

California Coastal Protection Interest Project

California's coastline contains many distinct habitats, ranging from lush redwood forests to wide, sandy beaches, and is home to tens of thousands of species. These animals and plants depend on the ocean - and so do people! No matter where you live, the ocean affects you and you affect the ocean.

This Interest Project will introduce you to many of the environmental concerns currently facing California's coastal ecosystems and to what you can do to help ensure that we have a healthy ocean for the future.

SKILLBUILDERS

*The starred skillbuilder activity is required.

*1. Although commonly considered separate, the oceans on Earth are actually one big ocean covering 70% of the planet's surface. The ocean makes Earth habitable. It is valuable to understand the ocean's influence on you and your influence on the ocean. Learn about at least five ways in which the ocean influences life on Earth, such as affecting weather and climate, producing oxygen or its role in the food chain. Discuss what you learn with your troop, group or others.

2. The California Marine Life Protection Act of 1999 specifies the creation of a network of marine protected areas along the California coast. The purpose of the designation of these areas is to protect marine life and habitats, ecosystems, and natural heritage as well as to improve the recreational and educational opportunities provided by these ecosystems. There are three types of marine protected areas: a state marine conservation area, a state marine park and a state marine reserve. Learn about the differences between these three designations, as well as which areas along the California coast have been designated as each. How and why were these designations made?

California Department of Fish and Game:

<http://www.dfg.ca.gov/mlpa/maps.asp>

3. No matter where you live, you live in a watershed. A watershed is an area of land where all the water that falls on it drains to a common waterway such as a stream, lake, aquifer, wetland or ocean. In California, streams and rivers flow from steep mountains through canyons and valleys, through forest, chaparral, scrubland, grassland and marsh, to the ocean. Learn about your own watershed. What area does it consist of? Where does it flow to? What environmental issues are related to your watershed and the area of the ocean to which it ultimately drains? What actions can you take to help protect your watershed?

US-EPA: Wetlands, oceans, and watersheds:

<http://www.epa.gov/owow/>

4. Wetland is the collective term for marshes, swamps, bogs, and similar areas. More than 90% of southern California's original wetlands have been lost to development, making the remaining wetlands critical for migratory birds, wildlife and fish. Learn about the following:

What is the importance of wetlands to the California coastline?

What are the environmental concerns related to wetlands?

What is being done to protect the wetlands and what can you do to help?

US-EPA:Wetlands, oceans, and watersheds

<http://www.epa.gov/owow/>

5. Giant kelp is a type of brown algae that grows up to 150 feet high. The giant kelp beds off the coast of southern California are home to approximately 800 species of marine organisms which depend upon the kelp forests at some point in their lives. The kelp beds in southern California have been reduced by over 80% over the past 100 years. With other Girl Scouts, friends or family, view a kelp bed by snorkeling, glass bottom boat, semi-submersible or video. Learn about the environmental concerns related to kelp forests and what is being done to protect and restore them.

Santa Monica Baykeeper:

http://smbaykeeper.org/downloads/KELP_VIDEO.mov

Catalina Tours:

<http://www.catalinatours.net/>

6. Numerous types of fish and other seafood have become overfished, or are caught by methods that are damaging to the ecosystem in which they are caught. Aquaculture, or fishfarming, has emerged as a supplemental source of seafood, but often raises environmental concerns of its own. Sustainable seafood is seafood, either fished or farmed, that is able to maintain or increase production into the long-term future without jeopardizing the affected ecosystems. Learn about the environmental concerns related to coastal and ocean fishery. Learn about how seafood earns a "sustainable" designation, then use a Sustainable Seafood resource list to select and enjoy a meal or snack incorporating sustainable seafood.

Monterey Bay Aquarium: Seafood Watch Program
www.seafoodwatch.org

Marine Stewardship Council
<http://eng.msc.org/>

Blue Ocean Institute - FishPhone
www.blueocean.org/fishphone/

Monterey Bay Aquarium - training video
http://www.mbayaq.org/media/FLASH/sfw/training_cd/sfw_training_video.asp?low=true

7. Numerous species that live along the California coastline have been designated as endangered or threatened. Select at least five of these species and learn what factor(s) have led to their endangerment and what can be done to support them. Share what you learn with your troop, group or family.

US Fish & Wildlife Service - Threatened & Endangered Species System
http://ecos.fws.gov/tess_public/pub/stateListing.jsp?state=CA&status=listed

TECHNOLOGY

1. Monitor ocean conditions at your favorite beach for several weeks. Make a chart or display showing any changes, along with possible reasons for those changes (e.g.: storms, etc.). Learn what technology is used to measure and track water quality and other ocean conditions. Share this information with others.

Heal the Bay

<http://www.healthebay.org/brc/statemap.asp>

National Data Buoy Center

<http://www.ndbc.noaa.gov/rmd.shtml>

2. Explore the use of kelp in food and everyday products. Pick five items and learn how and why the product utilizes kelp. Share what you learn with your troop or group.

3. Scientists and researchers have increasingly sophisticated methods available to study the coastal environment and its inhabitants. Learn about several ways in which technology is used to learn more about a threatened or endangered species, or is used to assist in its protection.

4. Learn about various types of equipment and technology used to study coastal / ocean environmental concerns. You may want to consider:

computer or satellite research and/or tracking systems

equipment used on ocean research vessels

laboratory research equipment

SCUBA or other diving equipment

What does the technology consist of? How is it used in the study of the coast / ocean environment? How can this technology be used to promote solutions to coastal / ocean related environmental concerns?

5. Aquaculture has emerged as one solution to the challenges of wild-caught fishing, however, fish farming has raised concerns of its own. Learn about the technology used in aquaculture, as well as the environmental and social impacts of aquaculture. Visit an aquaculture facility in person or on the internet to determine how environmental impacts are addressed.

6. The ports of Los Angeles and Long Beach are two of the largest container ports in the nation, and combined, are the fifth largest in the world. While shipping provides us with the huge supply of goods that we need, it also raises environmental concerns such as poor air quality and the transportation of invasive species. Select one of the following activities:

-Both the Los Angeles and Long Beach ports are making significant efforts to reduce emissions and particulate matter from ships and trucks. Learn about the air quality concerns related to shipping and the steps these ports are taking towards becoming green ports. With your troop or family, discuss ways in which you can reduce the need for items transported by ships and trucks, such as purchasing locally produced food and goods.
or

-In San Francisco Bay, more than 95 percent of the aquatic species are invasive. Learn about the role shipping plays in the transportation of invasive species and the environmental concerns generated by invasive species.

SERVICE PROJECTS

1. Organize your troop or group to participate in the "Adopt-A-Beach" Beach Cleanup Program. Visit the Heal the Bay or California Coastal Commission website for information and sign-up to be part of the solution to ocean pollution.

Heal the Bay:

<http://www.healthebay.org/volunteer/aab/default.asp>

2. Volunteer with an organization that works to promote coastal protection to educate others about coastal environmental issues such as pollution or sustainability.

3. Participate in a kelp reforestation project.

4. Plan and present a "coastline ecology" day for a group of younger Girl Scouts. Plan games and activities to help them learn about the issues related to coastal protection and how they can help.

5. If you SCUBA dive, participate in a fish count or underwater clean-up.

6. Volunteer at an aquarium, museum or interpretive center focused on the marine environment.

CAREER EXPLORATION

1. Interview someone with a career related to protecting the coast / ocean. What does it take to be an educator, a lawyer, an engineer, a lobbyist, or a scientist devoted to marine environmental issues? What do these careers entail?
2. Find out about careers related to coastal protection. Arrange to shadow a person in one of these careers for a day. Careers to consider: Marine Biologist, Oceanographer, Marine Ecologist, Boat Captain, Department of Fish and Game Warden, Harbor Patrol Officer, Marine Veterinarian or Marine Educator.
3. Invite speakers - representing various fields involved in coastal protection - to discuss with your troop or group career options available in this field. Encourage the audience to ask questions. What advice can they offer to young people interested in these careers?
4. Investigate ways to become further involved in coastal protection. Create a list of at least five places to visit or activities to participate in, in your community or on the Internet. Visit or participate in at least one.
5. Many types of agencies, from government agencies to nonprofit organizations are involved in coastal protection activities. Contact one agency that interests you to learn what they are doing to protect the coastline. Find out if there are ways you can become involved.

ADDITIONAL RESOURCES

Aquarium of the Pacific:

<http://www.aquariumofpacific.org/>

Monterey Bay Aquarium:

<http://www.mbayaq.org/>

ThankYouOcean.org:

<http://www.thankyouocean.org/>

California Coastal Commission:

<http://www.coastal.ca.gov/>

Coastal Conservancy:

<http://www.coastalconservancy.ca.gov/About/about.htm>

NOAA'S National Ocean Service:

<http://oceanservice.noaa.gov/>