



Lake St. Clair

Regional Monitoring Project

THE PHYSICAL IS COMPLETE!

Conclusions and Recommendations of the Lake St. Clair Regional Monitoring Project

**“Implementing Restoration and Protection Efforts for the
Heart of the Great Lakes”**

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REMEDIAL ACTIONS

LSCRMP and LSCA data identified over 20 locations where there may be upstream pollutant sources.

	SITE NO.	FINDING/POTENTIAL SOURCE
ECT	CR01, CR04 CR06, CR09	The dry weather total-phosphorus values were higher, indicating continuous source unrelated to stormwater runoff.
ECT	All Sites	Generally higher dry weather chloride concentrations as compared to wet weather. Various sources: untreated sewage effluent, road salting, etc.
ECT	CR09, CR10 CR07, CR06 CR11, CR03 PR 01	E. coli levels were significantly higher in wet conditions. Various sources: sanitary sewer overflows (SSOs), contaminated runoff/wildlife.
ECT	CR10, CR03 CR06	High suspended solids concentrations during storm events. Sources may include: excessive erosion of upland soils/creek banks; excessive flows
ECT	SC02	Wet weather spikes in several parameters (E. coli, TDS, BOD, chloride, oil & grease, COD and TOC) on the St. Clair River. Source may be a localized (or very potent) intermittent upstream discharge
LSCA Data	South Central LSC West Shore	Detection of metals, PAHs, PCBs and pesticides in sediments – 2005. Sources may include: facility discharges, stormwater runoff, whether recent or historical.
LSCA Data	2004 2005 -n1 -n24 -w24 -w57 -w58 -w85	Exceeded aqueous mercury wildlife protection criterion. Air deposition; industrial sources.

LAKE ST. CLAIR REGIONAL MONITORING PROJECT

Conclusions: Water Quality and Sediment Contamination:

- *E. coli* concentrations were higher than the critical value throughout much of the Clinton River Watershed and elevated *E. coli* levels were found in most streams in the study area.
- Nutrient contamination exceeded U.S. EPA or MDEQ standards or recommended guidelines throughout the Project area in spite of decreasing trends.
- Chloride concentrations have been increasing strikingly throughout the Project area.
- Wet weather multiplies pollutant concentrations several-fold with some wet/dry weather ratios as high as 38:1 for *E. coli* and 130:1 for total suspended solids.
- There is evidence of increasing sediment contamination trends of some heavy metals, nutrients and pesticides along the south-central western shoreline of Lake St. Clair.

LAKE ST. CLAIR REGIONAL MONITORING PROJECT

Conclusions: Monitoring:

- Insufficient multi-year data prevents determination of trends at several locations.
- Longer-term wet weather water quality data is necessary to better understand the adverse impacts of wet weather.
- Monitoring is an excellent investment and the foundation of the entire environmental regulatory/enforcement infrastructure.

LAKE ST. CLAIR REGIONAL MONITORING PROJECT

Conclusions: Organizational Considerations:

- The participation of federal, state and local agencies provided leveraging of financial resources and personal expertise.
- A regional/multi-watershed approach resulted in a better understanding of the water quality of Lake St. Clair.

LAKE ST. CLAIR REGIONAL MONITORING PROJECT

Recommendations: Water Quality and Sediment Contamination:

- Continue and enhance IDEP, which have been demonstrated to be highly effective.
- Enhance or initiate programs to assure that on-site sewage disposal systems are properly operated and maintained.
- Insist on infrastructure improvements needed to assure compliance with regulatory standards.
- Regulate phosphorus uses and mandate best management practices particularly in agricultural areas.
- Reduce increasing chloride concentrations by the use of alternative winter anti-icing agents and conduct studies to locate other sources of chloride discharges.
- Regional representatives should shortly designate priority sites for supplemental wet weather monitoring.
- Regional representatives should prepare a report about continuing wastewater infrastructure deficiencies.
- County and community ordinances should be adopted or updated with regards to stormwater management

DATA GAPS:

- Determining pollutant concentration trends was thwarted by lack of multi-year data at key locations.
- Data gaps recognized during the Project included:
 - ➔ Less than anticipated data because of 22% less precipitation than normal.
 - ➔ Continuing targeted monitoring is needed for trend analyses for key pollutants.
 - ➔ Nutrient concentrations and their distribution in the St. Clair River and Lake St. Clair, downstream of the mouths of the Belle River, Black River and Pine River.
 - ➔ Nutrient concentrations in the central areas of Lake St. Clair for better understanding of potential for more widespread algal blooms.
 - ➔ Measurement of the macrophyte biomass.
 - ➔ Long term toxics monitoring for PCBs, PAHs, and organochlorine pesticides.
 - ➔ Metals, pesticides and other sediment contaminant core sampling results along the Lake's western south-central shoreline to better assess public health and ecosystem risks.
 - ➔ The presence, distribution and human health risks from cyanobacteria (blue-green algae). Risks of gastroenteritis, skin irritation, allergic responses, or liver damage.

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Recommendations: Monitoring:

- Initiate targeted monitoring efforts to better understand and evaluate:
 - ➔ wet weather impacts
 - ➔ nutrient concentrations in the center of the Lake
 - ➔ extent and risks of extensive accumulations of metals and pesticides in water and sediments along the Lake's south-central shoreline
 - ➔ overall water quality during more typical precipitation
- Employ modeling and other studies to eliminate data gaps identified in Project monitoring, such as the lack of nutrient and other information to understand potential for widespread algal blooms in Lake St. Clair, and insufficient information about emerging chemical contaminants.

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Recommendations: Organizational Considerations:

- Continue a regional watershed approach with the involvement of elected and executive officials to provide policy direction.
- Encourage a new state level bond issue similar to the Clean Michigan Initiative to provide support for water quality monitoring and needed environmental improvements.
- A regional financing mechanism should be adopted for priority monitoring and implementation of other recommendations.
- MCHD should investigate the benefits and feasibility of enhancing the Lake St. Clair Assessment Program.

WHAT'S NEXT: Converting Recommendations into Actions

- Support Deliberations of the Blue Ribbon Commission on Lake St. Clair;
- Continue initiatives for protection of drinking water and source waters;
- Regional Discussions, re: regional and /or watershed-wide initiatives;
- Regional Representatives to meet with MDEQ, re: Remedial Actions, Data Gaps and Recommendations;
- MCHD to inform and promote initiatives in Macomb County, including recommendations for the LSCA Program; and those relevant to other Macomb County agencies and /or Communities;
- Regional Partners to inform and promote actions by their Counties and/or Communities.

CONTACT INFORMATION

- Project Website: www.lakestclairdata.net
- MCHD Website: www.macombcountymi.gov/publichealth
- Telephone Contact:

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