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Short Communication: Diversity, abundance, and utilization of bivalves on the south coast of Pamekasan, Madura Island, Indonesia

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Abstract. *Kurniawan ER, Ambarwati R, Isnaningsih NR. 2024. Short Communication: Diversity, abundance, and utilization of bivalves on the south coast of Pamekasan, Madura Island, Indonesia. Biodiversitas 25: 2454-2462.* Bivalves are a group of mollusks that include clams, oysters, scallops, and mussels. Bivalves have vital roles both economically and ecologically. This study aims to analyze the diversity and abundance of bivalves in the intertidal zone of south coast of Pamekasan, Madura Island, Indonesia. Sampling was carried out at the lowest tide using the line transect method at four research stations located at Talang Siring Beach and its adjacent areas. Identification was conducted based on morphological characteristics. The data were analyzed descriptive-quantitatively. The results showed that in south coast of Pamekasan, there were 21 species of bivalves belonging to 13 genera and 8 families. The value of diversity index was 2.21 which included in the medium category. The results of the bivalve community index stated that the station 3 had the highest diversity value among other sampling stations, which was 2.2. The highest relative abundance value was found in the species *Tellinides timorensis* Lamarck 1818 which was 35.96%. Among the 21 species found at Talang Siring Beach and its adjacent areas, nine of them are frequently utilized by local people. Although Talang Siring Beach is managed as a tourism area, this beach is a potential habitat for bivalves.

Keywords: Coastal ecosystem, marine organisms, Talang Siring Beach, *Tellinides timorensis*

INTRODUCTION

Bivalves are the second largest class within Phylum Mollusca. There are more than 9200 species of bivalves that have been found in freshwater, brackish or marine (Huber 2010; Asadi et al. 2018; Wiraatmaja et al. 2022;). Bivalves have significant benefits both economically and ecologically. Economically, bivalve is one of the high-value fishery resources and provides a valuable supply of nutrients for humans (Biandolino et al. 2019). Some species of bivalves also produce pearls that have high economic value in the jewelry industry (Vaughn and Hoellein 2018). Ecologically, bivalves have an important role in maintaining the balance of aquatic ecosystems (Rong et al. 2021). Bivalves act as filter feeders that help clean water from organic particles, helping to maintain water quality and support the sustainability of aquatic ecosystems (Vereycken and Aldridge 2023). Bivalve shells provide important substrates for other organisms, such as small mollusks and crustaceans to create microhabitats that support biodiversity in aquatic environments (Olivier et al. 2020).

Bivalves live attached to substrates such as rocks and wood but often immersed in the bottom of waters with muddy sandy substrates (Atlanta et al. 2022). Most bivalve species live in marine waters because marine waters have diverse substrate types (Roshitafandi et al. 2018; Sharma et al. 2023). Marine bivalves can be found in various zones ranging from shallow waters, tidal zones, to deep-sea waters (Kon et al. 2020).

The diversity and abundance of bivalves in a particular ecosystem refers to the number of bivalves are present and dominate a community of that biological environment (Sun et al. 2021). Research conducted by Atlanta et al. (2022) about bivalve species diversity on the Suramadu Bridge Coast Surabaya, Indonesia, succeeded in finding five species of bivalves belonging to three families (Pectinidae, Arcidae, and Pinnidae) with *Anadara rhomboidalis* Schumacher 1817 as the dominant species. Furthermore, Wijaya and Ambarwati (2021) found nine bivalve families from Sreseh Madura Beach, Indonesia, with *Gafrarium pectinatum* Linnaeus 1758 as the species with the highest relative abundance value (KR%) of 49.66%. Another study conducted by Ambarwati et al. (2016) in Modung Beach, Bangkalan Madura District, Indonesia, found 38 species of bivalves belonging to 15 families. Ambarwati et al. (2021) also succeeded in finding five morphological variations of *Meretrix* sp. clams on Bancaran Estuary, Madura. The results of these studies prove that Madura Island, Indonesia has high bivalve diversity.

Talang Siring Beach is one of the beaches located on the south coast of Pamekasan, Madura Island, East Java, Indonesia. Talang Siring Beach has a sloping beach profile with sandy muddy substrate and mangrove vegetation. The occurrence of bivalves in the Talang Siring Beach area has been used by the surrounding community for consumption

and processing as raw material for making traditional snacks (*rengginang*). Bivalves found by the community include *lorjuk* (*Solen* sp.) and *kerang bulu* (*Anadara antiquata* Linnaeus 1758). *Kerang bulu* and *lorjuk* are classified as bivalves that are safe for consumption (Trisyani and Yusan 2020; Wijaya and Ambarwati 2021). However, research on the biodiversity of bivalves at Talang Siring Beach has not yet been done.

In addition, the mangrove ecosystem on the South Coast of Pamekasan plays an essential role in local communities and the coastal ecosystem. Local people harvest not only bivalves but also shrimp, crabs, snails, and several types of fish from this area. Unfortunately, the mangrove ecosystem in this location has significantly changed due to natural changes and human activities (Islamy and Hasan 2020).

Research on bivalve community in the south coast of Pamekasan Madura needs to be carried out to provide additional scientific information on diversity data and the abundance of bivalve species. This is crucial since it provides the fundamental information required, particularly for intertidal conservation and sustainability initiatives. This study aims to analyze the diversity and abundance of Bivalves in the intertidal zone of south coast of Pamekasan, Madura, Indonesia as well as describe the usage by local communities.

MATERIALS AND METHODS

Study area

Field sampling was carried out in the intertidal zone of Talang Siring Beach and its adjacent areas located at Montok, Larangan, south coast of Pamekasan, Madura Island, East Java, Indonesia (Figures 1 and 2), in 27-28 October 2023. This location is near an intensive shrimp farming area and residential area. Sampling was performed at four stations with different substrate, vegetation, and conditions (Table 1).

Data collection

Sampling was done during the lowest tide. The line transects were used during the observation. The lines are taken perpendicular to the coastline and then plotting was carried out at four different stations by forming quadrant plots measuring 5×5m where in each of these plots 5 sub-plots measuring 1×1m (Figure 3). The bivalve specimens obtained were cleaned using running water to remove the remaining sludge attached to the shell. Furthermore, the specimens were put into a 600 mL collection bottle. The specimens were preserved using 70% alcohol. The data on bivalves utilization was gained by interviewing local people collecting for clams on the beach.

Table 1. Description of each station at Talang Siring Beach, Pamekasan, Madura Island, Indonesia

Station	Utilization	Vegetation and substrate	Coordinates
1	Ecotourism	Mangrove, muddy sand	7° 08'.22 S 113° 35'.22 E
2	Tourism Area	Few mangrove, muddy sand	7° 08'.19 S 113° 35'.23 E
3	Tourism Area	Without mangrove, muddy sand	7° 08'.17 S 113° 35'.25 E
4	Fishing cages and fishing boats area	Without mangrove, muddy sand	7° 08'.15 S 113° 35'.27 E

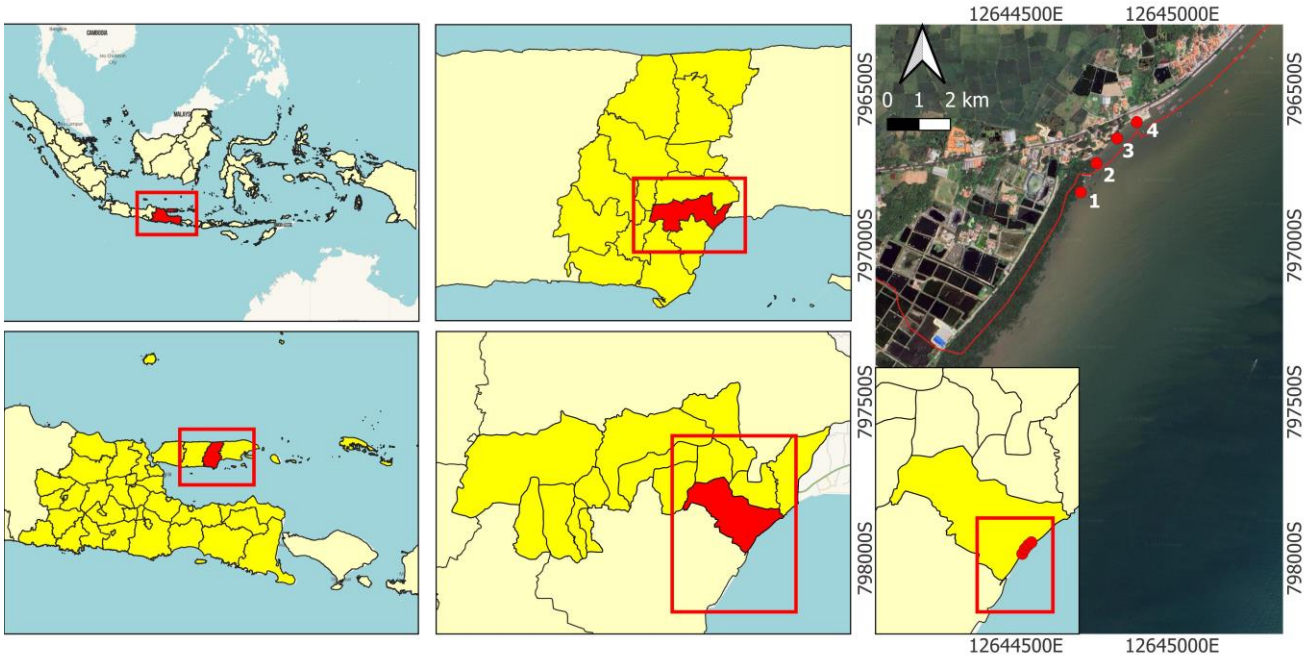

Figure 1. Sampling sites in south coast of Montok, Larangan, Pamekasan, Madura Island, East Java, Indonesia

The condition of beach was described based on the substrate type, temperature, pH, salinity, and turbidity of sea water. The temperature measurement was conducted using a thermometer. pH was measured using a pH meter. Measurement of salinity was carried out using a hand refractometer. Turbidity was measured using a turbidimeter.

Identification was carried out by referring to Dharma (2005), Huber (2010, 2015) and WoRMS Editorial Board (2024) by observing the exterior and interior characteristics of the shell. The interior characteristics of the shell include hinge teeth, adductor muscle attachment scars, and pallial sinus; while the exterior character of the shell includes shell color, shell sculpture, ligaments, and umbo. Shell morphometry is measured using calipers, including shell length, shell height, and shell width.

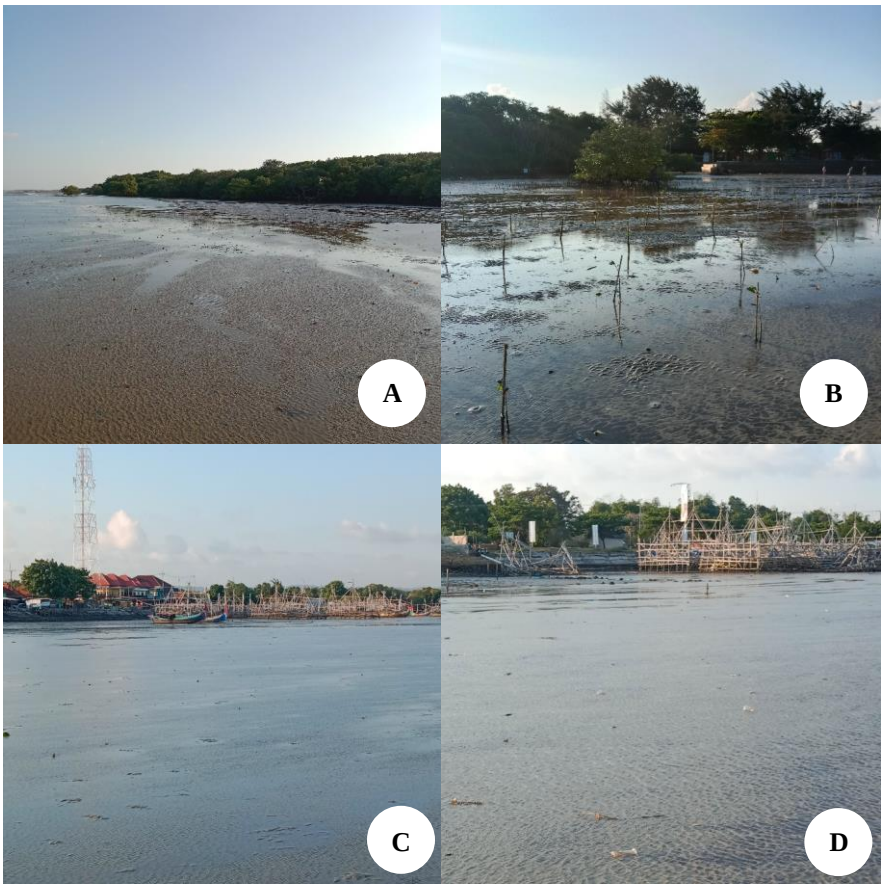

Figure 2. Visualization of research stations in south coast of Pamekasan, Madura Island, Indonesia. A. Station 1; B. Station 2; C. Station 3; D. Station 4

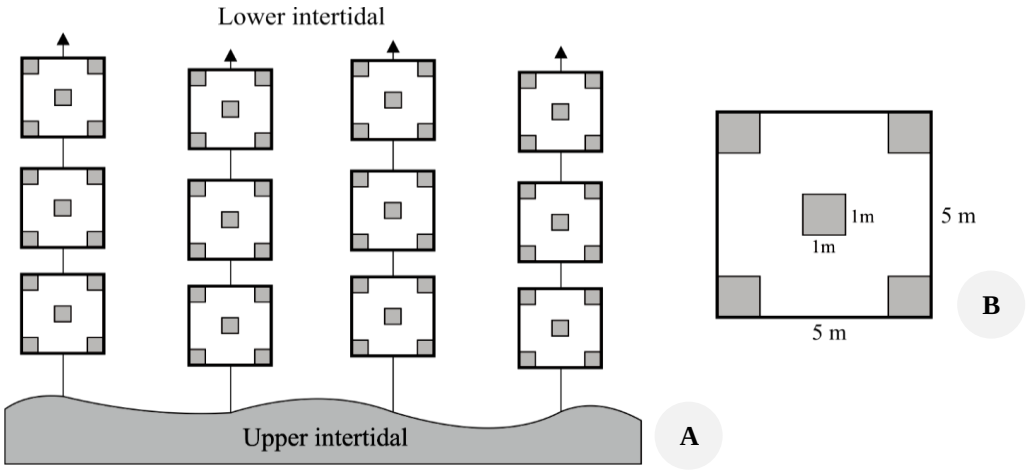

Figure 3. An overview of the sampling method used. A. Line transect; B. Quadrant plot

Data analysis

Data on species diversity and abundance were calculated using the following formula:

Shannon-wienner diversity index (H') (Odum 1993)

$$H' = -\sum \frac{(ni)}{N} ln \frac{(ni)}{N}$$

Where:
H' = Diversity Index;
ni = Number of individuals of the i-th species;
N = Total individual population.

The results of the diversity index calculation are divided into 3 categories:
H'<1 = The level of species diversity is low
1<H'<3 = The level of species diversity is classified as medium
H' >3 = High level of species diversity

Relative abundance

$$KR = \frac{ni}{N} \times 100\%$$

Where:
KR = Relative abundance
ni = Number of Individuals of species-i
N = Number of individuals of the entire species

The calculation of relative abundance was used to analyze the composition of each species from all species found in the Talang Siring Beach area, Pamekasan, Madura, Indonesia.

RESULTS AND DISCUSSION

Condition of Talang Siring Beach

Talang Siring Beach is one of the beaches that become a tourist destination in Madura located at the south coast of Pamekasan. Talang Siring Beach's substrate is muddy sand and covered by mangrove plants in some areas. The seawater condition revealed the same among the four stations and they are appropriate for bivalves' life (Table 2).

Bivalve life is affected by substrate preferences (Rodrigues et al. 2022). Muddy sand substrates in all stations; provide a suitable environment for bivalve and their activities (Sharma et al. 2023). Some bivalve species burrow in the sand to foraging or create shelter holes (Zhang et al. 2022). Bivalves often have a high tolerance to fluctuations in salinity and water quality (Silvestre et al. 2021). Muddy substrates can maintain relatively constant salinity levels and can provide a stable environment for bivalves to live (Prasetiyono et al. 2022). Muddy substrates are rich in organic matter, bacteria, and detritus, which are the main food sources for bivalves (Akhrianti et al. 2023).

Mangroves area in stations 1 and 2, provide many nutrients from leaves and their organic litter that falls into waters (Mawardi et al. 2023). The process of decomposing organic matter from mangroves offers additional nutrients for aquatic habitats, which can support the growth and survival of bivalves and other fauna (Alam et al. 2021).

The diversity of bivalve community

In Talang Siring Beach, Pamekasan Madura, 267 individuals of bivalve were collected from the intertidal zone. Twenty one bivalvia species were identified from the sampling site, i.e: *Mactra grandis* Gmelin 1791, *Mactra violacea* Gmelin 1791, *Mactra* sp., *Placuna placenta* Linnaeus 1758, *Solen* sp. *Tellinides timorensis* Lamarck 1818, *Psammacoma gubernaculum* Hanley 1844, *Gari elongata* Lamarck 1818, *A. antiquata*, *Anadara pilula* Reeve 1843, *Anadara indica* Gmelin 1791, *Atrina pectinata* Linnaeus 1767, *Dosinia* sp. *Dosinia fibula* Reeve 1850, *Placamen isabellina* R.A.Philippi 1849, *Anomalodiscus squamosus* Linnaeus 1758, *Meretrix meretrix* Linnaeus 1758, *Marcia hiantina* Lamarck 1818, *Marcia cordata* Forsskål 1775, *Marcia japonica* Gmelin 1791 dan *Marcia recens* Holten 1802. Those species are members of thirteen genera and eight families (Table 3; Figure 4).

The diversity value reveals that bivalves in Talang Siring Beach Pamekasan Madura are classified as moderate since the diversity index of each station ranges from 1.6 to 2.2. The moderate level of the diversity index indicates that the habitat conditions and ecological pressures are still quite supportive for bivalve life (de Fouw et al. 2020). Station 3 had the highest diversity index (H=2.2). There were no dominant species in this location, nor were there any noticeable variations in population sizes between species. The lowest diversity index was at station 2 (H=1.67). The *T. timorensis* becomes a species that dominates in the station.

The presence of dominating species causes differences in the value of the diversity index of an observation station (Ramadhani and Martuti 2023). A study conducted on Barung Toraja Beach, Sumenep, the southern coast of Madura, found eight species of bivalves with a diversity index of 1.776 which are also comprised in the moderate category (Bening and Purnomo 2019). Meanwhile, Ambarwati et al. (2016), reported that Modung Beach, Bangkalan District, Madura has a high bivalve diversity index with the encounter of 38 types of bivalves belonging to 15 families. Species diversity is not only influenced by the number of species, but also determined by species variation, habitat stability, and the distribution and number of individuals of each species in a community (Xu et al. 2021).

Table 2. Environment parameters of Talang Siring Beach Pamekasan, Madura Island, Indonesia

Station	Temperature (°C)	Salinity (ppt)	pH	Turbidity (NTU)
Station 1	30 ± 0.10	31.3 ± 0.57	7.8 ± 0.02	15.6 ± 3.11
Station 2	29.5 ± 0.05	31.6 ± 0.57	8.2 ± 0.39	13.6 ± 5.47
Station 3	29.4 ± 0.46	31.3 ± 0.57	7.8 ± 0.12	13.5 ± 1.52
Station 4	29.4 ± 0.46	31.3 ± 0.57	8.2 ± 0.34	14.3 ± 3.17

Figure 4. Bivalve species found in Talang Siring beach, Pamekasan District, Madura, Indonesia. A. *Mactra grandis*; B. *Mactra violacea* C. *Mactra* sp.; D. *Placuna placenta*; E. *Solen* sp.; F. *Tellinides timorensis*; G. *Psammacoma gubernaculum*; H. *Gari elongata*; I. *Anadara antiquata*; J. *Atrina pectinata*; K. *Anadara pilula*; L. *Anadara indica*; M. *Dosinia* sp.; N. *Dosinia fibula*; O. *Placamen isabellina*; P. *Anomalodiscus squamosus*; Q. *Meretrix meretrix*; R. *Marcia hiantina*; S. *Marcia cordata*; T. *Marcia japonica* dan U. *Marcia recens*. (scale bar = 10 mm)

Table 3. The composition of Bivalvesf from Talang Siring Beach, Pamekasan District, Madura, Indonesia

Famili	Species	S.1	S.2	S.3	S.4	(Ni)	ni/N×ln ni/N	KR (%)
Mactridae	*Mactra grandis*	0	0	1	1	2	0.04	0.75
	Mactra violacea	0	0	6	4	10	0.12	3.75
	Mactra sp.	0	0	3	1	4	0.06	1.50
Placunidae	*Placuna placenta*	0	0	3	0	3	0.05	1.12
Solenidae	*Solen* sp.*	10	12	7	5	34	0.26	12.73
Tellinidae	*Tellinides timorensis*	41	55	0	0	96	0.37	35.96
	Psammacoma gubernaculum	0	0	1	2	3	0.05	1,12
Psammobiidae	*Gari elongata*	0	0	8	3	11	0.13	4.12
Pinnidae	*Atrina pectinata*	3	1	0	0	4	0.06	1.50
Arcidae	*Anadara antiquata**	6	17	8	5	36	0.27	13.48
	*Anadara pilula**	3	8	5	0	16	0.17	5.99
	*Anadara indica**	0	1	0	0	1	0.02	0.37
Veneridae	*Dosinia* sp.	2	3	0	0	5	0.07	1.87
	Dosinia fibula	0	2	0	0	2	0.04	0.75
	Placamen isabellina	7	11	4	0	22	0.21	8.24
	Anomalodiscus squamosus	0	0	1	0	1	0.02	0.37
	*Meretrix meretrix**	2	0	0	0	2	0.04	0.75
	*Marcia hiantina**	5	3	0	0	8	0.11	3.00
	*Marcia japonica**	2	0	0	0	2	0.04	0.75
	*Marcia cordata**	2	1	0	0	3	0.05	1.12
	*Marcia recens**	2	0	0	0	2	0.04	0.75
	Number of individu	85	114	47	21	N=267		
	Number of spesies	12	11	11	6			
	Diversity	$1.8^{(M)}$	$1.6^{(M)}$	$2.2^{(M)}$	$1.7^{(M)}$			
	KR per station (%)	31.84	42.70	17.60	7.87			

Notes : S1= Station 1; S2= Station 2; S3= Station 3; S4= Station 4; M= Moderate; KR= Relative abundance; ni= Number of Individuals of i-species; N= The number of individuals of the entire species. *= Frequently collected and consumed by local people

The bivalves found at Talang Siring beach are variable in size. This indicated that their population are in good conditions. The biggest bivalves were *A. pectinata*, which reach 190.80 mm, meanwhile the smallest were *Solen* sp. (Table 4).

The bivalve abundance

The highest abundance of bivalves was at station 2 with 114 individuals found, the relative abundance reached 42.70%. On the other hand, station 4 had the lowest abundance value (KR=7.87%) with only 21 bivalve individuals found. Two factors that influence the abundance of species are abiotic factors such as temperature, salinity, etc., and biotic factors such as predation and competition (Baderan et al. 2019).

Based on relative abundance data, it can be seen that *T. timorensis* is the species with the highest number of individuals and relative abundance with a percentage of 35.96%. However, the distribution of this species is not evenly distributed since it is only found at stations 1 and 2. Stations 1 and 2 are intertidal zones that have muddy and sandy substrates and are covered with mangrove plants. This species is a deposit feeder with a digging habit that belongs to the Tellinidae family (Piffer et al. 2011). Stations 1 and 2 have sand substrates containing many deposits and the presence of mangroves containing organic materials to support the abundance of *T. timorensis* species. This type of habitat seems to be preferred by *T. timorensis* (Brishti et al. 2021; Cortés-Esquivel et al. 2023; Ramadhani and Martuti 2023).

The *A. antiquata* and *Solen* sp. are species that have an even distribution because they can be found in all four stations. The species is mostly found in coastal intertidal zones with muddy and sandy substrates (Siahainenia et al. 2018; Trisyani and Kamarudin 2020). Generally, genus *Anadara* can be found in muddy coastal areas, mangroves, and the high seas (Bondarev 2020; Yurimoto et al. 2021). According to Sulistiyaningsih and Arbi (2020), *Anadara* which lives on muddy or muddy sandy substrates has a high reproductive success rate. Meanwhile, some studies show that *Solen* prefers to live in habitats with fine sand or sandy mud substrates (Ramadhan et al. 2017; Ambarwati and Irawan 2020).

The utilization of bivalves

Among the 21 species found at Talang Siring Beach, nine of them are collected and consumed by local people (Table 1). *A. antiquata, A. pilula, A. indica, M. meretrix, M. hiantina, M. cordata, M. japonica, M. recens*, and *Solen* sp. are collected by local people for consuming and trading locally.

Solen sp., commonly known as *lorjuk* is a species of bivalve that used as fresh and processed food (Trisyani and Kamarudin 2020). It is found in the intertidal zone of coastal areas and is economically marketable in Indonesia and other regions (Trisyani and Kamarudin 2020; Trisyani and Rahayu 2020; Dharma 2023). The species is rich in nutrients and has antioxidant properties, making it a valuable source of nutrients for human consumption (Asadollahi et al. 2019; Anggarani et al. 2021). *Solen* sp. is also known for its antioxidant potential, which has been studied for its potential use in antidiabetic mellitus type II therapy (Anggarani et al. 2021).

Table 4. Morphometry of bivalves from Talang Siring Beach, Pamekasan, Madura, Indonesia

Species	n	Shell length (mm)		Shell height (mm)		Shell width (mm)	
		Range	Mean ±SD	Range	Mean ±SD	Range	Mean ±SD
Mactra grandis	2	38.12-81.10	59.61 ±30.39	17.36-42.32	29.84 ±17.65	30.26-61.78	46.02 ±22.68
Mactra violacea	10	71.26-82.80	77.56 ±4.08	35.74-42.56	39.54 ±2.10	53.46-65.38	59.07 ±3.55
Mactra sp.	3	60.02-63.30	61.26 ±1.78	25.72-29.72	28.09 ±2.01	45.82-48.24	47.13 ±1.22
Placuna placenta	3	58.44-74.36	68.12 ±8.49	4.24-5.80	5.80 ±0.84	62.76-78.22	71.75 ±7.81
Solen sp.*	34	19.42-29.52	24.40 ±2.39	2.76-3.92	3.53 ±0.31	4.46-6.70	5.54 ±0.51
Tellinides timorensis	96	21.58-46.74	27.76 ±3.40	3.92-6.88	5.35 ±0.66	12.72-20.60	16.49 ±1.61
Psammacoma gubernaculum	3	36.68-47.58	41.28 ±5.64	11.00-14.02	12.30 ±1.55	28.24-35.06	30.67 ±3.80
Gari elongata	11	36.68-52.30	47.04 ±4.01	9.92-14.32	12.86 ±1.30	19.02-28.14	25.55 ±2.53
Atrina pectinata	4	118.10-190.80	159.85 ±30.60	18.14-37.12	26.85 ±8.26	46.36-95.32	68.96 ±8.26
*Anadara antiquata**	36	21.40-59.78	37.73 ±8.65	14.42-38.84	24.95 ±5.68	18.22-50.8	29.90 ±7.28
*Anadara pilula**	16	16.32-32.46	22.72 ±4.44	14.32-33.06	22.08 ±5.02	17.38-33.52	24.04 ±4.37
*Anadara indica**	1	40.38	0	17.06	0	22.40	0
Dosinia sp.	5	26.88-35.58	32.29 ±3.45	15.48-25.56	21.82 ±4.17	26.40-37.46	33.33 ±4.28
Dosinia fibula	2	18.14-22.42	20.28 ±3.02	8.94-10.32	9.63 ±0.97	17.76-19.46	18.61 ±1.20
Placamen isabellina	22	22.36-28.14	24.83 ±1.58	12.46-16.18	14.43 ±1.31	21.10-26.74	23.77 ±1.43
Anomalodiscus squamosus	2	19.84-20.32	20.08 ±0.33	12.26-12.86	12.56 ±0.42	18.82-16.38	15.60 ±1.10
*Meretrix meretrix**	2	38.44 - 42.68	40.56 ±2.99	20.46-22.18	21.32 ±1.21	32.06-36.72	34.39 ±3.29
*Marcia hiantina**	8	28.84-44.52	36.72 ±6.04	13.14-25.16	18.62 ±4.31	24.92-38.46	31.48 ±4.74
*Marcia japonica**	2	41.48-43.00	42.24 ±1.07	23.14-23.32	23.23 ±0.12	35.46-36.18	35.82 ±0.50
*Marcia cordata**	3	42.48-49.22	45.11 ±3.60	21.82-24.32	22.74 ±1.37	36.50-40.32	38.13 ±1.96
*Marcia recens**	2	42.76-44.52	43.46 ±1.24	23.32-23.54	23.43 ±0.15	32.84-39.12	35.98 ±4.44

Note: *: Frequently collected and consumed by local people

The Arcidae family, commonly known as the ark shells is a one of family of bivalves that are an important food source for human consumption, animals feed, or baits (Mrčelić et al. 2023). These bivalves are found in various habitats including rock substrates, mangrove swamps, estuarine area, and intertidal zone with sandy-mud flats (Oo 2020; Albert et al. 2022). The *A. antiquata* is a species of bivalve that is widely distributed throughout the Indo-Pacific region including Indonesia (Basyuni et al. 2022). It is an one of important fishery commodity and is widely consumed by the people as an alternative protein source with important economic value (Mulya and Jhon 2021).

The *M. meretrix*, commonly known as the Asiatic hard clam is a species of bivalve that is important as a traditional medicine (Ramamoorthy et al. 2023). For a considerable period, individuals in the Southeast Asia area have been consuming hard clams. *Meretrix* clams are also regularly gathered and exchanged by people near the beach (Ambarwati et al. 2022). Recent studies have shown that *Meretrix* sp. contains 10.26±0.46% proteins and 3.25±0.42% fats, this clams also contains bioactive peptides with antioxidant properties, which may have dietary health benefits, including stress resistance, disease prevention, and aging delay (Jia et al. 2018, Ambarwati et al. 2022).

The *M. hiantina* also known as a giant edible clam species that is widely distributed in tropical coastal regions (Ahmed et al. 2023). The *M. hiantina* has relatively long siphons, which allow it to burrow to a depth of approximately 8 cm and is found in various habitats including sandy areas and mangrove environment (Poutiers 1998; Ibrahim 2024). In terms of nutritional benefits, *M. hiantina* contains various vitamins and minerals such as vitamin B12 which is important for brain function and the formation of red blood cells, and iron which is essential for the production of hemoglobin and the transportation of oxygen in the blood (Ahmed et al. 2023).

The *M. recens* or short-neck clam is an edible bivalve and is considered a commercially exploited species in various localities from Karachi to Philippines (Arathi et al. 2018). *M. recens* is a good source of protein. The average value of protein content in *M. recens* clams is 9.30±0.77 percent per individual (Vineetha et al. 2020).

The *P. placenta* and *A. pectinata* also wellknown as edible bivalves (Poutiers 1998; Dharma 2005). However, we do not find that local people collected them, perhaps because the population relative low. On the other hand, *T. timorensis* which is very abundant, is not consumed. According to Ambarwati et al. (2016), deposit feeder bivalves have bitter taste, hence they are not consumed.

The findings of this research provide a list of the diversity and the potential of bivalves of Talang Siring Beach, Madura Island Indonesia which is managed as tourist area. This indicates that the area can support coastal ecosystem sustainably.

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