

Response to the ISRP Preliminary Review for the Upper and Middle Snake, Columbia Cascade, and Lower Columbia and Estuary Provinces

Project Number: 199405300

Title: Middle Fork Willamette bull trout re-introduction and basin wide monitoring

ISRP Comments:

This work could provide useful information concerning strategies for reintroduction of bull trout and status and trends of bull trout in the Upper Willamette basin. However, the details of the research design, sampling protocols, and data analysis for the reintroduction study have not been adequately discussed.

Response:

We believe the proposed work is critical to maintaining the monitoring of the tenuous bull trout population in the Upper Willamette Basin. Without this project, the collection of data on population size and trends will be sharply diminished. We would like to reiterate that a major portion of this project is focused on monitoring the McKenzie River population and those populations that have been previously re-introduced to the Middle Fork Willamette River. In addition, we believe it is imperative that we evaluate the proposed methodology for increasing the effectiveness of re-introductions from our limited McKenzie River donor population.

ISRP Comments:

The sponsors need to justify why only 1-2 sites per experimental group are being considered for reintroduction. It would seem that if the results were to be generalizable over a wide area, as the sponsors suggest, and for greater statistical power more reintroduction sites for each experimental group would be needed. How will the authors determine how many fry and yearlings will be introduced at each site?

Response:

We recognize the value of multiple introduction sites for each experimental group. However, the experimental design is presently constrained by two primary factors. The first of these factors is the limited number of experimental sites with habitats similar to those used for prior introductions, based on our knowledge of the habitat and land use in the identified watersheds. Habitat surveys conducted during the first year of the study (Objective 1) may identify multiple sites per experimental group. The second constraining factor is the number of fish from Anderson Creek available for relocation. As indicated in the proposal, 10-20% of the fry that migrate weekly from Anderson Creek will be removed for reintroduction. Based on data from 1997-1999 we expect to transfer at least 1000 fry. Half of these fry will be transferred immediately to the re-introduction sites in the Middle Fork Willamette Basin and half will be transported to Marion Forks Fish Hatchery. Fry and yearlings will be evenly divided between re-introduction sites. If we identify four re-introduction sites (2 sites per group), each will contain 250 individuals. If we had six sites

(three per group), each would contain 166 individuals. Past work suggests a minimum of 50 bull trout fry are needed per site, although this number is probably insufficient to produce the responses we intend to measure.

We are faced with the challenge of re-introducing an adequate number of fish to obtain measurable results into enough sample sites for statistical power while minimally impacting the population of bull trout in Anderson Creek. Surveys conducted the first year will hopefully identify four to six suitable introduction sites (2-3 per group) to which at least 125 bull trout can be introduced with out exceeding 20% of the fry migrating annually from Anderson Creek.

ISPR Comment:

Will there be an assessment of habitat carrying capacity of each reintroduction site?

Response:

There will not be an assessment of carrying capacity. Much of the information necessary for such an analysis on bull trout is unknown. Instead, we will approximate the carrying capacity based on density estimates (number per surface area) of 1+ bull trout in various habitat types in Anderson Creek in 1999 and Olallie Creek in 2000. We assume that if the carrying capacity of a site is exceeded, some individuals will leave it and occupy rearing habitat nearby. This increase in range beyond the re-introduction site will be monitored during subsequent surveys.

ISPR Comment:

Will the researchers attempt to equalize numerical density or biomass between individual fry and yearling plants to help to control for density dependent effects?

Response:

Each year, equal numbers of fry will be distributed among 2-3 potential sites (see second ISRP response above) and equal numbers of yearlings will be distributed among 2-3 other potential sites. It will be difficult to equalize biomass between treatments because of the uncertainty about over-wintering growth, emigration and survival of fish not reared in the hatchery. Since the re-introduction sites will not be closed systems, the expected consequence of possible density-dependent effects will be emigration beyond the immediate site. The availability of suitable habitats beyond the re-introduction sites will determine the affects on growth and survival of these emigrants. Again, the densities of bull trout of either treatment will approximate known estimates of age 1+ fish in Anderson and Olallie creeks.

ISPR Comment:

How often will the reintroduction sites be sampled and when?

Response:

Re-introduction sites will be surveyed by snorkeling at least twice annually during spring after the introduction of individuals and again in the fall, as described in the proposal. Between these surveys we may use minnow traps to capture individuals for additional growth measurements.

ISPR Comment:

An important factor in determining relative success of reintroductions is habitat quality and quantity. Presumably habitat characteristics will not be identical between reintroduction sites. Is there going to be comprehensive assessment of habitat composition and utilization by reintroduced fish during the monitoring phase. If so, how will it be done and how will the information be used to evaluate reintroduction success.

Response:

We assume that habitat characteristics will not be identical between sites, although we expect them to be similar. A detailed assessment of habitat quantity and quality will be obtained at the unit scale during surveys conducted the first year of the study (Objective 1) so that the composition of habitats among sites can be compared. After re-introduction, the presence of bull trout in various habitat units will be determined visually during snorkel surveys (monitoring). Habitat use by bull trout within sites can be compared to determine whether utilization differs between treatments.

ISPR Comment:

What will be done to assess the possible interactive effects of non-native fishes on bull trout?

Response:

We have conducted extensive fish sampling in the Middle Fork Willamette Basin and we are confident of our knowledge of fish species composition. Selection criteria for re-introduction sites will include the absence of non-native fish. Therefore, we do not expect that non-native fish will affect bull trout at the re-introduction sites. However, non-native fish may be present in other habitats that bull trout may utilize during migratory life stages, presumably in reservoirs and larger rivers. Unfortunately a detailed assessment of the effects of non-native fishes on bull trout in these other habitats is beyond the scope of this study.