

# Habitat Task Group Executive Summary Report March 2018



**Introduction** - The following provides a brief encapsulation of information presented in the annual report of the Lake Erie Committee (LEC) Habitat Task Group (HTG). The complete report is available from the GLFC's Lake Erie Committee Habitat Task Group website at <http://glfc.org/lake-erie-committee.php>, or upon request from an LEC, Standing Technical Committee (STC), or HTG representative.

Four charges were addressed by the HTG during 2017-2018: (1) Document habitat related projects and research. Identify and prioritize relevant projects to take advantage of funding opportunities; (2) Assist member agencies with the use of technology (i.e., sidescan, GIS) to better understand habitat in Lake Erie; (3) Support other task groups by compiling metrics of habitat use by fish; (4) Systematically develop and maintain a list of functional habitats and impediments for species specified by the LEC Fish Community Goal and Objectives (FCGOs) that can be used to identify and evaluate status of priority management areas and strategic research direction.

**Charge 1: Project Documentation** – HTG will no longer maintain or update the list of habitat projects or spatial inventory but will instead work towards the Priority Management Area exercise (PMA). HTG will develop a way of documenting habitat projects relative to PMA and will continue highlighting key ongoing projects in the annual task group report.

*Coastal Wetland Restoration along the Canadian Shoreline of the Niagara River* - Over 3-5 years the Ministry of Natural Resources, Niagara Parks Commission and other community partners, aim to create at least four coastal wetland areas within the Upper Niagara River. Work began in 2015 with feasibility studies, community outreach, and the development of conceptual designs. In 2017, two coastal wetlands were created at the mouths of Usshers and Bakers Creek. Using dead ash trees and discarded conifers, 390 meters of shoreline were restored along with the creation of 0.7 hectares of aquatic habitat and 0.5 hectares of terrestrial habitat. These projects will make direct progress towards the LEEOs: #2,, #3, #6, #8, and #9 and FCOs: C, G and I by protecting and restoring the nearshore areas.



Figure 1. Niagara River wetland site (Usshers Creek – left and Bakers Creek – right)

### *Celeron and Stony Islands Habitat Restoration*

Celeron and Stony Islands (Figure 2) are uninhabited islands in public ownership as property of the Michigan Department of Natural Resources. Located in the lower Detroit River, both islands historically had substantial shoal areas that have been eroded over time. A habitat restoration project is underway to restore these shoal areas around portions of each

island. Shoals will be created or restored around both islands; 3,000 linear feet around Stony Island and 2,800 linear feet of shoal around Celeron Island. The shoals will protect about 117 acres of backwater habitat around both islands. A 6-acre barrier beach will be created on the northeast side of Celeron island. These projects will make direct progress towards the Lake Erie environmental objectives #2, #6, #8, and #9 as well as the Lake Erie fish community objectives C and I by protecting the nearshore areas and restoring habitat around the islands.



Figure 2. Celeron and Stony Island habitat projects.

### *Ballville Dam Removal*

Removal of the Ballville Dam, located near Fremont, Ohio, began in 2017. The first phase of dam demolition began on September 13, 2017; a 3 m deep, 6 m wide notch was cut into the dam to facilitate draw-down of the water level and controlled sediment dispersal. The final phase of dam removal will begin in July 2018, with completion likely by late fall. Ohio DNR estimates that suitable spawning habitat for local and migratory fish, such as walleye and white bass, will increase from 8 ha to 120 ha with dam removal.

### **Charge 2: Use of Technology-**

#### *Mapping and Monitoring Aquatic Vegetation in Lake Erie for Potential Grass Carp Impacts*

University of Toledo & USGS with support from Ohio DNR are in the process of mapping aquatic vegetation in Lake Erie to monitor potential impacts of Grass Carp herbivory. Work from 2016-2017 yielded a map of select sites within the U.S. side of the Western Basin Lake Erie.

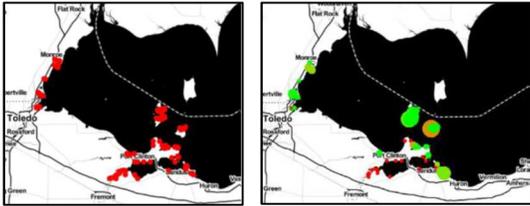


Figure 3. Lake Erie aquatic vegetation project map of site locations (left) and estimate of grass carp preferred areas.

*Updates to the GLAHF Explorer*

The GLAHF team and others have continued to include new information into the GLAHF Explorer. The GLAHF team helped to identify hydrologically-connected coastal wetlands and designate dynamic zones of coastal resilience based on the extent of high and low water levels, storm surges and modeled hydrologic connectivity. They also identified and mapped 77 aquatic ecological units (AEUs) that depict unique 14 combinations of depth, thermal regime, hydraulic, and landscape classifiers. The AEU types were distributed across 1,997 polygons ranging from 1 km<sup>2</sup> to > 48,000 km<sup>2</sup> in area and were most diverse in the nearshore (35 types), followed by the coastal margin (26), and then the offshore (16). The team assessed, modeled and mapped available fish habitat based on species-specific habitat conditions for all five Great Lakes in both the coastal margin and nearshore zones. In GLAHF explorer, users can view maps of modeled fish species abundance, optimal habitat and risk.

**Charge 3: Support Other Task Groups**

*Walleye habitat use*

The walleye task group called for the development of alternative walleye habitat models to help inform stock assessments and management decisions. An interagency team led by HTG members have been working to address this request by leveraging GLATOS to understand vertical habitat use of walleye. Provisional telemetry results showed a strong affinity of walleye for demersal habitats and gill net data indicated that this was primarily correlated with the larger size of telemetered fish.

*Lake Herring Habitat Suitability in Lake Erie*

One outstanding question from the Coldwater Task Group is whether Lake Erie currently has adequate habitat and summer refugia for Lake Herring. Oxythermal habitat models provide metrics which may be applicable for quantifying summer refugia in Lake Erie. USGS Lake Erie Biological Station researchers are leading an analysis of depth profiles of water quality with the aim of mapping potential habitat for juvenile and adult Lake Herring.

**Charge 4: Develop and Maintain List of Functional Habitats and Impediments**

*Priority Management Areas supporting LAMP, LEC, and Environmental Objectives*

LEC and HTG have set out to define priority areas within the LEC jurisdiction from the Bluewater Bridge (St. Clair River) to Niagara Falls (Niagara River). To accomplish this the HTG is identifying potential “habitat actions” within “functional habitats” by life stage and stock of desired fish species. Through a systematic and adaptable application of the CLC-EPs and LEC fisheries management priorities to these habitat actions, functional habitats are evaluated to define priority areas where management actions could have significant effects of the production of desired fish species, referred to as Priority Management Areas (PMAs).

In 2017, based on lesson learned from 2016 the HTG re-designed the data collection and engaged other LEC task groups, academic experts and individual members of agencies in a full data collection exercise. This first attempt to populate the current state of knowledge on functional habitats in Lake Erie was completed in January 2018. There is however significant work still required populating this information before a full list of PMAs can be made available. While the functional habitat information is incomplete, the information from this initial attempt was enough to help refine the prioritization methods and provide an initial attempt at PMA prioritization for proof of concept. Through this initial PMA scoring the HTG was successfully able to assign priority to functional habitats to define PMAs at different spatial scales through the systematic application of fishery value (LEC priority and CLC-EPs) on manageable stresses. This collaborative approach should be cumulative and adaptable as new information on Functional habitats and threats/stresses is populated or becomes available or as manageable threats/stresses are addressed.

Table 1. Summary of initial PMA scoring of functional Habitat

	Prioritization categories					Total
	Very High	High	Med	low	none	
Individual FHs	12	17	29	18	40	116

Please note: results represent initial PMAs prioritization attempt and intended to demonstrate proof of concept only. The HTG will continue to work over the next year to provide initial PMAs for the 2019 HTG report

*Strategic Research Direction for LEEOs*

In 2017, the LEC linked the HTG strategic research direction for the LEEOs to the development of PMAs. As outlined in the previous section of this report, the HTG is currently in development of PMA and accumulating the information of functional habitats. Once able to produce a list of PMAs the HTG will use the same information to identify and prioritize knowledge gaps to develop a list of strategic research questions.

The EO document can be found at:

<http://glfc.org/lakecom/lec/lehome.php>