

1630h

AN: OS36H-11

TI: Two Years of Observation: The Occurrence and Possible Ecological Role of Layered Structure in the New York Bight

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AB: We conducted a series of hydroacoustic and plankton surveys in the coastal ocean of the New York Bight Apex during the spring and summer of 2004 and 2005. These surveys were informed by real-time remote sensing data from an Integrated Ocean Observing System (IOOS) which made it possible to adapt the survey to changing ocean conditions. During the course of this work, the study area exhibited significant vertical structure characterized by multiple acoustic scattering layers. These acoustically definable layers and the interfaces between them were often associated with even subtle features observed in temperature, salinity, dissolved oxygen, and/or turbidity profiles. Net samples targeting specific layers yielded very high abundances of organisms that were often dominated by single groups which occurred in much higher densities than were observed in full oblique net tows of the water column at the same locations. Bottle samples taken in specific layers show significant spatial structure in the microplankton size classes. Given this evidence, we argue that this ecosystem is organized by dynamic fine-scale structure which results in cycles of habitat partitioning, homogenization, and repartitioning. This cyclical creation and destruction of small scale habitat intensifies and weakens ecological interactions in this region. The spatial extent of the features in some areas of the coastal ocean may make them rather more important to disparate ecological processes such as nutrient/contaminant transfer, trophic interactions, and larval fish feeding all of which are likely to be directly modulated by this dynamic. The region is layered, and this layering is very likely of significant ecological significance.

UR: <http://marine.rutgers.edu/~quinlan/LONYB>

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