

Community structure of Trepang at Namtabung, Selaru Island, Maluku, Indonesia

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Introduction

Trepang are term used for members of the sea cucumber commonly used as a commodity, the amount of which is about 4.5% of the total sea cucumber (Holothuroidea). Trepang have several functions in terms of ecology and economics (Purcell, et al., 2011). Indonesia has a fairly high diversity of sea cucumbers, one of the areas that has a high production of sea cucumbers is Maluku (Setyastuti & Purwati, 2015; Natan, et al., 2016).

Ecological data of teripang Sea cucumber in Indonesia are still rare even though can be used as the basis for formulating regulations regarding the utilization and conservation of biological resources (Oldfield, 2003). Therefore this study aims to determine the structure of the sea cucumber community in Namtabung, Selaru Island, Maluku, Indonesia. This research data can be used as basic data for further research.

Method

This research was conducted in July 2019 in Namtabung, Selaru Island, Tanimbar Islands, Maluku, Indonesia. Sample were collected during low tide with 5 x 5 m² quadrat transect referring to English et al. (1994) in 3 stations with 3 replications. Species were identified based on Clark & Rowe (1971), Massin (1999), and Purcell et al. (2012). Community structure data include density, diversity index, dominance index, and evenness index which are processed with PAST (Palaentological Statistics) software.

Conclusion

There are 14 species of 95 individuals of sea cucumbers that were found. The density of this location reaches 0.42 m⁻². Trepang diversity is moderate, no dominance is found, and the condition of the community are stable.

Reference

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Results & Discussion

Table 1. List and number species trepang were collected

Species	Number of individuals		
	Stasion I	Stasion II	Stasion III
<i>Bohadschia marmorata</i>	11	10	7
<i>Holothuria scabra</i>	15	3	3
<i>Stichopus hermanni</i>	2	0	4
<i>Hulothuria atra</i>	4	1	4
<i>Stichopus horrens</i>	2	4	2
<i>Bohadschia vitiensis</i>	2	1	3
<i>Actinopyga miliaris</i>	2	1	0
<i>Stichopus vastus</i>	2	0	2
<i>Actinopyga lecanora</i>	1	1	0
<i>Holothuria fuscocinera</i>	1	1	0
<i>Stichopus monotuberculatus</i>	0	2	0
<i>Actinopyga</i> sp. 1	2	0	0
<i>Actinopyga</i> sp. 2	0	1	0
<i>Stichopus</i> sp.	0	0	1

There are 95 individuals consisting of 14 species that have been identified based on morphological characters and ossicle types. There are three species that need to be further identified because there are differences in character from previous research.

Density of trepang reaches 0.42 m⁻², *Bohadschia marmorata* has the highest density 0.12 m⁻², and the highest density is at station I with 0.59 m⁻². Type of substrat station I dominated by seagrass and sand, station II dominated by coral, and station III dominated by sand. Sea cucumber will be found at areas that have a high content of organic such as seagrass (Slater & Chen, 2015).

Results of calculation Shannon diversity index (H') at each station are 1,946, 1,889 and 1,947 which shows the diversity of sea cucumbers in Namtabung is moderate. As Mason (1981) stated, diversity based on the Shannon index can be categorized into 3: low (H' < 1) moderate (1 ≤ H' ≤ 3) and high (H' > 3). According to Legendre & Legendre (1983) the Simpson dominance index are low (D < 0.4) moderate (0.4 ≤ D ≤ 0.6), and high (D > 0.6) therefore in Namtabung there is no dominance because results of calculation Simpson dominance index is 0.2004, 0.216, and 0.1598. Shannon evenness index (E) calculation results are 0.6367, 0.6611, and 0.8764 which shows community of trepang are stable as Odum (1975) stated that the community is close to stable if the value of E ≥ 6.