

DAFTAR PUSTAKA

- Adame, M. F., Cherian, S., Reef, R., Stewart-Koster, B. (2017). Mangrove root biomass and the uncertainty of belowground carbon estimations. *Forest Ecology and Management*, 403, 52–60. <https://doi.org/10.1016/j.foreco.2017.08.016>
- Adame, M. 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, 2856–2866. <https://doi.org/10.1111/gcb.15571>
- Adhikari, S., Sarkar, S., RN, M., Rathod, R., Pillai, B. R. (2020). Assessment of green house gases (GHGS)) emission from some aquaculture ponds of Andhra Pradesh and West Bengal, India. *Journal of Biomedical Research & Environmental Sciences*, 1, 241–245. <https://doi.org/10.37871/jbres1149>
- Adi, N. S., Paputungan, M. S., Rustam, A., Haditomo, A.H.C., Medrilzam. (2020). Estimating carbon emission and baseline for blue carbon ecosystems in Indonesia. *IOP Conference Series: Earth and Environmental Science*, 530, 012030. <https://doi.org/10.1088/1755-1315/530/1/012030>
- Ahmed, S., Kamruzzaman, M., Rahman, M. S., Sakib, N., Azad, M. S., Dey, T. (2022). Stand structure and carbon storage of a young mangrove plantation forest in coastal area of Bangladesh: The promise of a natural solution. *Nature-Based Solutions*, 2, 100025. <https://doi.org/10.1016/j.nbsj.2022.100025>
- Ahmed, Y., Kurniawan, C. A., Efendi, G. R., Pribadi, R., Nainggolan, F. A., 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, 9–19. <https://doi.org/10.14710/buloma.v12i1.40871>
- Aldiano, R. R., Wijaya, N. I., Mahmiah. (2022). Estimasi karbon organik sedimen di ekosistem mangrove Gunung Anyar, Surabaya. *Journal Tropimar*, 4, 111–123.
- Alongi, D. M. (2009). The energetics of mangrove forests. Australia: Springer. <https://doi.org/10.1007/978-1-4020-4271-3>
- Alongi, D. M. (2012). Carbon sequestration in mangrove forests. *Carbon Management*, 3, 313–322. <https://doi.org/10.4155/cmt.12.20>
- Alongi, D. M. (2020). Global Significance of Mangrove Blue Carbon in Climate Change Mitigation. *Sci*, 2, 1–15. <https://doi.org/10.3390/sci2030067>
- Alongi, D. M., Murdiyarso, D., Fourqurean, J. W., Kauffman, J. B., Hutahaeen, A., Crooks, S., Lovelock, C. E., Howard, J., Herr, D., Fortes, M., Pidgeon, E., Wagey, T. (2016). Indonesia's blue carbon: a globally significant and vulnerable sink for seagrass and mangrove carbon. *Wetlands Ecology and*

- Management*, 24, 3–13. <https://doi.org/10.1007/s11273-015-9446-y>
- Amanda, Y., Mulyadi, A., Siregar, Y. I. (2021). Estimasi stok karbon tersimpan pada hutan mangrove di Muara Sungai Batang Apar Kecamatan Pariaman Utara Kota Pariaman Provinsi Sumatera Barat. *Jurnal Ilmu Perairan*, 9, 38–48.
- Andrianto, F., Bintoro, A., Yuwono, S. B. (2015). Produksi dan laju dekomposisi serasah mangrove di Desa Durian dan Desa Batu Menyan Kecamatan Padang Cermin Kabupaten Pesawaran. *Jurnal Sylva Lestari*, 3, 9–20.
- Andriwibowo, Nasution, N. S., Basukriadi, A., Nurdin, E. (2021). Pemetaan tutupan mangrove dan potensi stok karbon pada Kawasan Restorasi Tangkolak di pesisir Cilamaya, Karawang, Jawa Barat. *Gunung Djati Conference Series*, 6, 122–127.
- Ardhani. (2020). Pengaruh hambatan permeabel terhadap total stok karbon ekosistem di hutan mangrove dan tambak terbengkalai di Kabupaten Demak (skripsi). Institut Pertanian Bogor.
- 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, 17–29. <https://doi.org/10.1016/j.foreco.2018.08.047>
- Arifanti, V., Novita, N., Subarno, Tosiani, A. (2021). Mangrove deforestation and CO₂ emissions in Indonesia. *IOP Conference Series: Earth and Environmental Science*, 012006. <https://doi.org/10.1088/1755-1315/874/1/012006>
- Arsad, W. M., Toknok, B., Korja, I. N. (2017). Sifat kimia tanah di bawah vegetasi mangrove di Desa Lebiti Kecamatan Togean Kabupaten Tojo Una-Una. *J. ForestSains*, 15, 22–27.
- Arsandi, D., Rejeki, S., A, R. W. (2017). Analisa kesesuaian lahan untuk penerapan Integrated Multi Trophic Aquaculture (IMTA) melalui pendekatan SIG di pesisir Kabupaten Brebes Jawa Tengah. *Journal of Aquaculture Management and Technology*, 6, 68–77. <https://ejournal3.undip.ac.id/index.php/jamt/article/view/20413>
- Asner, G. P., Brodrick, P. G., Philipson, C., Vaughn, N. R., Martin, R. E., Knapp, D. E., Heckler, J., Evans, L. J., Jucker, T., Goossens, B., Stark, D. J., Reynolds, G., Ong, R., Renneboog, N., Kugan, F., Coomes, D. A. (2018). Mapped aboveground carbon stocks to advance forest conservation and recovery in Malaysian Borneo. *Biological Conservation*, 217, 289–310. <https://doi.org/10.1016/j.biocon.2017.10.020>
- Aye, W. N., Tong, X., Tun, A. W. (2022). Species diversity, biomass and carbon stock assessment of Kanhlyashay Natural Mangrove Forest. *Forests*, 13, 1–16. <https://doi.org/10.3390/f13071013>
- Azzahra, F. S., Suryanti, S., Febrianto, S. (2020). Estimasi serapan karbon pada hutan mangrove Desa Bedono, Demak, Jawa Tengah. *Journal of Fisheries and Marine Research*, 4, 308–315.
- Barbier, E. B., Hacker, S. D., Kennedy, C., Koch, E. W., Stier, A. C., Silliman, B. R. (2011). The value of estuarine and coastal ecosystem services. *Ecological Monographs*, 81, 169–193. <https://doi.org/10.1890/10-1510.1>

- Basyuni, M., Simanjutak, E. O. (2021). Species composition and carbon stock estimation in Pulau Sembilan secondary mangrove forests, North Sumatra, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 713. <https://doi.org/10.1088/1755-1315/713/1/012014>
- Basyuni, M., Yani, P., Hartini, K. S. (2018). Evaluation of mangrove management through community-based silvofishery in North Sumatra, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 122. <https://doi.org/10.1088/1755-1315/122/1/012109>
- 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, 1396–1408. <https://doi.org/10.1890/15-2143>
- Brown, J.K. (1971). A planar intersect method for sampling fuel volume and surface area. *Forest Science*, 17, 96-102.
- Budiyanto, B.E. (2019). Kajian rehabilitasi mangrove di Desa Kaliwlingi dan Sawojajar, Kabupaten Brebes, Jawa Tengah (skripsi). Universitas Diponegoro.
- Cameron, C. (2018). Potential greenhouse gas emission reductions and carbon sequestration benefits from rehabilitating mangroves in Sulawesi, Indonesia (doctoral dissertation). Charles Darwin University. <https://doi.org/10.1002/eap.1810.Cameron>
- Cameron, C., Hutley, L. B., Friess, D. A., Brown, B. (2019). High greenhouse gas emissions mitigation benefits from mangrove rehabilitation in Sulawesi, Indonesia. *Ecosystem Services*, 40, 101035. <https://doi.org/10.1016/j.ecoser.2019.101035>
- Carnell, P. E., Palacios, M. M., Waryszak, P., Trevathan-Tackett, S. M., Masqué, P., Macreadie, P. I. (2022). Blue carbon drawdown by restored mangrove forests improves with age. *Journal of Environmental Management*, 306, 114301. <https://doi.org/10.1016/j.jenvman.2021.114301>
- Castillo, J. A. A., Apan, A. A., Maraseni, T. N., Salmo, S. G. (2018). Tree biomass quantity, carbon stock and canopy correlates in mangrove forest and land uses that replaced mangroves in Honda Bay, Philippines. *Regional Studies in Marine Science*, 24, 174–183. <https://doi.org/10.1016/j.rsma.2018.08.006>
- Cerlyawati, H., Anggoro, S., Zainuri, M. (2017). Mangrove rehabilitation program in North Coast, Central Java-Indonesia (case study in Regency of Brebes, Pemalang and Demak). *Journal of Applied Environmental and Biological Sciences*, 7, 131–139.
- Chang, C.-C., Chang, K.-C., Lin, W.-C., Wu, M.H. (2017). Carbon footprint analysis in the aquaculture industry: assessment of an ecological shrimp farm. *Journal of Cleaner Production*, 168, 1101–1107. <https://doi.org/10.1016/j.jclepro.2017.09.109>
- Chopin, T. (2011). Progression of the Integrated Multi-Trophic Aquaculture (IMTA) concept and upscaling of IMTA systems towards commercialization. *Aquaculture Europe*, 36, 4.
- Chopin, T., Cooper, J. A., Reid, G., Cross, S., Moore, C. (2012). Open-water integrated multi-trophic aquaculture: environmental biomitigation and

- economic diversification of fed aquaculture by extractive aquaculture. *Reviews in Aquaculture*, 4, 209–220. <https://doi.org/10.1111/j.1753-5131.2012.01074.x>
- Chung, I. K., Oak, J. H., Lee, J. A., Shin, J. A., Kim, J. G., Park, K. (2013). Installing kelp forests/seaweed beds for mitigation and adaptation against global warming: Korean Project Overview. *ICES Journal of Marine Science*, 70, 1038–1044.
- Clements, J. C., Chopin, T. (2017). Ocean acidification and marine aquaculture in North America: potential impacts and mitigation strategies. *Reviews in Aquaculture*, 9, 326–341. <https://doi.org/10.1111/raq.12140>
- Cooray, P. L. I. G. M., Kodikara, K. A. S., Kumara, M. P., Jayasinghe, U. I., Madarasinghe, S. K., Dahdouh-Guebas, F., Gorman, D., Huxham, M., Jayatissa, L. P. (2021). Climate and intertidal zonation drive variability in the carbon stocks of Sri Lankan mangrove forests. *Geoderma*, 389, 114929. <https://doi.org/10.1016/j.geoderma.2021.114929>
- Dale, P. E. R., Knight, J. M., Dwyer, P. G. (2014). Mangrove rehabilitation: a review focusing on ecological and institutional issues. *Wetlands Ecology and Management*, 22, 587–604. <https://doi.org/10.1007/s11273-014-9383-1>
- Damanik, K. (2011). Simpanan karbon hutan mangrove hasil rehabilitasi di Pantai Utara Pemalang (skripsi). Universitas Gadjah Mada.
- Departemen Kehutanan. (2005). Pedoman inventarisasi dan identifikasi lahan kritis mangrove. Jakarta, DKI: Departemen Kehutanan.
- Destiana, Darwati, H. (2021). Laju dekomposisi serasah di lahan mangrove rehabilitasi. *Jurnal Pendidikan Biologi dan Sains*, 4, 62–73.
- Dharmawan, I. W. S., Siregar, C. A. (2008). Karbon tanah dan pendugaan karbon tegakan *Avicennia marina* (Forsk.) Vierh. di Ciasem, Purwakarta. *Jurnal Penelitian Hutan Dan Konservasi Alam*, 5, 317–328. <https://doi.org/10.20886/jphka.2008.5.4.317-328>
- Diana, R., Matius, P., Syahrudin, Karyati, Hendra, M., Melsitiara, R. (2021). Species diversity and estimation of carbon stock in abandoned shrimp pond of mangrove ecosystem in East Kalimantan. *IOP Conference Series: Earth and Environmental Science*, 800, 012042. <https://doi.org/10.1088/1755-1315/800/1/012042>
- Dinas Lingkungan Hidup dan Kehutanan Provinsi Jawa Tengah. (2017). Penyiapan Penyusunan Baku Kerusakan Mangrove Jawa Tengah Tahun 2017. Semarang, Jawa Tengah: Dinas Lingkungan Hidup dan Kehutanan Provinsi Jawa Tengah.
- Dinilhuda, A., Akbar, A. A., Jumiati. (2018). Peran ekosistem mangrove bagi mitigasi pemanasan global. *Jurnal Teknik Sipil*, 18. <https://doi.org/10.26418/jtsft.v18i2.31233>
- Direktorat Inventarisasi dan Pemantauan Sumberdaya Hutan KLHK. (2015). Buku kegiatan serapan dan emisi karbon. Jakarta, DKI: Kementerian Lingkungan Hidup dan Kehutanan.
- Donato, D. C., Kauffman, J. B., Murdiyarso, D., Kurnianto, S., Stidham, M., Kanninen, M. (2011). Mangroves among the most carbon-rich forests in the tropics. *Nature Geoscience*, 4, 293–297. <https://doi.org/10.1038/ngeo1123>

- Donato, D. C., Kauffman, J. B., Murdiyarso, D., Kurnianto, S., Stidham, M., Kanninen, M. (2012). Mangrove adalah salah satu hutan terkaya karbon di kawasan tropis. *CIFOR Brief*, 13, 2012.
- Eid, E. M., Arshad, M., Shaltout, K. H., El-Sheikh, M. A., Alfarhan, A. H., Picó, Y., Barcelo, D. (2019). Effect of the conversion of mangroves into shrimp farms on carbon stock in the sediment along the southern red sea coast, Saudi Arabia. *Environmental Research*, 176, 108536. <https://doi.org/10.1016/j.envres.2019.108536>
- Fang, K., Heijungs, R., De Snoo, G. R. (2014). Theoretical exploration for the combination of the ecological, energy, carbon, and water footprints: overview of a footprint family. *Ecological Indicators*, 36, 508–518. <https://doi.org/10.1016/j.ecolind.2013.08.017>
- Febriana, I. (2019). Perubahan garis pantai dan dampaknya terhadap suksesi serta kerentanan mangrove di kawasan ekosistem esensial hutan mangrove Desa Mojo Kecamatan Ulujami, Kabupaten Pemalang (skripsi). Universitas Diponegoro.
- Fourqurean, J., Johnson, B., Kauffman, J.B., Kennedy, H., Lovelock, C., Magonigal, J.P., Rahman, A.F., Saintilan, N., Simard, M. (2014). Coastal blue carbon: methods for assessing carbon stocks and emission factors in mangroves, tidal salt marshes, and seagrass meadows. Coordinators of the International Blue Carbon Initiative.
- Gay, L. R., Diehl, P. L. (1992). Research methods for business and management. New York: Mc.Millan Publishing Company.
- Goldberg, L., Lagomasino, D., Thomas, N., Fatoyinbo, T. (2020). Global declines in human-driven mangrove loss. *Global Change Biology*, 26, 5844–5855. <https://doi.org/10.1111/gcb.15275>
- Hadidi, A. F., Martuti, N. K. T., Boedijantoro, P. M. H. (2022). Estimasi stok karbon mangrove strata pohon di Kelurahan Trimulyo Kota Semarang sebagai upaya konservasi mangrove. *Bioma*, 18, 8–14. [https://doi.org/10.21009/Bioma18\(1\).2](https://doi.org/10.21009/Bioma18(1).2)
- Haditomo, A. H. C., Wijayanto, D., Adi, N. S., Suryanto, S. (2020). Greenhouse gases emission estimation from Indonesia *Litopenaeus vannamei* shrimp production. *AACL Bioflux*, 13, 3778–3788.
- 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>
- Hapsari, F. N., Maslukah, L., Dharmawan, I. W. E., Wulandari, S. Y. (2022). Simpanan karbon organik dalam sedimen mangrove terhadap pasang surut di Pulau Bintan. *Buletin Oseanografi Marina*, 11, 86–98. <https://doi.org/10.14710/buloma.v11i1.39107>
- Harefa, M. S., Nasution, Z., Mulya, M. B., Maksum, A. (2022). Mangrove species diversity and carbon stock in silvofishery ponds in Deli Serdang District, North Sumatra, Indonesia. *Biodiversitas*, 23, 655–662. <https://doi.org/10.13057/biodiv/d230206>

- Harishma, K. M., Sandeep, S., Sreekumar, V. B. (2020). Biomass and carbon stocks in mangrove ecosystems of Kerala, southwest coast of India. *Ecological Processes*, 9, 1–9. <https://doi.org/10.1186/s13717-020-00227-8>
- Heriyanto, T., Amin, B. (2013). Analisis biomasa dan cadangan karbon pada ekosistem hutan mangrove di pesisir pantai Kelurahan Purnama Kota Dumai Provinsi Riau. *Seminar Nasional Konservasi Dan Proteksi Lingkungan, December*, 503–512.
- Hickmah, N., Maslukah, L., Wulandari, S. Y., Sugianto, D. N., Wirasatriya, A. (2021). Kajian stok karbon organik dalam sedimen di area vegetasi mangrove Karimunjawa. *Indonesian Journal of Oceanography*, 3, 88–95. <https://doi.org/10.14710/ijoce.v3i4.12494>
- Hidayah, Z., Andriyani, L. (2019). Carbon stock analysis of mangrove ecosystems in Paliat Island Sumenep East Java. *IOP Conference Series: Earth and Environmental Science*, 276, 012034. <https://doi.org/10.1088/1755-1315/276/1/012034>
- <http://www.organisasi.org/1970/01/isi-kandungan-gizi-ikan-bandeng-komposisi-nutrisi-bahan-makanan.html#.Y89cQXZBzIV>.
- Hu, Z., Lee, J. W., Chandran, K., Kim, S., Khanal, S. K. (2012). Nitrous oxide (N₂O) emission from aquaculture: a review. *Environmental Science and Technology*, 46, 6470–6480. <https://doi.org/10.1021/es300110x>
- Husain, I. H., Katili, A. S. (2023). Carbon absorption value of *Bruguiera gymnorhiza* in the coastal area of Dulupi Village, Boalemo District. *Jurnal Biologi Tropis*, 23, 23–32. <https://doi.org/10.29303/jbt.v23i1.4410>
- Ihsan, I. M., Prayitno, J., Santoso, A. D. (2017). Perhitungan stok karbon hutan mangrove Probolinggo. *Bunga Rampai Inovasi Teknologi Pengukuran dan Estimasi Emisi Karbon Indonesia*.
- 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>
- Imran, Z., Easteria, G., Yulianto, G. (2022). Estimasi stok karbon mangrove rehabilitasi di Pulau Harapan dan Kelapa, Taman Nasional Kepulauan Seribu, Jakarta. *Jurnal Ilmu Dan Teknologi Kelautan Tropis*, 14, 191–204.
- Indrayani, E., Kalor, J. D., Warpur, M., Hamuna, B. (2021). Using Allometric Equations to Estimate Mangrove Biomass and Carbon Stock in Demta Bay, Papua Province, Indonesia. *Journal of Ecological Engineering*, 22, 263–271. <https://doi.org/10.12911/22998993/135945>
- IPCC. (2006). IPCC guidelines for national greenhouse gas inventories. Japan: IGES.
- Irwanto, Paembonan, S. A., Ngakan, P. O., Maulany, R. I. (2021). Estimated carbon stock of various mangrove zonation in Marsegu Island, West Seram, Maluku. *IOP Conference Series: Earth and Environmental Science*, 807, 022044. <https://doi.org/10.1088/1755-1315/807/2/022044>
- Isworo, S., Oetari, P. S. (2020). Mangrove vegetation and bird communities around Tegal Port, Central Java, Indonesia. *Biodiversitas*, 21, 1551–1560. <https://doi.org/10.13057/biodiv/d210436>

- Järvio, N., Henriksson, P. J. G., Guinée, J. B. (2018). Including GHG emissions from mangrove forests LULUC in LCA: a case study on shrimp farming in the Mekong Delta, Vietnam. *International Journal of Life Cycle Assessment*, 23, 1078–1090. <https://doi.org/10.1007/s11367-017-1332-9>
- Jaramillo, V.J., Ahedo-Hernandez, R., Kauffman, J.B. (2003). Root biomass and carbon in a tropical evergreen forest of Mexico: changes with secondary succession and forest conversion to pasture. *Journal of Tropical Ecology*, 19, 457-464.
- Jati, I. W., Pribadi, R. (2017). Penanaman mangrove tersistem sebagai solusi penambahan luas tutupan lahan hutan mangrove Baros di Pesisir Pantai Selatan Kabupaten Bantul. *Proceeding Biology Education Conference*, 14, 148–153.
- Jiang, Q., Bhattarai, N., Pahlow, M., Xu, Z. (2022). Environmental sustainability and footprints of global aquaculture. *Resources, Conservation and Recycling*, 180, 106183. <https://doi.org/10.1016/j.resconrec.2022.106183>
- Jonell, M., Henriksson, P. J. G. (2015). Mangrove-shrimp farms in Vietnam-comparing organic and conventional systems using life cycle assessment. *Aquaculture*, 447, 66–75. <https://doi.org/10.1016/j.aquaculture.2014.11.001>
- Katili, A. S., Mamu, H. D., Husain, I. H. (2020). Potensi struktur vegetasi mangrove dan nilai serapan biomassa karbon. Ideas Publishing.
- 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, M. del C. J., MacKenzie, R. A., Megonigal, J. P., Murdiyarso, D., Simpson, L., Trejo, H. H. (2020). Total ecosystem carbon stocks of mangroves across broad global environmental and physical gradients. *Ecological Monographs*, 90, 1–18. <https://doi.org/10.1002/ecm.1405>
- Kauffman, J. B., Arifanti, V. B., Trejo, H. H., García, M. del C. J., 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, 183–188.
- Kauffman, J. B., Bernardino, A. F., Ferreira, T. O., Bolton, N. W., Gomes, L. E. de O., Nobrega, G. N. (2018). Shrimp ponds lead to massive loss of soil carbon and greenhouse gas emissions in northeastern Brazilian mangroves. *Ecology and Evolution*, 8, 5530–5540. <https://doi.org/10.1002/ece3.4079>
- Kauffman, J. B., Bernardino, A. F., Ferreira, T. O., Giovannoni, L. R., Gomes, L. E. de O., Romero, D. J., Jimenez, L. C. Z., Ruiz, F. (2018). Carbon stocks of mangroves and salt marshes of the Amazon region, Brazil. *Biology Letters*, 14. <https://doi.org/10.1098/rsbl.2018.0208>
- 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, 1–17. <https://doi.org/10.1371/journal.pone.0187749>
- Kauffman, J. B., Donato, D. C. (2012). Protocols for the measurement, monitoring and reporting of structure, biomass and carbon stocks in mangrove forests. Bogor: CIFOR.

- Kauffman, J. B., Heider, C., Norfolk, J., Payton, F. (2014). Carbon stocks of intact mangroves and carbon emissions arising from their conversion in the Dominican Republic. *Ecological Application*, 24, 518–527.
- Kauffman, J. B., Trejo, H. H., Garcia, M. del C. J., Heider, C., Contreras, W. M. (2016). Carbon stocks of mangroves and losses arising from their conversion to cattle pastures in the Pantanos de Centla, Mexico. *Wetlands Ecology and Management*, 24, 203–216. <https://doi.org/10.1007/s11273-015-9453-z>
- Kementerian Lingkungan Hidup dan Kehutanan RI. (2016). Peraturan Menteri Lingkungan Hidup dan Kehutanan Nomor 84 Tahun 2016 tentang Program Kampung Iklim. Jakarta: Kementerian Lingkungan Hidup dan Kehutanan RI.
- Kementerian Lingkungan Hidup dan Kehutanan RI. (2017). Peraturan Menteri Lingkungan Hidup dan Kehutanan Republik Indonesia Nomor P.70/MENLHK/SETJEN/KUM.1/12/2017 tentang Tata Cara Pelaksanaan *Reducing Emissions From Deforestation and Forest Degradation, Role of Conservation, Sustainable Management of Forest and Enhancement of Forest Carbon Stocks*. Jakarta: Kementerian Lingkungan Hidup dan Kehutanan RI.
- Kementerian Lingkungan Hidup dan Kehutanan RI. (2018). Mengenal KEE Hutan Mangrove Mojo di Pantai Utara Jawa. <https://ksdae.menlhk.go.id/info/2838/mengenal-kee-hutan-mangrove-mojo-di-pantai-utara-jawa.html>
- Kepel, T. L., Ati, R. N. A., Rahayu, Y. P., Adi, N. S. (2018). Pengaruh alih fungsi kawasan mangrove pada sifat sedimen dan kemampuan penyimpanan karbon. *Jurnal Kelautan Nasional*, 13, 145–153. <https://doi.org/10.15578/jkn.v13i3.6620>
- Kepel, T. L., Ati, R. N. A., Rustam, A., Rahayu, Y. P., Kusumaningtyas, M. A., Daulat, A., Suryono, D. D., Sudirman, N., Adi, N. S., Mantiri, D. M. H., Hutahaean, A. A. (2019). Cadangan karbon ekosistem mangrove di Sulawesi Utara dan implikasinya pada aksi mitigasi perubahan iklim. *Jurnal Kelautan Nasional*, 14, 87–94.
- Kepel, T. L., Mbay, L. O. N., Nugraha, R. B. A., Jayawiguna, M. H., Sudirman, N., Mangindaan, P. (2021). Tekanan ekologi dan nilai moneter karbon biru ekosistem mangrove Muara Gembong, Teluk Jakarta. *Jurnal Kelautan Nasional*, 16, 135–144. <https://doi.org/10.15578/jkn.v16i2.9917>
- Komiyama, A., Ong, J.E., Pongparn, S. (2008). Allometry, biomass, and productivity of mangrove forests: A Review. *Aquatic Botany*, 89, 128–137.
- Kordi, M.G.H. (2012). Ekosistem mangrove potensi, fungsi, dan pengelolaan. Jakarta: Rineka Cipta.
- Krauss, K. W., Cormier, N., Osland, M. J., Kirwan, M. L., Stagg, C. L., Nestlerode, J. A., Russell, M. J., From, A. S., Spivak, A. C., Dantin, D. D., Harvey, J. E., Almario, A. E. (2017). Created mangrove wetlands store belowground carbon and surface elevation change enables them to adjust to sea-level rise. *Scientific Reports*. Springer US. <https://doi.org/10.1038/s41598-017-01224-2>
- Kusmana, C., Hidayat, T., Hikmah, W. F. (2019). Above-ground biomass and carbon stock of ciletuh mangrove forest, West Java, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 394, 012005. <https://doi.org/10.1088/1755-1315/394/1/012005>

- Kusmana, C., Hidayat, T., Tiryan, T., Rusdiana, O., Istomo. (2018). Allometric models for above- and below-ground biomass of *Sonneratia* spp. *Global Ecology and Conservation*, 15, e00417. <https://doi.org/10.1016/j.gecco.2018.e00417>
- Kusmawati, Hardiansyah, G., Widhanarto, G. O. (2021). Stok karbon di atas permukaan tanah pada hutan mangrove Sungai Awan Kiri Kabupaten Ketapang. *Jurnal Hutan Lestari*, 9, 25–36.
- Kusumaningtyas, M. A., Hutahae, 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>
- Lasibani, S. M., Kamal, E. (2010). Pola penyebaran pertumbuhan propagul mangrove Rhizophoraceae di kawasan pesisir Sumatera Barat. *Jurnal Mangrove Dan Pesisir*, 10, 33–38.
- Lestariningsih, W. A., Putra, M. G. A., Putri, A. R., Prabowo, B., Muhammad, F., Santoso, P., Adiwijaya, C., Idris, Setyaningsih, W. A., Lestari, D. F., Zamani, N. P. (2022). Struktur komposisi dan estimasi cadangan karbon tegakan ekosistem mangrove di Pulau Sangiang, Banten. *Jurnal Ilmu Kelautan Lesser Sunda*, 2, 13–20. <https://doi.org/10.29303/jikls.v2i2.59>
- Lestariningsih, W. A., Soenardjo, N., Pribadi, R. (2018). Estimasi cadangan karbon pada kawasan mangrove di Desa Timbulsloko, Demak, Jawa Tengah. *Buletin Oseanografi Marina*, 7, 121–130. <https://doi.org/10.14710/buloma.v7i2.19574>
- Mahmoudi, M., Pourebrahim, S., Khorasani, N., Danehkar, A., Etemadi, H., Ziyarati, M. T., Moeinaddini, M. (2022). Carbon stock in three mangrove forests in north Persian Gulf. *Environmental Earth Sciences*, 81, 1–14. <https://doi.org/10.1007/s12665-021-10132-8>
- Malik, A., Sideng, U., Jaelani. (2022). Biomass carbon stock assessment of mangrove ecosystem in Pannikiang Island South Sulawesi Indonesia. *Indonesian Journal of Geography*, 54, 11–19. <https://doi.org/10.22146/ijg.46989>
- Mardi. (2014). Keterkaitan struktur vegetasi mangrove dengan keasaman dan bahan organik total sedimen pada Kawasan Suaka Margasatwa Mampie di Kecamatan Wonomulyo Kabupaten Polewali Mandar (skripsi). Universitas Hasanuddin.
- Mardiyah, R., Ario, R., Pribadi, R. (2019). Estimasi simpanan karbon pada ekosistem mangrove di Desa Pasar Banggi dan Tireman, Kecamatan Rembang Kabupaten Rembang. *Journal of Marine Research*, 8, 62–68. <https://doi.org/10.14710/jmr.v8i1.24330>
- Matatula, J., Poedjirahajoe, E., Pudyatmoko, S., Sadono, R. (2019). Keragaman kondisi salinitas pada lingkungan tempat tumbuh mangrove di Teluk Kupang, NTT. *Jurnal Ilmu Lingkungan*, 17, 425–434. <https://doi.org/10.14710/jil.17.3.425-434>
- 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? *Forests*, 13, 1–19. <https://doi.org/10.3390/f13060847>
- Meng, Y., Bai, J., Gou, R., Cui, X., Feng, J., Dai, Z., Diao, X., Zhu, X., Lin, G. (2021). Relationships between above- and below-ground carbon stocks in mangrove forests facilitate better estimation of total mangrove blue carbon. *Carbon Balance and Management*, 16, 1–14. <https://doi.org/10.1186/s13021-021-00172-9>
- Mereci-Guaman, J., Casanoves, F., Delgado-Rodriguez, D., Ochoa, P., Cifuentes-Jara, M. (2021). Impact of shrimp ponds on mangrove blue carbon stocks in Ecuador. *Forests*, 12. <https://doi.org/10.3390/f12070816>
- Monga, E., Mangora, M. M., Trettin, C. C. (2022). Impact of mangrove planting on forest biomass carbon and other structural attributes in the Rufiji Delta, Tanzania. *Global Ecology and Conservation*, 35. <https://doi.org/10.1016/j.gecco.2022.e02100>
- Muharam. (2014). Penanaman mangrove sebagai salah satu upaya rehabilitasi lahan dan lingkungan di kawasan pesisir pantai utara Kabupaten Karawang. *Jurnal Ilmiah Solusi*, 1, 1–14.
- Muhd-Ekhzarizal, M. E., Mohd-Hasnadi, I., Hamdan, O., Mohamad-Roslan, M. K., Noor-Shaila, S. (2018). Estimation of aboveground biomass in mangrove forests using vegetation indices from SPOT-5 image. *Journal of Tropical Forest Science*, 30, 224–233. <https://doi.org/10.26525/jtfs2018.30.2.224233>
- 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, 1089–1092. <https://doi.org/10.1038/nclimate2734>
- Mutiartari, D. P., Pribadi, R., Martuti, N. K. T. (2018). C stock of top soil and its spatial distribution in mangrove community of Trimulyo, Semarang City. *E3S Web of Conferences*, 73. <https://doi.org/10.1051/e3sconf/20187303006>
- 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, 529–538. <https://doi.org/10.14710/jmr.v11i3.33393>
- Natarajan, M., Ayyappan, S., Vajiravelu, M. (2022). Carbon stock assessment on natural mangrove species of *Avicennia marina* in Pichavaram mangrove forest Southeast coast of India. *Research Square*, 1–13. <https://doi.org/https://doi.org/10.21203/rs.3.rs-1274783/v1>
- 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>
- 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, 104–116. <https://doi.org/10.14710/buloma.v9i2.30039>
- Nuraini, R. A. T., Pringgenies, D., Suryono, C. A., Adhari, V. H. (2021). Stok karbon pada tegakan vegetasi mangrove di Pulau Karimunjawa. *Buletin Oseanografi Marina*, 10, 180–188.

- <https://doi.org/10.14710/buloma.v10i2.31616>
- Nurfitriani, S., Lili, W., Hamdani, H., Sahidin, A. (2019). Density effect of mangrove vegetation on gastropods on Pandansari Mangrove Ecotourism Forest, Kaliwlingi Village, Brebes Central Java. *World Scientific News*, 133, 98–120.
- Oh, R. R. Y., Friess, D. A., Brown, B. M. (2017). The role of surface elevation in the rehabilitation of abandoned aquaculture ponds to mangrove forests, Sulawesi, Indonesia. *Ecological Engineering*, 100, 325–334. <https://doi.org/10.1016/j.ecoleng.2016.12.021>
- Ouyang, X., Lee, S. Y. (2020). Improved estimates on global carbon stock and carbon pools in tidal wetlands. *Nature Communications*, 11, 1–7. <https://doi.org/10.1038/s41467-019-14120-2>
- Paputungan, M. S., Ritonga, I. R., Suryana, I., Loto, N., Dharmawan, I. W. E., Fitriani, Z. (2022). Pengukuran stok karbon mangrove pada tiga kondisi mangrove yang berbeda di Mangrove Center Balikpapan. *Prosiding Forum Ilmiah Nusantara*, 129–137.
- Patang. (2013). Pengaruh sifat fisik dan kimia tanah terhadap komunitas hutan mangrove (kasus di Kabupaten Sinjai). *Jurnal Galung Tropika*, 2, 136–141.
- Pemerintah Kabupaten Brebes. (2019). Dokumen Informasi Kinerja Pengelolaan Lingkungan Hidup Daerah (DIKPLHD) Kabupaten Brebes Tahun 2019. Brebes: Pemerintah Kabupaten Brebes.
- Pemerintah Kabupaten Pemalang. (2019). Laporan Utama Dokumen Informasi Kinerja Pengelolaan Lingkungan Hidup Daerah (DIKPLHD). Pemalang: Pemerintah Kabupaten Pemalang.
- Pemerintah Kabupaten Pemalang. (2017). Surat Keputusan (SK) Bupati Pemalang nomor 188.4/564/tahun 2017 tanggal 16 Juni 2017 tentang Penetapan Kawasan Ekosistem Esensial Mangrove Desa Mojo Kecamatan Ulujami Kabupaten Pemalang. Pemalang: Pemerintah Kabupaten Pemalang.
- Pemerintah Provinsi Jawa Tengah. (2016). Peraturan Daerah Provinsi Jawa Tengah Nomor 2 Tahun 2016 tentang Rencana Tata Ruang Kawasan Strategis Provinsi Kawasan Perkotaan Brebes-Tegal-Slawi-Pemalang Tahun 2016-2036. Semarang: Sekretaris Daerah Provinsi Jawa Tengah.
- Pemerintah Provinsi Jawa Tengah. (2019). Peraturan Daerah Provinsi Jawa Tengah Nomor 5 Tahun 2019 tentang Rencana Pembangunan Jangka Menengah Daerah Provinsi Jawa Tengah Tahun 2018-2023. Semarang: Sekretaris Daerah Provinsi Jawa Tengah.
- Pemerintah Republik Indonesia. (2011). Peraturan Presiden Republik Indonesia Nomor 61 Tahun 2011 tentang Rencana Aksi Nasional Penurunan Emisi Gas Rumah Kaca. Jakarta: Sekretariat Kabinet RI.
- Pemerintah Republik Indonesia. (2011). Peraturan Presiden Republik Indonesia Nomor 71 Tahun 2011 tentang Penyelenggaraan Inventarisasi Gas Rumah Kaca Nasional. Jakarta: Sekretariat Kabinet RI.
- Pemerintah Republik Indonesia. (2019). Peraturan Presiden Republik Indonesia Nomor 79 Tahun 2019 tentang Percepatan Pembangunan Ekonomi Kawasan Kendal-Semarang-Salatiga-Demak-Grobogan, Kawasan Purworejo-Wonosobo-Magelang-Temanggung, dan Kawasan Brebes-Tegal-Pemalang.

Jakarta: Sekretariat Kabinet RI.

- Perera, K. A. R. S., Amarasinghe, M. D. (2018). Ecosystem carbon stock of mangroves at the Batticaloa Lagoon, Sri Lanka. *OUSL Journal*, 13, 81–100. <https://doi.org/10.4038/ouslj.v13i2.7441>
- Perera, K. A. R. S., Amarasinghe, M. D. (2021). Assessment of blue carbon stock of Mangroves at Malwathu Oya estuary, Sri Lanka. *OUSL Journal*, 16, 75–90. <https://doi.org/10.4038/ouslj.v16i1.7519>
- Perwitasari, W. K., Muhammad, F., Hidayat, J. W. (2020). Silvofishery as an alternative system of sustainable aquaculture in Mororejo Village, Kendal Regency. *E3S Web of Conferences*, 202. <https://doi.org/10.1051/e3sconf/202020206043>
- Peters, G. P. (2010). Carbon footprints and embodied carbon at multiple scales. *Current Opinion in Environmental Sustainability*, 2, 245–250. <https://doi.org/10.1016/j.cosust.2010.05.004>
- Poedjirahajoe, E. (2011). The role of mangrove on mud substrate accumulation in rehabilitated area on the North Coast of Brebes Central Java. *Proceeding of International Conference on New Perspectives of Tropical Forest Rehabilitation for Better Forest Functions and Management*.
- Poedjirahajoe, E., Marsono, D., Wardhani, F. K. (2017). Usage of principal component analysis in the spatial distribution of mangrove vegetation in North Coast of Pemalang. *Jurnal Ilmu Kehutanan*, 11. <https://doi.org/10.22146/jik.24885>
- Poedjirahajoe, E. (2019). Ekosistem mangrove: karakteristik, fungsi, dan dinamikanya. Yogyakarta: Gosyen Publishing.
- Pratiwi, H. F., Haryono, E. (2020). The potential contribution of the lagoon ecosystem as mangrove carbon sinks in Java. *IOP Conference Series: Earth and Environmental Science*, 451. <https://doi.org/10.1088/1755-1315/451/1/012064>
- Purwanto, R. H., Mulyana, B., Satria, R. A., Yasin, E. H. E., Putra, I. S. R., Putra, A. D. (2022). Spatial distribution of mangrove vegetation species, salinity, and mud thickness in mangrove forest in Pangarengan, Cirebon, Indonesia. *Biodiversitas*, 23, 1383–1391. <https://doi.org/10.13057/biodiv/d230324>
- Pusat Penelitian dan Pengembangan Perubahan Iklim dan Kebijakan. (2010). Pedoman pengukuran karbon untuk mendukung penerapan REDD+ di Indonesia. Bogor: Pusat Penelitian dan Pengembangan Perubahan Iklim dan Kebijakan
- Rahadian, A. (2019). Model spasial pendugaan biomassa dan karbon mangrove di Indonesia (tesis). Institut Pertanian Bogor.
- Rahman, M. M., Khan, M. N. I., Hoque, A. K. F., Ahmed, I. (2015). Carbon stock in the Sundarbans mangrove forest: spatial variations in vegetation types and salinity zones. *Wetlands Ecology and Management*, 23, 269–283. <https://doi.org/10.1007/s11273-014-9379-x>
- Rahman, Ratuluhain, E. S., Sirajuddin, N. T., Fendjalang, S. N. M., Rijoly, S. M. A. (2022). Resiliensi stok karbon mangrove dengan pendekatan sistem sosial ekologi di pesisir Kabupaten Muna Barat. *Jurnal Laut Pulau*, 1, 1–11.

- Rahmattin, N. A. F. E., Hidayah, Z. (2020). Analisis ketersediaan stok karbon pada mangrove di pesisir Surabaya, Jawa Timur. *Jurnal Ilmiah Kelautan Dan Perikanan*, 1, 58–65. <https://doi.org/10.21107/juvenil.v1i1.6812>
- Raul, C., Pattanaik, S. S., Prakash, S., K, S., Vidya, Bharti, S. (2020). Greenhouse gas emissions from aquaculture. *Journal of World Aquaculture Society*, March, 57–61.
- Raynaldo, A., Marista, E., Shofiyah, S. S., Linda, R., Rafdinal. (2022). Estimasi cadangan karbon kawasan taman wisata hutan mangrove Kecamatan Sukadana, Kabupaten Kayong Utara, Kalimantan Barat. *Jurnal Kelautan*, 15, 23–30.
- Rejeki, S. (2019). Penerapan konsep LEISA-IMTA (Low External Input Sustainable Aquaculture - Integrated Multi Trophic Aquaculture) pada tambak tradisional terdampak abrasi. Semarang: Undip Press.
- Richards, D. R., Friess, D. A. (2016). Rates and drivers of mangrove deforestation in Southeast Asia, 2000-2012. *Proceedings of the National Academy of Sciences of the United States of America*, 113, 344–349. <https://doi.org/10.1073/pnas.1510272113>
- Rifandi, R. A. (2021). Pendugaan stok karbon dan serapan karbon pada tegakan mangrove di Kawasan Ekowisata Mangrove Desa Mojo Kabupaten Pemalang. *Jurnal Litbang Provinsi Jawa Tengah*, 19, 93–103. <https://doi.org/10.36762/jurnaljateng.v19i1.871>
- Robb, D. H. F., MacLeod, M., Hasan, M. R., Soto, D. (2017). Greenhouse gas emissions from aquaculture: a life cycle assessment of three Asian systems. *FAO Fisheries and Aquaculture Technical Paper*, 609, 1–110.
- Rozainah, M. Z., Nazri, M. N., Sofawi, A. B., Hemati, Z., Juliana, W. A. (2018). Estimation of carbon pool in soil, above and below ground vegetation at different types of mangrove forests in Peninsular Malaysia. *Marine Pollution Bulletin*, 137, 237–245. <https://doi.org/10.1016/j.marpolbul.2018.10.023>
- Sahu, S. C., Kumar, M., Ravindranath, N. H. (2016). Carbon stocks in natural and planted mangrove forests of Mahanadi Mangrove Wetland, East Coast of India. *Current Science*, 110, 2253–2260.
- Sanders, C. J., Maher, D. T., Tait, D. R., Williams, D., Holloway, C., Sippo, J. Z., Santos, I. R. (2016). Are global mangrove carbon stocks driven by rainfall? *Journal of Geophysical Research: Biogeosciences*, 121, 2600–2609. <https://doi.org/10.1002/2016JG003510>
- Sari, L. N. (2018). Dampak banjir rob terhadap pertanian tambak di Kelurahan Muarareja Kota Tegal Jawa Tengah (skripsi). Universitas Negeri Jakarta.
- 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, 3028–3039. <https://doi.org/10.1111/gcb.15056>
- Sidik, F., Arifanti, V. B., Krisnawati, H. (2017). Perhitungan karbon tanah mangrove (soil pool) dalam inventarisasi gas rumah kaca. Bogor: Pusat

- Penelitian dan Pengembangan Sosial Ekonomi Kebijakan dan Perubahan Iklim. <https://doi.org/10.13140/RG.2.2.29698.27841>
- Sidik, F., Lovelock, C. E. (2013). CO₂ efflux from shrimp ponds in Indonesia. *PLoS ONE*, 8, 6–9. <https://doi.org/10.1371/journal.pone.0066329>
- Sidik, F., Supriyanto, B., Lugina, M. (2017). Tingkat rujukan emisi hutan mangrove Delta Mahakam. *Jurnal Analisis Kebijakan Kehutanan*, 14, 93–104. <https://doi.org/10.20886/jakk.2017.14.2.93-104>
- Siikamäki, J., Sanchirico, J. N., Jardine, S., McLaughlin, D., Morris, D. F. (2012). Global options for reducing emissions from the degradation and development of coastal ecosystems. *Resources for the Future*, 74.
- Siregar, B. (2017). Analisa kadar c-organik dan perbandingan C/N tanah di lahan tambak Kelurahan Sicanang Kecamatan Medan Belawan. *Jurnal Warta*, 53, 1-14.
- Solihuddin, T., Husrin, S., Salim, H. L., Kepel, T. L., Mustikasari, E., Heriati, A., Ati, R. N. A., Purbani, D., Mbay, L. O. N., Indriasari, V. Y., Berliana, B. (2021). Coastal erosion on the north coast of Java: adaptation strategies and coastal management. *IOP Conference Series: Earth and Environmental Science*, 777, 012035. <https://doi.org/10.1088/1755-1315/777/1/012035>
- Sreelekshmi, S., Harikrishnan, M., Nandan, S. B., Kaimal, V. S., Hershey, N. R. (2022). Ecosystem carbon stock and stable isotopic signatures of soil organic carbon sources across the mangrove ecosystems of Kerala, Southern India. *Wetlands*, 42, 1–12. <https://doi.org/10.1007/s13157-022-01540-y>
- Suhaili, N. S., Fei, J. L. J., Sha'ari, F. W., Idris, M. I., Hatta, S. M., Kodoh, J., Besar, N. A. (2020). Carbon stock estimation of mangrove forest in Sulaman Lake Forest Reserve, Sabah, Malaysia. *Biodiversitas*, 21, 5657–5664. <https://doi.org/10.13057/biodiv/d211223>
- Suroso, D. S. A., Firman, T. (2018). The role of spatial planning in reducing exposure towards impacts of global sea level rise case study: Northern Coast of Java, Indonesia. *Ocean and Coastal Management*, 153, 84–97. <https://doi.org/10.1016/j.ocecoaman.2017.12.007>
- Suryono, Soenardjo, N., Wibowo, E., Ario, R., Rozy, E. F. (2018). Estimasi kandungan biomassa dan karbon di Hutan Mangrove Perancak Kabupaten Jembrana, Provinsi Bali. *Buletin Oseanografi Marina*, 7, 1–8. <https://doi.org/10.14710/buloma.v7i1.19036>
- Susantoro, T. M., Wikantika, K., Yayusman, L. F., Tan, A., Ghozali, M. F. (2020). Monitoring of mangrove growth and coastal changes on the North Coast of Brebes, Central Java, using landsat data. *International Journal of Remote Sensing and Earth Sciences*, 16, 197–214. <https://doi.org/10.30536/j.ijreses.2019.v16.a3221>
- Sutaryo, D. (2009). Penghitungan biomassa: sebuah pengantar untuk studi karbon dan perdagangan karbon. Bogor: Wetlands International Indonesia Programme.
- Suyono, Supriharyono, Hendrarto, B., Radjasa, O. K. (2015). Pemetaan degradasi ekosistem mangrove dan abrasi pantai berbasis geographic information system di Kabupaten Brebes-Jawa Tengah. *Oseatek*, 9, 90–102. <http://e-journal.upstegal.ac.id/index.php/Oseatek/article/view/358>

- Swangjang, K., Panishkan, K. (2021). Assessment of factors that influence carbon storage: an important ecosystem service provided by mangrove forests. *Heliyon*, 7. <https://doi.org/10.1016/j.heliyon.2021.e08620>
- Syukri, M., Mashoreng, S., Werorilangi, S., Isyrini, R., Rastina, Faizal, A., Tahir, A., Gosalam, S. (2018). Kajian stok karbon mangrove di Bebanga Kabupaten Mamuju Sulawesi Barat. *Prosiding Simposium Nasional Kelautan Dan Perikanan V*, 335–342.
- Tampubolon, A. (2017). Mangrove: memelihara bentang kehidupan, lahan dan laut.
- Tinh, P. H., Hanh, N. T. H., Thanh, V. Van, Tuan, M. S., Quang, P. Van, Sharma, S., MacKenzie, R. A. (2020). A comparison of soil carbon stocks of intact and restored mangrove forests in Northern Vietnam. *Forests*, 11, 1–10. <https://doi.org/10.3390/f11060660>
- Trettin, C. C., Dai, Z., Tang, W., Lagomasino, D., Thomas, N., Lee, S. K., Simard, M., Ebanega, M. O., Stoval, A., Fatoyinbo, T. E. (2021). Mangrove carbon stocks in Pongara National Park, Gabon. *Estuarine, Coastal and Shelf Science*, 259. <https://doi.org/10.1016/j.ecss.2021.107432>
- Tsani, A. A. R., Muhsoni, F. F. (2022). Estimasi stok karbon mangrove di Desa Taddan Kecamatan Camplong Kabupaten Sampang. *Jurnal Ilmu Kelautan Kepulauan*, 5, 475–485.
- United Nations Environment Programme. (2008). Kick the habit: a UN guide to climate neutrality. United Nations Environment Programme.
- van Oudenhoven, A. P. E., Siahainenia, A. J., Sualia, I., Tonneijck, F. H., van der Ploeg, S., de Groot, R. S., Alkemade, R., Leemans, R. (2015). Effects of different management regimes on mangrove ecosystem services in Java, Indonesia. *Ocean and Coastal Management*, 116, 353–367. <https://doi.org/10.1016/j.ocecoaman.2015.08.003>
- van Wagner, C.E. (1968). The line intersect method in forest fuel sampling. *Forest Science* 24, 469–483.
- Widagti, N., Sidika, F., Pradisty, N. A. (2021). Monitoring mangrove untuk estimasi potensi karbon biru di Dumai, Riau. *Journal of Fisheries and Marine Research*, 5, 459–469.
- Windarni, C., Rusita, A.S. (2018). Estimasi karbon tersimpan pada hutan mangrove di Desa Margasari Kecamatan Labuhan Maringgai Kabupaten Lampung Timur. *Jurnal Sylva Lestari*, 6, 66–74.
- Yaqin, N., Rizkiyah, M., Putra, E. A., Suryanti, S., Febrianto, S. (2022). Estimasi serapan karbon pada Kawasan Mangrove Tapak di Desa Tugurejo Semarang. *Buletin Oseanografi Marina*, 11, 19–29. <https://doi.org/10.14710/buloma.v11i1.38256>
- Yuliana, D., Hutabarat, J., Pribadi, R., Suprijanto, J. (2013). Konservasi mangrove sebagai pendukung potensi perikanan pantai di Pemalang. *Seminar Nasional Tahunan X Hasil Penelitian Kelautan dan Perikanan, 31 Agustus 2013*.
- Yulianto, B., Prayogi, Harnadi, L., Sunaryo, Santosa, A., Nuraini, R. A. T., Radjasa, O. K., Soegianto, A. (2020). Increase in mangrove area on the North Coast of Central Java analyzed using geospatial based approach. *Annals of Biology*, 36, 317–323.



Yusuf. (2016). Analisis perbandingan stok karbon pada kawasan mangrove alami dan rehabilitasi di Desa Tiwoho Kecamatan Wori Kabupaten Minahasa Utara Provinsi Sulawesi Utara (skripsi). Universitas Hasanuddin.