Draft Individual Review Form

Proposal number: 2001-K216-1   **Short Proposal Title: Cosumnes River Rearing Habitat**

1a) Are the objectives and hypotheses clearly stated?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

In general, the applicant does a fair job stating the objectives and hypotheses.

1b1) Does the conceptual model clearly explain the underlying basis for the proposed work?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

In general the applicant does not explain or support his conceptual model of juvenile salmon densities. The applicant does not adequately explain why low densities of salmon in the Cosumnes River allows for juveniles to seek out and occupy other habitats nor does he site a reference for this statement. In fact, ecological theory dictates that density dependent factors, such as food availability, may drive juvenile salmon to seek out alternative habitats. The applicant also states that "information on relative densities within the various habitats would provide key insight into which factors limit rearing in both the Cosumnes River and throughout the Central Valley", but the applicant fails to explain how or why this is true nor are any references sited to support this statement. I do not agree that information of this nature is "critical to the adaptive management process" as the applicant states.

The applicant does not explain or support his conceptual model of comparative fitness and makes numerous unsupported statements. First, the applicant does not define "comparative fitness". Second, the applicant states that shallow and backwater habitats such as floodplains are typically warmer than river habitats and thus produce higher concentrations of invertebrates and other prey items, but there is no reference sited for this information. In fact, Sommer et al. found that temperatures on the Yolo Bypass floodplain where similar to river temperatures until the floodplain water levels began to recede. Temperature and water residence time will affect invertebrate production, but it's the hydrograph for a specific reach of a river or floodplain system that will dictate availability of floodplain food resources to emigrating juvenile salmon (Sommer, personal communication). Third, again the applicant does not site a reference for his statement that "the combination of these factors lead to faster smolting rates and a lager size at the time of smolting which in turn increases survival rates and ultimately production". Sommer et al. indeed found some evidence of faster growth rates and a modest increase in survival to Chipps Island for juvenile chinook that utilized the Yolo Bypass floodplain, but there is no evidence that this leads to faster smolting rates and that this in turn increases production by the Central Valley Bay-Delta system.

In general the applicant does not explain or support his conceptual model of stranding and predation. The applicant states that the potential exists for an increase in predation to juvenile salmon rearing in these areas (floodplains) when in fact, ecological theory supports the idea that an expanded area available to juvenile fish makes them less vulnerable to predation. In addition, floodplain systems in the Central Valley typically flood during the winter months when floodwaters are turbid and cool. This supports the idea that predation risks are actually lessened during this period.

1b2) Is the approach well designed and appropriate for meeting the objectives of the project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The applicant has made an error and listed two Tasks 2's. Therefore I will refer to the listed tasks by task number followed by task name in parentheses (for example, Task 2 (densities and fitness)).

The applicant suggests he will accomplish Task 2 (densities and fitness) by using multiple gear types depending on prevailing condition. This is a major flaw in experimental design. The gear types listed by the

applicant are not comparable even if converted to a catch per volume unit of effort. The main reason for this is that different species and life stages have highly variable vulnerability between these gear types (even different lengths of beach seines). In addition, not one of these gear types will work in all habitat types the applicant wishes to sample. As a result, plotting CPUE to estimate temporal densities is not feasible. However, if the applicant chooses to compare only like gear types and habitats, I would suggest that many replicates would be required, albeit, the hypothesis being tested in this task can not be answered in this manner. The applicant states that growth rates may be expressed as the mode of the length frequency distribution over time but gives is no reference for this technique.

The applicant's approach for Task 2 (stranding) is not clear and vastly incomplete. As stated, and without explanation of gear type, mark-recapture methods and definition of CPUE, I can not access the likely hood that the hypothesis to be tested can by answered with reasonable success.

The applicant proposes to accomplish Task 3 (predation) using methods described in Task 1. However, Task 1 is "Sample Site Selection", so I'll assume the author made an error and in fact meant to reference Task 2 (densities). Again, the technique of using density as expressed by CPUE (undefined) with multiple gear types is flawed. Furthermore, the applicant states he may also use additional methods such as hook and line and gill nets to access predatory species. Again, introducing two new methods, which are extremely biased, only confounds the problem of comparison between gear types and habitats. For example, gut contents of predators who are captured hook and line (actively feeding) are not comparable to predators caught in gill net (may or may not be actively feeding). To further this problem the applicant states he will extrapolate to estimated densities of predatory species. I caution the use of this technique in this situation because results can be easily misinterpreted due to compounded error.

1c1) Has the applicant justified the selection of research, pilot or demonstration project, or a full-scale implementation project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

The applicant has adequately described why research about the interaction of floodplains, river, and native fish is important.

1c2) Is the project likely to generate information that can be used to inform future decision making?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

As described above, I do not think the tasks or experimental design are sufficient to answer the proposed hypotheses, so useful information for future decision making will likely be minimal.

2a) Are the monitoring and information assessment plans adequate to assess the outcome of the project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Because the applicant gives no information on data assessment plans, I can not draw a conclusion as to the proper assessment of the project outcome.

2b) Are data collection, data management, data analysis, and reporting plans well-described, scientifically sound and adequate to meet the proposed objectives?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

Data collection and data analysis, as described in my comments earlier, are poorly described and in some instances flawed by experimental design. Data management and reporting plans are vaguely described and in my opinion not sufficient to meet the proposed objectives.

3) Is the proposed work likely to be technically feasible?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

I am not clear on the feasibility of this research project. Fisheries research on floodplains is extremely arduous and the applicant did not convince me in Section f (Feasibility) that this project could be fully implemented.

4) Is the proposed project team qualified to efficiently and effectively implement the proposed project?
Provide detailed comments in support of your conclusion [Note: in the electronic version, this will be an expandable field]

I was provided no evidence in this proposal that the applicant is qualified to implement this research project.

Miscellaneous comments
[Note: in the electronic version, this will be an expandable field]

Overall, this proposal lacked sufficient detail and proper reference citation to convince me that the applicant has adequate experience in fisheries research to implement the proposed project. The experimental design is flawed, the hypotheses to vague and far reaching, and the proposed analysis unclear.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
POOR	
☐ Excellent	Please refer to miscellaneous comments above.
☐ Very Good	
☐ Good	
☐ Fair	
X ☐ Poor	