

Selection Panel Review Summary

Proposal No.: 005

Proposal Title: Lower Cosumnes River Floodplain Restoration Project

Principal Investigator: Jeff McCreary, Ducks Unlimited

Amount Requested: \$1,244,991.00

Recommended Amount: To be determined

Summary: The proposed project to restore 154-acre parcel of riparian oak woodland floodplain by reconnecting it to tidal channels is a collaborative effort between Ducks Unlimited, the BLM, the USFWS AFRP, Sacramento County, and the Fishery Foundation of California. A controlled limited hunt is proposed on the project site.

Assessment: The Selection Panel found this to be a straightforward proposal that builds off of work already being done in the region; it is fairly well written and has a high probability for success. The Project Team is appropriate to carry out the work. The proposal is feasible from an engineering standpoint.

Despite this, the Selection Panel expressed concern that the science behind the proposal was thin, use of adaptive management was lacking, and no hypotheses or expected outcomes were stated in the proposal. The Panel thought the project was poorly substantiated and lacked considerable technical information that justified the rationale for the design and approach. The Panel had questions about why the proposal focused on levee breaches as opposed to removing the entire levee and had concerns with the applicant's choice to continue to keep the upper ends of the slough separate from the floodplain. Additionally, the Panel had concerns about the creation of pothole or in-slough ponds as they tend to strand fish and attract predators.

The Selection Panel thought that the proposal would benefit from the addition of a floodplain hydrologist or geomorphologist to the project team or from the use of a technical advisory group. They further commented that while establishment of a long term monitoring program was not possible under the grant period, the creation of a plan for long term monitoring would be a desired work product for this project. Finally, the Selection Panel wondered if there was a nexus between the historical ecology project being conducted by the Aquatic Science Institute and if consultation with this group would create a stronger proposal.

CALFED Ecosystem Restoration Program

External Scientific Review Form

Proposal Number: 005

Proposal Title: Lower Cosumnes River Floodplain Restoration Project

Reviewer: #1

Conflict of Interest Statements:

I have no financial interest in this proposal (please mark correct response).

X Correct

General Review Questions:

Along with your written observations in response to the questions below, please rate each using the following criteria:

Excellent: Outstanding in all respects

Very Good: High quality in nearly all aspects

Good: Quality work, but with some deficiencies

Fair: Lacking in one or more critical aspects

Poor: Serious deficiencies

1. **Problem/Goals.** Is the problem that the project is designed to address adequately described? Are the goals, objectives, and hypotheses clearly stated and internally consistent? Does the proposal describe the ecosystem goals it is designed to address (link to ERP goals)?

Comments:

The proposed work is a creative and appropriate use of infrastructure (in this case levee) decommissioning and removal for ecosystem restoration. It is becoming abundantly clear that traditional stream and wetland restoration projects are problematic. Proposals such as this one to restore using minimal in-channel work are desperately needed, and have much greater chances of success than other types of 'active' restoration.

The problem is well stated, although the science behind the problem is a bit thin. The goals and related objectives are well stated. The hypotheses for how the project will work are implied, but I did not think particularly clearly stated.

The problem is fairly clear (too many levees; cut off floodplains), although the underlying science of this proposed work is fairly weak. There was and is a much greater opportunity to do important science than just see if fish use the floodplain. Moving in this direction with the science would require more clearly articulated and narrow hypotheses about how floodplain disconnection is limiting fish and ecosystem function, and currently, these are pointed out in very generality laden terms.

Rating: **Good**

2. **Approach.** Does the proposal clearly describe its approach (including study design and methods, if appropriate)? Is the approach well designed and appropriate for meeting the objectives of the project as described in the proposal? Will the proposal contribute to our knowledge base?

Comments:

Clearly the group here is well poised to pull off this restoration project. They have a good group with appropriate background and connections to get through the license and logistical processes, and also do the actual work. I was disappointed that they had not connected with one of the research scientists in the area to set up a meaningful monitoring and research program ahead of time, but perhaps that can fall into place as part of the project.

Rating: **Very Good**

3. **Feasibility.** Is the proposed project's approach fully documented and technically feasible? Can the project be completed within reasonably foreseeable constraints (e.g., acquiring permits, construction, weather, etc...)? Does the proposal thoroughly address requirements such as environmental compliance and permitting? Is the scale of the project consistent with the objectives?

Comments:

Very feasible (particularly in comparison to traditional re-meandering stream restoration projects). This project should be do-able, and it should actually work for some of the sought functions. I have no sense for whether the cost estimates and time estimates are realistic. For projects in the eastern US, this seems reasonable.

Rating: **Very Good**

4. **Conceptual Model.** Does the proposal provide a conceptual model that describes the interconnections among the key ecosystem components relevant to the action(s) being proposed? Does the conceptual model clearly explain the hypotheses it is testing?

Comments:

This was not a strong suit of the proposal. The general conceptual model is 'just add water.' That is, remove the levees, there will be more flooding, and the ecosystem will benefit. There is some anecdotal information given in support of this, and some ability to point to other nearby projects that have shown some benefit. But, there is not a mechanistic, conceptual model that demonstrates the type of detailed understanding that showed to me that I could say, "Yes, the levee is definitely the problem." Rather, it is assumed that the levee is the problem.

Rating: **Fair**

5. **Performance Evaluation Plan (Monitoring Plan and Performance Measures).** Does the proposal include a plan for project performance evaluation (monitoring to assess results and evaluate assumptions and hypotheses)? Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Will future studies or restoration projects be able to incorporate the information from this project?

Comments:

In one sense, this is a very simple project to measure success – just whether or not water goes up and on the floodplain. However, the PIs have not set themselves up to learn much from the project. For instance, what happens if it doesn't work? What if salmon don't show up, or all the trees die, or the site stays dry? I do not get the sense that the conceptual model, or the monitoring plan, have been conceived in a way that lets them learn from such an event. For instance, what if <150 acres of restoration is not enough to get the biological response? Is there a way to design the monitoring plan to glean this type of information?

Rating: **Good/Fair**

6. **Expected Products/Outcomes.** Are products of value likely from the project? Are products of value also likely from the individual components of the project? Will the results of this study be readily accessible?

Comments:

Overall the project will be valuable to ecological restoration in part because of its simplicity. I think that the restoration will work, and its economic value is good compared to other types of projects. I actually think that the ecosystem value of this proposed work is higher than what the PIs know; recent work in eastern North Carolina to restore tidal river floodplains have shown enormous water quality benefits (Ardon et al., Ecosystems). These tidal systems appear to be particularly well suited to restoration, and this extends beyond fish and trees.

Rating: **Excellent/Very Good**

7. **Previous Related Work.** Does the proposed project continue past work or include any work that could be considered a duplication of work previously done or currently being done by others?

Comments:

As the PIs note, similar projects across the river and nearby show that this type of project can work extremely well. This is still, I think, an 'experimental' and novel approach to restoration, and deserves to be supported and researched. Bad analogy, but kind of like testing the second atomic bomb; yeah the first one worked, but the experience with the second one really helped show that this thing can really work. Just glad we're using fed dollars for restoration instead of bombs.

Rating: **Excellent**

8. **Qualifications.** 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? Do they have working knowledge of California streams and rivers?

Comments:

Good experience across the board, with the exception of a stellar scientist with strong research and publishing track record. It is just a missed opportunity to learn about restoring these systems.

Rating: **Very Good**

9. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed? If the budget is considered to be excessive or inadequate for the work proposed, please highlight areas of the budget that may be of concern.

Comments:

I have little sense for California; however, back of envelope calculations show that this would be approximately 14-15k per acre of restoration, which is about half the cost of traditional restoration practices for wetlands. This ignores the stream restoration that comes as part of the work (e.g., slough). I find it a bit hard to swallow that BLM is getting contract money to do this, but this may be reality of BLM funding these days.

Rating: **Very Good** (particularly if they cost-share as indicated)

Additional comments:

A good proposal for a great project; a bit disappointing to not leverage for more critical thought and science/monitoring. A needed project if we want to continue pushing this type of approach to restoration, of which I am a big advocate.

Overall Evaluation Summary Rating

In the space below, please provide an overall rating of the proposal using one of the following categories:

- **Superior:** Outstanding in all respects with superior technical and scientific value and no significant concerns. Expected to add substantial new thinking/concepts to our knowledge/understanding of the topic proposed.
- **Above Average:** A very good proposal with at least high technical and scientific value and no significant concerns. Will add solid basic knowledge/understanding of the topic proposed.
- **Adequate:** A reasonable proposal without serious technical deficiencies and at least adequate value scientifically. Will add some useful knowledge to the topic proposed.
- **Inadequate:** A technically deficient proposal and/or one with low value, serious impediments or concerns. Will not likely change our basic knowledge/understanding of the topic proposed.

Rating: **Above Average**

Please provide a brief explanation of your summary rating:

I think that the project is good, but the ‘science’ behind the proposal is not as good.

CALFED Ecosystem Restoration Program

External Scientific Review Form

Proposal Number: 005

Proposal Title: Lower Cosumnes River Floodplain Restoration Project

Reviewer: #2

Conflict of Interest Statements:

I have no financial interest in this proposal (please mark correct response).

- X Correct
- Incorrect

General Review Questions:

Along with your written observations in response to the questions below, please rate each using the following criteria:

- Excellent: Outstanding in all respects
- Very Good: High quality in nearly all aspects
- Good: Quality work, but with some deficiencies
- Fair: Lacking in one or more critical aspects
- Poor: Serious deficiencies

1. **Problem/Goals.** Is the problem that the project is designed to address adequately described? Are the goals, objectives, and hypotheses clearly stated and internally consistent? Does the proposal describe the ecosystem goals it is designed to address (link to ERP goals)?

Comments:

The problem, goals, and objectives are clearly stated and straightforward. Many floodplain wetlands have been lost in the Cosumnes River, resulting in a loss of habitats for fish and other organisms, leaving many at risk of extinction. This project seeks to restore a 154-acre parcel of land to riparian oak woodland floodplain by reconnecting it to tidal channels, which would provide new habitat for several at-risk fish species, the giant garter snake, and birds. Because this is solely a restoration project there are no specific hypotheses stated. Monitoring of fish, invertebrates, the garter snake, and plants will, however, assess questions about the initial success of the restoration project.

The proposal explicitly addresses relevance to ERP goals, including collaborative effort, multiple matching funding sources, adding monitoring data to data sets from existing monitoring sites, and restoring habitats for at-risk organisms. The project complements several other floodplain restoration projects in the vicinity of the site, increasing the regional amount of habitat available. It also addresses the vision of part of the ERP plan for the eastside Delta tributaries to eliminate separation of the river from the floodplain, removing unscreened water diversion, and increase riparian vegetation.

Rating: Excellent

2. **Approach.** Does the proposal clearly describe its approach (including study design and methods, if appropriate)? Is the approach well designed and appropriate for meeting the objectives of the project as described in the proposal? Will the proposal contribute to our knowledge base?

Comments:

The restoration aspects of the site are straightforward and clearly described overall. The main restoration activities will include 1. Breaching in two locations the levee that separates the floodplain from the Cosumnes River; 2. Excavating/restoring tidal sloughs and “deleveling” the floodplain (I assume this means reintroducing microtopography); and 3. Installing fish exclusion screens to prevent migration or entrainment of river fish upstream into two existing nontidal waterfowl management impoundments. The approach used in this project draws on the experience and knowledge gained from at least two other similar floodplain restoration projects on the Cosumnes. The sequence for restoration-related activities are typical of those of any wetland restoration project: site assessment, permitting, engineering design, construction, and post-construction monitoring. This project also includes outreach activities, including education.

Currently the site is being managed for “seasonal wetlands and flooded via pumped withdrawals from the Cosumnes River” (top of p. 8). I don’t know what seasonal wetlands are or what the purpose of the management is, but the rationale for replacing this current management operation with an essentially unmanaged system is not made clear. Ecological engineering principles suggest that the unmanaged restoration is preferable to a system that relies heavily on pumps. Related to this, at the bottom of p. 8 the statement is made that this seasonal wetland management efforts “struggle to prevent establishment of riparian vegetation.” This does not make much sense—if riparian vegetation is preferable, why not just let it colonize? The restoration project appears to make sense and is preferable to the current land use, but this needs to be clarified.

Rating: Excellent

3. **Feasibility.** Is the proposed project’s approach fully documented and technically feasible? Can the project be completed within reasonably foreseeable constraints (e.g., acquiring permits, construction, weather, etc...)? Does the proposal thoroughly address requirements such as environmental compliance and permitting? Is the scale of the project consistent with the objectives?

Comments:

The methods and approach to restoring wetlands of the type proposed here are well established and are likely to be successful. The most favorable aspect of the project is that it will simply reconnect the floodplain to the river, which in itself will go far toward restoring ecological functions typical of tidal floodplain forests. The most likely impediments to timely completion of the restoration are 1. Securing sufficient external funding and 2. Meeting all permitting requirements. The project team members have submitted about \$780,000 in proposals external to the \$1.2M requested from ERP that are necessary to complete the restoration. Also, they are contributing over \$100,000 in matching funds from their agencies. This is a highly commendable effort. But the question needs to be asked: if only part or none of the other proposals are funded, how can the restoration proceed? Regarding environmental permits:

presumably these can be obtained, but the speed at which they are obtained may be slower than that projected.

I don't view these potential impediments as a flaw in the proposed project, but as matters that are beyond the control of the project team members. I imagine that ERP staff are better able than I am to assess the potential for these two impediments to delay or prevent the project from being implemented, based on their experience with multiple restoration projects in the Bay-Delta region.

Rating: Excellent

4. **Conceptual Model.** Does the proposal provide a conceptual model that describes the interconnections among the key ecosystem components relevant to the action(s) being proposed? Does the conceptual model clearly explain the hypotheses it is testing?

Comments:

The conceptual models presented focus on hydrology. Basically, if water level gets high enough to overflow the existing levee, then the floodplain becomes "activated". There appears to be no description in the conceptual model section of linkages between this restored hydrology and other ecosystem components such as fish, invertebrates, plants, terrestrial wildlife, and soils, although these are presented implicitly throughout the proposal. Hypotheses are not presented in the proposal, as noted earlier, but these do not seem relevant in a project that is solely restoration of an individual site.

Rating: Very good

5. **Performance Evaluation Plan (Monitoring Plan and Performance Measures).** Does the proposal include a plan for project performance evaluation (monitoring to assess results and evaluate assumptions and hypotheses)? Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Will future studies or restoration projects be able to incorporate the information from this project?

Comments:

The proposal presents a plan for post-construction monitoring of the restored site. At most only 2 years of monitoring will be possible, and likely only 1 given the likelihood of delays in design, permitting, and construction. I realize this is likely to be the case for any 3-year project. The site will become part of a preserve where monitoring is performed every 3 years, so this is not a major concern. However, the methods for monitoring of fish, invertebrates, vegetation, and hydrology are not spelled out in much detail (e.g. plot size, sample techniques, replicates, and data analysis procedure). It appears that monitoring will be based on what has been done at other sites nearby, but it is not clear from the information presented if monitoring will be sufficient to assess the success of the restoration. Many of the project team members have extensive fish and wildlife experience and so I imagine the monitoring will be thorough.

Rating: Very good

6. **Expected Products/Outcomes.** Are products of value likely from the project? Are products of value also likely from the individual components of the project? Will the results of this study be readily accessible?

Comments:

The main product of the project will be the reconnected, restored floodplain forest. Furthermore, monitoring results and the restoration experience at the site will add to the body of data and knowledge regarding ecosystem restoration in the Bay-Delta and for wetlands and floodplains in general. Another long-term benefit of the restoration will be to increase the extent of natural areas accessible to the approximately \$60,000 annual visitors to the preserve that the site will be part of. Significantly, about 10,000 of those visitors are youths, increasing the education value of the restoration. Furthermore, the project will be the only part of the preserve open to waterfowl hunting, but only as a limited entry program for youth, women, and disabled hunters, creating an important recreational resource that will increase public awareness of the value of ecosystems. Results will also be posted on the preserve website and submitted for publication in refereed scientific journals.

Rating: Excellent

7. **Previous Related Work.** Does the proposed project continue past work or include any work that could be considered a duplication of work previously done or currently being done by others?

Comments:

This project would be part of ongoing efforts to restore floodplain ecosystems in the Cosumnes River and elsewhere. No other restoration activities are ongoing at this site that could be considered a duplication of this work.

Rating: Excellent

8. **Qualifications.** 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? Do they have working knowledge of California streams and rivers?

Comments:

The PI, employed by the Bureau of Land Management, is manager of the Cosumnes River Preserve, and thus has detailed knowledge of characteristics of the restoration site and other Cosumnes ecosystems. BLM has biologists who will be contracted to perform ecological monitoring at the site. The co-PI and lead project is the manager of Ducks Unlimited's Western Regional office. He has extensive experience in managing the development and implementation of floodplain restoration projects at many sites in the western US, including the Cosumnes. The restoration engineering design plans will be developed by a registered Professional Engineer employed by Ducks Unlimited with experience in a range of ecosystem restoration projects. Other project team member have extensive fisheries and wildlife experience that is directly applicable to post-construction monitoring.

The team members apparently met several times during the development of the proposal, which demonstrates that they are capable of working effectively together. Resources and facilities are more than adequate for completing the proposed activities.

Rating: Excellent

9. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed? If the budget is considered to be excessive or inadequate for the work proposed, please highlight areas of the budget that may be of concern.

Comments:

The budget seems very reasonable and cost-effective. In these types of projects earthmoving is often the single largest expense, in this case almost half of the total. Personnel wages and benefits seem very reasonable. The detailed budget presented near the end of the proposal is much more useful than the summary budget earlier on, and clearly shows the value of other proposal submitted, matching funds, and the amount requested for individual parts of the project. Overall the budget seems very carefully thought through and a realistic projection of how much it will cost to restore the site.

Rating: Excellent

Additional comments:

None.

Overall Evaluation Summary Rating

In the space below, please provide an overall rating of the proposal using one of the following categories:

- **Superior:** Outstanding in all respects with superior technical and scientific value and no significant concerns. Expected to add substantial new thinking/concepts to our knowledge/understanding of the topic proposed.
- **Above Average:** A very good proposal with at least high technical and scientific value and no significant concerns. Will add solid basic knowledge/understanding of the topic proposed.
- **Adequate:** A reasonable proposal without serious technical deficiencies and at least adequate value scientifically. Will add some useful knowledge to the topic proposed.
- **Inadequate:** A technically deficient proposal and/or one with low value, serious impediments or concerns. Will not likely change our basic knowledge/understanding of the topic proposed.

Rating: Superior

Please provide a brief explanation of your summary rating:

This is a straightforward project that has a high probability of successfully restoring 154 acres of riparian oak tidal floodplain forest. While the monitoring plan could have provided more detail, I have confidence that the experience and ongoing monitoring at other sites, coupled with the strong fish and wildlife experience of some of the team members, will result in monitoring that is more than adequate to judge restoration success. Similarly, I am not concerned about the simplicity of the hydrologic conceptual model. If hydrology is restored this site will in all

likelihood regain many of its histories ecological functions and support larger populations of the at-risk species in the area. Finally, I have the sense that the project team put a lot of thought into planning this project and has a strong interest in its successful completion.

CALFED Ecosystem Restoration Program External Scientific Review Form

Proposal Number: 005

Proposal Title: Lower Cosumnes River Floodplain Restoration Project

Reviewer: #3

Conflict of Interest Statements:

I have no financial interest in this proposal (please mark correct response).

- Correct

~~-Incorrect~~

General Review Questions:

Along with your written observations in response to the questions below, please rate each using the following criteria:

Excellent: Outstanding in all respects

Very Good: High quality in nearly all aspects

Good: Quality work, but with some deficiencies

Fair: Lacking in one or more critical aspects

Poor: Serious deficiencies

1. **Problem/Goals.** Is the problem that the project is designed to address adequately described? Are the goals, objectives, and hypotheses clearly stated and internally consistent? Does the proposal describe the ecosystem goals it is designed to address (link to ERP goals)?

Comments: The problem of isolated or highly fragmented and relatively unconnected floodplains in California's Central Valley is pervasive, and the goal to restore their function as fully as possible is meritorious. The goals and objectives of the proposed restoration action are stated clearly and directly, and explicitly related to the ERP goals. However, there are no hypotheses stated explicitly, so it is a bit difficulty to link the objectives with the ecosystem processes and functions that they are expecting to be recovered.

Rating: Good

2. **Approach.** Does the proposal clearly describe its approach (including study design and methods, if appropriate)? Is the approach well designed and appropriate for meeting the

objectives of the project as described in the proposal? Will the proposal contribute to our knowledge base?

Comments:

While there are some concerns about the adequacy of the proposed project (see #3. Feasibility, below), the approach is generally appropriate for the desired objectives. However, the project is poorly substantiated and lacks considerable technical information that justifies the rationale for the design and approach: there is no documentation of neither the historic hydrology or floodplain landscape nor current hydrology and topography and geomorphology of the site. The approach is myopically focused on engineering and gross hydrology: while they adopt the Floodplain Activation Flood and flood reoccurrence concepts, they provide no analyses (other than exceedence probability, Fig. 7, and flood frequency, Fig. 8) of estimated flood inundation timing and duration, which are the most critical criteria for assessing ecological processes and function. Perhaps more disappointing is a complete lack of ecosystem, landscape and natural resource context; there is absolutely no information on the occurrence and timing of juvenile salmon species/life history types/populations of at-risk species that could utilize their restored floodplain habitats or how this restoration would fit into the broader efforts along the Cosumnes. What specific information from natural analogs along the lower Cosumnes suggest that it will be effective in providing those desired ecosystem functions?

Rating: Fair

3. **Feasibility.** Is the proposed project's approach fully documented and technically feasible? Can the project be completed within reasonably foreseeable constraints (e.g., acquiring permits, construction, weather, etc...)? Does the proposal thoroughly address requirements such as environmental compliance and permitting? Is the scale of the project consistent with the objectives?

Comments:

While the project's simple objectives, design and addressing of permitting and other constraints are feasible from an engineering perspective, there is little information provided to argue that it will be either sustainable or effective in terms of establishing much of the historic floodplain functions; if it happens, it may be more by chance than by design? Just a few concerns about the ability of the design to facilitate natural ecosystem processes of floodplains include: (a) single breaches rather than full removal of levees will unlikely provide natural flood inundation patterns; (b) leaving the existing upper ends of the two historic sloughs severed from the floodplain and managed to retain floodwaters for wintering waterfowl and for seasonal brood rearing ponds is highly questionable decision, especially because screening for fish exclusion requires extensive maintenance and intervention and may not be able to screen native fishes anyway; and (c) other than following the path of the two historical main channels, excavation of sloughs, channels potholes and ponds appears to be ad hoc and not based on historic geomorphic templates?

Rating: Fair

4. **Conceptual Model.** Does the proposal provide a conceptual model that describes the interconnections among the key ecosystem components relevant to the action(s) being proposed? Does the conceptual model clearly explain the hypotheses it is testing?

Comments:

The conceptual model is based simply on the floodplain activation flood concept and apparently nothing else. This is a gross simplification, especially given the extremely applicable Opperman (2008) DRERIP conceptual model for Bay-Delta/Central Valley floodplains! The lack of any conceptual model beyond minimal hydrology suggests that references to providing "...additional ecosystem benefits including restoring the biogeochemical cycling and decomposition processes that frees nutrients into the floodplain and stimulates primary and secondary production, providing groundwater recharge areas, and providing additional opportunities for recreational activities such as outdoor education and a youth, women, and disabled hunting program." are relatively baseless.

Rating: Poor

5. **Performance Evaluation Plan (Monitoring Plan and Performance Measures).** Does the proposal include a plan for project performance evaluation (monitoring to assess results and evaluate assumptions and hypotheses)? Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Will future studies or restoration projects be able to incorporate the information from this project?

Comments:

No performance evaluation plan is provided *per se*, but the Monitoring and Evaluation task (#6) addresses much of the fundamental information needs required to assess performance. The actual performance criteria are not described, however. The cite that they "...will monitor invertebrate response, assess the invertebrate production of the project site, and evaluate potential effects on fish growth and survival" but give not indication about what constitutes adequate or inadequate performance, and there is no other information (including experience and previous work) that suggests they know what's actually required to obtain statistically rigorous results for invertebrate production and fish growth and survival! It is commendatory that they propose incorporating the approach and methodology from "a previous floodplain restoration project directly across the Cosumnes River from the proposed project site" into the proposed monitoring plan.

Rating: Fair

6. **Expected Products/Outcomes.** Are products of value likely from the project? Are products of value also likely from the individual components of the project? Will the results of this study be readily accessible?

Comments:

While the projected outcomes are listed relative to implementation of the project design, it is often difficult to find out how the information gathered and learned will be produced; they seem to just that it will just become available by osmosis (8. Other Products and Results). However, their Outreach and Education activities (Task 7) do include submitting the their monitoring reports for publishing in a peer reviewed journal (although, seemingly, there is no one involved who has experience in publishing in the scientific literature?), publication of all reports on the Preserve website, publishing of informational articles in local/regional magazines and

newspaper, and presented in either a poster or oral presentation at the CALFED Science Conference following completion of the project.

Rating: Good

7. **Previous Related Work.** Does the proposed project continue past work or include any work that could be considered a duplication of work previously done or currently being done by others?

Comments:

Other than linked directly to the Preserve, the proposed project does not appear to be duplicative of any previous work?

Rating: Good

8. **Qualifications.** 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? Do they have working knowledge of California streams and rivers?

Comments:

The project team is well represented in terms of experience and expertise about floodplain and other wetland restoration and management activities around the Bay-Delta and Central Valley, particularly so Ducks Unlimited and FFC. Their direct experience in managing the Cosumnes River Preserve provides the most site-specific understanding. It is, however, exceedingly heavy on wildlife and fisheries management, and short on qualified floodplain hydrologists and geomorphologists; they would be advised to seek academic or qualified consultants to support, refine and modify if necessary their presumed interactions between the project design, natural floodplain processes, and desired ecosystem functions.

Rating: Good

9. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed? If the budget is considered to be excessive or inadequate for the work proposed, please highlight areas of the budget that may be of concern.

Comments:

The budget seems reasonable, especially with 50% of the cost devoted to the actual construction budget. There might be some concern that the monitoring is poorly represented the budget, or at least is not explicitly identified.

Rating: Good

Additional comments:

This reviewer was not impressed with the proposers seemingly lack of knowledge, or at least incorporation into the proposal, of the current state of knowledge about how Bay-Delta/Central

Valley tidal freshwater floodplains can or do function and how they could contribute to at-risk species recovery!

Overall Evaluation Summary Rating

In the space below, please provide an overall rating of the proposal using one of the following categories:

- **Superior:** Outstanding in all respects with superior technical and scientific value and no significant concerns. Expected to add substantial new thinking/concepts to our knowledge/understanding of the topic proposed.
- **Above Average:** A very good proposal with at least high technical and scientific value and no significant concerns. Will add solid basic knowledge/understanding of the topic proposed.
- **Adequate:** A reasonable proposal without serious technical deficiencies and at least adequate value scientifically. Will add some useful knowledge to the topic proposed.
- **Inadequate:** A technically deficient proposal and/or one with low value, serious impediments or concerns. Will not likely change our basic knowledge/understanding of the topic proposed.

Rating: **Inadequate**

Please provide a brief explanation of your summary rating: The project appears to be well intended, with goals in objectives fully commensurate with ERP goals and approaches. However, it appears to be heavily biased toward traditional engineering and fish and wildlife management, with little if any balance or consideration of promoting and using natural ecosystem processes, or incorporating existing knowledge of the landscape setting and current/expected populations to benefit from the project.