

Selection Panel Review:

CALFED Bay-Delta 2002 ERP Directed Actions -- Selection Panel Review

Proposal Number: 29

Applicant Organization: California State Coastal Conservancy

Proposal Title: Big Break and Marsh Creek Water Quality and Habitat Restoration Program

Recommendation: Fund In

Amount: \$357,146

Conditions, if any, of approval (if there are no conditions, please put "None"): The Selection Panel recommends providing \$100,000 for restoration planning in collaboration with the Dutch Slough planning effort; and funding Task 6, public outreach, education, and watershed planning (\$257,146).

Provide a brief explanation of your rating:

The Selection Panel articulated several concerns regarding the original proposal. These concerns were of a technical nature specific to the proposed approach to restoration, in terms of the use of tidal gates to restore tidal marsh and shallow water habitat at Big Break; as well as the identification and treatment of mercury related discharge from the Mt. Diablo Mercury Mine, and methyl mercury production that will likely increase as a result of tidal marsh restoration.

The revised proposal did not fully address these concerns. Though the experimental design was revised to include removal of the tidal gates as a restoration tool, it remains unclear how the use of "...small structures fitted with drop boards" will assist in achieving the desired result especially given that they will be used to control inundation within the tidal, rather than river, section of the project. Further, the sampling program described for mercury and methylmercury sampling is not likely to generate the information necessary to discern how mercury and methylmercury levels might change on the local and/or system wide levels. The proposal lacks an acceptable monitoring program that will ultimately succeed in characterizing baseline conditions, or allow for the critical examination of responses to restoration. For example, project proponents do not appear to recognize the need to apply trace-metal-free (clean) techniques to avoid handling contamination of low-level samples (i.e., those with mercury concentrations in the nanogram per liter or sub-nanogram per liter range). The proposed analytical method for total mercury (CVAA, or cold vapor atomic absorption spectrophotometry) lacks the sensitivity needed for analysis of dilute media. The determinations of total and methyl mercury should instead be done with cold vapor atomic fluorescence spectrophotometry, which is several orders of magnitude, more sensitive than CVAA. These concerns are significant and will require collaboration with various experts and other project proponents to be fully addressed.

The Selection Panel recognizes the significant amount of work and effort expended to date on the part of the project proponents, in particular the generation of matching funds as well as the education and outreach that has occurred. As a result, the Selection Panel recommends that Task 6 be funded in full at \$257,146 to allow the public outreach, education, and watershed planning efforts to go forward. The panel also recommends that \$100,000 be provided for planning in direct collaboration with the Dutch Slough restoration planning teams including the Adaptive Management Working Group. This planning effort should involve scientists with expertise in mercury and methylmercury to help develop a restoration and monitoring plan that will address the concerns identified by the panel. The applicant would then be able to submit a proposal for the restoration of dune, floodplain and tidal marsh habitats at Big Break that includes an appropriate monitoring program, for consideration in a future round of funding.

The standing committee recommended by the Selection Panel to oversee the Dutch Slough restoration planning process should also oversee planning for the Marsh Creek/Big Break project. As with Dutch Slough, the committee should review a detailed plan of work for the planning and recommend how it should precede, review project plans as they are developed, review recommendations of the project's Adaptive Management Working Group, and assist in ensuring that restoration activities on these parcels are coordinated with other ecosystem restoration activities being undertaken in the Delta.

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Research and Restoration External Scientific Review Form
CALFED Ecosystem Restoration Program 2002 Proposal Solicitation Package

Applicant Organization: California Coastal Conservancy

Proposal Title: Big Break and marsh Creek Water Quality and Habitat Restoration Program - REVISED

Review:

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

The applicants will perform a pilot restoration that links local water sources (quality and quantity) with the re-creation of a seasonally flooded tidal fresh water marsh to support important fish species. It is a well-written proposal that clearly states goals and hypotheses and addresses several critical issues for CALFED that are timely and important. The goals include: reducing water quality impacts from storm and waste water inputs by restoring riparian habitat; assessing mercury and other contaminants carried from upstream sources; creating a seasonal/tidal marsh to support fish and other species; and developing an extensive outreach program to educate and engage the community as stewards.

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 conceptual models justifying the goals are clearly presented and explained in detail with figures and supporting references. These models are integrated well into the proposed study, which will provide critical information to support further work on larger systems in the Delta.

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 different components of the construction portions and aspects of ecosystem response are carefully integrated in this proposal. The proposers recognize watershed issues, and a large part of the work described in the revised proposal addresses concerns of: an abandoned mercury mine, water inputs, riparian buffers and water quality upstream that may have impacts on the 29-acre marsh. Both preliminary work and proposed work will address these issues through mercury and other contaminant assessments, riparian restoration and storm/waste water improvements along upper sections of Marsh Creek. The waterway connecting the marsh to Big Break is not characterized in the proposal, but appears to be short and without problems.

The monitoring and especially construction designs are well reasoned, with exceptional site plans. Although they were justified in the proposal and accepted by the technical review panel, the selection panel questioned the need for tide gates in a tidal marsh. The tide gates were for small-scale water level management that would be needed to improve understanding and management of fish and invertebrate populations. In the revised proposal, the gates have been deleted and replaced with small structures fitted with simple drop boards.

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 careful documentation of the construction plans indicates that this approach is well justified and feasible. The scale of the project is appropriate. This pilot project should generate several types of important information for further work in adjacent, larger systems.

The coalition of NGOs, water resource managers and university scientists have accomplished much to get the project to this stage. The applicants have considered potential pitfalls of the project (reorganized under a section called Uncertainties in the revised proposal) and have designed components to counter them.

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

Performance measures are based on habitat results and physical and biological responses to the restoration. Expected performance measures for each goal are described (e.g., 'tissue concentration of mercury and selenium in fish'), but specific criteria are not stated. The approach, methods, scope and intensity of monitoring are described (including QA/QC), but the experimental design and other specifics were not included in the revision. Development of such specifics is planned as part of the project. Therefore, a sampling plan to include peer-review through CALFED remains an important project activity to address this point. Comments by reviewers that a 2-year monitoring plan will be insufficient to maximize information from this project were not addressed in the revision, but it is likely that further monitoring work would be proposed in the future.

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

It appears that this project will generate interesting and useful information in several disciplines of hydrology, water quality, wetland development, fish occurrence and use, and human interactions with the restoration project such as stewardship. The results are likely to provide critical information on the techniques and feasibility of restoration of freshwater tidal habitats. They will benefit similar restoration projects within the CALFED area and beyond. Outreach and education components of the project will also generate important products, including a native plant nursery.

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 coalition of NGOs, water resource managers and university scientists have accomplished much to get the project to this stage. I have confidence they will continue to work together to create a successful project.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed? The budget is high, but the potential benefits are great and the matching funds are substantial. There will likely be further matching through the outreach and education portions of the project. As a pilot project, it could serve as a model for larger projects that would require less intensive assessments because of the information developed here.

Miscellaneous comments:

Please provide an overall evaluation summary rating: Excellent: outstanding in all respects; Good: quality but some deficiencies; Poor: serious deficiencies.

**Overall Evaluation
Summary Rating**

X Excellent

Provide a brief explanation of your summary rating

The proposal plans to restore 5,000 linear feet (10 acres) of riparian habitat leading to a 29 acre system restored to tidal marsh with seasonal flooding. The partners involved control the land and are responsible for much or all of the water flow as well. Concern over the setting of the project site within the larger landscape have been addressed in the revision (see #3 Approach, above). Habitat, water quality, species of concern and stewardship are all important, integrated aspects of the project. Conceptual models are clearly developed and supported, and the proposed construction work/restoration design is detailed well. This is important for a pilot project that seeks to increase understanding of hydrology, contaminant, habitats and fish species use. Sampling is not explicitly documented, but a plan to include peer-review through CALFED acknowledges and provides remedy for this deficiency. In summary, the revision effectively addressed the major issues brought up by the technical and selection panels.

- Good
- Poor

Research and Restoration External Scientific Review Form
CALFED Ecosystem Restoration Program 2002 Proposal Solicitation Package

Applicant Organization: California Coastal Conservancy

Proposal Title: Big Break and marsh Creek Water Quality and Habitat Restoration Program - REVISED

I would like to restrict my comments to mercury as I am not knowledgeable about marsh restoration. Having said that, I believe many aspects of this project are very attractive. In particular, I am impressed by the large amount of matching funds, the consortium of willing local partners that have been formed to carry out the work, the setting aside of land for wildlife that might otherwise go into development, and the creation of a non profit native plant nursery to provide material for other restoration projects around the Estuary. This project deserves serious consideration for funding.

Earlier I reviewed another project for CALFED entitled “Dutch Slough Tidal Marsh Restoration Project” by the same applicants. I have attached my comments on that proposal as an addendum here as I believe they are all germane. In particular I wish to emphasize that Marsh Creek and the Bay-Delta Estuary are on the State’s 303(d) list for elevated mercury levels in water and biota and the Regional Board will develop a TMDL for both. Marshes are known to be efficient methylators of mercury and I surmise that the proposed biofilters and restoration of a tidal marsh at the base of Marsh Creek will result in increased methyl mercury production. The Regional Board may require the owner of this proposed project to undertake costly total and methyl mercury control programs.

My second comment concern’s CALFED’s management of their restoration efforts. It has little to do with the proposed Marsh Creek project. A number of marsh restorations are proceeding around the estuary. Coincidentally, almost all of these are downstream of major mercury sources and each of these areas now has a documented mercury problem in fish tissue. I am thinking of the Consumnes Preserve, the Yolo Bypass, Prospect Island, and now Marsh Creek and Dutch Slough. All these restoration efforts appear to be proceeding concurrently with little or no attempt to study and transfer lessons learned from one site into the planning and development of the next. This could be a prescription for disaster as we could end up in ten years with a suite of marshes that have dramatically increased methyl mercury levels in fish around the estuary, know how the marshes should have been built to minimize methyl mercury production but be unable to reconfigure them after the fact. I think CALFED needs to do two things. First, promptly assemble a team to draw up a directed action study to begin to evaluate methyl mercury production at one or more of the proposed restoration sites and to make recommendations on how these marshes might be developed to minimize production. I have some ideas on how this could be done but do not believe the Regional Board should do the majority of the work. Second, delay development at other marsh sites until we know whether these restoration efforts are likely to negatively change methyl mercury dynamics in the estuary and, if so, how the marshes could be designed to minimize their impacts.

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Research and Restoration External Review Form
CALFED Ecosystem Restoration Program 2002 Proposal Solicitation Package

Applicant Organization: California Coastal Conservancy

Proposal Title: Big Break and Marsh Creek Water Quality and Habitat Restoration Program

Review:

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

This proposal is well-written and for a project that is predominantly restoration-based, it is designed as a defensible hypothesis-driven research project. The PIs should be commended for their proposal development in a time when applied research is so important in the face of shrinking budgets. That said, the proposal sets some very specific goals for a restoration project, most of which appear attainable through study design. Some of the specific research questions for functioning within the newly-created wetland however, appear to be driven by the specific expertise of the investigators and could be strengthened by interaction with other groups in the CALFED umbrella. The concept of wetland restoration, especially one that can act as a filter from perturbations in the adjoining watershed, is timely and quite important to Bay-Delta restoration initiatives.

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 PIs make a very strong case for both tidal marsh restoration and channel improvement to Marsh Creek. The design of both is supported by sound, scientific data. I would classify the project as a demonstration project and if it works, it can be used as an example for future expansion to full-scale implementation as both a water quality protection and habitat restoration project. Also, I have reviewed a number of research projects where an outreach plan is added as an afterthought. This is clearly not the case for this project and the incorporation of qualified individuals to carry out the plan is definitely a strength of the project.

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?

This type of project is very important to overall CALFED goals and it is apparent that the PIs have followed guidelines supplied by CALFED in both the original and revised portions of this proposal. In general, the approach is sound, but information on specific research questions on the processes occurring both within the restored marsh and the stream channel overflow system come up a bit short. In reviewing the qualifications for the investigators, it appears that specific research questions were designed on the basis of their past research foci. For instance, I am not convinced that selenium is the most pressing contaminant issue in the restored creek overflows and marsh system. The PIs indicate that mercury is a problem, especially methylmercury production, yet their techniques for addressing these concerns are to analyze total Hg and use a method that will not even be sensitive enough to detect changes (CVAA). Two potential issues emerge for Hg cycling. The first involves the initial flooding of a reconstructed system, essentially the "reservoir effect" that is seen from mobilization of soil-bound Hg and an initial pulse of Hg methylation and release to overlying waters. Next, the PIs have to consider what effect ongoing methylation may occur in both the marsh and the temporary overflow systems in the creek. Since endangered species may inhabit the area, one has to be certain that the lower food web biota resident in the system do not exhibit elevated methyl Hg levels due to in-situ production. My suggestion would be to either have a graduate student focus solely on methyl Hg dynamics or associate with one of the other groups currently working on low-level Hg cycling in the Bay-Delta region. There is certainly a fine

assembly of Hg researchers working in the Bay-Delta region through CALFED funding and this would be a perfect project to draw some links to.

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

As a demonstration project, this project has a high likelihood of success. The PIs have developed a project that has public interaction from its inception. The matching commitment is an example that there is support in other sectors and the team effort should succeed.

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?

While the water quality plan is presented, a stronger proposal might have incorporated a decision tree based on perceived changes expected. If for example, retention of contaminants is decreased during certain flow regimes, might some redesign be needed to optimize effects? While uncertainties are presented in the proposal, better details on adaptive management could have been presented.

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?

There are certainly a number of products from this project that will emerge. I am certain that the interaction with the general public will be strong and that the results of this specific project will be transmitted in general. However, for the ultimate value of success of this demonstration project, the PIs could have been a bit more explicit on the application of this study to the Bay-Delta region, in general. Is this particular setting unique, or can success from this project be translated to the Bay-Delta area in general. Does a GIS overview of the region suggest that this approach is applicable to other settings? What are the key scientific measures of success? The section on "Ecosystem-wide benefits" is far too underdeveloped to get a sense of widescale applicability. Does this study have any applicability to the Yolo Bypass? What specifically, will this tell us about planning for the Dutch Slough?

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?

It is very difficult to assess the qualifications of the investigators without the inclusion of at least a one-page vitae for each PI. I do think that the project encompasses a nice blend of disciplines to address the restoration project. Additional "person power" will be provided by citizen groups and university students. The infrastructure is definitely in place and the matching commitment is a real plus.

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

The budget appears reasonable for the project, with a majority of costs attributed to construction and restoration. From a cost-benefit standpoint, it should be either expanded or at least linked to one of the ongoing mercury studies.

Miscellaneous comments:

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	Had there been a "Very Good" rating, this project would have been deserving. It is a well-developed multidisciplinary restoration/research project that has a fully developed outreach plan. Two issues detract from a possible "excellent" rating. First, the investigators need to develop a better plan to understand mercury dynamics in both the flooded stream channel and the restored marsh. Second, they really need to show how their results can be translated to other sections of the Bay-Delta region, in general. In the absence of reviewing other restoration projects for comparison, I was impressed by this proposal by the fact that the PIs designed a proposal brings together a strong team that blends both a management and research interests.
- Good X	
- Poor	

*CALFED Bay-Delta Directed Action
Administrative Review
Budget Evaluation*

Proposal number: *#29DA*

Proposal title: *Big Break and Marsh Creek Water Quality and Habitat Restoration Program*

Does the proposal include a detailed budget for each year of requested support? **Yes**

If no, please explain:

Does the proposal include a detailed budget for each task identified? **Yes**

If no, please explain:

Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs? **Yes, for the primary contractor only (Coastal Conservancy).**

If no, please explain:

Are appropriate project management costs clearly identified? **No**

If no, please explain: **The Budget Summary identifies 669 Direct Labor Hours per year for project management, while the Budget Justification identifies a total of 835 Direct Labor Hours per year. It is also not clear from the Budget Justification what activities are encompassed in the project management line item.**

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

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

Does the budget justification adequately explain major expenses? **No**

If no, please explain: **The applicants provide several nice summaries in Appendix C of the various subcontractor budgets. They also mention in qualifications a list of various consultants who may participate. However, the budget summaries in**

Appendix C show a “Contract” heading that is often for a large sum of money, e.g., \$1,150,000 for Task 4, Tidal marsh and floodplain restoration on Lower Marsh Creek for Year 1, but does not have specific subcontractor(s) identified. It’s difficult to determine exactly who is implementing specific tasks from the budget summaries.

Are there other budget issues that warrant consideration? **Yes**

If yes, please explain: **Year 1 Total Costs for Tasks 1 – 5 in the Budget Summary form do not match the “Total Request w/overhead” figures given near the end of Appendix C for Year 1.**

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