ISSN: 2502-440X

Armal Riset dan Pergembangan Ilmu Pengetahaan



JURNAL PASCASARJANA Universitas Negeri Gorontalo





SK (SSN 0005-2502-440X/JL3 1/SK (SSN/2016.02 (Februari 2016)

REGISTER

JRNAL PASCASARJAN Universitas Negeri Goronta

номе ABOUT LOGIN SEARCH

CURRENT ARCHIVES ANNOUNCEMENTS

Home > Vol 6, No 1 (2021)

Jurnal Pascasarjana

Jurnal Pascasarjana with P-ISSN 2502-440X (Print), is a Peer-reviewed journal published three times published in January, May, September with a peer review process and open access. The Focus and Scope of the journal publishes research articles on current issues and trends in Science and Social Science. Published with open access while Abstracts and full text that have been obtained on the website can be read and downloaded. Scientific publications reviewed by experts in the field of expertise with abstracts in English and Indonesian. Peer Review Process, all manuscripts sent to this journal must follow the focus and scope, and the guidelines of the authors of this journal. Manuscripts sent must discuss scientific achievements or novelty in accordance with the focus and scope. All texts must be free of plagiarism content. All authors are advised to use plagiarism detection software to check the similarity. The script was published by Postgraduate Program Universitas Negeri Gorontalo. Address Editor Lt. 1 Postgraduate Building Universitas Negeri Gorontalo Sudirman 06 Gorontalo 96128. e-mail: pps@ung.ac.id.



Vol 6, No 1 (2021)

Table of Contents

Article

THE ANALYSIS OF STAPLE FOOD SELF-SUFFICIENCY AND RICE FARMER HOUSEHOLD WELFARE LEVELS IN GORONTALO CITY
Abstract views : 17 Lusiana Lusiana, Asda Rauf, Ria Indriani
BUDGETING POLICY FOR DEVELOPING AGRICULTURAL SECTORS IN GORONTALO PROVINCE
Mi Abstract views : 8 Moh. Dikky Sidiki, Syarwani Canon, Asda Rauf
HORTICULTURAL COMMODITY-BASED ANALYSIS OF TERRITORIAL SUPERIORITY IN BOALEMO
Leli Marhaba, Syarwani Canon, Supriyo Imran
THE EFFECTS OF POSITIONING AND ONLINE MARKETING ON CONSUMER PURCHASING DECISION IN COFFEE SHOPS IN GORONTALO
Sapril Soleman, Amir Halid, Abd Rahman Pakaya
<u>THE EFFICIENCY OF BEEF CATTLE MARKETING CHANNEL IN GORONTALO DISTRICT DURING</u> THE COVID-19 PANDEMIC
Lius Djailani, Supriyo Imran, Muhammad Mukhtar
THE CONTRIBUTION OF THE MICRO, SMALL, AND MEDIUM-SIZED ENTERPRISES (MSMES) OF FOOD PROCESSED PRODUCTS TO THE ECONOMIC DEVELOPMENT IN GORONTALO
Mil Abstract views : 9 Mohammad Zubair Hippy, Syarwani Canon, Asda Rauf
AN ANALYSIS OF COFFEE FARMER INCOME IN PINOGU BONE BOLANGO
Adbstract views : 16 Andris Ngabito, Mahludin H. Baruwadi, Ria Indriani
VEGETATION COMPOSITION AND STRUCTURE IN OTANAHA FORTRESS GORONTALO CITY
Abstract views : 23

OPEN JOURNAL SYSTEMS ADDITIONAL MENU FOCUS AND SCOPE EDITORIAL TEAM REVIEWER PEER REVIEW PROCESS OPEN ACCESS STATEMENT PUBLICATION ETHICS AUTHOR GUIDELINES PLAGIARISM SCREENING COPYRIGHT NOTICE AUTHOR FEES INDEXING Journal Help USER Username Password Remember me Login NOTIFICATIONS <u>View</u> Subscribe JOURNAL CONTENT Search rch Scope All Search Browse <u>By Issue</u> <u>By Author</u> <u>By Title</u> Ot her Journals FONT SIZE VISITORS Visitors 4,674 161 6



PDF 1-10

PDF 11-18

<u>PDF</u> 19-30

<u>PDF</u> 31-41

<u>PDF</u> 42-49

PDF 50-55

PDF 56-63

<u>PDF</u> 64-72

Bella Saskia Arfa, Dewi Wahyuni K. Baderan, Sukirman Rahim	
THE COMPOSITION AND DIVERSITY OF PLANT SPECIES IN UPSA OF DULAMAYO UTARA TELAGA BIRU GORONTALO DISTRICT Abstract views : 32 Sulaman Naniu Sulaman Naniu	73-81
A VOTER LIST UPDATE MODEL FOR THE INDONESIAN REGIONAL ELECTION Abstract views : 16 Marleni Makuta, Nur Mohamad Kasim, Lusiana Margareth Tijow	<u>PDF</u> 82-89
AN ANALYSIS OF FINANCIAL FEASIBILITY OF EMPING JAGUNG BUSINESS AT A SMALL MEDIUM-SCALE INDUSTRY (LM3 IKM) OF PONDOK PESANTREN SALAFIYAH SYAFI'TYAH IN BANUROJA RANDANGAN POHUWATO MIN Abstract views : 7	<u>PDF</u> 90-101
Hamsah Saini, Amir Halid <u>CORAL REEF ECOSYSTEM CONDITION IN BINTALAHE BEACH BONE BOLANGO</u> MIII Abstract views : 38 Atrila Latinulu, Ramli Utina, Hasim Hasim	<u>PDF</u> 102-107
Publisher:	
Pascasarjana Universitas Negeri Gorontalo	
Jl. Soedirman No. 06 Gorontalo 96128 e-mail: pps@ung.ac.id http://ejurnal.pps.ung.ac.id	

JURNAL PASCASARJAN Universitas Negeri Goronta

 HOME
 ABOUT
 LOGIN
 REGISTER
 SEARCH
 CURRENT
 ARCHIVES
 ANNOUNCEMENTS

 Home > About the Journal > Editorial Team
 Editorial Team
 Editorial Team
 Editor

Admin Jurnal

Publisher:

Pascasarjana Universitas Negeri Gorontalo Jl. Soedirman No. 06 Gorontalo 96128 e-mail: pps@ung.ac.id http://ejurnal.pps.ung.ac.id

OPEN JOURNAL SYSTEMS

ADDITIONAL MENU

FOCUS AND SCOPE

EDITORIAL TEAM

REVIEWER

PEER REVIEW PROCESS

OPEN ACCESS STATEMENT

PUBLICATION ETHICS

AUTHOR GUIDELINES

PLAGIARISM SCREENING

COPYRIGHT NOTICE

AUTHOR FEES

INDEXING

Journal Help

USER

Username Password

Remember me

Login

NOTIFICATIONS

<u>View</u>
<u>Subscribe</u>

JOURNAL CONTENT

Search Scope All ✓



Other Jou

FONT SIZE

VISITORS



JURNAL PASCASARJAN Universitas Negeri Goronta





JURNAL PASCASARJAN Universitas Negeri Goronta

HOME ABOUT LOGIN REGISTER SEARCH CURRENT ARCHIVES ANNOUNCEMENTS	OPEN JOURNAL SYSTEMS
Home > Archives > Vol 6, No 1 (2021)	ADDITIONAL MENU
Vol 6, No 1 (2021)	FOCUS AND SCOPE
	EDITORIAL TEAM
Table of Contents	REVIEWER
Article	PEER REVIEW PROCESS
THE ANALYSIS OF STAPLE FOOD SELF-SUFFICIENCY AND RICE FARMER HOUSEHOLD P WELFARE LEVELS IN GORONTALO CITY 1- Image: Abstract views : 17 1- Lusiana Lusiana, Asda Rauf, Ria Indriani 1-	DF 10 OPEN ACCESS STATEMENT
BUDGETING POLICY FOR DEVELOPING AGRICULTURAL SECTORS IN GORONTALO PROVINCE	PUBLICATION ETHICS
Moh. Dikky Sidiki, Syarwani Canon, Asda Rauf	AUTHOR GUIDELINES
HORTICULTURAL COMMODITY-BASED ANALYSIS OF TERRITORIAL SUPERIORITY IN BOALEMO 19-	DF PLAGIARISM 30 SCREENING
Leli Marhaba, Syarwani Canon, Supriyo Imran	COPYRIGHT NOTICE
THE EFFECTS OF POSITIONING AND ONLINE MARKETING ON CONSUMER PURCHASING P DECISION IN COFFEE SHOPS IN GORONTALO 31	DF 41 AUTHOR FEES
Abstract views : 20 Sapril Soleman, Amir Halid, Abd Rahman Pakaya	INDEXING
THE EFFICIENCY OF BEEF CATTLE MARKETING CHANNEL IN GORONTALO DISTRICT DURING P THE COVID-19 PANDEMIC 42-	DF 49 <u>Journal Help</u>
Lius Djailani, Supriyo Imran, Muhammad Mukhtar	USER
THE CONTRIBUTION OF THE MICRO, SMALL, AND MEDIUM-SIZED ENTERPRISES (MSMEs) OF PROCESSED PRODUCTS TO THE ECONOMIC DEVELOPMENT IN GORONTALO 50-	DF DF Password
Mohammad Zubair Hippy, Syarwani Canon, Asda Rauf	Remember me
AN ANALYSIS OF COFFEE FARMER INCOME IN PINOGU BONE BOLANGO	<u>DF</u> 63 NOTIFICATIONS
Andris Ngabito, Mahludin H. Baruwadi, Ria Indriani	<u>View</u> <u>Subscribe</u>
VEGETATION COMPOSITION AND STRUCTURE IN OTANAHA FORTRESS GORONTALO CITY 64- 64- 64- 64- 64- 64- 64- 64- 64- 64	<u>DF</u> 72
Bella Saskia Arfa, Dewi Wahyuni K. Baderan, Sukirman Rahim	JOURNAL CONTENT Search
THE COMPOSITION AND DIVERSITY OF PLANT SPECIES IN UPSA OF DULAMAYO UTARA P TELAGA BIRU GORONTALO DISTRICT 73-1	DF 81 Search Scope
Suleman Naniu, Dewi Wahyuni K. Baderan, Marini Susanti Hamidun	Search
A VOTER LIST UPDATE MODEL FOR THE INDONESIAN REGIONAL ELECTION	DF 89 • By Issue
Marleni Makuta, Nur Mohamad Kasim, Lusiana Margareth Tijow	By Author By Title
AN ANALYSIS OF FINANCIAL FEASIBILITY OF EMPING JAGUNG BUSINESS AT A SMALL P MEDIUM-SCALE INDUSTRY (LM3 IKM) OF PONDOK PESANTREN SALAFIYAH SYAFI'IYAH IN 90-1 BANUROJA RANDANGAN POHUWATO	01 EONT CLZE
Abstract views : 7 Hamsah Saini, Amir Halid	TONT SIZE
CORAL REEF ECOSYSTEM CONDITION IN BINTALAHE BEACH BONE BOLANGO	DF 07 VISITORS
Atrila Latinulu, Ramli Utina, Hasim Hasim	Visitors 4,674 7 161 6 28 5
Publisher:	12 5
Pascasarjana Universitas Negeri Gorontalo	FLAG counter
http://ejurnal.pps.ung.ac.id	

JURNAL PASCASARJAN Universitas Negeri Goronta

HOME ABC	OUT LO	GIN	REGISTER	SEARC	н	CURRENT	A	RCHIVES	AI	NNOUNC	CEMENTS	OF	<u>'EN JOURNAL SYSTEMS</u>
Home > Vol 6,	, No 1 (202	1) > Lat	tinulu										ADDITIONAL MENU
													FOCUS AND SCOPE
COPALE		COSI	VOTEM	CONDI	TIC	NI INI B	TNT	'AT AH'	БB	FACI	ч		EDITORIAL TEAM
BONE BO	OLANG	0		CONDI	IIC)11N I	ALAII	ĽD	LACI	.1		REVIEWER
Atrila Latinulu,	. Ramli Utin	a, Hasin	n Hasim										PEER REVIEW PROCE
Abstract													OPEN ACCESS STATEMENT
This study aim carried out on	is to analyze November	e the coi 7 th and	ndition of th 10 th -12 th , 2	e coral reef :020 in Binta	ecos alahe	ystem in Bir Beach. Mea	ntalahe anwhile	e Beach Bo , the analy	ne Bo ysis is	olango. 1 s conduc	This was ted in		PUBLICATION ETHICS
Laboratorium F growth in Stati	Perikanan U ion 1 is fair at 55 76%	at 69%	as Negeri Go , in Station 3 Station 3 is 1	orontalo. The 2 at the 3-m fair at 44.8%	e me neter	thod used is depth is fai	s descr r at 39	iptive. Res .2%, in Stance of co	ults d ation	lemonst 2 at the	rate that c 5-meter	oral	AUTHOR GUIDELINES
ind/ha in Static and 1802 ind/h 1.5898 in Stati	on 1, 1637 ha in Statio ion 2 at the	ind/ha ii n 3. The s 5-mete	n Station 2 a diversity in or depth, and	dex is 1.729	ter de 9 in S Stati	epth, 2182 i Station 1, 2. on 3. The pl	ind/ha 1089 i anktor	in Station n Station 2 dominanc	2 at t 2 at th 2 at th	the 5-me the 3-met ex is 0.0	eter depth er depth, 067 in Stat	; ion	PLAGIARISM SCREENING
1, 0.081 in Sta water quality p	ation 2 at th parameters	ne 3-met measure	er depth, 0. ed in this stu	.048 in Stati udy are cons	ion 2 sidere	at the 5-me ed suitable f	eter de for cor	pth, and 0 al reefs and	d othe	in Static er biotas	on 3. The to grow.		COPYRIGHT NOTICE
Keywords													AUTHOR FEES
Descriptive Stu	udv. Coral F	Reef Eco	system. Wai	ter Environn	ment								INDEXING
			system, nat									<u>Jo</u>	urnal Help
Full Text:												US	SER
References	l											Us Pa	sername
Affan, J. M. (20 di Pantai Timu	010). Analis Ir Kabupater	sis Poten n Bangk	ısi Sumber [a Tengah. S	Daya Laut da pektra.	an Kı	ualitas Perai	ran Be	rdasarkan	Paran	neter Fi	sika dan K	imia	Remember me .ogin
Ali, A., Siddiqu The Sindh Coa Conservation A https://doi.org	ui, P. J. A., F Ist of Pakist Approaches 3/10.1016/j	Rasheed an: Prev . Region .rsma.20	, M., Ahmad /ailing Enviro al Studies in 020.101391	l, N., Shafiqi onmental Co I Marine Scie	ue, S onditi ence,	5., and Khok ions, Their I , 39, 10139:	char, F. mpacts 1.	N. (2020) on Comm). Stat nunity	tus of Co Structu	orals Alon <u>o</u> ire, and) NC)TIFICATIONS • <u>View</u> • <u>Subscribe</u>
Ambarwati, M. Ekosistem Terr	. (2019). Pe umbu Karar	ngaruh ng Alami	Faktor Fisika i dan Buatar	a-kimia Pera 1 Perairan Pl	airan Itu Pa	terhadap Ke aiton. 78.	elimpa	nan dan Ke	eanek	aragama	an Plankto	n di JC	URNAL CONTENT
As-Syakur, A. Benoa Bali. Jur	R., and Wiy rnal Kelauta	/anto, D. an.	. B. (2016).	Study of Hid	drolo	igical Condit	ion for	Artificial R	Reef L	ocation	in Tanjung	, Se	arch
Aziz, A. M., Ka Pramuka Islan	ımal, M. M., d Waters, K	, Zamani (epulaua	i, N. P., and In Seribu, Ja	Subhan, B. karta and M	(201 1anaç	11). Coral Se gement Opti	ettleme ion. Joi	ent on Con urnal of Inc	crete dones	Artificia sia Coral	l Reefs in	Se A	arch Scope
Corvianawatie, Karang di Pula	, c., and ab u Pari. Jurn	rar, m. (1al Kelau	(2018). Kese Itan Nasiona	esuaian Kon II. https://do	ıdisi (oi.or <u>ç</u>	Dseanografi g/10.15578/	Dalam 'jkn.v1	Mendukur 3i3.6322	ng Eko	osistem	Terumbu	Br	owse
Cresswell, A. K (2020). Structo Slope at Ninga 151438	<., Orr, M., I :ure-From-M iloo Reef, W	Renton, lotion Re /estern A	M., Haywoo eveals Coral Australia. Jo	d, M. D. E., Growth is I urnal of Exp	Gira Influe Derim	Ido, A., Slav inced by Col ental Marine	winski, lony Si e Biolog	D., Austin, ze and Way gy and Eco	, R., a ve En logy,	and Thoi lergy on 530–53	mson, D. F The Reef 1(July),	· <u>·</u>	 <u>By Issue</u> <u>By Author</u> <u>By Title</u> <u>Other Journals</u>
												FC	NT SIZE
Refbacks													
 There are 	currently n	io refbao	cks.									VI	sitors /isitors
													4,674 7 161 6
Publisher:													
Pascasarjana L	Universitas I	Negeri G	Gorontalo										
Jl. Soedirman i http://ejurnal.	No. 06 Goro pps.ung.ac.	ontalo 90 .id	6128 e-mail.	: pps@ung.a	ac.id								2 - 77 H MAPRICE 0100
												1	

CORAL REEF ECOSYSTEM CONDITION IN BINTALAHE BEACH BONE BOLANGO

Atrila Latinulu*, Ramli Utina, Hasim

Department of Population and Environment Gorontalo State University Jl. Jend. Sudirman No. 6 Kota Gorontalo, 96128 *Correspondence email: atrila.latinulu07@gmail.com

ABSTRACT

This study aims to analyze the condition of the coral reef ecosystem in Bintalahe Beach Bone Bolango. This was carried out on November 7th and 10th-12th, 2020 in Bintalahe Beach. Meanwhile, the analysis is conducted in *Laboratorium Perikanan Universitas Negeri Gorontalo*. The method used is descriptive. Results demonstrate that coral growth in Station 1 is fair at 69%, in Station 2 at the 3-meter depth is fair at 39.2%, in Station 2 at the 5-meter depth is good at 55.76%, and in Station 3 is fair at 44.8%. Moreover, the abundance of coral fish is low, i.e., 1143 ind/ha in Station 1, 1637 ind/ha in Station 2 at the 3-meter depth, 2182 ind/ha in Station 2 at the 5-meter depth, and 1802 ind/ha in Station 3. The diversity index is 1.729 in Station 1, 2.1089 in Station 2 at the 3-meter depth, 1.5898 in Station 2 at the 5-meter depth, and 1.6187 in Station 3. The plankton dominance index is 0.067 in Station 1, 0.081 in Station 2 at the 3-meter depth, 0.048 in Station 2 at the 5-meter depth, and 0.065 in Station 3. The water quality parameters measured in this study are considered suitable for coral reefs and other biotas to grow.

Keywords: Descriptive Study, Coral Reef Ecosystem, Water Environment

INTRODUCTION

Coral reefs are a group of organisms living on the bottom of shallow water, especially in tropical areas. Coral reef formation is deployed to limit tropical marine environments. Coral reefs are composed of class Anthozoa, phylum Cnidaria, and ordo Madreporian, which encompasses hermatypic corals or types of corals which can breed coral buildings or structures from calcium carbonate $(CaCO_3)$. In the animal classification, corals belong to the large group of Cnidaria/coelenterate (hollow animals), such as jellyfish and sea anemones (Kordi and Ghufran, 2010).

Coral reefs are categorized into reef corals, i.e., organism individuals, and coral reefs, i.e., an ecosystem to which coral organisms belong. Two types of corals have been identified, namely hermatypic corals or reefbuilding corals, which are corals able to form reefs or limestone buildings, and ahermatypic corals which have no ability to form coral reefs or buildings (Ghufran, 2010). The crucial component of coral reefs is coral animals, either stony corals or soft corals. Many living biota species anchor on corals, where they create a functional relationship in an ecosystem called a coral reef ecosystem. As an ecosystem in coastal or sea areas, coral reefs have irreplaceable or imperative ecological functions. Sea biotas, e.g., small fishes, live there. As larger fishes depend on small fishes, once corals are damaged, the home of multiple sea biotas is destroyed and the

food chain is broken (Maulana et al., 2016).

Gorontalo Province is located between the Sulawesi Sea and the Gulf of Tomini. The location brings about abundant coastal resources, either renewable (fish, coral reefs, seagrass, mangroves) or non-renewable and (minerals and energy), and marine services (marine tourism and sea transportation). One of the villages which have diverse types of coral reefs is Bintalahe, located in Kabila Bone Bone Bolango. The village is directly bordered by the Gulf of Tomini. It was part of Molutabu before area expansion in 2017. There we can find a PLTU industry operated using steam power as a driving force to generate electricity, with coal fuel producing various kinds of liquid waste from the operating process. Wastes from condensers (cooling water) are called hot water waste or heat waste.

GENERAL DESCRIPTION OF STUDY AREA

Coral reef ecosystem observation is performed in the waters of Bintalahe

Kabila Bone Bone Bolango in the position of between 0°27'50.54"LU and 123°08'06.55"BT. The eastern part of the village is an open sea, directly bordered by the Gulf of Tomini. In general, Bintalahe has the same water topography as Bone Bolango, i.e., facing a steep mountainous area. This brings about the obstructed movement of the wind from the sea, bringing on wind rotation and maximum waves in the coastal area of the coast. The bottom of the waters of Bintalahe is a sloping base around the coastline which then becomes a drop-off form or with a very large angle of inclination so that it is shaped like a seabed cliff. This condition impacts the stretch of coral reefs found from the low receding coastline to the drop-off area. Collating components of the coral reef ecosystem in Bintalahe are both biotic and abiotic. The biotic components are Acropora, non-Acropora, algae, soft corals, and others, whereas the abiotic ones are dead corals, sand, coral fragments, stones, mud, and water.



Figure 1. Map of Study Area

The study area has three stations, i.e., Station 1 existing in 0°26'1.21"NL-123°7'57.6"EL. Station 1 is a dense residential area with different resident activities. The water base substrate in Station 1 starts from a sandy beach, stones, and coral stones; Station 2 0°25'59.56"LUexisting in 123°7'59.57"BT. Station 2 right in front of the waste disposal from the steam power plant production activities. The water base substrate in Station 2 starts from stones, sand, and coral stones. The water current is moderate and not too strong. The water is oily and has a considerable hot temperature, notably in the water surface, which may be caused by PLTU wastes; and Station 3 existing 0°25'56.24"LU-123°8'2.18"BT. in Station 3 is close to the port and not too distant from the residential area and PLTU waste disposal. Station 3 is a favorite fishing area. The water base substrate starts from a stony beach, sand, and coral stones. The water base is clifflike shaped. The current condition while observed is not too strong.

STUDY METHOD

The study of coral reef ecosystem condition was carried out on November 7th. 2020 in the waters of Bintalahe Beach Kabila Bone Bone Bolango Gorontalo Province, which lays between 0°27'50.54"LU and 123°08'06.55"BT. Meanwhile, plankton sample identification conducted was on 10th-12th. November 2020 in Hidrobioekologi Laboratorium dan Biometrik Perikanan Universitas Negeri Gorontalo.

1. Data Collection

The research area is divided into three observation stations after a field observation in that area.

2. Oceanographic Parameter Measurement

Oceanographic parameters of the water are in-situ measured in all observation stations using a boat as a means of transportation. Parameters measured are temperature, dissolved oxygen, salinity, current velocity, and brightness. The seawater test sampling method refers to SNI 6964.8:2015.

3. Plankton Identification

Data collected were plankton as the biological parameter. Sampling was undertaken vertically using a plankton net. Plankton sampling was carried out at the 3-meter and 5-meter depth. The seawater test sampling method refers to SNI 6964.8:2015.

4. Coral Fish Identification

Coral fish data collection in each station is conducted using the underwater visual census method by English *et al.* (1994).

5. Coverage Percentage

To examine the coverage percentage of each of the lifeforms in the field, we have to investigate the length of the respective categories using the formula (UNEP/AIMS, 1993) as follows:

PSK = TKT - TKS

Where:

PSK = the length of a category

TKT = the transition of the category

TKS = the transition of the previous category

6. Coral Reef Condition Status

Criteria for the total coral reef coverage percentage found will be

categorized based on the Decree of the Ministry of the Environment Number 04/2001, as shown off in Table 1.

Percentage (%)	Category
75 - 100	Excellent
50 - 74.9	Good
25 - 49.9	Fair
0 - 24.9	Bad

Table 1. Category of Coral Reef Health Condition

The measurement result of total coral coverage percentage will help us identify the coral reef condition criteria that can be the yardstick of their health.

RESULTS AND DISCUSSION

1. Waters Parameter Condition

The waters parameters observed in the respective stations are temperature, DO (Dissolved Oxygen), salinity, current, and brightness, and the measurement result is presented in Table 2.

	anyotion	Water Quality Parameters						
	Station	Temperature	DO (mg/l)	Salinity (ppt)	Brightness (m)	Current (m/det)		
Ι	3 meters	30	7.1	30	3	0.56		
п	3 meters	30	6.4	25	3	1.12		
11	5 meters	31	6.9	27	5	1.19		
III	3 meters	30	4.1	25	3	1.47		

2. Plankton Type Identification

Based on Figure 2, the diversity in Station 1, Station 2 at the 3-meter depth, Station 2 at the 5-meter depth, and Station 3 is 1.729, 2.1089, 1.5898, and 1.6187, respectively. Meanwhile, the dominance in Station 1, Station 2 at the 3-meter depth, Station 2 at the 5-meter depth, and Station 3 is 0.067, 0.081, 0.048, and 0.065, respectively. Dominance in all stations is considered low as the dominance of phytoplankton in each station is below 1.



Figure 2. Measurement Result of Diversity and Dominance in the Respective Stations

3. Coral Fish Abundance

Figure 3 exhibits coral fish abundance, which is apparently relatively low in all stations. The highest coral fish abundance, i.e., 2182 ind/ha, is found in Station 2 at the 5-meter depth. This result is because the location is deep and corals there have a better condition than that in the other stations. Conversely, the lowest coral fish abundance. i.e., 1143 ind/ha, is in Station 1 at the 3-meter depth. The lowest abundance is because of the location close to the residential area and thereby boosting fishing activities, and the coral reef condition there is in a fair condition.



Figure 3. Quantification Result of Coral Fish Abundance in the Respective Stations

4. Coral Growth Lifeforms

Coral growth lifeforms in the waters of Bintalahe Beach vary in each of the category Acropora and non-Acropora. Coral growth lifeforms in the three stations are affected by the condition of the environment there. Residential areas adjacent to some stations impact the coral growth there. Additionally, wastes disposed of by industrial manufactures generate oils which contaminate the waters in certain observation areas.

5. Coral Reef Condition

Figure 4 portrays coral reef conditions in Bintalahe Beach. In Station

1 at the 3-meter depth, live corals, dead corals, algae, others, and abiotic comes at 68%, 15%, 0%, 0%, and 17%, respectively. The percentages are figured by quantifying coral growth out lifeforms. The percentage of live corals is high because Station 1 at the 3-meter depth has a brightness of 100%. highest live coral Moreover, the coverage percentage, 68%, is in Station 1, followed by Station 2 at the 5-meter depth (55.76%), Station 3 (44.8%), and Station 2 at the 3-meter depth (39.2%). Overall, coral reef condition in the waters of Bintalahe Beach is in the fairgood category.



Figure 4. Coral Reef Condition in Bintalahe Beach

As stated in Table 3, Station 1 and Station 2 at the 5-meter depth have a good coral reef condition at 68% and 55.76%, respectively. Coral reefs living in those locations still greatly vary. Also, the water quality parameters are good (temperature of 30-310C, DO of 6.9-7.1 mg/l, the salinity of 27-30 ppt, current of 0.56-1.19 m/det, and brightness of 100%), inducing a stable and good environment for corals to grow. Meanwhile, Station 2 at the 3-meter depth and Station 3 have a fair coral reef condition at 39.2% and 44.8%. respectively. Both locations are close to industrial waste disposal. Station 3 is located near the port where coals are Consequently, when stored. coals accidentally fall down to the water, they may cover coral reefs living below. Despite proponent water quality parameters, coral reefs get threatened by uncontrolled activities which may harm their growth.

	0	U
Station	Live Coral Coverage Percentage	Category
Ι	68%	Good
TT	39.2%	Fair
11	55.76%	Good
III	44.8%	Fair

 Table 3. Live Coral Coverage Percentage

As clarified by Farid *et al.* (2018), coral reef distribution and growth rely on environmental conditions. However, this condition is sometimes unstable because of interferences from either nature or humans. Coral reef condition in the waters of Bintalahe Beach Kabila Bone Bone Bolango is feared to continue experiencing damage if there are no initiatives from the community or local government to perform good management and maintenance resulting in well-preserved coral reefs.

REFERENCES

- Affan, J. M. (2010). Analisis Potensi Sumber Daya Laut dan Kualitas Perairan Berdasarkan Parameter Fisika dan Kimia di Pantai Timur Kabupaten Bangka Tengah. Spektra.
- Ali, A., Siddiqui, P. J. A., Rasheed, M., Ahmad, N., Shafique, S., and

Khokhar, F. N. (2020). Status of Corals Along The Sindh Coast of Pakistan: Prevailing Environmental Conditions, Their Impacts on Community Structure, and Conservation Approaches. Regional Studies in Marine Science. 101391. 39. https://doi.org/10.1016/j.rsma.202 0.101391

- Ambarwati, M. (2019). Pengaruh Faktor Fisika-kimia Perairan terhadap Kelimpahan dan Keanekaragaman Plankton di Ekosistem Terumbu Karang Alami dan Buatan Perairan Pltu Paiton. 78.
- As-Syakur, A. R., and Wiyanto, D. B. (2016). Study of Hidrological Condition for Artificial Reef Location in Tanjung Benoa Bali. *Jurnal Kelautan*.
- Aziz, A. M., Kamal, M. M., Zamani, N. P., and Subhan, B. (2011). Coral Settlement on Concrete Artificial Reefs in Pramuka Island Waters, Kepulauan Seribu, Jakarta and Management Option. Journal of Indonesia Coral.
- Corvianawatie, c., and abrar, m. (2018). Kesesuaian Kondisi Oseanografi Dalam Mendukung Ekosistem Terumbu Karang di Pulau Pari. *Jurnal Kelautan Nasional*. <u>https://doi.org/10.15578/jkn.v13i3</u>. .6322
- Cresswell, A. K., Orr, M., Renton, M., Haywood, M. D. E., Giraldo, A., Slawinski, D., Austin, R., and Thomson, D. P. (2020). Structure-From-Motion Reveals Coral Growth is Influenced by Colony Size and Wave Energy on The Reef Slope at Ningaloo Reef,

Western Australia. *Journal of Experimental Marine Biology and Ecology*, 530–531(July), 151438.