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Marine Biology 331

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Writing Assignment 3

1. In your own words, what is an ecosystem engineer? How do oysters fit this description?

   Ecosystem engineers provide many different benefits to the surrounding environment which greatly improves the water quality. Without these engineers many ecosystems would be damaged, and habitats lost. Oysters fit the ecosystem engineer category as they provide numerous services that affect the environment around them. Some examples of these benefits are improving water quality, creating habitats, and protecting the shoreline.

2. State and explain the significance of **three** differences in the oysters of today and Pleistocene oysters.

   To observe the changes, over 900 fossils of oysters were examined from three different locations in comparison to the modern-day oysters. In this study, it was found that the shell lengths, lifespans, amount of water that can be filtered, and population size differed between the two. The Pleistocene oysters were, larger, had a longer lifespan, could filter more water, and an abundant population size when compared to modern-day oysters. This is a major significance as it shows how human interactions and harvesting

of the larger females has resulted in a change in the makeup of the organisms and the ecosystem.

3. Are oysters a carbon source or sink? What evidence from this paper supports your claim?

    Oysters are both a source and sink when it comes to carbon productivity. During the process of filtration and calcification oysters both store and release carbon into the water. When it is released, they become a source of carbon, however when they store or excrete the carbon then it becomes buried which traps the carbon making them also be labeled a carbon sink. From this article in section “C” It talks about the different variables that would suggest and back up this claim. With finger-grained substates from which the Pleistocene fossils were assemblage and preserved it shows how burial would have been possible which suggest a carbon sink. However, it also shows that if the Pleistocene reefs within the Chesapeake Bay would have reached a population density over 500 then they would become a carbon source. To determine if they are a source or sink it is ultimately decided by the population density in the environment.

4. Choose a figure (or table) and summarize the findings. Critique the figure. Why is it good/bad? What could be improved? What do you like?

    In this article figure one shows the comparison of shell sizes and the lifespans between the modern-day oyster and the Pleistocene oyster. I think this figure is a good representation and shows proper comparison to see the difference between the two types. Something that could improve this figure would be to use color dots instead of gray/black or even have a picture/diagram of an oyster to show the measurement representation. One aspect I like from this figure is how easy it is to see the difference between the two types

of oysters. It allows you to really understand how overtime their major changes in the structure, have led to changes in the ecosystem.