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'SOMETHING BROKE IN THE ECOSYSTEM'

Lakes Cadillac, Mitchell have gone
through big changes over last 15 years

BY CHRIS LAMPHERE
CADILLAC NEWS

CADILLAC — In some ways harmful and other ways benign, human activities have significantly changed lakes Cadillac and Mitchell.

Experts say there are a number of signs that indicate the lakes have gone through stages of ill health, some of which still exist today.

Those signs include the disappearance of mayflies; decline in walleye populations; and severe algal blooms.

While these phenomena might seem totally unrelated, those who study the lakes

believe they could all be related in one way or another and be ultimately caused by humans.

There is good news regarding some of these problems and others remain just that: problems.

Algal blooms

In 2017, the Cadillac City council hired Restorative Lake Sciences to replace their previous lake treatment firm after several summers of massive algal blooms that turned the water pea-soup green for days at a time.

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ILLUSTRATION BY SARAH ADAMS |
CADILLAC NEWS FILE PHOTO

A algae boom in full effect on the Clam River above the dam. This summer's algal bloom might be less severe than in previous years due to the long winter season. However, it is difficult to predict how aquatic plant growth will be due to other factors.

Lakes

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Restorative Lake Sciences conducted tests in 2018 to begin the process of finding out how the algal blooms are forming and what can be done to prevent them in the future.

There were several different types of algae found in the lake but the most dominant form was blue-green Microcystis, an aggressive organism that forms dense algal blooms that may release toxins and present a risk for public health and the overall health of the Lake Cadillac ecosystem.

"Without adequate grazers to reduce algae, especially blue-greens, the blue-green population will continue to increase and create negative impacts to water bodies," an RLS report concludes.

Jennifer Jermalowicz-Jones, professional watershed manager with RLS, said based on data to date, the algal blooms in Lake Cadillac are sporadic and tend to occur during the warmer summer months.

"RLS has recently met with the city of Cadillac to make recommendations on evaluation of the immediate watershed to determine specifically where nutrient sources entering the lake are originating from," Jermalowicz-Jones said in an email to the Cadillac News.

"This is relatively common for algal blooms but RLS is studying the algal community composition to better understand when the blue-green algae begin to overwhelm the favorable algal populations."

Stormwater sampling and sampling of select drains in 2019 may help yield some answers, Jermalowicz-Jones said.

In the meantime, this summer's algal bloom might be less severe than in previous years due to the long winter season, however, Jermalowicz-Jones said it is difficult to predict how aquatic plant growth will be due to other fac-

tors.

"Michigan did experience a harsh winter and sometimes that leads to less growth of both algae and plants," she said. "However, when the growing season is shortened by late spring and late ice-off, aquatic plants can adapt by growing early and quickly. They can evolutionarily sense that the growing season is short."

With the excess nutrients contributing to the algal bloom coming from somewhere, Jermalowicz-Jones said people with shoreline property should be careful about using fertilizer.

"All riparians should do their part and not use any fertilizer unless a soil test conducted by MSU Extension proves that the soil is nutrient-deficient," she said. "In addition, all riparians are encouraged to grow a soft shoreline near their lake frontage while allowing for a small area for the docks and beach areas."

The Lake Mitchell Improvement Board will be receiving its watershed plan soon and Jermalowicz-Jones said they hope this will provide similar guidance for Lake Cadillac in the near future.

Decline of walleye populations

Mark Tonello, fisheries biologist with the Cadillac DNR office, said over the years, people began to notice that walleye were becoming less prevalent in both lakes.

At the same time, largemouth bass populations have exploded.

Tonello conducted analyses of Lake Cadillac and Lake Mitchell in 2012 and noted the decline in walleye.

"While the exact reason for the lack of walleye reproduction in recent years is unknown, it may have something to do with the recent increase in largemouth bass abundance," the report states.

"Largemouth bass can negatively affect juvenile walleye year classes by preying on juvenile walleye. Therefore it is possible



CADILLAC NEWS FILE PHOTO

This is the cause of the foul odor coming off of Lake Cadillac and the waters near the Clam River Dam near the Sound Garden, the annual algae bloom.

that the lack of natural reproduction of walleye in the last 15 years or so is related to the elevated population levels of largemouth bass."

"Largemouth have kinda taken over," said Tonello, who added it is possible that bass-fishing tournaments have affected the species distribution on lakes Cadillac and Mitchell.

For example, tournament anglers typically catch fish from all over on both lakes, and then release all the fish at one boat launch on whichever lake the tournament started on (often Kenwood Park on Lake Cadillac or Mitchell State Park on Lake Mitchell), even though it is technically illegal to catch fish from one lake and then release them into another lake.

Despite the changes, Tonello said the fish diversity of both lakes is quite healthy today, thanks in part to a walleye stocking program that began a few years ago.

Loss of mayflies

Historically, there has been

one day a year when a cloud comprised of millions of mayflies ascended from the surface of Lake Cadillac and Lake Mitchell, swarmed the area for 24 hours, then died.

Mayflies in their adult form live only one day — long enough to find a mate and pass their genetic information on to the next generation.

Freshwater macroinvertebrates include snails, mayflower larvae, worms and other bugs. They are key components of lake food webs both in terms of total biomass and in the important ecological role that they play in the processing of energy.

They also are a primary food source for fish.

Over the years, however, the insects have virtually disappeared.

In a report released last year, Jermalowicz-Jones said Lake Cadillac should have about 30-60 percent greater amounts of macroinvertebrates to be considered healthy.

She said a combination of factors is believed to be contribut-

ing to the shortage of macroinvertebrates in the lake.

Two of those factors are the low oxygen and high nutrient levels that likely also are causing algal blooms.

The other is the potential presence of metals and copper at the bottom of the lake.

Jermalowicz-Jones said this material is believed to have been introduced into the lake by copper sulfate spaying programs intended to reduce swimmer's itch.

According to the DNR report compiled by Tonello, although this practice was ceased in the mid-1990s, the mayflies have not returned in any significant numbers.

"A light number of mayflies was observed in the summer of 2012, although this was more than has been seen in many years," the report states.

"We don't always understand the relationships between these things," Tonello said. "But mayflies are an indicator species (for lake health). Something broke in the ecosystem."

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