

## TEMPORAL AND SPATIAL DISTRIBUTION OF BENTHIC FORAMINIFERS IN WESTERN LONG ISLAND SOUND

Vadim Acosta, Jennifer Rios, Cecilia McHugh, Andrea Balbas, Hari Pant  
Queens College C.U.N.Y.. 65-30 Kissena Blvd. Flushing, N.Y. 11367

Benthic foraminiferal assemblages were studied in western Long Island Sound from gravity cores recovered by the *R/V Hugh Sharp* in 2006. The goal was to understand their spatial and temporal distribution to assess the impact of anthropogenic activities such as pollutants and organic matter loadings on their ecosystem. Two cores were studied to the east and west of a study area extending from 73°33'W to 73°48'W. The easternmost Core HS06-2 (184 cm long) is composed of clayey silt, and was recovered from 30 m of water depth near the Norwalk, CT shoreline. To the west, Core HS06-12 (147 cm long) is composed of sandy mud and was recovered at 8 m of water depth under the Throggs Neck Bridge. An age obtained from a clam (*Mulinia lateralis*) from Core HS06-2, 67 cm is  $570 \pm 35$   $^{14}\text{C}$  yrs BP indicates sedimentation rates of 1.2 mm/year. A relative chronology to identify post-industrial sediments was developed from the magnetic susceptibility signal related to coal burning, from the Lead concentrations measured with an Innov-X ray fluorescence portable instrument, and from changes in the organic matter measured in the sediments.

The benthic foraminifera identified were: *Elphidium spp.*, *Buccella frigida*, and *Ammonia beccarii*. Previous studies have shown that these foraminiferal assemblages are typical of shallow water and can tolerate a wide range in salinity, temperature, and oxygen concentrations (Murray et al., 1991; Thomas et al., 2000). *Elphidium spp.* dominates the assemblages but is most abundant to the west where it is present within sandier intervals. This suggests that its abundance may be related to sediment transport. *B. frigida* has similar patterns as *E. excavatum*. In both cores (east and west) *A. beccarii* appears towards the top of the cores where the abundance *Elphidium spp.* and *B. frigida* decrease. These patterns correlate to an increase in percent of organic matter, Pb (ppm), and a greater magnetic susceptibility signal. In contrast to previous studies, the low diversity in the benthic foraminiferal assemblages is not related to anthropogenic activities but to normal estuarine conditions of western Long Island Sound. The temporal changes in benthic foraminiferal distribution are the result of environmental stresses.