





NOVA SCOTIA
Agriculture and Fisheries

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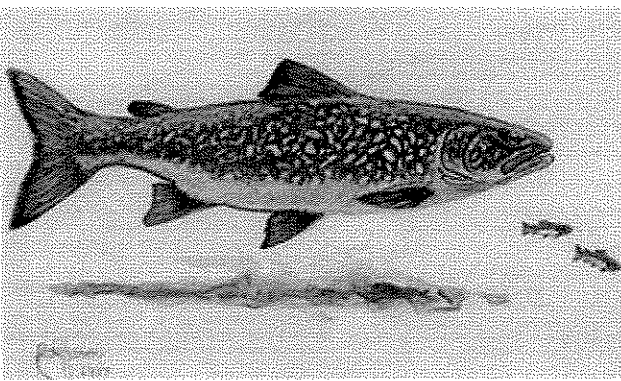
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NOVA SCOTIA FISH SERIES

Species Sheets: Inland

Lake Trout (*Salvelinus namaycush*)

This salmonid is a member of the charr family and is also called grey trout, Great Lakes charr, fork-tail trout, mountain trout, namaycush, mackinaw trout, salmon trout, togue, laker and touladi.

Distribution

Lake trout are indigenous or native to North America and are found in every province and territory, with the exceptions of Newfoundland and Prince Edward Island. They are well established in Alaska and the Arctic islands.

The present distribution of native lake trout is largely due to glacial activity and the retreat of the Wisconsin ice sheet about 10,000 years ago. As this ice sheet melted and retreated northward, it scoured the landscape, producing thousands of freshwater lakes. As a result, good habitat was produced and lake trout were able to recolonize much of their previous range. It is estimated that 8,000 to 10,000 lakes around the world contain lake trout. About 75% of these lakes are in Ontario, Quebec and the Northwest Territories. In Nova Scotia, there are known populations of lake trout in Sherbrooke Lake, Lunenburg County, and Dollar Lake, Halifax County. They are also thought to be present in Pockwock and Big Indian Lakes, Halifax County, and Lochaber Lake, Antigonish County.

Physical Characteristics

Lake trout are the largest trout native to North America. The largest lake trout on record weighed 46.3 kg (102 lb), which was caught by the commercial fishery at Lake Athabasca, Saskatchewan in 1961. The angling record contains a specimen weighing 32.8 kg (72.25 lb), caught in Great Bear Lake, Northwest Territories, in 1995. In Nova Scotia, the average lake trout caught is usually less than 2.0 kg (4.4 lb). A lake trout weighing 8.6 kg (19 lb) and measuring 81.3 cm (32 inches) was caught in Sherbrooke Lake, Nova Scotia in 1992.

- Typically, lake trout are long and slender, with a deeply forked caudal fin. This distinguishes them from other charrs, such as speckled or brook trout.
- The overall colouration is light spots on a dark background, that varies from light green to almost black. Lake trout do not have the red spots found on speckled trout. Orange or red-orange may be present on the pelvic, pectoral, and, especially, anal fins, but this feature is usually more apparent in northern populations.
- A narrow white border is present on the lower fins, but it is never as immaculate or as wide as on the fins of a speckled trout.
- Dark bands may be noticeable on the sides of spawning males, but are not present in every population. Even during the mating season, the sexes can rarely be distinguished on the basis of colour.
- Young lake trout or parr have seven to twelve vertical bars on their sides. These are called parr marks. The number of parr marks varies, and the spaces between them are usually equal to or slightly greater than the width of an individual bar.

Facts about Lake Trout

- ★ Lake trout may not spawn every year, and northerly stocks tend to have fewer spawning fish in any one year. This is thought to be a function of photoperiod, shorter growing season, less abundant food, and the unproductive nature of many northern lakes.
- ★ Lake trout are negatively phototropic; they avoid light.
- ★ Lake trout spawn at night.
- ★ In large bodies of water such as the Great Lakes, lake trout may migrate up to 300 km (186 mi) to their spawning grounds.
- ★ Lake trout scales are unreliable for aging purposes because the annuli cannot be distinguished. Researchers determine age by reading otoliths, which are calcified tissues of the inner ear used by fish for maintaining equilibrium and balance. The oldest fish on record, taken in the Northwest Territories, was aged at 65 years.
- ★ Female lake trout are crossed with male speckled trout to produce a fish known as splake, in a process called artificial hybridization. Hatcheries produce splake because this hybrid grows very quickly.

Fishing Facts

- ◆ Lake trout are easily caught because of their predatory

nature. With a preference for cool, nutrient-poor waters, they are quite susceptible to over-exploitation.

◆ Lake trout are caught with spinning gear, flies, spoons, jigs, and live bait, which are commonly used on down riggers.

◆ In Nova Scotia, the lake trout is an uncommon fish. Its status in the few lakes it inhabits is not known. Although a small group of anglers target this species in at least one lake, there is no significant fishery for lake trout in Nova Scotia.

◆ Winter angling for lake trout through holes in the ice is a popular sport in other areas.

◆ Commercially, lake trout are valued in the Great Lakes and Northwest Territories where the flesh is marketed fresh, frozen, canned and smoked.

Natural History

Namaycush is a North American Indian name that means "dwellers of the deep". Lake trout inhabit deep, clear, rocky lakes with preferred temperatures of about 10°C (50°F) and oxygen levels of six to twelve milligrams per litre. Lake trout have an upper lethal temperature of about 23.5°C (74.3°F). They also inhabit shallow lakes and rivers, but this is usually in the northern parts of their range. The lake trout is a bottom oriented species regardless of depth. Juveniles are usually found in deeper water than adults. This may be a mechanism for survival, because adults are cannibalistic.

Lake trout also feed on aquatic insects, crustaceans, and smaller fish such as minnows, lake whitefish, alewives (gaspereau), and rainbow smelt. In large lakes with many fish species, lake trout are typically piscivorous, meaning they eat other fish. In smaller lakes, with fewer forage species, lake trout tend to be planktivorous for much of the year. In these lakes, they tend to prey upon small crustaceans and several species of aquatic insects.

Lake trout are fall spawners and normally reproduce every second year from September to November in most parts of their range. Temperature, light, and wind are factors which contribute to the onset and duration of spawning activities. Spawning begins when water temperatures fall to 10°C (50°F) and lower. Lake trout spawn on offshore shoals, near shorelines and points near islands exposed to the prevailing winds. The substrate is a combination of broken rubble and edged rocks 3-15 cm (1-6 in.) in diameter.

Lake trout do not construct redds like most other salmonids, nor do they form single mating pairs. Spawning may involve several females laying their eggs into crevices in the rocks or spaces between the rocks. Several males may fertilize the eggs. The fish do not cover or care for the eggs. Females typically release 800-1800 eggs per kilogram of body weight. Egg incubation lasts for four to five months depending on temperature and oxygen levels. The eggs hatch between February and April, but the fry do not emerge from the rubble until their yolk sacs are absorbed a month later. The fry ascend to the surface to fill their swim bladders and then descend into cooler, deeper water where they remain for two to three years.

Lake trout have few predators with the exception of man and the sea lamprey, which almost wiped out some Great Lakes stocks following the opening of the Welland Canal between Lake

Ontario and Lake Erie in 1829. Lake trout eggs are eaten by other fish species, and often by lake trout themselves.

For more information contact your local federal or provincial Department of Fisheries, or write to:

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Adopt A Stream

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