

## ABSTRACT

**THESIS:** The Dynamics of Larval Fish Demographics in Nearshore Southern Lake Michigan

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Nearshore larval fishes were collected with an oblique trawl tow during day and night from mid-May to August 2010 and 2011 in the Indiana waters of Lake Michigan to determine diel differences in the distribution, depth, and abundance of larval fishes. Alewife, spottail shiner, yellow perch and round goby were the prevailing larval species. Alewives dominated the catch and were in highest abundance near East Chicago. In general, night catch rates were greater when compared to day catch rates, suggesting a diurnal difference in trawl susceptibility. Stratified larval trawling was subsequently conducted during June and July 2011 to detect whether diurnal vertical migration existed, potentially affecting day and night catch rates. Vertical migration was not detected in the stratified larval sampling, eliminating it as a factor in higher nighttime catch rates. Further, the most common fish, alewife, was measured (TL) to determine whether size was a factor in trawl avoidance and to provide information regarding trawl selectivity. Night trawls yielded larger size classes of alewife, potentially explaining higher nighttime catch rates. These data suggests a size bias of our larval trawl exists when comparing day and night samples, as well as the limited efficiency of our trawl to catch larger larval size classes.