



## Identification of mollusc species in the intertidal zone of the Lakeba coast, Baubau City

Yandi<sup>a</sup>, Ridwan<sup>b</sup>, La Ode Kaharudin<sup>c</sup>

<sup>abc</sup> Muslim Buton University, Indonesia

### ARTICLE INFO

Key words:  
identification, molluscs,  
intertidal zone

### ABSTRACT

The Intertidal zone is a tidal area that changes dynamically so that it will affect the life of the mollusca. The purpose of this study was to determine the types of molluscs on the Lakeba coast of Baubau City. This research used an adjusted design, which is morphology and identification characteristics. This research utilized a descriptive analysis. The morphological characteristics of each molluscs are described. The results showed that there were 5 species found and identified, namely: *Haliotis sp*, *Hexaplex trunculus*, *Trochus niloticus*, *Turbo chrysostomus* and *Oliva reticulata*

### 1. Introduction

Molluscs are soft bodied animals. This flaccid body condition is the basis for giving the name of the phylum. Mollusca comes from the word mllis which means soft. Phylum molluscs are classified based on differences in anatomy/morphology of the shell, characteristics and head, symmetry, gills and nervous system. Members of this phylum are clams, squid snails, and others. At first glance, there are no similarities between the animals; however, they do have something in common on closer inspection. One common feature is the feet. Snails are usually used to dig the bottom of the water, and the squid has been modified into a form that functions in respiration, namely in the form of a siphon [1].

Molluscs are one of the macrozoobenthos groups that have soft bodies and mostly secrete calcium carbonate which forms a hard shell of chitin substance that functions in self-protection [2]. Molluscs can be found from coastal areas near the coast to those in the deep sea, some are inhabiting coral reef areas, some are buried in the substrate or sediment, some are found attached to marine plants [3]. Molluscs is a class that has a high tolerance for contaminants. Molluscs can live in water that contains a lot of organic matter, able to live in conditions of low dissolved oxygen with high suspended particles [4].

Molluscs are invertebrate animals which means it has no skeleton, no have a spine, have a body soft, and includes animals that cold-blooded. Molluscs body consists of three namely head, mantle, and leg muscles. Molluscs are living animals heterotrophs eat algae shrimp, fish or other organisms. Molluscs generally have the ability quite good adaptation and role as an environmental indicator, mostly live in water areas and stick to on rocks or on other surfaces. On coastal ecosystem where the substrate is found rocky and gravel that can support the life of Molluscs [5]. Molluscs as organisms that living in water are very sensitive to changes in the quality of the water in which they live. Changes in the aquatic environment affect the composition and the population diversity of the class [6].

Body and shell size on molluscs are very diverse. This modification of the shell on the molluscs is what used to divide will be between members of the class gastropods. On bivalves have two shells attached to the dorsal, while gastropods have rolling single shell characteristics. Molluscs have several benefits for

\* Corresponding author

Email Aderesses: [yandialnasuf@gmail.com](mailto:yandialnasuf@gmail.com) (Yandi)

Received 11 Mart 2022; Accepted 17 April 2022

humans between yes as a source of protein, animal feed ingredients, industrial materials, jewelry, fertilizer materials and drugs [7].

Molluscs have a characteristic body that distinguishes it from other animals namely the presence of a mantle. A coat is a scabbard covering the soft parts of the body [8]. Molluscs in the intertidal zone have high diversity. The intertidal is the tidal zone ebb (intertidal) influenced by beach and marine activities. Condition tidal community not much change except in extreme conditions certain can change the composition and abundance of intertidal organisms. Intertidal is a tidal zone (intertidal) which is influenced by coastal and marine activities. The condition of the tidal community did not change much except in certain extreme conditions that could change the composition and abundance of intertidal organisms. This area is the narrowest area but has a relatively higher diversity and abundance of organisms compared to other marine habitats [9].

Human activity in the tidal zone is also a factor that affects life Molluscs. Many people use this area to carry out various activities, one of which is is tourism. Tourist activities directly or indirectly will damage tourist areas, for example trampling on the substrate causing the area to be damaged. This is not not only disturb the life of molluscs but also other tidal organisms [10]. In addition, human activity in the tidal zone is also a factor that affects life Molluscs. Many people use this area to carry out various activities, one of which is is tourism. Tourist activities directly or indirectly will damage tourist areas, for example trampling on the substrate causing the area to be damaged. This is not not only disturb the life of molluscs but also other tidal organisms.

## 2. Material and Method

### 2.1 Material

This study uses several tools and materials such as the following: meter measure distance, tiring of rafia utility binding plots, wood utility making plots, jar utility saving samples, camera, utility documentation example, alcohol 70% utility examples of wet pickles.

### 2.2 Method

An exploratory methodology for collecting mollusc species in the intertidal zone of the Lakeba coast, Baubau City. The transect measuring 200 meters long and 50 meters wide and the number of plots measuring 1 x 1 meter is three with a zigzag model. Which has work procedures: the work procedures carried out in this study are as follows: prepare the tools and materials used, determination of research location, the method used to take the sample is the zigzag model, making transects using a roll meter with each rope 200 m long and 50 meters wide, transects are made with a number of plots measuring 1 x 1 meter, types of molluscs of each transect whose species are known are immediately photographed and recorded, next is to identify the type of molluscs.

This research used an adjusted design, which is morphology and identification characteristics. This research utilized a descriptive analysis. The morphological characteristics of each molluscs are described. The identification process of molluscs species consisted of main classes, gastropod. Identifying class of gastropods: the parts observed in the gastropod class were shell characteristics such as shape, the direction of rotation, operculum shape, navel, colour and decoration, and shell size (length and width).

## 3. Results and Discussion

Molluscs found and identified on the Lakeba coast of Baubau City contained 5 species. The results obtained are as listed in the table 3.1

Table 3.1 Research results on the identification of molluscs on the coast of Lakeba Baubau

No	Species	Number of individuals
1	Abalone	1
2	<i>Hexaplex trunculus</i>	11
3	<i>Trochus niloticus</i>	7
4	<i>Turbo chrysostomus</i>	4
5	<i>Oliva reticulata</i>	3

### 3.1 Abalone

The species named abalone is a type of shellfish. The abalone found was 5 cm long and 2 cm wide and has a characteristic seven-eyed. This species is classified as a gastropod. Abalone is one type of mollusk, which is better known with seven eye shells, medao, or sea ears. Abalone is also a marine gastropods that live in tidal areas and are spread from tropical to subtropical waters. Abalone has a single shell or monovalve and covers almost the entire body. Generally oval with an axis extending from front (anterior) to back (posterior) some species are even more oblong. Abalone is equipped with one mouth, a pair of eyes and tentacles that are big size. When the abalone is in a relaxed state, its tentacles and eyes will be seen protruding from the anterior. Inside the mouth there is a scarred tongue (radula) which functions to scrape algae into a size that can be digested and have gills that function as a respiratory organ.

Abalone is a fishery commodity that has high economic value [11]. Abalone's natural habitat is intertidal areas with few coral bottoms sandy [12].

Kingdom : Animalia  
Phylum : Molluscs  
Class : Gastropod  
Order : Archaeogastropod  
Genus : Haliotidae  
Famili : Haliotis  
Species : *Haliotis sp.*



Figure 1. *Haliotis sp.*

Source: Hegner and Engemen, 1968

### 3.2 *Hexaplex trunculus*

*Hexaplex trunculus* is a type of gastropod molluscs in the family muricidae, namely the murex coral snail. Morphologically, this snail appears to have a rough surface and has a length of 3 cm and a width of 2 cm. Has a slightly dark gray color, besides that there is also a blackish brown. On the surface of the shell is a bit rough, the body whorl is a bit bulging, and in the spire slightly conical. Have columella formed from the inner wall of the whorl. Aperture at this shell is a bit wide and the columella part of this shell is visible shiny. Has a siphonal canal which is a continuation of columella. In addition it also has an umbilicus.

*Hexaplex trunculus* has a conical shell extending about 4 to 10 cm in length. Has a rather high spiral with seven angulated whorls. These shells vary in shape and color with dark bands in four varieties. The ribs sometimes have thickening or ribs and give this shell a rough appearance. These gastropods are mostly consumed by people. The shell can also be used as a decoration. This gastropod is a species that contains protein as well as essential amino acids. High mineral content is also found in the meat of this gastropod. These animals also live in areas where. The substrate is between rocky to muddy [13].

Kingdom : Animalia  
Phylum : Molluscs  
Class : Gastropod  
Order : Neogastropod  
Family : Muricidae  
Genus : *Hexaplex*  
Species : *Hexaplex trunculus*



Figure 2. *Hexaplex trunculus*

Source: Linnaeus, 1758

### 3.3 *Trochus niloticus*

This type of snail, named lola, is a primitive gastropod group. Lola's conical shell is called the operculum or epiphragm. The golden snail found in this study had a height of 3 cm and a base of 2 cm. Body lola snail consists of four main parts namely head, legs, entrails and mantle. On the head there are 2 eyes, 2 tentacles, a mouth (proboscis) and a siphon. Gastropod snail mantle is located on the front on the inside the shell. Foods that contain lots of calcium carbonate and The pigment enters the blood plasma and is circulated throughout the body, then calcium carbonate and this pigment are absorbed by the mantle. This coat then secrete cells that can form shell structures and patterns color.

Lola (*Trochus niloticus*) lives in ecosystem areas where there are few tidal zones, reef edges and are directly exposed to waves[14]. Lola snails for the coastal communities of the islands small is very useful, to increase the income because it has a high selling value and an ever-increasing demand [15]. The economically valuable part of the lola snail is its shell consists of layers of pearls. Lola (*Trochus niloticus*) is a type of animal that lives in the the littoral zone between the highest and lowest tides. The type of substrate where the lola snail lives is generally composed of live coral and coral dead coral (coral fracture) with large amounts of green and brown algae sticks to its surface as a food source for lola snails [16].

Kingdom : Animalia  
 Phylum : Molluscs  
 Class : Gastropod  
 Order : Archeogastropoda  
 Famili : Trochidae  
 Genus : Trocus  
 Species : *Trocus niloticus*

Source: Linnaeus, 1767



Figure 3. *Trochus niloticus*

### 3.4 Turbo chrysostomus

The moon eye snail is one type of mollusk that has its own uniqueness. This snail has a cut resembling an eye that is located between the mouth of the shell that covers the soft part of the snail. This type of snail is still classified as a gastropod. Moon eye snail shell has an anteropos tenor (height) that is greater than the width, light brown interspersed with colored lines brown and green with spiked spirals. Shell size can reach 6 cm, the operculum is brown-orange or green old, while the outer lips are yellow golden.

Moon eye snails usually live in shallow tidal and sublittoral areas with a substrate of coral fractures, rocks and dead coral. Snail it shelters from predators with sticking his body on the sidelines of the rock and the stone hole. This snail found hiding on the sidelines of dead karaog and rock crevices or holes [17].

The eye of the moon fish was caught by the local community, because of its delicious taste tasty and has a fairly high nutritional content. The moon-eyed snail (*Turbo chrysostumus*, L.) belongs to the phylum molluscs that love to live clustered and concentrated in coral reef ecosystems overgrown with moss as food in intertidal areas.

Kingdom : Animalia  
 Phylum : Molluscs  
 Class : Gastropod  
 Order : Trochida  
 Famili : Turbinidae  
 Genus : Turbo  
 Species : *Turbo chrysostomus*

Source: Linnaeus, 1757



Figure 4. *Turbo chrysostomus*

### 3.5 Oliva reticulata

*Oliva reticulata* is a type of gastropod molluscs that also lives in shallow water. *Oliva reticulata* has a smooth shell surface and several smooth conical projections on the back and a combination of gray and maroon colors. The length of the body is 7 cm and the width is 3 cm. The surface of the shell is very shiny with a cylindrical shape distinctive and has two lobes of mantle folds or cells that protect glossy surface. The gills are arranged in a row of filaments, the heart bears one one nephridium, the mouth is equipped with a radula of three pieces, or less in a row[11]. *Oliva reticulata*, common name the blood olive, is a species of sea snail, a marine gastropod mollusk in the family Olividae, the olives.

Kingdom : Animalia  
 Phylum : Molluscs  
 Class : Gastropod  
 Order : Neogastropoda  
 Famili : Olividae  
 Genus : Oliva  
 Species : *Oliva reticulata*

Source: Lamarck, 1811



Figure 5. *Oliva reticulata*

#### 4. Conclusion

Based on the discussion above, it can be concluded that the identification of mollusk diversity in the intertidal zone of Lakeba Beach, Baubau City was found and identified in the molluscs group as many as 5 species, namely: *Haliotis sp*, *Hexaplex trunculus*, *Trochus niloticus*, *Turbo chrysostomus* and *Oliva reticulata*.

#### Bibliography

- [1] L. O. Kaharudin, La Ode And Wahidin, "The Diversity of Molluscs in Mangrove Ecosystem of Kendari Bay "Journal of Biological Science and Education ~ JBSE ~," 2020.
- [2] D. A. Candri, L. H. Sani, H. Ahyadi, dan B. Farista, "Struktur Komunitas Moluska Di Kawasan Mangrove Alami Dan Rehabilitasi Pesisir Selatan Pulau Lombok," *J. Biol. Trop.*, vol. 20, no. 1, hal. 139–147, 2020, doi: 10.29303/jbt.v20i1.1385.
- [3] D. W. Baderan, M. S. Hamidun, dan R. Utina, "Keanekaragaman Mollusca (Bivalvia dan Polyplacophora) Di Wilayah Pesisir Biluhu Provinsi Gorontalo," *Bioeksperimen J. Penelit. Biol.*, vol. 7, no. 1, hal. 1–11, 2021, doi: 10.23917/bioeksperimen.v7i1.13798.
- [4] F. Yulinda, Tugiyono, A. Setiawan, dan E. L. Rustiati, "Evaluation of Water Quality in Animal Feed Factory Environment Based on Plankton and Benthos Bioindicators," *J. Ilm. Biol. Eksperimen dan Keanekaragaman Hayati*, vol. 8, no. 2, hal. 18–23, 2021, doi: 10.23960/jbekh.v8i2.192.
- [5] D. Ariani, J. Swasta, dan B. Adnyana, "Studi Tentang Keanekaragaman dan Kemelimpahan Mollusca Bentik serta Faktor-Faktor Ekologis yang Mempengaruhinya di Pantai Mengening, Kabupaten Badung, Bali," *J. Pendidik. Biol. Undiksha*, vol. 6, no. 3, hal. 146–157, 2019.
- [6] I. Wahyuni, I. J. Sari, dan B. Ekanara, "Mollusca' Biodiversity (Gastropoda and Bivalvia) As a Bio Indicator of Quality of Water in the Coastal Island of Tunda Island, Banten," *Biodidaktika, J. Biol. Dan Pembelajarannya*, vol. 12, no. 2, hal. 45–56, 2017, doi: 10.30870/biodidaktika.v12i2.2329.
- [7] G. Pakaenoni, "Studi Komunitas Filum Mollusca Di Zona Intertidal Pantai Sukaerlaran Desa Kenebibi Kecamatan Kakuluk Mesak Kabupaten Belu," *Saintekbu*, vol. 11, no. 2, hal. 21–27, 2019, doi: 10.32764/saintekbu.v11i2.344.
- [8] A. Idris, M. Novita, dan S. Kamal, "Spesies Mollusca di Ekosistem Mangrove Kecamatan Baitussalam Kabupaten Aceh Besar sebagai Referensi Pendukung Materi Keanekaragaman Hayati," *Biot. J. Ilm. Biol. Teknol. dan Kependidikan*, vol. 6, no. 2, hal. 87, 2019, doi: 10.22373/biotik.v6i2.5612.
- [9] F. Yulianda, M. S. Yusuf, dan W. Prayogo, "Zonation and Density of Intertidal Communities At Coastal Area of Batu Hijau, Sumbawa," *J. Ilmu dan Teknol. Kelaut. Trop.*, vol. 5, no. 2, hal. 409–416, 2013, doi: 10.29244/jitkt.v5i2.7569.
- [10] A. Trisna W, "Inventarisasi Jenis dan Potensi Mollusca di Zona Pasang Surut," vol. 2016, no. May, hal. 447–451, 2016.
- [11] P. K. F. Setiawan, S. Rejeki, dan R. A. Nugroho, "Journal of Aquaculture Management and Technology Journal of Aquaculture Management and Technology," *J. Aquac. Manag. Technol.*, vol. 2, no. 3, hal. 76–85, 2013, [Daring]. Tersedia pada: <http://ejournal-s1.undip.ac.id/index.php/jfpik>.
- [12] D. E. D. Setyono, R. Gimin, I. G. N. Permana, K. Purianta, dan H. Setyabudi, "Budidaya abalon (*haliotis sp*) Sistem Keramba Apung," *WWF-Indonesia*, vol. 1, 2015.
- [13] G. A. P. Suwardani, "Laporan Hasil Penelitian kemasyarakatan," hal. 44–81, 2012.
- [14] "0211.pdf."
- [15] S. La Abukena, Y. Wardiatno, I. Setyobudiandi, dan A. S. Khouw, "Pertumbuhan Siput Lola (*Trochus niloticus* L. 1767) di Perairan Kepulauan Banda Naira Kabupaten Maluku Tengah," *J. Biol. Indones.*, vol. 10, no. 2, hal. 307–313, 2014.
- [16] Zainal, A. Sebaran Geografis, Habitat dan Perikanan Siput Laut (*Trochus niloticus*) di Maluku. hal. 1–23, 2016.
- [17] B. . Setyono, D.E.D; Kusuma, H. A; Badi, "Pemijahan Siput Mata Bulan (*Turbo chrysostomus* Linnaeus, 1758)," *Oseana*, vol. XXXVIII, no. 3, hal. 1–8, 2013.