Saving Our Seas: A Solid Solution to Reducing Carbon Dioxide and Ocean Acidification

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Many ecologically important marine organisms have shells and skeletons composed of calcium carbonate ($CaCO_3$). The decline of coral reef growth and viability due to ocean acidification is especially important as coral reefs are some of the most biodiverse habitats within the oceans. Which atmospheric gas causes the greatest increase in ocean acidification? Does temperature or wave action change the acidification level of oceans? Finally, can natural rocks be used to capture the carbon dioxide and result in reducing the ocean acidification? Basalt, crushed coral, and olivine were placed with a depth of 0.5 cm with 35 ml of acidified seawater. The simulated seawater (pH 8.0) was acidified with carbon dioxide. The pH of the simulated seawater was recorded at 5.15. The average pH level change of the control was 0.17. The average pH level change of the basalt was 0.23. The average pH level change of the crushed coral was 0.26. The average pH level change of the olivine was 0.85. The ANOVA test indicate significance at an 0.05 level. I must accept my hypothesis that carbon dioxide is causing acidification. Based on the testing and ANOVA, olivine is a viable choices for reducing carbon dioxide levels in ocean waters, thus reducing ocean acidification. Cold temperatures allow for carbon dioxide to be retained in the water; however, differences are very small. Wave action may have introduced more carbon dioxide rather than allowed more absorption due to increased contact to the material's surface area.