

# CALFED Science Program PSP Grant

## Supplement Proposal

### Technical Selection Panel Review

**Grant Supplement Identification:** *Stewart (Cloern)*

**Applicant Organization:** U. S. Geological Survey

**Grant Supplement Title:** CASCaDE: Computational Assessments of Scenarios of Change for the Delta Ecosystem

**Original Grant (Year):** CASCADE: Computational Assessments of Scenarios of Change for the Delta Ecosystem (2004)

## Review

*The following review form has been broken down into three subsections: (1) technical review criteria, (2) value added review criteria, and (3) funding recommendation. It includes a review and summary rating for each of these subsections using all review criteria. Technical criteria is separated from the value added criteria because these issues will be weighed separately, but with equal importance. No supplement proposals will be funded that are rated inadequate in either criteria.*

### Subsection 1: Technical Review

*Review about the technical merit of the supplement proposal. Criteria for consideration are:*

#### ***Technical Review Criteria***

- ***Purpose:*** *Are the goals, objectives and hypotheses of the supplement proposal clearly stated and internally consistent?*
- ***Background:*** *Is the underlying basis for the supplemental work clearly explained and well documented?*
- ***Approach:*** *Is the approach to the supplemental work well designed and appropriate for meeting the objectives of the supplemental project? Is it clear who will be performing supplemental tasks including management and administration of the project and are resources set aside to do so?*
- ***Feasibility:*** *Is the approach for the supplemental work fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives and within the grasp of authors?*
- ***Budget:*** *Is it clear how much each aspect of the supplemental work will cost*

*including each task, salaries, equipment, etc.? Is the budget reasonable and adequate for the work proposed?*

- **Qualifications:** *Is the project staff qualified to efficiently and effectively implement the supplemental project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?*
- **Past Performance:** *Unless informed otherwise by CALFED staff, reviewers should assume that the applicants have met the commitments indicated on their existing CALFED grant/contract.*

## **Technical Review Summary**

*The technical review of this supplement proposal is provided in the space below and addresses each of the technical review criteria (above), including strengths, weaknesses, and specific reasons supporting the evaluation.*

**Purpose:** Funds are requested to do selenium and carbon stable isotope analyses on archived *Corbula* samples (collected 2003 – 2007) to improve the empirical relationship between San Joaquin River inflows and Se concentrations in *Corbula* and to enhance phytoplankton modeling. In addition, funds are requested for additional technician time to improve Hg modeling. Both of these models are a part of the CASCaDE project exploring impacts on the Bay by alterations in freshwater inflow from climate change and water management.

**Background:** Se concentrations in *Corbula* have been used to reveal spatial and temporal patterns of Se in the estuary. In addition, the clams are vectors of Se to higher trophic levels (specifically White and likely Green sturgeon). Sources of Se are from both agriculture and oil refineries, largely in the San Joaquin River. Climate change and conveyance options currently being explored will likely alter the proportion of San Joaquin River water entering the estuary.

**Approach:** Se analyses will be done on archived clam samples from years with greater variability in freshwater flow than data already analyzed. In addition, recent findings have demonstrated that the C isotope signature can be related to ratio of San Joaquin to Sacramento River water in the estuary, but it is not clear whether the relationship is with the timing and magnitude, or proportion of freshwater inflows. The proposed analyses are designed to resolve that question. Funds are also requested to analyze the N and C isotope signatures of clams relative to the phytoplankton biomass for input into CASCaDE models of phytoplankton and transport.

The proposed research extends data collected under previous CALFED and other funding and is linked to and likely to improve the models in CASCaDE.

**Feasibility:** The analyses are straightforward and done routinely by this group. The samples are archived. This is clearly feasible.

**Budget:** Funds are requested for technician time (although in the budget it looks like post doc funds) to do sample processing and costs of sample analyses. The currently funded research is a relatively small (about \$80,000) piece of the larger CASCaDE budget. The funds requested in this supplement are twice what are funded in the original proposal for this task, but they are reasonable for the research proposed.

**Qualifications:** The individuals are clearly qualified to do this research.

**Past performance:** The individuals are productive; discovering the relationship between Se and freshwater inflows (that is the basis for much of this proposal) is evidence of their past performance.

### ***Technical Rating Criteria***

*Rating of the technical merit of the supplement proposal based on the following scale:*

- **Superior:** Outstanding in all respects with no technical concerns. Complete confidence proponents will accomplish the project goals.
- **Above Average:** A very good proposal with no significant technical concerns. Very confident proponents will accomplish the project goals.
- **Sufficient:** A reasonable proposal with some technical deficiencies but nothing critical. Fairly confident proponents will accomplish most of their project goals.
- **Inadequate:** A technically deficient proposal with serious impediments or concerns. Little confidence proponents will accomplish many project goals.

Please **X** the appropriate technical rating:

- Superior  
 Above Average  
 Sufficient  
 Inadequate

### ***Explanation of rating and additional comments:***

The applicants are highly qualified and the research proposed is straightforward. It seeks to improve a relationship recently discovered. If this relationship between freshwater inflows and Se can be further refined, it will prove very useful in evaluating consequences of both climate change and alternative conveyances currently being discussed.

Proposal is very compact and well drawn with the potential for a lot of impact.

## **Subsection 2: Value Added Review**

*Review about the value added of the supplement proposal. Criteria for consideration are:*

## ***Value Added Review Criteria***

- **Purpose:** *Is the new study justified relative to existing knowledge? Are new results likely to add to the base of knowledge? Is the supplemental project likely to generate novel information, methodology, or approaches? Is it clear how the purpose of the supplemental work differs from the work in the existing grant/contract?*
- **Relevancy:** *Is it clear how the supplement proposal evolved from and relates to the existing grant/contract? Does the supplement proposal clearly and directly address one or more of the objectives/priorities in the existing grant/contract? Does the supplement proposal identify new relevancies to CALFED priorities not identified in the existing grant/contract?*
- **Timeliness:** *Does the supplement proposal clearly illustrate the need for immediate funding before the next Science Program PSP cycle (1 to 2 years)?*
- **Approach:** *Is it clear how the approach of the supplemental work differs from and adds to the work in the existing grant/contract?*
- **Products:** *Are products of value likely from the supplemental project that differ from those proposed in the existing grant/contract? Is there a plan for widespread and effective dissemination of information gained from the supplemental project?*
- **Budget:** *Is it clear that supplemental funds are going to new or revised tasks or equipment relative to those proposed in the existing grant/contract? Considering the amount of funding requested in the proposed budget, is there a high value in terms of knowledge gained for the CALFED Program relative to other proposals you are familiar with (i.e. “bang for the buck”)?*

## ***Value Added Review Summary***

*The value added review of this supplement proposal is provided in the space below and addresses each of the value added criteria (above), including strengths, weaknesses, and specific reasons supporting the evaluation.*

**Purpose:** The study is based on a newly discovered relationship with clear relevance to both climate change and water management options. It extends the work being done on the currently funded project in a manner that will make it more worthwhile.

**Relevancy:** It is clear how the proposed research grew from the existing grant. It is highly relevant to an issue that was not recognized at the time of the initial PSP, namely conveyance options. It would provide data relevant to that question that should prove very useful in those policy discussions.

**Timeliness:** If the research can be completed by the end of 2008, as suggested in the proposal, it will be available as Delta Vision is completing some of its recommendations. The findings from this study will be highly relevant to those debates. Hence, the Panel sees this as a very timely request.

**Approach:** The approach clearly adds to what is being done in the currently funded research.

**Products:** The results from this research will fit directly into the current policy debate. There is not a plan to provide that input, and that should be provided prior to funding.

**Budget:** This is a reasonable request for funding. Because the samples have already been collected, this is a high “bang-for-the-buck” project.

### ***Value Added Review Rating***

*Rating of the value added merit of the supplement proposal based on the following scale:*

- ***Superior:*** Outstanding scientific value with a pressing need for immediate funding and expected to add substantial new thinking/concepts to our knowledge/understanding on one or more highly relevant CALFED topics for a very reasonable supplemental cost.
- ***Above Average:*** At least high scientific value and a clear need for rapid funding. Expected to add solid basic new thinking/concepts to our knowledge/understanding on one or more highly relevant CALFED priority research topics for a very reasonable supplemental cost.
- ***Sufficient:*** A supplement proposal with a fair amount of scientific value and need for timely funding and expected to add some basic new thinking/concepts to our knowledge/understanding on one or more adequately relevant CALFED topics for a reasonable supplemental cost.
- ***Inadequate:*** A supplement proposal that has little scientific value or need for timely funding. Not expected to add significant new thinking/concepts to our knowledge/understanding on relevant CALFED topics or the supplemental cost is unreasonable for the knowledge gained.

Please select the appropriate rating with an **X**:

- X** Superior
- Above Average
- Sufficient
- Inadequate

### ***Explanation of rating and additional comments:***

The research is feasible, timely, and will provide valuable input to an important policy discussion (conveyance options).

### **Subsection 3: Funding Recommendation and Justification**

*Funding recommendation for this supplement proposal and a justification of this recommendation.*

Select one of the following three funding recommendations with an **X**:

Fund in Full

Fund with modifications

Suggested Funding Amount \$ \_\_\_\_\_

Do not fund

*Justification to recommendation. If the recommendation is to fund with modifications, modifications the applicants must make in order to receive funds are listed.*

The research is without technical problems. It is being done by individuals highly qualified to do the research and is based on archived samples, which greatly reduces the cost of the project. The research will provide valuable information to a currently pressing policy debate (conveyance options) in addition to contributing to understanding impacts of climate change. If the funds have to be cut, the phytoplankton modeling seems to be the less critical aspect of the research.

If funded, the applicants need to coordinate their activities with Dugdale and Mueller-Solger proposal that will be doing analyses of phytoplankton in the rivers and upper estuary. The phytoplankton modeling proposed here should be coordinated with them.

#### **Additional Remarks**

Prior to funding, the panel would also like the researchers to identify how their results can provide input into Delta Vision given the relevance to management of flows in the San Joaquin.