

Stellwagen Bank National Marine Sanctuary

Socioeconomics and the Human Dimension

Management Issue

Human activities clearly influence the quantity and quality of Stellwagen Bank National Marine Sanctuary (Sanctuary) resources, including water quality, habitat, living resources, and maritime archaeological resources. The National Marine Sanctuaries Act has as a purpose and policy to facilitate uses that are compatible with the primary objective of resource protection, but is silent on how compatibility should be determined. Determining compatibility is a data-intensive activity; consequently more data on the spatial distribution and intensity of human activities and how those activities change through time are necessary to assess the level of these impacts and whether they are compatible with resource protection.

Description

The Sanctuary and surrounding communities are inherently linked. Many human activities influence the condition of Sanctuary resources, with some activities having a positive impact, and others having a negative impact. Because it is not feasible to manage natural or ecological processes, management of human uses is vital to the protection of Sanctuary resources. As such, good data regarding human uses and activities is critical to understanding anthropogenic effects to the Sanctuary as well as benefits gained from the utilization of marine and coastal resources. In addition, data are needed to gauge the effectiveness of management activities, and investigate the costs and benefits of Sanctuary regulations being considered. To better understand the relationship between human activities, the condition of Sanctuary resources, and the effectiveness of Sanctuary regulations, we need additional data on the level, intensity, and location of various human activities that occur in and adjacent to the sanctuary.

Questions and Information Needs

- 1) What is the geographic distribution of human activities that influence the condition of sanctuary resources? Are there hot spots?
- 2) What are the past, current, and projected future levels of these human activities? What are the projected impacts on Sanctuary resources?
- 3) How have Sanctuary regulations impacted human activities in and around the Sanctuary?
- 4) How do we determine the overall impact of multiple human activities (some with negative and some with positive influence) on Sanctuary resources?
- 5) What is the socioeconomic and demographic background of the affected area?
- 6) What businesses are affected by the Sanctuary and how?
- 7) How is human well-being affected by changes in the ecological status and trends in the Sanctuary?
- 8) What are the knowledge, attitudes & perceptions of sanctuary management strategies and regulations by each user group?

Scientific Approach and Actions

- Analyze existing demographic and socioeconomic data to describe the communities that are affected by Sanctuary activities and regulations
- Identify gaps in available data and methods to collect these data
- Understand and predict the level of human activity through space and time through programs such as the System-Wide Monitoring (SWiM) Program, which is designed to track natural and anthropogenic impacts on the Sanctuary at specific spatial and temporal scales through collaborative monitoring efforts
- Conduct online surveys regarding coastal and marine resource usage in order to gather data such as the economic impact and social significance of various human activities, and connect those activities to ecological and biological attributes of the marine environment
- Work with the Northeast Fisheries Science Center on commercial and recreational fisheries to get estimates of catch, effort and economic impacts of the fisheries on local and regional economies.

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For More Information -- <http://www.sanctuaries.noaa.gov/science/assessment>

- Develop a framework for Sanctuary compatibility determination (see Compatibility Determination Action Plan).

Key Partners and Information Sources

Northeast Fisheries Science Center, Northeast Regional Planning Body, Woods Hole Oceanographic Institution, Boston University, Clark University, Gulf of Maine Research Institute

Sanctuary Resources Available

- Research vessel
- Seabird capture and biological sampling equipment
- Data from other ongoing research projects (e.g., sand lance distribution and abundance monitoring) that can be combined with shearwater data to create a more complete understanding
- GIS analysis

Resource Needs

- Financial support

Management Support Products

- Publications that outline recommendations to Sanctuary managers regarding how they can help support local economic growth and improve resource protection at the same time
- Reports such as SWiM Program reports outlining findings, which inform Sanctuary managers of current conditions and trends, guiding them in decision making
- Surveys that collect data regarding marine resource usage via the internet or other sources
- A website with graphs and maps of human use activity trends

Planned Use of Products and Actions

- The use of this information will be integral in developing management tools and strategies, in addition to assessing the applicability and effectiveness of current approaches
- Methods have been developed (e.g., La Franchi and Pendelton 2009 and Gornik et. al. 2013) to use data from surveys to predict how people will be affected as the biological and ecological attributes of the marine environment change

Program References

SBNMS Management Plan

- Compatibility Determination Action Plan
- Ecosystem-based Sanctuary Management Action Plan
- Marine Mammal Behavioral Disturbance Action Plan
- Public Outreach and Education Action Plan

SBNMS Condition Report

- What are the levels of human activities that may influence water quality and how are they changing? (Question 4)
- What are the levels of human activities that may influence habitat quality and how are they changing? (Question 8)
- What are the levels of human activities that may influence living resource quality and how are they changing? (Question 14)
- What are the levels of human activities that may influence maritime archaeological resource quality and how are they changing? (Question 17)
- What is the status of the food supply ecosystem service and how is it changing?
- What is the status of the recreation-tourism (e.g. recreational fishing, whale watching, other wildlife observation and maritime heritage) ecosystem service and how is it changing?

ONMS Performance Measures

- Number of sites in which water quality, based on long-term monitoring data, is being maintained or improved
- Number of sites in which habitat, based on long-term monitoring data, is being maintained or improved

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- Number of sites in which select living marine resources (LMRs), based on long-term monitoring data, are being maintained or improved

SBNMS Condition Report

- What is the status of biodiversity and how is it changing?
- What is the condition or health of key species and how is it changing?

ONMS Performance Measures

- Expand observing systems and monitoring efforts within and near national marine sanctuaries to fill important gaps in the knowledge and understanding of ocean and Great Lakes ecosystems
- Investigate and enhance the understanding of ecosystem processes through continued scientific research, monitoring, and characterization to support ecosystem-based management in sanctuaries and throughout U.S. waters.

References

Gornik, K. T. Lin, G. McDonald, N. Ng, C. Quigley, and D. Viana. 2013. The Non-market Value of Private Recreational Boating in the Channel Islands National Marine Sanctuary: A 2012-2103 Group Project. Bren School of Environmental Science & Management, University of California Santa Barbara, Santa Barbara CA, April 2013, 48pp.

LaFranchi, C. & L. Pendleton (2009). The California Coast Online Survey: Southern California Module. Retrieved from:

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