

# Hatchery Update

## *Carson National Fish Hatchery*

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### Introduction

The U.S. Fish and Wildlife Service (USFWS) operates 12 National Fish Hatcheries (NFH), one Fish Health Center, and one Fish Technology Center in the Columbia River basin. The Columbia River Fisheries Program Office (CRFPO) works with 6 of these facilities to help evaluate release programs and conduct special studies. The CRFPO maintains the Service's hatchery database as well.

### About Carson National Fish Hatchery

The hatchery is located 13 miles northwest of Carson, in Skamania County, Washington. It is situated at the confluence of the Wind River and Tyee Springs. The facility began producing fall Chinook salmon and resident trout in 1938. Early attempts to introduce spring Chinook salmon into the Wind River between 1938 and 1940 met with little success. At that time, salmon could not return to the hatchery due to impassable Shipherd Falls, two miles upstream from the mouth of the Wind River. The hatchery was remodeled in 1956 under the Mitchell Act in order to establish a run of spring Chinook salmon in the Wind River. At that time, a fish ladder was built at Shipherd Falls to allow salmon passage. Spring Chinook salmon

production began to take precedence over other production until 1976, when the last fall Chinook salmon were released into the Wind River. Carson NFH currently produces spring Chinook salmon exclusively. Funding for the hatchery is through Mitchell Act funds, which are administered by the NOAA, NMFS.

Rearing facilities at Carson NFH include 46 raceways, two earthen rearing ponds, and two adult holding ponds. The main water source for the hatchery is Tyee Springs.

### Hatchery Goal

Carson National Fish Hatchery operates to restore and maintain spring Chinook salmon upstream of Bonneville Dam. This stock provides a popular sport and tribal fishery in the Wind River. Spring Chinook salmon from Carson NFH are also an important part in restoration and mitigation programs.

### Hatchery Assessment

All hatcheries must consider their potential affect on the aquatic community. To help guide hatchery operations in the Wind River a Comprehensive Hatchery Management Plan was completed in 2002. Wild Steelhead Trout in the Wind River are part of the Lower Columbia River population listed as threatened under the Endangered Species Act (ESA). To help us assess any interactions between Carson NFH spring Chinook salmon and the wild steelhead trout, we revised our Draft Hatchery and Genetic Management Plans in 2004. This management plan is written to assess our program and meet ESA requirements. More research is needed to assess the impacts of both hatchery releases and natural spawning Chinook on the wild steelhead trout in the Wind River. In addition to completing documentation to comply with our ESA responsibilities, we must also meet our mitigation responsibilities under the Mitchell Act, Tribal Trust and U.S. v Oregon obligations. In order to balance these sometimes conflicting mandates, we regularly meet with our co-managers to discuss operation and management of the hatchery.

## Adult Escapement Goal

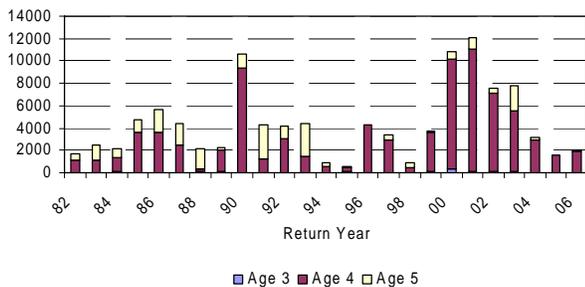
A return of approximately 1,200 adult salmon is needed to collect enough eggs to meet production goals. On station release is for 1.17 million spring Chinook salmon.

## Sampling of Returning Fish

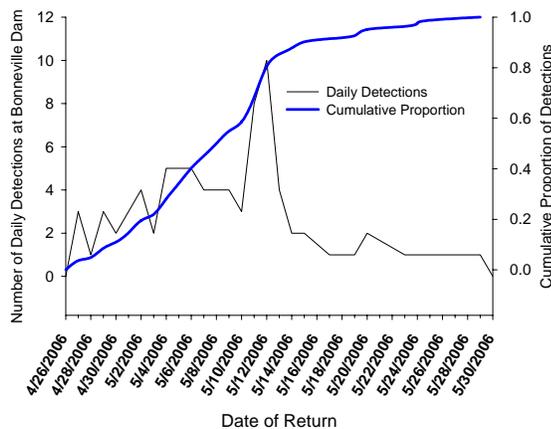
A proportion of returning adults are sampled at the hatchery for biological information. Sex and length are recorded and scales are collected so that age can be determined. Fish are also sampled for coded-wire tags implanted in the snouts of fish during their juvenile rearing. By using sample information and the number of returning fish, it is possible to calculate the number of returning fish for each age group and, consequently, the number of fish returning from each brood year or release year. On average, since 1982, 1% of Carson's spring Chinook salmon have returned as three year old males, 76% as four year old adults, and 23% as five year old adults.

The number of fish returning from a hatchery release is influenced by early rearing at the hatchery, downstream migration, ocean conditions, and the harvest rate in the various fisheries.

Number and Age Composition of Returning Adults



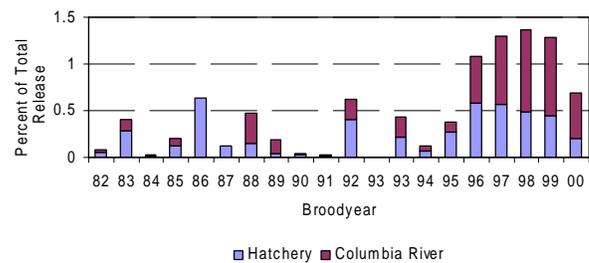
Detections of Carson NFH Spring Chinook Salmon Adults at Bonneville Dam During 2006



## Contribution

The coded-wire tag marking program makes it possible to determine total survival rates and contribution to several fisheries. Since 1982, on average, approximately one half of returning adults go to the hatchery while the remaining recoveries occur almost exclusively in the Columbia River and the Wind River fisheries. This included harvest in the freshwater sport fishery, tribal treaty and subsistence fishery, and Columbia River gill net fishery.

Carson Spring Chinook Salmon Percent Recoveries



## AutoFish System

The AutoFish System was implemented at Carson NFH for the first time this year. The System can perform any combination of: sorting, adipose fin clipping, CWT fish tag injection without the use of anesthetic or human handling.

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