

Monitoring Michigan



LAKE SUPERIOR & ITS WATERSHED

Presented by Jon W. Allan, Director
Office of the Great Lakes
Michigan Department of Environmental Quality

Monitoring Goals



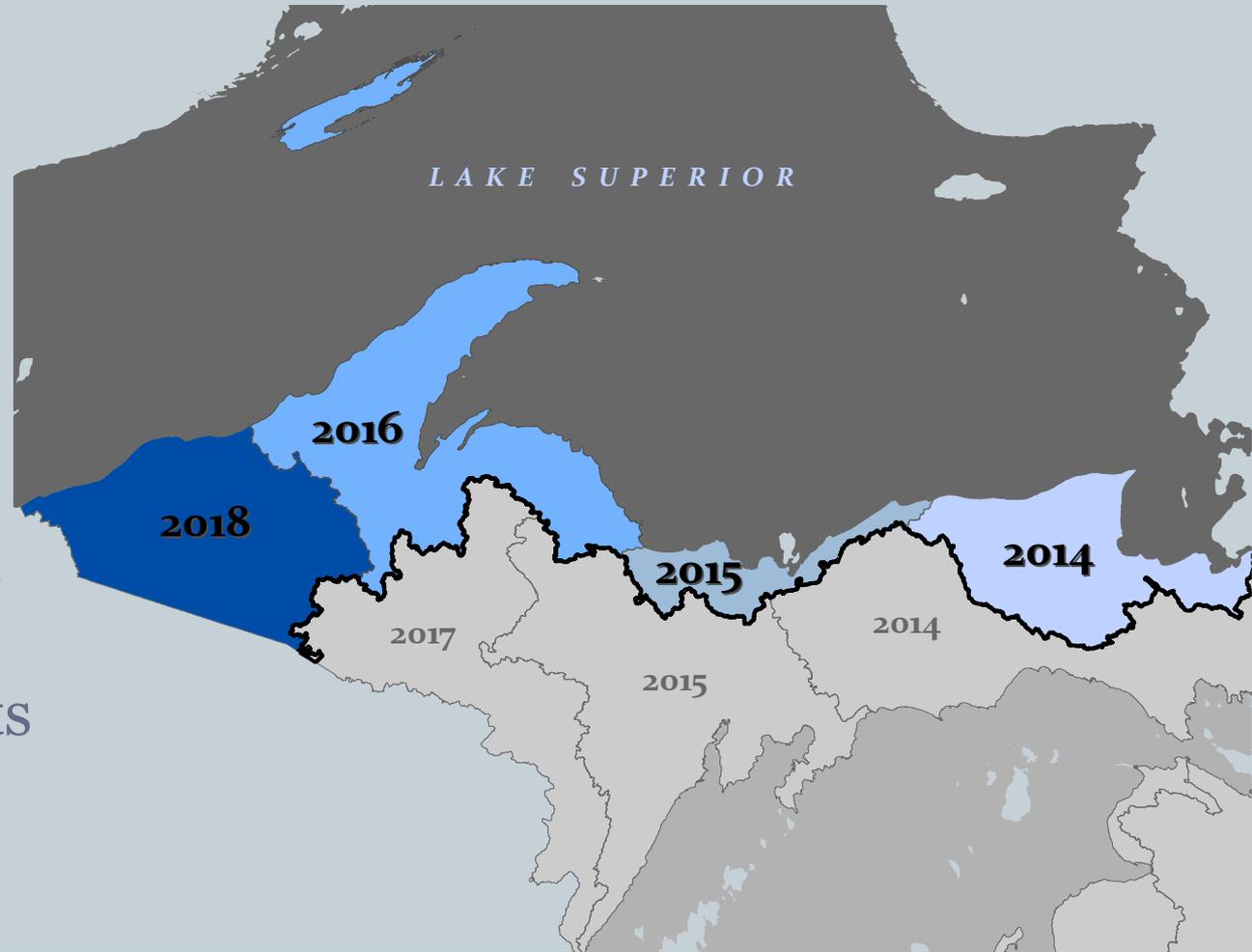
- Assess current status and condition of waters of the State and determine whether water quality standards are being met
- Measure spatial and temporal water quality trends
- Evaluate the effectiveness of water quality prevention and protection programs
- Identify new and emerging water quality problems

Monitoring Designs



- Site Selection
 - Probabilistic
 - Targeted

- Effort
 - Rotating basin
 - Statewide
 - Special projects



Water Bodies & Monitoring Activities

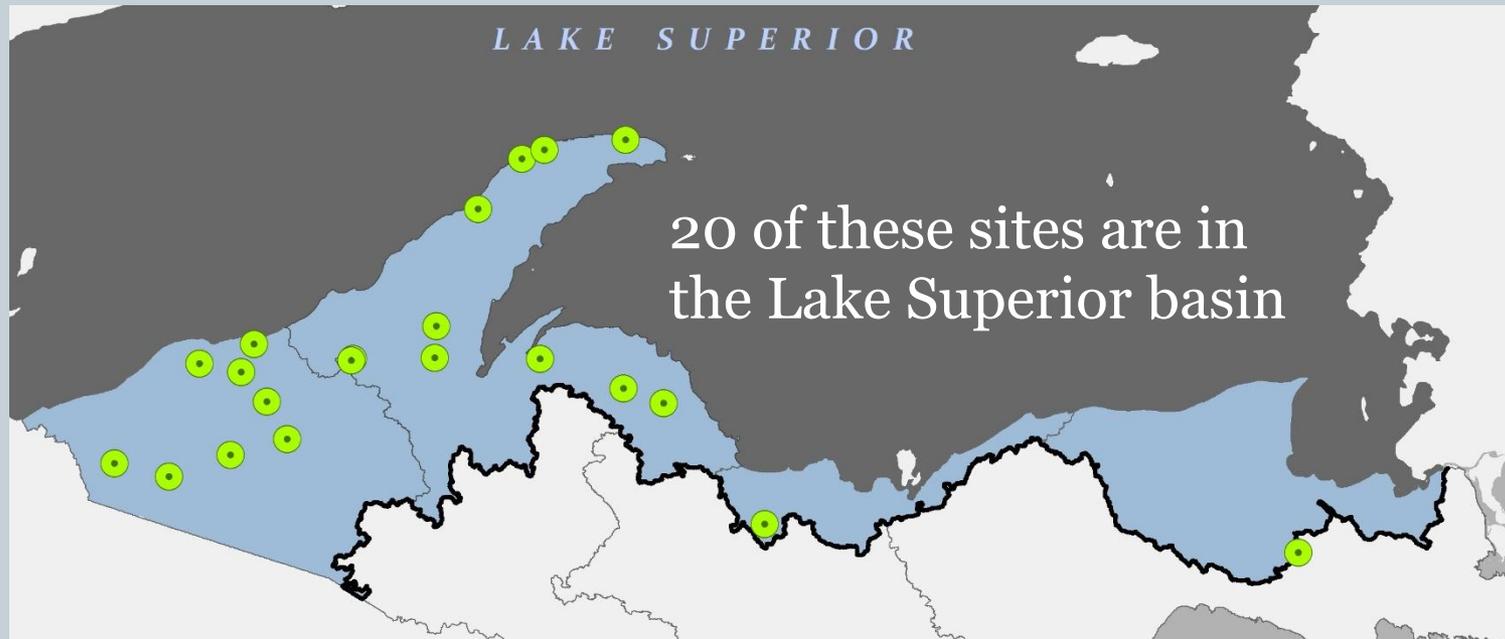


- Rivers and Streams
 - Inland Lakes
 - Lake Superior
 - Wetlands
- Water Chemistry
 - Pathogens
 - Biological Condition
 - Aquatic Invasive Species
 - Fish Contaminants
 - Wildlife Contaminants
 - Sediment Chemistry

Water Chemistry in Rivers & Streams



- Rivers and Streams: 250 randomly chosen sites
- Analyze various nutrient and conventional pollutant parameters and can make statewide and regional statements



Water Chemistry in Inland Lakes



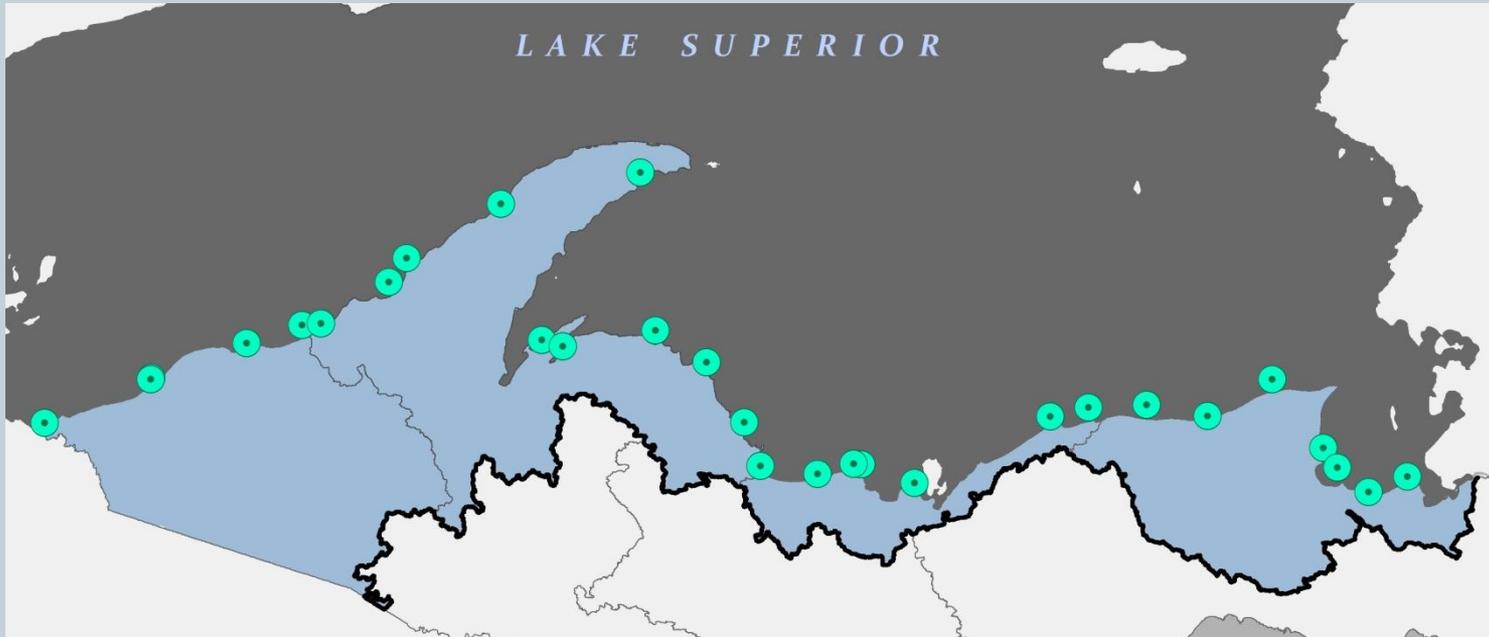
- Trophic Status – Lake Sampling
 - Baseline data & trophic status at 729 public access lakes
 - Water quality standards
- Trophic Status – Satellite Imagery
- CLMP
 - Water chemistry
 - Vegetation
 - Exotic species



Water Chemistry in Lake Superior



- St Mary's Connecting Channel
 - Nutrients
 - Conventional pollutants
- NCCA



Pathogen Monitoring in Rivers and Streams



- E. Coli concerns submitted by:
 - Citizens
 - Local County Health Departments
 - Other agencies
 - Grantees
- Monitored by:
 - WRD staff
 - Technical services contractor
 - Grantees

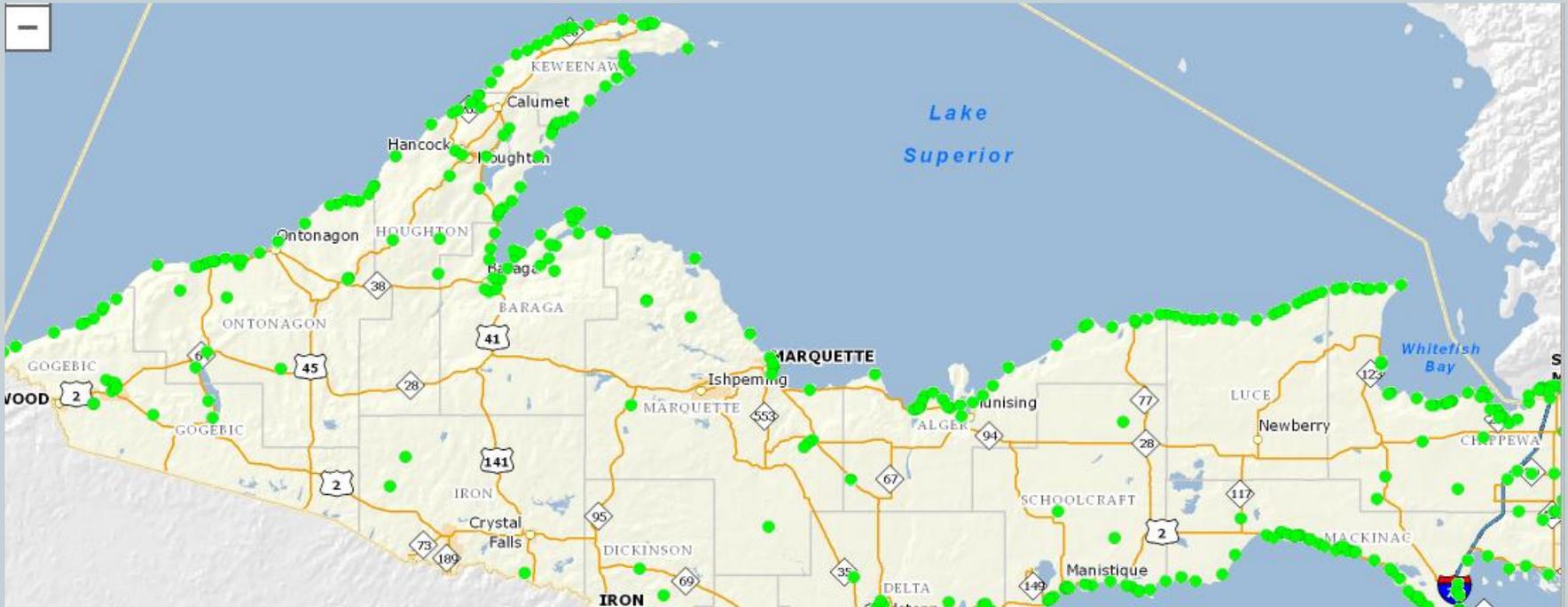


Pathogen Monitoring in Inland & Great Lakes



- Inland Lake and Great Lakes Beaches
- Monitoring is voluntary and conducted by local health departments, paid for with MDEQ grant dollars

All Pathogen Monitoring Locations

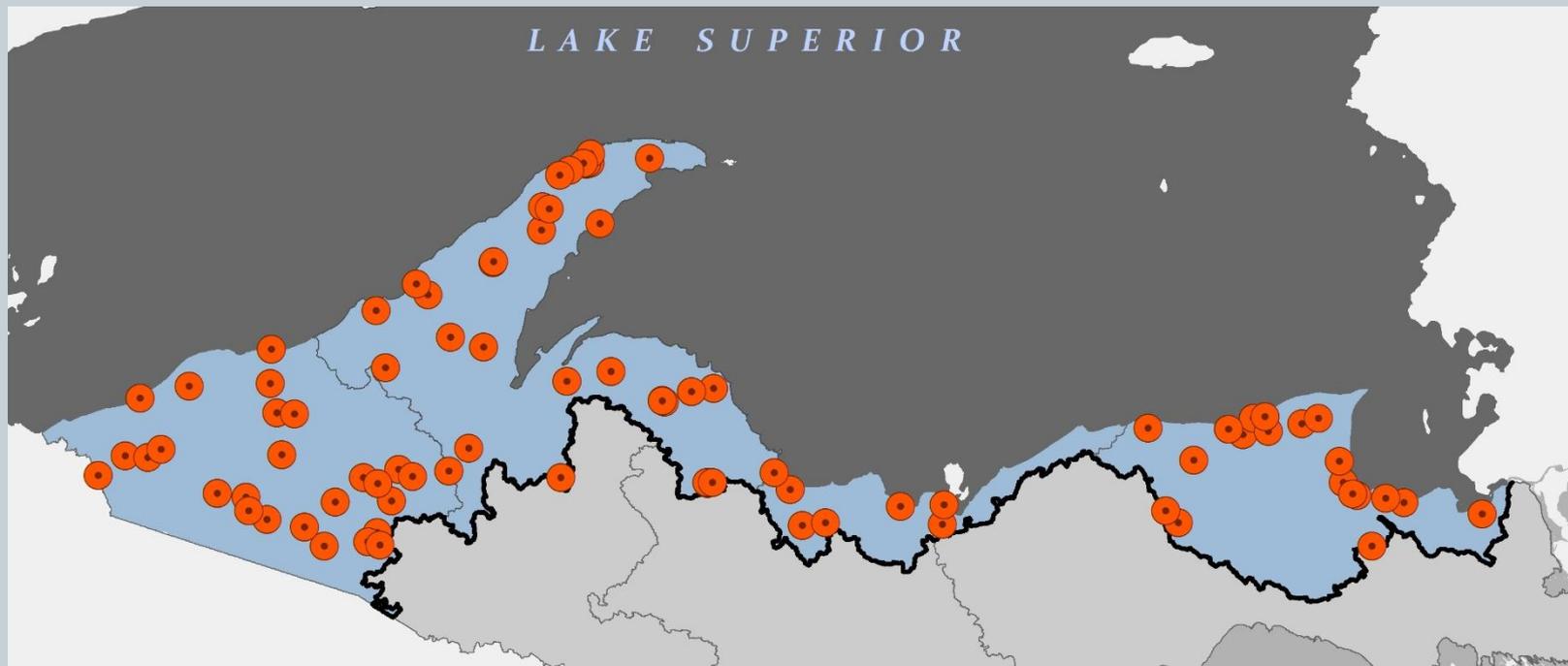


- MiSWIMs mapping tool

Biological Condition in Rivers and Streams



- Rotating basin approach
- Use rapid monitoring procedures
- Site selection is both random and targeted



AIS



- Newer program in WRD
- “Add-On” to surveys
- CLMP exotic plant watch
- Pass-through grants



Special Studies



- National Monitoring Program: Eagle River
 - Copper-contaminated stamp sands from 1800's
 - So far, excavated 3 deposits & recreated stream channel
 - Water chemistry & macroinvertebrates

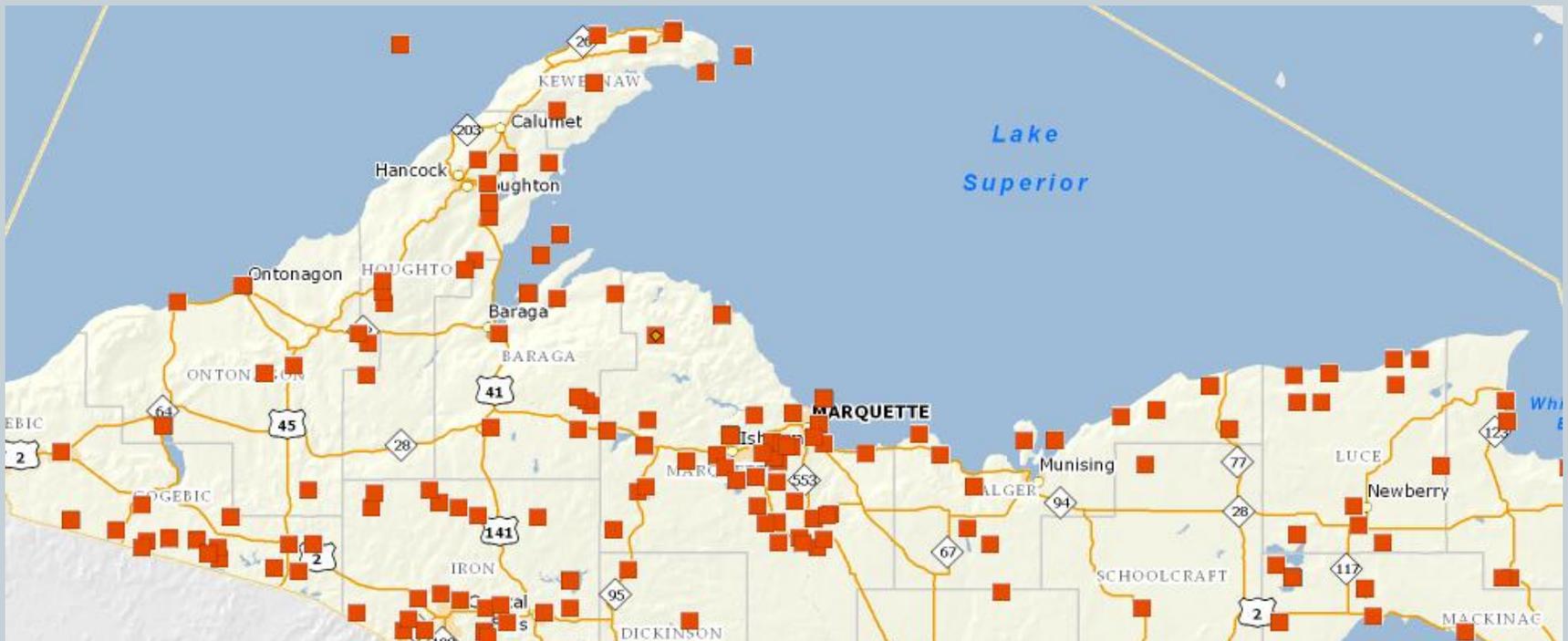


Fish Contaminants



- Edible portion (fillets)
 - Varied locations in streams, lakes, and Lake Superior
 - Michigan Department of Community Health action level
 - Consumption advisory
- Caged fish studies conducted as requested
- Contaminant Trends (whole fish)
 - There are 22 fixed stations across Michigan – Lakes only
 - 2 sites in Lake Superior watershed (Lake Gogebic, Keweenaw Bay)

All Fish Contaminant Monitoring Locations



Wildlife Contaminants

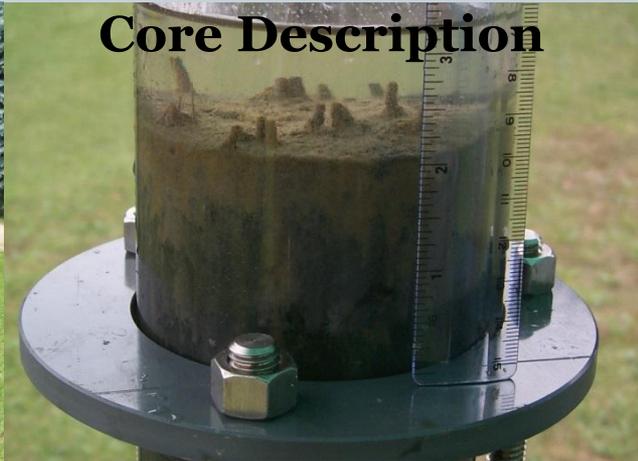


- **Bald Eagle Nestling Plasma/Feathers**
 - 1999
 - Persistent and toxic contaminants
 - Evaluate spatial and temporal trends
 - Comparing these data to historic data in literature

Sediment Chemistry



- Inland Lake Sediment Chemistry



Wetlands



- State of Michigan Wetland Monitoring and Assessment Strategy
 - Updated in 2014
 - Multi-level approach



Additional Monitoring Data



- USGS flow data
- RRD site specific groundwater data
- WRD Permits Section groundwater data
- NPDES permittee data
- Drinking water source water – surface water & groundwater data
- Michigan DNR fish & wildlife population data

Data Availability



Michigan Surface Water Information Management System
Department of Environmental Quality & Department of Natural Resources

MICHIGAN.GOV
Michigan's
Official
Web Site

- MiSWIMS – <http://www.mcgi.state.mi.us/miswims/>
 - Water Chemistry
 - Biological Condition
 - Sediment Chemistry
- Linked to MiSWIMS
 - Fish Contaminants database
 - BeachGuard website

Data Availability

Michigan Surface Water Information Management System

Department of Environmental Quality & Department of Natural Resources

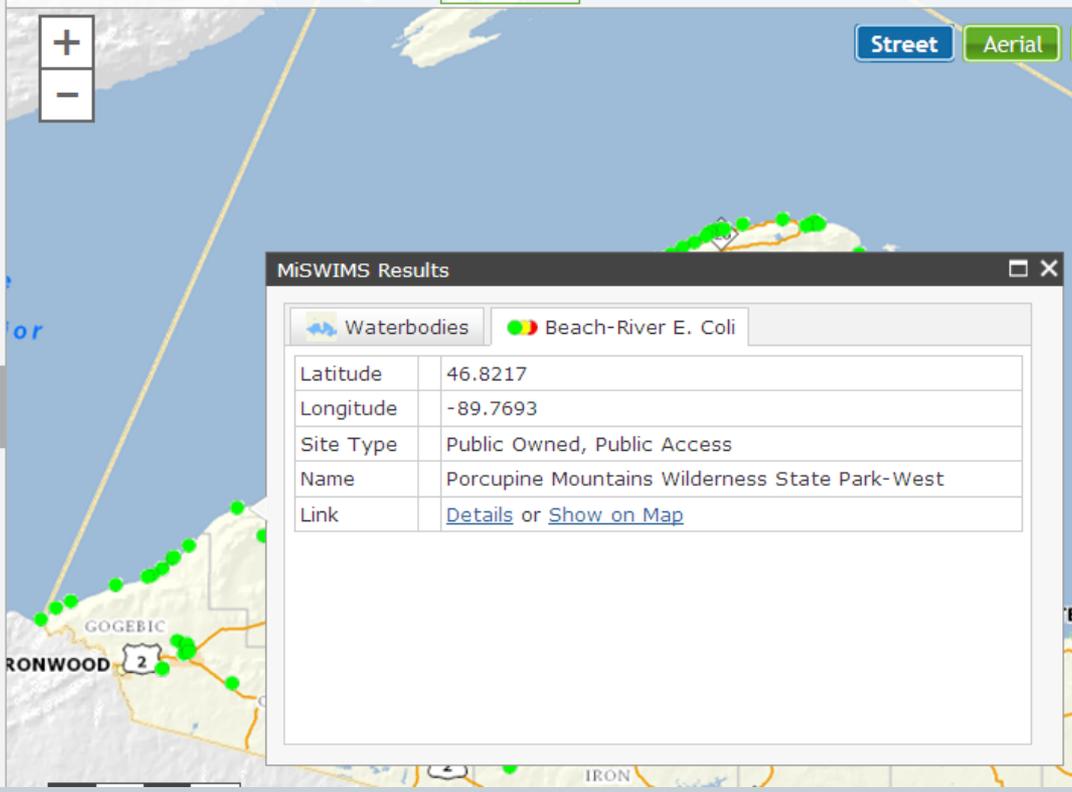
search address, city, zip, and more

Zoom Extents Navigation Info Identify



Street Aerial

- Environmental Monitoring
- Deq Basins
- Watersheds
- Beach/river E. Coli
- Fish Contaminant
- High Flow
- Low Flow
- Coldwater Streams
- Natural Rivers
- Wastewater Discharges
- Nps Grants
- Septage Haulers
- Usgs Gage Stations
- Valley Segments



Our to-do list



- **Wildlife Monitoring**
 - Reports only available on website
 - Data available only upon request
- **Biological Assessment**
 - Reports only available upon request
 - Data on MiSWIMS
- **Non-beach E. coli Assessment**
 - Reports and data only available upon request
- **Volunteer Monitoring**
 - www.micorps.net

Monitoring Contact



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