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Woods Hole Oceanographic Institution

Biology Department Seminar

Thursday, October 11, 2012

Redfield Auditorium - 12:00 Noon

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"*An Investigation of the Nutritional Condition of Coral Reef Fish Larvae: Growth, Transport, and Implications for Population Connectivity*"

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The degree of connectivity that occurs among coral reef fish populations is determined not only by whether pelagic larvae are physically transported from one geographically discrete population to another, but also by whether they reach a settlement site in adequate nutritional condition to survive the juvenile phase and ultimately reproduce. Thus, in order to better understand the relative contributions of locally retained and distantly spawned larvae to local reef fish population replenishment, it is necessary to investigate the variation in larval condition with dispersal trajectory. In the work presented here, RNA/DNA ratios (R/Ds) and otolith-derived growth rates were used in concert to compare the condition levels of nearshore (likely locally retained) and offshore (broadly dispersing) reef fish larvae. For three of four species examined, nearshore larvae exhibited faster growth and higher R/Ds as compared to their offshore counterparts, likely due to greater selective predation on the lowest condition larvae in nearshore waters. To identify possible molecular correlates of larval survival and condition, single nucleotide polymorphisms (SNPs) were genotyped in nearshore and offshore-collected larvae of a common Caribbean reef fish, the bluehead wrasse. Results have revealed multiple loci that are likely under selection due to association with condition-related traits, and also provide information on population structure of the bluehead wrasse in the Caribbean.