

Expansion of Original Request for Access to Bonneville Dam
submitted January 25, 2016

RESEARCH PROJECT:

Within-season indicators of fish condition related to differential delayed mortality

SUBMITTED TO:

Attn: Jerry Carroll
Operations Manager
U. S. Army Corps of Engineers
Bonneville Lock and Dam
P. O. Box 150
Cascade Locks, OR 97014

SUBMITTED BY:

Jennifer L. Gosselin
Columbia Basin Research,
School of Aquatic and Fishery Sciences,
University of Washington
1325 4th Avenue, Suite 1515
Seattle WA 98101
Phone (206) 685-7316
Fax (206) 616-7452
Email gosselin@uw.edu

Affiliate status:
Northwest Fisheries Science Center,
NOAA Fisheries
2725 Montlake Blvd. East
Seattle WA 98112
Phone (206) 861-8220
Fax (206) 206-860-3267
Email jennifer.gosselin@noaa.gov

DATE:

March 17, 2016

Research related to objective #4

(Collaborate and share fish samples with other researchers conducting independent studies for the overall goal of a more comprehensive understanding of the natural development of smolts from the hatchery to the early ocean environments. Sampling in 2016 will overlap with other ongoing research sampling efforts and help provide data on fish and environmental condition data..., p. 2-3 of original Request for Access)

The collection of juvenile steelhead at Lower Granite, Ice Harbor, and Bonneville Dams is designed to compliment a USACE-funded study by NWFSC and PNNL to "Evaluate the Effectiveness of Habitat Restoration Actions in the Lower Columbia River and Estuary" (AFEP Proposal EST-P-15-01). The Landscape portion of this study will characterize interior stocks of Chinook and steelhead at four locations from just below Bonneville Dam to the river mouth to determine if they appear to benefit from habitat restoration actions in the estuary. This "benefit" will be evaluated on a stock-specific basis using a variety of metrics, including fish size, food habitats, and three physiological indicators (Insulin-like growth factor, liver glycogen, and hepatosomatic index), which have all been shown to rapidly respond to changes in growth.

For this study to be most effective, we need to understand the condition of interior Chinook and steelhead before they pass Bonneville Dam, hence the collections of steelhead at the three dams. The fish collected at the dams will be subjected to the same suite of metrics used in estuary collections to determine if they are changing as they move downstream, or are more or less static. This information is vital to our interpretation of fish collected within the estuary. Furthermore, by characterizing fish over a longer portion of their migratory path, we better help address RPA 61.2, defining the migration/behavior affecting survival. The requested collections of steelhead at the three dams involve relatively small numbers of fish (monthly samples of 25 hatchery juvenile steelhead at each dam in April, May and June) but will provide substantial benefits to our understanding of juvenile salmon during their annual downstream migration.

Similar to our existing request for juvenile, spring/summer and fall, hatchery Chinook salmon, we request to subsample from existing research/monitoring activities. We will process the fish in the same manner as the Chinook salmon and so do not require any additional holding tanks. Thus far, we have received our federal permits (i.e., Letters of Determination) for sampling at Bonneville Dam (attached).