Haplotype Variation in Banded Sunfish (Enneacanthus obesus) from the Peconic River, Long Island, New York

Murphy, Allison

The banded sunfish (Enneacanthus obesus) is a threatened species in New York State. In July, 2011 and 2012, E. obesus were collected by the PI (IACUC Protocol #371/ NYSEDC Threatened and Endangered Species Permit # 195) within the Peconic River at six ponds in the Town of Brookhaven. Frozen tissue samples were provided to me in July, 2013 to determine whether E. obesus collected from these ponds would show mtDNA variation on the COI gene and/or whether they were geographically and genetically isolated within ponds and if there was evidence for genetic flow between ponds. Oligos and thermocycler temperature settings were based on Quattro, et al, (2011). DNA were extracted using a Qiagen DNeasy blood and tissue kit. Samples underwent PCR and those that showed strong bands through gel electrophoresis were purified using a Qiagen PCR Purification kit. All high quality DNA samples were sent to a Certified Sequencing Laboratory. Trace files were checked using FinchTV to confirm that the forward and reverse pairs were valid. Mega 5.2 was used to generate a Clustal W analysis and ML bootstrapped (1000 replications) phylogenetic tree. There are at least seven genetically diverse groups of E. obesus currently residing in the Peconic River system. Three SNPs were observed at site 170 (C>T), site 220 (T>C), and site 497 (A>G) within the data set as a result of the Clustal W Alignment. The ML bootstrapped phylogenetic tree suggests that individual fish within the system are interbreeding, but it is not clear whether this is due to management activities or natural processes.

Awards Won: