

Ecological impact of 13 years of sustained low water levels in Georgian Bay

By

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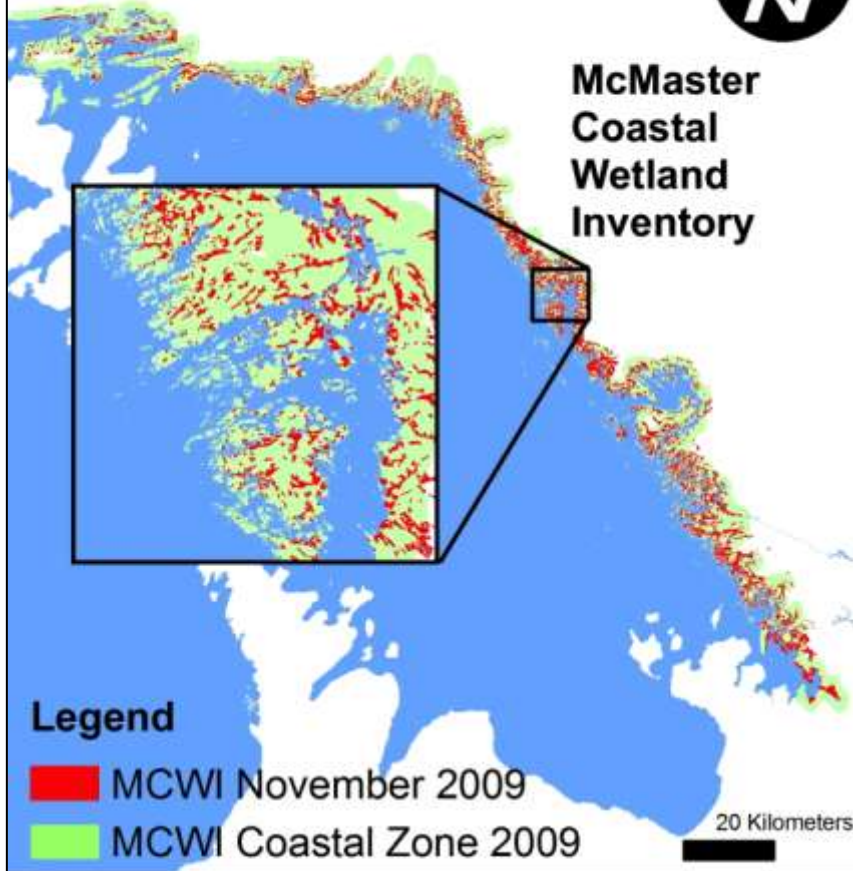
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McMaster Coastal Wetland Inventory



2009 Status

Port Severn to Key River completed
Key River to Bay of Islands near completion
Parry Sound to Bay of Islands OBM habitat added
New coastal zone buffer created

Total Habitat Area = 13754ha

- 4500 km of shoreline with 3700 wetland units
- These are the highest quality wetlands in the Great Lakes basin
- Critical spawning and nursery habitat for sport fish, especially northern pike and muskellunge

- What is the effect of a 1-m drop in water level over the past 10 years?



- Already lost 25% of the submerged habitat in wetlands since 1998
- We lose on average 7-8% of fish habitat for every 25 cm decline in water level in Georgian Bay
- In Severn Sound, historic nursery habitat has dried up
- *We cannot afford to lose more habitat!*





***Our fish need to
go home!***

A photograph showing a body of water heavily infested with a bright green algal bloom. The water is almost entirely covered in a thick, uniform layer of green algae. In the foreground, a wooden dock made of weathered planks is visible. To the left, a concrete structure, possibly a pier or walkway, extends into the water. The background shows rocky banks with some sparse vegetation and trees. The overall scene illustrates a significant water quality issue.

Other water-quality problems

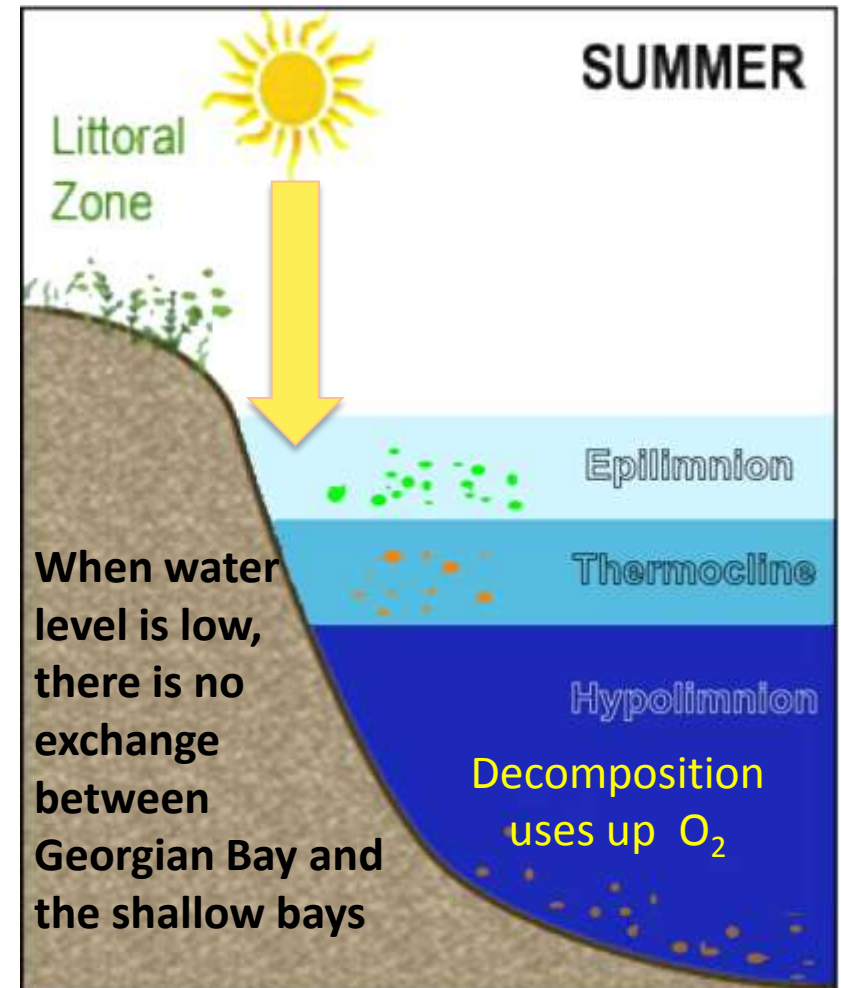
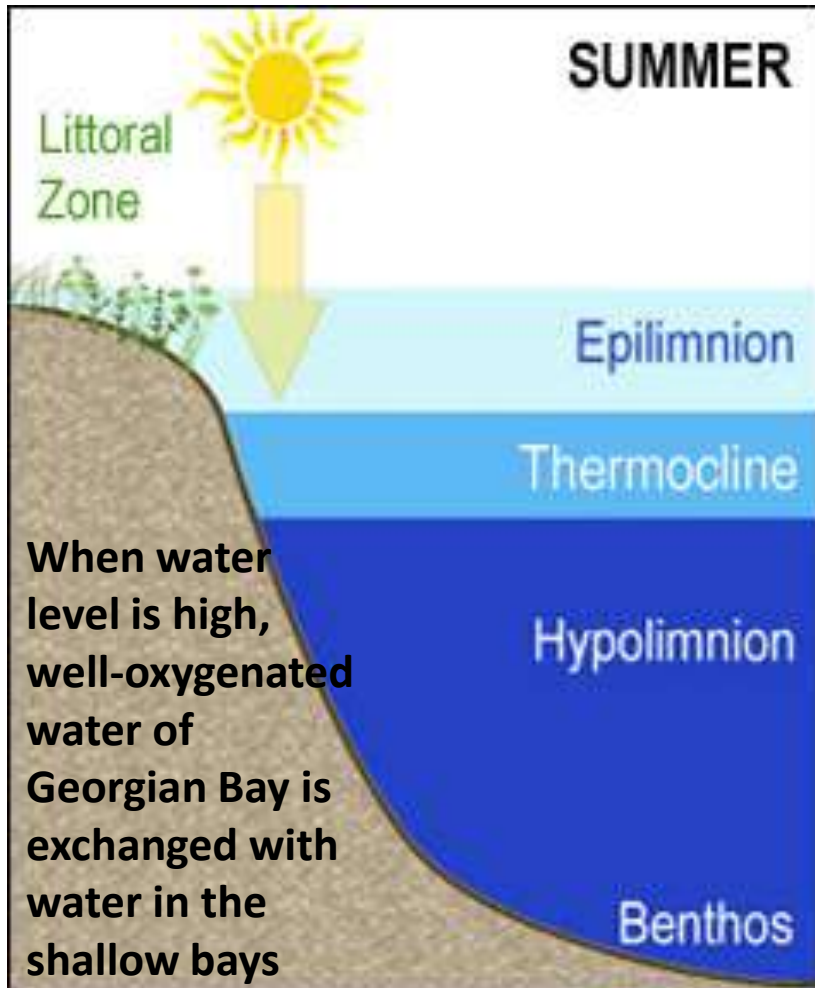
Well known biologist and water quality expert, **Dr. Karl Schiefer** confirmed that current low water levels are a contributing factor to these algae blooms in areas such as Sturgeon Bay and last summer here in Pointe au Baril.



Pointe au Baril, ON, Canada

In the **Township of Georgian Bay**, there are at least 3 potential 'hot spots' for toxic algae blooms that are being watched closely.

Shrinking hypolimnion



Hypolimnetic oxygen deficits

- The hypolimnia of bays in the Honey Harbour area routinely become anoxic (no oxygen) by the mid-to-late summer
- Resting spores of botulism-producing bacteria are found in sediments and will only proliferate when anaerobic conditions prevail—i.e. when hypolimnia become anoxic
- Botulism toxin will build up in the water and are taken up by zebra and quagga mussels when they filter-feed.

Botulism and fish die-offs:

Die-offs of sturgeon such as that seen in this photo may be linked to the build-up of botulism type E poisoning. Species that have been affected include smallmouth bass, rock bass, round gobies, sturgeon and channel catfish.

Scientists suspect that the botulism toxin is concentrated in zebra and quagga mussels and are passed on to organisms up the food chain when they are eaten. Note that the mussels themselves are not susceptible to the poison.



Photo of dead sturgeon on the shore of southern Georgian Bay

Round gobies are known to feed heavily on the zebra and quagga mussels; when diving ducks and other fish eat the gobies, they end up ingesting the toxins at lethal levels and die.

Doing nothing is.....

- Drying up wetlands
- Eliminating habitat for pike and muskies
- Doing nothing is not “letting nature take its course” because the problem to begin with is human-made.
- *We need to restore our water level*