**149671 – Fall Chinook System Survival**

CRFM Work Plan

June 2017

**1. Project Information**

* **Purpose/Objective**. Estimate survival of fall Chinook salmon in the Snake Columbia River system. This research will assist in developing system wide operations that will maximize survival of fall Chinook salmon throughout the fish passage season.
* **Description**. This project is consistent with NOAA Fisheries 2008 Biological Opinion on the operation of the Federal Columbia River Power System. Specifically, Reasonable and Prudent Alternatives (RPAs) 54: "Monitor and evaluate the effectiveness of the juvenile fish transportation program and modifications to operations" and 55: "Investigate, describe and quantify key characteristics of the early life history of Snake River Fall Chinook Salmon in the mainstem Snake, Columbia and Clearwater Rivers."

The general scope involves marking fall Chinook juveniles with PIT tags and monitoring their migration timing and survival through the hydrosystem. Several groups of juveniles, including hatchery production, hatchery surrogate (fish raised to the size of a "normal" wild smolt), wild and natural fish will be tagged and monitored. Upon reaching Lower Granite Dam, some of the tagged fish will be transported and released below Bonneville Dam while others will be left to migrate in the river. When these fish return as adults, the smolt-to-adult return rates will be compared to determine if and when transportation is the preferred management strategy for maximizing adult returns.

Fall Chinook juveniles have two distinct early life histories. Some juveniles begin seaward migration shortly after hatching and reach the ocean as subyearlings. Others move downriver slowly and may overwinter in the Lower Snake or Lower Columbia River reservoirs, not reaching the ocean until they are 1+ years old. Factors influencing these life histories may include Dworshak operations (release of cold water in summer to cool Lower Snake River), summer spill at mainstem dams, and whether or not a fish is transported (barged or trucked) when collected. Understanding the key variables in these life histories may influence future dam operations and other management strategies such as transportation.

Key parties involved directly in this research are the U.S. Fish and Wildlife Service, NOAA Fisheries and the Nez Perce Tribe. Work will be accomplished through Military Interdeparmental Purchase Requests (MIPRs) to NOAA Fisheries and the U.S. Fish and Wildlife Service and contracts to the Nez Perce Tribe and an additional contractor to perform PIT tagging services at various fish hatcheries where the study fish are being raised.

**2. Major Activities/Tasks**. Field work for this project has been completed. Final tagging occurred in 2012, with final adult returns due in 2017. A draft final report has been prepared by NOAA Fisheries and reviewed. The only activity remaining is for COE and Nez Perce Tribe to write a synopsis report containing elements of the NOAA report and CSS reports. This has been started and a final is expected in early FY18, with a small amount of follow-up activities.

An additional activity was added in FY17. This is a MIPR to PNNL to look at the migration depths of fall Chinook in the Snake River with the goal of using this information to help determine operations schedules for the spillway weirs.

This project will conclude in FY18.

**3. Cost Estimate**.

FY17 Final Obligations = $38,659

FY18 costs will consist of in-house labor for report reviews, regional coordination and project closeout activities. FY18 costs are estimated at $50,000.