

## Tenderfoot Creek Fish Hatchery Chum Salmon Program

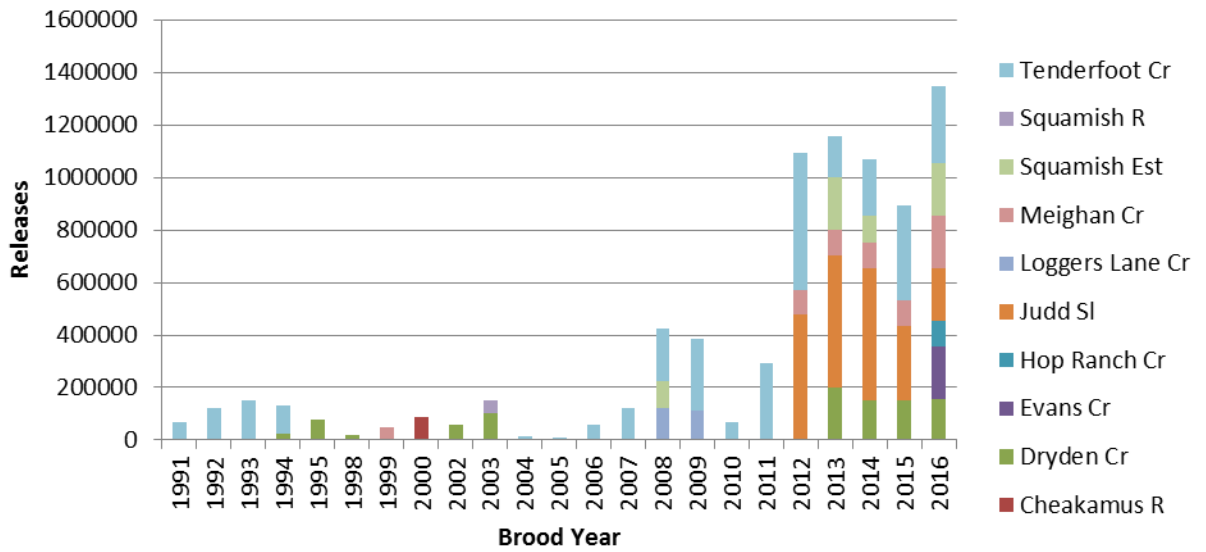
In 2012 the Department of Fisheries and Oceans at Tenderfoot Creek fish hatchery recognized the declining Chum salmon stocks in the Squamish system. Chum salmon are a large driver in the ecosystem due to their high nutrient composition and therefore support a large variety of flora and fauna. Such flora and fauna that benefit from a strong Chum salmon population are healthy forests, bears, other fish and salmon stocks, and large eagle populations. Before 2012, recent releases have focused primarily on Tenderfoot Creek production, as well as very small periodic colonization programs with transplants of Tenderfoot Chum to tributaries of the Cheakamus R.

Noting the declining Chum returns, the Department of Fisheries and Oceans began Tenderfoot's long term Chum stocking program, with an objective to rebuild the Chum salmon returns to historic levels in the Squamish River watershed. This conservation based program would increase previous efforts and release 1.5 million Chum fry into other tributaries and channels within the Squamish system. Most of these tributaries are located near the town of Squamish, and within an urban setting.

The Chum salmon return to Tenderfoot Creek , where the fish hatchery has a creek trap, in late October and continue to return until late November. Staff then collect the salmon adults, and take them back to the hatchery where they will be spawned. The spawning process begins with eggs being fertilized, and then cared for in incubation containers. The young Chum will hatch in these containers and emerge and begin feeding as fry in early spring. The fry are fed, and reared for 1 month before being released into their designated stream. The Chum salmon that are cared for in the hatchery setting receives substantially higher survivals then their counterparts in the wild. The hatchery setting limits environmental impacts such as flooding events, predation, lack of nutrition, and any sort of disturbance that would inhibit survival.

When Chum fry are released into a stream at an early age they imprint on the stream by smells and environmental cues that are unique to each waterway. This allows the Chum to return to that stream when they are ready to spawn after 3-4 years feeding in the ocean. In order to assess the Chum program, hatchery staff conduct stream walk surveys each fall on all enhanced streams. A baseline population is recorded before hatchery fish are returning, and then a population is established once hatchery fish begin to return.

Each stream will receive a release of Chum fry for a period of four years, or one enhancement cycle, creating a sustainable population. Once the four year cycle is complete efforts can then be shifted to focus on another creek that is worthy of returning Chum adults. With the stocking rotations and the introduction of hatchery Chum throughout the watershed, Squamish Chum salmon returns are notably on the mend, especially in urban settings.



**Figure 1:** Breakdown of Chum release numbers and sites. Note increased efforts in 2012.