**Manton Creek**
Wexford County
Manistee River watershed, last surveyed in September 2014.

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## Environment

Manton Creek is a medium-sized tributary to the Manistee River near the city of Manton, Michigan, in northeastern Wexford County. Manton Creek (also locally known as Cedar Creek) begins several miles to the southwest of Manton and flows northeast (Fig 1). It picks up several smaller tributaries and then turns north and flows into Lake Billings, an impoundment in the city of Manton. One more unnamed feeder stream also joins Manton Creek approximately one mile downstream of the Lake Billings Dam, just upstream of where the historic Manton Millpond Dam was located. Downstream of the Manton Millpond area, Manton Creek flows generally north for about nine miles before joining the Manistee River.

Most of the Manton Creek watershed flows through privately owned land, although the last several miles flow through state forest land. The watershed consists of rolling hills covered with northern hardwoods and pine, along with some lowland areas with conifer swamps. Agriculture in the area mostly consists of Christmas tree farms. Pine plantations are also a common land use in the Manton Creek watershed.

For many years there were two sizeable dams on Manton Creek. The Lake Billings Dam is located within the Manton city limits, while the Manton Millpond Dam was located approximately one mile downstream. Manton Millpond was drawn down in the summer of 2010 and the dam was removed in the summer of 2011, returning the stream to a free-flowing state. The Lake Billings Dam remains in place, creating a 20 acre impoundment. Lake Billings has an average depth of 3.5 feet and a maximum depth of 8 feet (Fusilier and Fusilier 2004). The Lake Billings RV Park is located on the shores of Lake Billings, and offers camping, boating, and fishing on the impoundment. Much of the land in the vicinity of the historic Manton Millpond is owned by the city of Manton.

Manton Creek and its tributaries are Designated Trout Streams (Fisheries Order 210). Manton Creek is classified as a top quality trout mainstream, while its tributaries are top quality trout feeder streams (Anonymous 2000). Manton Creek and its tributaries are regulated as Type-1 Trout Streams, meaning they can be fished from the last Saturday in April through September 30. The minimum size limits are 7" for brook trout, 8" for brown trout, and 10" for rainbow trout. A total of five trout can be kept per day, with no more than three over 15".

## History

An 1886 article from the Manton Tribune mentions that "Brook trout and grayling are found in the streams near Manton, and in forests nearby are the most desired varieties of game, thus affording ample opportunities for fishing and shooting". It was likely somewhere around this time that the native arctic grayling disappeared and were replaced by introduced brook and brown trout. Manton Creek

was first stocked in 1881 by the Michigan Fishery Commission with brook trout. Further stocking of Manton Creek with brook, brown, and rainbow trout continued until the early 1950s (Table 1). Although the Michigan Department of Conservation (MDOC) continued to stock both Manton Millpond (Table 2) and Lake Billings (Table 3) for some years after that, Manton Creek has not been stocked by the state since then.

Manton Creek Dams

Both the Lake Billings Dam and the Manton Millpond Dam were constructed in 1919 (Pawloski 2011; Anonymous 2008). The Lake Billings Dam was originally constructed for hydropower production, while the Millpond Dam was constructed to run a grist mill. The Lake Billings Dam was reconstructed at least once, in 1967. In recent years, Lake Billings has been annually stocked by the Manton Chamber of Commerce with rainbow trout, under permit from the Michigan Department of Natural Resources (MDNR). The Manton Chamber of Commerce hosts an annual Tagged Fish Derby each spring in which anglers attempt to catch the stocked fish and win cash prizes.

Lessard (2000) conducted research on Manton Creek to evaluate the effects of the two dams. Lessard also studied a number of other dams on trout streams throughout Michigan. She found that the dams of Manton Creek had more impact on water temperature than any of the other dams she studied. Lessard also found that the dams had a major impact on the trout populations of Manton Creek. She found that brook trout were also very abundant above the dams, and virtually nonexistent below the dams. Brown trout were very abundant above the dams, with reduced numbers below the dams. Tonello (2004) further documented the effects of the two dams on the trout populations of Manton Creek.

Manton Millpond Dam Removal

File correspondence (Cadillac MDNR office) documents the poor condition of the Manton Millpond Dam as far back as 1973. In 1986, the Manton Millpond Dam was officially documented to be in poor condition (Anonymous 2008). Rozich (1998) first proposed the option of removing it in his Manistee River Assessment. In 2001, the Michigan Department of Environmental Quality (MDEQ), Land and Water Management Division (LWMD) issued an order to the City of Manton to provide a plan and schedule to remove, repair, or replace the failing dam. By the mid-2000s, the dam had continued to deteriorate and fall apart, to the point where very little remained of the original impoundment. Broken concrete and re-rod littered the area around the dam.

In 2007, the City of Manton, in cooperation with MDNR Fisheries Division and Conservation Resource Alliance (CRA), initiated a request for qualifications to entities interested in providing engineering and consulting services to assist the city in making a determination regarding the fate of the Manton Creek Millpond Dam. Collectively, the City of Manton, MDNR, MDEQ, and CRA were interested in answering questions regarding options and associated costs, including full or partial spillway removal (or suggested modification alternatives), spillway rehabilitation, and stream rerouting, and other associated modifications and/or repairs. The engineering study was finalized in 2008. After much research, discussion, and debate, the Manton City Commission voted and signed a resolution to remove the remnants of the Millpond Dam in October of 2008.

With the resolution to remove the remnants of the dam passed, the City of Manton now sought assistance for funding, engineering, permitting, and demolition. In 2008, CRA agreed to assist the City of Manton with the necessary support to complete the dam removal project. CRA began fundraising

for the final phase of the project and was awarded approximately $158,000 for final design and construction services to draw the impoundment down and remove the dam.

There are many adverse ecological effects caused from the construction of dams and their impoundments. Dam removals also create profound ecological changes to their respective waterbodies. One less documented effect related to dam removal is the associated social implication. Communities historically grew and built around these dams and impoundments as they provided hydro-power, water control, and were utilized to run various mill operations such as the Manton Millpond Grist Mill. The impoundments created by dams also provided recreational opportunities. While the City of Manton decided to remove the dam, they still had a strong interest to maintain a recreational pond adjacent to the creek as well as maintaining access across the creek. Final design for the dam removal took these concerns into consideration and relocated the channel to allow for potential off-line pond development in the future.

The staged drawdown of the impoundment began in June 2010. Over a three month period, approximately 5 feet of concrete head was removed 6 inches at a time to ensure a slow drawdown of the impoundment. This slow drawdown process reduced the amount of sediment released into the stream, which was the primary concern regarding dam removal. To provide additional sediment control, a sediment basin (sand trap) was installed immediately below the dam and emptied repeatedly as it filled. The initial 6 inch cut exposed a majority of the bottomlands and allowed for the formation of the new channel location through the old impoundment. The construction crew utilized the saturated conditions of the bottomlands to walk through the soft organic sediments to form the newly created channel with no heavy equipment needed. Project partners agreed to delay the removal of the remaining dam head until the following year (2011), allowing additional time for the banks of the newly-formed channel to stabilize.

Demolition of the remaining 7 feet of concrete spillway and dam abutments commenced during the summer of 2011. The work was completed by construction contractors from Kanouse Outdoor Restoration and the MDNR Parks and Recreation Division heavy equipment crew. Again, the work was completed over a period of several months to ensure a slow drawdown and minimal sediment migration. Spoils from earthwork remained on-site and were spread and seeded with native grasses in upland areas. Once the concrete was removed, streambanks were pulled back and re-sloped, fieldstone rip-rap was installed at the toe of the streambank where the dam was previously located, and a floodplain was constructed along the new channel through the historic impoundment. The final phase of the project included the construction of a new timber pedestrian bridge in the summer of 2012 to accommodate foot traffic on the Manton Pathway that connects to the City of Manton.

Historical Manton Creek Fisheries Surveys

The first known fisheries survey of Manton Creek was conducted in 1953 (Figure 2). It was an electrofishing demonstration done for the Manton Sportsman's Club by MDOC Fisheries Biologist Stanley Lievense. The survey was conducted within the Manton city limits, just upstream of Lake Billings. In that survey, brook trout from 2-10 inches and brown trout from 2-14 inches were caught. Another historical fisheries survey of Manton Creek took place in 1966 (Figure 2), and was conducted just upstream of the 41 Rd. crossing. In that survey, four brook trout from 2-5 inches and three brown trout from 2-10 inches were caught, along with four sculpins.

In 1967, a chemical reclamation project (rotenone fish kill) was conducted on the Manton Creek reach from just above the Lake Billings Dam downstream to the Manton Millpond. The Lake Billings Dam had just been rebuilt and the impoundment hadn't yet been re-filled. The goal of the project was to remove "rough fish" from the impoundment area and then re-stock the impoundment with trout after it was re-filled. Brown trout, white sucker, and creek chubs were the only species recorded in the fish kill.

After the 1966 survey and 1967 reclamation project, Manton Creek was not surveyed again by the state until 2004. On July 22, 2004, four sites in the subwatershed were sampled (Figure 2) by MDNR Fisheries Division personnel by electrofishing with a Wisconsin battery-powered backpack shocking unit. The first and most upstream site sampled was the US-131 crossing in section 10, upstream from town and Lake Billings. The survey station ran approximately 150 feet upstream to US-131. A total of 22 brook trout from 2 to 7 inches long were caught, along with 49 brown trout from 2 to 10.1 inches. The only other species caught was sculpin. Substrates consisted of 75% gravel, 5% cobble/boulder, and 20% sand/silt. The creek averaged about 12 feet wide and 4 inches deep, with holes as deep as 2 feet. There was some woody cover present, several nice undercut banks, and some overhanging brush. At 8:40 am, the air temperature was 79°F, and the water temperature was 56°F.

The second site sampled in 2004 (the next site downstream) was the old US-131 (also known as Michigan Avenue) crossing in section 4, just downstream of the Lake Billings outlet. The station ran approximately 150 feet upstream to old US-131. A total of 30 brown trout from 2 to 10 inches in length were caught. Other species caught included sculpin, white sucker, blacknose dace, rock bass, sand shiner, and creek chub. Substrates consisted of 75% gravel, 5% cobble/boulder, and 20% sand/silt. The creek averaged about 15 feet wide and 6 inches deep, with holes as deep as 2 feet. There was no woody cover present; the only available cover was overhanging brush. At 9:30 am, the air temperature was 80°F, and the water temperature was 71°F.

The third site sampled in 2004 was an unnamed tributary that flowed into the Manton Millpond. The unnamed tributary begins about a mile to the southwest of the Manton Millpond, and flows through the Manton Sewage Treatment Facility. The survey station spanned from approximately 100 feet upstream to 41½ Rd. in section 4. The survey station was just below the outlet from the wastewater treatment ponds, and about ½ mile upstream of the Manton Millpond. A total of 9 brook trout from 2 to 7 inches and two brown trout at 7 and 10 inches were caught. No other species was observed or caught. Substrates consisted of 70% gravel and 30% sand. The creek averaged 3 feet wide and 2 inches deep. There was very little woody cover present; the only available cover was overhanging tag alders. The 41½ Rd. culvert was slightly perched, and the culvert hole was about 1.5 feet deep. At 10:15 am, the air temperature was 81°F, and the water temperature was 59°F.

The final site sampled in 2004 (the most downstream site) was just upstream of the confluence with the Manistee River. The station extended approximately 300 feet upstream of the confluence. A total of 10 brown trout from 2 inches to 10 inches were caught, along with one 8 inch rainbow trout. Other species caught included logperch, creek chub, northern hog sucker, blacksided darter, common shiner, northern redbelly dace, and blacknose dace. Substrates consisted of 55% gravel, 5% cobble, 20% clay, and 20% sand. The creek averaged about 20 feet wide and 6 inches deep. There was sparse woody cover present, and holes up to 3 feet in depth. The water was very turbid, with a visibility of roughly 6 inches. At 11:30 am, the air temperature was 83°F, and the water temperature was 71°F.

## Current Status

The most recent fisheries survey of Manton Creek was conducted by MDNR on August 29 and September 4, 2014. Sampling was conducted at three different sites in the watershed (Figure 2), using a Wisconsin battery-powered 12-volt backpack shocker with one probe.

The first site sampled on August 29, 2014 was in the historical reach of the old Manton Millpond (Figure 2). The survey station began approximately 250 feet downstream from the footbridge where the dam stood, and extended another 300 feet upstream from the footbridge (for a total of approximately 550 feet), to the confluence of the unnamed tributary that flows in from the south. At this site, Manton Creek averaged about 14 feet wide and 1 foot deep. Substrates consisted of approximately 30% sand, 30% clay, 30% gravel, 5% cobble, and 5% boulder. Stream channel morphology consisted of 70% run, 15% riffle, and 15% pool. From upstream to downstream, the surveyed reach showed major habitat diversity. The upper portion of the station flows swiftly over gravel with a broad, open channel. The mid-section of the station is narrow and deep with abundant woody cover and overhanging brush. The lower section of the reach is shallow, open, and extremely swift as the creek flows over clay lenses. Below where the historic dam stood, the channel is wide and more open. Substrate initially consists of gravel, cobble, and boulder transitioning to primarily sand near the bottom end of the station as the velocity slows.

In this reach, seven fish species were captured (Table 4). The station was dominated by brown trout, with 125 captured (3-15 inches long). Brook trout were also present with five caught (2-5 inches long). Other common species present included blacknose dace and creek chub. Three other species were present but only represented by one individual (brook stickleback, central mudminnow, and white sucker). At 2:00 pm, the air temperature was 70º F and the water temperature was 63º F. Riparian cover in the impoundment zone consisted only of sedge and grasses. Willows are beginning to sprout in some areas, and it is expected that forest succession will occur in the coming years as the impoundment zone recovers. Downstream of the historical dam site, riparian cover consisted of cedar and tag alder.

The second site sampled on August 29, 2014 was the unnamed tributary to Manton Creek that joins Manton Creek in the area of the historical Manton Millpond (Figure 2; the same stream sampled in 2004). In 2014, the unnamed tributary was sampled from the confluence with Manton Creek upstream approximately 50 feet. At this site, the stream averaged about 5 feet wide and 6 inches deep. Substrates consisted of approximately 60% sand, 20% silt, 15% gravel, and 5% cobble. Stream morphology consisted of an estimated 90% run and 10% pool. Only two species of fish were present (Table 5), including brook trout (18 from 2 to 6 inches long) and brown trout (7 from 2 to 4 inches long). At 3:30 pm, the air temperature was 75º F, and the water temperature 52º F. The channel bed of this station was still "spongy", as it flows over the silt of the historical impoundment. Watercress was very abundant in the stream, and grasses and sedges provided overhanging stream cover.

The final Manton Creek site sampled in 2014 was near the confluence of Manton Creek with the Manistee River, on September 4th. Here the survey crew sampled about 1,050 feet of stream upstream of the confluence. At this site Manton Creek averaged 20 feet in width and 6 inches deep. Substrates consisted of 60% gravel, 20% sand, 10% cobble, 5% clay, and 5% silt. Stream channel morphology

consisted of 75% run, 15% riffle, and 10% pool. For the first 150 feet of the station the survey crew collected and recorded all species, and upstream from there only collected salmonids. The fish community at this site was diverse, with 14 different species captured (Table 6). The salmonid catch consisted of brown trout (13 from 3-14 inches), brook trout (13 from 2-7 to inches) and rainbow trout (3 from 2-6 inches). This was the only location where rainbow trout were present in the 2014 survey of Manton Creek. At 10:30 am, the air temperature was 66º F, and the water temperature 62.5º F. At this site, Manton Creek flows through a beautiful wooded valley, and has relatively high gradient. Cover was present in the form of downed trees, logjams, undercut banks, and overhanging vegetation. The riparian vegetation consisted primarily of white pine, cedar, and tag alder.

## Analysis and Discussion

Since the removal of the Manton Millpond Dam, Manton Creek has undergone a remarkable transformation. The shallow, warm waters of the historical Millpond have been replaced by a cool, rushing stream with an outstanding trout population. The removal of the Millpond Dam has ensured that Manton Creek is once again a trout stream for its entire length. Prior to the removal of the dam, summer water temperatures downstream of the Millpond Dam were so warm that trout were seasonally excluded. While the Lake Billings Dam also warms Manton Creek, it does not warm it to the extent that trout are excluded below it (Tonello 2004). The 2014 survey showed that brown trout were very abundant in the historical Millpond reach, with multiple year classes represented. Brook trout were less abundant, but present near the confluence of the unnamed tributary stream, which is colder than Manton Creek and thus provides a cooling effect for some distance downstream.

During the 2014 survey, the crew noticed evidence of fishing activity in the historical Millpond Dam reach. Anglers were taking advantage of the restored stream and its trout population. The Manton Pathway connects the historical Millpond area with downtown Manton, making the historical Millpond area easily accessible from the city via walking or bicycle. This creates the opportunity for an "urban" fishery for Manton residents and visitors.

In the 2004 survey of Manton Creek (Tonello 2004), no brook trout were found in the reach near the confluence of the Manistee River. In 2014, brook trout were present in that area (although the survey station was also much longer in 2014). It is possible that the cooling effect of removing the Manton Millpond Dam is improving the fish community miles downstream and creating suitable conditions even for brook trout. Never the less, the fish populations of Manton Creek appear to be healthy, with salmonids present throughout the watershed.

## Management Direction

Because the watershed remains mostly healthy, the primary management goal for Manton Creek should be protection. It is far easier and less expensive to protect a watershed than it is to restore one that has been degraded. Protection should occur by working with the Michigan Department of Environmental Quality to review both wetlands (Part 303) and inland lake and stream (Part 301) permit applications in the watershed. Also, MDNR timber management in the lower Manton Creek watershed and particularly those actions close to the stream should be planned with the conservation of Manton Creek in mind.

Manton Creek should be surveyed again sometime within the next 10 years. Several different sites within the watershed should be sampled by backpack electrofishing to monitor the health of the fish populations of the creek. In particular, the historic Manton Millpond reach should be surveyed to monitor and track the continuing effects of the dam removal. In addition to fisheries surveys, water quality monitoring and invertebrate surveys would also help to provide further insight as to the state of the Manton Creek watershed.

## References

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Table 1. Fish stocked in Manton Creek, Wexford County.

| Year | Species | Number | Life stage | Strain |
|---|---|---|---|---|
| 1881 | Brook trout | 5,000 | fry | |
| 1884 | Brook trout | 10,000 | fry | |
| 1894 | Brook trout | 15,000 | none indicated | |
| 1895 | Brook trout | 12,000 | none indicated | |
| 1896 | Brook trout | 12,000 | none indicated | |
| 1898 | Brook trout | 10,000 | none indicated | |
| 1905 | Brook trout | 20,000 | none indicated | |
| 1909 | Brook trout | 5,000 | fry | |
| 1910 | Brook trout | 4,000 | none indicated | |
| 1934 | Brook trout | 10,000 | 8 mo. | |
| 1935 | Brook trout | 4,000 | 7 mo. | |
| 1936 | Brook trout | 2,500 | 8 mo. | |
| 1937 | Brook trout | 15,000 | 8 mo. | |
| 1938 | Brook trout | 7,000 | 8-9 mo. | |
| | Brown trout | 9,000 | 8-9 mo. | |
| 1939 | Brook trout | 6,000 | 9 mo. | |
| | | 1,000 | yearlings | |
| | Brown trout | 1,000 | 8 mo. | |
| 1940 | Brook trout | 8,000 | 7-8 mo. | |
| | | 1,388 | yearlings | |
| 1941 | Brook trout | 10,000 | 5-8 mo. | |
| | | 1,400 | yearlings | |
| | Rainbow trout | 3,000 | 3 mo. | |
| 1943 | Brook trout | 750 | yearlings | |
| | | 9,000 | 5 mo. | |
| | Rainbow trout | 6,000 | 3 mo. | |
| 1944 | Brook trout | 3,000 | 4 mo. | |
| | | 400 | yearlings | |
| | | 300 | adults | |
| 1945 | Brook trout | 2,400 | 17-24 mo. | |
| 1946 | Brook trout | 1,000 | 25-27 mo. | |
| 1947 | Brook trout | 600 | yearlings | |
| | | 500 | adults | |
| | Rainbow trout | 400 | yearlings | |
| | | 570 | adults | |
| 1948 | Brook trout | 900 | legal | |
| | Rainbow trout | 800 | legal | |
| 1949 | Brook trout | 5,000 | fingerlings | |
| | | 500 | legal | |
| 1950 | Brook trout | 400 | legal | |

Table 1 continued. Fish stocked in Manton Creek, Wexford County.

| Year | Species | Number | Life stage | Strain |
|---|---|---|---|---|
| 1951 | Brook trout | 1,150 | legal | |
| | Brown trout | 150 | legal | |
| | Rainbow trout | 300 | legal | |
| 1952 | Brook trout | 1,550 | legal | |
| 1953 | Brook trout | 750 | legal | |
| 1955 | Rainbow trout | 300 | legal | |

Table 2. Fish stocked in Manton Millond, Wexford County.

| Year | Species | Number | Life stage | Strain |
|---|---|---|---|---|
| 1946 | Brook trout | 235 | adults | |
| 1947 | Brown trout | 1,400 | adults | |
| 1948 | Brown trout | 1,025 | legal | |
| 1949 | Brown trout | 750 | legal | |
| 1950 | Brown trout | 1,200 | legal | |
| 1951 | Brown trout | 1,075 | legal | |
| | Rainbow trout | 100 | legal | |
| 1952 | Brown trout | 470 | legal | |
| | Rainbow trout | 600 | legal | |
| 1954 | Rainbow trout | 650 | legal | |
| 1955 | Rainbow trout | 500 | legal | |
| 1956 | Rainbow trout | 1,650 | legal | |
| 1957 | Rainbow trout | 600 | legal | |
| 1958 | Rainbow trout | 600 | legal | |
| 1959 | Rainbow trout | 650 | legal | |
| 1960 | Rainbow trout | 500 | legal | |
| 1961 | Rainbow trout | 400 | legal | |
| 1962 | Rainbow trout | 400 | legal | |
| 1963 | Brook trout | 200 | legal | |
| | Rainbow trout | 400 | legal | |
| 1964 | Rainbow trout | 500 | legal | |
| 1965 | Rainbow trout | 1,000 | sublegal | |
| | | 500 | legal | |
| 1967 | Brown trout | 500 | yearlings | |
| 1968 | Brown trout | 300 | yearlings | |
| 1969 | Rainbow trout | 500 | yearlings | |
| 1970 | Rainbow trout | 500 | yearlings | |
| 1971 | Rainbow trout | 500 | yearlings | |
| 1972 | Rainbow trout | 500 | yearlings | |
| 1973 | Rainbow trout | 500 | yearlings | |

Table 3. Fish stocked in Lake Billings, Wexford County.

| Year | Species | Number | Life stage | Strain |
|---|---|---|---|---|
| 1940 | Brook trout | 2,500 | yearlings | |
| 1946 | Brook trout | 200 | 17 mo. | |
| 1954 | Brook trout | 600 | legal | |
| 1955 | Brook trout | 500 | legal | |
| 1956 | Brook trout | 500 | legal | |
| 1957 | Brook trout | 500 | legal | |
| 1958 | Brook trout | 500 | legal | |
| 1959 | Brook trout | 500 | legal | |
| 1960 | Brook trout | 400 | legal | |
| 1961 | Brook trout | 300 | legal | |
| 1962 | Brook trout | 300 | legal | |
| 1963 | Brook trout | 300 | legal | |
| 1964 | Brook trout | 400 | legal | |
| 1965 | Brook trout | 500 | legal | |
| | Rainbow trout | 1,000 | sublegal | |
| 1967 | Brown trout | 1,500 | yearlings | |
| 1968 | Brown trout | 1,000 | yearlings | |
| 1969 | Rainbow trout | 700 | yearlings | |
| | | 125 | fall fingerlings | |
| 1970 | Rainbow trout | 1,000 | yearlings | |
| 1971 | Rainbow trout | 1,000 | yearlings | |
| 1972 | Rainbow trout | 1,000 | yearlings | |
| 1973 | Rainbow trout | 1,000 | yearlings | |
| 1974 | Brook trout | 1,000 | adults | |
| | Rainbow trout | 1,035 | yearlings | |
| 1975 | Steelhead | 1,000 | yearlings | |
| 1976 | Rainbow trout | 1,000 | yearlings | |
| 1977 | Rainbow trout | 1,100 | yearlings | |
| 1978 | Rainbow trout | 1,000 | yearlings | |
| 1979 | Steelhead | 2,000 | yearlings | |
| 1980 | Rainbow trout | 1,000 | yearlings | |
| 1981 | Rainbow trout | 1,000 | yearlings | Harrietta |
| 1982 | Rainbow trout | 1,000 | yearlings | |
| 1983 | Rainbow trout | 1,000 | yearlings | Harrietta |
| 1984 | Rainbow trout | 950 | yearlings | Harrietta |
| 1985 | Rainbow trout | 2,000 | yearlings | |
| 1986 | Rainbow trout | 2,000 | yearlings | Shasta |
| 1995 | Rainbow trout | 800 | adults | Private |
| 1999 | Rainbow trout | 420 | adults | Private |
| 2000 | Rainbow trout | 1,300 | adults | Private |
| 2001 | Rainbow trout | 600 | adults | Private |
| 2002 | Rainbow trout | 1,300 | adults | Private |
| 2003 | Rainbow trout | 1,100 | adults | Private |
| 2004 | Rainbow trout | 966 | adults | Private |
| 2006 | Rainbow trout | 300 | adults | Private |
| 2007 | Rainbow trout | 373 | adults | Private |
| 2008 | Rainbow trout | 379 | adults | Private |
| 2009 | Rainbow trout | 329 | adults | Private |
| 2010 | Rainbow trout | 329 | adults | Private |
| 2011 | Rainbow trout | 360 | adults | Private |

Table 3 continued. Fish stocked in Lake Billings, Wexford County.

| Year | Species | Number | Life stage | Strain |
|---|---|---|---|---|
| 2012 | Rainbow trout | 300 | adults | Private |
| 2013 | Rainbow trout | 270 | adults | Private |
| 2014 | Rainbow trout | 280 | adults | Private |

Table 4. Catch from 8/29/2014 MDNR electrofishing survey of Manton Creek in the vicinity of the historical Manton Millpond.

| Inch Class | Brook trout | Brown trout | Blacknose dace | Brook stickleback | Central mudminnow | Creek chub | White sucker |
|---|---|---|---|---|---|---|---|
| 1 | | | 1 | 1 | | 2 | |
| 2 | 1 | | 15 | | 1 | 8 | 1 |
| 3 | | 47 | 12 | | | 1 | |
| 4 | 1 | 27 | | | | 1 | |
| 5 | 3 | 4 | | | | | |
| 6 | | 22 | | | | | |
| 7 | | 16 | | | | | |
| 8 | | 6 | | | | | |
| 9 | | 2 | | | | | |
| 10 | | | | | | | |
| 11 | | | | | | | |
| 12 | | | | | | | |
| 13 | | | | | | | |
| 14 | | | | | | | |
| 15 | | 1 | | | | | |
| Total: | 5 | 125 | 28 | 1 | 1 | 12 | 1 |

Table 5. Catch from 8/29/2014 MDNR electrofishing survey of the unnamed tributary to Manton Creek in the vicinity of the historical Manton Millpond.

| Inch Class | Brook trout | Brown trout |
|---|---|---|
| 1 | | |
| 2 | 15 | 2 |
| 3 | 2 | 4 |
| 4 | | 1 |
| 5 | | |
| 6 | 1 | |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |
| 11 | | |
| Total: | 18 | 7 |

Table 6. Catch from 9/4/2014 MDNR electrofishing survey of Manton Creek near the confluence with the Manistee River.

| | Inch Class | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Species | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Total: |
| Blacknose dace | 6 | 19 | 5 | | | | | | | | | | | | 30 |
| Blacknose shiner | | 1 | | | | | | | | | | | | | 1 |
| Blackside darter | | 2 | 1 | | | | | | | | | | | | 3 |
| Brook trout | | | 2 | | 6 | | 5 | | | | | | | | 13 |
| Brown trout | | | 1 | | | 3 | 2 | 1 | 2 | 1 | 1 | 1 | | 1 | 13 |
| Burbot | | | | | | 1 | | | | | | | | | 1 |
| Central mudminnow | | | 1 | | | | | | | | | | | | 1 |
| Creek chub | 1 | 5 | 3 | 3 | 3 | | | | | | | | | | 15 |
| Johnny darter | 7 | 6 | | | | | | | | | | | | | 13 |
| logperch | | 5 | 10 | | | | | | | | | | | | 15 |
| Northern hog sucker | | | | | | 1 | | | | | | | | | 1 |
| Northern redbelly dace | 8 | 1 | | | | | | | | | | | | | 9 |
| Rainbow trout | | 1 | | | 1 | 1 | | | | | | | | | 3 |
| White sucker | | | 3 | 3 | | | | | 1 | 1 | 1 | 2 | | | 11 |

Figure 1. Manton Creek watershed, Wexford County, Michigan.

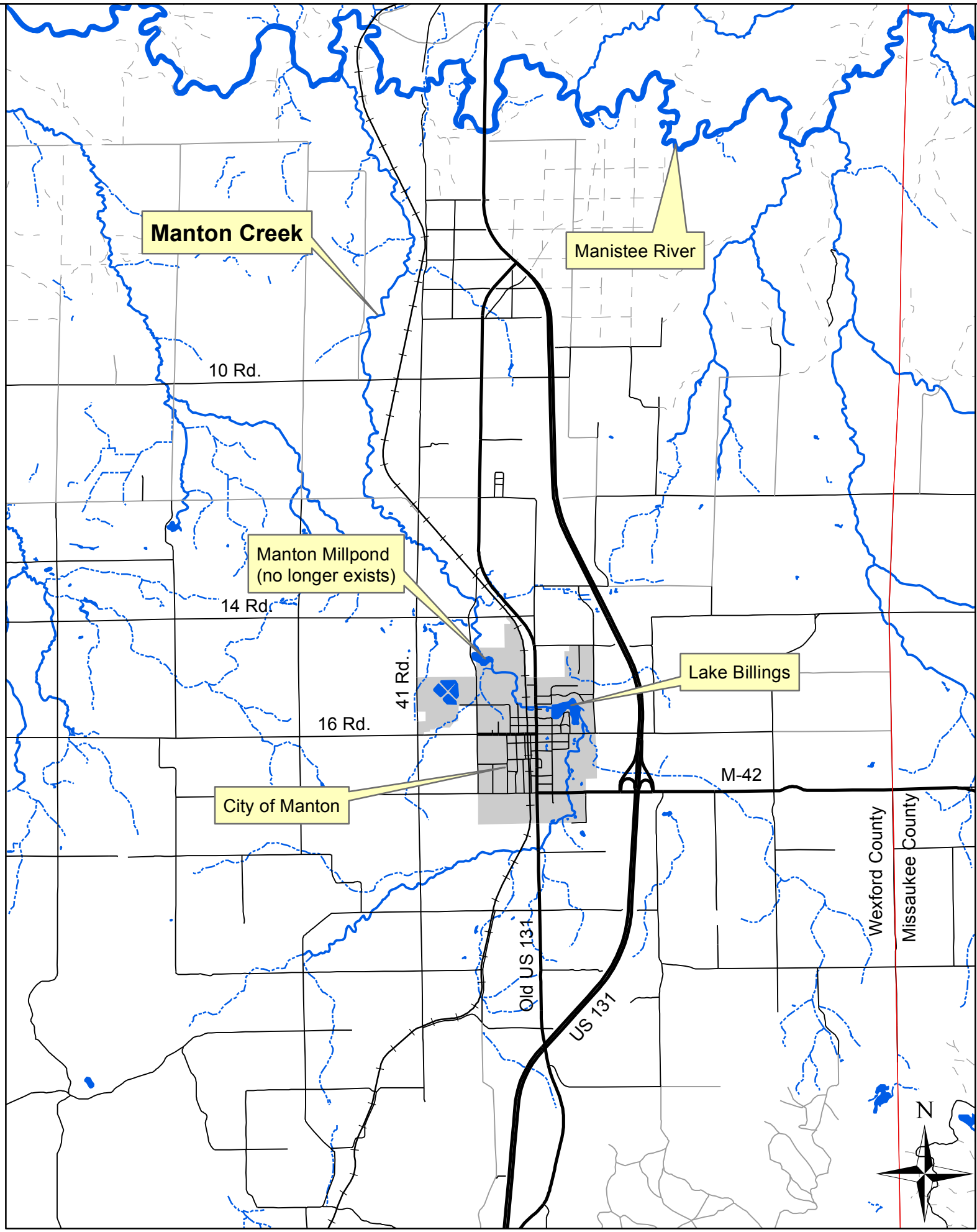

Figure 2. Historical fisheries surveys of the Manton Creek watershed, Wexford County, Michigan.

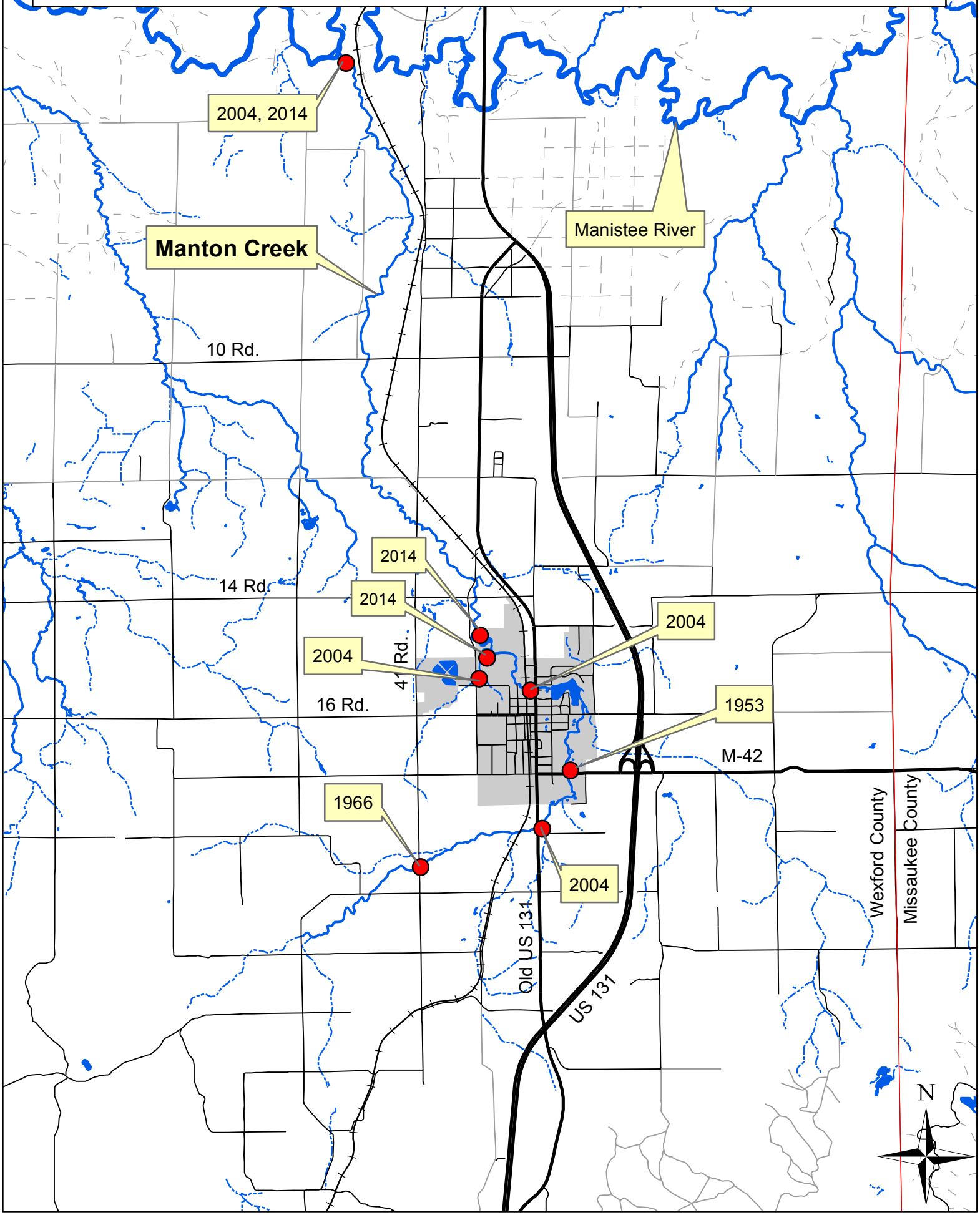

Photo 1.  Manton Millpond Dam prior to removal.

Photo 2.  Manton Creek after the removal of Manton Millpond Dam.

Photo 3. MDNR Fisheries Technician Bob Kerry conducting an electrofishing survey of Manton Creek in the vicinity of the historic Manton Millpond on August 29, 2014.