Great Lakes Fishery Commission

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Contact: Dr. Marc Gaden
734-417-8012

SAGINAW BAY SOURCE OF MILLIONS OF LAKE HURON WALLEYES, NEW STUDY SHOWS

Magnitude and timing of migration from the bay surprises researchers

ANN ARBOR, MI — Preliminary results of a new study examining the movement patterns of walleyes in Lake Huron has surprised researchers by indicating out-migration from Saginaw Bay to the main basin of the lake occurs earlier in the year than previously assumed and in greater numbers than expected. These results—from the first year of an intensive four-year study using advanced telemetry tracking—suggest Saginaw Bay is a major source of walleye for Lake Huron, supporting an important fishery. Evaluation of movement throughout Lake Huron will help officials better manage the valuable walleye fishery during these times of large-scale ecological change. Scientists will compare these first-year data to future data to better understand trends in Lake Huron walleye migration.

Entitled "Spatial Ecology, Migration and Mortality of Adult Walleye in Lake Huron and Western Lake Erie," the 4-year study seeks to understand the extent and reasons for walleye movement into and throughout Lake Huron. Two source populations are being tracked: walleyes originating in Saginaw Bay and in western Lake Erie. Acoustic transmitters were surgically implanted in 200 walleyes in each location in the spring of 2011 and their movement was monitored by 160 acoustic receivers strategically positioned in Lakes Huron and Erie. The study, funded by the Great Lakes Restoration Initiative, is being conducted jointly by the Biological Resources Division of the U.S. Geological Survey, the Michigan Department of Natural Resources, the Ohio Department of Natural Resources, the Great Lakes Fishery Commission, and Carleton University.

Although it has long been known that some walleyes leave Saginaw Bay, this study is the first to provide clear indication of the magnitude and timing of such migration. The preliminary results of this telemetry study revealed that nearly half the implanted walleyes from Saginaw Bay crossed the outer-most line of receivers, indicating out-migration into the main basin of Lake Huron. Fish migrated both north and south out of Saginaw bay, though very few appeared to go as far as the St. Clair River, which drains Lake Huron to the Huron-Erie corridor.

Most of the walleye migration out of Saginaw Bay occurred by early June, somewhat surprising given the cool temperatures of the main part of Lake Huron. Such early migration by a large part of the population of walleyes spawning in Saginaw Bay tributaries suggests that these fish may be seeking prey resources in the open lake. Understanding when walleyes move from Saginaw Bay helps fishery biologists make decisions about the timing of management actions.

"Researchers are still analyzing preliminary findings to determine whether there is a sex or age/size factor triggering movement," says the study's principal investigator Dr. John Dettmers of the Great Lakes Fishery Commission. "The exact motivation for why certain walleyes make such a migration is not yet

fully understood; for example, it may be based on the pursuit of prey resources or a preference for cooler temperatures. Given this is the first year of a multi-year study, the investigators are eagerly awaiting data from future years to see whether these initial trends are repeated. As more data become available, scientists and managers will have an increasing understanding about the extent and timing of walleye movements in Lake Huron as well as what may cause those movements. That information will be invaluable to the management of this popular fishery."

Co-investigator Dave Fielder of the Michigan Department of Natural Resources adds: "Given estimates of the size of the Saginaw Bay walleye population, as many as 2 million adult walleyes are thought to be migrating into the main basin of Lake Huron. The implications of this magnitude of movement are significant for fishermen and biologists alike. For anglers, these walleyes help create fisheries in locations outside Saginaw Bay; for biologists, this migration pattern raises ecological implications, as the food web of Lake Huron has changed drastically over the last decade and, as a result, walleye in the bay have increased fourfold and are now believed to be fully recovered in abundance. Walleyes are likely now one of the principal predators in the Lake Huron food web."

Other studies of walleye in Lake Huron are seeking to estimate walleye consumption of prey resources and to examine management options. Those studies are looking to the walleye movement as a foundation on which to refine estimates and options. One consideration for biologists is that management of Saginaw Bay's walleye stock needs to consider harvest and exploitation from fisheries outside the bay. In 2012, an additional 90 walleyes between Lakes Huron and Erie were implanted with acoustic transmitters thus extending the ability to gather more information about walleye movement.

Anglers catching an implanted walleye are asked to report the capture and return the transmitter to the numbers on the tag. A $100 reward is offered to any angler who returns a tag. More can be learned about the walleye study including some preliminary maps of movement at: www.glfc.org/telemetry/walleye.php

The Lakes Huron and Erie walleye telemetry study is one part of a larger telemetry system deployed in the Great Lakes region since 2010, led by the Great Lakes Fishery Commission and supported by the Great Lakes Restoration Initiative. Other species tagged and monitored through several projects include lake trout, sea lamprey, and lake sturgeon. Last month, the commission and the Great Lakes Observing System launched GLATOS, a website that currently comprises five major projects (including the walleye study) using 337 telemetry receivers. The system tracks more than 1,700 tagged fish. Planning for additional studies is underway, including the incorporation of lake sturgeon in the Huron-Erie Corridor. In addition to facilitating collaborative fisheries research projects, the GLATOS tool allows the public to learn more about current fish movement studies. For more information about acoustic telemetry, the location of receivers, and current projects, visit data.glos.us/glatos.

The Great Lakes Fishery Commission is an international organization established by the United States and Canada through the 1954 Convention on Great Lakes Fisheries. *The Commission has the responsibility to support fisheries research, control the invasive sea lamprey in the Great Lakes, and facilitate implementation of a Joint Strategic Plan for Management of Great Lakes Fisheries, a provincial, state, and tribal fisheries management agreement. Visit www.glfc.org for more information.*

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