



Website Record

Project/Plant for which Website was accessed: CCNPP

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Team member accessing Website: R K Kropp

Internet location of website captured (URL):

<http://www.esf.edu/pubprog/brochure/salmon/salmon.htm>

Text used from website for EIS below (copy and paste below):

Atlantic Salmon in New York

Past, Present and Future; History of Atlantic Salmon in New York

Atlantic Salmon in New York Atlantic salmon were once very abundant in Lake Ontario and its tributaries. Early records and journals indicate that the largest producers of salmon included the Salmon River, the Oswego River system, and the Genesee River. Smaller tributaries in New York also supported salmon runs, including Little Sandy Creek, Deer Creek, Grindstone Creek, Little Salmon River, and Oak Orchard Creek.



Some of these salmon runs are reported to have been quite large. For example, one fisherman caught 400 salmon in one night in the Salmon River; these fish averaged about 15 pounds.

Similarly, 2000 were speared in one night in Pulaski, and 3600 salmon were caught in one night by twelve skiffs fishing in the Salmon River. In 1860, salmon were so abundant that farmers used pitchforks to toss fish on the banks of the Seneca River at Baldwinsville.

By 1898, social and cultural demands had changed the ecosystem, and salmon were no longer found in the Lake Ontario or its tributaries. Overfishing, agriculture, construction of dams, deforestation and pollution all contributed to the loss of this important resource.

Richard Follet, in 1932, wrote "Today very few people know Lake Ontario was once the greatest salmon lake in the world, or that salmon even existed in these waters, or that the St. Lawrence was once the greatest salmon river of the world, considering all its tributaries."

Life History of Atlantic Salmon

The Atlantic salmon is typically an anadromous fish; adults grow and mature in the ocean, and migrate into freshwater streams to spawn. Juveniles live in the streams for 2 to 6 years, at which point they undergo 'smolt' transformation. This transformation is a series of physiological adaptations that prepare the salmon for the change from a freshwater to a saltwater environment.

Most Atlantic salmon of Lake Ontario, although the same species as the salmon found on the Atlantic coast, lived their entire life in Lake Ontario. These (landlocked) salmon exhibited the same migratory patterns as their Atlantic coast relatives; they spawned in the upper watershed and moved into the lake as adults. Some Lake Ontario salmon may also have migrated to the Atlantic Ocean through the St. Lawrence River.

Atlantic salmon have a homing instinct, and generally return to the same stream they left as juveniles. Historically, the Lake Ontario Atlantic salmon began their spawning migration in June, and spawned in the early fall. Following spawning, a proportion of spent spawners, known as kelts, would survive to return to Lake Ontario. Some of these fish would survive to spawn two or more times.

Challenges to Restoration

Several challenges must be met in order to successfully restore Atlantic salmon to Lake Ontario. These include habitat remediation, upstream and downstream passage, and competition with exotic species.

Many of the historic salmon streams have degraded habitat. Salmon spawn and rear only in cool, clear water with gravel bottoms. Ongoing and future efforts to improve water quality by eliminating pollution sources and restoring riparian shelter will increase the available habitat for salmon.

Because of the migratory nature of salmon, passage both upstream and downstream is an important issue. Dams block upstream migration, preventing adults from reaching spawning areas. If upstream spawning habitat is identified, Atlantic salmon restoration will have to consider effective means of providing both upstream and downstream passage in rivers containing dams.

Introduced fish such as Pacific salmon and rainbow trout may compete for necessary resources with Atlantic salmon in both the stream and lake environment. Brown trout, another introduced species favored for the angling opportunities it provides, coexist with Atlantic salmon in Europe, and will probably have little effect on salmon restoration in New York. Control of the sea lamprey, a parasitic fish, must continue if the Lake Ontario salmon fishery is to remain healthy.

Current Research

The New York State Department of Environmental Conservation (NYSDEC) has a long term goal of restoring indigenous species, and has been stocking Atlantic salmon in Lake Ontario since 1983. The Ontario Ministry of Natural Resources began a stocking program in 1987.

The NYSDEC stocks approximately 200,000 one-year-old salmon annually. A research program was initiated at SUNY-ESF in 1991 to investigate salmon habitat in central and northern New York. A major contributor to the financial support (1992-1995) was Niagara Mohawk Power Corporation. The research program is designed to determine how much stream habitat is suitable for Atlantic salmon. Detailed studies of the survivorship and growth of stocked fish are underway, and a model is being tested to predict the potential number of adult salmon that could return to our streams.

As part of the experimental program, more than 150,000 salmon fry have been stocked in local streams, including Nine Mile Creek, Skaneateles Creek, Chittenango Creek, and the West Branch of Fish Creek (Mad River). Additional stream draining directly to Lake Ontario, such as Little Sandy Creek are also being studied. Natural spawning of Atlantic salmon and other migratory salmonid fishes is likely to play an important role in the future fish community of Lake Ontario.

Identifying Juvenile Atlantic Salmon

Juvenile Atlantic salmon and brown trout are very similar in appearance. Anglers are urged to learn the differences between these two species. Atlantic salmon caught in New York streams must be 15" to keep - please release any you catch, but call ESF to report any identified. Atlantic salmon rarely have three spots (usually two) on the operculum (cheek) while brown often have three or more. The tail of the salmon is more forked than brown trout. The adipose fin of salmon is not tinged with orange as is brown trout. The red spots are usually found on the lateral line on salmon, but are dispersed on trout.

Additional Information:

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Credits:

Prepared by Daniel J. Miller, Research Assistant, and Neil H. Ringler, Professor, SUNY-ESF Rev. Spring, 1996. Photo courtesy of The Atlantic Salmon Centre, Laerdal, Norway.