



Preserving Marine Biodiversity in the face of overfishing and marine pollution



**United Nations
Environment Programme**



Honorable Delegates,

We are very excited to welcome you at MEGALUX 2019 (10th-14th November). Our chosen topic is **Marine Biodiversity**, as it is both a complex as well as important issue that will give you plenty of aspects to debate on while also further your understanding of sustainability and international politics. We hope this guide will give you a good starting point for your research.

To start with, please be aware that you will need to know the country you are going to represent really well, so do research it's political system and basic history. Second, for our topic it is important to research your country's industries, it's fishery legislation and furthermore it's marine ecosystems/habitats.

You are asked to prepare a policy statements, which shouldn't contain more than 400 words.

Please send us your policy statement via Word, the **deadline** is set for **4th November 2019 at 12p.m.**

If there are any questions concerning the topic, policy statement or rules of procedure, please feel free to contact us via

unep.megamun@gmail.com

Best regards, Kyra Bennecke and Nora Dieschbourg



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UNEP United Nations Environment Programme

1) Introduction - why is it relevant?

What is biodiversity?

Biodiversity is generally defined as the variety of different species in a given ecosystem.

There are three main types of biodiversity: genetic diversity, which is the variation of genetic material within a species, species diversity, which is the variety of species present in a particular habitat and ecological or ecosystem diversity.

The oceans contain an estimated 200 000 different identified species, although we cannot be sure how many more are out there. The species richness varies from region to region, in particular it grows towards the equator.

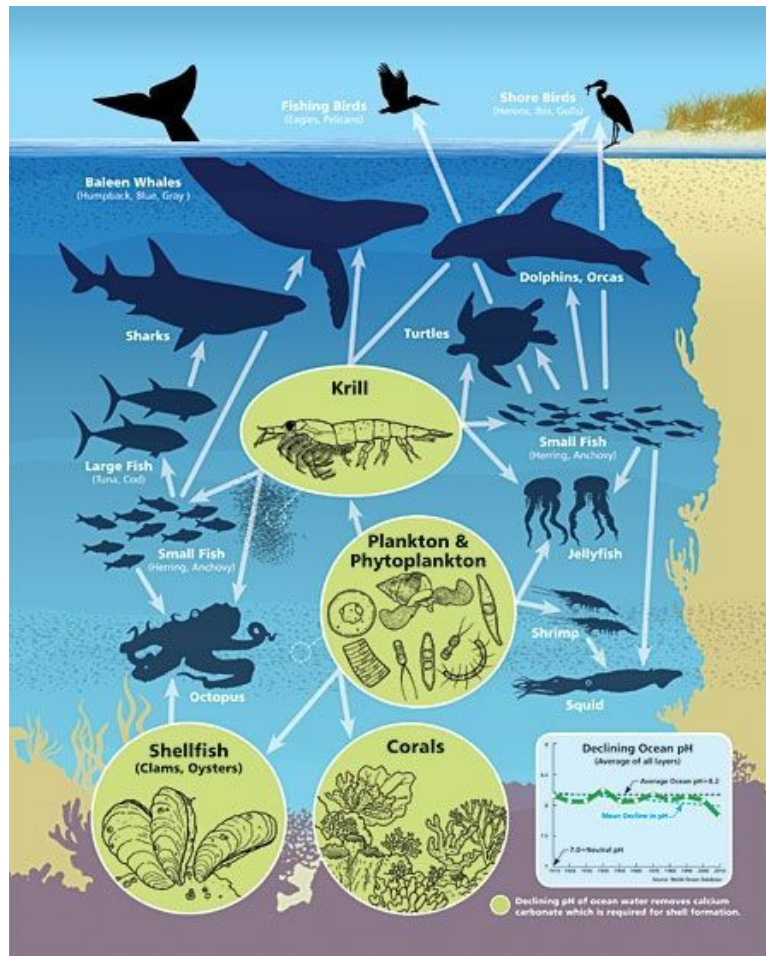
Why do we need the oceans?

- The ocean covers more than three quarters of the Earth's surface.
- It contains 99 percent of the living space on the planet by volume.
- Marine plants produce approximately 50 percent of the atmospheric oxygen.
- Coastal reefs have an impact on the weather and protect from extreme weather conditions.
- The ocean impacts on economy such as tourism where an estimated sum of 37 billion USD is earned every year.
- 5 percent of the world's income comes from fishery and aquaculture which is a sum of 3 trillion USD.
- 4 billion people are dependent from protein being provided in fish and seafood.

If biodiversity decreases, the food chain would collapse and lead to a crash for all the people being dependent on the ocean and its biodiversity.

In nature there is a very complex web of relationships between species and their environment, if small pieces go missing it can all fall apart.

This infographic gives a small glimpse of the various interdependencies of the food chain/food web:



However, a worrying and comprehensive UN report has found that:

- Three-quarters of the land-based environment and about 66% of the marine environment have been significantly altered by human actions. On average these trends have been less severe or avoided in areas held or managed by Indigenous Peoples and Local Communities.
- Plastic pollution has increased tenfold since 1980, 300-400 million tons of heavy metals, solvents, toxic sludge and other wastes from industrial facilities are dumped annually into the world's waters, and fertilizers entering coastal ecosystems have produced more than 400 ocean 'dead zones', totalling more than 245,000 km² (591-595) – a combined area greater than that of the United Kingdom.
- In 2015, 33% of marine fish stocks were being harvested at unsustainable levels; 60% were maximally sustainably fished, with just 7% harvested at levels lower than what can be sustainably fished.



We recommend you read up on The IPBES Global Assessment Report on Biodiversity and Ecosystem Services, please visit:

<https://www.un.org/sustainabledevelopment/blog/2019/05/nature-decline-unprecedented-report/>

*“Ecosystems, species, wild populations, local varieties and breeds of domesticated plants and animals are shrinking, deteriorating or vanishing. The essential, interconnected web of life on Earth is getting smaller and increasingly frayed. This loss is a direct result of human activity and constitutes a direct threat to human well-being in all regions of the world.” - **Professor Settele***

2) Different issues to resolve

2 A) Overfishing and bycatch- how do we prevent it and how do we regenerate the populations?

Today, one third of the world's fish stocks are overfished, up from 10 per cent in the mid-1970s. Another 60% of fish stocks have been exploited at their maximum sustainable limit.

According to the FAO, more than 5 Million tons of tuna were fished in 2014. 3 Million tons were skipjack tuna, that are mainly fished to be tinned. 1,5 Million tons were Yellowfin Tuna, which are often consumed as sushi or steak. 40000 tons of the world famous Atlantic Bluefin Tuna was approximately 1% of the global tuna fishery. About 30% of the global tuna population is overexploited.

Every year, over 1,500 whales are being killed because of their meat and blubber that can be sold for commercial gain. Even though commercial whaling was banned in 1986, Japan, Norway and Iceland still actively engage in whale hunting. However the most whales are killed as bycatch.



Every year, between 67 and 273 Million sharks are being fished as bycatch or with longline fishery. The illegal act of finning is still very common especially in Asia as it is a traditional food. 23 to 73 Million fins are being exported to Asia every year.

The traditional dolphin hunting is still being practiced, for example the Taiji dolphin hunt is annually killing 25,000 dolphins. After the killing of the animals, they are sold. The price of one can be up to 600 USD. Before they are slaughtered, some cute and small dolphins are being selected to be trained for Dolphinariums. The price of such a dolphin can go up to 250,000 USD.

Nearly all species of turtles are endangered or overexploited. The biggest threats to the sea turtles is human due to oil spills, entanglement in plastic bags, accidental capture in fishing gear and the illegal hunting. Approximately 250,000 sea turtles are annually captured accidental bycatch.

Current UN plans to combat this include:

<https://www.unenvironment.org/news-and-stories/story/plan-action-sustainable-fisheries-and-oceans-trade>

<https://www.unenvironment.org/events/conference/inter-agency-joint-plan-action-achieving-trade-related-targets-sdg-14>

2 B) Marine Pollution

1. Through fishing

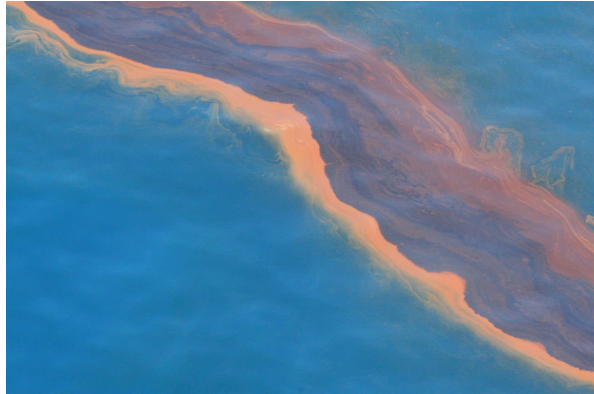
Lost and abandoned fishing nets, that drift aimlessly in the current, are a major hazard to marine animals as the drifting equipment can trap, maim or kill them¹. These plastic nets comprise about 10% of marine plastic pollution². This problem is sometimes referred to as “ghost fishing” or “ghost nets”. Not all nets are abandoned intentionally, sometimes it comes down to improper maintenance, ignorance or carelessness.

¹<https://www.worldoceanfest.org/new-blog/2017/6/9/the-impact-of-abandoned-ocean-fishing-nets-on-marine-life>

² <http://www.fao.org/news/story/en/item/19353/icode/>

2. Through industry

The public was never as acutely aware of marine pollution as in 2010 when Deepwater Horizon, an offshore oil drilling rig in the gulf of Mexico, blew up. The resulting oil spill is considered the biggest in the history of petroleum exploitation, an estimated 780,000 m³ of crude oil made their way into the ocean.



In the manufacturing process of plastic products small plastic pellets (sometimes called 'nurdles' or 'beads') are usually used. These are easy to transport and are then melted down and moulded into many different shapes. However, their size also makes them a dangerous pollutant as they can be easily swept away by wind or water. Once they're in the ocean they are also extraordinarily hard to remove and are very attractive to fish due to their size and various colours.

Agriculture is also a major source of pollution. Through soil erosion and pollution of rivers and other waterways the chemicals used on crops eventually make their way into the ocean where they can wreak havoc on the ecosystem.

One example of this are harmful algal blooms, which can happen due to a high concentration of fertilizers in the water. These blooms can lead to "dead zones", where animal life is not possible due to low oxygen levels. Some algae even produce toxins.

The above examples illustrate the polluting potential of industry and agriculture, please consider and research your country's industries!



3. Through consumers

A significant portion of the 8 million tons of plastic being dumped into the ocean each year, can be traced back to consumer products and their packaging.

However it's not only through obvious sources that pollutants get into the oceans:

The most common pollutants are domestic waste, sewage, oil, heavy metals, pesticides and sometimes radioactive materials, that can lead to contamination through nonpoint source pollution (NPS). NPS is a type of pollution that is difficult to combat as it does not have a single source and cannot be tied to a single activity. It results mostly from everyday activities, which accumulate pollutants that are then swept away with the water cycle. There's also examples of specific ingredients in consumer products being harmful to aquatic life like the chemical sunscreen ingredient, oxybenzone and octinoxate that harm the coral reefs.

4. Other kinds of pollution

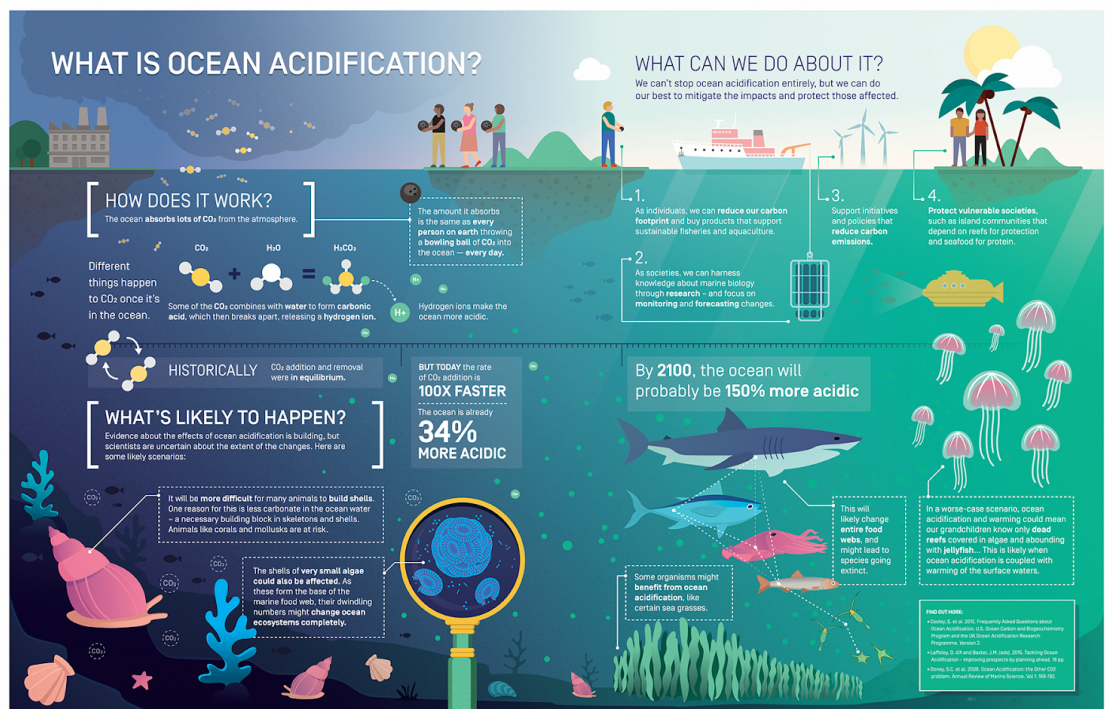
The noise pollution is a major menace to ocean wildlife. The loudest most dangerous disruptive influences are military sonar, oil exploration and industrial shipping. For example whales can be displaced and disrupts while feeding, breeding and nursing, communication and navigation due to sonar and other sound waves.

2 C) Climate Change

Global warming contributes to deoxygenation. As it melts glaciers and ice, a layer of less salty water is formed on the surface, which disrupts the saline gradient that keeps the nutrients in the ocean in a cycle. (see also stratification)

Plankton, which is found towards the surface because it uses photosynthesis, therefore has less nutrients and produces less oxygen.

Thirty to forty percent of CO₂ released into the atmosphere dissolves into the ocean, where it forms carbonic acid. Seawater is naturally slightly basic, so ocean acidification means a shift towards a neutral pH not necessarily towards acidity. This change in pH is nevertheless very impactful, especially for oceanic calcifying organisms such as corals, crustaceans and molluscs. Rising sea levels, also provoked by climate change, threaten the existence of many important habitats such as mangroves, estuaries and coastal wetlands and in turn also the species that inhabit them.



3) Relevant International Conventions

Agenda 2030: Sustainable Development Goals (SDGs)

<https://sustainabledevelopment.un.org/sdg14>

SDG 14 Life below water:

This goal is to achieve a sustainable use of the ocean, seas and marine resources. And to combat the impacts of climate change such as the acidification of the ocean, overfishing and marine pollution.



Targets:

14.1 By 2015, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities,

14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics

14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information

14.6 by 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing,

14.C Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want

CBD: Convention on Biological Diversity (<https://www.cbd.int/>)

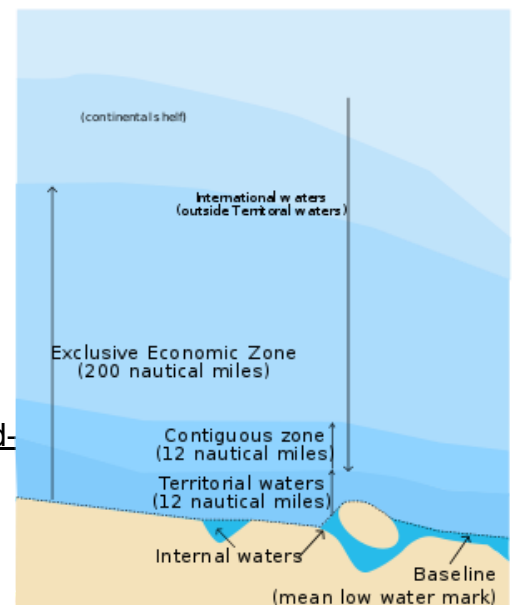
This convention was first elaborated by working groups created by the United Nations Environment Programme (UNEP), it was then opened for signature in 1992 at the United Nations Conference on Environment and Development in Rio. It was signed by <https://www.cbd.int/information/parties.shtml> and entered into force in 1993.

It has three main objectives:

1. The conservation of biological diversity
2. The sustainable use of the components of biological diversity
3. The fair and equitable sharing of the benefits arising out of the utilization of genetic resources

According to Article 6³ of the convention, the contracting parties commit themselves to the development of so-called NBSAPs (National Biodiversity Strategies and Action Plans) which are valuable sources of information for you.

³ <https://www.cbd.int/convention/articles/default.shtml?a=cbd->





UNCLOS: United Nations Convention on the Law of the Sea

A multilateral UN treaty that defines the rights nations have to the ocean. Most important for our topic is the definition of the different zones of the ocean as seen from a legal perspective: Territorial Waters, Contiguous Zone, Exclusive Economic Zone and International Waters. It defines that within the Exclusive Economic Zone which extends 200 nautical miles (370 km) from the baseline, the coastal nation has sole exploitation rights of the natural resources. This was originally introduced to regulate fishing rights but is very important for exploitation of oil at the moment.

Straddling Fish Stocks Agreement

(<https://sustainabledevelopment.un.org/topics/oceans/unfishstock>)

The UN Fish Stocks Agreement aims to ensure the long-term conservation and sustainable use of straddling and highly migratory fish stocks, which are fish populations that migrate through different exclusive economic zones (as defined in UNCLOS), which include tuna and sharks.

Excerpt from Article 5:

(e) adopt, where necessary, conservation and management measures for species belonging to the same ecosystem or associated with or dependent upon the target stocks, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened;

(f) minimize pollution, waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species, (hereinafter referred to as non-target species) and impacts on associated or dependent species, in particular endangered species, through measures including, to the extent practicable, the development and use of selective, environmentally safe and cost-effective fishing gear and techniques;

Make sure to research your countries own fishery policies as much of this is defined on a national level!

UNFCCC: United Nations Framework Convention on Climate Change (<https://unfccc.int/>)

This convention was revealed at the “Rio Earth Summit”, just like the CBD and entered into force in 1994. Its ultimate goal is to stabilize greenhouse gas emissions



at a level at which there is no “dangerous anthropogenic interference in the climate system” and states that “such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner.”

See also:

Kyoto Protocol

The Kyoto Protocol is an international agreement linked to the United Nations framework Convention on Climate Change. It was adopted in Kyoto, Japan in 1997 and enter into force in 2005. This international treaty aimed to reduce the emission of greenhouse gases that contribute to global warming. 38 developed nations signed up at the mega-meeting popularly known as the Earth Summit. Even though the 38 nations did not meet their collective target and the success of the Kyoto Protocol is being argued, it helps to lay the foundations for the Paris Climate Agreement.

Paris Climate Agreement

The Paris Climate Agreement builds upon the Convention and was signed by 175 nations. For the first time, it brings all nations together to work towards the strengthening of the global response by keeping a global temperature below two degrees Celsius. It calls out to strengthen the ability of countries to deal with climate change and to support the action taken by developing countries.

<https://unfccc.int/timeline/>

CITES: Convention on International Trade in Endangered Species of Wild Fauna and Flora (<https://www.cites.org/>)

This multilateral treaty, which entered into force in 1975, is also known as the Washington Convention. It aims to protect endangered species from overexploitation through international trade. Roughly 5,800 species of animals and 30,000 species of plants are currently protected by CITES.

The species are grouped into three Appendices

<https://www.cites.org/eng/app/index.php> according to how threatened they are by international trade. An entire species can be listed but it is also possible to list specific local populations.



Maybe give some examples to illustrate which species are in which appendix

The IUCN Red List of Threatened Species

(<https://www.iucnredlist.org/>)

This list was established in 1965 in order to assess the conservation status of various species. Species are classified into one of 9 categories: Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild and Extinct. It also lists the threats that specific species face (eg Residential & commercial development or climate change and severe weather).

As of 2019, 9754 species are qualified as endangered, 568 of which live in the ocean.

Please examine the relationship your country has with these conventions.

Glossary

UNEP

United Nations Environment Program (founded in 1972)

Biodiversity

Variety of different species present in a defined region.

Species Richness

Older term for biodiversity but which refers specifically to the number of species in a given ecosystem.

Overfishing

Overfishing is the removal of a species of fish from a body of water at a rate that the species cannot replenish in time, resulting in those species either becoming depleted or very underpopulated in that given area.

Bycatch

Bycatch, in the fishing industry, is a fish or other marine species that is caught unintentionally while catching certain target species and target sizes of fish, crabs



etc. Bycatch is either of a different species, the wrong sex, or is undersized or juvenile individuals of the target species.

Pollution

Pollution is the introduction of contaminants into the natural environment that cause adverse change.

Ecosystem

An ecosystem, a term very often used in biology, is a community of plants and animals interacting with each other in a given area, and also with their non-living environments. The non-living environments include weather, earth, sun, soil, climate and atmosphere.

Ecosystem Management

Ecosystem management is a process that aims to conserve major ecological services and restore natural resources while meeting the socioeconomic, political, and cultural needs of current and future generations.