

Oral presentation for IAGLR's 56th Annual Conference on Great Lakes Research, June 2-6, 2013, in West Lafayette, IN.

SCHLOESSER, Joshua T.¹, QUINLAN, Henry R.¹, and HOFFMAN, Joel C.²

¹2800 Lakeshore Drive East, Ashland Fish and Wildlife Conservation Office, Ashland, WI, 54806

²6201 Congdon Boulevard, U.S. EPA, Mid-continent Ecology Division, Duluth, MN, 55804.

Early Detection of Invasive Fishes in Lake Superior.

Invasive species pose a serious threat to the Great Lakes warranting continual monitoring for the arrival of new species. Three locations in Lake Superior were identified as "high risk" for new introductions: St. Louis River near Duluth, MN, Upper St. Marys River near Sault Ste. Marie, MI/ON, and Thunder Bay, ON harbor. Sampling occurred during August and September 2010-2012 and was randomly allocated by effective sampling depth for boat electrofishing, fyke nets, and bottom trawling. Annually, 50 stations were sampled at the St. Louis River and 45 stations each at the Upper St. Marys River and Thunder Bay. Analysis indicated a gear mixture of 40% fyke nets, 40% electrofishing, and 20% trawls would maximize the number of species detected at each location. In order to detect 95% of the total estimated species richness, a total of 102, 116, and 90 samples were needed for the St. Louis River, Upper St. Marys River, and Thunder Bay, respectively. We hope to investigate targeted sampling compared to random site selection which has been found to improve sampling efficiency in a case study of the St. Louis River. This evaluation has led to a location specific sampling design for the early detection of a potential new invasive species in Lake Superior.

Task: SSWR 1.1B

Product: Not apply