

## DAFTAR PUSTAKA

- Abigail, J., Santiago, M., Furio, E. F., Borja, V. M., Gatdula, N. C., & Santos, M. D. 2017. First Records of Tintinnid (Protozoa: Ciliophora: Tintinnina) Species in Manila Bay. Conference: DLSU Research Congress, 1–6. <https://l1nq.com/GhHa1>.
- Abou Zaid, M. M., & Hellal, A. M. 2012. Tintinnids (Protozoa: Ciliata) from the coast of Hurghada Red Sea, Egypt. *Egyptian Journal of Aquatic Research* vol. 38, no. 4: 249–268. <https://doi.org/10.1016/j.ejar.2013.01.003>.
- Achir, G. D. Putra, Sudarsono, S., & Aminatun, T. 2017. Kemelimpahan dan Keanekaragaman Zooplankton di Padang Lamun Pesisir Pantai Pancuran Taman Nasional Karimunjawa. *Jurnal Prodi Biologi* vol 6, no. 6: 358–368. <https://doi.org/10.21831/kingdom.v6i6.7812>.
- Adharini, R. I., & Probosunu, N. (2021). Struktur Komunitas dan Kelimpahan Fitoplankton dan Zooplankton pada Musim Penghujan di Zona Intertidal Pantai Selatan Yogyakarta. *Jurnal Kelautan Tropis* vol. 24, no. 2: 167–176. <https://doi.org/10.14710/jkt.v24i2.10206>.
- Agatha, S. 2011. Global Diversity of Aloricate Oligotrichea (Protista, Ciliophora, Spirotricha) in Marine and Brackish Sea Water. *PLoS ONE* vol. 6, no. 8: 1-13. <https://doi.org/10.1371/journal.pone.0022466>.
- Ahriani, Sumange, L., Mega, D. A. U., & Kadir, S. 2022. Prospek Pengembangan Usaha Rumput Laut di Desa Angkue Kecamatan Kajuara Kabupaten Bone. *Agrokompleks* vol. 22, no. 2: 48-54. <https://doi.org/10.51978/japp.v22i2.462>.
- Alcaraz, M. M., & Calbet, A. 2006. Large Zooplankton: Its Role In Pelagic Food Webs. *Encyclopedia of Life Support Systems (EOLSS)* vol. 5: 1–8. <https://www.eolss.net/sample-chapters/c10/E5-05-07-03.pdf>.
- Amanta, R., Z. Hasan & R. Rosidah. 2012. Struktur Komunitas Plankton di Situ Patengan Kabupaten Bandung, Jawa Barat. *Jurnal Perikanan dan Kelautan* vol. 3, no. 3: 193-200. <https://jurnal.unpad.ac.id/jpk/article/view/1447>.
- Amin, F., Kamal, M. M., & Taurusman, A. A. 2016. Struktur Komunitas dan Distribusi Spasial Juvenil Ikan pada Habitat Mangrove dan Lamun di Pulau Pramuka. *Jurnal Ilmu dan Teknologi Kelautan Tropis* vol. 8, no. 1: 187–199. <https://journal.ipb.ac.id/index.php/jurnalikt/article/view/12715/10213>.
- Ana, C. R. I. Ş., Battes, K. P., & Maria, L. 2012. Planktonic Microcrustacean Communities From Cefa Nature Park. *Transylvanian Review of Systematical and Ecological Research* vol. 13: 81–98. <https://encr.pw/r3hQg>.
- APHA. 2005. Standard Method for The Examination of Water and Wastewater. 21th Edition. American Public Health Association Inc: New York. 1368 hlm. <https://www.google.co.id/search?hl=id&tbo=p&tbm=bks&q=inauthor:%22American+Public+Health+Association%22>.
- Arinardi, O. H. Trimaningsih, S. H. Riyono, dan Elly Asnaryati. 1996. Kisaran Kelimpahan dan Komposisi Plankton Predominan di Kawasan Tengah Indonesia. P3O-LIPI: Jakarta. <https://search.worldcat.org/title/kisaran->

[kelimpahan-dan-komposisi-plankton-predominan-di-perairan-kawasan-timur-indonesia/oclc/223334265](https://doi.org/10.24127/kelimpahan-dan-komposisi-plankton-predominan-di-perairan-kawasan-timur-indonesia/oclc/223334265).

- Aynul, N., & Pratiwi, N. 2018. Taman Konservasi Kima Berbasis Ekowisata dan Edukasi Upaya Meningkatkan Perekonomian Masyarakat Pulau Sembilan Kabupaten Sinjai. *Jurnal Penelitian dan Penalaran*, vol. 5, no. 1: 937-950. <https://journal.unismuh.ac.id/index.php/pena/article/view/1696>.
- Brierley, A. S. 2017. Primer Plankton. *Current Biology* vol. 27: 478 - 483. <https://doi.org/10.1016/j.cub.2017.02.045>.
- Bruno, E., Andersen Borg, C. M., & Kjørboe, T. 2012. Prey Detection and Prey Capture in Copepod Nauplii. *PLoS ONE*, 7(10), 1–8. <https://doi.org/10.1371/journal.pone.0047906>.
- Castro-Longoria, E., Alvarez-Borrego, J., & Pech-Pacheco, J. L. 2001. Identification of Species of Calanoid Copepods Using a New Invariant Correlation Algorithm. *Crustaceana* vol. 74, no. 10: 1029–1039. <http://dx.doi.org/10.1163/15685400152691089>.
- Chebaane, S., Shaiek, M., & Zakhama-Sraieb, R. 2018. A New Record and Range Extension of an Invasive Amphipod *Caprella scaura* Templeton, 1836 in Tunisia, North Africa. *J. Black Sea/Mediterranean Environment* vol. 24, no. 3: 255–262. <https://11nq.com/6kZNO>.
- Calkins, Gary N. 1902. Marine Protozoa from Woods Hole. *Bulletin of the United States Fish Commission* vol. 21. <https://spo.nmfs.noaa.gov/content/marine-protozoa-woods-hole>.
- Clarke, K. R. 1993. Non-parametric Multivariate Analyses of Changes in Community Structure. *Australian Journal Of Ecology* vol. 18: 117–143. <https://doi.org/10.1111/j.1442-9993.1993.tb00438.x>.
- Clarke K. R. & Gorley R.N. 2001. PRIMER V.5. User Manual Tutorial. <https://search.worldcat.org/title/PRIMER-v5:-user-manualtutorial/oclc/1117088858>.
- Clarke K. R. & Green R. H. 1988. Statistical Design and Analysis for A 'Biological Effects' Study. *Marine Ecology Progress* vol. 46: 213–26. <https://www.int-res.com/articles/meps/46/m046p213.pdf>
- Clarke, K. R., & Warwick, R. M. 2001. Change in Marine Communities: An Approach to Statistical Analysis and Interpretation. Plymouth, United Kingdom: PRIMER-E vol. 172. <https://www.vliz.be/imisdocs/publications/ocrd/213560.pdf>.
- Chusnan M. M. 2018. Perbandingan Keanekaragaman dan Kelimpahan Plankton pada Ekosistem Terumbu Karang Alami dengan Terumbu Buatan di Perairan Pasir Putih Situbondo. [Skripsi]. Universitas Islam Negeri Sunan Ampel. Surabaya. <http://digilib.uinsa.ac.id/26607/>.
- Contreras-Vega, L., Henao-Castro, A., & Navas-S, G. R. 2021. Zooplankton Distribution in A Mesophotic Corals Reef Habitat at Bajo Frijol Seamount, Colombian Caribbean. *Universitas Scientiarum* vol. 26, no. 3: 281–300. <https://doi.org/10.11144/Javeriana.SC26-3.zdia>.

- Dai, J., Wang, R., Zheng, H., Ji, G., & Qiao, X. 2016. ZooplanktoNet: Deep Convolutional Network for Zooplankton Classification. *OCEANS* hal. 1-6. <https://ieeexplore.ieee.org/document/7485680>.
- Dexter, E., Rollwagen-Bollens, G., & Bollens, S. M. 2018. The Trouble with Stress: A Flexible Method for The Evaluation of Nonmetric Multidimensional Scaling. *Limnology and Oceanography: Methods* vol. 16: 434–443. <http://dx.doi.org/10.1002/lom3.10257>.
- Dovgal, I. V., & Gavrilova, N. A. 2018. Diversity and Functions of Loricata in Ciliates (Ciliophora). *Marine Biological Journal* vol. 3, no. 3: 13–21. <http://dx.doi.org/10.21072/mbj.2018.03.3.02>.
- Durmuş, T., Balci, M., & Balkis, N. (2011). Species of Genus *Tintinnopsis* Stein, 1867 in Turkish Coastal Waters and New Record of *Tintinnopsis corniger* Hada, 1964. *Pakistan Journal of Zoology* vol. 44, no. 2: 383–388. <https://11nq.com/CM9YA>.
- Dubach, H. W. & Rpbert W. T. 1968. Question About The Ocean. U.S. Naval Oceanographic Office, Washington D.C. <https://files.eric.ed.gov/fulltext/ED033858.pdf>.
- Efrizal, T. 2006. Hubungan Beberapa Parameter Kualitas Air dengan Kelimpahan Fitoplankton di perairan Pulau Penyengat Kota Tanjung Pinang Provinsi Kepulauan Riau. *Jurnal Penelitian: 22-30*. <https://adoc.pub/hubungan-beberapa-parameter-kualitas-air-dengan-kelimpahan-f.html>.
- Faiqoh, E., Ayu, I. P., Subhan, B., Syamsuni, Y. F., Anggoro, A. W., & Sembiring, A. 2015. Variasi Geografik Kelimpahan Zooplankton di Perairan Terganggu, Kepulauan Seribu, Indonesia. *Journal of Marine and Aquatic Sciences* vol. 1: 19–22. <https://doi.org/10.24843/jmas.2015.v1.i01.19-22>.
- Feng, M., Wang, C., Zhang, W., Zhang, G., Xu, H., Zhao, Y., Xiao, T., Wang, C., Wang, W., Bi, Y., & Liang, J. 2018. Dataset of Long Term Variation in Species Occurrence and Abundance of Tintinnid Assemblages in Jiaozhou Bay, China. *Data in Brief* vol. 19: 1856–1864. <https://doi.org/10.1016/j.dib.2018.06.010>.
- Fernandes, L. F. 2004. Tintinnos (Ciliophora, Tintinnina) de águas subtropicais na região Sueste-Sul do Brasil: I. Famílias Codonellidae, Codonellopsidae, Coxliellidae, Cyttarocylidae, Epilpocylidae, Petalotrichidae, Ptychocylidae, Tintinnidae e Undellidae. *Revista Brasileira de Zoologia* vol. 21 no. 3: 551–576. <https://www.biodiversitylibrary.org/part/105696>.
- Fitriani, W. N., & Sudarsono, S. 2022. Struktur Komunitas Dan Pola Sebaran Plankton Pada Musim Penghujan Di Embung Merdeka Bambanglipuro Bantul. *Kingdom (The Journal of Biological Studies)* vol. 8, no. 2: 147–159. <https://journal.student.uny.ac.id/ojs/index.php/kingdom/article/view/18280>.
- Goldman CR., and Horne AJ. 1994. *Limnology*. Mc. Graw Hill Book Co: USA. [https://books.google.co.id/books/about/Limnology.html?id=rFPwAAAAMAAJ&redir\\_esc=y](https://books.google.co.id/books/about/Limnology.html?id=rFPwAAAAMAAJ&redir_esc=y).
- Graham, W. M., Gelcich, S., Robinson, K. L., Duarte, C. M., Brotz, L., Purcell, J. E., Madin, L. P., Mianzan, H., Sutherland, K. R., Uye, S. I., Pitt, K. A., Lucas, C. H., Bøgeberg, M., Brodeur, R. D., & Condon, R. H. 2014. Linking Human Well-

- Being and Jellyfish: Ecosystem Services, Impacts, and Societal Responses. *Frontiers in Ecology and the Environment* vol. 12, no. 9: 515-523. <http://dx.doi.org/10.1890/130298>.
- Gruhl, A. 2008. Muscular Systems in Gymnolaemate Bryozoan Larvae (Bryozoa: Gymnolaemata). *Zoomorphology* vol. 127, no. 3: 143–159. <http://dx.doi.org/10.1007/s00435-008-0059-3>.
- Guðmundsdóttir, R. 2008. Pseudocalanus in Svalbard Waters: Identification and Distribution Patterns of Two Sibling Copepod Species. [Thesis]. University of Tromsø. <https://hdl.handle.net/10037/1656>.
- Hall, C. A. M., & Lewandowska, A. M. 2022. Zooplankton Dominance Shift in Response to Climate-Driven Salinity Change: A Mesocosm Study. *Frontiers in Marine Science* vol. 9: 1-10. <https://doi.org/10.3389/fmars.2022.861297>.
- Han, J., Jeong, C. B., Byeon, E., & Lee, J. S. 2018. Effects of Temperature Changes on The Generation of Reactive Oxygen Species and The Expression and Activity of Glutathione-S Transferases in Two Congeneric Copepods *Tigriopus japonicus* and *Tigriopus kingsejongensis*. *Fisheries Science* vol. 84, no. 5: 815–823. <http://dx.doi.org/10.1007/s12562-018-1224-3>.
- Hasan, O. S., Sudinno, D., Danapraja, S., Suhaedy, E., & Djunaidah, I. S. 2017. Diversitas Plankton dan Kualitas Perairan Waduk Darma Kabupaten Kuningan Jawa Barat. *Jurnal Penyuluhan Perikanan Dan Kelautan* vol. 11, no. 3: 144–159. <https://doi.org/10.33378/jppik.v11i3.92>.
- Hasanah, A. N., Rukminasari, N., & Sitepu, F. G. 2014. Perbandingan Kelimpahan Struktur Komunitas Zooplankton di Pulau Kodingareng dan Lanyukang, Kota Makasar. *Torani (Jurnal Ilmu Kelautan Dan Perikanan)* vol. 24, no. 1: 1-14. <https://doi.org/10.35911/torani.v24i1.113>.
- Hobbs, R. J., Yates, S., & Mooney, H. A. 2007. Long-Term Data Reveal Complex Dynamics in Grassland in Relation to Climate and Disturbance. *Ecological Monographs* vol. 77, no. 4: 545-568. <http://dx.doi.org/10.1890/06-1530.1>.
- Huzaimah, F. N. 2022. Struktur Komunitas Zooplankton di Muara Sungai Maros dan Muara Sungai Pangkep. [Skripsi]. Universitas Hasanuddin. Makassar. [https://repository.unhas.ac.id/id/eprint/16234/2/L021171505\\_skripsi\\_bab%201-2.pdf](https://repository.unhas.ac.id/id/eprint/16234/2/L021171505_skripsi_bab%201-2.pdf).
- Indriyani, M. 2005. Struktur Komunitas Diatom dan Dinoflagellata pada Beberapa Daerah Budidaya di Teluk Hurun, Lampung. [Skripsi]. Universitas Negeri Jakarta. Jakarta. <http://repository.unj.ac.id/>.
- Insafitri. 2018. Keanekaragaman, Keseragaman, dan Dominansi Bivalvia di Area Buangan Lumpur Lapindo Muara Sungai Porong. *Jurnal Kelautan* vol. 3, no. 1: 54–59. <http://dx.doi.org/10.5281/zenodo.33103>.
- Jiang, Y., Yang, J., Al-Farraj, S. A., Warren, A., & Lin, X. 2012. Redescriptions of Three Tintinnid ciliates, *Tintinnopsis tocaninensis*, *T. radix*, and *T. cylindrica* (Ciliophora, Spirotrichea), from Coastal Waters off China. *European Journal of Protistology* vol. 48, no. 4: 314–325. <https://doi.org/10.1016/j.ejop.2012.02.001>.

- Jumrawati. 2019. Makanan Ikan Pelagis Planktivora pada Bagan Tancap dengan Intensitas Cahaya Lampu Neon. *Octopus* vol. 8, no. 2: 30–35. <https://doi.org/10.26618/octopus.v8i2.3147>.
- Junaidi, M., Nurliah, N., & Azhar, F. 2018. Struktur Komunitas Zooplankton Di Perairan Kabupaten Lombok Utara, Provinsi Nusa Tenggara Barat. *Jurnal Biologi Tropis* vol. 18, no. 2: 159-169. <https://doi.org/10.29303/jbt.v18i2.800>.
- Kazama, T., Ishida, S., Shimano, S., & Urabe, J. 2012. Discrepancy Between Conventional Morphological Systematics and Nuclear Phylogeny of Tintinnids (Ciliophora: Choreotrichia). *Plankton and Benthos Research* vol. 7, no. 3: 111–125. <http://dx.doi.org/10.3800/pbr.7.111>.
- Keil, K. E., Klinger, T., Keister, J. E., & McLaskey, A. K. 2021. Comparative Sensitivities of Zooplankton to Ocean Acidification Conditions in Experimental and Natural Settings. *Frontiers in Marine Science* vol. 8, no. 1-8. <https://doi.org/10.3389/fmars.2021.613778>.
- Keputusan Menteri Lingkungan Hidup. 2004. Keputusan Menteri Lingkungan Hidup Nomor 51 Tentang Baku Mutu Air Laut Untuk Biota Laut. <https://encr.pw/7dVEj>.
- Kerfoot, C. W., & Sih, A. 1987. Predation. Direct and Indirect Impacts on Aquatic Communities. University Press of New England, Hanover. 149–160 p. <https://acesse.dev/wghew>.
- Khalaf, T. A., Awad, A. H. H., & Morad, M. S. S. 2022. New Record of Chromistan Parasites of Copepods and Rotifers in Iraqi Marine and Brackish Waters. *Mesopotamian Journal of Marine Sciences* vol. 31, no. 1: 1–14. <http://dx.doi.org/10.58629/mjms.v31i1.106>.
- Khudin, M., Santosa, G., W., & Riniatsih, I. 2019. Ekologi Rumput Laut di Perairan Tanjung Pudak Kepulauan Karimunjawa, Jawa Tengah. *Journal of Marine Research* vol. 8, no. 3: 291-298. <https://doi.org/10.14710/jmr.v8i3.25273>.
- Kondylatos, G., Crocetta, F., Corsini-Foka, M., & Froggia, C. 2020. Crustacea Decapoda from the Rhodes Island Area (Eastern Mediterranean): New Records and an Updated Checklist. *Diversity* vol. 12, no. 246: 1-22. <https://doi.org/10.3390/d12060246>.
- Krebs, C.J. 1985. *Ecology: The Experimental Analysis of Distribution and Abundance*. Third Edition. Harper and Row Publisher: New York. 776 hlm. <https://l1nq.com/TSqsy>.
- Kusmeri, L., & Rosanti, D. 2015. Struktur Komunitas Zooplankton di Danau Opi Jakabaring Palembang. *Sainmatika* vol. 12, no. 1: 7-17. <https://doi.org/10.31851/sainmatika.v12i1.274>.
- Kustiyandingsih, E., & Irawanto, R. 2020. Pengukuran Total Dissolved Solid (TDS) dalam Fitoremediasi Deterjen dengan Tumbuhan *Sagittaria lancifolia*. *Jurnal Tanah dan Sumberdaya Lahan* vol. 7, no. 1: 143-148. <https://doi.org/10.21776/ub.jtsl.2020.007.1.18>.
- Laccetti, K. 2021. Zooplankton Community Structure and Grazing within a Stormwater Detention Pond in Coastal South Carolina. [Thesis]. University of South Carolina. <https://encr.pw/bWT3>.



- Lahnsteiner, F., Lahnsteiner, E., & Duenser, A. 2023. Suitability of Different Live Feed for First Feeding of Freshwater Fish Larvae. *Aquaculture Journal* vol. 3, no. 2: 107–120. <https://doi.org/10.3390/aquacj3020010>.
- Larasati, W., Rahadian, R., & Hadii, M. 2016. Struktur Komunitas Mikroartropoda Tanah di Lahan Penambangan Galian C Rowosari, Kecamatan Tembalang, Semarang. *Jurnal Biologi* vol. 5, no. 1: 15–23. <https://doi.org/10.14710/bioma.18.2.79-88>.
- Lasri, D., Endrawati, H., Santosa, & Gunawan W. 2013. Struktur Komunitas Zooplankton di Perairan Desa Mangunharjo Kecamatan Tugu Semarang. *Journal Of Marine Research* vol. 2, no. 3: 197-204. <https://doi.org/10.14710/jmr.v2i3.3149>.
- Liu, Z., Mesrop, L. Y., Hu, S. K., & Caron, D. A. 2019. Transcriptome of *Thalassicolla Nucleata* Holobiont Reveals Details of a Radiolarian Symbiotic Relationship. *Frontiers in Marine Science* vol. 6: 1–11. <https://doi.org/10.3389/fmars.2019.00284>.
- Lomartire, S., Marques, J. C., & Gonçalves, A. M. M. 2021. The Key Role of Zooplankton in Ecosystem Services: A Perspective of Interaction Between Zooplankton and Fish Recruitment. *Ecological Indicators* vol. 129. <https://doi.org/10.1016/j.ecolind.2021.107867>.
- Luo, J. 2013. Phytoplankton-Zooplankton Dynamics in Periodic Environments Taking Into Account Eutrophication. *Mathematical Biosciences* vol. 245: 126–136. <https://doi.org/10.1016/j.mbs.2013.06.002>.
- Mahipe, F. V. N., Mantiri, R. O. S. E., & Moningkey, R. D. 2017. Komunitas Zooplankton di Pesisir Pantai Malalayang Kota Manado. *Jurnal Ilmiah Platax* vol. 5, no. 1: 77–84. <https://doi.org/10.35800/jip.5.1.2017.15808>.
- Makmur, M. 2008. Pengaruh Upwelling terhadap Ledakan Alga (Blooming Algae) di Lingkungan Perairan Laut. *Prosiding Seminar Nasional Teknologi Pengolahan Limbah VI* hal. 240-245. <https://acesse.dev/JS8kl>.
- Makmur, M. Fahrur dan Ruskiah. 2012. Struktur Komunitas Plankton dan Manfaatnya bagi Perikanan Pesisir Kabupaten Pohuwato di Provinsi Gorontalo. *Prosiding Indoaqua - Forum Inovasi Teknologi Akuakultur*: 857-865. <http://dx.doi.org/10.29303/jbt.v18i2.800>.
- Mariyati, T., Endrawati, H., & Supriyantini, E. 2020. Keterkaitan antara Kelimpahan Zooplankton dan Parameter Lingkungan di Perairan Pantai. *Buletin Oseanografi Marina* vol. 9, no. 2: 157–165. <https://doi.org/10.14710/buloma.v9i2.27136>.
- McCune, B., & Grace, J. B. 2003. Analysis of Ecological Communities. *Journal of Experimental Marine Biology and Ecology* vol. 289, no. 2: 303-305. [http://dx.doi.org/10.1016/S0022-0981\(03\)00091-1](http://dx.doi.org/10.1016/S0022-0981(03)00091-1).
- Menteri Lingkungan Hidup RI. 2014. Peraturan Menteri Lingkungan Hidup No. 5 Tahun 2014 tentang Baku Mutu Air Limbah. Jakarta: Kementerian Lingkungan Hidup RI. <https://encr.pw/mBUiU>.

- Momo, A. N., F.M, I. S., Duan, F. K., Dima, A. O., Ati, V. M., & Ola, M. O. A. 2021. Keanekaragaman dan Kelimpahan Zooplankton pada Ekosistem Terumbu Karang di Perairan Pantai Tablolong Kecamatan Kupang Barat Kabupaten Kupang. *Jurnal Biotropikal Sains* vol. 18, no. 2: 70–77. <https://acesse.dev/Sn7BU>.
- Mukadam, M. 2019. Distribution, Abundance and Species Diversity of Phytoplankton In The Inshore Waters of Mirkarwada, Ratnagiri, West Coast Of India. *PARIPEX* vol. 8, no. 1: 136–139. <https://www.doi.org/10.36106/paripex>.
- Mulyadi, H.A., A. W. Radjab. 2015. Dinamika Spasial Kelimpahan Zooplankton Pada Musim Timur di Perairan Pesisir Morella Maluku Tengah. *Jurnal Ilmu dan Teknologi Kelautan Tropis* vol. 7, no. 1: 109-122. <https://l1nq.com/nrQCz>.
- Mustari, S., Rukminasari, N., & Dahlan, M. A. 2018. Struktur Komunitas dan Kelimpahan Fitoplankton di Pulau Kapoposang Kabupaten Pangkajene dan Kepulauan, Provinsi Sulawesi Selatan. *Jurnal Pengelolaan Perairan* vol. 1, no. 1: 51–65. <https://acesse.dev/PzUt2>.
- Nanjkar, M., Fernandes, V., Bogati, K., & Chatterjee, T. 2019. Gregarious True-Colonies of Ciliate *Vorticella Oceanica* on A Chain Forming Diatom *Chaetoceros Coarctatus*: Indicating Change in The Nature of Association. *Symbiosis* vol. 79, no. 3: 221–229. <https://link.springer.com/article/10.1007/s13199-019-00640-4>.
- Nuraina, I., Fahrizal, & Prayogo, H. 2018. Analisa Komposisi dan Keanekaragaman Jenis Tegakan Penyusun Hutan Tembawang Jelomuk di Desa Meta Bersatu Kecamatan Sayan Kabupaten Melawi. *Jurnal Hutan Lestari* vol. 6, no. 1: 137–146. <https://dx.doi.org/10.26418/jhl.v6i1.24151>.
- Odum, E. P. 1994. *Dasar-Dasar Ekologi Umum*. (3th ed.). Yogyakarta: Indonesia, Gadjah Mada University Press. <https://opac-library.unhas.ac.id/opac/detail-opac?id=21759>.
- Odum, E.P. 1971. *Fundamental Ecology* 3 rd. W.B. Sanders Company. Philadelphia. 574 hlm. <https://www.scirp.org/reference/ReferencesPapers?ReferenceID=1526688>.
- Paiki, K., & Kalor, J. D. 2017. Distribusi Nitrat dan Fosfat Terhadap Kelimpahan Fitoplankton di Perairan Pesisir Yapen Timur. *Journal of Fisheries and Marine Science* vol. 1, no. 2: 65–71. <https://jfmr.ub.ac.id/index.php/jfmr/article/view/26/21>.
- Pal, R., & Choudhury, A. K. 2014. An Introduction to Phytoplanktons: Diversity and Ecology. In *An Introduction to Phytoplanktons: Diversity and Ecology*. Springer New Delhi Heidelberg: India. <https://link.springer.com/book/10.1007/978-81-322-1838-8>.
- Palmer, M. E., & Yan, N. D. 2013. Decadal-Scale Regional Changes in Canadian Freshwater Zooplankton: The likely Consequence of Complex Interactions Among Multiple Anthropogenic Stressors. *Freshwater Biology* vol. 58, no. 7: 1-13. <http://dx.doi.org/10.1111/fwb.12133>.
- Paramudhita, W., Endrawati, H., & Nuraini, R. A. T. 2018. Struktur Komunitas Zooplankton di Perairan Desa Mangunharjo, Kecamatan Tugu, Semarang.

Buletin Oseanografi Marina vol. 7, no. 2: 113-120.  
<https://doi.org/10.14710/buloma.v7i2.20548>.

- Pond, D. W. 2012. The Physical Properties of Lipids and Their Role in Controlling The Distribution of Zooplankton in The Oceans. *Journal of Plankton Research* vol. 34, no. 6: 443–453. <http://dx.doi.org/10.1093/plankt/fbs027>.
- Pratiwi, R., Tugiyono, Rustiati, E. L., & Handayani, K. 2022. Keanekaragaman Plankton di Sungai Way Umpu, Kabupaten Way Kanan, Provinsi Lampung. *Jurnal Penelitian Sains* vol. 24, no. 3: 107-115. <https://ejournal.mipa.unsri.ac.id/index.php/jps/article/view/695/627>.
- Prawiradilaga, D.M., A. Suryanto, W.A. Noerdjito, A. Saim, Purwaningsih, I. Rahmatika, S. Susiarti, Sidik, A. Marakarmah, A. Mun'im, M.H. Sinaga, E. Cholik, Ismail, M. Maharani, Y. Purwanto dan E. B. Waluyo. 2003. Final Reports and Biodiversity of Tesso Nilo Research Center for Biology SIPI and WWF Indonesia. <https://l1nq.com/pteOP>.
- Priosambodo, D. 2006. Studi Eksplorasi Makroalgae di Rataan Terumbu Karang Pulau-Pulau Sembilan, Kecamatan Sinjai Utara Kabupaten Sinjai. *Jurnal Ilmiah Biologi Makassar* vol. 1, no. 1: 37-44. <https://core.ac.uk/reader/77622705>.
- Puelles, L. F. de, Gazá, M., Cabanellas-Reboredo, M., Santandreu, del M., Irigoien, X., González-Gordillo, J. I., Duarte, C. M., & Hernández-León, S. 2019. Zooplankton Abundance and Diversity in the Tropical and Subtropical Ocean. *Diversity* vol. 11: 1-22. <https://doi.org/10.3390/d11110203>.
- Purnama, P. R., Nastiti, N. W., Agustin, M. E., & Affandi, M. 2011. Diversitas Gastropoda Di Sungai Sukamade, Taman Nasional Meru Betiri, Jawa Timur. *Berkala Penelitian Hayati* vol. 16, no. 2: 143–147. <http://dx.doi.org/10.23869/bphjbr.16.2.20116>.
- Qiptiyah, M., Halidah, & Rakhman, M. A. 2008. Struktur Komunitas Plankton di Perairan Mangrove dan Perairan Terbuka di Kabupaten Sinjai, Sulawesi Selatan. *Jurnal Penelitian Hutan Dan Konservasi Alam* vol. 5, no. 2: 137–143. <https://dx.doi.org/10.20886/jphka.2008.5.2.137-143>.
- Rahayu, S., Setyawati, T. R., & Turnip, M. 2013. Struktur Komunitas Zooplankton di Muara Sungai Mempawah Kabupaten Pontianak Berdasarkan Pasang Surut Air Laut. *Jurnal Protobiont* vol. 2, no. 2: 49-55. <https://dx.doi.org/10.26418/protobiont.v2i2.2740>.
- Rahmah, N., Zulfikar, A. & Apriadi, T. Kelimpahan Fitoplankton dan Kaitannya dengan Beberapa Parameter Lingkungan Perairan di Estuari Sei Carang Kota Tanjungpinang. *Journal of Marine Research* vol. 11, no. 2: 189-200. <https://doi.org/10.14710/jmr.v11i2.32945>.
- Rahman, M., Wibisana, H., & Zainab, S. 2020. Analisa Dan Pemetaan Total Padatan Terlarut Di Pesisir Pantai Pasuruan Dengan Citra Satelit Terra Modis vol. 16, no. 2: 144-156. <https://doi.org/10.28932/jts.v16i2.2509>.
- Rakhmanda, D., S., Bambang, A., N., & NND, D., A. 2016. Analisis Teknis Dan Finansial Perbandingan Alat Tangkap Bagan Tancap dengan Bagan Apung di PPP Muncar Banyuwangi Jawa Timur. *Journal of Fisheries Resources*



- Utilization Management and Technology vol. 5 no. 4: 206-215.  
<http://www.ejournal-s1.undip.ac.id/index.php/jfrumt>.
- Redden, A. M., & Rukminasari, N. 2008. Effects of Increases in Salinity On Phytoplankton in The Broadwater of The Myall Lakes, NSW, Australia. *Hydrobiologia* vol. 608: 87-97. <http://dx.doi.org/10.1007/s10750-008-9376-2>.
- Rifsaldi, A. M., Nurgayah, W., & Emiyarti. 2020. Komposisi Jenis Dan Kelimpahan Zooplankton Di Perairan Desa Tumbu-Tumbu Jaya, Kabupaten Konawe Selatan. *Jurnal Sapa Laut (Jurnal Ilmu Kelautan)* vol. 5, no. 2: 123–130. <https://ojs.uho.ac.id/index.php/JSL/article/view/12166>.
- Ruga, L., Langoy, M., Papu, A., & Kolondam, B. 2014. Identifikasi Zooplankton di Perairan Pulau Bunaken Manado. *Jurnal MIPA* vol. 3, no. 2: 84-86. <https://doi.org/10.35799/jm.3.2.2014.5856>.
- Ruswahyuni. 2010. Populasi dan Keanekaragaman Hewan Makrobenthos pada Perairan Tertutup dan Terbuka di Teluk Awur, Jepara. *Jurnal Ilmiah Perikanan dan Kelautan* vol. 2, no. 1. <https://dx.doi.org/10.20473/jipk.v2i1.11676>.
- Saab, M. A.-A., Ouba, A., Lteif, Y., Ghoub, M., Mahfouz, C., Jemaa, S., Hassoun, A. E. R., & Fakhri, M. 2022. First Record of Seven Tintinnid Species from the Lebanese Waters. *Journal of the Black Sea/Mediterranean Environment* vol. 28, no. 3: 309–324. <https://11nq.com/4zhP7>.
- Santiago, J. A., & Ablan-Lagman, M. C. 2021. Tintinnids (Ciliophora, oligotrichea) Within Power Plant Discharge and Marine Protected Areas in Masinloc-Oyon Bay. *Check List* vol. 17, no. 6: 1533–1539. <http://dx.doi.org/10.15560/17.6.1533>.
- Serranito, B., Aubert, A., Stemmann, L., Rossi, N., & Jamet, J. L. 2016. Proposition of indicators of anthropogenic pressure in the Bay of Toulon (Mediterranean Sea) based on zooplankton time-series. *Continental Shelf Research* vol. 121: 3-12. <https://doi.org/10.1016/j.csr.2016.01.016>.
- Shi, Y., Wang, J., Zuo, T., Shan, X., Jin, X., Sun, J., Yuan, W., & Pakhomov, E. A. 2020. Seasonal Changes in Zooplankton Community Structure and Distribution Pattern in the Yellow Sea, China. *Frontiers in Marine Science* vol. 7, no. 1-14. <https://doi.org/10.3389/fmars.2020.00391>.
- Soegianto, A 1994. *Ekologi Kuantitatif Metode Analisis Populasi dan Komunitas*. Usaha Nasional: Jakarta. <https://acesse.dev/Pf2H5>.
- Sirait, M., Rahmatia, F., & Pattulloh, P. 2018. Komparasi Indeks Keanekaragaman dan Indeks Dominansi Fitoplankton di Sungai Ciliwung Jakarta. *Jurnal Kelautan* vol. 11, no. 1: 75–79. <http://dx.doi.org/10.21107/jk.v11i1.3338>.
- Slotwinski, A., Coman, F., & Richardson, A. J. 2014. *Introductory Guide to Zooplankton Identification*. IMOS Integrated Marine Observing System: Australia. <https://11nq.com/cbgih>.
- Somerfield, P. J., Clarke, K. R., & Gorley, R. N. 2021. Analysis of Similarities (ANOSIM) for 2-way layouts Using a Generalised ANOSIM Statistic, with Comparative Notes on Permutational Multivariate Analysis of Variance (PERMANOVA). *Austral Ecology* vol. 46: 911-926. <http://dx.doi.org/10.1111/aec.13059>.

- Špoljar, M., Dražina, T., Habdija, I., Meseljević, M., & Grčić, Z. 2011. Contrasting Zooplankton Assemblages in Two Oxbow Lakes with Low Transparencies and Narrow Emergent Macrophyte Belts (Krapina River, Croatia). *International Review of Hydrobiology*, 96(2), 175–190. <http://dx.doi.org/10.1002/iroh.201011257>.
- Stoch, F. 2007. Copepods Colonising Italian Springs. *The Spring Habitat: Biota and Sampling Methods* vol. 4: 217–235. [https://www.researchgate.net/publication/266244247\\_Copepods\\_colonising\\_Italian\\_springs](https://www.researchgate.net/publication/266244247_Copepods_colonising_Italian_springs).
- Sukhikh, N. M., & Alekseev, V. R. 2013. *Eurytemora caspica* sp. nov. from the Caspian Sea – One More New Species Within The *E. affinis* Complex (Copepoda: Calanoida: Temoridae). *Proceedings of the Zoological Institute RAS* vol. 317, no. 1: 85–100. <http://dx.doi.org/10.31610/trudyzin/2013.317.1.85>.
- Suryanto, A. M., & Umi, H. 2009. Pendugaan Status Trofik dengan Pendekatan Kelimpahan Fitoplankton dan Zooplankton di Waduk Sengguruh, Karangates, Lahor, Wlingi Raya dan Wonorejo Jawa Timur. *Jurnal Ilmiah Perikanan dan Kelautan* vol. 1, no. 1: 7-13. <http://dx.doi.org/10.20473/jipk.v1i1.11692>.
- Suthers, I. M., David R. & Anthony J. R. 2019. *Plankton: A Guide to Their Ecology and Monitoring for Water Quality*. CRC Press, Australia. <https://www.publish.csiro.au/book/7808/>.
- Tambaru, R., Muhiddin, A. H., & Malida, H. S. 2014. Analisis Perubahan Kepadatan Zooplankton Berdasarkan Kelimpahan Fitoplankton pada Berbagai Waktu dan Kedalaman di Perairan Pulau Badi Kabupaten Pangkep. *Torani (Jurnal Ilmu Kelautan Dan Perikanan)* vol. 24, no. 3: 40-48. <https://doi.org/10.35911/torani.v24i3.236>.
- Tambaru, R., Muhiddin, A. H., & Malida, H. S. 2020. Pola Migrasi Temporal Zooplankton Di Perairan Pulau Barranglompo Kota Makassar. *Proceeding of International and National Conference on Marine Science and Fisheries*: 291–298. <https://acesse.dev/rggJi>.
- Trisyani, N. 2004. Kelimpahan Fitoplankton di Lokasi Penanaman Terumbu Karang Buatan. *Neptunus* vol. 11, no. 1: 70 – 74. <https://shorturl.at/umlks>.
- Uspar, Armita Permatasari, & Alamsyah, R. 2020. Kondisi Terumbu Karang di Pulau Sembilan Kabupaten Sinjai Sulawesi Selatan. *Jurnal Agrominansia* vol. 5, no. 1: 65–73. <https://acesse.dev/sCxXa>.
- Vogt, R. J., Peres-Neto, P. R., & Beisner, B. E. 2013. Using Functional Traits to Investigate The Determinants of crustacean Zooplankton Community Structure. *Oikos* vol. 122: 1700-1709. <http://dx.doi.org/10.1111/j.1600-0706.2013.00039.x>.
- Wahyudiati, N. W. D., Arthana, I. W., & Kartika, G. R. A. 2017. Struktur Komunitas Zooplankton di Bendungan Telaga Tunjung, Kabupaten Tabanan-Bali. *Journal of Marine and Aquatic Sciences* vol. 3, no. 1: 115-122. <https://doi.org/10.24843/jmas.2017.v3.i01.115-122>.
- Weydmann-Zwolicka, A., Prątnicka, P., Łacka, M., Majaneva, S., Cottier, F., & Berge, J. 2021. Zooplankton and Sediment Fluxes in Two Contrasting Fjords Reveal

Atlantification of The Arctic. *Science of The Total Environment* vol. 773: 1–11. <http://dx.doi.org/10.1016/j.scitotenv.2021.145599>.

- Widyastuti, E., Sukanto, S., & Setyaningrum, N. 2015. Pengaruh Limbah Organik terhadap Status Tropik, Rasio N/P serta Kelimpahan Fitoplankton di Waduk Panglima Besar Soedirman Kabupaten Banjarnegara. *Biosfera* vol. 32, no. 1: 35–41. <http://dx.doi.org/10.20884/1.mib.2015.32.1.293>.
- Xiong, W., Li, J., Chen, Y., Shan, B., Wang, W., & Zhan, A. 2016. Determinants of Community Structure of Zooplankton in Heavily Polluted River Ecosystems. *Scientific Reports* vol. 6, no. 1: 1-11. <http://dx.doi.org/10.1038/srep22043>.
- Xiong, W., Ni, P., Chen, Y., Gao, Y., Li, S., Zhan, A. 2019. Biological Consequences of Environmental Pollution in Running Water Ecosystems: A Case Study in Zooplankton. *Environmental Pollution* vol. 252: 1483-1490. <https://doi.org/10.1016/j.envpol.2019.06.055>.
- Xiong, W., Ni, P., Chen, Y., Gao, Y., Shan, B., & Zhan, A. 2017. Zooplankton Community Structure Along a Pollution Gradient at Fine Geographical Scales in River Ecosystems: The Importance of Species Sorting Over Dispersal. *Molecular Ecology* vol. 16. <https://doi.org/10.1111/mec.14199>.
- Yuan, D., Chen, L., Luan, L., Wang, Q., & Yang, Y. (2020). Effect of Salinity on the Zooplankton Community in the Pearl River Estuary. *Journal of Ocean University of China* vol. 19, no. 6: 1389-1398. <https://link.springer.com/article/10.1007/s11802-020-4449-6>.
- Yuliana, Y., & Ahmad, F. 2017. Komposisi Jenis dan Kelimpahan Zooplankton di Perairan Teluk Buli, Halmahera Timur. *Agrikan: Jurnal Agribisnis Perikanan* vol. 10, no. 2. <http://dx.doi.org/10.29239/j.agrikan.10.2.44-50>.
- Zakiyyah, I., Hidayat, J. W., & Muhammad, F. 2016. Struktur Komunitas Plankton Perairan Payau di Kecamatan Wedung Kabupaten Demak. *Bioma: Berkala Ilmiah Biologi* vol. 18, no. 1: 89-96. <https://doi.org/10.14710/bioma.18.2.89-96>.
- Zakiyah, U., & Mulyanto, M. 2021. Peta Biodiversitas Zooplankton di Area Pesisir Utara dan Selatan Madura, Jawa Timur. *Jurnal Perikanan Universitas Gadjah Mada* vol. 23, no. 1: 17–24. <https://doi.org/10.22146/jfs.60080>.
- Zhang, Q., Agatha, S., Zhang, W., Dong, J., Yu, Y., Jiao, N., & Gong, J. 2017. Three rDNA Loci-Based Phylogenies of Tintinnid Ciliates (Ciliophora, Spirotrichea, Choreotrichida). *Journal of Eukaryotic Microbiology* vol. 64, no. 2: 226–241. <http://dx.doi.org/10.1111/jeu.12354>.

## LAMPIRAN

**Lampiran 1.** Data kualitas air di perairan Desa Angkue, Kabupaten Bone dan Pulau Katindoang, Kabupaten Sinjai

Lokasi	Stasiun	Parameter Fisika				Parameter Kimia	
		Suhu	Salinitas	DO	TDS	Nitrat (NO <sub>3</sub> )- mg/L	Ortho Phosphat (PO <sub>4</sub> )-mg/L
						<b>Metode Spektrofometri</b>	
Bone	1	31,32	27,19	6,90	1970	0,0287	0,0066
	2	31,58	27,79	6,82	2004	0,0310	0,0042
	3	30,86	29,45	6,92	2107	0,0349	0,0020
Sinjai	1	30,04	30,87	7,10	2197	0,0333	tt
	2	30,06	30,89	7,18	2194	0,0279	0,0009
	3	30,10	30,91	7,30	1538	0,0295	0,0002

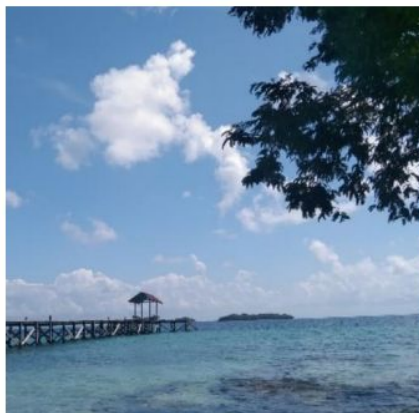
tt = tidak terdeteksi (<0,0001)



**Lampiran 2. Dokumentasi pengambilan sampel zooplankton**



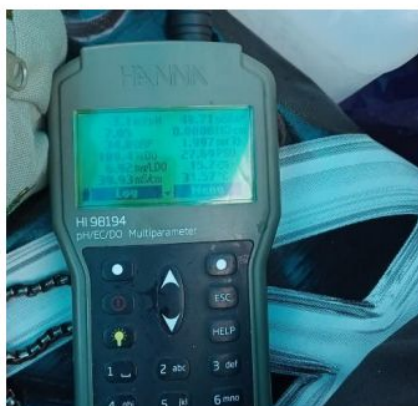
Persiapan alat



Lokasi Pengambilan Sampel  
(Kabupaten Sinjai)



Pengambilan Sampel



Pengukuran Parameter lingkungan

**Lampiran 3.** Jenis zooplankton yang ditemukan di perairan perairan Desa Angkue, Kabupaten Bone dan Pulau Katindoang, Kabupaten Sinjai

No.	Filum	Kelas	Spesies	Desa Angkue, Kabupaten Bone			Pulau Katindoang, Kabupaten Sinjai		
				S1	S2	S3	S1	S2	S3
1	Arthropoda	Copepoda	<i>Acartia danae</i>	-	✓	-	-	-	-
2	Cnidaria	Scyphozoa	<i>Aurelia aurita</i>	✓	✓	-	-	-	-
3	Bryozoa	-	<i>Bryozoa larvae</i>	-	-	✓	-	-	✓
4	Arthropoda	Malacostraca	<i>Caprella sp.</i>	-	-	-	✓	-	-
5	Radiozoa	Polycystina	<i>Clathromitra sp.</i>	✓	-	-	-	-	-
6	Ciliophora	Oligotrichea	<i>Climacocylis scalaroides</i>	-	-	✓	-	-	-
7	Ciliophora	Oligotrichea	<i>Codonella galea</i>	✓	-	-	-	-	-
8	Ciliophora	Oligotrichea	<i>Codonella nationalis</i>	-	✓	-	-	-	-
9	Ciliophora	Oligotrichea	<i>Codonella sp.</i>	-	-	-	-	✓	-
10	Ciliophora	Oligotrichea	<i>Codonellopsis morchella</i>	-	-	-	✓	-	-
11	Ciliophora	Oligotrichea	<i>Codonellopsis ostenfeldi</i>	✓	✓	-	-	-	-
12	Arthropoda	Malacostraca	<i>Nauplius</i>	✓	✓	✓	-	✓	✓
13	Mollusca	Gastropoda	<i>Cyclops sp.</i>	✓	✓	✓	-	-	-
14	Arthropoda	Copepoda	<i>Cyclops strenuus</i>	✓	-	-	-	-	-
15	Arthropoda	-	<i>Decapods</i>	-	-	-	-	-	✓
16	Ciliophora	Oligotrichea	<i>Epiplocylis sp.</i>	-	-	-	-	✓	-
17	Arthropoda	Copepoda	<i>Eurytemora sp.</i>	-	✓	-	-	-	-
18	Arthropoda	Branchiopoda	<i>Evadne sp.</i>	-	-	-	-	✓	-
19	Ciliophora	Oligotrichea	<i>Favella panamensis</i>	✓	-	-	-	-	-
20	Chordata	-	<i>Fish larva</i>	✓	-	-	-	✓	-
21	Mollusca	Gastropoda	<i>Gastropoda</i>	-	-	✓	-	-	-
22	Arthropoda	Oligotrichea	<i>Leprotintinnus sp.</i>	-	✓	-	-	-	-
23	Arthropoda	Copepoda	<i>Microsetella sp.</i>	✓	-	-	-	-	-

24	Arthropoda	Malacostraca	<i>Mysida</i>	-	-	✓	-	-	-
25	Ciliophora	Copepoda	<i>Oithana sp.</i>	-	✓	-	-	-	-
26	Arthropoda	Oligotrichea	<i>Poroecus curtus</i>	-	✓	✓	✓	-	-
27	Ciliophora	Copepoda	<i>Pseudocalanus sp.</i>	✓	-	-	-	-	-
28	Radiozoa	Oligotrichea	<i>Stenosemella nivalis</i>	✓	-	-	✓	-	-
29	Arthropoda	Polycystina	<i>Thalassicolla nucleata</i>	-	✓	-	-	-	-
30	Ciliophora	Copepoda	<i>Tigriopus kingsejongensis</i>	-	-	-	✓	-	-
31	Ciliophora	Oligotrichea	<i>Tintinnopsis baltica</i>	✓	✓	✓	✓	✓	-
32	Ciliophora	Oligotrichea	<i>Tintinnopsis beroidea</i>	-	-	-	✓	✓	✓
33	Ciliophora	Oligotrichea	<i>Tintinnopsis cylindrical</i>	-	-	-	-	-	✓
34	Ciliophora	Oligotrichea	<i>Tintinnopsis dadayi</i>	-	-	-	-	✓	-
35	Ciliophora	Oligotrichea	<i>Tintinnopsis davidoffi</i>	-	-	✓	-	-	-
36	Ciliophora	Oligotrichea	<i>Tintinnopsis directa</i>	-	✓	-	-	-	-
37	Ciliophora	Oligotrichea	<i>Tintinnopsis gracilis</i>	-	✓	-	-	-	-
38	Ciliophora	Oligotrichea	<i>Tintinnopsis lobiancoi</i>	-	-	-	-	✓	-
39	Ciliophora	Oligotrichea	<i>Tintinnopsis minima</i>	-	-	-	-	✓	✓
40	Ciliophora	Oligotrichea	<i>Tintinnopsis nana</i>	✓	-	-	-	-	-
41	Ciliophora	Oligotrichea	<i>Tintinnopsis radix</i>	✓	✓	✓	✓	✓	✓
42	Ciliophora	Oligotrichea	<i>Tintinnopsis sp.</i>	✓	-	-	-	-	✓
43	Ciliophora	Oligotrichea	<i>Tintinnopsis tocaninensis</i>	✓	-	-	-	-	-
44	Ciliophora	Oligotrichea	<i>Tintinnopsis tubulosa</i>	✓	✓	-	✓	✓	✓
45	Arthropoda	Oligotrichea	<i>Vorticella oceanica</i>	-	✓	-	-	-	-

Keterangan:

✓ = ada

- = tidak ada

#### Lampiran 4. Hasil primer Desa Angkue, Kabupaten Bone

### MDS

#### Non-metric Multi-Dimensional Scaling

*Best 2-d configuration (Stress: 0,23)*

Sample	1	2
Z.B.1.1.1	-0,94	0,16
Z.B.1.1.2	0,52	0,01
Z.B.1.1.3	-1,31	-0,36
Z.B.1.2.1	-0,75	1,00
Z.B.1.2.2	0,95	-0,64
Z.B.1.2.3	-0,59	0,49
Z.B.1.3.1	-1,17	0,74
Z.B.1.3.2	-0,37	1,29
Z.B.1.3.3	0,12	-0,59
Z.B.2.1.1	-0,93	-0,55
Z.B.2.1.2	1,04	-0,48
Z.B.2.1.3	-0,51	-0,22
Z.B.2.2.1	0,19	0,66
Z.B.2.2.2	0,04	-1,08
Z.B.2.2.3	1,08	0,68
Z.B.2.3.1	0,51	-0,15
Z.B.2.3.2	-0,38	-0,41
Z.B.2.3.3	0,70	0,61
Z.B.3.1.1	0,33	-0,09
Z.B.3.1.2	-0,04	-0,61
Z.B.3.1.3	-0,31	-0,19
Z.B.3.2.1	-0,49	-0,68
Z.B.3.2.2	2,25	0,06
Z.B.3.2.3	0,45	1,15
Z.B.3.3.1	0,33	-0,09
Z.B.3.3.2	-0,37	-0,77
Z.B.3.3.3	-0,35	0,07

### *STRESS VALUES*

Repeat	3D	2D
1	0,17	0,24
2	0,17	0,24
3	0,16	0,23
4	0,16	0,23
5	0,16	0,23
6	0,16	0,26
7	0,17	0,23
8	0,18	0,25
9	0,16	0,23
10	0,16	0,23

\*\* = Maximum number of iterations used

3-d : Minimum stress: 0,16 occurred 6 times

2-d : Minimum stress: 0,23 occurred 6 times

## **ANOSIM**

### **Analysis of Similarities**

#### **One-way Analysis**

##### *Factor Values*

Factor: Stasiun

Stasiun 1

Stasiun 2

Stasiun 3

##### *Global Test*

Sample statistic (Global R): 0,048

Significance level of sample statistic: 14,6%

Number of permutations: 999 (Random sample from a large number)

Number of permuted statistics greater than or equal to Global R: 145



*Pairwise Tests*

Groups	R Statistic	Significance Level %	Possible Permutations	Actual Permutations	Number >= Observed
Stasiun 1, Stasiun 2	0,025	33,6	24310	999	335
Stasiun 1, Stasiun 3	0,083	9,9	24310	999	98
Stasiun 2, Stasiun 3	-0,012	53,	24310	999	529

## SIMPER

### Similarity Percentages - species contributions

*Parameters*

Standardise data: No

Transform: Log(X+1)

Cut off for low contributions: 90,00%

Factor name: Stasiun

*Factor groups*

Stasiun 1

Stasiun 2

Stasiun 3

*Group Stasiun 1*

Average similarity: 35,20

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Tintinnopsis sp.	14222,22	29,00	7,51	82,39	82,39
Tintinnopsis tocaninensis	1333,33	2,65	0,30	7,52	89,91
Favella panamensis	1333,33	2,20	0,30	6,26	96,17

*Group Stasiun 2*

Average similarity: 36,70

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Tintinnopsis sp.	9777,78	30,85	3,40	84,06	84,06
Nauplius	2222,22	3,60	0,43	9,80	93,86

*Group Stasiun 3*

Average similarity: 40,46

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Tintinnopsis sp.	5777,78	35,48	1,75	87,69	87,69
Nauplius	1333,33	4,05	0,30	10,02	97,71

*Groups Stasiun 1 & Stasiun 2*

Average dissimilarity = 65,18

Species	Group Stasiun 1	Group Stasiun 2	Av.Diss	Diss/SD	Contrib%	Cum.%
	Av.Abund	Av.Abund				
Nauplius	888,89	2222,22	6,29	0,88	9,64	9,64
Tintinnopsis tocaninensis	1333,33	0,00	5,18	0,68	7,94	17,58
Favella panamensis	1333,33	0,00	4,71	0,68	7,22	24,80
Pseudocalanus sp.	0,00	1333,33	3,86	0,68	5,93	30,73
Tintinnopsis beroidea	444,44	888,89	3,83	0,59	5,87	36,61

*Groups Stasiun 1 & Stasiun 3*

Average dissimilarity = 65,68

Species	Group Stasiun 1	Group Stasiun 3	Av.Diss	Diss/SD	Contrib%	Cum.%
	Av.Abund	Av.Abund				
Nauplius	888,89	1333,33	6,88	0,81	10,48	10,48
Tintinnopsis tocaninensis	1333,33	0,00	6,22	0,70	9,47	19,95
Favella panamensis	1333,33	0,00	5,58	0,70	8,50	28,45
Tintinnopsis sp.	14222,22	5777,78	3,67	0,62	5,59	34,04
Cyclops sp.	444,44	444,44	3,55	0,49	5,41	39,45

*Groups Stasiun 2 & Stasiun 3*

Average dissimilarity = 60,07

Species	Group Stasiun 2	Group Stasiun 3	Av.Diss	Diss/SD	Contrib%	Cum.%
	Av.Abund	Av.Abund				
Nauplius	2222,22	1333,33	8,67	0,89	14,43	14,43
Pseudocalanus sp.	1333,33	444,44	5,43	0,73	9,03	23,46
Tintinnopsis beroidea	888,89	444,44	5,04	0,58	8,40	31,86
Oithana sp.	0,00	888,89	3,64	0,50	6,06	37,92
Tintinnopsis sp.	9777,78	5777,78	3,41	0,54	5,68	43,60

**Lampiran 5.** Hasil primer Pulau Katindoang, Kabupaten Sinjai

**MDS**

**Non-metric Multi-Dimensional Scaling**

Similarity Matrix

Best 2-d configuration (Stress: 0,11)

Sample	1	2
Z.S.1.1.1	2,28	0,74
Z.S.1.1.2	-1,59	0,09
Z.S.1.1.3	1,06	-0,37
Z.S.1.2.1	-0,12	0,20
Z.S.1.2.2	-1,34	0,02
Z.S.1.2.3	0,44	0,25
Z.S.1.3.1	0,61	-0,61
Z.S.1.3.2	-0,21	-0,56
Z.S.1.3.3	0,25	0,33
Z.S.2.1.1	-0,04	-0,52
Z.S.2.1.2	0,31	0,28
Z.S.2.1.3	0,31	0,37
Z.S.2.2.1	1,03	-0,83
Z.S.2.2.2	-0,83	1,13
Z.S.2.2.3	0,10	0,40
Z.S.2.3.1	-1,08	0,77
Z.S.2.3.2	0,85	0,82
Z.S.2.3.3	0,25	-0,69
Z.S.3.1.1	0,15	0,19
Z.S.3.1.2	-0,56	-0,94
Z.S.3.1.3	-1,60	-0,08
Z.S.3.2.1	0,44	0,25
Z.S.3.2.2	0,07	-0,68
Z.S.3.2.3	0,16	-0,68
Z.S.3.3.1	0,10	0,40
Z.S.3.3.2	-0,57	-0,04
Z.S.3.3.3	-0,49	-0,21

## STRESS VALUES

Repeat	3D	2D
1	0,07	0,11
2	0,08	0,12
3	0,07	0,11
4	0,09	0,14
5	0,07	0,12
6	0,07	0,12
7	0,08	0,13
8	0,07	0,12
9	0,09	0,12
10	0,07	0,13

\*\* = Maximum number of iterations used

3-d : Minimum stress: 0,07 occurred 6 times

2-d : Minimum stress: 0,11 occurred 2 times

## ANOSIM

### Analysis of Similarities

Similarity Matrix

One-way Analysis

Factor Values

Factor: Stasiun

Stasiun 1

Stasiun 2

Stasiun 3

Global Test

Sample statistic (Global R): -0,036

Significance level of sample statistic: 78,7%

Number of permutations: 999 (Random sample from a large number)

Number of permuted statistics greater than or equal to Global R: 786

Pairwise Tests

Groups	R Statistic	Significance Level %	Possible Permutations	Actual Permutations	Number >= Observed
Stasiun 1, Stasiun 2	-0,023	59,9	24310	999	598
Stasiun 1, Stasiun 3	-0,061	85,3	24310	999	852
Stasiun 2, Stasiun 3	-0,017	53,5	24310	999	534

## SIMPER

### Similarity Percentages - species contributions

#### Parameters

Standardise data: No

Transform: Log(X+1)

Cut off for low contributions: 90,00%

Factor name: Stasiun

#### Factor groups

Stasiun 1

Stasiun 2

Stasiun 3

#### Group Stasiun 1

Average similarity: 25,79

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Tintinnopsis sp.	4888,89	19,49	0,83	75,58	75,58
Vorticella oceanica	1333,33	4,11	0,30	15,94	91,52

#### Group Stasiun 2

Average similarity: 29,98

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Tintinnopsis sp.	8000,00	25,90	1,14	86,40	86,40
Tintinnopsis nana	1333,33	4,08	0,30	13,60	100,00

#### Group Stasiun 3

Average similarity: 40,53

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Tintinnopsis sp.	5333,33	36,42	1,81	89,86	89,86
Vorticella oceanica	1777,78	4,11	0,30	10,14	100,00



Groups Stasiun 1 & Stasiun 2  
Average dissimilarity = 72,32

Species	Group Stasiun 1	Group Stasiun 2	Av.Diss	Diss/SD	Contrib%	Cum.%
	Av.Abund	Av.Abund				
Tintinnopsis sp.	4888,89	8000,00	10,72	0,94	14,82	14,82
Vorticella oceanica	1333,33	444,44	8,58	0,76	11,86	26,68
Tintinnopsis nana	0,00	1333,33	7,80	0,70	10,79	37,47
Tintinnopsis beroidea	888,89	444,44	5,92	0,62	8,18	45,65
Leprotintinnus sp.	888,89	0,00	4,68	0,53	6,47	52,12

Groups Stasiun 1 & Stasiun 3  
Average dissimilarity = 64,54

Species	Group Stasiun 1	Group Stasiun 3	Av.Diss	Diss/SD	Contrib%	Cum.%
	Av.Abund	Av.Abund				
Vorticella oceanica	1333,33	1777,78	10,58	0,89	16,39	16,39
Tintinnopsis sp.	4888,89	5333,33	9,58	0,86	14,84	31,22
Leprotintinnus sp.	888,89	444,44	6,29	0,62	9,75	40,98
Tintinnopsis beroidea	888,89	0,00	4,82	0,53	7,46	48,44
Tintinnopsis cylindrical	444,44	444,44	4,64	0,49	7,18	55,62

Groups Stasiun 2 & Stasiun 3  
Average dissimilarity = 63,76

Species	Group Stasiun 2	Group Stasiun 3	Av.Diss	Diss/SD	Contrib%	Cum.%
	Av.Abund	Av.Abund				
Vorticella oceanica	444,44	1777,78	8,85	0,76	13,89	13,89
Tintinnopsis nana	1333,33	444,44	8,75	0,76	13,72	27,60
Tintinnopsis sp.	8000,00	5333,33	8,34	0,78	13,08	40,68
Tintinnopsis cylindrical	444,44	444,44	4,62	0,49	7,25	47,94
Nauplius	444,44	444,44	4,31	0,49	6,75	54,69

**Lampiran 6.** Hasil primer perairan Desa Angkue, Kabupaten Bone dan Pulau Katindoang, Kabupaten Sinjai

**MDS**

**Non-metric Multi-Dimensional Scaling**

*Similarity Matrix*

*Best 2-d configuration (Stress: 0,19)*

Sample	1	2
Z.B.1.1.1	0,73	0,72
Z.B.1.1.2	0,29	-0,61
Z.B.1.1.3	-0,87	-0,12
Z.B.1.2.1	1,18	-0,05
Z.B.1.2.2	0,11	-1,02
Z.B.1.2.3	0,78	-0,20
Z.B.1.3.1	1,25	-0,20
Z.B.1.3.2	1,18	0,25
Z.B.1.3.3	0,39	-0,46
Z.B.2.1.1	-0,66	0,30
Z.B.2.1.2	0,26	-1,03
Z.B.2.1.3	0,14	0,32
Z.B.2.2.1	0,53	0,77
Z.B.2.2.2	-0,43	0,81
Z.B.2.2.3	0,57	-0,92
Z.B.2.3.1	0,00	-0,52
Z.B.2.3.2	-0,33	-0,02
Z.B.2.3.3	0,85	-0,54
Z.B.3.1.1	0,16	-0,25
Z.B.3.1.2	-0,19	-0,08
Z.B.3.1.3	0,01	0,08
Z.B.3.2.1	-0,27	0,42
Z.B.3.2.2	-0,67	-1,44
Z.B.3.2.3	0,33	1,05
Z.B.3.3.1	0,16	-0,25
Z.B.3.3.2	-0,20	0,54
Z.B.3.3.3	0,33	0,30

Z.S.1.1.1	3,36	-0,12
Z.S.1.1.2	-2,38	0,18
Z.S.1.1.3	-0,45	-0,24
Z.S.1.2.1	-0,25	0,17
Z.S.1.2.2	-1,77	0,54
Z.S.1.2.3	0,56	0,13
Z.S.1.3.1	-0,33	-0,02
Z.S.1.3.2	-0,06	-0,39
Z.S.1.3.3	0,41	0,27
Z.S.2.1.1	-0,36	0,40
Z.S.2.1.2	0,33	0,19
Z.S.2.1.3	0,34	0,38
Z.S.2.2.1	-0,62	-0,26
Z.S.2.2.2	-0,89	-1,19
Z.S.2.2.3	0,18	0,11
Z.S.2.3.1	-1,73	0,00
Z.S.2.3.2	0,90	0,36
Z.S.2.3.3	-0,30	0,33
Z.S.3.1.1	0,19	0,40
Z.S.3.1.2	-0,14	-0,66
Z.S.3.1.3	-1,66	-0,25
Z.S.3.2.1	0,56	0,13
Z.S.3.2.2	-0,11	0,62
Z.S.3.2.3	-0,26	0,50
Z.S.3.3.1	0,05	0,17
Z.S.3.3.2	-0,61	0,21
Z.S.3.3.3	-0,57	0,19

*STRESS VALUES*

Repeat	3D	2D
1	0,14	0,19
2	0,15	0,19
3	0,14	0,19
4	0,15	0,20
5	0,15	0,20
6	0,15	0,19
7	0,15	0,19
8	0,15	0,19

9	0,14	0,20
10	0,15	0,20

\*\* = Maximum number of iterations used

3-d : Minimum stress: 0,14 occurred 3 times

2-d : Minimum stress: 0,19 occurred 6 times

## ANOSIM

### Analysis of Similarities

*Similarity Matrix*

### One-way Analysis

*Factor Values*

Factor: Lokasi

Bone

Sinjai

*Global Test*

Sample statistic (Global R): 0,06

Significance level of sample statistic: 1,2%

Number of permutations: 999 (Random sample from a large number)

Number of permuted statistics greater than or equal to Global R: 11

## SIMPER

### Similarity Percentages - species contributions

Sample selection: All

Variable selection: All

*Parameters*

Standardise data: No

Transform: Log(X+1)

Cut off for low contributions: 90,00%

Factor name: Lokasi

*Factor groups*

Bone

Sinjai

*Group Bone*

Average similarity: 36,70

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Tintinnopsis sp.	9925,93	31,48	2,58	85,79	85,79
Nauplius	1481,48	3,02	0,32	8,24	94,03

*Group Sinjai*

Average similarity: 32,81

Species	Av.Abund	Av.Sim	Sim/SD	Contrib%	Cum.%
Tintinnopsis sp.	6074,07	27,55	1,20	83,97	83,97
Vorticella oceanica	1185,19	2,96	0,25	9,01	92,98

*Groups Bone & Sinjai*

Average dissimilarity = 67,14

Species	Group Bone		Group Sinjai		Contrib%	Cum.%
	Av.Abund	Av.Sim	Av.Abund	Av.Sim		
Nauplius	1481,48	3,02	444,44	3,40	10,30	10,30
Tintinnopsis sp.	9925,93	31,48	6074,07	6,31	9,40	19,71
Vorticella oceanica	296,30	2,96	1185,19	5,85	8,71	28,42
Tintinnopsis beroidea	592,59	2,96	444,44	4,14	6,16	34,59
Leprotintinnus sp.	444,44	3,02	444,44	3,40	5,06	39,65



**Lampiran 7.** Hasil two-way ANOVA Kelimpahan

Table Analyzed	Kelimpahan				
Two-way RM ANOVA	Matching: Across row				
Assume sphericity?	Yes				
Alpha	0,05				
Source of Variation	% of total variation	P value	P value summary	Significant?	
Interaction	9,799	0,0613	ns	No	
Stasiun	13,22	0,0048	**	Yes	
Lokasi	16,01	0,0038	**	Yes	
Kelimpahan	23,57	0,8674	ns	No	
ANOVA table	SS	DF	MS	F (DFn, DFd)	P value
Interaction	400592593	2	200296296	F (2, 24) = 3,144	P=0,0613
Stasiun	540444444	2	270222222	F (2, 24) = 6,731	P=0,0048
Lokasi	654518519	1	654518519	F (1, 24) = 10,27	P=0,0038
Kelimpahan	963555556	24	40148148	F (24, 24) = 0,6302	P=0,8674
Residual	1528888889	24	63703704		
Difference between column means					
Mean of Bone	18815				
Mean of Sinjai	11852				
Difference between means	6963				
SE of difference	2172				

95% CI of difference 2480 to 11446

Data summary

Number of columns (Lokasi) 2

Number of rows (Stasiun) 3

Number of subjects (Kelimpahan) 27

Compare each cell mean with the other cell mean in that row

Number of families 1

Number of comparisons per family 3

Alpha 0,05

Sidak's multiple comparisons test Mean Diff, 95,00% CI of diff, Significant? Summary Adjusted P Value

Bone - Sinjai

S1 13778 4123 to 23433 Yes \*\* 0,0037

S2 6667 -2988 to 16322 No ns 0,2442

S3 444,4 -9210 to 10099 No ns 0,9992

Test details Mean 1 Mean 2 Mean Diff, SE of diff, N1 N2 t DF

Bone - Sinjai

S1 24889 11111 13778 3762 9 9 3,662 24,00

S2 20444 13778 6667 3762 9 9 1,772 24,00

S3 11111 10667 444,4 3762 9 9 0,1181 24,00

**Lampiran 8.** Hasil two-way ANOVA Indeks Keanekaragaman

Table Analyzed	Indeks Keanekaragaman				
Two-way RM ANOVA	Matching: Across row				
Assume sphericity?	Yes				
Alpha	0,05				
Source of Variation	% of total variation	P value	P value summary	Significant?	
Interaction	6,951	0,1372	ns	No	
Stasiun	9,131	0,0303	*	Yes	
Lokasi	18,30	0,0025	**	Yes	
Indeks Keanekaragaman	27,00	0,8064	ns	No	
ANOVA table	SS	DF	MS	F (DFn, DFd)	P value
Interaction	0,05969	2	0,02985	F (2, 24) = 2,160	P=0,1372
Stasiun	0,07841	2	0,03921	F (2, 24) = 4,058	P=0,0303
Lokasi	0,1571	1	0,1571	F (1, 24) = 11,37	P=0,0025
Indeks Keanekaragaman	0,2319	24	0,009662	F (24, 24) = 0,6993	P=0,8064
Residual	0,3316	24	0,01382		
Difference between column means					
Mean of Bone	0,4196				
Mean of Sinjai	0,3118				
Difference between means	0,1079				
SE of difference	0,03199				

95% CI of difference 0,04186 to 0,1739

Data summary

Number of columns (Lokasi) 2

Number of rows (Stasiun) 3

Number of subjects (Indeks Keanekaragaman) 27

Compare each cell mean with the other cell mean in that row

Number of families 1

Number of comparisons per family 3

Alpha 0,05

Sidak's multiple comparisons test Mean Diff, 95,00% CI of diff, Significant? Summary Adjusted P Value

Bone - Sinjai

S1 0,1526 0,01041 to 0,2948 Yes \* 0,0328

S2 0,1572 0,01499 to 0,2994 Yes \* 0,0271

S3 0,01389 -0,1283 to 0,1561 No ns 0,9925

Test details Mean 1 Mean 2 Mean Diff, SE of diff, N1 N2 t DF

Bone - Sinjai

S1 0,4781 0,3255 0,1526 0,05541 9 9 2,754 24,00

S2 0,4609 0,3037 0,1572 0,05541 9 9 2,837 24,00

S3 0,3199 0,3061 0,01389 0,05541 9 9 0,2507 24,00

**Lampiran 9.** Hasil two-way ANOVA Indeks Keseragaman

Table Analyzed	Indeks Keseragaman				
Two-way RM ANOVA	Matching: Across row				
Assume sphericity?	Yes				
Alpha	0,05				
Source of Variation	% of total variation	P value	P value summary	Significant?	
Interaction	7,554	0,2107	ns	No	
Stasiun	5,222	0,1488	ns	No	
Lokasi	2,365	0,3177	ns	No	
Indeks Keanekaragaman	30,35	0,9207	ns	No	
ANOVA table	SS	DF	MS	F (DFn, DFd)	P value
Interaction	0,03737	2	0,01869	F (2, 24) = 1,663	P=0,2107
Stasiun	0,02584	2	0,01292	F (2, 24) = 2,064	P=0,1488
Lokasi	0,01170	1	0,01170	F (1, 24) = 1,041	P=0,3177
Indeks Keanekaragaman	0,1502	24	0,006257	F (24, 24) = 0,5568	P=0,9207
Residual	0,2697	24	0,01124		
Difference between column means					
Mean of Bone	0,9063				
Mean of Sinjai	0,9357				
Difference between means	-0,02944				
SE of difference	0,02885				
95% CI of difference	-0,08899 to 0,03011				

Data summary

Number of columns (Lokasi) 2  
 Number of rows (Stasiun) 3  
 Number of subjects (Indeks Keanekaragaman) 27

Compare each cell mean with the other cell mean in that row

Number of families 1  
 Number of comparisons per family 3  
 Alpha 0,05

Sidak's multiple comparisons test Mean Diff, 95,00% CI of diff, Significant? Summary Adjusted P Value

Bone - Sinjai

S1	-0,1033	-0,2316 to 0,02489	No	ns	0,1415
S2	0,01502	-0,1132 to 0,1433	No	ns	0,9872
S3	0,000	-0,1282 to 0,1282	No	ns	>0,9999

Test details Mean 1 Mean 2 Mean Diff, SE of diff, N1 N2 t DF

Bone - Sinjai

S1	0,8516	0,9549	-0,1033	0,04997	9	9	2,068	24,00
S2	0,9154	0,9004	0,01502	0,04997	9	9	0,3006	24,00
S3	0,9518	0,9518	0,000	0,04997	9	9	0,000	24,00

**Lampiran 10.** Hasil two-way ANOVA Indeks Dominansi

Table Analyzed	Indeks Dominansi				
Two-way RM ANOVA	Matching: Across row				
Assume sphericity?	Yes				
Alpha	0,05				
Source of Variation	% of total variation	P value	P value summary	Significant?	
Interaction	4,884	0,3002 ns		No	
Stasiun	5,116	0,1700 ns		No	
Lokasi	11,53	0,0222 *		Yes	
Indeks Dominansi	32,15	0,8113 ns		No	
ANOVA table	SS	DF	MS	F (DFn, DFd)	P value
Interaction	0,03449	2	0,01725	F (2, 24) = 1,266	P=0,3002
Stasiun	0,03613	2	0,01806	F (2, 24) = 1,910	P=0,1700
Lokasi	0,08145	1	0,08145	F (1, 24) = 5,977	P=0,0222
Indeks Dominansi	0,2270	24	0,009459	F (24, 24) = 0,6941	P=0,8113
Residual	0,3270	24	0,01363		
Difference between column means					
Mean of Bone	0,5639				
Mean of Sinjai	0,4862				
Difference between means	0,07767				
SE of difference	0,03177				



95% CI of difference 0,01210 to 0,1432

Data summary

Number of columns (Lokasi) 2

Number of rows (Stasiun) 3

Number of subjects (Indeks Dominansi) 27

Compare each cell mean with the other cell mean in that row

Number of families 1

Number of comparisons per family 3

Alpha 0,05

Sidak's multiple comparisons test Mean Diff, 95,00% CI of diff, Significant? Summary Adjusted P Value

Bone - Sinjai

S1 0,09396 -0,04725 to 0,2352 No ns 0,2726

S2 0,1298 -0,01140 to 0,2710 No ns 0,0783

S3 0,009256 -0,1320 to 0,1505 No ns 0,9977

Test details Mean 1 Mean 2 Mean Diff, SE of diff, N1 N2 t DF

Bone - Sinjai

S1 0,6001 0,5062 0,09396 0,05503 9 9 1,707 24,00

S2 0,5963 0,4664 0,1298 0,05503 9 9 2,359 24,00











S3 0,4954 0,4861 0,009256 0,05503 9 9 0,1682 24,00











**Lampiran 11.** Output Diverse Zooplankton di Perairan Desa Angkue, Kabupaten Bone dan Pulau Katindoang, Kabupaten Sinjai

Stasiun	S (jumlah individu)	N (Kelimpahan)	J' (Keseragaman)	H'(log10) (Keaneekaragaman)	1-Lambda (Dominansi)
Z.B.1.1.1	3	36000	0,6224	0,2969	0,3704
Z.B.1.1.2	3	28000	0,7248	0,3458	0,4490
Z.B.1.1.3	4	20000	0,9610	0,5786	0,7200
Z.B.1.2.1	4	20000	0,9610	0,5786	0,7200
Z.B.1.2.2	5	40000	0,7627	0,5331	0,6000
Z.B.1.2.3	3	24000	0,7897	0,3768	0,5000
Z.B.1.3.1	4	24000	0,8962	0,5396	0,6667
Z.B.1.3.2	4	16000	1,0000	0,6021	0,7500
Z.B.1.3.3	3	16000	0,9464	0,4515	0,6250
MEAN	3,6667	24889	0,8516	0,4781	0,6001
SE	0,2357	2811	0,0437	0,0379	0,0444
Z.B.2.1.1	3	16000	0,9464	0,4515	0,6250
Z.B.2.1.2	5	20000	1,0000	0,6990	0,8000
Z.B.2.1.3	2	12000	0,9183	0,2764	0,4444
Z.B.2.2.1	3	24000	0,7897	0,3768	0,5000
Z.B.2.2.2	3	12000	1,0000	0,4771	0,6667
Z.B.2.2.3	7	44000	0,8563	0,7237	0,7438
Z.B.2.3.1	2	12000	0,9183	0,2764	0,4444
Z.B.2.3.2	2	8000	1,0000	0,3010	0,5000
Z.B.2.3.3	5	36000	0,8097	0,5659	0,6420
MEAN	3,5556	20444	0,9154	0,4609	0,5963
SE	0,5800	4079	0,0271	0,0575	0,0434
Z.B.3.1.1	2	12000	0,9183	0,2764	0,4444
Z.B.3.1.2	2	8000	1,0000	0,3010	0,5000
Z.B.3.1.3	2	12000	0,9183	0,2764	0,4444
Z.B.3.2.1	2	8000	1,0000	0,3010	0,5000
Z.B.3.2.2	2	8000	1,0000	0,3010	0,5000
Z.B.3.2.3	4	16000	1,0000	0,6021	0,7500
Z.B.3.3.1	2	12000	0,9183	0,2764	0,4444
Z.B.3.3.2	2	8000	1,0000	0,3010	0,5000
Z.B.3.3.3	2	16000	0,8113	0,2442	0,3750
MEAN	2,2222	11111	0,9518	0,3200	0,4954
SE	0,2222	1111	0,0220	0,0358	0,0348
Z.S.1.1.1	3	12000	1	0,4771	0,6667
Z.S.1.1.2	2	8000	1	0,3010	0,5000
Z.S.1.1.3	3	16000	0,9464	0,4515	0,6250
Z.S.1.2.1	2	12000	0,9183	0,2764	0,4444
Z.S.1.2.2	2	8000	1	0,3010	0,5000
Z.S.1.2.3	2	12000	0,9183	0,2764	0,4444
Z.S.1.3.1	2	8000	1	0,3010	0,5000
Z.S.1.3.2	2	8000	1	0,3010	0,5000
Z.S.1.3.3	2	16000	0,8113	0,2442	0,3750
MEAN	2,2222	11111	0,9549	0,3255	0,5062
SE	0,1470	1111	0,0216	0,0271	0,0300
Z.S.2.1.1	2	8000	1	0,3010	0,5000
Z.S.2.1.2	2	16000	0,8113	0,2442	0,3750
Z.S.2.1.3	2	16000	1	0,3010	0,5000

Z.S.2.2.1	3	12000	0,8113	0,2442	0,3750
Z.S.2.2.2	2	8000	0,8113	0,2442	0,3750
Z.S.2.2.3	2	16000	1	0,4771	0,6667
Z.S.2.3.1	2	8000	1	0,3010	0,5000
Z.S.2.3.2	3	32000	0,8113	0,2442	0,3750
Z.S.2.3.3	2	8000	1	0,3010	0,5000
MEAN	2,2222	13778	0,6696	0,3195	0,4063
SE	0,1470	2592	1	0,3010	0,5000
Z.S.3.1.1	2	16000	0,8113	0,2442	0,3750
Z.S.3.1.2	3	12000	1	0,4771	0,6667
Z.S.3.1.3	2	8000	1	0,3010	0,5000
Z.S.3.2.1	2	12000	0,9183	0,2764	0,4444
Z.S.3.2.2	2	8000	1	0,3010	0,5000
Z.S.3.2.3	2	8000	1	0,3010	0,5000
Z.S.3.3.1	2	12000	0,9183	0,2764	0,4444
Z.S.3.3.2	2	12000	0,9183	0,2764	0,4444
Z.S.3.3.3	2	8000	1	0,3010	0,5000
MEAN	2,1111	10667	0,9518	0,3061	0,4861
SE	0,1111	943	0,0220	0,0223	0,0266

**Lampiran 12.** Spesies zooplankton yang ditemukan di perairan Desa Angkue dan Pulau Katindoang

No.	Gambar Pengamatan	Gambar Literatur	Taksonomi
1	 <i>Codonella galea</i>	 (Abou Zaid & Hellal, 2012)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Codonella Spesies : <i>Codonella galea</i> Haeckel, 1873
2	 <i>Tintinnopsis sp.</i>	 (Abou Zaid & Hellal, 2012)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Spesies : <i>Tintinnopsis sp.</i> Stein, 1867
3	 <i>Copepod nauplius (larvae)</i>	 (Bruno et al., 2012)	Kingdom: Animalia Phylum : Arthropoda Class : Copepoda
4	 <i>Tintinnopsis tocaninensis</i>	 (Dovgal & Gavrilova, 2018)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Spesies : <i>Tintinnopsis tocaninensis</i> Kofoid & Campbell, 1929
5	 <i>Vorticella oceanica</i>	 (Nanajkar et al., 2019)	Kingdom: Protozoa Phylum : Ciliophoras Class : Ciliata Order : Peritrichida Family : Vorticellidae Genus : Vorticella Spesies : <i>Vorticella oceanica</i>

No.	Gambar Pengamatan	Gambar Literatur	Taksonomi
6	 <i>Tintinnopsis radix</i>	 (Jiang et al., 2012)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Species : <i>Tintinnopsis radix</i> (Imhof, 1886)
7	 <i>Tintinnopsis beroidea</i>	 (Abigail et al., 2017)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Species : <i>Tintinnopsis beroidea</i> Stein, 1867
8	 <i>Cyclops strenuus</i>	 (Ana et al., 2012)	Kingdom: Animalia Phylum : Arthropoda Class : Copepoda Order : Cyclopoida Family : Cyclopidae Genus : Cyclops Species : <i>Cyclops strenuus</i>
9	 <i>Favella panamensis</i>	 (Zhang et al., 2017)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Ptychocylididae Genus : Favella Species : <i>Favella panamensis</i> Kofoid & Campbell, 1929
10	 <i>Leprotintinnus sp.</i>	 (Zhang et al., 2017)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Tintinnidiidae Genus : Leprotintinnus Species : <i>Leprotintinnus sp.</i> Jørgensen, 1899




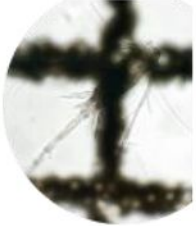
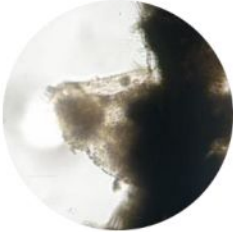


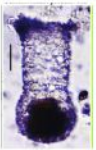












No.	Gambar Pengamatan	Gambar Literatur	Taksonomi
11	 <p><i>Codonellopsis ostenfeldi</i></p>	 <p>(Saab et al., 2022)</p>	Kingdom : Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellopsidae Genus : <i>Codonellopsis</i> Species : <i>Codonellopsis ostenfeldi</i> (Schmidt, 1902) Kofoid & Campbell, 1929
12	 <p><i>Tintinnopsis tubulosa</i></p>	 <p>(Kazama et al., 2012)</p>	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : <i>Tintinnopsis</i> Species : <i>Tintinnopsis tubulosa</i> Levander, 1900
13	 <p><i>Stenosemella nivalis</i></p>	 <p>(Kazama et al., 2012)</p>	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : <i>Stenosemella</i> Species : <i>Stenosemella nivalis</i> (Meunier, 1910)
14	 <p><i>Mysida</i></p>	 <p>(Slotwinski et al., 2014)</p>	Kingdom: Animalia Phylum : Arthropoda Class : Malacostraca Order : Mysida
15	 <p><i>Thalassicolla nucleata</i></p>	 <p>(Liu et al., 2019)</p>	Kingdom: Chromista Phylum : Radiozoa Class : Polycystina Order : Nassellaria Family : Collozoidae Genus : <i>Thalassicolla</i> Species : <i>Thalassicolla nucleata</i> Huxley, 1851





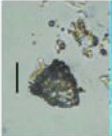
No.	Gambar Pengamatan	Gambar Literatur	Taksonomi
16	 <i>Clathromitra sp.</i>	 (Liu et al., 2019)	Kingdom: Chromista Phylum : Radiozoa Class : Polycystina Order : Nassellaria Family : Plagiacanthidae Genus : <i>Clathromitra</i> Spesies : <i>Clathromitra sp.</i>
17	 <i>Aurelia aurita</i>	 (Harris et al., 2000)	Kingdom: Animalia Phylum : Cnidaria Class : Scyphozoa Order : Semaestomeae Family : Ulmaridae Genus : <i>Aurelia</i> Spesies : <i>Aurelia aurita</i> (Linnaeus, 1758)
18	 <i>Fish larva</i>	 (Lahnsteiner et al., 2023)	Kingdom: Animalia Phylum : Chordata
19	 <i>Cyclops sp.</i>	 (Stoch, 2007)	Kingdom: Animalia Phylum : Arthropoda Class : Copepoda Order : Cyclopoida Family : Cyclopidae Genus : <i>Cyclops</i> Montfort, 1810
20	 <i>Tintinnopsis gracilis</i>	 (Abou Zaid & Hellal, 2012)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : <i>Tintinnopsis</i> Spesies : <i>Tintinnopsis gracilis</i> Kofoid & Campbell, 1929
21	 <i>Acartia danae</i>	 (Castro-Longoria et al., 2001)	Kingdom: Animalia Phylum : Arthropoda Class : Copepoda Order : Calanoida Family : Acartiidae Genus : <i>Acartia</i> Spesies : <i>Acartia danae</i> Giesbrecht, 1889

No.	Gambar Pengamatan	Gambar Literatur	Taksonomi
22	 <i>Eurytemora sp.</i>	 (Sukhikh & Alekseev, 2013)	Kingdom: Animalia Phylum : Arthropoda Class : Copepoda Order : Calanoida Family : Temoridae Genus : <i>Eurytemora</i> Species : <i>Eurytemora sp.</i> <i>Giesbrecht, 1881</i>
23	 <i>Codonella nationalis</i>	 (Abou Zaid & Hellal, 2012)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : <i>Codonella</i> Species : <i>Codonella nationalis</i> <i>Brandt, 1906</i>
24	 <i>Tigriopus kingsejongensis</i>	 (Han et al., 2018)	Kingdom: Animalia Phylum : Arthropoda Class : Copepoda Order : Harpacticoida Family : Harpacticidae Genus : <i>Tigriopus</i> Species: <i>Tigriopus kingsejongensis</i> Park, S. Lee, Cho, Yoon, Y. Lee & W. Lee, 2014
25	 <i>Pseudocalanus sp.</i>	 (Guðmundsdóttir, 2008)	Kingdom: Animalia Phylum : Arthropoda Class : Copepoda Order : Calanoida Family : Clausocalanidae Genus : <i>Pseudocalanus</i> Species : <i>Pseudocalanus sp.</i> <i>Boeck, 1872</i>
26	 <i>Poroecus curtus</i>	 (Abou Zaid & Hellal, 2012)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : <i>Poroecus</i> Species : <i>Poroecus curtus</i> <i>Kofoed &amp; Campbell, 1929</i>



No.	Gambar Pengamatan	Gambar Literatur	Taksonomi
27	 <p><i>Tintinnopsis lobiancoi</i></p>	 <p>(Abou Zaid &amp; Hellal, 2012)</p>	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Species : <i>Tintinnopsis lobiancoi</i> Daday, 1887
28	 <p><i>Gastropoda</i></p>	 <p>(Slotwinski et al., 2014)</p>	Kingdom: Animalia Phylum : Mollusca Class : Gastropoda
29	 <p><i>Oithona sp.</i></p>	 <p>(Pond, 2012)</p>	Kingdom: Animalia Phylum : Arthropoda Class : Copepoda Order : Cyclopoida Family : Oithonidae Genus : <i>Oithona</i> Species : <i>Oithona sp. Baird</i> , 1843
30	 <p><i>Bryozoan larvae</i></p>	 <p>(Gruhl, 2008)</p>	Kingdom: Animalia Phylum : Bryozoa
31	 <p><i>Tintinnopsis directa</i></p>	 <p>(Feng et al., 2018)</p>	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Species : <i>Tintinnopsis directa</i> Hada, 1932

No.	Gambar Pengamatan	Gambar Literatur	Taksonomi
32	 <p><i>Climacocylis scalaroides</i></p>	 <p>(Abou Zaid &amp; Hellal, 2012)</p>	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Metacyclidae Genus : <i>Climacocylis</i> Species : <i>Climacocylis scalaroides</i> Kofoid & Campbell, 1929
33	 <p><i>Caprella sp.</i></p>	 <p>(Chebaane et al., 2018)</p>	Kingdom: Animalia Phylum : Arthropoda Class : Malacostraca Order : Amphipoda Family : Caprellidae Genus : <i>Caprella</i> Species : <i>Caprella sp.</i> Lamarck, 1801
34	 <p><i>Tintinnopsis baltica</i></p>	 <p>(Zhang et al., 2017)</p>	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : <i>Tintinnopsis</i> Species : <i>Tintinnopsis baltica</i> Brandt, 1896
35	 <p><i>Codonellopsis morchella</i></p>	 <p>(Kazama et al., 2012)</p>	Kingdom : Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellopsidae Genus : <i>Codonellopsis</i> Species : <i>Codonellopsis morchella</i> Jørgensen, 1924
36	 <p><i>Decapoda</i></p>	 <p>(Kondylatos et al., 2020)</p>	Kingdom: Animalia Phylum : Arthropoda Class : Malacostraca Order : Decapoda

No.	Gambar Pengamatan	Gambar Literatur	Taksonomi
37	 <i>Codonella sp.</i>	 (Fernandes, 2004)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Codonella Species : <i>Codonella sp.</i> Haeckel, 1873
38	 <i>Epiplocytilis sp.</i>	 (Contreras-Vega et al., 2021)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Epiplocytilidae Genus : <i>Epiplocytilis Jørgensen, 1924</i>
39	 <i>Tintinnopsis nana</i>	 (Santiago & Ablan-Lagman, 2021)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Species : <i>Tintinnopsis nana</i> Lohmann, 1908
40	 <i>Tintinnopsis davidoffi</i>	 (Calkins, 1902)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Species : <i>Tintinnopsis davidoffi</i> Daday, 1887
41	 <i>Tintinnopsis minima</i>	 (Feng et al., 2018)	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Species : <i>Tintinnopsis minima</i>

No.	Gambar Pengamatan	Gambar Literatur	Taksonomi
42	 <p><i>Tintinnopsis dadayi</i></p>	 <p>(Kazama et al., 2012)</p>	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Spesies : <i>Tintinnopsis dadayi</i>
43	 <p><i>Microsetella sp.</i></p>	 <p>(Khalaf et al., 2022)</p>	Kingdom: Animalia Phylum : Arthropoda Class : Copepoda Order : Harpacticoida Family : Ectinosomatidae Genus : <i>Microsetella</i> Brady & Robertson, 1873
44	 <p><i>Tintinnopsis cylindrical</i></p>	 <p>(Abou Zaid &amp; Hellal, 2012)</p>	Kingdom: Chromista Phylum : Ciliophora Class : Oligotrichea Order : Choreotrichida Family : Codonellidae Genus : Tintinnopsis Spesies : <i>Tintinnopsis cylindrical</i>
45	 <p><i>Evadne sp.</i></p>	 <p>(Contreras-Vega et al., 2021)</p>	Kingdom: Animalia Phylum : Arthropoda Class : Branchiopoda Order : Onychopoda Family : Podonidae Genus : <i>Evadne</i> Lovén, 1836