

FRESH COAST BEST COAST

MICHIGAN COASTAL MANAGEMENT PROGRAM

Coastal Community Resiliency

Michigan's Dynamic Coast

The Great Lakes are experiencing all time high lake water levels. Great Lakes water levels rise and fall due to changes in precipitation, runoff, ice cover, and evaporation. Michigan's coastal communities are challenged by the unpredictability of these ever-changing lake levels and increasingly-intense seasonal storms impacting the coast. Coastal Managers need to adapt within seasons for lake level changes measured in feet coupled with storms bringing higher waves and associated flooding and erosion impacts.



The Michigan Coastal Management Program (MCMP) is encouraging coastal communities to become a resilient community where the community can absorb and adapt to changes in the Great Lakes levels, coastal storms and floods; manage social and environmental changes; and build a better and more reliable local economy. Preserving natural systems can provide better protection than seawalls or revetments while providing additional recreational and economic benefits. Hazard-ready communities provide space for beach and dunes to migrate naturally, so they can continue to serve the community, which includes functioning to absorb erosion and flooding impacts.

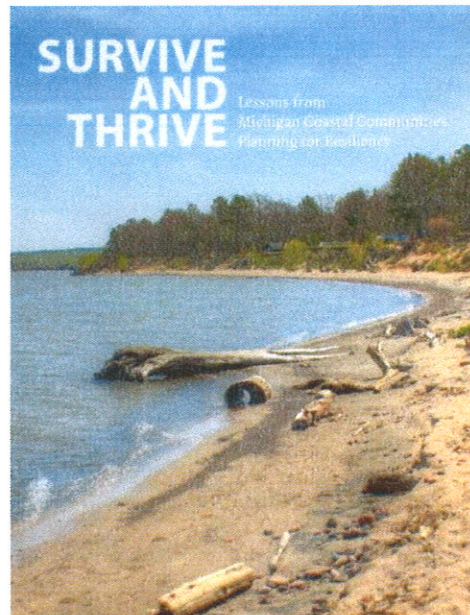
What type of solutions are best for my community? Depending on your shoreline type and the wave energy level at the site, the type of protections needs to be customized to your community. Scenario-based planning can assist in devising the best options while maintaining community character.

EGLE Environmental Assistance Center 800-662-9278 [Michigan.gov/EGLE](https://www.michigan.gov/EGLE)

Scenario based planning incorporates risk scenarios to help visualize what the “Expected – Lucky – Perfect Storm” may look like through a range of physical conditions. These scenarios, along with model plan and ordinance language are being developed to increase the knowledge for local decision-makers. A Resilient Master Plan better aligns with the community’s vision for their coast and help institutionalize management measures to adapt, accommodate and ‘step back’ development from sensitive and dynamic coastal features.

Incorporating resilient principles into a master plan is a coastal community’s first step to becoming resilient. Once these principles are in your master plan and priority areas are identified, communities can then use zoning ordinances to set standards such as set backs and building standards.

Learn more about coastal resilience planning concepts, including lessons-learned from early-adopting communities in Michigan Association of Planning’s “Survive and Thrive: Lessons from Michigan Coastal Communities Planning for Resiliency” booklet. The booklet, available at <https://www.planningmi.org/community-resiliency>, was developed with MCMP support.



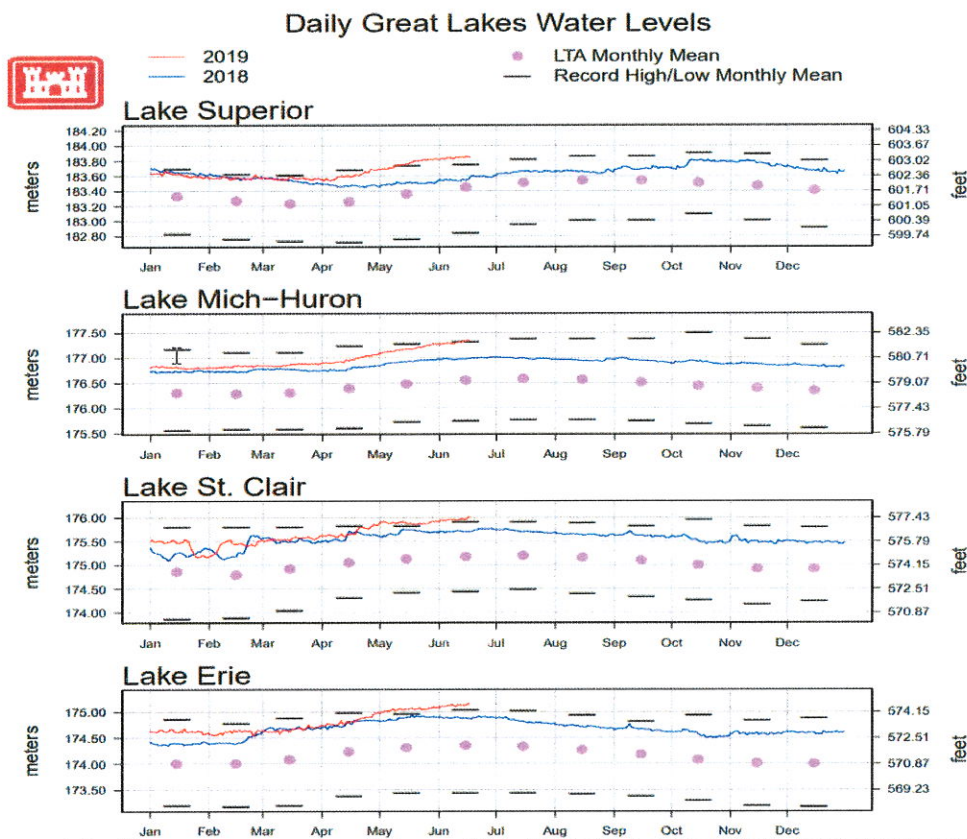
What can I do to get started? The MCMP provides annual funding opportunities where communities can seek grant funding for development of Resilient Master Plans and ordinances. For technical assistance and grant funding opportunities, visit us at www.michigan.gov/coastalmanagement

Additionally, the MCMP is partnering with LIAA in the Michigan Resilient Collaborative. To become a participating community, visit www.resilientmichigan.org for program information and grant funding opportunities

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2019 HIGH WATER LEVELS INFORMATION

FOR THE GREAT LAKES



<http://lre-wm.usace.army.mil/ForecastData/GLBasinConditions/daily-GLWL-Graph.pdf>

The Great Lakes are experiencing the highest water levels since 1986. Water levels on the Great Lakes are cyclical with periods of low and high water. Each period may last for several years depending on the amount of precipitation, runoff, and evaporation that occurs. The U.S. Army Corps of Engineers Detroit District publishes monthly bulletins on Great Lakes water levels and water level forecasts. The above figures show the fluctuating water levels between 2018 and 2019. Currently the lakes are in a high water level period, and erosion and flooding has been a common experience across Michigan. Great Lakes shorelines include bluffs, floodplains, coastal wetlands, sand dunes, and development. The type of shoreline determines how high water levels will impact property. Due to the resulting erosion and threat to property that high water levels can cause, citizens are requesting information on resources that are available from the Department of Environment, Great Lakes, and Energy (EGLE) to help.

EGLE Environmental Assistance Center 800-662-9278 Michigan.gov/EGLE

This Fact Sheet answers the following questions:

Why are the Great Lakes water levels so high?

Can the Great Lakes water levels be controlled?

What are the options for protecting my property from high water level damage?

Are there state or federal programs that provide funding to protect my property from high water levels?

EGLE

**Michigan
Department of
Environment,
Great Lakes,
and Energy**

Water Resources Division

Michigan.gov/WRD

Why are the Great Lakes water levels so high?

Water levels in the Great Lakes are influenced by precipitation, runoff, and evaporation:

- The lakes have had record ice cover during several past winters resulting in less water evaporating from the lakes during the winter.
- Above-average spring rainfall totals, including larger total volume of rainfall, prolonged rainfall events, and very intense individual rainfall events have occurred over the past several years also. These occurrences can cause erosion and flooding even when pre-existing water levels are normal.

Can the Great Lakes water levels be controlled?

In a very limited way. The flow from Lake Superior through the St. Marys River to Lakes Michigan and Huron is regulated at Sault Ste. Marie through compensating works (gates) in the river by the International Lake Superior Board of Control under the authority of the International Joint Commission:

- A plan with specific rules is in place to determine the gate setting and outflow from Lake Superior. Even with this plan, the amount of precipitation, runoff, and evaporation in the Great Lakes and its watershed is the largest influence on water levels.
- Water levels follow natural cycles and are generally highest in the spring and summer and lowest in the fall and winter.

What are the options for protecting my property from high water level damage?

Reading "[Living on the Coast](#)" will help you understand your shoreline better. There are several options depending on your situation:

- [Create a resilient shoreline](#) that preserves natural shoreline processes including erosion and beach building.
- Protect existing structures by moving them back from the shoreline. Structure movers can successfully remove a house from its foundation and put the structure on a new foundation at a safer location. Locate new structures back from the shoreline. Selectively prune tree branches without killing the tree to provide a view of the water.
- A shorter term solution is to install shore protection at the shoreline.
- Shoreline activities will likely require a [permit](#) from EGLE.

Are there state or federal programs that provide funding to protect my property from high water levels?

No, not for individual property owners. Local communities may apply for a [Hazard Mitigation Grant administered by the Michigan State Police](#) to implement a long-term hazard mitigation measure such as acquiring and relocating structures away from a failing bluff.