

Fishes of Maine



Maine Department of Inland Fisheries & Wildlife

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Maine Department of Inland Fisheries and Wildlife
Caring For Maine's Outdoor Future



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Introduction

Publications on the "Fishes of Maine" first became available through the efforts of Dr. W.C. Kendall in 1914 and later by Dr. W. Harry Everhart (1950, 1958, 1961, and 1966). Because both publications have been out of print for many years, the need became apparent that a revised and updated version was needed.

At this writing, there are 56 species of freshwater fish (excluding anadromous) known to occur in Maine waters, including 19 introduced species.

Maine has 5,782 lakes (one acre or more in size) totaling 926,973 acres. A total of 926,473 acres (94%) of habitat have been inventoried.

As of 1992, 967 lakes are managed solely for coldwater species; 551 are managed only for warmwater species; 226 are combination warmwater and coldwater habitat; and 148 are unsuitable for sportfish management.

There are 31,806 miles of brooks, rivers, and streams; a total of 70% is considered to be brook trout habitat.

Life histories of major sport fishes were written by biologists of the Fisheries and Hatcheries Division of the Maine Department of Inland Fisheries and Wildlife.

Fishing has always been a favorite pastime of Mainers and is one of the most enduring traditions. We sincerely hope that the information in this guide will contribute to your enjoyable fishing experiences and understanding of Maine's fishes. Good luck!

We are indebted to the following people who provided artwork for this guide:

Joseph R. Tomelleri
Wyoming Fish and Game Department

Layout Work: Denise Brann
Cover photo by: Steve Kasprzak, North Waterboro, Maine

Our Maine Fish

A fish has been defined as "a back-boned, cold-blooded animal adapted for a life in the water with limbs modified as fins, and obtaining oxygen from the water by gills throughout life." The number of different kinds of fish present in the waters of the world today has been estimated at more than 40,000. Because new forms are constantly being described, this number is ever changing and always increasing. Fish easily outnumber all other vertebrates combined, including the amphibians, reptiles, birds, and mammals.

A glance at the fish inhabiting the waters of Maine shows that they are ideally streamlined for moving through the water. In general, the shape may be described as torpedo or "cigar-like." Some fish have become rounded, such as the eels, and others have become flattened from side to side, like the bass, and are called 'compressed'.

Fishes are covered by an external layer of mucus, secreted by glands in the skin. The mucus protects fish from external infection. Anglers have long been cautioned to wet their hands before handling fish that they intend to return to the water. Handling with dry hands removes a large amount of this protective covering and leaves the fish exposed to fungus and bacterial infections. Immediately under the mucus lies the epidermis, and the scales are embedded under the epidermis. Scales are laid down soon after the fish is hatched out of the egg, and reflect changes that may occur during the life of the fish. The age of fish can be determined from the number of year marks; and periods of good growth and poor growth can be detected from the spacing of the growth rings on the scale. A fishes' age relates directly to the number of completed year marks on the scale. Among fish in Maine, the lamprey eel, hornpout, and freshwater sculpin are without scales. Scales of Maine fish may be divided into the cycloid type and the ctenoid type. Cycloid scales are usually small, and embedded deeply in the skin. Trout and salmon are examples of fish with cycloid scales. Ctenoid scales have several rows of spines along their posterior, or exposed edge. These spines, or ctenii, give the fish a rough or spiny feeling. Bass and white perch are examples of fish that have ctenoid scales.

Fishes' fins are thin folds of skin supported by rays, spines, or both. Fish are frequently classified either as "soft-rayed" fish, like trout, or as "spiny-rayed" fish, such as bass. Rays are finely segmented and often branched, while spines are unsegmented, unbranched, and usually hard. Because their number is reasonably constant, counts of rays and spines are useful in identification of similar species of fish. Paired fins include the pectorals, located behind the gill openings, and the ventral or pelvic fins, located on the lower side of the body. Fish are frequently classified according to fin position, i.e. posteriorly or anteriorly on the ventral side

or belly of the fish. Most "advanced" fishes have the ventral fins placed under, or nearly under, the pectoral fins; this location is described as *thoracic*. If the ventral fins are in front of the pectoral fins, the location of the ventral fins is described as *jugular*. When the ventral fins are posterior, their position is considered *abdominal*. Unpaired fins include the dorsal, adipose, caudal or tail fin, and the anal fin. Although a fish swims primarily by the movements of its body, it depends on the caudal fin to lend power, the dorsal and anal fins to stabilize movement, and the pectoral and ventral fins to steer and maneuver.

Fish obtain their oxygen from water passing over the gills. Closing the gill covers, opening the mouth, and expanding the cheeks causes water to flow in over the gills. Closing the mouth, contracting the cheeks, and opening the gill covers causes the water to flow back out. Gills are made up of a fine network of very small blood vessels with walls so thin that oxygen can pass from the water into the blood, and carbon dioxide can pass from the blood into the water.

Fish reproduction is interesting and important to fisheries management. Although internal fertilization and development are known in fish, all freshwater fish in Maine fertilize their eggs externally. Development takes place within the environment. In some fish, the males assume bright coloration, or "breeding plumage" near and during spawning time. The approach of spawning season causes most fish to move to a spawning area. Distances traveled may be many miles, as with Atlantic salmon; or only a few feet, as with lake trout. Certain fish, particularly minnows and suckers, develop *tubercles* on the fins and head during the breeding season. These tubercles are more pronounced on males and are used in grasping the female and in defending the spawning area. Some fish build nests. Female trout and salmon have the job of preparing the nest, but neither parent assumes any responsibility once the eggs are fertilized and covered. Males of the sunfish family prepare the nest and remain to guard the eggs and young. Many fish prepare no nest but merely broadcast the eggs, which lie on the bottom among the rocks or aquatic plants; pickerel and smelt are examples. Most fish are polygamous, with several males fertilizing the eggs of the female or with the eggs of several females fertilized by a single male.

Fish may be classified in two categories according to their food habits. Those that feed on plankton are called herbivores, and those utilizing insects and other fish are known as carnivores. In many instances, the mouth and teeth serve as clues to the food habits of the fish. An examination of the large mouth and teeth of the pickerel would leave no doubt about the carnivorous food habits of this species. Likewise, the lack of teeth in the mouth of the whitefish would leave little doubt that this fish is primarily a plankton feeder. Fish may travel together and feed in schools, or may seek their food alone. Some species make characteristic daily migrations, coming into shallow areas in the evening. Temperature plays an important part in fishes' feeding habits. Extreme lows and highs tend to "throw the fish off their feed."

The eyes of the fish are very much like our own in their construction. However, fishes' eyes are adapted for seeing only short distances. The question of whether fish can distinguish different color patterns has long been argued by scientists,

although at present most are in agreement with the angler in believing that fish can distinguish colors. The nostrils of a fish are located on top of the snout and open into small blind pouches lined with the olfactory organs. Water is drawn in and out of these pouches. Although fish do not have an external ear, they undoubtedly hear vibrations that are more readily transferred through the water. These vibrations travel through the skull to reach the inner ear. In addition, the lateral line organ of fish is reported as receiving vibrations of low intensity. The lateral line, easily observed along the sides of the fish, can be traced onto the head.

The study of fish is interesting and far from complete. Fishery biologists and anglers alike continue to study fish physiology in order to apply new discoveries towards improving the quality of fishing in Maine.

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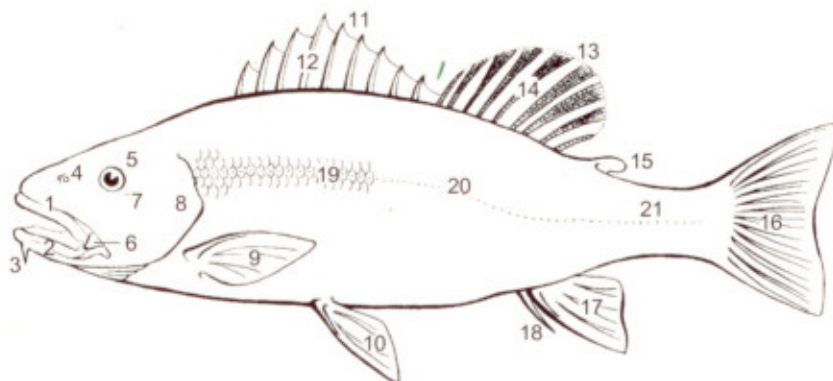
Identification of Maine Fish

The average angler pursuing the pleasurable sport of fishing would probably not bother with the minute details of fish identification that the professional ichthyologist uses through the use of keys. An effort has been made here to provide the reader with easily observed characteristics whenever possible, with drawings that emphasize important identification features.

A great deal of confusion exists over common names of fish. Common names used in this book are those proposed by the American Fisheries Society. Scientific names have been included, as they are generally standardized throughout the world.

It is suggested that before attempting to identify fish, the reader become familiar with the drawing on the opposite page representing a generalized fish, and showing the location of the principal characteristics used throughout this book.

Generalized Fish Indicating Characters Commonly Used in Identifying Fish



- | | |
|---|-------------------------|
| 1. Upper Jaw (premaxillary and maxillary bones) | 11. Spiny dorsal fin |
| 2. Lower jaw (dentary bone) | 12. Fin spine |
| 3. Barbel | 13. Soft dorsal fin |
| 4. Nostril | 14. Fin ray |
| 5. Eye | 15. Adipose fin |
| 6. Maxillary barbel | 16. Caudal fin |
| 7. Cheek | 17. Anal fin |
| 8. Bony gill cover | 18. Anal spine |
| 9. Pectoral fin | 19. Lateral line scales |
| 10. Ventral fin | 20. Lateral line |
| | 21. Caudal peduncle |



COMMON NAME: CUSK

OTHER NAMES: BURBOT, LAWYER FISH (Great Lake states), FRESHWATER COD

SCIENTIFIC NAME: *Lota lota*

RANGE AND HABITAT: In North America, burbot occur throughout the northern tier of states above 40°N and in nearly all of Canada. Suitable habitat ranges from small streams to the largest deep oligotrophic lakes. In Maine, fishable populations are limited to lakes where burbot usually occur in combination with lake trout.

SPAWNING: Burbot spawn in midwinter under the ice. Spawning activity has been described as taking place in a writhing ball of 10-12 intertwined and constantly moving adults. It occurs at night in shallow bays, on shoals, and points over sand and gravel. Adults move off the spawning area in the daytime. The eggs are semi-pelagic and hatch in about 30 days at a water temperature of 43°F.

FOOD: Burbot are voracious predators and feed mainly at night. Small burbot feed on insects, crayfish, mollusks, and some small fishes. In Maine waters, larger burbot (20 inches) feed on a variety of fish, including smelts, yellow perch, salmonids, suckers, and other burbot. Crayfish continue to be a frequent food item even in large adult burbot.

ADULT SIZE: Sexual maturity is usually attained during the third or fourth year. Males often mature at a smaller size than females. Aged (otoliths) Maine burbot average 18 inches and 24 ounces in their eighth year of growth, 20 inches and 32 ounces in their tenth year, and 24 inches and 62 ounces in their thirteenth year. The largest angler-caught burbot recorded in Maine is 18 pounds 8 ounces.

IDENTIFICATIONS: Burbot have an elongated body with a broad flattened triangular head. The mouth is large and wide. A single chin barbel adorns the lower jaw. Scales are small and embedded giving burbot the appearance of being slimy. The anal and dorsal fins run nearly half the length of the body. In Maine, coloration ranges from a tan to dark brown background overlaid with dark brown to black mottling or spots. Some may be uniformly dark brown or black.

FISHING TIPS: Burbot are readily taken in winter by fishing at night with either live or dead bait. They are also caught in daytime by anglers fishing baits on or near the bottom for lake trout. Although sometimes targeted in the open water season, the burbot fishery is primarily a winter sport. Catch rates increase after mid February that may coincide with post-spawning feeding activity reported in the literature. The mild flavored white flesh can be used in a variety of cooking methods, especially chowder.



COMMON NAME: RAINBOW SMELT

OTHER NAMES: SMELT, FRESHWATER SMELT, AMERICAN SMELT

SCIENTIFIC NAME: *Osmerus mordax*

RANGE AND HABITAT: Smelt are found throughout Maine. They are a schooling fish that often inhabit mid-water depths and deeper water away from the shore, except in early spring. Although smelts occupy cool-water zones of Maine lakes when available, they can be found in unstratified warmwater ponds inhabited mainly by warmwater fish species.

SPAWNING: Spawning usually occurs in tributary streams and along lakeshores at night around the time of "ice-out". The spawning run lasts for several nights and is often confined to the lower 100 yards of the stream, because smelt cannot negotiate very swift or turbulent water. In many lakes smelt spawn entirely along the shore and do not use tributaries. Eggs are adhesive and stick to anything they touch, and often they cover the stream bottom. Smelt larvae are about 1/4-inch long and drift downstream into the lake after hatching.

FOOD: Young smelt feed on plankton and may grow to lengths of 2 inches by the end of the first summer. In addition to feeding on plankton, larger smelt are carnivorous and feed on insects, aquatic worms, amphipods, and small fish.

ADULT SIZE: Maine smelt can reach a wide variety of sizes. In many lakes smelt grow to a maximum size of 3-5 inches, depending on food, competition, and growing conditions. Smelt in northern Maine lakes commonly average 6-8 inches long, and some Maine lakes grow smelt as large as 14 inches.

IDENTIFICATIONS: Their body is long and slender with a large elongated, pointed mouth. They have strong conical teeth on jaws and tongue, with fewer than 75 scales along lateral line. Color is silver with green back and iridescent purple, pink, and blue reflections on side. An adipose fin is present.

FISHING TIPS: Smelt are taken by dipnet at night during spring spawning runs and by hook and line ice fishing using small jigs or hooks baited with cut fish, shrimp, or worms.



COMMON NAME: EASTERN BROOK TROUT

OTHER NAMES: SQUARETAIL, BROOKIE, SPECKLED TROUT

SCIENTIFIC NAME: *Salvelinus fontinalis*

RANGE AND HABITAT: Brook trout are native to the coldwater lakes and streams of Maine, and occur in 1,100 lakes and ponds and 30,000 miles of streams. They are more abundant in the interior highlands of the state where they prefer water that seldom exceeds 70°F and where competition from warmwater fish species is minimal. Along the coastal lowlands, where temperatures are marginal and competing fish species are abundant, brook trout populations are typically supported by stocking. Some coastal streams support sea-run populations of brook trout.

SPAWNING: Brook trout spawn in the fall in gravelly areas of streams or, less frequently, in springs. Eggs are deposited in a depression in the gravel dug by the females with her tail. Eggs are fertilized by the male as they are laid, then quickly covered with gravel by the female. They hatch in early spring, but the young sac-fry remain below the surface of the gravel until the yolk sac is absorbed, they then venture out and establish territories. As brook trout reach a larger size, they may migrate within the stream or to lakes within the system.

FOOD: Brook trout may subsist on insects throughout their life, but will forage on fish, including smelt, if they are available.

ADULT SIZE: Size varies greatly, depending on water temperature, productivity, and food source. The statewide average length of 3-year-old brook trout in Maine lakes is 13.3 inches. However, same-age trout from different lakes range from 7.5 to 17.5 inches in length. Stream populations are typically slower growing than lake populations. Some high elevation trout populations mature and reproduce at lengths smaller than 6 inches.

IDENTIFICATION: Color is variable, depending on habitat. Brook trout can be distinguished from other members of the trout family by the dark, wavy, worm-like line on their back and the white leading edges of their fins, including the tail.

FISHING TIPS: Brook trout are distributed statewide and are easy to catch with a variety of gear, from bait to flies to artificial lures. These features, combined with their attractive coloration and excellent food value, make them one of Maine's most sought-after game fish.



COMMON NAME: LAKE TROUT, TOGUE

OTHER NAMES: LAKER, GREY TROUT, MACKINAW

SCIENTIFIC NAME: *Salvelinus namaycush*

RANGE AND HABITAT: Lake trout are indigenous to deep, coldwater lakes throughout Maine, especially in the northern part of the state. They have been introduced, and are now stocked annually, in suitable waters throughout the state. Lake trout are most abundant in lakes with large volumes of deep water where temperatures remain cooler than 60°F throughout the year. They most commonly dwell near the bottom.

SPAWNING: Lake trout spawn in the fall, usually in mid-to-late October as water temperatures drop into the low 50's. Eggs are scattered over rocks and boulders on shallow shoals or lakeshores that are exposed to prevailing (westerly) winds. Spawning occurs at night. Suitable spawning habitat is essential to maintain self-sustaining lake trout populations.

FOOD: During their first year or two, young lake trout feed primarily on insects and zooplankton. Once they exceed 8 inches in length their diet shifts to almost exclusively fish, and they are predators at the top of the food chain in waters where they occur. Although sculpins, suckers, and lake whitefish are considered traditional in the diet of adult lake trout, smelts have been introduced into nearly all Maine lake trout waters and are now the most preferred forage.

ADULT SIZE: In most waters lake trout commonly reach lengths of 18 to 24 inches, and weights of 2 to 4 pounds. They are among the longest-lived and largest freshwater game fish, often living 20 years or more and attaining sizes over 30 inches and 10 pounds.

IDENTIFICATIONS: Lake trout have a typical trout-shaped body covered with light spots on a darker background of green or grayish brown. They are closely related to the brook trout, but lack the bright coloration and can be distinguished by a deeply forked tail.

FISHING TIPS: In waters open to ice fishing, lake trout provide winter-long action for even novice anglers using tip ups with live bait, or jigging an artificial lure dressed with a piece of cut bait near the bottom. During the open water season, for a short period of time after ice out, they can be caught near the surface by trolling artificial lures, streamer flies, or sewn bait. As surface waters warm, lake trout move into deep water where more experienced anglers are often successful trolling lead line, heavy spoons, and sewn bait. Downriggers provide the opportunity to troll artificial lures with lighter gear and fish down where the lake trout dwell in the summer. Anchoring over the "deep hole" on a calm day and fishing with bait near the bottom can also prove successful to the less experienced summer lake trout angler.



COMMON NAME: LANDLOCKED ATLANTIC SALMON
OTHER NAMES: SEBAGO SALMON, OUANANICHE
SCIENTIFIC NAME: *Salmo salar*

RANGE AND HABITAT: Landlocked Atlantic salmon are native to lakes of four basins in Maine; the Presumpscot River, including Sebago Lake; the Penobscot River, including Sebec Lake; the Union River, including Green Lake; and the St. Croix River, including West Grand Lake. Presently, landlocked salmon provide fisheries in about 200 lakes and 300 river miles. Salmon prefer deep, cold lakes with abundant oxygen, but can tolerate more marginal conditions.

SPAWNING: Landlocked salmon spawning takes place from mid October to late November. Salmon utilize lake outlets and inlets for spawning. Females construct redds in swift riffle areas with abundant gravel or rubble substrate.

FOOD: Juvenile salmon feed on crustaceans and insects. Adults feed extensively on rainbow smelts.

ADULT SIZE: Average size is 16-18 inches and 1-1/2-2 pounds, but 3-5 pound fish are not uncommon.

IDENTIFICATIONS: Adults are generally silvery with a slightly forked tail and small X-shaped markings on the back and upper sides. Juvenile salmon have a dark red spot between each pair of parr marks. Mature males develop a "kype", or hooked jaw, during the spawning season.

FISHING TIPS: Fishing in lakes is most successful from ice-out to early summer, and again in September. During these times most anglers troll near the surface, around rocky points or shoals, and near the mouths of tributaries or thoroughfares. Sewn smelts or artificial lures that imitate smelts are effective early and late-season baits. Fly-casting can be productive in lakes during insect hatches, and is the preferred method for catching salmon in rivers. Ice fishing for salmon is popular in Maine. Winter anglers fish a few feet under the ice with various models of "tip-ups" or by "jigging" natural bait or artificial lures.



COMMON NAME: LANDLOCKED ARCTIC CHARR

OTHER NAMES: CHARR, BLUEBACK TROUT, SILVER TROUT, SUNAPEE TROUT, WHITE TROUT

SCIENTIFIC NAME: *Salvelinus alpinus oquassa*

RANGE AND HABITAT: Maine and Alaska have the only native populations of this coldwater species in the United States. Idaho has two populations that were introduced from New Hampshire in the 1920's. Eleven lakes and ponds in Maine have native charr populations and two others contain charr stocked from Floods Pond (Otis). Charr prefer cold, deep waters with abundant oxygen. In spring and fall, they can be found throughout waters where they occur, but in summer they are restricted to the deepest, coldest parts of those lakes.

SPAWNING: Charr spawn in the lakes during late fall and early winter when water temperatures drop below 50°F. Spawning is at night when groups of fish swarm over rocky shoals in shallow, windswept areas. Eggs and sperm are broadcast into the water and wave action distributes the eggs, which sink into spaces between rocks. Eggs hatch in late winter and fry emerge shortly after ice out.

FOOD: Young charr feed upon zooplankton and insect larvae. The sizes of their food items gets larger as the charr grow in size. The largest charr will feed on fish, insects, and snails.

ADULT SIZE: Charr in Maine can live up to 15 years and attain a size of about 20 inches and 3 pounds. More often charr are much smaller, in some lakes the average size is closer to 6 inches and a few ounces in weight. A fish larger than 2 pounds qualifies a charr for the "One-that-didn't-get-away" certificate.

IDENTIFICATIONS: The charr is a slender member of the salmon and trout family. Usually dark on the back, lighter on the belly, and having light spots on the sides. Paired fins are orange to red with a bright white leading edge. Tail is moderately forked. During breeding season, both sexes become highly colored. Coloration can then range from pink to orange bellies, blue to brown backs, and creamy to orange spots. Fin colors can also become very intense during spawning.

FISHING TIPS: In spring and fall, fly-fishing and trolling the surface with lures can produce good catches of charr. After surface waters warm, fish move deeper and can be caught with deeply trolled lures or jigs. Charr are highly esteemed as a food and trophy fish.



COMMON NAME: BROWN TROUT

OTHER NAMES: GERMAN BROWN TROUT, BROWNIE, LOCH LEVEN TROUT, SAIBLING

SCIENTIFIC NAME: *Salmo trutta*

RANGE AND HABITAT: Originally introduced into Maine in 1885, many waters are now stocked throughout southern and central Maine. Fewer waters are stocked in western or northern Maine. A small number of wild populations have been established throughout the state.

SPAWNING: Brown trout spawn in the fall, usually in October or November. Like salmon, they primarily are a stream spawner selecting coarse, rubble bottom substrates in riffle areas.

FOOD: Brown trout feed on a wide variety of organisms such as insects, crayfish, frogs, snails and, especially, small fish.

ADULT SIZE: Normal size is 14-20 inches and 1-2 pounds. Browns occasionally reach 10 pounds.

IDENTIFICATIONS: Usually coloration is light brown or tawny with pronounced black spots on the back, sides and head. Spots are often surrounded with reddish halo, along with reddish spots on the sides. Color is highly variable and browns are occasionally confused with landlocked salmon.

FISHING TIPS: Live bait, streamers or artificial lures are most effective. Fishing is best in the morning or late evening in brooks and streams. There is some indication that larger individuals feed extensively at night.



COMMON NAME: RAINBOW TROUT

OTHER NAMES: BOWS

SCIENTIFIC NAME: *Oncorhynchus mykiss*

RANGE AND HABITAT: Rainbow trout were originally distributed along the western coast of the United States from southern Alaska to southern California, but they have been introduced worldwide. In general, Maine's state-sponsored stocking programs for rainbow trout were discontinued several years ago, and currently only a couple of fishable populations remain. The upper Androscoggin River including many of its tributaries, and a small reach of the Kennebec River near the Wyman Dam support rainbow trout fisheries. In addition, a relic population may still exist in the Aroostook River system. Further stocking programs could potentially expand their current distribution in Maine.

SPAWNING: Rainbow trout are basically spring spawners. Spawning time ranges from February to June with peak activity occurring mid April. They generally spawn in smaller tributaries, where they select riffle areas with fine, gravel substrates.

FOOD: They are opportunistic feeders and their diet may consist of plankton, aquatic/terrestrial insects, crustaceans, snails, amphibians, fish, and even fish eggs. Feeding habits often shift to progressively larger prey items as rainbow trout grow in size.

ADULT SIZE: Anglers normally catch fish in the 8 to 16-inch range, but occasionally fish up to 7 or 8 pounds are caught.

IDENTIFICATIONS: Coloration is highly variable depending upon size, sexual condition, and habitat. Dorsal surface ranges from a greenish yellow to a blue-gray color with silvery colored sides, and the belly area is white to pale yellow in color. Large numbers of relatively small black spots occur over the whole body, but spotting is generally heavier along dorsal areas. Rainbow trout are often recognized by a vague pink to prominent red colored band, which extends from the cheek to the base of the caudal fin.

FISHING TIPS: Still fishing, casting, and trolling are common angling methods for rainbow trout; and the use of live bait, dead bait, fish eggs, artificial lures, and flies are all effective. Rainbow trout often feed throughout the day, but early morning and evening hours are typically more productive.



COMMON NAME: SPLAKE (from speckled trout and lake trout)

OTHER NAMES: WENDIGO

SCIENTIFIC NAME: *Salvelinus namaycush* X *Salvelinus fontinalis*

RANGE AND HABITAT: This hybrid is stocked in many northern U.S. States and throughout Canada. Splake can be found at any depth in winter. They are usually found in deeper water in summer because splake prefer water temperatures cooler than 60°F.

SPAWNING: Spawning has been successfully accomplished in the hatchery, but there has been no documented evidence of splake reproduction occurring in the wild. Splake mature in October similar to brook trout and lake trout.

FOOD: Splake smaller than 12 inches feed on small fish, insects and other invertebrates. Larger splake feed predominantly on fish such as smelt, white perch, and sunfish. Crayfish and snails can also be important food items for splake.

ADULT SIZE: In Maine, splake typically range in size from 10 to 18 inches. Splake grow at a faster rate than either of its parental species. They can attain lengths of 18 inches in just 2 years after stocking. Splake over 10 pounds have been caught.

IDENTIFICATIONS: Splake and brook trout have very similar coloration patterns making it very difficult for the untrained eye to distinguish between the two species. Splake tend to have a slight fork in the tail, a trait passed down from its lake trout parent, while brook trout tend to have no fork or "square" tails.

FISHING TIPS: Splake are readily caught during winter, typically at depths less than 20 feet. Most anglers use live or dead bait such as smelts or minnows. Jigging artificial lures or bait can also be effective. In summer months, trolling with bait or lures in, or below, the thermocline is best.



COMMON NAME: LAKE WHITEFISH

OTHER NAMES: WHITEFISH

SCIENTIFIC NAME: *Coregonum clupeaformis*

RANGE AND HABITAT: Lake whitefish thrive best in deep lakes with large volumes of cold, well-oxygenated water. They are rarely found in rivers or streams except for spawning. Populations are concentrated in headwater lakes of the Allagash and Penobscot River drainages in north central Maine. Lakes in the St. Croix River drainage in Washington County are also noted for their whitefish populations. Sebago Lake in southern Maine is among a number of lakes that have seen populations of lake whitefish diminish to relict numbers.

SPAWNING: From late October to December, lake whitefish may spawn in lake inlets that have moderate current and clean gravel to rocky substrate. In some lakes, their preference may be to spawn in the shallows of wind-swept rocky shores.

FOOD: Whitefish consume small food items such as plankton, insects and crustaceans throughout all life stages. Larger size whitefish are known to frequently feed on small fish, such as smelts and minnows.

ADULT SIZE: Whitefish are normally 14-20 inches long and weigh 1-3 pounds but can reach lengths of 25 inches and over 6 pounds. A number of lakes contain populations of "dwarf" size fish where mature adult whitefish attain lengths of only 6-8 inches.

IDENTIFICATION: Overall coloration is silvery; dark brown to black on the back becoming silvery on the sides and silvery white below. The fins are generally black or black tipped. Scales are large. The body is somewhat laterally compressed. Lake whitefish are easily distinguished from fallfish (chub) by having a small mouth and the presence of a small adipose fin located on the back between the dorsal and caudal fins. A related species, the round whitefish is light brown on the back becoming silvery on the side. It has a more cylindrical body shape than the lake whitefish.

FISHING TIPS: The most common method of catching lake whitefish is by jigging with a short rod. Attached to the line is a small artificial lure commonly baited with a piece of cut baitfish. The lure is fished near bottom in depths 25 feet or greater. In the open water season, whitefish may also be caught at or near the surface from a few weeks after ice out into early June using wet or dry flies, streamers or small spinners.



COMMON NAME: ROUND WHITEFISH

OTHER NAMES: FROSTFISH, ROUND FISH, MENOMINEE WHITEFISH

SCIENTIFIC NAME: *Prosopium cylindraceum*

RANGE AND HABITAT: Round whitefish are distributed along the United States and Canadian border from the Great Lakes east through northern Maine. They are primarily distributed in the Kennebec, Penobscot, and St. John River drainages of north-central and northern Maine. Populations also exist in headwaters of the St. Croix drainage in northern Hancock and Washington Counties. They have been found in 65 lakes totaling 211,327 surface acres.

Round whitefish are most common in deep, oligotrophic lakes but have more tolerance of marginal habitats than lake whitefish and are found in a greater number of mesotrophic lakes. A resident population of round whitefish is known to exist in the St. John River of northern Maine and a portion of the Kennebec River in Central Maine.

SPAWNING: Spawning generally takes place in November and December in the gravelly shallows of lakes, at river mouths or in rivers and streams. Incubation of eggs and hatching of fry is similar in time to that of Lake whitefish with fry emerging at or near ice out in Maine lakes.

FOOD HABITS: Round whitefish are bottom feeding fish. Stomach contents from samples collected in Maine lakes include plankton, caddisfly larvae, midge larvae and small mollusks such as fingernail clams.

ADULT SIZE: Round whitefish are relatively long-lived with individuals up to 8 years of age common in most lake populations. Growth tends to be slower than that of lake whitefish with few individuals seen greater than 18 inches. Lengths usually range from 10-14 inches.

IDENTIFICATIONS: Round whitefish are noticeably cylindrical in body shape. They are dark brown on the back fading to silvery sides and silvery-white below. Pectoral and pelvic fins are typically light orange in color. Scales are large. An adipose fin, characteristic of members of the Salmonid family, is located on the back between the dorsal and caudal fins. The mouth is small and toothless as adults.

FISHING TIPS: Round whitefish are a minor contributor to sport fishing in Maine. Even where populations are abundant, these fish are seldom caught and rarely pursued by anglers, perhaps in large part due to their benthic feeding behavior. It is rare, even, to have them caught by winter anglers fishing small baits or jigging for smelts near the lake bottom.



COMMON NAME: LARGEMOUTH BASS
OTHER NAMES: BLACK BASS, LARGEMOUTH
SCIENTIFIC NAME: *Micropterus salmoides*

RANGE AND HABITAT: In Maine, largemouth bass are mostly found in the lower half of the state from Bangor southwest to the New Hampshire border. They have recently become established in southeastern Maine, as well. The largemouth prefers small shallow weedy ponds and river backwaters. Although they are found in large lakes, they generally inhabit the shallow water areas.

SPAWNING: Largemouth bass spawn from late May through June when water temperature reaches 63°F. The male clears a shallow bowl-shaped nest in 1-5 feet of water usually near weedy vegetation. The male guards the eggs and young throughout incubation and for a short time after the fry hatch. Stable water levels are crucial during the incubation period. The fry remain in schools for the first summer and seek thick vegetation for protection.

FOOD: The food of young largemouth bass consists of plankton and small insects. The diet of larger bass includes fish, crayfish, insects, frogs, and even small mammals or snakes.

ADULT SIZE: The typical largemouth bass in Maine is 12-16 inches and 1-3 pounds, with occasional fish up to 7-8 pounds.

IDENTIFICATIONS: Largemouths are dark olive green on the back with light green sides shading to a white belly. A dark mottled band extends along the sides. The upper part of the mouth extends past the eye. Smallmouth bass are similar in appearance, but the upper jaw ends below the eye.

FISHING TIPS: Largemouth bass cruise the shoreline in morning and evening searching for food. A wide variety of natural and artificial baits can be successful. Bass strongly associate with underwater structure such as logs, stumps, boulders, therefore, it is important for the angler to fish near these "structures". Maine's fishing regulations permit the use of artificial lures only during the bass spawning season in an effort to reduce hooking mortality. Winter fishing for largemouth bass is also very popular, with the best catches during the latter part of the season.



COMMON NAME: SMALLMOUTH BASS

OTHER NAMES: SMALLIE, SMALLMOUTH BLACK BASS, BLACK BASS, BROWN BASS, GREEN BASS

SCIENTIFIC NAME: *Micropterus dolomieu*

RANGE AND HABITAT: Smallmouth bass were first introduced into Maine in 1869. Naturally sustaining populations exist now in nearly 500 lakes and ponds in the southern two-thirds of the state. Smallmouths are usually found in rocky habitat with a mixture of shoreline gravel for spawning, although weedy habitat is also used during summer by adults. Larger bass also utilize deeper sections of lakes during midsummer.

SPAWNING: Bass become sexually mature at ages 3-5. Nest construction by males occurs from mid-to-late May through early June at water temperatures between 55-66°F; egg deposition usually occurs between 61-65°F. Nests are usually constructed in shallow water near rocks, logs, stumps, or sharp drop-offs. Males protect the eggs and fry from intruders. Hatching occurs within about 5-8 days at water temperatures common to most Maine waters. Stable water levels during the spawning period are important because a relatively small drop in water level may result in males abandoning nests, resulting in mortality of eggs and fry. Young bass typically reach lengths of 2.2 - 2.9 inches by the end of their first growing season.

FOOD: Smallmouth bass consume a wide variety of food items including juvenile yellow perch and sunfish, minnows, smelts, crayfish, leeches, newts and salamanders, frogs, and insects, especially dragonflies.

ADULT SIZE: Bass commonly live to ages 5-7, with a few individuals reaching ages from 10-20. Most bass waters grow some adults to weights of 2-3 pounds. In Maine, only a few exceed 4 pounds, and bass heavier than 5 pounds are rare. The state record smallmouth bass is 8 lbs. 0 oz.

IDENTIFICATIONS: Bass are a member of the sunfish family. The upper jaw of smallmouth bass does not extend beyond the back of the eye. The notch between the spiny and the soft-rayed section of the dorsal fin is not deep.

FISHING TIPS: Because smallmouth bass feed on wide variety of foods they may be caught on almost any known fishing lure. They are commonly found close to cover, especially in the form of boulders, ledges, stumps, and drop-offs along the shore. Larger bass are commonly caught in deeper water during midsummer.



COMMON NAME: BLACK CRAPPIE

OTHER NAMES: CALICO BASS, CRAPPIES

SCIENTIFIC NAME: *Pomoxis nigromaculatus*

RANGE AND HABITAT: Since their initial unauthorized introduction into Virginia Lake in 1925, black crappies have become established in numerous drainages in central and southern Maine, as far east as the Penobscot River drainage. Crappies are generally found where there is an abundance of shallow weedy habitat in ponds, shallow protected coves of larger lakes, and slow flowing sections of large rivers.

SPAWNING: Spawning occurs when water temperatures reach 60°F, usually in late May. Crappies are colonial nesters, the males construct and guard nests in proximity to other males. Nests consist of shallow depressions constructed near cover in shallow water.

FOOD: Young crappies feed extensively on zooplankton, graduating to larger invertebrates and a diet rich in small fish as they grow in size. Minnow species, as well as juvenile warmwater fish including bass, perch, and sunfish, are eaten by crappies.

ADULT SIZE: Sexual maturity is reached between 2 and 4 years of age, at which time crappies may be 6 to 10 inches long. Typical crappie fisheries produce fish between 6 and 11 inches long, although crappies exceeding 14 inches and 3 pounds have been caught in Maine.

IDENTIFICATIONS: Closely resembling bass and sunfish species, which have 10-12 dorsal fin spines, crappies possess 6-8 dorsal fin spines. Body form is very deep and narrow (laterally compressed). Coloration is silvery-olive to golden brown with an irregular mosaic of dark black blotches.

FISHING TIPS: Crappies are a schooling fish and when actively feeding can provide very fast fishing. Best times to fish are early morning and early evening. Very small jigs, small minnows, and streamer flies are consistent producers of this excellent table fare.



COMMON NAME: BROWN BULLHEAD

OTHER NAMES: BULLHEAD, HORNPOUT, CATFISH

SCIENTIFIC NAME: *Ameiurus nebulosus*

RANGE AND HABITAT: Brown bullheads are found in freshwater throughout Maine, occurring in approximately half of the lakes. Within the Kennebec, Penobscot, and St. John Rivers, the species is distributed primarily within the middle and lower portions of watersheds. The species occurs from Nova Scotia to Florida and west to southern Saskatchewan, Missouri, and Texas. Bullheads inhabit shallow weedy areas of lakes and slow-moving streams. Clouds of fry may occupy the water column, but juveniles and adults are usually found close to the bottom.

SPAWNING: In Maine, brown bullheads spawn in May and June. Shallow depression nests are excavated by either sex in sandy areas near the shelter of rocks, logs, stumps or vegetation in water between one-half to two feet deep. After fertilization, the eggs adhere to each other in a gelatinous cluster. The parents guard and move water over the nest, and have been observed taking and expelling eggs from their mouths, presumably to remove wastes and aerate the water at the nest. Parental care continues beyond hatching for about a week while fry are near the nest.

FOOD: Brown bullheads are omnivores, eating aquatic insect larvae, crustaceans, snails, crayfish, worms, small fish, fish eggs, algae, and plant material. The species feeds most actively at night, locating food by feel with their "whiskers" or by smell.

ADULT SIZE: In Maine, adult bullheads are usually about 10 inches and weigh less than one pound. Fish up to 14 inches are occasionally caught, but fish 18 inches and larger are rare in Maine.

IDENTIFICATIONS: As the name implies the brown bullhead is dark brown to olive green on the back, with mottled sides, and a creamy white belly. Individuals having white patches on their sides and back are common in some Maine waters. Brown bullheads have a thick rounded body, a broad somewhat flattened head with a distinctive set of "whiskers" around the mouth called barbels. The dorsal and pectoral fins have sharp saw tooth spines at their base that can be locked in an erect position. The caudal fin is square and there is a pronounced adipose fin. They have no scales on their skin.

FISHING TIPS: Fishing bait, especially worms, on the bottom at or near dark is the most effective way to catch brown bullheads.



COMMON NAME: CHAIN PICKEREL

OTHER NAMES: PICKEREL, CHAINSIDES, EASTERN PICKEREL

SCIENTIFIC NAME: *Esox niger*

RANGE AND HABITAT: Pickerel were native to only the southwestern portions of Maine. As a result of widespread transplants beginning in the early 1800's, the species' range now encompasses the southern half of the state. Pickerel currently inhabit nearly 800 lakes within this range. Pickerel are usually found in shallow, quiet water in close proximity to vegetation, weed beds, lily pads, etc. Larger pickerel may move into deeper water during the day in the summer.

SPAWNING: Pickerel reach sexual maturity at age 3 or 4. Spawning occurs soon after ice out when adults move into swampy areas containing flooded vegetation. Females are usually attended by several males, and a great deal of splashing and lashing of tails occurs as the eggs are extruded and fertilized. No nest is prepared as the eggs are randomly broadcast. There is no parental care of eggs, and the young pickerel hatch out after a 1-2 week incubation period. Young pickerel typically reach lengths of 4-5 inches by the end of their first growing season.

FOOD: Juvenile pickerel eat a variety of invertebrates, mostly immature aquatic insects. After they reach a length of 7-9 inches, the diet changes to fish. Yellow perch, white perch, sunfish, smelt, and various minnows are primary prey species. Additional diet items may include frogs, crayfish, newts, and dragonfly nymphs.

ADULT SIZE: Most of the pickerel caught in Maine are age 3-5, at which time they range in length from 14-19 inches. Productive waters grow good numbers of 2-3 pound fish, along with occasional 4-pound fish. The state record, caught in 1992, weighed 6 lb. 13 oz.

IDENTIFICATION: Pickerel are a member of the pike family. The fish is green with the sides prominently marked by yellow-green areas broken by dark, interconnecting lines resembling the links of a chain. The jaws are elongated containing large, sharp teeth; the large dorsal fin is located way back towards the caudal fin, which is forked.

FISHING TIPS: Pickerel remain active throughout the winter, and are easily caught with live bait fished in relatively shallow water. In the summer, fish shallow-running lures in and around weed beds. An especially productive and exciting technique is "skittering" which involves rapidly retrieving a weedless spoon on the surface in openings within or around weedy areas.



COMMON NAME: MUSKELLUNGE

OTHER NAMES: MUSKY, MASKINONGE

SCIENTIFIC NAME: *Esox masquinongy*

RANGE AND HABITAT: Muskellunge are indigenous to eastern North American lakes and rivers, especially the headwaters of the Mississippi and St. Lawrence River drainages. They have been widely introduced to many other areas. After muskellunge were stocked in Quebec waters in the St. John River headwaters in the early 1970's, they quickly moved into Maine portions of the St. John where they are now well established, especially in its headwater lakes. Their preferred habitat is shallow water where an abundance of aquatic vegetation and submerged logs provide cover.

SPAWNING: Muskellunge spawn in the spring, usually in mid-to-late May when water temperatures reach the low 50°F's. Eggs are scattered over vegetation and debris on the bottom in shallow water, usually less than 2 feet deep.

FOOD: As predators at the top of the food chain, muskellunge begin feeding on fish very early in life. Although they prefer soft-rayed fish such as suckers and large minnows, especially fallfish, they will utilize most other fish species, including smelt and yellow perch, as well as small animals that may happen upon the water.

ADULT SIZE: Muskellunge commonly grow to lengths from 30 to 36 inches and weights from 5 to 10 pounds, with occasional larger individuals. Females attain larger sizes than males. The largest muskellunge recorded in Maine weighed 22 pounds, 12 ounces.

IDENTIFICATIONS: Muskellunge are long, slender fish with dark vertical bars on a background ranging from light green to light brown. They have soft-rayed fins, with the dorsal fin located just in front of the tail. Their large mouths, full of sharp teeth, leave no doubt as to their predatory nature. Muskies can be distinguished from northern pike by the presence of 7 to 11 sensory pores on the underside of each jaw (pike have only 5), and by cheeks and gill covers scaled only on the upper half (the cheeks of pike are fully scaled).

FISHING TIPS: Trolling and casting with large lures are the most common means of fishing for muskellunge in Maine. Because of their sharp teeth, a strong wire leader at least 12 inches long is recommended. Fly fishing with large streamer flies offers a unique opportunity and challenge in seeking this premier North American game fish.



COMMON NAME: NORTHERN PIKE
OTHER NAMES: PIKE, NORTHERNS
SCIENTIFIC NAME: *Esox lucius*

RANGE AND HABITAT: Since their original, unauthorized introduction into Great Pond (Belgrade) in the 1970's, pike have become well established in other lakes within the Belgrade Lakes drainage, including Long Pond, Messalonskee Lake, and North Pond. In recent years, pike have also appeared in the Cobbosseecontee and Sabattus Lake drainages. Pike are generally found where there are extensive beds of aquatic vegetation, and become abundant where spawning habitat is not limiting. Pike of large size are generally associated with ponds that offer deeper and cooler water during summer months.

SPAWNING: Spawning occurs just prior to, or immediately following ice-out in late March or early April. Pike move into shallow weedy bays, flooded wetlands, and tributary streams, where adhesive eggs are randomly broadcast over vegetation.

FOOD: Pike prefer to eat soft-rayed fish such as golden shiners, suckers, smelt, trout, and salmon. However, pike are opportunistic and will feed on other fish including yellow perch, white perch, and black bass, as well as small birds and mammals.

ADULT SIZE: Sexual maturity is generally reached between 3-5 years of age, at which time pike may average between 24-30 inches long and weigh 3-1/2 to 7-1/2 pounds. Pike exceeding 30 pounds have been caught in Maine.

IDENTIFICATIONS: Scales are present on the upper half of the gill cover, but are absent on the lower half. The cheek area (located just forward of the gill plate) is fully scaled. Pike usually have five pairs of sensory pores along the underside of the lower jaw. The cheeks and gill covers of chain pickerel are fully scaled and generally only four pairs of sensor pores are present on the lower jaw. The pattern of markings is typically very different on adult and juvenile pike. Juvenile pike possess wavy, white to yellow vertical bars. Adults have shorter markings arranged in a more horizontal configuration. Pike can hybridize with chain pickerel, and the resulting hybrid may possess markings common to either or both species.

FISHING TIPS: Golden shiners and suckers (4-6 inches) are effective baits when fished with large hooks that are attached to heavy monofilament or steel leaders. Larger spinner baits are also effective. Most pike are caught in water less than 15 feet deep.



COMMON NAME: WHITE PERCH
OTHER NAMES: PERCH, SILVER PERCH
SCIENTIFIC NAME: *Morone americana*

RANGE AND HABITAT: The white perch was originally found along the Atlantic coast from Nova Scotia to North Carolina principally in freshwater ponds closely connected to the ocean. The range of white perch has been expanded westward to the great lakes and, in Maine, it is found in all areas except the western mountains and northern Aroostook County.

SPAWNING: White perch spawn in shallow tributary waters in the spring when water temperatures reach 60°F. A one-pound female will lay about 150,000 adhesive eggs. The eggs stick to rocks, vegetation, etc. and hatch in about one week.

FOOD: Perch eat a large variety of organisms including larval insects, small crustaceans, and small fish. They have been also known to feed on the eggs of other species of fish. As perch become larger, they eat mostly other fish including smelts.

ADULT SIZE: Size can vary greatly according to the type of habitat and the density of the perch population. A 6-year-old perch can be anywhere from 6 to 12 inches long. The average 8 to 10 inch perch weighs about 0.45 lb. and is about 4 years old.

IDENTIFICATION: The white perch is a spiny-finned fish with large, easily seen scales. The fish is dark gray-green on the back and upper sides and the color gradually changes to silver on the sides below the lateral line to white on the belly. In clear waters, the white perch exhibits a bluish tint on the lower jaw.

FISHING TIPS: The best fishing occurs in the spring near shore and in the tributaries during the spawning run. In summer, perch are found in deeper waters during the day and can be seen feeding at or just below the surface during the evening. During the winter season, perch are found near the bottom in the deeper areas of the lake or pond.



COMMON NAME: YELLOW PERCH

OTHER NAMES: PERCH, LAKE PERCH, AMERICAN PERCH

SCIENTIFIC NAME: *Perca flavescens*

RANGE AND HABITAT: Yellow perch occur in lakes, ponds, impoundments, and slow moving rivers throughout Maine. Yellow perch utilize warm and cool water areas, and they are generally located in shallow waters less than 30 feet deep. Their preferred habitat is clear water with moderate vegetation and bottom substrates that range from muck to gravel.

SPAWNING: Yellow perch spawn in early spring; peak spawning typically occurs from mid-April to early May. Spawning occurs at night and during early morning hours in shallow water. Long strands of adhesive eggs are deposited over submerged vegetation, trees, shrubs, and directly onto bottom substrates of sand and gravel.

FOOD: Feeding habits change with fish size and season, but their diet generally consists of immature and adult aquatic insects, and small fish.

ADULT SIZE: Yellow perch normally range from 6 to 12 inches and weigh from 1/4 to 1 pound. Larger yellow perch, up to 15 inches and 1.6 pounds, are occasionally caught in Maine.

IDENTIFICATIONS: The top of the head and back is bright green to olive in color; sides are yellowish-green to golden yellow with 6 to 8 dark vertical bands; belly area ranges from yellow to white; pectoral, pelvic and anal fins vary in color from pale yellow to bright orange.

FISHING TIPS: Open water fishing for yellow perch is best during spring and early summer and anglers should fish shallow areas with weeds. Minnows, worms, and a variety of lures such as small spinners, spoons, and stick baits will catch perch. Ice fishing for yellow perch can produce some excellent action with traps and by jigging. Anglers fishing traps often use minnows, worms, and cut bait while jig anglers often use small lures tipped with cut bait. Winter anglers will often fish at various depths until they find the most productive zone to target.



COMMON NAME: PUMPKINSEED SUNFISH

OTHER NAMES: PUMPKINSEED, COMMON SUNFISH, PUNKY

SCIENTIFIC NAME: *Lepomis gibbosus*

RANGE AND HABITAT: Pumpkinseed sunfish are native to freshwaters of eastern North America, but they occur widely throughout the world as a result of introductions. Pumpkinseed sunfish are common from southern Canada to the Gulf states to the Great Lakes. In Maine, pumpkinseed occur in nearly every major drainage but occur in highest abundance in shallow areas of small lakes, shallow bays of large lakes, ponds, and slow-moving streams. Pumpkinseed sunfish prefer clear, warm water with submerged aquatic vegetation that is used for cover. Small-to-large numbers of pumpkinseed sunfish can often be found in schools over various bottom types that range from mud to gravel to large rock.

SPAWNING: Pumpkinseed sunfish spawn from late spring to midsummer, (June to August in Maine), while peak spawning is usually during late June to mid-July. Spawning takes place in shallow water, (6-12 inches), on various bottom types. Nests are built by males and often occur in large numbers and very close together. Once the firm nest bottom has been prepared, a female is attracted to egg laying and fertilization. Eggs are adhesive and thus attach to the bottom. Male sunfish guard the nest area for up to 11 days to protect the young from predators.

FOOD: Pumpkinseed sunfish feed both at the water surface and on the bottom. Food items consist of aquatic and terrestrial insects, molluscs (including snails and mussels), and small crustaceans.

ADULT SIZE: Size is typically between 6 and 10 inches in Maine.

IDENTIFICATION: The pumpkinseed is a very deep-bodied fish, almost disc-like, with several spines in the dorsal fin. The lateral view varies from golden brown to olive on top to irregular, wavy, interconnecting blue-green lines in the middle to bronze or red-orange on the ventral surface. The side of head and body have blue, emerald, or green reflections. The opercle, or gill-cover, is mostly black with a trailing tip that is black and rimmed with a small halfmoon of bright red.

FISHING TIPS: The pumpkinseed sunfish is rarely sought by adult anglers in Maine. However, children fishing from docks or shore, particularly in the warmer southern waters of the State, have developed and honed their angling skills by catching pumpkinseeds during the summer.



COMMON NAME: REDBREAST SUNFISH

OTHER NAMES: YELLOWBELLY SUNFISH, LONGEAR SUNFISH

SCIENTIFIC NAME: *Lepomis auritus*

RANGE AND HABITAT: The redbreast sunfish occurs in freshwaters of eastern North America from extreme southern Canada to Florida. In Maine, it is widely distributed except for extreme northern and western subdrainages. They inhabit rocky areas of streams and lakes, slower, deeper areas in streams, and are most common and abundant in lakes with sand or mud bottoms and abundant aquatic vegetation. In contrast with pumpkinseed, redbreast sunfish usually live independently in slightly deeper water of lakes and ponds.

SPAWNING: Spawning begins in spring when water temperatures are about 60-70° F corresponding to June in Maine. Males prepare nests in colonies similar to that of pumpkinseed sunfish but usually in slightly deeper water. After eggs are laid and fertilized, females leave the nest and the males guard the nest area for a short time after the eggs hatch.

FOOD: Redbreast sunfish feed mostly on immature aquatic insects, but they also feed on adult insects, molluscs, and other bottom invertebrates. Small fishes potentially make up a minor part of their diet.

ADULT SIZE: Size is typically between 5 and 7 inches in Maine.

IDENTIFICATION: The redbreast sunfish is very deep-bodied and strongly compressed laterally. The opercle, or gill cover, is long and black with no colored border. The body is usually golden brown to olive with the dorsal surface darker. Sides are lighter in color with small reddish spots, vague blue streaks, and the breast is yellow to orange-red.

FISHING TIPS: The redbreast sunfish is rarely sought by anglers due to its small size. Like the pumpkinseed, it is easily caught by children with small live bait, flies, or worms, and the white, flaky flesh has very good eating quality.



COMMON NAME: AMERICAN EEL

OTHER NAMES: COMMON EEL, FRESHWATER EEL

SCIENTIFIC NAME: *Anguilla rostrata*

RANGE AND HABITAT: The range of the American eel extends from Labrador and Greenland in the north, southward to the northern part of South America. In Maine, they are present in all drainages throughout the state, although excluded by the presence of dams from the upper reaches in some drainages, including the St. John River. During their time in freshwater, eels are found in lakes and ponds, and to a lesser extent in streams. They prefer fairly deep water with a mud bottom, and are very tolerant of marginal water quality. During out migrations, eels can live out of water for a prolonged period.

SPAWNING: The most interesting aspect about the life history of the American eel is its spawning habits. Eels are catadromous, meaning that they live and grow most of their life in freshwater, and return to the ocean to reproduce. After spending from 5 to 10 years in fresh or brackish water, eels journey to the Sargasso Sea, an area with very high salinity between the West Indies and Bermuda, to spawn. After hatching, the young eels begin to drift with the currents until they reach the coast. They now will begin to swim into brackish and freshwater, move inland to areas that will be their homes for the next 5 years or more.

FOOD: Eels are voracious feeders, feeding on such items as small fish, aquatic insects, crayfish, salamanders, as well as dead and decaying animal matter. They have also been known to leave the water in search of frogs and small rodents.

ADULT SIZE: Adult females may reach a size of up to 6 feet, but normally attain a length between 2 to 3 1/2 feet in length. Males do not attain the large size of females, usually growing to 1 1/2 to 2 feet in length. Recent research has shown that most all eels over 16 inches long are females, and most eels under 16 inches are males.

IDENTIFICATION: A very characteristic snake-like body sets the eel apart from all other Maine fish. Eels are distinguished by true jaws, pectoral but no pelvic fins, and a thick skin with a heavy slime layer. Coloration is olive-green to brown on the back, with yellow-green on the sides and gray-white below. As sexually mature adults leave freshwater to go to the ocean to spawn, eels transform to "silver eels", being black above and silver below.

FISHING TIPS: Eels are a very valuable commercial food fish, especially in the ethnic markets of larger cities. Because of their firm flesh and delicate flavor, eels lend themselves especially well to smoking and pickling. Anglers wishing to fish for eels should fish at night, and bait their hook with night crawlers or a dead minnow. They are occasionally caught by anglers drift fishing with live bait or night crawlers. Dressing an eel is accomplished by nailing the head to a tree, making an incision just behind the head, and using pliers to remove the skin. The eel can then be eviscerated and prepared for cooking.



COMMON NAME: ALEWIFE

OTHER NAMES: SAWBELLY

SCIENTIFIC NAME: *Alosa pseudoharengus*

RANGE AND HABITAT: Landlocked alewives are closely related to native sea-run alewives which migrate from the Atlantic Ocean to spawn in freshwater. In contrast, landlocked alewives are not indigenous to Maine and complete their entire life cycle in freshwater. Landlocked alewives were first brought to Maine in 1966 to evaluate their value as forage. Initial introduction were made to Echo Lake (Mount Desert Island) from a source in Cayuga Co., New York. Subsequent introductions have met with varying success in establishing additional populations. Alewives have been introduced as far north as the Rangeley Lake Chain. Landlocked alewives show a strong tendency to migrate downstream, where they will readily establish in other lakes and ponds. Landlocked alewives are present in fewer than 20 Maine waters, where they inhabit the deeper, open water portions of lakes and ponds.

SPAWNING: Alewives migrate to shallow beaches to spawn under the cover of darkness in late spring. Peak spawning appears to be temperature dependent and generally occurs in early June. Female alewives usually reach the spawning grounds before the males and actual spawning occurs in small groups. Eggs are broadcast into the water column, where they sink to the bottom and hatch in about 6 days at 60°F.

ADULT SIZE: Young of the year, alewives reach a length of 2 to 3 inches by their first fall and are usually 4 to 6 inches long at maturity. Males reach sexual maturity at age 2 and females mature at age 3.

IDENTIFICATION: Alewives are predominantly silver, except for a grayish green back. There is also a single black spot just behind the head at eye level. The common name "sawbelly" originates from the very distinctive overlapping scales along the belly that creates a saw-like keel.

FISHING TIPS: There is no recreational fishery for these small fish, however, they do serve as an important forage for other sport fish, particularly where the preferred native rainbow smelt has not provided a desirable forage base. Smelts and alewives share similar diets, creating potential for competition where both species coexist. It is illegal for anglers to use alewives as bait on Maine's inland waters. This regulation was promulgated to prevent alewives from establishing in waters where they could compete with native smelts.

SUCKERS



Common Sucker
Cateostomus commersoni



Creek Chub Sucker
Erimyzon oblongus



Longnose Sucker
Catostomus catostomus

MINNOWS



Creek Chub
Semotilus atromaculatus



Lake Chub
Couesius plumbeus



Blacknose Dace
Rhinichthys atratulus



Longnose Dace
Rhinichthys cataractae



Northern Redbelly Dace (male)
Phoxinus eos



Northern Redbelly Dace (female)
Phoxinus eos



Pearl Dace
Semotilus margarita



Fallfish
Semotilus corporalis



Common Shiner
Luxilus cornutus



Fathead Minnow
Pimephales promelas



Emerald Shiner
Notropis atherinoides



Golden Shiner
Notemigonus crysoleucas



Swamp Darter
Etheostoma fusiforme
(Maine threatened species)



Ninespine Stickleback



Three Spine Stickleback



Cooperative State and Federal Project

This book has been funded in part by the Federal Aid in Sport Fish Restoration Program. This is a cooperative effort involving federal and state government agencies. The program is designed to increase sport fishing and boating opportunities through the wise investment of anglers' and boaters' tax dollars in state sport fishery projects. This program which was funded in 1950 was named the Dingell-Johnson Act in recognition of the congressmen who spearheaded this effort. In 1984 this act was amended through the Wallop-Breaux Amendment (also named for the congressional sponsors) and provided a threefold increase in Federal monies for sportfish restoration, aquatic education, and motorboat access.

The Program is an outstanding example of a "user pays-user benefits", or "user fee" program. In this case, anglers and boaters are the users. Briefly, anglers and boaters are responsible for payment of fishing tackle excise taxes, motorboat fuel taxes, and import duties on tackle and boats. These monies are collected by the sport fishing industry, deposited in the Department of Treasury, and are allocated the year following collection to state fishery agencies for sport fisheries and boating access projects. Generally, each project must be evaluated and approved by the U.S. Fish and Wildlife Service (USFWS). The benefits provided by these projects to users complete the cycle between "user pays - user benefits".



The Maine Outdoor Heritage Fund was established by the State Legislature to provide funds from the sale of special lottery tickets. Funds are provided for a variety of fisheries, wildlife, and other conservation projects.

SOMEONE'S STEALING MAINE'S FISHERIES

**Introduction of fish to any
pond, lake, or stream is illegal.**

To report
violations of Maine's
fish and wildlife laws call

1-800-ALERT-US
(1-800-253-7887)



\$2,000 REWARD

- It is **ILLEGAL** to stock any species of fish, even baitfish, in any Maine water.
- Penalties for illegal fish stocking can be very severe.
- Illegal fish stockings = environmental pollution and ruins fishing opportunities for everyone.
- Illegal fish stockings are forever.
- Illegally stocked fish can move into other waters, thus polluting an entire drainage.

Report any information about the illegal introduction of fish in Maine. Call Operation Game Thief seven days a week from 8:00 a.m. to 12:00 p.m. or by cell phone at #GW or *GW. A minimum reward of \$2,000 is offered for the apprehension of the person or persons responsible for the illegal introduction of fish into any inland water in Maine.