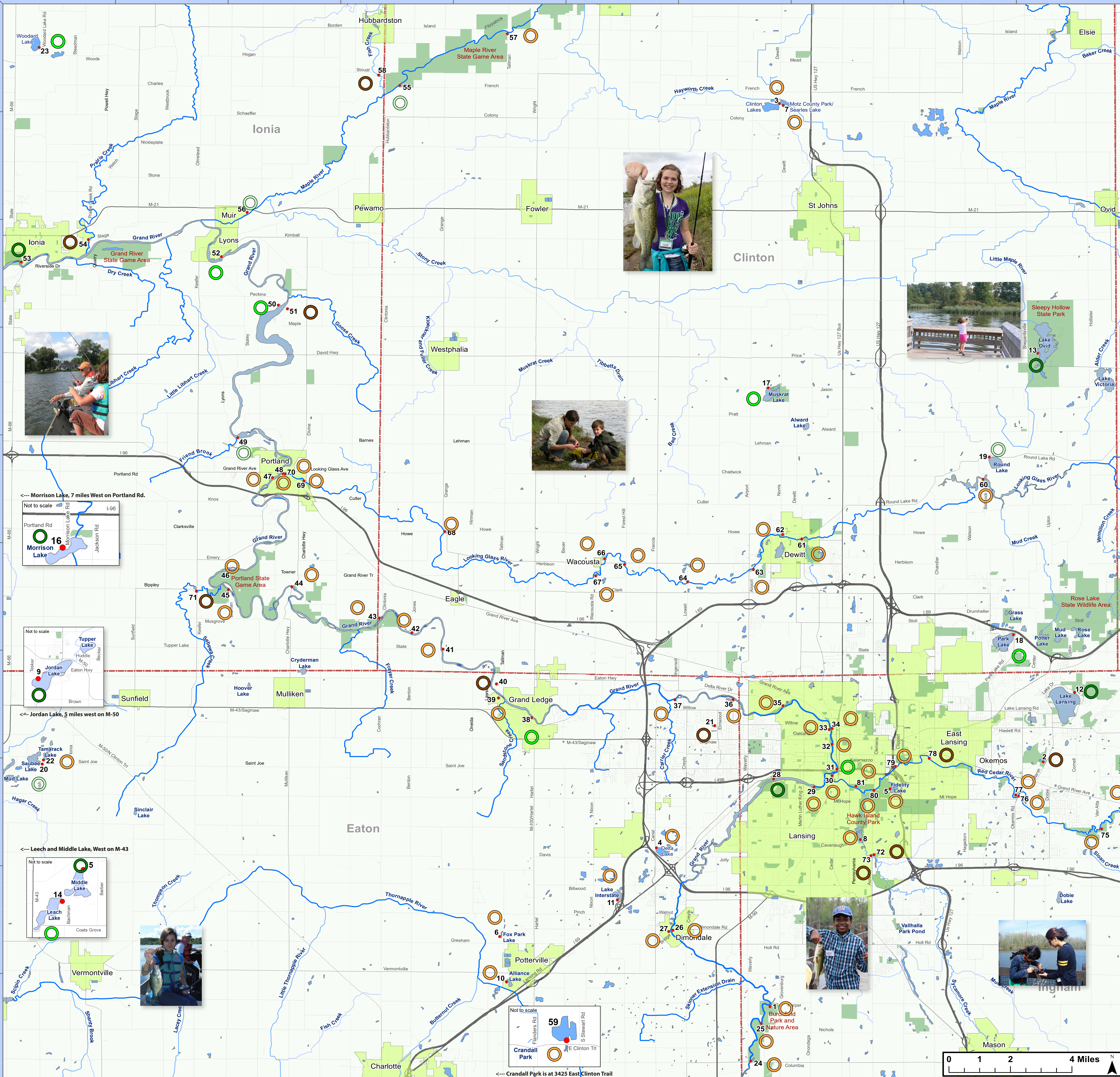
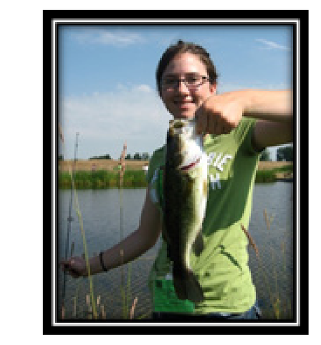
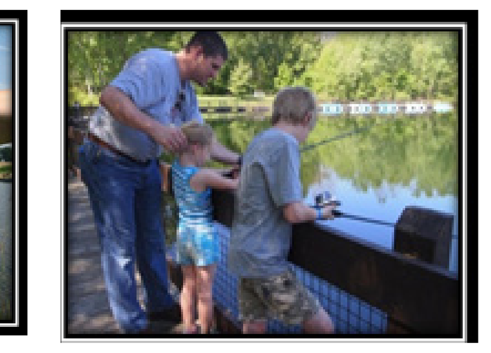
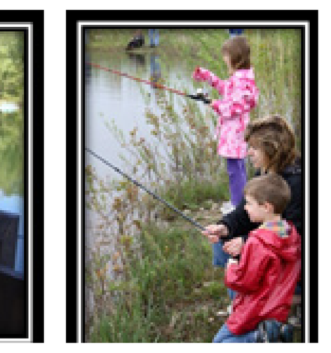


TAKE A KID FISHING!

MID-MICHIGAN: GUIDE TO PUBLIC LAKES AND RIVERS

Use this guide to help get started on your next fishing adventure in the Mid-Michigan area. The map shows fishing access sites on local lakes and streams and the fish illustrations on the reverse side of the map help identify many of the common fish species found in these bodies of water. Other information includes the do's and don'ts of living or recreating near water and preparing and eating the fish you catch.

Once you've located your next fishing spot, don't forget to take your son or daughter, niece or nephew, grandchildren, or another special kid along. Don't forget to take lots of pictures to capture the precious memories of time spent fishing and enjoying our abundant natural resources.

This map and guide is dedicated to the hundreds of youth, parents, guardians, volunteers, donors, program partners, park personnel, and sponsors who participate in the Dr. Bill Earl Youth Fishing Program each year. For additional maps or information contact Project FISH at http://www.projectfish.org

THANK YOU TO OUR SPONSORS

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FISHING MAP LEGEND

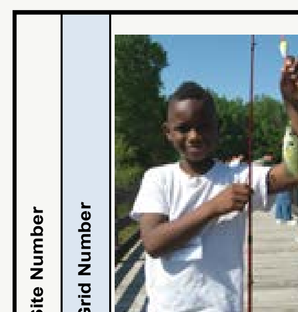
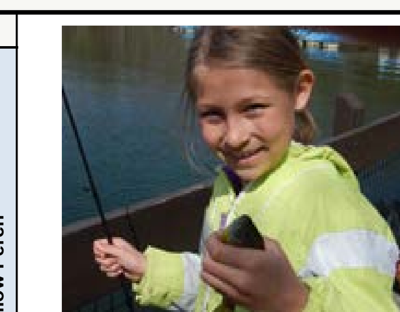



TABLE KEY

X = Fishable Populations

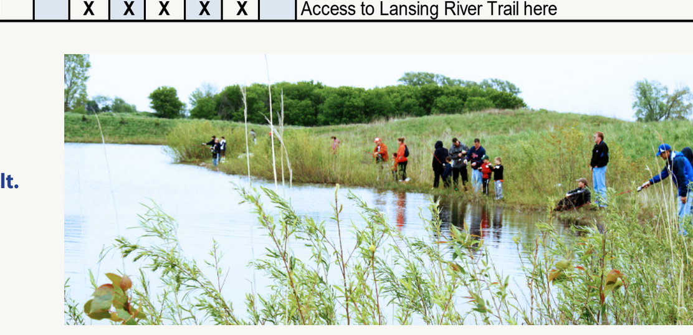
Ramp Code 1 - 4, See below

Site Number	Grid Number	GPS Locator		Boat Access Ramp Code	Shore Fishing	Toilets	Parking (Number)	Fee	Courtesy Pier	Acres	Bluegill/Pumpkinseed Sunfish	Brown Trout	Bullhead	Carp	Channel Catfish	Crappie	Flathead Catfish	Largemouth Bass	Musky	Northern Pike	Rainbow Trout	Redear Sunfish	Rock Bass	Smallmouth Bass	Steelhead/Salmon Runs	Suckers	Walleye	Yellow Perch	Comments
			LAKES																										
1	J 7	42.609536, -84.588405	Burchfield Park Pond	4	Y	Y	50	Y	Y	5	X							X			X					X			Rainbow trout in spring/summer only
2	H 10	42.730269, -84.414301	Central Park Pond - Meridian Township	0	Y	Y	50	N	Y	1	X		X	X		X		X		X		X						X	Located in the Meridian Historical Village
3	A 7	43.054344, -84.583996	Clinton Lakes County Park	4	Y	Y	50	N	N	100	X		X		X	X		X		X							X		Parking with access to Big and Little Clinton Lakes
4	H 6	42.687568, -84.661205	Delta Lake	4	Y	Y	20	N	Y	40	X		X	X	X	X		X		X								X	Lots of shore fishing, plus several docks
5	H 8	42.716846, -84.512068	Fidelity Lake/Crego Park	4	Y	N	30	N	N	16	X			X		X		X					X						Public fishing pier/handicap canoe/kayak launch
6	I 5	42.643591, -84.760981	Fox Park Lake	4	Y	Y	150	Y	Y	10	X		X	X	X	X	X	X					X	X		X		X	Beach present, good for youth fishing
7	A 7	43.053364, -84.581518	Francis Motz County Park	4	Y	Y	138	N	Y	15	X		X		X	X		X										X	Fuel powered watercraft prohibited
8	H 8	42.691856, -84.531003	Hawk Island	4	Y	Y	500	Y	Y	30	X		X	X	X	X	X	X				X	X			X		X	Beach, boat rental, docks, good for youth fishing
9	G 1	42.766942, -85.150709	Jordan Lake	1	Y	Y	20	N	Y	430	X		X	X		X		X		X		X	X	X				X	5 mi W on M-50, S 1 mi on Tasker Rd
10	J 5	42.621171, -84.756439	Lake Alliance	4	Y	N	100	N	Y	20	X		X	X	X	X		X	X	X		X				X		X	Access north of Lansing Rd, 0.5 mi west of Hartel
11	I 6	42.661744, -84.685874	Lake Interstate	4	Y	N	10	N	Y	44	X		X	X	X	X		X										X	Access off of Lansing Road to north
12	G 10	42.764413, -84.394211	Lake Lansing	1	Y	Y	58	Y	Y	453	X		X	X		X		X		X			X	X				X	Fishing Pier at Lake Lansing South
13	D 10	42.931432, -84.417906	Lake Ovid (Sleepy Hollow State Park)	1	Y	Y	106	P	Y	410	X		X	X	X	X		X	X	X		X	X			X		X	State Park facility, handicap accessible
14	I 1	42.690811, -85.277289	Leach Lake	2	Y	N	12	N	Y	125	X		X	X	X	X		X		X		X	X					X	1 mi N of Coates Grove on Bachman Rd
15	I 1	42.701566, -85.267874	Middle Lake	1	Y	Y	16	N	Y	131	X		X	X	X	X		X		X		X	X					X	0.75 mi W of Barber Rd on Culbert Dr
16	E 1	42.862832, -85.213502	Morrison Lake	1	Y	Y	15	N	Y	330	X		X	X		X		X		X		X	X	X				X	Exit I-96 at M-66, Go west 7 mi on Portand Rd
17	D 7	42.914232, -84.590653	Muskrat Lake	2	Y	Y	20	N	N	39	X		X		X	X		X		X		X	X			X		X	Hard surface ramp
18	F 9	42.792813, -84.433285	Park Lake	2	Y	N	15	N	Y	185	X		X		X	X		X											Boat launch at Rickart Park
19	E 9	42.880218, -84.448847	Round Lake	3	Y	N	9	N	Y	60	X		X	X	X	X		X		X		X	X					X	Boat rental at Don's Party Store off Round Lake Rd
20	H 1	42.727077, -85.053768	Saubee Lake	3	N	N	15	N	N	70	X		X	X		X		X		X		X	X					X	Shared parking lot w/Tamarock Lake
21	G 7	42.747747, -84.624218	Sharp Park Pond	0	Y	Y	1	N	Y	1	X		X	X	X	X		X		X			X					X	Access from Elmwood Rd.
22	H 1	42.729096, -85.053040	Tamarock Lake	4	N	N	15	N	N	20	X		X	X		X		X		X		X	X					X	Shared parking lot w/Saubee Lake
23	A 1	43.079916, -85.059790	Woodard Lake	2	Y	Y	10	N	Y	73	X		X	X		X		X		X		X	X					X	Access from Woodard Lake Rd north of Woods Rd
			STREAMS																										
			GRAND RIVER																										
24	J 7	42.582653, -84.600513	McNamara Landing	4	Y	Y	10	N	N		X		X	X	X	X	X	X		X			X	X		X	X		
25	J 7	42.601093, -84.593854	Riverbend Natural Area/Burchfield	4	Y	Y	25	N	N		X		X	X	X	X	X	X		X			X	X		X	X		
26	I 6	42.646980, -84.650538	Dimondale, Danford Island Park	4	Y	N	25	N	N		X		X	X	X	X		X					X	X		X	X		298 West Washington St, Dimondale
27	I 6	42.646369, -84.653038	Lions Park, Dimondale	4	Y	Y	10	N	N		X		X	X	X	X		X					X	X		X	X		304 West Jefferson St, Windsor Twp.
28	H 7	42.721529, -84.586510	Grand River Park	1	Y	Y	50	N	Y		X		X	X	X	X		X		X			X	X		X	X		
29	H 8	42.717527, -84.560614	Moores Park	4	Y	Y	15	N	N		X		X	X	X	X		X		X			X	X	X	X	X		Access to Lansing River Trail here
30	H 8	42.723311, -84.549139	The Point at Scott Park	4	Y	Y		N	N		X		X	X	X	X		X		X			X	X	X	X	X		
31	H 8	42.726509, -84.546082	Sweeny's Landing - River Street Park	2	Y	N	12	N	Y		X		X	X	X	X		X		X			X	X	X	X	X		
32	G 8	42.738747, -84.549246	Adado Riverfront Park	4	Y	N	0	N	Y		X		X	X	X	X		X		X			X	X	X	X	X		Street parking or at LCC Parking Structure
33	G 8	42.746068, -84.550936	Burchard Park	4	Y	N	0	N	N		X		X	X	X	X		X		X			X	X	X	X	X	X	Street parking on E. Maple Street
34	G 8	42.746576, -84.549206	Brenke Fish Ladder	4	Y	Y	60	N	Y		X		X	X	X	X		X		X			X	X	X	X	X		Access to Lansing River Trail here
35	G 7	42.756682, -84.583247	Tecumseh River Park	4	Y	Y		N	N		X		X	X	X	X		X		X			X	X	X	X	X		
36	G 7	42.760639, -84.612418	Grand Woods Park	4	Y	Y	50	N	N		X		X	X	X	X		X		X			X	X	X	X	X		River and fishing pond access
37	G 6	42.760568, -84.649661	Delta Mills Park (Old River Trail/Webster)	4	Y	Y	20	N	N		X		X	X	X	X		X		X			X	X	X	X	X		Shore access and canoe/kayak walkdown
38	G 5	42.751400, -84.741138	Jaycee Park, Grand Ledge	2	Y	N	16	N	N				X	X	X	X				X			X	X	X	X	X		Shore fishing access all the way to the point
39	G 5	42.761072, -84.762495	Fitzgerald Park and Dam	4	Y	Y	10	Y	Y		X		X	X	X	X				X			X	X	X	X	X		Nature Museum, trails, overflow parking
40	G 5	42.767986, -84.763848	Lincoln Brick Park	0	Y	Y	20	P	N		X		X	X	X	X				X			X	X	X	X	X		3.5 mi of trails, trail to river, and quarry pond
41	F 4	42.784896,-84.798171	State Road Bridge	4	N	N	3	N	N		X		X	X	X	X				X			X	X	X	X	X		
42	F 4	42.792828, -84.818054	Jones Road Bridge	4	Y	N		N	N		X		X	X	X	X				X			X	X	X	X	X		Access for wading, canoes/kayaks, limited parking
43	F 4	42.800080, -84.838914	Pryor Road	4	N	N		N	N		X		X	X	X	X				X			X	X	X	X	X		Access for wading, canoes/kayaks, limited parking
44	F 3	42.815162, -84.894923	Charlotte Hwy.	4	N	N		N	N		X		X	X	X	X				X			X	X	X	X	X		Access for wading, canoes/kayaks, limited parking
45	F 3	42.813567, -84.935518	Erdman Road (also Sebawa Creek)	4	N	N	5	N	N		X		X	X	X	X				X			X	X	X	X	X		Access for Grand River and Sebawa Creek
46	F 3	42.822893, -84.935356	Towner Rd. Two Track Access	4	N	N		N	N		X		X	X	X	X	X	X		X			X	X	X	X	X		
47	E 3	42.868873, -84.907924	Portland's Thompson Field Park	4	Y	Y	20	N	N		X		X	X	X	X				X			X	X	X	X	X		
48	E 3	42.870941, -84.901213	Two Rivers Park	4	Y	N	20	N	N		X		X	X	X	X				X			X	X	X	X	X		River Access along the boardwalk/rivertrail
49	D 3	42.888487, -84.930366	Portland Municipal Dam	3	Y	Y	10	N	N		X		X	X	X	X	X			X			X	X	X	X	X		
50	C 3	42.953941, -84.904942	Webber Dam/Impoundment	2	Y	Y	8	N	N		X		X	X	X	X	X	X		X			X	X	X	X	X		Access upstream and downstream of dam
51	C 3	42.953053, -84.909485	Webber Dam/East	0	Y	Y	30	N	N		X		X	X	X	X	X	X		X			X	X	X	X	X		Long, steep stairs to river
52	C 2	42.977593, -84.941678	Lyons Tabor Street Boat Access	2	Y	Y	5	N	N		X		X	X	X	X	X	X		X			X	X	X	X	X		
53	C 1	42.974157, -85.070059	Ionia Fairgrounds	4	Y	N	25	N	N		X		X	X	X	X	X	X		X			X	X	X	X	X		
54	C 1	42.985448, -85.027039	**PRAIRIE CREEK**		Y	N						X									X				X				Access at multiple upstream bridges, also for wading
			MAPLE RIVER																										
55	A 4	43.062483, -84.827963	French Road Access	3	Y	Y	20	N	N		X		X	X	X	X		X		X			X	X	X	X	X		
56	B 3	42.999479, -84.925366	Maple River Launch	3	N	N	10	N	N		X		X	X	X	X		X		X			X	X	X	X	X		Access road off M-21, 100 yds E of Struble Rd
57	A 5	43.088170, -84.759032	Fitzpatrick Road	4	N	N	10	N	N		X		X	X	X	X		X		X			X	X	X	X	X		
58	A 4	43.067528, -84.841501	**FISH CREEK (Stoudt Road)**		N	N			N											X				X	X				Wading only, roadside parking, access at other bridges
			LOOKING GLASS RIVER																										
59	J 5	42.553217, -84.770902	Crandall Park	4	Y	Y		N	N		X		X	X		X		X		X			X	X				X	Currently catch and release during development
60	E 9	42.869396, -84.452780	Babcock Rd.	4	Y	N	8	N	N		X		X	X	X	X		X		X			X	X		X		X	MDNR Public Access parking
61	E 8	42.839796, -84.568848	Riverside Park, Dewitt	4	Y	Y	25	N	Y		X		X	X		X		X		X			X	X		X			
62	E 7	42.841933, -84.581073	McGuire Park	4	Y	Y	25	N	N		X			X		X				X			X	X		X			
63	F 7	42.824810, -84.599884	Looking Glass Riverfront Park	4	Y	N	10	N	N		X			X		X				X			X	X		X		X	
64	F 7	42.818620, -84.641871	Lowell Rd.	4	N	N		N	N		X			X		X				X			X	X		X			Limited roadside parking
65	F 6	42.826978, -84.682290	Herbison Rd./Forest Hill	4	Y	N	3	N	N		X			X		X				X			X	X		X			Limited roadside parking
66	F 6	42.829791, -84.694957	Heritage Park Canoe Landing	4	Y	Y	25	N	N		X			X						X			X	X		X			Picnic area/concrete landing/enter off Wacousta Rd
67	F 6	42.821402, -84.700697	Gloria Miller Looking Glass Valley Park	4	Y	Y	20	N	N		X			X						X			X	X		X			Picnic pavilion and recreational facilities
68	E 4	42.842743, -84.797468	Howe Rd.	4	N	N	4	N	N		X			X						X			X	X		X			Limited roadside parking
69	E 3	42.867334, -84.887747	Portland City Park	4	Y	Y	20	N	N		X			X						X			X	X		X			Portland River Trail follows river
70	E 3	42.870812, -84.899833	Devine Highway	4	N	N	10	N	N		X			X						X			X	X		X			River joins Grand River just downstream
71	F 2	42.812717, -84.956028	**SEBAWA CREEK, Bipley Rd Bridge**	0	Y	N		N	N			X									X			X		X			
			SYCAMORE CREEK																										
72	H 8	42.684391, -84.522243	Biggie Munn Park	0	Y	Y					X			X						X			X	X	X	X			
73	H 8	42.683967, -84.524087	Lansing River Trail Head, Aurelius Road	0	Y	N	15				X			X						X			X	X	X	X			
			RED CEDAR RIVER																						X				
74	H 10	42.709443, -84.362433	Red Cedar Roadside Park	4	Y	Y	10	N	N					X						X			X	X		X			Park on north side of road east of bridge
75	H 10	42.697222, -84.376964	Vanatta Road/Harris Nature Center	4	Y	Y	9		Y		X			X						X			X	X	X	X			Education displays, restrooms, small dock at road
76	H 9	42.713334, -84.430057	Ferguson Park	4	Y	Y	30				X			X						X			X	X	X	X			Across road from Wonch Park
77	H 9	42.713920, -84.431716	Wonch Park	4	Y	Y	30				X			X						X			X	X	X	X			Across road from Ferguson Park
78	G 9	42.731918, -84.487028	MSU Campus	0	Y	N		N			X		X	X	X			X		X			X	X	X	X	X		Fishing allowed on north bank west of Sparty
79	H 8	42.727895, -84.508605	Clippert Street River Walk Trail	4	Y	N	20				X		X	X	X			X		X			X	X	X	X	X		Access to Lansing River Trail here
80	H 8	42.716087, -84.522338	Krueger's Landing	4	Y	N	10				X		X	X	X			X		X			X	X	X	X	X		Access to Lansing River Trail/concrete landing
81	H 8	42.718121, -84.533859	Potter Park	4	Y	Y	50	Y			X		X	X	X			X		X			X	X	X	X	X		Access to Lansing River Trail here

RAMP CODES

- 0 = No Ramp.
- 1 = Hard-surfaced ramp with sufficient water depth and lake size to accommodate most trailerable boats.
- 2 = Hard-surfaced ramp, in areas of limited water depth or lake size, where launching, retrieving, and use of larger boats may be difficult.
- 3 = Gravel-surfaced ramp.
- 4 = Carry-down launching area. Site does not have an improved ramp and is suitable for launching cartop boats and canoes only.

For more information about Michigan boating access sites go to Michigan DNR's official website: http://www.mcgi.state.mi.us/MRBIS/



Map created with assistance of Christy Steffke and Dawn Burlock; links and pop-ups by Becky Palmer-Scott

Lakes & Ponds — Public Access to Water Body

Rivers & Streams — Recreation Land

What is a Watershed?

A watershed consists of an area of land that drains into a common body of surface water such as a stream, river, or lake and also includes groundwater. A critical component of watershed management is the understanding of how water travels into, across, and off the land and other intercepting features (such as trees, houses, and parking lots) carrying with it a variety of pollutants that can impact water quality. The watershed concept allows us to understand the full impact of our behaviors on our water resources. Each of our watersheds in the four counties covers multiple municipal and governmental boundaries. The surface waters within our map drain into four sub-watersheds of the Grand River Watershed:

- Grand River Watershed
- Maple River Watershed
- Looking Glass River Watershed
- Thornapple River Watershed
- Red Cedar River Watershed

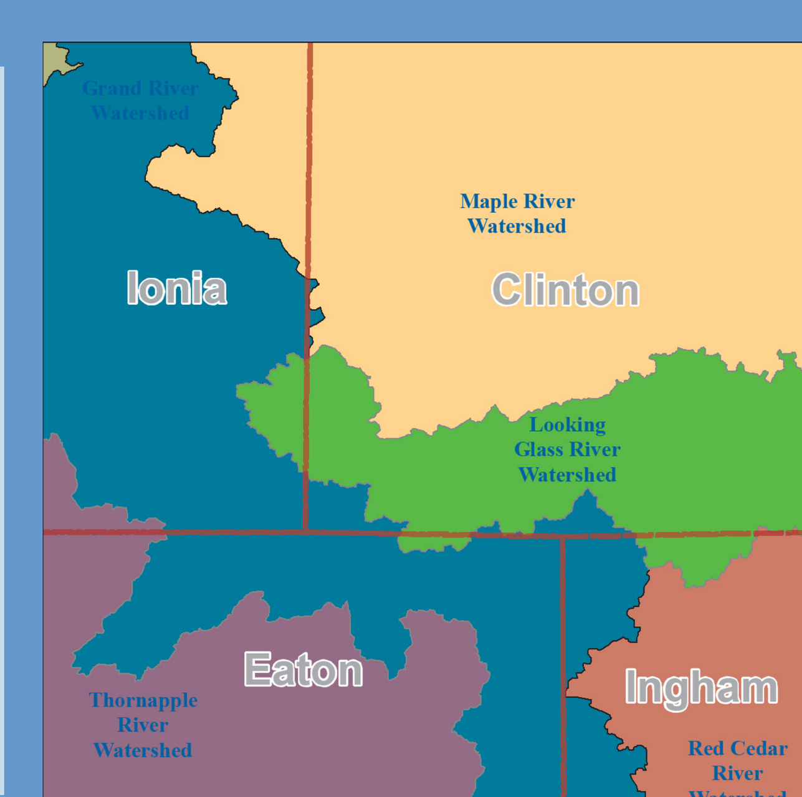
DEQ 24-Hour Pollution Hotline PEAS (1-800-292-4706)

In case of environmental emergency affecting AIR - LAND - WATER- WETLANDS-DAMS-DRINKING WATER SUPPLIES

What Should You Report?

- Suspicious dumping or discharges from pipes
- Sewage on the ground or in surface water
- Failing septic systems
- Large numbers of dead fish in waterways
- Construction site soil erosion into waterways
- Spills and contamination to lakes, rivers, and streams

Report all poaching hotline 1-800-292-7800



Crappie

Pomoxis nigromaculatus (Black) & P. annularis (White)

Identifying Characteristics: Silvery-green to yellowish with large fins and a narrow body from side to side. They have many spots and much mottling and a relatively large mouth. Black crappies are much more common and have 7 to 9 spines on their dorsal fin while the white crappie has 6 or less.

Natural History: These fish have a larger average size than most panfish. They prefer water temperatures in the 70s but will tolerate 80 degrees and above. They eat more small fish than other panfish. Weed beds with openings and areas of dead trees in impoundments provide ideal habitat. They bite well in the winter, continue to feed after dark, and are often caught through the ice.

Adult Sizes: 8"-14"

Bait: Minnows, wigglers, jigs, soft plastics, small crankbaits

Habitat: Clear water, moderate depth, vegetation and wood

Rainbow Trout

Oncorhynchus mykiss

Identifying Characteristics: A soft rayed dorsal fin plus a small adipose fin on their back near the tail. Whitish mouth and many small, dark spots on body and whole tail. Some red on its gill cover and down its side. Rainbows in the Great Lakes are called steelhead and migrate upstream in the fall and spring and spawn in the spring. Coho salmon (O. kisutch) are closely related and migrate in the fall. They have a gray mouth with lighter gums and spots only on the upper part of their tail. Chinook salmon (O. tshawytscha) also migrate in the early fall and have a black mouth and spots over their whole tail.

Natural History: All three species were introduced from the West Coast. In streams rainbow trout prefer faster currents, Steelhead spend one to four years in Lake Michigan before migrating while coho return after one or two years and chinook after one to five years. All three will spend time below dams until they find the ladder and lay in runs and pools below gravel riffles until ready to spawn. The salmon die after spawning but the steelhead may return to Lake Michigan.

Adult Sizes: Rainbow 8"-16", steelhead 15"-30", coho 15"-28", chinook 18"-40"

Bait: Salmon eggs, worms, streamer flies, spinners, spoons, crankbaits

Habitat: Rocky streams, riffles, Lake Michigan

Brown Trout

Salmo trutta

Identifying Characteristics: A soft rayed dorsal fin plus a small adipose fin near the tail on the back of the fish. Olive to golden brown sides fading to a yellowish belly with numerous black spots. Red spots will also be present on stream resident trout. Tail is square and usually without spots.

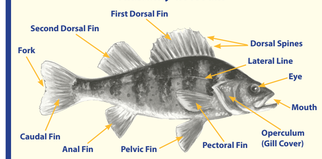
Natural History: Imported from Europe, brown trout have adapted well to our cold streams and the Great Lakes. They require cold water temperatures, usually less than 70 degrees. Some will migrate upstream from Lake Michigan to spawn in the fall. Brown trout are wary fish and will hide under logs, overhanging vegetation, and overhanging banks.

Adult Sizes: 8"-20" in streams, 16"-32" in Lake Michigan

Bait: Worms, crayfish, minnows, spinners, crankbaits

Habitat: Cold streams, rocks, logs, riffles

Anatomy Of A Fish



Do I need a fishing license?

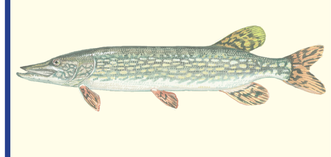
Fishing License Requirements:

- 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 regulations.**
- 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, Tribal Conservation Officer, or any law enforcement officer.
- Your fishing license is valid from March 1 of a given year though March 31 of the following year.

To purchase a fishing license you must have:

- A valid Michigan Driver License.
- 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

Esox lucius

Identifying Characteristics: Slender fish with a single dorsal fin near the tail of the fish. Light colored, bean shaped spots cover most of the body except for the cream colored belly. Muskies (E. masquinongy) are closely related to northern pike and have dark markings on a light background. There are scales on the upper half of the gill cover and all of the cheek on the pike while the lower half of the cheek of the muskie is without scales.

Natural History: Northern pike and muskies are predators that hide in aquatic vegetation and ambush their prey. Pike are generally not as wary as muskies and are more common so they are easier to catch. Both fish prefer cool water so they may retreat to deeper water in the summer. While they will eat a variety of creatures, other fish make up about 90% of their diet. Muskies can grow larger than pike.

Adult Sizes: 20"-48"

Bait: Minnows, panfish, suckers, crankbaits, spoons, spinners, bucktails

Habitat: Vegetation, logs, large rocks, other cover.

Walleye

Sander vitreus

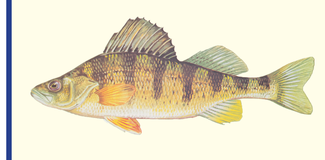
Identifying Characteristics: This largest member of the perch family has two dorsal fins separated into spiny (front) and soft-rayed (back) portions with a dark spot at the rear base of their spiny fin. They have large, milky eyes, a white tip on the lower lobe of their tail or caudal fin but lack the prominent vertical bars found on yellow perch.

Natural History: These fish grow large, are exciting to catch, and are delicious to eat. They can be caught throughout the year. Usually they prefer rocky habitat but can be found in weed beds in lakes. In rivers they will be concentrated in the slow pools below riffles. They tend to be light shy and are easier to catch on cloudy days and other low light periods. They are cool water fish preferring temperatures to be in the 60s and 70s.

Adult Sizes: 15"-28"

Bait: Night crawlers, minnows, crayfish, jigs, crank baits, and soft plastic baits.

Habitat: Slow flowing river water and lakes with moderate depth and firm bottoms. Rocks/logs.



Yellow Perch

Perca flavescens

Identifying Characteristics: These members of the perch family have two dorsal fins separated into spiny (front) and soft-rayed (rear) portions. They have yellowish to light green sides and six to nine vertical blackish bars on their sides. Its lower fins are amber to orange in color.

Natural History: Yellow perch are very popular Michigan game fish. They are known for being very tasty on the table. They tend to travel in schools and are usually found in relatively shallow waters up to 20 feet. They may move deeper in the heat of the summer as they prefer water temperatures in the 60s and 70s.

Adult Sizes: 8"-12"

Bait: Small Minnows, Small crayfish, worms, waxworms, wigglers, soft plastic baits.

Habitat: Lake shallows and shoals with firm bottom and vegetation.

ON THE LAND

Source: Costal Waccamaw Stormwater Education Consortium

Riparian Landowner Tips

An area located between local waterways and upland areas is called a Riparian Buffer

These vegetated land areas provide streamside and aquatic habitat, erosion protection and serve as a natural filter for stormwater runoff.

WHAT ARE THE BENEFITS OF A BUFFER?

- **Reduces polluted runoff**
- **Stabilizes banks and reduces erosion**
- **Decreases flood severity**
- **Provides important habitat areas**

HOW DO I CREATE A BUFFER?

- **Plant native trees, shrubs, grasses and wildflowers**
- **Quit mowing up to the edge, let existing vegetation grow in**
- **Maintain your buffer a minimum of 15 feet* from the edge**

***be sure to check local ordinances for width requirements and plant restrictions.**

ON THE WATER

STOP AQUATIC HITCHHIKERS!™

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

When you leave a body of water:

- 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.

Boater Safety Tips

- Check the weather forecast for the area and time frame during which you will be boating.
- 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 a boat.
- 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! Marks waterfalls, swim areas, rapids and other restricted areas.

DIVER DOWN

DIVER DOWN FLAG Do not approach, divers are below. Stay at least 200 feet away from diving operations. This flag may be flown from a vessel or float.

Additional Information

- MI Department of Natural Resources: www.michigan.gov/dnr
  Click on- "Camping and Recreation" then "Boating"
- MI Recreational Boating Information System: www.mcgi.state.mi.us/MRBIS
- MI Boating Handbook: www.boat-ed.com/michigan/handbook/index.html
- Clean Boats Clean Waters Program: www.mymlsa.org/cbcw

ON YOUR PLATE

1 CHOOSE

This quiz will help you find the best way for you to choose your fish. Read each sentence and mark 'T' for true or 'F' for false.

T F I only eat fish caught in Michigan a few times each year.
T F I'm 15 years old or older.
T F I DON'T plan on having children in the next several years.
T F I DON'T have health problems, like cancer or diabetes.
T F I DON'T eat fish from a lake or river that has posted signs with "Do Not Eat" guidelines from MDCH.

If ALL are TRUE for you:

You're at lower risk from chemicals in fish. The S.A.F.E. tips will help you choose fish to eat once in a while without worry!

- **S** **Smaller fish are better.** They tend to have fewer chemicals.
- **a** **Avoid large predator fish & bottom-feeders.** Always check the ***Eat Safe Fish Guide*** before eating these fish.
- **f** **Fat should be removed.** Some chemicals are stored in the fat of the fish.
- **e** **Eat fish that have been broiled or grilled on a rack.** More fat can drip away during cooking.

If ONE or MORE are FALSE:

You might be at higher risk. The *Eat Safe Fish Guide* will lead you to fish that are safer to eat on a regular basis.

The *Eat Safe Fish Guide*:

- ☑ lists fish species that have had filets tested for chemicals by MDCH.
- ☑ protects people who eat Michigan fish often.
- ☑ protects anyone who has health problems, is young, is pregnant, or is planning on having children in the future.

2 CLEAN

Some chemicals, like PCBs and dioxins, collect in the fat of the fish.

- ☑ **When cleaning the fish, trim away any of the fat you can see. Remove and throw away the organs, too.**

Careful cleaning can remove a lot of the chemicals from the fish. See below to learn how to quickly and easily filet a fish!

3 COOK

Even after trimming away the fat that you can see on the fish, some fat will still be hidden inside the fish filets.

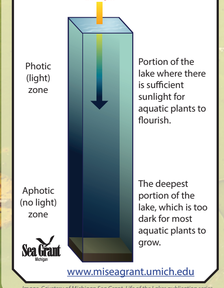
- ☑ **Poke holes in the skin or remove it completely so that fat can drip away from the fish filet as it cooks.**
- ☑ **Cook your fish on a grill or on a broiler pan in the oven. Any fat left can now drip away from the fish through the grates.**

If you cook your fish like this, you can get rid of even more of the chemicals that can be in the filet…**except mercury**.

Image: Courtesy of Michigan Department of Community Health

Have Questions or need a ***Guide***? Call MDCH at 1-800-648-6942 or visit www.michigan.gov/eatsafefish.

LIGHT PENETRATION



www.miseagrant.umich.edu

Image: Courtesy of Michigan Sea Grant, Life of the Lakes publication series

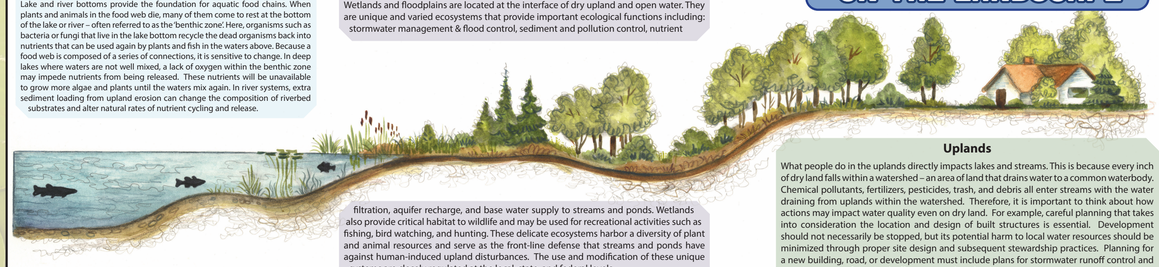
ON THE LANDSCAPE

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 bacteria or fungi that live in the lake bottom recycle the dead organisms back into nutrients that can be used again by plants and fish in the waters above. Because a food web is composed of a series of connections, it is sensitive to change. In deep lakes where waters are not well mixed, a lack of oxygen within the benthic zone may 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 sediment loading from upland erosion can change the composition of riverbed substrates and alter natural rates of nutrient cycling and release.

Wetlands & Floodplains

Wetlands 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 filtration, aquifer recharge, and base water supply to streams and ponds. Wetlands also provide critical habitat to wildlife and may be used for recreational activities such as fishing, bird watching, and hunting. These delicate ecosystems harbor a diversity of plant and animal resources and serve as the front-line defense that streams and ponds have against human-induced upland disturbances. The use and modification of these unique systems are closely regulated at the local, state, and federal levels



Uplands

What people do in the uplands directly impacts lakes and streams. This is because every inch of dry land falls within a watershed – an area of land that drains water to a common waterbody. Chemical pollutants, fertilizers, pesticides, trash, and debris all enter streams with the water draining 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 should not necessarily be stopped, but its potential harm to local water resources should be minimized through proper site design and subsequent stewardship practices. Planning for a new building, road, or development must include plans for stormwater runoff control and maintenance of riparian buffer zones and wetlands.

Image: Courtesy of Lori Taylor

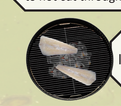
LEARN TO FILET A FISH

Make the first cut behind the gill cover. Cut only until the knife touches the backbone. Be careful to not cut through it.

Turn the fish and run the knife along the backbone and dorsal fin. Cut deep enough to skim the knife along the top of the rib cage.

When the knife blade no longer contacts the rib cage, push the knife through the width of the fish. The blade will exit on the bottom near the vent. Continue cutting along the bone until the filet is cut off at the tail.

Remove the skin from the filet by inserting the knife at the tail and cutting the meat from the skin. Hold the filet in position by pressing downon the skin, with your thumb. Remove any remaining visible fat from your fish filet at this time, too.



Note: If you are grilling your fish, you may want to leave the skin on. Just be sure to poke holes in the skin so any fat inside the filet can drip away.

Fish filet images and instructions courtesy of the Ohio DNR.

SUNFISH

Lepomis spp.

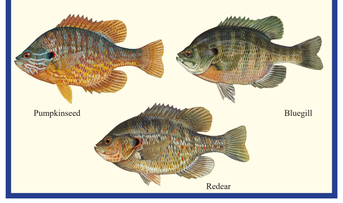
Identifying Characteristics: The bluegill (*L. macrochirus*) has five vertical bars on its side, a faint dark area on the back, soft rayed part of its dorsal fin and a fairly large, dark lobe on the back of its gill cover. Pumpkinseeds (*L. gibbosus*) usually are more colorful with reds and yellows and the lower part of their lobe is red. Redear sunfish (*L. microlophus*), as you might expect, have a larger margin of red on their gill cover lobe that extends almost all the way around.

Natural History: These fish prefer cool to moderately warm water ranging from the mid 60s to 80 degrees. They will be found in relatively shallow water with plenty of vegetation and other cover. Hot summer weather may send them to deeper water, especially the larger fish. They are very popular fish in the summer and through the ice in the winter.

Adult Sizes: 6"-10"

Bait: Worms, insect nymphs, crickets, small jigs.

Habitat: Shallow areas of clear lakes with plenty of vegetation.



ROCK BASS

Ambloplites rupestris

Identifying Characteristics: This member of the sunfish family is more elongated than the bluegill and pumpkinseed and has a much larger mouth. It is greenish olive and somewhat mottled with many small dark spots in rows. Green sunfish (Lepomis cyanellus) and warmouth (L. gulosis) are similar to the rock bass in that they have large mouths and slightly elongated bodies. Green sunfish are smaller and their spots are not prominent. Warmouth have a spot on each scale and only three spines on their anal fin.

Natural History: True to their name, rock bass love to reside in the nooks and crannies formed by large rocks. Both rock bass and green sunfish like rivers and lakes with hard bottoms while warmouth prefer weedy lakes with silty substrates. While all three feed on insects and other invertebrates they take advantage of their larger mouths to prey on other fish.

Adult Size: Rock Bass: 8"-12", Green Sunfish: 5"-7", Warmouth: 6"-10"

Bait: Minnows, crayfish, insect nymphs, jig, spinners, small crankbaits

Habitat: Rivers and lakes, shallow with cover, wood, vegetation, rocks

Largemouth Bass

Micropterus salmoides

Identifying Characteristics: The dorsal fin of this fish is deeply notched, separating the front spiny ray part from the rear soft ray section. Unlike others in the sunfish family, their body is longer than deep and the upper jaw extends back beyond its eye. They are greenish in color and usually have a dark, horizontal bar.

Natural History: These very popular game fish spend most of their time in shallow water near vegetation. They prefer water temperatures in the upper 70s and tolerate temperatures in the low 80s well. They will ambush prey from cover and also feed on the surface.

Adult Sizes: 14"-22"

Bait: Soft baits, spinner baits, crankbaits, minnows, frogs.

Habitat: Lake shallows, vegetation, boat docks

Smallmouth Bass

Micropterus dolomieu

Identifying Characteristics: The soft and spiny ray parts of the dorsal fin are separated by a shallow notch and the jaw extends only to the eye. They are olive green to bronze in color and often have many vertical bars on their sides. The gill covers will have three or four bars extending from the cheek to the edge of the cover.

Natural History: Smallmouth prefer clear water with a firm, rocky bottom. They like water temperatures in the 60s and low 70s, much cooler than their largemouth cousin. Logs, boulders, and rock or clay ledges provide cover for these fish. Rivers often provide ideal habitat for smallmouth and they abound there.

Adult Sizes: 14"-18"

Bait: Minnows, night crawlers, crayfish, jigs and soft baits, spinners, crankbaits.

Habitat: River and streams with moderate current, rocky lake shallows

Common Carp

Cyprinus carpio

Identifying Characteristics: These introduced fish have very large scales and a down-turned mouth with barbels. Carp have serrated dorsal and anal fins with spines. They are a heavy bodied fish that grows rapidly to a large size. A brownish back transitions to a yellow or cream colored belly.

Natural History: Carp are omnivorous fish and do well in lakes and slow moving rivers. They sort through fine bottom sediments searching for invertebrates and in the process muddy the water and uproot plants. Even with this habitat degrading habit, they are gaining status as a game fish, especially among fly anglers.

Adult Sizes: 16"-32"

Bait: Worm, dough balls, lisect nymphs, corn, crayfish.

Habitat: Lake shallows, sluggish rivers, sandy/silty bottom with vegetation

Bullhead

Ameiurus spp.

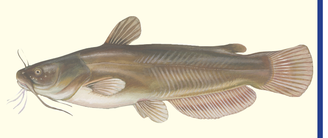
Identifying Characteristics: Mid-Michigan Lakes and Rivers contain yellow, black and brown bullhead. The three species are difficult to tell apart. All three species lack scales, have two dorsal fins including one adipose fin. Yellow bullheads (A. natalis) have light colored barbels. Brown bullheads (A. nebulosus) are brownish with some mottling and dark barbels. Black bullheads (A. melas) are dark with whitish bellies and black barbels. All have rounded tails.

Natural History: Bullheads spawn in the late spring or early summer, in nests prepared in mud, sand, or among aquatic vegetation. 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. Parents accompany them until they reach about two inches in length.

Adult Sizes: Bullheads: 8"-14".

Bait: Worms/waxworms, stinkbaits

Habitat: Prefer sluggish water, lake shallows, soft bottom, vegetation



Channel Catfish

Ictalurus punctatus

Identifying Characteristics: A flat, broad head, a forked tail, and small spots distinguish this member of the catfish family. It shares our waters with four other species of catfish. All are characterized by a lack of scales, a small dorsal fin with a sharp spine, barbels near mouth, and a small adipose fin near the tail. Flathead catfish (Pylodictis olivaris) are yellowish brown and mottled with a square tail.

Natural History: Channel catfish are long lived and prefer firm substrates in rivers and lakes. Flathead catfish prefer slow water in rivers and frequently seek woody cover and undercuts. Channel catfish eat live fish and invertebrates as well as scavenge for dead critters while flathead catfish focus on live fish.

Adult Size: Channel Catfish: 12"-26", Flathead Catfish: 14"-36",

Bait: Minnows, worms, crayfish, wigglers, stink baits, spinners and crankbaits.

Habitat: Rivers and lakes, shallow with cover, vegetation

Fish images courtesy of Duane Raver and USFWS.