

CALFED Science Program PSP Grant

Supplement Proposal

Technical Selection Panel Review

Grant Supplement Identification: *Klimley*

Applicant Organization: University of California, Davis

Grant Supplement Title: Survival and Migratory Patterns of Central Valley Juvenile Salmonids

Original Grant (Year): Survival and Migratory Patterns of Central Valley Juvenile Salmonids (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: The purpose is to improve the precision and accuracy of estimates about survivability during different stages in the seaward migration of wild and hatchery Chinook salmon and steelhead. This is an elaboration of their original proposal.

Background: Preliminary data showed that survival varied among river reaches, but the numbers of tagged fish released was not sufficient to provide precise estimates after fish had traveled downstream some distance as the surviving numbers were small. The original study has also been criticized for tagging only hatchery fish, so the supplemental study proposes to tag wild Chinook smolts as well.

Approach: The authors have done some modeling to determine the increase in measurement accuracy that would come from additional tags and have settled on a manageable increase in tags. The methods will remain the same as in tagging conducted to date. Wild-fall and late-fall Chinook captured in screw traps at various locations will also be tagged to begin assessment of wild fish survival. It is clear who will be performing the tasks. Two new biologists will be engaged to help with the extra tagging.

Feasibility: The increased numbers of hatchery fish to be tagged is quite feasible, and the likelihood of success for this part of the supplemental project is high. The appropriate scale of the project, even with the increased number of tags, is an issue. In the original releases, only five fish survived to reach the Golden Gate. Although adding additional downstream release sites and more detection sites should increase the numbers detected at the most seaward site, total numbers are still likely to be quite low suggesting that the power of the experiment is not great for estimating survival to the Golden Gate.

Tagging of wild fish poses another problem. Fish will be captured at screw traps along the river, transferred to UC Davis, and when enough have been accumulated, they will be tagged and released. There are several potential problems with this approach:

1. The screw traps captured few wild Chinook in 2007. With the anticipated very low escapement for 2008, it is quite likely that the screw traps will not capture 300 fall and late-fall Chinook.

2. Hatchery Chinook tagged to date have been of the late fall strain. The smolts captured in the screw traps are both late fall and fall. It is quite feasible that the two races have different migratory behavior and survival patterns. Comparing the wild and hatchery results will be difficult.

3. Holding the fish in captivity for several weeks while fish are accumulating has the potential to disrupt or alter their migratory behavior, especially those held longest.

Although getting data on wild salmon survival is important this part of the project seems the most risky.

Budget: Budget is quite detailed. Two items seem curious. It is not clear why one of the two proposed new biologists is to be in Santa Cruz, when all the work will be on the Sacramento and fish will be held at UC Davis. Not clear why an additional half-time administrator is needed for this supplement that is really an augmentation of the existing project with no new features.

Qualifications: We think the project staff is qualified, although the qualifications of the two new biologists are not certain.

Past Performance: The first run of the project had very few fish recovered; this identified the need to tag more fish at each release. In addition, they would like to tag wild fish in addition to hatchery fish. Additional funds would also be used to set up additional monitoring (listening) stations.

The study is well designed. The topic is very important, and they are competent researchers capable of accomplishing their goals. The hatchery part is feasible. There is a major concern regarding the wild fish. The expected escapement is expected to be very low this year. It may be impossible to incorporate wild fish into the program. Complication of disrupting the migration of the wild fish to tag them could cause behavior changes.

The set up of the receivers in this system is very unique for this complex system. They are also thinking about their study from a population perspective. This is a very strong proposal.

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
 ___**X**___ Above Average
 _____ Sufficient
 _____ Inadequate

Explanation of rating and additional comments:

The proposal is excellent except for the concerns about capture, release, and interpretation of data from wild fish.

There is some confusion over the additional administrative dollars in budget. Not clear why administrative dollars are necessary when the additional funds are for tags. Also, we are unclear what the students identified in the budget would be doing, and why one was assigned to Santa Cruz when the main tasks are at UC Davis and the Sacramento River.

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 project is an augmentation of the original proposal based on the discovery that they had underestimated the number of tags needed to measure survival with reasonable precision. The augmentation also includes tagging wild as well as hatchery Chinook. Both these aspects are justified in light of early results from the project and existing knowledge. The project will almost certainly generate better data for hatchery Chinook.

Relevancy: The supplemental proposal evolved directly from the early results of the original proposal. It is primarily an augmentation of the original proposal to address the need to release more tagged fish to get adequate data and to begin gathering information on wild Chinook. Objectives have not substantially changed, but given the mounting concern about Central Valley salmon, the proposal is important.

Timeliness: The timing will allow the proponents to take advantage of the ongoing project to provide logistics and expertise. Given the growing concern about Chinook and the recent Wanger decision about water exports and salmon, the results will be extremely important to future decisions about water management in the Delta.

Approach: Yes, the supplemental work differs from and adds to the work in the existing grant/contract. Covered in earlier comments above.

Products: Important products will include better characterization of survival of hatchery Chinook and steelhead, and initial measures of survival of wild Chinook (assuming enough are captured for tagging). The proposal does not include a description of how results will be communicated.

Budget: Budget seems reasonable. As noted earlier we are not sure why one of the new biologists is located at Santa Cruz or why an additional half-time admin position is needed.

Additional data for the hatchery fish would be very valuable, even if the tagging of wild fish is not fully successful.

Building additional arrays would be very valuable for the system and advancement of acoustic research. The infrastructure of listing and recording stations established for this project is impressive and opens the door to much more creative research.

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 potential improved precision from the relatively small number of additional tags makes the project high value added. Also the results are critical to important water and salmon management decision that will have to be made over the next few years.

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**:

- X** Fund in Full with justification (see note below)

_____Fund

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.

We question the extra administrative costs and the student at Santa Cruz. Why is the student not at UC Davis? Justification of these items is needed prior to funding.