

Errata to ISRP Preliminary Review of Fiscal Year 2003 Mainstem and Systemwide Proposals 35039 and 35041

The ISRP's Preliminary Report issued on August 2, 2002 included Action Agency/NMFS RME Group comments on project 35041 under 35039. The proposal comments below correct this. The ISRP looks forward to seeing the project sponsors' responses to both the ISRP comments and the RME Group comments.

ProjectID: 35039

The influence of hatcheries and their products on the health and physiology of naturally rearing fish

Sponsor: USGS, CRRL

FY03 Request: \$303,448

5YR Estimate: \$2,375,918

Short Description: This research will determine whether standard hatchery or supplementation operations influence the concentration of Renibacterium salmoninarum in streams and subsequently affects the health of naturally rearing salmonids

Response Needed? Yes

ISRP Preliminary Comments:

This is a well designed program that will address three major issues: do hatcheries amplify the presence of Rs in the wild (water and fish), do hatchery juveniles with high Rs levels pose a risk to wild juveniles (tested in artificial stream tanks), and do carcasses outplanted for nutrient supplementation pose a Rs risk to the natural environment. There are two issues to note: the methodology for detection of Rs in large water samples is uncertain (but expected to be functional within a year), and several aspects of objective 3 depend on the freezing treatment of carcasses. For the latter, if freezing does kill the Rs bacteria then the remainder of objective 3 tasks (3b-3h) will not be conducted (requiring a budget adjustment).

It is not certain that the three proposed hatchery sites meet their stated (5) criteria. Added justification of the sites should be provided and the proponents should seek Regional input regarding these sites before implementing the study.

What artificial streams would be used in objective 2? It seems that these are constructed fiberglass raceways but the point is not clearly presented in the proposal.

What will be the statistical methods of analysis?

Action Agency/NMFS RME Group Comments:

HARVEST AND HATCHERY SUBGROUP -- Address critical element of RPA? Not relevant to RPA 182.

This proposal would relate to RPA 184, since hatchery reforms include protocols to reduce disease transmission. Diseased wild fish would be less likely to survive to adult, which would affect the risk of extinction for listed fish.

Relevant to RPA 184 and planning of hatchery reforms. Investigates influence of salmonid hatcheries and hatchery fish on transmission of disease to wild fish. Before the value of a reform can be assessed, the occurrence of the problem needs to be assessed.

Scope? [ESU's covered, Transferability, Species covered] Spring Chinook, steelhead, and other hatchery-reared salmonids. Results generally transferable to other hatcheries and other ESUs, but may be pathogen specific.

Study design adequate, as is, or as may be modified? Studies could also be combined with the heritability studies on disease resistance and immune function, this may also provide information on whether conservation hatchery breeding protocols may affect genetic traits for disease resistance. This affects the degree to which conservation hatcheries may contribute to recovery, at a genetic, in addition to a demographic, level (another topic under RPA 184).

Could this proposal examine other pathogens at the same time?

ProjectID: 35041

Monitoring the reproductive success of naturally spawning hatchery and natural spring chinook salmon in the Wenatchee, Tucannon, and Kalama Rivers

Sponsor: WDFW, NMFS

FY03 Request: \$1,079,140

5YR Estimate: \$5,619,585

Short Description: Evaluate the relative fitness (mating success and progeny survival) of hatchery and wild spring chinook that spawn naturally in rivers

Response Needed? Yes

ISRP Preliminary Comments:

Fundable, but could be funded in part if Provincial funds are limiting. The proposal will evaluate the relative fitness (mating success and progeny survival) of hatchery and wild spring chinook that spawn naturally in rivers using DNA analyses proposed in several other projects as well. The proposal is well written and appropriate background is presented. The reviewers question whether there is any redundancy between this proposed work and the ongoing Moran and Waples work on steelhead?

The reviewers also note that the proposal is costly (10 years @ \$1M per) due to conducting studies of juveniles and adults in three river systems. While we acknowledge the value of replicate studies and long-term monitoring to assess reproductive value, we question that each site is equally valuable and whether the researchers can complete the required work on all three. As the authors note, each of the sites has different attributes but the logistics of sampling is quite different in them. The Wenatchee system seems well suited to the sampling; the other two are less so.

We also question the author's comments on precocial male Chinook. *"Age 1+ precocials may migrate downstream, but generally do not reach the ocean. These fish are undesirable because of the potential for negative ecological and genetic impacts to natural fish, and because they are an undesirable fishery product."* (Page 17, Section 9). There is no doubt that hatchery rearing of spring chinook results in an abnormally high incidence of precocial development but precocity is likely associated with growth rates and an alternative male life history strategy. We strongly agree with the author's proposal to study this issue but would caution against concluding that the trait is "undesirable". It may simply be a cost associated with intensive culture of spring chinook that are grown at unnatural rates. Reviewers are also unaware of any evidence that precocial males "do not reach the ocean". This could be true, but what is the basis of this statement?

Action Agency/NMFS RME Group Comments:

HARVEST AND HATCHERY SUBGROUP -- Address critical element of RPA? Designed to directly address RPA 182. It is a direct examination of reproductive success hatchery fish relative to wild fish. This project has high likelihood of shedding light, based on empirical evidence using latest genetic analytical tools, on relative spawning effectiveness of hatchery fish vs. natural fish.

The proposal may relate to a topic under RPA 184, i.e. conservation hatcheries. The issue of whether conservation hatcheries contribute to recovery depends, in part, on the reproductive success of hatchery F1s, and their progeny, spawning in the wild.

Scope? [ESU's covered, Transferability, Species covered] Mainstem/systemwide spring chinook. Transferability is good due to diverse experimental locations.

Study design adequate, as is, or as may be modified? Good. Biological traits are suitable as surrogates for "fitness". The inability to capture fish at Tucannon weir may weaken design for this captive stock. Significant precocious fish contribution would dilute ability to attribute progeny to hatchery or natural adult spawners. We may want to discuss with investigators ways to improve the ability to carry comparison over into the success of progeny and other possible explanations for survival differences between hatchery and wild fish.

ISRP Remarks on RME Group Comments:

The ISRP agrees with the RME Group that this proposal is a close fit with RPA 182. The critical uncertainty about differences in fitness between wild and hatchery-produced fish lies at the heart of most of the ongoing and proposed research into captive brood and supplementation technology, and seemingly at the core of RPA 182 also. Indeed, understanding differences in fitness between the two groups, and whether conservation-oriented hatcheries can produce fish that can integrate into natural populations and lead to long-term sustainability (i.e., the fitness question) is the \$64 million question around which much of the present recovery plan hinges.