

HUMBER RIVER ATLANTIC SALMON REINTRODUCTION PROJECT



Project Goal

Atlantic Salmon, once abundant in Lake Ontario tributaries, have been extirpated (locally extinct) from the Lake Ontario watershed since the late 1800's. Commercial fishing pressure and habitat degradation led to the decline, and the eventual loss of this species from Ontario waters. Efforts by landowners and conservationists to restore stream habitat over the last 50 years has been successful however, and Atlantic Salmon reintroduction into healthy headwater streams has begun. With the help of current restoration efforts such as mitigating barriers and reopening access to headwater tributaries for river spawning species like the Atlantic Salmon, reintroduction to watersheds like the Humber River is possible.

THE NEED

With efforts, already well underway in the Credit River, Duffins Creek, and Cobourg Creek, many lessons have been learned when it comes to raising and stocking hatchery raised fish. Atlantic Salmon used for this reintroduction project are

typically produced in fish hatcheries. If a successful method can be perfected, the practice of incubating Atlantic Salmon eggs directly in headwater creeks, could be a tool in future reintroduction efforts.

ACCOMPLISHMENTS

Since 2008, Ontario Streams has tested egg incubation methods in Coffey Creek, Hopeful Creek, and the headwaters of the main Upper Humber River. Ontario Streams has developed a method for incubating eggs, described as Incubation Tubes, which is showing promising results.

Site Locations for the incubation of Atlantic Salmon eggs are based on high gradient, fast flowing currents over cobble substrate which can be found in several locations in the upper end of these watercourses. Two stocking sites further downstream on the main branch of the Upper Humber were also tested for incubation success. Until the 2008 eyed-egg incubation experiment, Atlantic salmon juveniles had been absent from these tributaries for over 150 years.

In early 2010, the experimental “incubation tubes” were constructed. A Four-inch diameter plastic tube was cut into 1 foot long pieces, then 1 inch diameter holes were drilled through the sides of each tube (approximately 12-15 holes per tube). A cap was glued to the end of each tube and window screening was glued around the sides. A removable cap was placed on the other end of each tube.



Completed Incubation Tube Ready to be Covered with Cobblestone

A trench, perpendicular to the current, was created using rakes and moving rock by hand. The incubation tubes were filled with equal portions of small and medium river rock in alternating layers with approximately 200 eggs. The tubes were capped and then placed in the trench, perpendicular to the flow with multiple tubes placed in each trench. Finally, the trench was filled and the tubes covered with on-site large cobble. This process was repeated 1-2 feet downstream with another trench, and so on, until all tubes were installed at a given location.

The tubes are monitored by Ontario Streams’ staff approximately once every two weeks. During each visit, visual observations are made concerning silt accumulation, rock movement, ice and snow cover. In early May, depending on the stream temperature and weather, the tubes are removed from the creek. The number of fry per tube are tallied before releasing the fry into a sheltered area at the edge of the creek.

Each site is periodically sampled in August of each year to determine the presence of Atlantic salmon fingerlings. To date, Atlantic Salmon up to 27.6 cm long and weighing 175g have been found. The presence of Atlantic Salmon in this 3-4-year age

range indicates that the habitat restoration in the area has met the suitable living requirements for these sensitive fish.

The Incubation Tubes shows a great deal of potential as an eyed-egg stocking technique. As of 2016, over 35,000 Atlantic Salmon have been released into the Upper Humber River using this method. Survival rates reach 69% with an average of 40%, and are increasing year-to-year as the method is methodically improved, and sites can be selected or omitted based on past survival rates.



Atlantic Salmon Eggs Being Placed in an Incubation Tube

Each year, Ontario Streams holds several volunteer events to engage the community in the Atlantic Salmon Restoration Program. Volunteers play a vital role in this project, from the Islington’s Sportsmen’s Club lending hatchery space and volunteer effort to store, and care for, the eggs, to the landowners who have been a part of the program for over 10 years. The individuals and groups who attend events provide in large part, the labour that is required to ensure the success of the program.

For more information on the Lake Ontario Atlantic Salmon Restoration Program visit the Ontario Federation of Hunters and Anglers website: www.ofah.org . For more details on this project, Ontario Streams has several technical papers available in the [Resources and Publications](#) portion of our website.