

**FISHERY RESEARCH PRIORITIES:
LAKE MICHIGAN
Great Lakes Fishery Commission**

Version October 31, 2010

This listing was compiled based on input from the Lake Michigan lake committee and its technical committee and from discussions within the Council of Lake Committees (for more information go to <http://www.glfcc.org/lakecom.php>). Order of listing does **not** imply relative ranking of priorities for the Fishery Research Program funding.

Research Priorities

These Lake Michigan Priority Research Needs were developed to encourage progress towards meeting Lake Michigan Fish Community Objectives (FCOs; http://www.glfcc.org/pubs/SpecialPubs/Sp95_3.pdf). We emphasize that the specific FCOs need to be interpreted in the context of the Goals and Guiding Principles within which they were framed. Interested researchers should review the FCOs (Eshenroeder et al. 1995), as well as the latest version of the State of Lake Michigan document (Holey and Trudeau 2005), for additional background information concerning these research priorities. Priorities are updated annually; copies of the most recent priority list, the Fish Community Objectives, and the State of Lake Michigan report are available on the GLFC web site (www.glfcc.org), from the chairperson of the Lake Michigan Committee (Steve Robillard – Illinois DNR), or from the chairperson of the Lake Michigan Technical Committee (Brad Eggold - Wisconsin DNR). **The current list of priority research questions identified by the Lake Michigan Committee and Technical Committee is indicated below**, but any innovative research project that clearly will advance the achievement of FCOs will be given serious consideration for support by the LMC, even if not included on the specific list of priority research questions.

Priority Rank	Research item	Objective
1	What are the current species-specific abundances, production, and forage demand of the Lake Michigan salmonine community? And what levels of salmonine production and yield are sustainable without threatening the biological integrity of the Lake Michigan fish community – including consideration for other Fish Community Objectives?	Salmon and Trout
2	To what extent does thiamine deficiency complex (TDC) impede lake trout rehabilitation in Lake Michigan?	Lake Trout
3	What contributions do naturalized fish make to the lakewide salmonine abundances, production, forage demand, and annual yield? Is there an interaction between salmonine stocking rates and naturalized salmonine production?	Salmon and Trout
4	Which streams and/or lentic sources contribute to the parasitic lamprey population of Lake Michigan and in what proportion (i.e., account for all sources of lamprey)?	Sea Lamprey
5	What is the preferable Lake Michigan salmonine community (with different species mixes) that can keep alewife below levels that suppress native fish populations while maintaining a viable	Salmon and Trout

	fishery? And at what temporal scale should managers make decisions (annually or every 3, 5, or 10 years) with regards to predator-prey interactions?	
6	How are invasive invertebrates (Dreissenids, Bythotrephes, Hemimysis) influencing zooplankton, and ultimately prey fish, production?	Planktivore
7	Are the current wounding target of 5 wounds per 100 lake trout and spawning-phase sea lamprey target of 62,000 ± 12,000 appropriate for measuring lamprey influences on fish populations and meeting the fish community objectives for Lake Michigan?	Sea Lamprey
8	What is the relationship between observed wounding indices (from both spring and fall observations) and the actual mortality experienced by lake trout, Chinook salmon, and other host species?	Sea Lamprey
9	What are the stock/region-specific implications (eg growth, recruitment, fecundity) of changes in whitefish condition and/or energetic status in Lake Michigan?	Benthivore
10	What levels of fish harvest/consumption can the Lake Michigan food web support?	Planktivore
11	Describe the ecological roles of round gobies and other near shore prey species and their influence on fisheries production as competitors, predators and prey.	Inshore Fish
12	What are the population specific factors limiting survival, recruitment and population growth in each remnant and recently stocked lake sturgeon population in the Lake Michigan basin, and what are current demographics and trajectories of existing populations?	Benthivore
13	What are the barriers to yellow perch sustainability is it spawning stock, habitat, environmental conditions or exotic species?	Inshore Fish
14	How does transport from drowned river mouth lakes and tributary outflows influence Lake Michigan production and near shore fish populations?	Inshore Fish
15	How do movements of lake trout in Lake Michigan vary by age, region, and season?	Lake Trout