

History of Atlantic Salmon Introductions into the North American Pacific Ocean

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1874: Atlantic salmon brought to California in an attempt to establish a population in the ocean for recreational angling. There were subsequent attempts in 1890, and 1929-1932.¹ None were successful.

1904: Atlantic salmon first brought to Washington State to attempt to establish a population in the ocean for recreational angling.²

1905: Atlantic salmon first introduced to British Columbia in an attempt to establish a population for recreational angling. 90,000 fry were released into the Coquitlam River, Lillooet River, and Harrison Lake on the mainland and into Campbell River, Comox Lake, Horne Lake, Nanaimo Lake, Cowichan Lake and Koksilah River on Vancouver Island.³ In total 200,000 Atlantic salmon eyed-eggs, fry, fingerlings and smolts were introduced into B.C. waters this year.⁴ Eggs for these introductions were imported from New Brunswick as well as Scotland. The bulk of releases were into the Cowichan River system.

1906: 1,200 salmon introduced on Saltspring Island.

1907: 115,000 salmon introduced to Vancouver Island and mainland streams and lakes.

1908: 90,000 salmon introduced to Vancouver Island and mainland streams and lakes.

1909: 83,000 salmon introduced to Vancouver Island and mainland streams and lakes.

1911: 153,000 salmon introduced to Vancouver Island and Interior streams and lakes.

1912: 170,000 salmon introduced to Vancouver Island streams and lakes.

1913: 142,500 salmon introduced to the Cowichan river system on Vancouver Island.

1914: 86,000 salmon introduced to Vancouver Island streams and lakes.

1915: 243,900 salmon introduced to Vancouver Island and Interior streams and lakes.

1916: 178,300 salmon introduced to Vancouver Island streams and lakes.

1917: 245,050 salmon introduced to Vancouver Island, mainland and Interior streams and lakes.

1918: 418,028 salmon introduced to Vancouver Island and mainland streams and lakes.

1919: 288,000 salmon introduced to Vancouver Island and mainland streams and lakes.

1921: 184,818 salmon introduced to Vancouver Island, Skeena River and Interior streams and lakes.

1922: 378,704 salmon introduced to Vancouver Island streams and lakes.

¹ MacCrimmon, H.R. Gots, B.L. "World Distribution of Atlantic Salmon, *Salmo salar*." Journal of Fisheries Resources, 1979.

² Bisson, Peter A. "Assessment of the Risk of Invasion of National Forest Streams in the Pacific Northwest by Farmed Atlantic Salmon." Published by US Department of Agriculture Forest Service, November 2006.

³ Carl, G. Clifford and Guiguet, C.J. "Alien Animals in British Columbia." Published 1958. Online version available at <http://www.geog.ubc.ca/biodiversity/efauna/AlienSpeciesinBritishColumbiaHistoricalRecords.html>

⁴ Ginetz, R.M.J. "On the risk of colonization by Atlantic salmon in B.C. waters." Prepared for B.C. Salmon Farmers Association, May 2002.

1923: 922,003 salmon introduced to Vancouver Island, Skeena River and Interior streams and lakes.

1924: 593,205 salmon introduced to Vancouver Island streams and lakes.

1925: 1,083,342 salmon introduced to Vancouver Island streams and lakes.

1926: 887,041 salmon introduced to Vancouver Island streams and lakes.

1927: 987,895 salmon introduced to Vancouver Island streams and lakes.

1928: 1,118,070 salmon introduced to Vancouver Island streams and lakes.

1933: 14,718 salmon introduced to Vancouver Island streams and lakes.

1934: 19,344 salmon introduced to Vancouver Island streams and lakes.

1935: 4,803 salmon introduced to Vancouver Island streams and lakes.

1905-1935: 8,607,919 Atlantic salmon were deliberately introduced in B.C. Nearly 1.8 million of those were introduced into the Cowichan River system and nearly one million were introduced into Sutton Creek near Port Alberni.⁵ Only three Atlantic salmon were ever confirmed caught by anglers after the introductions and none after 1926.⁶

1932-1935: Although the attempts to establish Atlantic salmon in B.C. failed, a three-year project to establish Brown trout was much more successful. 20,275 Brown Trout (*salmo trutta*) fry and 239,858 fingerlings and older fish introduced into the Cowichan River system on Vancouver Island. 163,786 fry and 123,577 fingerlings and yearlings introduced into the Little Qualicum river system on Vancouver Island. Both plantings were successful, spawning was observed on both systems in subsequent years.⁷ Brown trout have established a population in the Cowichan River and can be caught there today.

1950: Oregon Department of Fish and Wildlife rears Atlantic Salmon at the Wizard Falls Hatchery.⁸

1958: Atlantic salmon successfully introduced into Hosmer Lake in Oregon, in the Deschutes River subbasin of the Columbia River.⁹ The population is maintained by hatchery spawning which continues to this day.

1971: The National Marine Fisheries Service's Northwest Fisheries Science Center begins testing the feasibility of raising New England-origin Atlantic salmon in net pens in Puget Sound. The goal was to provide 3.5 million eyed eggs annually to New England for salmon restoration projects.¹⁰

1972: First Atlantic salmon farm on the Pacific Coast established in Puget Sound by Conrad Mahnken and the National Marine Fisheries Service. The salmon were obtained from Canadian fish in the Gaspé Peninsula in the Gulf of St. Lawrence, from the Wizard Falls Hatchery in Oregon which had been raising salmon in ponds since the 1950s and using them to improve sport fishing in the area. Washington salmon farms obtained Atlantic eggs for their hatcheries from Mahnken's project and also from overseas

⁵ Ginetz, 2002.

⁶ Carl and Guiguet, 1958.

⁷ Carl and Guiguet, 1958.

⁸ "Pest Risk Assessment for landlocked Atlantic salmon (*Salmo salar*) in Oregon." Oregon Invasive Species Council. Retrieved 2011-11-29 from http://www.oregon.gov/OISC/docs/pdf/ra_atlanticsalomon.pdf?ga=t

⁹ Bisson, 2006.

¹⁰ "The Net Pen Salmon Farming Industry in the Pacific Northwest." NOAA Technical Memorandum NMFS-NWFSC-49. Published September, 2001.

broodstock from Western Europe.¹¹ They imported eggs from other Quebec and eastern USA rivers until 1983.¹²

1972: First ocean salmon farm established in B.C. farming coho salmon. The eggs were surplus from a government hatchery.¹³

1982: Washington state Atlantic salmon farms have grown to be commercial-scale, large enough to grow salmon for profit.¹⁴

1985-1986: B.C. companies shift from farming only Chinook and coho to farming almost exclusively Atlantic salmon.¹⁵

1991: The last attempt by the Washington Department of Fish and Wildlife in Washington State was made to introduce and establish Atlantic salmon on the Pacific coast for sport fishing. Between 1951-1991, 76,000 smolts were deliberately introduced.¹⁶

1998: Atlantic salmon juveniles found in three Vancouver Island streams, leading researchers to speculate that escaped farmed salmon had survived and spawned. The last sighting of supposedly “feral” juvenile Atlantic salmon was in 2000 in B.C.¹⁷

2003: Thousands of juvenile Atlantic salmon found in Washington creeks. The source was determined to be nearby Atlantic salmon hatcheries. Despite repairs to hatchery outflows, some juveniles were still found in nearby streams until 2006.¹⁸

2010: Oregon Department of Fish and Wildlife stocked 2,273 and 2,998 Atlantic salmon in East and Hosmer lakes, which are landlocked. The probability of Atlantic salmon spreading into other Oregon waters is deemed “very low.” The fisheries are hatchery-supported and are not self-sustaining.¹⁹

2011-2012: Fisheries and Oceans Canada surveys a number of BC streams deemed to be at highest risk of having established feral populations of Atlantic salmon. No Atlantic salmon were found.²⁰

¹¹ Heggelund, Per O. “Salmon Farming in Washington: The Issues and the Potential.” Printed in Pacific Northwest Executive, January 1989.

¹² “The Net Pen Salmon Farming Industry in the Pacific Northwest.” NOAA Technical Memorandum NMFS-NWFSC-49. Published September, 2001.

¹³ Knapp, Gunnar. Roheim, Cathy A. Anderson, James L. “The Great Salmon Run: Competition Between Wild and Farmed Salmon,” Chapter 5. Traffic North America, World Wildlife Fund, January 2007.

¹⁴ McKinnell, S. Thomson, A.J. “Short communication: Recent events concerning Atlantic salmon escapees in the Pacific.” ICES Journal of Marine Science, 1997.

¹⁵ Knapp, Roheim and Anderson. Chapter 5.

¹⁶ Piccolo, John J. Orlikowska, Ewa H. “A biological risk assessment for an Atlantic Salmon (*Salmo salar*) invasion in Alaskan waters.” Aquatic Invasions, Published online October 6, 2011.

¹⁷ The Aquatic Nuisance Project. Retrieved 2011-11-30 from <http://www.aquaticnuisance.org/fact-sheets/atlantic-salmon>

¹⁸ The Aquatic Nuisance Project. Retrieved 2011-11-30 from <http://www.aquaticnuisance.org/fact-sheets/atlantic-salmon>

¹⁹ “Pest Risk Assessment for landlocked Atlantic salmon (*Salmo salar*) in Oregon.” Oregon Invasive Species Council. Retrieved 2011-11-29 from http://www.oregon.gov/OISC/docs/pdf/ra_atlanticsalomon.pdf?ga=t

²⁰ Andres, B. 2015. Summary of reported Atlantic salmon (*Salmo salar*) catches and sightings in British Columbia and results of field work conducted in 2011 and 2012. Can. Tech. Rep. Fish. Aquat. Sci. 3061