

**THE INFLUENCE OF A HAWAIIAN SEAMOUNT ON A MESOPELAGIC
MICRONEKTON COMMUNITY**

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ABSTRACT

The distribution of mesopelagic micronekton (small fish, crustaceans and cephalopods) is not uniform throughout the oceans. Seamounts are a feature that can possibly influence the abundance, biomass, diversity and taxonomic composition of a community of mesopelagic micronekton by introducing a hard substrate and benthic predators into a realm normally devoid of these. Cross Seamount, located roughly 295 kilometers south of the island of Oahu, Hawaii, has a summit that is 330m below sea surface and has a diameter of approximately 8km. Using a large, modified Cobb trawl, samples were taken both directly over and away from the summit of Cross Seamount to sample the community of the deep scattering layer during the day and the shallow scattering layer during the night. Trawls were conducted during two cruises to Cross Seamount in the spring of 2005 and 2007. All organisms collected were identified to the lowest taxonomic level possible resulting in a description of the local mesopelagic micronekton community over and around Cross Seamount. Results from this study indicate that there is a significant decrease in total abundance of organisms and an absence of certain diel vertically migrating taxa directly over the summit as opposed to away. This may be due to increased predation by tunas and other pelagic and benthic predators or by active avoidance of the summit due to the shallow topography and to the presence of predators. The overall taxonomic composition of the community over the summit is dominated numerically by epipelagic juvenile fish and stomatopod larvae while away from the summit the community is dominated numerically by mesopelagic fish, mostly Myctophid fish with the epipelagic juvenile fish and stomatopod larvae contributing little to the overall taxonomic composition. The community over the summit also contains two

species that appear to be found in higher abundance over the summit as opposed to away and may be seamount associated species. These are a cranchiid squid, *Liocranchia reinhardti*, and a myctophid fish, *Benthoosema fibulatum*. The flanks of the seamount, at least at depth during the day, appear to have the largest abundance of fish and also potentially the highest species diversity of all areas sampled on and around Cross Seamount, however, this is based on a low sample size. Further sampling needs to be conducted over Cross Seamount and its flanks to fully determine the cause of the decrease in organisms over the summit as well as if the flanks of the seamount are a location of increased abundance. In addition, there is little to no information on the currents above and around Cross Seamount or the structure and characteristics of the phytoplankton and zooplankton communities above Cross Seamount. This seamount is known to impact the mesopelagic micronekton community and tuna community, but the mechanisms behind these impacts is largely unknown at this time.