

## DAFTAR PUSTAKA

- Asriani, N., Ambo-Rappe, R., Lanuru, M., & Williams, S. L. (2019). Macrozoobenthos community structure in restored seagrass, natural seagrass and seagrassless areas around Badi Island, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 253(1), 1–7. <https://doi.org/10.1088/1755-1315/253/1/012034>
- Begon, M., & Townsend, C. R. (2005). *Ecology: From Individuals to Ecosystems*. Blackwell Publishing. <https://doi.org/10.1111/j.1365-2427.2006.01586.x>
- Berezina, N. A. (2001). Influence of ambient pH on freshwater invertebrates under experimental conditions. *Russian Journal of Ecology*, 32(5), 343–351. <https://doi.org/10.1023/A:1011978311733>
- Boyd, S. E., Rees, H. L., & Richardson, C. A. (2000). Nematodes as sensitive indicators of change at dredged material disposal sites. *Estuarine, Coastal and Shelf Science*, 51(6), 805–819. <https://doi.org/10.1006/ecss.2000.0722>
- Brun, F. G., Cobo-Díaz, J. F., González-Ortiz, V., Varela, J. L., Pérez-Lloréns, J. L., & Vergara, J. J. (2021). Seagrass patch complexity affects macroinfaunal community structure in intertidal areas: An in situ experiment using seagrass mimics. *Diversity*, 13(11). <https://doi.org/10.3390/d13110572>
- Collins, K. J., Suonpää, A. M., & Mallinson, J. J. (2010). The impacts of anchoring and mooring in seagrass, Studland Bay, Dorset, UK. *Underwater Technology*, 29(3), 117–123. <https://doi.org/10.3723/ut.29.117>
- Della Patrona, L., Bianchelli, S., Beliaeff, B., & Pusceddu, A. (2012). Meiobenthos in earthen ponds used for semi-intensive shrimp farming (New Caledonia, South Pacific). *Chemistry and Ecology*, 28(6), 506–523. <https://doi.org/10.1080/02757540.2012.704914>
- Figueiredo, B. R. S., Mormul, R. P., Chapman, B. E. N. B., & Lolis, L. A. (2016). *Turbidity amplifies the non-lethal effects of predation and affects the foraging success of characid fish shoals*. 6(1), 293–300. <https://doi.org/10.1111/fwb.12703>
- Franzo, A., Celussi, M., Cibic, T., Del Negro, P., & De Vittor, C. (2011). Effects of CO<sub>2</sub> induced pH decrease on shallow benthic microbial communities. *EAGE / SEG Summer Research Workshop 2011: Towards a Full Integration from Reservoir Simulation*, 2–6. <https://doi.org/10.3997/2214-59>
- García-Herrero, Á., Sánchez, N., Pardos, F., Izquierdo-Muñoz, D., & Martínez, A. (2022a). Meiofauna is an important, yet component of biodiversity of *Posidonia oceanica*. *Invertebrate* 2), 1–16. <https://doi.org/10.1111/ivb.12377>



- García-Gómez, G., García-Herrero, Á., Sánchez, N., Pardos, F., Izquierdo-Muñoz, A., Fontaneto, D., & Martínez, A. (2022b). Meiofauna is an important, yet often overlooked, component of biodiversity in the ecosystem formed by *Posidonia oceanica*. *Invertebrate Biology*, 141(2), 1–16. <https://doi.org/10.1111/ivb.12377>
- Grass, S., & Beach, I. (2008). Hubungan Antara Kelimpahan Meiofauna Dengan Tingkatan Kerapatan Lamun Yang Berbeda Di Pantai Pulau Panjang Jepara. *SAINTEK PERIKANAN: Indonesian Journal of Fisheries Science and Technology*, 4(1), 35–41. <https://doi.org/10.14710/ijfst.4.1.35-41>
- Gunarto. (2006). Apakah Nilai Reduksi dan Oksidasi Potensial Sedimen Tambak Berpengaruh Terhadap Produksi Udang Windi di Tambak. In *Media Akuakultur* (Vol. 1, Issue 3, pp. 91–96).
- Hanum, F., Sarong, M. A., & Chitra, O. (2017). Distribusi Dan Kelimpahan Meiofauna Di Perairan Kuala Jeumpa Kecamatan Jeumpa, Kabupaten Bireuen. *Jurnal Ilmiah Mahasiswa Kelautan Dan Perikanan Unsyiah*, 2(1), 50–57. <https://doi.org/https://jim.usk.ac.id/fkp/article/view/2522>
- Hardison, S. B., McGlathery, K. J., & Castorani, M. C. N. (2023). Effects of seagrass restoration on coastal fish abundance and diversity. *Conservation Biology*, 37(6), 1–12. <https://doi.org/10.1111/cobi.14147>
- Hoste, E., Vanhove, S., Schewe, I., Soltwedel, T., & Vanreusel, A. (2007). Spatial and temporal variations in deep-sea meiofauna assemblages in the Marginal Ice Zone of the Arctic Ocean. *Deep-Sea Research Part I: Oceanographic Research Papers*, 54(1), 109–129. <https://doi.org/10.1016/j.dsr.2006.09.007>
- Iburg, S., Izabel-Shen, D., Austin, Å. N., Hansen, J. P., Eklöf, J. S., & Nascimento, F. J. A. (2021). Effects of Recreational Boating on Microbial and Meiofauna Diversity in Coastal Shallow Ecosystems of the Baltic Sea. *MSphere*, 6(5), 1–18. <https://doi.org/10.1128/msphere.00127-21>
- Ingels, J., Zeppilli, D., & Giere, O. (2023). Meiofauna—Adapted to Life at the Limits. *New Horizons in Meiobenthos Research: Profiles, Patterns and Potentials*, 31(3), 363–400. [https://doi.org/10.1007/978-3-031-21622-0\\_11](https://doi.org/10.1007/978-3-031-21622-0_11)
- Kadir, N. N., La Nafie, Y. A., & Priosambodo, D. (2022). Seagrass density correlates with burrow abundance and size in the Zebra Mantis Shrimp (Stomatopoda: Lysiosquillidae). *Revista de Biologia Tropical*, 70(1), 688–701. <https://doi.org/10.15517/rev.biol.trop.2022.46811>
- Kim, D. (2023). *Characteristics of meiofaunal community in the subtidal zone near the acidifying ocean acidification in the East Sea of Korea*. 12(1), 1–23. <https://doi.org/10.21203/rs.3.rs-3034005/v1>
- Leffler, S., & Hose, G. C. (2019). Sediment size influences habitat use by groundwater macrofauna and meiofauna. *Aquatic Science and Fisheries Management*, 1(1), 1–10. <https://doi.org/10.1007/s00027-019-0636-1>



- Lagos, A. M., Leon, M. V., Colorado, A., Giraldo, D., Fragozo, L., Quiroga, S. Y., & Martínez, A. (2023). Effects of microplastics pollution on the abundance and composition of interstitial meiofauna. *Revista de Biología Tropical*, 71(1), 1–20. <https://doi.org/10.15517/rev.biol.trop.v71i1.50031>
- Lin, H. L., Lui, H. K., Lin, T. C., & Wang, Y. L. (2022). Response of planktonic foraminifera to seasonal and interannual hydrographic changes: Sediment trap record from the northern South China Sea. *Frontiers in Earth Science*, 10(August 2019), 1–13. <https://doi.org/10.3389/feart.2022.928115>
- Ling, J., Zhou, W., Yang, Q., Yin, J., Zhang, J., Peng, Q., Huang, X., Zhang, Y., & Dong, J. (2021). Spatial and species variations of bacterial community structure and putative function in seagrass rhizosphere sediment. *Life*, 11(8), 1–17. <https://doi.org/10.3390/life11080852>
- Lokko, K., Kotta, J., Orav-Kotta, H., Nurkse, K., & Pärnoja, M. (2018). Introduction of a functionally novel consumer to a low diversity system: Effects of the mud crab *Rhithropanopeus harrisi* on meiobenthos. *Estuarine, Coastal and Shelf Science*, 201(2015), 132–139. <https://doi.org/10.1016/j.ecss.2015.11.017>
- Luff, A. L., Sheehan, E. V., Parry, M., & Higgs, N. D. (2019). A simple mooring modification reduces impacts on seagrass meadows. *Scientific Reports*, 9(1), 1–10. <https://doi.org/10.1038/s41598-019-55425-y>
- Maciute, A., Holovachov, O., Glud, R. N., Broman, E., Berg, P., Nascimento, F. J. A., & Bonaglia, S. (2023). Reconciling the importance of meiofauna respiration for oxygen demand in muddy coastal sediments. *Limnology and Oceanography*, 68(8), 1895–1905. <https://doi.org/10.1002/lno.12393>
- Marchand, C. (2017). Soil carbon stocks and burial rates along a mangrove forest chronosequence (French Guiana). *Forest Ecology and Management*, 384, 92–99. <https://doi.org/10.1016/j.foreco.2016.10.030>
- Mashoreng, S., Hatta, M., & Tambaru, R. (2022). *Changes In Nitrate And Phosphate Concentrations In Sediments As The Impact Of Beach Damage Due To Ship*. 14(1), 15–24. <https://doi.org/10.56064/maspari.v14i1.15813>
- Mohammad, D. A. (2022). Meiobenthic Community Structure in Some Seagrass Beds in the Southern Egyptian Red Sea Coast with Special Reference to Free Living Nematodes. *Egyptian Journal of Aquatic Biology and Fisheries*, 26(6), 525–542. <https://doi.org/10.21608/ejabf.2022.273378>
- Mokievskii, V. O., Udalov, A. A., & Azovskii, A. I. (2007). Quantitative distribution of meiofauna in deep-water zones of the World Ocean. *Oceanology*, 47(6), 797–806. <https://doi.org/10.1134/S0001437007060057>
- Polunsky, Z., & Iluz, D. (2017). Meiobenthos Assemblages as Bioindicators for Coastal Pollution Assessment. *Open Journal of Marine Biology*, 3(3), 409–423. <https://doi.org/10.4236/ojms.2017.73028>



- Mouawad, R., Khalaf, G., & Salameh, Y. (2009). Impact of phosphogypsum and other factory effluents on meiofauna communities of batroun coastal region. *Lebanese Science Journal*, pp 23-34. <https://doi.org/https://www.doi.org/10.1201/9780849380525-5>
- Murphy, G. E. P., Kelly, N. E., Lotze, H. K., & Wong, M. C. (2022). Incorporating anthropogenic thresholds to improve understanding of cumulative effects on seagrass beds. *Facets*, 7(2022), 966–987. <https://doi.org/10.1139/facets-2021-0130>
- Najamuddin, N., Tahir, I., Paembonan, R. E., & Inayah, I. (2020). Pengaruh Karakteristik Sedimen terhadap Distribusi dan Akumulasi Logam Berat Pb dan Zn di Perairan Sungai, Estuaria, dan Pantai. *Jurnal Kelautan Tropis*, 23(1), 1. <https://doi.org/10.14710/jkt.v23i1.5315>
- Nascimento, F. J. A., Dahl, M., Deyanova, D., Lyimo, L. D., Bik, H. M., Schuelke, T., Pereira, T. J., Björk, M., Creer, S., & Gullström, M. (2019). Above-below surface interactions mediate effects of seagrass disturbance on meiobenthic diversity, nematode and polychaete trophic structure. *Communications Biology*, 2(1), 1–13. <https://doi.org/10.1038/s42003-019-0610-4>
- Neira, C., Ingels, J., Mendoza, G., Hernandez-Lopez, E., & Levin, L. A. (2018). Distribution of meiofauna in bathyal sediments influenced by the oxygen minimum zone off Costa Rica. *Frontiers in Marine Science*, 5(DEC), 1–17. <https://doi.org/10.3389/fmars.2018.00448>
- Neira, C., King, I., Mendoza, G., Sellanes, J., De Ley, P., & Levin, L. A. (2013). Nematode community structure along a central Chile margin transect influenced by the oxygen minimum zone. *Deep-Sea Research Part I: Oceanographic Research Papers*, 78, 1–15. <https://doi.org/10.1016/j.dsr.2013.04.002>
- Neira, C., Sellanes, J., Levin, L. A., & Arntz, W. E. (2001). Meiofaunal distributions on the Peru margin: Relationship to oxygen and organic matter availability. *Deep-Sea Research Part I: Oceanographic Research Papers*, 48(11), 2453–2472. [https://doi.org/10.1016/S0967-0637\(01\)00018-8](https://doi.org/10.1016/S0967-0637(01)00018-8)
- Pan, Y., Li, G., Su, L., Zheng, P., Wang, Y., Shen, Z., & Chen, Z. (2022). *Seagrass Colonization Alters Diversity , Abundance , Taxonomic , and Functional Community Structure of Benthic Microbial Eukaryotes*. 13(June), 1–15. <https://doi.org/10.3389/fmicb.2022.901741>
- Pruckner, S., Bedford, J., Murphy, L., Turner, J. A., & Mills, J. (2022). Adapting to heatwave-induced seagrass loss: Prioritizing management areas through sensitivity mapping. *Estuarine, Coastal and Shelf Science*, 7857. <https://doi.org/10.1016/j.ecss.2022.107857>
- , Z., Kim, S. H., & Lee, K. S. (2021). Growth and reproductive the seagrass *Zostera marina* to sediment nutrient enrichment. *Journal of Marine Science*, 78(3), 1160–1173. <https://doi.org/10.1093/icesjms/fsab031>



- Quintana, C. O., Yoshinaga, M. Y., & Sumida, P. Y. G. (2010). Benthic responses to organic matter variation in a subtropical coastal area off SE Brazil. *Marine Ecology*, 31(3), 457–472. <https://doi.org/10.1111/j.1439-0485.2010.00362.x>
- Radziejewska, T. (2014). *Meiobenthos of the Sub-equatorial North-Eastern Pacific Abyssal Seafloor: A Synopsis*. [https://doi.org/10.1007/978-3-642-41458-9\\_3](https://doi.org/10.1007/978-3-642-41458-9_3)
- Rahman, R., Mashoreng, S., & Lanuru, M. (2019). Struktur Komunitas Meiobentos Pada Beberapa Tingkat Tutupan Lamun Enhalus acoroides di Perairan Pesisir Labakkang dan Pulau Balang Lompo. *Skripsi*, 1–36.
- Raynusha, C., Rozaimi, M., Omar, R., Faiz, N. N., Hesani, N. M., Hanis, S. N., Abdullah, S. A., & Izzati, E. (2020). Species composition and habitat preferences of benthic ostracod and foraminifera in seagrass and non-seagrass systems within a tropical estuary. *Journal of the Marine Biological Association of the United Kingdom*, 100(8), 1229–1246. <https://doi.org/10.1017/S0025315420001162>
- Rizqydiani, M., Ismet, M., & Bengen, D. g. (2018). Diversity of meiofauna and its association to seagrass beds characteristics in Pramuka Island, Seribu Islands. *Earth and Environmental Science*, 176(2), 1–9. <https://doi.org/10.1088/1755-1315/176/1/012045>
- Rodil, I. F., Lohrer, A. M., Attard, K. M., Thrush, S. F., & Norkko, A. (2022). Positive contribution of macrofaunal biodiversity to secondary production and seagrass carbon metabolism. *Ecology*, 103(4), 1–13. <https://doi.org/10.1002/ecy.3648>
- Rosli, N., Leduc, D., Rowden, A. A., Clark, M. R., Keith Probert, P., Berkenbusch, K., & Neira, C. (2016). Differences in meiofauna communities with sediment depth are greater than habitat effects on the New Zealand continental margin: Implications for vulnerability to anthropogenic disturbance. *PeerJ*, 2016(7). <https://doi.org/10.7717/peerj.2154>
- Sabrianto, E. W., Irawan, H., & Idris, F. (2012). Hubungan Kedalaman Sedimen Terhadap Kelimpahan Meiofauna di Pesisir Desa Teluk Bakau. *Jurnal Lingkungan*, 1(1), 1–18.
- Särkkä, J., & Paasivirta, L. (1972). Vertical distribution and abundance of the macro- and meiofauna in the profundal sediments of Lake Pääjärne, Finland. *Annales Zoologici Fennici*, 9(1), 1–9.
- Schratzberger, M., & Ingels, J. (2018). Meiofauna matters: The roles of meiofauna in benthic ecosystems. *Journal of Experimental Marine Biology and Ecology*, 502, 18–25. <https://doi.org/10.1016/j.jembe.2017.01.007>
- Schramm, C. J. E. (2018). Loss of seagrass results in changes to benthic community structure and decreased secondary production. *Bulletin of Marine Science*, 94(4), 1273–1292. <https://doi.org/10.5343/bms.2017.1011>



- Sergeeva, N. G., & Gulin, M. B. (2007). Meiobenthos from an active methane seepage area in the NW Black Sea. *Marine Ecology*, 28(1), 152–159. <https://doi.org/10.1111/j.1439-0485.2006.00143.x>
- Sevastou, K., Lampadariou, N., Mouriki, D., Tselepides, A., & Arbizu, P. M. (2019). Meiofaunal distribution in the Levantine Basin (Eastern Mediterranean): Spatial variability at different scales, depths and distance-to-coast. *Deep-Sea Research Part II*, 976(2), 1–10. <https://doi.org/10.1016/j.dsr2.2019.104635>
- Sharma, J. (2023). New Horizons in Meiobenthos Research: Profiles, Patterns and Potentials. *The Bulletin of the Ecological Society of America*, 104(3), 2–3. <https://doi.org/10.1002/bes2.2088>
- Shimabukuro, M., Zeppilli, D., Leduc, D., Wenzhöfer, F., Berg, P., Rowden, A. A., & Glud, R. N. (2022). Intra- and inter-spatial variability of meiofauna in hadal trenches is linked to microbial activity and food availability. *Scientific Reports*, 12(1), 1–11. <https://doi.org/10.1038/s41598-022-08088-1>
- Sulphayrin, Ola, L. O. La, & Arami, H. (2018). Komposisi dan Jenis Makrozoobenthos (Infauna) Berdasarkan Ketebalan Substrat Pada Ekosistem Lamun Di Perairan Nambo Sulawesi Tenggara. *Jurnal Manajemen Sumber Daya Perairan*, 3(4), 343–352.
- Sun, B. (1993). *LSU Scholarly Repository Interaction Between Hydrodynamics and Sediment Topography on Meiofaunal Abundance and Distribution*. <https://scihub.se/10.1017/s0025315413001148>
- Suyani, Radith Mahatma, & Khairijon. (2013). *Struktur komunitas meiofauna di kawasan paya bakau Desa Teluk Uma Kabupaten Karimun*. 1–10.
- T. Radziejewska. (2014). Meiobenthos as a Component of Anthropogenic Disturbance Assessment in the Abyssal Pacific Environment. *Pacific Environment*. <https://doi.org/10.1007/978-3-642-41458-9>
- Todaro, M. A., Anselmi, S., Bentivoglio, T., Pretti, C., Cavallo, A., & Renzi, M. (2023). Looking for Nano- and Microplastics in Meiofauna Using Advanced Methodologies. *Environments - MDPI*, 10(5), 1–12. <https://doi.org/10.3390/environments10050081>
- Trisnawai, N. (2012). *STRUKTUR KOMUNITAS MEIOFAUNA INTERSTISIAL DI SUBSTRAT PADANG LAMUN PULAU PARI, KEPULAUAN SERIBU*.
- Unsworth, R. K. F., Cullen-Unsworth, L. C., Hope, J. N., Jones, B. L. H., Lilley, R. J., Williams, B., & Esteban, N. E. (2022). Effectiveness of Moorings from Rope in Reducing Impacts to Seagrass. *Oceans*, 3(3), 431–436. <https://doi.org/10.3390/oceans3030029>
- Wang, Y., & Wang, Y. (2014). Meiobenthos in marine coastal sediments. *Geological London, Special Publications*, 388(1), 59–78. <https://doi.org/10.1144/sp388.9>



- Van Der Geest, M., Sall, A. A., Ely, S. O., Nauta, R. W., Van Gils, J. A., & Piersma, T. (2014). Nutritional and reproductive strategies in a chemosymbiotic bivalve living in a tropical intertidal seagrass bed. *Marine Ecology Progress Series*, 501, 113–126. <https://doi.org/10.3354/meps10702>
- Van der Heijden, L. H., Niquil, N., Haraldsson, M., Asmus, R. M., Pacella, S. R., Graeve, M., Rzeznik-Orignac, J., Asmus, H., Saint-Béat, B., & Lebreton, B. (2020). Quantitative food web modeling unravels the importance of the microphytobenthos-meiofauna pathway for a high trophic transfer by meiofauna in soft-bottom intertidal food webs. *Ecological Modelling*, 430(2020), 1–16. <https://doi.org/10.1016/j.ecolmodel.2020.109129>
- Van der Heijden, L. H., Rzeznik-Orignac, J., Asmus, R. M., Fichet, D., Bréret, M., Kadel, P., Beaugeard, L., Asmus, H., & Lebreton, B. (2018). How do food sources drive meiofauna community structure in soft-bottom coastal food webs? *Marine Biology*, 165(10), 1–19. <https://doi.org/10.1007/s00227-018-3419-7>
- Watson, S. J., Ribó, M., Seabrook, S., Strachan, L. J., Hale, R., & Lamarche, G. (2022). The footprint of ship anchoring on the seafloor. *Scientific Reports*, 12(1), 1–12. <https://doi.org/https://doi.org/10.5194/egusphere-egu23-17288>
- Yong Ha, Sun Min, & Won Ki. (2014). *Trophic importance of meiofauna to polychaetes in a seagrass ( Zostera marina ) bed as traced by stable isotopes*. 94(1), 121–127. <https://doi.org/10.1017/S0025315413001148>



## LAMPIRAN

### Tests of Between-Subjects Effects

Dependent Variable: Kelimpahan Meiobentos

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3798614588 <sup>a</sup>	8	474826823.5	5.409	.010
Intercept	2.576E+10	1	2.576E+10	293.455	<.001
Luas_Area	666319150.6	2	333159575.3	3.795	.064
Kedalaman	2368730572	2	1184365286	13.491	.002
Luas_Area * Kedalaman	819760102.3	4	204940025.6	2.335	.134
Error	790077975.5	9	87786441.72		
Total	3.319E+10	18			
Corrected Total	4588692564	17			

a. R Squared = ,828 (Adjusted R Squared = ,675)

**Gambar 10.** Hasil uji two way anova area lamun

### Tests of Between-Subjects Effects

Dependent Variable: Kelimpahan Meiobentos

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	850558848 <sup>a</sup>	8	106319856.0	.233	.974
Intercept	1.537E+10	1	1.537E+10	33.671	<.001
Luas_area	130065227.0	2	65032613.49	.142	.869
Kedalaman	131745539.2	2	65872769.62	.144	.868
Luas_area * Kedalaman	610045298.2	4	152511324.5	.334	.848
Error	4107552983	9	456394775.9		
Total	2.479E+10	18			
Corrected Total	4958111831	17			

a. R Squared = ,172 (Adjusted R Squared = -,565)

**Gambar 11.** Hasil two way anova area tambatan





### Kelimpahan Meiobentos

Tukey B<sup>a</sup>

Kedalaman	N	Subset for alpha = 0.05	
		1	2
Kedalaman 20-30 cm	6	23829.3292	
Kedalaman 10-20 cm	6		47845.3996
Kedalaman 0-10 cm	6		47901.9864

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 6.000.

**Gambar 12.** Uji lanjutan Tukey untuk menganalisis hubungan kedalaman dengan kelimpahan meiobentos

