



Support to the Lake Erie Percid Management Advisory Group on Stock Assessment

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Goal: Update and improve stock assessment models used for Lake Erie yellow perch to support the renewal of management plans.

Objectives:

1. Address ongoing concerns with model performance of existing stock assessment models.
2. Revise and streamline data processing and code to enhance stock assessment model performance.

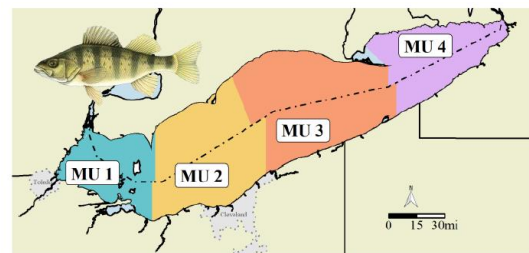
Management Implications: Lake Erie yellow perch fishery is both economically and ecologically significant, providing recreational and commercial opportunities. It is one of the only two Great Lake fisheries (along with Lake Erie walleye that have Marine Stewardship Council (MSC) sustainability certification. Reliable stock assessments are essential for maintaining sustainable harvest levels and supporting continued MSC certification.

Methods:

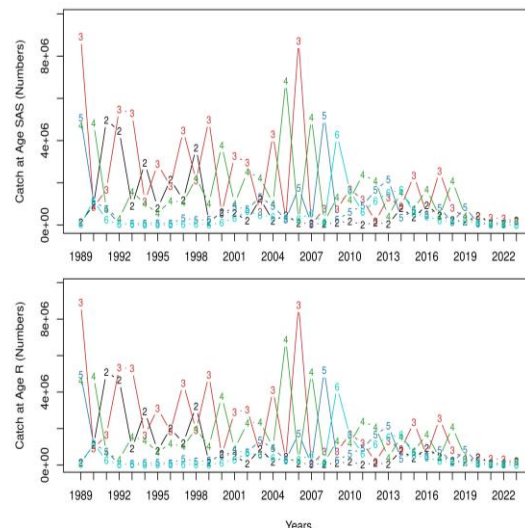
- Lake Erie yellow perch are split into four management units, each with its own assessment model. Current efforts focus on management units 2 and 3 (Lake Erie Central Basin).
- Fishery-dependent catch data (recreational and commercial) have been converted from an older processing system (SAS) to a streamlined workflow in R.

Prelim. Findings/Next Steps:

- Comparison of processed data between the two approaches show minimal differences, confirming the validity of the new workflow.
- Preliminary results for processing a fishery-independent survey to an index of abundance.
- Next steps: i) Continue processing fishery independent surveys in management units 2 and 3; ii) Develop a stock assessment model for management units 2 and 3 in RTMB.



Caption: Lake Erie yellow perch management units (MUs 1-4), each with its own assessment model and allocated catch limit. Photo credit: Matt Faust.



Caption: Catch at age (in numbers) outputs from data processing the fishery-dependent data. Top panel is the SAS output (old approach) and bottom panel is the R output (new approach). Each line represents an age class.

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