposal addressing a high priority action that requires some revision followed by additional review prior to being recommended for funding)
Not Recommended (a proposal not currently recommended for funding-after revision may be considered in the future)

Note on "Amount":

For proposals recommended as Fund As Is, Fund In Part or Fund With Conditions, the dollar amount is the amount recommended by the Selection Panel.

For proposals recommended as Consider as Directed Action in Annual Workplan, the dollar amount is the amount requested by the applicant(s).

Fund	
As Is	**-**
In Part	**-**
With Conditions	**-**
Consider as Directed Action	**-**
Not Recommended	**X**

Amount: **$0**

Conditions, if any, of approval (if there are no conditions, please put "None"):

None.

Provide a brief explanation of your rating:

The Selection Panel recognized the importance of this work, but agreed with the Technical Panel that TIE methodologies need to be better described. Also, the ability to achieve the goals of the task to link the presence of contaminants to ecological effects would be difficult. The Selection Panel encourages the project proponent to coordinate efforts with the Environmental Quality Group and to consider the critical input of the scientific reviewers in further development of a conceptual and methodological framework for TIE investigations in the ecosystem.

Research and Restoration Technical Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Research and Restoration Technical Panel Review Form

Proposal Number: 128

Applicant Organization: San Francisco Estuary Institute

Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

Review:

Please provide an overall evaluation summary rating:

Superior: outstanding in all respects;
Above Average: Quality proposal, medium or high regional value, and no significant administrative concerns;
Adequate: No serious deficiencies, no significant regional impediments, and no significant administrative concerns;
Not Recommended: Serious deficiencies, significant regional impediments or significant administrative concerns.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Superior	**The problem of identifying causes of toxicity in potentially complex mixtures of chemicals is an important one and this project is likely to contribute to further development of methods for toxicity identification. Relating this information to ecologically relevant effects in the field will be more difficult. The panel has concerns that the project relies so heavily on a technical advisory committee.**
-Above average	
XAdequate	
-Not recommended	

1. **Goals and Justification.** Does the proposal present a clear statement of goals, objectives and hypotheses? Does the proposal present a clear justification and conceptual model for the project?

   According to the applicants toxicity of unknown cause (where toxicity was detected but the cause was not identified) is a pervasive problem throughout the Sacramento and San Joaquin River watersheds and the Bay-Delta system. Part of the reason that causes of toxicity were not determined is attributable to limitations of the TIE approach. Improving on the TIE methods presents significant analytical challenges. The goals of this project are to address this important problem.

   One of the reviewers was somewhat dissatisfied with the justification and considered that this could have been made more convincing. Also indicated was a lack of linkage to effects on the dynamics of natural field populations at the sites of interest. In particular the fact that TIE is triggered on the basis of acute mortality tests whereas the effects of interest are often

chronic impacts that lead to population declines.

2. **Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).** Is the project likely to succeed based on the approach, feasibility and project team capabilities? Are the proposed performance measures adequate for measuring the project's success?

   The approach involves a combination of TIE results, resident fauna surveys, toxicity testing with indigenous species, chemical analyses and forensic studies. It is unclear how the multiple lines of evidence will be combined to derive an overall interpretation and recommendations. In principle, the project aims to improve methods for TIE and this is a likely outcome. The extent to which the results will be useful to decision makers is difficult to judge.

   There was general agreement that details were lacking from the approach description. Performance measures are the number of successful TIEs that identify the causative agents of toxicity and the new techniques that are developed to determine causes.

   One reviewer highlighted the importance of linking toxicity measures to population-level effects in the field. Another reviewer indicated that the proposal was very weighted toward toxicological assessment and does not devote enough attention to ecologically relevant effects. Despite that one of the objectives was to enhancing knowledge of the relationship between laboratory toxicity test results and impacts on aquatic biota including, but not limited to, important salmonid species and their prey it was unclear how this would be done and noted that toxicity tests with fish were not a significant priority.

   There was some concern that the approach was not specific enough. One reviewer indicated that the applicants needed to bound the new-tool research and specify the exact types of applied products that need to result from the project. Likewise refinement/modification of chemical measures could potentially consume a disproportionate amount of the resources if not limited/focused. However, another reviewer recommended that more effort should be devoted to refinement and development of improved TIEs relative to the effort devoted to standard TIEs which have been shown to be somewhat limited in their ability to determine the cause of toxicity.

   The project depends too heavily on a local technical advisory committee and an external peer review panel to direct toxicity testing and TIE work. The need of the TAC to respond in a timely fashion will be essential. The panel considered it risky for the likelihood of success of the project that so much of a burden was placed on the technical advisory committee particularly since it was unclear how strong their commitment to the project would be.

   Capabilities of team considered to be fine. One reviewer had questions about how the team would be coordinated (e.g., how decisions would be made and priorities adjusted).

3. **Outcomes and Products.** Will the project advance the state of scientific knowledge in general and/or make an important contribution to the state of knowledge of the Bay-Delta Watershed? For restoration proposals, is the project likely to contribute to ecosystem restoration or species recoveries in a significant way? Will the project produce products useful to decision-makers and scientists?

   It is expected that improvements in TIE methodology would be a valuable outcome of this project. Interpretative outcomes are more problematic. However any decreases in the percentages of unidentified toxicity incidences is considered an important contribution.

4. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

This 3 year project has a total budget of $3,026,507. Most of the budget is for consultant services. One reviewer estimated that a relatively small proportion of the budget was being spent on TIE. One of the reviewers considered this a high cost proposal and need to be very clear therefore as to the useful management information that would be generated.

5. **Regional Review.** How did the regional panel(s) rank the proposal (High, Medium, Low)? Did the regional panel(s) identify significant benefits (regional priorities, linkages with other activities, local involvement) or impediments (local constraints, conflicts with other activities, lack of local involvement) to this proposal? What were they?

   Bay Regional Review ranked the proposal medium. Local involvement judged very good. Recommended phasing the study and doing pilot study for better cost estimations.

   Delta Regional Review also ranked the proposal medium. Lined to several other restoration activities and priorities.

   Joaquin Regional Review gave high ranking. Considered project has high potential to improve management of San Joaquin surface-water resource. Project linked to other restoration activities and priorities and judged local involvement to be good. However, recommended that project better demonstrate its utility and have a plan to replace CALFED funding.

   Sacramento Regional Review gave a medium ranking. Considered project heavy in program management. Also unclear how they would choose the under-funded programs to support and questioned value of TIE. Noted that funding was requested for something that water board should be doing and not CALFED.

6. **Administrative Review.** Were there significant concerns about the proposal with regard to the prior performance, environmental compliance and budget administrative reviews? What were they?

   No problems indicated in the prior performance review. State Board needs to approve project?

   Project would require NEPA. Also compliance with DFG code section 1002, CESA, FESA and CEQA may be necessary depending on which species collected. May also require State Lands Commission Land Use Lease. Timeline does not reflect legal/regulatory requirements.

   No problems indicated in Budget Review.

Miscellaneous comments:

None

Bay Regional Review:

Proposal Number: 128

Applicant Organization: San Francisco Estuary Institute

Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

Overall Ranking: **-**Low **X**Medium **-**High

Provide a brief summary explanation of the committee's ranking:

The panel supports research, like this, that delivers scientific information which improves understanding about key ecosystem processes in the Bay + Suisun Marsh or about species and habitats which are insufficiently understood. It is a good project, but not essential now.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   .

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

   XYes **-**No

   How?

   .

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

   XYes **-**No

   How?

   .

4. Does the project adequately involve local people and institutions?

   XYes **-**No

   How?

Watershed group programs, tech support & coordination with NPDES - very good!

Other Comments:

Recommend phasing this study and doing a pilot study for better cost estimations. Approach is very good and science is necessary but proposal assumes outcomes of workshop and projects research costs.

Delta Regional Review:

Proposal Number: 128

Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

Overall Ranking: **-**Low **X**Medium **-**High

Provide a brief summary explanation of the committee's ranking:

The Delta-East Side Tributary regional panel favors environmental water quality projects that demonstrate practical clean water protection and that provide the information most likely to be helpful in making decisions about clean water policy and action in the Delta.

This project would help identify the next areas in toxicity reduction.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   No constraints. Good representation of groups that are involved at various levels in ecosystem restoration.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

   XYes **-**No

   How?

   Goals, 1, 3, 4, 6 (at risk species, Harvestable species, Habitats, Sediment/WQ.

   Addresses toxicity of these species and their food sources.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

   XYes **-**No

   How?

   Directly linked to other toxicity testing by RWQCB, to the SFEI Studies, and to UCD studies on pesticides.

4. Does the project adequately involve local people and institutions?

   XYes **-**No

How?

Sac River Watershed Program, and other stakeholder groups (through RWQCB).

Other Comments:

The information is helpful in our understanding of the stressors on the system.

This information augments many other years of data from several sources.

San Joaquin Regional Review:

Proposal Number: 128

Applicant Organization: San Francisco Estuary Institute

Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

Overall Ranking: **X**Low **-**Medium **-**High

Provide a brief summary explanation of the committee's ranking:

Important in other regions, but of low significance to San Joaquin region.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   No constraints.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

   -Yes **X**No

   How?

   Lots of ERP priorities relevant, but not high for San Joaquin region.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

   XYes **-**No

   How?

   Project is a large and ambitious extension of previous CALFED grant - Multiagency with many, though not all, Hg players involved

4. Does the project adequately involve local people and institutions?

   XYes **-**No

   How?

No specific local involvement necessary.

Other Comments:

none

Sacramento Regional Review:

Proposal Number: 128

Applicant Organization: San Francisco Estuary Institute

Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

Overall Ranking: **-**Low **X**Medium **-**High

Provide a brief summary explanation of the committee's ranking:

The panel felt that the proposal was heavy in program management. While we appreciated how much coordination would be required by a effort of this type it did seem exhorbinate. How they would choose the underfunded programs to suport and the value of the TIE was questioned.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   It would use known techniques to evaluate the causes of the toxicity.

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

   XYes **-**No

   How?

   The proposal falls under the PSP multi-regional priority 5 which includes toxicity of unknown origin.

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

   XYes **-**No

   How?

   It is referenced by several other researchers as being important research and they propose an extensive outreach effort.

4. Does the project adequately involve local people and institutions?

   XYes **-**No

How?

It proposes to fund a position at the Regional Board that would work with local watershed groups to identify when a toxicity event has occurred.

Other Comments:

It appeared that funding was being requested for something that the water board should be doing under its existing charter and not something that should be funded by CALFED.

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **128**

Applicant Organization: **San Francisco Estuary Institute**

Proposal Title: **Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
XExcellent	**This proposal would fall into the very good category if that rating were available.**
-Good	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   Yes the goals are clearly stated and the concept is very timely. There is some inconsistency in that this proposal states (see EPR, Science Program and CVP1A priorities) that the work will focus on direct and indirect effects on salmonids, yet very little, if any fish work is proposed.

   Rating--very good to excellent

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

This study is justified relative to existing information and is the next logical step in attempting to determine the causes of toxicity from complex mixtures.

Rating--excellent

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The approach does seem well designed and it will likely generate novel and highly useful information for policy decisions.

   Rating--excellent

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The approach could be more fully documented; however, some of the details may not be available until the samples are in hand and different methods are attempted. If focused, the likelihood of success is high. The scale of this project could be larger, with more effort going to the forensics side and less with the toxicity testing.

   Rating--very good

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   Performance measures for this project are the number of successful TIEs that identify the causative agents of toxicity and the new techniques that are developed to determine causes. These results are highly quantifiable.

   Rating--excellent

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   If new techniques are developed that are able to pinpoint the causative agents of toxicity, then these results will be useful to many people involved in toxicity assessments. Hopefully, such results will be published in peer-reviewed publications.

   Rating--very good

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   This team has extensive experience in toxicity testing and TIE work.

Rating--excellent

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   For this budget, a shift to more work that examines the different and novel TIE approaches and less toxicity testing would help to ensure that new and useful methods would be developed.

   Rating--very good

Miscellaneous comments:

This proposal on toxicity identification and evaluation (TIEs) is very timely and promises to be quite useful for remediation actions at sites where the important stressor or stressors are identified. As noted in this proposal, toxicity bioassays often fail to determine the agents responsible for the response. Just knowing that a sediment or runoff event is toxic, doesn't help eliminate present or future problems. If the stressor can be identified, then regulators are better able to improve the situation by focusing on and eliminating known inputs. These techniques also have broad application for remediating sediments to certain performance levels based on actual concentrations of the main stressor.

One of the four goals is to develop or refine TIEs; however, in the "Approach section" for aquatic toxicity testing there are no "new" TIEs defined in the budget and only 3 "new" TIEs allocated per year in the sediment toxicity section. There are also very few advanced TIEs, leaving most of the effort to the standard TIEs, which are somewhat limited in their ability to determine the cause of toxicity. Based on the stated goal, it seems that development and refinement of TIEs should be a larger effort.

Also, in the proposal it appears that the methods for "advanced TIEs" have been described, yet no description of the methodology or usefulness is discussed. It was mentioned that new analytical chemistry was needed for chemical profiles (fingerprints); however, the purpose of these samples was not clear. How these profiles would be able to determine the toxicants responsible for the observed effects was not explained. Also, HPLC fractionation was lumped in with ELISA and antibody tests, so it is unclear how many of each will be performed.

The use of several invertebrate species will be advantageous in helping to determine if a matrix is toxic because often the is species variability in response to different toxicants. One problem is that no fish are proposed for toxicity testing (except that one test calls for Ceriodaphnia or fathead minnow).

In the approach it was mentioned that factors other than contaminants (salts, suspended solids, pathogens, element deficiency) would be considered. Based on the budget, it is not clear how this work will be accomplished. There is no line item listed for such work or details on how these factors would be considered.

Two of the stated goals (Goals 1 and 3) are to "focus on contaminant impacts that may have indirect or direct effects on salmonid species (i.e., effects on prey species and direct rainbow trout toxicity assessment)". There is no mention of toxicity tests with rainbow trout in any of the tasks or in the detailed budget table. How will salmonid toxicity be assessed in this proposal and related to salmonids in the field?

Based on the budget sheet, very few TIEs will actually be conducted. Wouldn't it be more cost effective to eliminate all the planned toxicity tests and perform the TIEs on water or sediment that fail toxicity tests that were run by other agencies that are already doing this work? It is also recommended that some of these toxicity tests chosen for TIE analysis include fish.

The following statement needs clarification: However, TIE procedures have been inconsistent in identifying toxicants in surface waters, storm water runoff, bulk sediments and pore waters. Potential reasons for the lack of successful TIEs with these matrices are summarized in Table 5. Table 5 summarizes the problems with only pesticides. Are these the only toxicants for which TIEs have been unsuccessful?

Some details should be provided on the success rate for standard TIEs and their performance. For examples, TIEs can be used to determine if metals are causing toxicity, but can individual metals be identified? How are non-metallic elements such as selenium, mercury, and arsenic determined with TIEs? Are there techniques for these elements? Is it the intent of the author to develop techniques that can identify all the compounds that are likely contributing to toxicity? It seems a bit overly ambitious to expect that all toxic components in a sample can be identified, especially when we lack detailed toxicity information for many of the compounds of interest and the species used in these tests.

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: **128**

Applicant Organization: **San Francisco Estuary Institute**

Proposal Title: **Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**The problem of identifying causes of toxicity in potentially complex mixtures of chemicals is an important one and this project is likely to contribute to further development of methods for toxicity identification. Relating this information to ecologically relevant effects in the field will be more difficult. The applicants propose to collect a variety of kinds of information, however it is unclear how this information will be combined in a weight of evidence approach.**
XGood	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The objectives of this study are: 1) develop or refine tools for identifying cause(s) of toxicity in Sacramento and San Joaquin Rivers, the Sacramento-San Joaquin Delta and Northern San Francisco Bay; 2) Improve understanding of the ecological relevance of aquatic toxicity by enhancing knowledge of the relationship between laboratory toxicity test results and impacts on aquatic biota including, but not limited to, important salmonid species and their prey; 3) provide data to support remediation and restoration decisions and activities; 4) assist under-funded monitoring programs in follow-up investigation of toxic samples to identify the cause of toxicity.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   According to the applicants toxicity of unknown cause (where toxicity was detected but the cause was not identified) is a pervasive problem throughout the Sacramento and San Joaquin River watersheds and the Bay-Delta system. Part of the reason that causes of toxicity were not determined is attributable to limitations of the TIE approach. Improving on the TIE methods presents significant analytical challenges.

   The conceptual model (provided in Fig. 1) is not very helpful and is not further elaborated upon in the text.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The approach involves a combination of TIE results, resident fauna surveys, toxicity testing with indigenous species, chemical analyses and forensic studies. It is unclear how the multiple lines of evidence will be combined to derive an overall interpretation and recommendations. In principle, the project aims to improve methods for TIE and this is a likely outcome. The extent to which the results will be useful to decision makers is difficult to judge.

   Sampling sites will be chosen in coordination with ongoing monitoring activities to maximize the chance that toxic samples will be obtained.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   Given the significant analytical limitations in TIE methodology highlighted by the authors I have some concerns as to the project's feasibility (with regard to objectives 2-4 above).

   The project depends heavily (too heavily?) on a local technical advisory committee and an external peer review panel to direct toxicity testing and TIE work.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   A quality assurance project plan will be developed by the project participants and approved by the technical advisory committee. An important performance measure will be the number of TIEs that account for all of the sample toxicity and identify the cause(s).

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   It is expected that improvements in TIE methodology would be a valuable outcome of this project. Interpretative outcomes are more problematic.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   This is a relatively large and diverse team with the necessary range of qualifications to conduct the proposed project. All of the infrastructure/support is in place including (apparently) all of the necessary analytical equipment.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   This 3 year project has a total budget of $3,026,507. Most of the budget is for consultant services. High overhead rate (153%)?

Miscellaneous comments:

How will the TIE methods be refined and or developed? It is not clear how the in-stream community data will be evaluated for determining ecological relevance? To what will it be compared? Link to important salmonid species and their prey is extremely weak (see objective 2). The applicants have had CALFED funding for other projects in the past but this is not an extension of an ongoing project. Proposal includes letter of support from Sacramento River Watershed Program Monitoring Subcommittee.

External Scientific: #3

Research and Restoration External Scientific Review Form

Proposal Number: **128**

Applicant Organization: **San Francisco Estuary Institute**

Proposal Title: **Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

I am on a joint publication with John Hunt, Vic de Flaming and Jeff Miller. The publication stems from a SETAC technical workshop on Toxicity Identification and Evaluation. All members of a workgroup at the workshop publish a chapter together, and the four of us were in the same workgroup (along with 5-6 additional members).

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
XExcellent	**This project has useful and timely (if not overdue) objectives. Identification of fluctuating but chronic toxicity in Northern California is necessary. The research group has the skills to accomplish this objective. My concerns about not enough specificity in the approach and that certain portions of the project may use disproportionate amounts of funds can most likely be addressed by the researchers.**
-Good	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The goals are clearly stated and internally consistent. They are also timely (or overdue) and important. Unidentified toxicity in northern California Bays and Estuaries have been noted for many years. It has always been puzzling and troublesome to managers and scientitsts alike. It would be useful to the scientific community as a whole to resolve the causes of toxicity in this area. Whatever the causes have been, they have eluded researchers for more

than a decade and the lessons learned from this research (if it is successful) will be important not only to California, but to the nation.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   The writers do a nice job of collating exisiting information concerning unidentified toxicity in the Bay area. The conceptual model is clearly stated and reasonable. If anything, the researchers did not make all possible links of their research to the TMDL process.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   Using a Technical Advisory Committee (TAC) is a useful approach, if the TAC responds in a timely fashion to the issues. As stated, many of the toxicity events are temporal and therefore the TAC must be responsive to inqueries about whether to proceed with testing. The project is likely to generate new methodologies (particularly in the realm of anti-body mediated chemical specific TIE procedures), but the information and approach on how this is to be accomplished, or bounded does not exist in this proposal, so it is difficult to review. While the need for such methodolgy exists, the research that can be done in this field could certainly use all the time and $ slated for the entire project. The researchers need to bound the new-tool research and specify the exact types of applied products that need to result from the project. Also, the researchers need to address the bioavailablility of these research tools. While anti-bodies may be a powerful tool, in this context, they must be tied back to the field and the researchers need to ascertain that not only is there exposure to the chemcial, there is also a significant effect. The researchers need to specify what exactly is meant by an 'advanced' TIE.

   The potential use of elutriates as a testing medium, does not seem very useful to me. Elutriates, while they have their use in evaluating effects of dredge spoils moving through a water column, are most likely not very useful in the situation of bedded sediment toxicity. I would recommend that porewaters be used in the place of elutriates.

   It may be useful to apriori decide upon a set of hydrological or temporal conditions that may result in a toxic event i.e., low flow in the summer, flushing in the spring.

   It is stated that refinement or modification of chemical measures will be performed so that chemcial analysis can be used to detect a wider range of compounds at lower concentrations. This is a portion of the research that, again, has the potential to swallow a disproportionate chunk of resources unless it is bounded or the end result of toxicity identification is kept in mind.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The approach is not fully documented (see answers to questions 3) but based upon the credentials of the researchers, and the information available, there is a high likelihood of success within the approach. The scale of the project is consistent with the objectives if certain parts of the project do not use more than a reasonable allocation of funds (see answers to question 3).

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   An overall project measure should be a decrease in the percentage of unidentified toxicity incidences in San Francisco Bay. Even if this project does not identify all of the toxicity in samples undertaken in this project, the lessons learned and the tools developed should help other researchers attempt to solve toxicity in additional samples.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   Products should be valuable. Methodologies and lessons learned from trying to solve some of this unidentified toxicity will help researchers acroos the nation. In light of upcoming TMDL requirements and the need to diagnose stressors, these methods could be very useful.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   The capabilities of the researchers are very good. They are all very qualified researchers with good facilites at their disposal. I was surprised that chemists from UC Santa Cruz who have worked upon natural chemistry products were not involved, as some of the toxicants may be from a biological source.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   The budget is reasonable, but again, see qualifiers in answers to question 3.

Miscellaneous comments:

External Scientific: #4

Research and Restoration External Scientific Review Form

Proposal Number: **128**

Applicant Organization: **San Francisco Estuary Institute**

Proposal Title: **Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

Over the past several years, my company has collaborated with PERL to a limited extent on toxicity testing contracts. Our work, funded as a sub-contract to PERL, has consisted of conducted toxicity tests on terrestrial samples using plants and earthworms. PERL conducted tests on aquatic and sediment samples. In some cases, our reports were submitted to PERL, in others, the reports were submitted directly to the clients. My company has no connection to the proposal under review.

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**Despite my many harsh criticism of the proposal, the general direction is a worthy one. If given an opportunity to address the deficiencies, I am confident this team could do so satisfactorily.**
XGood	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The project is structured to respond to CALFED ERP Goal #6. It contains four ambitious objectives summarized as 1) develop and refine TIE and analytical chemistry methods; 2)improve understanding of ecological relevance of toxicity; 3)provide data in support of restoration activities; and 4) assist under-funded monitoring programs. Each of these has merit standing alone and in the context of Goal #6. The proposers could have done a better

job of articulating the importance of each; and it would have been nice to have a better understanding of the inter-connectedness of the various goals.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   The need for the proposed project elements is introduced, however as a package, the connections were not as stongly developed or articulated as well as they might have been. The tables summarizing reported toxicity events contains a substantial number of studies, with approximately 40% attempting some form of Toxicity Identification (TIE) procedure. Without doing a great deal of research, it is not obvious to what extent these reports are linked to on-going monintoring projects and which are one-shot studies pursuing a narrowly defined topicc. It would have been very instructive to see a description of the number of scheduled monitoring toxicity tests, what percentage of the samples detect some level of toxicity, and what percentage of those must be classified as resulting from unknown causes. From that foundation, it would be possible to build a case for improved TIE/Analytical Chemistry. I believe there is value in pursuing the effort, I'm merely indicating that better justification would have been nice.

   Ecologists often question the linkage between toxicity test results to manifestations of population-level impacts. For this proposal, it would have been nice to see statistics on population trends over time for a few or several critical species of interest. Then to line-up information on toxicity results (events) in relation to population changes at key periods. Luoma et al. have done this exceptionally well for several data sets within the San Francisco Bay, but in doing so discovered the need to analyze different cyclical trends off-set by different phase-shifts. Nothing comparable in breadth or depth was presneted here to establish the level of importance for this system.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   There are few details presented regarding the approach; certainly very little in terms of novel ideas being pursued. What are the specific problems with current TIE methods that will be addressed and what will be done that will solve the problems? the same for new analytical chemistry techniques? the same for characterizing the relevance of toxicity tests to population-level responses?

   Procedurally, there seems to be problem with the triggering mechanism. The primary trigger appears to be the magnitude of mortality within 48 hrs. Yet, the goal is to discover causal relationships for effects observed following chronic exposures. This may relate to a common misuse of terminology in which the duration of exposure is confused with the magnitude of response. This has profound importance if the effects are to be linked to population-level responses. For example, concentrations that evoke high rates of mortality after brief exposures may be benign for species with r-selection strategies. Conversely,concentrations of toxic substances that diminish reproductive fitness when exposures occur for weeks or months can lead to extirpation. In that different toxic substances evoke different patterns of toxicity (concentration- versus time-based), different triggers are needed as are different toxicity tests and different endpoints. If a TIE pursues concentration-based substances, it will miss time-based responses; the reverse is less likely.

No clear connection to support of restoration activities or assistance to monitoring programs were obvious in the approach. Presumabley these would be long term consequences of success with TIE/Analytical Chemistry and linkage to population responses.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   As indicated above, the approach is sketch in general terms and lacks specificity on many critical points. Undoubtedly there will be some success regarding improvement of test methods, including the TIE. The amount of testing to be conducted will certainly uncover some relationships between toxic responses and levels of toxic substances in the waters and sediments. It is not clear how the restoration activities or the monitoring programs would benefit explicitly from this effort.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   If there were project-specific performance measures in the proposal, I missed them. What is the "success"rate for TIEs in other systems? How far from this norm are the efforts here? After completing the work, how would this be improved? I could find no clear description of what would constitute success, so it is not too surprising that standards to measure progress toward success are absent.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   Clearly, the broad objectives pursued in this proposal are worthy. If completed successfully, better linkage between contaminants and toxic responses could be made; interpretation of responses could be extrapolated from toxicity measures top population trends; water quality and sediment quality trends could be tracked in relation to restoration activities; and designs of monitoring programs could be made more efficient if ther ewere added value from each of the unit measures. Will this project as presented achieve these values? Personally, it doesn't appear that that a sufficient level of effort went into structuring the workplan in order to maximize the value of the products.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   The parties brought together for this proposal have excellent track records. They have contributed significantly to many of the important issues being pursued. Given their high level of professionalism, they can be counted on to deliver a solid effort to make the project a success.

   Unfortuantely, their individual talents are not reflected in a cohesive proposal to tackle the problems they chose. Is this a symptom of the time limitations to write proposals? Very likely. But, it may reflect on the capacity of the group to function as a team. How will decisions be made during the course of the project? How will shifts in priorities be handled?

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   I did not look to see if any program requirements and target funding level constraints were imposed on the applicants. In general, however, the budget seems to be spread across lots of pieces and stretching it very thin. There seems to be a pretty big slice (~25%) going to administrative tasks,and that doesn't take into account the G&A component of the individual sub-contractors. Remarkably, given the thrust of the proposal, only ~25% of the budget is directed at TIE.

   The amount of work that should be done to meet the goals of the project, either the amount for direct work should be increased substantially, or some portion should be dropped. In other words, there seems to be enough resource to do either the TIE or the toxicity-population linkage, but not both.

Miscellaneous comments:

My remarks regarding administrative costs could be softened if there were a clear description of the roles of the technical advisiory group and the peer reviewers; specifically illustrating what institutional mechanisms would be used to respond to comments.

Secondly, it would have been nice to see a description of how advisory input would be implemented. For example, within the framework of the project, how would the group respond if the recommendation were to double the effort on linkage of toxicity to population response? How would the budgetary shifts be accomplished?

External Scientific: #5

Research and Restoration External Scientific Review Form

Proposal Number: **128**

Applicant Organization: **San Francisco Estuary Institute**

Proposal Title: **Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

None

Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;
Good: quality but some deficiencies;
Poor: serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**The details are generally fine for Goal 1, although it is not quite clear how this will improve on past studies, I suspect this is partly because of the reliance on input from the TAC. I do not feel this study will meet Goals 2 and 3 as designed. Given the high cost of this study this is disappointing.**
XGood	
-Poor	

1. **Goals.** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   This proposal identifies four goals, which are ambitious. These are: 1. Development and improvement of TIE methods for identifying toxicants; this of course assumes that this is the optimal approach to addressing issues of toxicity in the bay/delta, there are other alternatives, and it may be that TIE can only go so far. Is TIE the best approach if there are multiple causes of observed toxic responses? 2. Improving ecological relevance: the bulk of the budget is being directed to toxicity testing and TIE > 50%, < 10% on looking at ecological effects (benthic communities (< 1%) and freshwater bioassessment (not clear what that is)). Therefore the study is very weighted toward toxicological assessment. This would be fine if the study was one of developing methods, however I think if this is truly an assessment and investigation the weighting is very heavy on the laboratory toxicology side. 3.

Provision of data to support remediation and restoration - this is really motherhood statement. 4. Assisting monitoring - from my perspective this is a dangerous precedent, i.e., for research proposals (with no guarantee of funding) to be supportive of routine monitoring, which is the responsibility of agencies. I agree that the work should be co-ordinated with agency monitoring, but not seen as replacing under-funded monitoring. Fund monitoring appropriately.

This is a very high cost proposal. Clearly, based on the historical data, there is an issue in the bay/delta, and management action may well be required, however for the high cost of the proposal it needs to be crystal clear as to what this study will generate in terms of useful management information.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   The proposal provides a good explanation of the background to the proposal, i.e., the existence of both water column and sediment toxicity from a variety of potential point and non-point sources, although it would have been helpful to get some idea of how many (I presume a lot) point sources, and the nature of major ones. Also what the history of point and non-point source control has been. Are we now dealing with a residue of historic contamination or still trying to discriminate major sources and their effects. There was also very little description of effects other than toxicological, is this an indication of the background data or an emphasis on the toxicological approach. The authors have clearly thought through how the data will fit into a decision making framework, but again it is a framework dominated by laboratory testing and in the end the link to ecologically relevant effects has to be made, and my bias is that this is being given short shrift in this proposal.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   Again the emphasis in the proposal is on improvement of and conducting TIE assessments. However, it is not clear to me how this proposal will improve on previous TIE assessments identified in Table 1. Almost half these studies(9 of 22) indicate TIE was used but was inconclusive. What in this study will ensure that the TIEs are successful? Could it be that TIE is not the best approach here? This is where I think the study is perhaps unbalanced. If it was simply the development of a new TIE approach, then fine, and it should identify how the method would potentially be an improvement (Goal 1), and this is clearly where most of the budget is being directed. However, if it is a study to identify sources, causes and significance of contamination then I am not as convinced about the design. The only in situ effects work is on 12 sites for invertebrate community analysis (2 per year), and some other work on laboratory testing of indigenous species. It would seem to me a better design would be an extensive spatial survey of sediment to identify ongoing and historic contamination, using laboratory toxicity, chemistry and invertebrate community analysis. This would identify the location of ongoing sources, and TIE could then be used in hot spots to confirm the source and causative agents. Water column testing should be used on an event based sampling grid to identify the importance of non-point sources, this would meet Goals 2 and 3. In fact given the direction of the resources in this study it seems primarily one to develop new TIE methods, and should be upfront about that.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   There is little documentation on the actual methods being used to improve current TIE approaches so I cannot comment, the cost is very high for a methods development proposal, but would probably be reasonable for a complete assessment of toxicity and causes in the delta/bay, however sampling only 12 sites for the freshwater bioassessment (what about the marine portion) seems inadequate. There is no indication of the number of sites where toxicity testing will be undertaken and what the sampling strategy is (spatial or event based)

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   Measures identified are tests performed contracts completed, meetings held. I would rather see concrete deliverables such as identification of cause in x toxicity tests or a y sites, as this is what the proposal suggests it will do, the others are simply measures of process.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   If the project is successful in developing new TIE methods that can identify cause this will be very helpful and assist in the management of restoration and remediation.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   Based on the CVs of the proponents and the agencies and organisations involved I believe they are capable and qualified to implement the project.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   This is a very costly project, while the salaries etc are reasonable and the number of hours seem appropriate the main cost is in the toxicity testing and TIE work. The latter is expensive. However the distribution of the funding is heavily weighted to the toxicity component, does the funding agency consider this kind on\f money for development of new methods reasonable?

Miscellaneous comments:

I would encourage the proponents to describe this study as what it really is, a methods development proposal. From the information provided in the proposal I do not think it will be able to identify sources and causes, as the sampling frequency and distribution are not sufficiently described and seem low for an area tat I suspect is extremely complex.

Prior Performance/Next Phase Funding: #1

New Proposal Number: 128

New Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

1. Prior CALFED project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   CALFED #99-B06, USBR #99-FC-20-0241 - San Jose State University Foundation - Assessment of Ecological and Human Health Impacts of Mercury in the Bay-Delta Watershed

2. Prior CVPIA project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   N/A

3. Have negotiations about contracts or contact amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

   -Yes -No **X**N/A

   If no, please explain any difficulties:

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

   -Yes -No **X**N/A

   If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

   -Yes -No **X**N/A

   If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

   -Yes -No **X**N/A

   If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

-Yes -No **X**N/A

If no, please explain:

Other Comments:

While I administer CALFED Agreement 99-B06 with the San Jose State University Foundation, I have no direct knowledge of SFEIs performance on that project.

Prior Performance/Next Phase Funding: #2

New Proposal Number: 128

New Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

1. Prior CALFED project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   ERP 99-N07 ? Chronic Toxicity of Environmental Contaminants in Sacramento Splittail- A Biomarker Approach

2. Prior CVPIA project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   N/A

3. Have negotiations about contracts or contact amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

   -Yes -No -N/A

   If no, please explain any difficulties:

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

   -Yes -No -N/A

   If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

   -Yes -No -N/A

   If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

   -Yes -No -N/A

   If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

   XYes -No -N/A

If no, please explain:

Other Comments:

Prior Performance/Next Phase Funding: #3

New Proposal Number: 128

New Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

1. Prior CALFED project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

   98-C08 Algae Toxicity Study 98-C07 Fathead Minnow Toxicity Study

2. Prior CVPIA project numbers, titles, and programs: (*list only projects for which you are the contract manager*)

3. Have negotiations about contracts or contact amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

   XYes -No -N/A

   If no, please explain any difficulties:

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

   XYes -No -N/A

   If no, please explain any inaccuracies:

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

   XYes -No -N/A

   If no, please explain deficiencies:

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

   -Yes -No **X**N/A

   If no, please explain:

Other Comments:

Note that State Board has internal contract approval process. Recommend sending contract to State Board as early as possible to facilitate approval process on their end.

Environmental Compliance:

Proposal Number: 128

Applicant Organization: San Francisco Estuary Institute

Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

1. Are the legal or regulatory issues that affect the proposal identified adequately in the proposal?

   -Yes **X**No

   If no, please explain:

   Project would require NEPA, as the project description identifies federal cost-share funding (USEPA).

   Compliance with DFG Code Section 1002 would be necessary for scientific collection of indigenous species. If collected species are either state and/or federally-listed, CESA and/or FESA compliance would be necessary. Permits and/or endangered species compliance would require CEQA compliance.

   Project may require a State Lands Commission Land Use Lease.

2. Does the project's timeline and budget reflect adequate planning to address legal and regulatory issues that affect the proposal?

   -Yes **X**No

   If no, please explain:

   Yes, Budget; No, Timeline:

   Work schedule does not include time required for environmental compliance required above.

3. Do the legal and regulatory issues that affect the proposal significantly impair the project's feasibility?

   -Yes **X**No

   If yes, please explain:

Other Comments:

Budget:

Proposal Number: 128

Applicant Organization: San Francisco Estuary Institute

Proposal Title: Investigations into Toxicity of Unknown Cause in the Bay-Delta and Tributary Watersheds

1. Does the proposal include a detailed budget for each year of requested support?

   XYes **-**No

   If no, please explain:

2. Does the proposal include a detailed budget for each task identified?

   XYes **-**No

   If no, please explain:

3. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs?

   XYes **-**No

   If no, please explain:

4. Are appropriate project management costs clearly identified?

   XYes **-**No

   If no, please explain:

5. Do the total funds requested (Form I, Question 17A) equal the combined total annual costs in the budget summary?

   -Yes **X**No

   If no, please explain (for example, are costs to be reimbursed by cost share funds included in the budget summary).

   Funding brought forward dropped $.01.

6. Does the budget justification adequately explain major expenses?

   XYes **-**No

If no, please explain:

7. Are there other budget issues that warrant consideration?

   -Yes **X**No

   If yes, please explain:

Other Comments: