



LEARNING LABS

MISSION MARINE HABITAT

Students work in teams charged with designating a marine protected area. Each group must consider the individual needs of multiple marine species. Given scientific tools, students use critical thinking to gather and present data supporting their decisions.

GRADE LEVEL: 9-12 | **CAPACITY:** 30 students | **DURATION:** 90 minutes

KEY CONCEPTS

Predator/prey relationships, population dynamics, biological needs, ecosystems, human impact, conservation

SKILLS

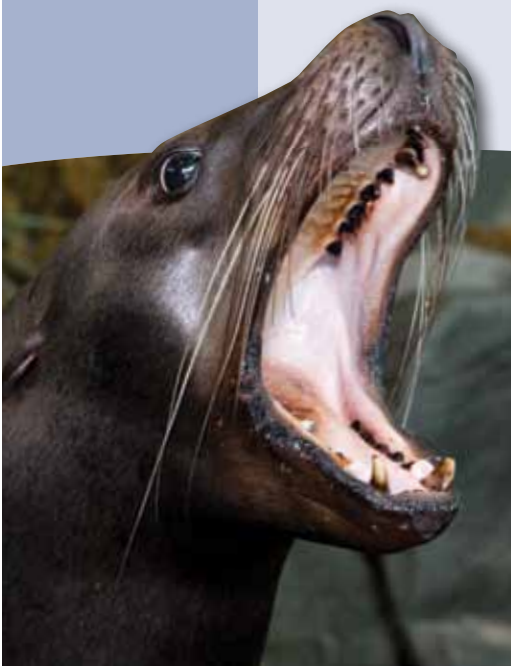
Problem solving, data synthesis and analysis, presentation, collaboration and communication, inquiry

IL STATE LEARNING STANDARDS

- 11.A.4a, 11.A.4c, 11.A.4f, 11.A.5a, 11.A.5e
- 12.B.4a, 12.B.4b, 12.B.5a, 12.B.5b
- 13.B.4b, 13.B.5d, 13.B.5e

WHAT TO EXPECT FROM THE LEARNING EXPERIENCE

- Students work in groups to solve a larger ecological problem
- Students use scientific tools to investigate a problem
- Teacher and chaperones may participate
- Students use technology such as SMART Boards and multimedia resources
- Students present their findings to each other



For more information contact
studentprograms@sheddakquarium.org



FURTHER EXPLORATION

Shedd Educational Adventures *Focus on an Animal*

<http://sea.sheddakquarium.org/sea/>

IUCN Red List of Threatened Species

<http://www.iucnredlist.org>

National Marine Protected Areas Center

<http://www.map.gov/resources/education>

Tagging of Pacific Predators

<http://www.topp.org>

NOAA Phytoplankton Monitoring Network

<http://www.chlor.noaa.gov/pmn>

Encyclopedia of Life

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



CONNECTIONS TO THE EXHIBITS

An aquarium functions much like a marine protected area (MPA), providing an environment in which to conserve and manage animal populations. Shedd Aquarium is home to many of the animals that are discussed in the lab. Below are suggestions to continue learning outside of the lab.

Local Waters Gallery

Observe the invasive Asian carp and the native lake sturgeon, both located at the far end of this gallery. What does the carp habitat look like compared to the sturgeon habitat? What would happen if carp were introduced into the sturgeon exhibit? What impacts can invasive species have on a native ecosystem? The Great Lakes have a few protected areas. What rules and regulations would you advise to keep these areas free of invasive species?

Wild Reef

The people of Apo Island learned how to manage their reef's resources without damaging the environment. What evidence do you see in the exhibit of the people coexisting with the reef? Why do people have an interest in protecting reefs? While viewing the different exhibits, have students discuss the benefits of protecting each habitat. Even top predators, like sharks, are not immune to human impacts. What would happen to the reef community if sharks were not protected?

Abbott Oceanarium

The Abbott Oceanarium represents the Pacific Northwest and its natural habitats. What similarities exist among the habitats represented? How could you use those connections to plan a marine protected area that would benefit all the species on exhibit? Are the needs of a sea otter different from those of a sea lion? How do human impacts on the environment necessitate the need for MPAs? For instance, why were the sea otters and sea lions brought to Shedd?

CONNECTIONS TO THE CLASSROOM

- After the field trip, expand on the concepts learned in the program by assigning students roles as stakeholders representing fisheries, tourism, national, state and local government, environmentalists, and the local people. Have students discuss and debate how their roles influence the creation of a MPA.
- To follow up with students after the trip, have them visit the IUCN Red List website. Have students choose a region of the world that interests them and research a threatened or endangered animal in order to design a protected area. Remind students to consider habitat quality, population dynamics, food sources, and human impacts.



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