

# Lookingglass Creek Spring Chinook Restoration

A tribal success story





Emerging from the Blue Mountains in Eastern Oregon, Lookingglass Creek travels through the Umatilla National Forest then through private land before entering the Grande Ronde River, a tributary of the Snake River. With five major tributaries—Lost Creek, Summer Creek, Eagle Creek, Little Lookingglass Creek, and Jarboe Creek—the Lookingglass Creek watershed provides essential spawning habitat for spring chinook salmon.

**N**early all spring chinook spawning occurs in Lookingglass Creek and its largest tributary, Little Lookingglass Creek. The native spring chinook population in the Lookingglass Creek basin once supported significant tribal and sport fisheries. Historical redd count data from the 1950s-1970s indicate that spring chinook abundance typically exceeded 1,000 adults.

The completion of lower Snake River dams in



*Lookingglass Creek watershed is the red area.*

the 1970s as well as the construction of the Lookingglass Hatchery and weir in 1982, however, led to the extirpation of the native population of spring chinook in the watershed. Still Lookingglass Creek had relatively unaltered habitat that could support spawning salmon.

### **Bringing Fish Back to the Habitat**

The loss of this population and the associated fishery prompted the Confederated Tribes of the Umatilla



*Lookingglass Creek Hatchery*

Indian Reservation to begin an effort to reestablish a spring chinook population in the watershed.

In 1992 the tribe began a reintroduction program. From 1992 to 1999, a non-endemic (non-local) Rapid River, Idaho stock with a history of hatchery domestication was introduced to reestablish a spring chinook population. The weir and trap at the hatchery and outmigrant trap allowed for precise monitoring of fish in and fish out. Intensive monitoring of natural production occurred throughout the 1960s, which provided benchmark productivity data for biological comparisons.

### **Broodstock Differences?**

Performance measures for returning adults of the Rapid River stock were similar to the endemic stock across all metrics evaluated (redd distribution, spawn timing, adults per redd, outmigrants per redd, outmigration timing and survival, and parent/progeny ratios).



*A weir on Lookingglass Creek where adults are collected*

### Genetic Resources

To maintain the genetic resources of the Lookingglass spring chinook stock, biologists collect adults throughout the entire run.

Lookingglass Creek is co-managed by the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and Oregon Department of Fish and Wildlife.

program permits performance measure comparisons of the new Catherine Creek stock, as well as the prior Rapid River stock, to the endemic fish (shown in the table below). These results and others indicate striking potential for success of hatchery reintroduction and supplementation programs for spring chinook.

### Productivity measures for the endemic and the two introduced stocks of spring chinook in Lookingglass Creek

*(Outmigrants are juvenile fish counted as they leave their natal stream on their way to the ocean.)*

Stock	Broodyear	Redds	Outmigrants Produced	Outmigrants per Redd
Endemic	1965	99	33,437	338
	1966	279	55,315	198
	1967	120	31,036	259
	1968	133	29,076	219
	1969	276	33,148	120
Rapid River Stock	1992	49	8,715	178
	1993	132	46,536	353
	1994	40	6,388	160
	1996	24	14,625	609
	1997	24	13,330	555
Catherine Creek Stock	2004	49	16,344	334
	2005	29	11,500	397
	2006	28	12,502	447
	2007	32	7,796	244
	2008	104	59,942	576

After objections from the National Oceanic and Atmospheric Administration (NOAA) Fisheries and rules prohibiting use of the non-local Rapid River stock, the Umatilla tribe was obliged to restart the reintroduction program with an inbasin stock. In 1999 the stocking of Rapid River juveniles ceased, and for the next several years the tribe had to block passage of all returning adults, causing the upstream population to again go extinct.

In 2001 the tribe reintroduced juveniles produced from a recently established Catherine Creek stock, a nearby Grande Ronde River tributary. In 2004 the first year that adults from the new Catherine Creek stock returned to the basin and passage of fish upstream was again permitted.

Beginning in 2007, the first adult progeny from natural spawning of the 2004 broodyear fish returned. Supplementation of the new population continues—using a mix of natural- and hatchery-origin broodfish—with the intent of promoting the creation of a naturalized Lookingglass stock.

Information acquired through the monitoring



### A contentious past

Rapid River spring chinook have a storied history. In 1980 Nez Perce tribal members fished for chinook in protest of a state fishing ban. Tribal members were ticketed (in the photo above, an 8-year-old Nez Perce boy is being ticketed), and the state posted armed guards at the treaty fishing site. After a prolonged trial, an Idaho judge dismissed all charges.



*Chinook in Lookingglass Creek, swimming upstream to spawn*

Continued work will include a genetic evaluation of the productivity of progeny from captive Catherine Creek broodstock that spawn naturally versus those subjected to another "hatchery cycle" and used for broodstock in Lookingglass Hatchery.

Supplementation of the reintroduced population is successfully contributing to the maintenance and growth of the spring chinook in the Lookingglass Creek watershed. In fact, for the first time in decades, returns to Lookingglass Creek were strong enough in spring 2011 and 2012 to allow tribal and sport fisheries. The run size in 2012 was estimated at 1,700 fish, roughly the same as seen historically.

### For More Information

#### Confederated Tribes of the Umatilla Indian Reservation

Fisheries Program  
(541) 276-3447  
[www.umatilla.nsn.us/dnr.html](http://www.umatilla.nsn.us/dnr.html)

#### Nez Perce Tribe

Department of Fisheries Management  
Lapwai, Idaho 83540  
(208) 843-7320  
[www.nezperce.org/~drfm/index.html](http://www.nezperce.org/~drfm/index.html)

#### Columbia River Inter-Tribal Fish Commission

729 NE Oregon, Suite 200  
Portland, Oregon 97232  
(503) 238-0667  
[www.critfc.org](http://www.critfc.org)