The Harmful Effects of Climate Change on Life Below the Sea

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Climate change is having harmful effects on the ocean. Climate change is a change in global or regional climate patterns, in particular, a change apparent from the late 20th century onwards and attributed largely to the increased levels of carbon dioxide produced by the use of fossil fuels. This is causing warmer water temperatures, rising sea levels, and ocean acidification. Climate change is destroying the ocean and making it unsustainable for future generations.

First, warming ocean temperatures are hurting marine life. Ocean warming is when the ocean absorbs heat from greenhouse gas emissions causing the temperature of the ocean water to become warmer. According to National Geographic, a global nonprofit organization committed to exploring and protecting our planet, "The uppermost part of the ocean, down to about 2,300 feet (700 meters), has absorbed the bulk of the extra heat. The bottom few thousand feet of the ocean are not immune; they've sucked up another third of that excess warmth. But the uppermost skin of the sea, down to about 250 feet, is warming up the fastest, heating up by an average of about 0.11 degrees Celsius each decade since the 1970s. This has disrupted the development of fish and also causing marine life to migrate to find conditions that they can survive in. This has left many areas of the ocean that were once filled with marine life to be uninhabitable.

Next, climate change is causing sea levels to rise through thermal expansion and melting glaciers. Thermal expansion is when water heats up and expands causing it to take up more space (National Geographic Society). It's also causing glaciers to melt because higher temperatures

caused by global warming have led to greater summer melting as well as less snowfall due to later winters and earlier springs (National Geographic Society). That creates an imbalance between runoff and ocean evaporation, causing sea levels to rise (National Geographic Society). As the water levels rise it causes erosion, wetland flooding, and lost habitat for fish, birds, and plants (National Geographic Society). These rising water levels are harming the ocean and marine life that live in it

Also, ocean acidification is harming marine life. Ocean acidification is a chemical reaction that takes place when carbon dioxide is absorbed by saltwater (Pacific Marine Environmental Laboratory [PMEL]). Carbon dioxide is the result of burning fossil fuels such as oil, coal, and gas. When carbon dioxide is absorbed into the water it changes the seawater pH to have less calcium carbonate minerals which causes damage to calcifying organisms (PMEL). Calcifying organisms are marine organisms that use calcium carbonate minerals to build their shells and outer structures. Ocean acidification is causing some areas of the ocean to be undersaturated with these minerals which are affecting the calcifying organism's ability to make and repair their shells (PEML). This has impacted species of fish such as salmon and whales who rely on them as a food source (PMEL). The lack of healthy food sources from ocean acidification directly affects the population of fish causing tighter restrictions on commercial and recreational fishing.

This raises the question, with climate change having such a harmful impact on marine life, how are we going to save the resources of the ocean for future generations? First, we must reduce the pollution that is causing the damage because it's the only way to fix the problem. Next, we must fix the damage that we have caused to the ocean to speed the recovery process. Then we must educate the world on marine conservation so that everyone can do their part to

protect the ocean and the marine life that calls it home. I believe if we follow these steps and act now the ocean will be healthy for future generations.

In conclusion, the effects of pollution are harming life below the sea and making it an unsustainable resource for future generations. The warmer water temperatures, rising sea levels, and ocean acidification from climate change are destroying the ocean. However, this doesn't have to be the way the story ends. If we take the action now and follow what science tells us we can fix this issue, so the ocean is a sustainable resource for future generations.

Work cited

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