

FISHERY RESEARCH PRIORITIES:

LAKE SUPERIOR

Great Lakes Fishery Commission

Version October 31, 2009

This listing was compiled based on input from the Lake Superior 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

A review of the fish community objectives for Lake Superior (link to http://www.glfcc.org/pubs/SpecialPubs/Sp03_1.pdf) and the Lake Superior State of the Lake Report (http://www.glfcc.org/pubs/SpecialPubs/Sp94_1.pdf) provides a useful context for the priorities listed below.

- 1) Are the current biological reference points for whitefish, lake herring (cisco), and lake trout, sustainable? We currently have maximum total annual mortality targets of 65% for whitefish and less than or equal to 45% for lean lake trout. For cisco we have recommended an annual target exploitation rate of 10-15%.
- 2) How does the relative importance of habitat and fish community structures influence our ability to rehabilitate depleted native species such as walleye, brook trout, lake sturgeon, and shortjaw in Lake Superior? Species-specific questions are listed below.
 1. Do rainbow smelt suppress recruitment of walleye in Black Bay?
 2. What are the direct or indirect effects of non-native species on brook trout rehabilitation?
 3. Does hydropower and its flow regimes inhibit recovery and rehabilitation of lake sturgeon?
 4. Does introgression or hybridization result in the loss of shortjaw?
- 3) Does the trophic transfer efficiency of Lake Superior conform to the accepted norms; i.e. 10% across trophic levels. Use siscowet example from Bowler Dan Yule.
- 4) What is the production potential of habitat zones of Lake Superior and how much is transferred across zones? More specifically: (1) are terrestrial inputs the primary source of energy for fish production in very nearshore and nearshore waters; and (2) what is the relative contribution of benthic vs. pelagic production within and across habitat zones?
- 5) What is the surplus production of siscowet populations and what are the ecosystem implications of substantially increasing the harvest of siscowets?
- 6) What is the basic life history of siscowets in Lake Superior?