The Ratio of Carbon to Nitrogen in Marine Sediments in Penobscot Bay, ME

Marine sediments act as a globally important carbon sink, store nutrients and contain information about the past, present, and future of Earth's climate. Marine sediments can be classified by grain size, each grain size environment has different characteristics. The goal of this study was to determine if there is a significant relationship between nutrient ratios and grain size. A statistically significant relationship was not found between Carbon concentration and grain size or Nitrogen concentration and grain size. On the other hand, a significant relationship was found between Carbon and Nitrogen. Nitrogen and grain size may not have a significant relationship with grain size due to the sediments analyzed being mostly sandy since nutrients do not bind well to sand particles (Tahir and Marschener 2016). The relationship between Carbon and Nitrogen being significant was expected as carbon and nitrogen are found in specific ratios in the ocean such as the Redfield ratio. The Redfield ratio is essential for many organisms, particularly phytoplankton. It is necessary to know how changing atmospheric carbon will impact nutrient ratios in benthic environments in order to know how the base of our food chain, phytoplankton, will be impacted.

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