

DAFTAR PUSTAKA

- Abimanyu, M. G., Rahim, S. A., Amrullah, M. H., Sukirno, A., Martasuganda, M. K., & Faizal, I. (2022). Distribution of Nitrate (NO_3^-) and Phosphate (PO_4^{3-}) in Untung Jawa Island Water, Seribu Island. *Jurnal Akuatek*, 3(1), 19–26. <https://doi.org/10.24198/akuatek.v3i1.39521>
- Akash, M. S. H., & Rehman, K. (2019). Essentials of Pharmaceutical Analysis. In *Springer Nature*. Springer Nature.
- Al-alimi, A. Q. A. A., Saleh, S. M. K., & Al-mizgagi, M. A. Z. (2021). Distribution of Nutrients in Surface Seawater from Red Sea Coastal Area in Hodiedah Governorate , Yemen. *South Asian Research Journal of Engineering and Technology*, 3(6), 166–176. <https://doi.org/10.36346/sarjet.2021.v03i06.002>
- Al-mur, B. A. (2020). Saudi Journal of Biological Sciences Assessing Nutrient Salts and Trace Metals Distributions in the Coastal Water of Jeddah, Red Sea. *Saudi Journal of Biological Sciences*, 27(11), 3087–3098. <https://doi.org/10.1016/j.sjbs.2020.07.012>
- Al-Rshaidat, M. M. D., Segonds-Pichon, A., & Salem, M. (2020). Chlorophyll-Nutrient Relationships of an Artificial Inland Lagoon Equipped With Seawater Replenishment System in the Northern Red Sea (Gulf Of Aqaba). *Journal of Marine Science and Engineering*, 8(3). <https://doi.org/doi:10.3390/jmse8030147>
- Alam, J., Kamal, A. S. M. M., Ahmed, K., Rahman, M., Hasan, M., Al, S., & Rahman, R. (2023). Nutrient and Heavy Metal Dynamics in the Coastal Waters of St. Martin's Island in the Bay of Bengal. *Heliyon*, 9(10), e20458. <https://doi.org/10.1016/j.heliyon.2023.e20458>
- Angraini, N., & Yanti, F. (2021). Penggunaan Spektrofotometer Uv-Vis untuk Analisis Nutrien Fosfat pada Sedimen dalam Rangka Pengembangan Modul Praktikum Oseanografi Kimia. *Jurnal Penelitian Sains*, 23(2), 78–83. <https://doi.org/10.56064/jps.v23i2.620>
- APHA. (2023). Standard Methods for the Examination of Water and Wastewater. In W. C. Lipps, E. B. Braun-Howland, & T. E. Baxter (Eds.), *APHA Press* (24th ed.).
- Aritonang, S. H., Siregar, Y. I., & Nurrachmi, I. (2022). Vertical Distribution of Nitrate, Phosphate, and Abundance of Planktonic Diatoms in Pandan Waters, Tapanuli Tengah Regency, North Sumatra. *Journal of Coastal and Ocean Sciences*, 3(1), 9–16. <https://doi.org/10.31258/jocos.3.1.9-16>
- Arıman, S., Soydan-Oksal, N. G., Beden, N., & Ahmadzai, H. (2024). Assessment of Groundwater Quality through Hydrochemistry Using Principal Components Analysis (PCA) and Water Quality Index (WQI) in Kızılırmak Delta, Turkey. *Water (Switzerland)*, 16, 1–23. <https://doi.org/10.3390/w16111570>
- Arun S. (2022). Principal Component Analysis (PCA) in the Evaluation of Vegetation Indices Derived From Time-Series Remote Sensing Data: a Review. *International Journal of Creative Research Thoughts (IJCRT)*, 10(6), 955–965.

- Avvari, L., Kumar, C., Krishna, H., & Chari, N. V. (2022). Assessment of Heavy Metal Distribution in Seawater of Kakinada Bay, a Tropical Mangrove-rich Coastal Environment. *Marine Pollution Bulletin*, *181*, 113877. <https://doi.org/10.1016/j.marpolbul.2022.113877>
- Azdem, D., Mabrouki, J., Moufti, A., El, S., & Fatni, A. (2024). Assessment of Heavy Metal Contamination in Seawater in Agadir Coastline, Morocco. *Desalination and Water Treatment*, *317*, 100129. <https://doi.org/10.1016/j.dwt.2024.100129>
- Badamasi, H., Nasir, M., Ibrahim, A., & Bashir, I. A. (2019). Impacts of Phosphates on Water Quality and Aquatic Life. *Journal of Water Resource and Protection*, *4*(3), 124–133.
- Bardik, V., Fisenko, A. I., Magazu, S., & Malomuzh, N. P. (2020). The Crucial Role of Water in the Formation of the Physiological Temperature Range For Warm-Blooded Organisms. *Journal of Molecular Liquids*, *306*, 112818. <https://doi.org/10.1016/j.molliq.2020.112818>
- Benaltabet, T., Lapid, G., Alkalay, R., Weinstein, Y., Steffens, T., Achterberg, E. P., & Torfstein, A. (2025). Dynamics of Dissolved Trace Metals, Rare Earth Elements and Pb Isotopes Across the Eastern Margins of the Mediterranean Sea. *Marine Chemistry*, *270*, 104519. <https://doi.org/10.1016/j.marchem.2025.104519>
- Bender, M. L., Tilbrook, B., Cassar, N., Jonsson, B., Poisson, A., & Trull, T. W. (2016). Ocean Productivity South of Australia During Spring and Summer. *Deep-Sea Research Part I*, *112*, 68–78. <https://doi.org/10.1016/j.dsr.2016.02.018>
- Berlianty, D., & Yanagi, T. (2011). Tide and Tidal Current in the Bali Strait, Indonesia. *Marine Research in Indonesia*, *36*(2), 25–36. <https://doi.org/10.14203/mri.v36i2.39>
- Bertone, E., Stewart, R. A., Zhang, H., & O'Halloran, K. (2016). Statistical Analysis and Modelling of the Manganese Cycle in the Subtropical Advancetown Lake, Australia. *Journal of Hydrology: Regional Studies*, *8*, 69–81. <https://doi.org/10.1016/j.ejrh.2016.09.002>
- Bilgin, A. (2018). Evaluation of Surface Water Quality by Using Canadian Council of Ministers of the Environment Water Quality Index (CCME WQI) Method And Discriminant Analysis Method: A Case Study Coruh River Basin. *Environmental Monitoring and Assessment*, *190*(9). <https://doi.org/10.1007/s10661-018-6927-5>
- Bilqis, N., Sulistiawati, E., & Rahman, M. N. (2022). Application of The Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) Method in Zinc Analysis. *Jurnal Sains Natural*, *12*(1), 23. <https://doi.org/10.31938/jsn.v12i1.321>
- Bolster, K. M., Heller, M. I., Mulholland, M. R., & Moffett, J. W. (2022). Iron and Manganese Accumulation Within the Eastern Tropical North Pacific Oxygen Deficient Zone. *Geochimica et Cosmochimica Acta*, *334*, 259–272. <https://doi.org/10.1016/j.gca.2022.07.013>
- Bozorg-Haddad, O., Delpasand, M., & Loáiciga, H. A. (2021). Water Quality, Hygiene, and Health. *Economical, Political, and Social Issues in Water*

- Resources*, 217–257. <https://doi.org/10.1016/B978-0-323-90567-1.00008-5>
- Bristow, L. A., Mohr, W., Ahmerkamp, S., & Kuypers, M. M. M. (2017). Nutrients That Limit Growth in the Ocean. *Current Biology*, 27(11), R474–R478. <https://doi.org/10.1016/j.cub.2017.03.030>
- Bundy, R. M., Tagliabue, A., Hawco, N. J., Morton, P. L., Twining, B. S., Hatta, M., Noble, A. E., Cape, M. R., John, S. G., Cullen, J. T., & Saito, M. A. (2020). Elevated Sources of Cobalt in the Arctic Ocean. *Biogeosciences*, 17, 4745–4767. <https://doi.org/10.5194/bg-17-4745-2020>
- Buzjak, N., Matić, N., Maldini, K., & Jena, V. (2024). Multivariate Statistical Approach and Assessment of Pollution of Water and Sediments in Karstic Springs of Transboundary Aquifer Žumberak–Samoborsko Gorje Mountain (Croatia/Slovenia). *Water (Switzerland)*, 16(19). <https://doi.org/10.3390/w16192718>
- Cassarino, L., Pickering, R. A., Zhang, Z., & Liguori, B. (2024). The Silicon Cycle in the Ocean. *Frontiers for Young Minds*, 11. <https://doi.org/10.3389/frym.2023.1178327>
- Chen, S., Meng, Y., Lin, S., Yu, Y., & Xi, J. (2023). Science of the Total Environment Estimation of Sea Surface Nitrate from Space : Current Status and Future Potential. *Science of the Total Environment*, 899, 165690. <https://doi.org/10.1016/j.scitotenv.2023.165690>
- Christophoridis, C., Bourliva, A., Evgenakis, E., Papadopoulou, L., & Fytianos, K. (2019). Effects of Anthropogenic Activities on the Levels of Heavy Metals in Marine Surface Sediments of the Thessaloniki Bay, Northern Greece : Spatial Distribution, Sources and Contamination assessment ☆. *Microchemical Journal*, 149, 104001. <https://doi.org/10.1016/j.microc.2019.104001>
- Chung, H., Son, M., Kim, T., Park, J., & Lee, W. S. (2024). Correlations Between Spatiotemporal Variations in Phytoplankton Community Structure and Physicochemical Parameters in the Seungchon and Juksan Weirs. *Water (Switzerland)*, 16(20), 1–17. <https://doi.org/10.3390/w16202976>
- Cloete, R., Planquette, H., Horsten, N. R. van, Samanta, S., Chen, X. -G., Achterberg, E. P., Middag, R., Janssen, D. J., Bowie, A. R., Merwe, P. van der, Loock, J. C., Mtshali, T. N., Fietz, S., & Roychoudhury, A. N. (2024). Drivers of Nickel Distribution and Seasonality in the Southern Ocean : New Perspectives From the GEOTRACES. *Journal of Geophysical Research: Oceans*, 130, 1–17. <https://doi.org/10.1029/2024JC021542>
- Cui, M., & Gnanadesikan, A. (2022). Characterizing the Roles of Biogeochemical Cycling and Ocean Circulation in Regulating Marine Copper Distributions. *Journal of Geophysical Research: Oceans*, 127(1). <https://doi.org/10.1029/2021JC017742>
- Damayanti, N. M. D., Hendrawan, I. G., & Faiqoh, E. (2017). Spatial Distribution and Structure of Plankton Communities in the Penerusan Bay Area, Buleleng Regency. *Journal of Marine and Aquatic Sciences*, 3(2), 191–203. <https://doi.org/10.24843/jmas.2017.v3.i02.191-203>
- De Caro, C. A., & Claudia, H. (2015). UV/VIS Spectrophotometry. In *Mettler-Toledo International* (Issue November).
- de Souza, G. F., & Morrison, A. K. (2024). The Southern Ocean Hub for Nutrients,

- Micronutrients, And Their Isotopes In The Global Ocean. *Oceanography*, 37(2). <https://doi.org/10.5670/oceanog.2024.414>
- de Souza, G. F., Vance, D., Sieber, M., Conway, T. M., & Little, S. H. (2022). Re-assessing the Influence of Particle-hosted Sulphide Precipitation on the Marine Cadmium Cycle. *Geochimica et Cosmochimica Acta*, 322, 274–296. <https://doi.org/10.1016/j.gca.2022.02.009>
- Dengg, M., Stirling, C. H., Lehto, N. J., Reid, M. R., Safi, K., Wood, S. A., Seyitmuhammedov, K., & Verburg, P. (2025). Trace Metals in Natural Lakes: Seasonal Variation of Manganese, Cobalt, Nickel, Copper and Zinc Speciation in Lakes of Different Trophic States. *Biogeochemistry*, 168(2), 1–25. <https://doi.org/10.1007/s10533-024-01207-2>
- Dewangan, S. K., Shrivastava, S. K., Tigga, V., & Lakra, M. (2023). Review Paper on the Role of pH in Water Quality Implications for Aquatic Life, Human Health, and Environmental Sustainability. *International Advanced Research Journal in Science, Engineering and Technology (IARJSET)*, 10(6), 215–218. <https://doi.org/10.17148/IARJSET.2023.10633>
- Dixit, P. R., Akhtar, M. S., Thakur, R. R., Chattopadhyay, P., Kar, B., Bera, D. K., Chand, S., & Shahid, M. K. (2024). Exploring Seasonal Changes in Coastal Water Quality: Multivariate Analysis in Odisha and West Bengal Coast of India. *Water (Switzerland)*, 16(20), 1–21. <https://doi.org/10.3390/w16202961>
- Duan, J., Cloete, R., Looock, J. C., Lanzirrotti, A., Newville, M., Martínez-García, A., Sigman, D. M., Lam, P. J., Roychoudhury, A. N., & Myneni, S. C. B. (2024). Biogenic To Lithogenic Handoff of Particulate Zn Affects the Zn Cycle in the Southern Ocean. *Science (New York, N.Y.)*, 384(6701), 1235–1240. <https://doi.org/10.1126/science.adh8199>
- Dulaquais, G., Planquette, H., Helguen, S. L., Rijkenberg, M. J. A., & Boye, M. (2017). The Biogeochemistry of Cobalt in the Mediterranean Sea. *Global Biogeochemical Cycles*, 31, 377–399. <https://doi.org/10.1002/2016GB005478>
- Elsan, R., & Minarsih, T. (2022). Analisis Sildenafil Sitrat dalam Jamu Kuat dengan Metode Spektrofotometri UV-Vis. *Indonesian Journal of Pharmacy and Natural Product*, 5(1), 43–50. <https://doi.org/10.35473/ijpnp.v5i1.1569>
- Environment, D. of the M. of. (2004). *Seawater Quality Standards*.
- EPA. (1971). Method 352.1: Nitrogen, Nitrate (Colorimetric, Brucine) by Spectrophotometer. In *Methods for Chemical Analysis of Water and Wastes*. EPA.
- Fan, X., Ding, S., Gao, S., Chen, M., Fu, Z., Gong, M., Wang, Y., & Tsang, D. C. W. (2021). A Holistic Understanding of Cobalt Cycling and Limiting Roles in the Eutrophic Lake Taihu. *Chemosphere*, 277, 130234. <https://doi.org/10.1016/j.chemosphere.2021.130234>
- Faturohman, I., Sunarto, & Nurruhwati, I. (2016). Korelasi Kelimpahan Plankton Dengan Suhu Perairan Laut Di Sekitar PLTU Cirebon. *Jurnal Perikanan Kelautan*, VII(1), 115–122.
- Felix-Bermudez, A., Delgadillo-Hinojosa, F., Lares, M. L., Torres-Delgado, E. V., Huerta-Diaz, M. A., Tovar-Sanchez, A., & Camacho-Ibar, and V. F. (2023). Spatial variability of dissolved nickel is enhanced by mesoscale dynamics in

- the Gulf of Mexico. *Frontiers in Marine Science*, 9(1036331). <https://doi.org/10.3389/fmars.2022.1036331>
- Feng, M., Zhang, N., Liu, Q., & Wijffels, S. (2018). The Indonesian Throughflow, Its Variability and Centennial Change. *Geoscience Letters*, 5(1). <https://doi.org/10.1186/s40562-018-0102-2>
- Fennel, K., & Testa, J. M. (2019). Biogeochemical Controls on Coastal Hypoxia. *Annual Review of Marine Science*, 11, 105–130. <https://doi.org/10.1146/annurev-marine-010318-095138>
- Firdaus, M. L. (2018). Physical Properties and Nutrients Distribution of Seawater in the Banda Sea - Indonesia. *IOP Conference Series: Earth and Environmental Science*, 184(1). <https://doi.org/10.1088/1755-1315/184/1/012011>
- Garcia-Soto, C., Cheng, L., Caesar, L., Schmidtko, S., Jewett, E. B., Cheripka, A., Rigor, I., Caballero, A., Chiba, S., Báez, J. C., Zielinski, T., & Abraham, J. P. (2021). An Overview of Ocean Climate Change Indicators: Sea Surface Temperature, Ocean Heat Content, Ocean pH, Dissolved Oxygen Concentration, Arctic Sea Ice Extent, Thickness and Volume, Sea Level and Strength of the AMOC (Atlantic Meridional Overturning Circul. *Frontiers in Marine Science*, 8. <https://doi.org/10.3389/fmars.2021.642372>
- Garcia-Eidell, C., Comiso, J. C., Dinnat, E., & Brucker, L. (2019). Sea Surface Salinity Distribution in the Southern Ocean as Observed From Space. *Journal of Geophysical Research: Oceans*, 124, 3186–3205. <https://doi.org/10.1029/2018JC014510>
- Gavhane, S. K., Sapkale, J. B., Susware, N. K., & Sapkale, S. J. (2021). Impact of Heavy Metals in Riverine and Estuarine Environment: A review. *Research Journal of Chemistry and Environment*, 25(5), 226–233.
- Ge, Y., Zhang, R., Zhu, Z., Zhao, J., Zhu, Z., Li, Z., Li, B., Zhang, Z., Zhang, Y., Zhou, M., John, S., & Smith, W. O. (2024). Distributions of Nutrients, Trace Metals, Phytoplankton Composition, and Elemental Consumption in the Ross and Amundsen Seas. *Marine Chemistry*, 265–266, 104436. <https://doi.org/10.1016/j.marchem.2024.104436>
- Gikas, G. D., Sylaios, G. K., Tsihrantzis, V. A., Konstantinou, I. K., Albanis, T., & Boskidis, I. (2020). Comparative Evaluation of River Chemical Status Based on WFD Methodology and CCME Water Quality Index. *Science of the Total Environment*, 745, 140849. <https://doi.org/10.1016/j.scitotenv.2020.140849>
- Grand, M. M., Laes-Huon, A., Fietz, S., Resing, J. A., Obata, H., Luther, G. W., Tagliabue, A., Achterberg, E. P., Middag, R., Tovar-Sánchez, A., & Bowie, A. R. (2019). Developing Autonomous Observing Systems for Micronutrient Trace Metals. *Frontiers in Marine Science*, 6(FEB). <https://doi.org/10.3389/fmars.2019.00035>
- Gu, X., Xu, L., Wang, Z., Ming, X., Dang, P., Ouyang, W., Lin, C., Liu, X., He, M., & Wang, B. (2021). Assessment of Cadmium Pollution and Subsequent Ecological and Health Risks in Jiaozhou Bay of the Yellow Sea. *Science of the Total Environment*, 774, 145016. <https://doi.org/10.1016/j.scitotenv.2021.145016>
- Guo, Y., Liu, C., Ye, R., & Duan, Q. (2020). Advances on Water Quality Detection

- by UV-Vis Spectroscopy. *Applied Sciences (Switzerland)*, 10(19), 1–18. <https://doi.org/10.3390/app10196874>
- Hawco, N. J., Lam, P. J., Lee, J., Ohnemus, D. C., Noble, A. E., Wyatt, N. J., Lohan, M. C., & Saito, M. A. (2018). Cobalt Scavenging in the Mesopelagic Ocean and its Influence on Global Mass Balance : Synthesizing Water Column and Sedimentary Fluxes. *Marine Chemistry*, 201, 151–166. <https://doi.org/10.1016/j.marchem.2017.09.001>
- Hendry, K. R., Rickaby, R. E. M., Hoog, J. C. M. De, Weston, K., & Rehkämper, M. (2008). Cadmium and Phosphate in Coastal Antarctic Seawater : Implications for Southern Ocean Nutrient Cycling. *Marine Chemistry*, 112(3–4), 149–157. <https://doi.org/10.1016/j.marchem.2008.09.004>
- Ikhsani, I. Y., Salamena, G. G., Lekalette, J., & Abdul1, M. S. (2018). Conjunction of Physical Properties with the Nutrients Distribution of Seawater Across Maluku Sea-Indonesia. *Prosiding Seminar Nasional KSP2K II*, 1(2), 62–72.
- Indrawan, G. S., & Putra, I. N. G. (2021). Heavy Metal Concentration (Pb, Cu, Cd, Zn) In Water And Sediment In Serangan Waters, Bali. *Metamorfosa: Journal of Biological Sciences*, 8(1), 115–123. <https://doi.org/10.24843/metamorfosa.2021.v08.i01.p12>
- Isiuku, B. O., & Enyoh, C. E. (2020). Pollution and Health Risks Assessment of Nitrate and Phosphate Concentrations in Water Bodies in South Eastern, Nigeria. *Environmental Advances*, 2, 100018. <https://doi.org/10.1016/j.envadv.2020.100018>
- Javed, M. T., Tanwir, K., Akram, M. S., Shahid, M., Niazi, N. K., & Lindberg, S. (2018). Phytoremediation of Cadmium-Polluted Water/Sediment by Aquatic Macrophytes: Role of Plant-Induced pH Changes. In *Cadmium Toxicity and Tolerance in Plants: From Physiology to Remediation*. <https://doi.org/10.1016/B978-0-12-814864-8.00020-6>
- John, S. G., Liang, H., Pasquier, B., Holzer, M., & Silva, S. (2024). Biogeochemical Fluxes of Nickel in the Global Oceans Inferred From a Diagnostic Model. *Global Biogeochemical Cycles*, 38(5). <https://doi.org/10.1029/2023GB008018>
- Jolaosho, T. L., Elegbede, I. O., Ndimele, P. E., Marouani, M., Yusuf, A. O., & Omoregha, J. K. (2025). Seasonal and Spatial Variations of Physicochemical Parameters and Heavy Metals in Surface Water of Interconnected Nigeria Lagoons Experiencing Distinct Anthropogenic Disturbances. *Scientific Reports*, 15. <https://doi.org/10.1038/s41598-025-22727-3>
- Kadek, N., Nuarsa, I. W., Gede, I. W., & Karang, A. (2021). The Effect of Sea Surface Temperature (SST) on Rainfall in Bali Waters using Satellite Image Data. *Journal Of Marine Research And Technology*, 4(2), 1–7. <https://doi.org/10.24843/JMRT.2021.v04.i02.p01>
- Kencono, D. J., Pranowo, W. S., & Prasit, V. D. (2025). Characteristics of Bali Strait Water Currents at Different Depths in the Period of 2024. *Jurnal Hidropilar*, 11(1), 9–18. <https://doi.org/10.37875/hidropilar.v11i1.376>
- Khiari, Z., Kaluthota, S., & Savidov, N. (2020). Phosphorus Delays the Onset of Nitrification During Aerobic Digestion of Aquaculture/Aquaponic Solid Waste. *Biochemical Engineering Journal*, 155, 107493.

- <https://doi.org/10.1016/j.bej.2020.107493>
- Kim, T., Obata, H., Nishioka, J., & Gamo, T. (2017). Distribution of Dissolved Zinc in the Western and Central Subarctic North Pacific. *Global Biogeochemical Cycles*, *31*, 1454–1468. <https://doi.org/10.1002/2017GB005711>
- Kim, Y., Kwak, S., Lee, M., Jeong, M., Park, M., & Park, Y. G. (2024). Determination of Optimal Water Intake Layer Using Deep Learning-Based Water Quality Monitoring and Prediction. *Water (Switzerland)*, *16*(1). <https://doi.org/10.3390/w16010015>
- Kutlu, B., & Mutlu, E. (2021). Multivariate Statistical Evaluation of Dissolved Trace Elements and Water Quality Assessment in the Karaca dam, Turkey. *Eqa*, *44*, 26–31. <https://doi.org/10.6092/issn.2281-4485/12231>
- Latour, P., Wuttig, K., Merwe, P. Van Der, Strzepek, R. F., Gault-ringold, M., Townsend, A. T., Holmes, T. M., Corkill, M., & Bowie, A. R. (2021). Manganese biogeochemistry in the Southern Ocean , from Tasmania to Antarctica. *Limnology and Oceanography*, *66*, 2547–2562. <https://doi.org/10.1002/lno.11772>
- Layglon, N., Creffield, S., Bakker, E., & Tercier-Waeber, M.-L. (2023). On-field High-resolution Quantification of the Cobalt Fraction Available for Bio-uptake in Natural Waters using Antifouling Gel-integrated Microelectrode Arrays. *Marine Pollution Bulletin*, *189*, 9. <https://doi.org/10.1016/j.marpolbul.2023.114807>
- Lemaitre, N., Du, J., de Souza, G. F., Archer, C., & Vance, D. (2022). The Essential Bioactive Role of Nickel in the Oceans: Evidence from Nickel Isotopes. *Earth and Planetary Science Letters*, *584*, 117513. <https://doi.org/10.1016/j.epsl.2022.117513>
- Li, J., Zhang, D., Jiang, F., Chen, H., & Cao, W. (2024). Environmental Characteristics of Trace Metals in Seawater from the Ninety East Ridge in the Indian Ocean*. *Journal of Oceanology and Limnology*, *42*(4), 1119–1129. <https://doi.org/10.1007/s00343-023-3030-8>
- Liang, H., Moffett, J. W., & John, S. G. (2023). Toward a Better Understanding of the Global Ocean Copper Distribution and Speciation Through a Data-Constrained Model Global Biogeochemical Cycles. *Global Biogeochemical Cycles*, *37*, 1–27. <https://doi.org/10.1029/2023GB007769>
- Liang, L., Xue, H., & Shu, Y. (2019). The Indonesian Throughflow and the Circulation in the Banda Sea: A Modeling Study. *Journal of Geophysical Research: Oceans*, *124*(5), 3089–3106. <https://doi.org/https://doi.org/10.1029/2018JC014926>
- Liang, W., Wang, Y., Liu, S., Wang, M., Zhao, L., Liu, C., Zhang, X., Wu, N., Wang, L., Zhu, D., Ma, Y., & Luo, C. (2022). Nutrient Dynamics and Coupling with Biological Processes and Physical Conditions in the Bohai Sea. *Frontiers in Marine Science*, *9*(December), 1–22. <https://doi.org/10.3389/fmars.2022.1025502>
- Liang, Y., Pan, D., Wei, H., Han, H., Li, Y., & Liu, T. (2024). Speciation, Distribution and Relationship of Zinc and Cadmium in Summer Coastal Seawater of Northern China. *Marine Chemistry*, *258*(June 2023), 104349. <https://doi.org/10.1016/j.marchem.2023.104349>

- Lohan, M. C., & Tagliabue, A. (2018). Oceanic Micronutrients: Trace Metals that are Essential for Marine Life. *Elements*, 14(6). <https://doi.org/10.2138/gselements.14.6.385>
- Ma, J., Song, J., Li, X., Yuan, H., & Li, N. (2020). The Change of Nutrient Situation in the Prydz Bay Waters along Longitude 73°E, Antarctica, in the Context of Global Environmental Change. *Marine Pollution Bulletin*, 154, 111071. <https://doi.org/10.1016/j.marpolbul.2020.111071>
- Magdy, S. M., Madkour, H. A., Mansour, A. M., Askalany, M. S., Assran, B. B., El-taher, A., El, R. M., & Sea, R. (2024). Heavy Metal Concentrations in Surface Waters of Hurghada and Environs, Red Sea Coast, Egypt, and Their Correlation with Sediment Distribution. *The Egyptian Journal of Aquatic Research*, 50(1), 52–62. <https://doi.org/10.1016/j.ejar.2023.11.003>
- Malla, N., & Singh, S. K. (2024). Spatial Variability of Dissolved Cobalt in the Indian Ocean Waters: Contrasting Behavior in the Arabian Sea, the Bay of Bengal and the Southern Sector of the Indian Ocean. *Global Biogeochemical Cycles*, 38(12). <https://doi.org/10.1029/2024GB008291>
- Mamidala, H. P., Ganguly, D., Purvaja, R., Robin, R. S., Hariharan, G., Bonthu, S., & Ramesh, R. (2025). Nutrient Variability Drivers in Shallow Coastal Waters of the Eastern Arabian Sea During Winter Monsoon with Implications for Coastal Productivity. *Journal of Marine Systems*, 252, 104124. <https://doi.org/10.1016/j.jmarsys.2025.104124>
- Mammeri, A., Tiri, A., Belkhiri, L., Salhi, H., Brella, D., Lakouas, E., Tahraoui, H., Amrane, A., & Mouni, L. (2023). Assessment of Surface Water Quality Using Water Quality Index and Discriminant Analysis Method. *Water (Switzerland)*, 15(4), 1–14. <https://doi.org/10.3390/w15040680>
- Martiny, A. C., Lomas, M. W., Fu, W., Boyd, P. W., Chen, Y. L., Cutter, G. A., Ellwood, M. J., Furuya, K., Hashihama, F., Kanda, J., Karl, D. M., Kodama, T., Li, Q. P., Ma, J., & Moutin, T. (2019). Biogeochemical Controls of Surface Ocean Phosphate. *Science Advances*, 5, 1–9. <https://doi.org/10.1126/sciadv.aax0341>
- Maysarah, S., Sartimbul, A., & Pranowo, W. S. (2022). Analysis of Variability of Nitrate in Corellation with El Nino Southern Oscillation (ENSO) and Indian Ocean Dipole (IOD) In the Bali Strait and Surroundings. *Jurnal Hidropilar*, 8(2). <https://doi.org/10.37875/hidropilar.v8i2.251>
- Mazarakioti, E. C., Zotos, A., Thomatou, A. A., Kontogeorgos, A., Patakas, A., & Ladavos, A. (2022). Inductively Coupled Plasma-Mass Spectrometry (ICP-MS), a Useful Tool in Authenticity of Agricultural Products' and Foods' Origin. *Foods*, 11(22). <https://doi.org/10.3390/foods11223705>
- Meirinawati, H., Prayitno, H. B., & Wahyudi, A. J. (2021). Nutrient Distribution in Eastern Indonesian Waters. *IOP Conference Series: Earth and Environmental Science*, 934(1).
- Meirinawati, H., & Wahyudi, A. J. (2022). Deepening Knowledge of Nutrient Dynamics in Coastal Waters. *ASEAN Journal on Science and Technology for Development*, 39(1), 23–33. <https://doi.org/10.29037/ajstd.747>
- Mellett, T., & Buck, K. N. (2020). Spatial and Temporal Variability of Trace Metals (Fe, Cu, Mn, Zn, Co, Ni, Cd, Pb), Iron and Copper Speciation, and

- Electroactive Fe-binding Humic Substances in Surface Waters of the Eastern Gulf of Mexico. *Marine Chemistry*, 227, 103891. <https://doi.org/10.1016/j.marchem.2020.103891>
- Middag, R., Baar, H. J. W. De, Bruland, K. W., & Heuven, S. M. A. C. van. (2020). The Distribution of Nickel in the West-Atlantic Ocean, Its Relationship With Phosphate and a Comparison to Cadmium and Zinc. *Frontiers in Marine Science*, 7(105). <https://doi.org/10.3389/fmars.2020.00105>
- Middag, R., van Heuven, S. M. A. C., Bruland, K. W., & de Baar, H. J. W. (2018a). The relationship between cadmium and phosphate in the Atlantic Ocean unravelled. *Earth and Planetary Science Letters*, 492, 79–88. <https://doi.org/10.1016/j.epsl.2018.03.046>
- Middag, R., van Heuven, S. M. A. C., Bruland, K. W., & de Baar, H. J. W. (2018b). The Relationship Between Cadmium and Phosphate in the Atlantic Ocean Unravelled. *Earth and Planetary Science Letters*, 492, 79–88. <https://doi.org/10.1016/j.epsl.2018.03.046>
- Moore, E. K., Hao, J., Prabhu, A., Zhong, H., Jelen, B. I., Meyer, M., Hazen, R. M., & Falkowski, P. G. (2018). Geological and Chemical Factors that Impacted the Biological Utilization of Cobalt in the Archean Eon. *Journal of Geophysical Research: Biogeosciences*, 123(3), 743–759. <https://doi.org/10.1002/2017JG004067>
- Mosley, L. M., & Liss, P. S. (2020). Particle Aggregation, pH Changes and Metal Behaviour During Estuarine Mixing: Review and Integration. *Marine and Freshwater Research*, 71(3), 300–310. <https://doi.org/10.1071/MF19195>
- Mukut, S., Rahaman, M. M., Azim, M. R., Hossain, M. M., & Uddin, M. H. (2023). Water Quality Assessment of Karnaphuli River of Bangladesh Using CCME-WQI Method. *Asian Journal of Environment & Ecology*, 20(1), 6–15. <https://doi.org/10.9734/AJEE/2023/v20i1429>
- Nandiyanto, A. B. D., Ragadhita, R., & Aziz, M. (2023). How to Calculate and Measure Solution Concentration Using UV-Vis Spectrum Analysis: Supporting Measurement in the Chemical Decomposition, Photocatalysis, Phytoremediation, and Adsorption Process. *Indonesian Journal of Science and Technology*, 8(2), 345–362. <https://doi.org/10.17509/ijost.v8i2.57783>
- Nasreen. (2022). Ocean Salinity. *International Journal for Modern Trends in Science and Technology*, 8(01), 296–302. <https://doi.org/10.46501/IJMTST0801052>
- Ni, Z., Zhang, H., Zhang, M., Li, T., Li, S., Chen, X., Zhang, L., Gao, Y., Chen, C., Wang, Z., & Deng, W. (2024). The Characteristics of Nutrient Distribution and in Fluencing Factors in the Chukchi Plateau and Adjacent Waters. *Frontiers in Marine Science*, 11, 1429493. <https://doi.org/10.3389/fmars.2024.1429493>
- Noulas, C., Tziouvalekas, M., & Karyotis, T. (2018). Zinc in Soils, Water and Food Crops. *Journal of Trace Elements in Medicine and Biology*, 49, 252–260. <https://doi.org/10.1016/j.jtemb.2018.02.009>
- Noviansyah, E., Tumpal, D., Lumban, F., & Setyobudiandi, I. (2021). The Concentration of Cd Metals on Seawater, Sediment, and Green Mussel in Tambak Lorok Waters and Morosari Waters. *Jurnal Ilmu Pertanian Indonesia*,

- 26(1), 128–135. <https://doi.org/10.18343/jipi.26.1.128>
- Oldham, V. E., Lamborg, C. H., & Hansel, C. M. (2020). The Spatial and Temporal Variability of Mn Speciation in the Coastal Northwest Atlantic Ocean. *Journal of Geophysical Research: Oceans*, 125(1), 1–15. <https://doi.org/10.1029/2019JC015167>
- Olowojuni, O., Olaifa, F. E., Oyebola, O. O., Ayotunde, D. T., Kelani, A. Z., & Olusola, S. E. (2025). Seasonal and Spatial Variations in Water Quality , Heavy Metal Concentration in Water, Sediment and Bioaccumulation in Pseudolithus Species from the Gulf of Guinea, Ondo State, Nigeria. *Environmental Sciences Europe*, 37(181). <https://doi.org/10.1186/s12302-025-01221-7>
- Olowoyo, J. O., Catusus, A. B., Om, O., & Adhikari, P. L. (2025). The Distribution, Concentration, and Ecological and Health Risk Assessment of Heavy Metals in the Seawater of Southwest Florida, USA. *Discover Environment*, 3(218). <https://doi.org/10.1007/s44274-025-00411-7>
- Onifade, O., Shamsuddin, N., Jin, J. L. Z., Lai, D. T. C., & Gödeke, S. H. (2024). Assessment of Pollution Status in Brunei River Using Water Quality Indices, Brunei Darussalam. *Water (Switzerland)*, 16(17), 1–19. <https://doi.org/10.3390/w16172439>
- Ou, R., Huang, H., He, X., Lin, S., Ou, D., Li, W., Qiu, J., & Wang, L. (2023). Ecotoxicology of Polymetallic Nodule Seabed Mining : The Effects of Cobalt and Nickel on Phytoplankton Growth and Pigment Concentration. *Toxics*, 11, 1005. <https://doi.org/10.3390/toxics11121005>
- Pajares, S., & Ramos, R. (2019). Processes and Microorganisms Involved in the Marine Nitrogen Cycle: Knowledge and Gaps. *Frontiers in Marine Science*, 6, 739. <https://doi.org/10.3389/fmars.2019.00739>
- Pambudi, A. Y., Putra, M. G. A., Yogaswara, D., & Yuliyardi, A. Y. (2024). Characteristics and Distribution of Chemical-Biological Parameters in The Seawaters of Eastern Java Sea Achmad. *Omni-Akuatika*, 20(1), 11–22. <https://doi.org/10.20884/1.oa.2024.20.1.1100>
- Pan, D., Ding, X., Han, H., Zhang, S., & Wang, C. (2020). Species, Spatial-Temporal Distribution, and Contamination Assessment of Trace Metals in Typical Mariculture Area of North China. *Frontiers in Marine Science*, 7, 552893. <https://doi.org/10.3389/fmars.2020.552893>
- Panagopoulos, Y., Alexakis, D. E., Skoulikidis, N. T., Laschou, S., Papadopoulos, A., & Dimitriou, E. (2022). Implementing the CCME Water Quality Index for the Evaluation of the Physicochemical Quality of Greek Rivers. *Water*, 14, 2738. <https://doi.org/10.3390/w14172738>
- Paul, M., Sanyal, P., Mukherjee, R., Gupta, V. K., Bakshi, S., Acharya, A., Bhattacharya, T., Chakraborty, K., & Mukhopadhyay, S. K. (2024). Distribution and Biogeochemical Perspectives of Nutrients in the Eastern Equatorial Indian Ocean. *Oceanologia*, 66(2), 381–393. <https://doi.org/10.1016/j.oceano.2024.02.005>
- Posacka, A. M., Semeniuk, D. M., & Maldonado, M. T. (2019). Effects of Copper Availability on the Physiology of Marine Heterotrophic Bacteria. *Frontiers in Marine Science*, 5. <https://doi.org/10.3389/fmars.2018.00523>

- Pradisty, N. A., Ampou, E. E., & Hanintyo, R. (2020). Water Quality Assessment in The Occurrence of *Acanthaster* spp. (Crown-of-Thorns Starfish, CoTS) on Coral Reefs in Menjangan Island, Bali, Indonesia. *Makara Journal of Science*, 24(3), 194–204. <https://doi.org/10.7454/mss.v24i3.1016>
- Prayogo, L. M., Natul, A. S., Geomatika, M. T., & Mada, U. G. (2017). Sea Surface Temperature (SST) Mapping and the Characteristics of Tides in the Waters of Bali Island, Indonesia. *Jurnal La'ot Ilmu Kelautan*, 3(1), 1–12. <https://doi.org/https://doi.org/10.35308/JLAOT.V3I1.3338>
- Rahman, A., Yeasmin, M., Lu, Y., Islam, A., Rahman, M., Kormoker, T., & Pan, D. (2025). Nutrient and Trace Metal Dynamics Driving Eutrophication in the Cox's Bazar Coast of the Bay of Bengal, Bangladesh. *Marine Pollution Bulletin*, 221, 118563. <https://doi.org/10.1016/j.marpolbul.2025.118563>
- Rahman, M. A., Pan, D., Lu, Y., & Liang, Y. (2024). Spatial-Temporal Distribution and Eutrophication Evaluation of Nutrients and Trace Metals in Summer Surface Seawater of Yantai Sishili Bay, China. *Frontiers in Marine Science*, 11, 1432566. <https://doi.org/10.3389/fmars.2024.1432566>
- Ramalepe, T., Samanta, S., Cloete, R., Ryan-Keogh, T. J., & Roychoudhury, A. N. (2024). Winter Entrainment Drives the Mixed Layer Supply of Manganese in the Southern Ocean. *Limnology and Oceanography*, 1, 1929–1940. <https://doi.org/10.1002/lno.12634>
- Randolph-Flagg, N. G., Ely, T., Som, S. M., Shock, E. L., German, C. R., & Hoehler, T. M. (2023). Phosphate Availability and Implications for Life on Ocean Worlds. *Nature Communications*, 14(1). <https://doi.org/10.1038/s41467-023-37770-9>
- Richon, C., & Tagliabue, A. (2019). Insights Into the Major Processes Driving the Global Distribution of Copper in the Ocean From a Global Model. *Global Biogeochemical Cycles*, 33. <https://doi.org/10.1029/2019GB006280>
- Rijal, A. A. (2025). The Relationship Between Nitrate and Phosphate Nutrients in Substrates with Seagrass Density: Implications for Marine Ecosystem Sustainability. *Bioculture Journal*, 2(2), 73–90. <https://doi.org/https://doi.org/10.61511/bioculture.v2i2.2025.1504>
- Rini, O. P. K., Suntoyo, & Wahyudi. (2021). Water Quality Modeling Distribution at Bali Strait in the Western Monsoon and Its Impact for Ecosystems. *IOP Conference Series: Earth and Environmental Science*, 698(1).
- Ríos-Reina, R., & Azcarate, S. M. (2023). How Chemometrics Revives the UV-Vis Spectroscopy Applications as an Analytical Sensor for Spectralprint (Nontargeted) Analysis. *Chemosensors*, 11, 1. <https://doi.org/10.3390/chemosensors11010008>
- Ristea, E., Bisinicu, E., Lavric, V., & Parvulescu, O. C. (2025). A Long-Term Perspective of Seasonal Shifts in Nutrient Dynamics and Eutrophication in the Romanian Black Sea Coast. *Sustainability (Switzerland)*, 17, 1090. <https://doi.org/10.3390/su17031090>
- Rosalina, D., Penta, L., Suryadi, F., Rombe, K. H., Leilani, A., Program, E. S., Kelautan, P., & Street, S. M. (2024). Salinity Distribution Pattern in Spermonde Waters Using Remote Sensing Data (Copernicus Marine Service) in 2022. *Jurnal Kelautan*, 17(1), 43–54.

- <https://doi.org/10.21107/jk.v17i1.24098>
- Roshan, S., DeVries, T., Wu, J., & Chen, G. (2018). The Internal Cycling of Zinc in the Ocean. *Global Biogeochemical Cycles*, 32, 1833–1849. <https://doi.org/10.1029/2018GB006045>
- Ruttenberg, K. C. (2019). Phosphorus Cycle. In *Encyclopedia of Ocean Sciences, Third Edition: Volume 1-5* (3rd ed., Vols. 1–5, Issue September). Elsevier Inc. <https://doi.org/10.1016/B978-0-12-409548-9.10807-3>
- Sambah, A. B., Wijaya, A., Hidayati, N., & Iranawati, F. (2021). Sensitivity and Dynamic of *Sardinella Lemuru* in Bali Strait Indonesia. *Journal of Hunan University (Natural Sciences)*, 48(1), 97–109.
- Santosa, Y. N., Setiyadi, J., Aji, T., & Pranowo, W. S. (2022). The Hydrodynamics of Bali Sea. *Journal Hidropilar*, 8(1), 53–60. <https://doi.org/10.37875/hidropilar.v8i1.237>
- Schmidt, K., Paul, S. A. L., & Achterberg, E. P. (2022). Assessing the Availability of Trace Metals Including Rare Earth Elements in Deep Ocean Waters of the Clarion Clipperton Zone, NE Pacific: Application of an in situ DGT Passive Sampling Method. *Trends in Analytical Chemistry*, 155, 116657. <https://doi.org/10.1016/j.trac.2022.116657>
- Simanjorang, J. E., Pranowo, W. S., Sari, L. P., Purba, N. P., & Syamsuddin, M. L. (2018). Building Up the Database of the Level-2 Java Sea Ecoregion Based on Physical Oceanographic Parameters. *IOP Conf. Series: Earth and Environmental Science*, 176.
- Singh, N. D., Singh, S. K., Malla, N., & Chinni, V. (2023). Biogeochemical Cycling of Dissolved Manganese in the Arabian Sea. *Geochimica et Cosmochimica Acta*, 343, 396–415. <https://doi.org/10.1016/j.gca.2022.12.030>
- Siregar, S. N., Sari, L. P., Purba, N. P., Pranowo, W. S., & Syamsuddin, M. L. (2017). The Water Mass Exchange in Java Sea due to Periodicity of Monsoon and ITF in 2015. *Depik Jurnal Ilmu-Ilmu Perairan, Pesisir Dan Perikanan*, 6(1), 44–59. <https://doi.org/10.13170/depik.6.1.5523>
- Su'aidah, I., Hastuti, E. D., Izzati, M., & Darmanti, S. (2021). Relationship of Total Phenol of Roots and [*Avicennia marina* (Forsk) Vierh] Mangrove Leaf with N, P, and C Organic Sediment. *Buletin Anatomi Dan Fisiologi*, 6(1), 17–25. <https://doi.org/10.14710/baf.6.1.2021.17-25>
- Sugiyono. (2019). *Metode Penelitian Kuantitatif Kualitatif dan R&D*. Alfabeta.
- Sun, Y., Jiang, W., Yu, K., Xu, S., Feng, C., Xie, S., & Wei, C. (2022). High-Resolution Coral Records of Cadmium in Surface Seawater Biogeochemical Cycling and a Novel Proxy for Winter Monsoon. *Geochemistry, Geophysics, Geosystems*, 23. <https://doi.org/10.1029/2022GC010600>
- Sweere, T. C., Dickson, A. J., & Vance, D. (2022). Nickel and Zinc Micronutrient Availability in Phanerozoic Oceans. *Geobiology*, 21(3), 310–322. <https://doi.org/10.1111/gbi.12541>
- Tagliabue, A., Hawco, N. J., Bundy, R. M., Landing, W. M., Milne, A., Morton, P. L., & Saito, M. A. (2018). The Role of External Inputs and Internal Cycling in Shaping the Global Ocean Cobalt Distribution: Insights From the First Cobalt Biogeochemical Model. *Global Biogeochemical Cycles*, 32(4), 594–616. <https://doi.org/10.1002/2017GB005830>

- Taufiqurrahman, E., Wahyudi, A. J., & Masumoto, Y. (2020). The Indonesian Throughflow and Its Impact on Biogeochemistry in the Indonesian Seas. *ASEAN Journal on Science and Technology for Development*, 37(1), 29–35. <https://doi.org/10.29037/AJSTD.596>
- Tozawa, M., Nomura, D., Yamazaki, K., & Kiuchi, M. (2024). Progress in Oceanography Oceanographic Factors Determining the Distribution of Nutrients and Primary Production in the Subpolar Southern Ocean. *Progress in Oceanography*, 225, 103266. <https://doi.org/10.1016/j.pocean.2024.103266>
- Tréguer, P. J., Sutton, J. N., Brzezinski, M., Charette, M. A., Devries, T., Dutkiewicz, S., Ehlert, C., Hawkings, J., Leynaert, A., Liu, S. M., Monferrer, N. L., López-Acosta, M., Maldonado, M., Rahman, S., Ran, L., & Rouxel, O. (2021). Reviews and Syntheses: The Biogeochemical Cycle of Silicon in the Modern Ocean. *Biogeosciences*, 18(4), 1269–1289. <https://doi.org/10.5194/bg-18-1269-2021>
- Triyulianti, I., Setiawan, A., Hamzah, F., Agustiadi, T., Priyono, B., Trenggono, M., & Nagari, F. (2023). Distributions of Nutrients in Relation to Phytoplankton Community Heterogeneity in the Makassar Strait, Indonesia. *IOP Conference Series: Earth and Environmental Science*, 1163(1).
- Usang, R. O., Olu-owolabi, B. I., & Adebawale, K. O. (2025). Integrating Principal Component Analysis, Fuzzy Inference Systems, and Advanced Neural Networks for Enhanced Estuarine Water Quality Assessment. *Journal of Hydrology: Regional Studies*, 57, 102182. <https://doi.org/10.1016/j.ejrh.2025.102182>
- Viljoen, J. J., Weir, I., Fietz, S., Cloete, R., & Loock, J. (2019). Links Between the Phytoplankton Community Composition and Trace Metal Distribution in Summer Surface Waters of the Atlantic Southern Ocean. *Frontiers in Marine Science*, 6, 295. <https://doi.org/10.3389/fmars.2019.00295>
- Wang, T., Chai, F., Xing, X., Ning, J., Jiang, W., & Riser, S. C. (2021). Influence of Multi-Scale Dynamics on the Vertical Nitrate Distribution around the Kuroshio Extension : An Investigation based on BGC-Argo and Satellite Data. *Progress in Oceanography*, 193, 102543. <https://doi.org/10.1016/j.pocean.2021.102543>
- Wang, Z., Ren, J., Xuan, J., Liu, S., & Zhang, J. (2023). Distribution and Off–Shelf Transport of Dissolved Manganese in the East China Sea. *Frontiers in Marine Science*, 9, 1110913. <https://doi.org/10.3389/fmars.2022.1110913>
- Wijaya, A., Zakiyah, U., Sambah, A. B., & Setyohadi, D. (2020). Spatio-Temporal Variability of Temperature and Chlorophyll-a Concentration of Sea Surface in Bali strait, Indonesia. *Biodiversitas*, 21(11), 5283–5290. <https://doi.org/10.13057/biodiv/d211132>
- Wilschefski, S. C., & Baxter, M. R. (2019). Inductively Coupled Plasma Mass Spectrometry: Introduction to Analytical Aspects. *Clinical Biochemist Reviews*, 40(3), 115–133. <https://doi.org/10.33176/AACB-19-00024>
- Witariningsih, P. M., Suteja, Y., & Putra, I. N. G. (2020). Komposisi Jenis dan Fluktuasi Kelimpahan Plankton Secara Temporal Di Perairan Selat Lombok. *Journal of Marine and Aquatic Sciences*, 6(1), 140. <https://doi.org/10.24843/jmas.2020.v06.i01.p17>

- Wu, X., Jiang, W., Yu, K., Xu, S., Yang, H., Wang, N., Wei, C., Feng, C., Sun, Y., & Xie, S. (2022). Coral-Inferred Historical Changes of Nickel Emissions Related to Industrial and Transportation Activities in the Beibu Gulf, Northern South China Sea. *Journal of Hazardous Materials*, 424. <https://doi.org/10.1016/j.jhazmat.2021.127422>
- Xiao, J., Chen, X., Zhou, L., Zhang, H., Hang, X., & Chen, Y. (2025). Nutrient Distribution Characteristics and Eutrophication Evaluation of Coastal Water near the Yellow River Estuary, China. *Water*, 17, 2469. <https://doi.org/https://doi.org/10.3390/w17162469>
- Xin, X., Faucher, G., & Riebesell, U. (2023). Phytoplankton Response to Increased Nickel in the Context of Ocean Alkalinity Enhancement. *Biogeosciences*, 21(3), 761–772. <https://doi.org/10.5194/bg-21-761-2024>
- Yang, B., Gao, X., Zhao, J., Lu, Y., & Gao, T. (2019). Biogeochemistry of Dissolved Inorganic Nutrients in an Oligotrophic Coastal Mariculture Region of the Northern Shandong Peninsula, North Yellow Sea. *Marine Pollution Bulletin*, 150. <https://doi.org/https://doi.org/10.1016/j.marpolbul.2019.110693>
- Yang, X., Li, J., Liu, X., Gao, J., Dong, F., Huang, A., Lei, Y., Wang, W., Tong, Z., & Long, J. (2023). Research on Water Quality Assessment Using the Water Quality Index for the Eastern Route of the South-to-North Water Diversion Project. *Water (Switzerland)*, 15(5). <https://doi.org/10.3390/w15050842>
- Yudana, I. G. P. G. R., Suprakto, B., Undu, M. C., Insani, L., Fiqriyah, A., Charunisa, A., Harijono, T., Kiswanto, A., Aras, A. C., Ayu, D., Zahid, A., Wahyu, & Fauziah, A. (2021). Distribution of Microalgae as Bioindicator for *Sardinella Lemuru* in Bali Strait. *IOP Conference Series: Earth and Environmental Science*, 860(1).
- Yulia, I., Hong, K., Ogawa, H., & Obata, H. (2023). Dissolved Trace Metals (Fe, Mn, Pb, Cd, Cu, and Zn) in the Eastern Indian Ocean. *Marine Chemistry*, 248, 104208. <https://doi.org/10.1016/j.marchem.2023.104208>
- Zainuri, M., Indriyawati, N., Syarifah, W., & Fitriyah, A. (2023). Korelasi Intensitas Cahaya Dan Suhu Terhadap Kelimpahan Fitoplankton Di Perairan Estuari Ujung Piring Bangkalan. *Buletin Oseanografi Marina*, 12(1), 20–26. <https://doi.org/10.14710/buloma.v12i1.44763>
- Zalewska, T., Wilman, B., Łapeta, B., Marosz, M., Biernacik, D., Wochna, A., Saniewski, M., Grajewska, A., & Iwaniak, M. (2024). Seawater Temperature Changes in the Southern Baltic Sea (1959–2019) Forced by Climate Change. *Oceanologia*, 66(1), 37–55. <https://doi.org/10.1016/j.oceano.2023.08.001>
- Zhang, C., Tao, W., Qiu, C., Qu, W., Zhuang, Y., Gu, Y., Hao, H., & Zhao, Z. (2024). Detection of Copper Ions in Seawater Using a Graphitised Multi-Walled Carbon Nanotubes-Copper Ion Carrier Modified Electrode. *Water (Switzerland)*, 16(15). <https://doi.org/10.3390/w16152128>
- Zhang, L., Meng, F., Liu, N., Zhang, J., & Xue, H. (2023). The Taxon-Specific Species Sensitivity and Aquatic Ecological Risk Assessment of Three Heavy Metals in Songhua River Water, China. *Water (Switzerland)*, 15(20). <https://doi.org/10.3390/w15203694>
- Zhang, P., Xu, J. L., Zhang, J. B., Li, J. X., Zhang, Y. C., Li, Y., & Luo, X. Q. (2020). Spatiotemporal Dissolved Silicate Variation, Sources, and Behavior in

the Eutrophic Zhanjiang Bay, China. *Water (Switzerland)*, 12(12).
<https://doi.org/10.3390/w12123586>

