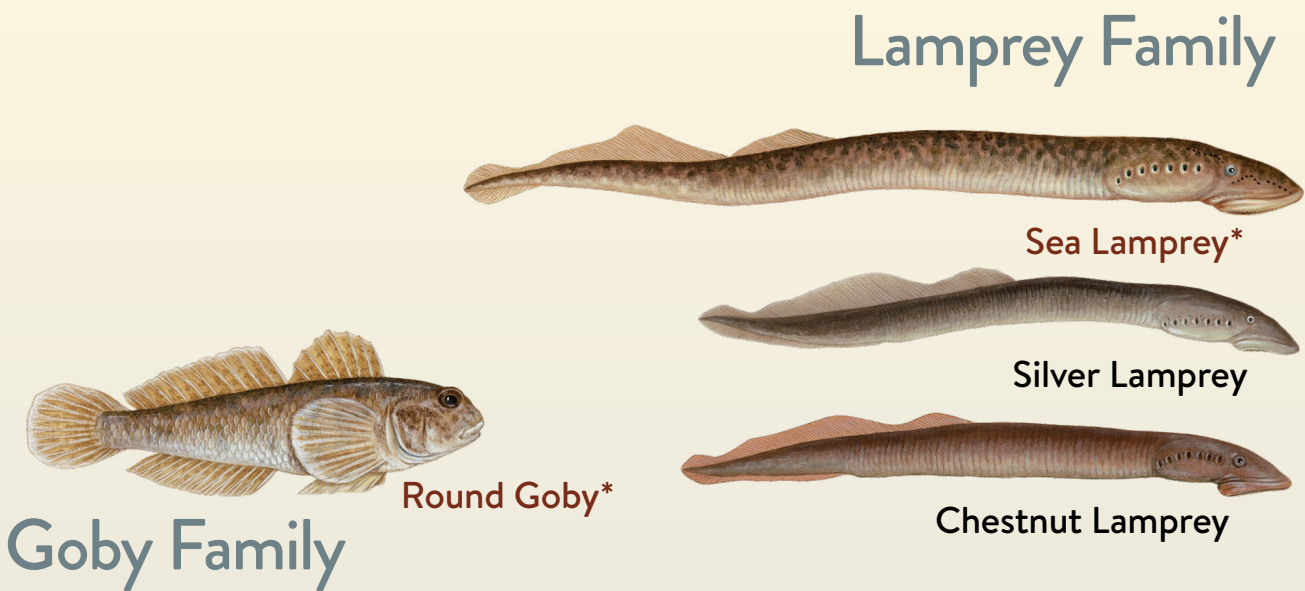
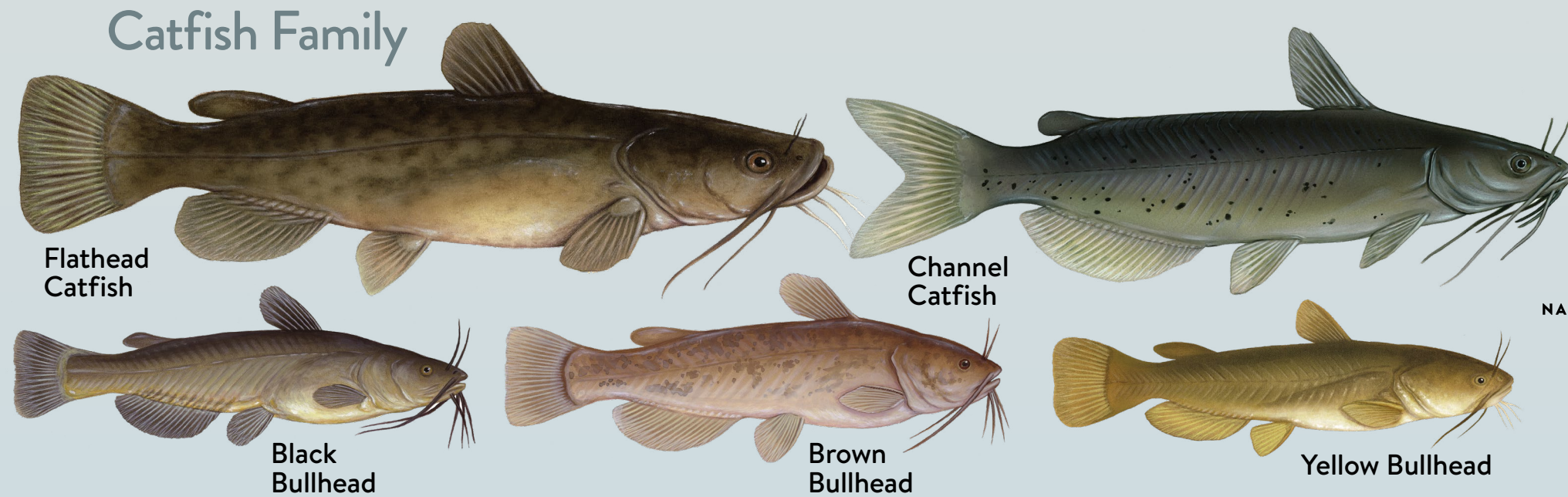
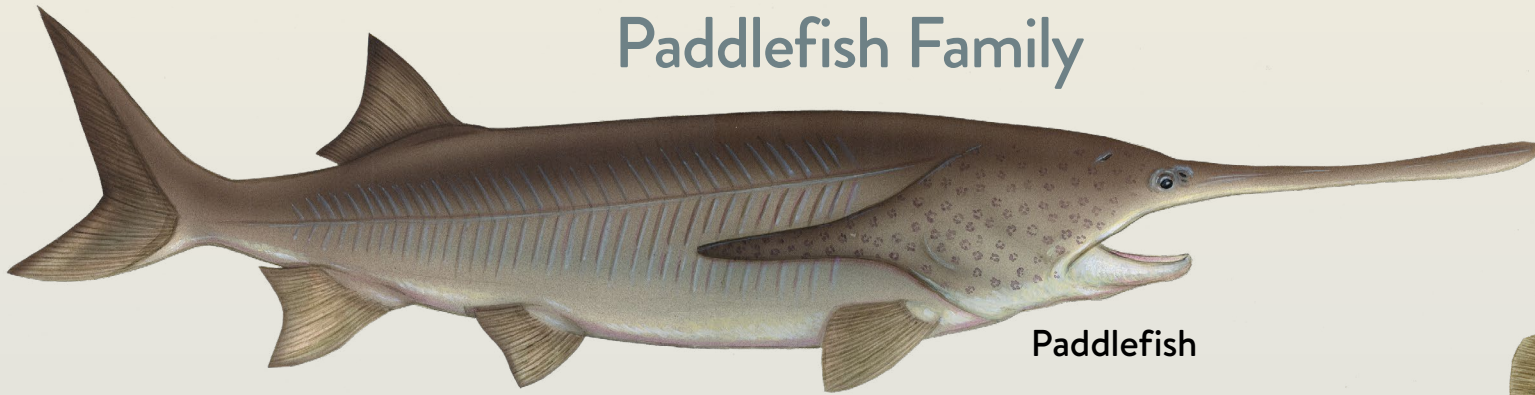
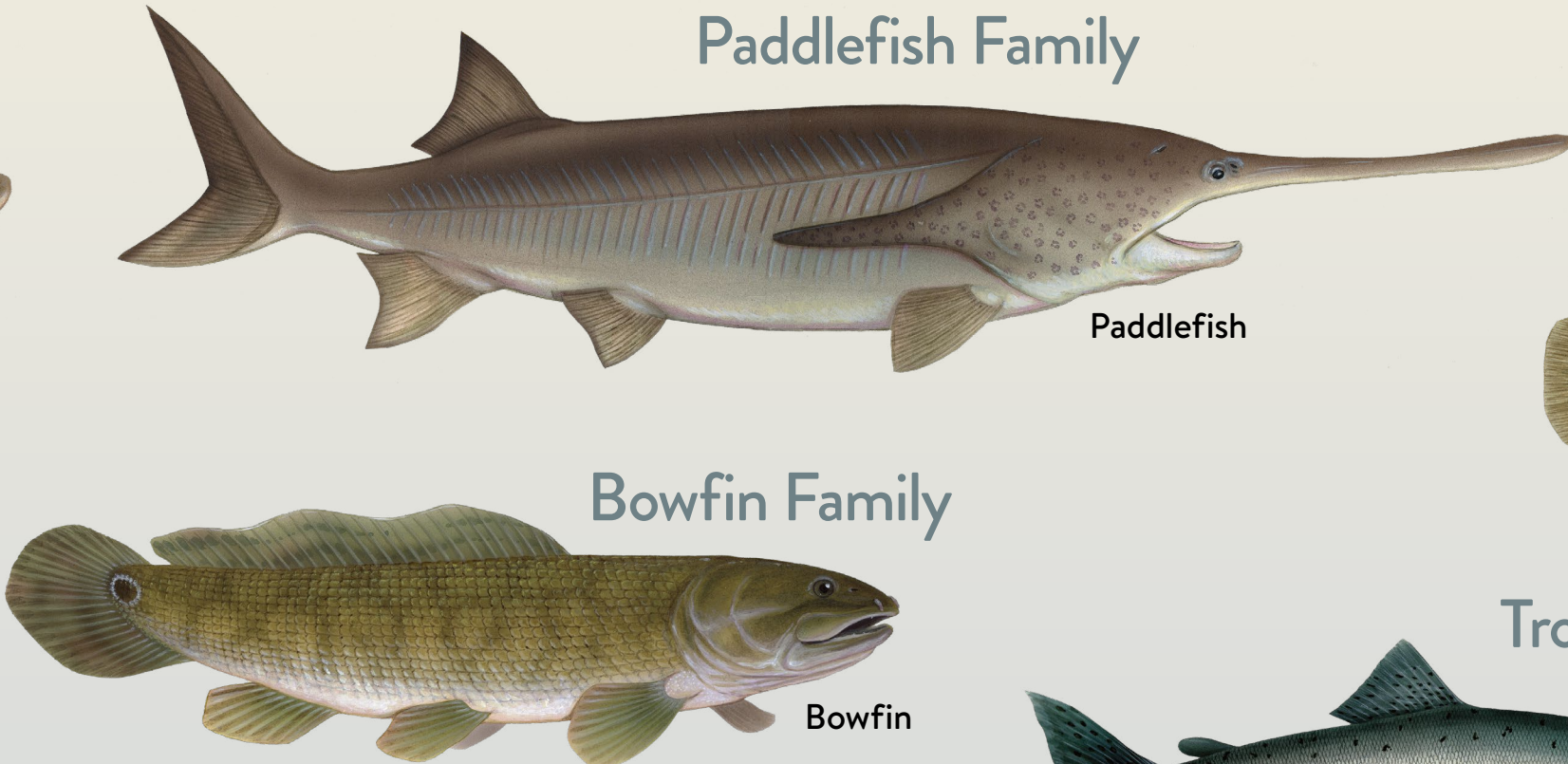
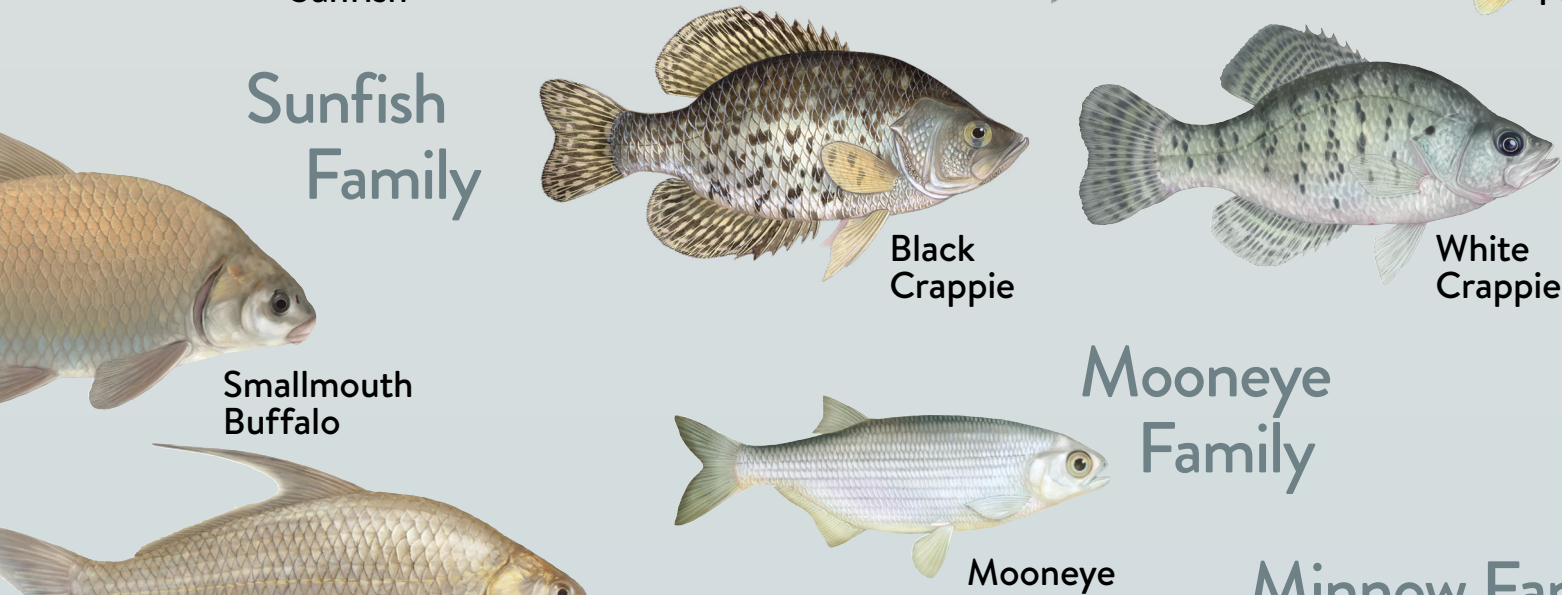
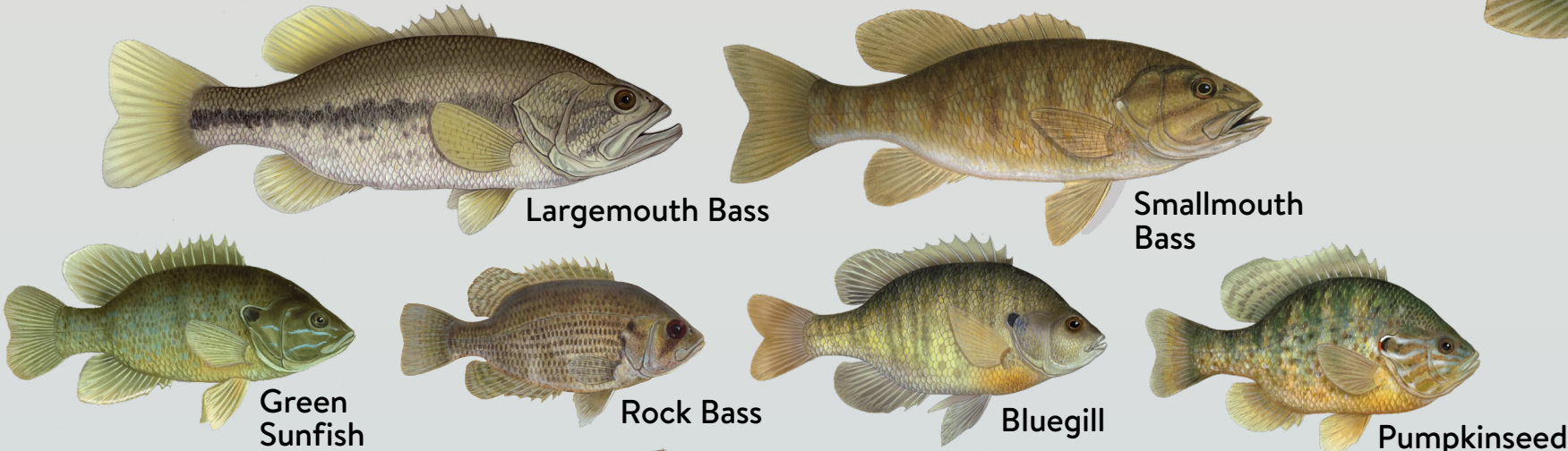
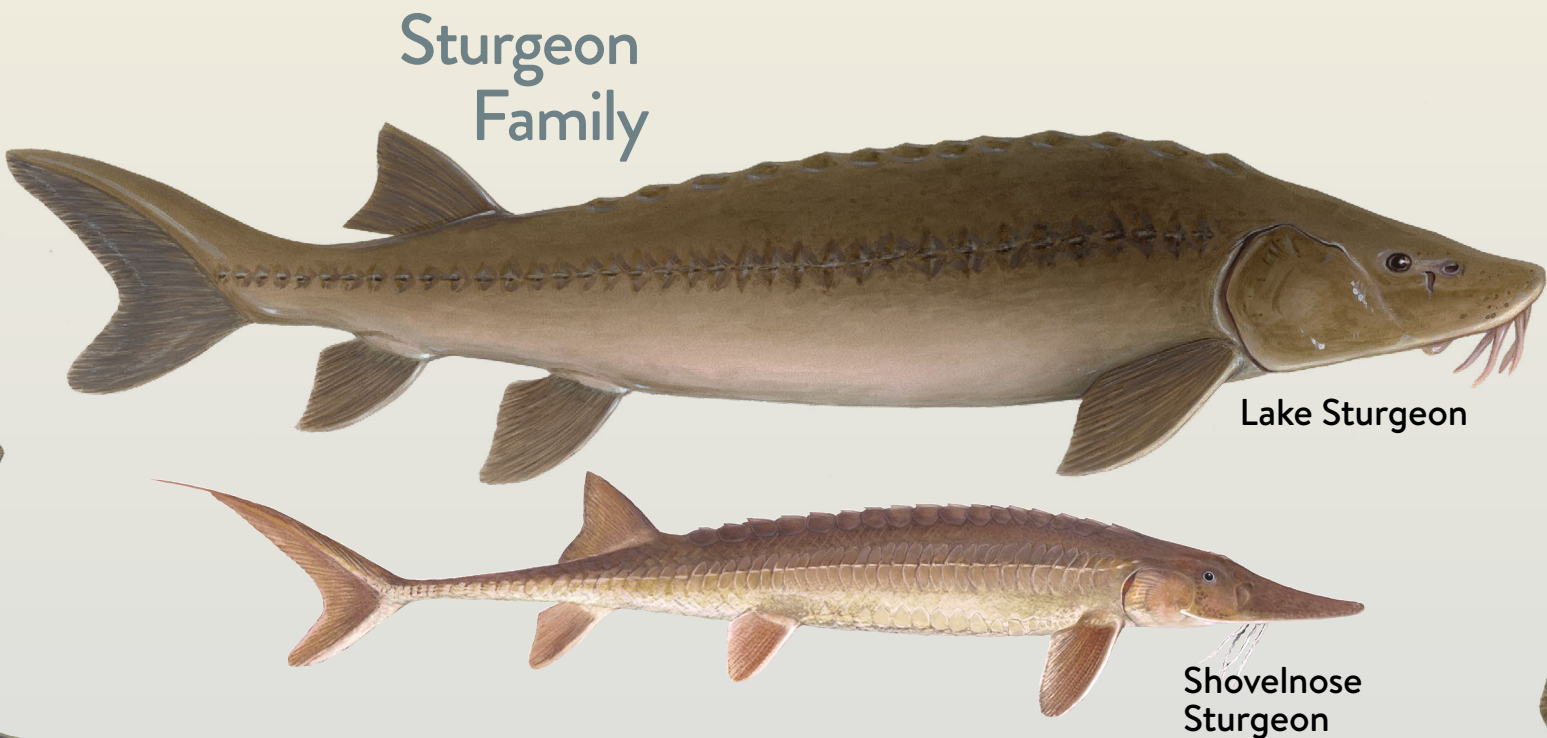
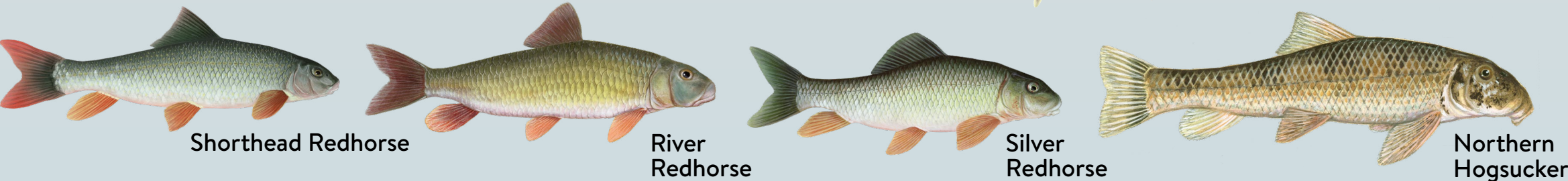
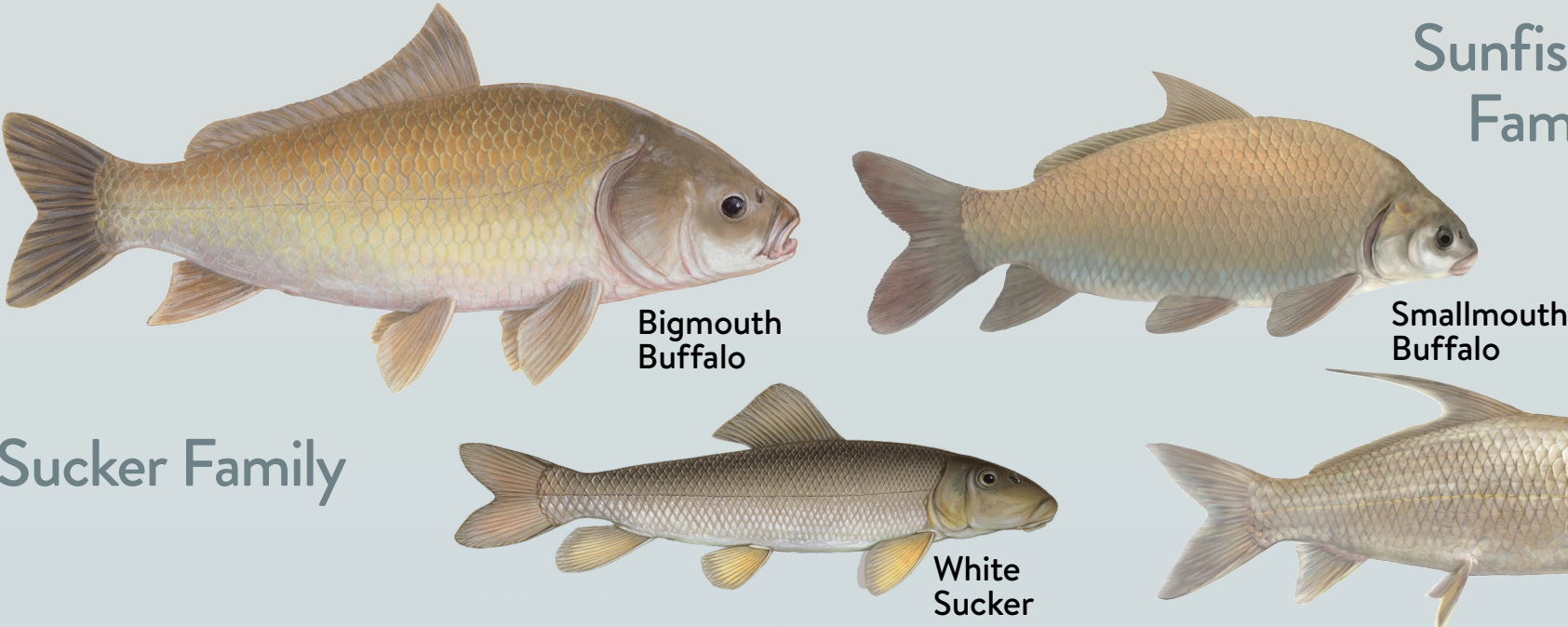
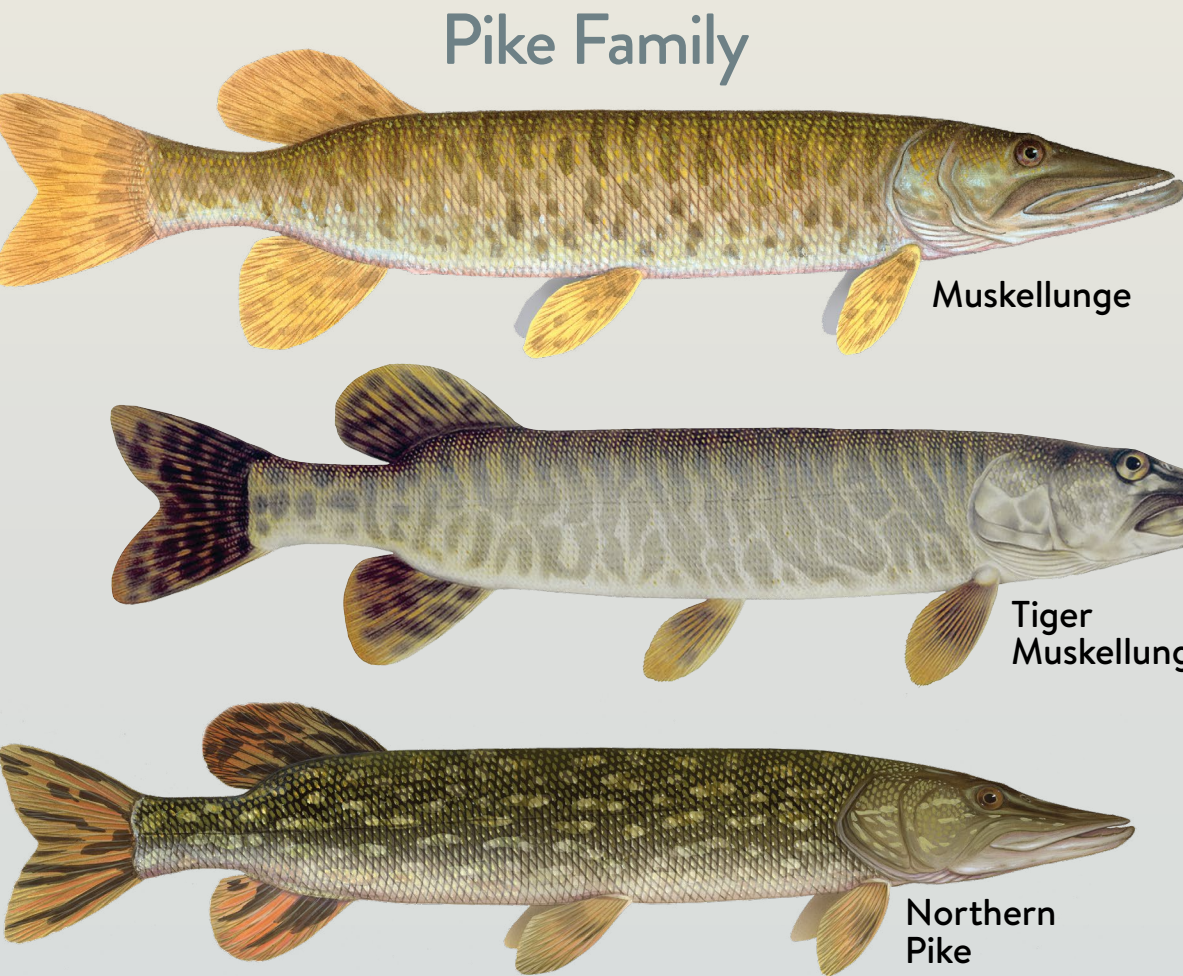
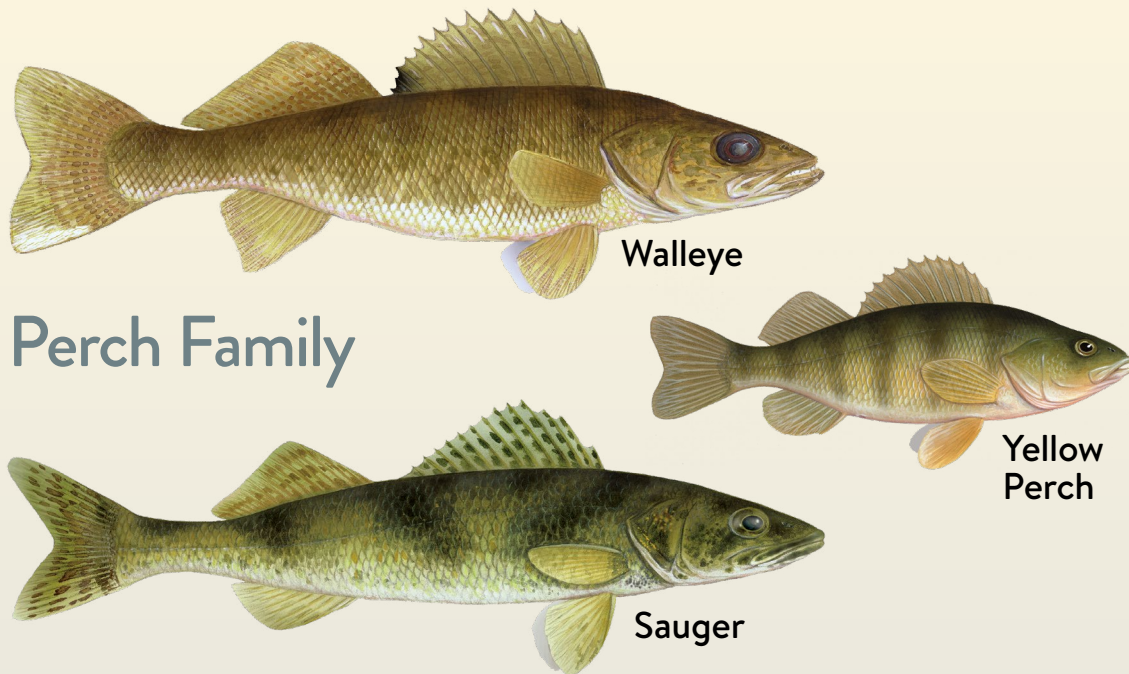


FISHES OF MINNESOTA



Lamprey Family

Gar Family

Trout & Salmon Family

Bowfin Family

Paddlefish Family

Sturgeon Family

Perch Family

Goby Family

Sucker Family

Mooneye Family

Minnow Family

Cod Family

Catfish Family

*Invasive Species

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MINNESOTA FUN FISH FACTS

Fish are Fascinating!

- All fish are craniates, with skulls of bone or cartilage.
- All fish are vertebrates (meaning that they have backbones) and breathe through gills.
- Most fish have fins and scales.
- Usually, fish are cold blooded, but several saltwater species, including some tuna and sharks, maintain elevated body temperatures that are substantially higher than surrounding waters.
- There are more than 27,000 living species of fish worldwide. Approximately 20,000 of these are bony fish.
- Fish are the largest population of vertebrates. There are more fish than all mammals, reptiles, amphibians, and birds combined.
- A group of fish is called a school.
- Most fish lack eyelids—although some saltwater sharks have a nictitating membrane that acts as an eyelid.
- It's not always easy to tell the difference between a male fish and a female fish. In some species, males and females have different shapes or coloring; in other species there is no visible difference.
- Fish have glands in their skin that secrete mucous that give fish their sliminess and odor. Mucous covers wounds to prevent infection and protects fish from infections from fungus, bacteria, and other parasites.
- The muscle mass of most fish is segmented into zig-zagged shapes called myotomes. These muscle segments help fish move through the water. When you eat a fish, the meat is the muscle that folds or peels off in layers.
- The streamlined shape of a fish's body enables it to easily cut through water as it swims.

- An esophagus, the tube between the mouth and stomach, is flexible. A fish esophagus usually can handle anything that fits into the fish's mouth. It can even adjust mid-swallow—just in case the fish eats something that happens to be considerably larger than it.

- In order to be buoyant, and to expend as little energy as possible, most fish have an air (or gas) bladder to regulate buoyancy in the water. The air bladder inflates and deflates to keep the fish from sinking like a stone or bobbing to the surface. There are several species of ray-finned fishes in

Minnesota that don't have gas bladders, including darters.

- Fish breathe by taking water in through their mouths and pushing it over the surface of their gills. The individual lamellae of the gills are thin so that oxygen and carbon dioxide molecules can move in and out of the fish's blood stream.
- The fish's inner ear includes an ear stone (otolith). Sound signals are transmitted to the brain after the sound registers in the ear stone.
- Fish scales are laid down in rings each year (like tree rings) and can be used to age fish.

Minnesota Fish Family Trivia

In 2011, Minnesota was home to 162 species of fishes, 141 of them native. The number of species increases as new non-native species establish themselves in Minnesota waters. There are 27 families of Minnesota fishes. Here are some facts about some familiar fish families as well as some of the unusual fish families that live in Minnesota.

The Bowfin Family (Amiidae)

- Bowfin are the last surviving members of a formerly large family of fish—the rest exist only as fossilized remains.
- The name refers to the long, undulating dorsal fin along the back of these fish.
- Bowfin come to the surface every few minutes to breathe air, using their swim bladder like a lung. They also use gills to breathe in water. They can survive out of water for a considerable length of time. A farmer once found a live bowfin in moist soil while plowing a field that had been flooded a few weeks earlier.
- The male bowfin turns dark green while spawning and guarding its young.
- Bowfin are also known as dogfish.

The Catfish Family (Ictaluridae)

- Catfish exist throughout the world, but the Ictaluridae family lives only in North America. There are nine catfish species in Minnesota: three catfish, three types of bullheads, and three smaller species.
- All members of this family have whisker-like barbels around their mouths and an adipose fin on their back between the dorsal and tail fins.
- Catfish bodies have as many as 100,000 taste buds scattered over their bodies and barbels. Research shows that these well-developed sensory abilities help catfish and bullheads find food in muddy, dark water.
- Catfish and bullhead barbels aren't "stingers" and won't sting you. They are organs that sense taste, touch, and smell.
- These fish do have sharp spines—one in the leading edge of their top (dorsal) and one in each of their side (pectoral) fins. If you're not careful when handling these fish, you can poke your hand on these spines.
- The two largest species of catfish in Minnesota are channel catfish and flathead catfish.
- Minnesota bullheads species are: brown, black, and yellow.

The Drum Family (Sciaenidae)

- The freshwater drum is the only species of the large family of drum fishes that lives in Minnesota—and it's the only freshwater member of the Drum Family.
- Freshwater drum are also known as sheephead or croakers. It's the only freshwater fish with a lateral line that extends all the way to the end of its tail fin.
- Members of the Drum Family can produce audible sounds. Males make a deep, rumbling sound during spring breeding season by rubbing tendons against their swim bladders. They're the noisiest fish in Minnesota!
- Native Americans used the drum's otoliths, or ear bones, to make jewelry. These otoliths are much larger than those of most other species.

The Gar Family (Lepisosteidae)

- Longnosed and shortnosed gar exist in Minnesota, there are seven species world-wide.
- The long, narrow, bony snouts of members of this fish family are filled with many sharp teeth.
- **Gar** is an old Anglo Saxon word meaning spear—in reference to the pointed snout of this fish.
- A gar has tough, armor-like scales called ganoid (diamond shaped).
- In addition to breathing through gills, gar can take in oxygen by swimming to the surface and gulping air into their swim bladders. This ability to "breathe" surface air allows them to survive in water that has very little dissolved oxygen. They can even live out of water for many hours, as long as their bodies stay moist.
- Gar eggs are poisonous to terrestrial wildlife.

The Codfish or Cuskfish Family (Lotidae)

- Most codfishes live in oceans. The only freshwater species in this family is the burbot.
- In Minnesota, burbot are commonly known as eelpout. Eelpout is the name of a family of saltwater fishes (Zoarcidae), but burbot are called eelpout simply because they resemble these fishes.
- Their Latin name, **Lota lota**, comes from the French word for codfish. It's possible that the word burbot is derived from **bourne**, a French word meaning mud from a pond or lake.
- Burbot have a single barbel located under the chin.
- Burbot are the first fish to spawn each year. They spawn in the middle of winter under the ice.
- Burbot has been referred to as "poor man's lobster" when eaten.

The Minnow Family (Cyprinidae)

With 48 species—42 of them native—existing in the state, the Minnow Family is Minnesota's largest fish family. Minnows aren't necessarily small, and small fish aren't necessarily minnows.

- Minnows are a very important link in the aquatic food chain because they're a food source for many larger fish species.
- Many small minnow species are economically important to the state's bait industry.
- Some of the more common commercial minnow species include: fathead (crappie) minnows, finescale dace (rainbow chubs), hornyhead (red tail) chubs, northern redbelly dace (jumpers), and golden shiners.
- Carp are the largest members of the Minnow Family in Minnesota waters.
- Carp are the strongest swimmers of Minnesota's warm water species.
- Carp are invasive (non-native) species in Minnesota.

The Pike Family (Esocidae)

Pike are important top predators in aquatic ecosystems, and they help balance populations of smaller fish.

Muskellunge

- Muskellunge, also known as muskies, are the largest members of the Pike Family.
- It takes 5 to 7 pounds of live fish to produce 1 pound of muskie.
- Adult muskies can eat fish as large as one-third their own length. Younger muskies can eat fish almost as large as themselves.

Northern Pike

- The northern pike is one of the world's most widely distributed species of freshwater fish.
- It's one of the fastest-growing freshwater fish.

Tiger Muskie

- This fish is a sterile hybrid cross of a muskellunge and a northern pike.

The Paddlefish Family (Polyodontidae)

- There are two species of paddlefish in the world, one in China and the other in North America. It's a fish of ancient origin, with a skeleton made of cartilage. Due to their long, canoe paddle-shaped snouts, they're sometimes called spoonbills.
- The snout of a paddlefish is covered in sensory organs that may aid in helping it find food.
- Although they're large fish, they grow slowly and eat tiny plants and animals called plankton.
- Paddlefish populations were greatly impacted by the introduction of the lock and dam structures on the Mississippi River which limited their ability to migrate and spawn. They're a species of special concern in Minnesota.

The Perch Family (Percidae)

With 18 species, the Perch Family is Minnesota's second largest fish family, which includes perch, walleye, sauger, and darters. Darters live only in North America—and 15 species of these tiny fishes live in Minnesota.

Yellow Perch

- Perch have several dark, vertical tiger stripes on their yellowish bodies.
- Yellow perch are a favored prey of walleye.

Walleye

- Although sometimes referred to as a walleye pike, it's not a member of the Pike Family.
- In 1965, the state legislature designated the walleye as Minnesota's state fish.
- The name "walleye" refers to this fish's large, milky pupils. The inner part of the eye reflects light, allowing the fish to see in dark or murky water. This reflective membrane is called the tapetum lucidum, or bright carpet.
- Studies have shown that walleye live as long as 29 years in some waters.
- Minnesota's walleye stocking program is the largest in North America.
- A female walleye produces 40,000 to 250,000 eggs per season, depending on her size and condition.

Least Darter

- The least darter is the smallest fish in Minnesota. Actually, at 1 to 1½ inches long, it's the smallest vertebrate animal in North America.

The Salmon Family (Salmonidae)

This family includes salmon, trout, whitefish, cisco, grayling, and char species. Like the Catfish Family, all fish in this family have an adipose fin on their backs between their dorsal and tail fins. Salmonids are cold-water fishes—they typically occupy waters colder than 72° F.

Trout

- Lake trout and brook trout are native to Minnesota.
- The Minnesota DNR stocks splake, a cross between male brook trout and female lake trout.
- Back in Minnesota's lumberjack days, logging outfits used to transport brook trout in milk cans and stock them in north woods streams. The fish then provided meals for loggers.
- Is the steelhead a salmon or a trout? This popular Lake Superior sport fish is actually a rainbow trout.

Salmon

- Three species of Pacific salmon have been introduced to Lake Superior in the past few decades. All feed in the lake until they reach sexual maturity. In fall, the mature adults swim up rivers to spawn. They then die.

The Sturgeon Family (Acipenseridae)

Like the paddlefish, a sturgeon has a skeleton made largely of cartilage. There are two species of sturgeon in Minnesota: lake sturgeon and the smaller shovelnose sturgeon.

- A sturgeon's body is covered with large overlapping plates called scutes.
- Lake sturgeon are the largest fish in Minnesota. The record size is probably that of a sturgeon caught in 1911 in Lake of the Woods which was 8 feet long and 236 pounds.
- The high demand for lake sturgeon eggs (caviar) at the end of the 1800s led to near extinction of this species.
- Lake sturgeon grow slowly and are estimated to live over 100 years.
- Female lake sturgeon don't spawn until they're approximately 20 to 25 years old—and then just once every few years.
- Among Great Lakes Indians, the lake sturgeon was the most respected of all fish. The Ojibwe referred to it as **Nahmay** or **Namé**, meaning the King of Fish.

Sucker Family (Catostomidae)

- There are 17 species of suckers in Minnesota.
- They can be differentiated from carp because they do not have barbels in the corner of their mouths.
- Buffalo (bigmouth and smallmouth) are the largest members of the Sucker Family. They were prized in the restaurants of the east coast in the early 1900s and many Minnesota fish were shipped to the restaurants of Chicago and New York.
- Redhorse are sensitive fish species that can be an indicator of water quality, they can't live in polluted waters.
- White suckers are an important prey species for many other fish and are a popular commercial baitfish.

The Sunfish Family (Centrarchidae)

There are 11 species of sunfish in Minnesota, including the bluegill, pumpkinseed, crappies, largemouth bass, and smallmouth bass.

- Bluegill spawning beds, 6 to 12 inches in diameter, are found in shallow water. In some spots, as many as 50 beds may be clustered together. Spawning bluegills aggressively protect their spawning beds, attacking anything (even a hook) that comes near them. This makes them easy to catch during the spring.
- Largemouth bass are a popular sport fish because it aggressively attacks lures and leaps out of the water when hooked.
- Smallmouth bass, for its size, may be the hardest-fighting fish swimming in Minnesota waters.
- Minnesota is home to both white and black crappies—black crappies are more common.

Lamprey Family (Petromyzontidae)

- There are six species of lamprey in Minnesota, the invasive sea lamprey is only found in Lake Superior.
- Lampreys are eel-like, jawless fish with a toothy sucker-like mouth, one nostril on top of the head, seven external gill pores on each side and no scales.
- Not all lampreys are parasitic on other fish. The brook lamprey feed on decaying plant material.

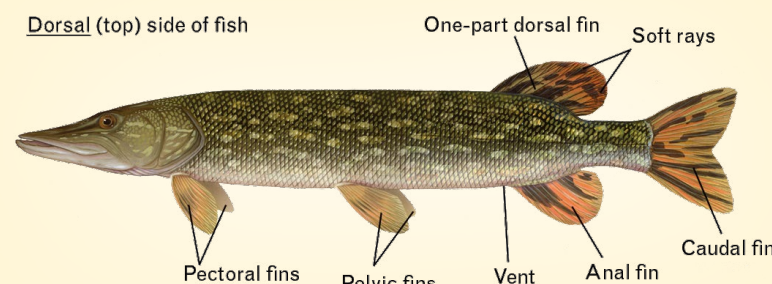
Goby Family (Gobiidae)

- Members of this family are aggressive bottom-dwelling fish that live in the St. Louis estuary, adjacent to Lake Superior.
- The adult fish are 3 to 10 inches long and mostly slate gray in color.
- They were introduced into the Great Lakes when ballast water was dumped from international cargo ships.

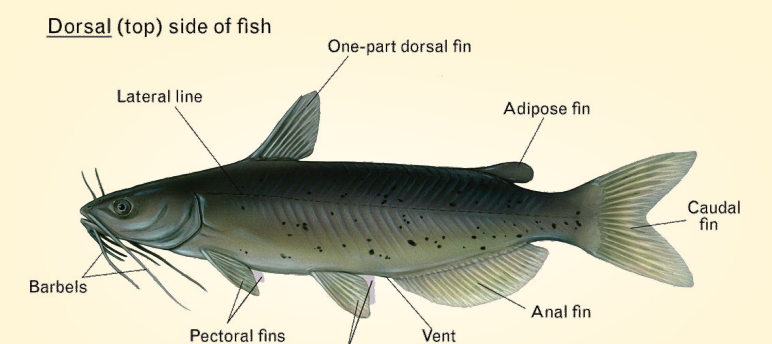
Temperate Bass Family (Moronidae)

- Members of this family have torpedo-shaped bodies and a separated two-part dorsal fin (sharp spines and soft rays), much like the Perch Family, but the second dorsal fin section has one spine too.
- The white perch (not pictured) is an invasive aquatic species that was introduced to the St. Louis River estuary, adjacent to Lake Superior.
- White bass are quickly gaining popularity among Minnesota anglers.

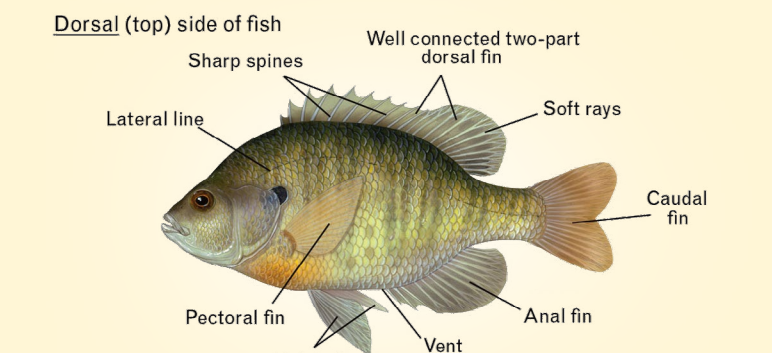
Fish Anatomy



Ventral (bottom) side of fish



Ventral (bottom) side of fish



Ventral (bottom) side of fish

Fish illustrations by C. Iverson

Fishing Leader's Guide

Whether you are an avid angler or have never picked up a fishing rod, we've designed **Fishing: Get in the Habitat!** to make it easy for you to plan and conduct fishing trips that are safe, educational and fun!

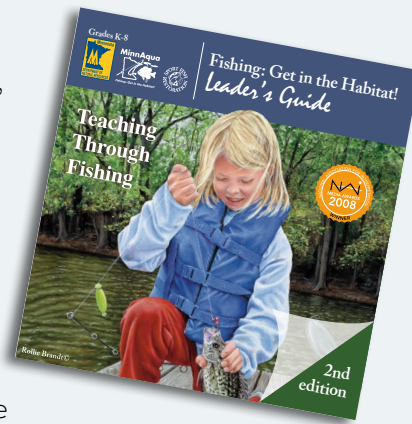
Fishing and so much more

The **Fishing: Get in the Habitat! Leader's Guide** includes lessons and activities on:

- Aquatic Habitats
- Minnesota Fish
- Water Stewardship
- Fisheries Management
- Fishing Equipment and Skills
- Safety and the Fishing Trip

Visit us at www.mndnr.gov/minnaqua to learn more about lessons like

Fish Families that will assist your students in learning more about Minnesota fish!



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