Selection Panel Review

Proposal Number: 30DA

California Coastal Conservancy
Dutch Slough Tidal Marsh Restoration Project

Recommendation: Fund in Part with Conditions
Recommended Funding: $ 25,050,000

Conditions, if any, of approval:

1. Grant funds should not be disbursed until the Department of Water Resources confirms that it will fulfill the roles assigned to it in the proposal.

2. The project's Phase 2 should include the development of planning concepts, preliminary design work, and environmental compliance for all 3 of the site's parcels. Budgets for implementation (including public access aspects), monitoring, operational and management plans, and any necessary mitigation should also be developed then.

3. CALFED should establish a standing committee to oversee this planning process. The committee should assist the proponents in formulating a detailed plan of work for this phase of the project, provide guidance as detailed plans are developed, review recommendations of the project's Adaptive Management Working Group, and ensure that restoration activities on these parcels are coordinated with other ecosystem restoration activities in the Delta.

Description

The Dutch Slough Tidal Marsh Restoration Project is the purchase and initial restoration of 1,166-acres adjacent to Dutch Slough in the city of Oakley in Contra Costa County. The project includes (1) purchase of the property; (2) planning for its restoration to tidal marsh that benefits native fish, including preparation of necessary environmental documents; and (3) restoration on 292 acres as a first phase of the site's restoration.

Detailed Discussion:

The Dutch Slough site presents a substantial opportunity for restoration, as the Panel noted in its initial review. Its restoration potential differs from the possibilities at existing public lands because of its topography, elevation, position in the Bay-Delta estuary, and soils. The Selection Panel commends project proponents for their work in resubmitting the proposal and recognizes the substantial increase in detail provided about potential restoration activities on this site. Panel members are encouraged by the incorporation of

design elements that meet local community needs, and by the additional technical expertise that has been brought to bear on the revised proposal.

The city of Oakley, where the Dutch Slough site is located, supports its restoration if it conforms with agreements to be executed with the property owners and other project partners. Most other area governments and many local officials, community organizations, and residents also support the project. The site's owners are willing sellers who are discontinuing farming due partly to conflicts with encroaching urban development, which will soon surround the site, undermining the economic viability of their dairy and livestock grazing. The site's conversion from agricultural use was previously authorized by Contra Costa County, when it approved its mixed use zoning and a development agreement for the site. The Conservancy intends to continue farm use of the site, including some areas of prime soils, while it completes its restoration plan.

The Panel recommends that Phase 1 of the proposed project – site acquisition – be funded, conditional on Department of Water Resources' affirmation that it will fulfill the roles assigned to it in the proposal.

The Panel agrees with the comments of two of the technical reviewers that there are still many details to be worked out before the restoration's success can be assured. The Panel therefore recommends funding for the project's Phase 2 -- detailed project planning -- with an initial budget of $1.5 million (approximately the amount proposed for the proposal's Phase 2). This effort should include the development of planning concepts, preliminary design work, and environmental compliance for **all 3 parcels**. Costs for implementation (including public access aspects), monitoring, operational and management plans, and any necessary mitigation will also be developed. This process should be based around the hypotheses/questions posed in the proposal, but should allow for a change of approach as detailed evaluation is conducted. The proponents should also continue to actively engage the local community in their efforts, so that the site's restoration accommodates the City of Oakley' needs and expectations.

The panel also recommends that CALFED establish a standing committee to review the planning process and products. The committee should be composed of accomplished restoration planners, scientists and engineers with expertise relevant to the project, as well as knowledge of other research and restoration in the Delta. 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.

Given the uncertainties about the site's restoration plan, however, the Panel cannot recommend funding for restoration implementation - Phase 3 -- now. The decision to fund restoration should wait until planning is completed and a more detailed restoration plan is provided.

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

Proposal Title: Dutch Slough Tidal Marsh Restoration Project

Review:

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

The goal of habitat restoration from sub-tidal to emergent marsh to intertidal marsh to terrestrial dune forest is supported by three objectives: 1) increase public access and human uses of the area; 2) restore habitats, especially for native fish populations; and 3) contribute to our understanding of tidal marsh and floodplain restoration. Four overarching hypotheses are presented that are consistent with the project goal. Specific hypotheses are consistent and testable and form a good start for the Adaptive Management Working Group. The project addresses CALFED's ERP goals of habitat restoration and reducing uncertainties with respect to subsidence, appropriate habitats for native fish, and the role of intertidal habitat in improving water quality.

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 acquisition is justified by the authors because Dutch Slough is touted as the only remaining tract in the western Delta and without immediate acquisition will be developed as residences. Topography, position in the estuary and salinity all combine to make this a unique and critical area to acquire and preserve. The conceptual models for the plan are simple, but well documented and nicely illustrated. The elevation data presented indicate significant areas are available to test marsh development and sediment dynamics in the three parcels. The request for funding through Phase 3 is justified by the current level of project development 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?

The approach begins with acquisition and quickly moves into the design and implementation Phase II for the Gilbert Parcel and then restoration of this parcel. The sequence is appropriate and commensurate with the planning, monitoring and restoration activities of the project. The authors have outlined a plan to restore and monitor the site thoughtfully so that significant additions can be made to understanding tidal restoration of diked farmland in the Delta.

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 fully documented with careful planning for acquisition of the parcels as Phase 1. The likelihood of success is very high; the applicants appear to have good support from the owners and local government. Planning and restoration (Phases 2 and 3) are organized with a general guiding principle to restore tidal and seasonal flooding to one of the three diked parcels of farmland. This is a feasible approach, appropriate in scale, and is consistent with CALFED's ERP goals. The approach to develop specific plans and actions for restoring the first parcel are clearly laid out.

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?

Administrative milestones and accomplishments are included as performance measures for Phase 1. Performance measures specific to design, implementation and ecological responses for Phase 2 and 3 are developed and presented in the proposal, but further planning and design, built into the proposal as tasks, will be required to finalize them. Monitoring plans are not complete, but include the components needed to test the hypotheses and assess project success using the performance measures. Monitoring plans will be developed by the Adaptive Management Working Group (AMWG).

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 proponents have clearly demonstrated the involvement of agency personnel and other scientists to help gather, interpret and disseminate knowledge gained in this restoration project to create information valuable to others in the area and country. Products of value are likely to emerge from the monitoring component if promised steps are successful and the AMWG realizes this is an important goal for the 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?

Two applicants of the coalition that developed the proposal (NHI, Cal. Coastal Conservancy) have led several other large projects funded by CALFED. The local participants have long-standing community ties and have gained public support for this project.

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

The project cost is very high, but most of these costs are to acquire valuable land (at a reduced cost). Cost sharing is very good, at over $20 million. Over 10 million in direct costs will be provided by the CCC, including land acquisition, management and monitoring. Costs to CALFED (under $26,000,000) are less than the (reduced) asking price for the property ($28,000,000).

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**
-XXX Excellent	The authors have developed a well-thought out plan to preserve and restore significant delta marshland. The restoration is planned as an experiment that promises to increase desirable intertidal marshlands, native fish and wildlife populations, and knowledge of tidal restoration in the Delta. The plan also provides for human needs (open space, water access, recreational area, water quality issues) and has garnered public support.
- Good	
- Poor	

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

Proposal Title: Dutch Slough Tidal Marsh Restoration Project

Review:

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

The goals, objectives and hypotheses are succinctly described and explained. The underlying concepts, especially those associated with an adaptive management approach to monitoring and assessment, are very timely for a CALFED investment; the scope of that assessment, however, might be a CALFED management issue.

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

The proposed project is extensively justified using much of the more appropriate and available knowledge that exists for this region of the Bay-Delta. Many of the more contemporary concepts about wetland restoration in the Delta are utilized in both the rationale and design of the project, such as the ecological importance of structural heterogeneity, disturbance, tidal channel geomorphology, etc. In fact, much or all of the hypothetical structure and adaptive management approach appears to be extracted almost intact from emerging CALFED documents, such as the CALFED Adaptive Management Workshop report? Although this should be exactly what CALFED seeks in Bay-Delta restoration proposals, I am not entirely convinced that those involved in this proposal have actually implemented the concepts, as suggested by the undefined monitoring plan and lack of explicit responses to alternative results from such adaptive monitoring.

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 proposal appears to establish the opportunity whereby a large-scale restoration project could be used to answer many of the emerging questions about the science, technology, engineering and management of implementing an adaptive management approach to CALFED restoration in the Bay-Delta. The information promised by the proposed actions would be eminently useful for decision-makers evaluating CALFED and other Bay-Delta restoration proposals.

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 likelihood of passive restoration is extremely high, as the information provided in the proposal documents conditions and approaches that should result in unimpeded tidal inundation and geomorphic and ecological development of almost 1,200 ac of tidal wetlands. Although they may have slightly oversold the unique suitability of the Dutch Slough site by some criteria, such as tidal elevations readily colonized (as compared to expanded into) by emergent vegetation and accessibility to important fish resources (with Big Break as a prominent "filter" between the restoration site and the Sacramento/San Joaquin confluence), the site does represent a phenomenal opportunity for lower-risk restoration. If this is the measure of success, it carries a relatively high degree of certainty. However, much of the proposal is designed around the adaptive management "testing" of a number of specific hypotheses (i.e., pg. 13) but with little information or resources incorporated into the proposal to accomplish it. If the chosen design alternative involves more engineered solutions, such as water control structure(s), the uncertainties associated with their performance and sustainability will like increase.

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?

Although the proposal provides all the background hypotheses that would implicitly define performance criteria, the monitoring plan upon which the criteria would be based is not actually provided or discussed. The "long-term adaptive management monitoring program" would be a product of Task 2 (2b). However, detailed quantifiable performance measures that are expected be met within five years, even though the monitoring required to assess the indicator parameters would not be formulated until Phase 2.

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

If successfully implemented, monitored and (adaptively) managed, this project should provide the first template of how to restoration at an appropriate scale in the Bay-Delta. Resources at the project implementation stage(s) should guarantee the products promised in the proposal, but the thin or non-existent (e.g., post-project monitoring) resources at the critical adaptive-management stage of the project are less likely to result without a significant additional infusion of financial and other resources.

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 California Coastal Conservancy, the Conservation Fund and the Natural Heritage Institute are all highly qualified in managing complex environmental projects. However,

the core team is a bit weak on the technical and scientific side, and actually includes rather little expertise in either the physical or biological sciences that would be required for a project of this scale. Undoubtedly, the technical expertise presumably represented in the Adaptive Management Working Group (AMWG) and consultants could provide more than sufficient expertise, but this is difficult to assess without some idea of the qualifications of those advisors.

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

While the $23,000,000 cost for acquisition may be entirely reasonable for the proposed site, the funds and funding mechanisms required for adequate, quality monitoring in an adaptive management context is insufficient. In fact, the whole adaptive management process post-project will depend entirely upon funding of an additional proposal. So this proposal appears to be very effectively budgeted to accomplish a high quality restoration, but not to follow through with the adaptive management assessment and modifications that were prescribed in their rationalization for the project.

Miscellaneous comments:

This proposal is extensively sold as an adaptive management restoration project, and as such presents an exceptional opportunity to conduct what has been up to now almost a philosophical concept. The Dutch Slough site provides both the scale and the landscape setting to implement this. However, the resources are predominantly programmed for the development of the restoration site, and are not sufficient for full implementation and follow-through of an adaptive management approach to that restoration. CALFED is likely to end up with a high quality restoration site, but not necessarily the adaptive management experiment and information that is implied in the proposal.

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	Although an exceedingly well crafted and justified proposal, and a site more than sufficient for extensive adaptive management restoration manipulations, this proposal is still to a great degree a “trust us” proposition that is likely to fall short of providing the promised test of adaptive management..
X Good	
- Poor	

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

Proposal Title: Dutch Slough Tidal Marsh Restoration Project

Review:

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

The 3 major goals of the project are clearly stated under project goals. My concern is that primarily with #3. If it is really a goal to contribute to the science of restoration, I would have expected much more detail about what scientific work is actually going to be completed.

Clearly, the 1st goal is appropriate and would lead to substantial benefits (although I thought the proposal was lacking in identifying the extent of public access that will be provided). In terms of restoring a functioning marsh, the site offers many opportunities. Some of the details on how to achieve this may be lacking.

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

The proposal provides clear justification for the opportunity of acquiring these lands, as well as lots of documentation that indicates broad local support for the project. In this regard, the proposal appears to be outstanding.

However, in terms of justification for the restoration activities, I found the proposal to be lacking. Despite the specific concerns of the CALFED final selection panel, that a "focused conceptual model be presented," I did not feel that the proposal provided much detail in this regard. A model is outlined on page 6, but there is just a one-paragraph review addressing the importance of a mosaic of habitat types. I didn't feel that this really made a case for any restoration approach.

As noted above, if one of the 3 major goals of the project is to improve restoration science, I would have expected a much more detailed consideration of restoration issues, both in terms of conceptual approach and design specifics.

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?

As above, the acquisition issues seem to have been well thought out, but the restoration component is lacking. For example on p. 7, the proposal states that disturbance regimes (sediment input and other fluvial processes) are important. But are these really likely to be an issue here at a site that is removed from direct flows of major rivers? What are the flows on the sloughs that go through the site -- are they actually large enough to cause any sort of disturbance events? I am not familiar enough with the exact site to know, but I thought some details like this would be addressed in the proposal.

On the positive side, I was very happy to see that the project considered some issues of experimental design and replication in the approach of the restoration, but the details provided were so minimal that it is hard to evaluate the actual approach that might be undertaken. For example, Figure 8 shows a design for dendritic creeks, while Figure 11 shows a similar approach but with alternative areas of shallow water. Presumably only one of these could actually be tested as presented--how would data be collected to evaluate these and how would this information be analyzed? The project presents many different hypotheses and questions (p. 13-16), but I don't see how all of the specific hypotheses could be addressed within the framework of experimentation that is presented. Much more detail concerning the design of the restoration, data collection, and data analysis would be needed to really be sure that these hypotheses could be evaluated. The information that is provided on experimental design (p. 20- 21) is vague and does not really relate back the prior hypotheses. The proposal would be much stronger if the PIs made a clear link between the design and the hypotheses that are proposed.

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 project appears to be feasible, although there are many unknowns in the restoration/scientific component of the project. Clearly these uncertainties are to be expected with such a large-scale restoration project, but the proposal did not do much to convince me that the proposed approach is the most feasible for the site.

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 overall approach seems appropriate, but very little details is provided here. The plans for monitoring are very vague.

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?

As with the rest of the science of the project, not much detail is provided here so we just have to hope that the project will result in some real benefits in terms of monitoring. For example, on p. 5 the proposal states that "the project's location at the transition between fresh and brackish water provides an excellent opportunity for comparison with other tidal marsh restoration projects…" Some other information regarding this is provided on p. 21, but it also is pretty brief and vague.

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?

Overall the team appears to have a very good track record in terms of management of restoration projects. However, I was very surprised that no scientists have been involved in the design of this project or are included as PIs on the project. While NHI has experience with restoration projects, it wasn't clear from the information provided in the qualifications that they have experience with tidal wetland restoration or with any of the specifics that are addressed in the proposal (e.g., tidal creek networks, fish use of the marsh, *Egeria densa*, etc.). Furthermore, the proposal identifies that an Adaptive Management Working Group (AMWG) will be formed, but it is not clear who might serve on the AMWG. Clearly the AMWG will have lots of responsibility, so it is important to know how this group would operate and who would participate.

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

I can't comment on the cost of acquisition, but the rest of the budget seems reasonable.

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	This project has great opportunities; however, many of the details of restoration are not provided. Given the large scope of the project,
- Good XXX	

- Poor	there are lots of uncertainties as to whether or not the restoration would reach all of the goals that have been identified. It seems like CALFED would be putting lots of trust into the fact that the project would work out, without much concrete to ensure that the project will be successful. Obviously there are many unknowns in any project of this scale, and an adaptive approach will be used by the project team. However, given the amount of money that is being considered, I would want more certainty that the project is likely to be successful before it is funded.

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

Proposal Title: Dutch Slough Tidal Marsh Restoration Project

Review:

I have confined my remarks to methyl-mercury as I am not knowledgeable about marsh restoration ecology. I do wish to emphasize though that Regional Board staff are enthusiastic about marsh restoration as perhaps our best chance of beginning to restore the biological resources of the Bay-Delta.

Major findings of our recent CALFED mercury grant are that methyl mercury fish tissue levels in the Bay-Delta are elevated and constitute a human and wildlife health threat. Also, the highest levels of *in situ* methyl mercury production in the Delta are from marsh areas. Neither finding is new. We already knew that tissue levels were elevated; we now have a much more robust data set for multiple species. We also knew from the literature that marshes are sites of very active methylation. We have now confirmed it for our estuary. I would be very surprised if a successful restoration effort in Dutch Slough did not result in increased production of methyl mercury over what is presently being discharged.

Both the Bay-Delta Estuary and Marsh Creek (source of mercury for Dutch slough) are on the State's 303(d) list as impaired for mercury. The State has committed to develop Total Maximum Daily Loads (TMDLs) for both water bodies. Unfortunately our knowledge about mercury cycling is limited and present control efforts around the nation are centered on reducing loads of total mercury entering the system as the best way to control methyl mercury production. Therefore, I surmise that the Regional Board will request the eventual owner of the restoration project to decrease loads of mercury (possibly from Marsh Creek) as mitigation for producing more methyl mercury in the restored wetlands. I do not know how much of a load reduction will be requested or how this would be most cost effectively achieved. I do suggest that an addition task in the project should be to develop a methyl mercury mass balance for the marsh both before and after restoration. This should be in addition to the proposed fish tissue sampling. Also, the project should consider the possibility that they may be required to perform mitigation for the increase in methyl mercury production.

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

Proposal Title: Dutch Slough Tidal March Restoration Project

Review:

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

   Yes, to the extent possible. This is a very ambitious and, as far as I know, the largest wetland restoration effort on the west coast. It is clearly a project that needs to be done to demonstrate the feasibility and examine the mechanics of restoration in the Delta

10. **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 the project is justified as a pilot or test case for wetland restoration in the Delta. It is clear that an "adaptive management" management approach is needed, given the unknowns is such a large scale and untried effort. I think some of the assumptions may need to be tested in the course of the work. For example, I know of no studies that show a relationship between current velocity and Egeria establishment. The proposal cites a personal communication for this important assumption that the channels can be designed to minimize Egeria colonization.

11. **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, The type of information developed will clearly be determined by the composition of the Adaptive Management Work Group, however, and it is difficult to evaluate the usefullness of the information for management. Assuming the AMWG includes a variety of scientific expertise including hydrologists, botanists, fisheries biologists, etc., I think it is safe to conclude that useful information will be developed.

12. **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?

    Since such a large restoration effort has not been attempted in the Delta it is difficult to evaluate the feasibility. I have not been impressed at some smaller scale wetland restoration and mitigation efforts. One of my concerns is the focus

on Egeria management without a thorough consideration of other potential aquatic weed and animal invasions. Using salinity to inhibit Egeria seem plausible, but Eurasian watermilfoil and the invasive biotype of Phragmites are quite tolerant of salinity and may invade the areas. Similarly, there was no discussion of the impact of water hyacinth or mitten crab invasion. I think it is wise to include consideration of invasive species management early in the planning of any restoration project to ensure that earth-moving efforts to restore the hydrology of the system isn't negated by biological invasion. An aquatic invasive species management plan should be developed for the cite.

13. **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?

    For the most part these are to be developed by the AMWG, a reasonable approach given the scale and novelty of the proposed project.

14. **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?

    Yes

15. **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?

    Yes

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

    Yes

Miscellaneous comments:

Many of the details are still to be worked out, but such a large effort needs to begin somewhere and the proposal contains the detail necessary to set the stage for a successful project.

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**
x Excellent	This is an ambitious effort that will serve as a test project for restoration of Delta wetlands and their associated function. Outcomes should help direct future efforts in the Delta and elsewhere.
- Good	
- Poor	