



# OUR OCEAN: MARINE PROTECTED AREAS

**Objectives:** Students will understand the importance of protecting the ocean and then try their hand at designing a marine protected area that benefits both people and nature.

**Time:** 30 minutes

**Materials:** Appendix 1, activity sheet

**Key question:** Why are Marine Protected Areas important?

**Purpose of this activity:** What is a Marine Protected Area [MPA]? Why do we need them? There are many considerations in the creation of a protected area. This debate activity invites students to put themselves in the shoes of various stakeholders to analyse and articulate the ways that each perspective is connected to the ocean. Through this activity, students apply critical thinking skills to make their argument. They will then need to collectively make a final decision on how much of the ocean to protect and the rules that should be implemented to benefit people, marine wildlife, ecosystems and ultimately, the ocean.

**Background:** The ocean provides numerous ecosystem services like clean water, food, oxygen, recreation, carbon storage, and jobs. However, the ocean is under threat – from human activities like overfishing, land reclamation, and pollution. These activities have led to habitat destruction and species loss which has critical consequences for all living things. No wonder we need to protect the ocean! However, given how large the ocean is, how would we know which areas to protect?

Various countries are calling to protect 30% of the ocean by 2030. One of the ways that the ocean is being protected is through establishing Marine Protected Areas (MPA), a way to effectively manage the way that people interact with the marine environment for the long-term.

Before an MPA can be set up, there is a need to collect data about the area such as what can be found there, how people use the resources provided by the area, and communities feel about it. This data is collected, analysed and presented to key decision makers such as the government, who then declares the area to be protected and determines the type of activities allowed within that area.

There are different categories of MPAs, with the strictest termed as a “no-take zone”, which means that mining, drilling, and the removing any marine animal or plant within that area is prohibited by law. Other categories of MPAs allow the sustainable use of natural resources, such as non-destructive fishing methods. Overall, there are many benefits of MPAs, not just to fish populations and marine ecosystems but also to people. See how through this episode's video which shows the example of an MPA in Ataúro Island in Timor Leste.



## Suggested discussions for video:

### Recall

- What is a Marine Protected Area (MPA)? [Effectively managed areas of the ocean devoted to the care and protection of biodiversity, natural and cultural resources for the long term.]
- Name one benefit of the MPA to the people living in Ataúro Island in Timor-Leste. [Increased fish populations, improved livelihoods for tourism sector in industries like diving, hotels, and restaurants.]
- The last part of the video mentions what you can do to care for Blue Buddy. Name one of them. [Visit and explore Singapore's marine spaces responsibly, become a citizen scientist by reporting sightings of endangered marine life, share with my friends and family about the benefits of the ocean.]

### Explain

- Why does the rapid rise in fish stocks benefit not only ocean life but humans too?
- Why is it important to protect the ocean? [To ensure the ocean can continue to provide ecosystem services - climate regulation, providing food and water, being a habitat for wildlife for the long term.]

### Infer

- How can the designation of more MPAs benefit people? [The ocean is home to diverse marine life, which provides food and jobs to millions of coastal communities around the world.]
- If MPAs are so important, why do you think less than 10% of the ocean is protected? [Lack of commitment from numerous stakeholders like communities, businesses, and governments, lack of support for enforcement, lack of knowledge to designate and maintain an MPA.]



## What to do:



1. Watch the video. Use the suggested discussion questions above to find out what students have learnt, such as:
  - a. What a Marine Protected Area is
  - b. What the benefits of a Marine Protected Area are
  - c. Why the need to have a Marine Protected Area
2. Ask students the key question: Why are Marine Protected Areas important? Next, gather responses from students through vocal or written opinions. Then, write these opinions on the board.
3. Explain to students that establishing a Marine Protected Area is a whole-of-community effort – from gathering and analysing data by scientists and the community to sharing this information with key decision makers. There are different levels of protection, and the highest level of protection is called a “no-take” zone which simply means no one is allowed to take anything from that area, such as marine life, crude oil, and minerals. [Refer to the **Background section** for more information.]
4. Get students to consider: Why can't the entire ocean be protected?
5. For this activity, students take on the roles of various stakeholders from the Ataúro Island MPA example in the video. Divide the class into eight groups. Provide each group with one of the profile cards [Refer to **Appendix 1**]. Get students to consider how their assigned profile would respond to the establishment of a marine protected area. Sentence starters include:
  - a. This Marine Protected Area could benefit/harm me by...
  - b. I would/would not support this Marine Protected Area if...
  - c. This Marine Protected Area is important to me because...
6. Differentiated methods to conducting the activity:
  - a. To better understand the protected area in Ataúro, this video can be shown to the class - [https://www.youtube.com/watch?v=ctttfu\\_-GaU](https://www.youtube.com/watch?v=ctttfu_-GaU)
  - b. Instead of dividing the class into groups, this activity can be placed on Padlet or SLS for students to discuss.
  - c. Get students to brainstorm about other stakeholders that were not included in this activity. Suggestions include corals, seagrass or even a Singaporean who loves eating seafood.
  - d. For older students, a debate can be held: The entire ocean should be protected. Do you agree?
7. Get each profile to present their argument and share their thoughts before conducting a class vote. To guide students, ask:
  - a. Was it easy or difficult to reach a final decision? What challenges were faced?
  - b. What other information needs to be considered before a Marine Protected Area can be created? What groups have been excluded from the discussion?
  - c. Did everyone get what they wanted? For those that did not, how were they convinced?
8. Conclude: Highlight to students that the ocean has long been our guardian. Now we should be the guardians of the ocean to protect biodiversity so that future generations of people and wildlife can continue to be taken care of by the ocean.
9. Understanding what, how and why of a Marine Protected Area (MPA); encourage students to draw how they would want their Marine Protected Area to look and write the rules that their protected area would have such that it takes multiple stakeholders into consideration. Students are encouraged to share the MPAs that they designed in the classroom or on SLS.

### Diving Deeper: For more information...

- No-take marine protected areas help fishers and fish more than we thought:  
<https://theconversation.com/no-take-marine-areas-help-fishers-and-fish-far-more-than-we-thought-119659>
- Sisters Island Marine Park visitor information:  
<https://www.nparks.gov.sg/-/media/marine-park-brochure.pdf>
- Marine Protected Areas and Climate Change:  
<https://www.iucn.org/resources/issues-briefs/marine-protected-areas-and-climate-change>



# DESIGN YOUR OWN MARINE PROTECTED AREA

**Background:** A Marine Protected Area (MPA) protects a certain area of the ocean through rules and regulations like limiting fishing, mining, and drilling activities for the long term.

**Task:** There are many stakeholders in the design of an MPA. Choose one of them below and consider the benefits, challenges and how the future might look with the creation of an MPA.

**Circle one:** Fishing community, Local Student, Ichthyologist (Fish Scientist), Tourist, Government, Fish, Hotelier, Seafood Vendor  
*[Refer to Appendix 1 below to understand the profile of each stakeholder.]*

Did you know that the world has called for 30% of the ocean to be protected by 2030?



**Consider:**

- How do you benefit from an MPA?
- What is a challenge that you might face when there is an MPA?
- What would your future look like if you are situated or live in an MPA?
- What kind of rules would you like to see in this MPA to ensure that the ocean's resources are maintained and taken care of for the long term?

Draw how you would like your protected area to look and annotate with the rules that your protected area would have. Check out the Marine Protected Atlas website for more idea on the rules of MPAs around the world - <https://mpatlas.org/>



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**Dive Deeper:** Go out to explore Singapore's marine spaces and be a citizen scientist by recording your wildlife sightings on apps like SGBioAtlas or iNaturalist! Post images of unidentified marine wildlife you spot on the Facebook group: SG Seashore ID Can? so you can learn to identify them.

## Vocabulary

Marine Protected Area	An area of the ocean where the government has set rules and regulations to control human activities such as fishing, drilling, and mining.
No-take zone	The strictest level of a marine protected area with that forbids the removal of any marine life.
Commercial fishing	Activity of catching marine life in large quantities to supply a demand for seafood.
Deep-sea mining	The act of extracting minerals found in the deepest parts of the ocean. This activity involves trawling the ocean floor and destroying deep-sea habitats, which leads to the loss of species.
Sisters' Island Marine Park	Established in 2014, Sisters' Island Marine Park is Singapore's first marine park. It aims to protect Singapore's rich biodiversity while supporting research and restoration activities to expand the existing marine biodiversity.
Citizen science	Getting citizens like us to participate and contribute to scientific research by submitting information or uploading pictures of animal sightings. This activity has important outcomes as the research can be used by scientists and governments to better protect nature by establishing laws that benefit natural ecosystems.



# Appendix 1: Profile Cards

## Fishing Community



- Relies on catching and selling fish for a living
- Sole breadwinner in the family
- Depends on availability of **Fish**

## Ichthyologist: Fish Scientist



- Studies and collects information on **Fish** species found in the Waters of Ataúro
- Publishes scientific articles that could be used to advise **Government** about species of fish and areas of the ocean that need protection

## Government



- Responsible for the economic and social well-being of its citizens, by ensuring sufficient jobs, food supply, and opportunities
- Its citizens include **Fishing Community, Local Student, Scientist, Hoteliers, Seafood Vendor**

## Hotelier



- Operates a hotel for **Tourist** to make a living
- Hotel generates jobs for local communities by providing services to **Tourist**
- Serves **Fish** to staff and guests
- Employs **Local Student** for part-time jobs during the tourist season

## Local Student in Ataúro



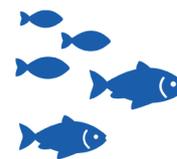
- Consumes **Fish** for most meals, as part of the tradition on the island
- Buys seafood from the **Seafood Vendor**
- Aspires to be a **Fishing Community** in the future

## Tourist



- Travels to Ataúro to swim with **Fish** by snorkelling and diving among coral reefs
- Stays at the local **Hotel**
- Eats three meals a day at the local restaurant, which buys its seafood from the **Seafood Vendor**

## Fish



- Maintains the balance of the ocean by being a part of the food web
- Faces the threat of extinction as it is being caught by **Fishing Community** and sold by **Seafood Vendor** faster than populations can recover to feed people
- Subject of study for **Scientist**

## Seafood Vendor



- Relies on selling seafood to **Hotelier, Local Student,** and sometimes **Tourist**
- Buys what the **Fishing Community** catches
- Consumes **Fish** daily