

DAFTAR PUSTAKA

1. PlasticsEurope. Plastics – the Facts 2018: an Analysis of European Plastics Production. Demand Waste Data 2018;
2. Wang, W., Ge, J., Yu X. Bioavailability and toxicity of microplastics to fish species: a review. *Ecotoxicol. Environ Saf* 2020;189, 10991.
3. Momin SMA, Imtiaz HB, Sunji BMMR, Tahsin BT, Walker CTR, Safiur RM. Characterization, source identification and hazard index assessment of ingested microplastics in farmed tilapia *Oreochromis niloticus*. *Ecol Indic* [homepage on the Internet] 2024;158:111334. Available from: <https://doi.org/10.1016/j.ecolind.2023.111334>
4. Kibria G. Global review and analysis of the presence of microplastics in fish. *Asian Fish Sci* 2022;35, 191–25.
5. Prokić M.D., Radovanović T.B., Gavrić J.P., Faggio C. Ecotoxicological effects of microplastics: examination of biomarkers, current state and future perspectives. *TrAC Trends Anal Chem* 2019;111, 37–46.
6. [FAO] F and AO. The State of World Fisheries and Aquaculture 2022. Rome FAO [homepage on the Internet] 2022;Available from: <https://doi.org/10.4060/cc0461en>
7. Avnimelech Y. Biofloc Technology: A Practical Guide Book (3rd ed.). World Aquac Soc 2015;
8. Dwisani R, Fitri WE, Putra A. Biofloc-based catfish cultivation and its effect on the dynamics of water quality Biofloc-based catfish cultivation and its effect on the dynamics of water quality. 2023;(December).
9. Deswati, D., Zein, R., Suparno, S., & Pardi H. Modified biofloc technology and its effects on water quality and growth of catfish. *Sep Sci Technol* 2023;944–960(58(5)).
10. Deswati D, Yani E, Safni S, Tetra ON, Pardi H. Development methods in aquaponics systems using biofloc to improve water quality (ammonia , nitrite , nitrate) and growth of tilapia and samhong mustard. *Int J Environ Anal Chem* [homepage on the Internet] 2020;00(00):1–11. Available from: <https://doi.org/10.1080/03067319.2020.1839437>
11. Deswati, D., Tetra, O. N., Isara, L. P., Roesma, D. I., & Pardi H. Samhong mustard cultivation by utilizing tilapia waste in a nutrient film technique (NFT) aquaponics system based on biofloc technology and its impact on water quality. *Rasayan J Chem* [homepage on the Internet] 2021;14(4):2559–2566. Available from: <https://doi.org/10.31788/RJC.2021.1446581>
12. Hossain, T., Sun, Y., & Sun X. Impacts of microplastics on aquatic environments and organism health: A review. *Environ Pollut* [homepage on the Internet] 2020;267(115171). Available from: <https://doi.org/10.1016/j.envpol.2020.115171>
13. Zhang, Y., Jiang, H., Bian, K., Wang, H., & Wang C. A critical review of microplastics in aquatic ecosystems: Degradation mechanisms and removing strategies. *Environ Sci Pollut Res* [homepage on the Internet] 2021;28(36):50394–50413. Available from: <https://doi.org/10.1007/s11356-021-15271-w>
14. Emerenciano, M., Ballester, E. L. C., Cavalli, R. O., & Wasielesky W. Biofloc technology (BFT): A tool for water quality management in aquaculture. *Aquac Int* 2017;15:219–227.
15. Ombong F, Salindeho IR. Aplikasi teknologi bioflok (BFT) pada kultur ikan nila, *Oreochromis niloticus*). e-Journal Budid Perair 2016;4(2):16–25.
16. Khanjani MH, Mohammadi A, Emerenciano MGC. Microorganisms in biofloc aquaculture system. *Aquac Reports* [homepage on the Internet] 2022;26(July):101300. Available from: <https://doi.org/10.1016/j.aqrep.2022.101300>
17. Marsidi R. Proses Nitrifikasi Dengan Sistem Biofilter Untuk Pengolahan Air Limbah

- Yang Mengandung Amoniak Konsentrasi Tinggi. *J Teknol Lingkung* 2011;3(3):195–205.
18. Samsundari S, Adhy Wirawan G. Analisis Penerapan Biofilter Dalam Sistem Resirkulasi Terhadap Mutu Kualitas Air Budidaya Ikan Sidat (*Anguilla Bicolor*). *Gamma* [homepage on the Internet] 2014;8(2):86–97. Available from: <http://ejournal.umm.ac.id/index.php/gamma/article/view/2410>
19. Toro E, Hartono D, Utami MAF. Kajian Kualitas Air Terhadap Pertumbuhan Ikan Sidat Pada Kolam Air Mengalir. *Aquacoastmarine J Aquat Fish Sci* 2024;3(1):50–55.
20. Skoog, D. A., West, D. M., Holler, F. J., & Crouch SR. *Fundamentals of Analytical Chemistry* (9th ed.). Cengage Learning. 2018;
21. Hendrawati., P TH, R NN. Analisis Kadar Phosfat dan N-Nitrogen (Amonia, Nitrat, Nitrit) pada Tambak Air Payau akibat Rembesan Lumpur Lapindo di Sidoarjo, Jawa Timur. *J Kelaut dan Perikan* 2007;8:135–143.
22. (APHA) APHA. *Standard Methods for the Examination of Water and Wastewater* (23rd ed.). American Public Health Association. 2017;
23. Y A. *Biofloc Technology - a Practical Guide Book*, 2nd edition. United States World Aquac Soc 2012;
24. Luo, L. et al. Changes in nitrogen compounds during biofloc technology cultivation of juvenile *Oreochromis niloticus*. *Aquac Reports* 2017;
25. Basri, Sarinah Ahmad, Badrun Rismawati, Nur Pakaya R. *Mikroplastik Di Lingkungan*. 2024;
26. Rochman, C. M., Brookson, C., Bikker, J., Djuric, N., Earn, A., Bucci, K., ... & Hung C. Rethinking microplastics as a diverse contaminant suite. *Environ Toxicol Chem* [homepage on the Internet] 2019;703–711. Available from: <https://doi.org/10.1002/etc.4371>
27. Cole, M., Lindeque, P., Fileman, E., Halsband, C., Goodhead, R., Moger, J., & Galloway TS. Microplastic ingestion by zooplankton. *Environ Sci Technol* [homepage on the Internet] 47(12):6646–6655. Available from: <https://doi.org/10.1021/es400663f>
28. Thompson, R. C., Moore, C. J., Vom Saal, F. S., & Swan SH. Plastics, the environment and human health: Current consensus and future trends. *Philosophical Transactions of the Royal Society B. Biol Sci* [homepage on the Internet] 2009;364(1526):2153–2166. Available from: <https://doi.org/10.1098/rstb.2009.0053>
29. Barboza, L. G. A. et al. Microplastics in fish and fishery products: A systematic review of the literature. *Mar Pollut Bull* 2018;137.
30. Wright, S. L., Thompson, R. C., & Galloway, T. SWright, S. L., Thompson, R. C., & Galloway TS. The physical impacts of microplastics on marine organisms: A review. *Environ Pollut* [homepage on the Internet] 2013;178:483–492. Available from: <https://doi.org/10.1016/j.envpol.2013.02.031>
31. Rillig, M. C. et al. Microplastic effects on plants. *New Phytol* [homepage on the Internet] 2019;223(3):1066–1070. Available from: <https://doi.org/10.1111/nph.15794>
32. Lithner, D., Larsson, Å., & Dave G. Environmental and health hazard ranking and assessment of plastic polymers based on chemical composition. *Sci Total Environ* 2011;409(18):3309–3324.
33. International A. *Official Methods of Analysis of AOAC International* (20th ed.) AOAC International. 2016;
34. Rios, L. M. et al. Persistent organic pollutants and plastic in the marine environment: A review. *Mar Pollut Bull* 2007;(55(3–5)).
35. Kazarian, S. G., & Chan KLA. Applications of ATR-FTIR spectroscopic imaging to biomedical samples. *Biochim Biophys Acta - Biomembr* 2006;1758(7):858–867.
36. BSNI. Pengujian Kadar Amonium Dalam Air. SNI 06-2479-1991. SNI 1991, 2479.

37. SNI. Cara Uji Air Minum Dalam Kemasan.SNI 01- 3554-2006; 2006.
38. BSNI. Cara Uji Nitrit (NO₂ -N) Secara Spektrofotometri. SNI 06-6989.9-2004. SNI 2004, No. 2, 13.
39. Badan Standarisasi Nasional Indonesia. Air Dan Air Limbah – Bagian 31 : Cara Uji Kadar Fosfat Dengan Spektrofotometer Secara Asam Askorbat. SNI 06 6989.31-2005. SNI 2021, 1–27.
40. BSNI. Air Dan Air Limbah – Bagian 20 : Cara Uji Sulfat, SO₄2- Secara Turbidimetri. SNI 06-6989.20-2004 Air. SNI 2004, No. SNI 06-6989.20-2004, 1 5.
41. Kilic, M., Gokkus, O., & Duru S. Microplastic extraction from fish: A modified method for the efficient recovery of microplastics from biological samples. Environ Sci Pollut Res [homepage on the Internet] 2022;29:34567–34578. Available from: <https://doi.org/10.1007/s11356-021-16650-2>
42. Zhou, Y. et al. Biofloc Technology in Aquaculture: A Review of Effectiveness. Aquaculture 2020;528, 73547.
43. Crab, R. et al. Biofloc Technology: A Review on the Production of Biofloc in Aquaculture. Aquac Nutr 2012;18(2):77-86.
44. Xu, Y., Li, M., Zhang, Z., & Wang J. Effects of nitrite on fish health and its biosafety. Fish Physiol Biochem 2020;46(2):563–574.
45. Fried, S., Mackie, B., & Nothwehr E. Nitrate and phosphate levels positively affect the growth of aquatic algae: An experimental study. Tiller A J Environ Stud Progr 2012;6(1):31-43.
46. Deswati, Tetra ON, Yusuf Y. Dynamics and fluctuations of ammonia , nitrite and nitrate in the utilization of tilapia cultivation waste in Aquaponics-NFT (nutrient film technique) based on biofloc. 2023;16(3):1254–1265.
47. Luo, L. et al. Effects of total ammonia nitrogen on growth performance and survival of tilapia in biofloc. Aquac Res 2020;51(11):4650–4662.
48. Aldrin, J., Amato, F., & Fagbenro O. Effects of water quality on fish growth performance in aquaculture systems: A case study of tilapia. Aquaculture, 2021;530,:735–744.
49. Sang, J., Zhu, L., & Wei L. The role of biofloc in aquaculture: A review. Aquac Res 2020;51(2):453–471.
50. Huang, L., Yang, J., & Zhang Y. The effects of biofloc technology on water quality and productivity in aquaculture: Implications for sustainability. Aquac Econ Manag 2021;25(1):13–28.
51. Abdel-Tawwab, M. et al. Sulfate and nitrate dynamics in aquaculture systems. Environ Biol Fishes 2019;
52. Naylor, R. L., Goldburg, R. J., Primavera, J. H. et al. Effect of aquaculture on world fish supplies. Nature 2020;404(6770),:23–29.
53. Rahman, M. M., Ruma, S. S., & Khan MNA. Effects of dietary protein level on growth performance of tilapia (*Oreochromis niloticus*). Aquac Res 2013;44(2):310–319.
54. Rahman, M. M., Ruma, S. S., & Khan MNA. Effects of dietary protein level on growth performance of tilapia (*Oreochromis niloticus*). Aquac Res 2013;44(2),:310–319.
55. Wu, Y. W., Wang, X., & Zhang BF. Nitrogen in aquaculture: sources, forms, and fate. Aquac Reports 2016;4,:88–94.
56. Lusher, A. L. et al. Microplastics in the marine environment: Distribution, interactions and effects. Nat Ecol Evol 2017;1(5).
57. Baird, T. J., & Sasso C. Microplastics Induce Oxidative Stress in Fish: A Review of the Evidence. Sci Total Environ [homepage on the Internet] 2020;707(13562). Available from: <https://doi.org/10.1016/j.scitotenv.2020.13562>
58. Atabay, H. et al. Effects of biofloc on growth performance and feed utilization of fish: A

- review. *Aquac Reports* 2018;13.
- 59. Benson, S. M. et al. Microplastics ingestion and physiological impacts on fish: A review. *Aquat Toxicol* 2021;241.
 - 60. Kumar, M., Glasby, T., & Bali K. The effects of microplastics on aquaculture: An overview of the potential risk. *Fish Physiol Biochem* 2020;46(4):1199–1212.
 - 61. Zhou, X. et al. Effect of different carbon sources on biofloc production and water quality in a biofloc-based rearing system. *Aquac Res* 2016;47(8).
 - 62. Hargreaves, J. A., Tucker, C. S., & Boyd CE. Biofloc Technology in Aquaculture: Beneficial Microorganisms, Microbial Ecology, and Practical Applications. Wiley-Blackwell 2018;45–67.
 - 63. Hernandez, M. et al. Biofloc technology in aquaculture: A review of water quality parameters affecting growth and health of fish. *Aquac Reports* 2020;17.
 - 64. Higgins, C.P. et al. Microplastic Effects on Aquatic Organisms: From Chemistry to Biology. *Environ Pollut* 2020;Vol. 258,.
 - 65. Avnimelech, Y. et al. Impacts of Nile Tilapia (*Oreochromis niloticus*) exposed to microplastics in biofloc systems. *Sci Direct* 2023;
 - 66. Al. SH et. Microplastics biodegradation by biofloc-producing bacteria. *Microbiol Res (Pavia)* 2023;
 - 67. Rist, S. et al. Microplastics in fish and fishery products: A systematic review of the literature. *Mar Pollut Bull* 2019;145,:263-274.
 - 68. Browne, M. A., Dissanayake, A., Galloway, T. S. et al. Inhalation of microplastics increases susceptibility to respiratory infections. *Environ Sci Technol* 2011;45(21),:9208–9215.
 - 69. Geyer, R., Jambeck, J. R., & Law KL. Production, use, and fate of all plastics ever made. *Sci Adv* 2017;3(7).
 - 70. Klein, S. et al. Occurrence and effects of microplastics in the marine environment: A review. *Sci Pollut Res* 2015;22(16).
 - 71. Baird, T. J., & Sassoon C. Microplastics induce oxidative stress in fish: A review of the evidence. *Sci Total Environ* 2020;707.
 - 72. Barbiere, J. et al. Laboratory studies of the deterioration of plastic waste containing microplastics. *Plast Pollut Mar Environ* 2021;25:12–25.
 - 73. Alomar, O. et al. Microplastics in fish feeds: a potential source of contamination in aquaculture. *Environ Pollut* 2020;263.
 - 74. Schmidt, C. et al. Microplastics in marine environments: A review of the scientific literature. *Environ Sci Pollut Res* 2020;27(16).
 - 75. Mansoori, G. A., & Akhtar S. Vibrational spectroscopy of polyamide films and fibers. *Polym Test* 2016;55:38–48.
 - 76. Khan, F. A. et al. A review of recent progress in polyamide synthesis and applications. *Molecules* 2019;24(6).
 - 77. Rochman, C. M., Hoh, E., Kaye, S., & Teh SJ. Ingested plastic transfers hazardous chemicals to fish and induces hepatic stress. *Sci Rep [homepage on the Internet]* 2015;5, 3263. Available from: <https://doi.org/10.1038/srep03263>
 - 78. Lebreton, L. C. M., Van der Zwet, J., Damsteeg, J. W., Slat, B., Andrade, A., & Reisser J. River Plastic Emissions to the World's Oceans. *Nat Commun [homepage on the Internet]* 2017;8(1). Available from: <https://doi.org/10.1038/ncomms15611>
 - 79. Zhang, H., Yang, Y., & Yang K. Occurrence, sources, and ecological risk of microplastics in the aquatic environment: A review. *Environ Pollut* 2020;261:114146.