Proposal Reviews

#144: Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities

San Luis & Delta-Mendota Water Authority

Research and Restoration Technical Panel Review

Bay Regional Review

Delta Regional Review

San Joaquin Regional Review

Sacramento Regional Review

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Budget

Research and Restoration Technical Panel Review:

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

Proposal Number: 144

Applicant Organization: San Luis & Delta-Mendota Water Authority

Proposal Title: Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities

Review:

Please provide an overall evaluation summary rating:

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

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Superior	
-Above average	**This project was ranked as a low priority for regional research needs and poor to good by external reviewers. No administrative issues were raised, but the generally poor understanding of the problem they proposed to investigate and a naively written proposal placed it firmly in the not recommended category.**
-Adequate	
XNot recommended	

1. <u>**Goals and Justification.**</u> 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 objectives are clearly stated. They propose to develop a set of algorithms to provide performance measures in the form of cost/benefit analyses to guide decisions related to management actions (increasing fish populations is their metric for benefits).

2. <u>**Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).**</u> 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?

   This project was judged as poor to good by outside reviewers and poorly supported by regional reviewers. The consensus of all the external reviewers was that this is a timely and worthwhile project but that the project team is somewhat naïve in understanding the task

they propose to undertake. **The regional reviewers had similar concerns, including concerns about cooperation from agencies where they propose to get data and the generally naïve understanding of the adequacy of data to base the proposed algorithms upon. Also the investigators have a rather limited understanding of the concept of ecosystem benefit (more fish).**

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?

   Given the low evaluation of this proposal and the low probability of success, useful products seem unlikely.

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

   The project costs are poorly justified. The costs would be justified if the benefits proposed by this project were likely to emerge. Unfortunately, a significant chance for success was deemed unlikely.

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?

   Four regional reviewers rated this project as a low priority project (4L). There was general support for the concept (one reviewer described it as tantalizing) since it would make management decision much easier in some respects, but there was poor support for the likelihood that the project would succeed. The regional reviewers questioned the basis for the cost/benefit analysis and the adequacy of available data to conduct the analysis.

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?

   There were no administrative issues raised for this proposal.

Miscellaneous comments:

None

Bay Regional Review:

Proposal Number: 144

Applicant Organization: San Luis & Delta-Mendota Water Authority

Proposal Title: Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities

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

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

More applicable to Delta region.

1. Is the project feasible based on local constraints?

    XYes **-**No

    How?

    Seems like an overly aggressive/optimistic timeline - why not take 2 years?

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

    XYes **-**No

    How?

    Connectivity is indirect - overarching.

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?

    BR#6,7, DR 7

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

    XYes **-**No

    How?

    Assumes willingness of agency and gov't staffs - may have trouble getting info (takes time).

Other Comments:

Assumes willingness and cooperation by local groups. Effect of decision-matrix likely to create conflicts or appearance of conflicts. Where are connections to non-scientists/non-managers whom this would impact such as agriculture, drinking water supplies..... ???

Delta Regional Review:

Proposal Number: 144

Proposal Title: Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities

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

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

This proposal promises more than the panel believes can be delivered.

1. Is the project feasible based on local constraints?

   -Yes **X**No

   How?

   The proposal offers a tantalizing prospect: a quantitative tool for improving cost-effectiveness of Calfed/CVPIA-funded fisheries actions. The applicants proposal and supporting documentation (http://www.sldmwa.org) do not, however, inspire much confidence in his ability to develop such a tool. The applicant seems to be underestimating the formidable technical challenges such an undertaking would involve. This effort would also face intense skepticism from many quarters and would therefore probably not be used for management purposes.

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

   XYes **-**No

   How?

   If successful, this project would provide a quantitative basis for comparing restoration strategies or alternatives and would thus contribute to MR-6 in the Stage 1 Implementation Plan (Develop performance measures that can be used to compare restoration progress across tributary streams.). It would also further SR-7 (Develop conceptual models to support restoration of river, stream and riparian habitat.)

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

   -Yes **X**No

   How?

   Some of the work proposed here duplicates work already underway, e.g., the Sacramento River individually-based salmon model, the UC-Davis splittail model, IEP-funded efforts to elucidate fish-X2 relationships, and other disinterested analytical activities already focused on quantifying Bay-Delta fish population dynamics. These are just a few of the existing

algorithms one would have to integrate to produce a management model for Calfed/CVPIA actions.

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

   -Yes **X**No

   How?

   Calfed/CVPIA actions affect the entire state and a wide variety of interests. The proposal does not sufficiently address how it would go about ensuring balanced technical representation for all these interests.

Other Comments:

A good first step in the direction this proposal may be trying to go would be a well-organized, broadly attended, and well-documented series of workshops focused specifically on what such an analytical tool would really look like.

San Joaquin Regional Review:

Proposal Number: 144

Applicant Organization: San Luis & Delta-Mendota Water Authority

Proposal Title: Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities

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

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

Statistician and modeling expertise missing. Linkages to other groups and data sources appear to be missing.

1. Is the project feasible based on local constraints?

    XYes **-**No

   How?

   Since this project is the development of a planning tool, feasibility relative to local constraints is not really relevant. Certainly, a significant number of technical constraints and assumptions would affect the feasibility of using such an approach.

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

    -Yes **X**No

   How?

   The project is most closely related to SJR Priority No. 6 relative to flow regulation. The planning tool would presumably enhance water management/uses.

   The proposal refers to a variety of other priorities other than the San Joaquin regional 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 applicants propose to develop a planning tool that would pertain specifically to any fish population increasing activities that could be implemented through CALFED or the CVPIA.

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

    XYes **-**No

How?

The project applicant is a local joint powers authority, the San Luis-Delta Mendota Water Authority. Several local environmental contractors are also involved. Could improve outreach by including fish management agencies or envrionmental groups.

Other Comments:

For endangered species, the determination of benefit based solely on a cost/benefit ratio may not be appropriate.

If the goal was to create the largest amount of fish, then perhaps such an approach would be appropriate. However, in the case of other parameters and rare species, such an approach fails. For comparing among various fish increases on the same river or stream, it may work.

Sacramento Regional Review:

Proposal Number: 144

Applicant Organization: San Luis & Delta-Mendota Water Authority

Proposal Title: Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities

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

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

This proposed project would benefit CALFED's cost/benefit analyses but is perhaps premature. The proposal assumes there is enough information to develop algorithms, and that the information is accessible. The proposal does not clearly state the criteria used to develop algorithms, or which projects/categories will be prioritized.

1. Is the project feasible based on local constraints?

    -Yes **X**No

    How?

    The project proposes a good concept that would be beneficial to CALFED's decisions for resource allocation. However, it is unclear if the data on which this study depends is accessible and available. No assurance was provided that a sufficient database on completed or ongoing fish population projects exists. The proposal lacks a thorough description of the strategy used to develop the proposed algorithms.

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

    XYes **-**No

    How?

    The proposal applies to PSP priorities: MR-6 conceptual models, compare restoration progress across tributary systems; SR-7 develop conceptual models for restoration; and DR-7 protect at-risk species in delta using water management and regulatory approaches.

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

    -Yes **X**No

    How?

    No specific restoration projects were mentioned.

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

   -Yes **X**No

   How?

   Local involvement is described as being "not applicable."

Other Comments:

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **144**

Applicant Organization: **San Luis & Delta-Mendota Water Authority**

Proposal Title: **Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities**

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	**Good-proposal subject has merits and interests but doesnt deliver a convincing plan or adequate justification to implement the objective of cost/benefit and population performance algorithms.**
XGood	
-Poor	

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

   Goals and objectives are clearly stated. Basically this proposal is to provide performance measure in the form of cost/benefit analyses to guide decisions related to increasing fish populations.

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 clearly stated but may not be on target with respect to the essence of the CALFED management goals. See Approach.

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?

   Increased fish numbers do not necessarily mean that the systems overall health has improved in the short run because of dramatic year to year variations in some species. Short lived species are well adapted to rapid increases in population size and frequently and dramatically change in abundance. Also species whose abundance may be determined outside of the system may not be amenable to the proposed conceptual model and cost/benefit analysis. What about management actions that take years of commitment to implement or realize benefits from in terms of fish population increases? Long-lived species may not respond to management or restoration activities for decades. The proposal lacks adequate details on the criteria to be used for judging cost/benefit.

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?

   Performance measure for managements actions would appear to technically feasible if you have the right mix of expertise to complete the assessment and all the relevant information. This proposal has not convinced me that they have all the relevant information at hand or that they truly understand the magnitude of what they have proposed to undertake. For example, the issue of endangered species is a difficult case for Cost/Benefit because presumably actions favor endangered species regardless of costs or for that matter, measureable benefits for the populations of the endangered species

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 proposal list a series of performance evaluation tasks but they dont really address performance evaluation for the project. Theyre just a rehash of the tasks. For this project you should include a performance task that evaluates the effectiveness of the algorithms in projecting outcomes of management actions and their costs.

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?

   Im not convinced that products with real utility will result from this project based on the weak presentation in the proposal.

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 was not convinced by their presentation that they have the knowledge or understanding of the problem to undertake the proposed task.

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

   Most of the money requested is for consulting fees listed on a daily fee schedule. More than 10% of the budget is for management of the project and another 10+% is for preparing a final report. These expenditures of time and money are not well justified.

Miscellaneous comments:

Research and Restoration External Scientific Review Form

Proposal Number: **144**

Applicant Organization: **San Luis & Delta-Mendota Water Authority**

Proposal Title: **Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities**

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	**A sound idea that is long overdue, but somewhat niave methods. The proposed methods read too much like the investigators will simply lift correlations from the literature and link them together. This can lead to misleading results, as the available correlations are confounded with the decisions of the original investigators and the paricular questions they were interested in. The investigators should obtain the data and then determine the correlations (perform their own analyses)in a consistent manner across the various datasets. A careful and thoughtful analysis of the raw data would make for an excellant contribution to the CALFED program.**
XGood	
-Poor	

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

   The overall goal and objective of the project is clearly stated. The basic idea of trying to develop a set of algorithmns that would quantitatively estimate the benefits of different management actions is timely and long overdue. The investigators do not state their hypotheses as true scientific hypotheses (i.e., null and alternative hypotheses), but it is clear what TYPES of questions would be addressed in their analyses. There is not mention of the

number or which fish species would be analyzed.

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 study is justified relative to exsiting knowledge, except that the wide variety of the datasets available means that a synthetic analysis, as proposed by the investigators, must be done with extreme caution and care. The existing data were collected on different temporal, spatial, and biological scales, and for different purposes; one cannot simply link together the correlations estimated from each of the datasets. I would have liked to have seen the investigators first present a conceptual model of the life cycle of the fish species of interest, with details provided at key life stages and for key processes (key being defined as either important to population dynamics or directly impacts by management actions). Then the different datasets (not correlations) overlain on this life cycle diagram showing where data exist to determine correlations. I think the investigators are a bit weak on a conceptual model. The proposal reads as if the availability of data will determine the details of the life cycle diagram. This can lead to misleading results and conclusions. A simple example is ocean survival may be critical to population dynamics, but if not measured, ocean survival would not be mentioned. The selection of the project as research is appropriate.

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?

   I was dissapointed with the approach as described by the investigators; the proposed approach seems niave as to the nuiances of ecological data. The proposal makes it sound like the investigators will simply take the statistical results from the original analyses of the datasets, and that the data detrmine the conceptual model, rather than the other way around. The investigators need to start with a conceptual model and then analyze the available data to determine the relationships (correlations). This will ensure that the results are not confounded with the decisions of each of the original investigators. Another example of naivete is the idea of using the errors from the original analysis as estimates of uncertainty. The errors depend on the statistical methods used, and futhermore, there is no assurance that errors around observed conditions would apply to predictions of new (management actions) conditions. This would need to be established with careful analyses (e.g., bootstrapping for eaxmple). IF THE ANALYSES ARE DONE CORRECTLY, the results would be a significant addition to the base of knowledge and would be very useful to decision-makers. It is the lack of convincing methods that concerns me.

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 moderately documented. I would have preferred to have seen at least a list of available datasets the investigators were aware of and the types of relationships they think they can extract from these datasets. The lack of a overall life cycle conceptual model also makes me a bit nervous about whether the investigators know what they getting into and are willing to expend the necessary effort to do the analyses correctly. The approach is technically feasible, IF DONE CAREFULLY. The project is consistent with the objectives.

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 clearly stated and appropriate for this type of project.

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?

   While the idea is sound, I have concerns that the final report will not be as good as it could be. It goes back to the not convincing description of the methods. Maybe just getting this type of analysis started is accomplishment enough, and then others can refine and improve on the actual algorithms. Also, acceptance of this project requires many people to buy into the analyses. Otherwise, it will be just another report few people look at. I would have liked to have seen workshops as a integral part of the project. This would benefit the investigators, as no one know the data better than those that collected and analyzed it, and would get buy in from the people likely to have uses for the results later.

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?

   As an outsider to the system, I do not know the investigators qualifications. The CVs provided in the proposal were too brief for me to fairly judge whether they are the right people to do this project. In general, I would have liked to have seen more biologists involved and some mention of a statistician.

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

   I think the costs per day ($1200)are somewhat high, but the total number of days allocated are likely too low to do a good job. This reinforces my concern that the investigators think they can take existing results and use them in a "plug and play" analysis.

Miscellaneous comments:

The idea is great but the methods are not convincing.

External Scientific: #3

Proposal Number: **144**

Applicant Organization: **San Luis & Delta-Mendota Water Authority**

Proposal Title: **Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities**

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:

<u>**Excellent:**</u> **outstanding in all respects;**
<u>**Good:**</u> **quality but some deficiencies;**
<u>**Poor:**</u> **serious deficiencies.**

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	**This is an interesting research topic, and one that could be better explored with possible beneficial results for managing funds available for water and fish-related issues. However, I think that their study approach is too vague, and relies too much on the availability and input of outside experts that are not part of the grant proposal. I also worry that their expertise lies too much in water project operations, and therefore it will be difficult to fairly and adequately develop algorithms for actions in other realms.**
-Good	
XPoor	

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

   Their goals, objectives, and hypotheses are clearly and simply stated. The main goal is to quantify estimates of fish benefits (abundance) and uncertainty. Seems like a cost/benefit analysis for allocation of funds to improve fish habitat would be quite useful to managers, if it was robust enough to provide trustworthy guidance. Their hypothesis is not a true scientific hypothesis, but is basically a question as to whether or not such algorithms can be developed. Their main objectives have to do with issues of allocation of money and water in relation to improving fish abundances. Within this, it seems like there is a definite Water

Project operations focus, with less effort (experience?) in shallow-water habitat and wetland restoration in the Bay-Delta. The concept is timely, since some work has already been done on the subject, and therefore a more complete algorithm development would further the work into a more complete form. The concept is important, as long as they can actually meaningfully compare such diverse actions, such as flow requirements, habitat, etc. by using simple algorithms.

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 study is justified relative to existing knowledge, since some algorithms have been developed in relation to water flow/pumping, and it would be useful to expand this to other realms. The conceptual model is clearly stated, but mainly incorporates their techniques and guidelines for developing the algorithms. It would be nice if they included a more complete conceptual model, incorporating details on the fish species they plan to focus on, how native and non-indigenous species might be affected, the different actions they plan to develop the algorithms for, how this will relate to both historical, current, and future fish abundance, etc. Plus, since this exercise is meant to be useful for managers in deciding the allocation of funds, it would be nice if they included a framework for how their algorithms might be explicitly used in the adaptive management realm and weighed into the decision-making process, instead of just saying that theyll post the results on a website that everyone can access. The conceptual model also includes lots of dependence on reviews and data from outside experts, in fact their study will not be possible without the cooperation of these experts. They say that their proposal is clearly a restoration planning project, I would adjust this a little, as it seems like the project could mainly be thought of as a demonstration project: seeing whether such algorithms can produce meaningful recommendations for governing allocation of funds in increasing fish population abundances.

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?

   Their approach seems very dependent on reviews of outside experts, specifically: S. Luoma, W. Kimmerer, R. Brown, and C. Hanson. They dont say if these experts have been contacted and are aware of their time requirements, although they do include funds for this. Their project will not be possible without the inclusion of these experts, since they are dependent on the experts for data, algorithm development, and algorithm revision. The examples that they give are most detailed for issues involving flow, for which there is already preliminary algorithm development, and for which the authors seem to have the most experience. They dont have many examples for actions that are not as well known and developed (habitat restoration, species interactions such as predation/competition, etc); it would be nice if they had this section more thought-out with preliminary ideas and more examples from the literature, to place faith that they will be able to accomplish this task. Task 2 doesnt mention some major topics of habitat restoration, specifically shallow water habitat in the Bay-Delta and breached-levee wetland restoration, which would be a major action to leave out, and which I think it will be most difficult to develop algorithms for. They dont mention which fish species they are going to incorporate into their algorithms, and if they will include comparisons between native and non-indigenous species. I looked at the examples by Dr. Ken Newman that are posted on the San Luis & Delta-Mendota Water Authority webpage, he developed algorithms for salmon smolts, longfin smelt, American shad, starry flounder, and splittail. It would be additionally useful to develop algorithms for abundant

non-indigenous species (largemouth bass, bluegill, etc), but it is unknown from their approach whether or not this will be incorporated.

The project is likely to generate novel comparative information, as long as they can incorporate enough information from the different actions that they plan to focus on. The information that the algorithms could generate would be useful to decision-makers in the adaptive management realm, as long as the algorithms are fair and equally weighed among all of the different actions.

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

   An outline of their approach is fully documented, but I think they do not have enough examples for how they actually plan to create the algorithms. They dont give enough of their own ideas for how one might create algorithms for actions that have not already been developed, and how different modeling techniques might be used for this. The two examples they give come from other researchers: W. Kimmerer and K. Newman. The Excel spreadsheet example which they dont include in the proposal but have posted on the San Luis & Delta-Mendota Water Authority webpage was done by K. Newman. The likelihood for success is dependent on the expertise and opinions of scientists who arent on the proposal, and therefore success hinges on their participation. The scale of the project is appropriate, as for the results to be must useful to potential managers, the algorithms must be developed for all of the different actions.

5. <u>**Project-Specific Performance Measures.**</u> 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?

   They say in their proposal that performance measures will be straightforward, as it involves simple tracking of the project completion. However, I do not think they include enough detail for how the performance measures will be quantified. The quantified algorithms will include uncertainty measurements, which they give examples from previous work (Kimmerer, Newman), for other algorithms uncertainty will just involve the subjective opinions of experts (who arent authors on the proposal, and therefore might not have sufficient time to fully develop a solid uncertainty factor). Other statements regarding data analysis say that they will analyze and compare data, but they do not give specifics on how or what statistics they will use. This seems like a vague gap in the project, as to make it worthwhile there must be ways to compare uncertainty in the algorithms between various actions.

6. <u>**Products.**</u> 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?

   Generating a series of algorithms, one for each action, would be a valuable product to managers. One problem with this is that there might be too much variability in comparing results from the algorithms between different actions, and it will be hard to ground-truth results from the algorithms with real data. For this reason, interpretation of the algorithms could be uncertain, and or lead to faulty decisions if outcomes from the algorithms are not tested for quality. They seem well set-up to distribute results via the Internet, as there is already an example done by Dr. Newman on the San Luis & Delta-Mendota Water Authority webpage, accessible as Excel spreadsheets.

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 proposal is submitted by five PhDs, all who seem to have a wealth of experience in water-related management issues. Since they are all consultants, it is not clear to me what facilities they have at hand in terms of infrastructure and support. Since their proposal explicitly deals with developing mathematical algorithms, it would be nice if they gave some examples of their own work specifically dealing with the development of such algorithms, instead of relying on other researchers' data and techniques. Since they have not given examples in their proposal of specific manuscripts that they have published that focus on algorithms, or give examples of algorithm development in relation to some of the actions they discuss, it is hard for me to evaluate their qualifications in this matter.

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

   $416,800 seems like a lot of money for an 18-month project. The large budget is due to the fact that five PhDs will be doing all of the work, with salaries of $150/hour. They could make this much more affordable if they incorporated work by graduate students or technicians. In the Approach, they say that a couple of months will be dedicated to each task, but this actually amounts to only a couple of days per month per researcher. Im not sure with each of them only working a couple of days per month, that they will be able to adequately develop and assess the results of the project.

Miscellaneous comments:

Literature Cited section includes only four references...it would be nice to see more of a basis in published literature for their ideas.

External Scientific: #4

Proposal Number: **144**

Applicant Organization: **San Luis & Delta-Mendota Water Authority**

Proposal Title: **Quantitative Procedure to Estimate Fish Population Increases from Ecosystem Restoration Projects and Other Activities**

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:

<u>**Excellent:**</u> **outstanding in all respects;**
<u>**Good:**</u> **quality but some deficiencies;**
<u>**Poor:**</u> **serious deficiencies.**

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	
-Good	**I don't think they can deliver the proposed products on schedule with the quality that will provide managers a useful tool.**
XPoor	

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

    Good: for the CALFED program. The goal of the project is very desirable, however the objectives lack specificity and underestimate the complexity of the problems to be addressed.

2. <u>**Justification.**</u> 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?

Good: The justification includes motherhood and apple pie, but lacks specific information on which ecosystem restoration projects would be targeted. Magagers do need this type of project to compare cost benefit ratios of management action.

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?

   Fair: Task 2 mentions just a few aspects of "ecosystem restoration" indicating the applicant underestimates the complexity of the project. The four categories indentified in Task 2 are each complex and any one could probably use the full efforts of this project to develop a truly useful project.

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?

   Poor: The overall feasibility of the project is poor because many of the tasks will have to be completed in 3-4 months (see Approach).

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?

   Good: The applicants state under the performance measures section "because this proposal is for a straightforward restoration planning project" so it must be so. A preliminary set of algorithms for an ecosystem months after initiation seems unrealistic.

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?

   Poor: The products, if delivered, would contribute to better management of restoration projects for CALFED. However, there is no promise that the end product will be user friendly, no local involvement, and no involvement of fisheries agencies.

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?

   Good: The credentials are impressive but the qualifications statements have a minimum of information.

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

   Poor: The applicants bill at the rate of $150/ h, but they will consult experts which will donate their time at no cost. This project will involve the collection of large amounts of data that could be handled by technical staff billed at less than $150/ h.

Miscellaneous comments:

Environmental Compliance:

Proposal Number: 144

Applicant Organization: San Luis & Delta-Mendota Water Authority

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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: 144

Applicant Organization: San Luis & Delta-Mendota Water Authority

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

   XYes **-**No

   If no, please explain:

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

   XYes **-**No

   If no, please explain:

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

   XYes **-**No

   If no, please explain:

4. Are appropriate project management costs clearly identified?

   XYes **-**No

   If no, please explain:

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

   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:

well defined in the budget summary/justification and proposal.