

BENTHIC DIVERSITY IN THE COASTAL WATERS OF LAMPAGEU UJONG PANCU, ACEH BESAR REGENCY

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ABSTRAK

Penelitian ini bertujuan untuk mengeksplorasi diversitas benthos di kawasan perairan Pantai Lampageu Ujong Pancu, Kabupaten Aceh Besar. Dengan menggunakan metode lapangan yang terstruktur, kami mengumpulkan data tentang komposisi spesies benthos dan faktor lingkungan yang mempengaruhi distribusi mereka. Hasil penelitian memberikan wawasan yang penting tentang ekologi benthos dan memberikan dasar untuk upaya konservasi lingkungan laut di wilayah tersebut dengan demikian bahwa kawasan perairan ini menjadi rumah bagi berbagai jenis organisme bentik, terutama Gastropoda dan Bivalvia, yang hidup di berbagai jenis substrat seperti pasir, lumpur, dan batu. Dominasi spesies tertentu, seperti *Umbonium giganteum* dan *Turbo cornutus*, menandakan adanya ekosistem yang seimbang, namun masih terdapat variasi dalam distribusi dan kepadatan populasi benthos di berbagai lokasi pengamatan. Faktor lingkungan seperti tekstur substrat dan kedalaman perairan juga memainkan peran penting dalam membentuk komposisi dan distribusi spesies benthos di kawasan perairan tersebut.

Kata Kunci Diversitas Benthos Kawasan, Perairan Pantai, Lampageu Ujong Pancu

ABSTRACT

*This research aims to explore benthos diversity in the waters of Lampageu Ujong Pancu Beach, Aceh Besar Regency. Using structured field methods, we collected data on benthic species composition and environmental factors influencing their distribution. The research results provide important insights into the ecology of benthos and provide a basis for efforts to conserve the marine environment in the region. This water area is home to various types of benthic organisms, especially gastropods and bivalves, which live in various types of substrates such as sand, mud, and rocks. The dominance of certain species, such as *Umbonium giganteum* and *Turbo cornutus*, indicates the existence of a balanced ecosystem, but there are still variations in the distribution and density of benthic populations at various observation locations. Environmental factors such as substrate texture and water depth also play an important role in shaping the composition and distribution of benthic species in the water area.*

Keywords Regional Benthos Diversity, Coastal Waters, Lampageu Ujong Pancu

A. INTRODUCTION

Marine biodiversity is a crucial aspect of maintaining the balance of aquatic ecosystems. Benthos, organisms that inhabit the seabed, play a critical role in marine ecosystems as they contribute to decomposition processes, nutrient cycling, and serve as a food source for other organisms. The coastal waters of Lampageu Ujong Pancu in Aceh Besar Regency exhibit unique environmental characteristics with diverse substrates, ranging from silt, mud, rocky areas, to sandy bottoms. This substrate diversity creates ideal habitats for various benthic species, particularly from the Gastropoda and Bivalvia groups.

Studying benthic diversity in this area is essential for understanding community structure and the dynamics of the local ecosystem. This research can also provide valuable information regarding ecosystem health, potential environmental threats, and a basis for the management and conservation of coastal regions. However, information on benthic diversity in Lampageu Ujong Pancu remains limited. This study aims to fill this gap by identifying the benthic species present and analyzing the environmental factors that influence their existence.

Thus, this research is expected to provide in-depth insights into marine biodiversity at Lampageu Ujong Pancu and contribute to sustainable conservation and management efforts for coastal environments in Aceh Besar Regency.

B. METODE PENELITIAN/RESEARCH METHOD

This study employs field observation methods to collect data on the diversity of herbaceous plants in the forest area of Lampageu Ujong Pancu Village, Aceh Besar Regency. The research design involves direct surveys in the field, allowing researchers to obtain accurate and representative data on the diversity of herbaceous plants in their natural environment.

The research team conducted field surveys to identify and record the herbaceous plants encountered at each observation location. The collected data includes information such as local names, scientific names, photo codes, and the number of individuals observed. Observations were conducted carefully to ensure accurate identification of each herbaceous plant species encountered.

Through this meticulous and organized field observation method, this study aims to provide a deeper understanding of the diversity of herbaceous plants in the forest area of Lampageu Ujong Pancu.

C. RESULT AND DISCUSSION

General Overview of the Forest Area of Lampageu Ujong Pancu Village

The forest area of Lampageu Ujong Pancu is expansive and rich in biodiversity. This village forest encompasses various types of vegetation, including mangrove forests, swamp forests, and upland forests. This diversity of vegetation supports a wide range of flora and fauna species that inhabit the area.

Geographically, this forest area is bordered by the Strait of Malacca to the north and the Indian Ocean to the west. The presence of these two large bodies of water influences the climate and environmental conditions of the forest, making it an ideal habitat for various types of plants and animals. For instance, the mangrove forests in this area serve as a natural buffer against coastal erosion and saltwater intrusion, as well as providing habitat for various fish and bird species.

Moreover, this village forest holds significant economic and ecological value for the local community. The residents of Lampageu Ujong Pancu rely on the forest for natural resources such as timber, rattan, and other non-timber forest products. The forest also provides land for sustainable agriculture and fisheries. A healthy forest ecosystem aids in regulating the water cycle, providing clean air, and controlling microclimates.

The forest area of Lampageu Ujong Pancu is also an important site for scientific research and environmental education. Its high biodiversity makes it a natural laboratory for researchers and students to study tropical forest ecosystems and their interactions with the surrounding environment. Active conservation and reforestation programs are implemented to preserve the forest and raise community awareness about the importance of environmental conservation.

With its ecological, economic, and educational advantages, the forest area of Lampageu Ujong Pancu is a valuable asset that needs to be preserved and managed wisely for the

sustainability of future generations.

List of Benthos Found in the Coastal Waters of Lampageu Ujong Pancu

The coastal waters of Lampageu Ujong Pancu, Aceh Besar District, are a habitat rich in benthic diversity. Based on research conducted, several types of benthos from the Gastropoda and Bivalvia groups have been identified in this area. Here is a list of some benthos found along with brief descriptions:

1. *Turbo cornutus*: A gastropod known for its sturdy, spiral-shaped shell. They typically inhabit rocky and sandy areas.
2. *Gibbula tumida*: A small gastropod with a conical shell, often found in sandy and gravelly regions.
3. *Gibbula turbinoides*: Similar to *Gibbula tumida* but has a smoother shell and is often found in deeper areas.
4. *Haliotida*: Known as abalones, these have colorful shells used for jewelry and live attached to large rocks.
5. *Cerithium*: A gastropod with a long and slender shell found in mud and sand.
6. Eastern Mudsnail (*Nassa*): Known for its adaptability to various substrates, especially mud.
7. *Batillaria attramentaria*: Japanese mud snail commonly found in shallow muddy areas.
8. *Umbonium giganteum*: A gastropod often found in large numbers on sandy substrates, characterized by its small, round shell.
9. *Nassarius*: A mud snail that is active at night, found in sandy and muddy areas.
10. *Chitonida*: Chitons with layered shells that typically cling to rocks in intertidal zones.
11. *Cheritium vulgatum*: A snail found in sand and mud, known for its oval-shaped shell.
12. *Stomatella (Granata)*: A small gastropod with a flat shell that lives under rocks.
13. *Bythenella imbricata*: A small snail found in freshwater, often attached to aquatic plants.
14. *Haustrum scobina (Murex)*: A spiny-shelled snail found in rocky areas.

15. *Cerithidea obtusa* (Keong Belitung): Found in muddy and mangrove areas.
16. *Morula* (Siput Batu): A snail with a thick, rough shell, living in rocky regions.
17. *Tritia reticulata*: A gastropod found in sand and mud with a reticulated shell pattern.
18. *Cominella glandiformis* (Lumpur Datar Whelk): A snail that lives in sand and mud with an elliptical shell.
19. *Tarebia granifera* (Siput Air Tawar) : A snail often found in freshwater and muddy areas.
20. *Nucella lapillus* (Dogwhelk): A gastropod with a thick shell found in rocky habitats.

The diversity of benthos in this area reflects a healthy and complex ecosystem, with various species adapting to different environmental conditions. This study not only aids in understanding the structure of the benthic community but also provides crucial information for conservation efforts and coastal management in Lampageu Ujong Pancu.

Diversity of Benthos in the Coastal Waters of Lampageu Ujong Pancu, Aceh Besar District

Research on the diversity of benthos in the coastal waters of Lampageu Ujong Pancu, Aceh Besar District, reveals a high level of diversity among various benthic organisms. Observational data indicate that the area serves as a habitat for a significant number of benthic species, particularly from the Gastropoda and Bivalvia groups.

Data analysis shows that certain benthic species dominate the area, such as *Umbonium giganteum*, *Turbo cornutus*, and *Nassarius*, which were found in substantial numbers. However, there is also variation in the distribution and population density of benthos across different observation sites, which can be linked to differences in substrate type and environmental conditions at each location. Furthermore, this study highlights the relationship between the presence of benthos and environmental characteristics such as substrate texture, water depth, and salinity. For example, some species tend to be found in sandy areas, while others are more commonly found in muddy or rocky environments. These findings underscore the importance of environmental factors in shaping the composition and distribution of benthic species in the coastal waters.

Thus, the coastal waters of Lampageu Ujong Pancu are an important habitat for benthic diversity, with various Gastropoda and Bivalvia species inhabiting different types of substrates. This research significantly contributes to our understanding of benthic ecology

and aquatic environments, providing a strong foundation for conservation and sustainable management efforts in the Lampageu Ujong Pancu area, Aceh Besar District.

D. CONCLUSION

Based on the research findings, the coastal waters of this area serve as a habitat for various benthic organisms, particularly Gastropoda and Bivalvia, which thrive in different substrates such as sand, mud, and rocks. The dominance of certain species, such as *Umbonium giganteum* and *Turbo cornutus*, indicates a balanced ecosystem; however, there are still variations in the distribution and population density of benthos across different observation sites. Environmental factors, such as substrate texture and water depth, play a crucial role in shaping the composition and distribution of benthic species in these waters.

These findings have significant implications for conservation efforts and marine environmental management in Lampageu Ujong Pancu. With a better understanding of benthic ecology and the environmental factors that influence it, more effective management strategies can be designed to preserve marine biodiversity and maintain the balance of aquatic ecosystems. Continuous monitoring of environmental conditions and benthic populations, along with the implementation of appropriate conservation measures, will be key to sustaining this vital marine ecosystem for the well-being of the local community and the environment.

E. ACKNOWLEDGEMENT

We would like to express our gratitude for your support and participation in this research. Your contributions have helped us gain a better understanding of the diversity of herbaceous plants in the forests of Lampageu Ujong Pancu. We hope that the results of this study will positively benefit conservation efforts and sustainable natural resource management. Thank you for your collaboration!

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