

PLANNING YOUR RESEARCH

February 8, 2017 | 10th Grade IQ

Objectives

Review the current guidelines of the Marine Mammal Protection Act and the Endangered Species Act with regards to marine mammals

Provide background for a hypothetical permit application for research on a marine mammal

Goal

Students will review the Marine Mammal Protection Act and the Endangered Species Act and research a marine mammal.

BACKGROUND

In waters under the control of the United States, a scientist cannot just go out in a boat or jump in the water to study whales and other marine mammals up close. Marine mammals (including whales, dolphins, seals, sea lions, sea otters, polar bears and manatees) are protected by laws and regulations. Scientists must apply for special research permits to justify their research and research methods before conducting their studies on marine mammals.

There are three important federal laws designed to conserve marine mammals: The Marine Mammal Protection Act, The Endangered Species Act, and The Magnuson-Stevens Fishery Conservation and Management Act.

The Marine Mammal Protection Act, first enacted in 1972, has been amended and re-authorized, most recently in 1994. The National Marine Fisheries Service is charged with protecting whales, dolphins, porpoises, seals and sea lions. The Marine Mammal Protection Act states, as outlined in the 1996 Marine Mammal Commission's Report to Congress that "the primary objective of marine mammal management should be to maintain the health and stability of the marine ecosystem. Secondly, whenever consistent with this objective, it should be the goal to obtain an optimum sustainable population of each stock, keeping in mind the carrying capacity of the habitat."

The primary goal of the Endangered Species Act is to restore the species listed as endangered or threatened to a point where they no longer need protection. Walruses, manatees, otters and polar bears are protected by the U.S. Fish & Wildlife Service.



The National Oceanic and Atmospheric Administration is an American scientific agency within the United States Department of Commerce focused on the conditions of the oceans and the atmosphere.

The Magnuson-Stevens Act was established to provide guidelines for managing U.S. fishery resources and for the problems that arise when marine mammals and fishermen are competing for the same fish and shellfish. The act was most recently reauthorized in 2006, and includes annual catch limits and measures to end overfishing.

Humans are responsible for the disruption of marine mammals in several ways, including fishing, hunting, boating, and research. Consider the following examples of compromised marine mammal species.

FLORIDA MANATEE

Many Florida manatees die every year. One third of manatee deaths are related to humans and to habitat destruction, including collisions with boats and entrapment in water systems (i.e., flood gates and navigational locks).

In response to these problems, different state and national agencies are working together to impose speedboat rules, to develop pressure-sensitive gate-reversing mechanisms to prevent manatee entrapment, and to develop new methods for returning recovered manatees to the wild.



The Florida manatee, Florida's state marine mammal, is a large aquatic relative of the elephant.



While most seals make their homes in colder climate, the Hawaiian monk seals prefer the warm, sandy beaches of the Northwestern Hawaiian Islands.

HAWAIIAN MONK SEAL

Hawaiian monk seals are among the world's most endangered species. They are extremely sensitive to human disturbance and occur almost exclusively on or around the small, remote islets of the Northwestern Hawaiian Islands. Some of the threats to the Hawaiian monk seal include entanglement in fishing nets and lines, disease, marine debris, shark predation, and limited food availability.

NORTHERN RIGHT WHALE

The rarest, and one of the most endangered, of all large whale species is the Northern Right Whale. There are about 400 surviving individuals, found seasonally in three locations off the U.S. Atlantic coast and two areas off Canada. The biggest causes of injury and death of Northern Right Whales are due to human causes—collisions with ships and entanglement in fishing gear.



The National Marine Fisheries Service has taken steps to reduce the threat of collision and entanglement by altering shipping lanes, conducting aircraft surveys of right whales, sending alerts about known right whale locations, and implementing vessel speed restrictions.

MARINE MAMMALS TO RESEARCH

This is just a partial list of some of the marine mammals found in U.S. waters that are federally listed as Endangered or Threatened in at least some of their range. For additional species suggestions, see the Resources section.

- | | |
|----------------------|------------------------------|
| » Beluga Whale | » North Atlantic Right Whale |
| » Blue Whale | » North Pacific Right Whale |
| » Bowhead Whale | » Ringed Seal |
| » Finback Whale | » Sea Otters |
| » Florida manatee | » Sei Whale |
| » Gray Whale | » Sperm Whale |
| » Hawaiian Monk Seal | » Spotted Seal |
| » Humpback Whale | » Stellar Sea Lion |
| » Orca | |

YOUR CHALLENGE

1. You will be taking on the role of a scientist interested in doing research on an endangered marine mammal. Each group should will choose one of the species from the list to study, and think about what your group would like to research about that species.
2. Each group will prepare an application for a permit to conduct research. In real life, research applications would be reviewed by the NOAA's National Marine Fisheries Service (part of the Department of Commerce) and the U.S. Fish & Wildlife Service, then by the Marine Mammal Commission and its scientific advisors. It would lastly be published in the Federal Register and be open for public comment.
3. Each group will need to submit the following information that would be required by federal regulations:
 - a. Your qualifications as a scientist (i.e. schooling, work experience, previous research completed/published, etc.). For this section be creative. Imagine where such a marine researcher might have gone to college and graduate school.
 - b. The species of marine mammals that may be bothered, or harassed, in the course of the research. This should be based on research of the species and other species it is found in association with.
 - c. The geographic location(s) where the research would be conducted (globally). Students should research the habitat and range of the species. This should take into account where the species at different times of the year.
 - d. The period(s) of time during which the research will be conducted. This should take into account where the species is and what it is doing at different times of the year (migration).
 - e. The purpose of the research, including an explanation of why the research is believed to be bona fide, important and helpful. The legal definition of bona fide scientific research is research that is:
 - (1) likely to be accepted for publication in a scientific journal,
 - (2) likely to contribute to the basic knowledge of marine mammal biology or ecology, or
 - (3) likely to identify, evaluate or resolve conservation problems.
4. The methods to be used for conducting you research. Use some you have read about or invent some new ones.

Resources

- Marine Mammals, NOAA Fisheries: <http://www.nmfs.noaa.gov/pr/species/mammals/>
- Marine Mammal Protection Act, NOAA Fisheries: <http://www.nmfs.noaa.gov/pr/laws/mmpa/>
- Endangered Species, U.S. Fish & Wildlife Service: <http://www.fws.gov/endangered/>
- NOAA Fisheries, Office of Sustainable Fisheries: <http://www.nmfs.noaa.gov/sfa/>
- NOAA Fisheries, Magnuson-Stevens Fishery Conservation and Management Act: <http://www.nmfs.noaa.gov/msa2007/>
- Marine Mammals and Turtle Science, NOAA Office of Science and Technology: <http://www.st.nmfs.noaa.gov/marine-mammals-turtles/index>
- Marine Mammal Commission: <http://www.mmc.gov/>
- Marine Mammals Management, U.S. Fish & Wildlife Service: <http://www.fws.gov/alaska/fisheries/mmm/>
- NatureServe Explorer: <http://www.natureserve.org/explorer/>
- NOAA Fisheries Image Gallery: <http://www.nmfs.noaa.gov/gallery/images/>
- NOAA Fisheries Video Gallery: <http://www.nmfs.noaa.gov/gallery/videos/>
- NOAA Photo Library on flickr: <http://www.flickr.com/photos/oaaphotolib>
- Manatee Cam, Crystal River National Wildlife Refuge, U.S. Fish & Wildlife Service: <http://www.fws.gov/crystalriver/manateecam.html>

PRESENTATION REQUIREMENTS

The following items must be present on your slide show. You can have as many slides as you need to answer the bullets below. Be sure to include images and requested items.

Your Marine Mammal: _____

Slide Content Must Contain:

- » Include a project title
- » Your qualifications as a scientist
 - schooling
 - work experience
 - previous research completed/published
- » The species of marine mammals that may be bothered, or harassed, in the course of the research
 - Show images
 - Other species it is found in association with (Show images)
- » The geographic location(s)
 - The habitat and range of the species
 - Where the species are at different times of the year
 - Show images
- » The period(s) of time during which the research will be conducted
 - Where the species are at different times of the year (migration)
 - Show images
- » The purpose of the research
 - Explanation of why the research is believed to be bona fide, important and helpful
 - Does the research meet the following:
 - likely to be accepted for publication in a scientific journal,
 - likely to contribute to the basic knowledge of marine mammal biology or ecology,
 - likely to identify, evaluate or resolve conservation problems.
- » The methods to be used for conducting your research
- » Works Cited
 - Include the websites you used with the links

Name: _____

Marine Mammal: _____

Application for Permit

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|--|--------------------|------------------|------------------|--------|-----------------|-------------|----------------|
| <i>If you give yourself a 5 for any reason, you must justify your answer below.</i> | Exceeds Standard 5 | Meets Standard 4 | Below Standard 3 | Poor 2 | Not Attempted 1 | Your Points | Teacher Points |
| Content <ul style="list-style-type: none">- Relevant information on required topics- Required questions were answered- Information is organized- Included works cited page | | | | | | _____ | _____ |
| Work quality/effort <ul style="list-style-type: none">- Time and Effort- Reflects best work | | | | | | _____ | _____ |
| Visuals/Graphics <ul style="list-style-type: none">- Visual elements of the presentation- Visuals add to the learning- Includes an element of creativity and individualism | | | | | | _____ | _____ |
| Time Used Effectively <ul style="list-style-type: none">- Proper use of lab time- Appropriate behavior during lab time | | | | | | _____ | _____ |
| Presentation <ul style="list-style-type: none">- Clearly presented- Display a reasonable understanding of information researched | | | | | | _____ | _____ |
| Grade | | | | | | _____ | _____ |

Comments: