

# Impact of COVID-19 on the SDG14 targets

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## Introduction

In December 2019 an outbreak of an unknown virus appeared in Wuhan, China. Most of the early cases were linked to a food market called Huanan Seafood Wholesale Market. This virus was named Covid-19, or Coronavirus (Ciotti, M., et al. 2019). The virus spread globally, and millions of people died. Even more, people were infected, causing a global lockdown period in the world. Covid-19 had a massive impact on countries' health systems as well as countries' economies (Ciotti, M., et al. 2019). The Sustainable Development Goals (SDG) adopted by the United Nations were also impacted in many ways.

The United Nations members adopted the Sustainable Development Goals in 2015 with the intention to act to end poverty, protect the earth for the future and improve life and opportunities for humans all over the world. The 17 individual goals are supposed to be achieved within 2030, and although we are making progress, we are not making it at the speed required to reach the goals within the time limit (United Nations, n.d.). SDG 14 "Life Below Water" is based on the ocean and has 7 targets and 3 smaller targets to reach. These are all related to life in the ocean, but also industries related to the ocean. Humans use the ocean, and it is clearly impacted by humans (United Nations, 2022). The Covid-19 pandemic has impacted the lives of all humans, and therefore this paper will discuss some of the impacts Covid-19 had on SDG 14: Life Below Water.

## Marine pollution

During Covid-19 and even afterward, people around the world got used to wearing single-use face masks to avoid any transmission of the virus and to stay safe. Monthly, 89 million to 129 billion masks were estimated to have been used across the globe (Khoo et al. 2021; Aragaw 2020). Unfortunately, as with other non-reusable plastic objects and hygienic products, many masks have not been properly thrown away, most likely because they cannot be kept for more than four hours. An international survey found that 19% of those interviewed recklessly throw away their masks (Silva et al. 2021). Furthermore, another estimation from WWF predicts that even if we consider that only 1% of masks are not correctly disposed of, around 10 million masks are still ending up in the environment every month (Silva et al. 2021). In addition, this figure could be much higher depending on the estimate of the masks used that are taken into consideration.

Therefore, masks can easily end up in seas and oceans like other plastics products (Parker 2019). Some environmental conditions may also help them to reach oceans after they are thrown into nature, such as wind, leaching, and flooding (Aragaw 2020). Once in the oceans, masks release many contaminants that endanger marine animals due to different physicochemical and biological processes e.g., UV radiation, current, enzymatic activity, wind, and salinity... (Aragaw 2020; Silva et al. 2021). Indeed, as face masks are made of fibers from polypropylene and polyester (Mejjad et al. 2021), they will be degraded into microfibers and micro and nano-plastics. A mask after two weeks in the ocean with sunlight can deliver up to 173,000 fibers per day (Silva et al. 2021). In addition, several additives are added to the composition of the masks, such as dyes, perfumes, and antiviral and antibacterial barriers, and they may also contain certain pathogens after being worn or concentrated with heavy metals (Silva et al. 2021). In consequence, the ingestion of fibers, plastics, and chemical hazards or pathogens has an ecotoxicological effect on marine animals. Their behavior is altered, they feed less, have reduced growth and body mass, reproduce less, and are at greater risk of oxidative stress and malformations (Silva et al. 2021).

Lastly, masks are also the cause of many worldwide entanglement cases. Depending on where the masks entangle the marine species, it can lead to different results from injuries, infections, and exhaustion to strangulation and death (Silva et al. 2021). Even if they are big plastic objects, they can still be ingested by some species as shown in a study of the death of a juvenile Magellanic penguin caused by the ingestion of a mask (Neto et al. 2021).

## Fisheries

As the covid-pandemic rapidly spread to every corner of the world, its effect has been extensive both social and economically. Small-scale fisheries are one group that is severely affected. There are an estimated 32 million people employed in small-scale fisheries and approximately 76 million people employed in the post-harvest industry. More than 80% of their catch is consumed locally and is a very important food source for many communities globally. (Bennett et al. 2020)

Covid-19 originated in China and subsequently hit here first. The pandemic happened about the same time as the Chinese New Year and caused a sudden drop in demand for lobster, crayfish, and shrimp. This started a market disruption that affected many places around the world. The pandemic hit small-scale fisheries particularly hard in West Africa and India. In some cases, especially in India, there were complete shutdowns. Other places saw market disruption and increased illegal fishing (Bennett et al. 2020).

The new situation brought by the pandemic also forced several interesting cases of food sharing. In Mexico, Hawaii, and Canada, small-scale fisheries managed to increase their output in order to feed local communities and increase food security (Bennett et al. 2020).

On a positive note, the reduced fishing pressure resulted in growing ecosystems in key places like coral reefs. We witnessed elevated species richness and evenness (China et al. 2021). We also had increased fish abundance in places with fewer tourists (Lecchini et al. 2021).

## Tourism and Small Islands Developing States

Similar to fisheries much of the tourism sector also suffered a hard blow due to lockdowns during the covid-pandemic. The restrictions included a stop to all international and domestic flights, which resulted in many people losing their jobs since no more tourists could enter the country (Lecchini et al. 2021). This affected SIDS (Small Island Developing States) hard since their GDP was mainly connected to tourism. This led to them losing a substantial amount of income for both individuals and companies (Gu et al. 2022).

Since there was no chance for locals to earn money in the bigger cities through tourism many locals e.g., on Bora Bora decided to leave the bigger islands for the smaller islets due to it being more beneficial for them. Lockdown restrictions couldn't be monitored out on the outer islands, they could freely fish without following management regulations (Lecchini et al. 2021).

The economy of SIDS is tightly linked to SDG 14.7, which talks about bettering the economy of small island developing states so they can use marine resources sustainably, for example through eco-tourism (Lecchini et al. 2021). Ecotourism can be different in different areas, but it is mainly defined as "nature-based tourism activities". Many believe it to be the answer to SIDS money problems as well as the answer to stopping the effects of climate change. A wave of climate awareness surged through the tourism sector, and many tourists now seek to experience nature and in doing so usually support conservation efforts, etc. (Wearing, & Neil 2009). This ecotourism can bring both progress and setbacks. For SIDS, it provides a substantial economic benefit without them having to exploit natural resources for export. Eco-tourism requires a healthy nature for tourists to enjoy, which means some areas could be protected from deforestation since they are key habitats for tourist activities (McHarg et al. 2022). For example, on TripAdvisor, around 4000 activities could be found linked to eco-tourism in 93 countries, which indicates there are a lot of benefits to protecting these key tourist spots (Spalding et al. 2021).

However, even though tourism is needed for securing an economical and sustainable resource usage in SIDS, less tourism also resulted in behavioral changes in fish. The density of fish around islands in Bora Bora increased in most areas during lockdowns, which showed that phenology played a huge role in the recovery of fish stocks and that the response to the anthropause was rather quick in fish communities (Lecchini et al. 2021).

## Conclusion

Altogether, during the Covid-pandemic many of the SDG targets were affected by changes in society. Mask usage went up and many masks ended up polluting the oceans in a greater capacity than before, small-scale fisheries suffered due to restrictions and lockdowns and so did the tourism sector in many SIDS. Though many of the effects on the SDG targets were negative some were also positive, since an anthropause proved to help ecosystems recover, though momentarily. What could be learned from humanity's response to the Covid-pandemic is that there is still much we need to understand to not suffer this much economically during a pandemic. Better preparations and considerations towards countries reliant on fishing and tourism, and how to better dispose of non-reusable hygienic products, like masks. We also saw proof of how much tourism and even ecotourism can affect the environment through the behavioral changes fishes in Bora Bora showed. To better learn how to conserve the marine environment through the SDG 14 goals it is important to assess the effect humans have on nature.

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