

UN GOAL OF
SUSTAINABLE
DEVELOPMENT:
SUSTAINABLE USE
OF THE OCEANS –
SDG14

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Introduction



Figure 1 - UN Sustainable Development Goals- The 17 Goals - <https://sdgs.un.org/goals>

The 20 Agenda for sustainable development was adopted for all UN members in 2015. It provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty and other deprivations must

go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests (UN department of Economic and Social Affairs, n.d.)

Prof. Johan Rockström and board member of the Stockholm Resilient Center Pavan Sukhdev pushed for a new way of viewing the economic, social, and ecological aspects of the Sustainable Development Goals (SDGs).



Figure 2 - SDGs Wedding cake - Stockholm Resilient Center.

The SDG 'Wedding cake' shows the biosphere as the foundation of economies and societies and as the basis of all SDGs. It is an integrated view of social, economic,

and ecological development. If the environment is fragile, it can crash the wedding cake.

The Environment is the foundation, supporting society, which supports the economy.

We can't have everyone in good health and achieve no poverty without taking care first of our land (SDG15), forest (SDG15) and our GHG emissions (SDG13). We can't achieve decent work and economic growth or zero hunger without first taking care of our oceans (SDG14).

The SDG that is being analyze in this course is SDG14. The Goal of SDG14 is to conserve and sustainably use the world's ocean, seas, and marine resources.

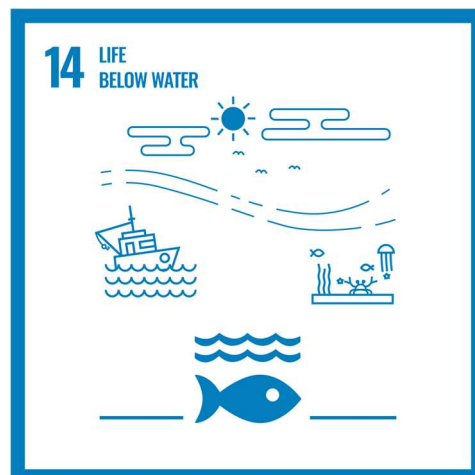


Figure 3 - SDG 14. UN.

<https://www.un.org/sustainabledevelopment/news/communications-material/>

The UN has defined 10 *Targets* and 10 *Indicators* for SDG 14. These are the targets:

Target 14.1	• Reduce marine pollution
Target 14.2	• Protect and restore ecosystems
Target 14.3	• Reduce ocean acidification
Target 14.4	• Sustainable fishing
Target 14.5	• Conserve coastal and marine areas
Target 14.6	• End subsidies contributing to overfishing
Target 14.7	• Increase the economic benefits from sustainable use of marine resources
Target 14.A	• Increase scientific knowledge, research and technology for ocean health
Target 14.B	• Support small scale fishers
Target 14.C	• Implement and enforce international sea law

Figure 4 - SDG 14 targets. UN. <https://sdg-tracker.org/oceans> . Own creation.

Why is the UN's goal of taking responsible action for Life Below Water important, in your opinion?

This SDG aims to conserve and sustainably use the oceans, seas, and marine resources for sustainable development.

The oceans are fundamentally important to humans and all the other living plants and animals that you find on land. Oceans make up 70% of the Earth's surface. Almost all the habitable space on this planet is in the oceans. The oceans go down more than 10 km in depth and the seafloor. The sea floor and the sea surface, particularly near the coastlines where there are a lot of nutrients flowing off the land, are hugely productive areas and this is really important because the plant life here produces about half of all the oxygen in our atmosphere so, in terms of what we are breathing the oceans are fundamentally important, but they also influence our culture, they provide food and medicine.

In this geologic era in which we are, The Anthropocene, humans have changed the climate. What does that mean for the marine environment? The water chemistry is changing. The ocean acidification is changing the behavior of the animals in the ocean. Changing their growth rate, their ability to reproduce.

When the oceans temperature changes, it absorbs different quantities of CO₂ with a very important impact on the living conditions of our planet.

Oceans maintain the climate's natural balance. They account for one of our largest carbon sinks. The seas absorb a vast quantity of CO₂. As it enters in contact with water, carbon dioxide dissolves. Part of it remains in the oceans while the rest is trapped by microscopic plants called phytoplankton which, like trees in a forest they

do photosynthesis. CO₂ is absorbed by phytoplankton and transformed into organic matter under the action of light, water, and nutrients. This chemical reaction releases a large quantity of oxygen, the air that we breath.

The oceans are the lungs of our planet. They produce much more oxygen than all the forests put together. Due to human activity, CO₂ levels are increasing much faster than what phytoplankton is able to absorb. This has triggered a phenomenon called ocean acidification - SDG14 - target 14.3: reduce ocean acidification. When CO₂ comes in contact with water, part of it is used by photosynthesis and the rest dissolves into the water creating an acid called carbonic acid. And this impacts the entire chain of living things from shellfish to coral reefs. All organisms with calcareous structures are threaten. Carbonic acid weakens their shells and skeletons. The speeds at which this phenomenon is occurring exceeds the adaptation capacity.

How is the state of Life Below Water in the world?

Many marine species, habitats and ecosystems have suffered catastrophic declines. And climate change further undermines ocean productivity and biodiversity. A substantial fraction of the coastal ocean suffers from pollution, putrefaction, and oxygen depletion. Our oceans are stressed by warming and many marine species are threatened with extinction.

The first of the SDG14 targets is to reduce marine pollution. Millions of tons of plastic enter the oceans each year. The rate at which plastic finds its way into the ocean is increasing. Just to give an example, globally, most turtles are likely to have eaten plastic in some form, but lots of marine animals mistake plastic for food, such as seals, fish, and whales.



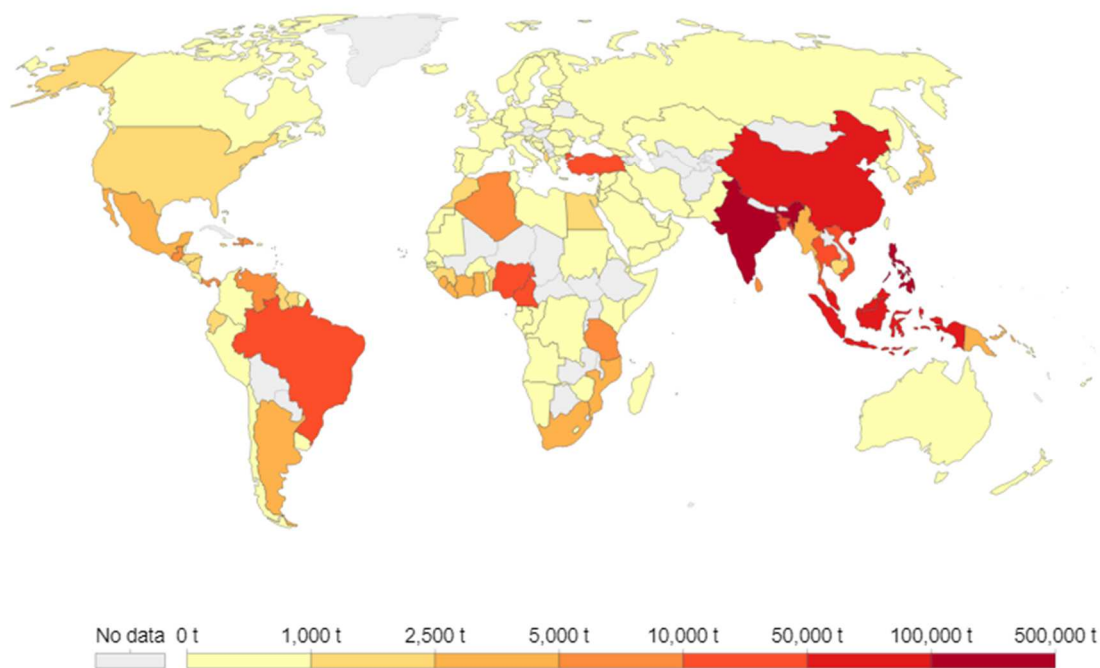
Figure 5 - Turtle eating plastic. Source: WWF ([World Wildlife Fund](https://www.worldwildlife.org/))

Marine animals either they eat plastic waste or get entangled in it.

Seabirds such as albatross, gannets, shearwater, and petrels are particularly vulnerable. When I watched the movie documentary “A Plastic Ocean” in Netflix I was shocked, and it opened my eyes with the problems of plastic waste in the ocean.

Where is all this plastic coming from? All over the world. A major source of plastic pollution in the oceans is rivers

Plastic waste emitted to the ocean, 2019



Source: Meijer et al. (2021). More than 1000 rivers account for 80% of global riverine plastic emissions into the ocean. Science Advances. CC BY

Figure 6 - Plastic waste emitted in the ocean. Ourworldindata.org

The darker the figure, the more mismanaged plastics that country has so, more likely their plastic will end up in the ocean. Once the plastic enters the ocean, it travels in ocean gyres all around the world. Inside the gyres the water is stationary, and it is here that the plastics accumulate. Over time, garbage patches form and the most well known is the great pacific garbage patch.



Figure 7 - The great pacific garbage patch. Worldatlas.com

There is a garbage patch in each of our ocean basins.

What changes need to happen to achieve Responsible Action for Life Below Water?

We must apply SDG12 to ensure sustainable consumption and production patterns. We could start by shopping in a responsible manner. For example, when buying food in the supermarket, don't go for those apples that already come in a container and wrapped in a plastic. Bring your own reusable bag. Instead of buying bottled water, get a filtering system so you can drink water from the tap. Use your own reusable water bottle (I have my own in my workplace) so, if there are water fountains in the town or in your place of work, you can use them.

We need to reduce and, at a point, stop greenhouse gas emissions. Air conditioning is one of the worse consumers of electricity and, with temperatures likely to soar, this is only going to get worse. The more the Earth warms, the more the people will need air conditioners. But the more of those we have, the warmer the planet will be because they are working by burning fossil fuels. The projection from IEA (International Energy Agency) is that by 2050 around two thirds of the world's households could have air conditioning. Which means that, without policy intervention, emissions are projected to rise by 90% above 2017 levels by the year 2050. (IEA, 2018)

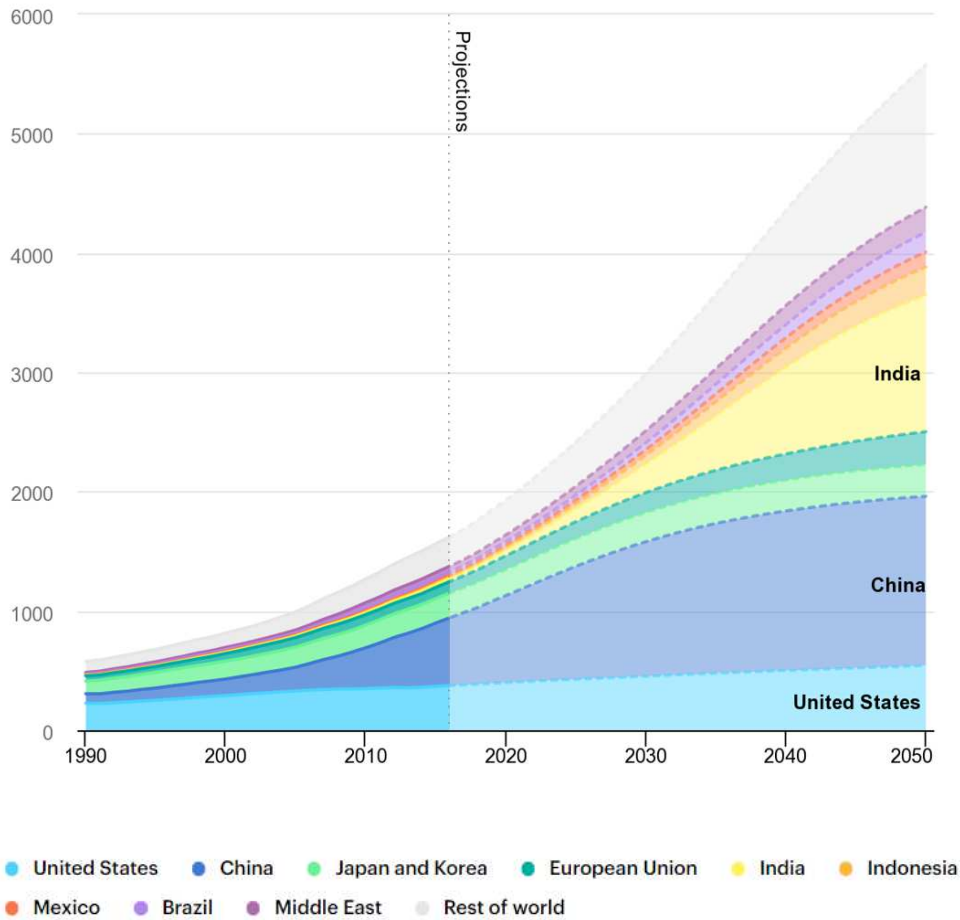


Figure 8 - IEA, *Global air conditioner stock, 1990-2050*, IEA, Paris
<https://www.iea.org/data-and-statistics/charts/global-air-conditioner-stock-1990-2050>

So, how can we keep cool without warming the planet? We must find a better way, a more efficient and climate - friendly way of cooling the Earth`s population. Innovation is the key. Innovative methods are being trialed. From technology to make air conditioners more efficient to completely eradicate the need for hydrofluorocarbons (HFCs) at all. One example of innovative technology is SkyCool. This s a clean energy company focused on energy efficient solutions and new methods for cooling (<https://www.skycoolsystems.com/>). But this type of technology can not be relied upon alone to provide affordable cooling on a mass scale. More solutions are necessary like

improve buildings design to reduce the demand on mechanical cooling systems, better urban design and nature-based approaches.

Managing our waste is also important so products get to be recycled. A discarded water bottle would take at least 1.000 years to biodegrade, and this does not mean it is gone, just that is broken down into thousands or millions of tiny pieces, microplastics, that can make their way into our food and water.

Another thing that could be done and, it is actually target 14.4 - to fish sustainably. Governments must protect the oceans from overfishing to conserve biodiversity. We could buy locally caught fish rather than imported fish. Find out whether it was caught in a sustainable fashion. Choose for certified products.

As well, certain organizations, nonprofit groups, working on both a public and political level to save and protect our oceans like, [Oceana](#), [The Ocean Conservancy](#), [Project Aware Foundation](#), [Sea Shepherd Conservation Society](#), [Coral Reef Alliance](#), [The Nature Conservancy](#), [Greenpeace](#), [WWF](#).

And other non-profit foundations like the one I learnt in the video of this course called [The Ocean Cleanup](#) which a Dutch person founded in Delft, The Netherlands, when he was only 18 years of age. Their mission is to clean up the world`s oceans of plastic.

Do you think it is possible to achieve Responsible Actions for Life Below Water? Why or why not?

Everyone deserves to live in a world where all life that exists below water is able to live in clean healthy waters. The plants and animals that live under water are important for all life on Earth.

I think that it is possible to achieve responsible actions for life below water. A very good place to start is applying SDG 12, SDG 4 and SDG17. Through education we can achieve responsible consumption. Companies and big corporations must be environmentally and socially responsible and SDG 17 - to revitalize the global partnership for sustainable development is very important and fundamental to achieve any of the other SDGs. We need action by all countries to ensure that the 2030 agenda is accomplished.

Innovation is key to help. Technology supporting marine protected areas limiting unregulated economic exploitation. Investing in business ideas that conserve the ocean while generating economic benefits. Restorative aquaculture (farming seaweed, shellfish, and fish) creates jobs in coastal areas, provides nutritious food and helps combat climate change. Protecting and restoring coral reefs which is vital for life on Earth.

How can education lead to a world with Responsible Actions for Life Below Water?

Education is the key to achieve many of the other SDGs.

Becoming aware of the importance of the oceans for human life as well as the link between human activities and the marine ecosystems can help. Education will help people be aware that conserving sea life is crucial because oceans are the largest ecosystems on Earth and generate most of the oxygen that we breathe among many other aspects already mentioned in this essay.

This week I was talking in class about the oceans and some of the current problems caused by human activities. After class one of my students approached me (Les Roches Marbella is an international school) and told me that he wished he would have been taught about all this in school because he is only learning now, in university, about sustainability.

It is important to empower people with knowledge, skills, and resources to help conserve and protect the oceans.

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