



# Freshwater Fish of Ontario

Presented by:



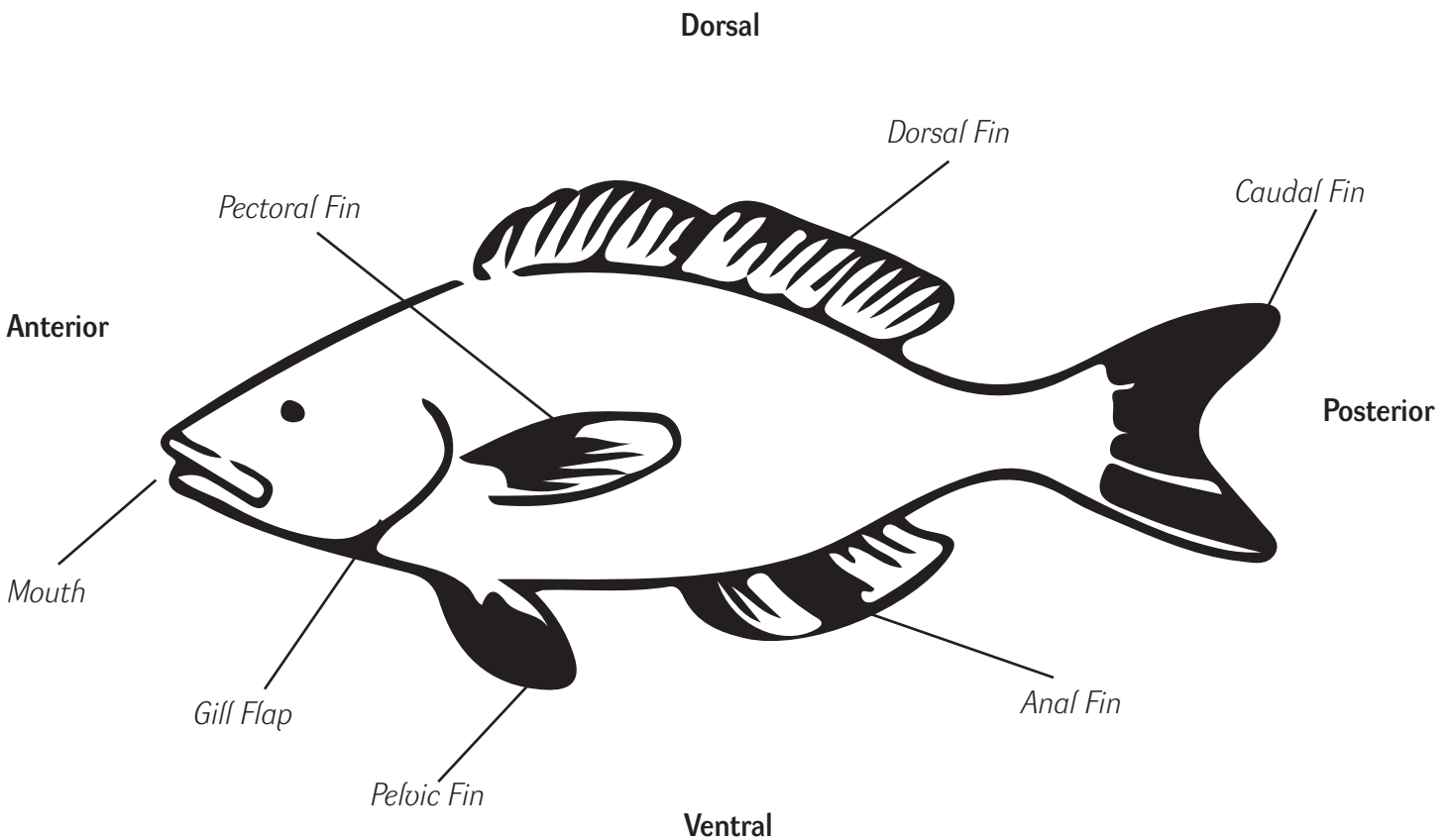
# Freshwater Fish of Ontario

From the Great Lakes to Hudson Bay to all the creeks, rivers, smaller lakes, and wetlands in between, Ontario's aquatic ecosystems contain a highly diverse fish population.

Fish are abundant in most bodies of water and are the most diverse group of vertebrate animals. They range from large predatory pike in the Great Lakes to small shallow water minnows tucked away in streams. All fish species have a skull, gills, and limbs in the form of fins. Beyond that, there is a great variety of characteristics to be found in any community of fish.

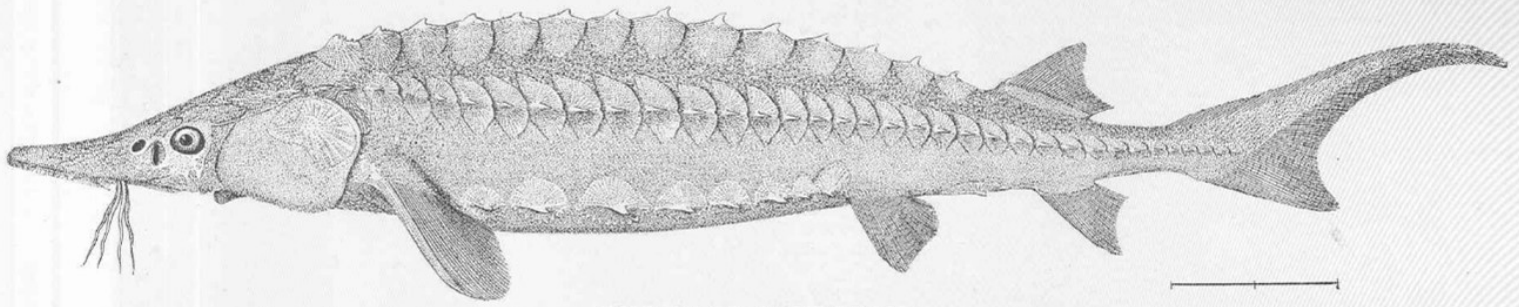
This guide includes information on 11 species of important fish found in Ontario, and touches on species at risk, invasive species, and game fish. For each species detailed, there is an overview of the fish's appearance, diet, habitat, and life history.

This guide was developed with support from Cabela's Outdoor Fund.





# Lake Sturgeon (*Acipenser fulvescens*)



THE LAKE STURGEON.  
*Acipenser rubicundus*, Le S. (p. 661.)

## Physiology

- Adult Length: 76-142 cm
- Adult Weight: 2.5-20.1 kg
- Cartilaginous skeleton
- Shark-like caudal fin
- Bony plates (scutes) along its body; more prominent in

- larvae and juveniles
- Pointed snout with 4 barbells – sensory organs that help sturgeon find prey
- Ventrally located mouth
- Coloration: dark to light brown or grey on back and sides with a lighter belly

## Habitat

- Found in large rivers and lakes at depths between 5-10 meters.
- Juveniles inhabit pools that are greater than 6 feet in depth, adults typically live in large lakes
- Often migrate in search of food or suitable spawning locations

## Diet

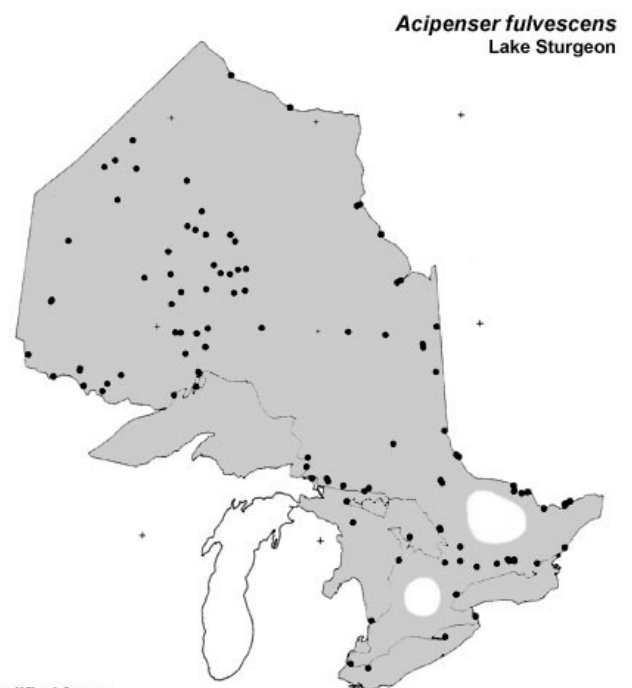
Lake Sturgeon are benthic generalists, foraging for different foods as their body size increases. As bottom-dwelling fish, their ventral mouths and sensory barbells allow them to feed from the beds of rivers or lakes, consuming the small prey found there. They do not have any teeth and must swallow their prey whole. They occasionally eat other fish by accident.

## Fun Fact

Ontario's largest and longest-lived freshwater fish, Lake Sturgeon are a species at risk with two distinct populations in Ontario: the Great Lakes-Upper St. Lawrence population (endangered) and the Southern Hudson Bay-James Bay population (special concern). In addition to historical commercial fishing operations, Lake Sturgeon eggs have been harvested for caviar. Under the Endangered Species Act, such harvesting is now illegal in Ontario.

## Life History

- Lifespan: 50-60 (M); 80-155 (F)
- Age at Maturity: 12-20 (M); 14-33 (F)
- Spawn on clean gravel shoals and stream rapids from April to June
- Males spawn every 2-7 years; females spawn every 4-9 years
- About 10-20% of Lake Sturgeon are sexually active during a season
- Oldest living Lake Sturgeon found in Ontario was 154 years old



modified from:  
Mandrak and Crossman (1992)

# Redside Dace (*Clinostomus elongatus*)



## Physiology

- Adult length: 6.4-9.7 cm
- Adult weight: 0.003-0.007 kg
- Large mouth with a protruding lower jaw

- Key characteristic is a wide red stripe that extends from the head to the dorsal fin along adult bodies with a longer, bright yellow stripe above it.
- Colours are brightest during the summer and fall

## Habitat

- Found in pools and slow-moving sections of relatively small, clear, cool streams with sand or gravel bottoms and overhanging vegetation.
- Restricted to relatively undisturbed headwaters of streams
- Are sensitive to changes in turbidity.
- Identified in streams draining into the western part of Lake Ontario, near the Greater Toronto Area.
- Smaller populations of Redside Dace can be found in Lake Simcoe and Lake Erie.

## Diet

Redside Dace are primarily insectivores. Their mouths are angled in such a way that they can catch insects from the water's surface or low-hanging vegetation. These minnows will also feed on flying insects by leaping from the water, and smaller vegetation at the bottom of shallow lakes and rivers.

## Fun Fact

Redside Dace are one of the few endangered fish found in Ontario. A majority of the Canadian population is found in the Greater Toronto Area, where urban development is a serious threat to this species. The removal of vegetation along streams reduces food availability, threatens riverbank stability, and impacts water temperature.

## Life History

- Lifespan: 3-5 years
- Age at Maturity: 2-3 years
- Endangered



modified from:  
Mandrak and Crossman (1992)

# Northern Pike (*Esox lucius*)



## Physiology

- Adult length: 45.7-100.2 cm
  - Adult weight 0.6-5.8 kg
  - Slender and laterally compressed body.
  - Long, broad, and flattened snout.
  - Dorsal and anal fins are located near the tail.
- Sides are marked with longitudinal rows of yellow to white bean-shaped spots.
  - Dorsal surface and sides are a dark green to olive to almost brown colour, with a cream to white ventral side.

## Habitat

- Primarily freshwater fish with a wide distribution throughout Canada, though not found in significant numbers in Kawartha Lakes or Algonquin Provincial Park.
- Can be found in clear, cool to warm, weedy bays of lakes and slow meandering rivers.
- When recently hatched, require weedy areas to hide from predators.

## Diet

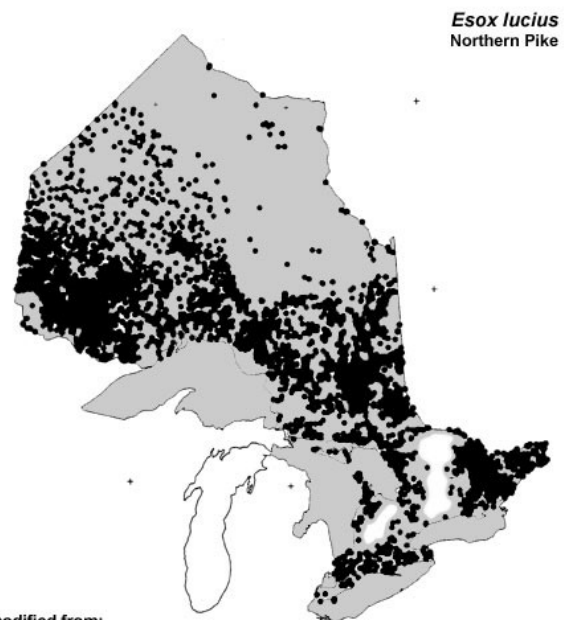
Northern Pike are carnivores that will feed on whatever is most readily available. This may include smaller fish, crayfish, frogs, mice, muskrats, and young waterfowl, depending on the age and size of the fish. They are sometimes viewed as a nuisance to fisherman, as they eat other game fish such as trout, bass, and perch regularly.

## Fun Fact

Pike are one of the most valuable commercial freshwater species. Though very similar in appearance to Muskellunge, they are far more common and can be distinguished by their pale spots and round extremities of their tail fin.

## Life History

- Lifespan: 10-26
- Age at Maturity: 2-3 (M); 3-4 (F)
- Solitary and highly territorial
- Breeding grounds can include areas that flood in the spring and summer months and maybe dry the rest of the year.
- Mortality amongst pike occurs if there are high iron levels in the water and if the temperature consistently changes.
- Can readily hybridize with Muskellunge; these hybrids are known as "Tiger Muskellunge."



*Esox lucius*  
Northern Pike

modified from:  
Mandrak and Crossman (1992)

# Muskellunge (*Esox masquinongy*)



## Physiology

- Length: 71.1-121.9 cm
- Weight: 2.4-15.5 kg
- Long, streamlined bodies with a flat head.
- Flattened, pointed snout, with a large mouth filled with sharp teeth.
- Dorsal, pelvic, and anal fins are set far back on the body of the fish.

- Body colouration is a light silver, brown, or green with dark vertical stripes.
- Closely resemble the Northern Pike in both appearance and behaviour.
- Tail comes to a sharp point at the ends, unlike Northern Pike.

## Habitat

- Population is distributed through eastern North America
- Prefer cool to warm water in medium to large lakes and slow rivers.

## Diet

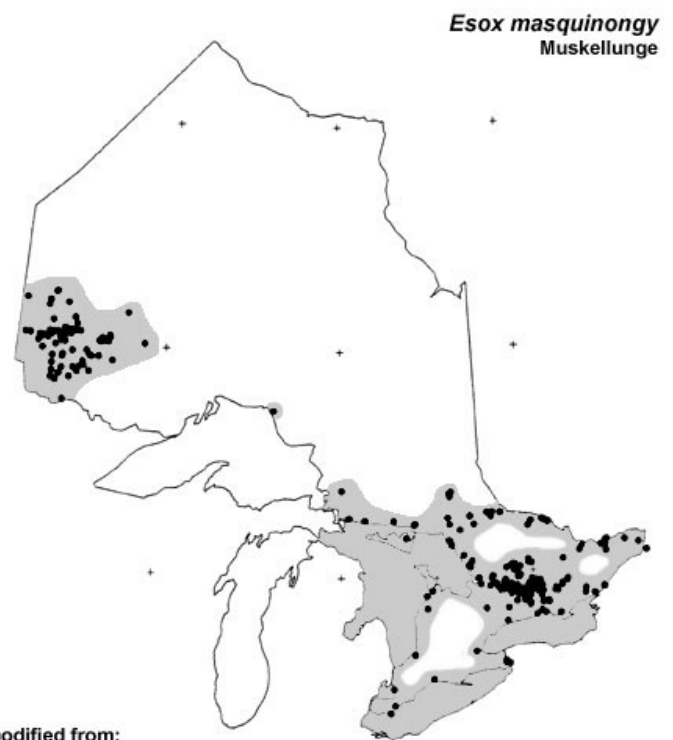
Muskellunge, commonly known as “Muskie,” are apex predators, travelling between warmer shallow waters and cooler deep waters to search for prey. As omnivorous carnivores, they eat a wide variety of fish and other wildlife, including (but not limited to) muskrats, mice, frogs, and young waterfowl. They are capable of consuming prey up to two thirds of their body length due to their large stomachs.

## Fun Fact

Muskies are the largest members of the Pike family.

## Life History

- Lifespan: 15-30 years
- Age at maturity: 3-6 (M); 4-8 (F)
- Prefer bodies of water with rocky or sandy bottoms for spawning.
- Eggs are negative buoyant and can adhere to plants and other underwater vegetation.
- Embryos that are not eaten hatch after about 2 weeks.



modified from:  
Mandrak and Crossman (1992)



# Walleye (*Sander vitreus*)



## Physiology

- Length: 30.5 – 76.5 cm
- Weight: 0.2 – 4.5 kg
- Physically similar to Perch. Dorsal fin is separated into 2 parts, where the front (anterior) portion is spiny and the back (posterior) is soft.
- Dark green dorsal side, golden-yellow sides, and white ventral side.

- Large mouth that extends below the back edge of the eye, full of sharp teeth
- Eyes are pointed outward and positioned in such a way that reflects in the dark (eyeshine). Useful for low-light environments.

## Habitat

- Freshwater fish
- Thrives in low-light environments – found in shallow, turbid lakes, and the deeper waters of clear lakes.

## Diet

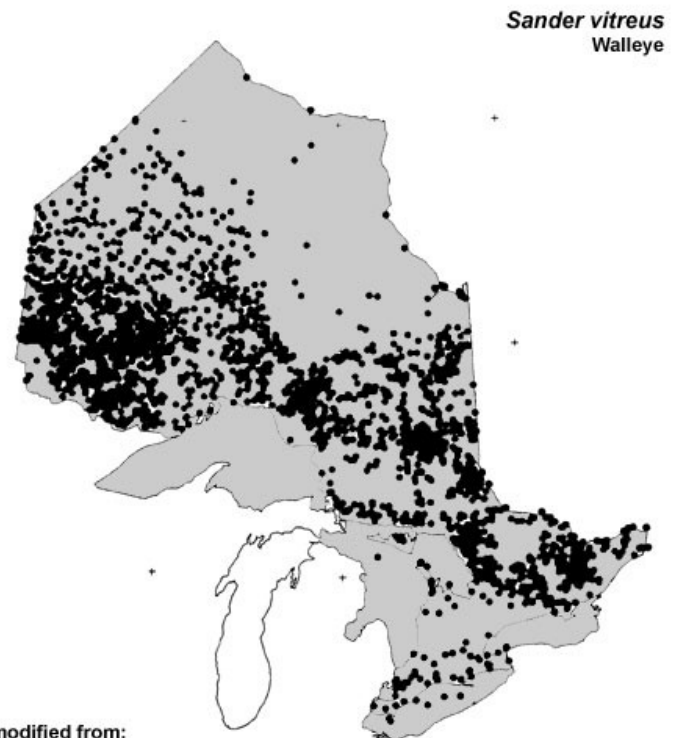
As a carnivorous species, Walleye eat other fish such as yellow perch.

## Fun Fact

Walleyes are also known as pickerel or yellow pickerel. They make up a considerable portion of the fish population found in the boreal zone.

## Life History

- Lifespan: 12-26 years
- Age at maturity: 3-4 (M), 4-5 (F)
- Natural distribution in Arctic river basins and the Great Lakes/Saint Lawrence system; have been introduced elsewhere.
- Popular game fish.



# Lake Trout (*Salvelinus namaycush*)



## Physiology

- Length: 38.0 - 91.4 cm
- Weight: 0.4 – 6.9 kg
- Elongated body
- Large mouth
- Indented tail

- Colouration ranges from olive to grey or brown, dappled with white or yellowish spots. Darker on dorsal side, lighter on flanks, and white on the underside.
- Pectoral, pelvic, and anal fins have a slight orange or reddish colour.

## Habitat

- Wide distribution in the cooler northern regions of North American. Found throughout Canada.
- Prefer to inhabit cold, oxygen rich waters (10 C) of deep lakes that remain cool throughout the year.
- Can be found 12-23 m below the surface of the lake, below the thermocline in summer months.

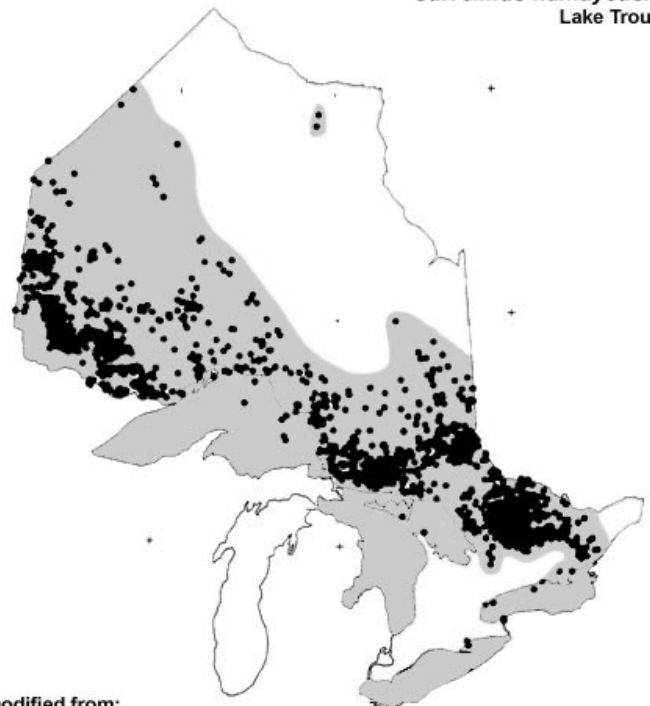
## Diet

A Lake Trout's diet varies based on the age and size of the fish. Common food for Lake Trout can include plankton, freshwater sponges, crustaceans, insects, and other fish. Alewives are their most commonly consumed fish by weight, but they also historically eat Cisco (also known as Lake Herring) among other smaller fish. In recent years, Lake Trout have been observed eating the invasive Round Goby, though they are not a significant source of the fats which are important to a Lake Trout's diet.

## Life History

- Lifespan: 15-30
- Age at Maturity: 3-7 (M); 4-8 (F)
- Spawn in the autumn between September and December.
- Prefer to spawn over large areas of lakes with boulder or rubble bottoms; rarely spawns in rivers.
- Eggs take about 5 months to hatch.
- Original genetic stocks from Lake Huron, Lake Erie, and Lake Ontario have been extirpated due to overfishing.

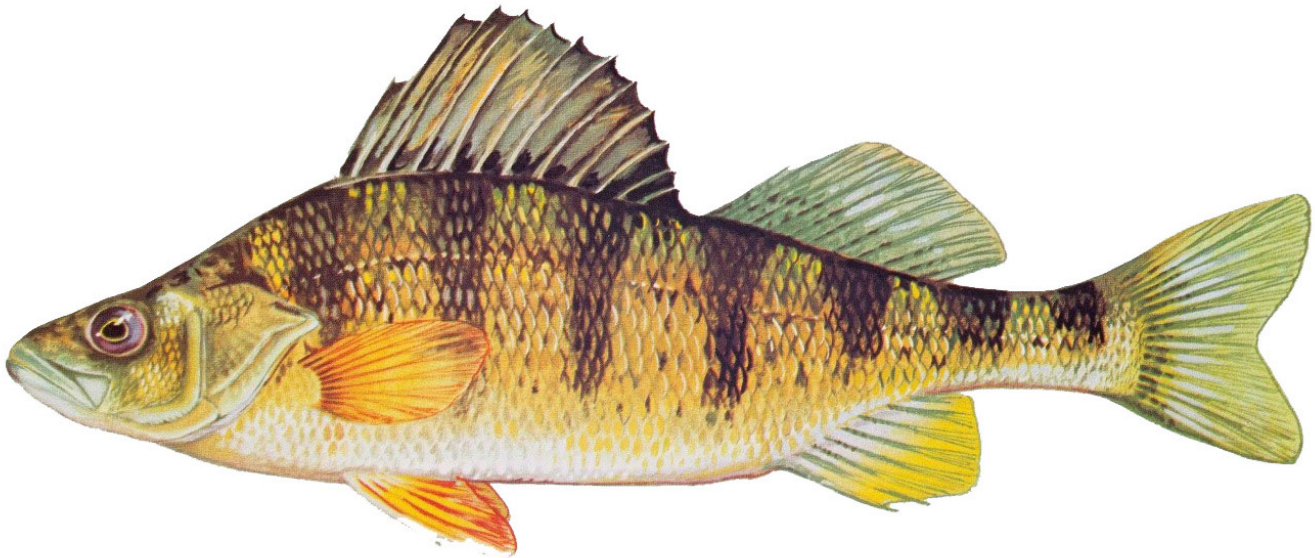
*Salvelinus namaycush*  
Lake Trout



modified from:  
Mandrak and Crossman (1992)



# Yellow Perch (*Perca flavescens*)



## Physiology

- Length: 11.4 – 30.5 cm
- Weight: 0.02 – 0.30 kg
- Elongate, oval body
- Blunt snout

- Two dorsal fins - anterior fin is spiny, while posterior fin is soft.
- Colouration ranges from bright green to olive to golden brown, with 6-8 vertical bars over their yellow to yellow-green sides.

## Habitat

- Cool water species. Most abundant in open water of lakes with moderate vegetation, clear water, and bottoms of muck, sand, or gravel.
- Can be found in ponds and lakes.

## Diet

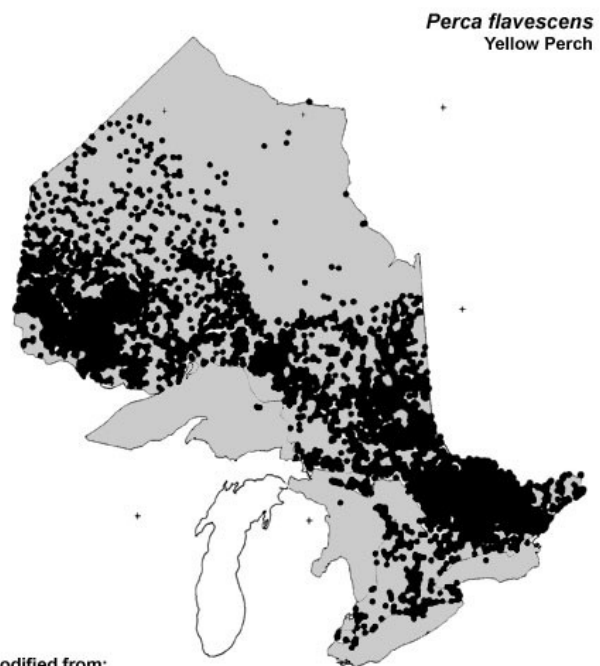
Yellow Perch are carnivorous and feed on smaller fish, shellfish, or insect larvae.

## Fun Fact

Yellow Perch directly compete with trout and salmonids for food and habitat.

## Life History

- Lifespan: 7-12
- Age at maturity: 2-3 (M), 3-4 (F)
- Spawn during the spring. Females lay eggs in covered areas such as near branches or underwater plants.
- These small fish are abundant in the Great Lakes drainage system.
- Typically found in schools.



modified from:  
Mandrak and Crossman (1992)

# Smallmouth Bass (*Micropterus dolomieu*)



## Physiology

- Adult length: 25.4 cm – 45.7 cm
- Adult weight: 0.2 – 1.3 kg
- Robust, laterally compressed body
- Long, blunt snout with a lower jaw that extends to the eye.
- Back and top of head range from brown to green. Lighter sides with 8-15 thin vertical bars. Underside is cream to white.

- Dorsal fin has two parts – posterior is spiny, anterior is soft.
- Pectoral fins are clear, others opaque/dark to amber with some black on spines, rays, or membranes.
- Body colour varies with a fish's size, condition, and habitat
- Males are generally smaller than females

## Habitat

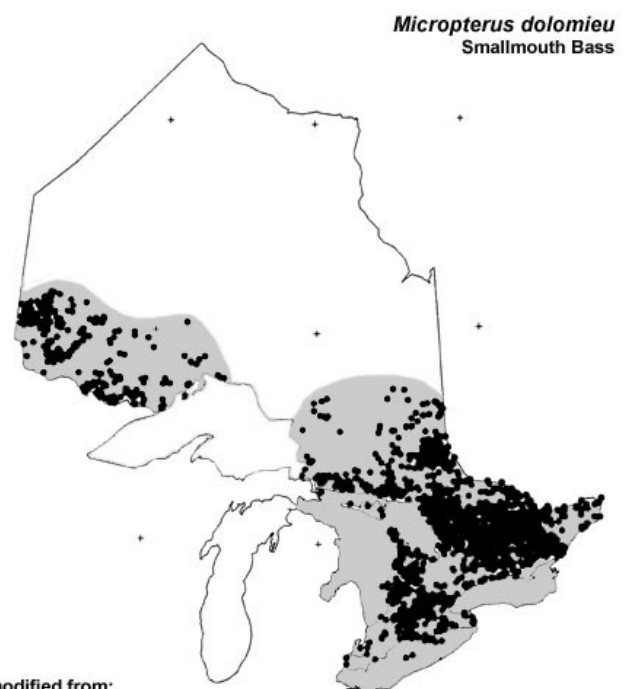
- Warm water fish species usually found in moderately shallow, rocky, and sandy areas of lakes and rivers.
- Found in clearer water than the Largemouth Bass
- Cannot tolerate pollution; their presence is a good indicator of a healthy environment

## Diet

As generalists, a Smallmouth Bass's diet consists of whatever they can catch. Tadpoles, smaller fish, insects, and crayfish are the most common prey items. When introduced into a new habitat, they can quickly dominate the body of water and greatly impact pre-existing food webs by consuming whatever comes their way.

## Life History

- Lifespan: 8-18 years
- Age at maturity: 3-4 (M); 4-5 (F)
- Widespread through most of Ontario, except for the far north of the province. Their distribution has expanded due to intentional introduction into new waterways for spot fishing, or accidental introduction with the use of live bait.



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# Pumpkinseed (*Lepomis gibbosus*)



## Physiology

- Adult length: 12.7-22.9 cm
- Adult weight: 0.04-0.25 kg
- Distinctly shaped body
- Body colouration is anywhere between olive green, brown, bright orange, and/or blue.

- Sides covered with vertical, green to blue bars and orange spots.
- Distinctive orange-red spot on the margin of a black gill cover.
- Black dorsal spines
- Small mouth, with upper jaw stopping under the eye.

## Habitat

- Warm, calm lakes, and ponds with plenty of vegetation and organic debris
- Prefer clear water with plenty of shelter to hide in.
- Moderately tolerant of turbidity

## Diet

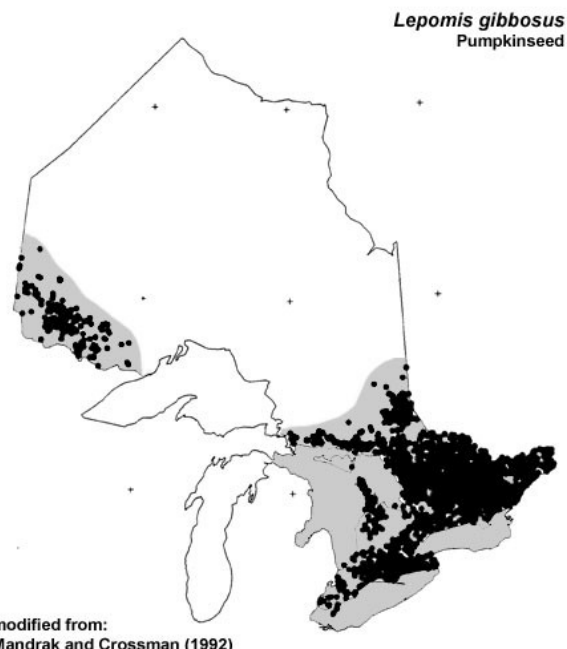
Pumpkinseeds will feed at all water levels on a variety of small food including insects, mosquito larvae, small molluscs, crustaceans, and minnow fry.

## Fun Fact

Pumpkinseeds are some of the most colourful freshwater fish in Canada. With their easily identifiable shape, bright colours, shoreline habitat, and attraction to almost any bait or lure, these fish are commonly caught by young hobbyists, or those just learning how to fish.

## Life History

- Lifespan: 7-10 years
- Relatively easy to catch from the shore as they will readily consume most bait.
- Usually travel together in schools that may contain other species of sunfish and Bluegills. Hybrids with Bluegill are common.
- Considered an invasive species in Europe.





# Round Goby (*Neogobius melanostomus*)



## Physiology

- Adult length: 7.6-15.2 cm
- Adult weight: 0.006-0.050 kg
- Small, soft-bodied fish
- Two dorsal fins, with a distinctive black spot on the first fin.

- Large eyes, protruding slightly from head.
- Mottled colouration with grey, black, brown, and olive green.
- Males are larger than females.

## Habitat

- Native to Eurasia, including Black Sea.
- Were first found in North America in the St Claire River near Windsor after presumably travelling in ballast water from European ships.
- Have established large population in the Great Lakes; invasive.
- Salt tolerant; can be found in both freshwater and marine ecosystems.

## Life History

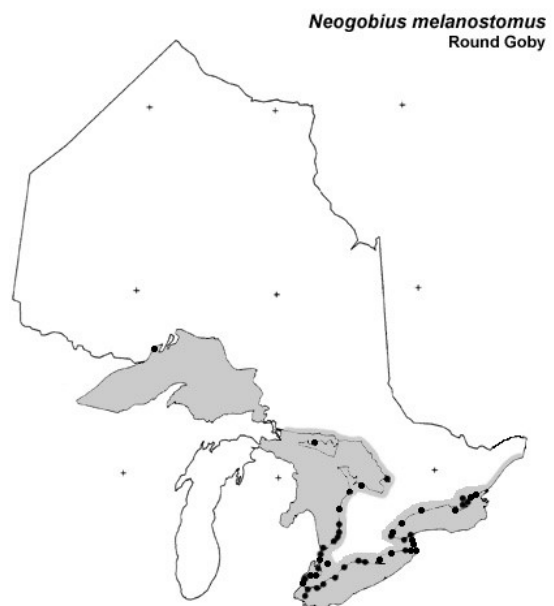
- Lifespan: 4-5 (M); 3-4 (F)
- Females can spawn up to six times in a spawning season, from May to August.
- Native to Black and Caspian Sea basins.
- Introduced into the Great Lakes through ballast water transfer.
- Salmon and trout have started to prey on round gobies, as have northern water snakes.

## Diet

Round Gobies primarily eat molluscs, crustaceans, worms, fish eggs, zebra mussels, smaller fish, and insect larvae. They are aggressive fish that outcompete native species such as sculpin for food (snails, etc.) and nesting sites, in addition to eating the eggs of other fish, impeding their ability to successfully reproduce. However, Round Gobies can act as a biological control in the Great Lakes by consuming zebra mussels, one of the most commonly found invasive species in Ontario's waterways.

## Fun Fact

As an invasive species, Round Gobies are not allowed to be used as bait fish. This restriction limits their spread in Ontario's waterways.



# Sea Lamprey (*Petromyzon marinus*)



## Physiology

- Adult length: 30.1 – 58.1 cm
- Adult weight: 0.07 – 0.37 kg
- Eel-like body lacking paired fins and jaws.
- Cartilaginous skeleton
- Mouth is jawless and sucker-like, either as wide or wider than the head.

- Sharp teeth are arranged in consecutive circular rows.
- Seven branchial, (primitive gill-like) openings behind the eye.
- Olive or brownish yellow on back and sides with some black marbling

## Habitat

- Semiparous; can tolerate freshwater and saltwater
- Native to the Atlantic Ocean, but travelled into Great Lakes waterways through shipping canals.
- In Ontario, they can be found in the open waters of lakes and large rivers, preferring cooler temperatures.
- Abundant in Lake Ontario and Lake Erie; invasive.

## Diet

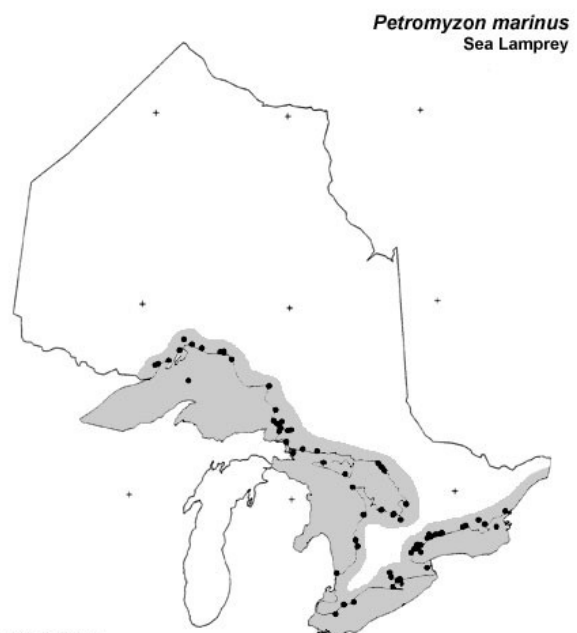
Sea Lampreys filter-feed plankton, but also engage in hematophagous feeding, or consuming the blood and bodily fluids of other fish. They do this by attaching to the skin of a fish with their sucker-like mouths lined with teeth. A fluid in the lamprey's mouth called lamphredin prevents the victim's blood from clotting, causing victims to die from excessive blood loss or infection. Common prey are herring, whitefish, and trout.

## Fun Fact

Sea Lampreys, like all lampreys and hagfish, are classified as "jawless fish" despite bearing a passing resemblance to eels.

## Life History

- Lifespan: 5-9 years
- Age at maturity: 3-7 years
- Once hematophagous feeding is completed, Sea Lampreys migrate back to lakes or rivers to spawn.
- Migrate upriver to spawn; spawning is followed by the death of adults.
- Larvae burrow into the sand and silt at the bottom of quiet water that is usually downstream.
- After years of living in freshwater habitats, larvae undergo a metamorphosis that allows Sea Lampreys to migrate to the sea or lake.



modified from:  
Mandrak and Crossman (1992)

# Glossary

**Barbel:** a slender, whisker-like sensory organ located near a fish's mouth that contains taste buds to help fish search for food in murky water.

**Benthic:** of, relating to, or occurring at the bottom of a body of water.

**Devonian period:** A geologic period that occurred in the Paleozoic Era, spanning the period of time from 416 million to 385 million years ago. This is the period in which vascular plants started covering dry land and fish were diversifying on a large scale.

**Fin:** an anatomical feature of fish that help them swim. Can be comprised of rays or bony spines covered in skin.

**Anal fins:** a fin located on the ventral and posterior end of the fish that stabilised the fish while swimming.

**Dorsal fin:** a fin located on the back that can protect a fish against rolling and assist in sudden turns and stops. In certain species, these fins contain distinct bony spines.

**Pectoral fins:** fins located on each side of the body that can assist certain fish in maintaining depth.

**Pelvic fins:** fins located ventrally and behind the pectoral fins that assist movement up or down, turning sharply, or stopping quickly. Also known as ventral fins, these are in different locations on the body depending on the type of fish.

**Tail fin:** a fin located posteriorly that is used for propulsion through the water. Also known as caudal fins.

**Game fish:** A fish caught by anglers for sport, especially salmon, trout, and bass in fresh water.

**Species at risk:** a naturally occurring wildlife species (plant, fungus, or animal) that is in danger of extinction or extirpation.

**Special concern:** a wildlife species that may become a threatened or endangered species due to some combination of threats to their habitats and livelihood.

**Threatened:** a wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

**Endangered:** a wildlife species facing imminent extirpation or extinction

**Extirpated:** a wildlife species that no longer exists in the wild in a former habitat but exists elsewhere in the wild.

**Thermocline:** the transitional layer in a body of water positioned between warm, mixed water above and cool, deep water below. Also known as the metalimnion.

**Turbidity:** an optical characteristic of water and a measurement of water clarity. It can be described as haziness or cloudiness and is determined by measuring the amount of light that is scattered by material in the water when light is shone on it.

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