

US Army Corps of Engineers Detroit District

Proudly serving the Great Lakes Region
and Nation since 1841

LTC Michael Sellers
Detroit District
Commander

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Detroit District

The Detroit District, established in 1841, covers 82,000 square miles of land inhabited by about 14 million people and includes the state of Michigan and portions of the states of Indiana, Wisconsin and Minnesota with 4,000 miles of Great Lakes shoreline. The District is headquartered in downtown Detroit with area offices in Detroit, Mich., Duluth, Minn., Sault Ste. Marie, Mich., and our Lake Michigan Area Offices located in Grand Haven, Mich., and Kewaunee, Wis.



- 91 Commercial and Recreational Harbors
- 4 Connecting Channels
- 59 miles of structures
- 440 miles of channels
- 2,000 regulatory permits per year.
- Established government-to-government relations with 26 Native American Tribes in the region.
- Routinely collaborate with many local, state, and federal agencies, including Canadian entities
- Workforce of approximately 400 (Civilian & Active Military)



Our Primary Missions

Navigation
Environment
Flood Risk Management
Regulatory Program
Hydropower
Recreation
International & Interagency
Support / Military Construction
Emergency Management

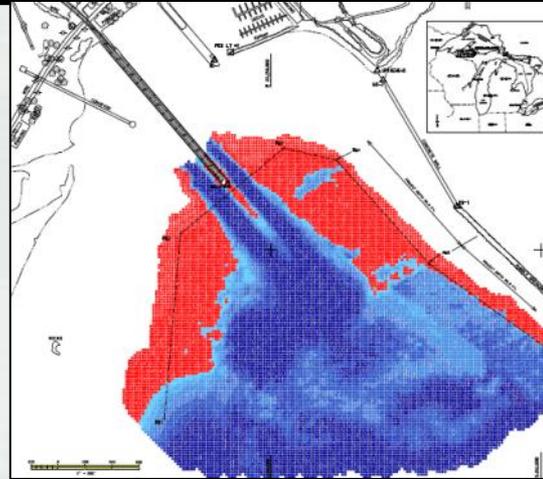


Hydrographic Surveys

Type of Monitoring Data:

Bathymetric surveys of federal channels within federal harbors.

Surveys are multi-beam (dense, full bottom coverage) or single beam (line survey)



Multi-beam survey



Single beam survey

Location where Data are collected:

All federal harbors – within the authorized federal channels

Time Period: Surveys are conducted annually at all federal harbors (with some exceptions); larger harbors such as Duluth may have some portions of the harbor surveyed several times in a year.

Data Online: <http://www.lre.usace.army.mil/Missions/Operations.aspx>



Sediment Characterization

Type of Monitoring Data:

Sediment chemical quality and physical characterization

Chemical: typically PCBs, PAHs, organics, metals, and nutrients

Physical: grain size analysis (% gravel, sand, silt, etc.)

Detroit District Sediment Sampling History by Lake						
Year	Area	Date of Sample	#	Contract	Remarks	
Lake Superior						
Ashland Harbor, WI						
2010	Full	14-Apr-2010	6	W911XK-09-D-0014 0013		
2004	Partial	08-Jun-2004	5	DACW35-01-D-0006 0029	West channel only	
1992	Partial	19-May-1992	8	DACW35-91-D-0001	West channel only	
1984	Full	02-Oct-1984	5			
Bayfield Harbor, WI						
2010	Partial	15-Apr-2010	4	W911XK-09-D-0014 0013	Mostly the south side of the basin near the marina	
Big Bay Harbor, MI						
2013	Full	19-Aug-2013	10			
1994	Full	12-May-1994	5			
1989	Full	09-Aug-1989	5	DACW35-88-D-0007 0040		
1983	Full	04-Aug-1983	4			
1979	Full	22-May-1979	5			
1973		01-Aug-1973	6		by MTU	

Location where Data are collected:

All federal harbors – at various locations within the authorized federal channels. Some data also available outside federal channel from permittee dredging applications.

Time Period: Generally once every 5 years for federal harbors. Full list of harbor and date of sampling data is available (excerpt shown above). Permittee dredging data varies.

Data Online: Not available online from the Corps; Provided upon request from Pam Horner at pam.horner@usace.army.mil.



Aerial Photos

Type of Monitoring Data:

Oblique shoreline photos

Aerial photos collected with LIDAR
(georeferenced)

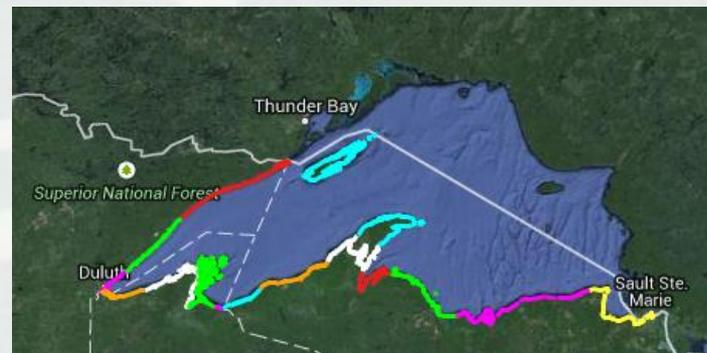
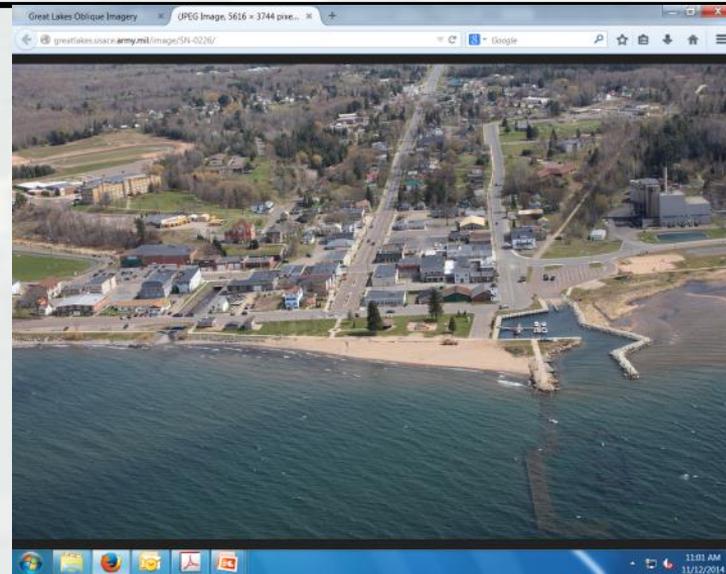
Many historic aerial photos of shoreline, most
are not georeferenced

Location where Data are collected:

Apostle Islands 2007 with LIDAR; portions of
Lake Superior shoreline 2011/12 with LIDAR;
obliques over entire Lake Superior shoreline

Time Period: Obliques collected
in 2012; Aerials with LIDAR collected in 2007
and 2011/12

Data Online: <http://greatlakes.usace.army.mil/>



LIDAR Data

Type of Monitoring Data:

Topographic and bathymetric data using high resolution laser to map physical features



Location where Data are collected:

Apostle Islands; portions of Lake Superior shoreline

Time Period: 2007, 2011-2012 (NOAA also collected lidar in 2010)

Data Online: Data served by NOAA Coastal Service Center.

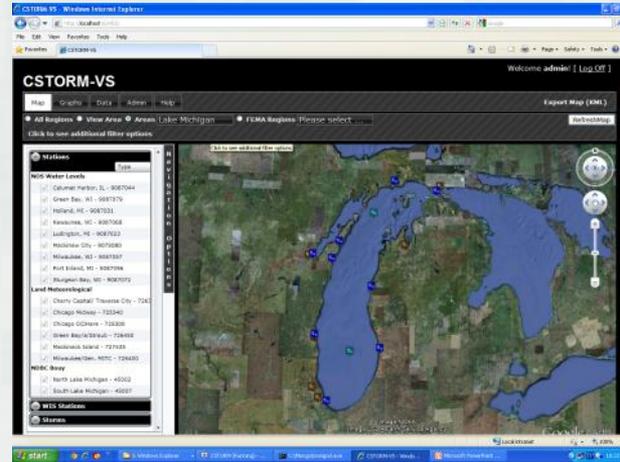
<http://www.coast.noaa.gov/dataviewer/#>



Coastal Modeling

Type of Monitoring Data:

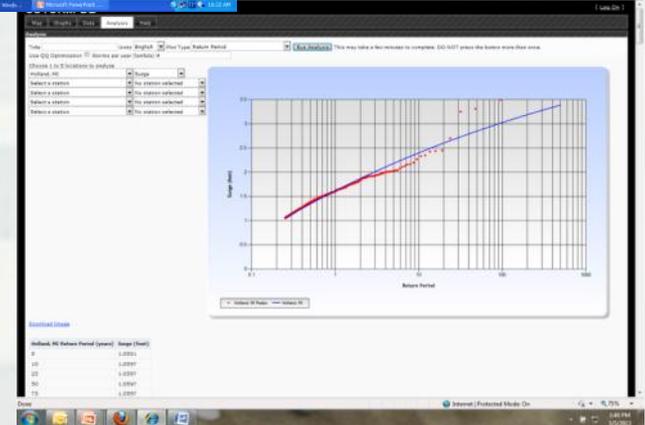
Centralized storm and meteorological database for the Great Lakes. Includes storm winds, surge, waves, and ice data. Observations and modeling results are available. Could be used to simulate oil spill movement as an example.



Location where Data are collected:

Great Lakes coastal data: sort, download, graph, and analyze coastal data; entire Lake Superior was modeled for 150 extreme events

Time Period: Uses NOAA buoy wave height data and Meteorologic data from weather stations over 50 years



Data Online: Data served for viewing, plotting, analyzing and downloading. Will be available by June 2015.

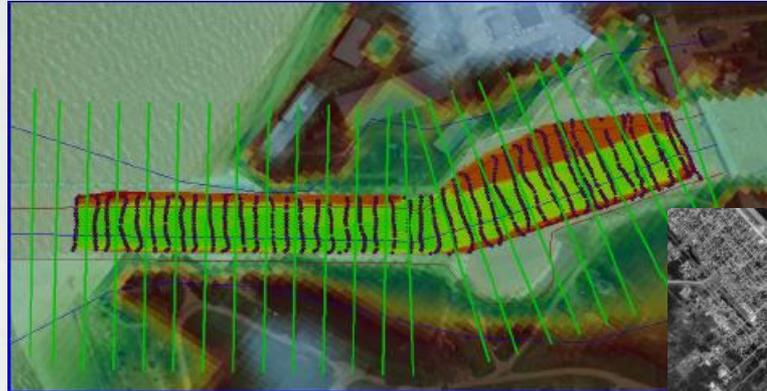


Great Lakes Tributary Modeling

Type of Monitoring Data:

River modeling of Lake Superior tributaries to characterize loading of sediments and pollutants to tributaries of the GL.

Data collected – stream cross section, land use in watershed



Location where Data are collected:

Models developed for Ontonagon River, Knife River, Nemadji River, Siskiwit River, Whittlesey Creek, and Knowlton Creek.

Time Period: Tributary modeling program began in 2000. Over 30 tributaries have been modeled; 6 are in the Lake Superior watershed.

Data Online: Information on the program: <http://projects.glc.org/tributary/>



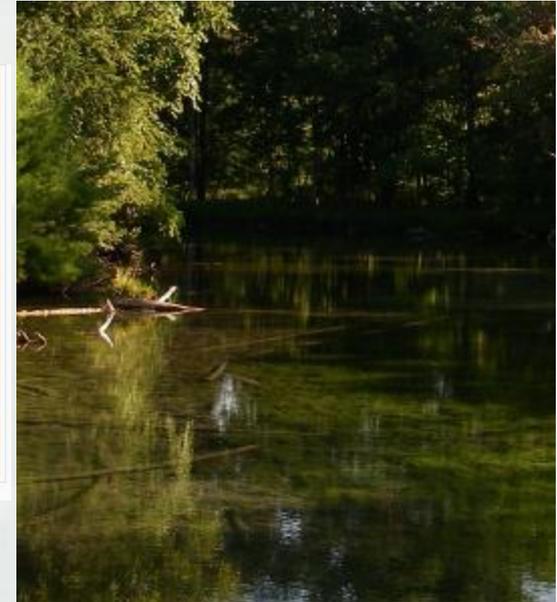
Wetland Delineation/Species Characterization

Type of Monitoring Data:

Wetland delineation in select areas along the Great Lakes shoreline, based on permit applications. Species characterization also in select areas.



Photo: Amanda Reed



Location where Data are collected:

Any Great Lakes coastal area, based on regulatory permit applications.

Time Period: Varies

Data Online: Not available online; Contact Regulatory representatives at the respective District: Detroit District for MI, St. Paul District for MN, WI





Questions?



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