

RESOURCE LIBRARY  
ACTIVITY : 50 MINS

## Protecting the Mariana Trench

Students read about the establishment of the Mariana Trench Marine National Monument and discuss why it is important to preserve the Mariana Trench and surrounding area.

### GRADES

6 - 8

### SUBJECTS

*Biology, Earth Science, Geography, Physical Geography*

### CONTENTS

1 PDF

## OVERVIEW

Students read about the establishment of the Mariana Trench Marine National Monument and discuss why it is important to preserve the Mariana Trench and surrounding area.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/protecting-the-mariana-trench/>

## DIRECTIONS

### 1. Have a whole-class discussion about the importance of the Mariana Trench.

Explain to students that in 2009, approximately 506,000 square kilometers (195,000 square miles) of ocean were declared a protected marine reserve. This includes the Mariana Trench, which is now part of the Marianas Trench Marine National Monument. Fishing and mining are now barred in that area. Scientific research is still allowed with a federal permit. Ask: *What important resources might exist in the trench?* (The leading untapped economic resource thought to be abundant in the Mariana Trench is methane hydrates, dense deposits of methane locked inside of ice crystals found on the ocean floor. The United States Geological

Survey estimates that the total amount of carbon locked away inside of methane hydrates could be twice as much as the amount that exists in all the world's known fossil fuels.) *Why is the Mariana Trench important to preserve?* (The Mariana Trench is an ecosystem that has been impacted very little by human activity and provides a pristine research area for scientists.)

## **2. Have students read the handout about the establishment of the Marianas Trench Marine National Monument.**

Distribute copies of the handout and explain to students that this is a summary of part of a proclamation by a former president of the United States. Have students read the handout independently.

## **3. Have a whole-class discussion about why it is important to preserve the Mariana Trench and the area surrounding it.**

Have a whole-class discussion. Ask:

- *What is unique about the physical geography of the Mariana Trench?* (It contains the deepest known points in the world's ocean; the largest active mud volcanoes; unique phenomena; and unique habitats.)
- *What is unique about the organisms that live in and near the Mariana Trench?* (Some of the corals reefs surrounding the Northern Mariana Islands thrive in volcanically active, basaltic communities. It is one of the few areas where photosynthetic communities (where organisms convert light energy to chemical energy) coexist with chemosynthetic communities (where organisms convert some carbon molecules into chemical energy). Biodiversity is rich in the upper part of the water column.)
- *Why are the ecosystems in and near the trench essential to the long-term study of tropical marine ecosystems?* (They are unique, diverse, and relatively pristine.)

## OBJECTIVES

## Subjects & Disciplines

**Biology**

**Earth Science**

**Geography**

- Physical Geography

# Learning Objectives

Students will:

- explain how the Mariana Trench is protected from exploitation
- describe what the Mariana Trench offers and why it is important to preserve
- identify what is unique about the trench, its geography, and its animal life

# Teaching Approach

- Learning-for-use

# Teaching Methods

- Discussions
- Reading

# Skills Summary

This activity targets the following skills:

- Critical Thinking Skills
  - Analyzing
  - Understanding
- Geographic Skills
  - Analyzing Geographic Information

# National Standards, Principles, and Practices

## NATIONAL GEOGRAPHY STANDARDS

- Standard 15:

How physical systems affect human systems

- Standard 16:

The changes that occur in the meaning, use, distribution, and importance of resources

# NATIONAL SCIENCE EDUCATION STANDARDS

## • (5-8) Standard C-4:

Populations and ecosystems

### Preparation

### What You'll Need

#### PHYSICAL SPACE

- Classroom

#### GROUPING

- Large-group instruction

## BACKGROUND & VOCABULARY

### Background Information

The Mariana Trench was declared part of a protected marine reserve in 2009 by presidential proclamation. Scientists are studying the Trench and coral reef ecosystems in the surrounding areas to learn more about tropical marine ecosystems.

### Prior Knowledge

[]

### Recommended Prior Activities

- [Resources in the Deep Sea](#)
- [The Mariana Trench: Earth's Deepest Place](#)

### Vocabulary

Term	Part of Speech	Definition
ecosystem	<i>noun</i>	community and interactions of living and nonliving things in an area.

Term	Part of Speech	Definition
Mariana Trench	<i>noun</i>	deepest place on Earth, located in the South Pacific Ocean at 11,000 meters (36,198 feet) at its deepest.

---

## For Further Exploration

### Websites

- [Marine Conservation Biology Institute \(MCBI\): From Sea to Shining Sea—Places in the Sea](#)

PARTNER



© 1996–2022 National Geographic Society. All rights reserved.