

# Stellwagen Bank National Marine Sanctuary

## Water Quality

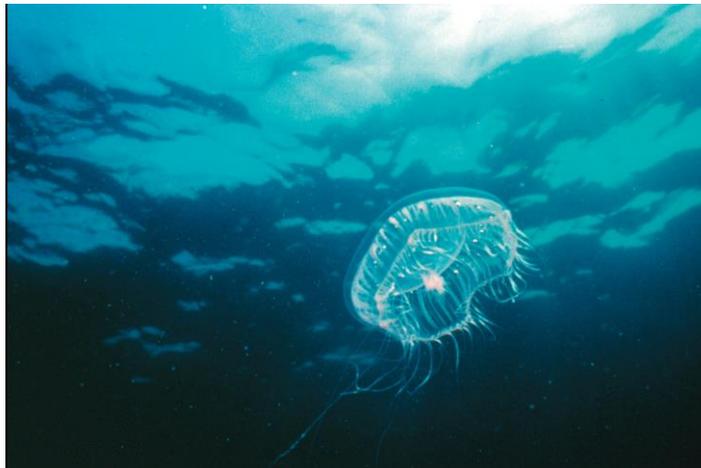
### Management Issue

Water quality is a key aspect of a national marine sanctuary. The Stellwagen Bank National Marine Sanctuary (SBNMS or Sanctuary) is an “urban” sanctuary in that it is adjacent to large population centers and used extensively for a variety of human activities, many of which have the potential to release pollutants into the environment.

### Description

The water column in the Sanctuary represents important habitat for numerous planktonic and nektonic organisms as well as many fishes, turtles, seabirds and marine mammals.

The Sanctuary is adjacent to large population centers and subject to pollutants released from them and by activities supporting them. These include discharges from a major sewage outfall serving Boston, MA (~300 M gal/day), commercial and cruise ships (1,000s of transits/year), whale watching, recreational, and commercial fishing vessels. In addition, outflow and pollutant burden from the Merrimack River enters the Sanctuary and two liquid natural gas ports are slated for construction adjacent to the sanctuary. Understanding the impacts of these activities on Sanctuary resources requires extensive, constant, long-term monitoring of water quality.



*A jellyfish migrates through the Stellwagen National Marine Sanctuary. Photo Credit: SBNMS*

### Questions and Information Needs

- 1) What is the Sanctuary’s water quality and how does water quality change over time?
- 2) Does the Boston sewage outfall impact water quality in the Sanctuary?
- 3) Does discharge from the Boston Sewage Outfall impact commercial fish resources?
- 4) Does discharge from vessels using the Sanctuary impact water quality?
- 5) Does discharge from the Merrimack River impact water quality in the Sanctuary?
- 6) How can these data be used to inform policy decisions on water quality issues?

### Scientific Approach and Actions

- Maintain or expand a system of monitoring stations in the Sanctuary
- Combine water quality data with those collected by the Massachusetts Water Resource Authority (MWRA)
- Assess the status and trends of water quality indices
- Assess the status and trends of chemical contamination in sediments and resident biota

### Key Partners and Information Sources

Batelle Ocean Sciences, National Undersea Research Center at the University of Connecticut, NCCOS, Woods Hole Oceanographic Institution.

### Sanctuary Resources Available

- Research vessel
- 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

*Updated: 11/06/14*

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

## Resource Needs

- Financial support

## Management Support Products

- Reports on water quality in and around the Sanctuary
- Identification of potential mitigation actions and the associated socioeconomic impacts

## Planned Use of Products and Actions

- Identification of potential impacts to water quality
- Inform stakeholder communities of findings
- Work with appropriate partners to develop mitigation policies

## Program References

### SBNMS Management Plan

(1.1) Develop and Implement a Water Quality Monitoring Plan.

(1.2) Characterize the contaminant loading to the sanctuary from sources.

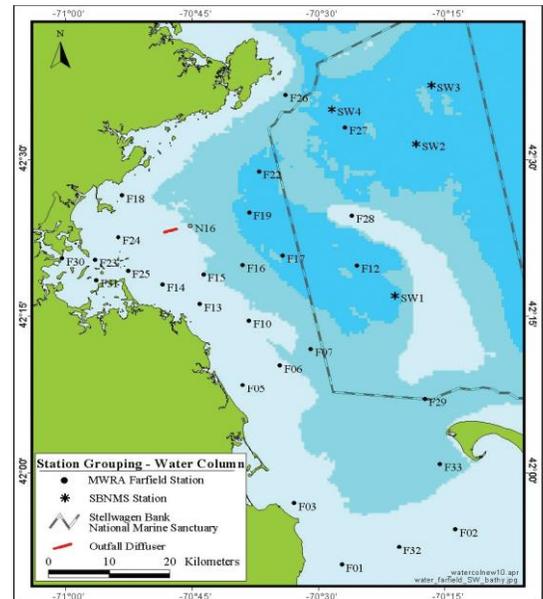
(1.3) Encourage research and monitoring of endocrine disruptors and their effects on sanctuary resources.

### SBNMS Condition Report

- Are specific or multiple stressors, including changing oceanographic and atmospheric conditions, affecting water quality?
- What is the eutrophic condition of sanctuary waters and how is it changing?
- Do sanctuary waters pose risks to human health?
- What are the levels of human activities that may influence water quality and how are they 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.



*Location of water quality monitoring station in Massachusetts Bay and the Sanctuary  
Map Credit: SBNMS*