

RESOURCE LIBRARY  
ACTIVITY : 2 HRS

## Marine Protected Area: Stakeholder Debate

Students read a Merritt Island National Wildlife Refuge case study. They consider the location for extended Marine Protected Area (MPA) designation, determine stakeholders, and debate pros and cons of establishing it as a MPA.

### GRADES

9 - 12+

### SUBJECTS

*Biology, Earth Science, Oceanography, English Language Arts, Geography, Human Geography, Physical Geography*

### CONTENTS

4 PDFs

## OVERVIEW

Students read a Merritt Island National Wildlife Refuge case study. They consider the location for extended Marine Protected Area (MPA) designation, determine stakeholders, and debate pros and cons of establishing it as a MPA.

For the complete activity with media resources, visit:

<http://www.nationalgeographic.org/activity/marine-protected-area-stakeholder-debate/>

## DIRECTIONS

### 1. Introduce the activity and assign homework.

Tell students that they will read a case study and complete a notetaking worksheet as a homework assignment. Explain that later in this activity they will debate whether or not the designation of an existing MPA will be extended. During the debate they will advocate for

different stakeholder points of view in a town hall format. Distribute a copy of the Case Study: Merritt Island National Wildlife Refuge worksheet and the Case Study Notetaking worksheet to each student and assign them as homework.

## **2. During the next class period, discuss the Merritt Island National Wildlife Refuge case study.**

As a whole class, go over the Case Study Notetaking worksheet. Use the provided Answer Key to address any student questions. Then have students determine the conservation goal of the MPA. Ask students to identify the primary conservation goal(s) of this marine environment from the list below, and back up their selections with valid reasoning.

- Natural Heritage—to protect the area's natural biological communities, habitats, ecosystems and processes, and the ecological services, uses, and values they provide to this and future generations
- Cultural Heritage—to protect, understand, and interpret submerged cultural resources—such as shipwrecks or submerged archaeological sites—that reflect the nation's maritime history and traditional cultural connections to the sea
- Sustainable Production—to support the continued sustainable extraction of renewable living resources—such as fish, shellfish, plants, birds, or mammals—within or outside the MPA by protecting important habitat and spawning, mating, or nursery grounds

## **3. Have students read stakeholder role descriptions and assume the role of a stakeholder.**

Distribute a copy of the Stakeholder Role Descriptions handout to each student. Read aloud the directions. Divide students into small groups. Assign small groups of students one of the twelve stakeholder roles. As they read through the stakeholder role descriptions, tell them to consider their stakeholder's point of view, as well as the points of view of stakeholders who may support or oppose them.

## **4. Have students use the stakeholder roles to brainstorm the pros and cons of extending this MPA.**

Have students discuss the stakeholders whom the designation of a Marine Protected Area might affect. Then ask students to consider how the primary conservation goal(s) impact the stakeholders. Ask them to brainstorm a list of the pros and cons of establishing this MPA. Write students' responses on the board. Elicit responses such as:

- Pros: maintenance or growth of fisheries populations, increased tourism, and improved understanding of marine resources
- Cons: loss of fishing-related jobs, increased cost-of-living

### **5. Have student stakeholder groups prepare for the class debate.**

Explain that these stakeholders have been selected to participate in a town hall-style debate on the pros and cons of establishing this new MPA. The town hall format will allow officials to make an informed decision on the MPA designation. Have students get into their stakeholder groups to discuss what they learned from reading the stakeholder role descriptions. Guide their discussion by having them address the following points:

- Is your stakeholder "for" or "against" extending the MPA? How do you know?
- Which other stakeholders are likely to *oppose* your point of view? Why?
- Which stakeholders are likely to *support* your point of view? Why?

After they have had time for discussion, give each group three index cards and colored markers. Tell groups that they need to do the following to prepare for the debate:

- Create a symbol card that represents the point of view of their stakeholder. The symbol will help identify them during the debate and should clearly indicate if they support or oppose the MPA designation.
- Create a support card that lists three points their stakeholder can make to support his/her view. Include a short description of evidence that supports each point.
- Create an oppose card that lists three points other stakeholders can make to oppose their stakeholder's view. Include a short description of evidence that supports each point. Tell them to clearly indicate which stakeholder would oppose them and why.

### **6. Hold a town hall-style class debate.**

Give each small group two minutes to introduce their stakeholder and make their case for or against the site as a Marine Protected Area from the perspective of their assigned stakeholder. Have them explain their symbol card and how it represents their stakeholder's point of view. Encourage students to carefully consider both the pros and the cons of this topic during the debate. After all groups have presented, have a 15-20 minute open question and answer session. Require each small group to use their support and oppose cards to make their points and challenge the arguments of the other stakeholders.

### **7. Have students work to come to a consensus on the MPA designation.**

Explain to the class that they need to work together to make a joint decision on how best to proceed with the Merritt Island National Wildlife Refuge MPA designation. Their goal is to get all stakeholders to understand the MPA designation plan and come to a consensus about how to modify and/or implement the plan. Allow approximately 15 minutes for a consensus-building discussion led by students. Allow students to take on any stakeholder perspective that they choose for this conversation; however, guide the discussion to keep students on track and consistent with their chosen point of view. Make sure students understand that they may not reach full consensus, as it is often not possible to get buy-in from all stakeholders. Tell students that, if necessary, they may need to compromise and develop a range of possibilities and locations for the MPA, resulting in a MPA everybody can live with and benefit from. As a final step, instruct students to develop a consensus statement that summarizes the agreement they have come to regarding the MPA designation plan.

## Informal Assessment

Have each student list three pros and three cons for establishing no-take zone Marine Protected Areas. Ask them to back up their list with evidence.

## Extending the Learning

Have each student write a letter to their local government official that defends their stakeholder's position and describes how to move forward on this MPA designation in a way that meets the needs of as many stakeholders as possible.

## OBJECTIVES

## Subjects & Disciplines

## Biology

## Earth Science

- Oceanography
- English Language Arts

## Geography

- Human Geography
- Physical Geography

# Learning Objectives

Students will:

- describe the pros and cons of establishing a new MPA site
- identify stakeholders in the MPA designation process
- assume a stakeholder's position and engage in a discussion to support or oppose an MPA designation plan
- describe the impacts of establishing Marine Protected Areas from different stakeholder perspectives

# Teaching Approach

- Learning-for-use

# Teaching Methods

- Brainstorming
- Cooperative learning
- Discussions
- Reading
- Role playing

# Skills Summary

This activity targets the following skills:

- 21st Century Student Outcomes
  - Learning and Innovation Skills
    - Communication and Collaboration
    - Critical Thinking and Problem Solving
- 21st Century Themes
  - Global Awareness
- Critical Thinking Skills
  - Analyzing
  - Understanding
- Geographic Skills
  - Analyzing Geographic Information
  - Answering Geographic Questions
  - Asking Geographic Questions

# National Standards, Principles, and Practices

## IRA/NCTE STANDARDS FOR THE ENGLISH LANGUAGE ARTS

- **Standard 12:**

Students use spoken, written, and visual language to accomplish their own purposes (e.g., for learning, enjoyment, persuasion, and the exchange of information).

## NATIONAL COUNCIL FOR SOCIAL STUDIES CURRICULUM STANDARDS

- **Theme 3:**

People, Places, and Environments

## NATIONAL GEOGRAPHY STANDARDS

- **Standard 14:**

How human actions modify the physical environment

- **Standard 16:**

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

## NATIONAL SCIENCE EDUCATION STANDARDS

- **(9-12) Standard F-3:**

Natural resources

- **(9-12) Standard F-5:**

Natural and human-induced hazards

- **(9-12) Standard F-6:**

Science and technology in local, national, and global challenges

## OCEAN LITERACY ESSENTIAL PRINCIPLES AND FUNDAMENTAL CONCEPTS

- **Principle 5c:**

Some major groups are found exclusively in the ocean. The diversity of major groups of organisms is much greater in the ocean than on land.

- **Principle 5d:**

Ocean biology provides many unique examples of life cycles, adaptations and important relationships among organisms (such as symbiosis, predator-prey dynamics and energy transfer) that do not occur on land.

- **Principle 5e:**

The ocean is three-dimensional, offering vast living space and diverse habitats from the surface through the water column to the seafloor. Most of the living space on Earth is in the ocean.

- **Principle 5f:**

Ocean habitats are defined by environmental factors. Due to interactions of abiotic factors such as salinity, temperature, oxygen, pH, light, nutrients, pressure, substrate and circulation, ocean life is not evenly distributed temporally or spatially, i.e., it is “patchy”. Some regions of the ocean support more diverse and abundant life than anywhere on Earth, while much of the ocean is considered a desert.

- **Principle 5h:**

Tides, waves and predation cause vertical zonation patterns along the shore, influencing the distribution and diversity of organisms.

- **Principle 6b:**

From the ocean we get foods, medicines, and mineral and energy resources. In addition, it provides jobs, supports our nation’s economy, serves as a highway for transportation of goods and people, and plays a role in national security.

- **Principle 6c:**

The ocean is a source of inspiration, recreation, rejuvenation and discovery. It is also an important element in the heritage of many cultures.

- **Principle 6d:**

Much of the world's population lives in coastal areas.

• **Principle 6e:**

Humans affect the ocean in a variety of ways. Laws, regulations and resource management affect what is taken out and put into the ocean. Human development and activity leads to pollution (such as point source, non-point source, and noise pollution) and physical modifications (such as changes to beaches, shores and rivers). In addition, humans have removed most of the large vertebrates from the ocean.

• **Principle 6g:**

Everyone is responsible for caring for the ocean. The ocean sustains life on Earth and humans must live in ways that sustain the ocean. Individual and collective actions are needed to effectively manage ocean resources for all.

## **Preparation**

### **What You'll Need**

#### **MATERIALS YOU PROVIDE**

- Colored markers
- Index cards
- Pencils

#### **REQUIRED TECHNOLOGY**

- Internet Access: Optional
- Tech Setup: 1 computer per classroom, Projector

#### **PHYSICAL SPACE**

- Classroom

#### **GROUPING**

- Large-group instruction
- Small-group instruction

## **BACKGROUND & VOCABULARY**



# Background Information

Marine Protected Areas are used to protect vulnerable habitats and species, increase biodiversity, prevent overfishing, aid in scientific research, and conserve cultural and natural resources for future generations. Fully protected marine reserves, or no-take zones, like the Merritt Island National Wildlife Refuge, offer the highest level of protection. No harvesting of any kind is allowed in no-take zones, and they show greater abundance, biological diversity, and sizes of fish than non-protected waters. Successful planning and designation of MPAs depends on cooperative stewardship and the involvement of all affected stakeholders.

## Prior Knowledge

### ☐ Recommended Prior Activities

- [Marine Protected Areas](#)
- [Marine Protected Areas: Case Studies](#)
- [MPA Designation and Management](#)

## Vocabulary

Term	Part of Speech	Definition
bioprospecting	<i>noun</i>	process by which pharmaceutical companies buy or claim genetic resources from native species of a developing country.
marine protected area (MPA)	<i>noun</i>	area of the ocean where a government has placed limits on human activity.
marine reserve	<i>noun</i>	part of the ocean where no fishing, hunting, drilling, or other development is allowed.
no-take zone	<i>noun</i>	area set aside by the government where all extractive activity, including fishing, mining, and drilling, is not allowed.
spillover effect	<i>noun</i>	process by which fish are protected within a no-take zone, then produce more offspring and eventually migrate into nearby, unprotected areas.
stakeholder	<i>noun</i>	person or organization that has an interest or investment in a place, situation, or company.

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## For Further Exploration

### Websites

- [U.S. Fish & Wildlife Service: Merritt Island National Wildlife Refuge](#)
- [NOAA: National Marine Protected Areas Center](#)
- [National Marine Protected Areas Center: MPA Effectiveness](#)
- [National Geographic Education: National Teacher Leadership Academy \(NTLA\)](#)
- [NOAA: Marine Protected Areas of the United States](#)

## FUNDER

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