

# Great Lakes Low Water Crisis

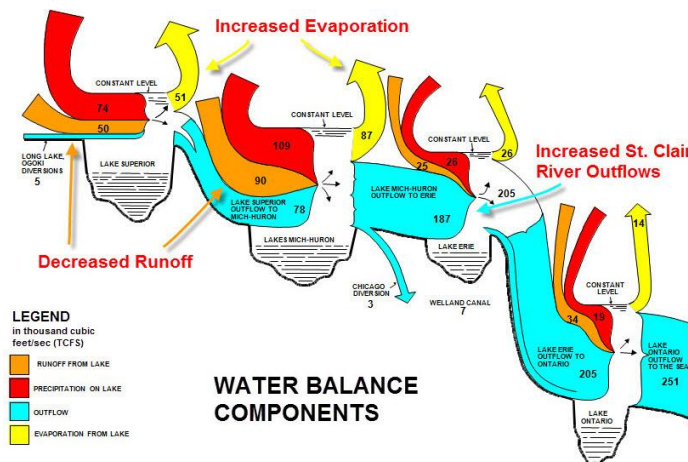
Water level ranges on each of the Great Lakes have been modified by humans over the last 145 years to improve commercial transport of iron ore, coal, and other goods and to produce stable, plentiful and clean hydropower. These changes have produced huge regional benefits, but have reduced biodiversity across the region and reduced the abilities of coastal communities to adapt to climate change.



From U.S. Army Corps of Engineers

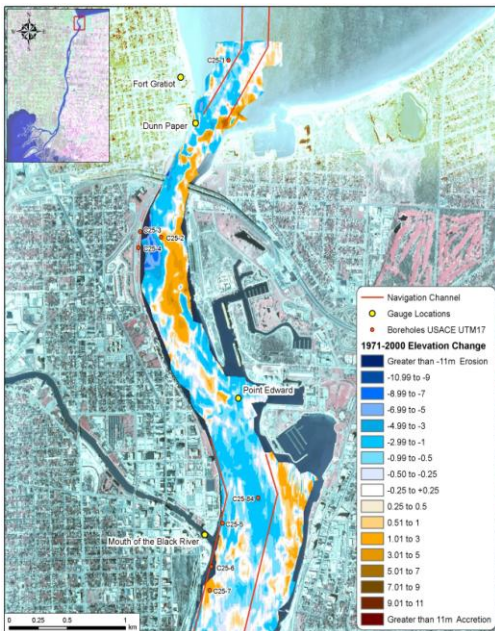
Water levels on Lakes Michigan and Huron, including Georgian Bay, recently set new record lows and are forecasted to remain extremely low through the summer of 2013. This is the 14<sup>th</sup> consecutive year when water levels have been below “low water datum,” a level defined by an International Joint Commission study group as a target when crisis response actions should be implemented. Unfortunately, no actions have been started to reduce economic losses and environmental damage caused by this protracted downturn in levels.

## Climate and Human Changes to Great Lakes Water Balance



From U.S. Army Corps of Engineers

Since 1998, climate across the Great Lakes region shifted significantly with a decrease in snowfall and rainfall over the northern portions of the drainage basin and an increase in lake surface temperatures which has caused greater evaporation and reduced ice cover in winter months. These climate changes, coupled with a long history of increases in outflows through the St. Clair River, have caused the current protracted low water crisis on Lake Michigan and Huron.



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

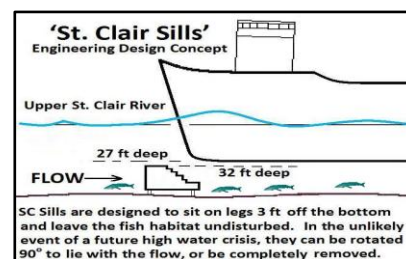
### Increased St. Clair River Outflows

Dredging, sand/gravel mining and channel bottom erosion in the St. Clair River have created increased outflow capacity which has permanently lowered Lakes Michigan and Huron by at least 50 centimeters or 20 inches since 1855. Congress authorized the U.S. Army Corps of Engineers to study how to compensate for increased outflow capacity, or “conveyance” of the river in 1957. Unfortunately, funding was never provided to construct compensation structures to rectify these man-made problems.

The 50 centimeter/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 the river bottom erosion has occurred, increasing outflows from Lake Huron downstream into Lakes St. Clair and Erie. Compensation structures were installed in the Detroit River in the 1930s and 1960s to rectify increased conveyance in the river course, without permanent adverse effects upstream or downstream.

### Solutions

The U.S. Army Corps of Engineers developed preliminary designs for compensation structures that could be placed in the St. Clair River to hold water back on Lake Huron. The compensation structures, as designed, could include a series of underwater “sills” (or speed bumps) that could be placed on the river bottom and potentially gated structures in areas that are not part of the maintained commercial navigation channel. Implementation of St. Clair River compensation measures should include installation of **temporary structures** at the head of the Niagara River to negate all downstream impacts.



**Conceptual Design for Underwater Sills**  
(from International Joint Commission, 1973)

### What is needed from the U.S. Congress and Administration:

We ask that you become more engaged in seeking a permanent solution to the lower water crisis on the upper Great Lakes, including the following immediate actions:

1. **Push the U.S. Army Corps of Engineers (USACE) to initiate a reevaluation of necessary compensation in the St. Clair River for past dredging, sand/gravel mining and erosion;**
2. **Expand the current Congressional authorization to allow the USACE to assess a full range of compensation measures to provide at least 20 inches of water level restoration to lakes Michigan-Huron through a new provision in the Water Resources Development Act of 2013; and**
3. **Promote water level restoration for lakes Michigan and Huron as a key component of the currently funded Great Lakes Restoration Initiative.**

Your support of this campaign will provide substantial benefit to all of your constituents.

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### About Restore our Water International Inc.

Restore Our Water International (ROWI) is an alliance of Canadian and American organizations concerned about the dire economic and ecological impacts of the low water crisis on Lakes Michigan and Huron and on Georgian Bay. ROWI currently represents at least 15,000 shoreline owners and commercial interests across these water bodies. The mission of ROWI is to restore the natural ranges of water levels on the Great Lakes and flows in their interconnecting waterways that have been altered by man-made intervention.



*Restore Our Water International*