Stewardship of the Atlantic Whitefish

Could the presence of non-native species pose a threat to the recovery of the Atlantic Whitefish?

The Atlantic Whitefish

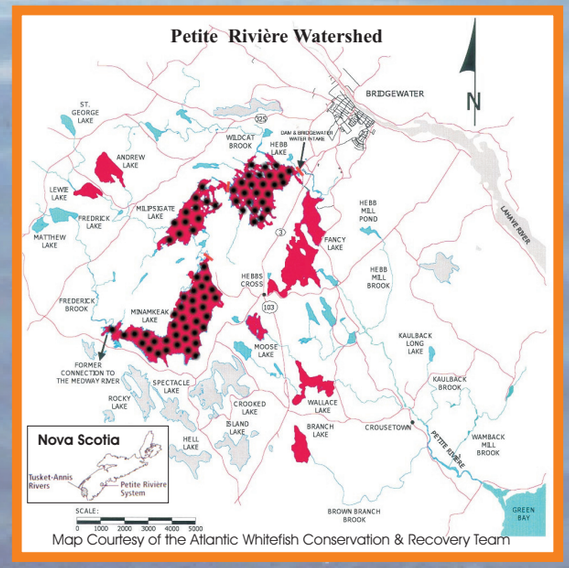
The Atlantic whitefish is a member of the Salmonidae family, and is related to salmon and trout. This fish is also called Acadian whitefish, Sault whitefish, round whitefish, and common whitefish. The Atlantic whitefish is dark blue to green on the back with silvery sides, and a silvery to white belly. The tail is deeply forked, and the fish has an adipose fin, typical of salmonids.

The endangered Atlantic whitefish can not be found anywhere in the world except for Nova Scotia. Historically, this fish has been found in only the Tusket River and the Petite Rivière watersheds. Many factors, including over-fishing, acidification, inadequate fish passage, and the introduction of non-native species are believed to have contributed to the loss of this species on the Tusket River in Yarmouth County, as well as the anadromous run on the Petite Rivière. Currently, Atlantic whitefish are restricted to three lakes on the Petite Rivière watershed: Hebb, Millipsigate and Minamkeak lakes.

The interactions between smallmouth bass and Atlantic whitefish are not completely understood, however, some research suggests the two species can co-exist. Although not well documented, smallmouth bass and lake whitefish co-habitate several Nova Scotia lakes. The presence of smallmouth bass and the threat of introduction of chain pickerel may impact recovery efforts.

As illustrated to the right, the smallmouth bass have established themselves in 180 Nova Scotia lakes including nine of the fifteen lakes of the Petite Rivière watershed. The smallmouth bass are present in the three Atlantic whitefish lakes. The effects of smallmouth bass upon native species are still being established but effects of the chain pickerel, now present in 80 of Nova Scotia's lakes, indicate that chain pickerel have the potential to destroy fish assemblages and invertebrates.

Invasive species add to the unknown factors in recovery planning. It is important that Nova Scotians be stewards of their watersheds and take actions that minimize the opportunities for invasions to occur. The survival of native Nova Scotian species and the recovery of endangered species depend upon it.



The red areas indicate the areas of the Petite Rivière watershed where smallmouth bass have established themselves. The dotted areas show the distribution of Atlantic whitefish. Distributions.

The Atlantic Whitefish Conservation and Recovery Team (AWCRT), established in 1999, consists of the Nova Scotia Department of Agriculture and Fisheries together with other government departments, other levels of government, community groups and individuals, to form an effective recovery team for the Atlantic whitefish.

The AWCRT plays an important role in promoting stewardship and research on and for the Atlantic whitefish. Understanding what role non-native species play in the Atlantic whitefish recovery efforts is important to the continued existence of this globally endangered species.

Pictured to the left, an Inland Fisheries employee carries out a habitat survey in Hebb Lake.

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A French version of this publication is also available.

Invasive Species

An invasive species is a species that is introduced into an ecosystem where it did not previously exist. Invasive species may potentially cause problems to the native ecosystem, disturbing its balance.

Invasive species often out compete native species for available food and habitat resources. Additionally, top level predators such as pickerel and bass actively target and diminish available native species.

Invasive species may bring diseases, parasites and pathogens for which the native species have no natural immunity. Invasive species new to a watershed often displace some or all native species present in the water body.

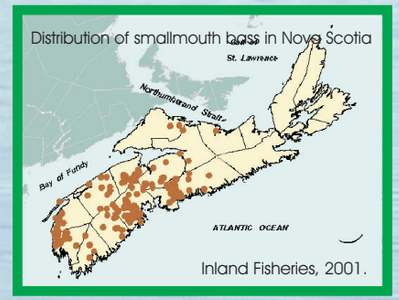
Non-native fish species in Nova Scotia include rainbow trout, brown trout, smallmouth bass, chain pickerel, and goldfish. Nova Scotia lakes are well suited for smallmouth bass and chain pickerel. Global warming, climate change, and poor forestry practices have contributed to making many areas in Nova Scotia more suited to warm water fish than ever before.

Smallmouth Bass

Photo: Nova Scotia Department of Agriculture & Fisheries

The smallmouth bass is a member of the sunfish family. This fish varies in color from brown, golden or olive-brown to green on the back, and white on the belly. Smallmouth bass average 17-28 cm (6.7 - 11 inches) long. In 2000, a survey of recreational fishers in Nova Scotia, anglers rated smallmouth bass as their third favorite species to fish for.

Smallmouth bass generally out compete native species such as speckled trout. They were first introduced (legally) into Nova Scotia in 1942. Since then, many illegal transfers and natural migration within watersheds has occurred. Over fishing of natives such as trout may make it easier for bass to establish in their absence, then the trout, a poor competitor, cannot return.

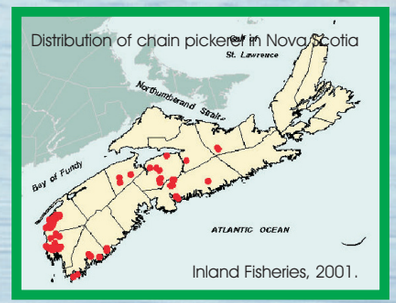


Chain Pickerel

Photo: Nova Scotia Department of Agriculture & Fisheries

Chain Pickerel are the only member of the pike family found in Nova Scotia. The long, narrow body is bright to olive-green, to nearly brown on the back and upper sides. The sides of the fish are marked by yellow-green to yellow areas broken by dark, interconnected markings resembling chain linkages. Chain pickerel average 38.1 - 50.8 cm (15 to 20 inches) long.

In 1945, Chain pickerel, nick named, "the water wolf", were illegally introduced into Nova Scotia. The threat chain pickerel pose to native populations is as a zealous predator. In short, within a body of water where chain pickerel exist, few if any, soft bodied fishes can co-exist.



Make a difference!

Aquatic invaders include species such as fish, crustaceans, aquatic plants, plankton, and algae. Although it is possible for invasions to occur naturally, globalization and the general increase in movement of humans have increased the opportunity for invasion. For example, a species may be released from the ballast of a ship or attach to the side a boat and 'hitch a ride' to a new ecosystem.

- In Nova Scotia, it is illegal to release live fish into the waters of the province, except under a license issued by Fisheries and Oceans Canada.
- Do not move fish from one lake or stream to another. Native species can be negatively affected through competition, disease, or genetic change.
- Only discard bait into the body of water it was caught from.
- Ensure that live wells are empty before leaving each lake or water body.

Due to the threat to local fish populations, it is illegal to use certain species as bait, or to possess them for bait (whether alive or dead). They include bass, bullhead, white perch, yellow perch, goldfish, chain pickerel, or any fish not taken from provincial waters.

HELP PROTECT NATIVE FISH