Location, Location, Location: Management uses of marine benthic biogeographical information in coastal waters of the Northeastern USA

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Ecosystem-based management practices, along with coastal and marine spatial planning, have been adopted as foundational principles for ocean management in the United States. The success of these practices depends in large measure on a solid foundation of biogeographical information at spatial scales ranging from regional oceans to individual estuaries and bays. Marine biogeographical studies have become more sophisticated with the advent of satellite imagery, large-scale monitoring programs, ocean observation systems, benthic habitat mapping, landscape ecology, geographic information systems, integrated databases, ecoinformatics, and ecological modeling. Biogeographical data support ecosystem-based management, make coastal and marine spatial planning ecologically meaningful, and form the basis for marine biodiversity conservation. Examples from the Canadian border to Delaware Bay illustrate how biogeographical information can be used in management of nearshore waters. Seven biogeographical sub-regions—five based on latitude and two on salinity—provide a regional context for management actions based on individual estuaries or bays. Biogeographical data can help manage water bodies such as Long Island Sound that split political jurisdictions. Indentifying similar low salinity areas in the southern Gulf of Maine may help conserve biodiversity. The focus is on benthic communities, which are sensitive to many stresses from human activities and widely used in monitoring programs.