Rogers Dam Pond

Mecosta
Muskegon River Watershed, surveyed in 2022

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Environment

Rogers Dam Pond is an impoundment on the Muskegon River in the western Lower Peninsula, located in western Mecosta County, approximately six miles south of Big Rapids (Figures 1-3). Rogers Dam Pond was created in 1906 when Rogers Dam was constructed by Consumers Power Company (now Consumers Energy). The powerhouse was destroyed by fire in 1921 and rebuilt and returned to operation in 1922. At full pool, Rogers Dam Pond has a surface area of 449 acres (Lawler, Matusky, and Skeller (LMS), 1991), although another source lists the acreage as 610 acres (O'Neal 1997). Rogers Dam maintains a normal head of 40 feet and inundates a 2-mile reach of the Muskegon River with moderate gradient. Rogers Dam is a hydroelectric dam, and it is operated by Consumers Energy and regulated by the Federal Energy Regulatory Commission (FERC). The current operating license was issued in 1994 and will expire in 2034. For this report, Rogers Dam Pond will be referred to as RDP.

Much of the land surrounding RDP is privately owned, although there is one large parcel with shoreline frontage owned by Consumers Energy on the southeastern shore. Consumers Energy also owns frontage on the west shore of RDP near the dam, where Ulrich Park provides a picnic area and an accessible fishing pier (Figure 1). The only other public access to RDP (and the only boat ramp) is a Michigan Department of Natural Resources (MDNR) access site located along the north shore of RDP (Figure 1). This site has a boat ramp with parking for approximately 15 vehicles, and a pit toilet. While not a large site, it does provide some shore fishing potential.

The terrain surrounding RDP is characterized as hilly with a mix of forested, residential, and agricultural land uses. The surface elevation of RDP is approximately 863 feet, while some of the hills to the east of RDP reach elevations of over 1,200 feet. Substrates in the impoundment consist mainly of sand, organic muck, and some gravel. Further upstream, the substrates turn to nearly 100% sand. Most of the impoundment is defined by steep drop-offs to the river channel, which winds through the impoundment. Stumps and woody debris that once defined the floodplain now offer fish cover. Those stumps also can present navigational hazards. The deepest portion of RDP is directly adjacent to the dam and is approximately 30 feet deep. Immediately below Rogers Dam lies Hardy Dam Pond. The upper several miles of Hardy Dam Pond are quasi-riverine; however even right below Rogers Dam, water levels are heavily influenced by Hardy Dam.

Other than the Muskegon River, only one named tributary stream flows into RDP, Cold Spring Creek, which flows into the north shore of RDP near the MDNR boat launch. Cold Spring Creek is a designated trout stream that hosts an excellent population of Brown Trout (MDNR files, Cadillac).

History

The first documented fish stocking of RDP took place in 1909, when Smallmouth Bass fry were stocked (Table 1). Both Smallmouth and Largemouth Bass were occasionally stocked between 1909 and 1931, along with occasional stockings of Walleyes and Yellow Perch. In 1935, RDP began receiving regular stockings of adult Walleyes (Table 1). These fish were from the so-called "Newaygo Transfer". Starting in 1923 (Eschmeyer 1947 and 1949b), fisheries personnel from the Michigan Department of Conservation (MDOC; the precursor to the MDNR of today) captured Walleyes and other fish species with dipnets at Newaygo Dam and transferred them to upstream impoundments (including RDP) and other lakes in the watershed. The Newaygo Transfer continued until 1966. Over the years, tagging studies confirmed that downstream movement of Walleyes through the dams was occurring (Hubbs 1933: Eschmeyer 1947, 1949a and 1949b; Crowe 1957). Other species transplanted into RDP during the Newaygo Transfer included Northern Pike, Rainbow Trout, Brown Trout, and even one Brook Trout. Between 1966 and 1984, sporadic stockings of various species were made, including Bluegill, Largemouth Bass, Walleye, steelhead, hybrid sunfish, tiger muskellunge, and Channel Catfish. Rainbow Trout were stocked eight times between 1966 and 1976. Tiger muskellunge were also stocked into the Muskegon River upstream from RDP several times in the 1980s. The most recent stocking of RDP occurred in 1984, when hybrid sunfish were stocked (Table 1).

The first MDOC fisheries survey on RDP was conducted in 1947 (Eschmeyer 1947). The survey was part of a comprehensive study of all the Muskegon River impoundments. The RDP survey was conducted in mid-August. Gear used included gill nets and seine hauls. Twenty different species were caught in the survey (Table 2). The survey was conducted for two purposes- first to conduct a general fisheries inventory of RDP, and second to investigate the Walleye population (referred to as "yellow pikeperch" at that time), particularly regarding the effects of the transfer of adult Walleyes upstream and into RDP. Many of the Walleyes transferred in 1947 had been tagged. With the combined results of the 1947 fisheries surveys of the Muskegon River impoundments and tag returns from anglers, the investigators found that while approximately 60% of the Walleyes transferred upstream stayed in the body of water they were stocked into, the remainder successfully migrated downstream through the dams (sometimes through multiple dams). The 1947 Eschmeyer report also documented some mortality of fish that had attempted to move downstream through the turbines but had not survived (also known as "entrainment").

In the early 1960s, the MDOC began receiving numerous complaints about poor fishing in RDP and an overabundance of Common Carp. In a 1963 letter to Regional Fisheries Supervisor Max Hunt, District Fisheries Supervisor Edward Anderson commented that he believed that a drawdown that occurred in 1957 (so that repairs could be made on the dam) had allowed the Common Carp to become the dominant species in RDP. A fisheries survey was conducted in the fall of 1966 (Table 2), and it seemed to confirm the sentiments of the angling public, with 60-70% of the fish observed during the electrofishing portion of the survey being Common Carp or redhorse (MDNR files, Cadillac office). Discussions were had with local citizens and landowners on RDP, and the majority of those involved were in favor of killing off the existing fish population of RDP.

A rotenone treatment designed to kill off the existing fish population of RDP was initially scheduled for September 8, 1967, but it was postponed due to legal action by some concerned citizens. The lawsuit was quickly dropped, however, and the treatment was conducted on September 22, 1967. Prior to the treatment, Consumers Energy (then known as Consumers Power Co.) drew down the impoundment by 11 feet to reduce the volume of water needing to be treated. The reach all the way from Big Rapids to

Rogers Dam was treated, including several tributaries. MDOC District Fisheries Biologist Donald Peterson reported that 600 gallons of rotenone was used in the treatment. He also estimated that "80% to 90% by weight of the kill were made up of carp and suckers". When heavy rain occurred five days after the treatment, further mortality occurred downstream of Rogers Dam into Hardy Pond, as far downstream as Davis Bridge (M-20). Mostly Walleyes were killed, along with smaller numbers of other species (MDNR files, Cadillac office).

A follow-up electrofishing survey was conducted a few weeks after the treatment, and it confirmed that most of the fish in RDP were eliminated. The survey catch included only a few redhorse, one Walleye, one Rock Bass, and one Hornyhead Chub. Later that fall, RDP was stocked with Bluegills, Largemouth Bass, and Rainbow Trout. Walleye fry were also stocked the following spring. More follow-up electrofishing surveys were conducted in the summer and fall of 1968 (Table 2). Those surveys showed that many species were recolonizing the pond. A large cohort of juvenile Common Carp were found, and electrofishing crews removed 9,500 fingerlings from RDP. Further electrofishing surveys were conducted in the spring of 1969, and they showed further recolonization of RDP, both by game and non-game species (Table 2). No further actions targeting undesirable species were ever conducted on RDP.

A file entry (MDNR files, Cadillac) documented several tiger muskellunge as having been speared through the ice on RDP in 1976. This is the only report of tiger muskellunge ever being caught from RDP by anglers. MDOC Fisheries Biologist Leo Mrozinski surmised that the tiger muskies originated from a stocking event on the Muskegon River upstream in Clare County in 1972.

A fisheries survey of RDP was conducted in August of 1978, utilizing trap and gill nets. A total of 13 species were caught in the survey (Table 2). This survey marked the first time Channel Catfish were caught. They had been first stocked in 1973. Age and growth analysis showed that most of the gamefish species caught in the survey were growing very well. Walleyes were abundant with a total of 27 caught between 12 and 28 inches. One notable observation from the 1978 survey was the presence of three Northern Pike over 40 inches in the catch, including one that was 46 inches.

The next MDNR fisheries survey of RDP was conducted in 1983. This survey included large-mesh fyke nets, trap nets, and small-mesh fyke nets. A total of 18 fish species were caught in the survey (Table 2). The survey results showed low density Bluegill and Walleye populations and a heavy presence of non-game species, including redhorse, White Suckers, and Common Carp. Tiger muskies had recently been stocked into RDP (and into the Muskegon River upstream from RDP), but none were caught in the 1983 survey. In a short writeup for the 1983 survey, MDNR Fisheries Biologist Ray Shepherd noted that fishing in the impoundment for Black Crappie was "very good", while fishing for Northern Pike, bass, and Channel Catfish was also good.

Another fisheries survey of RDP was conducted in 1990 utilizing trap nets, inland gill nets, and electrofishing. The 1990 fisheries survey of RDP was part of the relicensing effort for Rogers Dam and was conducted by a consultant retained by Consumers Energy (LMS 1991). Survey methods used included seining, electrofishing, fyke nets, trap nets, and gill nets. A total of 2,846 fish representing 26 species were captured (Table 2). MDNR Fisheries Technicians conducted age and growth analysis on some of the fish caught in the 1990 survey (MDNR files, Cadillac). Growth rates were generally good for most gamefish and panfish species, although Smallmouth Bass were growing slower than the state average.

A significant drawdown of RDP occurred in 1992 so that Consumers Energy could conduct maintenance on the dam (MDNR files, Cadillac office). Timelines and other details on the drawdown are not available. While no specific studies have been conducted to determine the effects of drawdowns on the existing fish populations of RDP, it is likely that many fish were either killed outright or forced to migrate downstream into Hardy Dam Pond through the turbines of Rogers Dam. Also, fish might have been denied access to spawning habitat, growth of aquatic vegetation would have likely been affected, and mortality of reptiles, amphibians, mussels, and other aquatic invertebrates would have likely occurred. No major drawdowns have occurred on RDP since 1992 that we are aware of.

Since 1994, a total of six exceptional fish caught from RDP have been entered in the MDNR Fisheries Division Master Angler program. A total of three different species have been entered for RDP. Channel Catfish was the most numerous species entered, with four entries, followed by Muskellunge and Smallmouth Bass with one entry each.

Current Status

The most recent comprehensive fisheries survey of RDP was conducted in the spring and summer of 2022. The purpose of the 2022 fisheries survey was to assess the overall fish community in RDP. MDNR Status and Trends netting protocols (Wehrly et al. 2009) were used for most portions of the survey. The netting portion of the survey took place from May 9 through May 13, 2022. Gear used included three large-mesh fyke nets (12 net-nights), two experimental graded-mesh inland gill nets (6 net-nights), and two small-mesh fyke nets (4 net-nights). Seining and electrofishing were conducted on June 1. A total of four seine hauls were completed, along with three ten-minute electrofishing transects. Total length to inch bin (e.g., 7-inch bin = 7.0-7.9 inches) was recorded for all fish captured. Weights for all fish species were calculated using the length-weight regression equations compiled by Schneider et al. (2000b). Relative abundances of select gamefish species were assessed using catch per effort (CPE) calculated as the number of fish caught per net night (gill and fyke nets) or per hour of electrofishing. CPE data from this survey were compared to a statewide summary of CPE data from lakes surveyed in the DNR's Status and Trends Program from 2002 through 2022 (M. Diana, DNR - Fisheries Division). For gamefish species, scale or spine samples were collected from ten fish per inch group. Age and growth analysis was conducted by counting growth rings present in cross sections of spines or scales. Weighted age compositions of gamefish populations were calculated as described by Schneider (2000b). Mean length at age was used to obtain a growth index by calculating the difference from the state average length (Schneider et al. 2000a). The mean growth indices for a given gamefish species was generated by averaging the growth indices for each age class that was represented by at least five fish.

A total of 916 fish were caught, representing 27 different species (Tables 3 and 4). Rock Bass (n = 220) and Smallmouth Bass (n = 170) were the most abundant species in the catch. Predators (Bowfin, Channel Catfish, Largemouth Bass, Northern Pike, Smallmouth Bass, and Walleye) made up 48% of the fish biomass. Previously recorded fish species that were not present in the 2022 survey of RDP included Blackside Darter, Brook Stickleback, Brook Trout, Brown Bullhead, Central Stoneroller, Chestnut Lamprey, Emerald Shiner, Golden Shiner, Rainbow Trout, River Redhorse, and Spottail Shiner (Table 2). Species caught in the 2022 survey that were not present in previous surveys of RDP included Brown Trout and Iowa Darter. Bluegill Catch per Unit Effort (CPE) in RDP was below the 25th percentile for lakes statewide using both large-mesh fyke nets and electrofishing. Similarly, the Largemouth Bass CPE

with electrofishing gear was below the 25th percentile. Black Crappie CPE in large-mesh fyke nets was between the 50th and 75th percentiles. Yellow Perch and Northern Pike typically are located offshore by May-June, so gill nets are used to assess relative abundance of these species. The RDP gill net CPEs for Northern Pike and Yellow Perch were near the statewide median values. Statewide CPEs for Smallmouth Bass were not available for comparison. Growth rates were average for Bluegills and Smallmouth Bass and above average for Black Crappies, Northern Pike, Pumpkinseeds, and Yellow Perch (Table 5).

Shoreline data were collected on RDP by MDNR Fisheries personnel on August 1, 2022, according to protocols outlined in Wehrly et al. (2009). Data collected included the number of docks, submerged trees, and houses observed per kilometer of shoreline, as well as how much of the shoreline is armored or hardened with seawalls or riprap to prevent erosion. RDP averaged 10.6 docks, 33.5 submerged trees and 16.8 houses per kilometer of shoreline. Armoring structures and materials were present along 39.6% of the lake shoreline (Table 6). A temperature/dissolved oxygen profile was collected on August 1, 2022. The profile was taken in the deepest part of the impoundment, close to the dam. Oxygen levels suitable for fish were found to a depth of 20 feet (Table 7). Secchi depth was measured at 5.0 feet on August 1, 2022.

Analysis and Discussion

The 2022 MDNR fisheries survey of RDP showed relatively healthy fish populations. Most popular fish species showed multiple year classes (an indication that natural reproduction is occurring regularly) and modest growth rates. The popular fish species for anglers on RDP include Bluegill, Black Crappie, Channel Catfish, Largemouth Bass, Northern Pike, Smallmouth Bass, Walleye, and Yellow Perch. The 2022 MDNR fisheries survey showed an abundant, healthy population of Smallmouth Bass, with lesser numbers of Largemouth Bass. RDP is a very popular location for bass fishing, with several tournaments held each year. RDP is also a known destination for anglers pursuing Channel Catfish, which reach large sizes in RDP and are relatively rare in CLMMU waters. Panfish anglers target RDP regularly, pursuing Bluegills, Black Crappie, and Yellow Perch, with good catches occasionally reported (MDNR files, Cadillac). Schneider (2000a) observed that predators typically compose 20-50% of the biomass in lakes with strong fisheries. At 48% predators, RDP is near the top end of this range.

Only two Walleyes were caught in the 2022 survey of RDP (Tables 3 and 4). While Walleyes have been consistently present in RDP over the years, the fishery has often been spotty. A letter dated from 1975 discusses that "Rogers Pond has never really been very good for Walleye and the better Walleye fishing is below the pond and in Croton and Hardy Ponds" (MDNR files, Cadillac office). Most MDOC/MDNR fisheries surveys of RDP over the years have shown sparse numbers of Walleyes, with the exception being the 1978 survey which did produce 27 Walleyes. It is likely that the tendency of Walleyes to migrate downstream (Hubbs 1933; Eschmeyer 1949a and 1949b; Crowe 1957) negatively affects the Walleye population and fishery in RDP.

Compared to other medium-sized, relatively deep lakes in Michigan, RDP has slightly fewer docks and an average density of dwellings (Table 6; Wehrly et al. 2015). RDP did have much more submerged woody habitat (33.5 trees/km) than other medium lakes in Michigan (average =14.5 trees/km; Wehrly et al. 2015). RDP also had abundant shoreline armoring (39.6%). Other medium, deep, inland lakes in Michigan average 25.3% shoreline armoring. Despite these shoreline modifications, RDP offers a scenic

fishing experience, and it does have large reaches of natural shoreline, particularly where the lakefront property is owned by Consumers Energy.

RDP stratifies in the summer, with very low oxygen levels present below the thermocline. In early August of 2022, low oxygen levels were found below 20 feet (Table 7). Similar results were found in 1990 at a similar time of year (LMS 1991).

Management Direction

RDP continues to provide excellent fisheries for Smallmouth Bass, Northern Pike, and Channel Catfish. These fisheries are self-sustaining, and no stocking is required. RDP also offers occasional good fishing opportunities for panfish and Walleye. It is highly unlikely that another fisheries survey will be conducted on RDP any time in the near future, so it will be critical for MDNR Fisheries personnel to continue communicating with RDP anglers.

Much of the shoreline of RDP is heavily developed with manicured lawns, seawalls, and rock riprap. This situation is not the best shoreline management strategy for RDP. Restoring the RDP shoreline to a more natural state would benefit RDP both in terms of habitat for fish, reptiles, amphibians, mammals, and birds, in addition to maintaining water quality and scenic value. Guidelines for protecting fisheries habitat in inland lakes can be found in Fisheries Division Special Report 38 (O'Neal and Soulliere 2006). Also, the Michigan Natural Shoreline Partnership, an organization dedicated to promoting natural shoreline landscaping to protect Michigan's inland lakes (https://www.shorelinepartnership.org), can provide guidance and training on how best to manage the land/water interface for the benefit of RDP. Since most of the undeveloped shoreline on RDP is owned by Consumers Energy, we commend them for maintaining the shoreline of RDP in this fashion, and we recommend that they continue to do so.

Over the past year, Consumers Energy has held several community meetings regarding the future of Rogers Dam and other large-hydropower dams around the state, including Croton and Hardy Dams, which are also on the Muskegon River (https://www.consumersenergy.com/company/electric-generation/renewables/hydroelectric/hydro-future). While the dams are licensed to operate through 2034, Consumers Energy has discussed all options with the dams, including potential dam removal. If Rogers Dam were removed, RDP would revert to again being the Muskegon River, and would resemble the higher-gradient, cool-water riverine habitat that is currently present near Big Rapids. Fisheries for popular river-dwelling species like Smallmouth Bass would be restored. If the other Muskegon River dams were also removed, migratory fish from Lake Michigan, including Walleye, Lake Sturgeon, Chinook Salmon, Steelhead, and other species could access the area that is currently inundated by Rogers Dam. Therefore, the MDNR Fisheries Division is closely monitoring the community discussions that are currently being fostered by Consumers Energy.

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Table 1. Fish stocked in Rogers Dam Pond, Mecosta County, 1909-2022.

Year	Species	Number	Life stage
1909	Smallmouth Bass	4,000	fry
1910	Largemouth Bass	10,000	fry
1911	Largemouth Bass	11,000	fry and fingerlings
	Smallmouth Bass	3,000	fingerlings
1919	Yellow Perch	unknown	
1920	Smallmouth Bass	5,000	
1924	Smallmouth Bass	1,600	
1926	Smallmouth Bass	12,000	fry
1927	Smallmouth Bass	1,500	2 mo.
	Walleye	unknown	
1929	Smallmouth Bass	826	4 mo.
	Yellow Perch	3,000	1 mo.
1930	Smallmouth Bass	1,500	3 mo.
	Yellow Perch	4,500	
1931	Largemouth Bass	6,000	1 mo.
1935	Walleye	2,216	adults
1936	Rainbow Trout	10	adults
	Walleye	955	adults
1937	Rainbow Trout	1	adults
	Walleye	788	adults
1938	Brown Trout	2	adults
	Rainbow Trout	1	adults
	Walleye	569	adults
1939	Northern Pike	2	adults
	Rainbow Trout	16	adults
	Walleye	797	adults
1940	Walleye	140	adults
1941	Bluegill	30,000	3 mo.
1942	Bluegill	1,218	adults
1943	Walleye	1,221	adults
1944	Bluegill	7,000	4 mo.
	Walleye	157	adults
1945	Bluegill	14,330	3 mo.
	Largemouth Bass	585	3 mo.
1954	Brook Trout	1	adults
	Northern Pike	2	adults
	Rainbow Trout	1	adults
	Walleye	866	adults

Table 1 continued

1955	Brown Trout	1	adults
	Northern Pike	2	adults
	Rainbow Trout	2	adults
	Walleye	994	adults
1956	Rainbow Trout	1	adults
	Walleye	1,008	adults
1957	Rainbow Trout	1	adults
	Walleye	315	adults
1958	Walleye	494	adults
1959	Walleye	337	adults
1960	Walleye	850	adults
1961	Walleye	201	adults
1962	Walleye	270	adults
1963	Walleye	201	adults
1964	Walleye	57	adults
1965	Walleye	100	adults
1966	Rainbow Trout	20,000	fall fingerlings
1967	Bluegill	200	adults
	Largemouth Bass	24,092	fingerlings
	Largemouth Bass	10	adults
	Rainbow Trout	20,000	fall fingerlings
1968	Walleye	1,000,000	fry
1969	Rainbow Trout	500	adults
	Steelhead	5,000	yearlings
1970	Rainbow Trout	2,000	adults
	Walleye	625,000	fry
1971	Rainbow Trout	2,000	yearlings
1973	Channel Catfish	30,000	fall fingerlings
	Rainbow Trout	5,000	yearlings
1974	Rainbow Trout	5,106	yearlings, adults
1975	Channel Catfish	30,000	fall fingerlings
	Steelhead	5,060	yearlings
1976	Channel Catfish	30,000	spring fingerlings
	Rainbow Trout	5,000	yearlings
1980	Tiger Muskellunge	4,800	fall fingerlings
1984	Hybrid Sunfish	59,384	fingerlings

Table 2. Presence/absence of fish species in historical fisheries surveys of Rogers Dam Pond, Mecosta County, Michigan.

Species	1947	1966	1968	1969	1978	1983	1990	2022
Black Bullhead				x				x
Black Crappie	x	x	x		x	x	x	x
Blackside Darter	x							
Bluegill	x	x	x	x		x	x	x
Bluntnose Minnow	x					x		x
Bowfin				x	x		x	x
Brook Stickleback			x					
Brook Trout				x				
Brown Bullhead	x						x	
Brown Trout								x
Bullhead spp.					x	x		
Central Stoneroller	x							
Channel Catfish					x	x	x	x
Chestnut Lamprey							x	
Common Carp		x	x	x	x	x	x	x
Common Shiner			x	x		x		x
Emerald Shiner							x	
Golden Redhorse							x	x
Golden Shiner			x	x		x	x	
Green Sunfish							x	x
Iowa Darter								x
Johnny Darter	x			x			x	x
Largemouth Bass	x	x	x	x	x	x	x	x
Logperch	x	x					x	x
Northern Pike	x	x	x	x	x	x	x	x
Pumpkinseed	x	x	x	x		x	x	x
Rainbow Trout	x							
Redhorse spp.	x	x	x	x	x	x	x	
River Redhorse							x	
Rock Bass	x	x			x	x	x	x
Sand Shiner	x							x
Shorthead Redhorse							x	x
Silver Redhorse							x	x
Smallmouth Bass	x	x	x	x	x	x	x	x
Spotfin Shiner						x		x
Spottail Shiner							x	
Walleye	x		x	x	x	x	x	x
White Sucker	x	x	x	x	x	x	x	x
Yellow Bullhead	x							x
Yellow Perch	x		x	x	x	x	x	x

Table 3. Number, weight, and length of fish collected from Rogers Dam Pond with small mesh fyke nets, large mesh fyke nets, and experimental gill nets, May 9-13, 2022, and by electrofishing and seining, June 1, 2022.

Species	Number	Percent by number	Weight (pounds)	Percent by weight	Length range (inches)[1]	Average length	Percent legal size[2]
Black Bullhead	29	3.2	3.6	0.5	5-8	6.2	17 (7")
Black Crappie	46	5.0	16.9	2.4	6-12	8.4	67 (7")
Bluegill	50	5.5	3.9	0.6	1-8	4.6	10 (6")
Bluntnose Minnow	60	6.6	0.4	0.1	1-3	2.5	
Bowfin	4	0.4	16.2	2.3	20-23	22.5	
Brown Trout	2	0.2	0.6	0.1	7-9	8.5	50 (8")
Common Carp	4	0.4	37.0	5.3	25-29	27.3	
Common Shiner	1	0.1	0.2	0.0	7-7	7.5	
Channel Catfish	4	0.4	33.7	4.8	24-31	28.8	100 (12")
Golden Redhorse	61	6.7	79.0	11.4	3-18	14.9	
Green Sunfish	5	0.5	0.2	0.0	1-5	3.1	
Iowa Darter	1	0.1	0.0	0.0	2-2	2.5	
Johnny Darter	2	0.2	0.0	0.0	2-2	2.5	
Largemouth Bass	4	0.4	6.0	0.9	9-17	13.5	50 (14")
Logperch	3	0.3	0.0	0.0	2-2	2.5	
Northern Pike	26	2.8	75.1	10.8	14-31	23.0	35 (24")
Pumpkinseed	21	2.3	4.2	0.6	2-9	5.5	48 (6")
Rock Bass	220	24.0	45.4	6.5	1-9	6.0	62 (6")
Sand Shiner	34	3.7	0.1	0.0	1-2	2.5	
Shorthead Redhorse	3	0.3	3.6	0.5	4-16	12.5	
Silver Redhorse	44	4.8	50.5	7.3	3-20	13.5	
Smallmouth Bass	170	18.6	201.5	29.0	3-20	12.6	29 (14")
Spotfin Shiner	8	0.9	0.1	0.0	2-3	3.3	
Walleye	2	0.2	3.0	0.4	14-18	16.5	50 (15")
White Sucker	58	6.3	93.9	13.5	8-26	15.0	
Yellow Bullhead	4	0.4	1.8	0.3	7-11	9.5	100 (7")
Yellow Perch	50	5.5	18.0	2.6	4-12	9.0	80 (7")
Total	916	100	694.9	100			

[1]Note some fish were measured to 0.1 inch, others to inch group: e.g., "5"=5.0 to 5.9 inch, "12"=12.0 to 12.9 inches; etc.

[2]Percent legal size or acceptable size for angling. Legal size or acceptable size for angling is given in parentheses.

Table 4. Length frequency distribution for gamefish caught from Rogers Dam Pond with small mesh fyke nets, large mesh fyke nets, experimental gill nets, seining, and electrofishing, May and June 2022.

Inch Class	Black Crappie	Bluegill	Brown Trout	Channel Catfish	Largemouth Bass	Northern Pike	Pumpkin seed	Rock Bass	Smallmouth Bass	Walleye	Yellow Perch
1		6						8			
2		7					3	15			
3		9					4	11	2		
4		17					2	20			1
5							2	29	2		
6	15	6					5	59	1		9
7	9	2	1				2	54	11		7
8	2	3					2	23	4		10
9	14		1		1		1	1	10		5
10	1								9		9
11	3				1				27		6
12	2								35		3
13									20		
14						1			11	1	
15					1				23		
16						2			5		
17					1				4		
18									2	1	
19						1			3		
20						3			1		
21						2					
22						2					
23						6					
24				1		2					
25						1					
26						3					
27						2					
29				2							
31				1		1					
Total	46	50	2	4	4	26	21	220	170	2	50

Table 5. Average total weighted length (inches) at age, and growth relative to the state average, for fish sampled from Rogers Dam Pond with small mesh fyke nets, large mesh fyke nets, and experimental gill nets, May 9-13, 2022, and by seining, and electrofishing on June 1, 2022. Number of fish aged is given in parenthesis. A minimum of five fish per age group is statistically necessary for calculating a mean growth index, which is a comparison to the State of Michigan average (Schneider et al. 2000a).

	Age											Mean Growth
Species	I	II	III	IV	V	VI	VII	VIII	IX	XI	XII	Index
Black Crappie		6.8 (18)	9.4 (13)	11.2 (3)		12.8 (1)	12.9 (1)					+1.4
Bluegill		4.2 (5)	5.1 (12)	7.9 (4)								+0.3
Brown Trout		8.5 (2)										--
Largemouth Bass		10.4 (2)			15.2 (1)		17.4 (1)					--
Northern Pike	16.6 (2)	20.6 (6)	24.0 (9)	24.3 (4)	26.0 (2)	24.0 (3)						+3.1
Pumpkinseed		5.8 (8)	6.5 (1)	7.6 (1)	8.2 (3)	9.1 (1)						+2.0
Smallmouth Bass	5.9 (2)	7.6 (14)	11.0 (31)	12.6 (14)	14.3 (12)	15.2 (15)	15.3 (3)	16.3 (1)	18.2 (4)	19.7 (3)	18.2 (1)	+0.0
Walleye		14.7 (1)		18.3 (1)								--
Yellow Perch		6.4 (11)	9.0 (16)	10.0 (19)	11.6 (2)		12.3 (1)					+2.0

Table 6. Shoreline data for Rogers Dam Pond, Mecosta County, compared with that for other medium, deep depth lakes in Michigan (from Wehrly et al. 2015). Sampling was conducted by MDNR Fisheries personnel on August 1, 2022.

	Total docks per km	Dwellings per km	Percent shoreline armoring	Submerged trees per km
Rogers Dam Pond	10.6	16.8	39.6	33.5
Michigan statewide average for medium, deep depth inland lakes	12.7	16.7	25.3	14.5

Table 7. Temperature and dissolved oxygen profile for Rogers Dam Pond, Mecosta County, on August 1, 2022.

Depth (feet)	Temperature (F)	O2 (ppm)
0	74.5	10.6
2	73.8	10.6
4	73.5	10.0
6	72.9	9.1
8	72.4	8.7
10	72.0	8.1
12	71.3	7.4
14	70.5	6.7
16	70.1	6.3
18	69.9	5.5
20	69.7	5.1
22	69.3	3.6
24	69.0	3.3
26	69.0	2.5
27	68.6	2.3

Figure 1. Rogers Dam Pond, Mecosta County, Michigan.

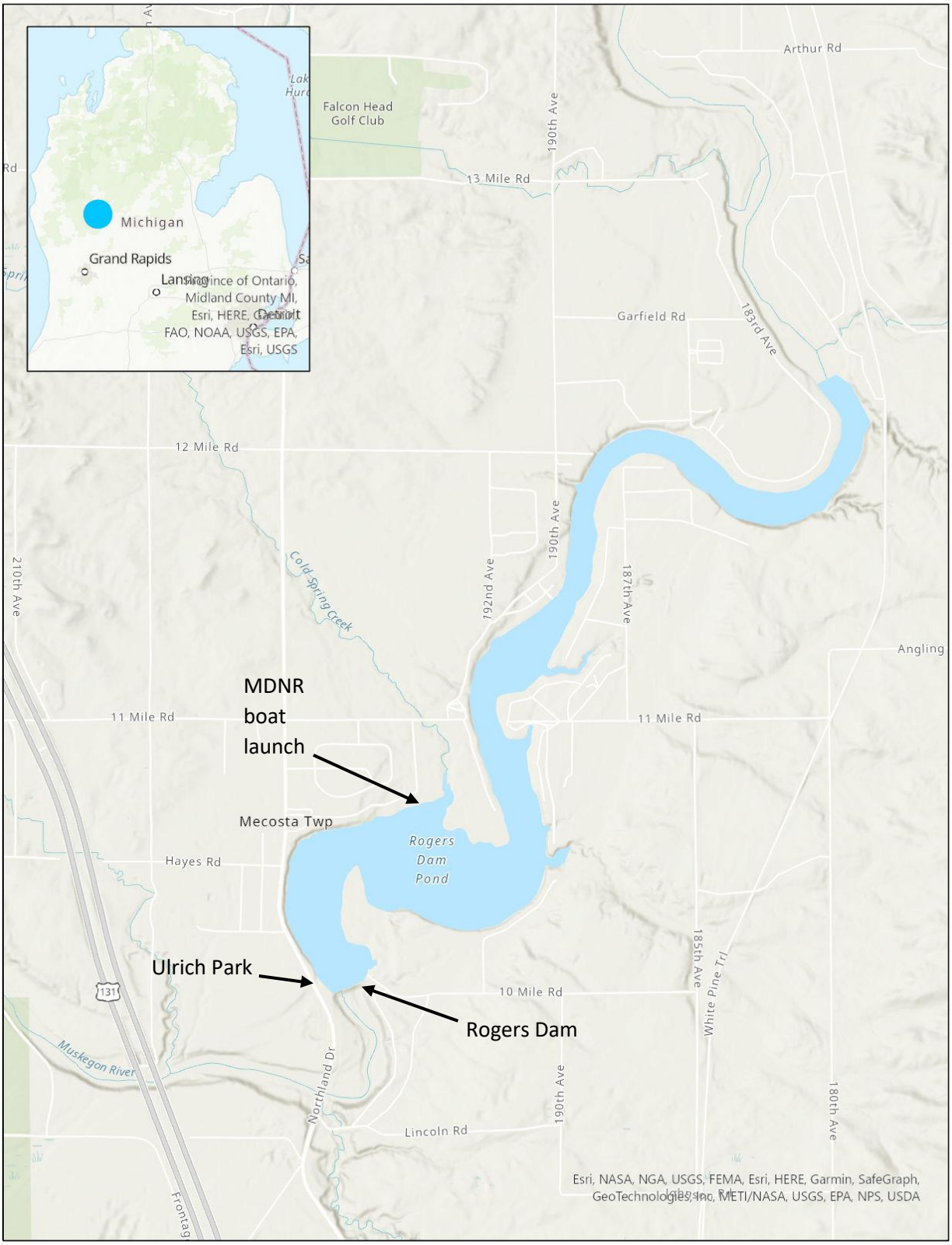


Figure 2. Lakeshed map for Rogers Pond, Mecosta County, MI.

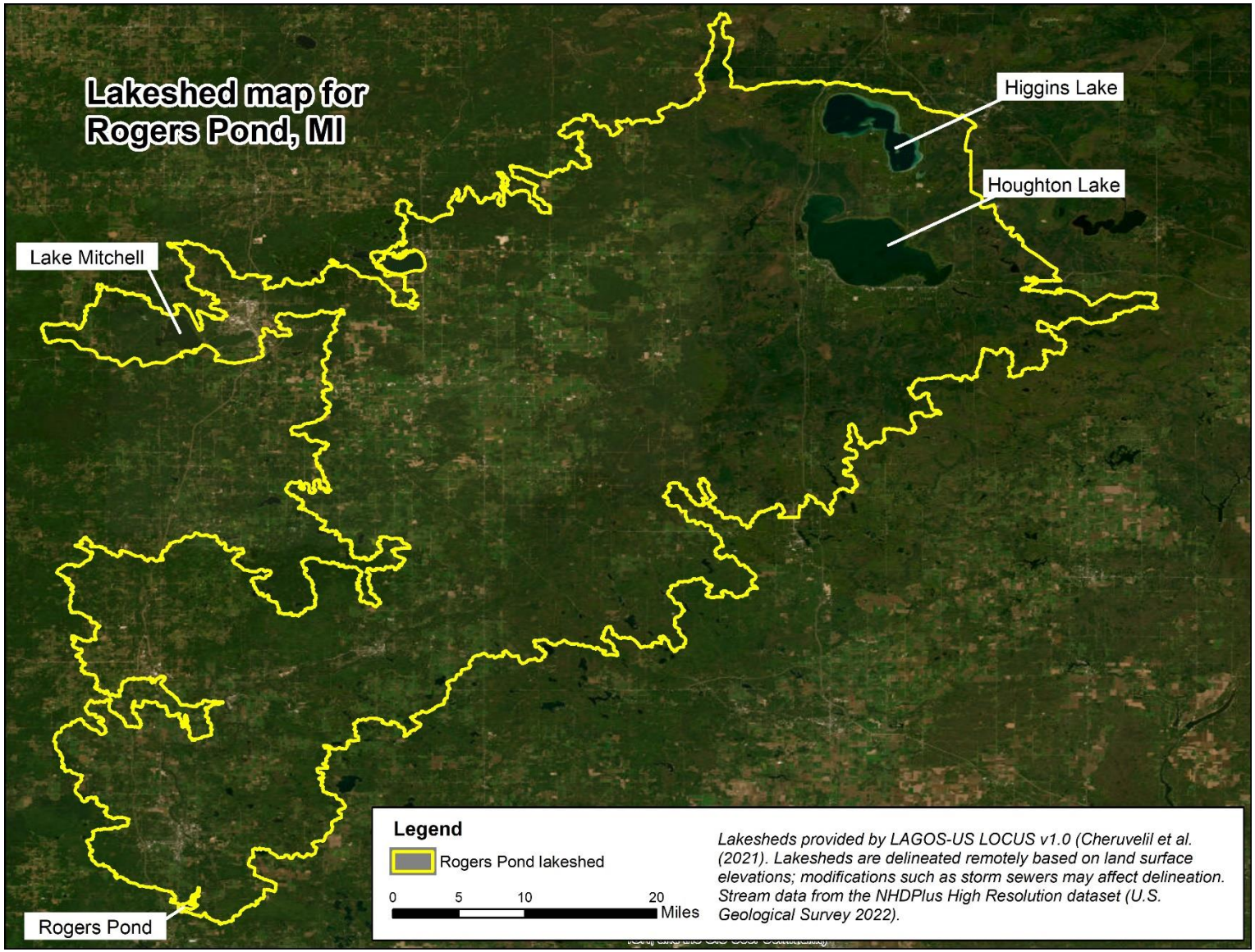
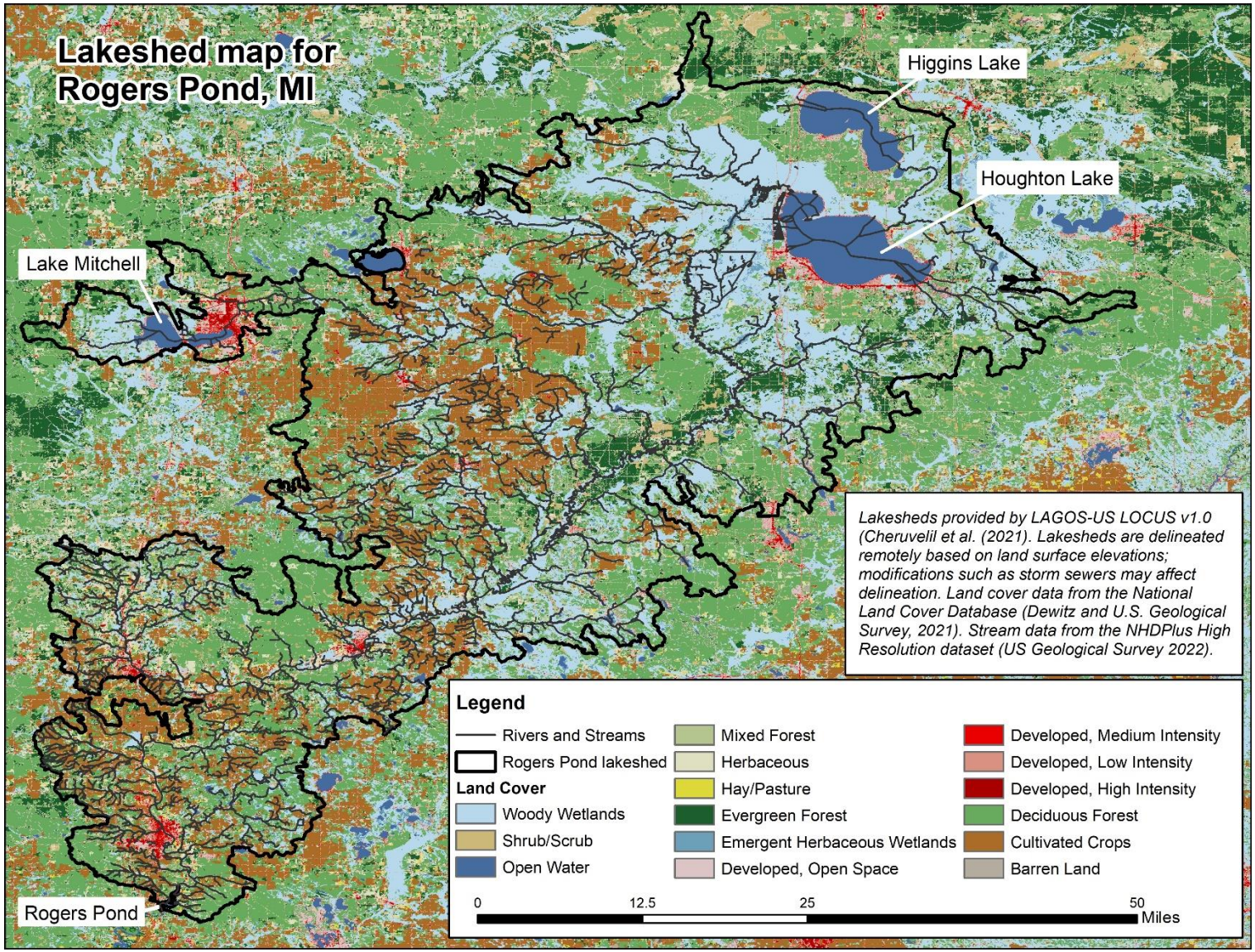


Figure 3. Lakeshed land cover map for Rogers Pond, Mecosta County, MI.



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