

# Updating predator-prey stocking models and strategies in Lake Michigan



## CORE QUESTION:

What strategy for stocking salmon and trout in Lake Michigan is most likely to achieve the shared objectives of fishery stakeholders?

## INTRODUCED PREDATORS FOR INTRODUCED PREY

Salmon and trout in Lake Michigan are beloved by recreational anglers and have populations that are maintained through stocking - the practice of raising young fish in hatcheries and releasing them into rivers and lakes to bolster natural populations.

The current stocking regimen began in the 1960s as a response to booming populations of the invasive alewife, a prey fish native to the Atlantic Ocean. Natural resources agencies began stocking salmonine species — including non-native brown trout, Chinook salmon, Coho salmon, and steelhead — alongside native lake trout in hopes that these predatory fish would both control alewife levels and create new demand for recreational fishing in Lake Michigan.

Since then, natural resources agencies have used predator-prey models to try to achieve a sustainable balance between stocked fish and their main prey, alewife. Alewife populations have dropped significantly in recent decades, leading stocking agencies to reevaluate the prey populations and number of predators the lake can realistically support.

## A STRATEGIC REASSESSMENT

As natural resource managers reassess the way they stock trout and salmon species in Lake Michigan, Assistant Professor Kelly Robinson from Michigan State University

and her research team will update models that forecast salmonine fish populations while incorporating benefits, risks, and tradeoffs of different stocking strategies. The models will include updated data about predator and prey population levels, predator diets, and the effects of multiple predator and prey species sharing an ecosystem.

The research team will also be working with Lake Michigan's fishery stakeholders to identify values and concerns related to the recreational salmonine fishery. Their structured decision making approach will involve workshops and consultations, generating feedback that will help determine which stocking balance is most likely to achieve the shared objectives of managers and stakeholders who are connected to the fishery.

The updated models and stakeholder feedback will help natural resources agencies make wise stocking decisions that will shape the future of Lake Michigan's fishery.

## CONTACT

### PRINCIPAL INVESTIGATOR

**Kelly Robinson**

*Assistant Professor, Quantitative Fisheries Center,  
Department of Natural Resources*

Michigan State University  
(517) 884-8872 | [kfrobins@msu.edu](mailto:kfrobins@msu.edu)

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