DAFTAR PUSTAKA

Abdul Wahab, M. A., Ferguson, S., Snekkevik, V. K., McCutchan, G., Jeong, S., Severati, A., Randall, C.J., Negri, A.P., dan Diaz-Pulido, G. 2023. Hierarchical Settlement Behaviours of Coral Larvae to Common Coralline Algae. *Scientific Reports* 13(1), 5795.

Alamanda, R. A. 2017. Efektivitas Intensitas Cahaya Kaitannya Dengan Gradasi Warna Pada Terumbu Karang Zoanthus sp. *Skripsi*. Universitas Lampung.

Albelda, R. L., Cabaitan, P. C., Sinniger, F. P., Dumalagan Jr, E. E., Quimpo, T. J. R., Olavides, R. D. D., Munar, J.C., Villanoy, C.L., dan Siringan, F. P. 2020. Juvenile Scleractinian Assemblage and Its Association with Adults And Benthos at Shallow and Upper Mesophotic Depths in Fringing and Atoll Reefs in the Philippines. *Regional Studies in Marine Science*. 40, 101514.

Anggreni, R., Muliadi, M., dan Adriat, R. 2018. Analisis Pengaruh Tutupan Awan Terhadap Radiasi Matahari di Kota Pontianak. *Prisma Fisika*. 6(3).

Ariston, L. 2013. Tingkat Kelangsungan Hidup dan Laju Pertumbuhan Karang *Pocillopora damicornis* dan *Acropora millepora* yang Ditransplantasikan dengan Teknik Rubble Stabilization di Pulau Pramuka, Kepulauan Seribu. *Skripsi*, Institut Pertanian Bogor.

Bachtiar, I., Hadi, T. A., Karnan, K., dan Bachtiar, N. T. 2023. Other Faunas, Coral Rubbles, and Soft Coral Covers are Important Predictors of Coral Reef Fish Diversity, Abundance, and Biomass. *Fisheries and Aquatic Sciences*. 26(4), 268-281.

Baird, A. H., Guest, J. R., dan Willis, B. L. 2009. Systematic and Biogeographical Patterns in the Reproductive Biology of Scleractinian Corals. *Annual Review of Ecology, Evolution, and Systematics*. 40(1), 551-571.

Bayong Tjasyono, H. K., Gernowo, R., Sri Woro, B. H., dan Ina, J. 2008. The Character of Rainfall in the Indonesian Monsoon. *In The International Symposium on Equatorial Monsoon System*, Yogyakarta.

Bramanti, L., dan Edmunds, P. J. 2016. Density-associated Recruitment Mediates Coral Population Dynamics on a Coral Reef. *Coral reefs*. 35, 543-553.

Chacon-Gomez, I. C., Salas-Monreal, D., dan Riveron-Enzastiga, M. L. 2013. Current Pattern and Coral Larval Dispersion in a Tropical Coral Reef System. *Continental Shelf Research*, 68, 23-32.

Cornwall, C. E., Carlot, J., Branson, O., Courtney, T. A., Harvey, B. P., Perry, C. T., Andersson. A.J., Diaz-Pulido, G., Johnson, M.G., Kennedy, E., Krieger, E.C., Malella J., McCoy, S.J., Nugues, M. M., Quinter, E., Ross, C.L., Ryan, E., Sardene,V., dan Comeau, S. 2023. Crustose Coralline Algae Can Contribute More Than Corals to Coral Reef Carbonate Production. *Communications Earth & Environment*. 4(1), 105.

Dela Cruz, D. W., dan Harrison, P. L. 2020. Enhancing Coral Recruitment Through Assisted Mass Settlement of Cultured Coral Larvae. *PLoS One*. 15(11), e0242847.

Dinsdale, E. A., dan Harriott, V. J. 2004. Assessing Anchor Damage On Coral Reefs: A Case Study in Selection of Environmental Indicators. *Environmental Management*, 33, 126-139.

Doropoulos, C., Ward, S., Roff, G., González-Rivero, M., dan Mumby, P. J. 2015. Linking Demographic Processes of Juvenile Corals to Benthic Recovery Trajectories in Two Common Reef Habitats. *PLOS ONE*. 10(5), e0128535.

Fabricius, K. E., Crossman, K., Jonker, M., Mongin, M., dan Thompson, A. 2023. Macroalgal Cover on Coral Reefs: Spatial and Environmental Predictors, and Decadal Trends in the Great Barrier Reef. *PLoS One*. 18(1), e0279699.

Fachrurrozie, A., Patria, M. P., dan Widiarti, R. 2012. Pengaruh Perbedaan Intensitas Cahaya Terhadap Kelimpahan Zooxanthella Pada Karang Bercabang (Marga: Acropora) di Perairan Pulau Pari, Kepulauan Seribu. *Jurnal Akuatika*. 3(115), 124

Fathuddin, F., Noor, R. J., Lapong, M. I., Ramlan, A., Ardy, A., dan Harijo, S. 2022. Pengabdian Kepada Masyarakat Kelompok Selam Sangkarrang Ocean Dive Melalui *Coral Stock Center* dan Transplantasi Karang Di Pulau Barrang Lompo. *Nobel Community Services Journal*, 2(1), 5-11.

Foo, S. A., dan Asner, G. P. 2020. Sea Surface Temperature in Coral Reef Restoration Outcomes. *Environmental Research Letters.* 15(7), 074045.

Foster, T., dan Gilmour, J. 2018. Reproduction of Brooding Corals at Scott Reef, Western Australia. *Matters*. 4(7), 1-9.

Fudjaja, L., Viantika, N. M., Rani, C., Nurdin, N., Priosambodo, D., dan Tenriawaru, A. N. 2020. Anthropogenic Activity and the Destruction of Coral Reefs in the Waters of Small Islands. *In IOP Conference Series: Earth and Environmental Science*. 57(1), 012057.

Giglio, V. J., Ternes, M. L., Mendes, T. C., Cordeiro, C. A., dan Ferreira, C. E. 2017. Anchoring Damages to Benthic Organisms in a Subtropical Scuba Dive Hotspot. *Journal of Coastal Conservation*. 21, 311-316.

Giyanto, Dewi, R., dan Azkiyah, B. U. 2023. Coral Recruitment and its Relationship to Hard Coral Cover in the Derawan Islands, East Kalimantan. *In IOP Conference Series: Earth and Environmental Science*. 1137(1), 012001.

Glynn, P. W., dan Colley, S. B. 2008. Survival of brooding and broadcasting reef corals following large scale disturbances: is there any hope for broadcasting species during global warming. In Proccedings of the 11th International Coral Reef Symposium. 11, 361-365.

Goodbody-Gringley, G., dan de Putron, S. J. 2016. Brooding corals: planulation patterns, larval behavior, and recruitment dynamics in the face of environmental change. The cnidaria, past, present and future: the world of Medusa and her sisters, 279-289.

Guest, J. R., Tun, K., Low, J., Vergés, A., Marzinelli, E. M., Campbell, A. H., Bauman, A.G., Feary, D.A., Chou, L.M., dan Steinberg, P. D. 2016. 27 Years of Benthic and Coral Community Dynamics on Turbid, Highly Urbanised Reefs off Singapore. *Scientific Reports*. 6(1).

Harii, S., Kayanne, H., Takigawa, H., Hayashibara, T., dan Yamamoto, M. 2002. Larval Survivorship, Competency Periods and Settlement of Two Brooding Corals, *Heliopora coerulea* and *Pocillopora damicornis*. *Marine biology*. 141, 39-46.

Haris, A., Tahir, A., Burhanuddin, A. I., Samawi, M. F., Tambaru, R., Werorilangi, S., Arniati, dan Faizal, A. 2017. Sintasan Dan Pertumbuhan Transplantasi Karang Hias *Acropora* sp. Di Desa Tonyaman, Kecamatan Binuang, Kabupaten Polewali Mandar. *Jurnal Ilmu Kelautan Spermonde*. 3 (2), 1-8

Harrison, P. L., dela Cruz, D. W., Cameron, K. A., dan Cabaitan, P. C. 2021. Increased Coral Larval Supply Enhances Recruitment or Coral and Fish Habitat Restoration. *Frontiers in Marine Science*. 8, 750210.

Hoey, A. S., Pratchett, M. S., dan Cvitanovic, C. 2011. High Macroalgal Cover and Low Coral Recruitment Undermines the Potential Resilience of the World's Southernmost Coral Reef Assemblages. *PLoS One*. 6(10), e25824.

Kegler, P., Kegler, H. F., Gärdes, A., Ferse, S. C., Lukman, M., Alfiansah, Y. R., Hassenruck, C., dan Kunzmann, A. 2017. Bacterial Biofilm Communities and Coral Larvae Settlement at Different Levels of Anthropogenic Impact in the Spermonde Archipelago, Indonesia. *Frontiers in Marine Science*. 4, 270.

Kementerian Kelautan dan Perikanan. 2022. Kepmen KP Tentang Kawasan Konservasi di Perairan di Wilayah Kepulauan Balabalakang Provinsi Sulawesi Barat. Nomor 47 Tahun 2022. 47 Tahun 2022

Kenyon, T. M., Doropoulos, C., Dove, S., Webb, G. E., Newman, S. P., Sim, C. W., Arzan, M., dan Mumby, P. J. 2020. The Effects of Rubble Mobilisation on Coral Fragment Survival, Partial Mortality and Growth. *Journal of Experimental Marine Biology and Ecology*. 533, 151467.

Khadami, F., Tarya, A., Radjawane, I. M., Suprijo, T., Sujatmiko, K. A., Anwar, I. P., Hidayatullah, M.F., dan Erlangga, M. F. R. A. 2024. Understanding Two Decades of Turbidity Dynamics in a Coral Triangle Hotspot: The Berau Coastal Shelf. *Water*. 16(16), 2300.

King, E. V., Conley, D. C., Masselink, G., Leonardi, N., McCarroll, R. J., dan Scott, T. 2019. The Impact of Waves and Tides on Residual Sand Transport on a Sediment-Poor, Energetic, and Macrotidal Continental Shelf. *Journal of Geophysical Research: Oceans*. 124(7), 4974-5002.

Kuanui, P., Chavanich, S., Viyakarn, V., Omori, M., dan Lin, C. 2015. Effects of Temperature and Salinity on Survival Rate of Cultured Corals and Photosynthetic Efficiency of Zooxanthellae in Coral Tissues. *Ocean Science Journal*. 50, 263-268.

Kuanui, P., Chavanich, S., Viyakarn, V., Omori, M., Fujita, T., dan Lin, C. 2020. Effect of Light Intensity on Survival and Photosynthetic Efficiency of Cultured Corals of Different Ages. *Estuarine, Coastal and Shelf Science*. 235, 106515.

Lee, C. S., Walford, J., dan Goh, B. P. L. 2009. Adding Coral Rubble to Substrata Enhances Settlement of *Pocillopora damicornis* Larvae. *Coral Reefs*. 28, 529-533.

Maryam, M., Zainuddin, M., Priosambodo, D., Ambeng, A., dan Al Anshari, M. 2023. Analisis Pertumbuhan Hewan Karang Jenis Acropora sp. Pada Media Transplan Gantung Dan Spider. *BIOMA: Jurnal Biologi dan Pembelajarannya*. 5(2), 29-38.

MARS. 2021. Mars Assisted Reef Restoration System. Building Coral. Available from: https://www.buildingcoral.com/hope [Accessed on November 03rd 2024].

Menteri Negara KLH, 2004. Keputusan Menteri Negara Lingkungan Hidup No.51 Tahun 2004 Tentang Baku Mutu Air Laut Untuk Biota Laut. Jakarta, hal. 32.

Moberg, F., Nyström, M., Kautsky, N., Tedengren, M., dan Jarayabhand, P. 1997. Effects of Reduced Salinity on the Rates of Photosynthesis and Respiration in the Hermatypic Corals *Porites lutea* And *Pocillopora damicornis*. *Marine Ecology Progress* Series. 157, 53-59.

Munasik, M. 2005. Strategi Reproduksi Karang Pocillopora Damicornis Dalam Mempertahankan Keanekaragaman Hayati di Dataran Terumbu. Laporan Kegiatan Penelitian Dasar. Universitas Diponegoro.

Munasik, M., Suharsono, S., Situmorang, J., dan Kamiso, H.N. 2014. Kerapatan dan Kelulus hidupan pada Rekrutmen Karang *Pocillopora damicornis*. *Ilmu Kelautan*. 19(3):171–180

Nugroho, S., Rudi, F., Erigas, E., dan Dodo, G. 2019. Analisis Iklim Ekstrim Untuk Untuk Deteksi Perubahan Iklim di Sumatera Barat. *Jurnal Ilmu Lingkungan*. 17(1), 7-14.

Norström, A. V., Lokrantz, J., Nyström, M., dan Yap, H. T. 2007. Influence of Dead Coral Substrate Morphology on Patterns of Juvenile Coral Distribution. *Marine Biology*. 150, 1145-1152.

Palacios, M. M., Muñoz, C. G., dan Zapata, F. A. 2014. Fish Corallivory on a Pocilloporid Reef and Experimental Coral Responses to Predation. *Coral Reefs*. 33, 625-636.

Palupi, R. D., Siringoringo, R. M., dan Hadi, T. A. 2012. Status Rekruitmen Karang Scleractinia di Perairan Kendari Sulawesi Tenggara (Recruitment Status of Coral Scleractinian In Kendari Waters Southeast Sulawesi). *ILMU KELAUTAN: Indonesian Journal of Marine Sciences*. 17(3), 170-175.

Panggabean, A. S., dan Setiadji, B. 2017. Bentuk Pertumbuhan Karang Daerah Tertutup dan Terbuka di Perairan Sekitar Pulau Pamegaran, Teluk Jakarta. *BAWAL Widya Riset Perikanan Tangkap*. 3(4), 255-260.

Parenden, D., Jompa, J., dan Rani, C. 2021. Condition of Hard Corals and Quality of the Turbid Waters in Spermonde Islands (Case Studies in Kayangan Island, Samalona Island and Kodingareng Keke Island). *In IOP Conference Series: Earth and Environmental Science*. 921(1), 012060.

Parenden, D., Jompa, J., Renema, W., dan Tuhumena, J. R. 2023. Biodiversity of Hard Coral (Scleractinia) and Relation to Environmental Factors Turbid Waters in Spermonde Islands, South Sulawesi, Indonesia. *Biodiversitas Journal of Biological Diversity*. 24(9): 4635-4643

Parenden, D., Jompa, J., Renema, W., dan Tuhumena, J. R. 2024. Growth Rate and Survival of Hard Coral *Acropora* sp. In Turbid Waters Of The Spermonde Islands, South Sulawesi, Indonesia. *Biodiversitas Journal of Biological Diversity*. 24(9).

Pelasula, D. D., Patria, M. P., Wouthuyzen, S., dan Syahailatua, A. 2023. Key Success Factors and Problems in Coral Transplantation: A Review. *Aquaculture, Aquarium, Conservation & Legislation*. 16(1), 1-24.

Puspasari, R., Wiadnyana, N. N., Hartati, S. T., Rachmawati, R., dan Yahya, Y. 2020. The Effectiveness of Artificial Reefs in Improving Ecosystem Health to Increase Coral Reef Resilience. *Jurnal Segara*. 16(2), 115-126.

Rahman, A., Haris, A., dan Jamaluddin. 2014. Pola Rekrutmen Karang Scleractinia Pada Kondisi Lingkungan Berbeda. *Jurnal Sains dan Teknologi*. 14(30), 209-219.

Ramadhan, L. 2018. Kompetisi Organisme Sessile antara Karang Keras (Scleractinia) dan Makroalga di Perairan Cagar Alam Pulau Sempu, Malang. *Skripsi*. Universitas Brawijaya.

Rani, C. 2002. Reproduksi Seksual Karang: Suatu Peluang dan Tantangan Dalam Penelitian Biologi Laut di Indonesia. *Hayati*. 9(2), 62-66.

Rani, C dan Budimawan. 2006. Status Pengetahuan Reproduksi Seksual Karang *Acropora nobilis* dan *Pocillopora verrucosa* dari Perairan Indonesia. Torani. 16(6):450-459

Rani, C., Eidman, M., dan Arifin. 2011. Growth Response of the Stony Coral *Pocillopora verrucosa* Ellis & Solander which was Transplanted to Various Habitat Characteristics. *Jurnal Social Political Sciences*.

Rani, C., Tahir, A., Jompa, J., Faisal, A., Yusuf, S., Werorilangi, S., dan Arniati, A. 2017. Keberhasilan Rehabilitasi Terumbu Karang Akibat Peristiwa Bleaching Tahun 2016 dengan Teknik Transplantasi. *Jurnal Ilmu Kelautan SPERMONDE*. 3(1). 13-19

Reidenbach, M. A., Stocking, J. B., Szczyrba, L., dan Wendelken, C. 2021. Hydrodynamic Interactions with Coral Topography and its Impact on Larval Settlement. *Coral Reefs*. 40, 505-519.

Richmond, R. H. 1997. Reproduction and Recruitment in Corals: Critical Links in the Persistence of Reefs. *Life and death of coral reefs*. 175-197.

Rifai, A., Rochaddi, B., Fadika, U., Marwoto, J., dan Setiyono, H. 2020. Kajian Pengaruh Angin Musim Terhadap Sebaran Suhu Permukaan Laut (Studi Kasus: Perairan Pangandaran Jawa Barat). *Indonesian Journal of Oceanography*. 2(1), 98-104.

Röhrs, J., Sutherland, G., Jeans, G., Bedington, M., Sperrevik, A. K., Dagestad, K. F., Gusdal, Y., Mauritzen, C., Dale, A., dan LaCasce, J. H. 2023. Surface Currents in Operational Oceanography: Key Applications, Mechanisms, and Methods. *Journal of Operational Oceanography*. 16(1), 60-88.

Roth, S. K., Powell, A., Smith, D. J., Roth, F., dan Schierwater, B. 2018. The Highly Competitive Ascidian *Didemnum* sp. Threatens Coral Reef Communities in the Wakatobi Marine National Park, Southeast Sulawesi, Indonesia. *Regional Studies in Marine Science*. 24, 48-54.

Rotjan, R. D., dan Lewis, S. M. 2008. Impact of Coral Predators on Tropical Reefs. *Marine ecology progress series*. 367, 73-91.

Rudi, E., Soedharma, D., Sanusi, H. S., dan Pariwono, J. I. 2005. Affinitas Penempelan Larva Karang (Scleractinia) pada Substrat Keras. *Jurnal Ilmu-Ilmu Perairan dan Perikanan Indonesia*. 12(2), 129-137.

Salinas-de-León, P., Costales-Carrera, A., Zeljkovic, S., Smith, D. J., dan Bell, J. J. 2011. Scleractinian Settlement Patterns to Natural Cleared Reef Substrata and Artificial Settlement Panels on an Indonesian Coral Reef. *Estuarine, Coastal and Shelf Science*. 93(1), 80-85.

Sangaji, M. 2022. Macroalgae Abundance and Cover as Ecological Indicators of Coral Reef Management in the Waters of Katapang Village, West Seram Regency, Maluku Province. *International Journal of Science and Environment (IJSE)*. 2(4), 121-126.

Santiago-Valentín, J. D., Rodríguez-Troncoso, A. P., Carpizo-Ituarte, E., Benítez-Villalobos, F., Torres-Hernández, P., dan López-Pérez, A. 2015. Reproductive Pattern of the Reef-Building Coral *Pavona gigantea* (Scleractinia: Agariciidae) off Southwestern Mexico. *Ciencias Marinas*. 41(3), 233-246.

Sawall, Y., Jompa, J., Litaay, M., Maddusila, A., dan Richter, C. 2013. Coral Recruitment and Potential Recovery of Eutrophied and Blast Fishing Impacted Reefs in Spermonde Archipelago, Indonesia. *Marine Pollution Bulletin*. 74(1), 374-382.

Seveso, D., Montano, S., Strona, G., Orlandi, I., Galli, P., dan Vai, M. 2013. Exploring the Effect of Salinity Changes on the Levels of Hsp60 in the Tropical Coral *Seriatopora caliendrum*. *Marine environmental research*. 90, 96-103.

Suharsono, S., Siringoringo, R.M., Hadi, T.A., Giyanto, Tuti, Y., Budiyanto, A., dan Sulha, S. 2013. Perkembangan Teknik Transplantasi Karang di Indonesia. *Pusat Penelitian Oseanografi Lembaga Ilmu Pengetahuan Indonesia.* Jakarta.

Suryono, S., Ambariyanto, A., Munasik, M., Sugianto, D. N., Ario, R., Pratikto, I., Taufik, N., Canavaro S.V., dan Anggita, T. 2021. Hidrodinamika Gelombang Pada Terumbu Karang di Pulau Panjang, Jepara. *Buletin Oseanografi Marina*. 10(3), 307-318.

Thamrin, T. 2017. Karang Biologi Reproduksi & Ekologi. *UR Press*. Pekanbaru

Toh, T. C., Ng, C. S. L., Peh, J. W. K., Toh, K. B., dan Chou, L. M. 2014. Augmenting the Post-Transplantation Growth and Survivorship of Juvenile Scleractinian Corals Via Nutritional Enhancement. *PLoS One*. 9(6), e98529.

Veron, J.E.N. 2000. Corals of the world (3 volume). *Austalian Institute of Marine Science*. Townsville.

Yudha, A. P. P., Asriyanto, A., dan Pramonowibowo, P. 2017. Analisis Pengaruh Penggunaan Atraktor Cahaya Warna Merah dan Perbedaan Waktu Pengoperasian Alat Tangkap Bubu Karang Terhadap Hasil Tangkapan Ikan Kerapu (Epinephelinea) di Perairan Karimunjawa. *Jurnal Perikanan Tangkap: Indonesian Journal of Capture Fisheries*. 1(2).

Yusran, Y., Jamil, J., dan Azmi, M. 2022. Kehidupan Masyarakat Pulau Salissingan Sulawesi Barat (1994-2009). *Amarthapura: Historical Studies Journal*. 1(1), 14-22.

Yusuf, S., dan Jompa, J. 2012. First Quantitative Assessment of Coral Bleaching on Indonesian Reefs. *In Proceedings of the 12th International Coral Reef Symposium*. 9-13.

Yusuf, S., dan Rani, C. 2006. Environmental Characteristic of Ornamental Corals (Scleractinia) in the Spermonde Islands, South Sulawesi. *Torani Journal of Mar. Sci*. 4, 241-247.

Yusuf, S., Zamani, N. P., Jompa, J., dan Junior, M. Z. 2019. Larvae of the Coral *Acropora tenuis* (Dana 1846) Settle Under Controlled Light Intensity. *In IOP Conference Series: Earth and Environmental Science*. 253, 012023.

Yusuf, Syafyudin. 2012. Reproduksi Seksual Karang (Ordo Scleractinia): Pemijahan, Perkembangan Larva Dan Metamorfosa. *Disertasi*, Institut Pertanian Bogor.

LAMPIRAN

Lampiran 1. Hasil Pengukuran Parameter Lingkungan di Area Pengamatan Penelitian

Parameter Lingkungan	Stasiun	November			Desember			Januari			Februari		
		U1	U2	U3	U1	U2	U3	U1	U2	U3	U1	U2	U3
Suhu (^oC)	St. 1	31	31	31	31	31	30	30	30	30	30	30	30
	St. 2	31	31	31	30	30	30	30	30	30	30	30	30
	St. 3	31	31	31	31	30	30	30	30	30	30	30	30
	St. 4	31	31	31	30	31	30	30	30	30	30	30	30
Salinitas (ppt)	St. 1	33	33	33	33	33	33	30	30	30	33	33	33
	St. 2	33	33	33	33	33	33	31	30	30	33	33	33
	St. 3	33	33	33	33	33	33	30	31	30	33	33	33
	St. 4	33	33	33	33	33	33	30	30	30	33	33	33
Kekeruhan (NTU)	St. 1	0,02	0,05	0,1	0,93	0,99	0,58	0,19	0,16	0,05	1,78	1,43	1,25
	St. 2	0,26	0,15	0,35	0,02	0	0	1,38	2,1	1,57	0,14	1,05	0,11
	St. 3	0,85	1	0,62	0	0	0,03	3,08	2,03	2,77	0,11	0,72	0,19
	St. 4	0,91	0,74	0,4	0	0	0,04	2,2	2,36	2,15	0,3	0,3	0,5
Kec. Arus (meter/detik)	St. 1	0,075	0,069	0,071	0,096	0,088	0,098	0,091	0,088	0,085	0,111	0,132	0,128
	St. 2	0,079	0,076	0,068	0,091	0,083	0,075	0,083	0,082	0,088	0,132	0,125	0,114
	St. 3	0,079	0,065	0,065	0,089	0,093	0,094	0,082	0,074	0,075	0,139	0,135	0,143
	St. 4	0,067	0,064	0,065	0,089	0,082	0,078	0,076	0,083	0,085	0,119	0,111	0,128
Int. Cahaya (Lux)	St. 1	4628	3184	5499	3457	3189	3045	2345	1930	1670	1320	1190	970
	St. 2	4743	4345	4382	2970	3112	3406	1780	1754	1938	1209	920	1240
	St. 3	5764	5387	4812	3124	3674	3468	1956	1894	1663	1201	1448	1253
	St. 4	5674	6371	4982	3694	3456	3823	1754	1673	1799	1630	1450	1630

Sumber: Data milik pribadi

Lampiran 2. Kondisi Tutupan Bentik

Major Category (% of Transect)	Stasiun 1			Stasiun 2			Stasiun 3			Stasiun 4		
	U1	U2	U3	U1	U2	U3	U1	U2	U3	U1	U2	U3
Coral (HC)	17,56	17,22	11,78	27,78	25,56	25,00	10,28	45,00	30,28	81,11	85,68	88,89
Dead Coral (DC)	7,44	8,33	12,22	7,78	7,78	6,67	39,31	9,17	2,92	9,17	6,54	8,19
DC Algae (DCA)	0,00	0,00	0,00	0,00	2,22	0,00	0,00	0,00	0,00	0,28	0,28	0,00
Soft Coral (SC)	1,11	3,33	3,89	0,00	1,67	0,00	0,00	0,00	1,25	0,00	0,00	0,00
Macroalgae (MA)	0,00	0,00	0,00	0,00	0,00	0,00	0,14	10,14	9,44	6,53	5,28	1,94
Other Biota (OT)	3,00	3,33	3,89	0,00	3,89	7,22	0,00	0,56	0,00	2,36	1,94	0,83
Rubble (R)	12,78	16,11	10,00	29,44	35,56	30,56	43,75	28,61	56,11	0,56	0,28	0,00
Sand (S)	58,11	51,67	58,22	35,00	23,33	30,56	6,53	6,53	0,00	0,00	0,00	0,14
Summary	100	100	100	100	100	100	100	100	100	100	100	100

Sumber: Data milik pribadi

Lampiran 3. Hasil Jumlah Jenis dan komposisi Rekrutmen Karang

Jenis	Stasiun 1		Stasiun 2		Stasiun 3		Stasiun 4		Total	
	Ind/m^2	%	Ind/m^2	%	Ind/m^2	%	Ind/m^2	%	Ind.m^2	%
Pocillopora	1,88	78,6	5,12	73,2	0,33	7,8	0	0,00	7,33	39,9
Stylopora	0,34	14,3	1,54	21,9	0,55	12	0,11	6,90	2,54	14,0
Seriatopora	0	0,00	0	0,00	1,16	27,3	0,28	17,2	1,44	11,1
Acropora	0,17	7,14	0	0,00	0,72	16,9	0,39	24,1	1,28	12,0
Montipora	0	0,00	0,34	4,88	0,28	6,49	0,50	31,0	1,12	10,6
Porites	0,00	0,00	0,00	0,00	0,88	20,8	0,00	0,00	0,89	5,2
Goniastrea	0,00	0,00	0,00	0,00	0,22	5,19	0,00	0,00	0,22	1,3
Pavona	0,00	0,00	0,00	0,00	0,06	1,30	0,00	0,00	0,06	0,3
Favites	0,00	0,00	0,00	0,00	0,00	0,00	0,28	17,2	0,28	4,3
Galaxea	0,00	0,00	0,00	0,00	0,06	1,30	0,06	3,45	0,11	1,2
TOTAL	2,39	100	6,99	100	4,28	100	1,61	100	15,3	100

Sumber: Data milik pribadi

Lampiran 4. Hasil Pengukuran Parameter Lingkungan di Area Pengamatan Penelitian

Stasiun	Kepadatan (ind/meter)			
	U1	U2	U3	U4
1	2,047	5,117	4,500	1,167
2	2,558	8,187	3,167	1,667
3	2,558	7,675	5,167	2,000
Rata-rata	2,388	6,993	4,278	1,611

Sumber: Data milik pribadi

Lampiran 5. Uji Statistik Tutupan Karang Hidup

Tests of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	STASIUN	Statistic	df	Sig.	Statistic	df	Sig.
TUTUPAN	Stasiun 1	,367	3	.	,793	3	,098
	Stasiun 2	,314	3	.	,893	3	,363
	Stasiun 3	,207	3	.	,992	3	,833
	Stasiun 4	,213	3	.	,990	3	,806

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

TUTUPAN

Levene Statistic	df1	df2	Sig.
3,534	3	8	,068

ANOVA

TUTUPAN

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	8892,864	3	2964,288	35,747	,000
Within Groups	663,394	8	82,924		
Total	9556,258	11			

TUTUPAN

			Subset for alpha = 0.05	
	STASIUN	N	1	2
Student-Newman-Keuls[a]	Stasiun 1	3	15,51852	
	Stasiun 2	3	26,11111	
	Stasiun 3	3	28,51852	
	Stasiun 4	3		85,22792
	Sig.		,247	1,000

Lampiran 6. Uji Statistik Pasir

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stasiun_1	,380	3	.	,763	3	,028
Stasiun_2	,229	3	.	,981	3	,739
Stasiun_3	,385	3	.	,750	3	,001
Stasiun_4	,385	3	.	,750	3	,000

a. Lilliefors Significance Correction

Test Statistics[a,b]

	TUTUPAN
Chi-Square	9,804
df	3
Asymp. Sig.	,020

a. Kruskal Wallis Test

Each node shows the sample average rank of STASIUN.

Sample1-Sample2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj.Sig.
Stasiun 4-Stasiun 3	1,667	2,923	,570	,569	1,000
Stasiun 4-Stasiun 2	5,333	2,923	1,824	,068	,409
Stasiun 4-Stasiun 1	8,333	2,923	2,851	,004	,026
Stasiun 3-Stasiun 2	3,667	2,923	1,254	,210	1,000
Stasiun 3-Stasiun 1	6,667	2,923	2,281	,023	,135
Stasiun 2-Stasiun 1	3,000	2,923	1,026	,305	1,000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.
Asymptotic significances (2-sided tests) are displayed. The significance level is ,05.

Lampiran 7. Uji Statistik Pecahan Karang

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stasiun_1	,191	3	.	,997	3	,900
Stasiun_2	,321	3	.	,881	3	,328
Stasiun_3	,193	3	.	,997	3	,889
Stasiun_4	,175	3	.	1,000	3	,991

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

TUTUPAN

Levene Statistic	df1	df2	Sig.
3,354	3	8	,076

ANOVA

TUTUPAN

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	3252,474	3	1084,158	20,676	,000
Within Groups	419,486	8	52,436		
Total	3671,959	11			

TUTUPAN

			Subset for alpha = 0.05	
	STASIUN	N	1	2
Student-Newman-Keuls[a]	Stasiun 4	3	,27926	
	Stasiun 1	3	12,96296	
	Stasiun 2	3		31,85185
	Stasiun 3	3		42,82407
	Sig.		,064	,101

Lampiran 8. Uji Statistik Tutupan Karang Mati

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stasiun_1	,320	3	.	,884	3	,336
Stasiun_2	,385	3	.	,750	3	,000
Stasiun_3	,325	3	.	,874	3	,308
Stasiun_4	,234	3	.	,978	3	,717

a. Lilliefors Significance Correction

Ranks

	STASIUN	N	Mean Rank
TUTUPAN	Stasiun 1	3	7,67
	Stasiun 2	3	4,67
	Stasiun 3	3	7,33
	Stasiun 4	3	6,33
	Total	12	

Test Statistics[a,b]

	TUTUPAN
Chi-Square	1,261
df	3
Asymp. Sig.	,738

a. Kruskal Wallis Test

b. Grouping Variable:

Lampiran 9. Uji Statistik Tutupan DCA

Tests of Normality[a,c]

	Kolmogorov-Smirnov[b]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stasiun_2	,385	3	.	,750	3	,000
Stasiun_4	,382	3	.	,756	3	,013

a. Stasiun_1 is constant. It has been omitted.

b. Lilliefors Significance Correction

c. Stasiun_3 is constant. It has been omitted.

Ranks

	STASIUN	N	Mean Rank	Sum of Ranks
TUTUPAN	Stasiun 2	3	3,33	10,00
	Stasiun 4	3	3,67	11,00
	Total	6		

Test Statistics[a]

	TUTUPAN
Mann-Whitney U	4,000
Wilcoxon W	10,000
Z	-,232
Asymp. Sig. (2-tailed)	,817
Exact Sig. [2*(1-tailed Sig.)]	1,000[b]

a. Grouping Variable: STASIUN

b. Not corrected for ties.

Lampiran 10. Uji Statistik Karang Lunak

Tests of Normality[b]

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stasiun_1	,314	3	.	,893	3	,363
Stasiun_2	,385	3	.	,750	3	,000
Stasiun_3	,385	3	.	,750	3	,000

a. Lilliefors Significance Correction

b. Stasiun_4 is constant. It has been omitted.

Ranks

	STASIUN	N	Mean Rank
TUTUPAN	Stasiun 1	3	7,33
	Stasiun 2	3	4,00
	Stasiun 3	3	3,67
	Total	9	

Test Statistics[a,b]

	TUTUPAN
Chi-Square	3,588
df	2
Asymp. Sig.	,166

a. Kruskal Wallis Test

b. Grouping Variable: STASIUN

Lampiran 11. Uji Statistik Makroalga

Tests of Normality[a,b]

	Kolmogorov-Smirnov[c]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stasiun_3	,363	3	.	,802	3	,119
Stasiun_4	,282	3	.	,936	3	,511

a. Stasiun_1 is constant. It has been omitted.

b. Stasiun_2 is constant. It has been omitted.

c. Lilliefors Significance Correction

Group Statistics

	Stasiun	N	Mean	Std. Deviation	Std. Error Mean
Tutupan	Stasiun 3	3	6,57407	5,583840	3,223832
	Stasiun 4	3	4,58407	2,370179	1,368423

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Tutupan	Equal variances assumed	4,227	,109	,568	4	,600	1,990000	3,502238	-7,733772	11,713772
	Equal variances not assumed			,568	2,698	,614	1,990000	3,502238	-9,895696	13,875696

Lampiran 12. Uji Statistik Biota Lain

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stasiun_1	,232	3	.	,980	3	,726
Stasiun_2	,187	3	.	,998	3	,915
Stasiun_3	,385	3	.	,750	3	,000
Stasiun_4	,282	3	.	,935	3	,509

a. Lilliefors Significance Correction

Test Statistics[a,b]

	TUTUPAN
Chi-Square	5,833
df	3
Asymp. Sig.	,120

a. Kruskal Wallis Test

b. Grouping Variable: STASIUN

Lampiran 13. Uji Statistik Banyak Jenis

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stasiun_1	,175	3	.	1,000	3	1,000
Stasiun_2	,175	3	.	1,000	3	1,000
Stasiun_3	,175	3	.	1,000	3	1,000
Stasiun_4	,253	3	.	,964	3	,637

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

Kepadatan

Levene Statistic	df1	df2	Sig.
,400	3	8	,757

ANOVA

Kepadatan

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	34,250	3	11,417	8,562	,007
Within Groups	10,667	8	1,333		
Total	44,917	11			

Kepadatan

Student-Newman-Keuls[a]

		Subset for alpha = 0.05	
STASIUN	N	1	2
Stasiun 1	3	2,00000	
Stasiun 2	3	2,00000	
Stasiun 4	3	4,33333	4,33333
Stasiun 3	3		6,00000
Sig.		,088	,115

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

Lampiran 14. Uji Statistik Kepadatan Karang

Tests of Normality

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Stasiun_1	,385	3	.	,750	3	,000
Stasiun_2	,327	3	.	,871	3	,298
Stasiun_3	,253	3	.	,964	3	,637
Stasiun_4	,219	3	.	,987	3	,780

a. Lilliefors Significance Correction

Ranks

	Stasiun	N	Mean Rank
Kepadatan	Stasiun 1	3	5,00
	Stasiun 2	3	10,67
	Stasiun 3	3	8,33
	Stasiun 4	3	2,00
	Total	12	

Test Statistics[a,b]

	Kepadatan
Kruskal-Wallis H	10,009
df	3
Asymp. Sig.	,018

a. Kruskal Wallis Test

b. Grouping Variable: Stasiun

Pairwise Comparisons of Stasiun

Sample 1-Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.[a]
Stasiun 4-Stasiun 1	3,000	2,939	1,021	,307	1,000
Stasiun 4-Stasiun 3	6,333	2,939	2,155	,031	,187
Stasiun 4-Stasiun 2	8,667	2,939	2,949	,003	,019
Stasiun 1-Stasiun 3	-3,333	2,939	-1,134	,257	1,000
Stasiun 1-Stasiun 2	-5,667	2,939	-1,928	,054	,323
Stasiun 3-Stasiun 2	2,333	2,939	,794	,427	1,000

Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same.

Asymptotic significances (2-sided tests) are displayed. The significance level is ,050.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Lampiran 15. Gambar Jenis Karang yang ditemui

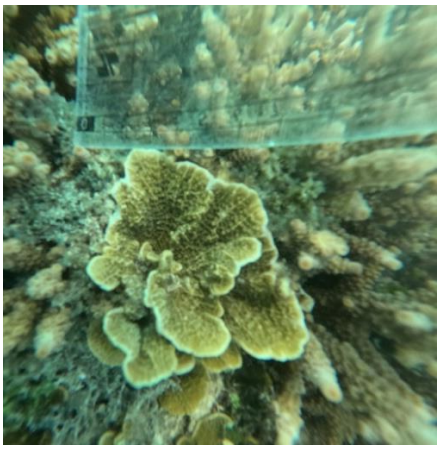
Pocillopora sp.

Stylopora sp.

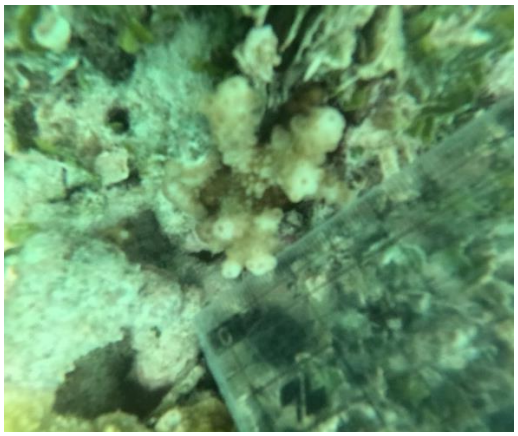
Favites sp.

Seriatopora sp.

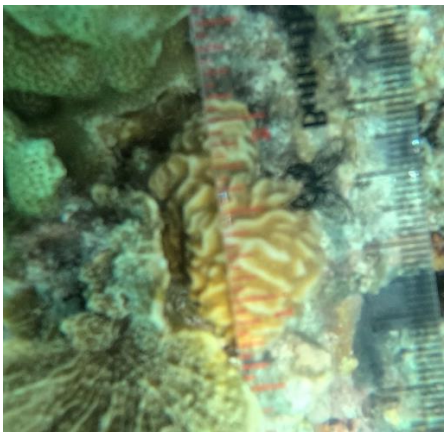
Galaxea sp.



Montipora sp.



Acropora sp.



Pavona sp.

Porites sp.

Montipora sp.

Lampiran 16. Input dan output PCA

1. Input Data PCA

Stasiun	Jumlah Jenis	Kepadatan (ind/m2)	Kecepatan Arus (m/s)	Suhu (˚C)	Salinitas (ppt)	Kekeruhan (NTU)	Intensitas Cahaya (lux)	Karang Hidup	Karang Mati	Rubble	Pasir
1	3	2,39	0,09	30,42	33,00	0,63	2702,25	15,52	9,33	12,96	56,00
2	3	6,99	0,09	30,25	32,33	0,59	2649,92	26,11	7,41	31,85	29,63
3	9	4,28	0,09	30,33	32,33	0,95	2970,33	28,52	17,13	42,82	4,35
4	6	1,61	0,09	30,33	32,25	0,83	3161,33	85,23	7,97	0,28	0,05

2. Output Data PCA

Variables	Jumlah Jenis	Kepadatan (ind/m2)	Kecepatan Arus (m/s)	Suhu (˚C)	Salinitas (ppt)	Kekeruhan (NTU)	Intensitas Cahaya (lux)	Karang Hidup	Karang Mati	Rubble	Pasir
Jumlah Jenis	1	-0,187	0,077	0,000	-0,519	0,988	0,712	0,285	0,836	0,366	-0,791
Kepadatan (ind/m2)	-0,187	1	0,225	-0,785	-0,307	-0,325	-0,614	-0,506	0,015	0,745	0,086
Kecepatan Arus (m/s)	0,077	0,225	1	0,386	0,583	-0,012	-0,550	-0,903	0,611	0,642	0,511
Suhu (˚C)	0,000	-0,785	0,386	1	0,779	0,081	0,089	-0,138	0,174	-0,406	0,416
Salinitas (ppt)	-0,519	-0,307	0,583	0,779	1	-0,496	-0,544	-0,588	-0,115	-0,212	0,892
Kekeruhan (NTU)	0,988	-0,325	-0,012	0,081	-0,496	1	0,802	0,394	0,772	0,220	-0,807
Intensitas Cahaya (lux)	0,712	-0,614	-0,550	0,089	-0,544	0,802	1	0,851	0,248	-0,359	-0,838
Karang Hidup	0,285	-0,506	-0,903	-0,138	-0,588	0,394	0,851	1	-0,280	-0,634	-0,708
Karang Mati	0,836	0,015	0,611	0,174	-0,115	0,772	0,248	-0,280	1	0,672	-0,355

Rubble	0,366	0,745	0,642	-0,406	-0,212	0,220	-0,359	-0,634	0,672	1	-0,083
Pasir	-0,791	0,086	0,511	0,416	0,892	-0,807	-0,838	-0,708	-0,355	-0,083	1

Values in bold are different from 0 with a significance level alpha=0,95