

# New Bathymetry of the Great Lakes: Huron and Superior

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**Project ended in 2008**

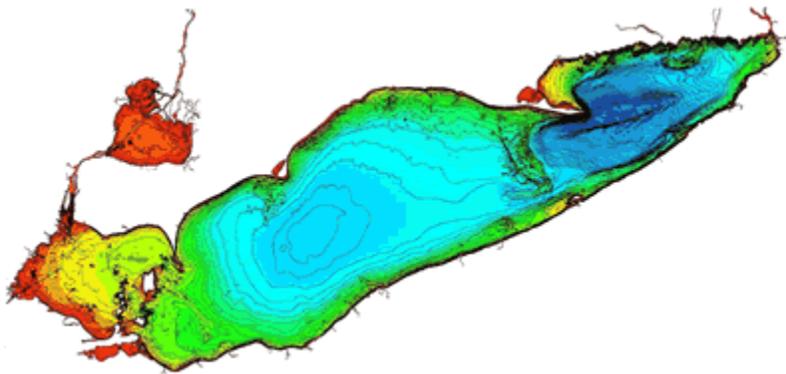
## Overview

Compilation of Great Lakes bathymetry was suspended in 2008 due to lack of funds and loss of project staff, leaving Lake Superior incomplete.

For access to available Great Lakes bathymetric data products for lakes Michigan, Huron, Erie-St. Clair, and Ontario, please go to: NOAA National Geophysical Data Center Great Lakes Bathymetry.

## Bathymetry - what is it?

Bathymetry is the science of measuring and mapping the depths of a water body (oceans, seas, lakes) to show the topography of their basins. Bathymetric maps are two-dimensional representations of the 3-dimensional shape of these basins and provide the perspective and geospatial reference needed to understand the field relationships between sample locations and habitat types, depth of the water column, or proximity to major underwater features.



## Color Rendering of the Bathymetry of Lake Erie and Lake St. Clair

**Red** = shallowest; **dark-blue** = deepest

## Background

Detailed bathymetric data are the most basic and oldest form of information needed about a body of water. In fact, some of the earliest organized scientific surveys of the Great Lakes were to obtain soundings and were conducted by the predecessor to the U.S. Army Corps of Engineers in the 1840's for nautical charting purposes. Many scientific articles about the Great Lakes incorporate a figure showing bathymetry.

Bathymetric information is specifically needed for habitat mapping. Some fisheries are depth dependent and one key statistic of interest to many fisheries scientists is the total bottom area between two depth contours, which can only be obtained from detailed processed bathymetric information. Bathymetric information is a necessary boundary for circulation and coastal forecasting models; and it is the only way to visualize underwater topography for educational purposes. Good bathymetric charts are in demand by sport and commercial fishing interests, museums, schools, and citizen groups. Engineering firms need bathymetric information for siting of pipes and cables. Almost any study of the Great Lakes has some use or need for good bathymetric information.

Geological and geophysical data collected in the Great Lakes during the last 150 years form extensive holdings in both the U.S. and Canadian government archives. Good quality data were collected during the 1900s after a standard physical datum was established in 1903 as a geophysical reference. It is estimated that total data holdings between the U.S. and Canada run to several million soundings.

A project was established in the early 1990s between the NOAA National Geophysical Data Center in Boulder, Colorado, the Canadian Hydrographic Service and GLERL to develop highly detailed bathymetric maps for each of the Great Lakes utilizing existing good quality data from both the United States and Canada. Funding through 2007 was provided by various sponsors, including NOAA, the U.S. Army Corps of Engineers, and the State of Michigan.

New bathymetric maps and digital data sets were completed for Lake Michigan, Lake Erie and St. Clair, Lake Huron, and Lake Ontario (see below). Product development for Lake Superior was initiated, but suspended in 2008 due to lack of funding and loss of project personnel.

## **Products**

### **Maps**

Published maps and associated CD-ROM products (the latter containing the data in various digital and GIS formats) are available at: National Geophysical Data Center Great Lakes Bathymetry

- Lake Huron
- Lake Ontario
- Lake Erie
- Lake Michigan

### **Publications**

Holcombe, T. L., L. A. Taylor, J. S. Warren, P. A. Vincent, D. F. Reid, and C. E. Herdendorf. 2005. *Lake floor geomorphology of Lake Erie*. World Data Center A for Marine Geology and Geophysical Research Publication RP-3. NOAA NESDIS National Geophysical Data Center, Boulder, CO, 26 pp, January.

Holcombe, T. L., L. L. Taylor, D. F. Reid, J. S. Warren, P. A. Vincent, and C. E. Herdendorf. (2003). Revised Lake Erie postglacial lake level history based on new detailed bathymetry. *Journal of Great Lakes Research* 29(4):681-704. (winner of the 2005 Chandler-Misener Award from the International Association for Great Lakes Research)

Holcombe, T., J. Warren, D. Reid, W. Virden, and D. Divins (2001). Small Rimmed Depression In Lake Ontario: Impact Crater? *J. Great Lakes Res.*, 27(4), 510-517.

Holcombe, T., J. Warren, L. Taylor, D. Reid, and C. Herdendorf (1997). Lakefloor geomorphology of Western Lake Erie. *J. Great Lakes Res.*, 23 (2):190 (winner of the 998 Chandler-Misener Award from the International Association for Great Lakes Research). Included a poster-size insert color bathymetric map of western Lake Erie.