The Effects of Climate Change on Staghorn Coral

With no doubt, climate change is one of the most pressing issues prevalent throughout the 21st century, bringing on a plethora of problems ranging from droughts to rising sea levels. However, one of its most deadly impacts is the effects it has on animals and the environment, irrevocably changing the landscape of the Earth for the worse. No matter the species, the spike in temperature proves disastrous, setting grasslands on fire and melting polar ice caps. Environments which had previously stood the test of time crumble with the rising temperature, unable to adapt at such a fast rate. Regardless of where one may be on the planet, all will feel the consequences of global warming and climate change. From kelp forests to barren deserts, sparing any place is impossible.

One such place especially threatened by climate change are coral reefs, affectionately nicknamed “the rainforests of the sea,” with as much as a quarter of all oceanic life depending on them, despite covering less than two percent of the ocean’s bottom (Smithsonian Institution). Not only are they important for sustaining biodiversity on Earth, they are also vital to the existence of humans. With facilitating carbon and nitrogen fixation, coral reefs provide the essential nutrients needed for life.

In addition, coral reefs are also vital to the economy in a variety of ways. According to the National Oceanic and Atmospheric Administration (NOAA), coral reefs are worth $375 billion each year, earning revenue through tourism, fishing, and other methods. Without coral reefs, many local businesses and sources of income would not be sustainable, harming the
livelihoods of millions. However, one crucial species of coral called the staghorn coral
(*Acropora cervicornis*) is severely endangered by the rising trend in climate.

Found in the warm waters of the Caribbean, the Bahamas, and Florida, staghorn corals
are necessary for the continued existence of coral reefs. These corals only reproduce once a year,
making it harder for them to recover from population loss. Regardless, staghorn corals do grow
quickly, adding around twenty centimeters, or eight inches, for a year. Responsible for building
the Caribbean coral reefs over the last 5,000 years alongside elkhorn and star corals, there is no
doubt that these corals are important. Its ability to grow in shallow water and form thickets—
dense groups of coral—“[provides an] important habitat for other reef animals, especially fish”
(NOAA). With their impact on the world, it is hard to picture a world without them, but if
something does not change, we may have to.

Experiencing devastating losses in their population, staghorn corals have lost 97% in
their total population from the 1980s. Contributing to this decrease in population is the white
band disease, identified by a band of dead tissue which leaves the bare skeleton of the coral
exposed. Despite numerous studies carried out, scientists do not yet know what the cause of the
disease is, although some attribute it to algae overgrowth. With it being contagious, it quickly
swept through parts of the Caribbean. At this point, the population of the staghorn coral was
unstable, leaving it more susceptible to other factors, such as global warming. The joint effects of
these two elements have resulted in the major loss of staghorn coral.

Just as deadly as the white band disease, climate change plays a monumental role in the
disappearance in staghorn coral, influencing coral bleaching. Corals, including the staghorn
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coral, live in symbiotic relationships with algae. Supplying carbon dioxide and nutrients to algae, the corals in turn receive oxygen and nutrients. However, the increase in temperature has spurred on algae growth, resulting in higher oxygen levels. Unable to tolerate these higher levels, the coral bleaches and rids itself of the algae, resulting in its death. With global warming, oceans have also become more acidic, amplifying the dire effects of coral bleaching. In 2006, staghorn and elkhorn corals were the first animals put on the Endangered Species Act listed under the threat of global warming because of how extreme the rising temperature affected these creatures.

There have been conservation efforts made in the past to protect these animals, but riddled with loopholes, many of these laws have negligible effects. The U.S government has also tried regulating greenhouse gas emission and carbon footprints, but to no avail. Although programs such as the Clean Air Act and taxes on energy consumption are in place, they are still not doing enough to protect the environment. At this point, the world seems to focus on problems which seem closer to home, not realizing that they are threatening their very own backyards and oceans by their actions.

To remedy this and bring attention to the plight of the staghorn coral, more must happen to educate the public on how these animals affect them and what one could do to help. As a society, there is this mentality that others will clean up any messes one creates, but that is simply not true. In fact, this means that we are more reliant on each other, now than ever, to do the right thing. Although some may know about it through the news or read it in the papers, the truth is that no matter how convincing an article or a news report is, many will not care about the issue at hand, not thinking it pertains to them. A solution must show that the problem is close to home,
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raising the stakes for everyone involved. With promoting this concept over social media, it will foster a personal need for this battle against our own human consumption.

For example, many efforts can happen with the staghorn coral, especially with all their impacts on the environment. Instead of listing statistics on a pamphlet, there will be more attention given to the relationships of each animal that depends on such an essential creature, and what may happen without them. People want to know the cause they are fighting for and are more likely to support with realizing all the individual lives at stake. Rather than saying that 97% of all staghorn corals have been lost, interpreting in a different, slightly hopeful way will influence more to act. Let’s try example B: The majority of staghorn corals have been lost and results in devastating effects for many marine animals, from sea turtles to dolphins, but there are still many ways to restore the fallen population. Unlike the first sentence, the second shows a connection that goes below the surface with animals that are easier to relate to than the humble staghorn coral, yet it does not take away from the issue at hand—the loss of the staghorn coral. The sentence also carries an air of hope compared to the dismal hopelessness that is often associated with a statistic so jarring. Yes, it is a statistic that needs more attention, but is no point in heeding a number if no one truly understands the implications behind it.

If representing the damage which the loss of one species causes to the environment is not enough for some, then emphasizing the financial devastation which will also result will also motivate others to aid with such an extensive problem. Getting big corporations invested in this issue with the risk it poses to them will help the conservation of the staghorn coral, with them donating money to the cause or promoting it to a wider audience. From a financial standpoint, statistics must come into play here. There is no emphasizing or slowly easing into the problems,
but there is rather a wake-up call to see how much is at stake. If companies and corporations could get on board with supporting this issue, then there is no reason why the public would not.

However detrimental the effects of climate change are right now, there is still time to reverse these mistakes. Living in a day and age where material wealth presides over many issues, including those which will have lamentable consequences for future generations, we must take care to show why these issues matter. Regardless of age, gender, or any other identifying qualities, we can all do our part for the environment. With authoring this essay, the personal goal I had in mind was to educate myself about topics I am usually uncomfortable with and present it in a format so that others who share my same troubles will also get to understand more about this issue, especially with not knowing how to even comprehend a topic as huge as climate change. In the end, I learned so much from this experience, from the staghorn coral to climate change in general. With this knowledge, I hope to spread my love for the environment and all its beauty through my personal thoughts and reflections, remembering how each creature on this planet deserves to have its own voice.
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Works Cited:


“Federal Action on Climate.” *Center for Climate and Energy Solutions*, Center for Climate and Energy Solutions, www.c2es.org/content/federal-action-on-climate/.

“Global Climate Change: Effects.” NASA, NASA, climate.nasa.gov/effects/.


