

# Study guide open ocean essay



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Interestingly, even though the open ocean has very low production, it contributes the most to Earth's total net primary production because of its huge size—it covers 65% of Earth's surface area. When energy flows as organic matter through the trophic levels of an ecosystem, much of it is lost at each link in a food chain. Producers depend entirely on production by plants or other organisms; In many countries, people cannot afford to buy much meat and are vegetarians by necessity.

Producing meat for human consumption usually requires that more land be cultivated, more water be used for irrigation, and more chemical fertilizers and pesticides be applied to croplands used for growing grain.

Solar heat drives the global water cycle of precipitation, evaporation, and transpiration. Carbon is taken from the atmosphere by photosynthesis, used to make organic molecules, and returned to the atmosphere by cellular respiration. Various bacteria in soil (and game root nodules) convert gaseous  $\text{NO}_2$  to compounds that plants can use: ammonium ( $\text{NH}_4^+$ ) and nitrate ( $\text{NO}_3^-$ ). Detergents decompose organic matter and recycle nitrogen to plants. Phosphorus and other soil minerals are recycled locally; they are in long-term storage in rocks.

**Ecosystem Alteration** The Hubbard Brook team set out to study water and nutrient dynamics under natural and large livestock operations may cause excessive algal growth.

This cultural transportation reduces species diversity and harms water quality **Key Terms** biotic reservoir The part of an ecosystem where a chemical, such as carbon or nitrogen, accumulates or is stockpiled outside of

living organisms biochemical cycle Any of the various chemical circuits which involve both biotic and biotic components of an ecosystem biomass The amount, or mass, of organic material in an ecosystem community An assemblage of all the organisms living together and potentially interacting in a particular area decomposition The breakdown of organic materials into inorganic ones disturbance In an ecological sense, a force that changes a biological community and usually removes organisms from it.

Disturbances, such as fire and storms, play a pivotal role in structuring many biological communities ecological succession The process of biological community change resulting from disturbance; transition in the species composition of a biological community, often following a flood, fire, or volcanic eruption ecosystem All the organisms in a given area, along with the nonliving (abiotic) factors with which they interact; a biological community and its physical environment food chain The passage of energy through the components of an ecosystem food web A network of interconnecting food chains orbiter An animal that eats only plants or algae pathogen A disease-causing organism predator A consumer in a biological community prey An organism dated by a predator primary production The amount of solar energy converted to chemical energy (organic compounds) by organisms in an ecosystem during a given time period species diversity The variety of species that make up a community; concerns both species richness (the total number of different species) and the relative abundance of the different species symbiotic relationship.