

## Draft Individual Review Form

Proposal number: 2001-K212-2      **Short Proposal Title: Habitat Simulation Model (River2D) to Assess Benefits of Channel Restoration on the Merced River by the USFWS**

### **1a) Are the objectives and hypotheses clearly stated?**

Yes, the project clearly states it will evaluate a channel restoration project on the Merced River to determine if the restoration increases spawning habitat for fall run chinook. It will conduct fish monitoring before and after channel modification using the latest habitat simulation model (River2D).

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

Yes, restoring the channel of a river changes the habitat parameters for adult and juvenile salmonids. This project will examine those changes to the habitat that may affect salmon growth and reproductive success that ultimately results in changes in salmonid populations.

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

Yes, the approach compares before and after conditions of the restoration activity using a two-dimensional model, standard fish monitoring metrics, and geomorphic, flood plain, and riparian metrics which will meet the two objectives stated. Two dimensional modeling had been shown to be a useful tool for evaluating habitat changes.

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

Yes, the applicant has justified the selection of a research project in his "Statement of Problem" section. This project attempts to design a monitoring tool that will predict the quality of spawning and rearing habitat suitability. Large-scale restoration projects have been proposed throughout the Central Valley that can benefit from this type of research. PHABSIM models have been used extensively by fisheries biologists in the past for this type of work, unfortunately, they are limited in the ability to predict changes due to discharge. The River\_2D model proposed to be used accounts for these changes in discharge.

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

Yes, this project will enable decision makers to evaluate the benefit of channel restoration projects to increase habitat for fall-run salmon. The use of this approach can be applied to other rivers in the Central Valley.

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

Yes, standard methods of data collection and storage retrieval are employed. The biological data will be used to validate the habitat simulation models. The hydraulic data will be used to

construct and calibrate the 2-dimensional model. The modeling will be conducted three times, once after each channel forming flow.

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

Yes, all data collection, management and analysis are adequately described. In addition the results of this study will be submitted for publication in a peer reviewed scientific journal.

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

Yes, the proposed work expands on methods previously used on Trinity River and Clear Creek. The only drawbacks being weather and unsuitable flow conditions. The proposal depends upon first and second channel-forming flow events greater than 5,000cfs.

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

Yes, Mark Gard is one of the brighter stars of the FWS in Sacramento. He has put together a very experienced team of researchers who are well suited to complete the project within the time frame stated. He has conducted similar projects before and has written several peer reviewed scientific papers. He has also worked on hydraulic modeling of chinook salmon sites in the Sacramento River with Ed Ballard.

**Miscellaneous comments**

This is the second year of a four year monitoring study that is a part of a larger Robinson/Gallo Restoration Project being undertaken by the Department of Water Resources and Department of Fish & Game.

Note: The Project Description portion of the proposal could use a brief description of what type of channel modification will be employed in the Robinson Restoration Project for those not familiar with it. Will the restoration project use rip-rap, feather-edge, revetment or channel realignment? Is this type of restoration the same as what has been modeled before on the Trinity and Clear Creek?

**Overall Evaluation  
Summary Rating**

**Provide a brief explanation of your summary rating**

- ~~XXX~~ Excellent  
 Very Good  
 Good  
 Fair  
 Poor

A high quality scientific research proposal being proposed to evaluate the effect restoration projects have on fall-run chinook spawning and rearing habitat in the Merced River. Outstanding in all areas of criteria for evaluation.