

# CASE STUDY



## Biological Studies in the Columbia and Snake River Basins

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### Biological Studies in the Columbia and Snake River Basins of the USACE Walla Walla, Washington District

## BACKGROUND

The Walla Walla District of the US Army Corps of Engineers (USACE) is involved in managing and balancing the demands of water resources on the Lower Snake and Columbia Rivers. This requires the USACE to balance the needs for power generation, fish restoration, Native American rights, recreation, transportation and water quality. The Biological Opinion produced by the NOAA Fisheries Service required the USACE to address a series of issues to improve the salmon stocks in the rivers. To assist the USACE, Normandeau was contracted by the Walla Walla District to provide professional environmental consulting services. The services cover evaluating the impacts of the hydropower facilities located on both the Columbia and Snake Rivers. Technical components of the contracts include: fisheries passage and protection/mitigation; water quality; recreation; socio-economics; reservoir ecology; statistical analyses; fish behavior and stress; and habitat restoration. The Normandeau team works closely with Federal and state regulatory and resource agencies.



*Fingerling Coho salmon*

## THE CHALLENGE

Normandeau, as the prime contractor, has been managing a team of highly qualified regional experts to help the Walla Walla District address the challenging technical issues that are associated with the restoration of salmonids.



*The Dalles Dam,  
Columbia River*

(Photo: US Army Corps of Engineers)



**US Army Corps  
of Engineers®**

This team of fishery experts, statisticians, and water quality experts has been providing a wide variety of environmental services related to fish passage and stream habitat restoration on the Columbia River Basin. Specific investigations and consultations have included: quantification of fish survival through turbines, bypasses, and spillways; development of biologically based “fish friendlier” turbines; development of technology to track fish behavior and movement in three dimensions near hydropower projects; fish population dynamics models such as CRiSP and PATH; gas super saturation abatement at spillways; and alternative analysis relative to the potential effects that dam removal or breaching may have on fish and water quality.

### **THE BENEFITS**

The ongoing support of the Normandeau team has assisted both the Walla Walla and Portland Districts of the USACE in providing updated information related to fish turbine survival and injury, as well as fish passage and spill alternatives. This data assists the USACE in making decisions about improvements in fish passage and spill protocols, and in turbine design. The habitat evaluations conducted by the Normandeau team throughout the Snake and Columbia River systems provide valuable information for improving fish spawning habitats.



*(above) A tagged salmon prior to passage test; (below) recovering tagged salmon after passage*

