

Draft Individual Review Form

Proposal number: 2001-K214-1

Short Proposal Title: Sac R WRCS Carcass Survey

1a) Are the objectives and hypotheses clearly stated?

Three primary objectives are stated on page 4 as: “1) to estimate escapement of winter chinook salmon; 2) to evaluate the potential for hatchery supplementation to assist in species recovery; and, 3) to collect tissue samples for genetic analysis to characterize winter-run chinook salmon population (for run discrimination work and to maintain genetic diversity in hatchery and natural stocks).”

Objectives # 1 and # 3 are clear. Objective # 2 is more complex and given additional explanation subsequently in the proposal.

Hypotheses to be tested with the population estimates are clearly stated on page 8, but it is not clear that they can be tested successfully.

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

The conceptual model adequately shows how the carcass survey, by providing annual population estimates, will fit into the larger scheme of recovery actions for winter-run chinook salmon.

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

Carcass survey data are well-known to be subject to biases (e.g., sex ratio) and other problems due to both field and population estimation methodology. There are current efforts (e.g., a recent spawning escapement workshop) focused on improving the quality of these data, standardizing field and population estimation methods, and designing better statistical approaches for data analysis. The project proponents should be required to participate in these efforts and update their study design and data analysis as indicated by new information.

It is unclear how the population estimates will be adequate to test the various hypotheses given on page 8. Only one data point (e.g., the population estimate) will be generated per year, and the data will be time-series data.

Additional information gained (e.g., sex ratio, origin of fish [hatchery or not], age structure, etc.) will be valuable only if the information is accurate. Unusual data (e.g., extreme sex ratios, extreme numbers of jacks, etc.) may be due to sampling biases rather than real events. Assessment of potential biases should occur when possible (e.g., age-size relationships maybe verified through scale or otolith analysis).

Collecting tissue samples for future genetic analysis will be valuable.

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

The project is the continuation of an ongoing monitoring program for winter-run chinook salmon. Continuing the monitoring program is appropriate.

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

Yes, tracking the population size of winter-run chinook salmon is critical to assessing the status and recovery of the species, and may be used to direct management actions (but see 1b2 above). Information on fish origin (natural vs. hatchery) may be used to direct hatchery operations.

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

Yes, the proposed project is a monitoring program that will contribute to a long-term data set (but see 1b2 above).

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

See 1b2 above. Only some of the assumptions and limitations of different methods of population estimation were discussed. Scales are to be collected from fish (otoliths may be better); they should be read rather than archived and results (i.e., age/gender/size relationships) included in annual reports.

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

Yes, the project is technically feasible (but see 1b2 above). It will involve experienced field crews and relatively simple equipment (e.g., machetes) that may be easily obtained. Various population estimation methods are available.

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

Yes, the team includes experienced field staff and staff familiar with using carcass survey data in population estimation.

Miscellaneous comments

It simply may not be possible to measure the success of “AFRP, CVPIA, and/or CALFED actions and activities” using numbers of fish, at least in the near term. The link between run size at time (t) and run size at time (t-3) (page 8) may be masked by a variety of factors (e.g., water year type). A large sample size (i.e., estimates over a very long time period) will be required to detect changes in population trends, and attributing the changes to specific CALFED etc. actions likely will be impossible. I think we are hoping for a steady increase in the winter-run population over the long-term. The strength of the carcass survey/monitoring program is in its contribution to a long-term data set, as well as in just keeping tabs on the winter-run population.

**Overall Evaluation
Summary Rating**

- Excellent
- Very Good
- xGood
- Fair
- Poor

Provide a brief explanation of your summary rating

Project has value due to its focus on winter-run chinook salmon and contribution to a long-term data set. Data quality may be questionable, but hopefully can be assessed/improved through verification, etc.
