The Effects of Dissolving Polystyrene With D-Limonene on the pH of Seawater: A Fifth Year Study

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This experiment tested whether or not dissolving polystyrene with d-limonene had an effect on the pH of seawater. It was hypothesized that if more polystyrene is dissolved in the water, then it will increase the pH of the water. I used distilled water in three buckets, styrofoam blocks, cold grapefruit essential oil, Instant Ocean aquarium salt, and a pH meter for this experiment. I dissolved one block of styrofoam for the “less” group and two blocks for the “more” group, and none for the control. I measured the pH of the water after the salt was added, immediately after the dissolved polystyrene and essential oil mixture was added, and 24 hours after the mixture was added. I repeated the experiment five more times. After 24 hours, the “more” group had the greatest effect on the pH of the water, by making it more acidic than the water with less dissolved polystyrene. This does not support the hypothesis. There was much error in this experiment for the pH meter was often ineffective. While this became better over time, this could have skewed the results. There was an impact on the pH of the water, almost always lowering it. In the future, this project can be used on a larger scale to decrease ocean polystyrene pollution. However, based on the results, the experiment would not be the most environmentally-friendly solution, seeing as ocean acidification is already happening. More testing is needed to fully determine this.

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