

North Santiam River Anadromous Fish Runs – 2015

Dave Carpenter, NFS River Steward

North Santiam River

Fish Counts - 2015 Calendar Year*

Count

	Hatchery <u>Chinook</u>	Wild <u>Chinook</u>	Wild <u>Coho</u>	Hatchery <u>Steelhead</u>	Wild <u>Steelhead</u>	<u>Total</u>
Willamette Falls**	42,113	8,933	2,650	3,894	4,503	62,093
Bennett Dams	6,687	1,074	437	905	865	9,968
Minto Collection	3,884	652	74	484	186	5,280

Percentage

	Hatchery <u>Chinook</u>	Wild <u>Chinook</u>	Wild <u>Coho</u>	Hatchery <u>Steelhead</u>	Wild <u>Steelhead</u>	<u>Total</u>
Bennett as % of WF	15.9%	12.0%	16.5%	23.2%	19.2%	16.1%
Minto as % of WF	9.2%	7.3%	2.8%	12.4%	4.1%	8.5%
Minto as % of Bennett	58.1%	60.7%	16.9%	53.5%	21.5%	53.0%

* Winter Steelhead includes 256 fish passing Willamette Falls prior to 01/01/2015 as part of the "run" year or cycle.

** Willamette Falls does not provide Hatchery and Wild Spring Chinook counts separately, but does provide a cumulative "mark" percentage - for 2015 it was 82.5%

Counting Locations

Willamette Falls counts were obtained from the ODFW Website for fish passage at Willamette Falls near Oregon City

Bennett Dam fish counts were obtained from the ODFW Website for fish passage at Upper and Lower Bennett Dams near Stayton – approximately 16.4 miles upstream from the mouth of the North Santiam River.

Minto Collection fish counts were obtained from the ODFW Website for fish passage at the Minto Collection Facility 4 miles downstream of Big Cliff Dam – approximately 48.6 miles upstream from the mouth of the North Santiam River. Big Cliff Dam marks the end of upstream migration for Anadromous Fish Species in the North Santiam River.

The Minto Facility is also the location where hatchery raised Spring Chinook and Skamania Stock Summer Steelhead are released each year. Target releases are 667,000 Spring Chinook and 141,500 Summer Steelhead annually.

Species Source Information

Hatchery raised Spring Chinook in the North Santiam are comprised primarily of historical North Santiam Broodstock and descendants thereof. Hatchery raised juveniles have their adipose fin removed or “clipped” prior to release. They are raised at the Marion Forks Hatchery upstream of the Big Cliff/Detroit complex and are transported to the Minto Facility for acclimation and release.

Wild Spring Chinook in the North Santiam hatch and rear naturally in the North Santiam Basin primarily in the mainstem, but also in some of the major tributaries of the North Santiam River.

Wild Coho Salmon hatch naturally in the North Santiam Basin primarily in the tributaries of the North Santiam River. A very large percentage hatch and rear in the unimpeded Little North Santiam and in Stout Creek, near Mehama, where one of the old hatchery operations was located. They are primarily descendants of a hatchery program operating during the 1960's. Their return numbers have increased significantly in the past 10-15 years despite not being actively managed since 1972.

Hatchery raised Summer Steelhead are Skamania Broodstock, raised at the South Santiam Hatchery, clipped and transported to the Minto Facility for acclimation and release.

Wild Winter Steelhead hatch and rear naturally in the North Santiam Basin in either the mainstem or one of the tributaries of the North Santiam River. A very large percentage hatch and rear in the unimpeded Little North Santiam River.

General Observations

Two key numbers stand out regarding fish counts from Willamette Falls in 2015. Spring Chinook counts were quite a bit higher than the norm and the highest since 2010. Summer Steelhead counts were drastically lower than previous years and the worst since 1975, shortly after the program began. 2015 also was a year of lower than normal river flows and higher water temperatures throughout the basin for a large portion of the year. As a percentage of return vs. release for the North Santiam specifically (@ Bennett Dams), Spring Chinook returns were roughly 1%, whereas Summer Steelhead returns were a dismal .6%

Historical (pre-dam) estimates claim that the North Santiam Basin produced 60% of the Willamette Basin Spring Chinook and 35% of the Willamette Basin Winter Steelhead. Those numbers are quite a bit lower in recent years and in 2015 specifically when comparing counts at the Bennett Dams to those of Willamette Falls. It is safe to assume that some fish are harvested (or otherwise expire) from the first 16 miles of river prior to reaching Bennett Dams after leaving the Willamette Basin (and Santiam Mainstem). It's difficult to quantify those numbers.

Once fish enter the North Santiam and pass Bennett, the data shows that the majority (60%) of Spring Chinook Salmon show up at the Minto Facility – both hatchery and wild. This indicates that the remaining 40% are harvested, expire or are left to spawn and complete their lifecycle in the mainstem North Santiam or one of the tributaries. For Summer (hatchery) Steelhead, a similar percentage (53%) return to the release point and the remaining 47% are harvested, expire, or complete their lifecycle in the mainstem or tributaries. This is a major concern as it provides the opportunity for interbreeding of the wild and hatchery fish of both species. For Spring Chinook, this concern is slightly less because both wild and hatchery fish originate from North Santiam Broodstock. However, in the case of Steelhead, the hatchery and wild fish are completely separate strains – one being Skamania Summer Run Stock and the other being Native North Santiam Winter Run stock – vastly different from a historic and genetic perspective.

2015 Drought

It is my opinion that the drought conditions had some impact on anadromous fish returns in the North Santiam Basin. The impact on returning Spring Chinook adults in the North Santiam was minimal, as the bulk of the run moved through the lower (warmer) reaches of the system fairly quickly and were in cooler locations prior to July. For returning Summer Steelhead adults, the impact was far greater, as those fish take longer to reach the North Santiam after passing Willamette Falls. The Summer Steelhead are typically more evenly distributed throughout the basin, rather than race to the upper reaches like the Spring Chinook do. I assume a good number were still in the lower reaches in July when river temperatures reached into the 70's. However, since those fish were hatchery raised Skamania stock, it is likely a positive thing. There will be fewer of those fish around to stray and spawn with the native winter run stock.

I have more concerns about the juveniles from all species – those that were rearing and migrating out to the Pacific during the year. Downstream of Mehama, river temperatures climbed in the 70's from July through early September. In the Little North Santiam, where the majority of Winter Steelhead and Coho juveniles hatch and rear, the temperature reached 82 degrees at the mouth on July 2nd. We won't know for sure how much of an impact that had on those two species in particular until that generation of fish return in a few years. I fear it will be significant.

Climate change and the prospect of future droughts occurring more often bring up serious concerns, not only for anadromous species, but also the local native species populations. There was little to no snow pack in the spring of 2015. There was significantly less spring rain. Flows in the North Santiam for the 1st half of the year were 30 – 40% of the norm, meaning 30 – 40% less habitat for fish species to use. It resulted in a very condensed environment. Occurring at the same time, was the release of hatchery raised fish into the river system. Using an analogy a fellow river steward is known to make – if the river is essentially one big aquarium – then we not only had an aquarium that was only 30-40% full, but we also dumped an additional 800,000 fish into it! Some scrutiny of this practice needs to be addressed, especially in forecasted drought years. To me, adding a typical number of hatchery fish to a system that is far less than typical capacity will lead to serious negative impacts to all species – anadromous and local population alike.