

Managing Stormwater/Protecting Lake Michigan Determining the Future NOW

A Community Forum

“Lake Michigan is an outstanding natural resource of global significance, under stress and in need of special attention.” This is how the Lakewide Management Plan (LaMP) for Lake Michigan captured the status of the lake in 2000. The plan, published in 2000 and facilitated by the US Environmental Protection Agency (US EPA), was developed by a collaborative effort of Lake Michigan states, the academic community, scientific federal agencies, lake-area tribal nations, and nongovernmental organizations. A variety of sources for the stress and areas of specific concern were identified in the LaMP. Two of the major concerns centered on maintaining water quality for human consumption and for the swimming beaches lining the lake.

The Challenges for Managing Stormwater Runoff into the Great Lakes

As storms have become more intense, managing the larger volumes of stormwater has become increasingly complex. Stormwater runoff in urban areas is impure, containing a wide variety of contaminants including fertilizers, toxic driveway sealants, motor oils, debris and domestic and wildlife waste. Since 1900, when the Chicago River was reversed, Cook County's storm and waste water is channeled away from Lake Michigan, to preserve the quality of our principle source of drinking water. However, the capacity of this approach is limited and during exceptionally intense storms, excess waste and stormwater in our area is discharged into Lake Michigan at Wilmette harbor.

Large volumes of polluted stormwater runoff can adversely affect aquatic life, even in lakes as large as Lake Michigan. Sediment carries contamination and clouds the water. Excess nutrient from fertilizers promotes the overgrowth of algae. In turn, the decomposition from large algae blooms produces an imbalance of dissolved oxygen needed for other plants, microorganisms and animals to flourish. Polluted stormwater discharged near beaches carry high bacterial counts that can lead to beach closures. And, debris in stormwater can pose hazards to shore birds.

Green Infrastructure Is Part of a Group of Solutions for Stormwater Management

Both locally and nationally, municipalities of all sizes are employing green infrastructure as part of their solutions to stormwater pollution, flooding and sewage overflow problems. Green infrastructure facilitates or mimics natural processes that also recharge underground aquifers and maintain the natural balance of surface and ground water. The US EPA, state and local governments now agree that green infrastructure approaches as described in the National Resources Defense Council Report, *Rooftops to Rivers*, play an important part of best practices for stormwater management. (Available at: www.nrdc.org/water/pollution/rooftops/contents.asp.)

Gray Infrastructure Is the Central Component for Municipalities and Requires Permits

Gray infrastructure consists of a network of pipes, pumps and storage systems used to transport waste and stormwater. Relatively new to our area are proposals to construct small and large tunnels that will convey and discharge stormwater directly into Lake Michigan. Before permits are granted and construction can begin for these projects, communities are expected to demonstrate that they can meet existing water quality standards for health beach waters. The Illinois EPA (IEPA) has the responsibility for issuing the permit. When the permit application is published, numerous agencies and the public will have an opportunity to comment.

Water Quality Monitoring for Lake Michigan Beaches

Lake Michigan beaches and their coastal waters are a highly valued resources. To ensure that water quality conditions support safe and healthy recreation, bacterial counts are conducted in water samples at public beaches from May through September. Beaches with a history of exceeding approved limits are considered impaired and are monitored more frequently. The Illinois Department of Public Health and the beach management authorities use these monitoring data to determine when to

put swim bans in place.

Concentrations of Escherichia Coli (*E. coli*), which is a common bacterial component of human and wildlife fecal matter, are used as the indicator of contamination. Elevated concentrations of *E. coli* indicate that many microorganisms, nutrients that support their replication, and chemicals are also very likely to exceed acceptable limits. Stormwater is a primary vehicle for introducing *E. coli* into the lake. In July of 2013, based on a study conducted by IEPA called Total Maximum Daily Load, all of the beaches in Illinois were found to be impaired (ie, did not meet standards for beach health).

Managing Stormwater/Protecting the Lake – What's the Solution?

Two primary causes of lake pollution are the release of raw sewage from combined sewer overflows and stormwater runoff. Retaining water on the land through green infrastructure practices helps to prevent the overloading of water treatment plants and local flooding. Diverting excess stormwater to local waterways is another viable solution provided measures have been taken to avoid introducing unacceptable contamination into the receiving waters.

Stormwater management solutions are complicated and caution is needed to make sure that our efforts to solve one problem do not create another. These are serious issues that will affect communities now and for future generations. We need to get this right. The future is being determined now.

Suggested additional reading

Illinois EPA TMDLs: <http://www.epa.state.il.us/water/tmdl/>

Illinois EPA Stormwater Permitting: <http://www.epa.state.il.us/water/permits/storm-water/index.html>

US EPA Stormwater Permitting: http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Green Infrastructure to Help Manage Stormwater: <http://www.epa.gov/greeninfrastructure>

TMDL Development for Lake Michigan Beaches <http://tinyurl.com/naqneag>

Helping to Keep Lake Michigan Beaches Safe for Swimming <http://tinyurl.com/n6adnb4>

After the Storm, A Citizen's Guide to Understanding Stormwater <http://tinyurl.com/on4aab8>

Lake Michigan Lakewide Management Plan www.epa.gov/glnpo/michigan.html

Total Maximum Daily Load: A Citizen's Guide for Achieving Water Quality

<http://www.epa.state.il.us/water/tmdl/tmdl-brochure.pdf>

LWV Stormwater Education

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