

## **A Modeling Perspective on the Interaction of Phosphorous Loading and Fisheries Exploitation on the Lake Erie Fish Community.**

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After a long period of recovery, the decline of several important species during the 1990s raised concern about stability of the Lake Erie fish community. Proposed explanations for the declines included cumulative effect of reductions in phosphorus loading, effects of dreissenid mussels on pelagic productivity, and effects of predator-prey oscillations induced by the resurgence of walleye during the 1970s and 1980s. Heuristic analyses of predictions of the Lake Erie Ecological Model indicate that the instability was induced by the walleye resurgence, but also indicated that changes in lower trophic level productivity interact with fish harvest policies in complex ways. This paper reviews these heuristic analyses and compares fish community response to management policies that either integrate harvest and productivity information or base harvest decisions on historical yield patterns.