

BIOMONITORING OF SEAGRASS HABITAT IN NEW JERSEY'S COASTAL BAYS

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Submerged aquatic vegetation (SAV) is recognized as a critically important benthic habitat that receives special consideration in New Jersey. In 2004-2006, we conducted detailed sampling of SAV in the Barnegat Bay-Little Egg Harbor Estuary to determine: (1) the demographic characteristics and spatial habitat change of SAV (*Zostera marina* and *Ruppia maritima*) in the system over an annual growing period; (2) the species composition, relative abundance, and potential impacts of benthic macroalgae on the SAV beds; and (3) the potential impacts of brown tide (*Aureococcus anophagefferans*) on the SAV. Results of this comprehensive three-year investigation of the seagrass beds revealed significant temporal and spatial reduction in seagrass density (shoots m⁻²), biomass, blade length, and percent cover of bay bottom. Quadrat, core, and water quality sampling at multiple transect sites in four disjunct seagrass beds of the estuary during the June-November period in 2004, 2005, and 2006 yielded more than 1000 abiotic and biotic measurements each year for assessment of seagrass dynamics in the system. The occurrence of brown tide and benthic macroalgal blooms and their potential impacts on seagrass beds in the estuary were also investigated. Reduction of seagrass habitat is attributed to increasing eutrophic conditions in the coastal bays.

KEYWORDS

Biomonitoring, submerged aquatic vegetation, seagrass, algal blooms, coastal bays.