Fisheries Division
Annual Report 2020

The mission of the DNR Fisheries Division is to protect and enhance Michigan's aquatic life and habitats for the benefit of current and future generations.

Michigan.gov/Fishing

Dowagiac River, Pucker Street Dam removal

The DNR provided funding for the Pucker Street Dam removal project through the Aquatic Habitat Grant and Dam Management Grant programs. The Dowagiac River is one of the largest coldwater streams in southwest Michigan and flows into the St. Joseph River near the city of Niles. A retired hydroelectric dam near Pucker Street has confined migratory species like steelhead and salmon to the lower 3 miles of the Dowagiac . . . until now.

Since 2013, the city of Niles has been working with the DNR and several other partners to design and fund removal of the dam. Demolition of the powerhouse began in fall 2019, and the removal of the dam itself started in spring 2020. As of early March 2021, the dam is gone. However, the construction crew will continue to excavate sediment from the former impoundment upstream of the dam through the summer of 2021. Removal of the dam has given steelhead and salmon access to an additional 159 river miles in the Dowagiac River and tributary streams. In addition, fragmented populations of native fish species, such as smallmouth bass and suckers, occurring upstream and downstream of the dam will be reconnected. The dam removal will also restore approximately 1.2 miles of high-gradient stream habitat in the former impoundment, exposing more gravel substrate for fish spawning and invertebrate (i.e., fish food) production.

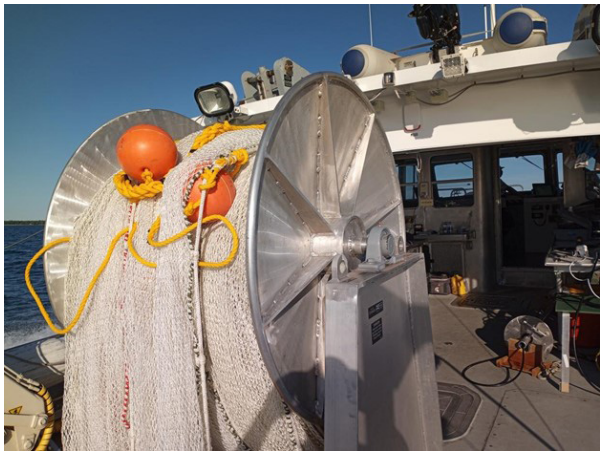
DNR Fisheries Division staff assisted with project planning and sediment monitoring downstream of the dam. Due to safety concerns on an active construction site, the park off Pucker Street currently is closed to the public. The park is expected to reopen in time for the fall 2021 salmon run.

Addressing historic mining waste in Lake Superior

Around 100 years ago, copper mine tailings, also known as stamp sands, were deposited on the Lake Superior shoreline near the community of Gay. Over the decades, the stamp sands have been slowly migrating south, threatening an important reef for lake trout and whitefish spawning as well as native sand habitat where juvenile whitefish feed. To address the impacts of migrating stamp sands, various efforts have taken place over the past few years, including removal of a 25-foot-high stamp-sand ridge from the Lake Superior shoreline, dredging of a natural trough north of the reef and dredging of Grand Traverse Harbor. Studies are also underway that will help describe the complexity of the issue and ultimately inform a long-term solution. One effort will map the depth of and determine the composition of the stamp sands, while another aims to determine how much Buffalo Reef contributes toward overall lake trout and whitefish production in Lake Superior. The DNR's partners on the efforts to remediate Buffalo Reef include the U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, Keweenaw Bay Indian Community, the Great Lakes Indian Fish and Wildlife Commission and the Michigan Department of Environment, Great Lakes and Energy. For more information, visit Michigan.gov/BuffaloReef.

Efforts to assess cisco rehabilitation in Lake Huron

Cisco, a once-common native fish that forms a critical part of Great Lakes food webs, began to disappear from the lower Great Lakes by the mid-1900s due to overfishing, invasive species and habitat loss. In 2018, the DNR and its partners began an intensive cisco rehabilitation effort in Lake Huron by annually stocking approximately 1 million cisco near outer Saginaw Bay. During August 2020, the latest addition to Fisheries Division's large vessel fleet, the Research Vessel Tanner, completed its first-ever mission to evaluate this stocking experiment. The R/V Tanner is equipped with scientific sonar equipment and a large, towable net to look for and collect cisco. Fish that are captured during this new annual survey are brought back to the Alpena Fisheries Research Station and examined for the presence of a chemical mark that is given to cisco before they are stocked to determine if they were from the stocking efforts. Survey data collected by Fisheries Division staff and partners will not only help fisheries managers assess the success of this important cisco rehabilitation effort, but also result in a new and unique fishing opportunity for Michigan's anglers.



Goal 2: Promote Effective Communication, Outreach & Education

Effective communications during COVID

DNR Fisheries Division staff members value the relationships with stakeholders and input from Michigan anglers, from inland to Great Lakes fisheries. The coronavirus pandemic upended traditional communication platforms, such as public meetings and conferences, presenting new challenges to effective dialog both internally and externally. Fortuitously, staff had been working with communication experts, especially Michigan Sea Grant staff, to test virtual meetings to increase participation for the annual "Conversations & Coffee" program for a couple years of testing. As those efforts were trending up, the pandemic accelerated the virtual mode of communications in every facet, and DNR Fisheries Division was ready. Participation in stakeholder meetings increased substantially and positive feedback was received across the board as anglers found information-sharing opportunities widely available. In April alone, typical stakeholder workshops increased from a few hundred attendees when meetings were in person to several thousand and still growing, as workshop materials continue to be online for viewing. The virtual communication movement took one last step forward with the development of an online registration system for the Black Lake sturgeon fishing season and without the virtual system, the season would have not been possible. Way to be ahead of the curve, Fisheries staff, and we look forward to seeing Michigan anglers, either in person or virtually!

Goal 3: Improve and Build Strategic Resource Partnerships

Snuffbox mussel propagation in the Grand River

DNR Fisheries Division is partnering with Central Michigan University, Consumers Energy, the United States Fish and Wildlife Service and the Ionia Conservation District to increase the population of snuffbox mussels in the Grand River, a species listed as endangered under the federal Endangered Species Act. In the summer of 2020, microscopic larval mussels called glochidia were added to water with logperch collected from the river. The glochidia attached to the gills of the logperch, which were unharmed by their temporary host duties. The logperch were placed into cages installed in the Webber Dam fish ladder. After a few weeks, the young mussels dropped from the gills of the logperch and settled into the sand and gravel in the cages. At this point, the logperch were released. The snuffbox mussels will spend about 16 months in the cages before being tagged and released into the Grand River at sites between the Webber Dam and the confluence with the Maple River.

Ongoing partnerships with the National Park Service and UW-Milwaukee at Good Harbor Reef

Most people are aware that reefs are an important component of ocean systems and provide food, cover and spawning areas for marine fish. However, not everyone is aware that similar areas exist in the Great Lakes and are just as important. Reefs in the Great Lakes are made of rocks, not coral, but high-quality reef habitat is still critical for native fish including lake trout, lake whitefish, cisco, yellow perch and smallmouth bass. The DNR is working with partners throughout the Great Lakes to identify, protect and restore high-quality spawning reefs.

One example of such a collaboration is occurring at Good Harbor Reef near Leland, where the DNR is working with the National Park Service, University of Wisconsin- Milwaukee and other partners to document the effects of Dreissenid (zebra and quagga) mussels and experimental mussel removal on aquatic communities. Fisheries Division's role in this work is to characterize fish spawning habitat on the reef and to develop management strategies for enhancing spawning success.

Reef habitat restoration in the Great Lakes is built on a long history of research documenting the importance and function of reefs, conducted with support from numerous collaborators. This research has significant implications for Great Lakes fish. With habitat improvement for the fish they pursue, Great Lakes anglers can expect increased success in years to come.

DNR and GLFC: Great Lakes management coordination hits the mark

Managing Michigan's aquatic resources can't be done alone. Nowhere is this more apparent than in Great Lakes waters. With eight states, the Province of Ontario, tribes and First Nations, multiple federal agencies and nongovernmental organizations all sharing an interest in Great Lakes resources, cooperative management is imperative. The beginnings of successful cooperative fisheries management lie with the 1954 Convention on Great Lakes Fisheries, which created the Great Lakes Fishery Commission to control sea lampreys, advance science and help agencies work together. Cooperation was enhanced by the 1981 development and implementation of the "Joint Strategic Plan for Management of Great Lakes Fisheries," which was revised and updated in 1997.

Fisheries Division is heavily involved in and committed to this cooperative process, with staff serving on and chairing lake committees (management), lake technical committees (advisory bodies), other technical committees (e.g., Great Lakes Fish Health Committee) and working/task groups (specialized, subject-specific groups). Important Great Lakes management successes for more than 50 years can be directly attributed to this formal cooperative arrangement and Fisheries Division staff work in supporting it. These successes include: development and management of world-class sport fisheries; rehabilitation of native species; control of invasive species, key pathogens and other ecosystem threats; enhancement and restoration of habitat; and improvement of public/government communication and collaboration in fisheries management.

Honest, committed collaboration and sharing of information pay huge dividends for Great Lakes fisheries, dividends that Michigan anglers enjoy every day.

Goal 4: Develop Strategically Focused Assessments & Decision Support

Lake Erie Percid Management Advisory Group

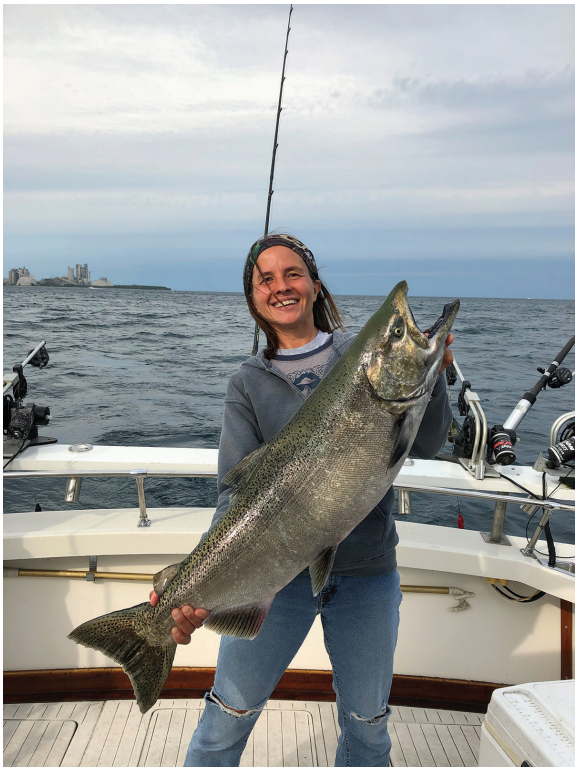
Management of walleye and yellow perch fisheries on Lake Erie spans multiple jurisdictions (Ontario, Michigan, Ohio, Pennsylvania, and New York) and includes multiple user groups such as sport anglers, charter boats, and commercial fishers. These fisheries are managed collaboratively by all the agencies through an annual quota allocation system, based on a stock assessment model. Historically fishery stakeholders and managers alike regularly challenged the stock assessment model and allocation processes. Stakeholders had viewed the decision-making process as seriously lacking in transparency, which led to very little trust of decision makers and a lack of acceptance of resulting harvest recommendations. That all changed when management agencies adopted a stakeholder-centered approach to develop management strategies through the Great Lakes Fishery Commission's Lake Erie Percid Management Advisory Group. Through facilitated meetings that began in 2010, diverse stakeholders now determine performance measures for their fisheries and provide recommendations based on trade-off analysis. Changes to the management procedures for Lake Erie yellow perch and walleye have enabled a more sustainable fishery and provided a basis for allocating harvest between recreational and commercial interests.

Working with Great Lakes Acoustic Telemetry Observation System

The Great Lakes Acoustic Telemetry Observation System is a network of agencies and researchers who all use acoustic telemetry technology to better understand fish behavior. Researchers surgically implant acoustic transmitters in fish, which are subsequently detected by hydrophone receivers anchored to the bottom of the lakes, bays and rivers. GLATOS is a Great Lakes wide program that coordinates placement and use of hydrophone receivers and their data allowing for the open sharing of detections, regardless of whose study did the tagging. GLATOS is currently coordinating 90 projects around the Great Lakes. In 2020, the Fisheries Division was directly involved in 12 GLATOS projects in Michigan waters of each of the Great Lakes and the Huron-Erie corridor. Projects include monitoring lake trout around Isle Royale, understanding lake whitefish and walleye movement in Michigan waters of Green Bay, studying the distribution of cisco in northern Lake Huron, determining grass carp habitat preference in Lake Erie, and observing lake sturgeon and muskellunge movement in Lake St. Clair, just to name a few. Studies to date have aided in management decision-making, and many have revealed surprising behaviors. This has been crucial not just for sport fish species but also invasive species. Closely affiliated with the Great Lakes Fishery Commission and Michigan State University, GLATOS is a good example of leveraging expertise and tools through partnerships beyond the DNR.

Developing relationships between Chinook salmon weight at weirs and the predator-prey model

Each year, DNR staff provides essential data and population model updates in support of a collaborative effort to estimate a Lake Michigan predator-prey ratio (PPR). The PPR allows managers to determine sustainable salmon and trout stocking rates based on current prey (e.g. alewife and rainbow smelt) populations. Once it became clear that COVID-19 pandemic work restrictions would cripple normal data collection needed to update the PPR population models, DNR staff came up with a solution. When prey are scarce relative to the number of Chinook salmon, the PPR goes up and signals a need for a stocking reduction. Staff reasoned that size of Chinook salmon also should drop as a result of the relative prey scarcity. Using this logic, a relationship between the long-term PPR and weight of age-3 Chinook salmon returning to weirs in the fall was identified. This relationship provided an alternate means of estimating the PPR using weir data, which was collected in 2020. More importantly, it allowed managers to keep their fingers on the pulse of Lake Michigan predator-prey dynamics in 2020.



Goal 5: Foster Efficient Division Operations

How are we doing? Assessing our Great Lakes and inland standardized fisheries surveys

Annually, the Fisheries Division conducts a broad range of standardized fisheries surveys on the Great Lakes and in selected inland lakes and streams. Great Lakes surveys include targeted work on lake trout, walleye, yellow perch, smallmouth bass and pacific salmon along with forage fish surveys and broad fish community surveys of the Bays de Noc, Saginaw Bay, Lake St. Clair and Lake Erie. Our stream surveys have fixed locations that are periodically sampled for long-term trends. Both streams and lakes have random survey sites selected from more than 72,000 miles of flowing waters and more than 10,000 lakes. In 2019, 34 standardized fisheries surveys were done on rivers and streams and 31 were done on lakes. Similarly, 371 days were spent sampling the Great Lakes in 2019 during standard fisheries assessments. In 2020, COVID-19 reduced this standardized fisheries sampling effort to 27 river and stream surveys and one lake survey and 185 days surveying the Great Lakes. Work continues in our labs, where hundreds of hours are required to process the thousands of scales and spines for age analysis, stomach samples for food habit analysis and habitat and fish data.

Given this investment of time and resources, we periodically examine just how well we are doing. The Fisheries Division is fortunate to have specialized expertise available through our 25-plus year Partnership for Ecosystem Research and Management with Michigan State University – Department of Fisheries and Wildlife. During 2019-20, Drs. Jim Bence, Mary Bremigan, and Dan Hayes evaluated both our standardized inland and Great Lakes assessments, providing a broad set of recommendations to improve their effectiveness and efficiency. These recommendations will be guiding the Fisheries Division's work in this area for many years to come.

Tournament Registration

In 2020, the Fishing Tournament Registration and Reporting Program was in its fifth year for events targeting bass and its second year for those focusing on walleye and muskellunge. Like everything else in 2020, tournament activity had to overcome some COVID-19 pandemic-related hurdles, but overall 2,174 bass tournaments were held on 270 unique bodies of water. Lake St. Clair was again the top destination in Michigan, with 58 tournaments, and for the second time in the program's history, Gull Lake in Barry County was the most popular inland body of water with 57 tournaments. The average bass tournament consisted of 26 anglers fishing from 14 boats. The average bass weighed in by tournament anglers across the state was 2.2 pounds, with an 8.8 pound fish caught in Duck Lake in Calhoun County as the season's largest. In addition to bass, there were also 51 walleye tournaments and eight events targeting muskellunge. Another successful tournament season is anticipated in 2021.

Fish production in the time of COVID

No one could have predicted what a wild year 2020 was going to be. Much of the country came to a halt, and those who did continue working often did so from the safety and security of their living rooms or basements. But that was not the case for all DNR fish hatchery staff. Throughout the entire pandemic, most hatchery staff continued to care for the fish and the facilities where they are raised, day in and day out. In March, April and May, while the pandemic was escalating, staff were loading fish onto trucks and stocking them for Michigan anglers. Despite the dangers, both known and unknown, associated with COVID-19, hatchery staff continued to work and did what needed to be done. And they did it safely. They adhered to the safe working protocols that were developed to keep themselves, their families and each other safe. Their professionalism and dedication to the resource and to Michigan's anglers is always evident, but it shone through in 2020 like never before.

Michigan is home to exceptional freshwater fishing, with opportunities from metro Detroit all the way to the western Upper Peninsula. With great opportunity comes great responsibility, and caring for our aquatic habitats and fisheries is something the Michigan Department of Natural Resources Fisheries Division takes to heart.

In the DNR Fisheries Division's 2020 annual report, we share snapshots of the critical work our employees do every day. That work aligns with our 2018–2022 strategic plan, "Charting the Course: Fisheries Division's Framework for Managing Aquatic Resources," which guides how we manage and support the state's world-class fisheries.