

Source: Door Countys Peninsula Pulse

Door to Nature **Lake Michigan's Highs and Lows**

by Roy Lukes

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Water washed high on the Ridges Beach in July 1973, when Lake Michigan was 177.3 meters, or .88 meters above average levels.



The Ridges Beach in the summer of 2009, when Lake Michigan was at 176.44 meters, just .02 meters above average levels.

I was born in Kewaunee, Wis in 1929 about six blocks from Lake Michigan and have been in close touch with this wonderful body of water ever since. Our family of my parents and five children ate a lot of freshly-caught fish including Lake Trout, Yellow Perch, Smoked Chubs and Lawyers. The sparkly clean water of Lake Michigan was perfect for swimming and boating. Looking back in retrospect from 2013, invasives such as Phragmites, Round Gobies, Zebra Mussels and Quagga Mussels hadn't been introduced into the lake's pristine waters when I was growing up.

Following the last glacial ice "melting" around 10,000 years ago, the crust of eastern Wisconsin, Lake Michigan and the state of Michigan had been pushed downward 50 feet or more forming a huge dimple. Relieved from the enormous weight of the ice, slowly the large depression began to

rise, a process referred to as isostatic rebound by geologists. The shore of the ancient post-glacial Lake Algonquin at Baileys Harbor, for example, rose slightly more than 50 feet before it stabilized. Start walking westward at the intersection of State Highway 57 and Bluff Road and glance southward just before arriving at the crest of the hill. You will clearly see the huge undercut slabs of Dolostone formed by the wave action of old Lake Algonquin.

The U.S. Army Corps of Engineers has kept continuous records of the levels of the Great Lakes since the early 1860s. Prior to recent years, the lowest level of Lake Michigan was reached in 1964 – 576.05 feet above sea level. You can imagine the wide stretches of sandy beach (minus invasive plants) I found when I came to work as summer naturalist at the Ridges Sanctuary in 1964.

Greater precipitation, coupled with more overcast days that resulted in less evaporation, led to a slow rise of the lake in the late 1960s and into the early 1970s. An all-time high level of Lake Michigan of 581.6 inches was reached in 1974. Storm waves pounded at shorelines causing widespread damage, erosion and flooding. The Cana Island Lighthouse causeway was completely underwater forcing visitors to remove their shoes, roll up their trousers and wade, or take a small rowboat to enjoy, the popular lighthouse attraction.

Slowly the lake level began to fall again. Unfortunately, there were no points of reference established indicating the extent to which the high water of 1974 had reached. Soon developers set their sights on money to be made selling property and building homes on the undeveloped shore land, now that the lake level had fallen. The venerable Miss Emma Toft, who had spent her lifetime in the Baileys Harbor and Toft Point area, had become very wise and respectful of the ups and downs of Lake Michigan. She warned several builders, "Someday Lake Michigan will wash that house right off her petticoats!"

Gradually, the level of Lake Michigan began to rise again and by 1986 had reached its all-time high of 581.94 feet above sea level. One after another of the owners of the poorly-sited homes were forced to construct break walls consisting of huge blocks of Dolostone, quite ugly to say the least.

When I came to work at the Ridges Sanctuary at Baileys Harbor in 1964 the only plant that occasionally caused a minor problem along the beach was the Stonewort, an advanced form of algae that usually grows best at a depth of around 30 feet. Actually, it is an important aquatic plant in that it provides essential food for waterfowl and cover for fish. Storms out of the south washed small windrows of Stonewort up on the sandy beach. Also included in with the dense Stonewort were small mussels. Eventually the mussels would die and cause a stench along the shore.

Another serious problem began when the first Alewives were accidentally introduced into the lake around 1930. Large predator fish, including especially the Lake Trout, kept them under control. When the Sea Lamprey later invaded the Great Lakes it wasn't long before the Lake Trout population was virtually destroyed, which in turn led to a great increase in the Alewives. Extremely heavy die-offs occurred in the later 1960s and into the 1970s.

I helped Harold Wilson, noted gull bander from Ephraim, band gulls on the islands south and north of Ephraim harbor starting in June of 1963. On one occasion we were banding young gulls on the Sister Islands off Sister Bay in early 1970. We had finished banding on Little Sister so Harold simply took his motor boat about 100 feet from Little Sister to Big Sister Island. The water between the two islands was no more than waist deep so I decided to wade from one

island to the other. I soon found myself among literally millions of dead alewives up to my thighs. It was a mindboggling experience as I quite laboriously "plowed" my way through those dead fish, and one can easily imagine the stench!

For a few years the Hickey Bros. Fisheries at Baileys Harbor strung long lengths of nets across a large part of the outer harbor. As I recall, their heaviest "lifts" resulted in around 10,000 pounds of Alewives every two days. These were hauled by a large tanker truck to a cat food processing plant north of Green Bay. It was upon the new stocking of Lake Michigan with trout and salmon, both predator fish, that the Alewife population was brought back under control.

Another terrible invader of Lake Michigan, the Zebra Mussel, was first discovered in the Great Lakes Basin in Lake St. Clair in 1988. By 1992 they had reached Lake Michigan and Wisconsin where they continue to raise havoc with aquatic creatures causing millions of dollars of damage every year. Eventually, the creatures die and then storm waves wash the empty shells up onto the beaches. Most beaches of today, where formerly stones, sand and native beach plants were present, are now composed of nearly solid Zebra Mussel shells – billions of them.

Ever since I came to Door County in 1964 I've been interested in several fairly large beds of freshwater clams, very important members of lakeshore animal communities and very vital in the overall biodiversity of Lake Michigan. One by one they were done in, destroyed by the Zebra Mussels. If there are a few that have survived, they are few and far between.

The Zebra Mussels are known to clean the water to a sparkling clear quality which in turn allows the sunlight to reach greater and greater depths. Now the vast beds of Filamentous Green Algae can thrive with the added sunlight. Storm waves, in turn, churn up the algae and end up washing huge mounds of it along many Lake Michigan shores. Mixed with dead Zebra Mussels it brings about a highly intolerable stench.

Soon, along came a new invader, the Quagga Mussel, capable of surviving and cleaning up the water down to a depth of around 950 feet, considerably deeper than the Zebra Mussel. What next?

Today, Lake Michigan has dropped to an all-time new low of slightly less than the 1964 record of 576.05 feet above sea level. The myriad problems that have been so unbelievably damaging to Lake Michigan's food chains and extensive biodiversity have come about through the hands of unthinking man – sometimes even by his deliberate choice – as wicked irresponsibility. Do you suppose our younger generations can adequately deal with and bring back the health of the great Lake Michigan? Let's hope so!