“For a Greener Europe”

Erasmus+ - Copenhagen Session

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What are we going to explore?

- ★ The **importance of the Ocean** for our life in balance on our planet
- ★ The **problems** that the Ocean and us are facing today (Overfishing)
- ★ The **SOLUTIONS**: how can we **change** (Sustainable Fisheries and Marine Protected Areas)
- ★ The **media**: how to use design to spread knowledge and reach goals (Canva)
- ★ Skills:
  - how to we extract information from scientific articles?
  - how do we use that information correctly and giving credit to the scientists (MyBib)
  - how do we use design tools to present information and reach goals

The importance of the Ocean

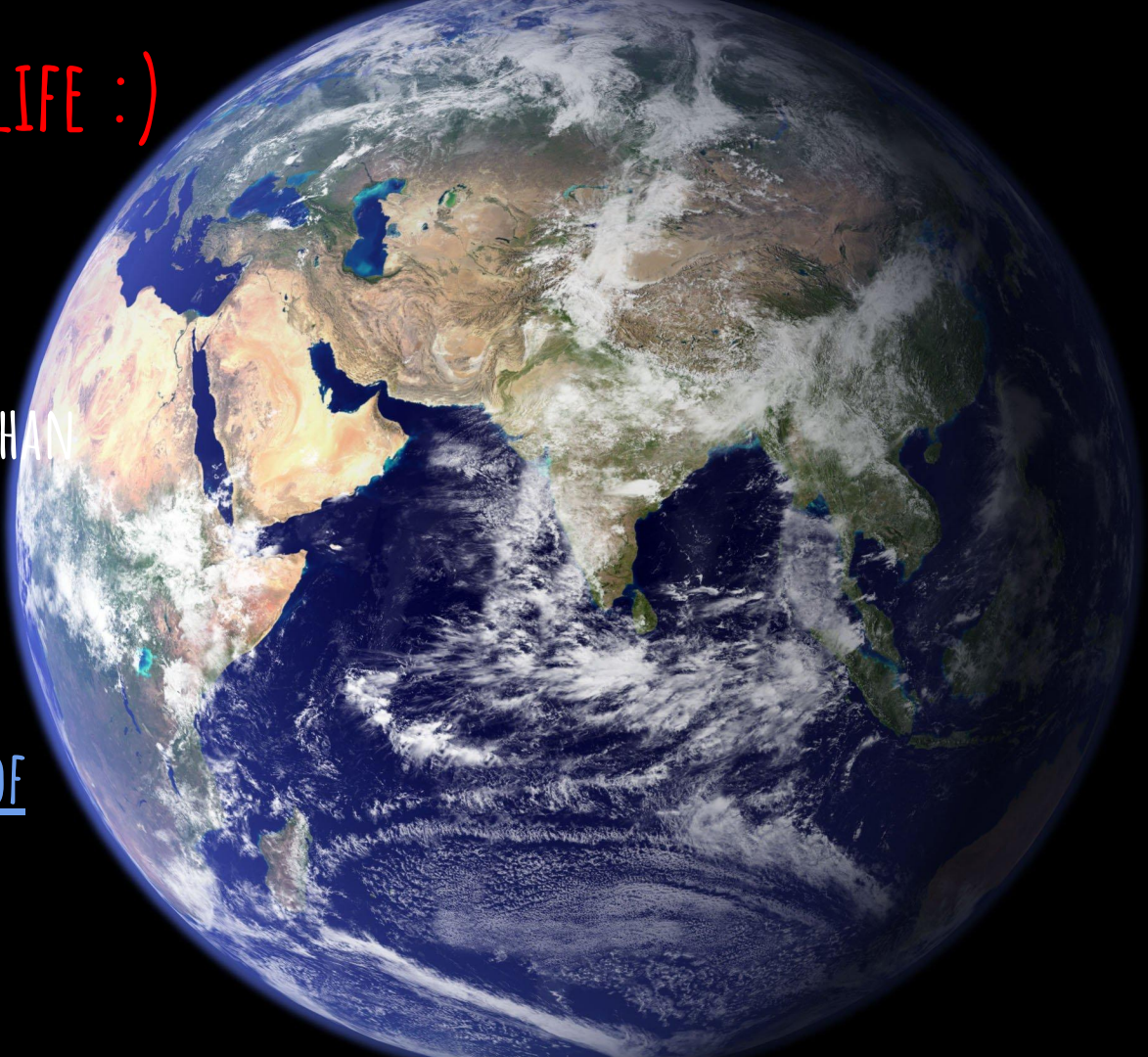
https://youtu.be/2uuWN20Lc4E

The ocean and our life :)

We live on a blue planet:

oceans and seas cover more than 70 % of the Earth's surface.

Oceans feed us, regulate our climate, and generate most of the oxygen we breathe.

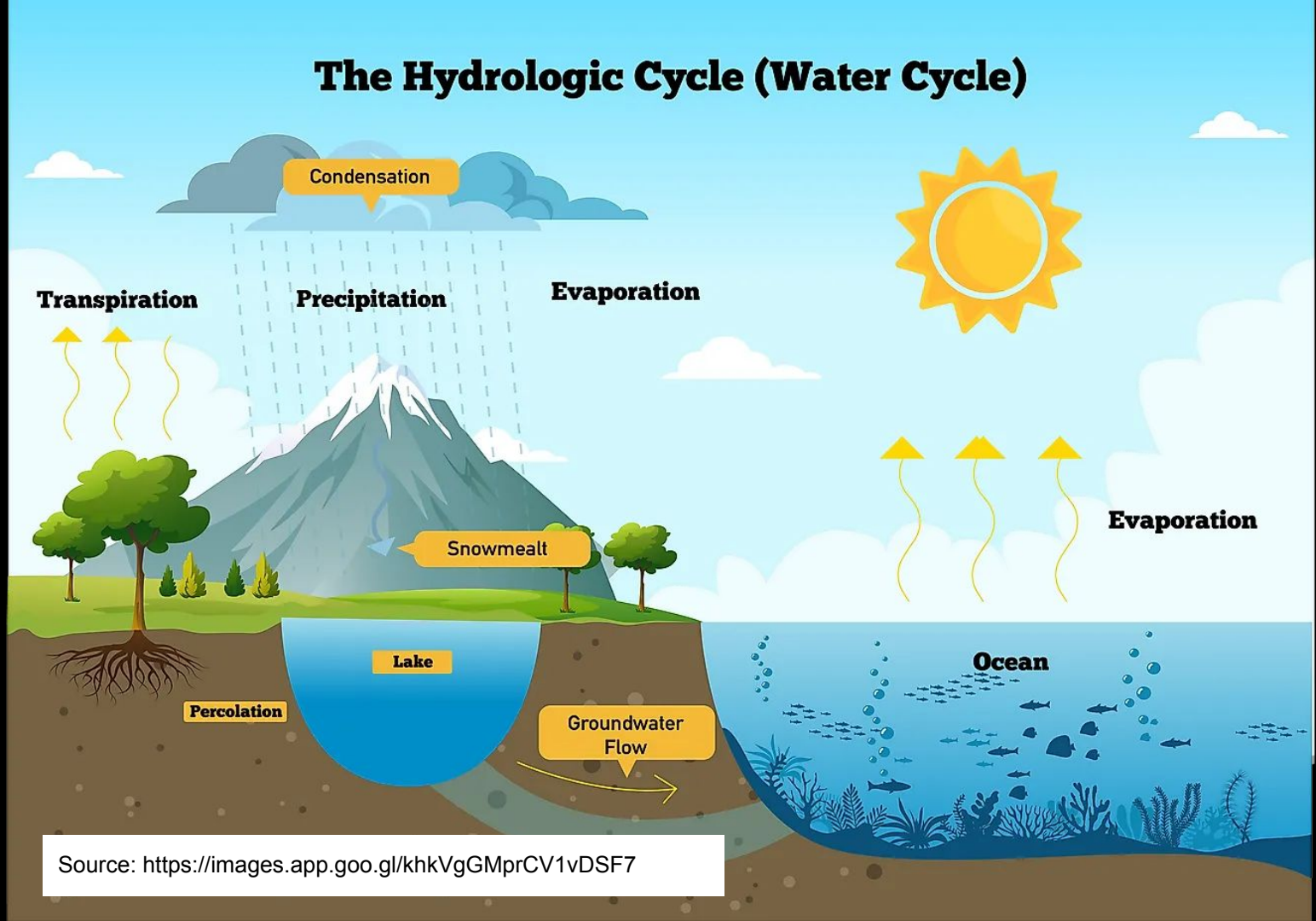


1. The ocean is our life support system

One-third of the total human population, 2.4 billion people, live within 100 km (60 miles) of an oceanic coast - and all human life is dependent upon the oxygen and freshwater it creates.

Many societies–but not all–are able to take access to water, for drinking, sanitation and irrigation, for granted. In 2010, the UN enshrined water as a human right. Without our ocean to power the planet's water cycle, and create fresh breathable air, we would not exist at all.

Source: 5 reasons why a healthy ocean is linked to human rights.

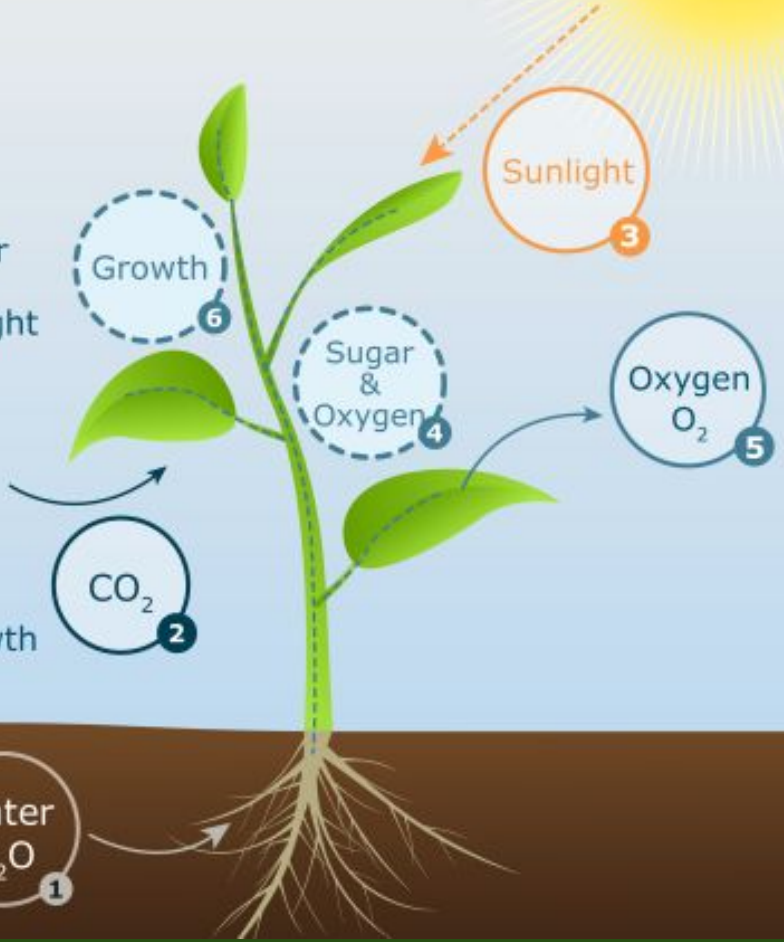


Source: https://images.app.goo.gl/khkVgGMprCV1vDSF7

Where does Oxygen come from?

Photosynthesis:

1. The plant draws up water (H_2O) through its roots
2. The leaves take in CO_2 from the air
3. The leaves trap energy from sunlight
4. The plant uses the energy of sunlight to turn water (H_2O) and CO_2 into sugars and oxygen (O_2)
5. The plant releases oxygen (O_2) into the air
6. The plant uses the sugars for growth



Source: WAGENINGEN UNIVERSITY & RESEARCH

More than 50% of the oxygen we breathe comes from the ocean... but are there plants in the ocean?!

Phytoplankton are tiny algae that live on the surface of oceans and lakes.

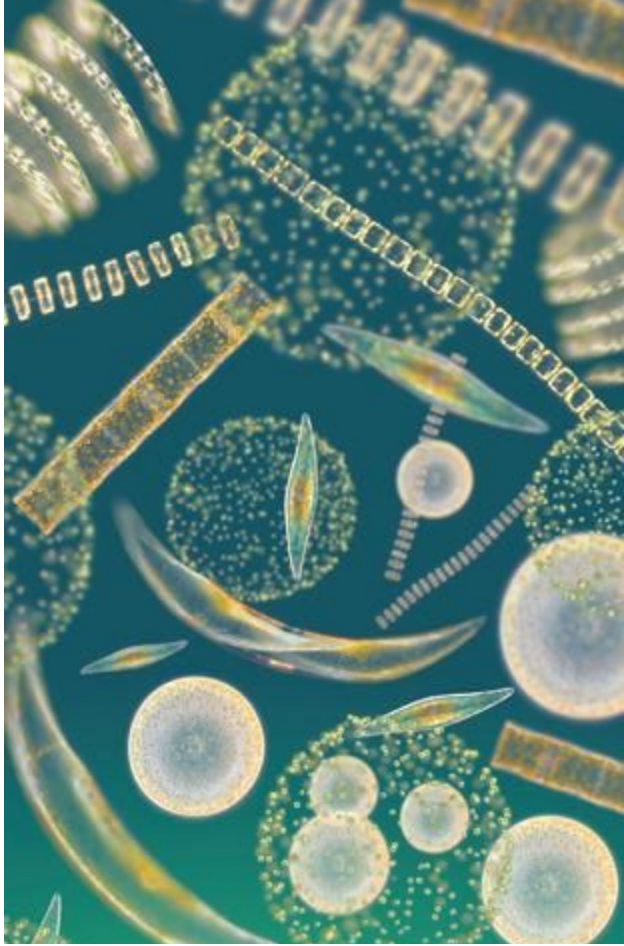
They come in different shapes and sized, although they are invisible to the naked eye.

Like other plants, phytoplankton can absorb sunlight and turn it into energy through photosynthesis.

Although phytoplankton are tiny, there are a lot of them out there. There can be thousands of phytoplankton in a single drop of water.

Now imagine an ocean full of them releasing little invisible puffs of oxygen all day long.

Source: Where does the oxygen we breathe come from? - The Washington Post



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Seagrasses and Kelp

Kelp is an algae that can grow even tens of meters high creating underwater forests.

Seagrasses are plants that can live underwater and can create vast seagrass prairies.

Both **Seagrass and Kelp live along the coast**, not too deep because they need sunlight to survive and **make photosynthesis** and just like forests on land, they are h**ome to many species of and animals.**

More than 50% of the oxygen on our planet is produced by Phytoplankton,

Seagrasses and Kelp Forests.

2. The ocean provides food, jobs and livelihoods

It provides **nutrition**, **medicines**, and **mineral and renewable energy resources**. It supports **jobs in fishing**, seafood, **leisure** and **science**.

Our **ocean is the original "super-highway**," that **links economies and people together** and t**ransports goods all around the globe**.

Source: 5 reasons why a healthy ocean is linked to human rights.

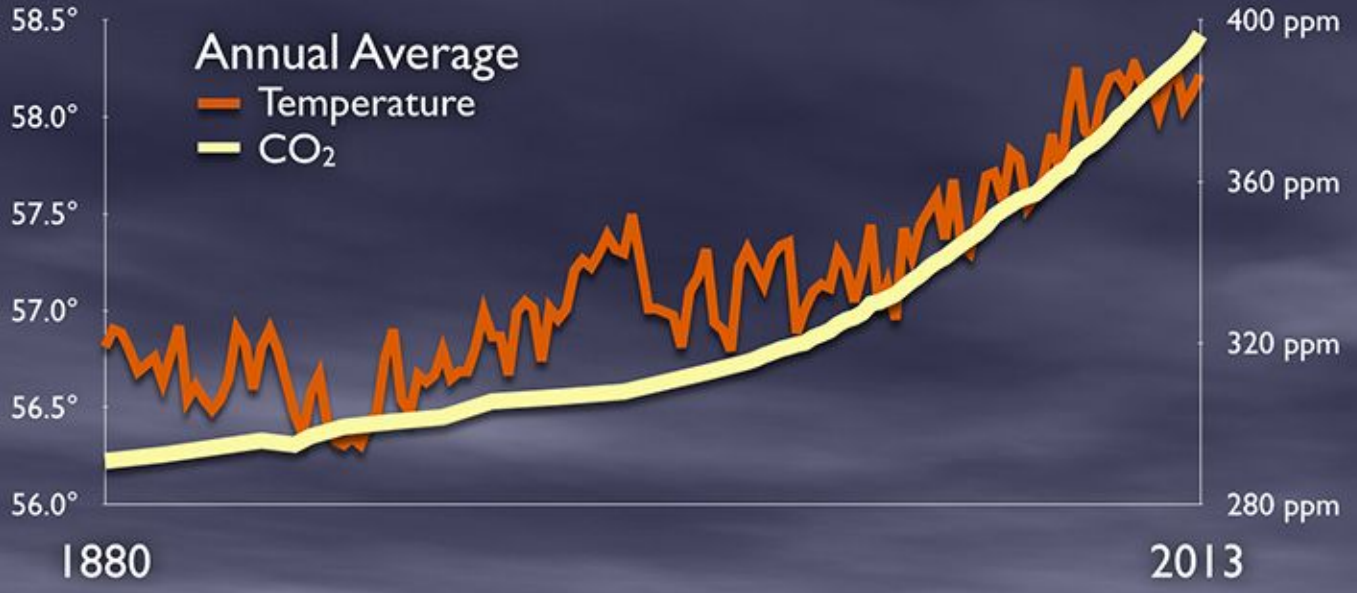
Fish as Food

Fish and other seafood products provide vital **nutrients for** more than **three billion people** around the globe and supply an **income for 10 to 12 percent of the world's population**.

But there is another side of the coin. **Unsustainable fishing practices threaten ecosystems'** resilience by contributing to **overfishing** and habitat destruction, and fisheries mismanagement leads to an annual economic **loss of approximately USD 80 billion** globally.

Source: A Healthy Ocean Depends on Sustainably Managed Fisheries.

Global Temperature and CO_2



Source: National Climate Assessment 2014

CLIMATE CENTRAL

3. The ocean helps fight the climate crisis

The ocean moderates the climate and influences our weather.

Since the start of the industrial period, it has stored more than 90 per cent of the heat from human-caused climate change and one-third of the world's carbon emissions.

Vital ecosystems such as mangroves, seagrasses and salt marshes could help us store more than 1.4bn tons of carbon emissions a year by 2050 if they are protected and restored.

Source: 5 reasons why a healthy ocean is linked to human rights.

4. The ocean is home to vast biodiversity

According to the Convention on Biological Diversity, deep-seabed habitats alone host between 500,000 and 10 million species.

But it is hard to know for sure, as some 80% of the ocean remains unexplored and 91 % of marine species remain undescribed.

The ocean is home to from the largest animal on the planet to microscopic organisms like plankton, which make up 98 % of the ocean's biomass.

These are essential to the food chain, the production of nutrients for land and sea, and the health of all animals and humans.

Source: reasons why a healthy ocean is linked to human rights.

5. The ocean provides wellbeing benefits to all humanity

Most cultures on Earth have celebrated, valued, and sometimes feared the ocean. It has provided myths and legends, and inspiration for art, music and games.

In our leisure time, many of us enjoy beaches and activities such as swimming, surfing, sailing and diving, or simply the peace of mind that comes from being near water. The UN's Happiness Day recognizes happiness as a fundamental human goal. Like the rights to water, health, livelihoods and a clean environment, the ocean has a fundamental role to play.

Source: 5 reasons why a healthy ocean is linked to human rights.

Unfortunately… growing **threats** such as **marine pollution**, **sea-level rising** and **over-fishing** damage these aspects of our lives and infringe on the human rights attached to them.

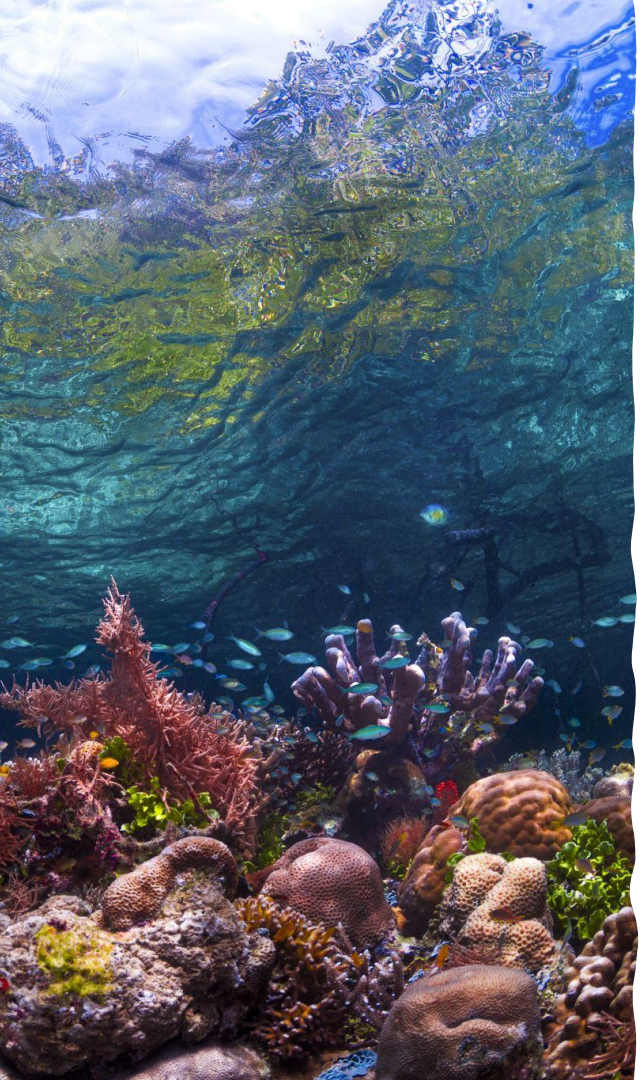
In October 2021, the UN Human Rights Council recognized for the first time that a **clean, healthy, and sustainable environment is a human right** - a landmark move in the fight against the triple planetary crisis of climate change, nature and biodiversity loss and pollution and waste.

In December 2022 observance of Human Rights Day, the head of UN Environmental Program outlined that **a clean and healthy ocean is important for realizing human rights obligations relating to a clean, healthy, and sustainable environment**.

Source: 5 reasons why a healthy ocean is linked to human rights.


GAME!!!

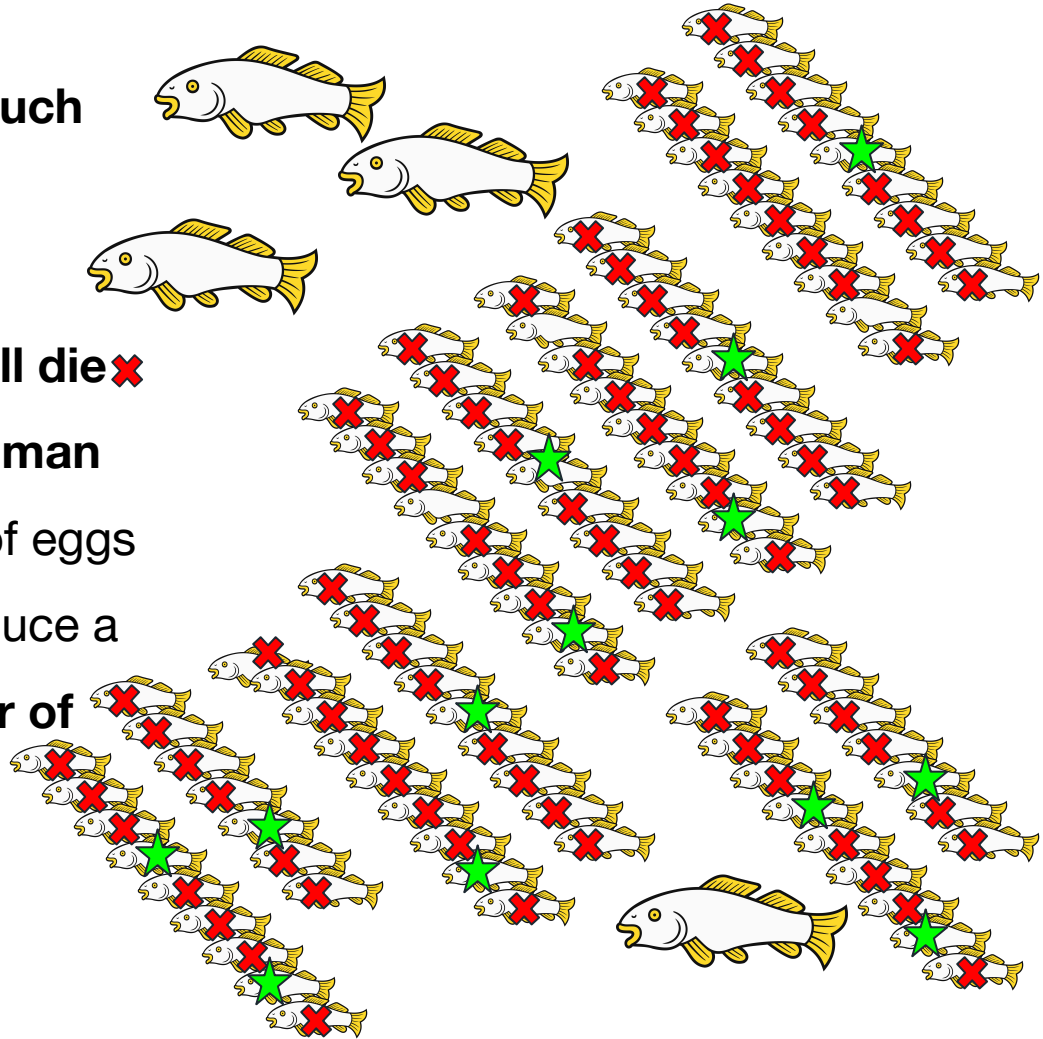
The Problem: Overfishing

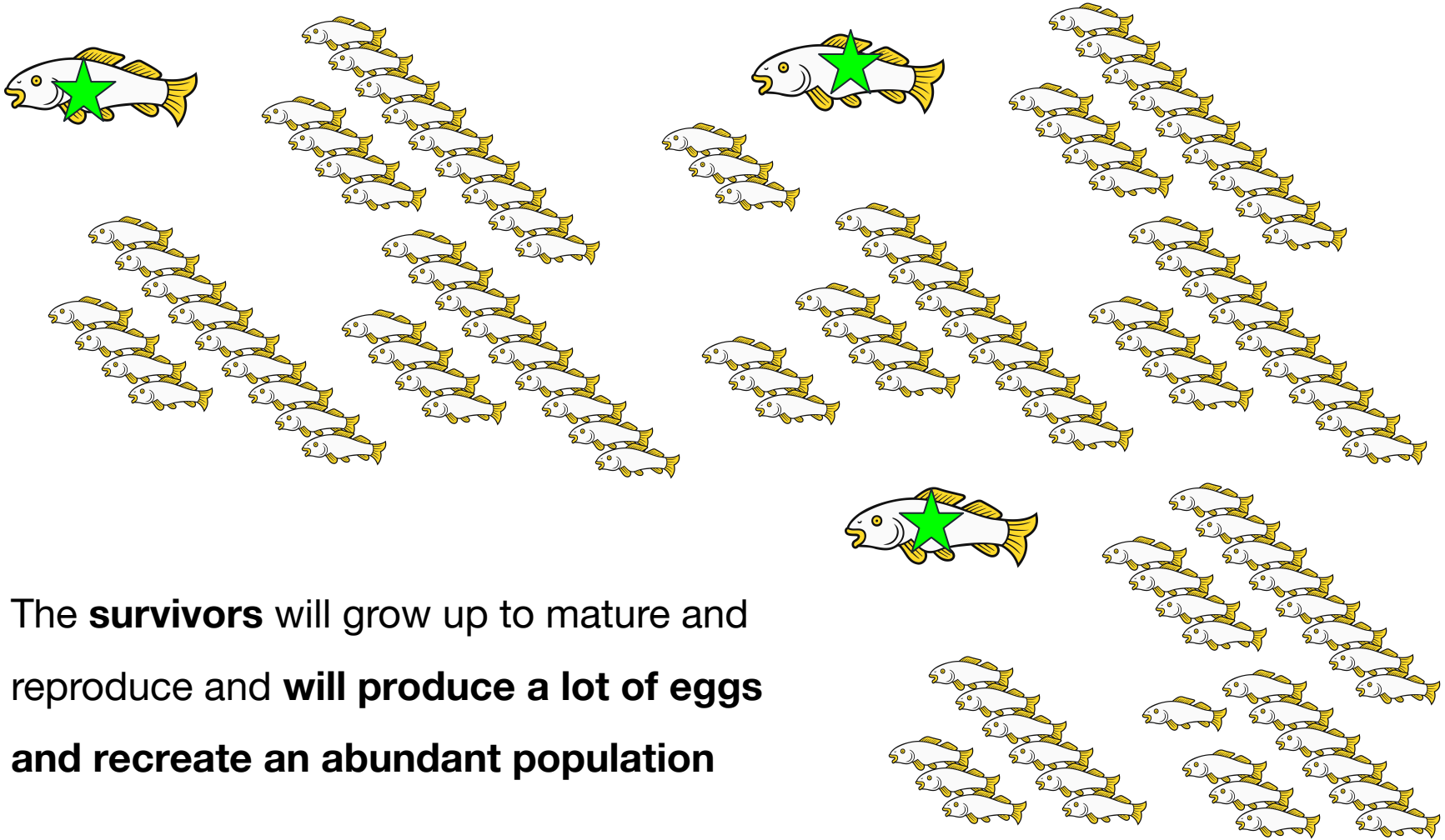


A few basic concepts…

- ***What is a Renewable Resource?***
- A resource that will restore naturally to replace what has been taken.
- ***What are Fisheries?***
- Commercial activities that harvest marine life.
- ***What is a Fish Stock?***
- A population of fish or other marine life from which fish (catches) are taken in a fishery.

- **Fish lay A LOT of eggs. Why so much work?**
  - The idea is that **a lot of those eggs/hatchlings (new born) will die** ✖ (**predators like other fish or human will eat them**), so fish lay a lot of eggs because statistically if they produce a lot of hatchlings **a good number of them will survive** ★ (**surplus production**).



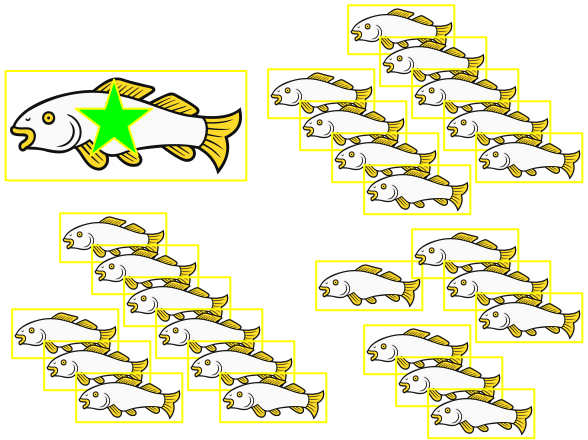


The **survivors** will grow up to mature and reproduce and **will produce a lot of eggs and recreate an abundant population**

➢ **Doesn’t this mean that we can fish as much as we like?**

- If we fish up to a certain point, the excess number of eggs that the remaining fish will produce will be enough to bring back the population to its natural* number BUT if we instead fish too much (**overfishing**), the remaining number of fish will be too little and even the extra eggs won’t be enough to bring back the population to the natural* number, and there will be **fish depletion**.

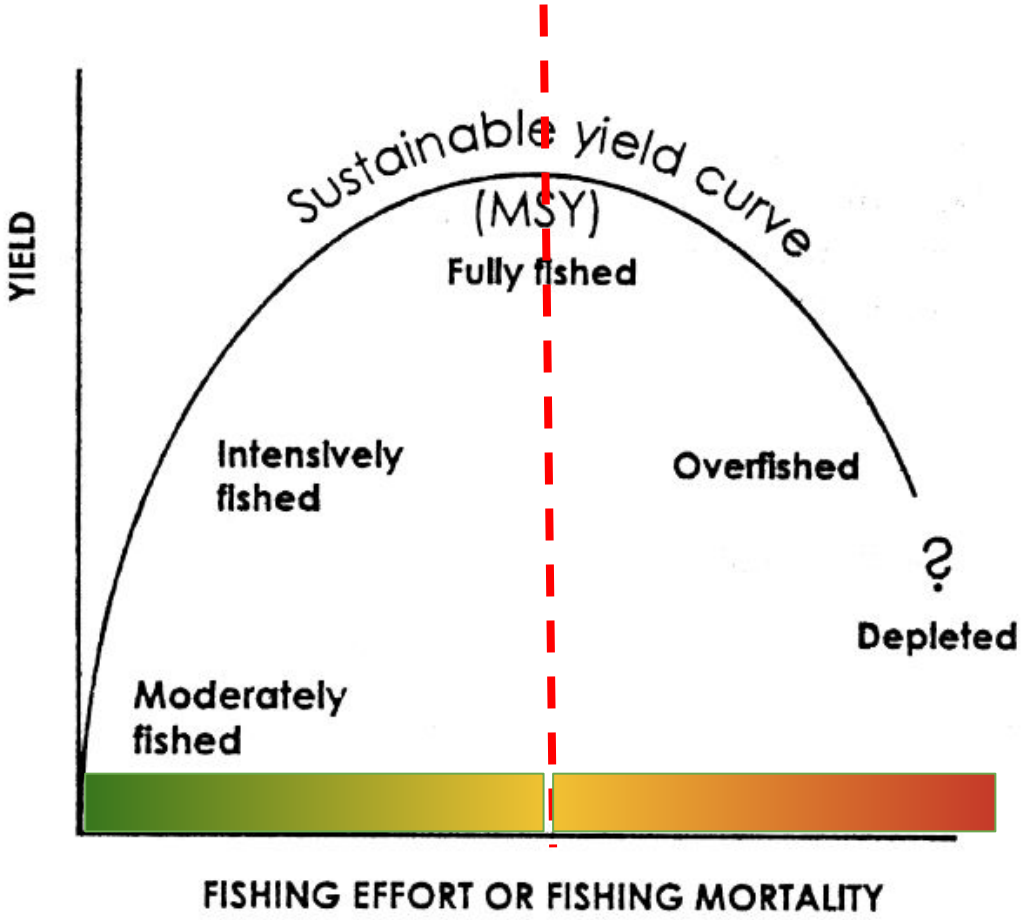
**natural number* is the amount of fish that a certain area can support based on the availability of food and other natural resources.



Is Fishing a renewable resource?

If we fish responsibly, with a contained fishing effort and a contained fishing mortality, **fisheries can be considered a renewable resource.**

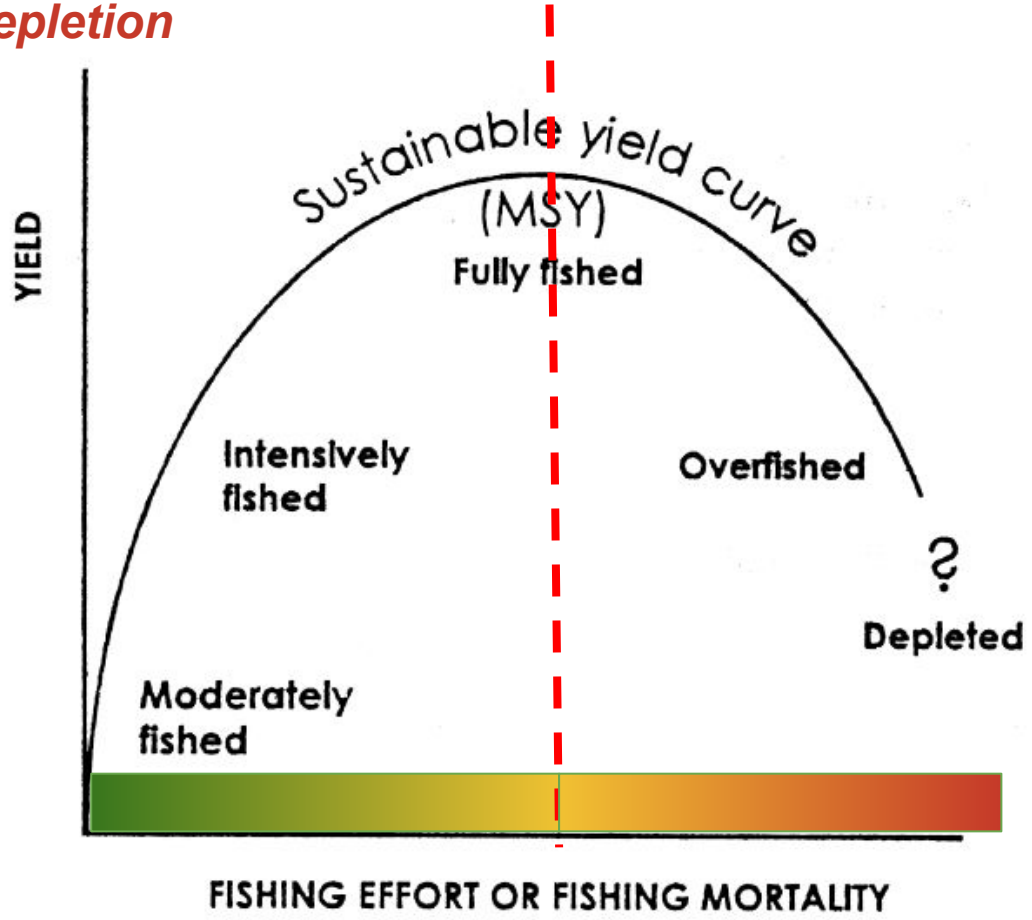
Since fish produce a great amount of offsprings in **situation 1** the fish that are left have the potential of replenishing (to refill) the fish stock to its maximum size through natural reproduction.



Overfishing - from renewable to depletion

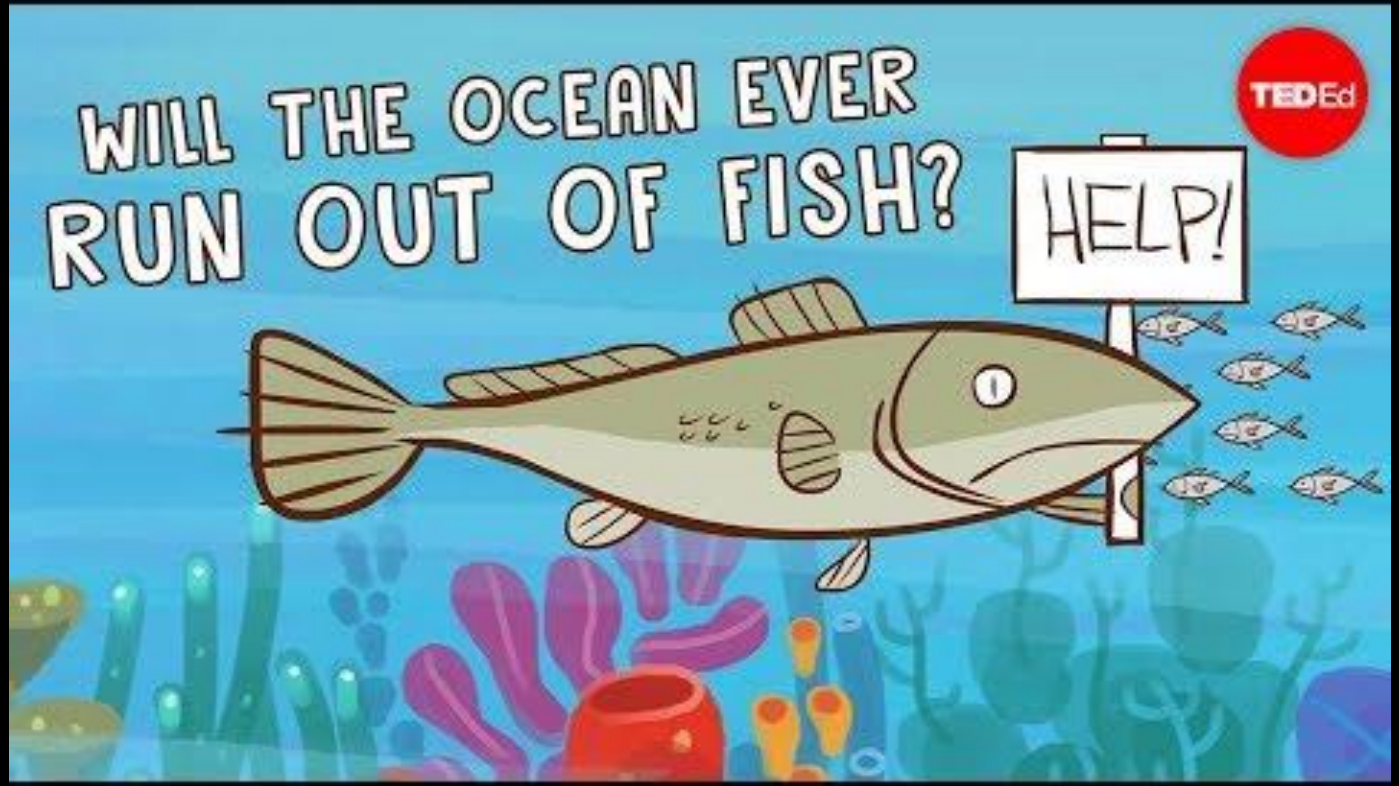
If we fish over a certain limit, called Maximum Sustainable Yield, the fish left in **the fish stock won't be enough to be able to replenish (to refill) the fish stock** through reproduction

If situation 2 occurs, **it means that we are overfishing**, the fish population will decrease and there will be fish depletion.



Let’s now watch a couple of videos.

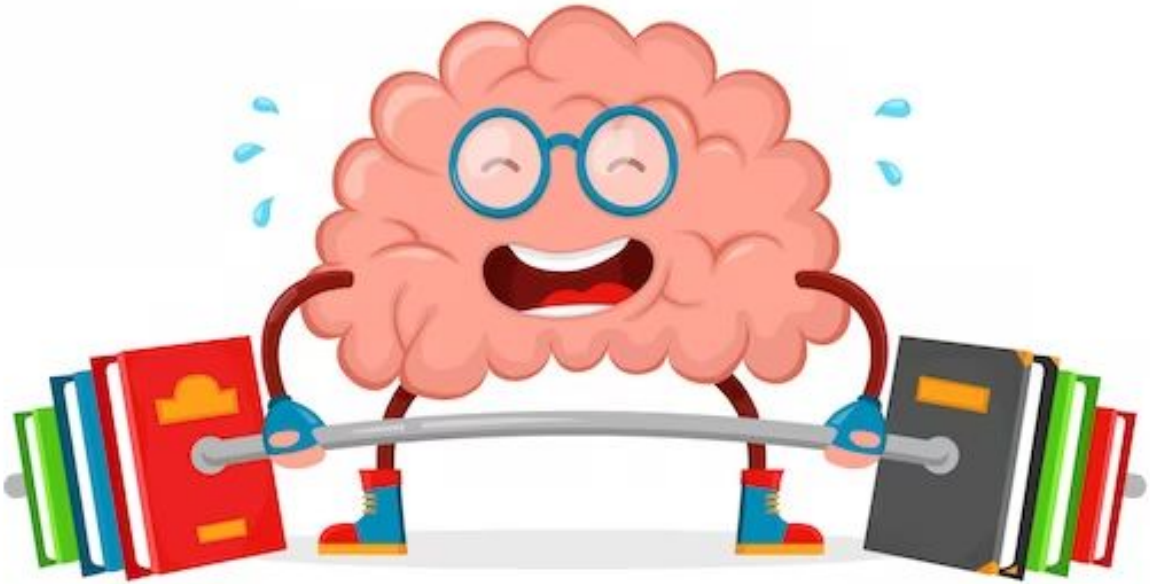
You are welcome to take notes of the main points.


WILL THE OCEAN EVER
RUN OUT OF FISH?
HELP!
TEDEd


Kahoot!

Guidelines for Tuesday and Wednesday with Sara:

- We will go through 4 sessions, 2 focus on the problem and 2 on the solution - see padlet link
- For each session, you will practice reading scientific texts and discussing the content with your group.
- First, read the questions below together, one section at the time.
- Then, read the texts.
- Finally, discuss the content with your group to answer the questions.
- Tip: take a note of your source (from where did you get the information?) when answering the questions



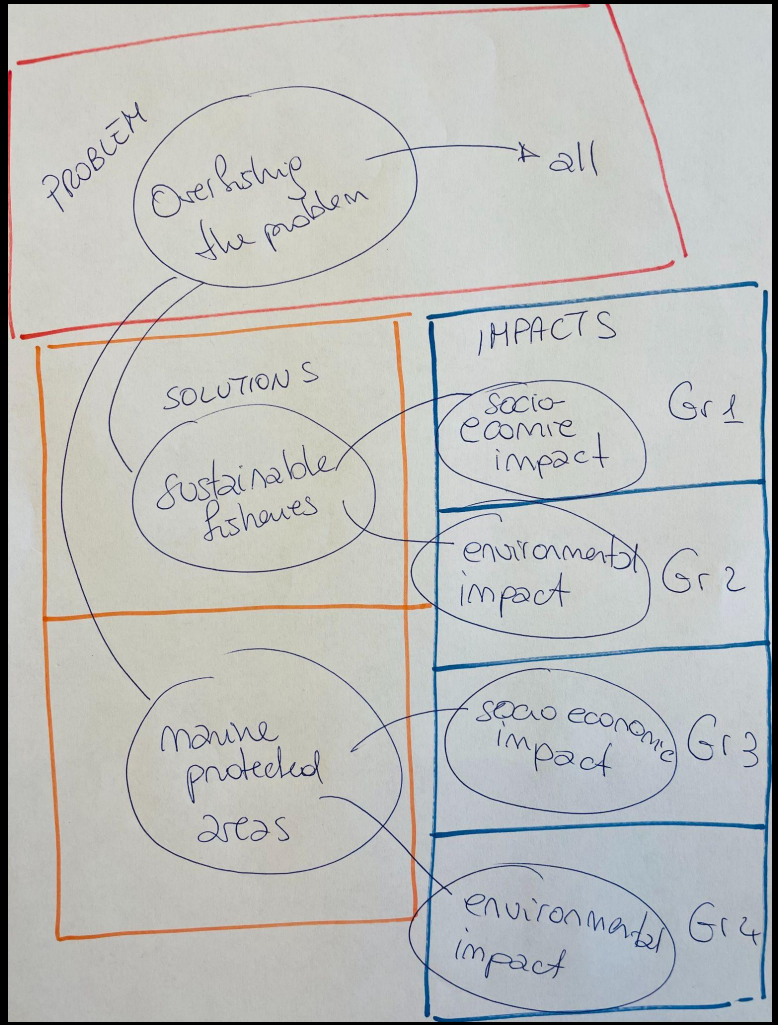
Time to get active.

You will read a few texts and discuss them in the group to reach some conclusions.

Inquiring: overfishing is bringing fish populations to collapse

Discuss and summarize what you have learned today:

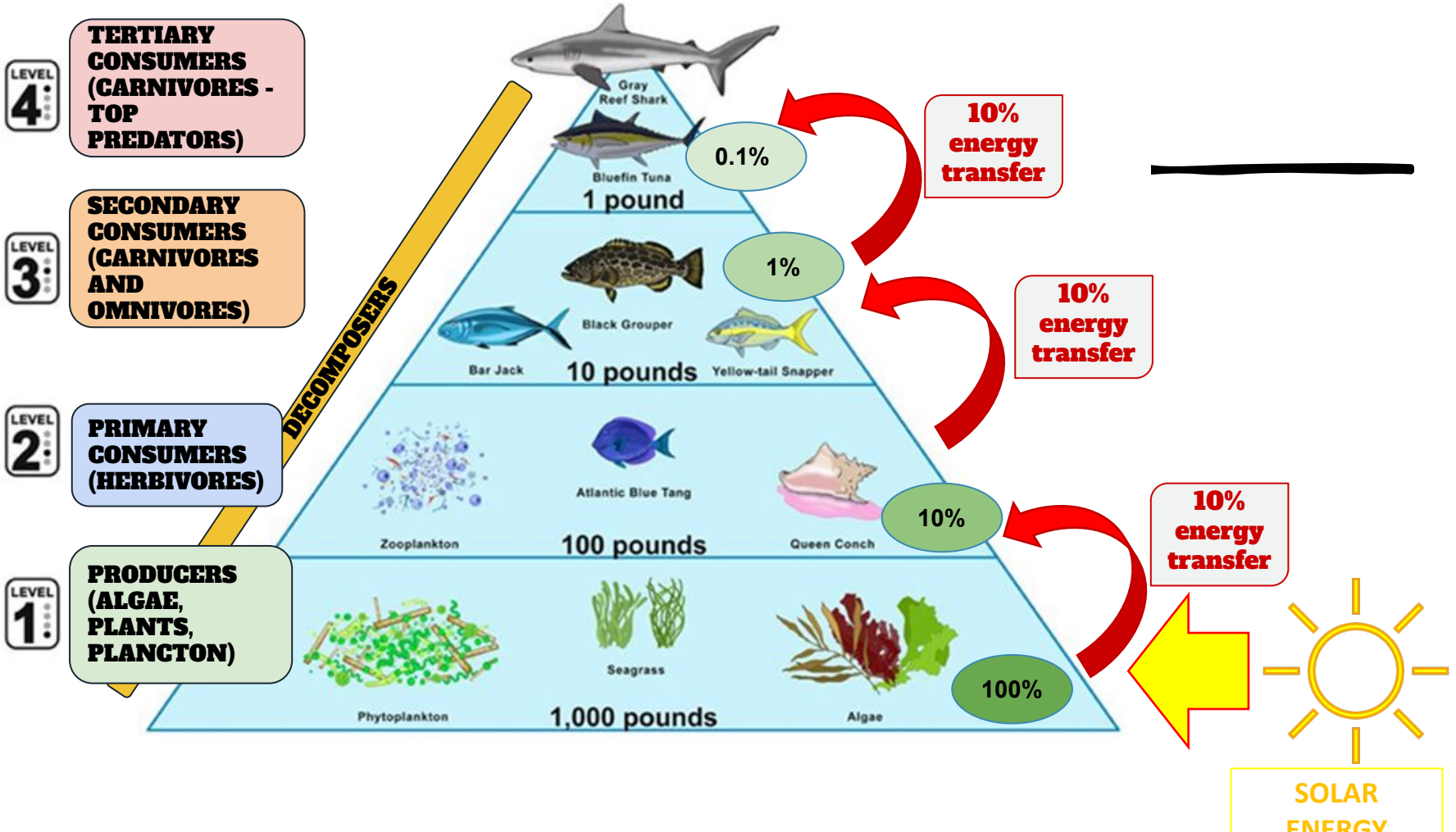
- What is overfishing?
- Why are we overfishing?
- What is fish *depletion*?
- Why is fish *depletion* happening?
- Recall the fishing techniques that are most impactful on the environment and why: Bottom Trawls, Longlines, Gillnets, Dynamite
- Bycatch and habitat destruction: how are they related to overfishing?


PROBLEM
Overfishing the problem
all
SOLUTIONS
Sustainable fisheries
marine protected areas
IMPACTS
socio-economic impact
Gr 1
environmental impact
Gr 2
socio economic impact
Gr 3
environmental impact
Gr 4

Resources

- Overfishing https://www.worldwildlife.org/threats/overfishing
- Bycatch What is Bycatch? Understanding and Preventing Fishing Bycatch
- Destructive Fishing Techniques
- Overfishing

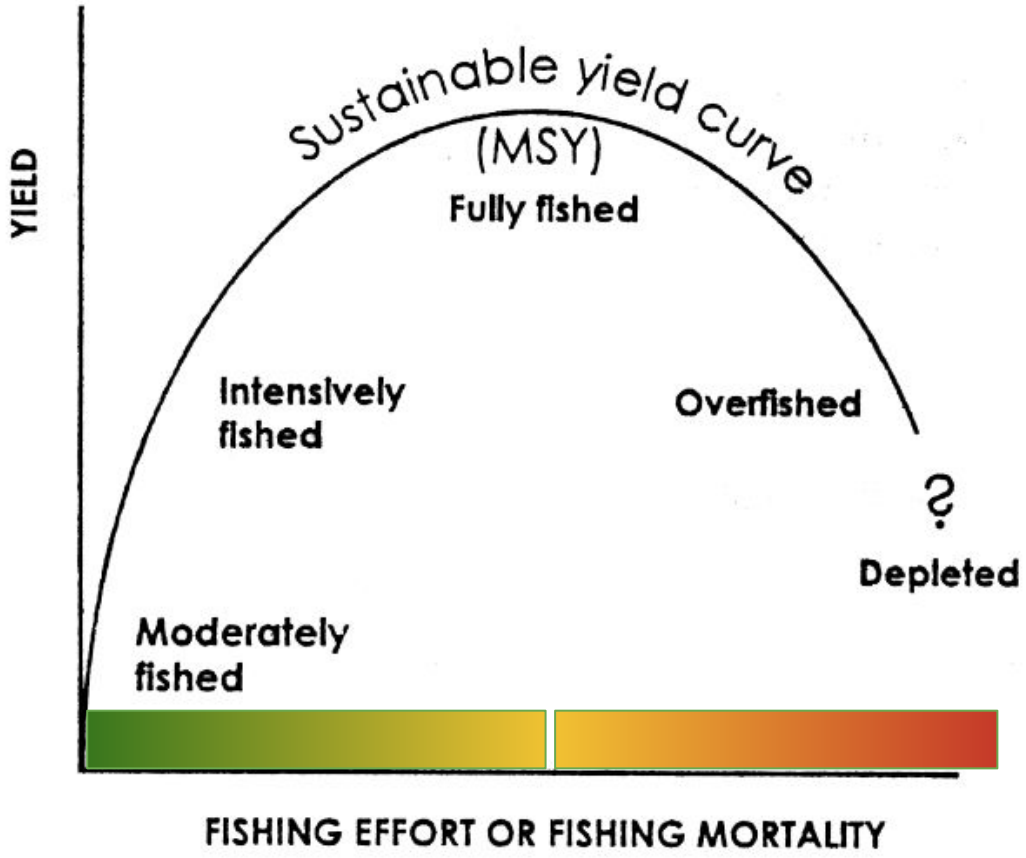
https://vimeo.com/165269227

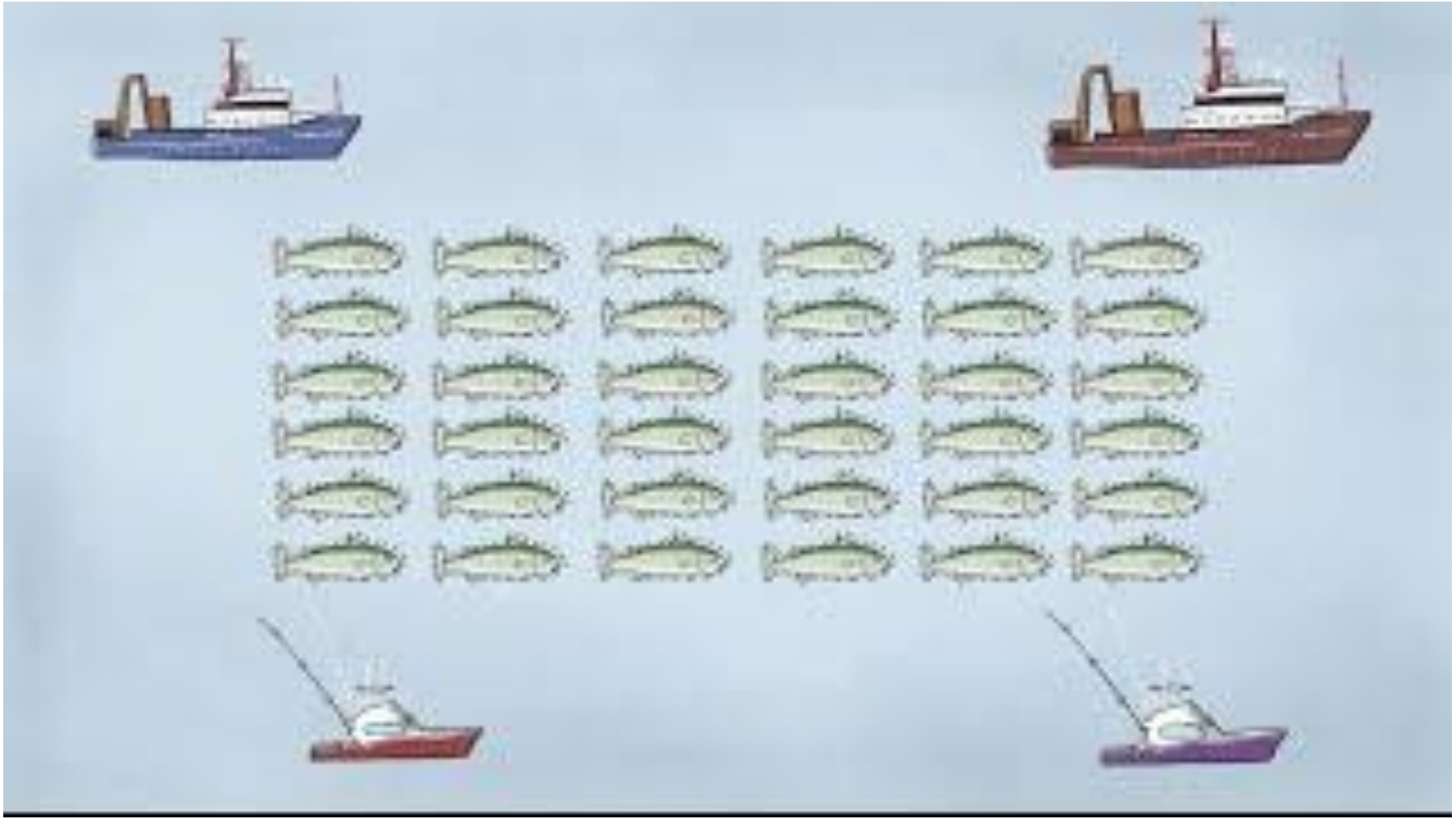

LEVEL 4
TERTIARY CONSUMERS (CARNIVORES - TOP PREDATORS)
LEVEL 3
SECONDARY CONSUMERS (CARNIVORES AND OMNIVORES)
LEVEL 2
PRIMARY CONSUMERS (HERBIVORES)
LEVEL 1
PRODUCERS (ALGAE, PLANTS, PLANCTON)
DECOMPOSERS
Gray Reef Shark
Bluefin Tuna
1 pound
0.1%
10% energy transfer
Black Grouper
Bar Jack
Yellow-tail Snapper
10 pounds
1%
10% energy transfer
Atlantic Blue Tang
Zooplankton
Queen Conch
100 pounds
10%
10% energy transfer
Seagrass
Phytoplankton
Algae
1,000 pounds
100%
SOLAR ENERGY

Sustainable Fishing

https://youtu.be/XWZkp_NqEQU

How Much can we fish?





https://youtu.be/XWZkp_NqEQU

What is Sustainable Fishing/Catch Share?

Is when

1. fisherman in an area create a cooperative relationship
2. call in scientists to tell them how much is reasonable to fish in that area each year
3. decide the amount of fish that each of them can fish each year
4. they fish that amount without exceeding throughout the year

https://youtu.be/XPCBzcb49_M

CLICK!

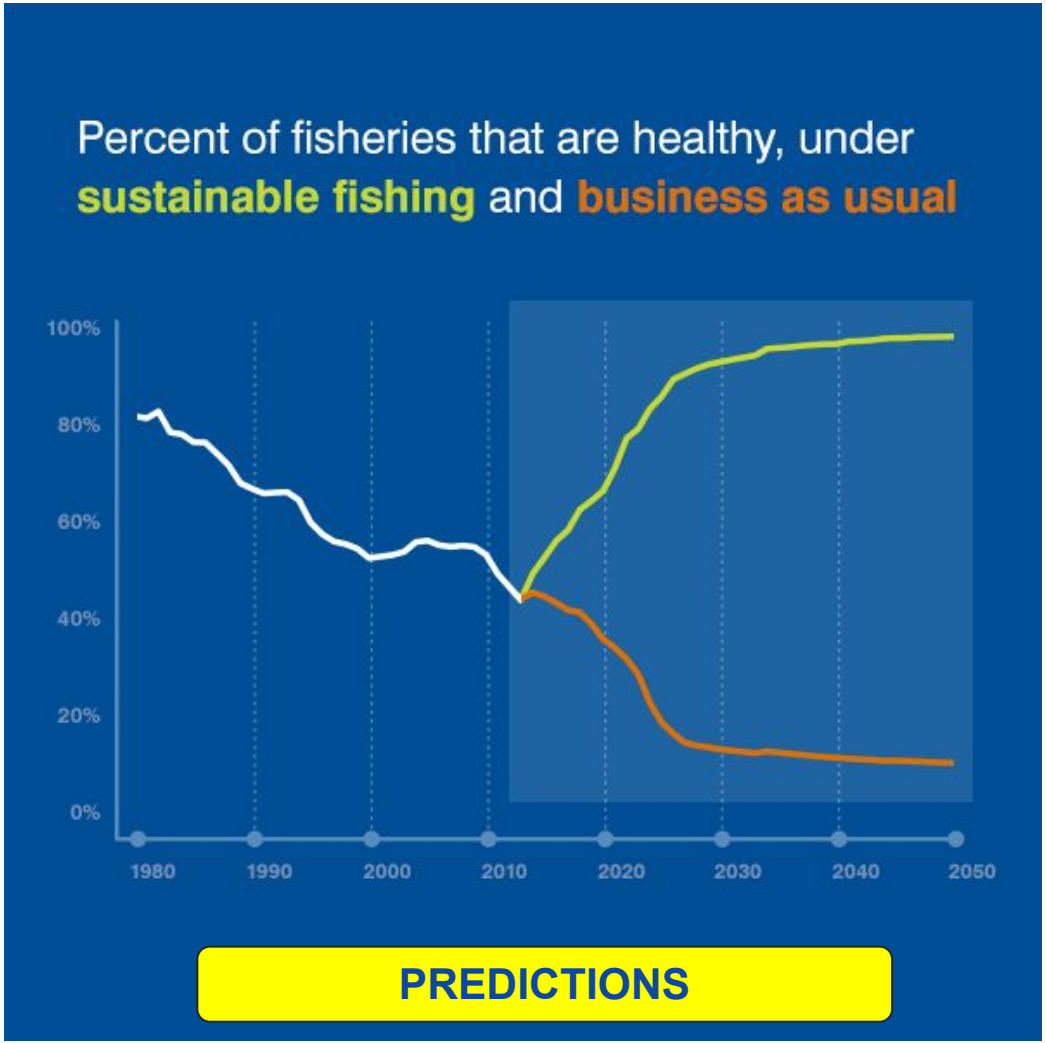
[How catch shares work - Environmental Defense Fund]

	TRADITIONAL MANAGEMENT	FISHING RIGHTS
When to fish	In designated seasons, some as short as a few days	When weather and market conditions are at their best
How much to catch	As much as possible in the limited seasons	A set amount, spaced throughout the year
Incentive to follow rules	Fear of penalties, not consistently enforced	Ownership of shares that grow in value as the fishery regains health

Source: https://www.edf.org/oceans/how-turn-around-overfishing-crisis

The majority of the world's wild fisheries could be at healthy levels in just 10 years, and that global fish populations could double by 2050 with better fishing approaches compared to business as usual

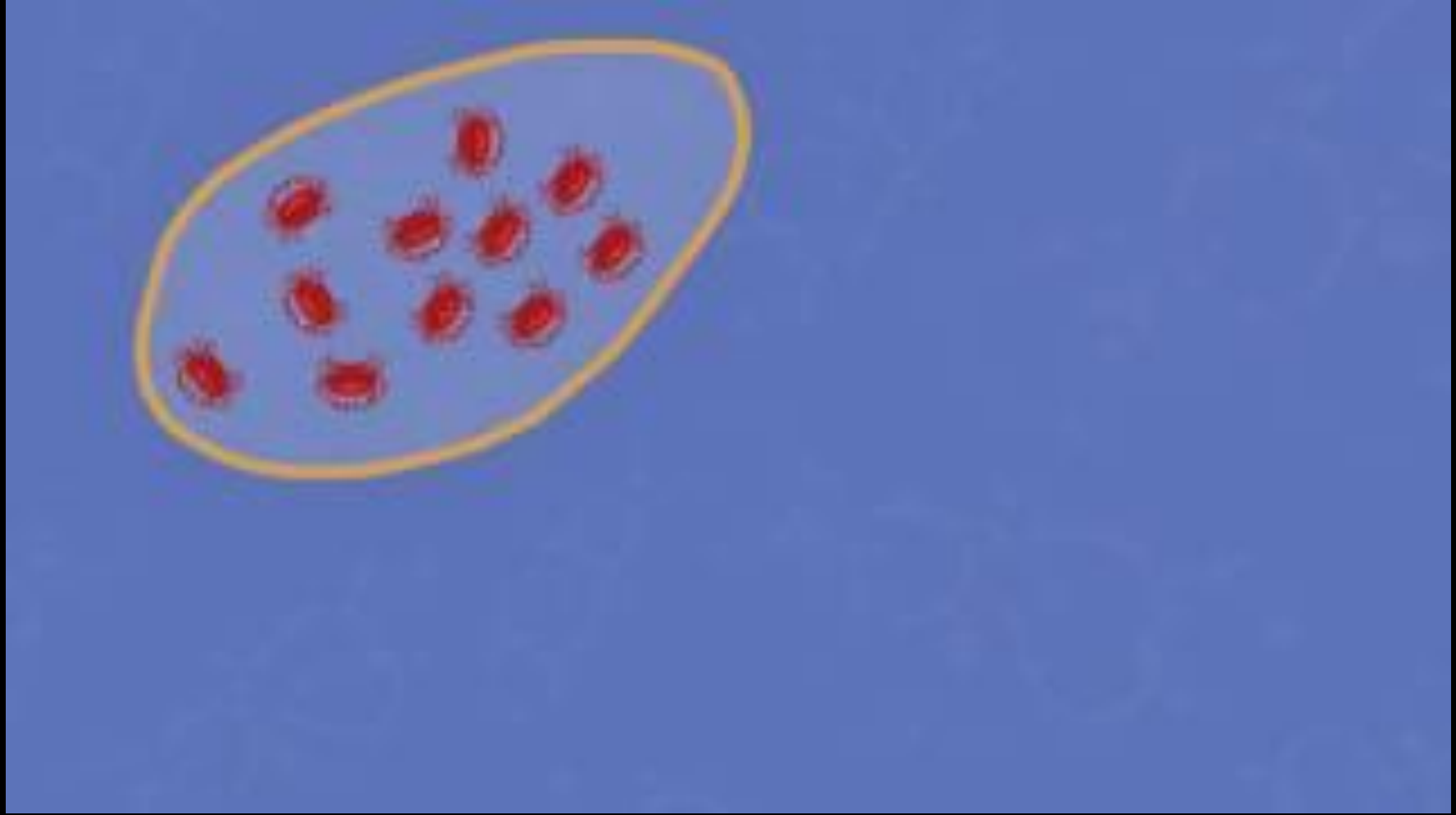
[Report: Unlocking the potential of global fisheries | Environmental Defense Fund]



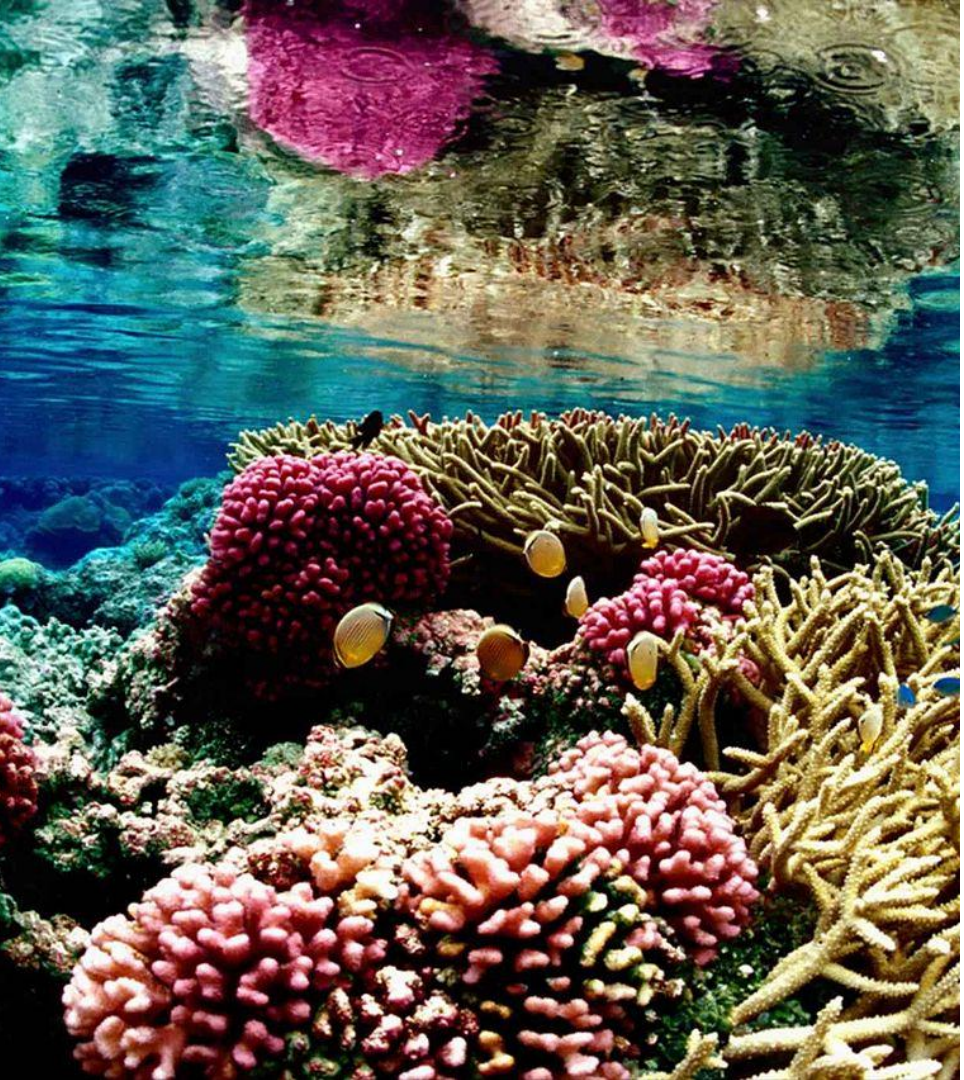
By 2050 sustainably managed fisheries could produce 16 million metric tons (or 29%) more wild fish, generate $53 billion USD (or 204%) more profits, and boost the amount of fish left in the water for conservation by 118%.

Marine Protected Areas

https://www.youtube.com/watch?v=2gB3zoFxCDs



https://www.youtube.com/watch?v=n6_JLZnQe6Y



MPAs - Marine Protected Areas

Marine Protected Areas

The Importance of Marine Protected Areas (MPAs)

Extension: How Marine Protected Areas Help Fisheries and Ocean Ecosystems - Center for American Progress

Marine Protected Areas MPA

Questions

1. What is a MPA?
2. What is the goal of MPA?
3. Are there different types of MPA?
4. What are the benefits of MPAs?
5. Do MPA prevent/reduce overfishing?
6. What makes a MPA effective at reducing overfishing?
7. What are the limitations of MPAs?
8. What percentage of the sea should be protected to be effective?

https://www.youtube.com/watch?v=og8N-EslUPQ

The UN Sea Treaty

What is the UN High Seas Treaty and why is it needed? - BBC News