ARTICLES, WORKSHEETS & CARD SORTING ACTIVITY: Fishery innovations Preserving biodiversity in practice

Shoal of fish. © MSC

Fish below water. © MSC

Importance of ocean

> These inspiring stories show that biodiversity protection and sustainable seafood production are two sides of the same coin.

Why the Ocean Is Important — and Needs Our Help

The ocean is a huge part of life on Earth. It gives us oxygen, keeps the planet cool, and is home to heaps of sea creatures. It also helps feed millions of people and gives jobs to communities around the world—including here in Aotearoa.

The ocean needs our help to make sure that it stays super healthy. Some of the problems facing the ocean are that people are:

- Taking too many fish from the sea (called overfishing),
- Putting rubbish and pollution into the water,
- Damaging important places like coral reefs,
- And causing climate change, which is heating the ocean.

This can make life harder for sea creatures like fish, turtles, dolphins, and even people who rely on the sea to live. That's why we need to make sure that we are doing things the best way that we can for the ocean.

What Is Sustainable Fishing?

Sustainable fishing means catching fish in a way that lets the ocean stay healthy.

It's about:

- Only taking what we need,
- Letting fish grow and have babies,
- Not harming too many other sea creatures or their homes.

When we fish this way, the ocean stays full of life—and people can keep getting food and jobs from the sea in the future.

The World Has a Plan

To help save the ocean, countries around the world have agreed on a big plan. It's called Sustainable Development Goal 14 (or SDG14), and it's all about looking after the ocean and using it wisely.

Some of the things countries are doing include:

- Protecting more areas of the sea,
- Stopping illegal fishing,
- Making sure fishing rules are fair,
- And working together to find smart solutions.

Big meetings like the UN Ocean Conference help countries share ideas and check on progress.

We All Have a Role to Play

Looking after the ocean isn't just for world leaders or scientists. Everyone has a part to play—including me and you!

In Aotearoa, we have the idea of kaitiakitanga —as kaitiaki we can act as guardians or protectors of the ocean. That means:

- Learning about the moana (ocean),
- Making good choices (like picking sustainable seafood),
- Sharing what we learn with others.

If we work together—you, us, governments, fishers, scientists, communities —we can protect the ocean now and for the future.

TE KAWA O TANGAROA
OCEAN CENTRED LEARNING
www.msc.org/tangaroa

WORKSHEET: Importance of Ocean

Name: _____ Date: _____

Part 1: Why the ocean matters

Read the article "Importance of Ocean " and answer the questions below in full sentences.

1. What are three things the ocean gives us?

2. What are some problems the ocean is facing?
Tick ✓ the ones you read about:

□ Overfishing (taking too many fish)

□ Too much sunshine

□ Rubbish and pollution

□ Helping sea creatures

□ Climate change (heating the ocean)

□ Damaging coral reefs

3. How does overfishing hurt sea life and people?

Part 2: What Is Sustainable Fishing?

Sustainable fishing means fishing in a way that... (Circle the correct answers)

a) Helps the ocean stay healthy

b) Takes all the fish before others can catch them

c) Lets fish grow and have babies

d) Harms the homes of sea creatures

e) Takes only what we need

Shoal of fish. © MSC

WORKSHEET: Importance of Ocean

Name: _____ Date: _____

Part 3: Taking Action Together

1. What is the name of the big global plan to protect the ocean?

2. What is something countries are doing to help the ocean?

3. What does kaitiakitanga mean in Aotearoa?

Part 4: Be an Ocean Guardian

What are 3 things YOU can do to help the ocean?

a.

b.

c.

Extension Activity: Design a Poster!

Create a colourful poster with a message encouraging people to look after the moana (ocean). Use pictures and words to show what you've learned.

Shoal of fish. © MSC

Ocean life: facing an uncertain future

INFORMATION SHEET LEVELS 4-6

The ocean plays a massive role in keeping life going—not just for creatures under the sea, but for us too. It provides food, supports the climate, and is home to incredible biodiversity (the variety of life in the sea). But right now, that biodiversity is under serious threat.

Scientists say species are going extinct 100 to 1,000 times faster than normal—and it's getting worse. Ocean life is in danger from things like:

- Overfishing
- Pollution (like plastics and chemicals),
- Habitat destruction (damaging coral reefs, seagrass, etc.).

According to the International Union for Conservation of Nature (IUCN), more than 40% of coral species are at risk of dying out. Around one-third of sharks and rays are also in danger—mostly because of overfishing. And if human-caused climate change gets worse, even more marine species could struggle to survive.

The threat of overfishing

Overfishing is one of the biggest threats to the ocean. It happens when we take too many fish too quickly, and the population can't bounce back. It can also cause:

- Bycatch – catching other animals like turtles or dolphins by mistake,
- Food chain damage – removing too many of one species can affect others,
- Habitat destruction – fishing gear can damage important ecosystems,
- Bait problems – using species that are already endangered.

If overfishing continues, we risk losing more marine species and affecting the balance of ocean life. The United Nations Food and Agriculture Organization (FAO) says over 37% of fish stocks are now overfished. Even though most fish we eat still come from sustainable sources, the number of overfished species keeps growing.

A growing global appetite

One reason for this pressure is that people around the world are eating more seafood than ever. Back in 1961, the average person ate about 9kg of seafood a year. Now it's over 20kg, and still rising. With the global population expected to hit 10 billion by 2050, the demand for seafood is expected continue to increase.

This includes seafood from:

- Wild fisheries (the ocean),
- Aquaculture (fish farms).

These foods, sometimes called blue foods, are important because they provide high-quality protein and nutrients. And here's something interesting: wild-caught seafood has a much smaller carbon footprint than red meat like beef and pork. So, choosing sustainably caught or responsibly farmed seafood can help fight climate change too.

What This Means for New Zealand

In Aotearoa, the ocean is part of our identity. We have a long history of living with the moana or sea, from traditional kaitiakitanga (guardianship) by iwi and hapū, to today's marine protected areas and science-based fishing rules. But we still face challenges.

To protect the ocean for future generations, we need to:

- Fish responsibly and sustainably,
- Support ocean-friendly policies,
- Learn about the impact of our choices (like the seafood that we buy),
- Work with local and global communities to protect marine biodiversity.

Looking after the ocean isn't just about saving fish—it's about saving a way of life, protecting the climate, and making sure there's food for the future.

A coral reef. © iStock.

Extinction rates are currently

100 to 1,000

times higher than the natural baseline rate

40 %

of reef-building coral species face extinction

37.7 %

of fish stocks are overfished

20.7 kg

average global consumption of aquatic animals per capita

10 billion

projected global population by 2050

1.Dasgupta Review, 2021. 2. IUCN, 2024. 3. IUCN, 2021. 4 https://www.sciencedaily.com/releases/2024/11/241113123222.htm-.5 UN.org, 2019. 6. https://www.fao.org/publications/fao-flagship-publications/the-state-of-world-fisheries-and-aquaculture/en. 7. Blue Food Assessment, 2021. 8. https://www.nature.com/articles/s41558-018-0117-x

Worksheet: Ocean Life – Facing an Uncertain Future

Name: _____ Date: _____

Part 1: Reading Check – What Did We Learn?

Read the article "Ocean Life: Facing an Uncertain Future" and answer the questions below in full sentences.

1. Give one example of how the ocean is important for life on Earth?

2 .What is ocean biodiversity and why is it important in the ocean?

3. List three major threats to marine biodiversity mentioned in the article.

a) _____

b) _____

c) _____

4. What does 'overfishing' mean?

5. What are two negative effects from overfishing?

(i)

(ii)

6.. What are 'blue foods'?

7. Why are Blue Foods considered important for the future?

Shoal of fish. © MSC

Worksheet: Ocean Life – Facing an Uncertain Future

Part 2: Thinking Deeper

Write three or more sentences to answer one of the following questions. Use your own ideas and what you've learned.

a. What will the ocean be like once there is no overfishing?
b. What are some ways in Aotearoa New Zealand that we look after the ocean?
d. What is kaitiakitanga, and how can kaitiakitanga help us care for the ocean?

Part 3: Take Action!

Choose one of the following to complete:

1. Design a poster for your classroom wall that teaches people about the diversity of life in the ocean whilst encouraging them to choose sustainable seafood to help protect that diversity.

2. Write a short speech or video script that encourages your whānau or community to protect marine biodiversity.

3. Create a diagram or infographic showing how overfishing affects the ocean food web and

Shoal of fish. © MSC

How sustainable fishing supports ocean biodiversity

A 2022 study showed wild-caught fish populations targeted by MSC certified fisheries have higher relative abundance than non MSC populations*

How Sustainable Fishing Helps Ocean Life

Why it matters
Sustainable fishing means catching seafood in a way that doesn't harm the ocean. This helps protect ocean life (biodiversity) now and in the future.

When fishing is well managed, it supports healthy fish populations and protects the homes of marine animals like coral reefs, seabeds, and kelp forests. It also helps reduce harm to endangered or threatened species—animals that are at risk of disappearing forever.

How to stop overfishing
Overfishing is when we catch too many fish, too quickly, so fish populations can't grow back. To prevent this, countries and fisheries (groups that catch fish) use rules such as:

- Catch limits – only a certain number of fish can be caught.
- Seasonal closures – fishing is paused during breeding times so fish can reproduce.
- Protected areas – some places are off-limits to fishing to keep habitats safe.

These actions are based on science and help fish populations stay strong. Over time, these rules lead to healthier oceans and more fish for the future.

What is bycatch?
Bycatch happens when fishers accidentally catch animals they didn't mean to. This can include:

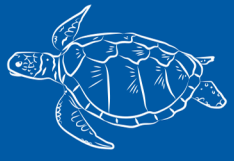
- Young or unwanted fish
- Turtles, seabirds, sharks, and dolphins

Bycatch is a big threat to biodiversity. But there are smart ways to reduce it:

- Use special fishing gear to avoid catching the wrong species
- Fish at night to reduce sea bird capture
- Avoid areas where protected species live or migrate
- Follow fishing rules and use good data to improve practices

When we fish in smarter, safer ways, we protect the ocean and all the life that depends on it.

Sustainable fishing in numbers



35 7

improvements by MSC certified fisheries to look after habitats and endangered, threatened and protected species in the past five years

71 6

fisheries engaged in the MSC program

19 %

of all wild marine catch is engaged with the MSC

* https://www.frontiersin.org/journals/marine-science/articles/10.3389/fmars.2022.818772/full.

Worksheet: How Sustainable Fishing Helps Ocean Life

Name: _____ Date: _____

Part 1: Reading Check – What Did We Learn?

Read the article “How Sustainable Fishing Helps Ocean Life” and answer the questions below in full sentences.

1. What does "sustainable fishing" mean?

2. Why is sustainable fishing important for ocean biodiversity?

3. List two ways to prevent overfishing.

(i) _____

(ii) _____

4. What is a marine protected area? Why is it helpful?

5. What is bycatch, and why is it a problem?

6. Name two ways that fishers can reduce bycatch.

(i) _____

(ii) _____

Shoal of fish. © MSC

Worksheet: How Sustainable Fishing Helps Ocean Life

Part 2: Diving deeper

Use words and pictures to answer one of the following questions. Use your own ideas and what you've learned.

1.Describe what the ocean will be like once there is no overfishing?

2. If you were in charge of fishing in Aotearoa New Zealand, what is one rule you would make to protect marine life and why?

3. What I can do to help our ocean?

Part 3: Creative Challenge (choose one)

Choose one of these activities to complete on a separate page

1. Design a poster encouraging sustainable fishing. Include a clear message, drawings or symbols, and facts from the article.

2. Write a poem or a song about the ocean and why it feels important to you.

3. Create a diagram or poster showing how sustainable fishing protects the ocean. Include things like fish, habitats, bycatch, and fishing rules.

Shoal of fish. © MSC

SORTING CARD SET 1: HOW SUSTAINABLE FISHING PROMOTES BIODIVERSITY

WORKING WITH SCIENTISTS

Fisheries collect data and follow advice from marine scientists to protect endangered species.

MODERN MONITORING TOOLS

Technologies like satellite tracking help stop illegal fishing and protect fish stocks.

STRONGER FISH POPULATIONS

When fish are not overfished, they can grow and reproduce, helping future generations.

INTERNATIONAL CO-OPERATION

Countries work together to protect fish like bluefin tuna by setting fair and smart fishing rules.

IMPROVING SURVIVAL CHANCES

Well managed fisheries help reduce the threat of extinction by reducing harm to endangered or threatened species.

FOLLOWING FISHING RULES

Following fishing rules and using good data reduces the impact of fishing on the environment and improves fishing practices.

SORTING CARD SET 1: HOW SUSTAINABLE FISHING PROMOTES BIODIVERSITY

CATCH LIMITS

Setting fishing limits based on science helps fish populations stay strong and healthy.

PROTECTED AREAS

Some ocean areas are closed to fishing to protect habitats like coral reefs and kelp forests. Protected areas can help damaged marine communities to recover.

BYCATCH REDUCTION TOOLS

Special tools like Turtle Excluder Devices (TEDs) help protect animals like sea turtles from getting trapped.

SEASONAL FISHING RULES

Fishing is stopped during important times like fish spawning seasons so baby fish can grow.

HEALTHY FOOD WEBS

When fishing is well managed, all species in the food chain benefit and ocean ecosystems stay balanced.

LESS HARM TO HABITATS

Sustainable fishers avoid damaging the seabed and important nursery areas for marine animals.

SORTING CARD SET 2: HOW OVERFISHING HURTS BIODIVERSITY

BYCATCH

Animals like dolphins, sharks, and sea turtles get caught in nets by mistake and can die.

HABITAT DAMAGE

Some fishing gear destroys coral reefs, seabeds, and other homes for sea creatures.

FEWER FISH

Taking too many fish too fast means they don't have time to reproduce,
so fish stocks drop.

FOOD CHAIN DISRUPTION

Removing too many predators or prey can unbalance the entire ocean ecosystem.

USING ENDANGERED BAIT

Some fishers use threatened species for bait, harming the whole marine food web.

GHOST FISHING

Lost or abandoned fishing gear keeps trapping marine animals for years.

SORTING CARD SET 2: HOW OVERFISHING HURTS BIODIVERSITY

CLIMATE STRESS

Overfished populations are less able to survive changing oceans caused by climate change.

ILLEGAL FISHING

Fishing without rules or limits harms ecosystems and breaks trust between countries.

SPECIES AT RISK

Nearly a third of sharks and rays, and over 40% of coral species are at risk due to overfishing.

POLLUTION FROM FISHING

Waste, oil, and plastic from fishing boats add pollution to the sea.

INCREASING EXTINCTIONS

Species extinction rates are higher than they should be. Poorly managed fishing causes harm to endangered or threatened species.

POORLY MANAGED FISHERIES

Fisheries that are poorly managed often have higher impacts on fish stocks and other marine life.