

Deschutes Steelhead Fact Sheet

Hatchery Fish Exclusion Weirs Project

Deschutes Steelhead Run Size Compared to Catch Rate

2007 Run Size:

Wild = 3,986

Round Butte Hatchery = 6,589

Hatchery Strays = 19,189

Run is 13 percent wild

2007 Catch Rate:

Wild = 2,621 caught and released

Hatchery = 1,777 caught and kept (not counting hatchery fish caught and released)

Catch is 60 percent wild (not counting hatchery fish caught and released)

2008 Run Size:

Wild = 3,482

Round Butte Hatchery = 6,120

Hatchery Strays = 7,929

Run is 20 percent wild

2008 Catch Rate:

Wild = 3,111 caught and released

Hatchery = 1,395 caught and kept (not counting hatchery fish caught and released)

Catch is 71 percent wild (not counting hatchery fish caught and released)

2008 Catch Rate Per 100 Hours of Fishing

Deschutes Mouth Creel

Wild = 6.03 fish caught per 100 hours

Hatchery = 2.71 fish caught per 100 hours

Macks Canyon Road Creel

Wild = 2.41

Hatchery = .95



--Information provided by Rod French, ODFW mid-Columbia district biologist. Run size is based on ODFW population estimates at Sherars Falls, which is 43 miles from the mouth of the Deschutes. Some steelhead do not travel as far as the falls and are not counted. Catch rate data is based on ODFW creel surveys. Catch and release allows many wild steelhead to be caught more than once, some three, four and even more times.

<i>Deschutes Steelhead Run Year</i>	<i>Wild</i>	<i>Total Hatchery</i>	<i>Round Butte</i>	<i>Strays</i>	<i>% of run that is wild</i>
83-84	8,228	15,443	7,250	7,684	54%
84-85	7,721	11,770	7,563	3,824	66%
85-86	9,624	12,106	7,382	5,056	80%
86-87	6,207	18,358	9,064	9,803	34%
87-88	5,367	17,623	9,209	8,367	31%
88-89	3,546	6,336	3,849	2,909	56%
89-90	4,278	6,504	2,758	3,659	66%
90-91	3,653	4,876	1,990	2,852	75%
91-92	4,862	11,859	3,778	8,409	41%
92-93	904	6,088	2,539	4,261	15%
93-94	1,487	5,476	1,159	4,293	27%
94-95	482	6,126	1,781	4,391	8%
95-96	1,662	12,828	2,708	11,855	13%
96-97	3,458	28,416	5,932	23,618	12%
97-98	1,820	22,511	5,042	17,703	8%
98-99	3,800	15,120	3,527	11,110	25%
99-00	4,790	15,219	2,628	13,785	31%
00-01	8,985	19,310	4,380	15,072	47%
01-02	8,749	31,784	9,373	25,263	28%
02-03	9,363	23,004	8,880	15,203	41%
03-04	5,524	11,511	5,265	6,542	48%
04-05	3,161	9,356	4,354	4,972	34%
05-06	3,432	10,497	5,868	4,838	33%
06-07	3,986	25,945	6,589	19,189	15%
<i>Total</i>					<i>37%</i>
<i>Average</i>					

--From ODFW reports

The Science of Wild

“Artificial propagation does not contribute to increased natural productivity needed for viability, and appears in most cases, to erode productivity of wild populations.” - McClure et al. 2008. Evolutionary affects of alternative propagation programs: implications for viability of endangered anadromous salmonids. Evolutionary Applications. Blackwell Publishing Ltd. 1:356-375



“A conservative interpretation of these findings would indicate that when hatchery fish comprise more than 50% of the natural spawning population there is an unacceptable risk of reproductive failure and, therefore, possible extirpation.” - Chilcote, Mark. 1998. Oregon Steelhead Status. Oregon Department of Fish and Wildlife. Progress Report 98-3.

“...relative population survival rates (recruits produced per spawner) were found to decrease at a rate equal to or greater than the proportion of hatchery fish in the natural spawning population. In other words, a spawning population with 20% hatchery strays had the net survival rate (recruits per spawner) that was 20% less than a population comprised entirely of wild fish (0% hatchery strays). Likewise, a population with 40% hatchery strays had a population survival rate that was 40% lower than a population comprised entirely of wild fish” - ODFW. 2008. Recovery Strategies to close the conservation gap, methods and assumptions. Lower Columbia River Recovery Plan Stakeholder Team for Oregon.

Deschutes Solution

The solution is to construct hatchery fish exclusion weirs on important steelhead spawning streams. ODFW placed a weir on Trout Creek in 2006, and as of January 2009 weirs were also placed on Bakeoven and Buck Hollow creeks.



ODFW and the U.S. Fish and Wildlife Service proposed to construct the weirs on Bakeoven and Buck Hollow and evaluate the impact of hatchery fish on wild steelhead. Their proposal was rejected for BPA funding even though it has been approved by independent scientific review and is consistent with the Fish and Wildlife Program of the Power Planning and Conservation Council and called for in the 2000 Columbia River Biological Opinion.

Seeing the need, the Native Fish Society facilitated the construction of the weirs by enlisting the Oregon Wildlife

Heritage Foundation, who paid \$16,000 to have the weirs constructed and emplaced. ODFW pays for the operations of the weirs.

Trout Creek, Bakeoven and Buck Hollow Steelhead

The Buck Hollow trap began operation on January 26. Between then and April 5, 325 wild steelhead have been passed upstream and 25 hatchery steelhead and 5 damaged dorsal steelhead have been stopped at the weir. ODFW has also passed 27 steelhead kelts back down below the weir, 5 of those were unmarked (migrated upstream before weir installation), 16 were marked and 6 are unknown.

The Bakeoven trap began operating January 24. Between then and April 5 14 steelhead, all native have passed through the weir. ODFW has also passed 15 kelts downstream, 14 were natives and one was a



Deschutes hatchery steelhead. Of those 14 native steelhead only 2 were fish that were passed at the trap, so the others and likely more traveled upstream before the trap was emplaced.

An average of 10 percent of the steelhead tracked at the Trout Creek weir since it was emplaced in 2006 have been wild.

Rod French notes that some years, spawning ground counts in all three of these streams indicate that more than 50 percent of the spawners are of hatchery origin.

Additional information

According to the Oregon Wild Fish Policy (1978, 1992) and the Native Fish Conservation Policy (2003) naturally spawning hatchery fish are restricted to 10% of the natural spawning population. Wild salmonids are to comprise 90% of the naturally spawning population. On the Deschutes River stray hatchery steelhead from out of ESU stocks have comprised more than 10% of the natural spawning population. The Middle Columbia Technical Recovery Team identified stray hatchery steelhead as a major problem for recovery of wild steelhead in the Deschutes and John Day rivers. The weirs on Bakeoven, Buck Hollow and Trout creeks now reserve these spawning and rearing habitats for wild steelhead of the Deschutes Basin. Many more creeks are still affected by stray steelhead, creeks such as Nena and Eagle are remote and access is difficult. The next phase is to include these creeks in the wild steelhead protection program. In addition, ephemeral streams such as Oak Brook, Cove Creek, Jones Canyon Creek are also productive wild steelhead habitat that should be protected.

Round Butte Hatchery steelhead do not stray like out-of-ESU stray steelhead, so they do not present a problem as far as we know.

Unmarked hatchery steelhead are also found in the Deschutes. Even though federal regulations state that all hatchery salmonids produced in federal funded hatchery programs are to be given an external mark (clipped adipose fin) not all are. Snake River hatchery steelhead and some production from the upper Columbia are not marked at the request of the tribes. A few years ago 3 million hatchery steelhead released into the Snake Basin were not marked. The Warm Springs Tribes have objected to this practice for it makes it more difficult to sort wild from hatchery fish at their hatchery weir on the Warm Springs River. The Warm Springs River is managed for wild steelhead and spring Chinook production and a weir on that river separates wild from hatchery fish.

ODFW is developing the ability to sort hatchery fish at Sherars Falls fish way, but not all hatchery fish use the fish way so strays will be in the river above the falls.

The Deschutes River is the only thermal refuge in The Dalles Dam pool. During years when the Columbia is very warm, fish move into the Deschutes River for temperature relief. Some stocks migrate all the way to Pelton Dam trap (100 miles upriver) and many do not leave the river and spawn. The fish that tend to migrate the furthest upriver and spawn are from the Wallowa Hatchery in the Grande Ronde River basin. Steps are being taken to convert this hatchery stock from the old form that was taken from Lower Granite Dam fish ways, to fish that have migrated up the Grande Ronde River. The theory is that fish in the Grande Ronde River will tend to

migrate into the river rather than hold over in the Columbia and Snake rivers in the winter to migrate beginning in March to the Wallowa Hatchery. The original stock from the fish ways at Lower Granite Dam were fish that over-wintered in the Columbia and Snake rivers and also strayed into other rivers such as the Deschutes.

With the introduction of hatchery Coho salmon in tributaries of the middle Columbia and upper Columbia and Snake River, there is a new stray problem. Buck Hollow Creek is one stream that attracts hatchery Coho spawners. These Coho salmon spawn in the creek and compete with wild steelhead for food and rearing space. The weirs now stop those non-native hatchery Coho spawners.



The weirs are managed by ODFW to pass wild steelhead, rainbow trout, suckers, whitefish. These are native to the Deschutes River and the creeks are an important spawning and rearing habitat for them. The rainbow are an important component to the success of steelhead spawners in these creeks, for late spawning female steelhead may not have males to spawn with and the trout are known to reproduce with the female steelhead. This is a life history strategy found all along the west coast and the resident rainbow and steelhead are all

part of the same genome.

Hatchery strays are an increasing problem. It was first identified in the 1980s by NMFS researchers and considered a benefit to the tribal fishery, for these lost fish were available for a longer period to the dip net and gill net fisheries. Biologists on the Deschutes and John Day rivers are very concerned about these stray fish and their impact on wild steelhead in these rivers. Transportation of steelhead juveniles in the Columbia and Snake rivers is considered the major source of strays, for the juveniles are not imprinted well enough to find their way back to their point of origin. Stray steelhead will continue to be a biological problem for the long-term as long as transportation is used to move smolts around the dams.

