Proposal Reviews

#138: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

San Francisco State University, Romberg Tiburon Center

Final Selection Panel Review	
Initial Selection Panel Review	
Research and Restoration Technical Panel Review	
Bay Regional Review	
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Final Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Final Selection Panel Review

Proposal Number: 138

Applicant Organization: San Francisco State University, Romberg Tiburon Center

Proposal Title: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

Please provide an overall evaluation rating.

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

Amount: **$509,222**

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

None

Provide a brief explanation of your rating:

The ABAG-CALFFED Task Force's and San Francisco Estuary Project's comments endorse the proposal, emphasizing its value to their region.

Initial Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Initial Selection Panel Review

Proposal Number: 138

Applicant Organization: San Francisco State University, Romberg Tiburon Center

Proposal Title: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

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

Amount: **$509,222**

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

None.

Provide a brief explanation of your rating:

Technically, a key uncertainty begins to be addressed in this research planning project, but additional phases will be required to field-test hypotheses on fish-X2 relationships. The Bay panels do-not-fully-fund recommendation is outweighed by the confidence in ratings from other panels.

Strategically, this proposal could contribute to knowledge of Delta flow regimes to support at-risk species in the Bay and Delta, and to effects of Delta diversions. Proposal Solicitation Package priorities addressed include Bay Region-6, -7 and 8, which relate to at-risk species in the Bay/Delta.

Evaluating ecological benefits vs. cost is hard now as this research is beginning. The importance of X2 justifies some risk.

It may set the stage for science to contribute to decisions on restoration actions or water management after this 2-year project.

Public support and implementability seem likely per Bay and Delta regional panels giving the proposal good and high ratings.

Modeling efforts should support study design without getting ahead of the design. Proposal indicates modeling may be independent of the design effort.

Research and Restoration Technical Panel Review:

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

Proposal Number: 138

Applicant Organization: San Francisco State University, Romberg Tiburon Center

Proposal Title: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

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	**This is a well written and well thought-out proposal that seeks to develop a coordinated research plan to understand the mechanisms by which flow conditions can affect the abundance of estuarine biota. The PIs are certainly capable of effectively meeting their research objectives and provide clear justification for their research plan.**
-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?

   The objectives and hypotheses are clearly described, and the research approach is appropriate to effectively meet the objectives of this project. The PI's provide a clear conceptual model of the research pathways that must be pursued to understand the mechanisms by which flow conditions can affect the abundance of estuarine biota.

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?

Much thought has obviously gone into this proposal, and the PI's propose a well-designed project. One reviewer is concerned that there is not adequate data to support the modeling study. However, the panel recognises that this project is only a pilot study, and the model experiments are only used to guide field experiments. The ultimate goal of the PIs is to develop a long term program of field work, data analysis, and numerical modeling that will provide a greatly improved understanding of the estuarine system. For this planning phase, the PI's are likely to be successful, and they certainly are capable of effectively implementing their research plan.

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?

   The PI's are asking for funds to develop a plan for a large research endeavor, rather than original research. Some of the modeling results will undoubtedly be useful, but may not result in significant advances in the state of scientific knowledge. Nevertheless, such thoughtful planning is necessary to develop a coordinated research program that can improve understanding of the estuarine system, and when this research is done it will provide the advances in science and the products that are useful to decision-makers and scientists.

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

   The budget is reasonable, but it is not justified very well.

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?

   The regional panels ranking of the proposal was Medium (Bay Regional Review) and High (Delta Regional review). The main benefit outlined by the Bay Regional Review was that the project will inform restoration efforts directed at flow regimes. Their concern was that the proposal was too vague and large in scope. The Delta Regional review recognised the benefit of the umbrella approach to plan the research necessary to gain an improved understanding of the estuarine system.

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?

   The only complaint was that project management costs were not clearly identified.

Miscellaneous comments:

None.

Bay Regional Review:

Proposal Number: 138

Applicant Organization: San Francisco State University, Romberg Tiburon Center

Proposal Title: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

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

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

The panel felt that the full proposal should not be funded because of its vague nature; however, the first scoping phase in the form of a workshop is important and could be funded or sponsored by CALFED due to the importance of attaining a fuller understanding of fish X-2 relationships.

1. Is the project feasible based on local constraints?

   -Yes **X**No

   How?

   Not possible to determine. The project is probably feasible, but as written it is difficult to discern feasibility. It is largely a list of research topics related to one central theme, X-2 fish/food web relationships and because the first year is devoted to planning and deciding among various research topics it is difficult to discern what the ultimate focus will be and therefore the feasibility. The determination of habitat through modeling of the project are more clearly focused and therefore probably more feasible.

   Also, some of the proposed research, especially if it addresses gathering at-risk species in the field, may require take permits and it is unclear if the authors already possess these permits.

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

   XYes **-**No

   How?

   The proposed research is specifically aimed at the following PSP priority: BR-7: Improve scientific understanding of the linkages between populations of at-risk species and inflows, especially relative to regulatory measures like X2. It also addresses indirectly the following priorities: BR-6: Protect at-risk species in the Bay using water management and regulatory approaches. BR-8: Use monitoring, evaluations of existing monitoring data and new investigations to develop improved strategies for restoring Bay fish populations and at-risk species.

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?

Yes, indirectly, the project will inform restoration efforts directed at flow regimes. Depending on the focus of the project and the elements that result from it, it could be an important tool for regulatory entities to judge efficacy of current X-2 standard. It may also inform us about the availability of habitat given various flow regimes and therefore help inform restoration efforts in areas like Suisun.

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

XYes **-**No

How?

Yes, the project includes generally many of the Bay Delta research community and/or builds on these efforts. The researchers are well connected with DWR researchers and others.

Other Comments:

We think this is an important topic, and the researchers are well qualified; however, the research proposal is too vague and large in scope. Tackling a subset of this problem and focusing on specific species, would have presented a clearer proposal that could be more easily evaluated. In our view, this is a topic that the CALFED Science Program should support (a workshop sponsored by CALFED) to create a short list of focused research topics and a list of directed actions for a more refined RFP. Alternatively this process could receive support for the planning phase, particularly supporting the workshop effort.

Delta Regional Review:

Proposal Number: 138

Proposal Title: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

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

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

This is investigation of an important Delta process will be well coordinated with other Delta researchers.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   Proposal is based on existing institutions and local expertise. Planning process in keeping with planning pattern used previously with success. Proposal is based on the supportable rationale of knowledge to date

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

   XYes **-**No

   How?

   #7 Protect at-risk species in the Delta using water management and regulatory approaches -Optimize regulatory strategies to protect fish and develop temporal regimes for water movement that minimize adverse effect on fisheries. The project aims to dissect and understand the mechanisms and biological mechanisms of X-2 in an orderly and logical manner. The approach is conducive to the adaptive management format desired by CALFED.

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 planning process proposed is based on previous and ongoing work in the estuary. The product will be a master study plan from which individual projects providing information on X-2 mechanisms can be developed. This plan, by definition, will provide a linkage in the rationale for developing individual projects to further understanding of the mechanisms of X-2. For concepts as complicated as X-2, an umbrella approach utilizing common and extended conceptual models demonstrating the interrelationships of the proposed actions

and studies is necessary to provide an organized approach to understanding the system. This type of approach is a good structure for the analytical approach necessary to evaluation the results of an action and its contribution to reaching the overall programs objectives.

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

   XYes **-**No

   How?

   The proposal will extend across multi agency and academia, it draws heavily on IEP/IEP associated expertise.

Other Comments:

X

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **138**

Applicant Organization: **San Francisco State University, Romberg Tiburon Center**

Proposal Title: **Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I**

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 is a keystone element in the development of useful scientific programs for the CALFED program. Kimmerer is well positioned to pull it off. How can you not do this?**
-Good	
-Poor	

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

   The proposed project addresses a key element of the CALFED Ecosystem Restoration Strategic Plan--to develop a mechanistic understanding of the X2 fish-salinity relationship. The approach is lucidly described and laid out. The first task is essentially a directed community planning expercise for longer-term strategic research program and the second task employs a hydrodynamic model to evaluate the physical components of four important hypotheses. Resolving these through the physical modeling will greatly help focus the goals of the research strategy under Task 1. The whole effort seems to be squarely on target to assist a central management question for management of water resources and the bay and delta. It should be advanced as rapidly as possible because it will make subsequent CALFED research more efficient and effective.

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 project builds well on the existing knowledge to advance understanding from conceptual models based on statistical relationships to those based on mechanistic relationships, the latter of which are needed because of the changed conditions in the delta and estuary and for addressing future water and resource management scenarios. The hydrodynamic model has been extensively and effectively used in San Francisco Bay.

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?

   Yes. Initially I thought that the two tasks were just pasted together, but it became clear on reading why the modeling should proceed together with the research planning. There is an integral dependence. There is no collection of new data here, but rather organized stock-taking of what needs to be known guided by an accepted conceptual framework and quantitative physical model. Completion of Task 2 alone will improve the basis for decision making, but more importantily the overall project will lay out a direct path, rather than a random walk, to provide the science needed for water-resource and estuarine management.

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?

   Doing any thing with complex systems is always a challenge and involves some risks. Here, the project participants will we be working with two very complex systems--the estuary and the science and management community. Nonetheless, they have presented a rational path and bring to the task tremendous experience and a highly successful track record. The project seems right-sized in balancing planning and modeling efforts.

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?

   It's hard to say. The authors did not spend a lot of time listing performance measures. However, the experience, approach rationale, and clarity of expression gives me confidence that the project participants will achieve what the promise.

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 study design that will be developed is critical. The models will be useful for the design of the study, but also have stand alone value.

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?

Dr. Kimmerer has a solid reputation for scientific thoughtfulness and leadership within the San Francisco Bay community. His publications are first rate. He seems to be highly effective in working with other scientists within the region and with managers. Although virtually all of his work has focused on SF Bay, he is very well respected at the national level--one of the top ten thinkers about estuarine ecosystems I would say. The modeling consultants also have a good track record and Kimmerer has the vision and quantitative skills to work with them effectively.

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

   Yes, I think it is reasonable.

Miscellaneous comments:

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: **138**

Applicant Organization: **San Francisco State University, Romberg Tiburon Center**

Proposal Title: **Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I**

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	**Excellent- This is a very well written and well-conceived proposal. The theme has significant merit for addressing CALFED goals.**
-Good	
-Poor	

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

   The goals are stated in the problem statement. The goals statement is somewhat elusive in the proposal but basically they seek to make improvements to the understanding of the fish-X2 relationship that is used to some degree to manage the system and develop a plan for research to determine the underlying mechanisms for the statistical relationship.

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?

A conceptual model is outlined in the text and in a figure and a detailed explanation for the basis of the proposal is given. This is a research project focused on exploratory data analysis, modeling and planning.

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?

   Kimmerer et al. have outlined a well-designed approach to attacking the research objectives. The Bay-Delta system is likely to eventually become one of the most heavily studied river-estuarine ecosystem in the world. Predictive relationships such as X2 need to be well grounded in scientific understanding to be a defensible component of the decision making process. The proposed effort will ultimately increase the value of this tool for management. It is unlikely that this phase of the project will results in any novel information but could provide some improvement of understanding the relationship between X2 and organisms. One could hope that if fully executed (were probably talking about 15-20 years to execute all the listed topics of research) this study could provide the most comprehensive predictive understanding of the relationship between flow in estuaries and organism abundance.

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 research plan as outlined is technically feasible. The scale of the project is consistent with the objectives. It may not be possible to derive a totally satisfactory understanding between the relationship of X2 and all the key organisms within the system, but this effort is likely to set the stage for a more comprehensive understanding of X2-fish relationships.

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 performance measures section is listed in the proposal that really lists the goals of the project, not performance indicators.

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?

   Several of the typical products are listed. Results from this project should be valuable to CALFED and interpretive outcomes seem likely from this sort of project.

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 quality of the proposal and the expertise of the team suggests that they are eminently qualified to conduct this research. They should have the infrastructure and associated collaborative support to accomplish the project.

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

   The budget is not justified very well. The roles and specific responsibilities are not clearly outlined, especially for the contracted services of Gross, Schaaf and MacWilliams.

Miscellaneous comments:

The structure of executing the project through a team approach with outside experts is an excellent one and should increase the probability of success. Minor comment: These investigators seem to discount the productivity effect from increased flow based upon past analysis and observations of primary productivity in the system. The habitat expansion theory may be intertwined with a productivity effect in a way that cant be easily separated or detected by looking at PP in the estuary. Their example of flooding a shallow water floodplain habitat is a good example. Seasonal flooding could cause a massive and instantaneous input of allocthonous material that dies and decays fueling benthic detrital based production (insects, benthos) on the floodplain and could also stimulate benthic algal production in the flooded habitat. Shallow flooded system are unlikely to ever be light limited, unlike the estuary, and could substantially bolster total production without being detected by conventional or standard monitoring of estuarine productivity. Since it is episodic it may be underestimated as a factor. Similar phenomena could occur when edges all throughout the system are reflooded during high flow years.

External Scientific: #3

Research and Restoration External Scientific Review Form

Proposal Number: **138**

Applicant Organization: **San Francisco State University, Romberg Tiburon Center**

Proposal Title: **Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I**

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 is an excellent proposal that addresses a timely and important topic. The PI's present a very clear conceptual model of possible mechanisms by which flow conditions can affect the abundance of esturine biota, and provide examples of research methods that can be used to examine these mechanisms. For the project to be successful, the PI's need active participation from the rest of the scientific community in the planning process. The PI appears to be a highly respected scientist, and this very thoughtful proposal provides confidence that this participation will occur.**
-Good	
-Poor	

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

   The PI's provide a very clear description of their objectives and hypotheses. The concept of understanding the mechanisms between freshwater flow and abundance of esturine biota is extremely important--it will provide the scientific rationale for using water for beneficial environmental purposes (a topic of current concern!).

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?

   I think that full-scale implementation of the project is justified. The PI's present a very clear conceptual model of possible mechanisms by which flow conditions can affect the abundance of esturine biota, and provide examples of research methods that can be used to examine these mechanisms.

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 PI's have obviously put a significant amount of thought into the design of this project. The project, if funded, will result in a good coherent plan for a long-term research effort. My only concern is relatively minor. The PI's provide no evidence of the ability of the 3-D TRIM model to reproduce observed data. I would be worried if the PI's were planning on using model results as the sole method for understanding relationships between freshwater flow and abundance of esturine biota, but in this stage of their research endeavor they are only using the model to guide field experiments. Their ultimate goal is to develop a long-term program of field work, data analysis, and numerical modeling that will provide an enhanced understanding of the esturine system.

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?

   In general, the approach is well documented, but I would like to see more information on the accuracy of the 3-D model. The likelihood of success depends on the active participation of the scientific community in the planning effort. The PI appears to be a highly respected scientist, and this very thoughtful proposal provides confidence that the project will be successful.

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 performance measures are outlined in terms of information output in the form of publications, reports, research plans, etc. I would like to see alternative performance measures such as degree of participation in planning meetings by the outside scientific community, contributions by un-funded scientists to planning reports, etc. If this approach is truly a "community" effort, then the success depends on the active participation of scientists throughout the community. The PI's need this "buy-in" for the project to be successful.

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 main product of this research is a clear plan, accepted by the scientific community, of research pathways that are necessary to understand mechanisms by which flow conditions can affect the abundance of esturine biota.

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?

   I do not know the PI's personally, but their excellent track-record and the thoughtfulness of this proposal suggest that they are capable of effectively implementing the proposed project.

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

   The budget is reasonable for this initial phase.

Miscellaneous comments:

None.

External Scientific: #4

Research and Restoration External Scientific Review Form

Proposal Number: **138**

Applicant Organization: **San Francisco State University, Romberg Tiburon Center**

Proposal Title: **Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I**

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	**This is based on the thoughtfullness/understanding of the problem but the goals are a bit of an overreach.**
XGood	
-Poor	

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

   Yes, the proposal is well written. The concept is timely and important. The problem is the mismatch in data between a 3-D eddy-resolving salinity model,where there are limited field obsevations to "calibrate" such a model for testing spring/neap relations urder a wide range of discharge scenarios, to then define zooplankton/fiheries mechanisims.

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?

No I would recommend more field work to better define shoal/channel physics. Our understanding of zooplankton distributions are weak for guiding high resolution (hourly or less)numerical simulatios over the large scales needed. And the inverse, as per above, the shoal salinities are poorly defined to guide model development of zooplankton transport (over the needed large scales). If the geometry were a simple submerged river, an analysis could lean on results from less noisy systems, for example the concentration of zooplanktion obsereved with low tides and dilution with high as theoetical studies (and the proposal indicated it would use relevant info from the liturature). Some day such a model as envisioned will be made but we are more than a few years away because the field data is lacking.

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?

   If the data were there it would be a very interesting and recommended approach. At this point it would be heavy on impressive simulations but light on confidence in results.Not because of the researchers limitations but because of the data limitations (to answere the proposed questions).

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?

   No Small No

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?

   Yes but I don't think the needed data exists. Yes N/A

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 think the products are farther down the road than implied. N/A Yes, but that is pretty much true of all scientific endevors.

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?

   Very good. The gap is in collecting the needed field data, the skills are there but the data is not. They need a very large field program to accomplish their goals with reasonable confidence in the results.

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

   I think it is way underfunded if field work is considered, otherwise it is sparse to reasonable. If thay just accomplished the salinity model that would be a major contribution but I think much more data from the shoals is essential, the same applies to zooplankton data, a topic that is too complex (far more than salinity) to be studied via numerical simulation with existing knowledge.

Miscellaneous comments:

Prior Performance/Next Phase Funding: #1

New Proposal Number: 138

New Proposal Title: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

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

   99-N09, Effects of Zooplankton and Clams on the Bay-Delta Food Web, ERP.

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?

   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?

   XYes -No -N/A

If no, please explain:

Other Comments:

Prior Performance/Next Phase Funding: #2

New Proposal Number: 138

New Proposal Title: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

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

   99-F11 Effects of Introduced Clams on the Food Supply of Bay-Delta Fish Species.

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:

NA this is not a next phase proposal for 99-F11.

Other Comments:

Environmental Compliance:

Proposal Number: 138

Applicant Organization: San Francisco State University, Romberg Tiburon Center

Proposal Title: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

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

   XYes **-**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?

   XYes **-**No

   If no, please explain:

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: 138

Applicant Organization: San Francisco State University, Romberg Tiburon Center

Proposal Title: Determining the mechanisms relating freshwater flow and abundance of estuarine biota (the "Fish-X2" relationships): Phase I

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?

   -Yes **X**No

   If no, please explain:

   No task for PM, the University admin provides this function out of overhead and are not charging as a direct cost to the project.

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

   XYes **-**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?

   XYes **-**No

If no, please explain:

7. Are there other budget issues that warrant consideration?

   -Yes **X**No

   If yes, please explain:

Other Comments: