

**FISHERY RESEARCH PRIORITIES:
GREAT LAKES FISH HEALTH COMMITTEE
Great Lakes Fishery Commission**

Updated August 2014

This listing was compiled based on input from discussions within the Council of Lake Committees (for more information go to <http://www.glfrc.org/lakecom.php>) and the Great Lakes Fish Health Committee (<http://www.glfrc.org/boardcomm/fhealth/fhealth.php>). Order of listing does **not** imply relative ranking of priorities for the Fishery Research Program funding.

Research Priorities

- What is the ecology of fish pathogens and diseases of concern in the Great Lakes Basin? Examples include (but are not limited to) viral hemorrhagic septicemia virus (VHSV) genotype IVb, Heterosporis sp., Epizootic Epitheliotropic Disease virus (EEDV), Flavobacterium sp., and emerging diseases.
- What non-lethal field sampling methods and tissue/fluid samples are equivalent to conventional lethal field sampling methods to determine fish pathogen and/or disease status?
- Develop and validate new methods to detect emerging fish pathogens or pathogens of concern in the Great Lakes Basin.

Additional Research Interests

1. What is the effectiveness of the GLFHC disinfection protocols in eliminating key pathogens of interest from fish eggs? There is a need for a reliable disinfection methodology to prevent pathogen transmission via eggs and sperm.
2. Disease Ecology and Epidemiology
 - (a) What is the susceptibility of Great Lakes fish species to emerging fish pathogens in the Great Lakes?
 - (b) Identification of reservoirs and vectors (including ballast water) for fish pathogens in the Great Lakes Basin
 - (c) What mechanisms affect the virulence and persistence of fish pathogens?
 - (d) What is the effect of population size on disease expression?
 - (e) What are the effects of multiple pathogens or combination of pathogens and nutritional deficiency and/or contaminant exposure on disease expression?
 - (f) What are the projected changes on fish pathogen prevalence and intensity as a result of climate change?
3. Nutritional Aspects of Fish Health in the Great Lakes.
 - (a) What is the role of lipids or other nutrients in determining and predicting health status?
 - (b) What is the role of thiaminase-producing organisms in Great Lakes ecosystems?
 - (c) What affect do invasive species have on nutrient stores in the Great Lakes and what are the associated effects on fish health?
 - (d) What is the effect of nutrition on reproductive success?

- (e) Does protein substitution in hatchery feeding formulations or extrusion manufacturing methods have a negative impact on survivorship, migratory behavior and reproductive success of hatchery-reared salmonids?
4. Fish Pathogen and Disease Management.
- (a) What are the effects of fish stocking and other management decisions on the manifestation of fish disease in the Great Lakes Basin?
 - (b) What effects does culling brood stock for pathogen control have on the genetics of production fish?
 - (c) When should fish not be moved past barriers (from a disease perspective)?
 - (d) Development of an emergency response plan for disease outbreaks in the Great Lakes Basin, including (but not limited to) training of field personnel and preplanning.
 - (e) What is the effectiveness of immunostimulants against key pathogens of interest in hatcheries?
 - (f) What is the effect of vaccination of hatchery fish on pathogen virulence?