

**An Evaluation of Fresh Water Recoveries of Fish Released from  
National Fish Hatcheries in the Columbia River Basin, and Observations of Straying**

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Approximately 80 million anadromous salmonids with coded-wire tags have been released from National Fish Hatcheries in the Columbia River Basin. The U.S. Fish & Wildlife Service operates fish hatcheries throughout the Basin, many of which are located hundreds of miles from the ocean. Spring Chinook (*Oncorhynchus tshawytscha*) is the most widely raised species. Coho (*O. kisutch*), steelhead (*O. mykiss*), and both tule and upriver bright fall Chinook are raised at fewer locations, with fall chinook being raised only in the lower basin.

Releases have produced over one hundred thousand observed recoveries, seventy-five thousand of which were in the Columbia River Basin. Although tagging was initially inconsistent, practically all groups of fish released since brood year 1989 have been coded-wire tagged. In spite of uncertainties in the coding of recovery locations, and inconsistencies in the sampling and reporting of returning coded-wire tagged fish, recovery patterns can be distinguished.

Fish released from National Fish Hatcheries in the Columbia River Basin generally have a high fidelity when returning to spawn, although there are notable exceptions. Recoveries in fresh water outside of the Columbia River Basin are extremely rare. The location of a hatchery relative to the main stem of the Columbia River is an important determinant of the recovery pattern, both for fish from that hatchery, and for fish migrating by, or near that hatchery. Spring Chinook from hatcheries in the Snake River Basin are recovered in smaller basins located further up the Columbia River than the Snake River, while spring chinook from those same basins are not recovered in the Snake River Basin. Natural and artificial barriers, and other features, are also important in determining recovery patterns.

Over 43 million coded-wire tagged fish have been released during the brood years considered in this paper, resulting in less than one thousand recoveries in dead fish and spawning ground surveys.