

DEVELOPMENT OF BENTHIC INDICATORS FOR NEARSHORE COASTAL WATERS OF NEW JERSEY - A REMAP PROJECT

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ABSTRACT

EPA's National Coastal Assessment (NCA) is providing the first complete, consistent dataset on the condition of benthic communities in the nation's estuaries. Prior to NCA, New Jersey based its evaluation of the ecological condition of its coastal waters solely on dissolved oxygen (DO) measurements because sufficient biological data did not exist. As a result of the availability of NCA benthic data and a benthic index developed through a REMAP (Regional Environmental Monitoring and Assessment Program) project, New Jersey included an ecological assessment of benthic communities in one of its estuaries, Raritan Bay, in its 2006 Integrated Assessment. The NJ Department of Environmental Protection (NJDEP) plans to expand this type of ecological assessment to its remaining estuarine waters. NJDEP would also like to extend ecosystem-based assessment to the state's ocean waters (shore to 3 miles). New Jersey currently lists the majority of these waters as being impaired based on a DO criterion of 5mg/L. The purpose of this current REMAP project is to investigate if this hypoxia adversely affects the benthic communities and to produce an assessment of benthic condition along the NJ coast. NJDEP, Rutgers University, and USEPA collected samples along the Jersey coast during the summer of 2007. An expert workshop was held in November, 2006 to develop a design for this work and to begin the process of developing a benthic index for the nearshore environment. Based on the findings of this workshop, the field study utilized a probabilistic survey design and modified NCA sampling methods. Development of the survey design took into account the complex nature of the Jersey coast, an area with multiple upwelling zones and a number of offshore dischargers. Sampling methodology was designed to allow a comparison of these data with those collected in the estuaries by NCA as well as earlier studies in the coastal ocean. This survey is expected to result in a biological assessment of New Jersey's coastal waters and an evaluation of the effects of seasonal hypoxia on benthic communities.

KEYWORDS

National Coastal Assessment, Biological Assessment, Benthos, New Jersey Coastal, Probabilistic Assessment