

Draft Individual Review Form

Proposal number: 2001-K207-1

Short Proposal Title: Lower Yuba River Monitoring and Research

1a) Are the objectives and hypotheses clearly stated?

The proposal clearly outlines specific hypotheses and objectives of the investigation. The hypotheses are used to identify specific tasks, survey and data collection methods, and the types of data to be used to address each of the outlined objectives and study hypotheses. The proposal, however, also identifies a number of other ongoing studies and feasibility investigations on the Yuba River including specific studies on salmonid migration, fish ladder operations and performance, habitat conditions and restoration opportunities, and the identification of alternative fish passage facilities for Daguerre Dam. The relationship between the objectives of the proposed research and the objectives of these other ongoing investigations is not clear or explicitly outlined in the proposal. Although the objectives and hypotheses of the proposal provide useful biological information on various factors affecting habitat and fish populations within the Yuba River under current conditions, the direct utility and applicability of this information in the broader context of the objectives of other investigations currently ongoing is not clearly articulated.

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

The proposal does not present a conceptual model or a framework for identifying the specific linkages between the objectives and hypotheses of this proposed investigation with other ongoing investigations on the lower Yuba River. The proposal does relate the issues and hypotheses to be addressed by this investigation to their biological relevance (e.g., sources of mortality or potential stressors adversely impacting various lifestages of target species), and the importance of sediment sampling for mercury contamination to the hypotheses and objectives as outlined in the proposed scope of work. The framework does not, however, provide explicit linkages as to how specific information collected from various aspects of this proposed investigation will be used to address Yuba River fisheries issues, or how results of this investigation will specifically apply to various management decisions at the Daguerre Dam site. A conceptual model and framework showing the relationship and context of information collected from this investigation to key elements of the decision-making process regarding the evaluation and potential implementation of various enhancement actions on the Yuba River would be beneficial.

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

The experimental design includes a variety of field studies and measurements, in addition to the collection and compilation of information from other investigations, to address the specific objectives and hypotheses. The approach has been organized to address specific hypotheses. The proposed methods and experimental design appear to be appropriate for providing information related to each specific hypothesis. The proposal, however, mentions several potential experimental flow studies involving managed releases through the study reach, but provides no additional information on how these experimental streamflow studies would be designed, the flow targets to be investigated, the relationship between these flow studies and specific objectives and hypotheses, or whether the required coordination, agreements, and costs associated with modifications to facility operations and reservoir releases have been incorporated into the overall experimental design. The proposal should include development of a more rigorous experimental design and proposed protocol for the field investigations, which should be made available for peer review and to facilitate communications and coordination among the various parties conducting investigations on the lower Yuba River. The experimental design should also articulate how information collected through each element of this program would be used to address specific hypotheses, the types of data to be collected, the quality control/quality assurance program, and, to the extent possible, the justification for the proposed level of effort and sampling size based on anticipated statistical power of various tests to be performed.

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

The proposed investigations are appropriately justified as research. The study would provide general information on various aspects of fisheries populations and habitat conditions within the river as part of an overall research and monitoring program. The research is primarily focused on evaluating current conditions within the river. The research program is designed to complement and enhance a number of other ongoing research and monitoring programs designed to address different aspects of salmonid biology and habitat use, in addition to evaluating potential habitat management and enhancement measures.

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

The proposed investigations would provide information on a number of elements that would potentially be used to inform future decision-making. For example, information on migration rates and potential delays in migration at the existing dam would be used to help evaluate potential biological benefits of modifying the existing fish ladder facilities. Information on predation rates and vulnerability of juvenile salmonids to increased predation rates, both upstream and downstream of the existing dam, would also be used to help evaluate biological benefits associated with modifications to the facilities designed to reduce vulnerability to predation. Information on mercury and other contaminant concentrations within the sediments would provide important data on the potential for increasing exposure of aquatic resources in downstream areas to elevated concentrations of various chemical constituents resulting from sediment disturbance associated with various types of management actions. Information would also be useful in identifying the volume and cost of future sediment removal programs, maintenance dredging for operations, and/or potential removal of the existing dam structure. The proposal, however, does not indicate whether information on mercury contamination of sediments, for example, is currently available or will be collected through other ongoing investigations such as the feasibility study being conducted by the Corps of Engineers.

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

The study will provide data that have relevance to assessing the outcome of the project. The proposal contains sufficient information to identify how data collected will be used to address each of the identified study objectives and hypotheses in a qualitative or semi-quantitative manner. The proposal does not, however, explicitly articulate how the information collected from each element of the investigation would be analyzed or used to assess potential findings or recommendations for management actions to address key issues on the lower Yuba River. The proposal does not identify how information from each of these proposed elements would be used to support broader decision-making or evaluate specific recommended actions.

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

The proposal describes data collection methods, data management, data analysis, and reporting for the various elements of the proposed investigation. As noted above, a more detailed and rigorous experimental design and study plan would need to be developed to more fully identify specific methods and protocols for data collection and analysis, and how the information would be used to specifically address each of the identified hypotheses. The proposed data collection methods are generally consistent with the approach used in similar types of investigations conducted to address salmonid passage issues and, in general, represent the accepted scientific approach for evaluating the issues identified in this proposal. As noted in the proposal, sample sizes for a number of the collections may be small, variability in the resulting data may be relatively high, and the limited scope of the investigation (two field seasons) limit the range of environmental

conditions under which data will be collected. Based on these potential constraints, it is difficult to evaluate whether or not the resulting data will be adequate to fully meet the proposed objectives.

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

The proposal identifies a variety of data collection techniques that are technically feasible and can be accomplished within the scope of the proposed investigations. The proposal has recognized constraints associated with sampling and handling of listed species such as spring-run Chinook salmon and steelhead on the Yuba River, and has made appropriate accommodations for the use of fall-run Chinook salmon as a surrogate. The proposal includes a variety of contingency plans to help address various constraints that improve the technical feasibility of accomplishing the proposed scope of work. Although technically feasible, the core drilling (36-inch diameter drilling to bedrock) has the potential to disturb contaminated sediments and adversely affect downstream water quality. The technical feasibility and potential permitting requirements, including consideration of Endangered Species Act issues, is not addressed for this element of the proposed investigation.

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

The technical team includes individuals with extensive experience and expertise in conducting fisheries and stream habitat surveys. The team has the necessary experience to conduct all aspects of the proposed investigation. Many of the team leaders have conducted fisheries, habitat, radio tagging, and other investigations similar to those being proposed within the Sacramento River system and elsewhere. The proposed team has all of the necessary scientific credentials to perform a credible investigation and effectively complete the proposed tasks.

Miscellaneous comments

The level of effort for the research and monitoring program should be carefully reviewed relative to the importance of the specific objectives and hypotheses and the information that will be derived from this investigation. As noted above, a clear articulation of the specific information to be collected from this investigation, in context with the previous and ongoing research and other investigations on the lower Yuba River, would help provide a stronger linkage between the proposed studies and their relevance in the overall evaluation of conditions on the Yuba River and the decision-making process regarding the evaluation of alternative management actions.

**Overall Evaluation
Summary Rating**

- Excellent
- Very Good
- X Good
- Fair
- Poor

Provide a brief explanation of your summary rating

The proposed investigations will provide valuable information on various aspects of the fisheries and habitat on the lower Yuba River. The investigations will provide useful information on various aspects of alternative management actions, particularly those associated with potential mercury contamination of sediments associated with the existing dam. The specific application of the results from this investigation should be viewed in the broader context of the overall importance of the resulting information for establishing a restoration plan, identifying specific management actions designed to protect and enhance conditions on the lower Yuba River, and the interrelationship among this investigation with other ongoing monitoring and research studies to determine the overall benefits to Yuba River restoration activities.