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REPORT NO. 729

HOW TO TELL THE FISH THAT LOOK ALIKE

by

Louis A. Krumholz and Walter R. Crowe

(To be illustrated by charts made by Krumholz
and plates from Van Oosten's book)

It is sometimes difficult for sportsmen to distinguish between certain game fishes. Most anglers recognize the yellow perch, probably because there is no other fish in Michigan which closely resembles it. But, how many of these fishermen can tell a bluegill from a pumpkinseed, or a rock bass from a warmouth bass? Again, how many anglers can be sure that the fish they have caught is a smallmouth and not a largemouth black bass?

Many factors add to the confusion of fishermen who try to identify their catch. It is unfortunate that so many sportsmen over-emphasize color as a means for establishing identity because only in exceptional cases is this character reliable. The color of a largemouth black bass may, under certain conditions, be nearly identical with that of the smallmouth.

The use of one common name for several kinds of fish leads to considerable confusion. For instance the name "pickerel" is applied to the mud pickerel, the northern pike and even to the walleye. Also confusing, but to a lesser degree, is the use of several common names for one kind of fish as "calico bass," "strawberry bass," "check," "speck," and "crappie" for the black crappie.

An attempt has been made in this pamphlet to give the sportsman a ready means of differentiating only between those important Michigan species which superficially may appear to be the same. Outline drawings have been made of the most often confused fishes to point out the important features used in identification.✧ Photographs of most of these fish are also included.

Mud Pickerel (Esox vermiculatus)

The mud pickerel, a member of the true pike family, may easily be separated from its relatives, the northern pike and the muskellunge, by an examination of the scales on the cheek and gill cover. As shown in the diagram, the entire cheek and gill cover are completely covered with scales. In common with all members of the family, the spineless dorsal fin is placed well back on the body toward the tail. Generally, the mud pickerel is marked with brownish bars on a yellow-green background. However, the coloration of any of the pikes is not a dependable means for identification. The mud pickerel is the smallest member of the family, rarely reaching 14 inches in length, and is therefore seldom included in the fisherman's catch. It is found only in the southern half of the Lower Peninsula.

✧ For a more complete description of all the important game and food fishes, see Fishes of Michigan by Dr. John Van Oosten and published by the Michigan Department of Conservation.

For technical descriptions and analytical keys for all Michigan species, see Hubbs and Lagler, Guide to the Fishes of the Great Lakes and Tributary Waters, available for fifty cents from the Cranbrook Institute of Science, Bloomfield Hills, Michigan.

Northern Pike (Esox lucius)

As indicated in the diagram, the cheeks of the northern pike are completely covered with scales whereas only the upper half of the gill cover has scales, the lower half being naked. The northern pike is usually spotted with yellow rather than barred. It is the commonest member of the family, and the one most frequently caught by anglers.

Muskellunge (Esox^m masquinongy)

The "musky" is the largest member of the pike family. The diagram indicates that only the upper half of the cheek and gill cover bear scales, the lower half of each being naked. The coloration is usually barred, often showing a bluish tinge, rather than the yellow-green of the other members of the family. Muskellunge of 30 pounds and over in weight are not uncommon.

Walleye (Stizostedion v. vitreum)

The walleye is not a pike but a member of the perch family. At the posterior end of the spiny dorsal there is a single black blotch, as shown in the drawing.

Sauger (Stizostedion c. canadense)

The general appearance of the sauger is similar to that of the walleye, but rather than a large single black blotch at the posterior end of the spiny dorsal this fin in the sauger has several dark spots over its entire surface. In Michigan the distribution of the sauger is more limited than that of the walleye and for this reason it is caught infrequently by anglers.

Smallmouth Black Bass (Micropterus d. dolomieu)

The chief character by which the smallmouth black bass may be distinguished from the largemouth bass is the size of the mouth. The maxillary bone of the upper jaw rarely extends backwards beyond the midpoint of the eye when the mouth is closed. Another important character of the smallmouth is the poorly marked separation between the spiny and soft dorsal fins. Also, the spines of the dorsal fin are all of about the same length, the longest being only about half again as long as the shortest. There are other characters of lesser importance; for instance there is usually no stripe along the side, and the scales are not so large as those of its close relative the largemouth black bass. The smallmouth usually inhabits the rocky parts of lakes and streams.

Largemouth Black Bass (Huro salmoides)

In the ^{large}~~small~~mouth black bass the maxillary bone of the upper jaw extends backwards well beyond the eye in adult fish when the mouth is closed. The spiny dorsal fin is separated from the soft dorsal by a deep notch. The longest spine of the dorsal fin is fully three times as long as the shortest. A black horizontal stripe is generally present on the side. The scales of the largemouth are considerably larger than those of the smallmouth black bass. The largemouth black bass usually inhabits the weedier parts of lakes and streams.

Bluegill (Lepomis macrochirus)

The bluegill is caught in greater numbers than any other fish in Michigan. There are several distinguishing characters as shown in the diagram; the flexible, jet-black opercular or "ear" flap and the more or less distinct black blotch at the posterior end of the dorsal fin. No red

or orange specklings are present on the side, though the forepart of the belly may be brightly colored. The general body color is usually a dark green, often with vertical bars which gradually fade out towards the belly.

Pumpkinseed (Lepomis gibbosus)

The pumpkinseed or "common sunfish" has a bright orange-red spot on the "ear flap." The sides are brightly colored with rather prominent orange or red spots; vertical bars may either be present or absent. There is no blotch at the posterior end of the dorsal fin.

Green Sunfish (Lepomis cyanellus)

The green sunfish is one of the less common sunfish in Michigan, but since it occasionally reaches a length of 6 inches or more it is included. In contrast to the bluegill and pumpkinseed, the green sunfish has a large mouth, as shown in the accompanying sketch. It is usually very dark in color and oftentimes has distinct yellow or white edgings on the tail, dorsal and anal fins. There is a small black blotch at the posterior end of the dorsal fin, as in the bluegill. The pectoral fins are short and rounded whereas those of the bluegill and the pumpkinseed are long and pointed.

Warmouth Bass (Chaenobryttus gulosus)

The warmouth or "mud bass," along with the other sunfish, has but three spines in the anal fin. However, its brownish coloration and large mouth have often led to its confusion with the rock bass which it superficially resembles. The three anal spines, the small eye, and the patch of small teeth on the tongue clearly mark it off from other sunfishes with which it may be confused.

Because of their similarity in habits and close relationship, hybrids between different kinds of sunfish are found in nature, but except under unusual circumstances these hybrids do not form a significant part of the anglers catch.

Rock Bass (Ambloplites rupestris)

The rock bass, although a member of the bass and sunfish family, is quite distinct and may be readily recognized by the presence of five spines in the anal fin and the large red eye (hence the common names "red-eye," "goggle-eye"). Its habits are very similar to those of the sunfish but it often reaches a considerably larger size.

Black Crappie (Pomoxis nigro-maculatus)

This popular pan fish can be recognized immediately by a look at the anal fin which should be as large as the dorsal, as shown in the drawing. It has many common names but is seldom confused with other species. The white crappie which it resembles most closely is of rare occurrence in Michigan.

Brook Trout (Salvelinus f. fontinalis)

Members of the trout family because of their great similarity in general body form and color are not easily identified. The brook trout is marked off from the others by the extremely small scales, the clearly defined red spots, and the white edges of the lower fins. The back is marked with worm-like tracings, and the tail fin is very little forked. The mouth is large. The brook trout is probably the most frequently caught by fishermen.

Brown Trout (Salmo t. fario)

The brown trout differs from the others in having diffuse spots, either brown or pink, irregularly distributed over the sides. The tail fin is scarcely spotted if at all and the small adipose (small, fleshy fin behind the dorsal and present in all members of the trout family) is orange blotched in life with no black margin. The scales are considerably larger than those of the brook trout. Black spots instead of wavy dark lines are usually present on the back.

Rainbow Trout (Salmo g. irideus)

The rainbow differs from the other in having no red or pink spots. The mouth is relatively small and the scales moderately large. The tail fin is heavily spotted with black, and the adipose fin usually has a few black spots present and always a black margin. Well colored individuals show a red or pink stripe on the side, hence the name.

Lake Trout (Cristivomer ~~n.~~ namaycush)

The lake trout, while primarily a commercial species, is growing rapidly in popularity as a sport fish, mostly caught in the Great Lakes by trolling. It can be readily distinguished by the rather deeply forked tail fin and the grey and white coloring; bright colors being entirely lacking. It attains a large size, 15 to 20 pounds being quite common.

Brown Bullhead (Ameiurus n. nebulosus)

The bullheads, of which there are three species in Michigan, are all very similar in appearance. For ordinary purposes it is sufficient to distinguish between the bullheads and the channel catfish. Bullheads have a rounded or very slightly forked tail fin. The head is very blunt and the eye small.

Channel Catfish (Ictalurus l. lacustris)

The channel catfish, which may be confused with the bullheads, differs from them in having the caudal or tail fin deeply forked, the head relatively sharp, and the eyes large. It attains a considerable size, 3 or 4 pounds being quite common.

Grayling (Thymallus s. tricolor)

The grayling, once extremely abundant in Michigan, is now extinct. The Montana grayling, which is very similar to the Michigan grayling, is present only in a few waters where it has been introduced experimentally. The coarse scales, similar to those of the whitefish and cisco, the small mouth, and the very large brightly colored dorsal fin give this fish a very distinctive appearance. Unlike the whitefish and ciscoes, small teeth are present on the jaws.

Menominee Whitefish (Prosopium c. quadrilaterale)

The Menominee whitefish or pilot is a commercial species of considerable importance. Because of its superficial resemblance to the Great Lakes whitefish and ciscoes, it may be confused with them. The round body, and extremely small, inferior mouth (that is underneath, rather than at the end of the snout) and stubby gill rakers distinguish the Menominee. (Gill rakers are the small comb-like structures which extend forward from the bright red gills when the gill cover is lifted.)

Great Lakes Whitefish (Coregonus clupeaformis)

This important commercial species is often confused with the Menominee whitefish or the ciscoes. Its mouth, which is larger than that of the Menominee but smaller than that of the cisco, is inferior. The gill rakers are of intermediate length between those of the Menominee and cisco and the sides are flattened. It reaches a considerable size, specimens of 6 to 8 pounds being frequently caught.

Cisco (Leucichthys artedi)

There are many species of ciscoes, the lake herring, chubs, bloaters, etc. being included under this name. However, all of these species agree in having a relative large terminal mouth, extremely long, slender gill rakers, and more or less flattened sides. The ciscoes show great variation in size from one species to another, but are for the most part smaller than whitefish.

Common Sucker (Catostomus c. commersonii)

The common sucker is one of the more important coarse fish, and has in recent years assumed considerable value as a commercial species. Also large numbers are speared or netted by fishermen in the early spring. The common sucker may be distinguished from the redhorse and the carp by the rounded body, the sucking mouth, and the relatively small scales, which are crowded together on the forward region of the body.

Redhorse (Moxostoma aureolum)

The redhorse or mullet, of which there are 5 species in the state, is occasionally confused with the sucker or with the carp. It may be recognized by the large silvery scales, the somewhat flattened sides and

the complete absence of spines ~~in the fins~~ or barbels ("chin whiskers").
Some of the species reach a considerable size, 8 or 10 pounds being fairly
common.

Carp (Cyprinus carpio)

The carp's long, dorsal fin, with about 20 rays ^{and} with a coarse saw-
toothed spine at the anterior end, and the mouth with short barbels
make it quite distinct from species with which it may be confused.

INSTITUTE FOR FISHERIES RESEARCH

Louis A. Krumholz and Walter R. Crowe

Report approved by: A. S. Hazzard

Report typed by: V. Andres

***How to Tell Apart
the Fish that Look Alike***

By LOUIS A. KRUMHOLZ and WALTER R. CROWE,
Institute for Fisheries Research

(Diagrams by Krumholz)

Fish Division

Michigan Department of Conservation

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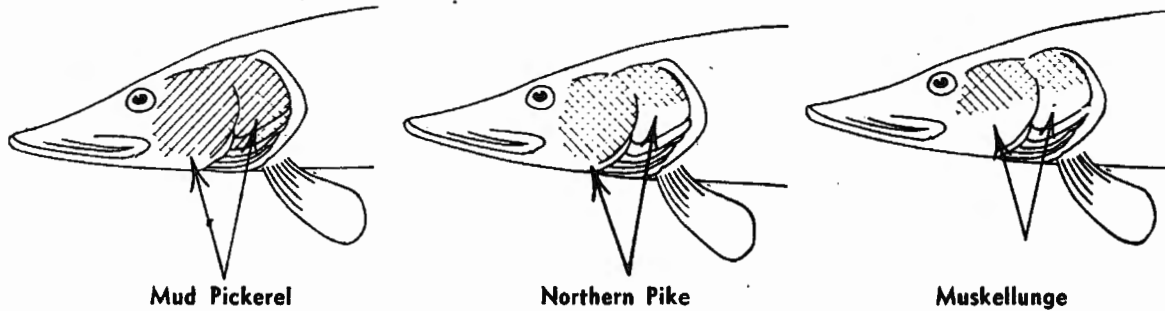
IT IS SOMETIMES difficult for sportsmen to distinguish between certain game fishes. Most anglers recognize the yellow perch, probably because there is no other fish in Michigan which closely resembles it. But how many of these fishermen can tell a bluegill from a pumpkinseed, or a rock bass from a warmouth bass? Again, how many anglers can be sure that the fish they have caught is a smallmouth and not a largemouth black bass?

Many factors add to the confusion of fishermen who try to identify their catch. It is unfortunate that so many sportsmen over-emphasize color as a means for establishing identity because only in

entiating only between those important Michigan species which superficially may appear to be the same. Outline drawings have been made of the most often confused fishes to point out the important features used in identification.¹

MUD PICKEREL (*Esox vermiculatus*)

The mud pickerel, a member of the true pike family, may easily be separated from its relatives, the northern pike and the muskellunge, by an examination of the scales on the cheek and gill cover. As shown in the diagram, the *entire cheek and gill cover* are completely covered with scales. In common with all



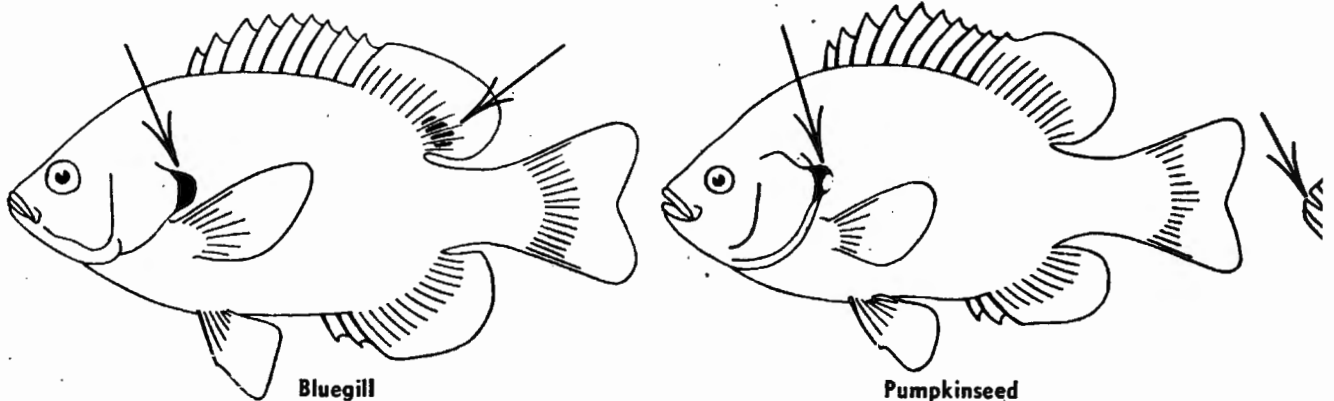
exceptional cases is this character reliable. The color of a largemouth black bass may, under certain conditions, be nearly identical with that of the smallmouth.

The use of one common name for several kinds of fish leads to considerable confusion. For instance the name "pickerel" is applied to the mud pickerel, the northern pike and even to the wall-eye. Also confusing, but to a lesser degree, is the use of several common names for one kind of fish as "calico bass," "strawberry bass," "check," "speck," and "crappie" for the black crappie.

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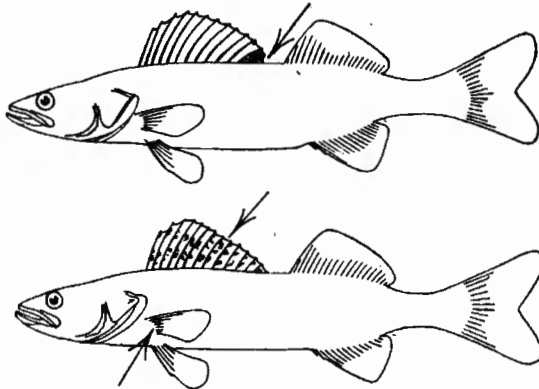


NORTHERN PIKE (*Esox lucius*)

As indicated in the diagram, the cheeks of the northern pike are completely covered with scales whereas *only the upper half of the gill cover* has scales, the lower half being naked. The northern pike is usually spotted with yellow rather than barred. It is the commonest member of the family, and the one most frequently caught by anglers.

MUSKELLUNGE (*Esox m. masquinongy*)

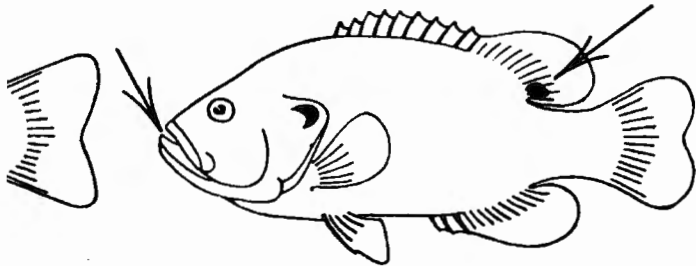
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Walleye Pike Above, Sauger Below.

WALLEYE (*Stizostedion v. vitreum*)

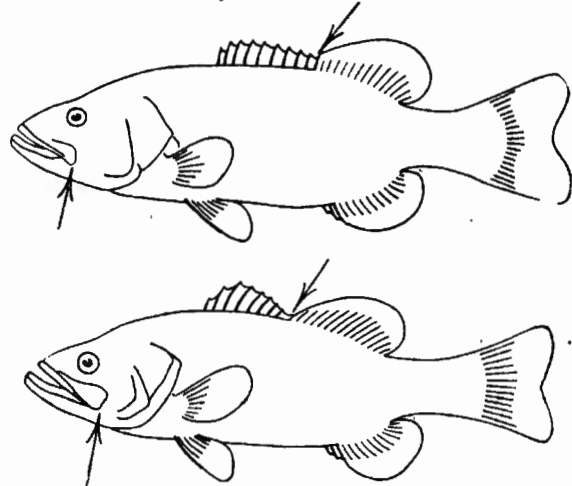
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Green Sunfish

SAUGER (*Stizostedion c. canadense*)

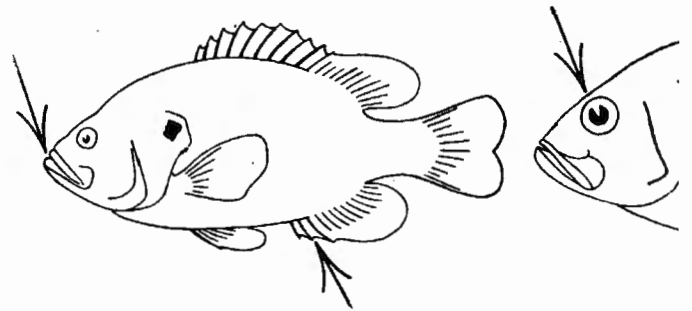
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Black Bass, Smallmouth Above, Largemouth Below.

SMALLMOUTH BLACK BASS (*Micropterus d. dolomieu*)

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Warmouth Bass

the same length, the longest being only about half again as long as the shortest. There are other characters of lesser importance; for instance there is usually no stripe along the side, and the scales are not so large as those of its close relative the largemouth black bass. The smallmouth usually inhabits the rocky parts of lakes and streams.

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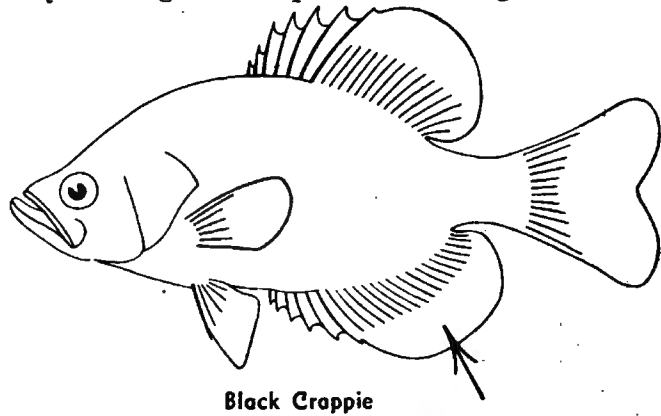
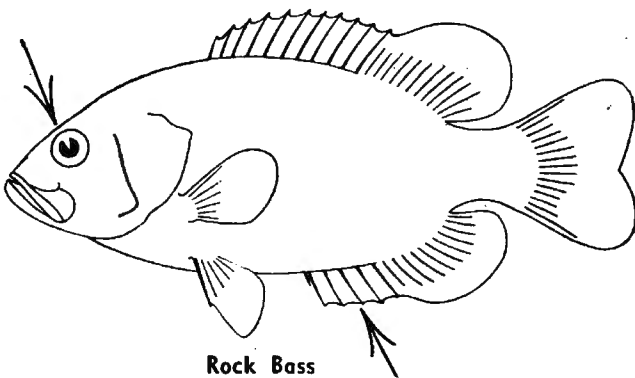
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The green sunfish is one of the less common sunfish in Michigan, but since it occasionally reaches a length of 6 inches or more it is included. In contrast to the bluegill and pumpkinseed, the green sunfish has a large mouth, as shown in the accompanying sketch. It is usually very dark in color and oftentimes has distinct yellow or white edgings on the tail, dorsal and anal fins. There is a small black blotch at the posterior end of the dorsal fin, as in the bluegill. The pectoral fins are short and rounded whereas those of the bluegill and the pumpkinseed are long and pointed.

WARMOUTH BASS (*Chaenobryttus gulosus*)

The warmouth or "mud bass," along with the other sunfish, has but three spines in the anal fin. However, its brownish coloration and large mouth have often led to its confusion with the rock bass, which it superficially resembles. The *three anal spines, the small eye, and the patch of small teeth on the tongue* clearly mark it off from other sunfishes with which it may be confused.

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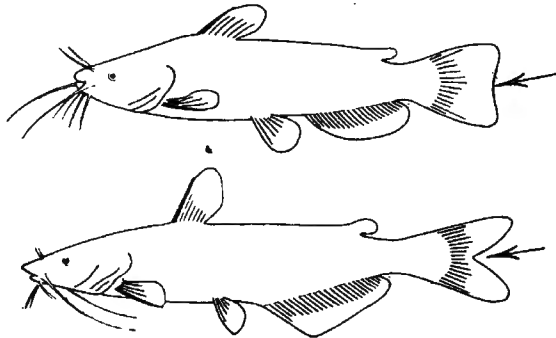


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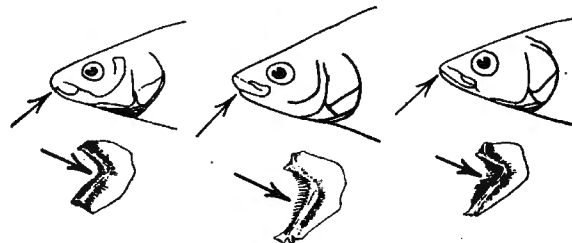
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Menominee Whitefish

Great Lakes Whitefish

Cisco

(After Koels)

Cisco (*Leucichthys artedi*)

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BROOK TROUT (*Salvelinus f. fontinalis*)

Members of the trout family because of their great similarity in general body form and color are not easily identified. The brook trout is marked off from the others by the *extremely small scales*, the

clearly defined red spots, and the white edges of the lower fins. The back is marked with worm-like tracings, and the tail fin is very little forked. The mouth is large. The brook trout is probably the most frequently caught by fishermen.

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The brown trout differs from the others in having diffuse spots, either brown or pink, irregularly distributed over the sides. The tail fin is scarcely spotted if at all and the small adipose (small, fleshy fin behind the dorsal and present in all members of the trout family) is orange blotched in life with no black margin. The scales are considerably larger than those of the brook trout. Black spots instead of wavy dark lines are usually present on the back.

RAINBOW TROUT (*Salmo g. irideus*)

The rainbow differs from the others in having *no red or pink spots*. The mouth is relatively small and the scales moderately large. The tail fin is heavily spotted with black, and the adipose fin usually has a few black spots present and always a black margin. Well colored individuals show a red or pink stripe on the side, hence the name.

LAKE TROUT (*Cristivomer namaycush*)

The lake trout, while primarily a commercial species, is growing rapidly in popularity as a sport fish, mostly caught in the Great Lakes by trolling. It can

be readily distinguished by the *rather deeply forked tail fin* and the grey and white coloring; bright colors being entirely lacking. It attains a large size, 15 to 20 pounds being quite common.

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REDHORSE (*Moxostoma aureolum*)

The redhorse or mullet, of which there are five species in the state, is occasionally confused with the sucker or with the carp. It may be recognized by the large silvery scales, the somewhat flattened sides and the complete absence of spines or barbels ("chin whiskers"). Some of the species reach a considerable size, 8 or 10 pounds being fairly common.

CARP (*Cyprinus carpio*)

The carp's long, dorsal fin, with about 20 rays and with a coarse sawtoothed spine at the anterior end, and the mouth with short barbels make it quite distinct from species with which it may be confused.