

Huron County Extreme Water Levels Integrated Assessment: Phase I Report

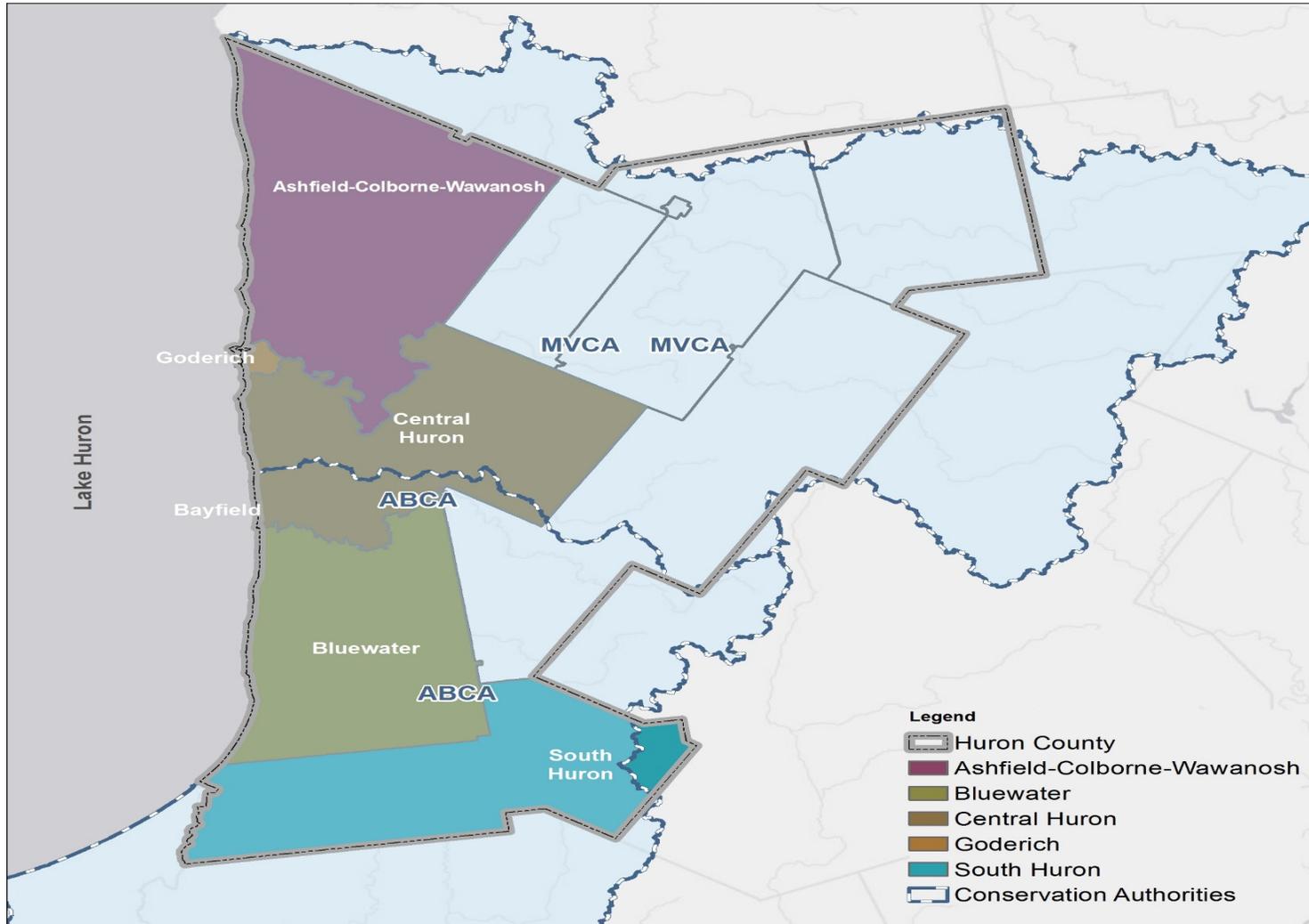
May 17, 2016

Ann Arbor, Michigan

Lynne Peterson

Photo: Dr. Wayne Caldwell

Huron County Extreme Water Levels IA



An aerial photograph showing a transition from agricultural fields to a forested area and finally to a blue lake shoreline. The fields are in various shades of green and brown, indicating different crops or stages of growth. The forest is a dense green. The lake is a clear blue, and the shoreline is visible as a thin line of sand and vegetation.

Huron County: where farm meets lake

- Population 60,000. Agriculture, tourism, manufacturing, shipping.
- 100 km of Lake Huron shoreline includes:
 - Dunes and beaches attracting recreation and tourism
 - Harbours requiring dredging and infrastructure maintenance capable of handling boating and commercial shipping
 - Majestic bluffs with sunset views

Integrated Assessment Team

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Local Government and Integrated Policy

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Huron County Partners

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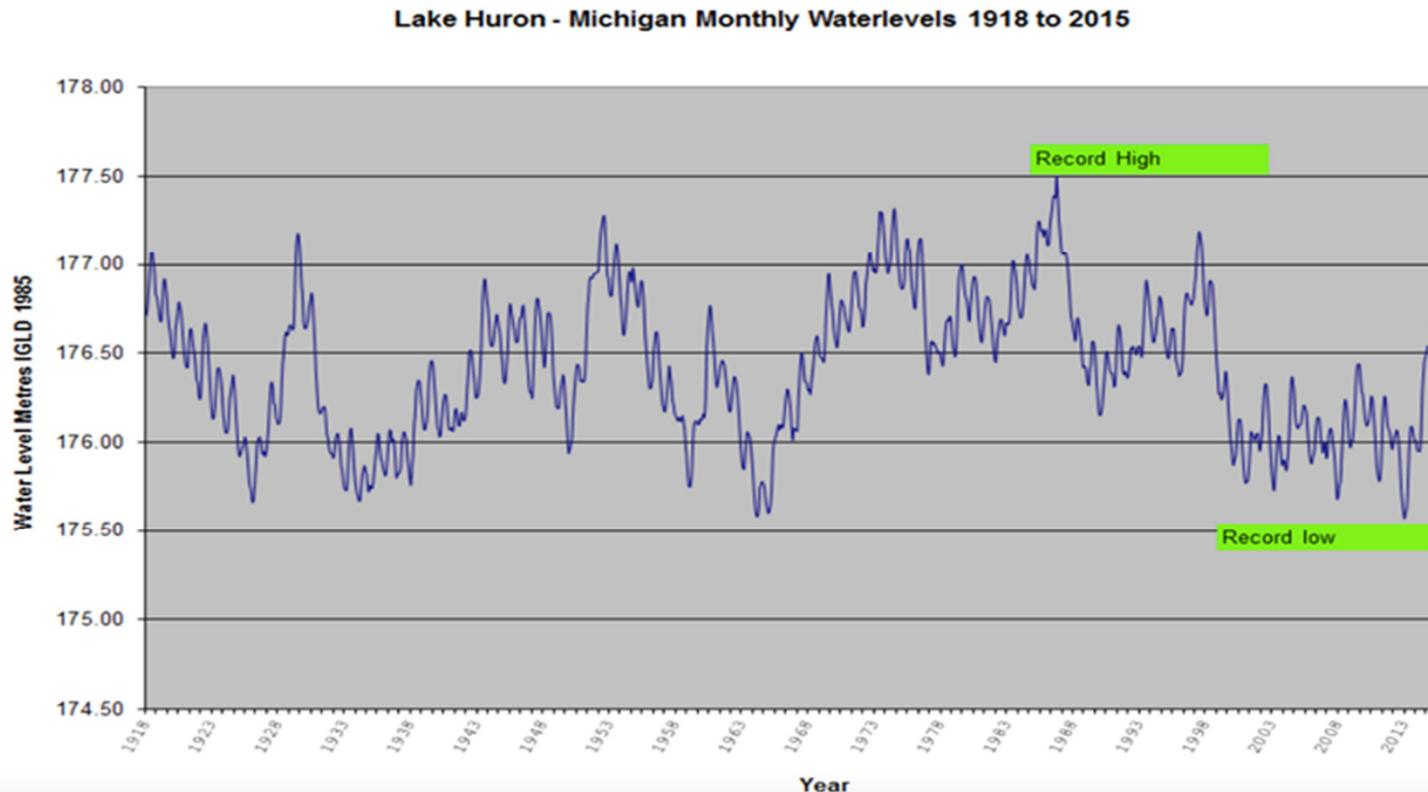
Water Protection Steering Committee

- IA research team working with the **Huron County Water Protection Steering Committee (WPSC)**
- WPSC is an interdisciplinary committee established by the County of Huron in 2004
- Members include representatives from environmental, social, political, and economic groups, such as:
 - County Council
 - Local Municipal Councillors
 - Conservation Authorities
 - Agricultural Representatives
 - Huron Manufacturing Association
 - Huron Tourism Association
 - Cottage Associations
 - Planning Department
 - Lake Huron Centre for Coastal Conservation
 - Health Unit

Process

- 2015 feasibility study – reported September 3, 2015
- IA project approval received November 24, 2015
- Project kick-off presentation to WPSC on November 27, 2015
- **January 15, 2016:** full day workshop on lake level issues with Water Protection Steering Committee members. Committee establishes an Extreme Lake Levels subcommittee
- **April 1, 2016:** Meeting with the Extreme Water Levels subcommittee of the Water Protection Steering Committee to review draft Phase I report, discuss summer consultation opportunities
- **May 3, 2016:** Phase I report completed, submitted to Graham Sustainability Institute

Lake Level Status and Trends



We will likely continue to experience both high and low extreme water levels over time. Furthermore, an increase in the frequency of extreme weather events will likely exacerbate the issues created by extreme lake levels.

Extreme Lake Levels: Impacts

The Jan 15, 2016 WPSC workshop identified two areas of most significance for Huron County communities:

1. Low water impacts on economic development - tourism, shipping, ports, marinas, harbours
2. High water impacts on bluff and gully erosion - public safety, emergency planning, infrastructure

Also:

- Concern with environmental impacts, including species at risk, habitat, invasive species and coastal resiliency.
- Special mention of concern about possible diversion.

Impacts on Tourism and Industry

Bayfield Village and Harbour



- Summer population approx. 2800 increasing to 4500 on weekends
- Cottaging, boating, fishing, beaches, shops, restaurants, cycling
- Small commercial fishery in season (approx. 5 boats)
- Four marinas: Total slips approx. 430
- Development pressure now occurring as existing sewage treatment plant will soon be at capacity

Bayfield: Water Level Issues

- Bayfield's connection to the lake and river mean the experience of low and high water levels can directly affect the Village's economy.
- Low water is a particular concern as it limits the size and type of boats that can access the harbour and marinas.
- High water levels benefit the marinas by reducing the impact of siltation from the lake and the need for dredging
- However, high levels also can generate more significant wave action on the piers at the river mouth.

Port of Goderich



The Port of Goderich
Managed & Operated by GPMC

Port of Goderich

- Port is the only Seaway depth (26 feet) facility on east side of Lake Huron, used by 250-280 ships per year.
- Major user is the Sifto salt mine, developed in late 1950s, approx. 500 employees. Grain elevators and Calcium Chloride company are other partners in port management.
- Designated an official Seaway Port under the Highway H20 program to attract international business
- Goderich Port Management Corporation established as a non-profit to manage the port; developed 15 year plan to upgrade facility.
- New plan for harbour approved by the province

Port of Goderich

- Economic value of expanded and improved Port is to attract users who can generate more local employment.
- First 15 year plan is complete and next phase is partially funded to landfill adjacent to existing wharf to permit additional storage and dockage.
- Low water levels increase shipping costs/ton as lake freighters must carry lighter loads to navigate shallower water.
- No issues with higher water as ships can load and unload easily.
- Improvements to breakwaters and piers have both calmed harbour waters and reduced impact of silt flow from the lake.

High Water Impacts: Bluff Erosion

Huron County Bluffs:

- Amberley to Grand Bend – the only bluffs on the eastern shore of Lake Huron
- 50 km of Lake Huron shoreline, bluffs up to 100 feet in height
- 130+ streams flowing into Lake Huron also eroding
- More than 600 shoreline residences within hazard lands designations
- Average rate of erosion of 30 cm per year, accelerated by toe erosion under high water levels
- 2014 Provincial Policy Statement (Natural Hazards policies) and Conservation Authority regulations inform lakeshore development



Bluff Erosion Issues for Discussion

Jan 15, 2016 WPSC workshop identified a need for improved public education about bluff erosion. In particular:

- How ensure prospective buyers aware of hazard land designations
- Assist current owners to evaluate their property
- Promote use of local resources (on-line mapping and expertise of conservation authority staff, LHCCC bluff stewardship information for homeowners, etc.)
- What to do in the event of a slump
- “Managed retreat” approaches

Need new tools to predict where/when bluff failures can be expected, in order to provide more certainty and timely warning to residents.

Next Steps

- Phase II - spring/summer 2016: public consultation/discussion and review of options for adaptation/management of extreme lake levels (final report October 2016)
- Some research will continue at the subcommittee's direction
- Summer events include:
 - May 14 Ashfield-Colborne Lakefront Association annual meeting
 - May 27 “Is the Coast Clear” conference
 - June 4 Bluewater Shoreline Residents Association annual meeting
 - ABCA Shoreline Management Plan public meetings (schedule tbd)

A photograph of a sunset over a vast body of water. The sun is a bright white circle on the horizon, casting a shimmering path of light across the dark blue water. The sky is a gradient of orange and yellow, with some light clouds. The text "Thank you" is written in a black, italicized font in the center of the image.

Thank you