

AQUACULTURE *update*

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Pacific Biological Station

Atlantic Salmon Watch Program 1997 Review

The Atlantic Salmon Watch Program (ASWP) is a joint research initiative between Fisheries and Oceans Canada and the British Columbia Ministry of Fisheries to study the abundance, distribution and biology of Atlantic salmon (*Salmo salar*) in British Columbia (BC) and its adjacent waters. The program operates with the co-operation of the BC Ministry of Environment, Lands and Parks, the Alaska Department of Fish and Game and the Washington Department of Fish and Wildlife. (Thomson and Candy, 1998). The program relies on fishers, fish processors, government field staff and hatchery workers to report Atlantic salmon. It provides a single repository for data and information about Atlantic salmon.

Escapes

From 1991 to 1996, 154,981 Atlantic salmon escaped from BC marine Aquaculture facilities in 25 reported incidents. There were 7,472 Atlantic salmon reported escaped in British Columbia in three incidents in 1997. One escape was reported in Washington State; on July 19, 1997, 369,661 Atlantic salmon escaped from a farm site located in Rich Passage, Puget Sound. The fish ranged in size from 0.1 kg to 6.6 kg. The escape resulted from a structural failure at the farm during an unsuccessful attempt to move the nets so as to avoid a plankton bloom. In addition to these marine escapes, 10,464 fry were accidentally spilled during transfer into netpens in Lois Lake.

Marine Catches

The combined marine catch of BC, Washington and Alaska was the highest ever recorded at 4,904 fish. Within BC waters, Atlantic salmon were reported from as far north as Prince Rupert, and as far south as Victoria. There were 2,655 documented recoveries of Atlantic salmon from marine fisheries in 1997.

Marine Recoveries of Atlantic Salmon

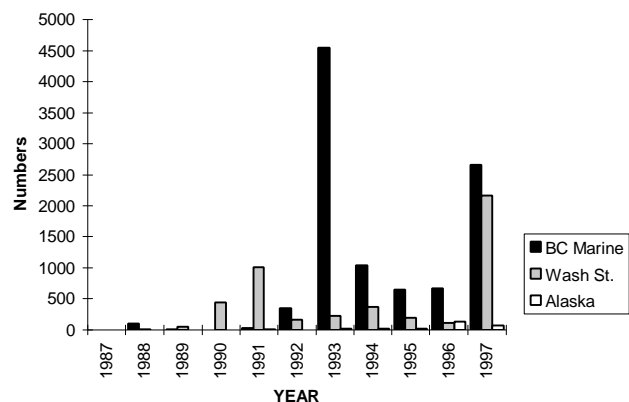


Figure 1. Marine Catches of Atlantic Salmon.

Commercial, tribal and test fisheries in Washington State caught 2,172 Atlantic salmon. The Alaska Department of Fish and Game recorded 79 Atlantic salmon caught in Alaskan waters (Figure 1). One catch of note occurred on September 11, 1997 in the Bering Sea, south of the Pribilof Islands. An immature male Atlantic salmon was caught in a bottom trawl by the US National Maine Fisheries Service (Brodeur and Busby, 1998)

Freshwater Catches

In 1997, 155 Atlantic salmon were reported caught or sighted in BC rivers through the ASWP. Swim surveys provided the majority of the data, and probable recounts of the same fish are not included in this total. Juvenile Atlantic salmon were recovered from three freshwater sites, Carnation Creek, Pye Creek and Georgie Lake. The fish in Carnation Creek was determined to be hatchery origin and likely an escapee from a local seapen grow-out facility. Pye Creek is downstream of a commercial Atlantic salmon hatchery and it is assumed that the fish had escaped from that facility. Twenty-four juvenile Atlantic salmon were recovered from Georgie Lake, which is the site of a netpen smolt rearing facility. Upstream counting fences on seven rivers in Washington State recorded 53 adult Atlantic salmon.

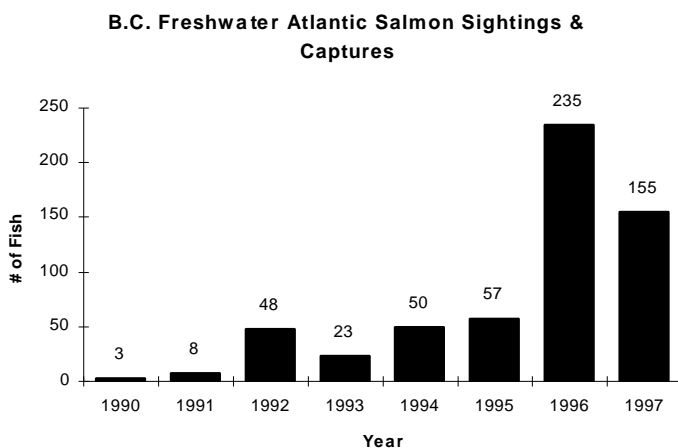


Figure 2. Freshwater catches and observations of Atlantic salmon in BC.

Biological sampling

One hundred and thirty-four BC marine caught Atlantic salmon were analyzed at the Pacific Biological Station. Measurements of length, weight, stomach contents, body cavity fat deposition and sexual maturation were recorded. Fork lengths ranged from 47.0 to 79.5 with a mean of 65 cm. Round body weights ranged from 1.4 to 6.0 kg with a mean of 3.3 kg. The majority of the fish were

sexually immature. Of 64 males the median gonad weight was 5.2 grams; for 67 females, it was 10.8 grams. The median fat content for the fish caught in BC coastal waters was lower than that which is typical in farm-reared fish at the time of harvest. The median fat content for the Alaskan caught fish was reduced even more. The reduced level of fat is correlated with a low incidence of feeding by the escapees. Of 133 fish analyzed for stomach contents, only two (1.5%) contained prey items.

Seventy-three Atlantic salmon caught in Alaska were sent to the Pacific Biological Station for analysis. Fork lengths of the Alaskan recoveries ranged from 35 to 82 cm with a mean of 58.4 cm. Round body weights ranged from 0.5 to 6.5 kg with a mean of 2.5 kg. Of 28 males recovered from marine landings, the median gonad weight was 1.9 grams; for the 35 females measured, the median weight of the ovaries was 5.5 grams. Nine (12.3%) of the 73 fish stomachs examined contained herring, sandlance, zooplankton or other prey items.

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