



Citizen Science in National Marine Sanctuaries

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Citizen Science

Volunteers partner with scientists to answer real-world questions. These volunteers can work with scientists to identify research questions, collect and analyze data, interpret results, make new discoveries, develop technologies and applications, as well as solve complex problems.

National Marine Sanctuary System



Scale varies in this perspective. Adapted from National Geographic Maps.

Citizen Science in Sanctuaries

- ~40 programs
- 2016
 - 8,636 volunteers
 - 80,153 hours
 - \$1.9 million of time



Citizen Science in Sanctuaries

NATIONAL MARINE SANCTUARIES

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CITIZEN SCIENCE

Citizen science is a term that describes projects in which volunteers partner with scientists to answer real-world questions. These volunteers can work with scientists to identify research questions, collect and analyze data, interpret results, make new discoveries, develop technologies and applications, as well as solve complex problems.

In 2016, 8,636 of our volunteers supported national marine sanctuary citizen science efforts helping to answer real-world scientific questions with a total of 80,153 hours, which is equivalent to \$1.9 million dollars of time.



BEACH WATCH

This monthly ecosystem assessment program is conducted by dedicated volunteers who regularly survey an assigned beach within the Greater Farallones and Monterey Bay national marine sanctuaries. Volunteers collect data on live and dead species of birds and marine mammals, as well as human activities.



STELLWAGEN SEABIRD STEWARDS PROGRAM

Expert birders in these extended learning can help collect data on migratory seabirds in the Northeast. The citizen science data collected is used to compare the relative abundance of seabirds over time to help understand populations within this special ocean area, their possible impacts on local ecosystems and a way to detect changes in the environment.



CHANNEL ISLANDS NATURALIST CORPS

A group of specially trained volunteers dedicated to educating passengers on board whale watch vessels visiting Channel Islands National Marine Sanctuary and National Park. Volunteers are also trained to lead island hikes within the national park, participate in numerous local outreach events and to conduct citizen science, including the collection of valuable research on marine mammals.



MONTEREY BAY SANCTUARY CITIZEN SCIENCE WATERSHED MONITORING NETWORK

The Monterey Bay Sanctuary Citizen Watershed Monitoring Network is a consortium of citizen monitoring groups that monitor the health of the eleven watersheds flowing into Monterey Bay National Marine Sanctuary off California. Water quality monitoring programs include, Snapshot Day, First Flush and Urban Watch.



LIMPETS

LIMPETS is an environmental monitoring and education program for students, educators and volunteer groups throughout California. Teachers, students and community groups along the coast of California are collecting rocky intertidal and sandy beach data in the name of science and help to protect our local marine ecosystems.

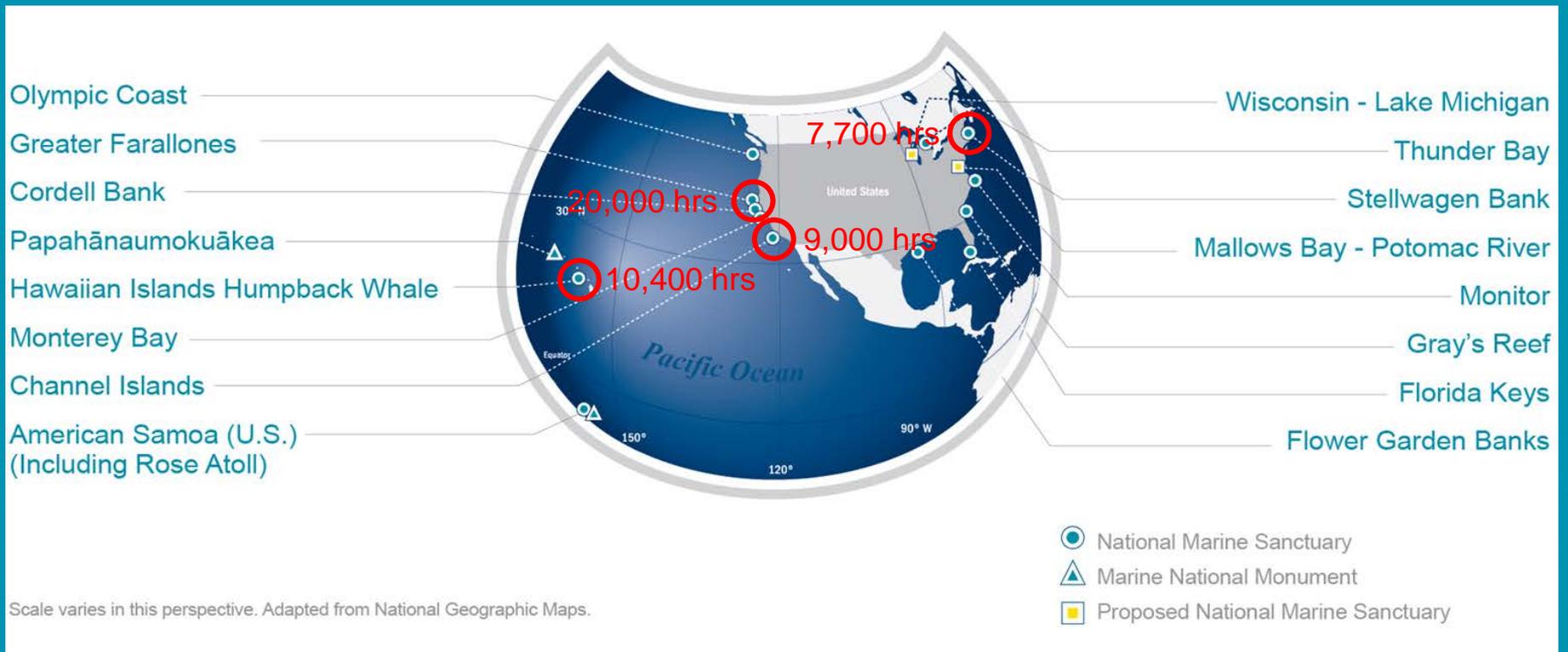


BEACH COMBERS

The Coastal Ocean Mammal and Bird Education and Research Surveys (Beach COMBERS) is a beach survey program using trained volunteers to survey beached marine mammals and birds monthly at selected sections of beaches throughout the Monterey Bay area in California.

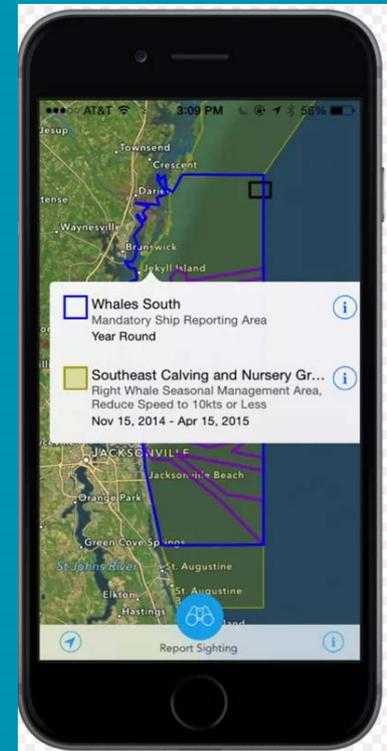
sanctuaries.noaa.gov/involved/citizen-science.html

Citizen Science in Top 4 Sanctuaries



Sanctuary Features

- Beach Watch
- Stellwagen Sanctuary Seabird Stewards
- Whale Alert



Beach Watch

- One of the original NOAA cit sci projects
- Long-term shoreline monitoring program
 - 1,300 annual surveys
 - 150 mi. of coastline in GF & MB



<http://farallones.noaa.gov/science/beachwatch.html>

Beach Watch: Applications

- Bird and Mammal Mortality Events/Sentinel Indicators
- Waste Management Practices
- Oil spill events
- Model Program



Stellwagen Sanctuary Seabird Stewards

- Experienced birders identify and document the type and number of seabirds and their behaviors
 - 7th year
 - ~50 species
 - Shipboard surveys



Stellwagen Seabird Stewards: Applications

- Establishes baseline to assess ecosystem changes
- USGS/USFWS Avian Compendium database
- Great shearwater/sand lance research
- Bycatch studies
- Graduate student use



Whale Alert

- 4 Sanctuaries
- Smart phone app that allows mariners and public to:
 - See whale “safety zones”
 - Report live, dead or distressed whale sightings



<http://www.whalealert.org>

Whale Alert: Management Applications

- Increased survivability of distressed whales
- Data used to create DMA for right whales
- Data used to create aggregation maps



Continuing/Upcoming Activities

- Agency Coordination
- LiMPETS
- Volunteer of the Year
- Best Practices Manual

The screenshot displays the 'Federal Crowdsourcing and Citizen Science Catalog' on the CitizenScience.gov website. The page features a navigation menu on the left with various federal agencies listed, including the National Oceanic and Atmospheric Administration (NOAA), which is circled in red. The main content area shows a list of projects, including 'Battle of the Atlantic Shipwreck Study', 'Beach Watch', 'CARIB Tails', and 'Coastal observation And Seabird Survey Team (COASST)'. A map of North America is shown on the right, with orange circular markers indicating the locations of various projects across the continent.

<http://www.noaa.gov/office-education/citizen-science-crowdsourcing>

<https://ccsinventory.wilsoncenter.org>



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