



Local News

Ox Creek: The little stream that could?

[Print Page](#)

Polluted for decades, the stream that threads through Benton Harbor and drains 16.5 square miles is now attracting interest of officials and developers. Envisioned: cleaner water, a boat launch and trails

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BENTON HARBOR - Charles Yarbrough remembers a time when Ox Creek meant recreation, a hard-to-resist attraction for kids with time on their hands.

That was in the early 1950s, and Yarbrough and his friends, who lived not far from Hall Park and the creek, didn't know much about pollution.

"We loved the park and we loved Ox Creek," he said.

Youngsters liked to catch carp that swam into the usually shallow stream from the Paw Paw River.

"Some of us even swam in the creek," Yarbrough said. "Had I been caught playing there my dad would have killed me."

While children weren't concerned about water quality and there was no testing at the time, adults knew the creek was laden with toxins likely carried in runoff from the city's busy factories and streets.

Now 70 and a former mayor, Yarbrough serves on the Benton Harbor Brownfield Authority, an appointed body that works to clean up polluted sites and make them suitable for other uses. The authority had some tests done and would like to have the creek cleaned up, possibly to the point where a launch for small boats could be built in Hall Park, which is several blocks east of the downtown and bordered on the north by Highland Avenue.

"We have talked about it on the board," Yarbrough said. "Everybody agrees, but the problem is getting the money to do it."



John Madill / H-P staff Ox Creek at North Shore Drive in Benton Harbor.

Dirty water

The condition of Ox Creek, which has figured in Benton Harbor's history since settlers began arriving in the 1830s, is now being scrutinized by the state and federal governments. With major developments under way in Benton Harbor and opportunities available under the state's City of Promise assistance initiative, there is new interest in rejuvenating the lower Ox Creek watershed.

The developers of the Harbor Shores project have requested permits to dredge portions of the mouth of the creek, which holds contaminated sediments. And the Berrien County Health Department has hired the Southwest Michigan Planning Commission to map a proposed hiking trail along Ox Creek. A second map would show the trail with links to other local and regional trails.

But use of the creek for recreational or other purposes is held back by pollution from oil, grease, heavy metals, toxic chemicals and sediments. Arsenic, chromium, copper, lead, zinc and polynuclear aromatic hydrocarbons (PAHs), which are chemical compounds found in oil, coal and tar, have been detected in the water and sediments.

The stream drains 16.5 square miles, including a large part of Benton Harbor, emptying into the Paw Paw River north of downtown.

Because of low numbers of small animals called macroinvertebrates collected in sampling, Ox Creek is on a state list of water bodies not meeting federal Clean Water Act requirements. The noncompliant status has triggered studies that will eventually lead to strategies aimed at restoring the environmental health of Ox Creek.

"By reducing the pollutants, it's hoped the macroinvertebrate community would recover," said Tamara Lipsey, aquatic biologist for the Michigan Department of Natural Resources and Environment. "They're an indicator of water quality."

Samples collected in the field in 1991, 2001 and 2006 showed the near absence of sensitive species - mayflies, stoneflies and caddisflies - and a prevalence of other macroinvertebrates more tolerant of pollution such as midges, bloodworms and certain snails.

Status report

A report completed last week by the DNRE is a step toward determining the maximum amount of pollutant loading that Ox Creek can handle and still meet federal water quality standards.

From there, strategies can be developed to limit the amount of pollutants getting into the creek.

Funded by the U.S. Environmental Protection Agency, the report characterizes in detail the climate, soils, land use, hydrology and other factors that affect water quality in the creek, which has its headwaters in farmland east of Benton Harbor. The report describes the biological studies and water quality investigations that have been completed. It further discusses potential sources of metals, sedimentation and other material polluting the stream.

Lipsey said the study - titled the "Watershed Characterization and Source Assessment Report" - will be discussed at a public meeting at 6:30 p.m. April 21 at Benton Township Hall. The report helps prepare a total maximum daily load document, or TMDL, which establishes allowable pollutant loads and reductions required to meet water quality standards. It is based on the relationship between pollution sources and the stream's condition.

"People see the value in water and water bodies," Lipsey said. "Just because Ox Creek is in an urban area doesn't mean it doesn't have value."

A TMDL document is a guide, Lipsey said, a tool that brings people together to deal with the problems.

"It's not an answer to all the problems, but gathers all the data and presents it and brings attention to it," she said.

While a state-permitting process enforces standards for point source discharges, which are

discharges that come from a single place such as a factory pipe, local governments manage nonpoint sources, principally runoff from rain and snow that affects streams.

After a draft TMDL is submitted to the public for comment, the DNRE responds by making any changes, then submits the final version to the EPA for approval. Once the document is approved, the state is required to implement it and cut pollutants through permits and nonpoint source control programs.

Lipsey said the state can't impose restrictions on nonpoint sources.

"It's more through best management practices," she said. "This TMDL will hopefully have what we would recommend as best management practices for the watershed and hope to implement."

Growth and pollution

The little warm water stream was known as Ox Creek before Benton Harbor existed. In 1836, the pioneering Morton family built a homestead on high ground west of the creek in what was then part of Benton Township.

Decades later, industries developed along or near the creek on Graham Avenue and other areas, some using the stream as a drain for storm water and cooling water.

Today the lower portion of the creek's watershed in Benton Harbor is a combination of residential, commercial and industrial property, and it is fairly densely populated.

The middle part of the creek's course is influenced by heavy commercial development in Benton Township, including the Orchards Mall, Walmart, Meijer and other retailers and Interstate 94. Land use in the upper portion, with the Yore-Stouffer Drain being the largest tributary, is primarily agriculture and open land.

Water quality problems in the Ox Creek watershed are complex. They are affected by the area's climate and its relation to hydrology, land uses and other factors.

According to the new DNRE report, "flashy flows," where the stream responds quickly to rainfall, can push up the creek's water level 4 feet or more in a short time and flood nearby areas.

Channelization of the stream bed and relocation of parts of Ox Creek to accommodate development or improve drainage can push up the water level quickly.

Extensive subsurface field drainage tiles or pipes make more land available for farming, the report said, but can also trigger rapid rise in stream levels during heavy rain or snow melts.

Such "flashiness" tends to scour stream beds of vegetation, increasing erosion and washing more silt and other pollutants into streams.

Another factor contributing to the rapid rise of water in the creek is that there are hundreds of acres of roads, parking lots and other hard surfaces in the creek's watershed. Such surfaces do not absorb water and increase the volume of runoff.

Storm runoff is a potential source of surface water pollution, carrying oil, other petroleum products, metal dust and farm chemicals into streams.

The report reviews possible sources of pollution, but identification is to be left to a linkage study to be conducted later.

The growth and urbanization of Benton Harbor created a "wide array of potential sources that could deliver contaminants to Ox Creek," the report said.

Point sources, which are regulated through the National Pollutant Discharge Elimination System permit process, are listed.

Four have permits to discharge water into the Ox Creek watershed. The largest is Lake Michigan

College, allowed to discharge up to 1.95 million gallons of water used to cool machinery and equipment that does not come into contact with pollution sources.

Three other companies, National Zinc Processors, Siemens VAI Services and New Products Corp., have permits to discharge much smaller amounts of cooling water.

Benton Harbor, the Berrien County Road Commission, the Berrien County Drain Commission and 14 businesses have industrial storm water discharge permits.

Additionally, regulated contamination sites may also contribute to Ox Creek pollution, though they have been cleaned up or are being evaluated.

Thirteen active sites are listed, most with a response under way. Examples are the former sites of Malleable Industries, Harbor Plating and Benton Harbor Manufactured Gas Co.

Correcting the environmental harm caused by old industrial sites, including some that were in use long before pollution standards came about, can take years and cost taxpayers a lot.

The Harbor Plating works at 724 S. Fair Ave. in Benton Harbor was abandoned in 1990, leaving behind a legacy of groundwater and surface pollution. A federal screening program in 1992 found heavy groundwater and soil contamination. Another study in 1998 found that water near a groundwater seep into Ox Creek in the plant area was yellow with metal contamination.

The EPA at the time said surface water was found to have 1,700 times the allowable limit of chromium for drinking water, along with high levels of silver and cyanide. A \$1.4 million EPA cleanup removed more than 200 drums, 60 vats and about 100 small containers of hazardous materials.

The plant, which operated for decades, was razed by the city in 1998. In the following year, the DNRE fenced off the site to prevent children from playing on the contaminated concrete slab.

In 2001 the EPA conducted an emergency removal of 300 cubic yards of topsoil from adjacent property that contained dangerous levels of lead and arsenic.

A DNRE report prepared in December 2007 said a pump-and-treat system to clean the groundwater continued to operate. Sediment samples taken at three points showed that while chromium levels in Ox Creek were higher than average for regional reference sites, they did not exceed sediment quality guidelines.

In addition to the site of the former Harbor Plating, other possible sources of contamination in the Ox Creek watershed are leaking underground storage tanks. They are usually found at gas stations or former sites of gas stations.

The new DNRE report lists 54 sites where pollutants have been released, 24 of them in open status because cleanup has not been completed.

At 30 closed sites, corrective action has been completed, though there is the potential at each that contamination has moved off of the property to pose risks elsewhere.

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