Draft Individual Review Form

Proposal number: 2001-K203-1 Short Proposal Title: Merced River Water Temperature Study

1a) Are the objectives and hypotheses clearly stated?
This proposal clearly states its objective to develop and evaluate effective options for water temperature management in the Merced River to improve conditions for anadromous salmonids, principally during the fall and spring seasons. This objective is based on the clearly-stated hypothesis that water temperatures in the lower Merced River can be effectively managed and improved to benefit anadromous salmonids through operational and/or structural measures at the four mainstem Merced River reservoirs and dams. Both the objective and hypothesis are technically sound. The objective of this proposal meets the CALFED, ERP, and AFRP missions to restore anadromous fisheries.

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

The proposal presents a clear conceptual model of the physical processes that affect water temperatures in the Merced River system. Connections between system components are demonstrated. Impacts of water temperature on salmon are cited from literature sources.

Although the conceptual model is clearly presented, the description of the methodology for the study is lacking in detail. Five tasks are outlined in the proposal. The first task solidly describes data gathering efforts that would be required for the project. The second task is to develop and recommend one to three management alternatives. Although this is the main objective of the project, it is the task that is least clearly defined. The second task involves soliciting the services of a contractor, but the role of the contractor is not clearly defined. By deduction from looking at the budget, it appears that the contractor will develop the alternatives, although this is not clearly stated in the proposal. No guidelines for alternative development are presented in the proposal. It is unclear what types of analysis will be conducted for development of management alternative: statistical analysis of historical data, simulation of various management scenarios under a variety of storage and flow conditions, simulation of management scenarios that incorporate structural changes to the system, physical modeling of structural modifications to the system in a laboratory, etc. A CDFG water temperature model is referred to in the description of task 1, which involves data collection for model calibration. It is unclear if this model is to be utilized to develop management alternatives. The proposal refers to obtaining a contractor for construction of structures to improve management of the Merced River, but does not offer any details on what types of structures will be considered or how the impacts of these structures will be analyzed. The third task of the proposal to seek funds for implementation of the management alternative selected in task 2 is solid, although the three month time frame may be a bit short. The fourth task to develop a monitoring plan to analyze the impacts of the selected alternatives as they are implemented is crucial to the adaptive management goals of CALFED. The fifth task indicates that Merced Irrigation District will take on the management role of this project, a task for which they seem well qualified.

1b2) Is the approach well designed and appropriate for meeting the objectives of the project?
The approach is well thought out and encompasses a variety of aspects crucial to successful management of riverine ecosystems including data collection, development of management alternatives, procurement of funding to implement management alternatives, and development of field monitoring programs to assess the effectiveness of alternatives as they are implemented. The main criticism of the approach is the lack of detail describing how the management alternatives will be developed and assessed.

1c1) Has the applicant justified the selection of research, pilot or demonstration project, or a full-scale implementation project?
This project is a research project due to the fact that to date field and modeling projects have not adequately described the relationships between dam operations and water temperatures in the Merced River system.

1c2) Is the project likely to generate information that can be used to inform future decision making?
The data collection portion of this project (Task 1) will definitely generate useful information for future decision making due to improved understanding of the physical, chemical, and biological characteristics of the system. If the management alternatives are solidly developed and analyzed for a various hydrologic, meteorologic, and operational conditions, they will also provide valuable information to guide future system operations. No details were provided in the proposal to indicate how the management alternatives would be developed and analyzed.

2a) Are the monitoring and information assessment plans adequate to assess the outcome of the project?
As part of this proposal, field monitoring plans would be developed in collaboration with relevant state and federal agencies to guide the data collection in Task 1 and to develop a field monitoring program to assess the effectiveness of management alternatives after they are implemented. Reports would be produced for each field-monitoring plan. The field monitoring plan in association with Task 1 appears to be an expansion of an existing monitoring program that consists of data collection of water temperature and fish data at several locations. Thus, that field-monitoring program should be adequate for the purposes of this study (especially if the program is continued into the future to record data for various hydrologic and meteorological conditions).

2b) Are data collection, data management, data analysis, and reporting plans well-described, scientifically sound and adequate to meet the proposed objectives?
While the data collection portion of this project appears to be scientifically sound, the data management and analysis are not detailed. The proposal indicates that management alternatives will be developed based on the data collected , but no details are given as to the methodologies that will be utilized. Proposed quarterly and annual reports should be adequate to assess how well the project is meeting its objectives.

3) Is the proposed work likely to be technically feasible?
The overall outline of the project is sound, but since the proposal does not state how the management alternatives will be developed and analyzed, it is hard to assess the technical feasibility of this project. The analysis of potential temperature control measures on a system with four linked reservoirs is a complex task. The time line for this task is inconsistently listed in the proposal. In the text description of Task 2, a 1 year and nine months are scheduled for the development and selection of management alternative, whereas only 9 months are allocated to the task in the study schedule presented in Table 1. If this task is to be contracted out, the 1 year and 9 month time frame seems more feasible for writing and dissemination of the request for proposals, reviewing proposals received, selecting a qualified contractor, and time for the contractor to conduct the analysis and prepare the recommendations. The three-month time frame for obtaining a contractor to implement the selected management alternatives (Task 3) also appears to be a bit short. The other time frames in the proposal appear to be reasonable.

4) Is the proposed project team qualified to efficiently and effectively implement the proposed project?
The project team appears to be well qualified to manage this project. Mr. Vogel has extensive management experience in water resources management. The two consultants from NRS would provide important expertise related to ecological aspects of this project. The consultants from NRS may be qualified to develop and assess the management alternatives, but the proposal is unclear on whether they will be performing that task or managing a contractor who will be conducting the actual analysis.

Miscellaneous comments

Overall the goals and objective of the project meet the CALFED, ERP, and AFRP missions. The need for management of the Merced River system to control water temperatures to improve survival of anadromous salmonids is clearly illustrated in this proposal. The proposal is solid as a management outline for data collection, alternative development, and procurement of funding for alternative implementation, but the technical details of how the management alternatives are developed and analyzed are not clearly described. The field data collection portion of this proposal is solid, and funding for that activity is recommended. Due to the high importance of anadromous fisheries restoration for CALFED, ERP, and AFRP, it is recommended that the proposal authors be given an opportunity to clarify how the management alternatives will be developed and analyzed, and who will be conducting the analysis. If qualified people will be conducting a scientifically sound assessment of management alternatives in a time frame that allows for analysis to occur over at least a one year period (much of which must fall after the data collection period), then funding for this project is highly recommended.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
☐ Fair	In its current state, this proposal receives an overall rating of FAIR. If it can be verified that the development and analysis of management alternatives will be conducted by qualified people who will have at least a year to develop the alternatives, then the ranking of the proposal would be upgraded to VERY GOOD.