Graduate School of Oceanography - OCG 695
March 31, 2008, 3:30 PM, Corless Auditorium
Seminar Abstract
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Trophic ecology of zooplankton in the eastern tropical Pacific oxygen minimum zone

Oxygen minimum zones (OMZ's) are persistent midwater features found in all the world's oceans. The eastern tropical Pacific OMZ is particularly strong with oxygen concentrations approaching 0 ml/L in the core. Previous studies have shown that zooplankton biomass is relatively high at the lower OMZ oxycline. This increased zooplankton biomass is likely supported, at least in part, by the rain of material falling through the OMZ. Depending on how this material is "repackaged" after ingestion, this zooplankton community could have a great influence on the amount of surface-derived material exported to the deep sea. The lower oxycline is also thought to support a community of chemoautotrophic microbes. Evidence suggests that these microbes may form aggregates which can then be directly consumed by zooplankton grazers, particularly by the copepod *Lucicutia hulsemannae*. To address questions regarding the diet of zooplankton at the lower OMZ oxycline, plankton samples were collected in MOCNESS tows aboard the *R.V. Seward Johnson* during October and November 2007. Samples were sorted and individuals representing at least 27 different taxa were removed and prepared for C and N stable isotope analysis. Preliminary data analysis focused on five copepod species: *Eucalanus inermis, Subucalanus subtenuis, Pleuromamma johnsonii, Heterostylites longicornis,* and *Lucicutia hulsemannae.* Results showed that $\delta^{13}C$ values, which indicate the initial source of carbon fixation (*i.e.* phytoplankton or chemoautotrophic microbes), for all five species were consistent with those typically seen for marine pelagic copepods. $\delta^{15}N$ values, which indicate trophic positioning, for *E. inermis* were indicative of a grazing or detritivorous feeding strategy and values for *P. johnsonii* and *S. subtenuis* seemed to suggest omnivory. $\delta^{15}N$ values for *L. hulsemannae* and *H. longicornis* were similar to previously observed values for carnivorous zooplankton. These data suggest that, for the five species examined, chemoautotrophic microbes are likely not an exclusive food source and that *L. hulsemannae*, a species initially believed to feed on these microbes, occupies a significantly higher trophic level than previously suspected.

Rebecca Williams received a B.S. from The University of North Carolina at Wilmington in 1999 and an M.S. from Florida Institute of Technology in 2005. She entered GSO as a Ph.D. candidate in the fall of 2006. Her major professor is Karen Wishner. Other core committee members are Edward Durbin and Brad Seibel.

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