The Effect of Time, Benthic Substrate, and Location within the St. Louis River Estuary on the Invasion of Neogobius melanostomus (Round Gobies) throughout the Watershed, as well as the Use of Underwater Speakers Emitting the Conspecific Male Mating Call as a Possible Trapping and Removal Method, Phase IV

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Neogobius melanostomus (round goby) are an invasive species that entered the Great Lakes by ballast water transfer in the 1990's. A crayfish location trapping survey within the St. Louis River Estuary from 21 sites with four years of data (1999, 2013, 2014, and 2015) was conducted by NERR. This data also included substrate and preferred location of round goby in order to evaluate the expansion upstream throughout the watershed overtime. To expand on the last three years' successful laboratory study using the conspecific male mating call, a field study was performed in the estuary. In Barker's Island, 36 GPS locations were chosen to place three sets of four traps with different conditions (nothing, speaker, speaker with bait, bait with no speaker). These traps were set out, each on an August morning and retrieved 24 hours after being set. The number of gobies, location, treatment in the trap, gender, mass (grams), and length (milligrams) were then recorded. Round gobies appear to inhabit a wide variety of substrates as well as expanding up the estuary. Furthermore, including a speaker in a trap did not increase the number gobies caught. However, adding a speaker to a trap in the field study with bait significantly enhanced the number of gobies caught with an ANOVA p-value of $p<.03$.