



Restore Our Water International

Restore Our Water International (ROWI) is an alliance of American and Canadian organizations concerned about the dire environmental and economic impacts of severe low water on Lakes Michigan and Huron and Georgian Bay. ROWI represents over 15,000 shoreline owners and commercial interests. The mission of ROWI is to restore the natural ranges of water levels on the Great Lakes and flows in their interconnecting waterways altered by man-made changes.

Extreme Lake Levels Problems

Water level ranges on each of the Great Lakes have been modified by humans over the last 145 years to improve commercial transport of iron ore, coal, aggregates, and other goods and to produce stable, plentiful and clean hydropower. These changes have produced huge national and regional benefits. Unfortunately, these modifications permanently lowered water levels only on Lakes Michigan and Huron by at least 20 inches. This fact is supported by multiple international studies over the last 30 years. Dredging, sand/gravel mining and channel bottom erosion in the St. Clair River have caused the 20-inch permanent lowering of Michigan-Huron since 1855.

The protracted low water period from 2000-2013 caused significant environmental damage, including lost wetland habitat and fish spawning areas, reducing bio-diversity across the upper Great Lakes ecosystems. Economic losses include advanced decay of harbor infrastructure, diminished hydropower production, reduced recreational opportunities, reduced revenues for the commercial and sport fishing industry and increased costs for commercial shipping. These impacts cost the region at least one billion dollars per year.

Climate Variability and Global Warming Trends

Since 1998, the climate across the Great Lakes region has shifted significantly with a decrease in snowfall and rainfall over the northern portions of the drainage basin and an increase in lake surface temperatures. This has increased evaporation and reduced ice cover over 14 of the last 15 winters. Record high rainfall in 2013, followed in 2014 by the most severe winter in a generation and a very wet 2015 has helped water levels rebound to above averages and is beginning to cause shoreline damages. This rebound may be short-lived since the long term 30 and 160 year lake levels cycles are now merging and the peak is happening now. The levels overall will likely now decline over the next 50-80 years. It is at the extreme ranges that harm occurs and only Lakes Michigan and Huron of all the Great Lakes is the forgotten lake with a range of 6.5 feet. The other Great Lakes have controls at their outflows and considerably narrower ranges.



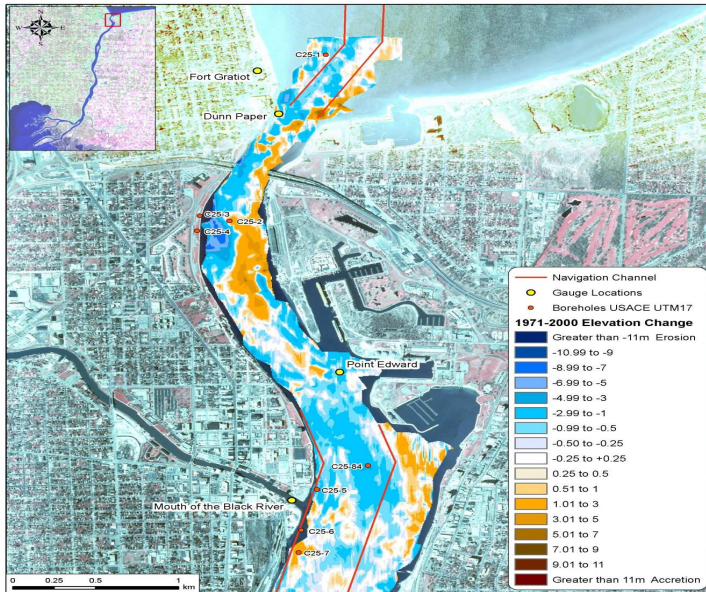
Global warming is expected to persist for the foreseeable future with increased variability in hydrologic inputs to the Great Lakes. These major natural forces are coupled with a long history of increased man-made outflows through the St. Clair River, causing a deficit in the water balance for the upper Great Lakes. Severe low water on Lake Michigan and Huron will likely reoccur sooner than later. The U.S. and Canadian governments need to act to counter previous man-made disturbances to the upper lakes and move toward retaining water throughout the system, especially in light of climate change projections



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Increased St. Clair River Outflows

The 20-inch lowering of Lakes Michigan and Huron was caused by a series of changes to the conveyance of the St. Clair River starting with dredging of a 20-foot deep navigation channel between 1855 and 1906, a 25-foot deep channel in 1930-1937 and a 27-foot deep channel in 1960-1962. Since 1962, there is clear evidence that erosion of the river bottom has occurred, increasing outflows from Lake Huron downstream into Lakes St. Clair and Erie.

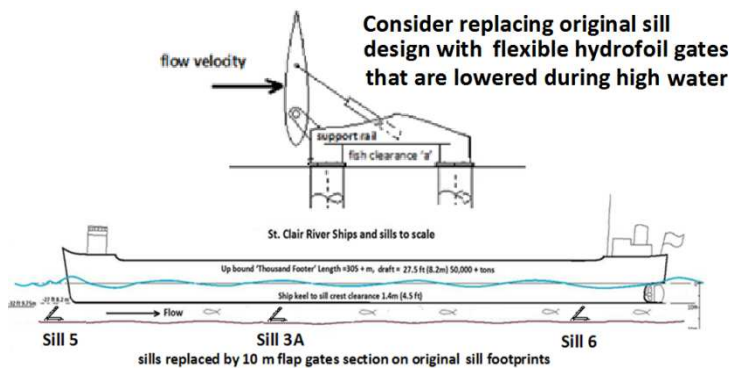


2000-1970 St. Clair River Depth Changes (from Baird, Inc, 2008).

Compensation structures were installed in the Detroit River in the 1930s and 1960s to rectify increased conveyance in that river course, without permanent adverse effects upstream or downstream. The U.S. Congress authorized the U.S. Army Corps of Engineers (USACE) to study how to compensate for increased outflow capacity, or “conveyance” of the river in 1957. Unfortunately, funding was never provided to construct these needed compensation structures. ROWI is pushing the U.S. and Canadian governments to finally resolve this festering problem.

The Solution

The USACE needs to re-evaluate design options for St. Clair River compensation structures in light of current conditions and newer technologies. The St. Clair River compensation structures could include a series of underwater “hydrofoils” (or flow controls) that could be placed on the river bottom. Implementation of these measures needs to include ice control structures in the St. Clair River and temporary structures in the Niagara River to negate all adverse temporary downstream impacts.



Currently the lakes are now approaching crisis high conditions with shoreline damages already occurring. There are measures (recommended by the IJC’s 1993 Levels Reference Study) that can be deployed to alleviate extreme high crisis conditions.



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Good News from Canada

Canadian Federal Budget, Chapter 4: A Clean Growth Economy

Subhead: Protecting and Restoring Canada's Ecosystems and Natural Heritage

Managing Transboundary Water Issues - Canada and the United States share 20 per cent of the world's freshwater in the Great Lakes alone, and jointly manage countless other lakes and rivers. The International Joint Commission is the binational body that manages these Canada-U.S. transboundary waters. These waters are of great economic, environmental and symbolic value to Canadians, and how we manage them is of utmost importance. In recent years, flooding, variable water levels and water quality have affected important water basins that straddle the Canada-U.S. border—the Upper Great Lakes....

Budget 2016 proposes to provide up to \$19.5 million over five years, starting in 2016–17, to the International Joint Commission to enable Canada to match U.S. funding to study these issues in order to protect the local environment and communities.”

Crisis Response Measures

ROWI is now supporting implementation of the full range of crisis response measure as recommended in the 1993 IJC Levels Reference Study to alleviate both extreme high and low levels. This is likely the most important climate change adaptive management strategy. Facing climate change we need to be able to retain water in all of the Great Lakes not just Superior and Ontario.

What is needed from the U.S. Administration and Congress?

- 1. Match Canadian funding for the U.S. Army Corps of Engineers for up to \$3 million over FY16-18 to reassess engineering solutions to counter human alterations in the St. Clair River, including comprehensive economic and environmental assessments;**
- 2. Expand the current Congressional authorization for the Corps reevaluation study to include structural solutions to counter the full 20” of permanent lowering of lakes Michigan and Huron AND methods for eliminating extreme upstream and downstream water level impacts of new St. Clair River compensation measures.**
- 3. Treat Lake Huron-Michigan water level restoration as an inherent goal of the Great Lakes Restoration Initiative.**

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