Smallmouth bass in Saginaw Bay: Stock structure, seasonal movements, and effect of recreational tournament displacement


DNR


DNR

Core Question: Do Saginaw Bay's bass belong to one large family or several distinct "neighborhoods" tied to specific spawning grounds?

Smallmouth bass are one of the most popular sport fish in the Great Lakes, driving significant economic activity and supporting local ecosystems as top predators. However, despite their importance, we know surprisingly little about how they move and reproduce within Lake Huron's Saginaw Bay. This research project will fill critical knowledge gaps on the spawning structure, long-term movements, and possible effects of tournament fishing displacement on smallmouth bass in Saginaw Bay. By integrating high-resolution acoustic telemetry and genomic analyses, the project will contribute new data and a transferable analytical framework to the broader body of Great Lakes fisheries science. These results will directly inform management decisions in Saginaw Bay and provide comparative insights applicable to other nearshore fish populations across the basin.

Mapping Movement in Saginaw Bay

Having this information is critical because if certain groups are isolated, then they may be more vulnerable to localized overfishing or other disturbances. Researchers will use two tools to investigate these populations: acoustic telemetry, which are small transmitters surgically implanted in fish to track movements of individual fish year-round, revealing if they return to the same spots to spawn each year; and population genomics, which allows scientists to use DNA to determine if bass from different areas are genetically distinct, helping to map the "family tree" of the bay.

A major focus of the study is the effects of fishing tournaments on bass populations. These events often involve catching fish in one part of the bay and releasing them at a distant weigh-in site. This project will determine if these fish caught in tournaments can find their way back home or if they are permanently relocated, and whether tournament captures affect their long-term survival.

Ultimately, this research will help managers balance a thriving fishing economy with a healthy ecosystem. By understanding the "portfolio" of different bass groups, Michigan can ensure the population remains resilient against climate change and environmental shifts, keeping Saginaw Bay a premier destination for anglers for generations to come.

Investigator

Scott Colborne, Michigan State University
colborne@msu.edu

michiganseagrant.org/research

Michigan Sea Grant helps to foster economic growth and protect Michigan's coastal, Great Lakes resources through education, research, and outreach. A collaborative effort of the University of Michigan and Michigan State University and its MSU Extension, Michigan Sea Grant is part of the NOAA-National Sea Grant network of 34 university-based programs.