

# Proposal Reviews

## #101: Water Temperature Models for the Merced River and Reservoirs

Natural Resource Scientists, Inc.

**Initial Selection Panel Review**

**Research and Restoration Technical Panel Review**

**San Joaquin Regional Review**

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## Initial Selection Panel Review:

### CALFED Bay-Delta 2002 ERP PSP Initial Selection Panel Review

**Proposal Number:** 101

**Applicant Organization:** Natural Resource Scientists, Inc.

**Proposal Title:** Water Temperature Models for the Merced River and Reservoirs

Please provide an overall evaluation rating.

#### Explanation of Recommendation Categories: Fund

- **As Is** (a proposal recommended for funding as proposed)
- **In Part** (a proposal for which partial funding is recommended for selected project phases or components)
- **With Conditions** (a proposal for which funds are recommended if the applicant contractually agrees to meet the specified conditions)

**Consider as Directed Action in Annual Workplan** (a proposal addressing a high priority action that requires some revision followed by additional review prior to being recommended for funding)

**Not Recommended** (a proposal not currently recommended for funding-after revision may be considered in the future)

#### Note on "Amount":

For proposals recommended as Fund As Is, Fund In Part or Fund With Conditions, the dollar amount is the amount recommended by the Selection Panel.

For proposals recommended as Consider as Directed Action in Annual Workplan, the dollar amount is the amount requested by the applicant(s).

<b>Fund</b>	
<b>As Is</b>	-
<b>In Part</b>	-
<b>With Conditions</b>	-
<b>Consider as Directed Action</b>	-
<b>Not Recommended</b>	<b>X</b>

Amount: **\$0**

Conditions, if any, of approval (if there are no conditions, please put "None"):

**none**

Provide a brief explanation of your rating:

**Knowledge of and management of river temperatures will help with restoration and sustainability of recovery of anadromous fish. This project addresses the need for and development of reservoir and river temperature models on the Merced. However, there is little or no mention of the applicability of similar models developed on other rivers, both nearby and elsewhere, but indication that the study will start with some established general temperature models does not adequately address this weakness. Also, there is no mention of previous work on the Merced re: temperature modelling but there are vague statements about gathering data (e.g., Task 1). Development of a well designed, applicable research proposal should have incorporated existing knowledge and a thorough background literature review. Qualifications of the team relative to temperature modeling is not strong and the team should have included an experienced stream and reservoir temperature modeller.**

# Research and Restoration Technical Panel Review:

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

**Proposal Number:** 101

**Applicant Organization:** Natural Resource Scientists, Inc.

**Proposal Title:** Water Temperature Models for the Merced River and Reservoirs

**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>
XSuperior	<b>Technical reviewers strongly emphasized the dependency of such modeling on climatic data. Weather station data is usually not available in the immediate area. Therefore it is essential that calibration and validation efforts be a major focus of this project. To be credible such calibration and validation efforts must be submitted to outside peer review.</b>
-Above average	
-Adequate	
-Not 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?

**All technical reviewers agreed the project goals and objectives are clearly stated. The project is justified and the conceptual model is clear. The effort is timely and important for efficient delivery of reservoir releases temperatures suitable for salmonid production.**

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 approach is technically solid and previously tested in the field and likely to be successful.**

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?

**Performance measures are well documented and include peer-reviewed model documentation including calibration and validation. Product would be highly valuable, particularly if used in combination with other restoration activities.**

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

**Given the complex nature of the reservoirs and the requirement for model integration, the budget appears very reasonable.**

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?

**Reviewers rated the proposal as medium and indicated that the product is needed within the Merced River to enhance the utility of ongoing habitat restoration projects.**

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?

**Applicant has worked extensively with the operators of the reservoirs and river. Applicant was said to be a responsible contractor. No budget or environmental compliance issues were identified.**

**Miscellaneous comments:**

**None**

# San Joaquin Regional Review:

**Proposal Number:** 101

**Applicant Organization:** Natural Resource Scientists, Inc.

**Proposal Title:** Water Temperature Models for the Merced River and Reservoirs

Overall Ranking:   -Low   Medium   -High

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

**Project is needed within the Merced River to enhance the utility of ongoing habitat restoration projects. Applicant did not present a thorough review of existing temperature information on the system, which includes at least one previous modeling attempt. Lack of integration of all San Joaquin River tributary temperature work is a concern.**

1. Is the project feasible based on local constraints?

Yes -No

How?

**Applicant has worked extensively with the operators of the reservoirs and river, as well as having an ongoing relationship. Thermographs have been in the river for a number of years already, although the weather data may not be readily available.**

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

Yes -No

How?

**The project would meet the priorities of improving instream Chinook salmon habitat (SJ#3) and improve understanding of the at risk species (SJ#4). It probably also fits into the MR#5 which is avoiding degraded water quality.**

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?

**Maintaining adequate river temperatures is essential to the success of channel restoration projects that are planned or ongoing. This is part of a basin restoration planning effort.**

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

XYes -No

How?

**The water operators on the Merced River are directly involved in the project. The watershed groups are aware of the project. It would seem appropriate to more directly involve other scientists working on the river (eg. Advisory committee).**

Other Comments:

**The use of various models for the reservoirs may create some integration problems. The river temperature evaluations in the San Joaquin River basin are not very well coordinated.**

# External Scientific: #1

## Research and Restoration External Scientific Review Form

Proposal Number: **101**

Applicant Organization: **Natural Resource Scientists, Inc.**

Proposal Title: **Water Temperature Models for the Merced River and Reservoirs**

### 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>
<input checked="" type="checkbox"/> Excellent	<b>I rate this project as excellent for funding because it deals with a big picture parameter (without appropriate temperatures for growth and survival, physical habitat is a moot point), the costs are reasonable, and it provides a very powerful approach for decision-making and tradeoff analysis.</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 goals and objectives for the project "Water Temperature Models for the Merced River and Reservoirs" are clearly stated and internally consistent. The problem and justification for the work suggests that it is indeed both timely and important.**

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



**The study proposes to develop a thermal model for a network of reservoirs and streams in the Merced Basin. The work is clearly justified in that the quantity of water available for allocation should be balanced with providing suitable thermal habitat for salmonids in the Merced River. Based on the applicant's introduction, there does not appear to be a mechanism in place for predicting or quantifying thermal habitat and thus a sound basis for making management decisions regarding thermal habitat.**

**The applicants have the project listed as research, but I would also add that this project could be considered a demonstration project in that a thermal model is a powerful tool in providing resource managers and the public with both spatial and temporal trade-offs associated with different flow regimes. So, demonstration in the sense of being available to multiple venues for gaming and incremental analyses.**

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 solid and previously tested. While the work will contribute nothing new to basic science, it is highly applied and will provide objective analyses to stakeholders and decision-makers for assessing instream thermal habitat.**

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 proposed project is very feasible and highly likely to be successful, particularly when considering the applicant's experiences and previous work.**

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 are documented. However, it would be nice to see an additional year of work (perhaps in the next funding cycle) for an attempt at validation of the model. Ideally, >5 years of data would be collected for calibration of the model and at least one year of data could be used to assess model validation. In other words, a test of "how good is the model?" There currently is a sentence relating to validation, but I am unclear as to how it fits within the current work schedule.**

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 temperature model, documentation, and scenario output from this project would be highly valuable, particularly if used in combination with a prioritization of other restoration activities.**

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

**It appears that the infrastructure is adequate to complete the project. The proposal applicant and the subcontractor have highly respected reputations in conducting this type of work.**

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

**Given the complex nature of the reservoirs and the requirement for model integration, the budget appears very reasonable for the work proposed.**

**Miscellaneous comments:**

**While I have no knowledge of other work that is underway in the Merced Basin, it seems that a temperature model of this nature would add significantly to understanding the spatial and temporal ecology of the river and its reservoirs. The product should be made widely available to the stakeholders and I would encourage a scoping meeting with agency personnel, etc. to define alternative flow/release outlet scenarios for use in the model before the final report is produced.**

## External Scientific: #2

### Research and Restoration External Scientific Review Form

Proposal Number: **101**

Applicant Organization: **Natural Resource Scientists, Inc.**

Proposal Title: **Water Temperature Models for the Merced River and Reservoirs**

#### 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>A very good proposal that is a little short on the critical aspects of calibration and validation for the different models (reservoir, river hydraulics and temperature). As several models are to be linked the validation aspects are crucial.</b>
<input checked="" type="checkbox"/> Good	
-Poor	

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

**The goal is to produce a linked set of calibrated and validated models capable of describing the hydrodynamics and temperature in one dimension downstream of the Exchequer Reservoir. This effort is timely and important for efficient delivery of suitable temperatures for salmonid production.**

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?

**This project is well justified and based on a clearly stated conceptual model.**

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 proposal identifies the necessity for calibration and validation of the models but gives no detailed study design for accomplishing this. Such modeling is standard practice and the investigators have previous experience with such models. However they should give more discussion on design for model testing. The unique aspect is the integration of several models (reservoir, river hydrology and temperature). Even though there are standard model calibration and validation approaches of their design for validation.**

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?

**Technically feasible and should be successful and reduce the uncertainty associated with temperature/flow management.**

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 include peer-reviewed technical documentation of the models including calibration and validation procedures and reports.**

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 ultimate product is the operating linked model with technical documentation.**

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?

**Investigators are capable, are presently involved with ongoing monitoring studies in the Merced River and have experience with such modeling in other streams.**

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

**The proposed budget is very reasonable.**

**Miscellaneous comments:**

**None**

# External Scientific: #3

## Research and Restoration External Scientific Review Form

Proposal Number: **101**

Applicant Organization: **Natural Resource Scientists, Inc.**

Proposal Title: **Water Temperature Models for the Merced River and Reservoirs**

### 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>
<input checked="" type="checkbox"/> Excellent	<b>The cost and timely delivery of products appear to move toward a potential solution in a timely manner.</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?

**Very good. In as much as a feasibility study has been conducted the goals are practical and timely.**

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

**The project is identified in #5 as research but expected peer review and publication of results is minimal, the underlying basis for proposed study appears to be sound.**

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?

**Four years of water temperature data support the approach but little mention is made of meteorological data. The lack of local meteorological data in modeling water temperature can be a critical uncertainty in such a project. One dimensional model of reservoirs to be modeled as large rivers are not specifically identified.**

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?

**This phase appears to logically follow earlier feasibility studies therefore it appears 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?

**Success relative to the project's goals and objectives will be measured by peer review by CALFED staff and may be improved upon by requesting additional independent peerreview.**

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 third item under products indicates a final project will explicitly identify the thermal impacts of alternatives formulated by stakeholders. This is a very desirable approach and those stakeholders should have been specifically identified in this proposal.**

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?

**Very good.**

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

**Very good; the cost is reasonable considering the expected products are to be delivered in about one year.**

#### **Miscellaneous comments:**

**Availability of meteorological records within acceptable distance to be useful in modeling is an uncertainty. Temperature changes that are biologically significant were not identified. No goal in meeting temperature criteria is stated. Is Clean Water Act criteria the goal?**

## **Prior Performance/Next Phase Funding: #1**

**New Proposal Number:** 101

**New Proposal Title:** Water Temperature Models for the Merced River and Reservoirs

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

**01-N48, Juvenile Salmon Migratory Behavior Study in North, Central, and South Delta, ERP.**

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

If no, please explain any difficulties:

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

Yes -No -N/A

If no, please explain any inaccuracies:

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

Yes -No -N/A

If no, please explain deficiencies:

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

-Yes -No N/A

If no, please explain deficiencies:

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:

Other Comments:

**According to the agreed timeline, Natural Resource Scientists, Inc., only recently commenced work on CALFED project #01-N48. N/A on questions 6 & 7 because invoices have not yet been generated. There are no reasons to anticipate there will be any difficulties.**



## **Prior Performance/Next Phase Funding: #2**

**New Proposal Number:** 101

**New Proposal Title:** Water Temperature Models for the Merced River and Reservoirs

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

**01-N48 Juvenile Salmon Migratory Behavior Study.**

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

If no, please explain any difficulties:

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

Yes -No -N/A

If no, please explain any inaccuracies:

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

Yes -No -N/A

If no, please explain deficiencies:

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

Yes -No -N/A

If no, please explain deficiencies:

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:

Other Comments:

**Contract for this project was executed in August of 2001, no deliverables completed.**

## **Prior Performance/Next Phase Funding: #3**

**New Proposal Number:** 101

**New Proposal Title:** Water Temperature Models for the Merced River and Reservoirs

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

### **Temperature Feasibility Study on the Merced River Contract # 10181-1-Y144**

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 -N/A

If no, please explain any difficulties:

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

Yes -No -N/A

If no, please explain any inaccuracies:

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

Yes -No -N/A

If no, please explain deficiencies:

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

Yes -No -N/A

If no, please explain deficiencies:

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:

Other Comments:

**Dave Vogel has been a responsible contractor for the FWs.**

## **Environmental Compliance:**

**Proposal Number:** 101

**Applicant Organization:** Natural Resource Scientists, Inc.

**Proposal Title:** Water Temperature Models for the Merced River and Reservoirs

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

Yes -No

If no, please explain:

**Water sampling and modeling only, no permits or environmental documentation necessary.**

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:

**N/A**

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

-Yes No

If yes, please explain:

Other Comments:

## **Budget:**

**Proposal Number:** 101

**Applicant Organization:** Natural Resource Scientists, Inc.

**Proposal Title:** Water Temperature Models for the Merced River and Reservoirs

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: