

CALFED Science Program PSP Grant

Supplement Proposal

Technical Selection Panel Review

Grant Supplement Identification: *Kueltz*

Applicant Organization: University of California, Davis

Grant Supplement Title: Quantitative Indicators and Life History Implications of Environmental Stress on Sturgeon

Original Grant (Year): Quantitative Indicators And Life History Implications Of Environmental Stress On Sturgeon (2006)

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.

The PIs seek to place metal toxicity due to legacy Se and Mg contaminants into broader environmental and physiological contexts by evaluating how these metals interact with temperature and salinity in various individual responses (growth, survival, behavior) and by linking stress to more fundamental physiological change using stress proteins and proteomics. They have made the noteworthy discovery of increased mortality and depressed growth at relevant Se concentrations for green sturgeon, so much so, that one should ask if there might be population consequences. Despite some initial reviewer skepticism, the UC Davis aquaculture group has had noteworthy success in rearing green sturgeon, a necessary element for successful experiments. Green sturgeon was also more sensitive to MetHg than white sturgeon, albeit at concentrations higher than likely natural exposures. It was obvious that there is a nice suite of experiments that have been performed at environmentally relevant temperature and salinity levels, and across critical life history stages that bode well for rigorous inferences on how green and white sturgeon respond to the two legacy contaminants. Proteomics and histopathology, large elements in the original award is still under development; no results were shown.

In new work, the PIs propose to (1) continue rearing of green sturgeon to support experiments; (2) conduct a series temp. x sal. x Se exposure studies on white (and green?) juvenile sturgeon; examine vital rate, behavioral and histopathological response; (3) Use proteomics to model the effects of juvenile Se exposure on likely adult reproductive tissue function; (4) Continue collecting gill biopsies for biomarkers.

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:

Lack of apparent progress on proteomics and histopathological responses cause some concern on feasibility and coordination in the supplemental request.

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.

Members of the group have clearly had success, and there is an argument that there is momentum that should continue, particularly if the additional experiment cannot be conducted within the frame of the current award and budget. Still, in the current proposal, the PIs have not made clear what will be new beyond the current award. As such, the proposal seems to merely continue the same work plan and study objectives, which was originally funded at a fairly substantial level. For instance, the original award called for the type of experiment presented on p. 4 of the supplemental proposal. Can this experiment be conducted under the current scope of the project? Also, additional proteomic analyses are difficult to justify without some presentation of preliminary results. There was no presentation on why certain elements of the project were time critical, that these could not be picked up in the next cycle of competitive funding. Finally, the budget emphasizes salary of post-doctoral and technical scientists, which could indicate continuation of current work rather than emerging new concepts, scientific work plans, and relevant products.

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**:

_____ Superior
_____ Above Average
_____ Sufficient

Inadequate

Explanation of rating and additional comments: _

The proposal seems to merely continue the same work plan and study objectives of the original project, which was originally funded at a fairly substantial level.

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
- 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 work is compelling, but the panel remains unconvinced that what proponents are suggesting in the supplement proposal is not already covered in the existing proposal. The panel feels it will be beneficial to wait to see the results of the existing grant before adding supplemental funds. The PI's future proposals maybe strengthened if they can bring population modeling into the Se ecotoxicological effects they have so clearly documented.