

THE OCEANS

AN ENVIRONMENTAL GUIDE

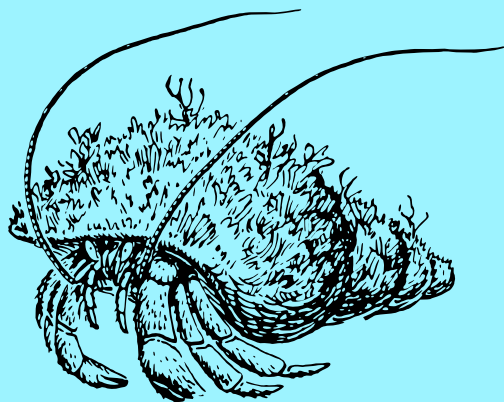


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**Save the
oceans for us
and the future!**



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Introduction

The aim of this guide is to inform people about the environmental problems the world's oceans face. It does not contain all the answers, but it will help you to understand the real situation.

"THE OCEANS an environmental guide" - one of the outcomes prepared by Erasmus+ project "We - the children of Mother Earth" (No 2018-1-PL01-KA229-050926_5) members.

The guide contains general information about the world oceans, why the oceans are important, the threats they face, plastic pollution and 10 endangered ocean species and marine animals.

WHY THE OCEAN IS IMPORTANT?

Oceans are important to people and it is an integral part of people's lives. For example, Suzanne van der Veecken finds seven reasons why the oceans are important:

1. The Ocean produces more oxygen than the Amazones
2. The Ocean regulates the Earth climate
3. It is an important source of food
4. Many creatures depend and live in the Ocean
5. The best holidays are close to the water
6. Many jobs are related to sea activities
7. The Ocean has therapeutic properties.

Much of the ocean we do not see is cold, the deep, and a way from land. These ocean extremes are exceptionally important to life on Earth and therefore also human existence. They provide a multitude of ecosystem services.



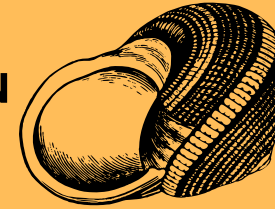
DO YOU KNOW THAT:

- The frozen oceans of the Arctic and Antarctic affect the climate of the entire planet.
- The oceans ice sheets provide habitats for marine life such as microorganisms, fish, mammals and birds. In addition, the ocean is home to millions upon millions of microscopic life forms that contribute to the oxygen in our atmosphere.
- The vast deep sea is central to the recycling of nutrients that supports life in the rest of the ocean. It is a source of new resources: minerals, oil, gas and deep sea fisheries.

Overall that means that the ocean is a real "treasure chest" by having so many goodresources and gifts. But I wonder for how long... If you have not realised ityet, at this moment, ocean and it's gifts face with a lot of difficulties!



GENERAL INFORMATION ABOUT THE OCEAN



According to National Geographic Resource Library Encyclopedic Entry “The ocean is a huge body of saltwater that covers about 71 percent of the Earth's surface.”

Historically, there are four named ocean basins: the Atlantic, Pacific, Indian, and Arctic. However, most countries recognize the Southern (Antarctic) as the fifth ocean basin. The Pacific, Atlantic, and Indian are the most commonly known.

THE ATLANTIC OCEAN

Noise pollution generated by shipping and military activities can cause damage to a lot of species that includes jellyfish and anemones. These animals are a vital food source for tuna, sharks, sea turtles and other creatures.



THE PACIFIC OCEAN

70 percent of ocean garbage actually sinks to the seafloor, meaning we are unlikely to ever be able to clean it up. That means that all of the corals, fish, microorganisms are covered with plastic!

THE INDIAN OCEAN

More plastic in the ocean comes from China and Indonesia than anywhere else together, they account for one-third of plastic pollution. In fact, 80 percent of plastic pollution comes from just 20 countries, including the United States.

THE ANTARCTIC OCEAN

This ocean is getting warmer and has way more acidic that it used to have normally. The wind-driven surface currents in this ocean zone help to transfer nutrients and life around the planet. These problems are making oceans even less welcoming to species that cannot adapt quickly enough.

THE ARCTIC OCEAN

The ocean is losing life almost as fast as it is gaining plastic: our endless taste for fish means the population of several species, like Atlantic Bluefin Tuna, have declined so much that their survival is at risk.



OCEANS AND THE THREATS THEY FACE

We have degraded our oceans to the cusp of catastrophe. If you want to save the oceans, by all means eat only sustainably sourced fish and stop using plastic shopping bags that become ocean detritus. These things are worth doing. But the problem in our oceans is not something that will be solved through those simple actions alone.



1. OVERFISHING



We have methodically depleted the fish in our oceans. First, we exhausted those we could catch with small boats and rods close to the shore. Then we went further and exhausted the pelagic fish, such as herring and tuna. Then we went deeper, catching species such as the orange roughy, which can live to 150 years and don't breed until they are 20 years old. The oceans are like a deep freezer full of fish, which we've now almost emptied. The good news is that scientists know exactly how to replenish the stocks - by creating marine protected areas, or fish regeneration zones - and how to fish sustainably.

2. COASTAL POLLUTION



Industrial agriculture is pouring reactive nitrogen and phosphorous into the oceans through every river on Earth, creating what are called "ocean dead zones".

3. HABITAT DESTRUCTION



While marine habitats deal with the pressure of coastal pollution, the ecosystems need to survive. These include clearing mangrove forests for shrimp production and scraping entire ecosystems off seamounts, or underwater mountain ranges, through deep-sea trawling.

4. WARMING



The temperature rise over the past century is estimated at about 0.1 degree Celsius - but that is enough to kill the algae that keep corals alive, move species into new areas, and cause sea levels to rise.

5. ACIDIFICATION



Like warming, acidification is related to carbon dioxide, which dissolves in oceans to form carbonic acid. The greater the acidity, the less able marine-calcifying organisms are to form shells, disrupting their reproductive process. Under the cumulative weight of acidification, warming, habitat destruction, coastal pollution and overfishing, the ocean environment may soon become fit only for jellyfish.

PLASTIC POLLUTION



Ocean plastic pollution is a global tragedy for our oceans and ocean life. Plastic has been filling up our ocean for a really long time now and it's getting worse every day. Now there are billions of pounds of plastic in the oceans and they take up to 40% of the world's ocean surfaces.

WHAT ARE MICROPLASTICS?

Microplastics are tiny pieces of plastic that come from larger plastics that have degraded over time. Sea animals often eat microplastics because of their small size. And plastic contains toxic chemicals, which can increase the chance of disease and affect reproduction. After ingesting microplastics, seals, and other animals, may suffer for months or years before they die.



HOW DOES PLASTIC AFFECT OCEAN LIFE?

Because of the amount of plastic in the oceans, there are thousands of animals, from small fish to blue whales that die grisly deaths from eating and getting caught in plastic. A lot of animals mistake plastic for food and eat it. At current rates plastic is expected to outweigh all the fish in the sea by 2050. Many ocean species are close to going extinct because of the amounts of deaths caused by plastic in the oceans.



10 Endangered Ocean Species and Marine Animals



According to scientist animal species around the world are being hit with multiple fronts as habitat loss, hotter oceans, and climate change drive their populations down at unprecedented rates. Recent United Nations report says that up to 1 million plant and animal species are threatened with extinction, and many could disappear within decades. Here is the list of the most endangered and recognizable marine species that maybe you didn't know were going extinct.

1. Hawksbill Turtle (*Eretmochelys imbricate*)



Found in the tropical regions of all the world's oceans, mostly in coral reefs, the Hawksbill Turtle's population has declined by 80% over the last century. These beautiful creatures are going extinct because hunters hunt them for their meat and colorful shells. Also another cause of extinction is the food depletion According to marine conservatives, this family of the turtle is the living representatives of reptiles that have existed in our oceans for the past hundred million years and they are vital for the existence of seagrass beds and coral reefs (Picture 1).



Picture 1. Hawksbill Turtle



Picture 2. Coral

2. Coral (Anthozoa)



As a matter of fact let's talk about corals now. You might ask how is that an animal? But, it's completely true. Coral is a sea animal and is vital in the ocean's ecosystem. Coral provides protection and shelter to small sea creatures and barrier reefs buffer the shores by reducing the size of waves. Coral is endangered due to ocean acidification and commercial fishing. Also, humans touching or standing on the reefs while snorkeling or diving damages them further (Picture 2).

3.The Smalltooth Sawfish (*Pristis pectinata*)

This endangered animal looks like a type of shark, but it's actually a type of ray. Named for its distinct nose, this creature was the first marine fish to receive federal protection as an endangered species under the Endangered Species Act in 2003, according to National Marine Fisheries Service (Picture 3).



Picture 3. The Smalltooth Sawfish

4.Krill (*Euphausiacea*)

The krill averages only about two inches in length, but these small, shrimp-like crustaceans are essentially the fuel that runs the engine of the Earth's marine ecosystems. Krill is endangered because they are harvested to feed farm-raised fish, if krill becomes extinct larger sea creatures can not survive and would also become extinct (Picture 4).



Picture 4. Krill

5.Hammerhead Sharks (*Sphyrnidae*)

Hammerheads are creatures of the deep who roam the ocean in peace. This shark's population continues to decline in Mediterranean, Caribbean, Atlantic and South African waters. The major threats include fishing for shark fins and illegal fishing in the Indian Ocean (Picture 5).



Picture 5. Hammerhead Shark

6.Vaquita (*Phocoena sinus*)

Now let's look at one of the friendliest creatures in the sea. An inhabitant of the shallow, murky waters off the shore of the Baja Peninsula in Mexico, Vaquita is the world's smallest and critically endangered animal. Mammal is on the brink of extinction only after a half-century of its first sighting because of extensive use of gill-netting for fishing (Picture 6).



Picture 6. Vaquita

7. Gray whale (*Eschrichtius robustus*)

Gray whales are found throughout the Pacific and North Atlantic waters, but the northwestern Pacific population is critically endangered. Fishing, gas and oil development impacts gray whales with noise pollution and reducing food sources. Gray whales have been granted protection from commercial hunting by the International Whaling Commission (IWC) since 1949, and are no longer hunted on a large scale (Picture 7).

9. The Short-Nosed Sea Snake (*Aipysurus apraefrontalis*)



The venomous snake prefers to munch on eels and fish, but warmer sea temperatures and fishing have been highlighted as factors which may negatively impact their numbers. The short-nosed sea snake hasn't been seen since 2000, so who knows maybe the species had already gone extinct (Picture 9).



Picture 7. Gray whale



Picture 8. The Eelgrass Limpet



Picture 9. The Short-Nosed Sea Snake



Picture 10. Cape Penguin

8. The Eelgrass Limpet (*Lottia alveus*)



Is a species of sea snail, used to be abundant in the waters of the western Atlantic. It lived and fed exclusively on one type of seagrass called eelgrass. But the population and distribution of eelgrass plummeted from disease in the 1930s, causing the limpet go extinct.

10. Cape Penguin (*Spheniscus demersus*)

Is a type species of penguin confined to southern African waters, making a sound similar to a hee-hawing donkey. Due to human pollution, loss of nesting sites, lack of food and oil spill pollution, these birds are now endangered. In addition to all the species listed here, there are more than 60 other critically endangered marine animals in the oceans today, according to the IUCN. All of these creatures have been negatively impacted by dying coral reefs, rising ocean temperatures, and pollution (Picture 10).

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BY