Preserving Aquatic Life From the Harmful Effects of Ocean Acidification

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The purpose of my experiment is to explore environmentally friendly solutions to solve one of the global environmental problems: OCEAN ACIDIFICATION. Water bodies including oceans are constantly accumulating high levels of phosphates, sulfates, nitrates, Carbon dioxide, etc. Some of these chemicals act as plant nutrients and support the development of Algal Blooms which pose a threat to aquatic life by releasing extreme amount of carbon dioxide into waterbodies, which in turn causes the depletion of oxygen necessary for aquatic organisms. My hypothesis is, “If the wastewater is treated with Calcium hydroxide(CaOH)2, then it acts as a coagulant and reacts with carbon dioxide (CO2) to form a precipitate of Calcium Carbonate (CaCO3), which not only prevents dead zones, but also rescues the coral reefs from being degraded.” I collaborated with a Chemical Laboratory to receive samples under the supervision of a Chemical Analyst. During the chemical analysis, I used Ion Chromatography Equipment and a pH meter to identify the levels of phosphates, Chlorides, sulfates, etc. With the help of the Chemical Analyst, I set up 5 samples of water from different sources, each of 10 ml, and tested their pH levels and recorded them in the data table. Then, I added 2 ml of 1% Calcium Hydroxide and tested for pH of the sample. As per the test results, I concluded that my hypothesis was proven correct. The change of the pH ranged from 5-9 (from acidic to alkaline) which provides a suitable habitat for the corals to thrive. The entire exoskeleton of coral reefs is made of Calcium Carbonate, so implementing this chemical sustains and rebuilds the deteriorating coral reefs. Additionally the implementation of (CaCO3) strengthen and sustains the skeletons of fish.

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