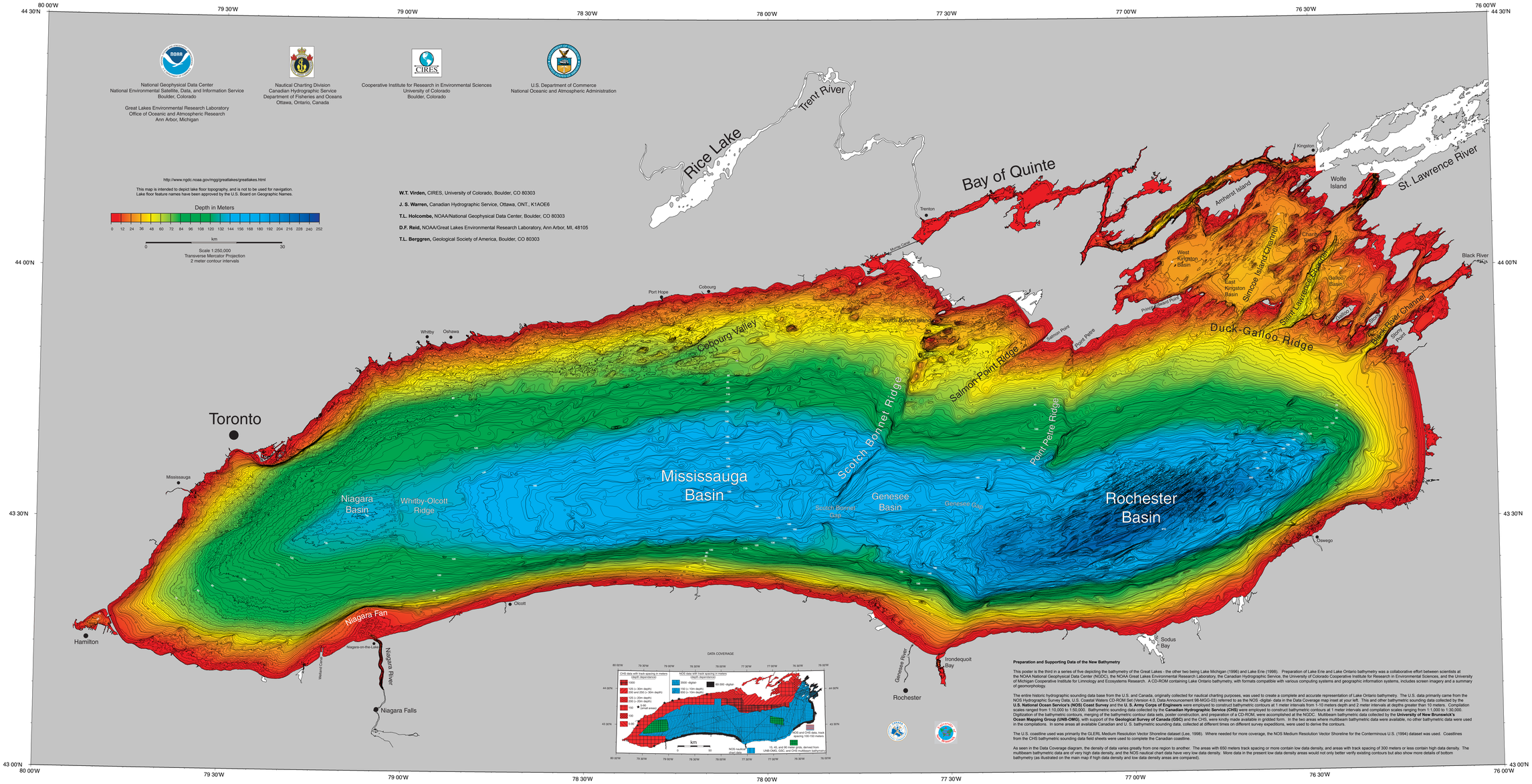
Bathymetry of Lake Ontario



Preparation and Supporting Data of the New Bathymetry

This poster is the third in a series of five depicting the bathymetry of the Great Lakes - the other two being Lake Michigan (1996) and Lake Erie (1998). Preparation of Lake Erie and Lake Ontario bathymetry was a collaborative effort between scientists at the NOAA National Geophysical Data Center (NGDC), the NOAA Great Lakes Environmental Research Laboratory, the Canadian Hydrographic Service, the University of Colorado Cooperative Institute for Research in Environmental Sciences, and the University of Michigan Cooperative Institute for Limnology and Ecosystems Research. A CD-ROM containing Lake Ontario bathymetry, with formats compatible with various computing systems and geographic information systems, includes screen imagery and a summary of geomorphology.

The entire historic hydrographic sounding data base from the U.S. and Canada, originally collected for nautical charting purposes, was used to create a complete and accurate representation of Lake Ontario bathymetry. The U.S. data primarily came from the NOS Hydrographic Survey Data, U.S. Coastal Waters CD-ROM Set (Version 4.0; Data Announcement 88-MGG-03) referred to as the NOS -digital- data in the Data Coverage map inset at your left. This and other bathymetric sounding data collected by the **U.S. National Ocean Service's (NOS) Coast Survey** and the **U. S. Army Corps of Engineers** were employed to construct bathymetric contours at 1 meter intervals from 1-10 meters depth and 2 meter intervals at depths greater than 10 meters. Compilation scales ranged from 1:10,000 to 1:50,000. Bathymetric sounding data collected by the **Canadian Hydrographic Service (CHS)** were employed to construct bathymetric contours at 1 meter intervals and compilation scales ranging from 1:1,000 to 1:30,000. Digitization of the bathymetric contours, merging of the bathymetric contour data sets, plotter construction, and preparation of a CD-ROM, were accomplished at the NGDC. Multibeam bathymetric data collected by the **University of New Brunswick's Ocean Mapping Group (UNB-OMG)**, with support of the **Geological Survey of Canada (GSC)** and the CHS, were kindly made available in gridded form. In the two areas where multibeam bathymetric data were available, no other bathymetric data were used in the compilations. In some areas all available Canadian and U. S. bathymetric sounding data, collected at different times on different survey expeditions, were used to derive the contours.

The U.S. coastline used was primarily the GLERL Medium Resolution Vector Shoreline dataset (Lee, 1998). Where needed for more coverage, the NOS Medium Resolution Vector Shoreline for the Conterminous U.S. (1994) dataset was used. Coastlines from the CHS bathymetric sounding data field sheets were used to complete the Canadian coastline.

As seen in the Data Coverage diagram, the density of data varies greatly from one region to another. The areas with 650 meters track spacing or more contain low data density, and areas with track spacing of 300 meters or less contain high data density. The multibeam bathymetric data are of very high data density, and the NOS nautical chart data have very low data density. More data in the present low data density areas would not only better verify existing contours but also show more details of bottom bathymetry (as illustrated on the main map if high data density and low data density areas are compared).