

## DAFTAR PUSTAKA

- Abdel-Tawwab, M., M. H. Ahmad, Y. A. Khattab, & A. M. Shalaby. 2010. Effect of dietary protein level, initial body weight, and their interaction on the growth, feed utilization, and physiological alterations of Nile tilapia, *Oreochromis niloticus* (L.). *Aquaculture*, 298(3-4), 267-274.
- Akhir, M. F. M., N. A. Saad, & N. A. Zakaria. 2017. Potential of coconut shell activated carbon (CSAC) in removing contaminants for water quality improvement: A critical review. 070005. <https://doi.org/10.1063/1.5005723>.
- Al-Hafedh, Y. S., & A. Alam. 2005. Operation of a water recirculating greenwater system for the semi-intensive culture of mixed-sex and all-male Nile tilapia, *Oreochromis niloticus*. *Journal of Applied Aquaculture*, 17(4): 47–59. [https://doi.org/10.1300/J028v17n04\\_03](https://doi.org/10.1300/J028v17n04_03).
- Alwi, I. N., R. Yuli, F. Hutapea, B. Wisely Ziliwu, P. Kelautan, P. Dumai, J. Amir, P. Kelurahan, K. Sesai, K. Dumai Barat, P. Dumai, & I. Riau. 2020. Spesifikasi dan hasil tangkapan jaring insang di desa prapat tunggal, kabupaten kengkalis, provinsi riau. Specifications and catches of gillnet in prapat tunggal village, bengkalis regency, riau province.
- Amponsah, S. K., F. Frimpong, E. O. Danquah, P. Amankwaa-Yeboah, N. E. Amengor, J. B. Dzomeku, S. M. Agyemang, J. K. Adu, T. Frimpong, & D. D. Azumah. 2024. Performance of a horizontal subsurface flow constructed wetland in treating aquaculture wastewater. *Journal of ecological engineering*, 25(10), 53–61. <https://doi.org/10.12911/22998993/191672>.
- Apriadi, D., D. Jubaedah, M. Wijayanti, K. Indralaya, J. Raya, P. Prabumulih, O. Ilir, T. 0711, , & Korespondensi. 2017. Pengaruh frekuensi pembilasan filter arang aktif batok kelapa dan spons pada sistem resirkulasi terhadap kualitas air media pemeliharaan ikan maanvis (*Pterophyllum scalare*). The effect of flushing frequency of coconut charcoal and sponge filter in recirculation system on water quality of rearing angelfish (*Pterophyllum scalare*) media.
- Arifin, M. Y. 2017. Pertumbuhan dan survival rate ikan nila (*Oreochromis sp*) strain merah dan strain hitam yang dipelihara pada media bersalinitas. *Jurnal Ilmiah Universitas Batanghari Jambi*, 16(1), 159-166.
- Authority, V. F. 2014. Best Practice Environmental Management Guidelines for Recirculating Aquaculture Systems.
- Becke, C., D. Steinhagen, M. Schumann, & A. Brinker. 2017. Physiological consequences for rainbow trout (*Oncorhynchus mykiss*) of short-term exposure to increased suspended solid load. *Aquacultural Engineering*, 78, 63-74.
- Blidariu, F., & A. Grozea 2011. Increasing the economical efficiency and sustainability of indoor fish farming by means of aquaponics-review. In scientific papers: animal science and biotechnologies (issue 2).

- Bulan, R., M. Muliani, Z. Zulpikar, S. Adhar, & E. Ayuzar. 2023. Application of recirculating aquaculture system in black tiger shrimp (*Penaeus monodon*) nursery indoors. *Acta aquatica: aquatic sciences journal*, 10(1), 40. <https://doi.org/10.29103/aa.v1i2.8885>.
- Carlo, B., G. Christian, & R. Lorenzo. 2023. Evaluation of the efficacy of a radial flow settler for aquaculture wastewater treatment. In *lecture notes in civil engineering: Vol. 337 LNCE*. [https://doi.org/10.1007/978-3-031-30329-6\\_112](https://doi.org/10.1007/978-3-031-30329-6_112).
- Dauda, A. B., S. O. Yakubu, & A. O. Oke. 2014. Curbing the menace of prolific breeding in “aquatic chicken” (tilapia): a way out to improve fish production in nigeria. In *New York Science Journal* (Vol. 7, Issue 4). <http://www.sciencepub.net/newyork>.
- De Jesus Gregersen, K. J., P. Olsson, C. Pellicer-Nàcher, & P. B. Pedersen. 2025. Effect of drum filter mesh size on RAS water quality. *Aquacultural Engineering*, 109, 102508. <https://doi.org/10.1016/j.aquaeng.2024.102508>.
- Djunaedi, A., & H. Susilo. 2016. Kualitas air media pemeliharaan benih udang windu (*Penaeus monodon Fabricius*) dengan sistem budidaya yang berbeda. *19(2)*, 171–178. [www.ejournal2.undip.ac.id/index.php/jkt](http://www.ejournal2.undip.ac.id/index.php/jkt).
- Ebeling, J. M., & M. B. Timmons. 2012. *Aquaculture Production Systems*. <https://doi.org/10.1002/9781118250105>.
- Effendie, M. I. 2002. *Biologi Perikanan*. Yogyakarta: Yayasan Pustaka Nusatama.
- Fadhil R, J. E. F. S. M. S. 2010. *Proceeding of ADIC 2010 : Aceh Development International Conference 2010, 26th-28th March 2010 Auditorium Hall, Faculty of Engineering, Universiti Putra Malaysia. Universiti Putra Malaysia*.
- Fadhil, R. 2013. *Tingkat pertumbuhan dan kelangsungan hidup ikan lele keli clarias batrachus dalam sistem akuakultur resirkulasi*.
- Fahril, M. A., N. A. Rangkuti, & I. R. Nila. 2022. Pengujian alat pendeteksi tingkat kekeruhan air berbasis mikrokontroler atmega 8535 sebagai sensor turbidity. *Hadron Jurnal Fisika Dan Terapan*, 4.
- Fathurrahman H. 2025. *Pertumbuhan dan sintasan ikan nila merah (Oreochromis sp.) yang dibudidayakan dengan sistem resirkulasi menggunakan jaring dan bead statis sebagai filter*.
- Firth, B. L., P. M. Craig, D. A. R. Drake, & M. Power. 2024. Impacts of temperature and turbidity on the gill physiology of darter species. *Comparative Biochemistry and Physiology Part A: Molecular & Integrative Physiology*, 291, 111589.
- Gullian-Klanian, M., & C. Arámburu-Adame. 2013. Performance of nile tilapia *Oreochromis niloticus* fingerlings in a hyper-intensive recirculating aquaculture system with low water exchange | rendimiento de juveniles de tilapia del nilo *Oreochromis niloticus* en un sistema híperintensivo de recirculación . *Latin*

*American Journal of Aquatic Research*, 41(1), 150–162.  
<https://doi.org/10.3856/vol41-issue1-fulltext-12>.

- Hardaningsih, I. J., L. Deviyanti, Mayasari, & S. Andang. 2023. Buku Pintar Teknik Produksi Benih Ikan (Vols. 978-623-7267-92–8). Lyly Publisher.
- Hasan, H. N., J. H. Al-Baidhani, & R. J. M. Al-Saadi. 2020. Evaluating the effects of the flow direction on the performance of the rapid sand filter. IOP Conference Series: Materials Science and Engineering, 928(2).  
<https://doi.org/10.1088/1757-899X/928/2/022080>.
- Huang. 2024. General rights effects of feed on water quality in recirculating aquaculture systems. DTU Aqua, 144.
- Iheanacho, S., M. Ogbu, M. S. Bhuyan, & J. Ogunji. 2023. Microplastic pollution: An emerging contaminant in aquaculture. *Aquaculture and Fisheries*, 8(6), 603-616.
- Ji, M., H. Li, J. Li, Z. Ye, & S. Zhu. 2020. Effect of mesh size on microscreen filtration combined with foam fractionation for solids removal in recirculating aquacultural seawater. *North american journal of aquaculture*, 82(2), 215–223.  
<https://doi.org/10.1002/naaq.10147>.
- Ji, M., J. Li, Z. Ye, & S. Zhu, 2018. Removing effect of fine particles with different sizes by foam fractionator in recirculating aquaculture system. Efektivitas pemisah busa dalam menghilangkan partikel halus dengan berbagai ukuran pada air sirkulasi budidaya. *Nongye Gongcheng Xuebao/Transactions of the Chinese Society of Agricultural Engineering*, 34(19), 202–207.  
<https://doi.org/10.11975/j.issn.1002-6819.2018.19.026>.
- Kerr, S. J. 1995. Silt, turbidity and suspended sediments in the aquatic environment : an annotated bibliography and literature review. Ontario ministry of natural resources.
- Khater, E.-S. G., S. A. Ali, A. H. Bahnasawy, & M. A. Awad. 2011. Solids removal in a recirculating aquaculture system. *Misr journal of agricultural engineering*, 28(4), 1178–1196. <https://doi.org/10.21608/mjae.2011.102635>.
- Kim, D.-H., C. Lee, C. Choi, S.-J. Ahn, & I. S. Kim. 2020. Transport analysis of particulate matter in media-saturated mesh tube filter for the desalination primary pretreatment process. *Desalination*, 495.  
<https://doi.org/10.1016/j.desal.2020.114642>.
- Kovács, B. D., K. J. de Jesus Gregersen, F. Rüppel, A. von Danwitz, & L.-F. Pedersen. 2023. Evaluating protein skimmer performance in a commercial seawater recirculating aquaculture system (RAS). *Aquacultural Engineering*, 103.  
<https://doi.org/10.1016/j.aquaeng.2023.102369>
- Laza, E. A., I. L. Caba, M. Olan, & V. Vladut. 2021. Biological water treatment in a recirculating aquaculture system. *E3S Web of Conferences*, 286.  
<https://doi.org/10.1051/e3sconf/202128603013>.

- Li, Y., & A. L. Shen. 2012. Gill damage and recovery in juvenile black sea bream *Acanthopagrus schlegelii* stressed by uncontaminated suspended solids. *Advanced Materials Research*, 518, 5047-5054.
- Liu, H., X. Che, & Y. Zhang. 2013. Performance of sequencing microbead biofilters in a recirculating aquaculture system. *Aquacultural Engineering*, 52, 80–86. <https://doi.org/10.1016/j.aquaeng.2012.10.002>.
- Maulianawati, D., & M. S. Lembang. 2022. *Kualitas Air Akuakultur*. Syiah Kuala University Press.
- Mulyanto, M., B. Suprpty, A. F. O. Gaffar, & M. T. Sumadi 2023. Water level control of small-scale recirculating aquaculture system with protein skimmer using fuzzy logic controller. *IAES International Journal of Robotics and Automation (IJRA)*, 12(3), 300. <https://doi.org/10.11591/ijra.v12i3.pp300-314>.
- Nagaraju, T. V., G. S. Bala, S. Bonthu, & S. Mantena. 2024. Modelling biochemical oxygen demand in a large inland aquaculture zone of India: Implications and insights. *Science of The Total Environment*, 906, 167386.
- Nugroho, R. A., L. T. Pambudi, D. Chilmawati, A. Herjuno, C. Haditomo, S. P. Program, S. Budidaya Perairan, & J. Perikanan 2012. Aplikasi teknologi aquaponic pada budidaya ikan air tawar untuk optimalisasi kapasitas produksi. In *Jurnal Saintek Perikanan* (Vol. 8, Issue 1).
- Prakosa, J. A., Purwowibowo, B. Widiyatmoko, Suryadi, A. Setiono, M. Y. Rofianingrum, T. Maftukhah, M. I. Afandi, I. Mulyanto, & H. Pratomo. 2022. Development of monitoring techniques and validation of the acidity level of biofloc pond water for optimizing tilapia aquaculture. *IOP Conference Series: Earth and Environmental Science*, 1017(1). <https://doi.org/10.1088/1755-1315/1017/1/012006>.
- Purnamasari, D. N., I. R. Dhani, D. T. Laksono, M. Ulum, M. Hardiwansyah, & R. Alfita. 2023. Enhancing tilapia fish farming through iot-driven monitoring and automatic feeding technology. In *2023 IEEE 9th Information Technology International Seminar (ITIS)* (pp. 1-5). IEEE.
- Rahman, M. M., S. Kadowaki, S. M. Linn, & Y. Yamada. 2012. Effects of protein skimming on water quality, bacterial abundance and abalone growth in land based recirculating aquaculture systems. *Journal of Fisheries and Aquatic Science*, 7(2), 150–161. <https://doi.org/10.3923/jfas.2012.150.161>.
- Ramesh, P., A. Jasmin, M. Tanveer, R. R.U, P. Ganeshan, K. Rajendran, S. M. Roy, D. Kumar, A. Chinnathambi, & K. Brindhadevi. 2025. Reprint of “Optimizing aeration efficiency and forecasting dissolved oxygen in brackish water aquaculture: Insights from paddle wheel aerator.” *Journal of the Taiwan Institute of Chemical Engineers*, 166. <https://doi.org/10.1016/j.jtice.2024.105868>.
- Rukmana, H. R, & H. H. Yudirachman. 2015. *Sukses Budi Daya Ikan Nila Secara*

Intensif. Lily Publisher, Yogyakarta.

- Sains Riset, J., M. Wati, & Z. Khalid. 2023. Sistem pendukung keputusan pemilihan rumput terbaik untuk taman menggunakan metode ahp berbasis android. *Jurnal Sains Riset* |, 13(1), 243. <https://doi.org/10.47647/jsr.v10i12>.
- Sari, W. P., A. B. J. Zaidy, Haryadi, & H Krettiawan. 2022. Efektivitas jenis filter pada sistem resirkulasi terhadap kualitas air dan pertumbuhan panjang benih *Pangasionodon hyphophthalmus*. *jurnal penyuluhan perikanan dan kelautan*, 16(2), 205–219. <https://doi.org/10.33378/jppik.v16i2.351>.
- Sharylo, D., & V. Kovalenko. 2022. Efficiency of using foamed glass for biofilter of an aquaculture recycling system. *Scientific Journal'Animal Science & Food Technologies'*, 13(3).
- Solang, M., S. J. Dosen, F. Biologi, Matematika, & D. Ipa. 2010. Indeks kematangan gonad ikan nila (*Oreochromis niloticus* ) yang diberi pakan alternatif dan dipotong sirip ekornya.
- Stavrakidis-Zachou, O., A. Ernst, C. Steinbach, K. Wagner, & U Waller, U. 2019. Development of denitrification in semi-automated moving bed biofilm reactors operated in a marine recirculating aquaculture system. *Aquaculture International*, 27, 1485-1501.
- Sucipto dan Prihartono 2007. Pembesaran nila hitam bangkok di karamba jaring apung, kolam air deras, kolam air tenang dan karamba. Penerbit Penebar Swadaya, Jakarta.
- Surahman, E., E. Sujarwanto, & I. R. Mahmudah. 2022. Budi Daya Ikan Nila. Bayfa Cendekia Indonesia.
- Thomas, D. 2017. Initial pressure efficiency of a fibrous media. In *Aerosol Filtration*. <https://doi.org/10.1016/B978-1-78548-215-1.50004-4>.
- Timmons, M. B., & B. J. Vinci. 2022. *Recirculating Aquaculture 5th Edition* (Edisi ke-5). Ithaca Publishing Company LLC.
- Wambua, D. M., P. G. Home, J. M. Raude, & S. Ondimu. 2021. Environmental and energy requirements for different production biomass of Nile tilapia (*Oreochromis niloticus*) in recirculating aquaculture systems (RAS) in Kenya. *Aquaculture and Fisheries*, 6(6), 593–600. <https://doi.org/10.1016/j.aaf.2020.07.019>.
- Wirman, R. P., I. Wardhana, & V. A. Isnaini. 2019. Kajian tingkat akurasi sensor pada rancang bangun alat ukur total dissolved solids (TDS) dan tingkat kekeruhan air. *Jurnal Fisika*, 9(1), 37–46. <https://doi.org/10.15294/jf.v9i1.17056>.
- Yao, M., J. Nan, & T. Chen. 2014. Effect of particle size distribution on turbidity under various water quality levels during flocculation processes. *Desalination*, 354, 116–124. <https://doi.org/10.1016/j.desal.2014.09.029>.



- Zhang, C., J. Y. Yang, F. Zhang, H. Wu, S. Xu, Q. Chen, Ni, & W. Liu. 2015. Design and performance of multiway gravity device on removing suspended solids in aquaculture water. *Nongye gongcheng xuebao/transactions of the chinese society of agricultural engineering*, 31, 53–60. <https://doi.org/10.3969/j.issn.1002-6819.2015.z1.008>.
- Zielina, M. 2016. Monitoring particle size distribution for water treatment processes. *Environment Protection Engineering*, 42(3). <https://doi.org/10.5277/epe160313>.