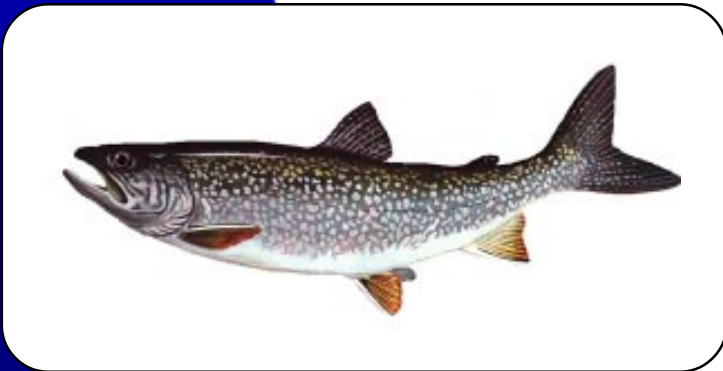


NOTES ON
COLDWATER FISH



COLDWATER FISH

LAKE TROUT (*Salvelinus namaycush*)



Cold, clear water and lake trout go together; lakers won't settle for anything less. It is in cool deep lakes from Alaska to Labrador, and south to Maine and Wisconsin, that their needs are met. Some shallow northern rivers and lakes that remain unwarmed by long summer days, or are air conditioned by rapids and falls, are also acceptable to these specialists.

Since they have such limited tolerance, increases in water temperature, mine effluents and nutrient pollution threaten lake trout habitat.

Many of Manitoba's natural lake trout populations are found in lakes of the Precambrian Shield. For fly-in fishing, Nueltin and Nejanilini lakes, near the Northwest Territories border, are probably our best known lake trout waters because of their reputation for producing trophy fish. The range of lake trout in Manitoba has been extended slightly by stocking, however suitable habitat is limited. A few waterbodies where lake trout populations have been established include Laurie, Childs, East Blue and Glad lakes.

The typical cold water produces a slow-growing, long-living fish. Some individuals in northern lakes were 40 years old. The largest lake trout ever caught, weighing more than 45 kg, was landed in a fisherman's net in Lake Athabaska. The Manitoba record of almost 29 kg, caught in Athapapuskow Lake in 1930, retained the world record for 35 years.

While small lake trout feed mainly on plankton, tiny, free swimming aquatic animals, the larger trout turn more and more to small fish for their diet. However, even large lakers will resort to plankton if forage fish become scarce.

Cooler autumn temperatures bring lake trout out of their deep summer holes to spawn on shallow, rocky bars in lakes. The eggs are released over rocks, sometimes in very shallow water; they hatch between mid-February and March. The fry spend a month among the rocks and then move to deeper water to begin the long slow process of growing.

COLDWATER FISH

RAINBOW TROUT (*Oncorhynchus mykiss*)



If a medal were struck for trout stocking, the appropriate emblem would be a rainbow trout. Originally a native of the Pacific Coast drainage from Mexico to Alaska, rainbows are now found in waters far from their original home, and in some cases, waters quite unlike the cool, clear kinds we traditionally associate with trout. Stocking is mainly responsible.

Since the first successful stocking at Camp Lake in the Whiteshell in 1950, the distribution of rainbow trout in Manitoba has steadily increased as new waters were found that would support them. Today, rainbows are found in streams originating in the Duck Mountains and Porcupine Forest, and lakes and ponds scattered around the province. Manitoba's angling record rainbow, from East Blue Lake in the Duck Mountains, was a respectable 6.6 kg.

Except for a few populations that now reproduce successfully in streams that flow out of the east side of the Duck Mountains, it is necessary to continuously stock rainbows to maintain populations. In the Pine River, rainbows occur with brook trout. They have worked out a nice balance: rainbows keep to the slower, down stream sections, while brookies live in the cooler headwaters.

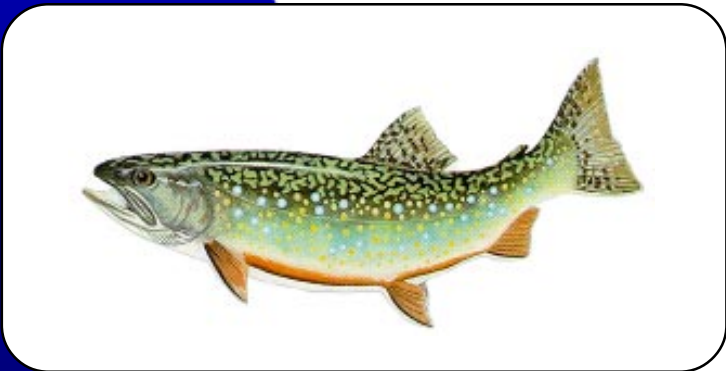
Due to their hardy nature, rainbow trout are also the major species used in fish farming. Hatchery produced rainbows serve three purposes: put-and-take pond fishing, longer-term lake and stream stocking, and farm harvest for the restaurant market.

Rainbows are opportunists, eating just about anything that comes their way, but like most of their relatives, adult and immature insects form a large part of their diet. Hatchery programs involving rainbows have produced strains that spawn in spring and others that spawn in fall. Rainbows choose gravel beds in riffles or moderate rapids in which to dig their nests (redds) and lay their eggs.

A point to ponder - introducing silt, channelizing streams or building barriers to migration will destroy rainbow trout habitat.

COLDWATER FISH

BROOK TROUT (*Salvelinus fontinalis*)



Give brookies quiet pools in cool headwaters of turbulent streams and they will settle right in. But brook trout are adaptable fish, they will even take to salt water if given the chance. Some brook trout that live in streams with outlets to the sea may spend part of their lives in salt water.

The ancestral home of brook trout extended from the streams of the Appalachian Mountains, north and west to the Churchill, Knife, Seal and Nelson rivers of northern Manitoba. The legendary trout of Gods River are brookies.

Now with the aid of fish hatcheries, brook trout, or speckled trout as they are often called, can be found in streams and lakes far from their original homes. Many lakes and streams in Manitoba are regularly stocked with brook trout. A few of those streams including the North Duck River, Steeprock River and McClung Creek have suitable spawning habitat, and the stocked brook trout have established naturally reproducing populations.

Brook trout are now whoppers in big fish contests. Manitoba's best, from East Blue Lake, tipped the scale at 4.5 kg. It is food and good livin' that make big trout. For brook trout this means a steady supply of immature and adult invertebrates such as mayflies, caddisflies, dragonflies and black flies, plus room for manoeuvring.

Between August and September, falling water temperatures bring on the annual spawning season. At this time males are distinguished by vivid red over the flanks, while the females have swelling abdomens, the result of maturing eggs.

Dams and control structures in northern Manitoba have already altered the native habitat of brook trout. Introduction of silt and other contaminants from stream alterations threaten their existence. In some of their native streams brook trout are prominent in environmental impact issues.

COLDWATER FISH

BROWN TROUT (*Salmo trutta*)

Heaven to a trout fisherman has been described as a brown trout on a dry fly in fast water. A brown trout's idea of heaven goes like this: a clear, cool stream with riffles and quiet pools; a rocky, boulder-strewn bottom for spawning; and plenty of molluscs, crustaceans, small fish, frogs, tadpoles and insects, both adult and immature forms, for food.

Originally found only in Iceland, the British Isles, Europe and western Asia, introductions have brought the handsome brown trout to Manitoba. Not many Manitoba streams offer essential habitat, but brown trout have been stocked in several lakes in southern Manitoba.

Brown trout are hardy competitors and often grow faster than other species of trout. From 1987 to 1990 the majority of Manitoba's Master Angler brown trout were caught in William Lake. The Manitoba record is 5.5 kg, and was caught in East Blue Lake in 1987.



Brown trout are wary characters. These are trout that old timers say you have to stalk. If they get a glimpse of you through their skylight, they just retreat behind their favorite rock and no amount of coaxing will bring them out.

No natural reproduction takes place in Manitoba, but in their native waters brown trout spawn in fall. Manitoba browns do respond to the autumn changes in light and temperature by changing their appearance.

Through most of the year they are silver with black spots often surrounded by light rings. If you catch a brown trout in fall you may be treated to a golden-brown beauty with pronounced halos around its black spots.

COLDWATER FISH

ARCTIC GRAYLING (*Thymallus arcticus*)



Few people know arctic grayling in their true colors. Minutes after being taken from the water, the greyish-lavender of the flanks and the emerald-green of the great dorsal fin fades to a somber grey. To see them at home, in the icy clear waters of arctic streams, is to know grayling for what they are - one of North America's most colorful fish.

Cold-water specialists, grayling are found naturally in arctic streams from northeastern Siberia, through Alaska and east to Hudson Bay. The Owl, Deer, Silcox, Cochrane, Seal and Wolverine rivers are some of Manitoba's grayling waters. Barriers to migration and alteration of flows can destroy this fish's habitat.

Compared to many freshwater sport fish, grayling are small. The world record is 2.3 kg, taken from Great Slave Lake. Manitoba's top, an Otter Lake specimen, weighed 1.8 kg. However, what they lack in size they make up in spunk. In the wild rapids of arctic rivers, one kilogram of fighting grayling takes all your ingenuity to land.

Grayling seem to have short memories. In previously unfished waters you will find them standing in line to take your bait, for a half an hour or so. Then, they will shun it like the plague. Try again after an hour of peace and quiet. That's all the time it takes for them to forget their previous experience.

Grayling are insectivorous. Anyone who has had to contend with the black fly, that scourge of the north, will take some consolation in knowing that arctic grayling consume large quantities of them.

Grayling make no nests. During late May or early June, they scatter their eggs over the gravel in northern streams. Through the action of water, the eggs are covered with a protective layer of lighter material. In only 13 to 18 days they hatch and the young grayling begin to grow.

COLDWATER FISH

ARCTIC CHAR (*Salvelinus alpinus*)



Here is a fish that is truly synonymous with the Arctic, having the most northerly distribution of any freshwater fish. Arctic char are circumpolar in coastal marine waters, lakes, and rivers flowing into the arctic seas and Hudson Bay.

Some are anadromous, spending part of their life in fresh water and part in marine water, while others never leave fresh water. Manitoba's natural char populations are anadromous, and are found in the lower reaches of the Seal, Knife, Caribou and Churchill rivers. They rarely get as far south as the Nelson River.

Any fish that spends part of its life in salt water and part in fresh water is faced with major physiological challenges in adjusting from one to the other environment. Manitoba's arctic char meet the challenge in fall as they concentrate in the estuaries of northern rivers, then move upstream to fresh water to spawn and spend the winter. They adjust once again in spring, as they leave fresh water and return to marine habitat.

Male char are well known for their spawning color, a vivid red on the belly from head to tail. A prominent hooked snout is also a feature of males at spawning time.

Young char feed mainly on bottom invertebrates, while adults, at least when in fresh water, feed on small fish. Growth is slow. Manitoba's Master Angler record, caught in the Churchill River, was 2.7 kg.

Because Manitoba's arctic char move between Hudson Bay and its rivers, the major threats to their populations are river diversions and barriers to migration, which can restrict spawning and distribution.

Arctic char are rapidly becoming of major interest to fish farm operators in southern Manitoba. They produce a pan-size fish suitable for the hotel and restaurant market.

COLDWATER FISH

SPLAKE

(Salvelinus namaycush x S. fontinalis)



Lake trout eggs and brook (speckled) trout milt create the splake. The cross for this hybrid must be done using lake trout eggs to provide enough room for embryo development. If the smaller brook trout eggs are used there is not enough room and deformities occur.

Fish hatcheries produce splake whenever wild lake trout eggs are available to be fertilized by milt from hatchery brook trout. Through stocking, splake are now found in Gull, Laurie, Childs and East Blue lakes in the Duck Mountains, and in Mid and Upper Ospwagan lakes near Thompson.

The combination of lake and brook trout characteristics has produced fish that do well in lakes and grow faster than either parent species. In four years, given an equal start, splake will outgrow brook and lake trout by 13 cm and 25 cm respectively. Splake weighing 7.3 kg are known, but the Manitoba record is 6.4 kg taken from Camp Lake in the Whiteshell in 1989.

Like lake trout, splake spawn over rocky shoals in lakes; but they spawn during day and night displaying both brook trout habits, a day spawner, and lake trout habits, a night spawner.

Splake are vulnerable to the same environmental threats as their parent species: mine effluents, silt and other contaminants.

Like most other trout, splake prefer to eat insects such as mayfly nymphs, but leeches, crayfish and even plankton are not refused.

Because splake are hybrids they come in a variety of dress and are not always easy to identify. They have the forked tail of lake trout and the pink spots of brook trout. The bodies are not as slender as lake trout, nor as deep as brook trout. But, all of these characteristics may vary, so, if you catch a splake, you may not know it!