# Sustaining Private Seasonal Wetland Habitat Value and Function Under Ag Waiver Mandated Salt Management

Nigel W.T. Quinn

### **Initial Selection Panel Review**

0062

Sustaining Private Seasonal Wetland Habitat Value and Function Under Ag Waiver Mandated Salt Management

University of California, Merced

Applicant amount requested: \$1,492,107

Fund This Amount: \$0

The proposed project would use real-time salinity monitoring and remote sensing to assess the effects of water conservation and drainage management practices on wetland values and effluent water quality. This study is focused on private duck clubs, asserting that duck club managers are farmers with hunting success substituting for crop yield. The proposed project would address an important regional interest in and benefit from the participation of a duck club with high visibility, and has the capacity to assist with the transfer of knowledge gained from the project. However, the panel concluded that the proposed project does not assist farmers with integrating agricultural activities with ecosystem restoration in the traditional sense. Rather, it assists duck club managers with complying with water quality regulations in a manner that maintains ecosystem values. Much work has already been funded in the area of real-time monitoring to address effluent water management issues, much of this in association with more traditional forms of agriculture. The panel felt this proposal was not as responsive to the PSP as other proposals recommended for funding, and previously funded work should be assessed prior to funding additional work of this kind. The panel recommends not to fund this project.

Do Not Fund

### **Technical Panel Review**

**Proposal Name:** Sustaining Private Seasonal Wetland Habitat Value and Function Under Ag Waiver Mandated Salt Management

Applicant Organization: University of California, Merced

**Amount Requested:** \$1,492,107

Panel Rating:

Good - Quality but some deficiencies

### **Panel Summary**

This proposal seeks to utilize real-time salinity monitoring to support an altered draw-down pattern for water management to achieve reduced salt/boron loads in the San Joaquin River and maintain wetland habitat quality. The panel recognized that this proposal has the potential to develop useful information for real-time salinity management in an internationally important wetland complex. However, the panel had the following concerns: (1) the details regarding performance evaluation (project monitoring) are lacking from this proposal and largely deferred to documents that would not be produced until after the project was funded. (2) the moist-soil vegetation monitoring element of the project (Task 7) has high costs and limited information value due to high variability in environmental conditions. The panel further noted that the budget details are insufficient to justify the high cost of the project. Reviewers were also concerned that this effort could duplicate other activities. These deficiencies being noted, the panel recognized the importance of this wetland complex and the focus of the research being proposed. Additional information should be provided regarding the practices being implemented and justification for the high cost of the project. Increased emphasis could be placed on maintaining waterfowl and shorebird habitat through development of wetland management practices with multiple benefits. The potential transferability of the real-time monitoring technique to irrigated cropland should be described.

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### **Goals**

	I
Rating	good
	The proposal does describe the problem, but as a reviewer (and as an educator) I felt like the proposal could have done a better job providing the uninitiated reader with a succinct "abstract" of the existing situation coupled with the goals of the proposal so that a reader, not yet familiar with the macro-scale nature of the existing LSJR situation, would be better able to quickly grasp what the existing problem is and then more immediately see the nexus between this proposal and the problem. I just felt like I was well into the text before I "got" the big picture and understood how management of waterfowl habitat both impacts, and can affect, regional water quality. In the overall context of the entire proposal, the agricultural goals are clearly stated but I felt that the integration between ecosystem restoration and agricultural activites was not emphasized as strongly as it could have been. The proposal's objectives are tangible and measurable.

### **Justification And Conceptual Model**

### Rating I think that, for someone who has been involved in such water quality issues and is already familiar with the existing body of knowledge and the preliminary work that leads up to this proposal, the conceptual model would be quite clear. For someone who is not so close to this issue (and for whom this proposal is the first exposure to the concept of waterfowl habitat as a "discharger" impacting regional salt management) it took a while for me to get the "why" of this proposal. Yes, the hypothesis is clearly explained. Until I read Comments the instructions for answering this Justification and Conceptual Model section, I was unaware that the applicant had a choice of a pilot, demonstration, or full-scale implementation project. I don't recall seeing those choices (or a rationale for selecting the approach being used) iterated in any of the application forms or in the body of the text. Having just looked back over the text, I would conclude that this is both a pilot project and a demonstration project of what is ultimately intended to be implemented full-scale within the entire Grasslands Water District.

### **Approach**

Rating	good
	Study design and methods are clearly described, but for a biologist who is familiar with wetlands, wetland vegetation, and water birds (but who is not so familiar with the region-wide water quality issues vis a vis waterfowl habitat), I found that I had to go online at least 7 times to look up such acronyms as TMDL, NPDES, and CIMIS just so that I would have a basic understanding of the terminology used in this proposal, terminology that is clearly central to this issue. I think that a short glossary of acronyms used

in the proposal would be helpful. Even though, as a field ecologist, I am familiar with almost all of the common vegetation in Central Valley wetland habitat, I have not worked enough with waterfowl wetland managers to be as familiar as I should with common names of wetland plants that are referenced in this proposal. Since no scientific binomials were used in the Task 7.1 paragraph, for example, I was not certain which species (or group of grass species) "watergrass" referred to or whether smartweed refers to one species or many in the Genus Polygonum. I think the results of this project will add tremendously to the base of knowledge for integrating ag activites with wetland restoration and I believe that the information generated will be very useful to farmers, agencies, and governmental organizations/decision makers.

## **Feasibility**

	Rating	very good
Cı	omments	The writers of the proposal clearly cover all the technical bases for this project. The project approach sounds reasonable, feasible, and appears as though it will generate the kind of data that is needed to address the null hypothesis. I think the time frame and stepped approach to the project are both realistic. I think that environmental compliance was given thorough consideration and that the duration of the project has enough flexibility to cover contingencies.

#### **Performance Evalutation**

Rating	excellent
	It is clear from the attention given to performance evaluation in this proposal that the authors and collaborators are familiar with such projects and how important the deliverables are to the success of this project. I think that the performance evaluation will very capably demonstrate whether the restoration

actions will be effective in watershed-scale agricultural management.

## **Proposed Outcomes**

Rating	very good
Comments	This project is likely to generate a broad spectrum of valuable "products". It will clearly have applications in the related fields of waterfowl management and agricultural water quality management. The results should inform the knowledge base of, and help improve the integration between, ag activities and ecosystem restoration. This knowledge, while focusing on the Lower San Joaquin River watershed, clearly has applicability within the even more seriously "salinity-impacted" Tulare Basin and I would recommend that the outreach plans for dissemination of project results be expanded to include (besides the audience in the LSJR watershed) government agencies (e.g. USFWS, CDF, BuRec, BLM, NRCS, &CVJV), private duck clubs and other waterfowl groups (e.g. Tulare Basin Wetland Association), and other private NGOs (Tulare Basin Wildlife Partners, Sequoia Riverlands Trust, Endangered Species Recovery Program, and Point Reyes Bird Observatory) in the Tulare Basin. The proposal did not specifically indicate whether University of California would, as a matter of course, plan to actively communicate the project results and applications to appropriate UC Extension staff. If that is not already formalized within the plan, I think it should be inserted into the project's specified outcomes.
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## **Capabilities**

Rating	excellent
	Everything that has been mentioned in the
	proposal and all of the support documentation
	(resumes, etc.) certainly gives me confidence
	that this is a strong project team with

excellent credentials and the kind of background experience that should generate the data necessary to respond to the hypothesis and then to disseminate the outcome to the appropriate user groups.

### **Cost-Benefits**

Rating	excellent
Comments	My qualifications to judge the adequacy of the budget are limited but I defer to the experience of the team; I trust that their cost-benfit projections are based on previous work and certainly incorporate realistic contingency parameters.

## **Overall Evaluation Summary Rating**

Rating	very good
Comments	Based primarily on the composition of the project team and their experiential credentials, I think that the proposal will be very effective at acheiving project goals. My primary criticism of the proposal is related to the fact that I come to this process as somewhat of a novice in terms of my previous lack of familiarity with the water quality issues that exist in the LSJR drainage. Even though I know a fair amount about salinity and selenium issues in the Tulare Basin, I had never read about or been party to discussions about the salt and boron issues vis a vis the LSJR

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Waiver Mandated Salt Management

Applicant Organization: University of California, Merced

**Amount Requested:** \$1,492,107

### **Goals**

Rating	very good				
	Proposal does describe the problem it is designed to address unmanaged disharge from privatley owned wetlands and its effect on water quality; addresses ERP goal to restore and improve seasonal wetlands; projects seeks to ID and find alternatives to potential				

### **Justification And Conceptual Model**

Rating	good				
Comments	This appears to be a small scale implementation				
	demonstration project, similar to previous and				
on-going studies. The hypotheses are clearly					
	explained. The justification for this projects, in				
	light of other similar projects already underway, is				
	weak; project is said to "complement" other projects;				
	this proposal is monitoring at a smaller scale than				
	other projects and descibes why that is important in				
	terms of transferring technology to private wetland				

entities. The proposal states that this project "takes advantage of the science" and "complements" previous and current projects conducted by the proponents, but it is not clear exactly how.

### **Approach**

Rating	good
Comments	The study design is explained clearly but only in very broad terms—— little detail is provided on specific sampling/analysis frquency, for example. Task 4 states that "duck clubs will be instrumented to allow a high resolution water and salt balance"—— high resolution is not defined spatially or temporally; nor is it explained what scale provides useful information for the project. The proposal states that it will "infer quanititative measures of the potential impacts of wide scale emulation of the project" It is not clear how this important element will be done; it is not described in the tasks.

## **Feasibility**

Rating	very	good				
Comments	all	elements	appear	to	be	feasible

### **Performance Evalutation**

Rating	good
	Project includes a monitoring plan. It is not clear how the primary stated measure of project effectiveness- measure of "the ability of wetland managers to adhere to the altered wetland drawdown period" is the appropriate measure of effectiveness given the large amount of data being collected, presmably to show that changes in management can be made without adversely affecting wetland habitat. A better measure of success would seem to be scientifically defensible data that demonstrates alternate wetland management that has no negative

habitat impact and comes at little or no additional cost to wetland managers. It not clear if the project will be able to draw such conclusions.

### **Proposed Outcomes**

Rating	very good	
Comments	Project appears to provide useful information to better understand water and salt balance in a managed wetland. It's not clear how much more and better this data will be than that from projects already underway.	

## **Capabilities**

Rating	excellent		
Commonts	The team has conducted numerous other similar projects		

### **Cost-Benefits**

Rating	fair
	The project seems very expensive and little detail is provided on specific costs. Task 1 (administration is thirty percent of the budget); Task 4 (basically monitoring) is over thirtyfive percent of the \$1.5 million budget. Projects overlaps (Ducky Strike Duck club) with SWRCB funded project. Project would therefore seem more reasonable if \$300,000 less.

## **Overall Evaluation Summary Rating**

Rating	good
	Overall a good proposal that would appear to provide some useful additional information but it is not clear how much of it is of sufficent value to justify relatively high cost, particulalry since one site (Ducky Strike) appears to overlap with a SWRCB funded study. Would be rated very good if lower cost (or more

detail provided for costs and how this project overlaps with existing projects) and if more detail on approach were provided.

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### **Goals**

Rating	very good
Comments	The proposal describes the problem of degradation of water quality due to over-wintering waterfowl and shorebirds in seasonal wetlands. Use of the wetlands by birds and other biota results in elevated salt and boron loads. The goal for ecosystem improvement is to develop management practices to reduce drainage and pollutant loads entering the lower San Joaquin River from these managed wetlands. An innovative approach to salt and boron management will take advantage of the river's assimilative capacity to allow increased annual loads while keeping concentrations low.  The objectives are discussed in general terms, but the proposal would benefit from a bulleted or numbered list of specific objectives.  Duck club managers are equated with farmers with their
	yields being hunting success rather than crops. Technology developed by the research will be
	transferred to private wetland managers to maximize environmental benefits

## **Justification And Conceptual Model**

Rating	excellent
	Justification for the research and the conceptual model are clearly explained. The hypothesis is that water quality management is limited by the lack of knowledge, and lack of demonstrations of how technology could be applied to improve water quality in the San Joaquin River. The proposal clearly justifies the implementation of real-time water quality management at two duck clubs that will participate in the study.

## **Approach**

Rating	very good
Comments	The approach and methods used to monitor water quality are described in general, but not in great detail. Reference to similar projects that have been completed by the investigators implies that successful methods for monitoring water quality have been developed. The ecosystem and the effects of duck clubs on water quality are adequately explained. Wetland managers could use information that would be acquired by the proposed research to minimize the impact of salts carried by return flow to the San Joaquin River.

## **Feasibility**

Rating	excellent
Comments	The approach is technically feasible, and the probability of success, and potential for tangible environmental benefits are high. It is likely that management recommendations will be developed that will significantly reduce the impact of discharge of water from wetlands utilized duck clubs on the receiving waters.

## **Performance Evalutation**

Ratir	excellent	
	The performance measurements are clear. Water and salt balance for impoundments will be determined by monitoring inflow and outflow from two duck club impoundments. Impacts of real-time salinity measurements on wetland vegetation and habitat function will be evaluated. These evaluations of the effects of water management will be critical in convincing wetland managers to adopt the practices.	

## **Proposed Outcomes**

Rating	very good
	Products of value will be produced by this project that will contribute to ecosystem health by developing management practices that will result in better water quality in the river while improving wetland habitat and maintaining the recreational and economic values of duck clubs.
	The knowledge gained from this research can be transferred to other arid region agricultural systems and ecosystems where excess salinity is a water quality problem.

## Capabilities

Rating	excellent
	The experience and outstanding record of the
	project team definitely help to justify funding
	of this project. The principal Investigator has
	completed two closely related projects funded
	by CALFED and the Fish and Wildlife Service,
	and this proposed research is a continuation of
	those projects. The team has the expertise to
	successfully carry out the proposed research
	and technology transfer.

The proposed project will complement a recently funded study of wetlands in state wildlife areas and the two private duck clubs to be utilized in this study. Approval of this proposal would provide the opportunity for bringing more scientific rigor to the research.

#### **Cost-Benefits**

Rating	good
	There is not enough detail in the budget summary in the proposal to evaluate whether it is reasonable and adequate.
	Large sums are requested for project administration and the water-quality monitoring network.
Comments	The budget should be carefully evaluated to determine if the scale of work and expenditures are justified. The expenditure of \$1.5 over a three-year period is a significant amount of money.
	The cost share is only 3% of the amount requested from CALFED.

## **Overall Evaluation Summary Rating**

Rat	very good
	The project has a high probability of success in terms of potential for developing Best Management Practices that will result in improvement of water quality, and maintaining seasonal wetland habitat that supports waterfowl and wildlife.

## San Joaquin Regional Panel Review

Proposal Number: 0062

Proposal Name: Sustaining Private Seasonal Wetland Habitat Value and Function Under Ag

Waiver Mandated Salt Management

Applicant Organization: University of California, Merced

1. Applicability to ERP goals and regional priorities.

This project will contribute to several ERP goals and San Joaquin valley Regional Milestones. The reduction of selenium discharge and other agriculture and wetland related pollution in San Joaquin Valley River Basin is a high priority for CALFED and ERP.

notes:

The panel felt that while there was an explicit set of task associated with the proposal, none of them were related to PSP project priorities. While the panel was able to grasp that there were potential applicability to state wetlands and potentially the federal refuges, these were not an element of the PSP, and the proposal does not make connections to linking the objectives or outcomes to agriculture. The agriculture nexus is missing in the proposal.

2. Links with other restoration actions.

Several other CALFED grants have been funded to investigate methods to reduce contaminants from Ag and wetland runoff in the San Joaquin River Basin. This project is the third in a series of water quality related projects by this PI. There is also a high likelihood that this project could be expanded into other water quality monitoring projects.

notes:

The panel felt the broad application of data to future restoration projects is unlikely. The title suggests that this proposal is not linked to restoration actions, but sustaining seasonal wetlands. Structures that would be built as part of the proposed study will provide data for an interesting academic exercise, but beyond the level necessary for management needs.

#### 3. Local circumstances.

Some feasibility issues may arise due to the inclusion of CDFG employees in this proposal. CDFG would be required to enter into a separate interagency agreement as it not possible for the Department as the Implementing Agency to give grant funds to an outside entity to then be used to fund CDFG employees. This probably will not prevent the project from seeing implementation but will require breaking the project in smaller sub-projects. With a lack of a detailed budget though it is unclear as to the specific amount this grant has identified for DFG employees. Task 1- administration seems high at \$444,624. This reviewer find it troubling that a more detailed budget was not provided for proposed budget this size.

notes:

nothing added by panel

#### 4. Local involvement.

The proposed level of public and stakeholder outreach and involvement is limited to wetland managers and private duck clubs. The water quality products resulting from this proposal

#### San Joaquin Regional Panel Review

will be implemented on private duck clubs and other wetlands and has the potential to be a useful tool for wetlands manager. However this PSP is focused to provide agriculture friendly implementation of ecosystem restoration. This proposal fails to make strong links to such agriculture practices. This is the main deficiency of this proposal. It fails to address local agriculture related practices or involve the myriad of local agriculture stakeholders which is the primary goal of this solicitation.

notes:

Nothing added by panel

5. Local value.

Salinity and other agriculture &wetland related pollutants are a major concern for this region and CALFED as a whole. If this project were scoped to be directly applicable to local farmers, who discharge large amounts such pollutants into the Bay-delta system this proposal would have a much higher local value. Currently private duck clubs and public wetlands do contribute to this issue, but this PSP is focused on agriculture related practices and a less focused proposal could have better fit this PSP's objectives.

notes:

Nothing added by panel

6. Applicant history.

To my knowledge the PI is highly qualified and has executed or assisted in a large number of completed CALFED water quality related grants. I see no reason that this wouldn't the case in

#### San Joaquin Regional Panel Review

this proposal.

notes:

The panel was not able to gather from reviewing the proposal the collaborative or financial links between the principal applicant and role of National Laboratory and academic institutions.

#### 7. Summary of Overall Panel Discussion and Review

No clear nexus with agriculture as written. There seems to be a high cost with low benefit, and does not fit into PSP project priorities. The panel felt the budget was problematic as 1/3 is for administrative costs with no justification and some subcontracting is done by CDFG. The future application of results to restoration activities seems limited, since title and proposal emphasized sustaining of maintained, seasonal wetlands

#### 8. Panel Quality Ranking

Good

notes:

### 9. Regional Priority Ranking

Low

notes:

The agricultural nexus is low and not stated in the proposal.

## **Environmental Compliance Review**

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Applicant Organization: University of California, Merced

1. Is compliance with California Environmental Quality Act (CEQA) required for this project?

Yes.

- 2. Is compliance with National Environmental Policy Act (NEPA) required for this project?
- 3. Does this project qualify for an Exemption or Exclusion under CEQA and NEPA, respectively?

No.

#### Comments

The exact location and the description of the monitoring stations were not described in the proposal. If these structures are to be built in the waterways/sloughs and not on the duck clubs, a streambed alteration agreement and additional CEQA document may be required. If the structure is to be built on the duckclub property than it may qualify for an exemption. Consult DFG.

4. Did the applicant correctly identify if CEQA/NEPA compliance was required?

#### Comments

#### See comment for #3

5. Did the applicant correctly identify the correct CEQA/NEPA document required for the project?

No.

#### **Environmental Compliance Review**

Comments:

See comment for #3

6. Has the CEQA/NEPA document been completed?

7. If the document has not been completed, did the applicant allot enough time to complete the document before the project start date?

Yes.

8. If the document has not been completed, did the applicant allot enough funds to complete it?

No.

Comments:

Please see comment #3. If a streambed alteration agreement is required there will be a fee associated with it and the applicant has not allotted funds to cover the fee.

9. Did the applicant adequately identify other legal or regulatory compliance issues (Incidental Take permits, Scientific Collecting permits, etc.) that may affect the project? **Yes.** 

Identify those additional permits that may be needed by this project:

1602 agreement possibly. Consult with DFG if structure will be built in waterway.

10. Does the proposal include written permission from the owners of any private property on which project activities are proposed or, if specific locations for project activities are not yet determined, is it likely that permission for access can be obtained?

Yes.

11. Do any of these issues affect the project's feasibility due to significant deficiencies in planning and/or budgeting for legal and regulatory compliance or access to property?

No.

Comments:

### **Environmental Compliance Review**

May or may not have a large fee for the 1602 agreement required.	nt if
required.	

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

No.

2. Does the Budget Form include a detailed budget for each task identified on the Task and Deliverables Form and in the proposal text?

#### No.

If no, please explain:

Budget Summary submitted only. Was not able to access budget detail.

3. Are the costs associated with each task and deliverable reasonable costs for performing the services?

#### Yes.

If no, please explain:

#### However, no detail budget provided

4. Is each person (employee, consultant, subcontractor, etc.) identified on the Personnel Form also included on the Budget Form?

#### No.

If no, please explain:

#### No detail

5. Are there estimated hours and an associated hourly rate of compensation for each person identified on the Personnel, Tasks and Deliverables, and Budget forms?

#### No.

If no, please explain:

#### No detail provided

6. Does the budget include the benefit rate for all personnel identified on the Personnel and Budget forms?

#### No.

If no, please explain:

#### No detail provided

7. Are the proposed labor rates comparable to state rates?

No.

8. Is more than 25% of the work proposed to be performed by subcontractors?

#### Yes.

If yes, what is the exact percentage to be performed by subcontractors?

# Possibly. Various staff from other entities identified. No detail provided for subcontractors

9. Are project management expenses appropriately budgeted?

#### No.

If no, please explain:

#### Unable to determine.

10. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs? Are indirect rates, if used, appropriately applied?

#### No.

If no, please explain:

#### Unable to determine rate without detail

11. Does the proposal adequately explain major expenses? Are the labor rates and other

charges proposed reasonable in relation to current state rates?

#### No.

If no, please explain:

#### No detail expenditure provided

12. For equipment >=\$5,000, was a separate worksheet filled out? Please note: No overhead or indirect rate charges are allowed on the equipment purchases

#### No.

13. Is the purpose for all travel clearly represented in either the proposal itself, or in the Tasks and Deliverable Form?

Please note: Recurring travel costs for a specific task or subtask may be combined into one entry on the Budget Form, but the number of trips and cost for each trip must be clearly represented.

#### No.

14. Are travel and per diem at <u>rates specified by the California Department of Personnel Administration</u> for similar employees?

#### Yes.

15. Are other agencies contributing or likely to contribute a share of the projects? costs?

#### Yes.

If yes, when sufficient information is available, please total the amount of matching funds likely to be provided:

#### \$43,000

16. If the applicant identified cost share or matching funds, are they also described in the text of the proposal?

#### Yes.

17. Does the applicant take exception to the standard grant agreement's terms and conditions? If yes, are the approaches the applicant proposes to address these issues a reasonable starting point for negotiation a grant agreement?

#### Yes.

18. Are there other budget issues or "red flags" that warrant consideration?

#### Yes.

If yes, please explain:

Not enough detail was submitted in the proposal to properly evaluate budget costs. I recommend requesting a detailed budget for the primary and proposed subcontractors.

19. Provide revised amount requested based upon your review: **\$0**