The Role Of Whales In A Changing Climate

By Easton Murphy

Introduction

The study of whales and the ways they impact the environment is crucially important not only because it helps humanity understand more about the importance whales play in reducing CO_2 in the atmosphere but also how humans can protect them. Whales play an important role in their environments and act as a natural pump throughout the ocean providing all sorts of life to other ocean animals. It is critical to view their impact on not only the lives of ocean creatures but also the impact they have on the world as a whole. As when looking deeper at that real change can be prioritized and the lives of whales, humans and the earth as a whole will be better lived.

Thesis

Whales play a role in reducing the effects of climate change by trapping CO_2 concentrations and ensuring the survival of phytoplankton, which removes oceanic CO_2, hunting, fishery bycatch, shipping accidents, and loss of habitat limit their survival.

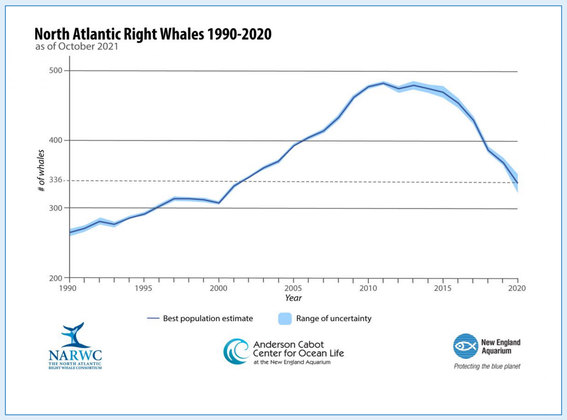

Figure 1 - The number of whales on Earth from 1990 to 2020 Image Credit Greenhalgh, E (2021)

Role Of Whales

Whales can capture tons of carbon from the atmosphere and when they die "they sink to the ocean floor and all the carbon stored in their enormous bodies is transferred from surface waters to deep sea, where it remains for centuries or more" (Yeo, S, 2022). One whale removes as much carbon from the atmosphere as one thousand, five hundred trees. Whales also regulate the ocean ecosystem resulting in a higher growth of phytoplankton which also absorb a large amount of carbon. This is called the whale pump and transports nutrients from other areas right to the phytoplankton through the whale's waste which keep them growing. Phytoplankton absorb 40% of carbon from the environment and whales are needed for them to survive. They remove 4 times more carbon than the amazon rainforest. It is theorized that restoring whale species to their previous numbers would result in getting rid of carbon on the same scale as the rocky mountains while with the increase in phytoplankton it would account for two billion trees.

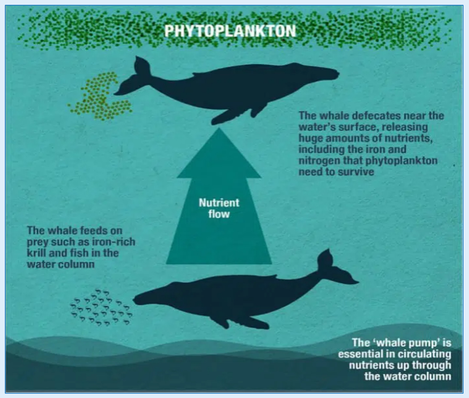

Figure 2 - The Whale Pump
Image Credit Grooves D (2021)

Figure 3 - A humpback whale trapped in fishing gear. Image Credit Lyman, E (2017)

Whales Are Endangered

Half of the worlds whale species are endangered, while whales used to be animals that roamed the ocean free working as a massive pump throughout the ocean this job is getting harder for them to do. The most obvious reason they may be going extinct is whale hunting, while not as big of a danger as it once was countries that still hunt whales kill around 500 whales a year. Whaling has been happening for a long time "the earliest record of commercial whaling was in 1000 CE" (Yeo, S, 2022). Japan is known for their controversial whale hunting "killing about 600 wales per year under" programs stated as scientific research (Carrere, M, 2021). On the opposite end is death as a result of fishery bycatch, a minimum of 300,000 whales and dolphins die this way a year. While those are the two most critical dangers there are still problems like shipping accidents and loss of habitat to be wary of. It is important whales do not die these was as when whales die naturally they sink to the ocean floor trapping all that CO_2 but this is unable to happen when they are killed in these ways.

Conclusion

While most species of whales are endangered and it may seem hopeless there is still a lot humans can do for them. The most notable being to avoid mass fishing that can put whales in the harm of fishery bycatch and also to stop hunting whales. Other ways to save them include, avoiding shipping accidents and protecting the ocean from trash and pollution that can result in the loss of habitat in the whales. A lot is currently being done to help save whales and the ocean in general with scientists "attempting [to] do just that for 20 years, with talks at the world trade organization" (Carrere, M, 2021). With all the terrible that the ocean and the world has to face, there is also that side of hope, there is still a life for whales and humans if the dangers change.

References

Carrere, M. (2021, March 1). *To fight climate change, save the whales, some scientists say*. Mongabay Environmental News. https://news.mongabay.com/2021/03/to-fight-climate-change-save-the-whales-some-scientists-say/#:~:text=In%20death%2C%20whales%20carry%20the,it%20can%20remain%20for%20centuries.

Yeo, S. (2022, February 24). How whales help cool the Earth. BBC Future. https://www.bbc.com/future/article/20210119-why-saving-whales-can-help-fight-climate-change#:~:text=Their%20bodies%20are%20enormous%20stores,only%20recently%20started%20to%20appreciate.

Figure 1: Greenhalgh, E (2021, October 25). North Atlantic Right Whales 1990-2020 as of October 2021. Anderson Cabot Centre for Ocean Life. https://www.andersoncabotcenterforoceanlife.org/blog/right-whale-population-declines-for-10th-straight-year/

Figure 2: Groves, D (2017, December 19). WDC. https://uk.whales.org/wp-content/uploads/sites/6/2017/07/whales-can-save-the-world_0.jpg.webp

Figure 3: Lyman, E. (2017). A humpback whale tangled up in fishing gear. The New Humanitarian. https://deeply.thenewhumanitarian.org/oceans/articles/2017/09/04/a-big-catch-california-whales-are-getting-tangled-in-fishing-gear.