



Conservation of Coastal Wetlands: An Assessment of the Ecological Health

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ABOUT THE STUDY

Coastal wetlands are an important ecosystem that supports biotic communities and populations. Anthropogenic activities have affected these coastal wetlands around the world over the years, losing about 50% of these areas. Therefore, it is necessary to protect these wetlands to feed future generations. However, most of these ecosystems lack data to support conservation efforts. The ecological health of the water system is an indicator that can form the basis of conservation or recovery measures. In Ghana, the central Brenu Lagoon has long been ignored from the perspective of ecological health research. Therefore, this study aimed to assess the ecological status of the Brenula lagoon using benthic macro invertebrates. The lagoon is hypersaline and is two stress-tolerant species, *Capitella*, *Capitata* and *Ampithoe sp* is predominant and moderately contaminated. The current pollution status of the lagoon may be related to waste disposal and agricultural activities in the lagoon's catchment areas. Further research is needed to establish a link between these activities and the condition of the lagoon, and corrective actions can be taken accordingly.

Conservation of coastal wetlands has become a topical issue globally as these ecosystems continue to face pressure from natural events and anthropogenic activities. Although coastal wetlands are fragile ecosystems, they play an important role in ecologically supporting aquatic and terrestrial organisms. They are a source of abundant natural resources often used by people for survival and economic development. Utilization of these resources in often unsustainable ways results in the loss of about 50% of the world's coastal wetlands, the loss of ecologically

important species and the deterioration of water quality. Apart from resource development, wetlands are often treated as wastelands that receive waste from neighboring communities and industries. Given the services provided by coastal wetlands, it is important that these ecosystems are protected and preserved. It is also recognized that biodiversity conservation plays an important role in ensuring sustainable development, rather than counteracting it as previously thought.

The ecological state of aquatic ecosystems is reflected in the structure of benthic communities. Compared to chemical assessment methods that show only short-term changes in aquatic ecosystems, benthic macro invertebrates have a better understanding of the changes or variability that have occurred over a period of time within that ecosystem. In addition to its usefulness as a biological indicator, large invertebrates play an important role in the ecosystem; feeding other invertebrates and vertebrates and supplying organic matter deposited in the water column ensure the proper balance of organic matter in the ecosystem.

The Brenu Lagoon is moderately polluted and the most obvious stressor from this study is the hypersaline conditions within this ecosystem. However, despite the stability of the measured salinity, fluctuations in contamination levels within the sampled stations indicate the presence of other potential stressors that may affect the structure of the benthic community. Human activities, including waste disposal and agriculture by residents of communities adjacent to the lagoon, can be a source of pollution that can invade water bodies and affect ecosystem stability.

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