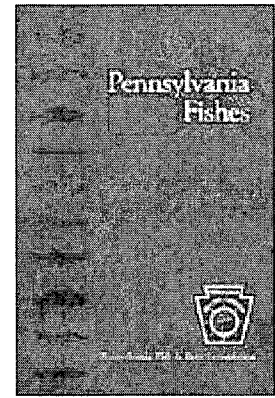


Chapter 14

Pikes

Family *Esocidae*

Family overview: Pike are long, slender, “duck-billed” predator fish, popular with anglers for the great size some species attain and for their sporting fight. Four species of the pike family live in the Northern Hemisphere. The grass pickerel and redbfin pickerel (the two are closely related subspecies), the chain pickerel, the northern pike and the muskellunge are native to North America and to Pennsylvania. The northern pike is one of the few fish whose natural range includes both North America and Eurasia.



The native pike family residents of Pennsylvania range from the small redbfin pickerel of eastern Pennsylvania and its close cousin the grass pickerel of northwestern Pennsylvania, which seldom reach one foot in length, to the mighty muskellunge, whose state angling record is over 54 pounds. Pike live in coolwater streams and large rivers, as well as lakes, from ponds to big impoundments, depending on the species. All pike are associated with submerged vegetation, although muskellunge also frequent rocky lake shoals. The family name “Esocidae” is from “Esox,” an old European name for the pike.

Identification: The pikes are well-camouflaged to blend with their underwater surroundings. Markings and coloration vary among species, their concealment patterns ranging from oblique striping and broken horizontal bands to chain-link markings and beanlike spotting in light and dark tones. The pike family’s general coloration is green, from a dark yellow-green to olive-brown, with yellowish markings or shadings. The fins in some species are dull-red or orangish. The eye is large and yellow. The pike’s scales are cycloid, smooth, small and numerous, and embedded in a slimy mucous that makes the fish slick to the touch.

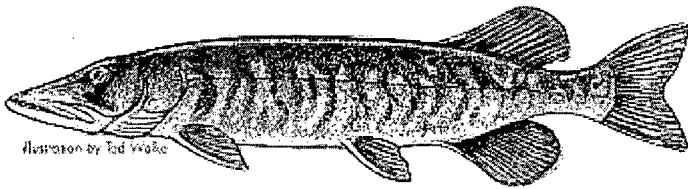
The pikes are slender, cylindrical fish. The pike family’s most distinctive characteristic is the long, flattened snout that looks something like a duck’s bill. The mouth is fitted with many strong, sharp teeth, and the forehead is like a bony plate. Pike have one dorsal fin that is placed far along the back, toward the tail, as is the opposing anal fin. The tail is forked, and may or may not be marked, according to the species. There is no adipose fin. Pike are built for their role as swift, aggressive predators.

Life history: The pikes spawn in early spring, when water temperatures reach about 50 degrees. The pikes don’t build nests. Several males spawn with a female, the fertilized eggs scattering over underwater plants, dead vegetation and other organic debris, in shallow sections of the lake or stream. Eggs are sticky at first and adhere to vegetation and objects above the silty bottom. Staying out of the mud appears to be necessary for successful egg-hatching. Pike eggs are abandoned by the parents and hatch in 10 to 12 days. The fry, or just-hatched fish, have an adhesive organ at the top of the snout, with which they attach themselves to submerged plants. They remain “stuck” there for about a week, while their nourishing egg sac is absorbed.

Until they are about two inches long, young pike eat aquatic invertebrates. Then they switch to the main source of food for the rest of their lives—fish. In crowded conditions, pike even eat one another. Pike are top-level predators in their habitat, living solitarily and feeding on other fish, plus any birds, small mammals, snakes and frogs that happen into the water. They feed by ambush, waiting motionless in concealing cover until their prey approaches. Then they lunge swiftly to grab it. Prey is taken at the midsection, and then shifted in the pike’s mouth and swallowed headfirst. Pike are sight-feeders and are active by day, even continuing to feed during winter months, which makes them available to ice anglers. The pikes grow fast, with the young of the larger species reaching 12 to 18 inches their first year. The females grow fastest, live longer and attain larger sizes than the males.

Redfin Pickerel *Esox americanus americanus*

Species overview: The redbfin pickerel is the eastern half of the *Esox americanus* subspecies twins. The other is northwest Pennsylvania’s grass pickerel (*Esox americanus vermiculatus*). The redbfin’s native range is along the Atlantic Coast from Massachusetts to Florida. In the Gulf Coast and southeast states, it mixes and interbreeds with the grass pickerel. The redbfin is a common small pickerel in the Delaware River watershed in Pennsylvania. It is found rarely in the Susquehanna River watershed. In Pennsylvania, there is no natural overlap in the geographic distribution of these subspecies.



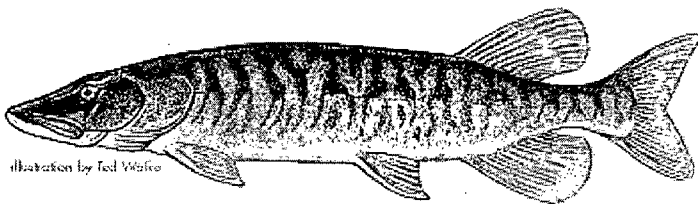
Identification: The redfin, along with the grass pickerel, is the smallest member of the pike family, growing to 12 inches at most. Its range restriction in this state, east of the Allegheny Mountains, is the best way to distinguish it from the grass pickerel. With few exceptions, the two fish are similar in appearance. The redfin pickerel is greenish gray to dark olive-bronze on the back, with shading down its sides. Over the sides are wavy or wormy-looking lighter markings that can appear as a series of vertical, irregular bars. The belly is white or yellow-tinted. The redfin's cheek and opercle are fully scaled, and the black "tear drop" beneath its eye extends backward. The snout is short and broad and the fins are unspotted and reddish, providing its common name.

Habitat: Redfin pickerel inhabit the weedy shallows of slow-moving streams, as well as lakes and ponds. Although they are usually found over a soft, mud bottom, redfin pickerel prefer the water itself to be clear. They can live in naturally acidic water, like that which flows from the tannic-stained bogs in Pennsylvania's northeast region. They can tolerate swampy waters with low oxygen content and brackish waters, where fresh water and ocean salt water mix.

Life history: Redfin pickerel spawn in spring, when the water temperature reaches about 50 degrees. The sticky eggs are randomly broadcast in the shallows over underwater vegetation and other organic debris. The eggs, which hatch in about two weeks, receive no parental care. Unlike larger pikes, the redfin does not include fish as a primary part of its diet. Instead, it feeds on small crustaceans, crayfish, aquatic insects and other invertebrates. The small size of redfin pickerel, as well as their restricted shallow-water habitat, may be why so few fish are on their menu.

Grass Pickerel *Esox americanus vermiculatus*

Species overview: The grass pickerel subspecies could be mistaken for the redfin, if their ranges were not so distinct. The grass pickerel is distributed throughout the Mississippi River watershed. The redfin is an East Coast fish. Where their ranges cross along the Gulf Coast, from Louisiana to Florida, the two small pickerel interbreed. In Pennsylvania, grass pickerel are found in northwestern Pennsylvania, in both the Lake Erie and Allegheny River watersheds, especially where the land has been glaciated. The grass pickerel's subspecies name "vermiculatus" means "wormlike," describing the wavy markings on the fish's sides.



Identification: Grass pickerel rarely grow over 12 inches long, so an adult grass pickerel could be mistaken for an immature northern pike or muskellunge, except for the scaling that covers its cheeks and gill covers. Grass pickerel are usually not as distinctly marked as redfins, and they do not have a red tinge to their fins. The sides and back are greenish to grayish, and the flanks have lighter, dusky streaks that curve and tend to be vertical. The streaks may look like bars or just shadowy, wandering lines. Grass pickerel have a black bar beneath the eyes, which trails slightly backward. The fins are amber or dusky with no markings.

Habitat: Grass pickerel live in the marshy areas of lakes and ponds, as well as in slow-flowing sections or backwaters of clear streams. They are usually found in and around dense, rooted aquatic vegetation over a soft, silt bottom.

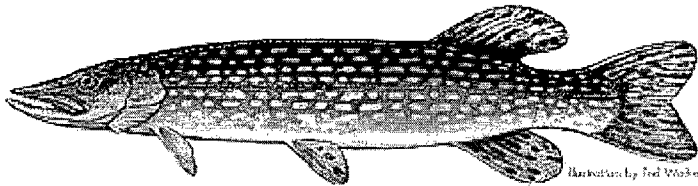
Life history: Grass pickerel scatter their adhesive eggs over underwater plants, when water temperatures in the spring rise to the low 50s, generally April. They may also spawn in the fall, but the survival of the fry is probably very low, and they may occasionally hybridize with northern pike. With its small size, the grass pickerel eats few fish, but feasts instead on invertebrates, aquatic insects, crayfish and other crustaceans.

Northern Pike *Esox lucius*

Species overview: The northern pike's distribution is circumpolar—it lives in the Northern Hemisphere from

North America to Europe and Asia. The northern pike has a long history in the Old World and is the subject of romantic myth and melodramatic folklore. The Latin name for the pike is "lucius," referring to "Luce, the waterwolf." In legend, the northern pike grows to a frightening size and age, even snapping up men, mules and swans that cross its path. Northern pike bones were even worn as talismans to defend against witchcraft, and medicines or potions were made of parts of its body. The Anglo-Saxons gave the fish the common name "pike," comparing it to that ancient weapon.

In Pennsylvania, the northern pike is native only to the Ohio and Allegheny River watersheds, and to Lake Erie, where it is found in weedy Presque Isle Bay. Northerns grow fast and provide exciting sport. They are eager to bite and make a slashing strike, so they have been stocked in the state outside their natural range, in suitable reservoirs.



Identification: With sufficient forage, northern pike can easily reach about 20 pounds and 40 inches. The state record is over 33 pounds. The northern's back and sides are dark yellow-green or gray-green, shading to whitish undersides. The smooth body scales may show silvery highlights. Over the sides are lateral rows of whitish or yellowish oblong or bean-shaped spots. The fins have black blotches or spots and usually have yellow, orange or red coloring.

One way to distinguish northerns from muskellunge is by checking the scales on the cheek and gill cover. On the northern, the cheek is fully scaled, but only the upper half of the opercle, or gill cover, is scaled. Another way to differentiate the fish is to count the pores, tiny sensory openings, along the underside of the jaw. In northerns, there are four or five pores on each side; muskellunge have six to nine pores on a side.

The northern's mouth has rows of sharp, caninelike teeth. One folklore tale about the fish is that it doesn't bite in the summer because its teeth are shed. Research has shown that the pike's teeth are constant in number, but are lost and replaced throughout the year. There is no seasonal tooth loss that keeps them from biting.

Habitat: Northern pike favor shallow, vegetated portions of lakes and ponds, although they are usually not found in as little water depth as the chain pickerel. Northerns also live in rivers and large streams, especially in pools and backwaters, where there is weed growth. Northerns are clearwater and coolwater fish. During the heat of summer they retire to deeper, cooler water during bright midday, and they are active in shallower water when the sky is overcast or the sun is low.

Life history: Despite folklore that says pike live hundreds of years, their natural lifespan is about 25 years. Most spawning northern pike are three to five years old. Northerns spawn very early in spring, when water temperatures are from 40 to a little over 50 degrees, just after ice-out. Spawning pike migrate to flooded marshes or shallow, weedy backwaters, broadcasting their adhesive eggs randomly, during daylight hours, over plants and organic debris. No parental care is given to the eggs or fry. Because pike spawn so early, their young are large enough to consume newly hatched suckers and other fish that appear later in the spring.

From 3,000 to 120,000 eggs are produced per northern pike female, depending on her size. The eggs hatch in about two weeks. Young pike remain attached to the plant stems until the yolk sac is absorbed. At first, young pike eat tiny underwater invertebrates, but within two weeks they are large enough to begin their lifelong role as fish-eaters. Northerns are one of our fastest growing fish, reaching six to 12 inches or more their first year, where there is sufficient food. Where they are overpopulated and the prey base is insufficient, northerns may become stunted, skinny and undersized "hammer handles."

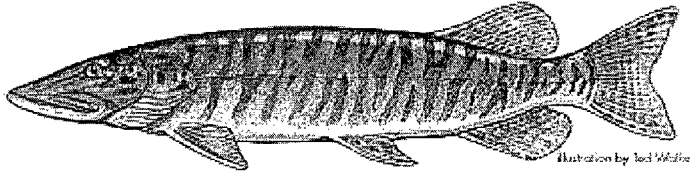
Northerns are loners that feed only during the day. They hunt by ambush and take not only fish, but frogs and tadpoles, birds, muskrats, mice, crayfish, leeches and large aquatic insects. Active all winter, northerns can be caught by ice fishermen, especially with large live bait.

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Tiger Muskellunge *Esox lucius* x *Esox masquinongy*

Species overview: The tiger muskellunge, or tiger musky, is the result of crossbreeding the male northern pike with the female muskellunge under fish culture conditions, although hybrids do occasionally occur in the wild. Tiger muskies have "hybrid vigor." They are hardier and faster-growing than their purebred parents, and they respond better to hatchery-raising. Tiger muskies are also easier to catch than purebred muskellunge, having more of the eagerness to bite anglers' baits and lures of their northern pike parent. However, because they are more easily caught, they don't live as long as regular muskies, so they don't attain the muskellunge's great size.



Identification: The tiger musky has strong, vertical or slanting barring on its sides, more pronounced than the markings on a purebred muskellunge. Its general color is dark gray-green on the back, a lighter green on the sides, with dark, equally spaced side bars giving the fish its "tiger" name. The dorsal, caudal and anal fins are spotted or streaked with black, and the belly is off-white. The body of the tiger musky may look more plump than a purebred's, because it tends to be shorter and more robust. Scallation on the cheek is intermediate between the northern pike, with a fully scaled cheek, and the muskellunge, which has scales on the upper half of the cheek. About the upper two-thirds of the tiger musky's cheek is scaled. The number of pores beneath one side of the lower jaw is six or seven.

Habitat: The tiger musky is stocked in suitable waters, large reservoirs and rivers, throughout Pennsylvania. It tends to be more of a wanderer than its parents, moving about in its home waters.

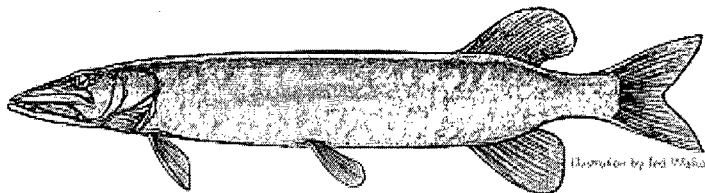
Life history: The male tiger musky is sterile, so natural reproduction among individuals does not occur. This gives fisheries management personnel much control over the number of these predators in a given waterway. Tiger muskies are produced for stocking by mixing of eggs and milt of the fish's muskellunge and northern pike parents. Their food preferences are similar to those of their relatives. Fish are their favorite meal.

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Muskellunge *Esox masquinongy*

Species overview: A voracious predator, the muskellunge is one of Pennsylvania's largest and fastest-growing fish, with the state record standing at over 54 pounds. The muskellunge's original North American range was the St. Lawrence River, throughout the Great Lakes and Hudson Bay, and the Mississippi River basin, but it has been widely propagated and stocked elsewhere for sport fishing. In Pennsylvania, muskies were originally restricted to the northwest region, the Lake Erie and Ohio River watersheds, especially in the large glacier-formed lakes, like Conneaut Lake in Crawford County and Presque Isle Bay in Lake Erie. The species name "masquinongy" comes from an Ojibwa (Chippewa) name for the fish—"mas," meaning "ugly," and "kinononge," meaning "fish."



Identification: The musky is streamlined with a dorsal and anal fin that are set so far back toward the tail that the fish is almost missile-shaped. Its flat, ducklike snout has many strong, sharp teeth. The musky has no scales on the lower half of its cheek and the lower half of its gill cover, which helps to distinguish it from the northern pike. Also, the musky has six to nine pores, tiny sensory openings, beneath each side of its jaw; the northern pike has five or fewer pores. Muskies vary in the color and the intensity of their markings. The base color on the back and sides is light greenish gray or yellow-green to olive-brown, the sides shading lighter. The flanks have more or less vertical rows of darker spotting, or indistinct bars. The striping is more

pronounced in younger fish. In older fish it may fade, giving the fish a uniform color. The musky's belly is white. Its fins are greenish cream to brownish orange, with dark blotches. There is no dark teardrop mark below the eye. Instead, a black horizontal streak runs through the eye. A musky of 20 to 35 pounds is not unusual, and they may grow over four feet long.

Habitat: Muskies are coolwater fish, found in clear natural lakes, reservoirs and rivers. They frequent quiet backwaters and slow pools that have plenty of aquatic weed growth, which the musky uses for cover and which attracts its prey. Muskies are usually found in fairly shallow water, 15 feet or less, but they have been caught 40 or 50 feet deep. They also associate with rocky or boulder-strewn shoals. Muskies use a restricted home range, rarely moving more than two miles from their summer feeding areas, with the large ones often remaining in one pool.

Life history: Muskellunge are solitary, territorial predators. They are very aggressive and will even attack and eat one another. Their main diet is fish, but they will take what opportunity gives them, including snakes, frogs, muskrats, mice and waterbirds.

Muskies spawn in the spring, after the northern pike, when water temperatures are in the high 50s to high 60s. They spawn at night in shallow water, often just six to 12 inches deep. Relatively long-distance spawning migrations have been documented because adults tend to return to the same spawning locations each year. As the male and female swim over the spawning site, which usually features underwater stumps and logs on a muck bottom, the eggs are released to fall as they will. Female muskies 25 to 53 inches long produce 22,000 to 180,000 eggs. The adhesive eggs hatch in eight to 14 days, and as is usual for the pike family, the fry attach themselves to sunken debris as they absorb their egg sacs.

Mortality of fry is high, because fish eat the vulnerable musky young. When muskies are about four days old, they turn the tables, and begin eating fish. On that diet they can grow to one foot long in only four months. Muskies are sexually mature at about three years old and a little over 20 inches long. Females grow faster than males, and all muskies grow best in the early summer and fall, when water temperatures reach about 68 degrees.

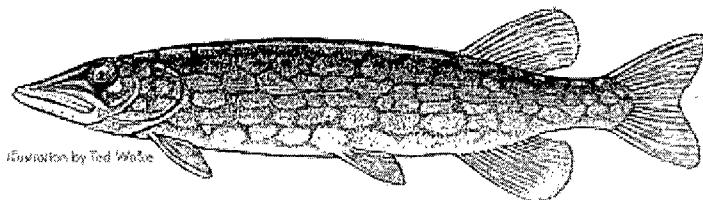
Muskies naturally hybridize with northern pike, producing the "tiger musky" (see page 97). Tiger muskies are also bred artificially in fish hatcheries and stocked for sport. The usual age of a musky that is caught is three to six years, but some have reached nearly 20 years old.

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Chain Pickerel *Esox niger*

Species overview: Chain pickerel are the most abundant and widely distributed member of Pennsylvania's pike family. They are also the most often caught, biting the angler's bait or lure readily. The chain pickerel's original range was Atlantic and Gulf Coast tributaries, but the fish has been introduced elsewhere. In Pennsylvania, chain pickerel are restricted to the Delaware, Susquehanna and Potomac River watersheds. They are most common in the glaciated Pocono northeast.



Identification: Chain pickerel can grow to more than 30 inches long, but one of 25 inches and four or five pounds is considered a trophy in Pennsylvania. The state record is an eight-pounder. Two-pound pickerel are common where the fish have enough to eat. The chain pickerel hides easily in its weedy habitat, with its dark, greenish-yellow back, fading to lighter yellow-green along the sides. Over the sides is a pattern of dark chainlike markings that gives the fish its name. The belly is white. A dark mark, like a clown's painted tear, appears below each eye. The fins are unmarked and pale. As is typical of pickerel, both the cheek and the opercle, or gill cover, are fully scaled. Chain pickerel have a long snout. The distance from the tip of the nose to the front of the eye is greater than the distance from the back of the eye to the end of the gill cover.

Habitat: Chain pickerel live in and around weedbeds and sunken stumps and logs in natural lakes, swampy ponds and manmade impoundments. They can also be found in the sluggish parts of clear streams and in the naturally acidic, tannin-stained waters that drain boggy wetlands, as in northeastern Pennsylvania. Chain pickerel are commonly shallow-water dwellers, but they can live in deep lakes. They don't travel far from their selected home areas, and they tolerate a wide temperature range.

Life history: Chain pickerel spawn in early spring, when water temperatures are in the high 40s to low 50s. The spawning period lasts about one week. Chain pickerel are also reported to spawn in the fall, but the survival rate of eggs and young is suspected to be low. The sticky eggs, 6,000 to 8,000 typically deposited by each female, are scattered over underwater weeds. Chain pickerel have been known to hybridize in the wild with redfin pickerel, because their spawning site choices and breeding times overlap.

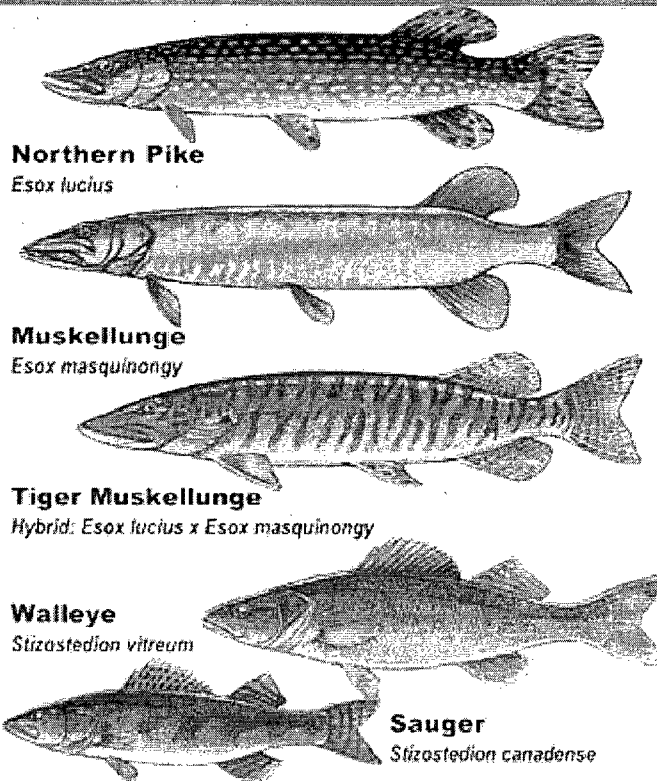
Just-hatched chain pickerel fry attach themselves to plant stems during the absorption of the yolk sac. Young chain pickerel eat aquatic insects and crustaceans, and are eaten by larger fish. As they grow, chain pickerel increasingly consume fish, which become the mainstay of their diet. At one year old, chain pickerel are about seven inches long. After four years, they are about 15 inches. Their natural lifespan is eight to 10 years.

Chain pickerel are solitary predators, feasting on fish, which they stalk through the underwater weedbeds, as well as crayfish, large aquatic insects, frogs and other small animal life that gets into the water. They feed during the day, especially at dawn and dusk, and are active through the winter, under the ice, so they can be caught by ice anglers. In ponds where they overpopulate and outstrip their food source, chain pickerel may become stunted "pencil pike," or "hammer handles," small in size and thin.

RELATED

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Pike, Muskellunge and Walleyes Identification



Color patterns

Northern pike has yellow bean-shaped spots on yellow-green to gray-green body.
 Muskellunge has light vertical bars or spots.
 Tiger muskellunge has dark gray-green bars.
 Walleye has yellow body with bars, and spiny rayed and soft-rayed dorsal fin. Walleye has single large spot at base of first dorsal fin.
 Sauger, often confused with a walleye, has spots on dorsal fin and spots or bars on tail.

Scales

Muskellunge has no scales on lower half of cheek and gill cover.
 Northern pike has fully scaled cheek with half of the gill cover scaled.
 Tiger muskellunge has scales covering two-thirds of the cheek and gill cover area, intermediate between the muskellunge and northern pike.

Jaw pores

Muskellunge has 6 to 9 pores.
 Northern pike has 4 to 5 pores.

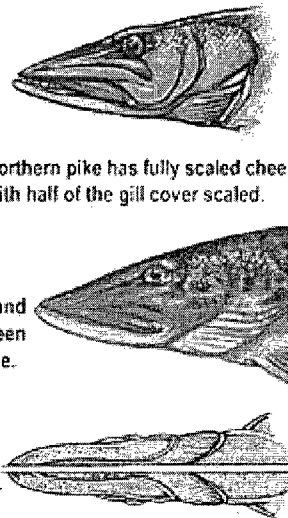


Illustration - Fred Watke

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