

"History of Fish and Fisheries" is the 11th in a continuing series of **Pictured Rocks Resource Reports**. These Reports summarize the results of specific research investigations and are intended to inform the reader on the values of the natural, cultural, and social resources of Pictured Rocks National Lakeshore. Management alternatives and implications are offered based on the scientific studies. Comments on the results and recommendations of this Report are invited.



Grant A. Petersen, Superintendent

# *Pictured Rocks* **RESOURCE Report**



**Pictured Rocks National Lakeshore, Michigan PIRO-2000-1**

## **HISTORY of FISH and FISHERIES in the PICTURED ROCKS NATIONAL LAKESHORE**

**by John Vogel - Heritage Research Services**

### **INTRODUCTION**

Pictured Rocks National Lakeshore is situated on Lake Superior's south shore, in Upper Michigan's Alger County. From the towering and colorful sandstone cliffs east of Munising to the sand dunes and beaches west of Grand Marais, the Pictured Rocks terrain embodies a variety of contrasts. Nevertheless, consistent elements of that landscape are the rivers, lakes and streams which flow, tumble and fall to Lake Superior from the peninsula's nearby upland region.

A wide variety of fish inhabit these inland waters. Some that historically resided in the area fell victim to human activities and are no longer extant; others occupying the waters today are not native, having been artificially introduced to the region. Therein lies the purpose of this report. To promote an appropriate fish management system within their boundaries, representatives of the Pictured Rocks National Lakeshore deemed it necessary to study the history of the area's fish and fish habitats. Specific issues to be investigated included the following: the natural conditions that existed between Munising and Grand Marais; the fish that were native to the area; the human activities over time that may have affected the fish and their habitat; and, finally, the fish culture propagation efforts that were practiced to compensate for whatever environ-

mentally detrimental activities may have occurred. Among the specific bodies of water under study were the following lakes: Beaver (Big and Little), Beaver Basin Ponds, Chapel, Grand Sable, Legion, Miners, Sevenmile (historically known as Trout) and Trappers (historically known as Perch). The following rivers and streams were also components of



this investigation: Chapel, Lowney, Hurricane, Miners, Mosquito, Rhody, Sable, Section 34, Sevenmile, Spray and Tows.

The Munising/Pictured Rocks area in Michigan's Upper Peninsula (U.P.) is included in the geological province known as the Eastern Ridges and Lowlands. Among other features, the central U.P. portion of the area is characterized by a ridge that separates

the Lake Superior drainage system to the north from the Lake Michigan system to the south. Since the divide is relatively close to Lake Superior, north flowing rivers are short, fast and frequently have waterfalls. Conversely, south flowing rivers are much longer and slower.

Historically, the Pictured Rocks were an overwhelming natural phenomenon, the cliffs, bluffs and waterfalls of which captured the attention of virtually all who passed by on Lake Superior. No less impressive, however, were the Grand Sable Dunes located immediately west of Grand Marais. In fact, travelers from the east observed the dunes prior to the Rocks. But the Pictured Rocks were the real object of attention for travelers.

### **EARLY EXPLORATION**

The magnificence of the topography notwithstanding, the waters flowing inland to Lake Superior were also noticed by early travelers along the south shore. Perhaps the most frequently described river along the Pictured Rocks lakeshore was Miners River. Early descriptions of it lack detail; however, they consistently agree that a small series of rapids was found at the mouth. Several other waters running through the Pictured Rocks were also described briefly prior to 1885—the year this report has designated as the point when the natural condition of the vicinity effectively ended. Chapel Creek was

distinguished for its fall of ten or fifteen feet as it entered Lake Superior, just as Spray Creek was known as a "handsome stream, which is precipitated about seventy feet from the bluff into the lake in one leap." Beaver Lake was "a beautiful sheet of water, [with a] clear and sandy bottom." And in 1840, Grand Sable Lake was described as a "beautiful little lake," while the river that flows from it to Lake Superior was characterized as a "small, rapid stream...[that] looks muddy, being constantly filled with the flying sand which it carries to the lake."

Even as the condition of the waters throughout the U.P. and along Lake Superior varied in their natural state, most of them contained fish, with the brook trout being the most commonly present and consistently sought. Indeed, Robert Roosevelt wrote in 1865 that both shores of Lake Superior are "one extensive fishing-ground. Virtually all tributaries, to the lake, unless barricaded by falls," he wrote, "are crowded with myriads of the speckled beauties." Another



author suggested in 1847 that "the thirty streams which run [into Lake Superior] from the south, all abound in this superb fish, which vary from ten to forty ounces in weight."

Given their reported presence throughout the peninsula, it is not surprising that brook trout existed in many of the Pictured Rocks waters currently under investigation. Although reports from the nineteenth century were occasional at best, brook

trout were known to be taken from Miners River in 1840 and 1874. Trout were also taken at Chapel Beach in 1867; earlier, in 1840, trout were fished from the Twin River, just east of Grand Marais. While brook trout were common in the rivers and streams, they were typically not found in lakes unless, as it has been suggested, coaster brook trout were simply passing through a lake to a cold water stream. Miners Lake—the brook trout in the stream above and below the lake notwithstanding—contained pike and yellow perch in 1882, while Beaver Lake was known to have pike and bass.

### **THE U.P. DISCOVERED**

Throughout most of the nineteenth century, Michigan's U.P. was largely unknown, despite the reputation of the Pictured Rocks lakeshore and a few articles written by travelers. But as the 1890s approached, the U.P. was about to trade its relatively natural and unspoiled character for direct involvement with the developing recreation and logging industries in the Great Lakes area.

By 1900, substantial changes had occurred throughout America, many of which were attributable to the country's rapid post-Civil War industrialization. Among the impacts of this phenomenon were overcrowded cities. People living in expanding urban centers—and who had the financial means—began to look for regions where they could temporarily escape the devolving conditions. At the same time, large numbers of Americans seeking economic independence through agricultural success continued a pre-Civil War migration to the little-populated and treeless prairies and plains west of the Mississippi River. To build their new homes, they sought lumber.

These two divergent groups had something in common—Michigan's U.P. Indeed, the region's natural environment offered the forests, clean water, fish and game necessary to attract those looking for a recreational respite from life in the city. Similarly, the forests and water resources of the U.P. lured lumbermen who had exhausted their timber resources in the East, yet, wanted to help supply the growing market for lumber in the West. The combination of these activities in the late nineteenth and early twentieth centuries had a dramatic impact on the fish and fisheries of the U.P.

Regarding tourists, the desire to commune with nature was a growing phenomenon manifested by the great wilderness camps of New York's Adirondack mountains and the 1872 founding of Yellowstone National Park. But key to the developing industry was the expansion of the railroad, which provided transportation between cities and recreational spots. Although the timber industry initially inspired rail construction in Northern Michigan, railroad companies turned to tourism for revenue as timber resources were depleted. The recreation industry was especially successful in Michigan, which offered a wonderful site for rest and relaxation. One of the major, earliest-developed tourist areas in the U.P. was Mackinac Island. Yet, despite having been identified in 1874 as a future sportsman's paradise with its "grand fisheries," the U.P. in general experienced few incursions until the Detroit, Mackinac and Marquette Railroad was built in 1882. With construction of that route between Sault Ste. Marie and Marquette, tourists wasted no time traveling to the northern portion of the peninsula. Passing close to Munising, the railroad reportedly delivered in 1893 twenty tourists, who planned to visit the area for a month. Furthermore, it was observed that "the Beavers [the Big and Little lakes]" were a popular camp location.

But accessing these sites was not simple because railroad construction required large amounts of capital. Consequently, as soon as a new line was opened for revenue service, railroad companies actively sought to draw tourists and sportsmen to the area. In the case of the road passing by Munising, the railroad pointedly remarked in a promotional flyer that its line crossed many tributaries of the Manistique and Tahquamenon rivers and their nearby lakes, all “teeming with speckled trout, black bass, muskellunge, pike, pickerel and perch.” Regardless of such descriptions, no specific evidence was found to chronicle the evolving number of sportsmen that came to the Munising/Pictured Rocks area. Still, Columbus Hall, a regular camper in the Beaver Lake vicinity from approximately 1900 to 1926, lamented in 1901 that “a great crowd of campers came down and we are crowded on the right hand and the left. I am weary of so many strangers.”

The number of recreationalists grew as the increasingly popular automobile brought more sportsmen to Pictured Rocks from the 1910s through the 1940s. Indeed, a public resort evolved near the south/southeast shore of Beaver Lake around Lowney Creek. So-called Burrell’s Camp consisted of three cabins that offered amenities including an ice box, wood-burning cookstove and kerosene cookstove; the cabins rented for \$35 per week—an amount considered high since no meals were included. By 1960, this public resort had been transformed into a private wilderness camp after the Michigan-Wisconsin Pipeline Company acquired it as an executive retreat; it remained as such until 1874.

Given the natural beauty and seclusion of the Pictured Rocks area, the region was viewed as a sanctuary by thousands who wanted to escape—even briefly—the demands of rapidly growing cities and industries. Ironically, however, the growth of those

entities created new demands for the very commodities that made the Pictured Rocks vicinity an appealing retreat—especially lumber.

### **CATALYST TO CHANGE**

Logging in the area was a local manifestation of an industry established in the forests of New England during the early nineteenth century and transplanted to the Great Lakes region during the 1850s, once timber supplies in the East were exhausted. According to local historian Faye Swanberg, logging in Alger County proper was initiated by J.B. Weller in 1876. Thereafter, timber stands between Munising and Grand Marais were “being cruised”; by the 1880s and 1890s, rafts of logs were towed to mills along Lake Superior. By the 1920s, Swanberg noted, Munising area mills handled a substantial amount of Pictured Rocks timber that was cut in winter and driven on the streams in the spring to dams adjacent to the lake.

Aside from the reference to timber “being cruised” during the 1880s and 1890s, as well as a suggestion that the Beaver Lake area was logged for the second time during the first years of the twentieth century, there was no mention of logging by those touring the north shore area between Munising and Grand Marais until 1901. At that time, Columbus Hall observed both a dam on Beaver Creek located immediately downstream from Lake Superior, as well as a boom of logs being towed on Beaver Lake toward the river. Activity remained when Hall returned in 1902. Although he made some references to loggers in the area during 1905 and 1906, no other activities were identified until the early 1940s, when the efforts of Guy Burrell were reported. Burrell cut timber on Beaver

Lake for several local Munising area concerns. When he was finished, he turned his logging camp into a resort that was later sold to Robert Kennedy and subsequently, to the Michigan-Wisconsin Pipeline Company. Burrell’s timber operation was but one instance of logging activities along the various study area waters, including a venture on Chapel Beach. As well, 80 acres of hardwoods east of the Mosquito were allegedly logged in 1926 for the Charcoal Iron Company, while Miners River reportedly contained three logging dams at one time.

Driven by a growing and industri-



alized nation and its demands for lumber, charcoal and steel, the natural resources of the U.P. in general, and the Pictured Rocks area in particular, were harvested to excess. Indeed, the evolving recreation and lumber industries were poised to have a dramatic impact on the fish and fisheries of the region.

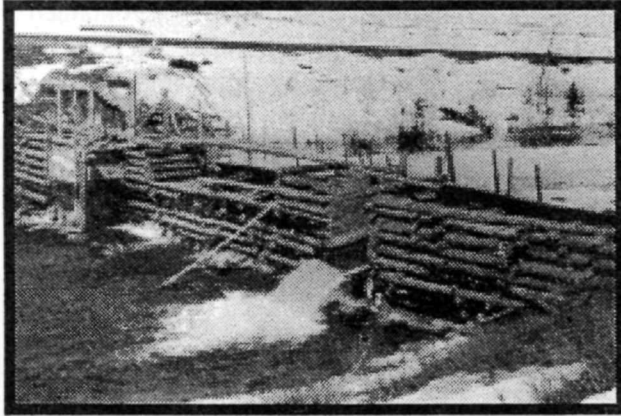
### **FISHERY DECLINE**

As the Great Lakes forests were once thought to be inexhaustible, so were the fish found in the waters of the U.P. Yet, reports of dwindling catches throughout Michigan started to appear in outdoor publications as early as the 1880s; the accounts focused more on Lower Peninsula waters than those of the U.P. But an 1882 article indicated that trout fishing was starting to fall off at Sault Ste. Marie, even though good streams and rivers west of the



Sault remained. The Sixth Biennial Report of the State Board of Fish Commissioners ominously reported that by 1880, fish in inland lakes, rivers and streams were being depleted generally by poachers through the use of gill nets and explosives.

Despite poachers, a substantial amount of concern focused on tourists, who simply wanted to catch as many fish as possible. Some caught them with the intention of selling the fresh



fish once they returned home—a practice that the Michigan legislature declared illegal beginning in 1915. Other concerns converged on the quantity of fishermen utilizing Michigan waters. While this was initially a more immediate problem for the waters in the northern half of the Lower Peninsula, it would become a concern for the UP.

Regarding the impact of logging on the Pictured Rocks fisheries, Columbus Hall summarized it in general. When he returned to the Beaver Lake area in 1901 after about a ten-year absence, he exclaimed, “I would not have known the place, the timber being all cut off...” Indeed, the impact of logging on a region’s fisheries cannot be overestimated. Specifically, a flowage’s hydrology could be affected by logging and removal of vegetation. For instance, the loss of pine and hardwoods affects the overall evapotranspiration rates, which, in turn, can affect the amount of water available for run-off. As well, logging-induced sedimentation can fill pools and cover gravel river bottoms.

Furthermore, logging activities historically required the removal of large wood debris, which otherwise, affected pools, promoted habitat diversity, helped expose gravel bottoms, provided food and offered cover—all of which were important to general fish habitat.

In addition to the general concerns about the impact of logging on the region’s fisheries, questions were raised about logging dams specifically.

*A Forest and Stream* editorial in 1889 clearly saw dams as a threat to fish migration. Indeed, at one location on the Au Sable River in the Lower Peninsula, not only could the fish not surmount a logging dam, but they collected in the pool below, where they were “speared, clubbed and netted by the wagon

load.” Further concerns were raised about the artificial water surges created by the dams and the potential these had to flush fish far downstream in the various rivers.

### **HELP ON THE HORIZON**

Concern about the fish population and how it was being threatened by sportsmen and loggers led to various attempts at artificial propagation. Early efforts involved the private activities of N.W. Clark and the hatcheries he established in Oakland and Wayne counties in 1867 and 1874, respectively. Soon, the state itself became active in the process as the Michigan Fish Commission was established in 1873 and began to develop its own hatchery at Crystal Springs in Cass County. While early state efforts to deal with declining fish conditions focused on the Lower Peninsula, the portion of the state north of the Straits of Mackinac quickly drew the attention of the commission. The first discussion regarding a hatchery in the U.P. occurred in 1883. By the end of 1884,

land had been leased for a hatchery at Sault Ste. Marie. The U.P. hatchery was expected to produce 2,000,000 brook trout annually, as well as salmon trout, schoodic salmon and whitefish. The commission predicted in 1885 that “the abundant success which has been attained in the Lower Peninsula in the same kind of work enables the board to speak with perfect confidence of what can be accomplished for the famous streams of the Lake Superior region.” By all accounts, the trial period of the Sault Ste. Marie hatchery must have been successful because a permanent facility was funded and built in 1894.

But hatcheries were only one element of a successful fish culture program. Railroads were a vital component of the stocking process for they created the network necessary to distribute fish across the state. As well, Michigan’s stocking program required the participation of interested citizens. Prior to 1924, any interested party could apply to receive trout for specific or favorite bodies of water. Accordingly, the applicant had to meet the train, take custody of the cans containing the fish, transport the cans to the water to be stocked, plant the fish and then return the cans to the railroad station. With this process of transportation and delivery, brook trout and whitefish were planted in Michigan’s inland waters and along the Michigan shoreline throughout the 1880s. The first plantings in Alger County occurred in 1892, when 30,000 and 6,000 brook trout were stocked in the Rock River (Au Train Township) and Laughing Whitefish Creek (Onota Township), respectively.

State-sponsored stocking efforts aside, perhaps the most substantial private initiative involved the Cleveland-Cliffs Iron Company, which operated significant logging and mining activities in the U.P. William G. Mather, the firm’s president, was a conservationist. Thus, he and the company were concerned about the deteriorating fisheries in the region.

Accordingly, Cleveland-Cliffs established a hatchery in 1904 that was located about one mile south of Munising. Operating for eight years, the facility initially raised brook trout, lake trout and salmon, all of which were planted in the waters throughout the company's vast land holdings. In 1904, the Cleveland-Cliffs hatchery planted 35,000 brook trout and 9,000 salmon in Miners River, which appears to be the body of water in the Pictured Rocks area most regularly stocked by the company. Thereafter, fish were planted in Miners each year until the hatchery closed in 1912. Perch Lake (Trappers Lake) was also stocked regularly.

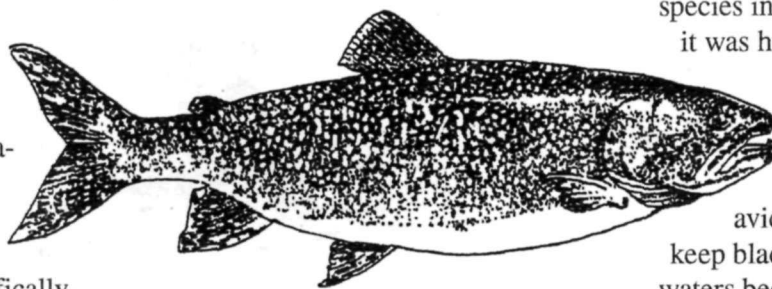
Over time, a new facet of the evolving debate about the state's fish population and fishery conditions focused on the availability of rainbow trout and other species for planting. Specifically considered was whether non-native fish should be introduced—including those types which, compared to native fish, might be better suited to the altered environmental conditions of the state. For example, neither rainbow nor brown trout was a native species to any Michigan waters. The former, which was first planted by the state in 1880, was imported from California; the latter came from Germany and was first stocked in 1885, with the Michigan Fish Commission officially embracing the species in 1887. Other species planted over time included landlocked salmon trout and Atlantic salmon; however, neither type ever developed a permanent population.

### **NATIVES vs. EXOTICS**

An interesting dialogue about stocking non-native fish emerged in various national publications. One contributor to *Forest and Stream* argued that "in the stocking of inland waters, a grave mistake has been made by the Fish Commissioners of more than one state. Too great prominence

has been given to certain game fishes, the favorites of sportsmen and to fancy kinds from distant localities....Another mistake has been the experiment...of putting certain favorite kinds [of fish] into waters in which they had not previously existed...instead of restocking indigenous species."

In contrast, a *Forest and Stream* contributor from Michigan observed that the Grand Haven portion of the state offered great trout fishing opportunities, despite the fact that trout were not native. But because they were stocked, the state furnished a substantial recreational opportunity where



none would otherwise exist, given the deteriorating character of the fisheries. Indeed, *Forest and Stream* editorialized in 1907 that "in many waters it is a matter of choice between other than native species, and in spite of the strong sentiment in favor of our brook trout, there are waters in which he will never again be found in any considerable numbers. The question, therefore, resolves itself into one of introduced trout or none, and the rainbow and brown trout are worthy successors to our dethroned favorite, fontinalis."

There were also environmental issues to consider. As noted, logging had a dramatic impact on the conditions of native trout waters because tree cover was lost and water temperatures increased. While both the brook and rainbow trout prefer cool water with a good current, the rainbow will adapt to warmer water and survive quite well; the brook will not. Additionally, the brown trout is adaptable to the changing environment. A sportsman in New York wrote in 1907 that, since the brook trout was disappearing, another fish had to be found

to take its place. He argued for the brown trout, suggesting that it "...is a splendid fish and is suited to fill the place he is about to occupy."

Another environmental issue that should have been considered—but apparently was not—regarded the compatibility of various species in shared waters. Brook and rainbow trout were said to do relatively well together as they coexisted in the Lower Peninsula's Au Sable River. Nevertheless, larger rainbow competed with brook trout for food and spawning beds. The brook trout, on the other hand, was dangerous to other species in a body of water because, if it was hungry and the food supply was low, the mature brook would eat other fish. This was the case with the black bass. Consequently, many avid trout fishermen wanted to keep black bass away from trout waters because once a bass is in a body of water, it "...is there for all times, eating up every living thing not larger than himself."

It was within this broad, developing context of Michigan's fish culture that the various waters of the Pictured Rocks area were stocked. Brook trout were the first fish to be planted in Pictured Rocks area waters shortly after the turn-of-the-century. Raised in the state hatchery system, they were planted in Chapel Creek between 1903 and 1905. Similarly, brook trout were planted in Miners River from 1904 to 1914, although this stock came from both the Cleveland-Cliffs hatchery as well as the state facility. In 1904 and during 1908 through 1912, respectively, salmon and steelheads from the Cliffs hatchery were also planted in Miners River. Regarding other waters, brook trout were stocked in Mosquito River in 1914. Largemouth bass were planted in Beaver Lake in 1905, while Grand Sable Lake received smallmouth bass in 1908 and largemouth bass in 1910. Between 1907 and 1910, Trappers (Perch) Lake was stocked with steelhead, lake trout,

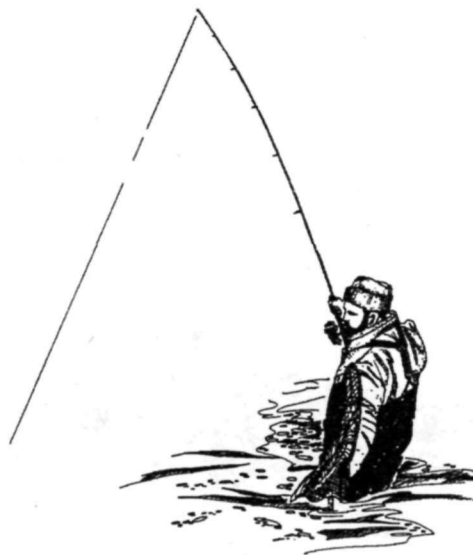
walleye, smallmouth bass and land-locked salmon trout—all of which were produced by either the state or Cleveland-Cliffs hatcheries. Additionally, rainbow trout were planted in Sevenmile (Trout) Lake from 1908 to 1910.

Little or no planting occurred in the Pictured Rocks area from 1914 to 1934. During the latter year, bluegills began to be stocked in Grand Sable Lake for the next eight years. From 1936 to 1942, Grand Sable also obtained smallmouth bass, walleye, largemouth bass, pike, perch, black bass and lake trout—all of which came from state hatcheries. After an eight-year hiatus, stocking resumed at Grand Sable Lake in 1950, with the planting of smelt. Over the next twelve years, rainbow were primarily planted in Grand Sable.

Chapel Lake was planted with brook trout during the early and middle 1950s, while Legion Lake received brook almost yearly between 1935 and 1946. Brook trout were again stocked in Miners River in 1935, at which time they were planted in the Hurricane River, Mosquito River and Sevenmile Creek. Throughout the 1950s and into the 1960s, brook trout were typically stocked in the Mosquito, Hurricane and Miners rivers and in Sevenmile Creek. Although brown trout were observed in some Pictured Rocks waters, a record of their planting did not occur until 1960, when they were stocked in Lowney Creek. Additionally, brook were planted in Lowney from 1948 to 1954.

A major innovation in the state's fish culture program came during the 1960s, when the splake was developed. It was a hybrid fish developed by crossing brook and lake trout. Along with brook trout, lake trout, rainbow trout, walleye and largemouth bass, the splake was planted periodically in Beaver, Grand Sable, Legion and Trappers lakes throughout the 1970s and 1980s. At present, walleye and lake trout continue to be planted in Beaver Lake and Grand Sable Lake,

respectively. Additionally, a three-year research project that re-evaluates stocking programs under the park's *Fisheries Management Plan* will be completed in 1999. According to the plan, future stocking in park waters will focus on naturally reproducing populations of native species.



## CONCLUSION

Today, conditions of the Pictured Rocks fisheries vary—as do the explanations for those circumstances. Two local fishermen agree that most trout waters in the park are declining; however, they offer differing perceptions about particular waters. Their general concerns focus on the impact of sea lamprey barriers, overfishing by tourists, the predatory nature of some fish and the declining character of the fish habitat. Contrasting the impressions of local fishermen to some extent, several scientific opinions have been rendered. Reports assessing the quality of the Beaver Lake fishery, for instance, note that the body of water currently supports walleye, northern pike, smallmouth bass, rock bass, yellow perch, brook trout and coho salmon. Furthermore, no concerns regarding walleye feeding on other species were noted; nor was there any mention of detrimental effects from logging activities on the quality of the lake bottom. One issue upon which the local fishermen and U.S. Fish and Wildlife Service personnel agree is

that overfishing accounts for many of the adverse conditions prevalent in the Pictured Rocks area fisheries today.

In addition, several conclusions can be drawn from this study. It is apparent, for instance, that brook trout were native to many of the rivers and streams in the waters of the Pictured Rocks. As well, both the recreation and logging industries had lasting impacts on the fish population and its habitats. The study of Michigan's evolving fish culture clearly indicates that rainbow and brown trout were not native to the region, but that they were well suited to the waters of the area and were able to adapt to the changing conditions of those waters in a way that brook trout could not.

Consequently, the present condition of the fisheries is mixed—over 100 years of attempting to sustain healthy fish habitats and populations notwithstanding. Some of the difficulties are related to the lingering effects of overfishing and logging; others are associated with the well-intentioned experiments of game managers early in the twentieth century. While the State of Michigan and National Park Service have made—with some success—substantial commitments over the years to rehabilitate and maintain area fisheries, regulatory safeguards may well be needed to protect the modest advances.

Given the constantly evolving character of the landscape and environment, however, it is not practical to believe that pre-1885 fisheries can be recreated. Nevertheless, it is important to understand the nature of the early fisheries and which fish were native to them. It is only when the historical conditions are understood and considered in the context of environmental conditions today that an effective resource management plan can be developed. Indeed, it must be a plan that builds on the past, but that is focused on the future.