

# **Proposal Reviews**

## **#146: EFFECTS OF RIPARIAN NON-NATIVE INVASIVE SPECIES REMOVAL ON FISHERIES IN SANTA CLARA VALLEY**

Santa Clara Valley Water District

**Research and Restoration Technical Panel Review**

**Bay Regional Review**

**External Scientific Review**

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# Research and Restoration Technical Panel Review:

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

**Proposal Number:** 146

**Applicant Organization:** Santa Clara Valley Water District

**Proposal Title:** EFFECTS OF RIPARIAN NON-NATIVE INVASIVE SPECIES REMOVAL ON FISHERIES IN SANTA CLARA VALLEY

**Review:**

**Please provide an overall evaluation summary rating:**

**Superior:** outstanding in all respects;

**Above Average:** Quality proposal, medium or high regional value, and no significant administrative concerns;

**Adequate:** No serious deficiencies, no significant regional impediments, and no significant administrative concerns;

**Not Recommended:** Serious deficiencies, significant regional impediments or significant administrative concerns.

<b>Overall Evaluation Summary Rating</b>	<b>Provide a brief explanation of your summary rating</b>
-Superior	<b>Although this project offers considerable promise, the study design is fatally flawed. The absence of reference sites will result in a data set that is not interpretable. If reference sites were incorporated, and hypotheses articulated, it would be a very worthwhile study. Detailed description of what is needed for an adequate study design can be found in the individual reviews.</b>
-Above average	
-Adequate	
XNot recommended	

1. **Goals and Justification.** Does the proposal present a clear statement of goals, objectives and hypotheses? Does the proposal present a clear justification and conceptual model for the project?

**The goal of the project is to determine the impact on aquatic biota of eradicating an invasive-non-native weed. This study addresses an important problem. However, a conceptual model of expected impacts is not provided, specific hypotheses are not articulated, and, most importantly, reference sites were not a part of the study design.**

2. **Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).** Is the project likely to succeed based on the approach, feasibility and project team capabilities? Are the proposed performance measures adequate for measuring the project's success?

**The study could produce a valuable outcome if a valid experimental design were developed based on testable hypotheses. Reviewers were particularly concerned that reference sites were not designated to control for changes occurring over time unrelated to the management action. Therefore the investigators will be unable to attribute any changes observed to the eradication actions. In addition, there was concern that sampling methods were inadequately described.**

3. **Outcomes and Products.** Will the project advance the state of scientific knowledge in general and/or make an important contribution to the state of knowledge of the Bay-Delta Watershed? For restoration proposals, is the project likely to contribute to ecosystem restoration or species recoveries in a significant way? Will the project produce products useful to decision-makers and scientists?

**If the study had been adequately designed, it could produce a product useful to decision-makers.**

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

**The budget is reasonable and builds on an existing restoration project.**

5. **Regional Review.** How did the regional panel(s) rank the proposal (High, Medium, Low)? Did the regional panel(s) identify significant benefits (regional priorities, linkages with other activities, local involvement) or impediments (local constraints, conflicts with other activities, lack of local involvement) to this proposal? What were they?

**Regional review ranked this proposal low because it is not about habitat restoration for at-risk species. The project should attempt to involve Santa Clara Valley Watershed Initiative.**

6. **Administrative Review.** Were there significant concerns about the proposal with regard to the prior performance, environmental compliance and budget administrative reviews? What were they?

**No concerns with prior performance or budget. The need for an Incidental Take Statement needs to be indicated on the Compliance Checklist. No timeline for obtaining permits, but project is feasible.**

**Miscellaneous comments:**

**None**

## Bay Regional Review:

**Proposal Number:** 146

**Applicant Organization:** Santa Clara Valley Water District

**Proposal Title:** EFFECTS OF RIPARIAN NON-NATIVE INVASIVE SPECIES REMOVAL ON FISHERIES IN SANTA CLARA VALLEY

Overall Ranking:    Low    Medium    High

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

**The regional panel favors research that delivers scientific information which improves understanding about habitat restoration for at-risk species. This project doesn't hit that target, because its results aren't likely to be widely applicable to other SF BAY anadromous fish streams, and because it is outside ERP ecozones.**

1. Is the project feasible based on local constraints?

Yes No

How?

**- project is based on separately funded invasive species eradication program in Santa Clara Valley - covers the necessity of fish survey permits from DFG and NMFS**

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

Yes No

How?

**Out of ERP ecozone - ERP goals related to studies of non-native invasives (MR-1/BR-3)): Control NIS + Bay region # 8 )monitoring to develop strategies to restore Bay fish populations. Panel is skeptical that this project will provide useful approach to improving fish habitats.**

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

Yes No

How?

**- this project is connected to Santa Clara Valley Water District's Arundo Donax removal projects and Fisheries and Habitat Collaborative Effort and Audubon Society project, but not other projects**

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

-Yes XNo

How?

**- SCVWD will work with the Audubon Society's Invasive Plant Monitoring Project, but doesn't mention the Santa Clara Valley Watershed Management Initiative, a large watershed effort with comprehensive stakeholder and agency involvement**

Other Comments:

**none**

# External Scientific: #1

## Research and Restoration External Scientific Review Form

Proposal Number: 146

Applicant Organization: Santa Clara Valley Water District

Proposal Title: **EFFECTS OF RIPARIAN NON-NATIVE INVASIVE SPECIES REMOVAL ON FISHERIES IN SANTA CLARA VALLEY**

### Conflict of Interest Statements:

I have no financial interest in this proposal.

Correct

Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

### Review:

Please provide an overall evaluation summary rating:

Excellent: outstanding in all respects;

Good: quality but some deficiencies;

Poor: serious deficiencies.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Excellent	<b>The experimental design of the project is flawed, and therefore results will not be interpretable in relation to the manipulation (invasive plant removal).</b>
-Good	
XPoor	

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

**The stated goal of the project is to "implement an adaptive management standard to evaluate the fisheries and fish habitat effects ... of the eradication of non-native plant species in riparian habitats." Unfortunately, the "adaptive management standard" is never clearly defined and the specific objectives and hypotheses are not clearly stated. In fact, testable hypotheses are never advanced. Predicted responses to the plant removal also are not stated, aside from some vague references to bank erosion. It would be helpful to see predictions about how fisheries and other aquatic resources are anticipated to respond to the manipulation.**

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?

**I believe that this study could provide valuable information if (1) testable hypotheses were advanced, and (2) a valid experimental design were developed (see below). A conceptual model was not clearly developed in this proposal. The research project (evaluation) is to be coupled with a full-scale implementation project (invasive plant eradication); this aspect of the study has merit. However, the entire proposal is inadequately referenced (3 literature citations in the entire proposal, and these appeared at the end). Therefore, there is no way to evaluate the existing knowledge base relative to this proposal beyond a simple 'trust us, nothing is known about this problem'.**

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?

**Unfortunately, the experimental design as presented is fatally flawed. The approach is to evaluate 12 eradication projects before (pre-) and after (post-) the plant removal. Superficially, this appears to be adequate replication, but in reality there are NO CONTROLS for these replicates. This is because an intervening system change (between the samplings) unrelated to the eradication could affect aquatic ecosystem structure independent of the manipulation. For example, a drought or flood year could change fisheries and fish habitat independent of the eradication, and there would be no way to distinguish its effects from those of the manipulation. The only way to control for this possibility is to have another set of replicates in which NO PLANT REMOVAL is performed. These would also have to be measured coincident with pre- and post- plant removal in the other replicates. With these controls, the CHANGE in the systems could be compared in the manipulated versus the unmanipulated set of replicates using standard statistical approaches. This is well known and widely accepted experimental design in ecology known as the Before-After-Control-Impact, or BACI, design (Stewart-Oaten et al. 1986; Ecology 67:929-940) or the slightly more sophisticated Randomized Intervention Analysis, or RIA, design (Carpenter et al. 1989; Ecology 70:1142-1152. It would be much better to reduce the manipulated plots to 6 or so, and then include another 6 or so unmanipulated plots. The current design, unfortunately, will yield statistically meaningless and uninterpretable results. Therefore, it is not productive to discuss the value of the information for decision-makers.**

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 current approach is likely feasible, but as detailed above will not produce valid and defensible results. Therefore, even if all the elements could be implemented successfully, the results would be of limited scientific usefulness.**

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

**The performance measures, as presented, are extremely vague. They are variously described as "changes in fisheries populations", "population attributes will be compared", "invertebrate samples would provide indices", "any changes in invertebrate population", and "water quality**

**information". None of these changes, attributes, information, or indices are described in sufficient detail to allow rigorous evaluation.**

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?

**I can detect no statistically rigorous products that will emerge from this research. At best, a major change in aquatic characteristics following the plant removal can be possibly attributed to the plant removal. I want to emphasize, however, that a redesigned experiment might be able to provide information of value to riparian restoration efforts in the west.**

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 ESA (consulting firm) team appears to have the academic credentials, training, and experience to conduct the fisheries portion of the project, but a statistician should be brought on board to help with the experimental design and statistical analysis. The qualifications of the SCVWD personnel are undescribed and therefore unclear.**

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

**The budget appears to quite reasonable.**

**Miscellaneous comments:**



## External Scientific: #2

### Research and Restoration External Scientific Review Form

Proposal Number: **146**

Applicant Organization: **Santa Clara Valley Water District**

Proposal Title: **EFFECTS OF RIPARIAN NON-NATIVE INVASIVE SPECIES REMOVAL ON FISHERIES IN SANTA CLARA VALLEY**

#### Conflict of Interest Statements:

I have no financial interest in this proposal.

Correct

Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

**none**

#### Review:

**Please provide an overall evaluation summary rating:**

**Excellent: outstanding in all respects;**

**Good: quality but some deficiencies;**

**Poor: serious deficiencies.**

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
<input checked="" type="checkbox"/> Excellent	<b>This project adds a valuable monitoring component to assess the impact of existing giant reed eradication projects on aquatic biota. It answers two important questions in a cost-effective manner: Does this non-native invasive impact the aquatic biota? and Do aquatic species benefit from its removal?</b>
<input type="checkbox"/> -Good	
<input type="checkbox"/> -Poor	

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

**The goal of this research is to determine the impact of eradication of giant reed (*Arundo donax*) on fisheries, fish habitat, water quality and invertebrates. The goals are clearly stated and the study addresses an important problem.**

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?

**There is clear and convincing evidence for the problems for riparian flora and fauna caused by the invasion of giant reed, but there is less evidence for its impact on the aquatic environment. Hence the benefits for aquatic biota of its removal are also unclear. Hence this research is well justified.**

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 is appropriate (although suggestions for improvements follow), and should provide information useful to individuals making decisions about whether or not to eradicate this invasive species. The team proposes to sample 12 sites where giant reed eradication (paid for by other funds) is going to occur. Initial sampling during summer 2002 will establish the pre-eradication conditions. The investigators should consider adding a couple reference sites that would aid in interpretation of interannual patterns. Two types of reference sites are needed. One set would represent sites unimpacted by giant reed grass and another set would represent sites where giant reed grass is present but is not being eradicated. These sites would help respond to criticisms such: how do you know that the changes observed are not simply a consequence of interannual variation in hydrologic (or some other) conditions? In terms of proposed surveys, the team would be wise to do a more thorough geomorphic characterization of the sites before and after eradication (e.g. bank stability, pebble counts, slope).**

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 clearly feasible with high likelihood of success. The investigators propose using Rapid Bioassessment Protocols to assess the invertebrate response. They suggest identification to order or family. The investigators appear to have the taxonomic skills to carry the identifications to genus, and much recent bioassessment research has suggested this is a more powerful tool for assessing the status of the invertebrate assemblage. RBP is not very sensitive to subtle changes in the biota. I also wonder about single summertime samples for the invertebrates. In other parts of the country, that would be the worst time to sample for invertebrates since most aquatic insects would have emerged and only early instars would be present. Have insect life histories been taken into consideration when designing this sampling scheme?**

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?

**These are adequate, although as mentioned above, I think additional reference sites are needed for this analysis.**

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 study should help answer the question as to the impact of this non-native invasive on aquatic biota and whether aquatic biota would benefit from its removal. That seems like a valuable product to me.**

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 investigators appear well qualified to do the proposed research.**

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

**This project is highly cost effective. They propose sampling sites where eradication efforts are being funded by another source. This is taking advantage of existing restoration projects and adds a valuable assessment component to an ongoing restoration project at a reasonable cost.**

**Miscellaneous comments:**

### External Scientific: #3

#### Research and Restoration External Scientific Review Form

Proposal Number: **146**

Applicant Organization: **Santa Clara Valley Water District**

Proposal Title: **EFFECTS OF RIPARIAN NON-NATIVE INVASIVE SPECIES REMOVAL ON FISHERIES IN SANTA CLARA VALLEY**

#### Conflict of Interest Statements:

I have no financial interest in this proposal.

Correct

Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

**none**

#### Review:

**Please provide an overall evaluation summary rating:**

**Excellent: outstanding in all respects;**

**Good: quality but some deficiencies;**

**Poor: serious deficiencies.**

<b>Overall Evaluation Summary Rating</b>	<b>Provide a brief explanation of your summary rating</b>
-Excellent	<b>The proposed project seems desirable, however regional reviews rank it low and the proposal is lacking in some aspects of design. Adaptive management should not be used as an excuse to use a less rigorous scientific approach in research projects.</b>
-Good	
XPoor	

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

**Good: The goal appears to be to implement an "adaptive management standard to evaluate ...eradication of non-native invasive plant species" and the objective is to "develop models of stream response to giant reed removal... ecosystems." Both "adaptive management" and "models" remain undefined.**

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?

**Poor: The impact of invasive plant species apparently adequately justifies the conduct of this study. Not one citation from the literature is cited to support the applicant's position on invasive species in the justification.**

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?

**Poor: Several important elements in the Approach seem to be lacking if this is to be a "research" project as proposed by the applicants. The pre and post removal strategy lacks a true control over the time series of 3 years for the project. Fish surveys are not described, and proving a significant difference may be difficult with low statistical power expected.**

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?

**Fair: Site selection process is unclear and may be critical in the final process when applicability of results to larger areas is attempted. If improvements are made in sample site selection, test and control, and evaluation of fish surveys, the project is much more feasible.**

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?

**Poor: The objective is stated differently under Performance Measures compared to the Problem section. The proposal states "changes in invertebrate populations will supplement fish change data" and "water quality will supplement observed changes in fish or invertebrates." This is a very vague description for performance measures.**

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?

**Fair: This was proposed as a research project and as such a potential product should be a peer reviewed publication. However the products expected are "continual learning process" and "adaptive management." Not even a report is explicitly proposed in this section.**

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

**Good: Applicant's credentials are very good but qualification statements do not demonstrate recent achievements.**

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

**Very good: Cost is reasonable, however this project may not be reasonable at any price. A better design should be used with a true control and cost should be reallocated to improve the evaluation on about half as many test plots.**

**Miscellaneous comments:**

## **Prior Performance/Next Phase Funding:**

**New Proposal Number:** 146

**New Proposal Title:** EFFECTS OF RIPARIAN NON-NATIVE INVASIVE SPECIES REMOVAL ON FISHERIES IN SANTA CLARA VALLEY

1. Prior CALFED project numbers, titles, and programs: *(list only projects for which you are the contract manager)*

**WUE Proposal #WUE01-0046.pdf Title: Landscape & Ag Area Measmt. & Water Budgets For CALFED WUE through DWR**

2. Prior CVPIA project numbers, titles, and programs: *(list only projects for which you are the contract manager)*

**None**

3. Have negotiations about contracts or contract amendments with this applicant proceeded smoothly, without persistent difficulties related to standard contract terms and conditions?

-Yes -No **XN/A**

If no, please explain any difficulties:

**N/A: too early in project**

4. Are the status, progress, and accomplishments of the applicant's current CALFED or CVPIA project(s) accurately stated?

-Yes -No **XN/A**

If no, please explain any inaccuracies:

**N/A: too early in project**

5. Is the applicant's progress towards these project(s)' milestones and outcomes to date satisfactory?

-Yes -No **XN/A**

If no, please explain deficiencies:

**N/A: too early in project**

6. Is the applicant's reporting, records keeping, and financial management of these projects satisfactory?

-Yes -No **XN/A**

If no, please explain deficiencies:

**N/A: too early in project**

7. Will the project(s) be ready for next phase funding in 2002, based on its current progress and expenditure rates?

-Yes -No N/A

If no, please explain:

**N/A: This proposal is very different and unrelated to the WUE project.**

Other Comments:



## **Environmental Compliance:**

**Proposal Number:** 146

**Applicant Organization:** Santa Clara Valley Water District

**Proposal Title:** EFFECTS OF RIPARIAN NON-NATIVE INVASIVE SPECIES REMOVAL ON FISHERIES IN SANTA CLARA VALLEY

1. Are the legal or regulatory issues that affect the proposal identified adequately in the proposal?

Yes No

If no, please explain:

**Although it is not checked off on the Compliance Checklist, the applicant does state under the feasibility section, an Incidental Take Statement will be required for Steelhead.**

2. Does the project's timeline and budget reflect adequate planning to address legal and regulatory issues that affect the proposal?

Yes No

If no, please explain:

**There is no time or budget allocated toward obtaining the proper permits and completing the environmental documents.**

3. Do the legal and regulatory issues that affect the proposal significantly impair the project's feasibility?

Yes No

If yes, please explain:

**If they obtain the proper permits, the project is feasible.**

Other Comments:

## **Budget:**

**Proposal Number:** 146

**Applicant Organization:** Santa Clara Valley Water District

**Proposal Title:** EFFECTS OF RIPARIAN NON-NATIVE INVASIVE SPECIES REMOVAL ON FISHERIES IN SANTA CLARA VALLEY

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

Yes -No

If no, please explain:

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

Yes -No

If no, please explain:

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

Yes -No

If no, please explain:

4. Are appropriate project management costs clearly identified?

Yes -No

If no, please explain:

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

Yes -No

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

6. Does the budget justification adequately explain major expenses?

Yes -No

If no, please explain:

7. Are there other budget issues that warrant consideration?

-Yes No

If yes, please explain:

Other Comments:

**well defined in both budget summary/justification.**