



## WHAT IS THE STATE OF GREAT LAKES COASTAL WETLANDS?

Great Lakes coastal wetlands are in peril as indicated by the decrease of coastal wetland area, declining wetland-dependent bird and amphibian populations and deteriorating plant community health.

### *The Issues*

- An estimated 50 percent of Great Lakes wetlands have been lost basin-wide. Losses of up to 90 percent have occurred in some areas. Currently, 216,743 hectares of coastal wetlands have been identified along the Great Lakes and connecting rivers up to Cornwall, Ontario. The inventory is incomplete, however, and underestimates the total wetland area remaining, especially for the upper Great Lakes.
- Great Lakes coastal wetlands are degrading because of the impacts of water level stabilization, sedimentation, contaminant and nutrient inputs, climate change, non-native species invasions and intensive industrial, agricultural and residential development.

### *The Indicators*

Thirteen indicators have been recommended to assess the status of Great Lakes coastal wetlands. These indicators evaluate coastal wetland plant and wildlife community health, the effects of water level fluctuations on wetland habitats and the quantity and quality of remaining coastal wetland area.

### *The Assessment*

Despite significant loss of coastal wetland habitat in some regions of the Great Lakes, the Great Lakes and connecting rivers still support diverse wetlands. Barrier-protected coastal wetlands are physically separated from the Great Lakes by barrier beaches or a series of beach ridges. These wetlands account for more than 60,000 hectares of identified coastal wetland area in Lakes Superior, Huron and Michigan. One-third of Lake Erie's 22,057 hectares of coastal wetlands are protected embayment wetlands. These wetlands are protected from wave action by a partial barrier beach or dike across the wetland mouth. In Lake

Ontario, barrier protected and drowned river mouth coastal wetlands (wetlands formed where streams slow as they enter the lake and deposit fine sediments) account for 19,172 hectares. This area is approximately three-quarters of the total coastal wetland area in the Lake Ontario basin. The St. Clair River delta is the largest single wetland feature in the Great Lakes and occupies in excess of 13,000 hectares. The St. Lawrence River, near Lake Ontario, supports a large area of wetland habitats, typically numerous small embayment and drowned river mouth wetlands associated with the Thousand Islands region.

Coastal wetland plant community health varies across the Great Lakes region. Long-term water level fluctuation, vital to maintaining wetland plant diversity, naturally stresses coastal wetlands. In some wetlands, plant communities are deteriorating due to extremely low water levels. One consequence of reduced water level fluctuation, as seen in Lake Ontario since 1959 when lake levels began to be regulated, is that coastal wetlands are comprised of fewer plant species. On other Great Lakes, recent low water levels have facilitated the germination and expansion of diverse plant communities in many coastal wetlands, especially in Lake St. Clair and southern Lake Huron. Low water levels and shoreline alterations facilitate non-native plant species invasions that further degrade coastal wetland plant communities.



Southern Michigan coastal wetland.  
Photo Credit: Dennis Albert.

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Fish community composition is often related to plant community type and quality. Coastal wetlands in northern Lake Michigan, northern Lake Huron and Lake Superior have relatively diverse fish communities. Lakes Erie and Ontario have more wetlands containing cattails, which are indicative of nutrient enrichment. As well, fish communities in these wetlands tend to be less diverse than fish communities in other plant community types. Wetlands may also be a refuge for native fish from the influence of certain invasive fish species, such as the round goby and ruffe.

From 1995-2002, volunteers throughout the Great Lakes region recorded 53 bird species that feed and/or nest in marshes. Population declines were observed for the least bittern, black tern, marsh wren, undifferentiated American coot/common moorhen, pied-billed grebe, red-winged blackbird and Virginia rail. Population increases were observed for the willow flycatcher, common yellowthroat and mallard. In the coastal wetlands of Lakes Erie, Michigan and Huron, population trends of the American coot, least bittern, marsh wren, pied-billed grebe, sora, swamp sparrow and Virginia rail followed fluctuations in Great Lakes water levels.

Snapping turtles are predators at the top of the coastal wetland aquatic food web. Through their diet, they accumulate persistent toxic contaminants that have become concentrated in their prey. Although contaminant concentrations are declining in snapping turtle eggs, the levels of many contaminants in fish still exceed the environmental quality guidelines set in 1998 by the Canadian Council of Ministers of the Environment. These levels indicate that contamination is present throughout the coastal wetland aquatic food web.

Basin-wide surveys have detected declines in the population of American toad, chorus frog, green frog and northern leopard frog throughout wetlands in the Great Lakes region.

### *Current Actions*

The Great Lakes Coastal Wetlands Consortium was formed in 2000 to develop coastal wetland indicators and establish a long-term coastal wetland monitoring program. This consortium is funded through a cooperative agreement between the Great Lakes Commission and the U.S. Environmental Protection Agency, Great Lakes National Program Office. The consortium operates in partnership with a binational group of agencies and organizations. It provides decision support for programs and policies affecting the conservation and management of Great Lakes coastal wetlands.

### *Actions Needed*

The loss of wetland habitats and adjacent upland areas must be prevented. There is also a need to address the factors that degrade wetland health such as water level stabilization, contaminant and nutrient inputs, sedimentation and non-native plant and animal invasions. Future water withdrawals and diversions from the Great Lakes are potential pressures on wetlands. Climate change could also alter water levels in wetlands.

### *To Learn More*

For further information related to Great Lakes coastal wetlands, please refer to the *State of the Great Lakes 2005* report and other Great Lakes references which can be found at [www.binational.net](http://www.binational.net). For more information about the Great Lakes Coastal Wetlands Consortium, visit [www.glc.org/wetlands](http://www.glc.org/wetlands).



Duck Bay, Lake Huron.  
Photo Credit: Ted Cline.

