

DAFTAR PUSTAKA

- Abuodha, P.A.O, Woodroffe, C.D. (2010) Assessing vulnerability to sea-level rise using a coastal sensitivity index: a case study from southeast Australia. *J Coast Conserv* 14:189–205. doi:10.1007/s11852-010-0097-0
- Adame, M. F., Cormier, N., Taillardat, P., Iram, N., Rovai, A., Sloey, T. M., Yando, E. S., Blanco-Libreros, J. F., Arnaud, M., Jennerjahn, T., Lovelock, C. E., Friess, D., Reithmaier, G. M. S., Buelow, C. A., Muhammad-Nor, S. M., Twilley, R. R., & Ribeiro, R. A. (2024). Deconstructing the mangrove carbon cycle: Gains, transformation, and losses. *Ecosphere*, 15(3), 1–23. <https://doi.org/10.1002/ecs2.4806>
- Adame, M. F., Zakaria, R. M., Fry, B., Chong, V. C., Then, Y. H. A., Brown, C. J., & Lee, S. Y. (2018). Loss and recovery of carbon and nitrogen after mangrove clearing. *Ocean and Coastal Management*, 161(January), 117–126. <https://doi.org/10.1016/j.ocecoaman.2018.04.019>
- Adame, Maria F., Connolly, R. M., Turschwell, M. P., Lovelock, C. E., Fatoyinbo, T., Lagomasino, D., Goldberg, L. A., Holdorf, J., Friess, D. A., Sasmito, S. D., Sanderman, J., Sievers, M., Buelow, C., Kauffman, J. B., Bryan-Brown, D., & Brown, C. J. (2021). Future carbon emissions from global mangrove forest loss. *Global Change Biology*, 27(12), 2856–2866. <https://doi.org/10.1111/gcb.15571>
- Adame, Maria Fernanda, Kauffman, J. B., Medina, I., Gamboa, J. N., Torres, O., Caamal, J. P., Reza, M., & Herrera-Silveira, J. A. (2013). Carbon Stocks of Tropical Coastal Wetlands within the Karstic Landscape of the Mexican Caribbean. *PLoS ONE*, 8(2). <https://doi.org/10.1371/journal.pone.0056569>
- Ahmed, Y., Kurniawan, C. A., Efendi, G. R., Pribadi, R., Nainggolan, F. A., DAN Samudra, M. B. G. S. (2023). Estimasi Cadangan Karbon Mangrove Berdasarkan Perbedaan Tahun Tanam Rehabilitasi Mangrove (2005, 2008, 2011, 2014 dan 2017) di Kawasan Ekowisata Mangrove Pandansari, Kabupaten Brebes. *Buletin Oseanografi Marina*, 12(1): 9–19. <https://doi.org/10.14710/buloma.v12i1.40871>
- Albert, J., Warren-Rhodes, K., Schwarz, A., & Duke, N. (2012). Mangrove Ecosystem Services and Payments for Blue Carbon in Solomon Islands. The WorldFish Center, Solomon Islands., August 2016, 6. <https://doi.org/10.13140/RG.2.1.2301.2081>
- Alongi, D. M. (2008). Mangrove forests: Resilience, protection from tsunamis, and responses to global climate change. *Estuarine, Coastal and Shelf Science*, 76(1), 1–13. <https://doi.org/10.1016/j.ecss.2007.08.024>
- Alongi, D. M. (2014). Carbon cycling and storage in mangrove forests. *Annual Review of Marine Science*, 6(May), 195–219. <https://doi.org/10.1146/annurev-marine-010213-135020>
- Alongi, D. M. dan Mukhopadhyay, S. K. (2015). Contribution of mangroves to coastal carbon cycling in low latitude seas. *Agricultural and Forest Meteorology*, 213: 266–272. <https://doi.org/10.1016/j.agrformet.2014.10.005>

- Alongi, D. M., & Zimmer, M. (2024). Blue carbon biomass stocks but not sediment stocks or burial rates exhibit global patterns in re-established mangrove chronosequences: a meta-analysis. *Marine Ecology Progress Series*, 733(April), 27–42. <https://doi.org/10.3354/meps14560>
- Alvareza, M., dan Leilani, I. (2020). Community Structure of the Mangrove Forest in the Tourism Area of Pariaman City, West Sumatra. *Bioscience*, 4(1). <https://doi.org/10.24036/0202041108192-0-00>
- Amira, S. (2008). An estimation of *Rhizophora apiculata* Bl. biomass in mangrove forest in Batu Ampar Kubu Raya Regency. Bogor Agricultural University, Indonesia.
- Analuddin, K., Sharma, S., Kadidae, L. O., Haya, L. O. M. Y., Septiana, A., Rahim, S., Syahrir, L., Aba, L., Fajar, L. O. A., MacKenzie, R. A., & Nadaoka, K. (2023). Blue carbon stock in sediments of mangroves and seagrass ecosystems at Southeast Sulawesi, Indonesia. *Ecological Research*, 38(4), 508–520. <https://doi.org/10.1111/1440-1703.12374>
- Annisa, A. Y. N., Pribadi, R., & Pratikto, I. (2019). Analisis Perubahan Luasan Hutan Mangrove Di Kecamatan Brebes Dan Wanasari, Kabupaten Brebes Menggunakan Citra Satelit Landsat Tahun 2008, 2013 Dan 2018. *Journal of Marine Research*, 8(1), 27–35. <https://doi.org/10.14710/jmr.v8i1.24323>
- Anwar, K. (2022). The Potential of Halal Tourism Development in Mangrove Mulyoasri Ectourism, Pekalongan Regency. *International Conference on Islamic Studies (ICIS)*, 340–348.
- Arifanti, V. B., Kauffman, J. B., Hadriyanto, D., Murdiyarso, D., & Diana, R. (2019). Carbon dynamics and land use carbon footprints in mangrove-converted aquaculture: The case of the Mahakam Delta, Indonesia. *Forest Ecology and Management*, 432(January 2018), 17–29. <https://doi.org/10.1016/j.foreco.2018.08.047>
- Arifanti, V. B., Novita, N., Subarno, & Tosiani, A. (2021). Mangrove deforestation and CO₂ emissions in Indonesia. *IOP Conference Series: Earth and Environmental Science*, 874(1). <https://doi.org/10.1088/1755-1315/874/1/012006>
- Arifanti, V. B., Sidik, F., Mulyanto, B., Susilowati, A., Wahyuni, T., Subarno, Yulianti, Yuniarti, N., Aminah, A., Suita, E., Karlina, E., Suharti, S., Pratiwi, Turjaman, M., Hidayat, A., Rachmat, H. H., Imanuddin, R., Yeny, I., Darwiati, W., ... Novita, N. (2022a). Challenges and Strategies for Sustainable Mangrove Management in Indonesia: A Review. *Forests*, 13(5). <https://doi.org/10.3390/f13050695>
- Arifanti, V. B., Sidik, F., Mulyanto, B., Susilowati, A., Wahyuni, T., Subarno, Yulianti, Yuniarti, N., Aminah, A., Suita, E., Karlina, E., Suharti, S., Pratiwi, Turjaman, M., Hidayat, A., Rachmat, H. H., Imanuddin, R., Yeny, I., Darwiati, W., Novita, N. (2022b). Challenges and Strategies for Sustainable Mangrove Management in Indonesia: A Review. *Forests*, 13(5). <https://doi.org/10.3390/f13050695>
- Ario, R., Subardjo, P., & Handoyo, G. (2016). Analisis Kerusakan Mangrove Di Pusat Restorasi Dan Pembelajaran Mangrove (PRPM), Kota Pekalongan.

- Jurnal Kelautan Tropis, 18(2): 64–69.
<https://doi.org/10.14710/jkt.v18i2.516>
- Ashton, E.C. & Macintosh, D.J. (2002) Preliminary Assessment of the Plant Diversity and Community Ecology of the Sematan Mangrove Forest, Sarawak, Malaysia. *Forest Ecology and Management*, 166, 111-129.
[http://dx.doi.org/10.1016/S0378-1127\(01\)00673-9](http://dx.doi.org/10.1016/S0378-1127(01)00673-9)
- Askary, M. (2003). Valuasi Ekonomi dalam Kebijakan Analisis Mengenai Dampak Lingkungan Hidup. Seminar Nasional III Neraca Sumber Daya Alam dan Lingkungan di Baturraden, Purwokerto pada 12-14 Desember 2003.
- Aslan, A., Rahman, A. F., Warren, M. W., & Robeson, S. M. (2016). Mapping spatial distribution and biomass of coastal wetland vegetation in Indonesian Papua by combining active and passive remotely sensed data. *Remote Sensing of Environment*, 183, 65–81.
<https://doi.org/10.1016/j.rse.2016.04.026>
- Atwood, T. B., Connolly, R. M., Almahasheer, H., Carnell, P. E., Duarte, C. M., Lewis, C. J. E., Irigoien, X., Kelleway, J. J., Lavery, P. S., Macreadie, P. I., Serrano, O., Sanders, C. J., Santos, I., Steven, A. D. L., & Lovelock, C. E. (2017). Global patterns in mangrove soil carbon stocks and losses. *Nature Climate Change*, 7(7), 523–528. <https://doi.org/10.1038/nclimate3326>
- Azad, M. S., Kamruzzaman, M., Paul, S. K., Ahmed, S., & Kanzaki, M. (2020). Vegetative and reproductive phenology of the mangrove *Xylocarpus mekongensis* Pierre in the Sundarbans, Bangladesh: Relationship with climatic variables. *Regional Studies in Marine Science*, 38. <https://doi.org/10.1016/j.rsma.2020.101359>
- Azzahra, F. (2020). Estimasi Serapan Karbon Pada Hutan Mangrove Desa Bedono, Demak, Jawa Tengah. *Journal of Fisheries and Marine Research*, 4(2): 308–315
- Ball, M.C. (1998). Mangrove species richness in relation to salinity and waterlogging: a case study along the Adelaide River floodplain, northern Australia. *Global Ecology and Biogeography Letter*, 7(1):73-82.
- BAPPENAS. (2021). A green economy for a net-zero future: How Indonesia can build back better after COVID-19 with the Low Carbon Development Initiative (LCDI) (M. Medrilzam, L. Garrido, S. Ida, I. D. Yananto, E. Suarga, A. Wijaya, M. Davis, A. Harsono, K. Connolly, & Y. Akopian, Eds.). Ministry of National Development Planning (BAPPENAS) Republic of Indonesia.
- Barbier, E. B. (2016). The protective service of mangrove ecosystems: A review of valuation methods. *Marine Pollution Bulletin*, 109(2), 676–681.
<https://doi.org/10.1016/j.marpolbul.2016.01.033>
- Barnuevo, A., & Asaeda, T. (2018). Integrating the ecophysiology and biochemical stress indicators into the paradigm of mangrove ecology and a rehabilitation blueprint. *PLoS ONE*, 13(8), 1–17.
<https://doi.org/10.1371/journal.pone.0202227>
- Basha, C. (2018). An Overview on Global Mangrove Distribution. *Indian Journal of Geo Marine Sciences*, 47 (4): 766–772.

- Bernhardt, J. R., & Leslie, H. M. (2013). Resilience to climate change in coastal marine ecosystems. *Annual Review of Marine Science*, 5(December 2011), 371–392. <https://doi.org/10.1146/annurev-marine-121211-172411>
- Bhomia, R. K., Mackenzie, R. A., Murdiyarso, D., Sasmito, S. D., & Purbopuspito, J. (2016). Impacts of land use on Indian mangrove forest carbon stocks: Implications for conservation and management. *Ecological Applications*, 26(5), 1396–1408. <https://doi.org/10.1890/15-2143>
- Blasco, F., Saenger, P., dan Janodet, E. (1996). Mangroves as indicators of coastal change. *Catena*, 27(3–4): 167–178. [https://doi.org/10.1016/0341-8162\(96\)00013-6](https://doi.org/10.1016/0341-8162(96)00013-6)
- Bunting, P., Rosenqvist, A., Hilarides, L., Lucas, R. M., Thomas, N., Tadono, T., Worthington, T. A., Spalding, M., & Murray, N. J. (2022). Global Mangrove Extent Change 1996 – 2020: Global Mangrove. *Remote Sensing*, 14(3657), 1–32.
- Cameron, C., Hutley, L. B., Friess, D. A., & Brown, B. (2019a). Community structure dynamics and carbon stock change of rehabilitated mangrove forests in Sulawesi, Indonesia. *Ecological Applications*, 29(1), 1–18. <https://doi.org/10.1002/eap.1810>
- Cameron, C., Hutley, L. B., Friess, D. A., & Brown, B. (2019b). Community structure dynamics and carbon stock change of rehabilitated mangrove forests in Sulawesi, Indonesia. *Ecological Applications*, 29(1). <https://doi.org/10.1002/eap.1810>
- Carter, H. N., Schmidt, S. W., & Hirons, A. C. (2015). An international assessment of mangrove management: Incorporation in integrated coastal zone management. *Diversity*, 7(2), 74–104. <https://doi.org/10.3390/d7020074>
- Castañeda-Moya, E., Twilley, R. R., dan Rivera-Monroy, V. H. (2013). Allocation of biomass and net primary productivity of mangrove forests along environmental gradients in the Florida Coastal Everglades, USA. *Forest Ecology and Management*, 307: 226–241. <https://doi.org/10.1016/j.foreco.2013.07.011>
- Castillo, J. A. A., Apan, A. A., Maraseni, T. N., & Salmo, S. G. (2017). Soil C quantities of mangrove forests, their competing land uses, and their spatial distribution in the coast of Honda Bay, Philippines. *Geoderma*, 293, 82–90. <https://doi.org/10.1016/j.geoderma.2017.01.025>
- Cayetano, C. B., Creencia, L. A., Sullivan, E., Clewley, D., dan Miller, P. I. (2023). Multi-spatiotemporal analysis of changes in mangrove forests in Palawan, Philippines: predicting future trends using a support vector machine algorithm and the Markov chain model. *UCL Open Environment*, 5. <https://doi.org/10.14324/111.444/ucloe.000057>
- Chamberland-Fontaine, S., Thomas Estrada, G., Heckadon-Moreno, S., & Hickey, G. M. (2022). Enhancing the sustainable management of mangrove forests: The case of Punta Galeta, Panama. *Trees, Forests and People*, 8 (100274). <https://doi.org/10.1016/j.tfp.2022.100274>
- Chapman. (1975). *Mangrove Biogeography*. Proceedings of Internal Symposium on Biology and Management of Mangroves. Florida: Institut of Food and Agricultural Science University Florida.

- Chen, Y. (2023). Monitoring Land Use/Land Cover Change (LULCC) Using Remote Sensing. *E3S Web of Conferences*, 424. <https://doi.org/10.1051/e3sconf/202342403002>
- Chou, M. Q., Lin, W. J., Lin, C. W., Wu, H. H., & Lin, H. J. (2022). Allometric equations may underestimate the contribution of fine roots to mangrove carbon sequestration. *Science of the Total Environment*, 833(March), 155032. <https://doi.org/10.1016/j.scitotenv.2022.155032>
- Chow, J. (2018). Mangrove management for climate change adaptation and sustainable development in coastal zones. *Journal of Sustainable Forestry*, 37(2), 139–156. <https://doi.org/10.1080/10549811.2017.1339615>
- Chowdhury, M. S., & Hafsa, B. (2022). Multi-decadal land cover change analysis over Sundarbans Mangrove Forest of Bangladesh: A GIS and remote sensing based approach. *Global Ecology and Conservation*, 37. <https://doi.org/10.1016/j.gecco.2022.e02151>
- Cooper, J.A.G. & McLaughlin, S. (1998) Contemporary multidisciplinary approaches to coastal classification and environmental risk analysis. *J Coast Res* 14:512–524
- Clark Lab. <https://www.clarku.edu/centers/geospatial-analytics/aquaculture-data-download/> (Accessed on October 2024)
- Clough, B. F., & Scott, K. (1989). Allometric relationships for estimating above-ground biomass in six mangrove species. *Forest Ecology and Management*, 27(2), 117–127. [https://doi.org/10.1016/0378-1127\(89\)90034-0](https://doi.org/10.1016/0378-1127(89)90034-0)
- Creswell, John W. (2015). *Penelitian Kualitatif & Desain Riset*. Yogyakarta: Pustaka Pelajar
- Creswell, J. W. dan Creswell, J. D. (2018) *Desain Penelitian: Pendekatan Metode Kualitatif, Kuantitatif, dan Campuran*. Los Angeles: Sage.
- Damastuti, E., & de Groot, R. (2017). Effectiveness of community-based mangrove management for sustainable resource use and livelihood support: A case study of four villages in Central Java, Indonesia. *Journal of Environmental Management*, 203, 510–521. <https://doi.org/10.1016/j.jenvman.2017.07.025>
- Danarto, W. P., Rijanta, R., Marfai, M. A. (2019). *Kajian Pengelolaan Ekosistem Mangrove Sebagai Sarana Pengurangan Risiko Bencana Di Kota Semarang*. Prosiding Seminar Nasional Geotik, 2.
- DasGupta, R., dan Shaw, R. (2017). Mangroves in India and Climate Change: An Overview. In *Participatory Mangrove Management in a Changing Climate*, 1, 336. <https://doi.org/10.1007/978-4-431-56481-2>
- Datta, D., Chattopadhyay, R. N., & Guha, P. (2012). Community based mangrove management: A review on status and sustainability. *Journal of Environmental Management*, 107, 84–95. <https://doi.org/10.1016/j.jenvman.2012.04.013>
- De Alban, J. D. T., Jamaludin, J., Wong De Wen, D., Than, M. M., & Webb, E. L. (2020). Improved estimates of mangrove cover and change reveal catastrophic deforestation in Myanmar. *Environmental Research Letters*, 15(3). <https://doi.org/10.1088/1748-9326/ab666d>

- Di Nitto, D., Neukermans, G., Koedam, N., Defever, H., Pattyn, F., Kairo, J. G., dan Dahdouh-Guebas, F. (2014). Mangroves facing climate change: Landward migration potential in response to projected scenarios of sea level rise. *Biogeosciences*, 11(3): 857–871. <https://doi.org/10.5194/bg-11-857-2014>
- Djameluddin, R. (2018). The mangrove flora and their physical habitat characteristics in bunaken national park, North Sulawesi, Indonesia. *Biodiversitas*, 19(4): 1303–1312. <https://doi.org/10.13057/biodiv/d190417>
- Duke N. C., Meynecke, J.O., Dittmann, S., Ellison, A. M., Anger, K., Berger, U., Cannicci, S., Diele, K., Ewel, K. C., Field, C.D., Koedam, N., Lee, S. Y., Marchand, C., Nordhaus, I., Dahdouh-Guebas, F. (2007). A world without mangroves?. *Science*, 6(5834). doi: 10.1126/science.317.5834.41b. PMID: 17615322
- Duke, N. C. 1992. "Mangrove Floristics and Biogeography". In: A. I. Robertson and D. M. Alongi (Eds.), *Tropical Mangrove Ecosystems: Coastal and Estuarine Studies Series Vol. 41:63-100*. Washington, D.C. United States: American Geophysical Union. 329 Hlm.
- Eastman, J. R., Toledano, J., Crema, S., & Singh, R. (2020). Phase 3 Extension to the Mapping of Tropical Pond Aquaculture, Mangroves and Coastal Wetlands. 6. www.clarklabs.org/aquaculture.
- Ellison, J.C. & Fiu M. (2010). Vulnerability of Fiji's mangroves and associated coral reefs to climate change: a review. WWF South Pacific Program, Suva
- Ellison, J.C. (2015). Vulnerability assessment of mangroves to climate change and sea-level rise impacts. *Wetlands Ecology Management*, 23, 115-137. DOI 10.1007/s11273-014-9397-8
- Elmqvist, T., Folke, C., Nystrom, M., Peterson, G., Bengtsson, J., Walker, B., & Norberg, J. (2003). Response Diversity, Ecosystem Change, and Resilience. *Frontiers in Ecology and the Environment*, 1(9), 488. <https://doi.org/10.2307/3868116>
- English, S., Wilkinson, C., dan Baker, V. (1997). *Survey Manual For Tropical Marine Resources (2nd ed.)*. Australian Institute of Marine Science. 383 Hlm.
- EPA. (2002). Methods for the Determination of Total Organic Carbon (Toc) in Soils and Sediments. *Carbon*, 32(April), 25.
- Eyzaguirre, I. A. L., Iwama, A. Y., dan Fernandes, M. E.. B. (2023) Integrating a conceptual framework for the sustainable development goals in the mangrove ecosystem: A systematic review. *Environmental Development*, 47 (100895). <https://doi.org/10.1016/j.envdev.2023.100895>.
- FAO. (2007). *The world's mangroves 1980-2005*. FAO Forestry Paper, 153, 89.
- FAO. (2020). Food and agriculture organization. In *International Journal of Marine and Coastal Law*. <https://doi.org/10.1163/157180808X353939>
- Faperi, S., & , Supriharyono, I. B. H. and O. K. R. (2015). Management Strategies of Mangrove Degradation in Coastal Areas of Brebes Regency, Central Java, Indonesia. *Journal of Coastal Zone Management*, 18(2). <https://doi.org/10.4172/2473-3350.1000401>

- Faruque, M. J., Hasan, M. Y., Islam, K. Z., Young, B., Ahmed, M. T., Monir, M. U., Shovon, S. M., Kakon, J. F., & Kundu, P. (2022). Monitoring of land use and land cover changes by using remote sensing and GIS techniques at human-induced mangrove forests areas in Bangladesh. *Remote Sensing Applications: Society and Environment*, 25. <https://doi.org/10.1016/j.rsase.2022.100699>
- Fatimatuzzahroh, F., Hadi, S. P., & Purnaweni, H. (2021). Tingkat Partisipasi Masyarakat Dan Analisis Aktor Pada Rehabilitasi Mangrove Di Desa Karangsong, Kabupaten Indramayu, Jawa Barat. *Jurnal Sosial Ekonomi Kelautan Dan Perikanan*, 16(2), 257. <https://doi.org/10.15578/jsekp.v16i2.9420>
- Faustino, B., Vasco, A. B., Silva, A. N., & Marques, T. (2020). Relationships between emotional schemas, mindfulness, self-compassion and unconditional self-acceptance on the regulation of psychological needs. *Research in Psychotherapy: Psychopathology, Process and Outcome*, 23(2), 145–156. <https://doi.org/10.4081/ripppo.2020.442>
- Feller, I. C., Berger, U., Chapman, S. K., Dangremond, E. M., Dix, N. G., Langley, J. A., Lovelock, C. E., Osborne, T. Z., Shor, A. C., & Simpson, L. T. (2023). Nitrogen Addition Increases Freeze Resistance in Black Mangrove (*Avicennia germinans*) Shrubs in a Temperate-Tropical Ecotone. *Ecosystems*, 26(4), 800–814. <https://doi.org/10.1007/s10021-022-00796-z>
- Friess, D. A., Rogers, K., Lovelock, C. E., Krauss, K. W., Hamilton, S. E., Lee, S. Y., Lucas, R., Primavera, J., Rajkaran, A., & Shi, S. (2019). The State of the World's Mangrove Forests: Past, Present, and Future. *Annual Review of Environment and Resources*, 44, 89–115. <https://doi.org/10.1146/annurev-environ-101718-033302>
- Fromard, A. F., Puig, H., Mougín, E., Marty, G., Betoulle, J. L., & Cadamuro, L. (1998). International Association for Ecology Structure , above-Ground Biomass and Dynamics of Mangrove Ecosystems: New Data from French Guiana Published by : Springer in cooperation with International Association for Ecology Stable URL : <http://www.jstor.org/st>. International Association for Ecology, Springer, 115(1), 39–53.
- Gao, Y., Zhou, J., Wang, L., Guo, J., Feng, J., Wu, H., & Lin, G. (2019). Distribution patterns and controlling factors for the soil organic carbon in four mangrove forests of China. *Global Ecology and Conservation*, 17. <https://doi.org/10.1016/j.gecco.2019.e00575>
- Gilman, E. L., Ellison, J., Duke, N. C., & Field, C. (2008). Threats to mangroves from climate change and adaptation options: A review. *Aquatic Botany*, 89(2), 237–250. <https://doi.org/10.1016/j.aquabot.2007.12.009>
- Giri, C., Long, J., & Tieszen, L. (2011). Mapping and monitoring Louisiana's mangroves in the aftermath of the 2010 Gulf of Mexico Oil spill. *Journal of Coastal Research*, 27(6), 1059–
- Godoy, M. D. P., & De Lacerda, L. D. (2015). Mangroves response to climate change: A review of recent findings on mangrove extension and distribution. *Anais Da Academia Brasileira de Ciencias*, 87(2), 651–667. <https://doi.org/10.1590/0001-3765201520150055>

- Gornitz, V. (1991) Global coastal hazards from future sea level rise. *Palaeogeogr Palaeoclimatol Palaeoecol* 89:379–398. doi:10.1016/0031-0182(91)90173-O
- Gouvêa, L. P., Serrão, E. A., Cavanaugh, K., Gurgel, C. F. D., Horta, P. A., & Assis, J. (2022). Global impacts of projected climate changes on the extent and aboveground biomass of mangrove forests. *Diversity and Distributions*, 28(11), 2349–2360. <https://doi.org/10.1111/ddi.13631>
- Grellier, S., Janeau, J. L., Dang Hoai, N., Nguyen Thi Kim, C., Le Thi Phuong, Q., Pham Thi Thu, T., Tran-Thi, N. T., & Marchand, C. (2017). Changes in soil characteristics and C dynamics after mangrove clearing (Vietnam). *Science of the Total Environment*, 593–594, 654–663. <https://doi.org/10.1016/j.scitotenv.2017.03.204>
- Gren, I. M. (2015). Estimating values of carbon sequestration and nutrient recycling in forests: An application to the Stockholm-Mälaren region in Sweden. *Forests*, 6(10): 3594–3613. <https://doi.org/10.3390/f6103594>
- Guannel, G., Arkema, K., Ruggiero, P., & Verutes, G. (2016). The power of three: Coral reefs, seagrasses and mangroves protect coastal regions and increase their resilience. *PLoS ONE*, 11(7). <https://doi.org/10.1371/journal.pone.0158094>
- Gunawan, H., Sugiarti, & Iskandar, S. (2017). Dynamics of mangrove community in revegetation area of karangsong, north coast of Indramayu District, West Java, Indonesia. *Biodiversitas*, 18(2), 659–665. <https://doi.org/10.13057/biodiv/d180230>
- Guo, C., Loh, P. S., Hu, J., Chen, Z., Pradit, S., Oeurng, C., Sok, T., Mohamed, C. A. R., Lee, C. W., Bong, C. W., Lu, X., Anshari, G. Z., Kandasamy, S., & Wang, J. (2024). Factors influencing mangrove carbon storage and its response to environmental stress. *Frontiers in Marine Science*, 11(September), 1–15. <https://doi.org/10.3389/fmars.2024.1410183>
- Ha, T. H., Marchand, C., Aimé, J., Dang, H. N., Phan, N. H., Nguyen, X. T., & Nguyen, T. K. C. (2018). Belowground carbon sequestration in a mature planted mangroves (Northern Viet Nam). *Forest Ecology and Management*, 407, 191–199. <https://doi.org/10.1016/j.foreco.2017.06.057>
- Hadiyanto, H., Halim, A. R., Fuad, M., Soeprbowati, T. R., dan Sularto, S. (2021). Potential for environmental services based on the estimation of reserved carbon in the mangunharjo mangrove ecosystem. *Polish Journal of Environmental Studies*, 30(4): 3545–3552. <https://doi.org/10.15244/pjoes/126374>
- Hai, N. T., Dell, B., Phuong, V. T., & Harper, R. J. (2020). Towards a more robust approach for the restoration of mangroves in Vietnam.
- Hamilton, S. E., & Casey, D. (2016). Creation of a high spatio-temporal resolution global database of continuous mangrove forest cover for the 21st century (CGMFC-21). *Global Ecology and Biogeography*, 25(6), 729–738. <https://doi.org/10.1111/geb.12449>
- Hamilton, S. E., & Friess, D. A. (2019). Global carbon stocks and potential emissions due to mangrove deforestation from 2000 to 2012. *Nature*

- Climate Change, 8(3), 240–244. <https://doi.org/10.1038/s41558-018-0090-4>
- Hanggara, B. B., Murdiyarso, D., Ginting, Y. R., Widha, Y. L., Panjaitan, G. Y., & Lubis, A. A. (2021). Effects of diverse mangrove management practices on forest structure, carbon dynamics and sedimentation in North Sumatra, Indonesia. *Estuarine, Coastal and Shelf Science*, 259, 107467. <https://doi.org/10.1016/j.ecss.2021.107467>
- Harada, Y., Connolly, R. M., Fry, B., Maher, D. T., Sippo, J. Z., Jeffrey, L. C., Bourke, A. J., dan Lee, S. Y. (2020). Stable isotopes track the ecological and biogeochemical legacy of mass mangrove forest dieback in the Gulf of Carpentaria, Australia. *Biogeosciences*, 17(22): 5599–5613. <https://doi.org/10.5194/bg-17-5599-2020>
- Harada, Y., Connolly, R. M., Fry, B., Maher, D. T., Sippo, J. Z., Jeffrey, L. C., Bourke, A. J., & Lee, S. Y. (2020). Stable isotopes track the ecological and biogeochemical legacy of mass mangrove forest dieback in the Gulf of Carpentaria, Australia. *Biogeosciences*, 17(22), 5599–5613. <https://doi.org/10.5194/bg-17-5599-2020>
- Hastuti, D. E., Anggoro, S., dan Pribadi, R. (2012). The Effects Of Environmental Factors On The Dynamic Growth Pattern Of Mangrove *Avicennia marina*. *Coastal Development*, 16(1): 57–61.
- Hermon, D., Putra, A., & Oktorie, O. (2018). The Model of Mangrove Land Cover Change for the Estimation of Blue Carbon Stock Change in Belitung Island -Indonesia. *International Journal of Applied Environmental Sciences* ISSN, 13(2), 973–6077. <http://www.ripublication.com>
- Hidayah, Z., As-syakur, A. R., & Rachman, H. A. (2024). Sustainability assessment of mangrove management in Madura Strait, Indonesia: A combined use of the rapid appraisal for mangroves (RAPMangroves) and the remote sensing approach. *Marine Policy*, 163(January). <https://doi.org/10.1016/j.marpol.2024.106128>
- Howard, J., Hoyt, S., Isensee, K., Telszewski, M., Pidgeon, E. (2014). Coastal blue Carbon: Methods for assessing carbon stocks and emissions factors in mangroves, tidal salt marshes, and seagrasses. In *Conservation International, Intergovernmental Oceanographic Commission of UNESCO, International Union for Conservation of Nature*. <http://www.habitat.noaa.gov/coastalbluecarbon.html>
- Hu, Y., Batunacun, Zhen, L., dan Zhuang, D. 2019. Assessment of Land-Use and LandCover Change in Guangxi, China. *Scientific Reports*, 9(1), 1–13. <https://doi.org/10.1038/s41598-019-38487-w>
- Huang, Z., Guo, F., Ouyang, X., Xiong, L., Zhu, Z., & Zhang, Y. (2025). Differential carbon stocks and burial rates in natural versus planted mangrove forests under varied hydrogeomorphic conditions. *Catena*, 254 (108981), 1-10. <https://doi.org/10.1016/j.catena.2025.108981>
- Ilman, M., Dargusch, P., Dart, P., & Onrizal. (2016). A historical analysis of the drivers of loss and degradation of Indonesia's mangroves. *Land Use Policy*, 54: 448–459. <https://doi.org/10.1016/j.landusepol.2016.03.010>

- Inayati, D., Suharini, E., & Geografi, S. J. (2017). Tingkat Partisipasi Penduduk Dalam Upaya Pelestarian Tanaman Mangrove Didesa Pecakaran Kabupaten Pekalongan. *Edu Geography*, 5(1), 18–24. <http://journal.unnes.ac.id/sju/index.php/edugeo>
- IPCC. (2006). 2006 IPCC Guidelines for National Greenhouse Inventories – A primer, Prepared by the National Greenhouse Gas Inventories Programme, Eggleston H.S., Miwa K., Srivastava N. and Tanabe K. Iges, 20.
- IPCC. (2007) Climate change 2007: Synthesis report. Contribution of Working Groups I, II, and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change. Intergovernmental Panel on Climate Change, Geneva
- IPCC. (2014) In: Barros VR, Field CB, Dokken DJ et al (eds) Climate change 2014: impacts, adaptation, and vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge University Press, Cambridge
- IPCC. (2019). The Ocean and Cryosphere in a Changing Climate: A Special Report of the Intergovernmental Panel on Climate Change.. [H.-O. Pörtner, D.C. Roberts, V. Masson-Delmotte, P. Zhai, M. Tignor, E. Poloczanska, K. Mintenbeck, A. Alegría, M. Nicolai, A. Okem, J. Petzold, B. Rama, N.M. Weyer (eds.)]. In press
- Irsadi, A., Anggoro, S., Soeprbowati, T. R., Helmi, M., & Khair, A. S. E. (2019). Shoreline and mangrove analysis along semarang-demak, Indonesia for sustainable environmental management. *Jurnal Pendidikan IPA Indonesia*, 8(1): 1–11. <https://doi.org/10.15294/jpii.v8i1.17892>
- IUCN. 2021. Manual for the Creation of Blue Carbon Projects in Europe and The Mediterranean. Otero, M. (Ed). 144 hlm.
- Jeannyla, Soemardiono, B., dan Sulistyarso, H. (2018). Pengembangan Ekowisata Mangrove Wonorejo Surabaya Berbasis Lanskap Produktif Berkelanjutan Dengan Partisipasi Masyarakat. [Tesis]. Fakultas Teknik Sipil dan Perencanaan, Institut Teknologi Sepuluh November. 152 Hlm.
- Kairo, J. G., Mangora, M. M., Lilian Mwihiaki, Robert M. Runya, Elinasi Mong, Célia Macamo, Zafyson H. Randrianasolo, Sachooda Ragoonaden, Mohammed Ahmed, & Elvina Henriette. (2020). Guidelines on Mangrove Ecosystem Restoration for the Western Indian Ocean Region Western Indian Ocean Ecosystem Guidelines and Toolkits. United Nations Environment Programme/Nairobi Convention Secretariat, February.
- Kamara, M., Deshar, R., Analuddin, K., Kamruzzaman, M., & Hagihara, A. (2014). Self-thinning of stems, branches, and leaves in overcrowded mangrove *Kandelia obovata* stands on Okinawa Island, Japan. *Aquatic Botany*, 119, 20–27. <https://doi.org/10.1016/j.aquabot.2014.06.010>
- Kargar, R.A., MacKenzie, R. A., Apwong, M., Hughes, E., dan van Aardt, J. (2020). Stem and root assessment in mangrove forests using a low-cost, rapid-scan terrestrial laser scanner. *Wetlands Ecology and Management*, 28(6): 883–900. <https://doi.org/10.1007/s11273-020-09753-w>

- Kathiresan, K., Saravanakumar, K., Anburaj, R., & Gomathi, V. (2016). A simple method for assessing mangrove forest based on young plants and sesar mid crab holes. *Regional Studies in Marine Science*, 7, 204–210. <https://doi.org/10.1016/j.rsma.2016.07.003>
- Kauffman, J.B. & Donato, D.C. (2012). Protocols for the measurement, monitoring and reporting of structure, biomass and carbon stocks in mangrove forests. In Working Paper 86.
- Kauffman, J.B., Arifanti, V. B., Hernández Trejo, H., del Carmen Jesús García, M., Norfolk, J., Cifuentes, M., Hadriyanto, D., & Murdiyarso, D. (2017). The jumbo carbon footprint of a shrimp: carbon losses from mangrove deforestation. *Frontiers in Ecology and the Environment*, 15(4), 183–188. <https://doi.org/10.1002/fee.1482>
- Kauffman, J.B. & Bhomia, R. K. (2017). Ecosystem carbon stocks of mangroves across broad environmental gradients in West-Central Africa: Global and regional comparisons. *PLoS ONE*, 12(11), 1–17. <https://doi.org/10.1371/journal.pone.0187749>
- Kauffman, J. B., Adame, M. F., Arifanti, V. B., Schile-Beers, L. M., Bernardino, A. F., Bhomia, R. K., Donato, D. C., Feller, I. C., Ferreira, T. O., Jesus Garcia, M. del C., MacKenzie, R. A., Megonigal, J. P., Murdiyarso, D., Simpson, L., & Hernández Trejo, H. (2020a). Total ecosystem carbon stocks of mangroves across broad global environmental and physical gradients. *Ecological Monographs*, 90(2). <https://doi.org/10.1002/ecm.1405>
- Kauffman, J. B., Adame, M. F., Arifanti, V. B., Schile-Beers, L. M., Bernardino, A. F., Bhomia, R. K., Donato, D. C., Feller, I. C., Ferreira, T. O., Jesus Garcia, M. del C., MacKenzie, R. A., Megonigal, J. P., Murdiyarso, D., Simpson, L., & Hernández Trejo, H. (2020b). Total ecosystem carbon stocks of mangroves across broad global environmental and physical gradients. *Ecological Monographs*, 90(2), 1–18. <https://doi.org/10.1002/ecm.1405>
- KLHK. (2021). Peta Mangrove Nasional. Jakarta: Kementerian Lingkungan Hidup dan Kehutanan. 181 Hlm.
- Koehler, J., dan Kuenzer, C. (2020). Forecasting spatio-temporal dynamics on the land surface using earth observation data—a review. *Remote Sensing*, 12(21): 1–34. <https://doi.org/10.3390/rs1221351>
- Komiyama, A., Ong, J. E., & Pongpan, S. (2008). Allometry, biomass, and productivity of mangrove forests: A review. *Aquatic Botany*, 89(2), 128–137. <https://doi.org/10.1016/j.aquabot.2007.12.006>
- Kristensen, E., Bouillon, S., Dittmar, T., & Marchand, C. (2008). Organic carbon dynamics in mangrove ecosystems: A review. *Aquatic Botany*, 89(2), 201–219. <https://doi.org/10.1016/j.aquabot.2007.12.005>
- Kurniawan, C. A., Pribadi, R., dan Nirwani. (2014). Struktur dan Komposisi Vegetasi Mangrove di Tracking Mangrove Kemujan Kepulauan Karimunjawa. *Journal of Marine Research*, 3(3): 351–358.
- Kusmana, C. (2015). Integrated Sustainable Mangrove Forest Management. *Jurnal Pengelolaan Sumberdaya Alam dan Lingkungan*, 5 (1): 1 – 6

- Kusumaningtyas, M. A., Hutahaean, A. A., Fischer, H. W., Pérez-Mayo, M., Ransby, D., & Jennerjahn, T. C. (2019). Variability in the organic carbon stocks, sources, and accumulation rates of Indonesian mangrove ecosystems. *Estuarine, Coastal and Shelf Science*, 218, 310–323. <https://doi.org/10.1016/j.ecss.2018.12.007>
- Lagomasino, D., Fatoyinbo, T., Lee, S., Feliciano, E., Trettin, C., Shapiro, A., & Mangora, M. M. (2019). Measuring mangrove carbon loss and gain in deltas. *Environmental Research Letters*, 14(2). <https://doi.org/10.1088/1748-9326/aaf0de>
- Lai, J., Cheah, W., Palaniveloo, K., Suwa, R., & Sharma, S. (2022). A Systematic Review of the Physicochemical and Microbial Diversity of Well-Preserved, Restored, and Disturbed Mangrove Forests: What Is Known and What Is the Way Forward? *Forests*, 13(12), 1–23. <https://doi.org/10.3390/fl13122160>
- Lestariningsih, W. A., Soenardjo, N., & Pribadi, R. (2018). Estimasi Cadangan Karbon pada Kawasan Mangrove di Desa Timbulsloko, Demak, Jawa Tengah. *Buletin Oseanografi Marina*, 7(2), 121. <https://doi.org/10.14710/buloma.v7i2.19574>
- Li, J., Yang, Y., Yang, S., Zhang, Z., Chen, S., Zhong, C., Zhou, R., & Shi, S. (2017). Comparative transcriptome analyses of a mangrove tree *Sonneratia caseolaris* and its non-mangrove relatives, *Trapa bispinosa* and *Duabanga grandiflora*. *Marine Genomics*, 31, 13–15. <https://doi.org/10.1016/j.margen.2016.10.007>
- Linnenluecke, M. K., Marrone, M., dan Singh, A. K. (2020). Conducting systematic literature reviews and bibliometric analyses. *Australian Journal of Management*, 45(2): 175–194. <https://doi.org/10.1177/0312896219877678>
- Liu, H., Ren, H., Hui, D., Wang, W., Liao, B., dan Cao, Q. (2014). Carbon stocks and potential carbon storage in the mangrove forests of China. *Journal of Environmental Management*, 133: 86–93. <https://doi.org/10.1016/j.jenvman.2013.11.037>
- Longley, P.A., Goodchild, M.F., Maguire, D.J., et al. (2015). *Geographic Information Science and Systems*. 4th Edition, Wiley, London. <https://doi.org/10.2305/IUCN.CH.2004.FR.1.en>
- Lovelock, C. E., & Reef, R. (2020). Variable Impacts of Climate Change on Blue Carbon. In *One Earth* (Vol. 3, Issue 2, pp. 195–211). <https://doi.org/10.1016/j.oneear.2020.07.010>
- Lovelock, C. E., Atwood, T., Baldock, J., Duarte, C. M., Hickey, S., Lavery, P. S., Masque, P., Macreadie, P. I., Ricart, A. M., Serrano, O., & Steven, A. (2017). Assessing the risk of carbon dioxide emissions from blue carbon ecosystems. *Frontiers in Ecology and the Environment*, 15(5), 257–265. <https://doi.org/10.1002/fee.1491>
- Lufthansa, U. M., Titah, H. S., & Pratikno, H. (2021). The Ability of Mangrove Plant on Lead Phytoremediation at Wonorejo Estuary, Surabaya, Indonesia. *Journal of Ecological Engineering*, 22(6), 253–268. <https://doi.org/10.12911/22998993/137675>
- Lukas, P., Melesse, A. M., & Kenea, T. T. (2023). Prediction of Future Land Use/Land Cover Changes Using a Coupled CA-ANN Model in the Upper

- Omo–Gibe River Basin, Ethiopia. *Remote Sensing*, 15(4). <https://doi.org/10.3390/rs15041148>
- Macreadie, P. I., Anton, A., Raven, J. A., Beaumont, N., Connolly, R. M., Friess, D. A., Kelleway, J. J., Kennedy, H., Kuwae, T., Lavery, P. S., Lovelock, C. E., Smale, D. A., Apostolaki, E. T., Atwood, T. B., Baldock, J., Bianchi, T. S., Chmura, G. L., Eyre, B. D., Fourqurean, J. W., ... Duarte, C. M. (2019). The future of Blue Carbon science. *Nature Communications*, 10(1), 1–13. <https://doi.org/10.1038/s41467-019-11693-w>
- Malik, A., Fensholt, R., & Mertz, O. (2015). Mangrove exploitation effects on biodiversity and ecosystem services. *Biodiversity and Conservation*, 24(14), 3543–3557. <https://doi.org/10.1007/s10531-015-1015-4>
- Mariano, H. G., Dagoc, F. L. S., Espira, A. S., & Amparado, R. F. (2019). Mangrove diversity, taxonomic classification, and morphological characteristics natural reforested mangrove forests in selected municipalities of Zamboanga Del Sur, Mindanao Island, Philippines Environmental Science Graduate Program, Department. *Journal of Biodiversity and Environmental Sciences*, 15(4), 86–99. <http://www.innspub.net>
- Mariano, H., Aguilos, M., Dagoc, F. L., Sumalinab, B., & Amparado, R. (2022). Abandoned Fishpond Reversal to Mangrove Forest : Will the Carbon Storage Potential Match the Natural Stand 30 Years after Reforestation ? 1–19.
- Martuti, N. K. T., Susilowati, S. M. E., Sidiq, W. A. B. N., dan Mutiatari, D. P. (2018). Peran Kelompok Masyarakat dalam Rehabilitasi Ekosistem Mangrove di Pesisir Kota Semarang. *Jurnal Wilayah Dan Lingkungan*, 6(2). <https://doi.org/10.14710/jwl.6.2.100-114>
- Maryantika, N., dan Lin, C. (2017). Exploring changes of land use and mangrove distribution in the economic area of Sidoarjo District, East Java using multi-temporal Landsat images. *Information Processing in Agriculture*, 4(4): 321–332. <https://doi.org/10.1016/j.inpa.2017.06.003>
- Maung, W. S., Tsuyuki, S., & Guo, Z. (2024). Improving Land Use and Land Cover Information of Wunbaik Mangrove Area in Myanmar Using U-Net Model with Multisource Remote Sensing Datasets. *Remote Sensing*, 16(1). <https://doi.org/10.3390/rs16010076>
- McKee, K. L., Rogers, K., dan Saintilan, N. (2012). Response of salt marsh and mangrove wetlands to changes in atmospheric CO₂, climate and sea level. in B. A. Middleton, editor. *Global change and the function and distribution of wetlands*. Springer, Dordrecht, The Netherlands.
- Mcleod, E., dan Salm, R. V. (2006). *Managing Mangroves for Resilience to Climate Change* IUCN Global Marine Programme. Gland, Switzerland: IUCN.
- Miswadi, M., Siregar, S. H., & Siregar, Y. I. (2015). Strategi Pengelolaan Pengembangan Kawasan Penyangga sebagai Hutan Cadangan Mangrove (Studi Kasus Ekosistem Mangrove Sungai Liung Kecamatan Bantan Kabupaten Bengkalis). *Dinamika Lingkungan Indonesia*, 2(2), 73. <https://doi.org/10.31258/dli.2.2.p.73-86>

- Mojid, M. A., Mainuddin, M., Karim, F., & Wahid, S. M. (2025). Historical and Projected Future Hydrological Characteristics of the Mangrove Forest in the Ganges Delta—A Review. *Water (Switzerland)*, 17(6), 1–25. <https://doi.org/10.3390/w17060838>
- Muali, M. (2020). Strategi Pengelolaan Hutan Mangrove Di Desa Mojo Kecamatan Ulujami Kabupaten Pemalang Jawa Tengah. *Jurnal Matematika Sains Dan Teknologi*, 21(1), 35–47. <https://doi.org/10.33830/jmst.v21i1.778.2020>
- Mughofar, A., Masykuri, M., & Setyono, P. (2018). Zonasi Dan Komposisi Vegetasi Hutan Mangrove Pantai Cengkong Desa Karanggandu Kabupaten Trenggalek Provinsi Jawa Timur. *Jurnal Pengelolaan Sumberdaya Alam Dan Lingkungan (Journal of Natural Resources and Environmental Management)*, 8(1), 77–85. <https://doi.org/10.29244/jpsl.8.1.77-85>
- Muhammad, R., Zhang, W., Abbas, Z., Guo, F., & Gwiazdzinski, L. (2022). Spatiotemporal Change Analysis and Prediction of Future Land Use and Land Cover Changes Using QGIS MOLUSCE Plugin and Remote Sensing Big Data: A Case Study of Linyi, China. *Land*, 11(3). <https://doi.org/10.3390/land11030419>
- Munasinghe, M. 1993. “Environmental Issues and Economic Decisions in Developing Countries.” *World 750X(93)90080-S*.
- Murdiyanto, B. 2003. *Mengenal, Memelihara, dan Melestarikan Ekosistem Mangrove*. Jakarta: COFISH Project.
- Murdiyarso, D., Purbopuspito, J., Kauffman, J. B., Warren, M. W., Sasmito, S. D., Donato, D. C., Manuri, S., Krisnawati, H., Taberima, S., & Kurnianto, S. (2015). The potential of Indonesian mangrove forests for global climate change mitigation. *Nature Climate Change*, 5(12), 1089–1092. <https://doi.org/10.1038/nclimate2734>
- Murdiyarso, D., Krisnawati, H., Adinugroho, W.C., & Sasmito, S.D. (2023). Carbon Balance and Management, 18, 1-12. <https://doi.org/10.1186/s13021-023-00233-1>
- Mursyid, H., Daulay, M. H., Pratama, A.A., Laraswati, D., Novita, N., Malik, A., dan Maryudi, A. (2021). Governance issues related to the management and conservation of mangrove ecosystems to support climate change mitigation actions in Indonesia. *Forest Policy and Economics*, 133 (102622). <https://doi.org/10.1016/j.forpol.2021.102622>.
- Murtini, S. (2017). Tingkat Partisipasi Masyarakat Lokal Di Kawasan Ekowisata Mangrove Wonorejo Kota Surabaya. *Jurnal Geografi*, 15(1), 31–37.
- Nagelkerken, I., Blaber, S. J. M., Bouillon, S., Green, P., Haywood, M., Kirton, L. G., Meynecke, J. O., Pawlik, J., Penrose, H. M., Sasekumar, A., & Somerfield, P. J. (2008). The habitat function of mangroves for terrestrial and marine fauna: A review. *Aquatic Botany*, 89(2), 155–185. <https://doi.org/10.1016/j.aquabot.2007.12.007>
- Nahrudin. (2017). Komposisi dan struktur vegetasi dalam potensinya sebagai parameter hidrologi dan erosi. *Jurnal Hutan Tropis*, 5(2): 6–12.
- Nainggolan, F. A., Pribadi, R., & Trianto, A. (2022). Struktur Komposisi Dan Simpanan Karbon Di Sedimen Hutan Mangrove Pandansari, Kaliwlingi,

- Brebes. *Journal of Marine Research*, 11(3), 529–538. <https://doi.org/10.14710/jmr.v11i3.33393>
- Nanlohy, L. H., Maruapey, A., Malaum, Y. (2017). Komposisi Jenis Dan Zonasi Mangrove Di Kampung Gisim. *Median Volume IX Nomor 1 Bulan Februari 2017*. *Median*, IX(2): 25–35.
- Nasrin, S., Mahmood, H., & Rahman, M. M. (2021). Parental influences on salt adaptive divergence of *Sonneratia apetala* (Buch.-Ham.) seedlings along the salinity gradient in the Sundarbans of Bangladesh. *Environmental Challenges*, 4. <https://doi.org/10.1016/j.envc.2021.100121>
- Navin, M. S., & Agilandeswari, L. (2020). Multispectral and hyperspectral images based land use / land cover change prediction analysis: an extensive review. *Multimedia Tools and Applications*, 79(39–40), 29751–29774. <https://doi.org/10.1007/s11042-020-09531-z>
- Nedhisa, P. I., & Tjahjaningrum, I. T. (2019). Estimasi Biomassa, Stok Karbon dan Sekuestrasi Karbon Mangrove pada *Rhizophora mucronata*. *Jurnal Sains Dan Seni ITS*, 8(2), 2337–3520.
- Nehren, U., & Wicaksono, P. (2018). Mapping soil carbon stocks in an oceanic mangrove ecosystem in Karimunjawa Islands, Indonesia. *Estuarine, Coastal and Shelf Science*, 214, 185–193. <https://doi.org/10.1016/j.ecss.2018.09.022>
- Nizam, A., Rawoof, A., Adot, V., Madhavan, C., Ramchiary, N., & Kumar, A. (2024). Comparative root transcriptome analysis of *Kandelia candel* Druce and *Rhizophora mucronata* Lam. germinating propagules under salinity gradients reveal their tolerance mechanisms and ecological adaptations. *Plant Growth Regulation*, 103(3), 539–563. <https://doi.org/10.1007/s10725-024-01125-1>
- Novianti, R., Afandi, A. Y., Tampubolon, B. I., Rahmadya, A., & Sulawesty, F. (2022). Mangrove Resource and Ecotourism Development in Karangsong, Indramayu Regency, West Java, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 1062(1). <https://doi.org/10.1088/1755-1315/1062/1/012039>
- Nuarsa, I.W., As-Syakur, A.R., Gunadi, I.G.A., Sukewijaya, I.M. (2018). Changes in Gross Primary Production (GPP) over the Past Two Decades Due to Land Use Conversion in a Tourism Cit. *J.Geo-Inf*, 7(2),57. <https://doi.org/10.3390/ijgi7020057>
- Nugraha, F. W., Pribadi, R., & Wirasatriya, A. (2020). Kajian Perubahan Luasan untuk Prediksi Simpanan Karbon Ekosistem Mangrove di Desa Kaliwlingi, Kabupaten Brebes. *Buletin Oseanografi Marina*, 9(2), 104–116. <https://doi.org/10.14710/buloma.v9i2.30039>
- Numbere, A. O. (2021). Natural seedling recruitment and regeneration in deforested and sand-filled Mangrove forest at Eagle Island, Niger Delta, Nigeria. *Ecology and Evolution*, 11(7), 3148–3158. <https://doi.org/10.1002/ece3.7262>
- Nurdela, J.A. & Ichwandi, I. (2015). Community-based forest management for ecotourism in Wonorejo Mangrove area, Surabaya, East Jawa. *Bonorowo Wetlands*, 5(1), 44-53. DOI: 10.13057/bonorowo/w050105

- Nurhati, I. S., dan Murdiyarso, D. (2022). Strategi Nasional Pengelolaan Ekosistem Mangrove: Sebagai Rujukan Konservasi dan Rehabilitasi Kawasan Berkelanjutan dan Pembangunan Rendah Karbon. Working Paper 10. Bogor, Indonesia: CIFOR. <https://doi.org/10.17528/cifor-icraf/008790>
- Nyanga, C. (2020). The Role of Mangroves Forests in Decarbonizing the Atmosphere. *Intech, i(Carbon-Based Material for Environmental Protection and Remediation)*, 13.
- Odum, E. P. (1993). *Fundamentals of ecology* (3rd editio). Universitas Gadjah Mada Press.
- Onrizal, O. (2010). Perubahan Tutupan Hutan Mangrove di Pantai Timur Sumatera Utara Periode 1977-2006. *Jurnal Biologi Indonesia*, 6(2), 163–172.
- Pahlevi, M. R., Poedjirahajoe, E., Mahayani, N. P. D., Jihad, A. N., & Satria, R. A. (2024). Struktur Vegetasi Mangrove di Pantai Utara Mojo Pemalang Jawa Tengah. *Jurnal Ilmu Lingkungan*, 22(2), 431–438. <https://doi.org/10.14710/jil.22.2.431-438>
- Pandey, K. (2016). Analysis of spatial and temporal data using remote sensing technology. *ACM International Conference Proceeding Series*, 1–5. <https://doi.org/10.1145/2979779.2979884>
- Paul, J., & Criado, A. R. (2020). The art of writing literature review: What do we know and what do we need to know? *International Business Review*, 29(4), 101717. <https://doi.org/10.1016/j.ibusrev.2020.101717>
- Pendleton, L. H., Sutton-Grier, A. E., Gordon, D. R., Murray, B. C., Victor, B. E., Griffis, R. B., Lechuga, J. A. V., & Giri, C. (2013). Considering “Coastal Carbon” in Existing U.S. Federal Statutes and Policies. *Coastal Management*, 41(5), 439–456. <https://doi.org/10.1080/08920753.2013.822294>
- Peraturan Daerah No. 5 Tahun 2022 Tentang Rencana Tata Ruang Wilayah Tahun 2022 – 2042 , Pemerintah Kota Pariaman.
- Peraturan Gubernur Jawa tengah No.24 Tahun 2019 Tentang Kebijakan Dan Startegi Pengelolaan Ekosistem Mangrove Provinsi Jawa Tengah
- Peraturan Presiden No. 73 Tahun 2012 Tentang Strategi Nasional Pengelolaan Ekosistem Mangrove
- Peraturan Presiden Republik Indonesia No. 120 Tahun 2020 Tentang Badan Restorasi Gambut dan Mangrove
- Peraturan Presiden Republik Indonesia No.1 Tahun 2016 Tentang Badan Restorasi Gambut.
- Pernetta, J.C. (1993). Mangrove forests, climate change and sea-level rise: hydrological influences on community structure and survival, with examples from the Indo-West Pacific. *A Marine Conservation and Development Report*. IUCN, Gland, Switzerland. 46 Hlm.
- Piou, C., Berger, U., Hildenbrandt, H., & Feller, I. C. (2008). Testing the intermediate disturbance hypothesis in species-poor systems: A simulation experiment for mangrove forests. *Journal of Vegetation Science*, 19(3), 417–424. <https://doi.org/10.3170/2008-8-18384>
- Polidoro, B. A., Carpenter, K. E., Collins, L., Duke, N. C., Ellison, A. M., Ellison, J. C., Farnsworth, E. J., Fernando, E. S., Kathiresan, K., Koedam, N. E.,

- Livingstone, S. R., Miyagi, T., Moore, G. E., Nam, V. N., Ong, J. E., Primavera, J. H., Salmo, S. G., Sanciangco, J. C., Sukardjo, S., Yong, J. W. H. (2010). The loss of species: Mangrove extinction risk and geographic areas of global concern. *PLoS ONE*, 5(4). <https://doi.org/10.1371/journal.pone.0010095>
- Pramudji. (2001). Ekosistem hutan mangrove dan peranannya. *Oseana*, XXVI(4): 13–23.
- Pramudji. (2015). Status Mangrove di Kawasan Pesisir Utara Jawa Barat (Larawang dan Indramayu) dan Upaya Pengelolannya. *Oseana*, 9(2): 43–52.
- Puryono, S., & Suryanti, S. (2019). Degradation of Mangrove Ecosystem in Karimunjawa Island Based on Public Perception and Management. *IOP Conference Series: Earth and Environmental Science*, 246(1), 1–10. <https://doi.org/10.1088/1755-1315/246/1/012080>
- Rahim, A., Soeprobowati, T. R., Putranto, T. T., Al Falah, M. H., & Gell, P. (2024). Contribution of mangrove forest carbon stocks on climate change mitigation: a case study at Tuntang Estuary, Central Java. *Journal of Coastal Conservation*, 28(4). <https://doi.org/10.1007/s11852-024-01059-w>
- Rahman M.M., Zimmer, M., Ahmed, I., Donato, D., Kanzaki, M., & Xu, M. (2021). Co-benefits of protecting mangroves for biodiversity conservation and carbon storage. *Nature Communication*. <https://doi.org/10.1038/s41467-021-24207-4>.
- Renta, P. P., Pribadi, R., Zainuri, M., Angraini, M., dan Utami, F. (2016). Struktur Komunitas Mangrove Di Desa Mojo Kabupaten. *Jurnal Enggano*, 1(2): 1–10.
- Ritabulan, Basuni, S., Santoso, N., Bismark, M., Yusuf, D. N., dan Karlina, E. (2019). Modeling of policy for mangrove utilization as a charcoal raw material in the local community in Batu Ampar, West Kalimantan. *IOP Conference Series: Earth and Environmental Science*, 382(1), 1–9. <https://doi.org/10.1088/1755-1315/382/1/012034>
- Riyono, S. H. 2007. Beberapa Sifat Umum Dari Klorofil Fitoplankton. *Oseana*, 32 (1): 23–31.
- Rog, S. M., Clarke, R. H., & Cook, C. N. (2017). More than marine: revealing the critical importance of mangrove ecosystems for terrestrial vertebrates. *Diversity and Distributions*, 23(2), 221–230. <https://doi.org/10.1111/ddi.12514>
- Rondon, M., Ewane, E. B., Abdullah, M. M., Watt, M. S., Blanton, A., Abulibdeh, A., Burt, J. A., Rogers, K., Ali, T., Reef, R., Mohtar, R., Sidik, F., Fahrenberg, M., de-Miguel, S., Galgamuwa, G. A. P., Charabi, Y. A. R., Arachchige, P. S. P., Velasquez-Camacho, L. F., Al-Awadhi, T., ... Mohan, M. (2023). Remote sensing-based assessment of mangrove ecosystems in the Gulf Cooperation Council countries: a systematic review. *Frontiers in Marine Science*, 10(November), 1–21. <https://doi.org/10.3389/fmars.2023.1241928>
- Rotich, B., Mwangi, E. dan Lawry, S. (2016). Where land meets the sea: a global review of the governance and tenure dimensions of coastal mangrove

- forests. Bogor, Indonesia: CIFOR; Washington, DC: USAID Tenure and Global Climate Change Program.
- Rovai, A. S., Coelho-Jr, C., de Almeida, R., Cunha-Lignon, M., Menghini, R. P., Twilley, R. R., Cintrón-Molero, G., & Schaeffer-Novelli, Y. (2021). Ecosystem-level carbon stocks and sequestration rates in mangroves in the Cananéia-Iguape lagoon estuarine system, southeastern Brazil. *Forest Ecology and Management*, 479. <https://doi.org/10.1016/j.foreco.2020.118553>
- Rudianto, R., Bengen, D. G., & Kurniawan, F. (2020). Causes and effects of mangrove ecosystem damage on carbon stocks and absorption in East Java, Indonesia. *Sustainability* (Switzerland), 12(24), 1–17. <https://doi.org/10.3390/su122410319>
- Noor, R. Y., M. Khazali, I. N. N. S. (2006). *Pengenalan Mangrove di Indonesia*. PHKA/WI-IP.
- Sabri, N. Q., & Khayyun, T. S. (2024). Spatiotemporal Prediction of Future LULC Changes, Northern and Northeastern Parts of Iraq with MOLUSCE. *Journal of Ecohumanism*, 3(7), 2417–2433. <https://doi.org/10.62754/joe.v3i7.4647>
- Salem, M. E., & Mercer, D. E. (2012). The economic value of mangroves: A meta-analysis. *Sustainability*, 4(3), 359–383. <https://doi.org/10.3390/su4030359>
- Salminah, M., dan Alviya, I. (2019). Efektivitas Kebijakan Pengelolaan Mangrove Untuk Mendukung. *Jurnal Analisis Kebijakan Kehutanan*, 16(1): 11–29. <https://doi.org/10.20886/jakk.2019.16.1.11-29>
- Samal, P., Srivastava, J., Singarasubramanian, S. R., Saraf, P. N., & Charles, B. (2022). Ensemble modeling approach to predict the past and future climate suitability for two mangrove species along the coastal wetlands of peninsular India. *Ecological Informatics*, 72. <https://doi.org/10.1016/j.ecoinf.2022.101819>
- Sánchez, A. R., Pineda, J. E. M., Casas, X. M., & Calderón, J. H. M. (2021). Influence of edaphic salinity on leaf morphoanatomical functional traits on juvenile and adult trees of red mangrove (*Rhizophora mangle*): Implications with relation to climate change. *Forests*, 12(11). <https://doi.org/10.3390/f12111586>
- Sanderman, J., Hengl, T., Fiske, G., Solvik, K., Adame, M. F., Benson, L., Bukoski, J. J., Carnell, P., Cifuentes-Jara, M., Donato, D., Duncan, C., Eid, E. M., Ermgassen, P. Z., Lewis, C. J. E., Macreadie, P. I., Glass, L., Gress, S., Jardine, S. L., Jones, T. G., ... Landis, E. (2018). A global map of mangrove forest soil carbon at 30 m spatial resolution. *Environmental Research Letters*, 13(5). <https://doi.org/10.1088/1748-9326/aabe1c>
- Sannigrahi, S., Zhang, Q., Pilla, F., Joshi, P. K., Basu, B., Keesstra, S., Roy, P. S., Wang, Y., Sutton, P. C., Chakraborti, S., Paul, S. K., dan Sen, S. (2020). Responses of ecosystem services to natural and anthropogenic forcings: A spatial regression based assessment in the world's largest mangrove ecosystem. *Science of the Total Environment*, 715. <https://doi.org/10.1016/j.scitotenv.2020.137004>
- Sari, S. P., Koedam, N., Pamungkas, A., Muftiadi, M. R., & Van Coillie, F. (2023). Unveiling the Diversity of Bangka Island's Mangroves: A Baseline for

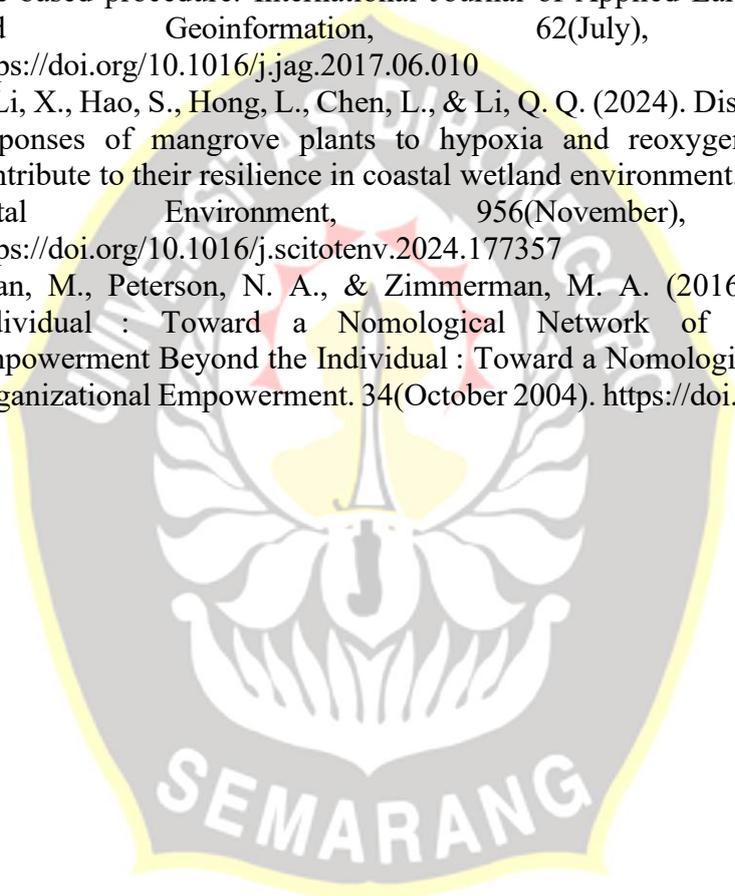
- Effective Conservation and Restoration. *Forests*, 14(8).
<https://doi.org/10.3390/f14081666>
- Sasmito, S. D., Sillanpää, M., Hayes, M. A., Bachri, S., Saragi-Sasmito, M. F., Sidik, F., Hanggara, B. B., Mofu, W. Y., Rumbiak, V. I., Hendri, Taberima, S., Suhaemi, Nugroho, J. D., Pattiasina, T. F., Widagti, N., Barakalla, Rahajoe, J. S., Hartantri, H., Nikijuluw, V., ... Murdiyarso, D. (2020). Mangrove blue carbon stocks and dynamics are controlled by hydrogeomorphic settings and land-use change. *Global Change Biology*, 26(5), 3028–3039. <https://doi.org/10.1111/gcb.15056>
- Sasmito, S. D., Taillardat, P., Clendenning, J. N., Cameron, C., Friess, D. A., Murdiyarso, D., dan Hutley, L. B. (2019). Effect of land-use and land-cover change on mangrove blue carbon: A systematic review. *Global Change Biology*, 25(12): 4291–4302. <https://doi.org/10.1111/gcb.14774>
- Schroter, D., Polsky, C., & Pitt, A.G. (2005) Assessing vulnerabilities to the effect of global climate change: an eight-step approach. *Mitig Adapt Strateg Glob Change* 10:573–596
- Schwenke, T., dan Helfer, V. (2021). Beyond borders: The status of interdisciplinary mangrove research in the face of global and local threats, *Estuarine, Coastal and Shelf Science*, 250 (107119). <https://doi.org/10.1016/j.ecss.2020.107119>.
- Setiawan, A., Razak, A., Syah, N., & Diliarosta, S. (2023). Community Activity in Environmental Management Mangrove Forest in Pariaman City. *Science and Environmental Journal for Postgraduate*, 6(1), 290–295. <https://doi.org/10.24036/senjop.v6i1.240>
- Shimamoto, C. Y., Padial, A. A., Da Rosa, C. M., & Marques, M. C. M. (2018). Restoration of ecosystem services in tropical forests: A global meta-analysis. *PLoS ONE*, 13(12), 1–16. <https://doi.org/10.1371/journal.pone.0208523>
- Sidik, F. (2018). Mangrove conservation for climate change mitigation in Indonesia. In *Wiley Interdisciplinary Reviews: Climate Change* (Vol. 9, Issue 5). <https://doi.org/10.1002/wcc.529>
- Sidik, F., Lawrence, A., Wagey, T., Zamzani, F., & Lovelock, C. E. (2023). Blue carbon: A new paradigm of mangrove conservation and management in Indonesia. *Marine Policy*, 147. <https://doi.org/10.1016/j.marpol.2022.105388>
- Simamora, F. B., Sasmito, B., dan Hani'ah. (2015). Kajian Metode Segmentasi Untuk Identifikasi Tutupan Lahan Dan Luas Bidang Tanah Menggunakan Citra Pada Google Earth. *Jurnal Geodesi Undip*, 4(4): 43–51.
- Soeprbowati, T. R., Sularto, R. B., Hadiyanto, H., Puryono, S., Rahim, A., Jumari, J., & Gell, P. (2024). The carbon stock potential of the restored mangrove ecosystem of Pasarbanggi, Rembang, Central Java. *Marine Environmental Research*, 193(5), 106257. <https://doi.org/10.1016/j.marenvres.2023.106257>
- Spalding, M. (2010). *World Atlas of Mangroves* (1st ed.). London: Routledge. <https://doi.org/10.4324/9781849776608>

- Spalding, M. D., Blasco, F., dan Field, C. D. (1997). *World Mangrove Atlas*. The International Society for Mangrove Ecosystems, Okinawa, Japan. 178 Hlm.
- Stringer, C. E., Trettin, C. C., Zarnoch, S. J., dan Tang, W. (2015). Carbon stocks of mangroves within the Zambezi River Delta, Mozambique. *Forest Ecology and Management*, 354: 139–148. <https://doi.org/10.1016/j.foreco.2015.06.027>
- Sualia, I., Ilman, M., Suryadiputra, I.N. (2010). In: Widigdo, B. (Ed.), *Indonesia Shrimp Sustainability, Status Quo Report*. IUCN Netherlands and Wetlands International Indonesia Programme, Bogor.
- Suhaili, N. S., Fei, J. L. J., Sha'ari, F. W., Idris, M. I., Hatta, S. M., Kodoh, J., dan Besar, N. A. (2020). Carbon stock estimation of mangrove forest in sulaman lake forest reserve, Sabah, Malaysia. *Biodiversitas*, 21(12): 5657–5664. <https://doi.org/10.13057/biodiv/d211223>
- Sunkur, R., Kantamaneni, K., Bokhoree, C., & Ravan, S. (2023). Mangroves' role in supporting ecosystem-based techniques to reduce disaster risk and adapt to climate change: A review. *Journal of Sea Research*, 196(July), 102449. <https://doi.org/10.1016/j.seares.2023.102449>
- Susanti, Y., Syarifudin, & Helmi, M. (2020). Analisa Perubahan Penggunaan Lahan Di Daerah Aliran Sungai Serayu Hulu Dengan Pengginderaan Jauh dan Sistem Informasi Geografis. *BIOEDUKASI: Jurnal Pendidikan Biologi*, 13(1. p-ISSN: 1693-265X. e-ISSN: 2549-0605), 23–30.
- Susanto, A., Nurdin, H. S., Khalifa, M. A., Munandar, E., Syafrie, H., Alansar, T., Sulistyono, B. Raihan, A. (2023). Pengelolaan Pesisir Selat Sunda Melalui Penanaman Mangrove Sebagai Upaya Mitigasi Bencana Dan Perubahan Iklim (Blue Carbon). *Journal of Maritime Empowerment*, 5(2): 48–55.
- Syukri, M., Mashoreng, S., Werorilangi, S., & Isyrini, R. (2018). Kajian stok karbon mangrove di Bebanga Kabupaten Mamuju Sulawesi Barat. *Prosiding Simposium Nasional Kelautan Dan Perikanan V*, 335–342.
- Taillardat, P., Friess, D. A., dan Lupascu, M. (2018). Mangrove blue carbon strategies for climate change mitigation are most effective at the national scale. *Biology Letters*, 14(10). <https://doi.org/10.1098/rsbl.2018.0251>
- Tan Phong, N., Hao Quang, N., & Van Sang, T. (2022). Shoreline change and community-based climate change adaptation: Lessons learnt from Brebes Regency, Indonesia. *Ocean and Coastal Management*, 218(January), 106037. <https://doi.org/10.1016/j.ocecoaman.2022.106037>
- Tan Phong, N., Luom, T. T., & Parnell, K. E. (2017). Mangrove transplantation in Brebes Regency, Indonesia: Lessons and recommendations. *Ocean and Coastal Management*, 149, 12–21. <https://doi.org/10.1016/j.ocecoaman.2017.09.006>
- The International Blue Carbon Initiative, <https://www.thebluecarboninitiative.org/>. Accessed: September, 2023.
- Thom, B. G. (1982). Mangrove ecology– A geomorphological perspective. In B. F. Clough (Ed.), *Mangrove ecosystems in Australia : structure, function and management; proceedings of the Australian National Mangrove Workshop*. Canberra : Australian Institute of Marine Science in Association with National University Press.

- Thomann, J. A., Werner, A. D., Irvine, D. J., & Currell, M. J. (2020). Adaptive management in groundwater planning and development: A review of theory and applications. *Journal of Hydrology*, 586(March), 124871. <https://doi.org/10.1016/j.jhydrol.2020.124871>
- Tomlinson, P. (2016). *The Botany of Mangroves* (2nd ed.). Cambridge: Cambridge University Press. doi:10.1017/CBO9781139946575
- Tomlinson, P. B. (1986). *The botany of mangroves*. Cambridge University Press, Cambridge. ISBN 0-521-25567-8. 413 Hm.
- Tue, N. T., Thai, N. D., & Nhuan, M. T. (2020). Carbon storage potential of mangrove forests from Northeastern Vietnam. *Regional Studies in Marine Science*, 40. <https://doi.org/10.1016/j.rsma.2020.101516>
- Tufliha, A. R., Putra, D. M., Amara, D. M., Santika, R. M., Oktavian, S. M., dan Kelana, P. P. (2019). Kondisi Ekosistem Mangrove di Kawasan Ekowisata Karangsong Kabupaten Indramayu. *Akuatika Indonesia*, 4(1), 11. <https://doi.org/10.24198/jaki.v4i1.23494>
- Tusinski, A., dan Verhagen, H. J. (2014). The Use Of Mangroves In Coastal Protection. *Coastal Engineering Proceedings*, 1(34). <https://doi.org/10.9753/icce.v34.management>
- Twilley, R. R., Chen, R. H., & Hargis, T. (1992). Carbon sinks in mangroves and their implications to carbon budget of tropical coastal ecosystems. *Water, Air, & Soil Pollution*, 64(1–2), 265–288. <https://doi.org/10.1007/BF00477106>
- UNEP. (2020). United Nations Environment Programme contributions to Secretary-General's background note for the preparatory meeting of the 2020 United Nations Conference to Support the Implementation of Sustainable Development Goal 14.
- Utami, F. P., Prasetyo, Y., dan Sukmono, A. (2016). Studi Perubahan Garis Pantai Akibat Kenaikan Muka Air Laut Di Kecamatan Sayung, Kabupaten Demak. *Jurnal Geodesi Undip*, 5(1): 305–315. <http://earthexplorer.usgs.gov/>
- van Bochove, J., Sullivan, E., dan Nakamura, T. (2014). *The Importance of Mangroves to People: A Call to Action*. United Nations Environment Programme.
- van Wesenbeeck, B. K., Balke, T., van Eijk, P., Tonneijck, F., Siry, H. Y., Rudianto, M. E., & Winterwerp, J. C. (2015). Aquaculture induced erosion of tropical coastlines throws coastal communities back into poverty. *Ocean and Coastal Management*, 116, 466–469. <https://doi.org/10.1016/j.ocecoaman.2015.09.004>
- Vasiliev, D. (2022). The Role of Biodiversity in Ecosystem Resilience. *IOP Conference Series: Earth and Environmental Science*, 1072(1), 0–8. <https://doi.org/10.1088/1755-1315/1072/1/012012>
- Vebrianto, R., Thahir, M., Putriani, Z., Mahartika, I., Ilhami, A., dan Diniya. (2020). Mixed Methods Research: Trends and Issues in Research Methodology. *Journal of Education and Learning*, 1(2): 63–73. <https://doi.org/10.55748/bjel.v1i2.35>

- Wafdan, L. (2020). Identifikasi Klasifikasi Lahan Di Kecamatan Pakem Kabupaten Sleman Berdasarkan Interpretasi Citra Sentinel-2. *Jurnal Ilmiah Penalaran Dan Penelitian Mahasiswa*, 4(1), 105–128.
- Waldo, B., Moore, K., Bickley, S., Anderson, C. J., & Bernal, M. A. (2023). Salinity fluctuations due to urbanization of coastal environments and their potential effect on the genetic divergence of the Gulf killifish (*Fundulus grandis*). *Environmental Biology of Fishes*, 106(7), 1539–1550. <https://doi.org/10.1007/s10641-023-01433-x>
- Wang, Y., Sun, Y., Cao, X., Wang, Y., Zhang, W., & Cheng, X. (2023). A review of regional and Global scale Land Use/Land Cover (LULC) mapping products generated from satellite remote sensing. *ISPRS Journal of Photogrammetry and Remote Sensing*, 206(March), 311–334. <https://doi.org/10.1016/j.isprsjprs.2023.11.014>
- Ward, R. D., Friess, D. A., Day, R. H., & Mackenzie, R. A. (2016). Impacts of climate change on mangrove ecosystems: a region by region overview. *Ecosystem Health and Sustainability*, 2(4). <https://doi.org/10.1002/ehs2.1211>
- Wei, L., Hong, H., Bee, M. Y., Wu, Y., Ndayambaje, P., Yan, C., Kao, S. J., Chee, P. S., & Wang, Y. (2022). Different adaptive strategies of three mangrove species to nutrient enrichment. *Plant Ecology*, 223(9), 1093–1102. <https://doi.org/10.1007/s11258-022-01260-7>
- Wiggers, M. J., Nuarsa, I. W., dan Nurweda Putra, I. D. N. (2020). Analisis Perubahan Penggunaan Lahan Pesisir Di Kecamatan Batu Layar, Kabupaten Lombok Barat Pada Tahun 2002 dan 2019. *Journal of Marine Research and Technology*, 3(2): 68. <https://doi.org/10.24843/jmrt.2020.v03.i02.p02>
- Wijaya, N. I., dan Huda, M. (2018). Monitoring Sebaran Vegetasi Mangrove Yang Direhabilitasi Di Kawasan Ekowisata Mangrove Wonorejo Surabaya Monitoring The Distribution Of Mangrove Vegetation That Rehabilitated In Mangrove Ecotourism Of Wonorejo Surabaya. *Jurnal Ilmu Dan Teknologi Kelautan Tropis*, 10(3): 747–755.
- Woodroffe, C. (1993). Mangrove Sediments and Geomorphology. *Coastal and Estuarine Studies*, 41, 1–41.
- Xie, S., Yan, D., Li, J., Liu, Y., Sheng, Y., & Luan, Z. (2022). GEE-Based Spatial-Temporal Dynamics in a Ramsar Wetland, Honghe National Nature Reserve, Northeast China from 1985 to 2021. *Land*, 11(12). <https://doi.org/10.3390/land11122137>
- Xiong, Y., Liao, B., & Wang, F. (2018). Mangrove vegetation enhances soil carbon storage primarily through in situ inputs rather than increasing allochthonous sediments. *Marine Pollution Bulletin*, 131, 378–385. <https://doi.org/10.1016/j.marpolbul.2018.04.043>
- Zakaria, R. M., Chen, G., Chew, L. L., Sofawi, A. B., Moh, H. H., Chen, S., Teoh, H. W., dan Adibah, S. Y. S. N. (2021). Carbon stock of disturbed and undisturbed mangrove ecosystems in Klang Straits, Malaysia. *Journal of Sea Research*, 176, 102113. <https://doi.org/10.1016/j.seares.2021.102113>

- Zakaria, R. M., Chen, G., Chew, L. L., Sofawi, A. B., Moh, H. H., Chen, S., Teoh, H. W., & Adibah, S. Y. S. N. (2021). Carbon stock of disturbed and undisturbed mangrove ecosystems in Klang Straits, Malaysia. *Journal of Sea Research*, 176, 102113. <https://doi.org/10.1016/j.seares.2021.102113>
- Zhang, X., Treitz, P. M., Chen, D., Quan, C., Shi, L., & Li, X. (2017). Mapping mangrove forests using multi-tidal remotely-sensed data and a decision-tree-based procedure. *International Journal of Applied Earth Observation and Geoinformation*, 62(July), 201–214. <https://doi.org/10.1016/j.jag.2017.06.010>
- Zhou, L., Li, X., Hao, S., Hong, L., Chen, L., & Li, Q. Q. (2024). Distinct molecular responses of mangrove plants to hypoxia and reoxygenation stresses contribute to their resilience in coastal wetland environment. *Science of the Total Environment*, 956(November), 177357. <https://doi.org/10.1016/j.scitotenv.2024.177357>
- Zimmerman, M., Peterson, N. A., & Zimmerman, M. A. (2016). Beyond the Individual : Toward a Nomological Network of Organizational Empowerment Beyond the Individual : Toward a Nomological Network of Organizational Empowerment. 34(October 2004). <https://doi.org/10.1023/B>



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