

Marine Sanctuaries: An Introduction

Key Concepts

1. The Marine Sanctuary Act was passed to protect unique areas in the oceans and Great Lakes.
2. Latitude and longitude can be used to locate each National Marine Sanctuary (NMS).
3. There are areas within the ocean and Great Lakes, and along the coast that are worth preserving as Marine Sanctuaries.
4. Marine Sanctuaries need public support and involvement.



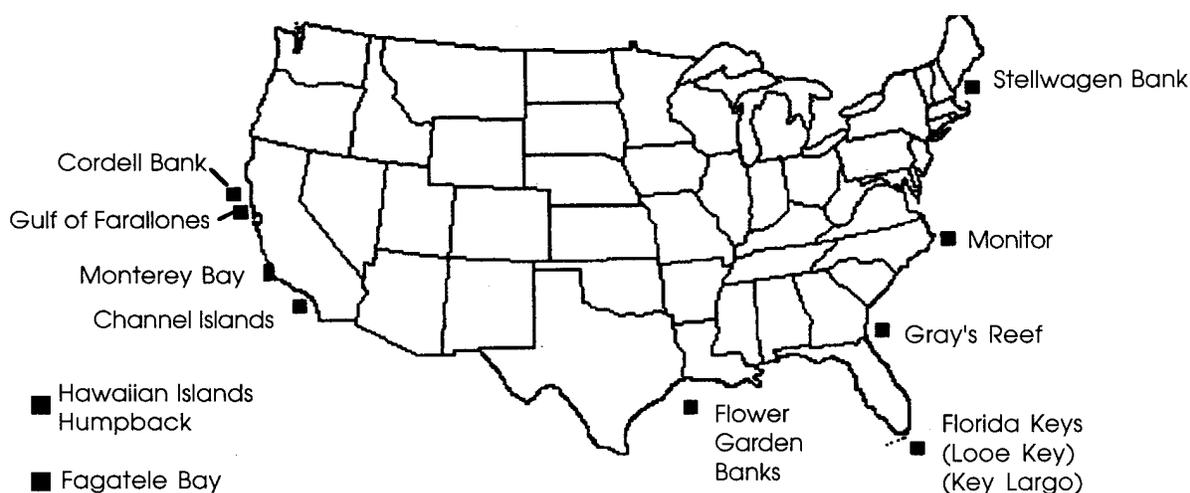
Background

In 1972, Congress passed the Marine Sanctuaries Act to promote the long-term protection and management of the nation's outstanding marine areas. This law authorizes the Secretary of Commerce to designate marine sanctuaries in coastal and ocean waters, submerged lands, and the Great Lakes and their connecting waters. New sanctuaries are selected based on the need to preserve or restore conservational, recreational, historical, cultural, ecological, and/or aesthetic valued areas. In cases where state territorial waters are involved, the Secretary must consult with state officials. A sanctuary may include state waters if the governor of the state certifies that the designation or specific area is acceptable. The program is administered by the National Oceanic and Atmospheric Administration (NOAA).

The highest priority of all National Marine sanctuaries is the long term protection of the resources. Sanctuaries provide a unique mechanism for managing areas as complete ecosystems rather than just regulating targeted activities or protecting only certain resources. Aside from protecting ecosystems, historical and cultural resources, such as shipwrecks, are also protected. Each sanctuary has its own regulations to control activities and protect the resources within its boundaries. Sanctuary managers use an integrated approach of enhanced resource protection, scientific research, and public education efforts to protect the resources. The only activity that NOAA universally prohibits in marine sanctuaries is the drilling for oil and gas. Most sanctuaries provide for other uses as long as they are balanced with measures to maintain the health and integrity of the ecosystem.

The Sanctuaries Program works cooperatively and in coordination with existing government agencies, other authorities, and interest groups to develop a management plan tailored to the individual needs and characteristics of each site. Citizens can also play an important role in determining the size of a sanctuary and the kind of protection given. In order for marine sanctuaries to be successful, citizens need to be supportive and involved.

Presently there are 12 National Marine Sanctuaries covering over 14,000 square miles. They are the Channel Islands, Cordell Bank, Fagatele Bay, Flower Garden Banks, Florida Keys (Key Largo, Looe Key), Gray's Reef, Gulf of Farallones, Hawaiian Islands Humpback Whale, Monitor, Monterey Bay, Olympic Coast and Stellwagen Bank.



These areas represent a variety of habitats. For example, the Gulf of Farallones, Channel Islands, Cordell Bank, Gray's Reef, and Monitor are located in or contain open water. The Channel Islands, Monterey Bay, and the Gulf of Farallones sanctuaries contain islands or are connected to the mainland. On the other hand, Florida Keys (Key Largo, Looe Key), Fagatele Bay, and Flower Garden Banks sanctuaries contain nearshore ecosystems located in the tropical zone with outstanding coral reefs and sea grass beds.

On the Atlantic coast, Gray's Reef Sanctuary is a limestone, live bottom reef. The Monitor Sanctuary protects the wreckage of the famous ironclad warship used in the civil war. Stellwagen Bank protects an important feeding area for large and small whales

On the Pacific coast, Cordell Bank is a submerged island ecosystem known as a seamount and Monterey has a large underwater canyon. Hawaiian Islands Humpback Whale protects an ecosystem that is an important wintering area for humpback whales.

Bibliography:

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Materials

For each student:

- “Marine Sanctuaries: An Introduction” reading guide
- United States Map

Teaching Hints

“Marine Sanctuaries: An Introduction”, “Sanctuary Rummy” and “Which Will Be Next?” are separate activities designed to actively involve students in learning about the importance of marine sanctuaries and how areas become National Marine Sanctuaries (NMS).

The first activity “Marine Sanctuaries: An Introduction” is an article with a reading guide that introduces the idea of marine sanctuaries and helps students identify where they are located.

The second activity, “Sanctuary Rummy”, is a card game in which students learn to identify the following characteristics of 12 marine sanctuaries: location, size, description, species present, and at least one additional fact about each sanctuary. The game is based on luck, but students become familiar with the names and characteristics.

“Which Will Be the Next Sanctuary?” involves the students in the decision-making process of selecting new sanctuaries from a list of proposed sites. The students chose one of the proposed sites, evaluate the site characteristics, regulations, and management; and then decide whether the proposed site will be designated as a Marine Sanctuary.

In the following activity, “Marine Sanctuaries: An Introduction”, students use coordinates (latitude and longitude) to locate the position of each National Marine Sanctuary on a United States map. Graphing coordinates is like graphing points using x and y coordinates. While most eighth grade students should be familiar with latitude and longitude, as well as graphing points using x and y coordinates, it may be necessary to review this information with the students.

Key Words

carnivorous - feeding on animals

cephalopods - means 'head-footed'; a group of molluscan invertebrates which includes squid and octopus

echinoderms - means 'spiny-skinned'; a group of invertebrates which include starfish & sea urchins

gastropods - a group of invertebrates which includes snails and slugs

herbivorous - feeding on plants

invertebrates - organisms without backbones

seamount - an underwater volcano which has not reached the water's surface

sessile - animals that are permanently attached to a substrate; not free-moving

Extensions

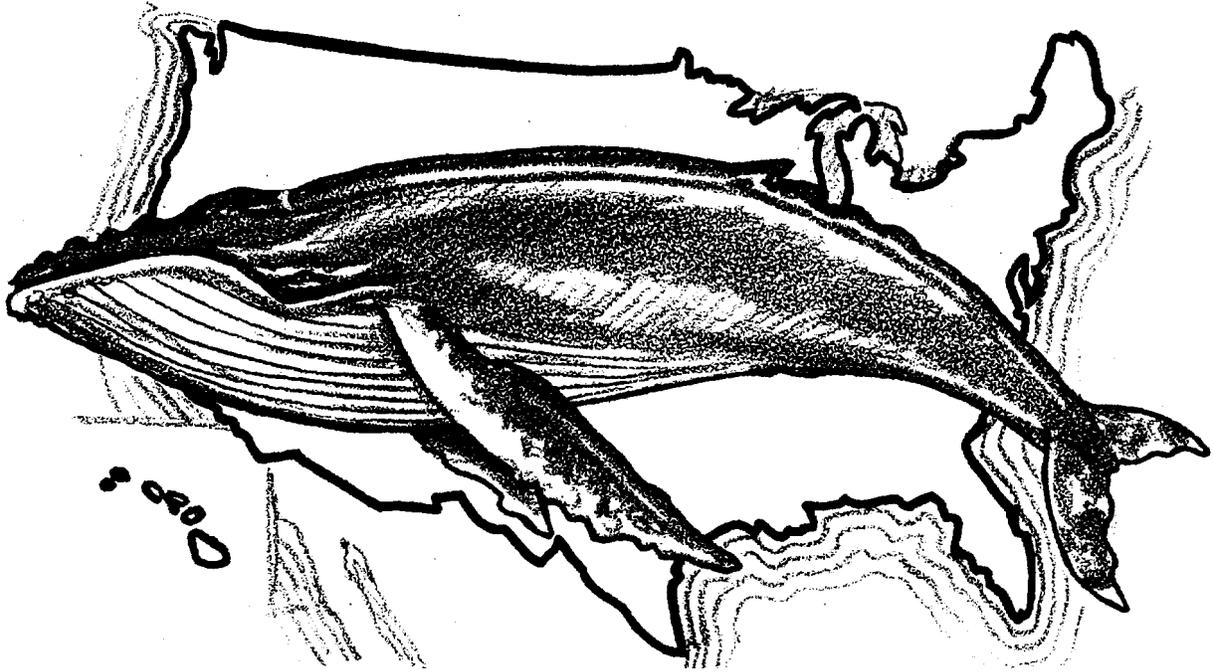
1. Have students write to the NMS which interests them most, to obtain additional information about the sanctuary. Then have them report additional information about the sanctuary to the class.
2. Have the students chose one of the organisms from a marine sanctuary and learn more about it. Then, have the students either write a report on the organism, listing the references they use, or give a presentation to the class on the organism they studied.

Answer Key

1. Answers will vary. People wanted to protect marine areas because they saw the dangers of pollution, over utilization, and population as threatening these sensitive areas.

2. Each sanctuary encompasses different habitats with different management problems.
3. Answers will vary. It's quite possible that students will not have heard of any of the marine sanctuaries.
4. Answers will vary but, at this point, many students will not know which marine sanctuary is closest to their home.
5. To see a sunken civil war ship, visit the Monitor Sanctuary.
6. Two sanctuaries created especially to protect whales are: Hawaiian Islands Humpback Whale, and Stellwagen Banks.
7. A completed map is shown above as figure 1.
8. Six marine sanctuaries are located in the Atlantic Ocean and six are located in the Pacific Ocean. The thirteenth is in the Gulf of Mexico.
- 9., 10. Answers will vary depending upon where you live.
11. Answers will vary.
12. Answers will vary but should include a variety of ways for individuals to get involved including: the planning process, legislative action, supporting organizations working for sanctuaries, and writing elected officials.

Marine Sanctuaries: An Introduction



For a long time, Americans have wanted to protect and wisely manage the nation's outstanding marine areas. In 1972, Congress passed the Marine Sanctuary Act to protect unique areas in the oceans and Great Lakes. Under this law, the Secretary of Commerce can create marine sanctuaries. A sanctuary is a reserved area in which animals and plants are protected. Sanctuary selection is based on the need to "preserve" an area. What's being preserved? Different sanctuaries preserve different things. Some focus on the wildlife. Others focus on historical objects or recreational values.

1. What might be some of the reasons people wanted to protect marine areas?

Sanctuaries can be managed as complete ecosystems. All the animals, plants, and human uses are considered. Historical and cultural resources, such as shipwrecks, are protected. Each sanctuary has its own regulations to control activities and protect its resources. Most sanctuaries balance protection and use. All sanctuaries work to preserve the health and integrity of the ecosystem.

2. Why might it be important for each sanctuary to have its own regulations?

In order for marine sanctuaries to be successful, citizens need to be supportive and involved. Citizens play an important role in determining the size of a sanctuary and the kind of protection given.

Presently there are twelve National Marine Sanctuaries covering over 14,000 square miles. They are the Channel Islands, Cordell Bank, Fagatele Bay, Flower Garden Banks, Florida Keys (Key Largo, Looe Key), Gray's Reef, Gulf of Farallones, Hawaiian Islands Humpback Whale, Monitor, Monterey Bay, Olympic Coast, and Stellwagen Bank.

3. Which of these sanctuaries have you heard of before?

4. Which one of these sanctuaries is nearest your home? (Don't know? Come back and answer this question later.)

These areas represent a variety of habitats. Five of the sanctuaries are in open water: Gulf of Farallones, Channel Islands, Cordell Bank, Gray's Reef, and Monitor.

Two sanctuaries contain islands or are connected to the mainland: Channel Islands and the Gulf of Farallones.

Five sanctuaries have outstanding tropical, coral reefs: Key Largo, Looe Key, Florida Keys, Fagatele Bay, and Flower Garden Banks.

On the Atlantic coast, Gray's Reef Sanctuary is a limestone, live bottom reef. The Monitor Sanctuary protects the wreckage of the famous ironclad warship used in the civil war. Stellwagen Bank protects an important feeding area for large and small whales.

On the Pacific coast, Cordell Bank is a submerged island ecosystem known as a seamount. Monterey has a large underwater canyon. Hawaiian Islands Humpback Whale protects an important wintering area for humpback whales.

5. Which sanctuary could you visit to see a sunken civil war ship?
6. Which two sanctuaries especially protect whale habitats?
7. Latitude and longitude can be used to locate each National Marine Sanctuary (NMS). Below, the coordinates (latitude and longitude) are given for each NMS. Use the map on the back side of this paper to locate each sanctuary. Here's how to locate a sanctuary:
 - a. Find the intersection of the two coordinates. (The intersection is the place where the latitude and longitude lines cross.)
 - b. Place a dot on the map at the intersection. The dot represents the sanctuary. Label the dot with the name of the sanctuary it represents.

Use the coordinates to locate and label each sanctuary.

<u>NMS</u>	<u>Latitude</u>	<u>Longitude</u>
Channel Islands	34°N	120°W
Cordell Bank	38°N	123°W
Fagatele Bay	14°S	170°30'W
Florida Keys	25°N	81°W
Flower Garden Banks	28°N	94°W
Gray's Reef	31°31'N	81°W
Gulf of Farallones	37°N	122°W
Hawaiian Islands Humpback	21°N	157°W
Key Largo	25°N	80°10'W
Looe Key	25°10'N	80°30'W
Monitor	35°N	75°W
Monterey Bay	36°N	122°W
Olympic Coast	47°N	124°W
Stellwagen Bank	42°N	71°W

8. How many of the NMS's are located in the Pacific Ocean? _____
Atlantic?_ _____
9. Which NMS is nearest your home?
10. Looking at the map, what are the approximate coordinates of the town where you live?

Latitude:_____ Longitude:_____
11. Which, if any, of the National Marine Sanctuaries have you visited?
12. Marine Sanctuaries need public support and involvement. How might you become involved?

