

ASSESSING HURRICANE SANDY IMPACTS ON BENTHIC HABITATS IN BARNEGAT BAY WITH NEW TOPOGRAPHIC-BATHYMETRIC LIDAR TECHNOLOGY

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Barneget Bay, a shallow estuary located along the New Jersey coast, was heavily impacted by Post-Tropical-Cyclone Sandy, experiencing two meters of storm surge, as well as barrier island breach and overwash. Current mapping efforts are focused on assessing the environmental impacts of the storm, including benthic habitat change. New topographic-bathymetric lidar systems, which use low-energy, narrow divergence, green (532 nm) laser beams and very high measurement rates (>100 kHz) offer great promise for habitat mapping in shallow, back-barrier lagoon systems. In this study, we investigate the use of topographic-bathymetric lidar data collected by NOAA's National Geodetic Survey for characterization of benthic habitats in the flood tidal delta complex west of Barneget Inlet. Features computed from lidar waveforms during acquisition are processed, gridded, and used as input to a classification routine. Preliminary results of comparisons against field-surveyed reference data indicate that four habitat types can be readily distinguished: sand, mixed sand and macroalgae, sparse eelgrass and dense eelgrass. Future work will include extending these methods to USGS pre- and post-Sandy lidar to quantify the impacts of the storm on eelgrass beds.