

Stellwagen Bank National Marine Sanctuary

Designated in 1992 under the Marine Mammal Sanctuaries Act, Stellwagen Bank National Marine Sanctuary (SBNMS) is one of 14 sites in the USA National Marine Sanctuary System. The sanctuary encompasses 638 nm² (2180 k²) of open ocean across the mouth of the Gulf of Maine, with a mission to protect the natural environment while maintaining a balance with the commercial and recreational uses of the area. Some 17 species of marine mammals have been seen in SBNMS at one time or another, but there are several species that are regular visitors including humpback whale, fin whale, minke whale, northern right whale, Atlantic white-sided dolphin, harbor porpoise, pilot whale, and harbor seal.

The Gulf of Maine/SBNMS humpback whales are the most studied population of baleen whales in the world with a data set going back 35+ years. The North Atlantic Humpback Whale Catalog, which represents the five North Atlantic feeding stocks as well as the West Indies breeding population, contains more than 9,000 fluke photographs. The catalog, maintained by Allied Whale at the College of the Atlantic in Bar Harbor, Maine, allows scientists and naturalists to identify and monitor individual animals, and gather valuable information about population sizes, migration, health, sexual maturity and behavior patterns.



SBNMS map, border outlined in red.

Stellwagen Bank itself was formed when retreating ice age glaciers left an underwater plateau that is shallower than the surrounding deep seas. As a result deep, cold water "bumps up" against the bank and rises toward the surface, initiating a process called upwelling, which starts a rich food chain supporting large numbers of fish, seabirds, and large whales.

The North Atlantic Humpback Whale Sister Sanctuary Program (NAHW-SSP)

The NAHW-SSP was initiated in 2006 by Stellwagen Bank National Marine Sanctuary (SBNMS) to facilitate the effective management of a *shared* population of about 1,000 endangered humpback whales (*Megaptera novaeangliae*) across jurisdictional boundaries throughout its migratory range, from feeding and nursery grounds in the Gulf of Maine to breeding and calving areas in the Caribbean.

In collaboration with marine mammal sanctuaries in the Dominican Republic, Bermuda, the French Antilles and the Caribbean Netherlands, NAHW-SSP is a pioneering program of the United Nations Environment Programme's Specially Protected Areas and Wildlife's Marine Mammal Action Plan for the Wider Caribbean Region (UNEP/SPAW-MMAP). This marine mammal protected areas network (MaMPAN) is the first such international partnership in the world protecting one of the ocean's most iconic species throughout its North Atlantic migratory range.

The multi-sanctuary, science-based program has increased the area of protection for North Atlantic humpback whales from 638 nm² (2180 km²) in SBNMS to 194,936 nm² (699,429 km²) total area of sanctuaries combined over the past ten years, making it one of the largest networks of coordinated marine conservation areas in the world. As additional sites join, this chain of sister sanctuaries will help to ensure a safer future for the North Atlantic's endangered humpback whales.

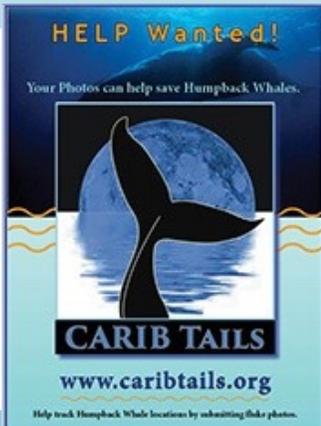
Sanctuary Research and Benefits

Stellwagen Bank National Marine Sanctuary (SBNMS) supports research and outreach activities focused on environmental and resource protection, and has relationships with many other academic and non-governmental research organizations located in the area. Activities include:

Whale Watching: SBNMS has been identified by the World Wildlife Fund as one of the top ten whale watching spots in the world, and has recently been voted the #1 Best Place to See Aquatic Life in USA Today's latest reader's choice contest. Dozens of whale watching companies operate in the region and attract more than a million tourists a year to the sanctuary area. Whale watching has become a significant aspect of the tourism economy, providing critical economic support to local communities. Most whale watching companies offer trained naturalists on board who provide commentary during the trips, collect data and fluke photographs for ongoing cetacean research programs, and serve an important role as professional observers of the local whale population.



Whale watching is an important local industry.

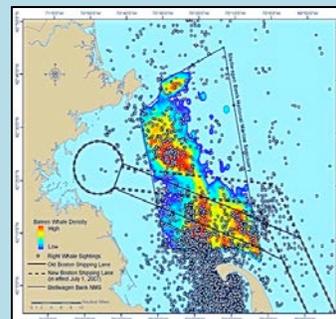


CARIB Tails: In 2014 SBNMS established an ongoing internet-based project to enlist recreational sailors and cruisers as citizen scientists to take a special role in research by photographing the distinct patterns on the tails of humpback whales and helping to track the movements of humpback whales between their Gulf of Maine/SBNMS feeding grounds and their breeding grounds in the Caribbean. Contributions of tail fluke photographs, especially from the Eastern Caribbean region, are critical for understanding migratory routes and specific breeding areas, and for advancing conservation efforts. The project is an international research collaboration between Stellwagen Bank National Marine Sanctuary (SBNMS) and its Sister Sanctuary Program partners, together with UNEP's Caribbean Environment Programme. For more information: www.caribtails.org

Humpback Underwater Behavior: Research data on the underwater behavior of humpback whales is collected by temporary non-invasive digital recording tags used with data visualization software, or video recordings from similar "critter-cams". An important use of this information is to understand the relationship between feeding behavior and entanglement in fishing gear in order to help develop safer fishing equipment and methods.



Placing a digital recording tag on a humpback whale. The D-tag records depth and body orientation (pitch, roll, heading).



Map shows the realignment of the shipping lanes into the Port of Boston to reduce the risk of ship strikes to baleen whales in SBNMS.

Shipping Lanes Change: Based on 25 years of recorded whale sightings correlated with current ship traffic data, in 2006 the International Maritime Organization approved a proposal to narrow and move the Boston area shipping lanes that cross SBNMS to and from the Port of Boston. The Traffic Separation System (shipping lanes) were moved 12 degrees to the north, which greatly reduced the risk of vessels striking whales—by up to 81% for all whales (humpback, fin, minke, northern right) and by up to 58% for the critically endangered right whale—while minimally impacting shipping interests.

All images: SBNMS