

Preston Hudlow

Dr. Gloria Massamba N'Siala

BIOL 415

Exam 1 Part 2

Essay #1:

- A whale fall is when the whale dies, and its carcass sinks to the ocean floor. Once on the sea floor, it becomes an ecosystem that provides many nutrients for numerous species. There are different stages of the carcass decomposing while being used as a source of nutrients.
- Both whale carcasses show 3 distinct organisms and some unknown species. The 3 distinct organisms were background fauna, bone specialists, and seep fauna. At all times both whale carcasses were dominated by background fauna. Each organism's number varied over time. Specifically, the bone specialist numbers increased as the time increased whereas the seep fauna disappeared by the end of the experiment. There was more of an abundance of bone specialists on **what** 1 than on whale 2 but there were more unknown organisms on whale 2. These differences can potentially be explained by the different depths of the two whale carcasses as well as the time that went by. With different depths come different rates of temperature and oxygen which could alter the abundance of organisms in the area. Another factor involved is the different stages of the decomposition. When the outer layer is consumed opening more of the bones, the bone specialist numbers would theoretically increase as there are more resources available to reach.
- No, this figure does not support the hypothesis that bone specialists make up the majority of taxa groups on these particular whale falls. From this study, the results show that background fauna make up the majority of the taxa group on these particular whale falls.

Essay #2:

- A. How does trawling (3) impact the biophysical structure and diversity of coral reef (4) ecosystems?
- B. I would use ecosystem ecology, which is the study of interactions between living and nonliving components within the environment. This concept studies how both natural and human-induced changes affect how they function. For example, if you degrade an ecosystem structure, the physical and chemical components are not the same, which could alter the ecosystem's function, including things like nutrient cycling, the food web, and energy flow. Within this example, the human-induced stress factor of trawling could damage the structure of coral reefs. Utilizing another concept this could also degrade a

species' niche giving them poor chances at survival. This is why it is important to research what the damage is doing to the coral reef ecosystem's functions.

- C. I hypothesize that with increased trawling activity there will be a decrease in the structure of coral reefs resulting in a less diverse ecosystem. This prediction was made based on knowing that human-induced stress factors like trawling can damage and destroy coral reefs. This concept is from ecosystem ecology. This is a major issue as coral reef ecosystem services like nutrient cycling, carbon cycling, and providing habitats for a diverse range of species. Following the concept that trawling disrupts these processes, some species within that ecosystem might not be able to survive which destroys their niche habitat. This would change the entire ecosystem and its functions in that particular area which could lead to negative effects overall.