Underground Salmon

Forty years ago on the wild western side of the Yakama Indian Reservation, the Washington Department of Fisheries started a project to help salmon up the Klickitat River that never really worked. Last year, the Yakama Nation put the finishing touches on a retrofit of the project that finally completed the original vision of the Castile Falls salmon tunnels.

The Klickitat River Gorge at Castile Falls.

Flowing from its headwaters at the base of Tieton Peak in the Goat Rock wilderness, through the rugged backcountry of the Yakama Nation reservation, and finally in a turbulent rush through the Columbia Gorge into the Columbia River, the Klickitat River is an undammed treasure that holds promise in the Yakama Nation's efforts to restore salmon runs. Driving up from the mouth of the Klickitat River at Lyle, Washington's longest free-flowing river seems the perfect place for returning salmon to spawn. And for the last sixty miles or so, that's exactly what it is. So much so that the area has also been a magnet for Yakama fishers for thousands of years.

Despite the unimaginable energy of the river concentrated into a narrow basalt chasm sometimes less than ten feet wide, salmon are able to struggle past on their way to spawn. And they do pass, all the way to the base of Castile Falls, 64 miles upstream from the river's mouth. This impressive stretch of the river is a series of eleven falls that drop 120 feet in elevation in just under a mile. They also stop salmon in their tracks, proving too much of a challenge, even for the determined animals. In 1960, working under an agreement with the Yakama Nation and the National Marine Fisheries Service (now NOAA Fisheries), the Washington Depart-

ment of Fisheries dreamt up a project designed to allow the salmon to bypass Castile Falls altogether by providing a tunnel around the falls. In this way, they could open up the prime spawning areas upstream from the falls. Originally designed as a single long tunnel, the finished project included two tunnels that relied on a 1960's understanding of hydrodynamics. Unfortunately, their knowledge of fish passage didn't match their aspirations. Bill Sharp, the Klickitat Basin Coordinator for the Yakama Nation Fisheries Program, points to the narrow opening where the tunnel emerges at the base of the falls. "Even though the project intended to improve passage, its design was very inefficient," Sharp explains. "It acted as a serious, if not complete, barrier to fish migrating upstream. In fact, any fish that did make it above the falls probably did so by navigating the natural falls and not the tunnels."

For years, the tunnels never served their original vision of opening up the miles and miles of habitat upstream. Then, over 35 years after their construction, the tunnels received a new lease on life, in the unlikely form of a flood. "After the 1996 floods damaged a number of fish passage facilities, federal funding was made available to improve and maintain these passage systems," remembers Sharp. With federal funding and a modern understanding of effective fish ladder design, the Yakama Nation embarked on a five-year project to complete the vision of the Castile Falls tunnels that was started over forty years earlier. After spending five years and over two million dollars, Castile Falls is no longer a barrier to salmon in the Klickitat River. Like a proud father, Sharp is quick to point out the impact of the project. "Now that they are functional, the tunnels have opened up 45 miles of prime spawning and rearing habitat for spring Chinook salmon and 60 miles of threatened mid-Columbia steelhead habitat."

Prior to the retrofit, the salmon tunnel was filled with cobble and didn't pass deep enough water for salmon to navigate its depth.

The ultimate gauge of the project's success, however, isn't determined by the Yakama fisheries staff or federal agencies but by the salmon themselves. And it would seem that, indeed, they approve. Standing at the upper end of the falls, Sharp squints searching for any fish emerging from the tunnel. "Just after the project's completion, we witnessed salmon and steelhead using the ladder and swimming on above the falls." In fact, shortly after the project was completed the tribe's survey crews discovered four spring Chinook redds above the falls. In the latest survey, the number has jumped to 35.

That the salmon and steelhead are using the tunnels is the real testament of the project. But instead of being able to rest easy now that the project is completed, the tribe has set its sights on improving the habitat above Castile Falls, and that's where Will Conley comes in. Conley is the Yakama Nation Habitat Specialist whose job it is to repair habitat damage, both in the river and along it. He's currently overseeing fixes to the 255 Road, which parallels the Klickitat River.

The 255 Road is the main access route into the upper third of the Klickitat watershed. Each year, Yakama tribal members rely on it to get to the huckleberry fields and hunting grounds of the remote northwestern forests of the reservation. But the location of the road has not been good for the river. Driving a short six miles upstream from the falls, Conley points out a stretch of damaged stream bank that has the potential to choke a gravel redd with sediment. Faced with problems like this, the Klickitat has a hard time providing the habitat that juvenile salmon and steelhead require. Working with the Bonneville Power Administration and the Pacific Coastal Salmon Recovery Fund, Conley and his team are tasked with undoing the damage and restoring critical in-stream habitat. "We're working to create high quality pools with plenty of shade and refuge, repair damaged stream banks, and stop sedimentation coming from the road," explains Conley. "It creates a better place for salmon and steelhead recovery."

It's the least they can do for the intrepid pioneers that successfully braved the salmon tunnels of the Klickitat.