

Huron County Extreme Lake Levels Integrated Assessment

Phase I Report

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EXECUTIVE SUMMARY

The past decades have seen unprecedented fluctuation in Great Lakes water levels, with significant economic, environmental, and social impacts resulting from extreme low water levels as well as the most recent flooding and high water situation. Ontario municipalities along the Great Lakes shorelines have experienced the full range of impacts of extreme water levels, leading to research and policy work on adaptive management, disaster relief, and planning activities by all levels of government.

In Huron County, the 100 kilometres of Lake Huron shoreline include:

- Dunes and beaches attracting recreation and tourism,
- Harbours requiring dredging and infrastructure maintenance capable of handling boating and commercial shipping at either extreme of lake level, and
- Majestic bluffs with sunset views that present challenges for emergency preparedness and public safety.

To date there appears to be no reliable way to identify a long-term trend in water levels, other than to predict there will continue to be both high and low extremes over time. What is perhaps more certain is the scientific opinion that global warming will bring an increase in extreme weather events, which tend to exacerbate the issues created by extremes of either high or low lake levels. This requires flexibility in consideration of practical policies, programs, and initiatives to address the full range of potential local issues and circumstances into the future.

This Integrated Assessment, funded by the Graham Sustainability Institute of the University of Michigan, and sponsored by the University of Toronto's Ecological Modelling Lab, brings together a multi-disciplinary research team, including local experts, with an advisory committee representing the wide range of Huron County community interests, to review the current status and trends, issues, and options for adaptation to on-going fluctuations in lake levels.

In Huron County, a number of initiatives are underway relating to extreme lake levels.

- Ausable Bayfield Conservation Authority (ABCA) is updating its Shoreline Management Plan, with public consultations underway and a final version expected in fall 2016. With the creation of a steering committee and consulting team, long-term erosion rates are being reviewed, shore processes assessed, shoreline protection evaluated, and policies reviewed.
- Maitland Valley Conservation Authority (MVCA), responsible for most of the county's bluffs, is developing a public education strategy. MVCA already has detailed hazard land mapping available to the public on its webpage and emergency preparedness information for homeowners. In 2014, the MVCA facilitated an erosion emergency exercise with the Township of Ashfield-Colbourne-Wawanosh (ACW). There are plans to do a similar exercise with Central Huron in 2016.
- The Lake Huron Centre for Coastal Conservation (LHCCC) is planning to develop a Coastal Action Plan. The non-profit conservation organization works with the MVCA and its shoreline municipalities providing shoreline management services in existence since the 1970s. It has a bluff stewardship guide and checklist.

- Huron County's Water Protection Steering Committee celebrated its 2000th funded project for conservation and stewardship on March 28th, 2016. The Committee is serving as the advisory committee for this Integrated Assessment study.
- The Town of Goderich is developing a Waterfront Master Plan for the area from the south side of the harbour (including the grain elevators) southward along the urban lakefront.

Integrated Assessment findings to date:

The Water Protection Steering Committee workshop, held on January 15, 2016, identified a need for improved public education about bluff erosion. In particular:

- How to ensure prospective buyers are aware of properties with hazard land designations, so they understand, and can be prepared for, potential risks.
- Ways to assist current owners to evaluate their individual property situations.
- Ways to engage property owners to take advantage of local resources. In addition to the on-line mapping and expertise of conservation authority staff, The LHCCC has bluff stewardship information for homeowners, together with a checklist.
- Information for property owners about what to do in the event of a slump.
- Information for property owners on "managed retreat" approaches.

There is a need to find new tools to help predict where bluff failures can be expected to impact existing buildings, in order to provide more certainty and timely warning to residents.

The Town of Goderich has the only deep-water port on the eastern shore of Lake Huron handling shipping for salt, grain, and calcium chloride. The port has been designated an official Seaway Port under the "Highway H₂O" program. This is a government and business initiative to market the Seaway and Great Lakes ports to international customers, which could result in new economic activity. A new plan for the harbour has been developed and approved by the Province of Ontario. The Approval Notice for the Environmental Assessment requires an Environmental Management Plan which takes into account high and low water levels and resilience to storm events as a result of climate change.

Tourism is also very important to the Town of Goderich, both as a destination and as a service center for neighbouring cottagers and beach/lakeshore visitors. The town is currently undertaking a public process to create a Waterfront Master Plan for the area from the south side of the harbour (including the grain elevators) southward along the urban lakefront. Workshops were held in January and April 2016. This project is taking ecology into consideration but it is not clear if high and low water level impacts or industrial development needs at the port have yet been discussed during the process.

The Village of Bayfield is anticipating both residential and tourism growth as a result of increased sewage treatment capacity. The Ontario Ministry of Tourism, Culture and Sport has designated the Village of Bayfield as one of four towns in a large tourism region west of Toronto to receive assistance for marketing and other "destination development" initiatives.

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 are good for the marinas but can generate more significant wave action on the piers at the river mouth.

Lake level extremes and climate change impacts will be key considerations in Village growth planning and management.

Once this year's studies and assessments are completed, and data is updated, Huron County and its local municipalities may want to review the status of infrastructure (such as roads, bridges, drinking water intakes, and sewage treatment plants) with a view to future adaptation to the impacts of extreme high and low lake levels. There may be financial assistance available through a new disaster readiness

component of federal infrastructure funding targeted to “disaster resilient public works”. (See January 14, 2016 Goodale announcement in Appendix 3.)

These findings will be the basis for public consultations during the spring and summer of 2016, which in turn will inform the final report.