

# SOLEC spotlights Great Lakes nearshore conditions



Over the last decade, the continued rapid growth of urban and suburban areas is the single most significant land use change (about 60 percent) in the

U.S. portion of the Great Lakes basin, according to a new publication, *Nearshore Areas of the Great Lakes 2009*, released by U.S. EPA and Environment Canada. Much of the newly-developed land was converted from agricultural or early-successional vegetation lands.

The report describes Great Lakes nearshore area environmental conditions. It documents changes in these areas since 1996, and suggests management implications related to nearshore issues. "Great Lakes nearshore areas are where land-based activities can impact water quality and where humans generally interact with the Great Lakes," said Paul Bertram, environmental scientist with the U.S. EPA Great Lakes National Program Office (GLNPO) and co-editor of the report.

Experts in the United States and Canada contributed to this report, which was prepared for the State of the Lakes Ecosystem Conference (SOLEC) 2008 in Niagara Falls, Ontario. Illinois-Indiana Sea Grant, in partnership with U.S. EPA GLNPO, will help distribute the report to congressional staff members, state and municipal officials, local decision-makers, educators, and interested public.

Here are more findings: Nuisance growth of *Cladophora*, a native, filamentous, green alga that

accumulates on beaches, will influence the public's perception of water quality and therefore, play a role in related decisions. *Cladophora* in nearshore regions of Lake Erie, Lake Michigan, and Lake Ontario has drawn the attention of those involved in public recreation, operation of utilities, and water quality management.

The growth of *Cladophora* may be linked with type E botulism outbreaks since the decaying algal mats create environmental conditions thought to promote botulism toxin production. The frequency and severity of botulism outbreaks have cycled over the last several decades—recently, affected areas and species have increased and expanded, particularly in

Lake Michigan. In 2007, botulism outbreaks caused an estimated 17,000 avian mortalities in the Great Lakes region.

Harmful algal blooms (HABs) have recently resurged in the Great Lakes and so has concern about their

toxins or harmful metabolites, especially in coastal waters. Lake Erie has the most extensive nearshore region because it's so shallow, so toxic HABs are of particular concern there and the focus of several current studies.

The report also includes information on nearshore terrestrial ecosystems, coastal wetlands, nutrients, viral hemorrhagic

septicemia (VHS), aquatic invasive species, human health, nearshore habitats, and nearshore physical processes.

The report is timely in that 2010 will be an intensive year for nearshore monitoring. U.S. EPA National Coastal Assessment (NCA) will survey conditions of the nation's coastal resources by creating an integrated, comprehensive monitoring program among coastal states. NCA sampling will take place in all Great Lakes states. Also, intensive monitoring of Lake Michigan's nearshore will occur as part of the U.S. EPA and Environment Canada Cooperative Science and Monitoring Initiative.

"We anticipate that the nearshore report will be used by federal and state agencies to help guide the intensive coastal monitoring work that will take place in 2010 in Lake Michigan and throughout the Great Lakes," said Paul Horvatin, U.S. EPA GLNPO monitoring, indicators, and reporting chief.

As part of the SOLEC Executive Committee, IISG's Great Lakes specialists Beth Hinchey Malloy and Jacqueline Adams helped organize the conference as well as helped write and edit the report. You can download the report at [http://binational.net/solec/sogl2009\\_e.html](http://binational.net/solec/sogl2009_e.html).



Courtesy of Milwaukee Metropolitan Sewerage District



Courtesy of Scott Higgins

*Cladophora* accumulation along the shoreline of Bradford Beach on Lake Michigan (top photo) and Rock Point Provincial Park along Lake Erie (bottom photo).