Proceedings of Coastal Zone 09
Boston, Massachusetts
July 19 to 23, 2009

DEFINING AND MEETING MANAGEMENT CHALLENGES AT THE STELLWAGEN BANK NATIONAL MARINE SANCTUARY

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Keywords: management plan, biodiversity conservation, research applications

The *Gerry E. Studds* Stellwagen Bank National Marine Sanctuary stretches between Cape Ann and Cape Cod at the mouth of Massachusetts Bay in the southwestern corner of the Gulf of Maine. Virtually the size of the state of Rhode Island and located wholly within federal waters, sanctuary boundaries include the submerged lands of Stellwagen Bank, all of Tillies Bank and Basin, and the southern portions of Jeffrey's Ledge. The sanctuary protects 842-square miles of open-ocean, overlaying a diverse seafloor topography and array of benthic and pelagic habitats that support biological communities broadly representative of the Gulf of Maine. It is New England's only national marine sanctuary.

This panel will characterize key sanctuary resources and present critical issues identified during the sanctuary's management plan development process, which has defined priority management needs. This process was based on an immense public collaboration resulting in nearly 28,500 comments on the draft management plan. The issues selected for presentation are associated with endangered whales species, historic shipwrecks and marine debris. The following presentations will demonstrate how research is being applied to inform policy and support implementation of management actions.

To mitigate whale entanglement and collisions with ships, sanctuary scientists and their collaborators track whale movements and behavior using synchronous motion, acoustic recording tags placed on whales. These data provide detailed information on water column use, including where and when anthropogenic interactions might occur. To understand the potential for anthropogenic noise to mask biologically important whale sounds, the sanctuary and collaborators established an array of passive acoustic recording units (ARUs) to records sounds below 1000 Hz, the frequency range used by baleen whales for communication and within which shipping noise is produced. As an aid to both of these projects, the sanctuary has pioneered use of the USCG's Automatic Identification System for tracking the movement and speed of ships.

Sitting astride the historic shipping routes and fishing grounds for some of the United States' oldest ports, the sanctuary holds a large collection of shipwrecks representing our shared maritime heritage. Since 2002 sanctuary archaeologists have located and documented eighteen shipwrecks. This research is mandated by the Federal Archaeology Program and sanctuary regulations. Highlights of the sanctuary's maritime heritage program include listing the steamship *Portland* on the National Register of Historic Places and live interactive video broadcasts from sanctuary shipwrecks to viewers on shore and over the World Wide Web.

As a subset of marine debris, derelict fishing gear is problematic because until it is removed from the sanctuary it has the potential to continue to fish, catching target and non-target species, and damage habitat. It can pose a hazard to fishermen who have to disentangle it from active fishing

gear. However, retrieving derelict gear can create both legal and disposal issues. This panel will also discuss the sanctuary's Sea Debris Initiative, a partnership with commercial fishermen to rid the sanctuary of derelict fishing gear.