

20 June 2017

Lake Ontario Partnership
C/o Mr. Michael Basile
EPA Community Involvement Coordinator
U.S. Environmental Protection Agency
Basile.Michael@epa.gov

Subject: Audubon comments on the Lake Ontario LAMP

Dear Mr. Basile:

On behalf of Audubon New York and Audubon Great Lakes, programs of the National Audubon Society, as well as the undersigned Audubon Chapters, thank you for the opportunity to provide our perspective on the environmental conditions, issues, and concerns that should be considered during the Lake Ontario Lakewide Action and Management Plan (LAMP) drafting process. Audubon's mission is to conserve and restore natural ecosystems, focusing on birds, other wildlife, and their habitats, for the benefit of humanity and the earth's biological diversity. It is from that viewpoint that we offer the following comments on the Lake Ontario LAMP.

Holding 20 percent of the world's fresh water within more than 10,000 miles of shoreline, the Great Lakes are a globally significant ecosystem. Millions of migratory birds depend on coastal habitats along the Great Lakes for shelter, rest, and nourishment for their long journeys. Thousands of raptors, waterfowl, and wetland birds rely on the Great Lakes systems for safe nesting grounds. Yet, coastal development, climate change, pollution, and invasive species threaten the coastal and aquatic systems that support this diversity of birds.

As the Lake Ontario Partnership takes on the task of updating the Lake Ontario LAMP, Audubon would like to see the following issues included and addressed:

- Botulism – According to the U.S. Geological Survey (https://cida.usgs.gov/glri/projects/habitat_and_wildlife/avian_botulism.html), botulism outbreaks are causing extensive mortality of fish and fish-eating birds in the Great Lakes. Botulism results from ingestion of neurotoxins produced by the bacterium *Clostridium botulinum*, which leads to paralysis and death. Periodic outbreaks of type E botulism have occurred in the Great Lakes since at least the 1960s, but outbreaks have become more common and widespread since 1999, particularly in Lakes Michigan, Erie, and Ontario. Botulism has been responsible for over 80,000 bird deaths on the Great Lakes since 1999. Spores of the botulinum bacterium are naturally widely distributed in the environment, but toxin production occurs only when suitable environmental conditions allow spore germination and growth. Scientists suspect the conditions needed to promote toxin production are related to local soil and water conditions, and well as presence of invasive species such as zebra mussels, quagga mussels, and round gobies, but these links have not yet been proven.
- Invasive species – During the past two centuries, invasive species have significantly changed the Great Lakes ecosystem. These changes have greatly affected the economy, health, and well-being of the people who rely on the system for food, water, and recreation (source: <https://www.epa.gov/>

greatlakes/invasive-species). Additionally, they cause major disruptions to aquatic food webs and have been implicated in outbreaks of type E botulism, which routinely kill fish-eating birds by the thousands.

- Microplastics – According to the University of Michigan (<http://graham.umich.edu/activity/27029>), concentrations of microplastic particles in aquatic systems have been found to be higher in the Great Lakes than anywhere else in the world. The U.S. Geological Survey (<https://www.usgs.gov/news/widespread-plastic-pollution-found-great-lakes-tributaries>) warns that ingested microplastics can cause digestive and reproductive problems, as well as death, in fish, birds and other animals. In addition, additives in the plastic, including flame retardants and antimicrobials, have been associated with cancer and endocrine disruption in humans, and pollutants such as pesticides, trace metals and even pathogens can accumulate at high concentrations on microplastic particles.
- Shoreline wildlife habitat
 - Piping Plover habitat – For the first time since the early 1980s, Piping Plovers have been observed nesting on the beaches of Lake Ontario. The federally endangered Great Lakes Piping Plover population has risen from 12 pairs in 1990 to 75 pairs in 2016 with most nesting in Michigan. In order for the population to fully recover, it needs to expand to other locations in the Great Lakes. In the 1930s, as many as 30 pairs nested along the Great Lakes in New York and we are hopeful that if we adequately protect the pairs that have recently returned, we can reach historic population levels and contribute to the recovery of the species. A habitat assessment of shorelines with flat, sandy beaches with little vegetation, sand flats, and muds flats would be beneficial to determine the amount of available habitat and opportunities for habitat enhancement and restoration. Shorelines with that type of habitat (sandy beaches, sand flats and muds flats), especially if undeveloped, should be a conservation priority. Also, with ever-growing demands on beaches, there are significantly fewer places for plovers to nest, rest, and feed, and plovers are particularly susceptible to human disturbance. An adult bird that encounters people or dogs may leave or abandon its nest or get separated from nests and chicks, which leaves them vulnerable to the elements and predators. Sites where plovers are nesting need to be actively managed in a way to reduce human disturbances and predators. Also, since plovers have been absent from Lake Ontario shoreline for decades, most beach-visitors do not know the significance of their return or how people can adversely impact nesting birds. Nor are they aware of the need to change their behavior to allow the birds to be successful. Therefore, education and outreach are another important strategy for this high priority bird.
 - Shoreline stopover habitat for migratory land birds – Several dozen species of songbirds migrate across the Great Lakes each spring and fall, relying heavily on shoreline habitat to provide refuge along the way. The sheer size of the lakes presents an initial hurdle in the fall and final hurdle in the spring for many of these long distance migrants. Stopover sites are places for birds to rest, refuel, and seek shelter during their bi-annual migration, the most perilous stage of a bird's lifecycle. In the face of urban sprawl and conversion of land for agricultural uses, the quantity of natural stopover habitat is decreasing, and the quality of remaining native cover is declining as invasive species disrupt habitat structure and food sources. Conservation and restoration of

undeveloped shoreline stopover habitat for migratory birds should be a priority for Lake Ontario.

- Coastal wetlands – Coastal wetlands provide critical habitat for a rapidly declining suite of wildlife. Birds such as Least Bittern, Common Gallinule, Black Tern, and Pied-billed Grebe depend on intact, dynamic wetlands. The declines of these species’ populations mirrors the loss of high quality wetlands across the Great Lakes region. Coastal wetlands in the Great Lakes region are degrading rapidly due to invasive species and altered hydrology. This degradation results in less habitat for wildlife, increased water pollution, and negative economic impacts on coastal communities. Protection and restoration of coastal wetlands will benefit these at-risk species while buffering shorelines from the impacts of intensified storms and flooding events.
- Coastal resiliency – Climate change presents complex and unique threats to the Great Lakes and their coastal communities. In the immediate and short-term, rapid fluctuations of lake levels and increased coastal zone precipitation and storm events are already disrupting wildlife habitat and negatively impacting people along the shores of Lake Ontario. In the long term, increases in water temperature coupled with lower water levels will significantly alter ecological processes as well as socio-economic activities within and surrounding the lake.
 - Planning and zoning – To reduce conflicts, improve wildlife habitat, and promote more resilient coastal communities, Audubon encourages new approaches to coastal planning and zoning that recognize and address the ways in which our changing climate will impact Lake Ontario’s water levels and storm intensities. An example is New York’s Community Risk and Resiliency Act, which, among other things, 1) requires applicants for permits or funding in a number of specified programs to demonstrate that future physical climate risk due to sea-level rise, storm surge, and flooding have been considered, and that NY’s Department of Environmental Conservation (DEC) consider incorporating these factors into certain facility-siting regulations, 2) adds mitigation of risk due to sea-level rise, storm surge, and flooding to the list of smart-growth criteria to be considered by state public-infrastructure agencies, and 3) requires DEC, in consultation with the Department of State, to develop guidance on the use of natural resources and natural processes to enhance community resiliency.
 - Green infrastructure – Maintaining and expanding coastal wetlands in strategic locations around Lake Ontario provides a natural mechanism to mitigate impacts of storm events, coastal flooding, more rapid lake level changes, and increased nutrient and sediment loading – all issues associated with climate change.
 - Natural shorelines and nature-based structures – Audubon supports the use of natural shorelines and nature-based structures that mimic natural processes over conventional shoreline hardening techniques. However, breakwaters like those being constructed by the US Army Corps of Engineers at Braddock Bay west of Rochester, NY, may be a suitable type of structure that can protect shorelines from erosion and flooding during intense storms and high water cycles while allowing the shoreline itself to remain in a natural, unhardened condition. Breakwaters can also be designed to provide fish and wildlife habitat.
- Eliminating or mitigating sewage discharges – Combined sewer systems can be overwhelmed during storm events, resulting in raw sewage being discharged directly into lakes or tributaries. Audubon encourages abating this threat to Lake Ontario water quality through separation of stormwater and

sewer lines, construction of storage tanks to hold overflow during storm events, expansion of waste treatment capacity, construction of retention basins to hold overflow during storm events, construction of screening and disinfection facilities for the overflow, and use of green infrastructure to reduce stormwater flows into combined sewer systems during storm events.

Thank you for your consideration of these comments. Should you have any questions regarding the issues we have raised, please contact Michael Burger at 607-254-2441 or mburger@audubon.org.

Sincerely,

A handwritten signature in black ink, reading "Michael A. Burger". The signature is fluid and cursive, with the first name "Michael" and last name "Burger" clearly legible, and "A." as a middle initial.

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