

Draft Individual Review Form

Proposal number: 2001-K215-2

Short Proposal Title: Clear Crk. Juvenile...

1a) Are the objectives and hypotheses clearly stated?

The objective is clearly stated to provide an assessment of effectiveness of Clear Creek restoration projects. Additionally, it is alluded that monitoring information will be useful for adaptive management decisions. This statement is very general and should be more specifically defined as to which information collected will be useful for what type of adaptive management decisions. The hypothesis is stated as a null hypothesis: *"The annual production of juvenile salmonids will increase relative to pre-restoration levels."* This is a poorly framed null hypothesis for statistical testing, which is the assumed analytical approach based on reference to use of arithmetic means of population levels. This needs to be corrected to improve the analytic approach.

1b1) Does the conceptual model clearly explain the underlying basis for the proposed work?

The conceptual model appropriately describes the relationships among the CVPIA restoration actions for Clear Creek and the proposed use of monitoring of juvenile salmonid populations as one measure of restoration performance. However, the conceptual model omits at least one alternative explanation, or result, that may occur in response to restoration and confound interpretation of monitoring results. The model opines that adult populations will increase in response to habitat improvements; subsequently giving rise to increased juvenile populations that the proposed monitoring will measure. This logical construct leaves open the question whether habitat improvement has increase egg, fry, and juvenile survival, or whether increased juvenile populations are a result of more spawners attracted to the creek due to increased fall spawning flows from Whiskeytown Dam. The juvenile monitoring program should show links to an assessment of improved stock-recruitment dynamics, which would be a better assessment approach to measuring effects of restoration on salmonid production.

1b2) Is the approach well designed and appropriate for meeting the objectives of the project?

See answer to 1b1.

1c1) Has the applicant justified the selection of research, pilot or demonstration project, or a full-scale implementation project?

The applicant has generally justified the value of monitoring the abundance of juvenile salmonids in Clear Creek, however, explanation is lacking of how this proposal specifically integrates with other monitoring going on as part of the Clear Creek restoration projects and whether any other biological monitoring is occurring in Clear Creek. This would be important for CALFED to determine the efficiency of funding this particular component of an overall assessment package for the Clear Creek projects.

1c2) Is the project likely to generate information that can be used to inform future decision making?

The types of information that this proposed monitoring project will collect could be of significant

value if coupled with several other monitoring components that this proposal, as written, does not describe. Specifically, stock-recruitment assessments will better serve to evaluate the effectiveness of the restoration projects for increasing salmonid production, and a corrected statistical null hypothesis will improve the strength of the analysis of the proposed monitoring data.

2a) Are the monitoring and information assessment plans adequate to assess the outcome of the project?

The basic mechanics of trapping juvenile salmonids for population assessment are adequate, but the null hypothesis and analytic framework are not as effective as they could be (see previous comments) to use the acquired data to evaluate the restoration projects' performance for improving juvenile salmonid production.

2b) Are data collection, data management, data analysis, and reporting plans well-described, scientifically sound and adequate to meet the proposed objectives?

Data collection and management plans described are appropriate for obtaining useful information on juvenile salmonid production. The applicant has the technical capability, facilities, and qualifications to gather and report the information described.

However, the analytical framework is incorrect and not adequate, in my opinion, to generate sufficient information for assessment of restoration nor for adaptive management responses on restoration actions. First, the means of testing this proposal's hypothesis is stated as use of arithmetic means of population levels before and after restoration levels. If such an analysis is to be used, a stronger (i.e., more certain statistically) test would be to frame the null hypothesis as, "*The annual production of juvenile salmonids will remain unchanged from pre-restoration levels*" and state the alternative hypothesis as, "*The annual production of juvenile salmonids will increase relative to pre-restoration levels*". Although this would correct the proposal's analysis, I believe it will remain insufficient for assessment of restoration effectiveness. A better approach that would address more of the potential explanations for a population responses to restoration projects is use of stock-recruit and time series intervention analyses.

3) Is the proposed work likely to be technically feasible?

The basic collection of juvenile salmonid population data and abundance estimation is technically feasible using the proposal's approach. Contingencies are not adequately described, (i.e., loss of access to private property [change of owners, etc.]; operations during extreme storm events - and analytic approach to such events). But, the analytical result is deficient. The approach using arithmetic population means of pre- and post-restoration levels as the response variable will not be as powerful as other approaches and most certainly will not yield useful information within one or even three monitoring years. Arithmetic mean analysis would require many consecutive years of monitoring and the applicant has not described how this will be accomplished after the requested CALFED funding years are completed.

4) Is the proposed project team qualified to efficiently and effectively implement the proposed project?

The proposed project team has the professional qualifications and demonstrated experience to gather the proposed data on juvenile salmonid populations as described.

Miscellaneous comments

This is an ongoing monitoring program that has received alternative funding (CVPIA) in the past. The requested 1 - 3 years' funding from CALFED is not sufficient to generate the quantity and quality of analysis needed to evaluate the described restoration in Clear Creek *in total*. This is simply a “gap filling” funding request, not a focused research monitoring effort. Should CALFED fund such programs (i.e., annual soft monied agency programs)? The future funding of this program is obviously tenuous given that the applicant is seeking funding from CALFED, which may indicate that long-term funding for this program, which will be required to obtain any useful information, may be insufficient to achieve evaluation of the restoration program.

**Overall Evaluation
Summary Rating**

Provide a brief explanation of your summary rating

- Excellent
- Very Good
- Good

Fair

Data would be useful but, the proposal lacks sufficient detail on analysis; analytic approach would require modification and additional information to be effective for adaptive management of restoration actions.

Poor