

Black Crappie Pomoxis nigromaculatus

dentifying Characteristics: (Native Fish) Silvery-green to yellowish with large dorsal and anal fins. Sides and fins marked with rows of dark spots which become more intense toward the back. Arched back and large mouth with upper jaw extending

Natural History: The Black Crappie is one of the largest and most popular panfish. Black Crappies thrive in clear, natural lakes and reservoirs with moderate vegetation They are also found in large slow-moving less turbid rivers, provided the water is not too murky. Crappies prefer water 70-75 degrees but will tolerate water over 80 degrees. They are gregarious and often travel in schools. In the spring and fall they come into shallow water and tend to stay in mid-depth to deeper water during the summer. They

Seven Simple Steps to Clean Water

Help keep pollution out of storm drains

3 Carefully store and dispose of household clean

Our Water. Our Future. Ours to Protect.

Find out more at www.semcog.org.

5 Practice good car care

Fertilize sparingly and caring

Choose earth-friendly landscaping

Clean up after your pet

Adult Sizes: 8" - 12"

Bait: Minnows, Hard Baits, Soft Baits Habitat: Lake Shallows, Lake-Deep Water, Wood

are one of the most common fish caught through the ice.

Adult Sizes: 10" - 16"

other small fish if available.

Bait: Worms/Waxworms, Spinners, Doughballs/Corn **Habitat:** Flowing Water, Lake-Deep Water, Rocky, Wood

nis reason have been introduced all over the United States.

Rainbow Trout

Oncorhynchus mykiss

entifying Characteristics: (Non-Native Fish) Two dorsal fins including one adipose

in, mouth and gums are light, small spots along rays on entire tail, 10-12 rays in anal fin

Steelhead is a name given to rainbow trout that live in the Great Lakes. Rainbow trout

are native to the Pacific Ocean along North America and to rivers and other fresh waters

Natural History: Great Lakes Steelhead are usually found in waters less than 35 feet

deep at temperatures of 58-62 degrees F. They are often found near stream outlets,

specially in spring and early summer. Although they feed primarily in mid-depths,

they do take surface insects, including fly fishermen's flies. Larger rainbows will eat

of North America west of the Rocky Mountains. They are a popular game fish, and for



Brown Trout

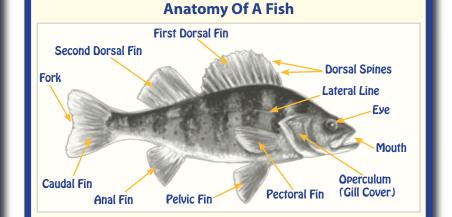
Salmo trutta

dentifying Characteristics: (Non-Native Fish) Two dorsal fins including one adipos in, broad square tongue with 11-12 large teeth, light pectoral fins, squire tail, 9-10 rays in the anal fin. Generally a golden-brown in color with large brown or black spots irrounded by faint halos of a lighter color on its sides, back and dorsal fin.

latural History: Brown trout are a close relative of the Atlantic Salmon, and were also rought to North American waters as exotics. These natives of Europe and western Asia vere introduced into New York and Michigan waters in 1883. Brown Trout have thrived in their new home, and have become firmly established in all of the upper Great Lakes vaters. They are generally found only in streams within Oakland County. Adult Sizes: 8" - 16"

Bait: Worms/Waxworms, Spinners, Minnows

labitat: Flowing Water, Rocky, Wood



Do I need a fishing license?

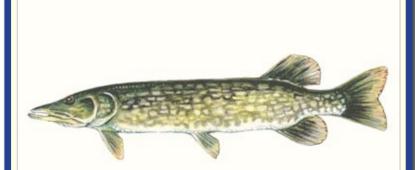
You must purchase a license if you are 17 or older. If you are under 17, you

may fish without a license, but are required to observe all fishing rules and When fishing you must carry your license and the identification used to purchase that license and exhibit both upon demand of a Michigan Conservation Officer,

Your fishing license is valid from March 1 of a given year though March 31 of the o purchase a fishing license you must have:

A valid Michigan ID Card (issued by the Secretary of State) with additional proof of Michigan residency, such as a Michigan voter registration card. A DNR Sportcard (issued by license dealers). If the information on your DNR Sportcard from a previous year is still accurate, you may continue to use it.

Purchase your fishing license online at: www.michigan.gov/dnr



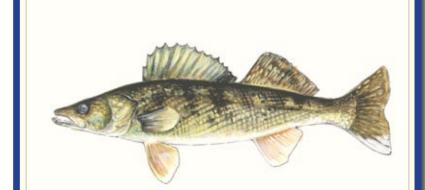
Northern Pike

Identifying Characteristics: (Native Fish) Single dorsal fin, light colored spots of darker body, upper half of gill cover and entire cheek has scales.

Natural History: As predators, Northern Pike can have significant impact on their pre species. As with muskies, pike lurk in the cover of vegetation in the lake's clear, shallow warm waters near shore, although they retreat somewhat deeper in midsummer. Pike consume large numbers of smaller fish, about 90 percent of their diet. They seem willing to supplement their diet with anything their huge jaws can surround, including frogs, crayfish, waterfowl, rodents, and other small mammals. Their preferred food size is approximately one third to one half the size of the pike itself.

Adult Sizes: 20" - 36" Bait: Minnows, Hard Baits, Spinners

Habitat: Lake Shallows, Vegetation, Rocky, Wood



Sander vitreus

ntifying Characteristics: (Native Fish) Two dorsal fins separated into a spiny and a oft-rayed portion, cloudy eye, white tips on anal and lower caudal fins, canine teeth Nalleye are the largest member of the perch family. They lack the distinctive vertical bar makings of the yellow perch and have fan-like canine teeth.

atural History: These battling fish are exciting to catch, delicious to eat and because they feed actively all winter, they provide a fine year-round sport fishery. In spring and fall walleyes congregate in shallow bay waters of the Great Lakes, where they see out rocky areas and submerged bars. During the bright part of the day they retreat in schools to the shade of deep waters or submerged objects. In the summer, Walleyes ange into cooler, deeper waters. They prefer a water temperature of 55 to 68 degrees and are seldom found in waters deeper than 50 feet.

Adult Sizes: 15" - 24"

Bait: Worms/Waxworms, Minnows, Hard Baits, Soft Baits abitat: Flowing Water, Lake-Deep Water, Rocky, Vegetation



Yellow Perch Perca flavescens

portion. Both are important game fish in the Great Lakes area.

How To Clean A Fish

Carefully fillet the fish.

A fish has fat on its back,

Cut away the

dark fatty

tissue along

the side of the

sides, and belly.

dentifying Characteristics: (Native Fish) Two dorsal fins separated into a spiny and soft-rayed portion, yellow sides, seven blackish bars on the sides, no canine teeth. The 'ellow Perch and Walleye, members of the Percidae or perch family, are characterized by a dorsal fin, which is completely divided into a spiny and a separate soft-rayed

Natural History: Yellow Perch have the distinction of being the most frequently caught game fish in Michigan. In addition their reputation as a tasty treat makes them a doubly valuable Great Lakes product. The gregarious perch travel in schools, generally eferring relatively shallow waters near shore. They are rarely taken from waters more han 30 feet deep, although in spring and fall they inhabit shallower areas than they do

in the heat of the summer. Adult Sizes: 8" - 12"

Bait: Worms/Waxworms, Minnows, Soft Baits

Habitat: Lake Shallows, Vegetation

On the Land



Waterfront Homeowner Tips

- Don't mow to the edge! Maintain a buffer of deep-rooted plants, trees, or shrubs adjacent to wetlands and open
- Repair areas of erosion to prevent sediments from washing
- Reduce or eliminate the use of lawn fertilizers and garden
- Use fertilizers containing no phosphorus to minimize nutrients entering the water resource.
- Construct new septic systems as far away from the shoreline as possible and have the septic tank pumped every 3-5
- Keep compost piles, leaves, and grass clippings as far from the shoreline as possible
- Don't feed wildlife near the shoreline. Waste produced by wildlife can add a significant source of nutrients to the
- Use plants that are native to Michigan in your landscaping. They will help filter water runoff.

Additional Information

- Friends of the Rouge River: <u>www.therouge.org</u>
- Flint River Watershed Coalition: www.flintriver.org Huron River Watershed Council: <u>www.hrwc.org</u>

Clinton River Watershed Council: www.crwc.org

- Friends of the Shiawassee River: <u>www.shiawasseeriver.org</u>
- SEMCOG: www.semcog.org Michigan Native Plants: www.mnppa.org

On the Water



STOP AQUATIC HITCHHIKERS!

Prevent the transport of nuisance species. Clean all recreational equipment www.ProtectYourWaters.net

- · Remove any visible mud, plants, fish or animals before transporting equipment.
- Eliminate water from equipment before transporting.
- Clean and dry anything that comes into contact with water (boats, trailers, equipment, clothing, dogs, etc.).
- · Never release plants, fish or animals into a body of water unless they came out of that body of water.

PYW TBS1/02

Boater Safety Tips

- Check the weather forecast for the area and time frame during which you will
- Make sure you have the required number of personal flotation devices (PFDs), and check that they are in good condition.
- Leave a float plan with a reliable friend or relative.
- Do not allow anyone who is under the influence of alcohol or drugs to operate
- Remove all visible aquatic plants and animals from your boat, motor, trailer,
- and accessory equipment before leaving the access area. Dispose of live bait in the trash.
- To prevent collisions on the water, every operator should follow the three basic rules of navigation:
- 1. Practice good seamanship.
- 2. Keep a sharp lookout.
- 3. Maintain a safe speed and distance.

Rules On The Water:

BOATS KEEP OUT

BOATS KEEP OUT! swim areas,

Marks waterfalls, rapids and other

Do not approach, divers are below. Stay at least 200 feet away from diving may be flown from a



Additional Information

- MI Department of Natural Resources: www.michigan.gov/dnr
- Click on- "Recreation, Camping, & Boating" then "Boating" MI Recreational • MI Recreational Boating Information System: <u>www.mcgi.state.mi.us/MRBIS</u>
- MI Boating Handbook: <u>www.boat-ed.com/mi/handbook/index.htm</u> Clean Boats Clean Waters Program: <u>www.miseagrant.umich.edu/cbcw</u>

In the Kitchen

Fish Eating Tips

✓ Trim away fatty areas

- ☑ Remove or puncture the fish's skin before cooking. This allows fat to drain off and helps remove fat from under the skin.
- ☑ Cook the fish so the fat drips away by baking, broiling, or grilling on a rack. Throw away the liquid fat and drippings.
- ☑ Do not eat the organs, head, skin or dark fatty tissues. ☑ Do not re-use oils used to deep or pan fry fish.
- ✓ Space out your meals of fish.
- ☑ Eat many different types of fish from a variety of sources.
- ☑ Limit your meals of predatory fish species (fish that eat other fish).
- ☑ Eat smaller, younger fish.
- ☑ Most chemicals (except mercury) collect in fat. Avoid fatty fish like carp and catfish from contaminated waters.
- ☑ Mercury cannot be trimmed or cooked away from fish. Choose species that are low in mercury.

Michigan Mercury Fish Consumption Advisory

- The statewide advisory applies to all inland lakes, reservoirs, and impoundments. The Statewide Mercury Advisory does not apply to the Great Lakes or rivers in Michigan. No one should eat more than one meal a week of Rock Bass, Yellow Perch, or Crappie No one should eat more than one meal a week of Largemouth Bass, Smallmouth Bass, Walleye, Northern Pike or Muskellunge of any size from inland lakes, reservoirs,
- Women of childbearing age and children under 15 years old should eat no more
- than one meal per month of: Rock Bass, Yellow Perch or Crappie more than nine inches in length from
- inland lakes, reservoirs, or impoundments. Largemouth Bass, Smallmouth Bass, Walleye, Northern Pike or Muskellunge

In the Wild

of any size from inland lakes, reservoirs, or impoundments.

Additional Information

Remove the skin

Unborn babies

Breast-fed babies

• Children under the age of 15

For more information check out the

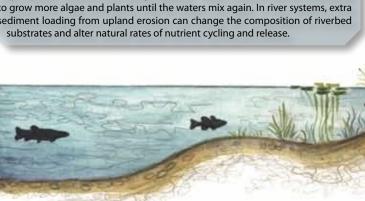
Individuals with certain chronic health problem

Who is at risk from eating contaminated fish?

Michigan Family Fish Consumption Guide, available at: www.michigan.gov/mdch-toxic or call 1-800-MI-TOXIC

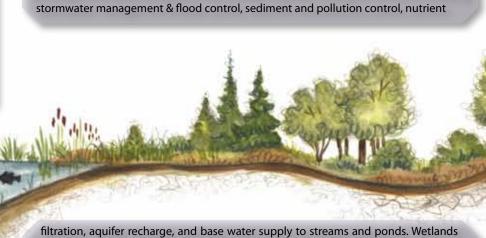
LIGHT PENETRATION Portion of the lake where there (light) is sufficient sunlight for aquatic plants to flourish. The deepest portion of the (no light) lake, which is too

Lake & River Bottoms Lake and river bottoms provide the foundation for aquatic food chains. When plants and animals in the food web die, many of them come to rest at the bottom of the lake or river – often referred to as the 'benthic zone'. Here, organisms such as pacteria or fungi that live in the lake bottom recycle the dead organisms back into utrients that can be used again by plants and fish in the waters above. Because a ood web is composed of a series of connections, it is sensitive to change. In deep akes where waters are not well mixed, a lack of oxygen within the benthic zone nay impede nutrients from being released. These nutrients will be unavailable to grow more algae and plants until the waters mix again. In river systems, extra



Wetlands & Floodplains

etlands and floodplains are located at the interface of dry upland and open water. They are unique and varied ecosystems that provide important ecological functions including: stormwater management & flood control, sediment and pollution control, nutrient



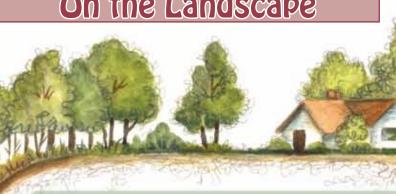
so provide critical habitat to wildlife and may be used for recreational activities such as

ning, bird watching, and hunting. These delicate ecosystems harbor a diversity of plant

nd animal resources and serve as the front-line defense that streams and ponds have

ainst human-induced upland disturbances. The use and modification of these unique

On the Landscape



intenance of riparian buffer zones and wetlands.

hat people do in the uplands directly impacts lakes and streams. This is because every inch f dry land falls within a watershed – an area of land that drains water to a common waterbody. hemical pollutants, fertilizers, pesticides, trash, and debris all enter streams with the water raining from uplands within the watershed. Therefore, it is important to think about how actions may impact water quality even on dry land. For example, careful planning that takes into consideration the location and design of built structures is essential. Development hould not necessarily be stopped, but its potential harm to local water resources should be inimized through proper site design and subsequent stewardship practices. Planning for new building, road, or development must include plans for stormwater runoff control and

Natural Indicators The glacial history of Oakland County has

DIVER DOWN FLAG

created some special habitats that support unique wildlife. The animals pictured here need clean water to survive. They can be found in or near the water. All of these animals are rare or becoming rare. The two reptiles pictured here are protected in Michigan by law – they are "Species of Special Concern". Their populations are declining. The Eastern Massasauga Rattlesnake is Michigan's only venomous snake. It inhabits fens and wet meadows. The Blanding's Turtle lives in clean water with lots of vegetation. The strange appearance of the mudpuppy can scare you, but this harmless creature is affected by pollution. Seeing these animals indicates the water quality is good. Please

leave them alone. For more information check out: Michigan Natural Features Inventory web4.msue.msu.edu/mnfi

Eastern Massasauga Rattlesnake Sistrurus catenatus catenatus

assasauga have thick bodies and are medium size snakes (2'-3'). Look for three vertical darks stripes on the head and dark blotches along the back and sides with background colors of gray to brown. Young Massasauga look like the adults, but smaller. The hallmark of the snake is the rattle on the tip of its tail - if not present the tail is blunt, not tapered.



Blanding's Turtle Emys blandingii

Blanding's turtles are a medium-sized turtle with a dome-shaped carapace, or top shell, which is smooth and black dotted with yellowish flecks. It is hard to miss the bright yellow neck of these turtles. The yellowish plastron, or bottom shell, has dark blotches along the edge and a flexible hinge across it. Blanding's turtles take 15-20 years to reach reproductive age.



Mudpuppy

Necturus maculosus Mudpuppy are very obvious - showing the exchange of oxygen with the blood vessels in the gills. This large brown to gray salamander may have spots and can grow from 8" – 19" long. These permanently aquatic salamanders spend most of the time crawling on the bottom of lakes and rivers and hide under objects.

Pumpkinseed Sunfish

www.miseagrant.umich.edu

Lepomis gibbosus dentifying Characteristics: (Native Fish) Oval and laterally compressed, with colorful speckles on an olive back, yellow sides, and a yellow to orange belly. Very similar to bluegills - the two are best distinguished by the opercle ("ear") flap. It is black in both species, but the pumpkinseed has a crimson spot on the rear edge.

Natural History: Pumpkinseeds prefer shallow, cool to moderately warm water with some weed cover. They are often typical of ponds and small lakes. Pumpkinseeds are more tolerant of low oxygen levels than bluegills are, but less tolerant of warm water. Groups of young fish school close to shore, but adults tend to travel in groups in slightly deeper, yet still covered, waters. They are active during the day and rest near

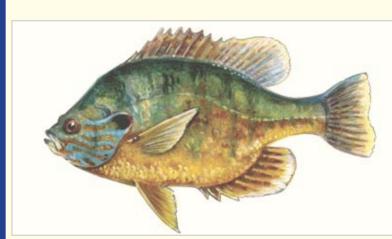
dark for most

aquatic plants to

Adult Sizes: 6" - 8" **Bait:** Worms/Waxworms, Spinners Habitat: Lake Shallows, Vegetation

the bottom at night.

Sea Grant

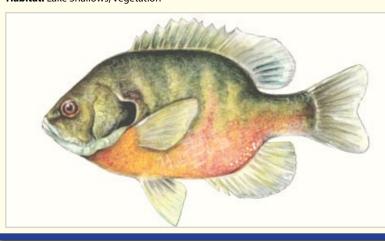


Bluegill

Lepomis macrochirus entifying Characteristics: (Native Fish) Two dorsal fins with spinous and soft-rayed portions united, small mouth, long pointed pectoral fins, faint black spot on softrayed part of dorsal fin separates the bluegill from other sunfish, which lack this dorsal oration. Hybridizes with other sunfish.

Natural History: The Bluegill is a native to eastern and central North America, including the lower Great Lakes. This fish enjoys a well-deserved popularity with anglers. Many a oung angler boasts the delicious bluegill as a first catch, while seasoned anglers using ght tackle find it a valiant fighter. Bluegills favor warm waters (64-70 degrees F) with plenty of cover such as weed beds, submerged logs, or drop-offs. They usually stay in elatively shallow water, but as temperatures rise in the summer, large bluegills will nead for deeper water. This fish also provides good winter sport.

Bait: Worms/Waxworms, Spinners Habitat: Lake Shallows, Vegetation



Largemouth Bass Micropterus salmoides

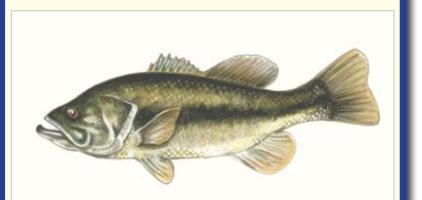
ems are closely regulated at the local, state, and federal levels

dentifying Characteristics: (Native Fish) Two dorsal fins with a deep notch between spinous and soft-rayed portions, body longer than deep, upper jaw extends beyond ear of eye, dark horizontal, lateral streak

Natural History: Another popular game fish, the Largemouth Bass lives in shallow water habitats, among reeds, water lilies and other vegetation. It shares these habitats vith Muskies, Northern Pike, Yellow Perch and Bullheads. Largemouth Bass are adapted o warm waters of 80-82 degree F, and are seldom found deeper than 20 feet.

Bait: Worms/Waxworms, Soft Baits, Minnows, Hard Baits

Habitat: Wood, Lake Shallows, Vegetation



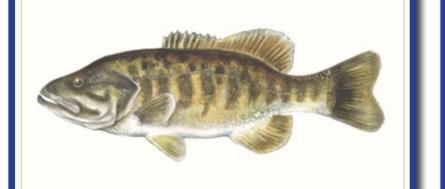
Smallmouth Bass Micropterus dolomieu

Identifying Characteristics: (Native Fish) Two dorsal fins with spinous and soft-rayed portions united, body longer than deep, upper jaw doesn't extend past eye, bronze streaks in cheek. Both the smallmouth and the largemouth bass, the black bass of the

sunfish family, are top game fish with lots of fight and fine-tasting flesh. Natural History: The Smallmouth Bass derives its name from the fact that the rear end of the lower jaw does not extend past the eye, while that of a largemouth does. Smallmouth Bass reside in Great Lakes bays and inland waters where waters are cool and clear, and the bottom is rock or gravel. Ideal smallmouth habitat contains protective cover such as shoal rocks, talus slopes, and submerged logs. Their preferred water

Bait: Minnows, Hard Baits, Soft Baits, Spinners **Habitat:** Flowing Water, Lake Shallows, Rocky, Lake-Deep Water

emperature is 68-70 degrees F, cooler than that of the largemouth bass.

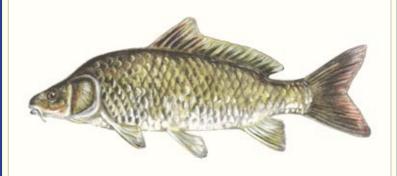


Common Carp Cvprinus carpic

Identifying Characteristics: (Non-Native Fish) Look for the large scales and a downturned extendable mouth with barbells (whisker-like sensory organ). Common Carp have a serrated dorsal fin and an anal fin with spines. Carp are bronze, brassy, or yellow in color, usually darker above with lighter yellow bellies. These heavy bodied fish can

Natural History: Native to Asia, the Common Carp was widely introduced in Michigan and throughout North America in the late 1800's. These large, omnivorous fish are considered invasive and degrade the water resources due to their habits. They browse on invertebrates in bottom sediments - uprooting plants, muddying the waters, and destroying nests, foods and cover needed by other fish. Carp, however, are considered a game fish by some.

Bait: Worms/Waxworms, Soft Baits, Doughballs/Corn labitat: Flowing Water, Lake Shallows, Rocky, Vegetation



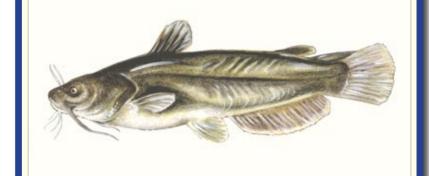
Bullhead

ntifying Characteristics: (Native Fish) Oakland County lakes contain Yellow, Black and Brown Bullheads. The three species are difficult to tell apart. All three species lack scales, have two dorsal fins including one adipose fin, tail only slightly notched, and

latural History: Bullheads, like channel catfish, also spawn in the late spring or early summer, in nests prepared in mud, sand, or among aquatic vegetation. These nests are sually located near a log or some other form of protection. One or both parents care for the eggs, since they must be diligently fanned and stirred. In a week or so, the eggs hatch and young emerge, looking very much like tadpoles. Their parents accompany

Adult Sizes: 10" - 12"

Bait: Worms/Waxworms, Stinkbaits labitat: Flowing Water, Lake Shallows, Rocky, Vegetation



Channel Catfish Ictalurus punctatus

dentifying Characteristics: (Native Fish) Two dorsal fins including one adipose fin orked tail, barbels (whisker-like sensory organ) around the mouth, slender body with speckled sides. The channel catfish and bullhead are members of the Ictaluridae, or catfish family. These fish are readily distinguished by their scaleless bodies, broad flat heads, sharp heavy pectoral and dorsal spines, and long whisker-like barbels about the mouth. They are also mostly nocturnal, and use their barbels to locate food in the dark

Natural History: One of the most fascinating Great Lakes inhabitants is the Channel Catfish. This species of fish appears to have lived in North America for at least 3,000 years. They are presently found in all the Great Lakes except Lake Superior and have

peen stocked in many inland lakes

Bait: Worms/Waxworms, Stinkbaits **Habitat:** Flowing Water, Lake Shallows, Rocky, Vegetation



