

RRS Project Review

Project ID: 1995-063-25¹

Title: Yakima River Monitoring and Evaluation-Yakima/Klickitat Fisheries Project (YKFP)

Short Description: This comprehensive project includes RME of hatchery and wild fish populations, as well as monitoring for habitat, harvest, and predation in the Yakima River basin. Specific research is designed to determine whether it is possible to change hatchery practices so that natural spawning populations of salmon receive biological benefits from a hatchery program. The project is also examining whether these same hatchery practices can be managed to limit deleterious impacts on non-enhanced fish populations. This project's RME of hatchery and fish population are highly intertwined and are not necessarily independent from one another. The project has a small research component related to RRS, which has focused on spawning behavior and other mechanisms in an artificial spawning channel that may affect RRS. First-generation hatchery and wild spring Chinook salmon from the upper Yakima River were placed into an artificial stream and allowed to spawn. The RRS spawning channel portion of the project has come to a close.

Sponsor: Yakama Nation & Washington Department of Fish and Wildlife

BiOp association: 2008 FCRPS

RPA 50.6 Review/modify existing fish pop status monitoring projects,
RPA 50.7 Fund marking of hatchery releases from AA funded facilities,
RPA 62.4 Support coded-wire tagging to hatchery rates,
RPA 62.5 Investigate feasibility of genetic stock id techniques,
RPA 64.2 Determine if artificial production contributes to recovery

Is this an Accord project? Yes

BPA Budget (2008 to present):

BPA	Total	\$49,854,108 (FY08 to FY17)
	FY16	\$ 5,383,862
RRS budget	Total	\$ 84,747 (FY13)
Cost Share		No cost share is reported

¹ This is not one of the six exclusively RRS projects, but it has RRS linkages.

Proposal from last Categorical Review:

<https://www.cbfish.org/Proposal.mvc/Summary/RMECAT-1995-063-25>

Most recent Council recommendation:

<https://www.cbfish.org/Assessment.mvc/CouncilRecommendationAssessmentSummary/Assessment/1995-063-25-NPCC-20110124>

Date of most recent annual report available on Pisces/cbfish?

Spring Chinook Salmon Supplementation in the Upper Yakima Basin: Yakima/Klickitat Fisheries Project Overview; 1/15 - 12/15. Submitted: June, 2016.

<https://pisces.bpa.gov/release/documents/DocumentViewer.aspx?doc=P148877>

Yakima/Klickitat Fisheries Project Monitoring and Evaluation Yakima Subbasin Annual Report. Submitted: September, 2015.

<https://pisces.bpa.gov/release/documents/DocumentViewer.aspx?doc=P144828>

WDFW YKPF M&E 2014 Report. Submitted: November, 2015

<https://pisces.bpa.gov/release/documents/DocumentViewer.aspx?doc=P145514>

Short summary of project reporting compliance: Sponsors were generally on time with all annual reports. They have also published extensively in peer-reviewed journals.

Summary of the scope of the RRS project as it was reviewed by Council: This project is characterized as a “proposal for monitoring and evaluation of natural production, harvest, ecological and genetic impacts for spring Chinook, fall Chinook, and coho fisheries enhancement projects in the Yakima Basin.” As such, it is quite complex in nature. The overall purpose is summarized as follows: “To restore sustainable and harvestable populations of salmon, steelhead and other at-risk species, the YKFP is evaluating all stocks historically present in the Yakima subbasin and, using principles of adaptive management, is applying a combination of habitat protection and restoration, as well as hatchery supplementation or reintroduction strategies to address limiting factors....” There are four very broad research focal topics listed as objectives: ecological interactions, genetics, harvest, and natural production.

The project is addressing four research questions:

1. Can integrated hatchery programs be used to increase long-term natural production?
2. Can integrated hatchery programs limit genetic impacts to non-target Chinook populations?
3. Can integrated hatchery programs limit ecological impacts to non-target populations?
4. Does supplementation increase harvest opportunities?

Summary of the scope of the RRS: The Yakima-Klickitat Fisheries Program (YKFP) has not evaluated RRS in the usual sense, but focused on behavioral and other mechanisms that may affect RRS. Scientists evaluated mixed (hatchery- or natural-origin) populations and allowed them to spawn in an artificial environment, where behavior was observed. This project attempted to evaluate all stocks historically

present in the Yakima Subbasin and apply a combination of habitat restoration and hatchery supplementation or reintroduction, to restore the Yakima Subbasin ecosystem with sustainable and harvestable populations of salmon, steelhead and other at-risk species.

Has the scope of this project changed significantly since it was reviewed? Yes, the artificial spawning channel work that was conducted at the Cle Elum Research Hatchery evaluating the differences in spawning behavior and success between hatchery and wild spring Chinook salmon has closed. At this point the ongoing work regarding the Spring Chinook salmon is more of a supplementation study than an RRS study.

ISRP/AB Critical Uncertainties Appendix D review:

<http://www.nwcouncil.org/media/7149871/isabisrp2016-1appendixd.pdf#page=177>

Comments: This project has a strong links to the 2014 FCRPS BiOp, and will likely be as important to the next iteration thereof. The sponsor has addressed Council recommendations since the review, has been timely with all required deliverables and contracting deadlines, they have published extensively in peer-reviewed journals, and the quality of their work is wide ranging and of good quality. Additional information can be found in [Schroder et al., 2008](#) and [Schroder et al., 2010](#).

Questions to all project sponsors with RRS studies:

- How does this project inform (1) the Council's Research Plan and (2) the Council's Fish and Wildlife Program objectives?
- Can any results from this study be extrapolated to other geographic locations or other populations?
- How does the Idaho Supplementation Study inform this project?
- Does this project have any of the following elements:
 - (a) A scientific question
 - (b) A hypothesis
 - (c) A specific time frame within which to answer the question posed
- How was it determined which species or geographic area to study?
- How does this effort work or collaborate with other RRS projects on aspects of the study (methodology, data and conclusions)?
- How does [density dependence](#) factor in to this study moving forward?

Questions relative to this project:

- Has the RRS phase of this project come to an end? If so what were the significant insights or outcomes of the RRS work? If RRS work is continuing, what hypotheses are being investigated?
- What are the findings of the closed Cle Elum research hatchery work that investigated spawning behavior and success between hatchery and wild spring Chinook? Was this work published?