

## Northern Lake Huron Coolwater Fish Community Assessment

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### *Background*

The St. Marys River and Les Cheneaux Islands region of Lake Huron support unique fisheries that are an economic asset for local communities and important to many anglers. This study consists of two surveys that generate the information necessary for the management of each fishery: 1) an annual assessment of the Les Cheneaux Islands (LCI) fish community; and 2) a periodic assessment of the St. Marys River (SMR; Photo 1). The LCI survey, which has been completed each year since 1969, is one of the longest continuous Great Lakes surveys conducted by Fisheries Division uses gill nets for one week in early October each year. The SMR fish community assessment began in 1975 and is conducted about every five years on average. This survey is a very large effort (40 gill-net sets) that is jointly conducted by the Great Lakes Fisheries Commission (GLFC) St. Marys River Fisheries Task Group (Fisheries Division, the Ontario Ministry of Natural Resources and Forestry, the United States Fish and Wildlife Service, Fisheries and Oceans Canada, and the Chippewa-Ottawa Resource Authority). Additional help for the SMR survey is sometimes provided by staff and students from Lake Superior State University. Fisheries Division's portion of the SMR survey is conducted jointly by Fisheries Division's Alpena Fisheries Research Station and Northern Lake Huron Management Unit, with each crew sampling for about a week in August.



Photo 1. Fisheries Division's Research Vessel (R/V) Chinook sampling in the Les Cheneaux Islands.

Like other fish community surveys, the information collected during this project and Fisheries Division's creel surveys form the basis for the knowledge about the LCI and SMR fish populations. Information on fish abundance, age and growth, reproduction, survival, and the presence or absence of invasive species are just some of the data that is generated from these surveys. In addition, one of the most well-known analyses of double-crested cormorant (effects on the fish community and effectiveness of double-crested cormorant management comes from the LCI data set (in fact, some have mistakenly characterized the fish community survey in the LCI as a "cormorant study"). The ongoing fish community assessment, when coupled with additional double-crested cormorant nest counts and diet work, enabled Fisheries Division to complete analyses that has served as a basis for adaptive cormorant management in the region. The resulting recovery of yellow perch in the LCI area is hailed as a fisheries and wildlife management success story.

### *What are the recent key results?*

Assessment catch rates of Yellow Perch in the annual Les Cheneaux Islands survey declined for the fourth year in a row during 2014 but were similar to the overall higher catch rates observed since recovery of the population in the mid-2000s. A fifth year of lower Yellow Perch reproduction likely contributed to the observed decline. Other Yellow Perch population metrics were generally consistent with sustained recovery after the collapse of the population and fishery from 2000 to 2004. Yellow Perch mean age in the assessment catch remained unchanged in 2014 at 4.3 years compared to a mean of 2.2 years during the collapsed period. Mean length of Yellow Perch at Age 3 dropped to 175 mm in 2014. Total annual mortality of Yellow Perch in the Les Cheneaux Islands increased to 41% in 2014 but is still regarded a sustainable level. Northern Pike (*Esox lucius*) assessment catches were the highest ever measured in the entire Les Cheneaux Islands time series, which dates back to 1969. The St. Marys River was not surveyed in 2014.

### *Where can I find the results?*

Results from the LCI fish community survey are presented annually at the local Michigan Sea Grant Lake Huron fishery workshop and a number of reports using these data are available on Fisheries Division's web page ([http://www.michigan.gov/dnr/0,4570,7-153-10364\\_52259\\_19056-333302--,00.html](http://www.michigan.gov/dnr/0,4570,7-153-10364_52259_19056-333302--,00.html)). The SMR survey results are published on the GLFC web page (<http://www.glfc.org>), and the results of the 2009 survey were published in the Journal of Great Lakes Research, a citation for which is also available on the GLFC web page or from project biologist.

### *What does this project do for fisheries managers and anglers?*

This project provides fisheries managers the fundamental information needed to make stocking decisions (if and when to stock fish, and how many) and set fishing regulations such as minimum size limits and daily bag limits, which specify the size and number of fish that an angler can harvest in one day. Data are also used in allocation of shared fisheries resources, establishment of recovery targets for certain fish species, gaging of progress towards recovery, and examining the presence and effects of invasive species. Fishing regulations for Michigan's waters of the SMR, including the LCI region, can be found by clicking "Rules & Regs" on Fisheries Division's website at <http://www.michigan.gov/fishing>.