

# LESSON 3 What is a Marine Protected Area?

## Lesson at a Glance

Students are introduced to marine protected areas. In this lesson, students will apply previous knowledge to understand why marine protected areas are necessary. To show what they have learned students will then add to the illustration created in Lesson 1 making sure to describe what a marine protected area consists of as well as how it will protect the organisms in their created ecosystem.

## Lesson Duration

Two 45-minute periods

## Essential Question(s)

How do we protect our marine environments?

What is a marine protected area?

## Key Concepts

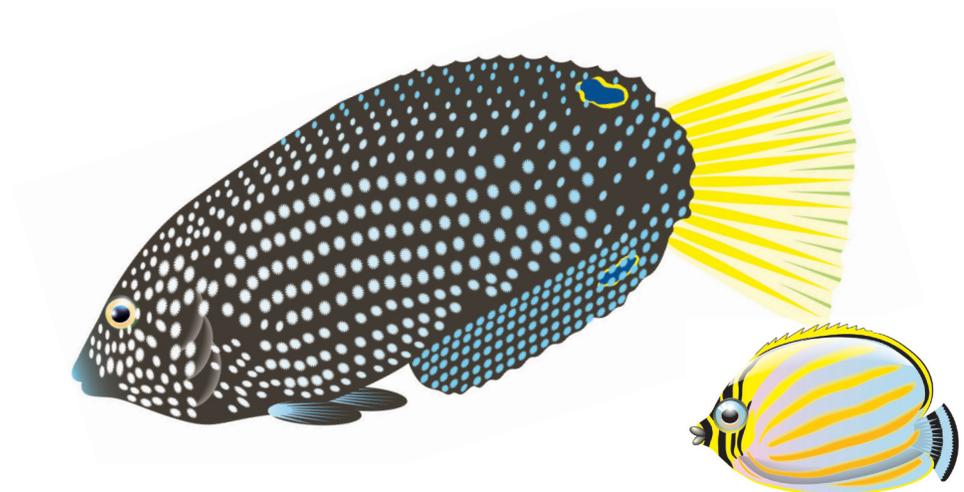
- Marine protected areas are places that are protected through regulation, rules, and laws (Federal, state, local, or tribal).

## Instructional Objectives

- I *can* describe a marine protected area and why they are necessary.

### Related HCPSIII Benchmark(s):

Science SC.4.3.2  
Describe how an organism's behavior is determined by its environment.



## Assessment Tools

### Benchmark Rubric:

<b>Topic</b>		<b>Interdependence</b>	
<b>Benchmark SC.4.3.2</b>		Describe how an organism's behavior is determined by its environment	
<b>Rubric</b>			
<b>Advanced</b>	<b>Proficient</b>	<b>Partially Proficient</b>	<b>Novice</b>
Illustrate and explain in detail with examples how different organisms' behaviors are determined by their environment	Illustrate and explain with no examples how an organism's behavior is determined by its environment	Illustrate and give very little explanation of how an organism's behavior is influenced by its environment	Recognize that an organism's behavior is influenced by its environment through illustration only.

### Assessment/Evidence Pieces

<p><b>Lesson</b></p> <ul style="list-style-type: none"> <li>• Student illustration from Lesson #1 with list of “rules”</li> <li>• Formative assessment:             <ul style="list-style-type: none"> <li>◦ Class discussion on Monk Seal example/model</li> </ul> </li> </ul> <p><b>Unit</b></p> <ul style="list-style-type: none"> <li>• Student self-reflection monitoring sheet (After Lesson 3 section)</li> </ul>
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### Materials Needed

Teacher	Class	Group	Student
<ul style="list-style-type: none"> <li>• Computers with Internet access</li> <li>• Method to present PowerPoint slideshow</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• None</li> </ul>	<ul style="list-style-type: none"> <li>• Student reading: <i>Marine Protected Areas</i></li> <li>• Student worksheet: <i>Marine Protected Areas</i></li> <li>• PowerPoint: <i>Marine Protected Areas</i></li> </ul>

### Instructional Resources

Student Reading: *Marine Protected Areas*

Student Worksheet: *Marine Protected Areas*

PowerPoint Presentation: *Marine Protected Areas*

PowerPoint Presentation: *Marine Protected Areas in the U.S.*

Assessment Tool: *Teacher Resource Checklist-What is a Marine Protected Area?*

### Lesson Plan



### Lesson Preparation

- Read the Science Background provided in the Unit’s Overview.
- Spend time reading information provided in <http://Hawaiian.gov/dlnr/dar/pubs/MPApub.pdf> to be able to assist students in finding answers for the worksheet.
- Decide if students need a foundational piece on MPA’s or not. If they need a primer, you may choose to do the following activity before the remainder of the unit:
  1. Divide students into groups of 2 or 3 students.
  2. Assign each group a page of the document found here <http://Hawaiian.gov/dlnr/dar/pubs/MPApub.pdf> to read and research.
  3. Using a choice board, allow each group to choose how they will present the information to the entire class.
- View the distribution of MPAs in the U.S. through PowerPoint *Marine Protected Areas in US*.
- Listen to an interview with *Papahānaumokuākea Marine National Monument* Superintendent Aulani Wilhelm at <http://www.earthsky.org/interviewpost/biodiversity/aulani-wilhelm-honors-wildlife-at-papahnaumokukea-national-monument>

### I. Marine Protected Areas

- A. Chart and review student responses to question 3 in lesson 2 worksheet, “*Human Impacts on Marine Ecosystems*.” Use this to make the transition into Marine Protected Areas. Explain to students that a Marine Protected Area (MPA) is one idea that people have developed to protect an area by decreasing the human impacts to marine environments.
- B. Present PowerPoint: *Marine Protected Areas* to students.  
Optional: Internet video *Marine Protected Areas: The Future of Our Oceans* (4 minute)  
<http://mm.coexploration.org/video/tcoe/vtw06/bbflv/index.html>  
(video is at the bottom of the web page)  
  
\*\*Please note that the video uses vocabulary that is much higher than 4<sup>th</sup> grade level.
- C. Go back to the Monk Seal class model of a marine environment. Using the unhealthy marine environment overlay, have students discuss what “rules” they could make to protect the area to improve the environment and why these “rules” would be important. Students can also discuss what these rules would mean for people who live or work near or in the environment they are protecting.
- D. Hand out Student Reading *Marine Protected Area*. Distribute the *Marine Protected Areas* worksheet to students. Ask students to read the article and then to work individually or with partners to complete the worksheet in class or at home.
- E. This reading and worksheet is intended to give students some background on the government’s definition of a Marine Protected Area. They will use this information to start developing “rules” to protect the ecosystem they created in Lesson 1.



F. Review the completed worksheets with students.

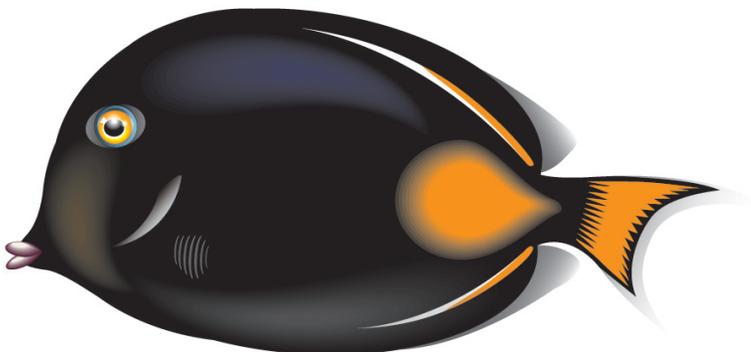
1. In your own words, please describe what a Marine Protected Area is. (*A protected area of the marine environment.*)
2. Why are marine protected areas created? (*To protect natural and cultural resources.*)
3. About how many marine protected areas are there in the U.S.? (*More than 1,500.*)  
[NOTE: this answer is based on information from mpa.gov. Other websites/sources may have a different answer.]
4. What levels of government can make a marine protected area? (*Federal, state, local, or tribal.*)
5. This question allows students to brainstorm what designation they would use to protect their organism in the environment they drew in Lesson 1. (*Answers will vary*)
6. This question allows students to brainstorm ideas on ways to protect their organism in the environment they drew in Lesson 1. (*Answers will vary*)

## II. *Check for Understanding*

- A. Ask students to expand their ideas into a list of rules that can be attached to their drawings of their organism in the environment they drew in Lesson 1.
- B. Additional option: Review rules they created in C and revise based on new information obtained.

### Extended Activities

- 1.) Show a video of the Northwestern Hawaiian Islands Protected Area from <http://www.Hawaiianatolls.org/video/index.php>
- 2.) Listen to an interview with *Papahānaumokuākea Marine National Monument* Superintendent Aulani Wilhelm at <http://www.earthsky.org/interviewpost/biodiversity/aulani-wilhelm-honors-wildlife-at-papahnaumokukea-national-monument>



# LESSON 3 Student Reading

## Marine Protected Areas

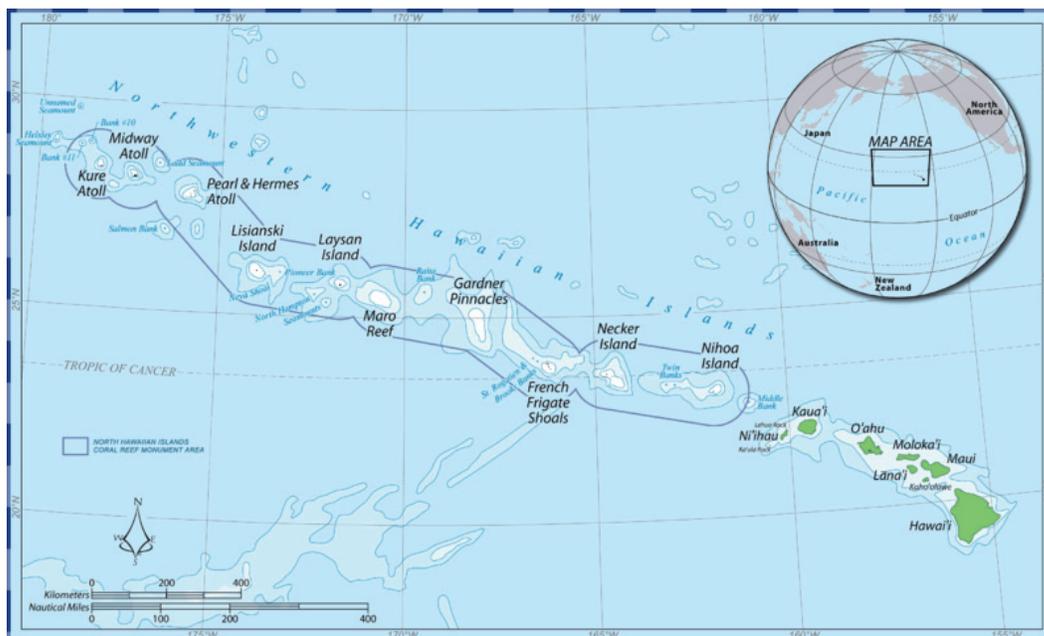
Have you ever gone to the beach and wondered why it was so dirty? Have you ever thought that there should be rules to protect the oceans so people take care of it?

People can protect the marine environment by creating Marine Protected Areas or MPAs for short. An MPA is an area that the government (federal, state or local governments) can make laws to protect part or all of the natural and cultural resources of an area. Governments would create MPAs to conserve marine habitats and resources.

There are five common characteristics that MPAs all have so we can describe them. These characteristics help us to understand, 1) why the area was picked, 2) what is being protected, 3) how long it will be a protected area, 4) how much of the year it is protected, and 5) how will the protection affect the ecosystem and how humans use it.

According to [mpa.gov](http://mpa.gov), there are more than 1,500 federal and state/territory sites that exist today! Wow, that's a lot of protected areas! Does that mean people can't go there?

There are actually several levels of protection. This means that some sites do not allow people to visit; however, most places just want people to be careful when they visit the area. For example, one popular MPA on the island of Oahu is Hanauma Bay. Many people visit there every day. However, one of the largest MPAs in the world, *Papahānaumokuākea Marine National Monument* in the Northwestern Hawaiian Islands, is considered a “no-take” area. This means that people can go there, but can't take anything. (See map below)



There are actually six levels of use for marine protected areas, but only one type of use (No-Access) restricts human activity completely (except for people going to the area to monitor it).

For a list of Marine Protected Areas around the United States, you can go to:

<http://www.mpa.gov/nationalsystem/nationalsystemlist/>

To see all the MPAs in the U.S., go to PowerPoint **Marine Protected Areas in US**.

There are some important facts to keep in mind about marine protected areas:

1. MPAs are all very different from each other. They can vary greatly in their geography. MPAs can exist in the open ocean as well as coastal and intertidal zones. They are not only limited to marine (saltwater) environments; they can also exist in estuaries (where fresh and saltwater meet) as well as the Great Lakes (freshwater).
2. There are also very different reasons that an area is protected, how they are protected and what rules there are to protect them. Sites can be protected for different reasons.
  - a. Natural Heritage – these MPAs are created and managed to conserve, restore, and understand the protected area’s biodiversity (the different types of organisms that live there), populations (the number of each organism that lives there), habitats (where these organisms live), and the ecosystem.
  - b. Cultural Heritage – these MPAs are created to protect and understand cultural artifacts that are found underwater. These artifacts are important to understand the history and traditions of people and the water.



John Brooks filming the bow of the USS Macaw at Midway Atoll. Credit: NOAA/Schwemmer

- c. Sustainable Production – these MPAs are created to ensure that people will be able to fish or harvest an area without it running out. These MPAs can also be created to protect an organism while it feeds, breeds, or grows up.

There are so many reasons to protect our ocean environment and so many ways to protect it. What are some “rules” you may want to create to protect your organism and the environment in which it lives?

Source: [www.mpa.gov](http://www.mpa.gov)



# LESSON 3 Marine Protected Areas

Name: \_\_\_\_\_ Date: \_\_\_\_\_

For more information, you can go to [mpa.gov](http://mpa.gov).

1. Describe what a Marine Protected Area is in your own words.

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2. Why are marine protected areas created?

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3. Roughly how many marine protected areas are there in the U.S.?

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4. What levels of government can make a marine protected area?

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5. If you were creating a Marine Protected Area for the area you drew, what reason would you use to create your MPA? (Don't forget to explain why.)

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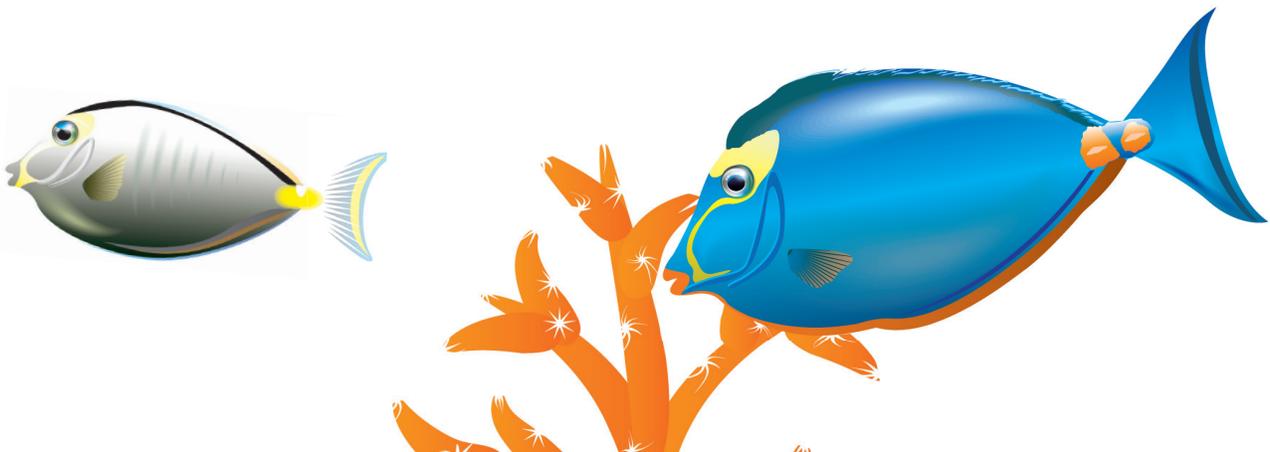
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6. If you were creating a Marine Protected Area for the area you drew, what "rules" would you include to protect your area?

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# LESSON 3 Teacher Resource Checklist

## What is a Marine Protected Area

Name	<i>Defines MPA (Q1)</i>	<i>Explains why MPAs are created (Q2)</i>	<i>Explained type of MPA for their drawing (Q5)</i>	<i>Explained MPA "rules" for their drawing (Q6)</i>
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