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OCEAN DREAMS

Educational Activities Guide

ACTIVITY 2

Ocean Story Detectives

Finding Solutions

Voice of the Ocean

DEEP SEA

SK Films

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INTRODUCTION

The ocean is the blue heart of our planet. It produces much of the oxygen we breathe, provides food for billions of people, and plays a crucial role in regulating Earth's climate. Life on Earth began in the ocean, and even today, all living systems remain connected through its waters. What happens on land — from the choices we make to the resources we use — directly affects the health of the ocean, even far from the coast.

Ocean Dreams takes us to places where marine life has been given the chance to recover, showing how ecosystems can return and flourish when they are protected and carefully restored. Through powerful images and personal stories, the film highlights both the challenges facing the ocean and the hope that emerges when people act wisely. It reminds us that the ocean is not separate from our lives, and that small actions can create far-reaching impacts.

UNESCO's Ocean Literacy Program emphasizes that understanding the ocean is essential for caring for it. By observing how marine ecosystems function, recognizing how they change over time, and understanding the role humans play within them, students can begin to connect knowledge with responsibility. These activities are designed to support that learning journey — encouraging reflection, curiosity, and discussion — while empowering students to think about how informed choices can help protect, restore, and support the recovery of ocean ecosystems, for the benefit of life both below and above the waves.

From the Film:

Ocean Dreams is a Giant Screen journey into the hidden world beneath the ocean's blue surface — a story of breathtaking beauty, fragile ecosystems, and extraordinary resilience.

While human activity has pushed marine environments to the brink, this film reveals something equally powerful: the ocean's remarkable ability to recover when given protection and space. From the icy fjords of Norway to the vibrant reefs of Raja Ampat and the surprising rebirth of Bikini Atoll, ***Ocean Dreams*** showcases real-world conservation success stories where marine life has returned in astonishing abundance.

Through immersive large-format cinematography, audiences are invited to experience the ocean not as a distant wilderness, but as a living system deeply connected to our own survival.

At its heart, ***Ocean Dreams*** is a story of hope — a reminder that when we protect the ocean and its inhabitants, we protect ourselves.



Ocean Literacy Principles

The Ocean Literacy Principles are a globally recognized framework that helps educators guide students toward a deeper understanding of the ocean's influence on us and our influence on the ocean. These seven principles describe the essential knowledge students need to develop environmental awareness, scientific curiosity, and a sense of stewardship for our blue planet.



Earth has one big ocean with many features

Even though we use different names — Atlantic, Pacific, Indian, etc. — all of these are actually connected and form one single, continuous ocean system. Water, currents, heat, and marine life move freely across the planet.



The ocean and life in the ocean shape the features of Earth

The ocean constantly reshapes our planet. Waves and currents shape coastlines, marine organisms help form sand and reefs, and ocean processes influence the physical structure of Earth.



The ocean is a major influence on weather and climate

The ocean absorbs, stores, and moves heat around the planet. This controls weather patterns, rainfall, storms, and long-term climate conditions everywhere — even far from the coast.



The ocean makes Earth habitable

The ocean helps regulate Earth's temperature and produces much of the oxygen we breathe through microscopic plankton, making life on Earth possible.



The ocean supports a great diversity of life and ecosystems

The ocean contains more living organisms and ecosystems than anywhere else on Earth — from coral reefs and kelp forests to deep-sea trenches full of species we still know little about.



The ocean and humans are inextricably interconnected

Humans depend on the ocean for oxygen, food, climate regulation, transportation, recreation, culture, and inspiration — and our actions directly affect ocean health.



The ocean is largely unexplored

Most of the ocean remains a mystery. We have only explored a small portion, and new species, ecosystems, and geological features are discovered all the time.

Ocean Story Detectives

Overview

Description

In this activity, students explore three ocean stories related to the **short video "Ocean Dreams – Finding Solutions"**. By carefully observing and describing what they see, they learn how marine ecosystems can change over time from a healthy state, to a challenge, and then towards recovery. Through guided questions and group discussion, students build curiosity, empathy for marine life, and an understanding that nature can recover when given support. Students do not need to fully understand complex environmental issues. The goal is to observe, describe, and notice change. Keep the tone curious and hopeful. Focus on what is visible in the images rather than abstract explanations.

Learning objectives:

Students will:

- Observe and describe features of different marine ecosystems using visual evidence
- Identify patterns and changes in ocean environments over time
- Explain how changes in the environment can affect plants and animals
- Recognize that human actions can impact and help ocean ecosystems
- Use discussion and shared ideas to build understanding of how ecosystems work and recover

Ocean Literacy Principles

- Principle 5: The ocean supports a great diversity of life and ecosystems
- Principle 6: The ocean and humans are interconnected

Next Generation Science Standards (NGSS)

5-LS2-1: Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.
5-ESS3-1: Obtain and combine information about ways communities use science ideas to protect Earth's resources and environments.
4-LS1-1: Construct an argument that plants and animals have internal and external structures that support survival.
3-LS4-4: Make a claim about how changes in the environment affect the survival of organisms.

Materials:

- A4 or A3 printed illustration sets (one set per group): *Healthy ecosystem, Ecosystem under pressure (problem), Recovery / positive change*
- Optional worksheet with guiding questions
- Pens or pencils

Lesson Plan

Step 1 — Explore the Ocean Scene

Format: Whole-Class Discussion or in small groups

Time: ~10 minutes

Divide the class into four groups. Each group receives one set of illustrations from one of the ocean stories:

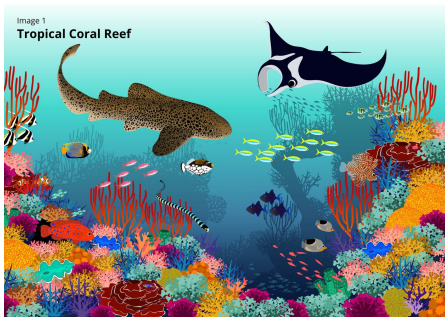
- Tropical Coral Reef
- Kelp Forest Atlantic
- Kelp Forest Pacific
- Estuary

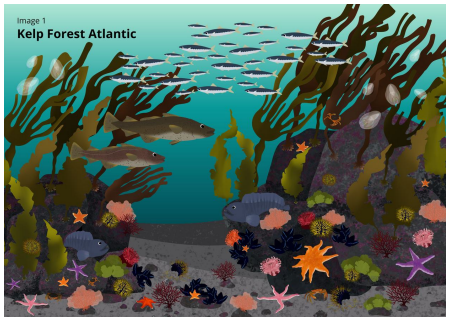
Students look at their own ocean story illustration and become “detectives”.
Present **Image 1** of each Ocean Story, and ask:

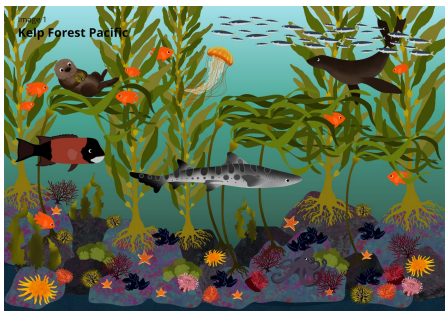
- ***What animals can you see? how many? how are they different?***
- ***What is happening in this place?***
- ***What makes this ocean environment special?***

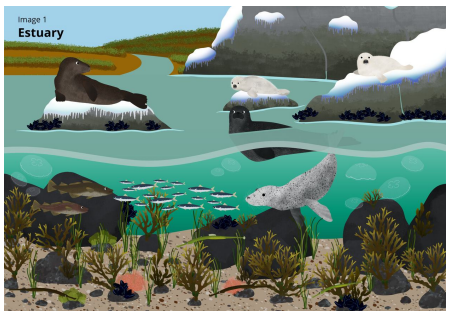
Marine Ecosystems

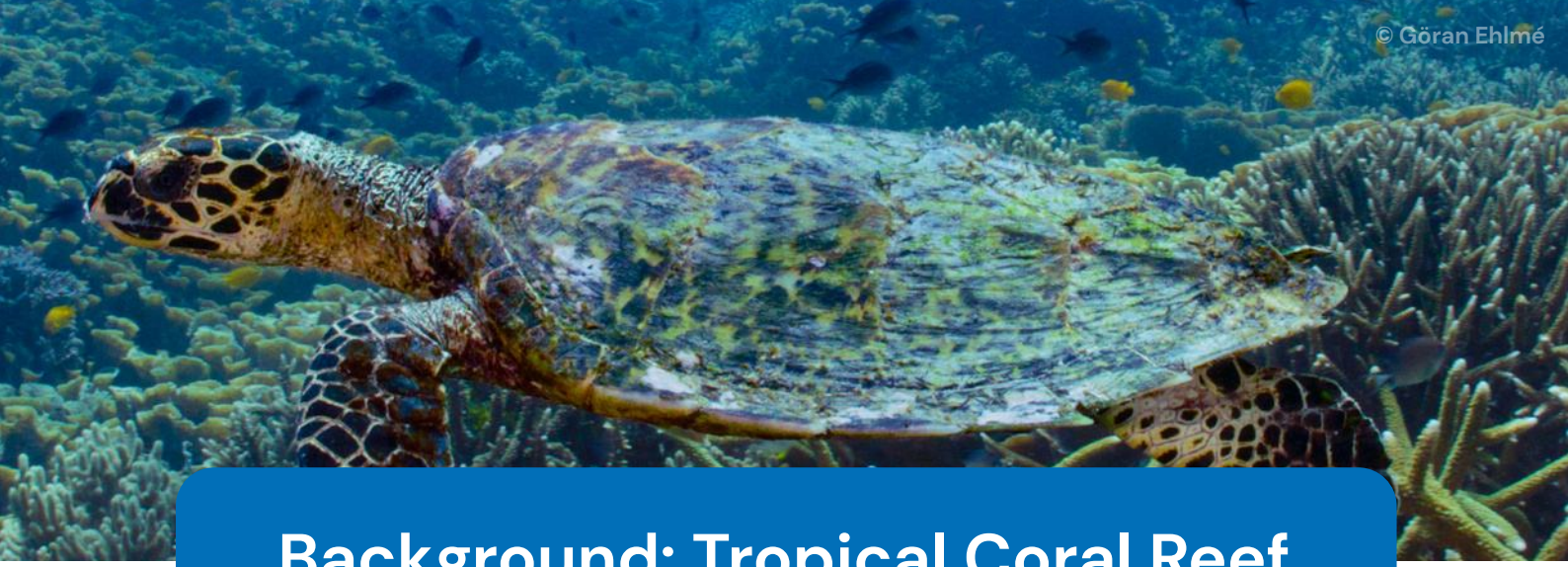
Each marine environment featured in the lesson is accompanied by a short background. Teachers are encouraged to guide students helping them build background knowledge and develop a clearer understanding of each environment.











Background: Tropical Coral Reef

Coral reefs are among the most vibrant and diverse ecosystems on Earth, built over thousands of years by tiny coral polyps. Although they cover less than 1% of the ocean floor, they support nearly 25% of all marine life, providing habitat for fish, sea turtles, invertebrates, and countless other species. These reefs also offer essential benefits to people, including food, coastal protection, tourism, and even the potential for life-saving medicines. Reefs grow as coral polyps take minerals from seawater and, with the help of tiny algae, build hard skeletons that gradually form complex structures—the foundation of the entire ecosystem.

At the same time, many organisms play essential roles in maintaining reef health. Some species act as keystone species, meaning their presence has a disproportionately large effect on the ecosystem's stability. Others help build and strengthen the reef's structure, while some produce sand by breaking down coral and algae. Together, these processes create habitats that serve as nurseries for young fish, offer shelter from predators, and help maintain the delicate balance of life within the reef.

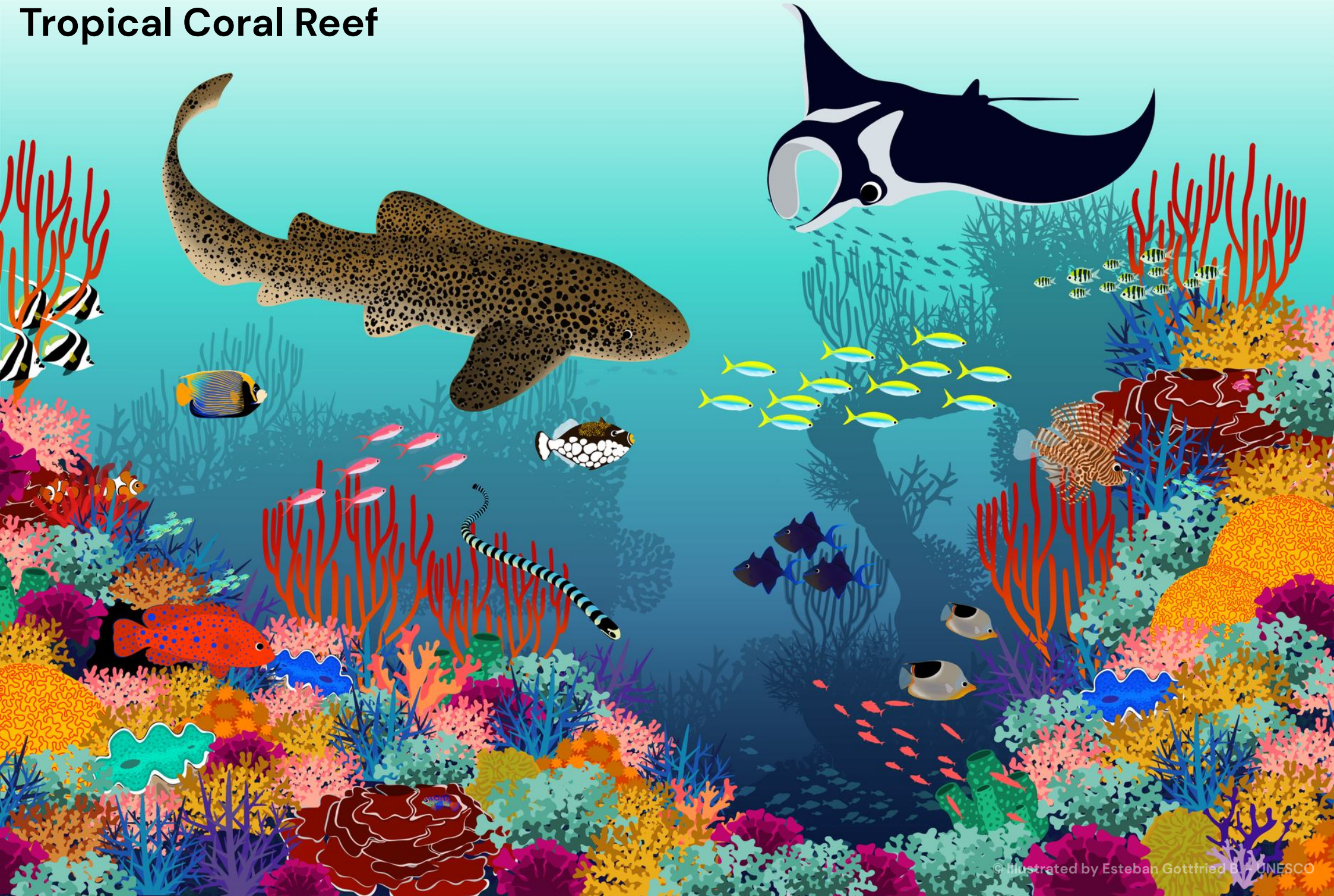
However, coral reefs face a growing problem: rising ocean temperatures, pollution, overfishing, and ocean acidification are placing increasing pressure on these ecosystems. The impact is already visible in many parts of the world, where reefs are declining and biodiversity is being lost. Without urgent action, many of these ecosystems could decline dramatically within our lifetime.

There is, however, a solution. Through conservation, sustainable practices, and global climate efforts, we can help restore reef ecosystems and support their natural ability to recover. Sometimes nature can heal on its own—but often, it needs our help to restore the balance and ensure coral reefs continue to thrive for generations to come.

Key words: *Coral Reef, Keystone species, Threats, Recover.*

Image 1

Tropical Coral Reef





Background: Kelp Forests

Kelp forests are vast underwater ecosystems found in cold, nutrient-rich coastal waters around the world, where giant brown algae grow into dense, towering underwater canopies. Like terrestrial forests, they create complex three-dimensional habitats that support an extraordinary diversity of marine life. Fish, invertebrates, and marine mammals all depend on these environments for food, shelter, and reproduction, making kelp forests some of the most productive ecosystems on Earth.

These ecosystems are shaped by a delicate internal balance. Within them, certain species play a disproportionately important role in maintaining stability. These keystone species help regulate interactions across the food web, influencing which species thrive and how the ecosystem functions as a whole. Examples include species such as sea otters and Wolffish—found in different kelp forest regions around the world—each playing a similar role in maintaining ecological balance within their own environments. When this balance is intact, kelp forests remain rich, structured, and full of life.

However, like all ecosystems, kelp forests are vulnerable to change. When key species are reduced or removed due to environmental pressures or human activity, the balance can shift dramatically. Some populations may increase rapidly while others decline, leading to cascading effects throughout the ecosystem. Over time, these changes can transform once-thriving forests into simplified and less diverse environments.

Yet kelp forests also demonstrate resilience. When pressures are reduced and key ecological relationships are protected or restored, these ecosystems can recover. It is a reminder that stability in nature depends on balance—and that even small changes in the structure of an ecosystem can have wide-reaching effects.

Key words: *Kelp forests, Wolffish, Sea Otter, Balance, Protect.*

Image 1

Kelp Forest Atlantic

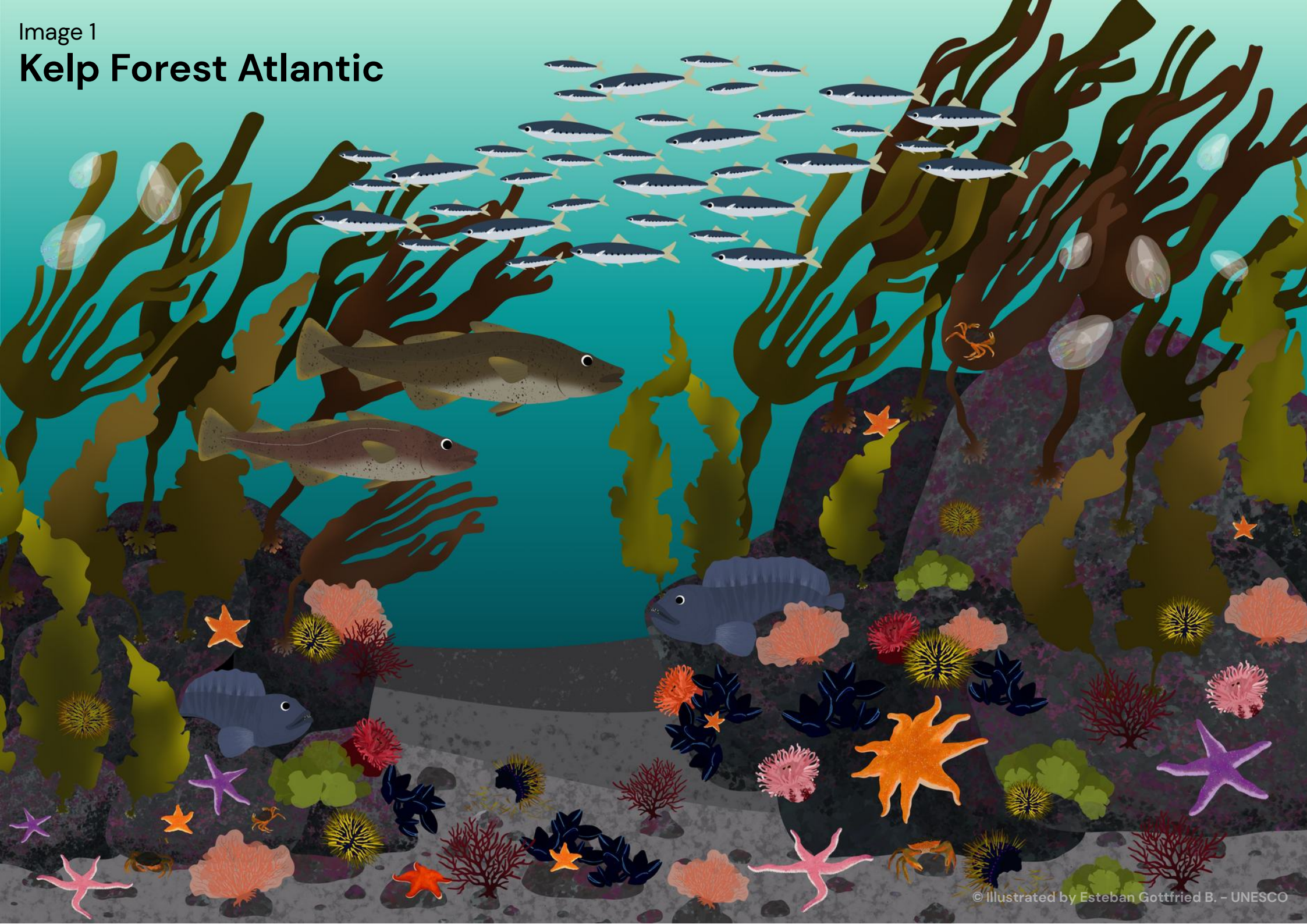
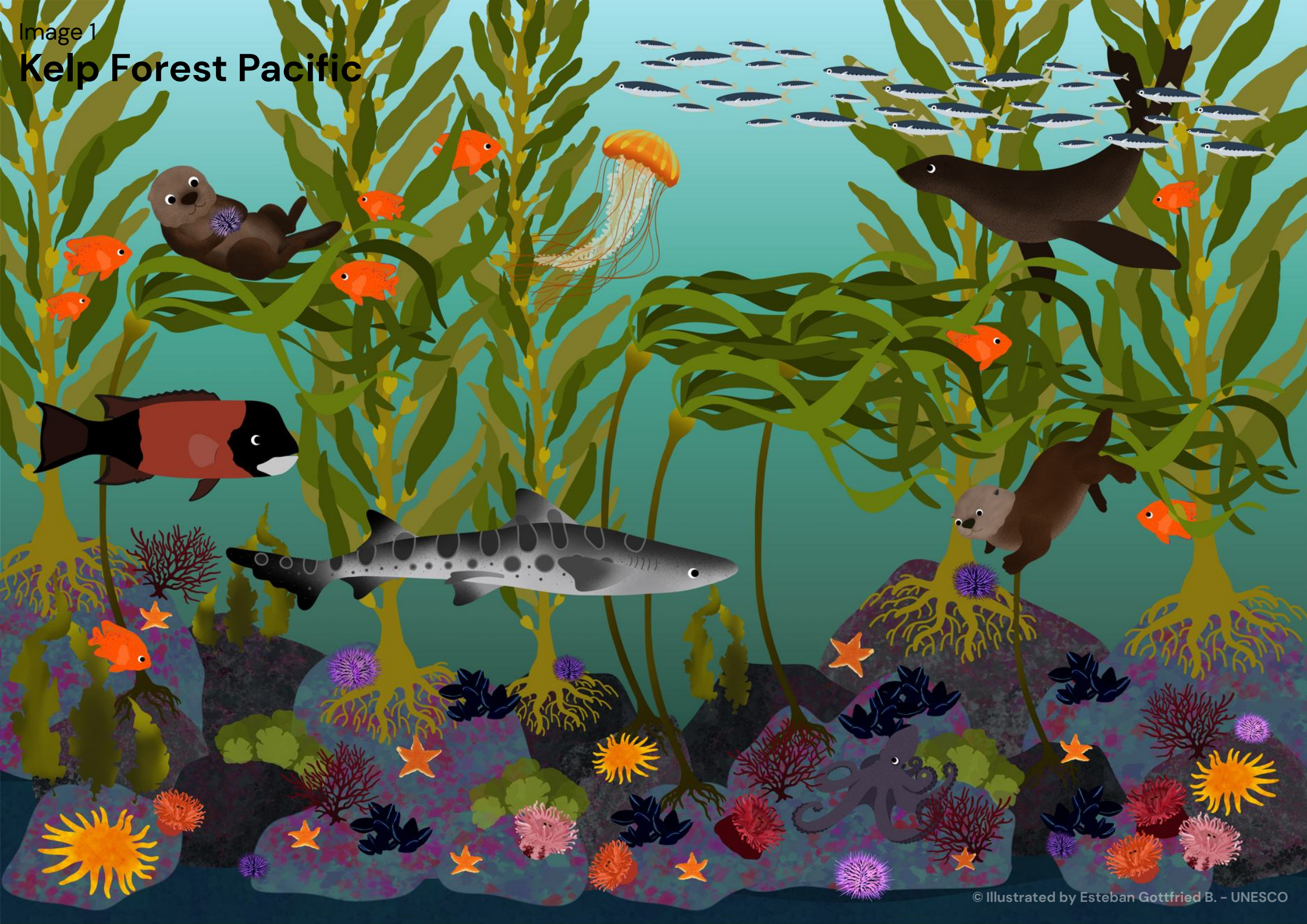
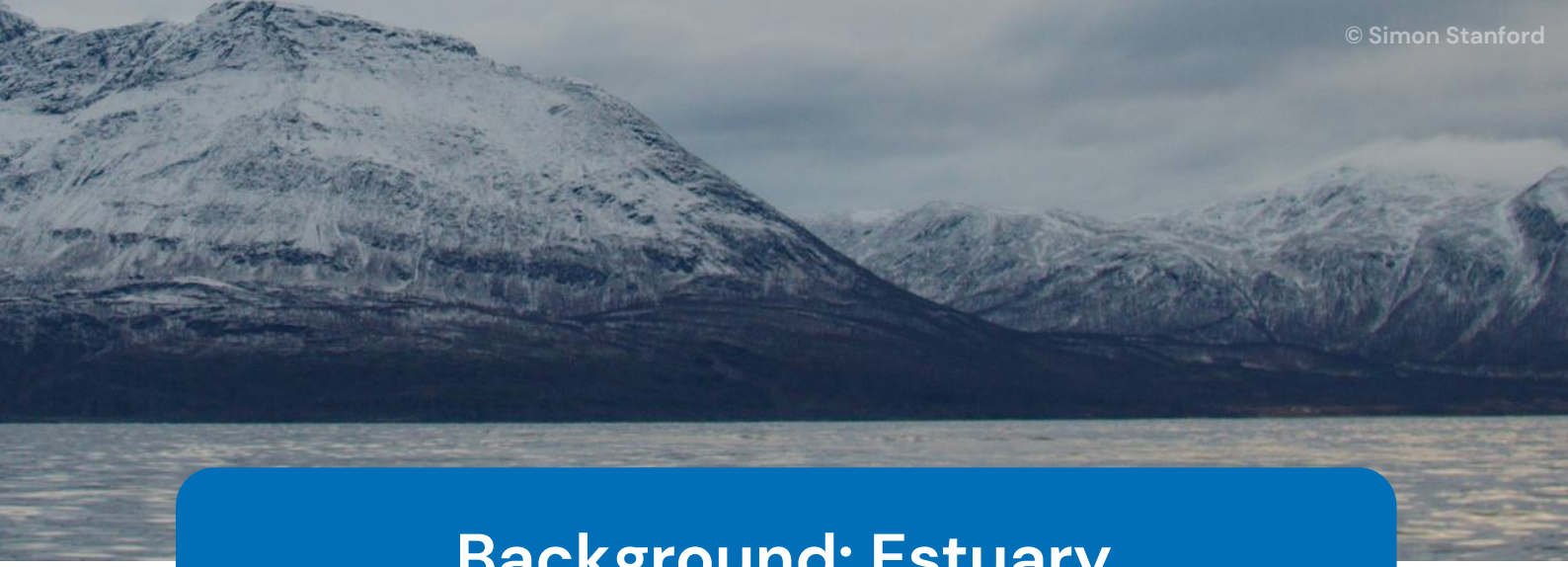


Image 1

Kelp Forest Pacific



© Illustrated by Esteban Gottfried B. - UNESCO



Background: Estuary

An estuary is a coastal ecosystem where freshwater from rivers meets and mixes with saltwater from the ocean. This creates a brackish environment—neither fully marine nor fully freshwater—where conditions are constantly changing due to tides, currents, and river flow. Because of this variability, estuaries are highly dynamic systems shaped by adaptation and resilience.

These environments are among the most productive and biologically rich on Earth. The mixing of nutrients from land and sea supports high levels of biodiversity, providing feeding grounds, spawning areas, and nurseries for many species. Fish, birds, and marine mammals rely on estuaries at different stages of their life cycles, making them essential hubs within larger ocean networks. They also help filter water, trap sediments, and protect coastlines, linking the health of inland ecosystems directly to the sea.

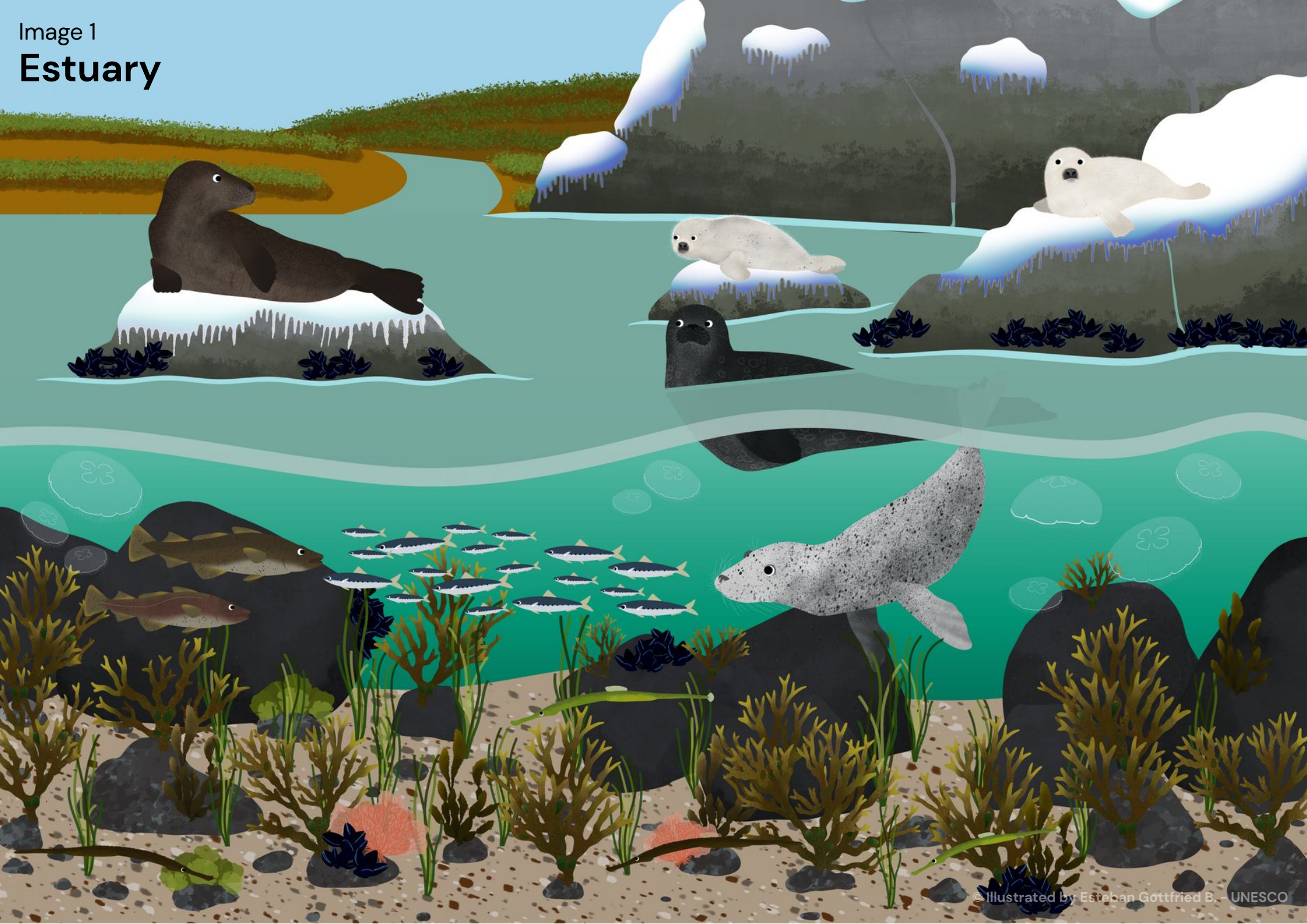
However, this strong connection to land also makes estuaries vulnerable. Rivers carry not only freshwater, but also nutrients, plastics, and chemical pollutants from agriculture, industry, and urban areas. Over time, these inputs can accumulate, altering water quality and disrupting the balance of the ecosystem. Because estuaries are often semi-enclosed, these impacts can become concentrated, affecting biodiversity and ecosystem function.

Despite these pressures, estuaries can recover when conditions improve. When pollution is reduced and natural systems are protected, biodiversity can return and ecological balance can be restored. It is a powerful reminder that the health of the ocean depends not only on the sea itself, but also on how we care for the land around it.

Key words: *Estuary, Brackish Environment, Adaptation, Restore.*

Image 1

Estuary



Lesson Plan

Step 2 — Look Closely: What Changes?

Format: Whole-Class Discussion or in small groups

Time: ~5 minutes

Students now focus on **Image 2** from their Ocean Story. Explain that this illustration shows a change in the ocean environment.

Ask students to observe carefully and discuss within their groups. Guide them with questions such as:

- ***What is different from Image 1?***
- ***What is happening in this picture?***
- ***Do you see more or fewer animals?***
- ***Does anything look unusual or out of balance?***
- ***How does this place make you feel? Why?***

Encourage students to act like "ocean detectives" and use visual clues (number of animals, colors, what is missing or changed).

After the group discussion, invite a few groups to share what changes they noticed and what they think might be happening in the ocean.

Image 2
Tropical Coral Reef

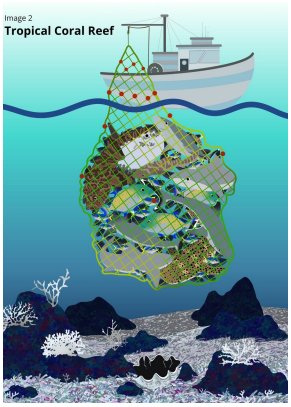


Image 2
Kelp Forest Atlantic

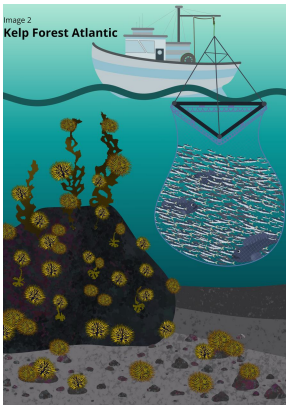


Image 2
Kelp Forest Pacific

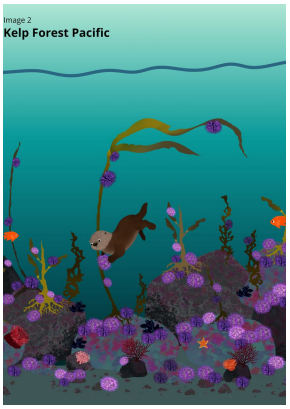


Image 2
Estuary

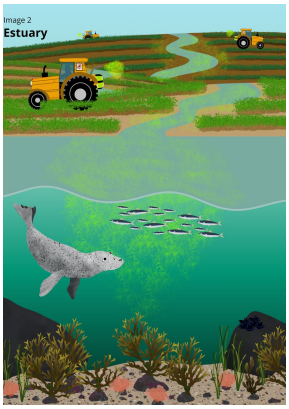


Image 2

Tropical Coral Reef

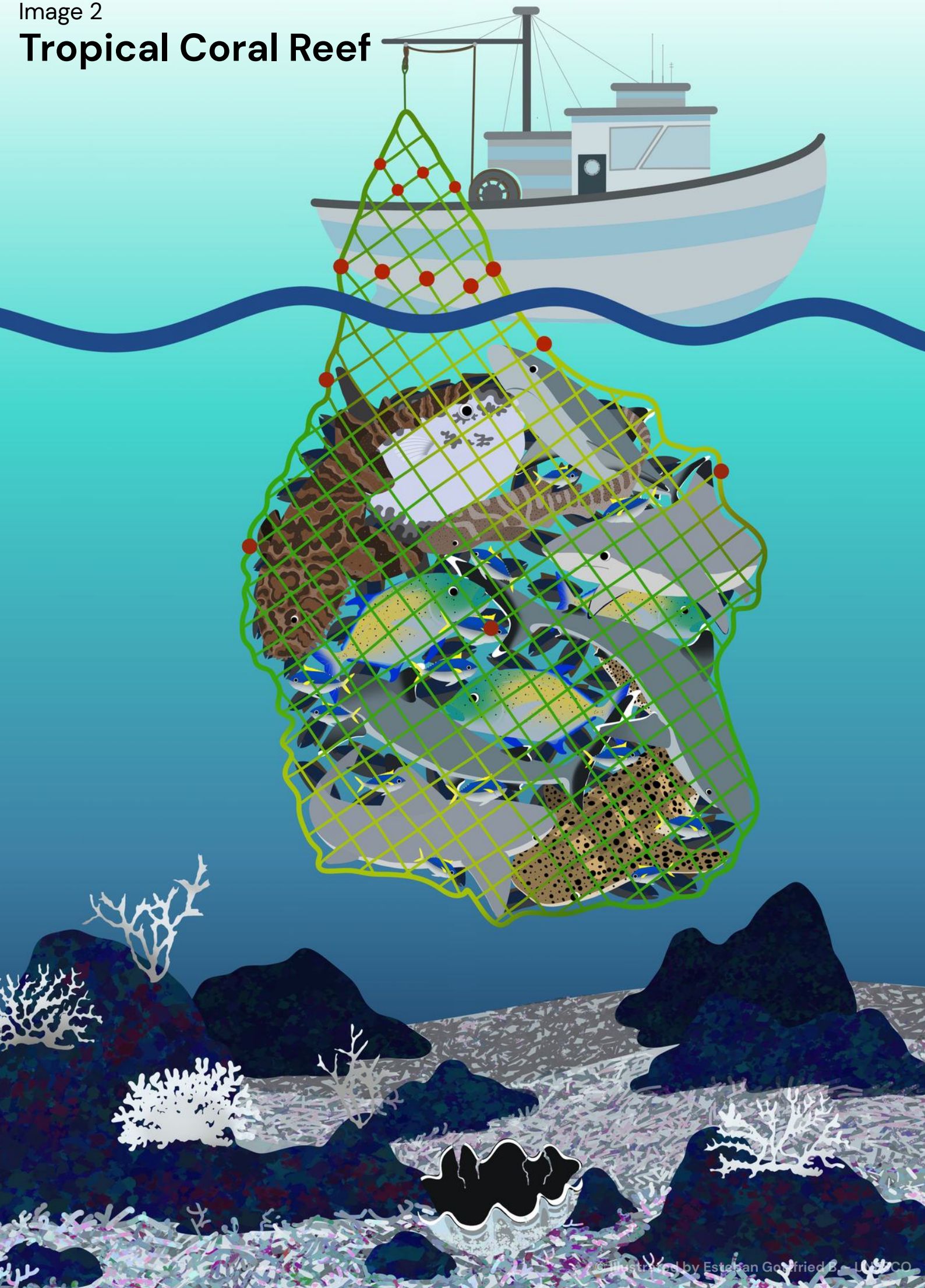
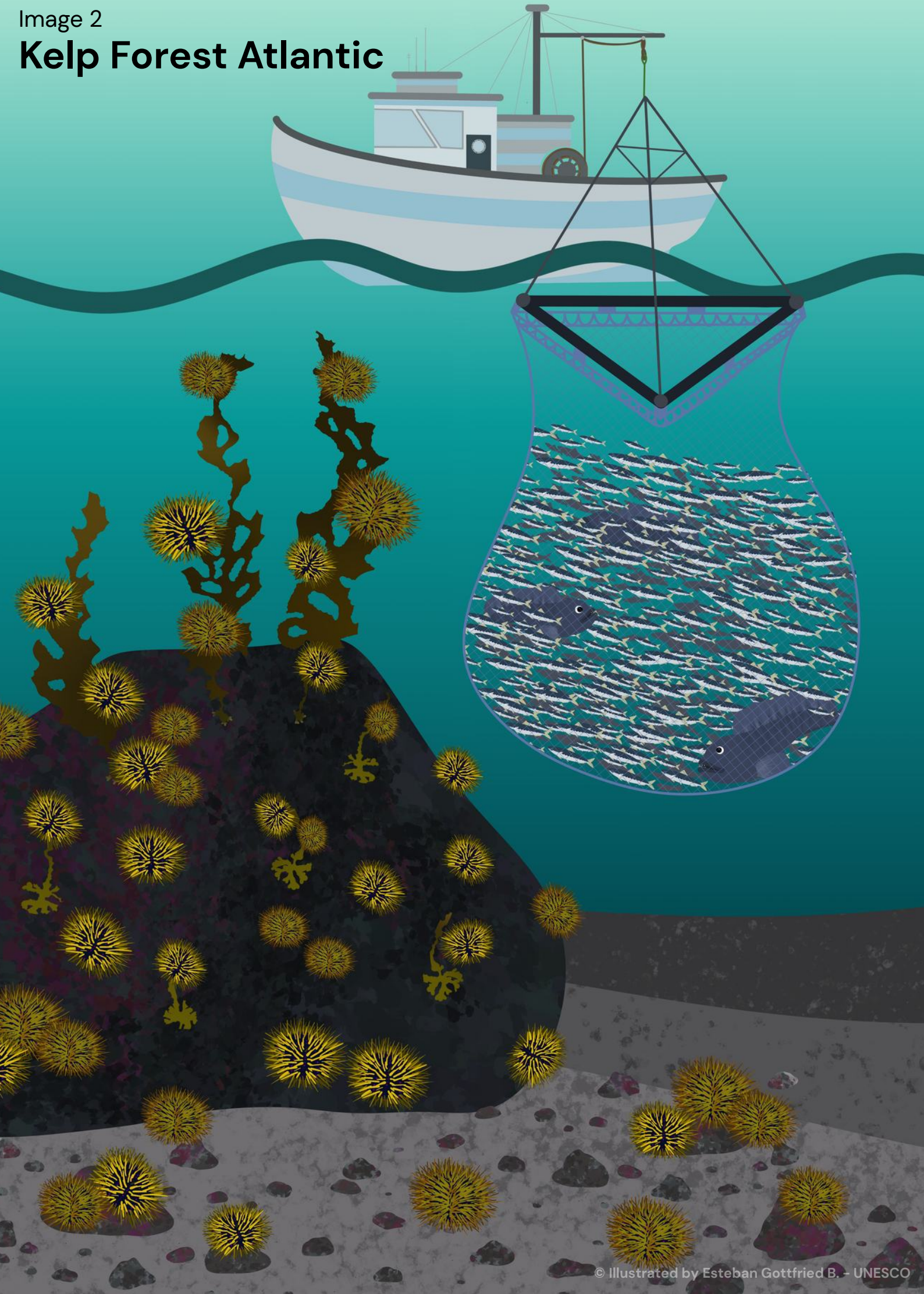


Image 2

Kelp Forest Atlantic



© Illustrated by Esteban Gottfried B. - UNESCO

Image 2

Kelp Forest Pacific



Image 2

Estuary



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Lesson Plan

Step 3 — Ocean Heroes: Finding Solutions

Format: Whole-Class Discussion or in small groups

Time: ~5 minutes

Begin by showing the **short video *"Ocean Dreams – Finding Solutions"***. This introduces students to the key ideas of ***Restore***, ***Protect***, and ***Recover***, helping them understand that there are different ways people can care for and support ocean environments. After watching, briefly discuss the three key ideas as a class to ensure understanding.

Next, ask students to look at **Image 3** from their Ocean Story. Explain that this illustration connects directly to the solutions presented in the short video and represents actions that can help the ocean.
Assign each group one key idea and habitat focus:

- ***Coral Reef — RESTORE***
- ***Kelp Forest — PROTECT (for both the Atlantic and Pacific)***
- ***Estuary — RECOVER***

Ask students to observe the image and identify the "stamp" and the actions shown. Guide them with questions such as:

- ***What is happening in this picture now?***
- ***How are people helping the ocean?***
- ***What does restore / protect / recover mean in this image?***
- ***What small actions can we take to help the ocean too?***

Explain that we don't need to be scientists to help—by learning, caring, and making small choices, we can all support the ocean. Encourage groups to share their ideas, reinforcing the message that there is hope and that positive actions can make a difference.

Image 3
Tropical Coral Reef

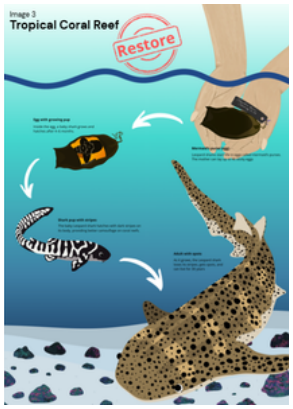


Image 3
Kelp Forest Atlantic

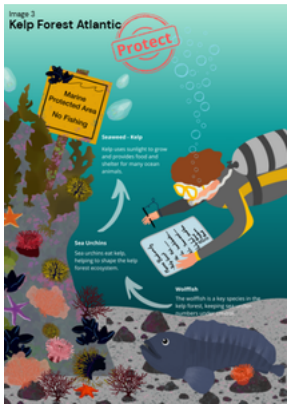


Image 3
Kelp Forest Pacific



Image 3
Estuary



Image 3

Tropical Coral Reef

Restore

Mermaid's purse (egg)

Leopard sharks start life in eggs called mermaid's purses. The mother can lay up to 46 sticky eggs

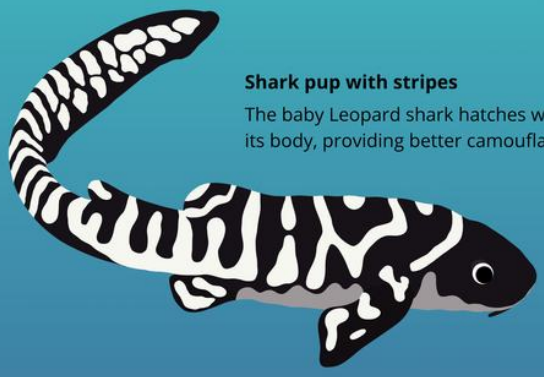
Egg with growing pup

Inside the egg, a baby shark grows and hatches after 4–6 months.



Shark pup with stripes

The baby Leopard shark hatches with dark stripes on its body, providing better camouflage on coral reefs.



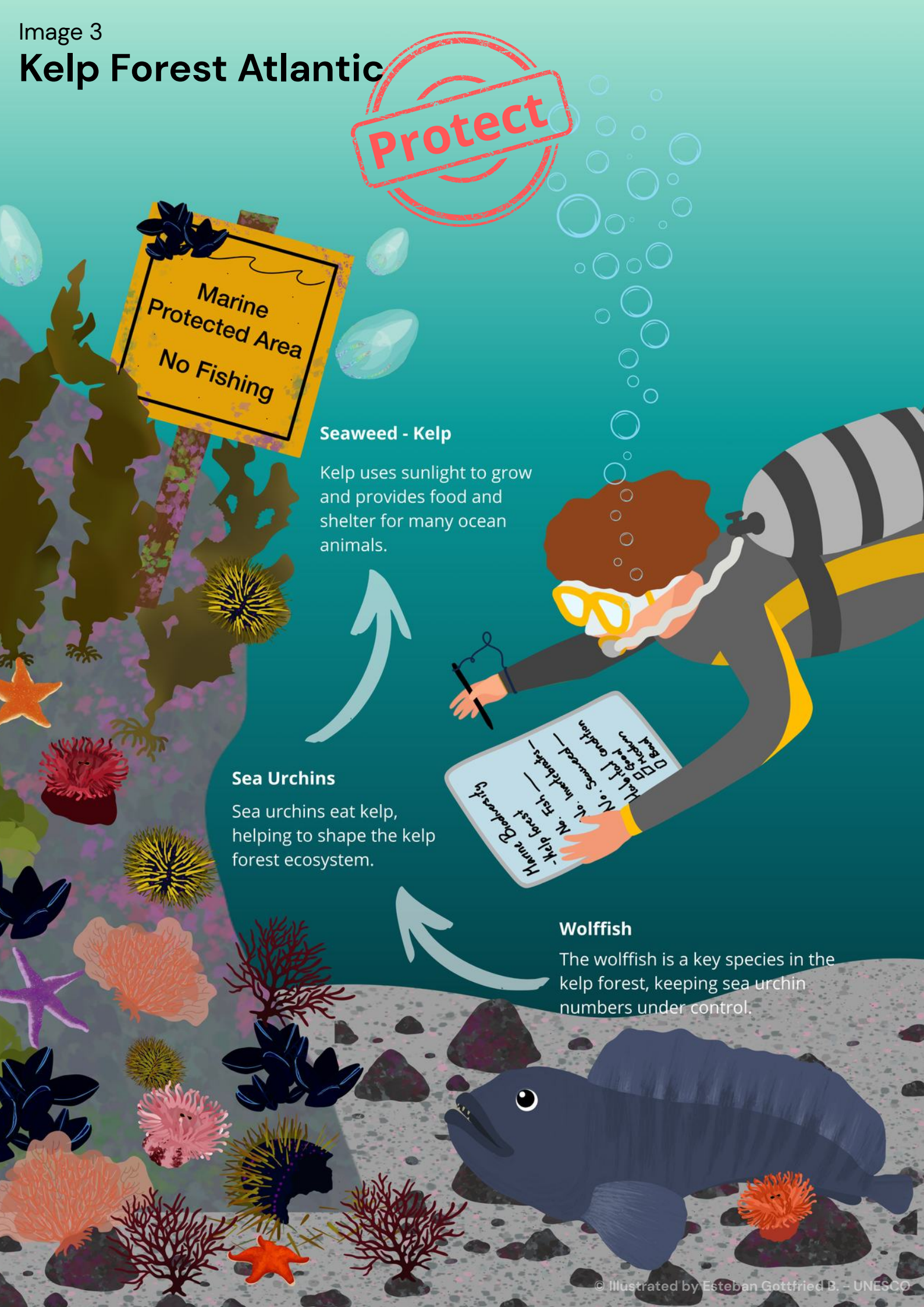
Adult with spots

As it grows, the Leopard shark loses its stripes, gets spots, and can live for 30 years

© Illustrated by Esteban Gottfried B. - UNESCO

Image 3

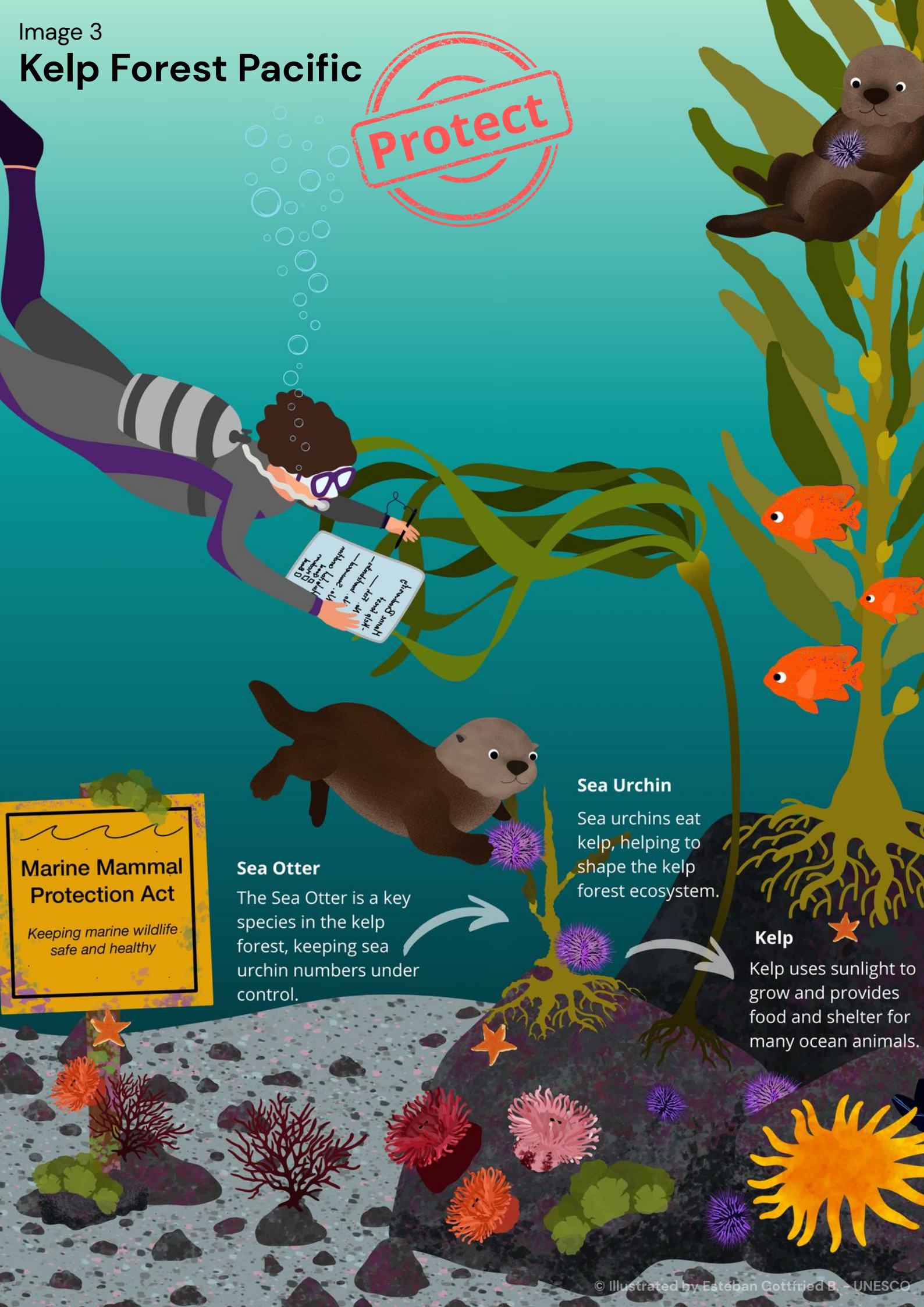
Kelp Forest Atlantic



© Illustrated by Esteban Gottfried B. - UNESCO

Image 3

Kelp Forest Pacific



© Illustrated by Esteban Gottfried B. - UNESCO

Image 3

Estuary



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Lesson Plan

Step 4 — One Ocean, One Connection

Format: Whole-Class Discussion or in small groups

Time: ~10 minutes

Begin with a whole-class discussion to connect the three Ocean Stories. Ask:

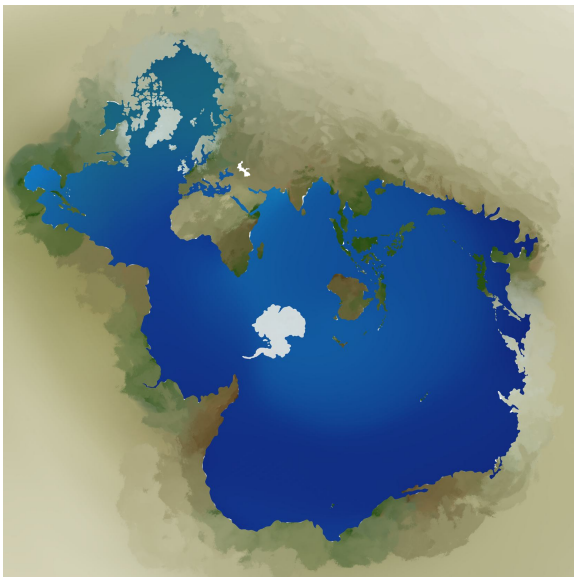
- ***How do you think these stories are connected?***
- ***Do you think these ocean places are separate, or part of something bigger?***

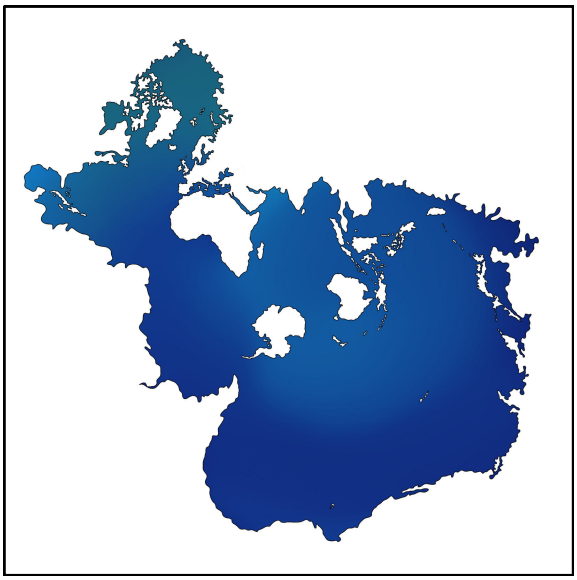
Guide students to understand that all ocean environments are linked.

Next, introduce the **Spilhaus Projection Ocean Map**. Explain briefly:

*This map was created by oceanographer **Athelstan Spilhaus** in 1942. Unlike most maps, it places the ocean at the center instead of the land. It shows that there is really one global ocean, all connected—from warm tropical coral reefs to the cold waters near the poles.*

Explain that on this map, land may look stretched or unusual because the focus is on the ocean. This helps us see how different ocean areas are connected as one system.





Lesson Plan

Step 5 — Find Your Place in the Ocean World

Format: Individual/Pair Activity

Time: ~10 minutes

Download the Spilhaus map illustration provided.

In pairs or individually, students:

- *Try to find their city or country on the map*
- *Notice how the land looks different from a typical world map*
- *Identify some of the major ocean areas (ocean basins)*
- *Discuss how these ocean areas connect to each other*

Wrap up by reinforcing the idea: even though places may look far apart, they are all part of one connected ocean system.



Find Your Place in the Ocean World

The **Spilhaus Map** was created by oceanographer Athelstan Spilhaus in 1942. Unlike most world maps, it puts the ocean at the center, showing that all oceans are connected as one global system. From warm tropical coral reefs to the cold waters of the poles, every part of the ocean is linked. The land may look stretched or unusual because the focus is on the ocean, helping us understand how ocean basins and currents connect the entire planet.

- Find your city or country on the map and color it.
- Locate and label the five ocean basins.

Bonus question: are you able to identify the locations featured in the film ***Ocean Dreams***?



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OCEAN DREAMS

Educational Activities Guide

Developed by UNESCO through its Ocean Literacy Programme, this educational activity uses the Ocean Dreams film to help students understand how marine ecosystems change over time, from balance to environmental challenges and towards recovery. Rooted in UNESCO's approach to Ocean Literacy, the activity promotes a deeper understanding of the Ocean's influence on people and of how human activities, in turn, affect its health and ecosystems. By translating these complex connections into accessible, visual learning experiences, it encourages students to develop curiosity, critical thinking and a sense of responsibility, empowering them to make informed choices and contribute to a more sustainable relationship with the Ocean.

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Supported by:
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Lina Mattsson - Deep Sea Productions
Daniel Hager - Deep Sea Productions

Voice of the Ocean

DEEP SEA

SK Films

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