



## Ocean Guardian Diver

### Lesson Specifications

#### Age

8 - 12

#### Timeframe

2-4 hours

#### Materials

##### Lesson:

- Computer (and projector with screen if available)
- Internet connection

##### Scuba:

- All required scuba gear
- PVC pipe
- Hula hoops (2-4)
- Weights
- String
- Green tarp (shredded – see instructions)
- Fishing bobbers
- Wildlife photos
- Maze instructions

#### Key Words

National Marine Sanctuary,  
Ocean Guardian, Smart  
Diver

#### Standards

Ocean Literacy Principles  
1, 5, 6, 7



A diver explores a coral reef. Photo: Greg McFall/ NOAA

### Activity Summary

This lesson introduces students to the National Marine Sanctuary System. Students will learn about the mission of the Office of National Marine Sanctuaries and will understand role of marine protected areas in supporting a healthy ocean.

### Learning Objectives

Upon completion of this lesson, students will be able to:

- Explain what a national marine sanctuary is in their own words.
- Identify at least three ways that humans and the ocean are interconnected.
- Identify at least two smart diving practices.

### Essential Questions

1. What is a national marine sanctuary?
2. Why is it important to protect the ocean?
3. How can humans help keep the ocean healthy?

## National Marine Sanctuary Diver Performance Requirements

At the surface, students will:

- Streamline gear prior to entry.
- Demonstrate awareness of the environment during entry and descent

Underwater, students will demonstrate:

- Proper buoyancy in at least two positions and a variety of diving environments.
- Proper marine wildlife viewing techniques.
- Good buddy team contact and communication throughout the dive.



A map of the National Marine Sanctuary system in the U.S. and its territories.

## Background Information

When you look at our planet what do you see? Earth is *blue*. Our one big ocean covers 71% of the planet. The ocean is our life support. It regulates our weather and climate, provides most of our oxygen, and feeds many people around the world.

Human activities are changing the Earth's climate. Pollution, overuse, and climate change are threatening the health of the ocean but through awareness and community action we can work to protect it. The ocean and humans are inextricably interconnected. The choices you make today do make a difference.

The Office of National Marine Sanctuaries, part of the National Oceanic and Atmospheric Administration (NOAA), manages a national system of marine protected areas spanning more than

600,000 square miles of ocean and Great Lakes waters from the Hawaiian Islands to the Florida Keys, and from Lake Huron to American Samoa. Within these protected waters, majestic whales feed and migrate, coral reefs flourish, shipwrecks reveal secrets of our maritime history and everyone can explore and enjoy the wonders of the sea.

National marine sanctuaries were established for their national ecological, cultural and/or recreational significance. The mission of the NOAA's Office of National Marine Sanctuaries is to protect and enhance these natural and cultural treasures for future generations through scientific research, management and education. National marine sanctuaries, our nation's underwater parks, are places to be enjoyed and they promote conservation while facilitating compatible commercial and recreational activities.

We all have the power to protect the ocean from the threats that are facing our environment. There are many ways you can become an ocean guardian. Making real change takes all types of people who like all types of things. You can be a change-maker by doing what you love! So ask yourself, how can I do something I love to become an ocean guardian?

### Be a Smart Diver

One way that we can help to protect national marine sanctuaries and the ocean is by being responsible when we are enjoying these special places (as divers, kayakers, surfers, boaters, fisherman, etc.).

*Learn the rules:* Prior to diving in a national marine sanctuary, familiarize yourself with the specific rules and regulations within its boundaries. Visit each national marine sanctuary's website to learn more.

*Learn kelp diving procedures:* Always swim below the surface of a kelp canopy and navigate with your compass. Don't panic or thrash around if entangled — slowly remove the kelp or have your buddy gently untangle it for you.

*Respect marine wildlife:* Several national marine sanctuaries have specific regulations prohibiting harassment or take of marine animals. Enjoy viewing marine wildlife from a safe distance.

*Learn the proper techniques for shipwreck diving:* When diving shipwrecks, always know the orientation of the wreck site and only penetrate the wreck if specifically trained to do so. In addition, learn the proper wreck diving

protocols in order to minimize impacts to cultural resources.

*Sharpen your skills:* Mastering buoyancy control and streamlining your equipment will help minimize the risk of entanglement or accidental disturbance of the bottom, which can harm fragile corals and historical artifacts. Even the slightest damage can permanently alter an entire ecosystem or historical shipwreck site.

*Don't collect underwater souvenirs:* Collection of natural and cultural items is regulated in national marine sanctuaries and often is prohibited or require a permit. Resist the temptation to collect shells, rocks, or other underwater artifacts because they provide homes for sea creatures and good surfaces for young plants and animals.



Photo: Chad King/ NOAA.

*Be a marine debris crusader:* Carry away any trash you or others may have left behind. More than just an unsightly nuisance, beach litter poses a significant threat to the health and survival of marine organisms, which can

swallow or get tangled in beverage containers, plastic bags, six-pack rings and other debris.

Practicing these smart diver techniques and sharing them in your community is one way you can become an ocean guardian.

Vocabulary	
National Marine Sanctuary	An area in the ocean or Great Lakes protected for its biological, ecological, or cultural significance.
Ocean Guardian	A person who takes action in their daily life to protect the ocean.
Smart Diver	Someone who is knowledgeable of smart diving practices and knows how to dive responsibly so that they have minimal impact on the special places they are enjoying.

## Procedure – Classroom

### Introduction

1. Use provided materials to provide students with an introduction to national marine sanctuaries and our connection to the ocean.
2. This can be done by using the provided Prezi and/or by watching the following video: *Become an Ocean Guardian*: <https://youtu.be/IcdomHBuaNc>
3. Assess for student understanding by asking questions (answers in italics):
  - What are national marine sanctuaries? *A national system of protected areas in the ocean and Great Lakes managed by the National Oceanic and Atmospheric Administration (NOAA), similar to underwater parks.*
  - How can you become an ocean guardian? *A n ocean guardian is a person who takes action in their daily life to protect the ocean. Students answers will vary according to their individual interests. Some possible answers include: reduce, refuse, recycle, rot, reduce energy use at home and school, riding your bike, sharing your ideas with your friends, family, and school, etc.*

### Activity

Have blank sheets of paper and markers, colored pencils, or crayons ready for students to use.

1. After watching the Ocean Guardian video, students will create their own ocean guardian pledges.
2. Instructor will help students to brainstorm pledge ideas. Ask students: What are some ways that you can become an ocean guardian? Record student responses on a white board or sheet of paper so all students can read them.
3. Each student will fill out his or her own Ocean Guardian Dive Club passport and record his or her Ocean Guardian pledge.

- Interested students may take a photo of themselves with their Ocean Guardian pledge and/or completing activities from their Ocean Guardian pledge and submit them to [sanctuary.education@noaa.gov](mailto:sanctuary.education@noaa.gov). These images may be featured online as a part of the Earth Is Blue campaign (<http://sanctuaries.noaa.gov/earthisblue.html>).

## Preparation – *Pool Mission*

Students will practice:

- Dive skills while meeting diving performance requirements and sanctuary learning objectives.
- Smart diving practices including maintaining good buoyancy in at least two positions and demonstrating proper wildlife viewing techniques.
- Maintaining good buddy team contact and communication.

Prior to the mission, the instructor will set up the pool underwater environment. This will include setting up an underwater maze for students to begin practicing their buoyancy in different positions and wildlife viewing techniques. You can do this using hula hoops (weighted with a dive weight) and/or PVC pipe.

Suggested maze sections and accompanying tasks:

- Tunnel of hula hoops: hula hoops with strings tied on them at different heights and weights on the bottom to keep them from moving.
  - Task: students will swim through the tunnel of hula hoops while maintaining proper buoyancy.
- Kelp forest: Cut green tarp cloth into 2-4 inch strips and attach fishing floats to the top of each. Attach a small weight to the bottom to keep kelp from moving. (See the materials for this lesson for instructions on creating the kelp forest).
  - Task: Students will swim through the kelp forest while practicing proper kelp diving procedures, including swimming below the canopy, maintaining good buoyancy, and remaining calm if entangled. If a diver becomes entangled, they will signal to their buddy and the buddy will assist in disentangling.
- Wildlife viewing: Place laminated wildlife photos in an area at the bottom of the pool. (Photo Credits: Greg McFall, NOAA)
  - Task: Buddy pairs will approach the wildlife viewing station. They will look at the images of wildlife placed at the bottom of the pool and determine what creatures are in each image (while demonstrating proper wildlife viewing techniques including maintaining an appropriate distance and minimizing disturbance to the habitat). The student will communicate an animal signal to his buddy to identify the creature that is seen. Students will then demonstrate a one finger push off, from the bottom of the pool or the wall, to move away from the card they are viewing and on to the next animal. Repeat for each wildlife card.



- Shipwreck: Use PVC pipe to create a large 3D square.
  - Task: Students will navigate in a circle around the shipwreck while demonstrating proper techniques for shipwreck diving including avoiding penetration (as they are not yet trained to do so), good buoyancy and minimizing disturbance to the wreck.

## Procedure

1. Before the pool dive the instructor will introduce students to the smart diver techniques. This will include specific focus on how practicing smart diving techniques is one way that students can be Ocean Guardians. The instructor will also review necessary buddy communication signals including those to demonstrate a problem (such as entanglement) and signals for each of the animals in the wildlife viewing portion of the maze.
2. Instructor will outline each section of the maze for students and will outline the tasks they should complete at each section.
3. Underwater, students will work in buddy teams to complete the maze. Students will read laminated instruction cards at each section while maintaining proper buoyancy.
4. Upon completion of the pool mission, assess student understanding by asking:
  - a. What did you find difficult about maintaining your buoyancy? What helped?
  - b. What did you learn about diving in each of the national marine sanctuary habitats?
  - c. How does practicing smart diving techniques help you to become an ocean guardian?

Education Standards	
Dive Industry Standards	This lesson could be paired with: PADI AquaMission Inner Space Specialist SSI Maze Life Ranger NAUI Junior Scuba Diver
Ocean Literacy Principles	1: The Earth has one big ocean with many features. 5: The ocean supports a great diversity of life and ecosystems. 6: The ocean and humans are inextricably interconnected. 7: The ocean is largely unexplored.

## Additional Resources

NOAA’s Office of National Marine Sanctuaries: This site contains information on each of the sites in the National Marine Sanctuary system. <https://sanctuaries.noaa.gov/>

Earth is Blue: <https://sanctuaries.noaa.gov/earthisblue.html>

Visiting National Marine Sanctuaries: <https://sanctuaries.noaa.gov/visit/things-to-do.html>

Ocean Guardian Program: [https://sanctuaries.noaa.gov/education/ocean\\_guardian\\_prog.html](https://sanctuaries.noaa.gov/education/ocean_guardian_prog.html)



Ocean and Climate Literacy Principles: <http://oceanliteracy.wp2.coexploration.org/>

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