BENTHIC MORPHOLOGY OF THE HUDSON RIVER AS REVEALED BY MULTIBEAM SONAR

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Multibeam sonar systems provide the means to accurately image the seabed, revealing details that would go unnoticed with conventional surveying techniques such as single beam echosounders. The Simrad EM3000 echosounder uses an array of 127 transducers to collect depth measurements as well as calibrated backscatter intensity data, thus providing the opportunity to remotely assess both bottom morphology and texture. Images produced by this system include backscatter intensity (similar to side scan sonar), color-coded depth, and 3-dimensional images. Together with sediment samples, these images provide information that can be used to identify sedimentary features,

As part of a joint project between the Marine Sciences Research Center and the Lamont-Doherty Earth Observatory, 35 miles of the Hudson River were surveyed in order to identify sedimentary features and benthic habitats. Features that were observed include shipwrecks, rock outcroppings, and anchor scour marks. We will focus on imagery from 2 study areas (20 miles of river) corresponding to sediment data presented by Thissen et al., (this meeting). The first area extends from Kingston to Saugerties, where imagery reveals extensive sandwaves with heights of less than 0.5 to 1 m, and wavelengths of 10-15 m. Some of the most spectacular sandwaves are located just south of Esopus Creek, a localized sediment source to the river. The second area, is between Hudson and New Baltimore, and is characterized by a dredged channel with steep walls on either side. Sandwaves with heights of approximately 0.5 m and wavelengths of 10-15 m are prominent features throughout the area. By combining the sonar imagery and surface sediment data we can better understand physical processes and the distribution of sediment in the Hudson River Estuary.