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Short Communication

# Biological Oceanography and its Significance

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## ABOUT THE STUDY

The study of the mechanisms influencing the diversity, productivity, and quantity of life in the seas is known as biological oceanography. The two fishing grounds further offshore were compared to the surface and sub-surface biological oceanography of the tuna fishing grounds inside the East Australian Current (EAC). The distribution and volume of pelagic fisheries captures both inside and outside the EAC at that time could be explained by the biological oceanography of the area. In comparison to the other fishing locations, the water in the EAC fishing region was notably warmer, less salty, and less nutrient-rich [1].

Large diatoms predominated in the EAC regions, where their biomass was much larger than in the seamount and offshore regions. This is likely the product of a cold core eddy that formed under the EAC surface filament. More typical Tasman Sea waters were present offshore and over the seamount, though the existence of a slightly deeper oxygen minimum layer over the seamount may have been caused by topographically generated mixing in the region. Moreover, the seamount region had much larger sub-surface zooplankton and micronekton biomass than the other two regions. Frontal activity related to the Tasman front was evident in the offshore region. In surface waters micronekton net biomass was typically greatest [2].

The predominant species found offshore were swordfish (*Xiphias gladius*) and bigeye tuna (*Thunnus obesus*), Yellowfin tuna (*Thunnus albacares*) dominated the EAC catches. The fish concentrate in seas that are both warmer and have a concentration of prey species close to the surface. Offshore, prey species that are dispersed deeper in the surrounding water, along the slopes of the numerous seamounts in the area, or that are concentrated at fronts connected and exploited by deeper living species like swordfish and bigeye tuna (*T. obesus*) [3].

Even though it just represents a moment in time, generally constant catch information across time indicates that the underlying biological oceanography may last over extended periods of time, especially during the Austral spring. The marine food web is supported by the diverse flora and fauna found in the oceans. In terms of understanding the species in the ocean, biological oceanographers also study the interactions between those organisms in larger ecosystems and the ocean's cycle of nutrients like carbon and nitrogen. Numerous species of planktonic, single-celled algae, often known as phytoplankton, make up the vast bulk of marine vegetation [4].

While some phytoplankton can be caught in fine-mesh nets due to their size, many of these microscopic plants can only be caught by filtering or centrifuging significant amounts of saltwater. In some marine regions, there are also macroscopic floating algae; a well-known example is sargassum in the Sargasso Sea. However, these algae are much localized. Similarly to this, because of the fast attenuation of light with depth, benthic species of algae, particularly connected macroscopic seaweeds, are restricted in their distribution to coastal, shallow locations. In contrast, phytoplanktons are found in all littoral zones of all oceans, including beneath ice in Polar Regions. The significance of phytoplankton in the marine food chain is crucial since it is the major type of plant in the ocean.

## CONCLUSION

A growing number of offshore renewable energy producers and oil rigs are examples of human substrata in the ocean. They have the potential to change species ranges or act as "stepping-stones" with other hard-bottom habitats because they provide difficult habitat in regions that were previously dominated by sand or mud. It is crucial to comprehend the elements that affect the variety and richness of seabed fauna at the sites.

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