Copper Paint: The Biocide to Marine Life Forms

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The purpose of this experiment was to discover if copper paint on boat hulls, used to repel sea life adherence from the bottom of boats, can change the pH of ocean water. To determine if copper is a culprit of increasing acidity levels, seawater samples were taken in the marina area of Oakland, California, the harbor of Seattle, Washington, and the open shore of Malibu, California. These places are not only different in location, but differ in how the water is situated. 50 samples with 5 controls were set up in 125ml (1/2 cup) increments in 225ml receptacles (1cup). ‘Boats’ were added to water samples for a period of 2 weeks, while pH was determined with a calibrated pH meter. All data concluded and supported my hypothesis of an acidic change in pH. (Seattle, 7.5%; Oakland, 1.5%; and Malibu, 6.3 %). Copper paint does change the pH in seawater to a more acidic and thus toxic level. Barnacles, the target species of copper paint, have existed for millions of years. To easily repel/remove barnacles and other unwanted sea life, a high level of toxicity, which is provided by copper paint, must be used to defy their calcareous water fouling which in turn has a greater effect on more sensitive species. (Even a 2% change in pH can harm the larvae of a keystone species, such as ‘Brittlestar Ophiolthirix Fragilis.)

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