

Proposal Reviews

#131: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

San Francisco Estuary Institute

Final Selection Panel Review

Initial Selection Panel Review

Research and Restoration Technical Panel Review

Delta Regional Review

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Sacramento Regional Review

#1

External Scientific Review

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Prior Performance/Next Phase Funding

#1

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Environmental Compliance

Budget

Final Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP Final Selection Panel Review

Proposal Number: 131

Applicant Organization: San Francisco Estuary Institute

Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

Please provide an overall evaluation rating.

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

Amount: **\$1,456,531.31**

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

None

Provide a brief explanation of your rating:

The ABAG CALFED Task Force, San Francisco Estuary Project, and Clean Estuary Partnership's comments encourage better outreach to anglers and others who might be exposed to mercury-contaminated fish in the Bay-Delta system. In response, the panel recommends that coordinated outreach to transfer information regarding methylmercury contamination of fishery resources to local stakeholders to facilitate assessment and communication of potential health risks of fish consumption should be among the topics addressed at the Mercury Science Strategy Workshop being planned by CALFED for fall 2002. The applicants could then consider and incorporate recommendations emanating from that workshop into a revised, integrated proposal that the Panel recommends be considered as a directed action.

Initial Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP Initial Selection Panel Review

Proposal Number: 131

Applicant Organization: San Francisco Estuary Institute

Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

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 | X |
| Not Recommended | - |

Amount: **\$1,456,531.00**

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

None

Provide a brief explanation of your rating:

This proposed project would establish a monitoring network for total mercury (present largely in the form of methylmercury) to assess mercury contamination of fish in the Delta. The information from monitoring would be transferred via public education and outreach and by the involvement of a network of stakeholders, including environmental health officials involved with risk communication to the general public.

The overall scope of this proposal overlaps with two others (#130 and #196) that propose to monitor or survey methylmercury in fish or other aquatic biota in the Bay-Delta ecosystem. The Panel agrees that measurement of mercury concentrations in sport fish would be a useful performance measure related to the mercury problem in the Delta and concurs with the view that a mercury-monitoring effort should be in place in the Bay-Delta system during ecological restoration, given that restoration activities could increase production of methylmercury and its concentration in aquatic food webs supporting fish production.

The Panel believes that the benefits of a monitoring program would be greatly enhanced by linking monitoring efforts to other scientific work on processes and factors that affect methylmercury concentrations in fish. Such factors include methylmercury production and demethylation, abundance of methylmercury in water and the diet, food-web structure, trophic transfer, and possibly, disturbances associated with ecological restoration activities.

The Selection Panel recommends that the applicants work with others to combine this proposal with two others (#130 and #196) to produce a single, integrated proposal that would (1) provide cost-effective monitoring of mercury in fish, producing information relevant to methylmercury exposure in humans and fish-eating wildlife, and (2) be designed to facilitate linkage of fish-mercury data to information on causal processes and factors affecting methylmercury concentrations in fish. Moreover, the Panel strongly encourages the applicants on the three proposals (130, 131, and 196) to consider developing an analytical capability for measurement of total mercury and methylmercury in fish, other aquatic biota, and water. This could substantially reduce the high analytical costs associated with contractual analyses of samples (particularly for methylmercury) from a large-scale monitoring effort.

The Panel recommends that the applicants on this proposal participate in the Mercury Science Strategy Workshop being planned by CALFED for fall 2002. The applicants should consider and incorporate recommendations emanating from that workshop into a revised, integrated proposal that the Panel recommends be considered as a directed action.

Research and Restoration Technical Panel Review:

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

Proposal Number: 131

Applicant Organization: San Francisco Estuary Institute

Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

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 |
|-----------------------------------|--|
| XSuperior | The panel felt that the combination of good science, a well-qualified and balanced team, and good public outreach all make this a very desirable project. The project will provide data and information for an important CALFED goal (# 3), which will be addressed in this project. The two external reviewers rated the proposal as excellent and one reviewer as good because of budget concerns (i.e., high management fee). There is some concern regarding the high project management rate and this needs to be checked and fully addressed. |
| -Above average | |
| -Adequate | |
| -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?

Goals and justification are clearly stated. Prior monitoring work in this area has been fragmented in time and space and this project is justified if properly linked with other data collection and risk assessment activities. This project would be a monitoring project. This project would provide information on the processes that influence mercury accumulation in fish, through linkage with other studies should lead to improved conceptual models for mercury fate.

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 project clearly outlined the sampling, analytical methods, and data analysis procedures. Team is excellent with great credentials. Good list of performance measures, such as peer review reports, presentations at annual scientific and stakeholder meetings. One reviewer questioned the feasibility of meeting objectives 2 and 3.

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?

Excellent list of products, such as peer reviewed annual reports, scientific presentations (e.g., CALFED science conference, SETAC), data accessible through the web, and an organized network of stakeholders. The network of stakeholders included environmentally justice communities. This project will complement other past and ongoing studies that conduct mercury sport fish data. This project will combine all the data and provide the information (graphs, maps, tables, data) in a format that is readily available for decision managers.

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

Good cost sharing by DHS for \$60,000. One reviewer stated that the budget was inflated and questions whether sampling 10 sites once a year for 3 years could cost 1.5M. The proposal should have quantified the number of samples, endpoints (gut, tissue analysis), and cost for each analysis/ per site. This would have provided a clear justification for the analytical and sampling costs for the project. Another reviewer stated that the estimated project management cost is approximately \$100,000 per year. If report preparation is included in this task, then this cost is partially explained.

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?

Regional review gave a high ranking. Long term monitoring from this project will address MR-5. Good local involvement (support of 5 county directors of health) and project will build upon other previous studies. One reviewer questioned the high 20% project management fee and the usefulness of once per year sampling.

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 budget and environmental compliance issues were identified.

Miscellaneous comments:

None

Delta Regional Review:

Proposal Number: 131

Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

Overall Ranking: -Low -Medium **XHigh**

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

Committee likes the idea of establishing a network for long-term studies of Hg in Delta fish. This seems practical and useful to determine long-term trends and efficacy of management.

Actual sampling of sport fish seems desirable in terms of assessing health risks and changes in health risks.

1. Is the project feasible based on local constraints?

XYes -No

How?

Yes, PIs have extensive experience sampling fish in the Delta under all seasons. Familiar with and possess fish take permits.

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

XYes -No

How?

Yes, understanding the extent and nature of Hg contamination in Delta fish is a stated PRP priority. This project emphasizes long term study which is important to gaining understanding of the problem and to gauging effectiveness of mitigation programs.

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 continuation of similar sampling under previous CALFED funding. It intends to coordinate with other proposed Hg-related projects. Fits in with ongoing IEP sampling programs to determine spatial and temporal variations in contamination in the Delta region.

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

XYes -No

How?

Two PIs are local (SFEI and UC Davis). The project intends to establish information outreach to local anglers, stakeholders, and communities.

Other Comments:

None.

San Joaquin Regional Review:

Proposal Number: 131

Applicant Organization: San Francisco Estuary Institute

Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

Overall Ranking: -Low -Medium **XHigh**

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

Mercury in the region is a huge problem that will need to be addressed in a big way sometime soon. This project will build upon other previous studies of mercury within the system. It is a comprehensive study that will provide long term data on mercury contamination..

1. Is the project feasible based on local constraints?

XYes -No

How?

San Francisco Estuary Institute (SFEI) and Moss Landing Marine Laboratory (MLML), who will be doing most of the collecting of sample and doing the analysis, have collaborated on fish sampling projects for the last five years.. These include the Sacramento River Watershed Program, the Delta Fish Study, the CALFED Mercury Project and another CALFED study on evaluating contaminant effects on splittail. DFG staff that are also doing the sampling have the permits and experience to conduct the sampling. UC Davis

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

XYes -No

How?

MR-5: Ensure that restoration is not threatened by degraded environmental water quality. Stage 1 actions include assessment of mercury sources, loading, and factors affecting transformation and bioaccumulation across the watershed. One of the priorities is to compare the methylation of mercury in restored wetlands and implications for loadings to the Bay and Delta. The long term monitoring that this project proposes clearly meets these priorities.

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?

The proposed project is a continuation and expansion of two prior ERP projects, the CALFED Mercury Project and the Effects of Wetlands Restoration on Methyl Hg Levels by UC Davis. It would also be coordinated with several other mercury projects proposed in this PSP.

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

XYes -No

How?

One of the proponents is from the California Department of Health Services. DHS is sensitive to the need to involve adversely impacted communities in the problem-assessment process, and is committed to a scientist-stakeholder partnership as the most effective means to an enduring solution. Environmental health officials from the five Delta counties have expressed support for and a willingness to participate in the proposed project. There is a great deal of effort planned in developing a stakeholder advisory group consisting of SFEI, EHIB, other government agencies, county health departments, local environmental, angler and watershed groups, as well as any other local participants that desire to be involved.

A part of this project involves education of people in the region regarding mercury contamination and protective measures that can be implemented.

Other Comments:

This project will build upon other previous studies of mercury within the system. It is a comprehensive study that will provide long term data on mercury contamination..

Sacramento Regional Review:

Proposal Number: 131

Applicant Organization: San Francisco Estuary Institute

Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

Overall Ranking: -Low Medium -High

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

The panel was concerned by the 20% project management fee and questioned the usefulness of once per year sampling.

In general, the panel defers to the tech panels on how the mercury proposals fit with ongoing mercury activities.

1. Is the project feasible based on local constraints?

Yes -No

How?

They have been doing similar work for years so it is feasible that they could continue that work.

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

Yes -No

How?

Sacramento region priority 7 and multi region 5 include further mercury studies.

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

Yes -No

How?

The site selection has been coordinated with other mercury researcher and this proposal has been coordinated with the other mercury proposals.

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

Yes -No

How?

The proposal builds on the Delta Resident Shoreline Fish Monitoring Project and has the support of five County Directors of Environmental Health who could use the information to set guidelines for fish consumption.

Other Comments:

The biggest concern is how statistically valid the once per year sampling is, and how they could relate it other activities in the watershed.

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **131**

Applicant Organization: **San Francisco Estuary Institute**

Proposal Title: **MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY**

Conflict of Interest Statements:

I have no financial interest in this proposal.

Correct

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 |
|---|---|
| <input checked="" type="checkbox"/> Excellent | The proposal organization and scope were excellent and consistent with CALFED ERP goals. |
| <input type="checkbox"/> -Good | |
| <input type="checkbox"/> -Poor | |

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

Rating: Excellent. Good articulation of goal and 8 objectives.

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?

Rating: Excellent. The applicants provide substantial justification. The project is identified as a monitoring project. However, it is equally a public outreach project, which makes the project more desirable.

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?

Rating: Excellent. Well described approach. Good collaboration of various entities to accomplish scope.

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?

Rating: Excellent. Scope and objectives appear to be highly feasible.

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?

Rating: Very Good. Good articulation of performance measures. No quantification given, but sufficient checks and balances are in place.

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?

Rating: Excellent. The list of products and deliverables are excellent.

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?

Rating: Excellent. The combined credentials of this team are beyond refute.

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

Rating: Excellent. The costs appear adequate. The benefits are substantial, especially with the proposed networking and public outreach aspects.

Miscellaneous comments:

The combination of science and public outreach make this project a desirable one for CALFED.

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: **131**

Applicant Organization: **San Francisco Estuary Institute**

Proposal Title: **MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY**

Conflict of Interest Statements:

I have no financial interest in this proposal.

Correct

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 |
|---|--|
| <input checked="" type="checkbox"/> Excellent | The proposal has an excellent team to conduct the tasks with a clear list of performance measures outlined. Products include information accessible to the public and the generation of peer reviewed scientific papers and presentations. Good linkage of this study with other studies in the Delta. Letters of support from environmental health officials from five counties. |
| <input type="checkbox"/> -Good | |
| <input type="checkbox"/> -Poor | |

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

The project goals, objectives and hypotheses are clearly stated. The project is timely as there are numerous Hg TMDLs are to be developed in the Delta. One objective is to examine the processes driving inter-annual variation in Hg bioaccumulation is of great interest.

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?

One outcome of regulatory interest is the accessible maps, data and reports and educational materials to target the local health departments of Hg contamination in sport fish.

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 is clear and will be useful for regulators, such as the local departments of health (indicated support by several counties) and input from the Sacramento Regional Water Board on proposal development. Stakeholders will be involved in the outreach and educational activities based on the fish sampling results (great).

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 project is feasible and needs to be conducted on a regional basis to evaluate fish inter-year variability. DFG currently have permits to collect the fish.

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 very clear list of performance measures is detailed on page 10. Products should assist decision makers within the watershed.

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?

The products will be peer-reviewed reports and publications; presentations at local and national meetings (SETAC); data/maps/reports accessible through SFEI website for stakeholders; more informed and organized group of stakeholders.

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?

All the investigators have extensive experience in their respect fields and have demonstrated success in previous projects such as TSMP, RMP, CALFED, and SRWP. This project would be a continuation of fish sampling from previous ERP projects, therefore, building a more extensive database.

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

Good cost sharing by DHS for \$60,000

Miscellaneous comments:

External Scientific: #3

Research and Restoration External Scientific Review Form

Proposal Number: 131

Applicant Organization: San Francisco Estuary Institute

Proposal Title: **MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY**

Conflict of Interest Statements:

I have no financial interest in this proposal.

Correct

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 have worked with the proposers on mercury projects in the Sacramento River Watershed Program. SFEI and Department of Fish and Game have been contractors to Sacramento Regional County Sanitation District. We have incorporated their study results into an annual monitoring report which we have prepared under contract to SRCSD.

I had no prior knowledge of this proposal before reviewing it here.

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 | In the important areas of long term trend analysis of mercury in sport fish and mercury risk evaluation, the proposed study provides valuable information. The study is dependent on other information to reach a number of its objectives. |
| -Good | |
| -Poor | |

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

The project goal and objectives are listed on page 2 of the proposal.

The objectives are internally consistent.

The proposed work builds off prior work for CALFED and the Sacramento River Watershed Program as a logical next step.

There is common agreement that mercury levels in fish tissue is of direct interest in the evaluation and management of mercury risk to humans and wildlife in the Delta and tributary watersheds. The goal of establishing a network of long term fish tissue monitoring sites is timely and important.

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 proposed study is important because it would provide a framework for synoptic monitoring of mercury in fish tissue in the Delta and major tributaries. Prior monitoring work has been fragmented in time and space. Similar monitoring, albeit less complete in scope, has been performed at various locations in the Sacramento River watershed and Delta since 1997. The proposed study capitalizes on prior method development work for fish tissue sampling and analysis.

The conceptual model provided in the proposal accurately describes current knowledge regarding mercury bioaccumulation and biomagnification.

The conceptual model does not completely provide a description of the linkage between fish tissue levels and present levels of risk to humans or wildlife.

The conceptual model asserts a linkage between CALFED management actions and fish tissue levels which has not been proven.

The proposed study relies on additional information (which is not clearly summarized) to adequately characterize exposure risk to humans and wildlife and to define the impact of CALFED actions on tissue levels of mercury.

In summary, the proposed study is justified if properly linked with other data collection and risk assessment activities.

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?

Eight objectives are listed on page 2 of the proposal. As designed, the study will address objectives 1, 4, 6, 7 and 8 in a significant way. These objectives are valuable in establishing baseline conditions from which to judge future changes, in contributing to the evaluation of human health risks, and in managing risk through education and outreach. The study results will augment an existing data set of information and will provide new information regarding interannual variability which is necessary for long term trend analysis.

The proposed study relies on other data to meet objectives 2, 3, and 5. In particular, the additional other information needed to meet objectives 2 and 3 is substantial.

The information produced will be most useful to decision-makers seeking to manage mercury risk if linked to other information, including (a) fish consumption information for humans (who, where, what species and how much), (b) wildlife feeding habits and consumption rates, (c) actual measures of mercury exposure in human and wildlife populations, (d) mass budget or other measure of the importance of individual or specific mercury sources to the Delta, (e) better understanding of the critical pathways and mechanisms controlling mercury biouptake. The proposed study refers to another proposal which will provide partial information for (d) and (e).

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 documentation for the overall approach and proposed study elements is complete. The proposed study elements are technically feasible.

Where success is measured against objectives 1,4,6,7, and 8, the likelihood of success is great.

The likelihood of success of objectives 2 and 3 is lower. The study will contribute to a partial understanding of mercury processes and the impact of various actions on mercury levels in fish tissue.

The scale of the project will address fish tissue information needs over major portions of the Delta and rim inputs.

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?

As a monitoring project, significant environmental information will be generated for use in performance evaluations to see whether objectives have been achieved. The framework for statistical evaluation of this information is not well defined in the proposal.

Certainly, the administrative performance measures listed in the proposal (e.g. contracts, status reports, technical reports) exist to assess the completion of specified tasks.

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?

The most valuable products from the project will be baseline fish tissue information at a fixed network and interannual variability characterizations to allow long term trend analysis to judge future changes.

The project products will also assist in the analysis of mercury risk and management decisions by CALFED and others. As noted above, the value of such information will be affected by the availability of other information to be collected by others.

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 proposed project team is very well qualified to perform the identified tasks. The team members have been leaders in the development of methods and performance of similar work in the Delta area over the past five years.

There is little doubt that the proposed team has the resources and support necessary to perform the project.

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

The cost estimate to perform the proposed study is higher than anticipated. The estimated project management cost is approximately \$100,000 per year for 3 years. This is approximately 35 per cent of the cost for sampling, analysis and data analysis, which is high. If report preparation is included in this task, the high cost for this task is partially explained.

The sampling and analysis costs are approximately \$250,000 per year. Reduction of these costs would involve reduction in the scope of this effort (e.g. elimination of clam testing).

The estimated cost for data analysis is approximately \$30,000 per year. This cost appears to be reasonable.

The cost for education and outreach is approximately \$100,000 per year. Again, this is dependent on the level of effort devoted to this task.

For the benefit gained from the proposed study, the overall cost estimate seems high by 20 to 30 percent.

Miscellaneous comments:

The operating premise for this study is that CALFED management actions will cause increases in mercury levels in fish in the Delta. Available information (see appendix) suggests that this premise may not hold at the local level. The ability to see regional changes from such actions through the proposed program is uncertain.

External Scientific: #4

Research and Restoration External Scientific Review Form

Proposal Number: **131**

Applicant Organization: **San Francisco Estuary Institute**

Proposal Title: **MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY**

Conflict of Interest Statements:

I have no financial interest in this proposal.

Correct

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 | I rate this project as good because a monitoring component should be in place during ecosystem alteration. However, the proposal does not present any new ideas or clearly creative methodologies. They plan to use established methods and build on existing programs. The community involvement section is weak, especially since the driving force behind the monitoring project is human health risk. The budget is "out of line" . The state and federal government should not use taxpayers money to fund consulting firms with overhead rates of 153%. |
| XGood | |
| -Poor | |

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

The project goal as stated is "to establish a network of monitoring sites for tracking the effectiveness of CALFFD efforts to minimize mercury bioaccumulation". I would have to suggest that this goal is a bit misguided. Based on the author's data, there has been and is currently a network of monitoring sites for the bay region. This proposal requests to augment an existing network/data base for Hg in organisms. Objective number three states that the authors wish to develop an improved understanding of the processes driving mercury bioaccumulation. Measurements of Hg and stable isotopes will define Hg content

and trophic position. How and what are the other processes? Objectives 6,7,8 discuss public outreach and local community involvement. How are these objectives to be accomplished? The proposal lacks specific documentation on how many individuals are at risk, how much fish they actually consume, and how the information is to be distributed. The hypotheses and means of evaluation are not novel. Fish concentrations show spatial variation in many ecosystems and land use patterns/management practices influence the concentration of contaminants in biota. Monitoring of Hg levels in the fish during and after the restoration process is needed. However, the hypotheses and means of evaluation have been tested numerous times in previous studies.

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 proposed study is presented as a new idea, but after careful evaluation of the proposal it seems that the study is designed to augment ongoing studies of the authors and seems repetitive. The authors state that human health risks are the driving force for Hg studies. However, they present no data on the types of populations and numbers of individuals at risk, and no information regarding the amount of fish consumption in the region. The last point of the model is correct, long term monitoring is necessary to reveal long term trends of increasing or decreasing Hg in fish.

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 and methodologies proposed in this document are not new. The project will generate information concerning trophic level status and Hg concentrations in food webs. However; this project is not likely to result in any novel information regarding mercury speciation and cycling within the ecosystem, or any information describing the processes responsible for bioaccumulation. The results from this project will augment the 30 year existing data base for fish Hg concentrations in the region and how land usage/alteration affects the trend, and this information would be helpful to regulators and planners. The public outreach approach is not well developed. How will this study aide the community, and how will health department officials actually educate the public? Do any fish consumption advisories exist for the delta region? Will this study result in the issuance of any consumption advisories for the region?

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 somewhat documented. It is not clear how many new sites will be added to the project. Initially the proposal states 10 sites once a year, but further reading suggests that only five new sites will be added and five sites will come from an already established project. The objective is to measure Hg and stable isotopes in biota and this is feasible. The other objective, to establish a long term trend, might not be successful. The time frame for the study is 3-4 years. I would have to argue that this is a rather short time frame, especially when dealing with interannual variability, the inherent variability in biological systems, and the variability in Hg sources (atmospheric vs. within the watershed) to the delta.

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?

The authors have included appropriate performance measures for (1) QA/QC of sample collection, analysis and data screening. Publication of the data in peer reviewed journals is a priority since many technical reports are not readily available. The performance objectives concerning the community involvement/education are not well stated. How are the results going to be presented to the nonscientific community, and if necessary, how will the general public be counseled to reduce their consumption of sportfish? Will the data be used to determine fish consumption advisories?

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?

I do not suspect that any new and interpretative findings will result from this project. One possible piece of information that might come of this project is whether or not physical/structural changes in the ecosystem will result in increased or decreased concentrations of Hg in fish over a rather short (3-4 years) time scale. The scope of the study does not really address long term (10-15 yr).

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 authors have well established credentials for fish collection, Hg/stable isotope analysis, and product generation via report, presentations, and papers.

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

The budget is inflated and unreasonable for a project that intends to collect samples at 10 sites once a year for three years, especially when sampling at 5 sites will be coordinated in collaboration with an existing monitoring project. Monitoring changes in biota contaminant levels during ecosystem alteration is important, but not at a cost, to taxpayers, of almost 1.5 million dollars and a 153 percent overhead rate. That is highway robbery. The budget should be readjusted and made more realistic. Sampling at 10 sites once a year for three years cannot possibly cost 1.5 million dollars. I have been involved with many multi-disciplinary long term projects and their budgets were on the order of 1 million dollars for 5-6 years and negotiated overhead rates of 25-30 percent.

Miscellaneous comments:

none

Prior Performance/Next Phase Funding: #1

New Proposal Number: 131

New Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

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 contract 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.

Did not have a copy of this project proposal sent over, so was unable to complete 2002 Proposal Title as part of the titles are covered in the copy of the table sent to us. * * *

Prior Performance/Next Phase Funding: #2

New Proposal Number: 131

New Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

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 contract 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?

-Yes -No -N/A

If no, please explain:

N/A

Other Comments:

Environmental Compliance:

Proposal Number: 131

Applicant Organization: San Francisco Estuary Institute

Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

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

Yes -No

If no, please explain:

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

Yes -No

If no, please explain:

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

-Yes No

If yes, please explain:

Other Comments:

Budget:

Proposal Number: 131

Applicant Organization: San Francisco Estuary Institute

Proposal Title: MERCURY IN DELTA FISH: ESTABLISHING A NETWORK FOR LONG TERM STUDY

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

Yes -No

If no, please explain:

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

Yes -No

If no, please explain:

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

Yes -No

If no, please explain:

4. Are appropriate project management costs clearly identified?

Yes -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 -No

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

6. Does the budget justification adequately explain major expenses?

Yes -No

If no, please explain:

7. Are there other budget issues that warrant consideration?

-Yes No

If yes, please explain:

Other Comments: