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Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Adjovu, G. E., Stephen, H., James, D., & Ahmad, S. (2023). *Measurement of Total Dissolved Solids and Total Suspended Solids in Water Systems : A Review of the Issues, Conventional, and Remote Sensing Techniques*. 1–43.

Ahmad, M., & Hizbaron, D. R. (2011). *Pengaruh Penggunaan Lahan di Sempadan Sungai Progo Bagian Tengah Terhadap Kualitas Air dan Aliran Permukaan*. 1–16.

Andrady, A. L. (2011). Microplastics in the marine environment. *Marine Pollution Bulletin*, *62*(8), 1596–1605. https://doi.org/10.1016/j.marpolbul.2011.05.030

Aoki, K., & Furue, R. (2021). A model for the size distribution of marine microplastics: A statistical mechanics approach. *PLoS ONE*, *16*(11), 16–18. https://doi.org/10.1371/journal.pone.0259781

Arefin, A., & Mallik, A. (2018). *Sources and causes of water pollution in Bangladesh : A technical overview*. *15*, 97–112.

Astuti, T. L. R., & Peni, S. N. (2021). *Potential of Water Pollution in*.

Avio, C. G., Gorbi, S., & Regoli, F. (2015). Experimental development of a new protocol for extraction and characterization of microplastics in fi sh tissues : First observations in commercial species from Adriatic Sea. *Marine Environmental Research*, *111*, 18–26. https://doi.org/10.1016/j.marenvres.2015.06.014

Ayuningtyas, W. C., Yona, D., S, S. H. J., & Iranawati, F. (2019). KELIMPAHAN MIKROPLASTIK PADA PERAIRAN DI BANYUURIP , GRESIK , JAWA TIMUR. *Fisheries and Marine Research*, *3*, 41–45.

Azevedo-Santos, V. M., Brito, M. F. G., Manoel, P. S., Perroca, J. F., Rodrigues-Filho, J. L., Paschoal, L. R. P., Gonçalves, G. R. L., Wolf, M. R., Blettler, M. C. M., Andrade, M. C., Nobile, A. B., Lima, F. P., Ruocco, A. M. C., Silva, C. V., Perbiche-Neves, G., Portinho, J. L., Giarrizzo, T., Arcifa, M. S., & Pelicice, F. M. (2021). Plastic pollution: A focus on freshwater biodiversity. *Ambio*, *50*(7), 1313–1324. https://doi.org/10.1007/s13280-020-01496-5

Aziz, T., Pratiwi, D. Y., & Rethiana, L. (2013). *PENGARUH PENAMBAHAN TAWAS Al 2 (SO 4) 3 DAN FISIK DAN KIMIA AIR SUNGAI LAMBIDARO*. *19*(3), 55–65.

Badan Pusat Statistik Kabupaten Bantul. (2023). *KABUPATEN BANTUL DALAM ANGKA Bantul Regency in Figures 2023*. Badan Pusat Statistik Kabupaten Bantul. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://bantulkab.bps.go.id/publication/download.html?nrbvfeve=ZTkwYWIyYjU2MTNhNWJkOTRmN

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TI0ZmNi&xzmn=aHR0cHM6Ly9iYW50dWxrYWIuYnBzLmdvLmlkL3B1YmxpY2F0aW9uLzIwMjMvMDIvMjgvZTkwYWIyYjU2MTNhNWJkOTRmNTI0ZmNiL2

Badan Pusat Statistik Kabupaten Kulon Progo. (2017). *Luas Wilayah (Hektar), 2013-2014*. https://kulonprogokab.bps.go.id/indicator/153/252/1/luas-wilayah.html

Badan Pusat Statistik Kabupaten Kulon Progo. (2023). *KABUPATEN KULON PROGO DALAM ANGKA Kulon Progo Regency in Figures 2023*. Badan Pusat Statistik Kabupaten Kulon Progo. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://kulonprogokab.bps.go.id/publication/download.html?nrbvfeve=YjQxNTY3ZTZjNGQzMDAwYzE0MTI1NTQ3&xzmn=aHR0cHM6Ly9rdWxvbnByb2dva2FiLmJwcy5nby5pZC9wdWJsaWNhdGlvbi8yMDIzLzAyLzI4L2I0MTU2N2U2YzRkMzAwMGMxND

Badan Pusat Statistik Kabupaten Magelang. (2023). *KABUPATEN MAGELANG DALAM ANGKA Magelang RegencyBadan Pusat Statistika Kabupaten Magelang. (2023). KABUPATEN MAGELANG DALAM ANGKA Magelang Regency in Figures 2023. Badan Pusta Statistik Kabupaten Magelang. in Figures 2023*. Badan Pusta Statistik Kabupaten Magelang.

Badan Pusat Statistik Kabupaten Sleman. (2018). *Luas Lahan menurut Penggunaannya di Kabupaten Sleman (Hektar), 2016-2018*. https://slemankab.bps.go.id/indicator/153/110/1/luas-lahan-menurut-penggunaannya-di-kabupaten-sleman.html

Badan Pusat Statistik Kabupaten Sleman. (2023). *KABUPATEN SLEMAN DALAM ANGKA Sleman Regency in Figures 2023*. Badan Pusat Statistik Kabupaten Sleman. chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://slemankab.bps.go.id/publication/download.html?nrbvfeve=ZDc2ODliMmYzYTE3MDlmOGM4MGNlYzRh&xzmn=aHR0cHM6Ly9zbGVtYW5rYWIuYnBzLmdvLmlkL3B1YmxpY2F0aW9uLzIwMjMvMDIvMjgvZDc2ODliMmYzYTE3MDlmOGM4MGNlYzRhL2

Badan Pusat Statistik Kabupaten Temanggung. (2019a). *Luas Lahan Pertanian Bukan Sawah Menurut Kecamatan di Kabupaten Temanggung(hektar), 2018*. https://temanggungkab.bps.go.id/statictable/2019/12/19/220/luas-lahan-pertanian-bukan-sawah-menurut-kecamatan-di-kabupaten-temanggung-hektar-2018-.html

Badan Pusat Statistik Kabupaten Temanggung. (2019b). *Luas Lahan Sawah Menurut Kecamatan dan Jenis Pengairan di Kabupaten Temanggung (hektar), 2018*. https://temanggungkab.bps.go.id/statictable/2019/12/19/219/luas-lahan-

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
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Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

sawah-menurut-kecamatan-dan-jenis-pengairan-di-kabupaten-temanggung-hektar-2018.html

Badan Pusat Statistik Kabupaten Temanggung. (2023). *KABUPATEN TEMANGGUNG DALAM ANGKA Temanggung Regency in Figures 2023*. Badan Pusat Statistik Kabupaten Temanggung. https://temanggungkab.bps.go.id/publication/2023/02/28/cfa802d1309732b50eb97c12/kabupaten-temanggung-dalam-angka-2023.html

Badan Standardisasi Nasional. (2005). *Stnadar Nasioanl Indonesia Air dan air limbah – Bagian 25 : Cara uji kekeruhan dengan nefelometer* (SN 06-6989.25-2005).

Badan Standarisasi Naisonal. (2005). *SNI 06-6989.25-2005*.

Badan Standarisasi Nasional. (2008). SNI 6989.59:2008 Air dan air limbah – Bagian 57: Metoda pengambilan contoh air permukaan. *Sni 6989.59:2008*, *59*, 19. http://ciptakarya.pu.go.id/plp/upload/peraturan/SNI_-6989-59-2008-_Metoda-Pengambilan-Contoh-Air-Limbah.pdf

Badan Standarisasi Nasional. (2019). SNI 6989.27:2019. In *Air dan air limbah - Bagan 27: Cara uji padatan terlarut total (total dissolved solids, TDS) secara gravimetri* (SNI 6989.27:2019).

Bagaev, A., Mizyuk, A., Khatmullina, L., Isachenko, I., & Chubarenko, I. (2017). Anthropogenic fibres in the Baltic Sea water column: Field data, laboratory and numerical testing of their motion. *Science of the Total Environment*, *599–600*, 560–571. https://doi.org/10.1016/j.scitotenv.2017.04.185

Bai, M., Lin, Y., Hurley, R. R., Zhu, L., & Li, D. (2022). Controlling Factors of Microplastic Riverine Flux and Implications for Reliable Monitoring Strategy. *Environmental Science and Technology*, *56*(1), 48–61. https://doi.org/10.1021/acs.est.1c04957

BAPPEDA Daerah Istimewa Yogyakarta. (2023). *Debit Rerata Sungai DIY*. https://bappeda.jogjaprov.go.id/dataku/data_dasar/index/658-debit-rerata-sungai-di-diy

Barrows, A. P. W., Neumann, C. A., Berger, M. L., & Shaw, S. D. (2016). *Analytical Methods*. https://doi.org/10.1039/C6AY02387H

Barua, D. K. (2019). *Coastal Upwelling and Downwelling. In: Finkl, C.W., Makowski, C. (eds) Encyclopedia of Coastal Science* (Encycloped). Springer, Cham. https://doi.org/https://doi.org/10.1007/978-3-319-93806-6_88

Beljaars, A. (2003). *PARAMETERIZATION OF PHYSICAL PROCESSES | Turbulence and Mixing* (J. R. Holton (ed.); Encycloped). Academic Press. https://doi.org/https://doi.org/10.1016/B0-12-227090-8/00310-9.

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Berger, E., Frör, O., & Schäfer, R. B. (2019). Salinity impacts on river ecosystem processes: A critical mini-review. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *374*(1764). https://doi.org/10.1098/rstb.2018.0010

Bergmann, M. (2015). *Marine Anthropogenic Litter* (M. Bergmann & M. Klages (eds.)). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-319-16510-3

Bîrcă, A., Gherasim, O., Grumezescu, V., & Grumezescu, A. M. (2019). *No TitleChapter 1 - Introduction in thermoplastic and thermosetting polymers* (V. Grumezescu & A. M. Grumezescu (eds.)). Elsevier. https://doi.org/https://doi.org/10.1016/B978-0-12-816874-5.00001-3.

Boerger, C. M., Lattin, G. L., Moore, S. L., & Moore, C. J. (2010). Plastic ingestion by planktivorous fishes in the North Pacific Central Gyre. *Marine Pollution Bulletin*, *60*(12), 2275–2278. https://doi.org/10.1016/j.marpolbul.2010.08.007

Borges-Ramírez, M. M., Mendoza-Franco, E. F., Escalona-Segura, G., & Osten, J. R. von. (2020). Plastic density as a key factor in the presence of microplastic in the gastrointestinal tract of commercial fishes from Campeche Bay, Mexico. *Environmental Pollution*, *267*. https://doi.org/10.1016/j.envpol.2020.115659

Briggs, S. V, & Taws, N. (2018). *Impact of salinity on biodiversity – clear understanding or muddy confusion Impacts of salinity on biodiversity — clear understanding or muddy confusion ? January 2003*. https://doi.org/10.1071/BT02114

Browne, M. A., Crump, P., Niven, S. J., Teuten, E., Tonkin, A., Galloway, T., & Thompson, R. (2011). Accumulation of Microplastic on Shorelines Woldwide : Sources and Sinks. *Environmental Science and Technology*, *45*, 9175–9179.

Buwono, N. R., Risjani, Y., & Soegianto, A. (2021). Distribution of microplastic in relation to water quality parameters in the Brantas River, East Java, Indonesia. *Environmental Technology and Innovation*, *24*, 101915. https://doi.org/10.1016/j.eti.2021.101915

Cable, R. N., Beletsky, D., Beletsky, R., & Wigginton, K. (2017). Distribution and Modeled Transport of Plastic Pollution in the Great Lakes , the World's Largest Freshwater Resource. *Environmental Science*, *5*(July), 1–18. https://doi.org/10.3389/fenvs.2017.00045

Campanale, C., Stock, F., Massarelli, C., Kochleus, C., Bagnuolo, G., Reifferscheid, G., & Felice, V. (2020). Microplastics and their possible sources : The example of Ofanto river in southeast Italy. *Environmental Pollution*, *258*, 113284. https://doi.org/10.1016/j.envpol.2019.113284

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
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Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Chamas, A., Moon, H., Zheng, J., Qiu, Y., Tabassum, T., Jang, J. H., Abu-omar, M., Scott, S. L., & Suh, S. (2020). Degradation Rates of Plastics in the Environment. *ACS Sustainable Chemistry & Enginerring*. https://doi.org/10.1021/acssuschemeng.9b06635

Chen, H. L., Gibbins, C. N., Selvam, S. B., & Ting, K. N. (2021). Spatio-temporal variation of microplastic along a rural to urban transition in a tropical river. *Environmental Pollution*, *289*(August), 117895. https://doi.org/10.1016/j.envpol.2021.117895

Chen, X., Chen, W., Bai, Y., & Wen, X. (2022). *Changes in turbidity and human activities along Haihe River Basin during lockdown of COVID-19 using satellite data*. 3702–3717.

Chubarenko, I., Bagaev, A., Zobkov, M., & Esiukova, E. (2016). On some physical and dynamical properties of microplastic particles in marine environment. *MPB*, *108*(1–2), 105–112. https://doi.org/10.1016/j.marpolbul.2016.04.048

Cole, M., Cole, M., Lindeque, P., Halsband, C., & Galloway, T. S. (2011). Microplastics as contaminants in the marine environment : A review Microplastics as contaminants in the marine environment : A review. *Marine Pollution Bulletin*, *62*(12), 2588–2597. https://doi.org/10.1016/j.marpolbul.2011.09.025

Corcoran, P. L., Belontz, S. L., Ryan, K., & Walzak, M. J. (2020a). *Factors Controlling the Distribution of Microplastic Particles in Benthic Sediment of the Thames River, Canada*. https://doi.org/10.1021/acs.est.9b04896

Corcoran, P. L., Belontz, S. L., Ryan, K., & Walzak, M. J. (2020b). Factors Controlling the Distribution of Microplastic Particles in Benthic Sediment of the Thames River , Canada. *Environmental Science and Technology*, *54*, 818–825. https://doi.org/10.1021/acs.est.9b04896

Costa, J. P. da, Avellan, A., Mouneyrac, C., Duarte, A., & Rocha-Santos, T. (2023). Plastic additives and microplastics as emerging contaminants: Mechanisms and analytical assessment. *TrAC - Trends in Analytical Chemistry*, *158*. https://doi.org/10.1016/j.trac.2022.116898

D'Avignon, G., Gregory-Eaves, I., & Ricciardi, A. (2021). Microplastics in lakes and rivers: an issue of emerging significance to limnology. *Environmental Reviews*. https://doi.org/https://doi.org/10.1139/er-2021-0048

Dantas, D. V., Barletta, M., Costa, M. F., Barbosa-Cintra, S. C. T., Possatto, F. E., Ramos, J. A. A., Lima, A. R. A., & Saint-Paul, U. (2010). Movement patterns of catfishes (Ariidae) in a tropical semi-arid estuary. *Journal of Fish Biology*, *76*(10), 2540–2557. https://doi.org/10.1111/j.1095-8649.2010.02646.x

Defontaine, S., Sous, D., Morichon, D., Verney, R., & Monperrus, M. (2019).

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Hydrodynamics and SPM transport in an engineered tidal estuary: The Adour river (France). *Estuarine, Coastal and Shelf Science*, *231*(October), 106445. https://doi.org/10.1016/j.ecss.2019.106445

Devesa, R., & Dietrich, A. M. (2018). Guidance for optimizing drinking water taste by adjusting mineralization as measured by total dissolved solids (TDS). *Desalination*, *439*(April), 147–154. https://doi.org/10.1016/j.desal.2018.04.017

Dhanani, G. V., & Bhimani, P. D. (2016). *Effect of Use Plastic Aggregates as Partial Replacement of Natural Aggregates in Concrete with Plastic Fibres*. 2569–2573.

Dinas Komunikasi dan Informasi Kabupaten Magelang. (2021). *Luas Lahan Sawah Menurut Kecamatan dan Jenis Pengairan di Kabupaten Magelang (hektar)*. https://pusaka.magelangkab.go.id/distanpangan/distanpangan/sawah

Dinas Komunikasi dan Informasi Kabupaten Magelang. (2022). *Luas Lahan Bukan Sawah Menurut Kecamatan dan Penggunaanya di Kabupaten Magelang (hektar)*. https://pusaka.magelangkab.go.id/distanpangan/distanpangan/non_sawah

DINAS LINGKUNGAN HIDUP Kabupaten Magelang. (2008). *Status Lingkungan Hidup Daerah Kabupaten Magelang Tahun 2008*. *1*, 115. https://nebulasolution.net/pustaka/images/docs/SLHD_KABUPATEN_ACEH_TAMIANG_2008[1].pdf

Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Kabupaten Kulon Progo. (2019). *Kawasan Industri*. https://dpmpt.kulonprogokab.go.id/detil/566/kawasan-industri

Dris, R. (2016). *First assesment of sources and fate of macro and microplastic in urban hydrosystems: case of Paris Megacity*. Universite Paris-Est.

Dris, Rachid, Gasperi, J., Saad, M., Mirande, C., & Tassin, B. (2016). Synthetic fibers in atmospheric fallout: A source of microplastics in the environment? *Marine Pollution Bulletin*, *104*(1–2), 290–293. https://doi.org/10.1016/j.marpolbul.2016.01.006

Duis, K., & Coors, A. (2016). Microplastics in the aquatic and terrestrial environment : sources (with a specific focus on personal care products), fate and effects. *Environmental Sciences Europe*. https://doi.org/10.1186/s12302-015-0069-y

Dulanja, P., Kim, S., Sarkar, B., Oleszczuk, P., Kyung, M., Haque, N., Hyung, J., Bank, M. S., & Sik, Y. (2022). Effects of microplastics on the terrestrial environment: A critical review. *Environmental Research*, *209*(January), 112734. https://doi.org/10.1016/j.envres.2022.112734

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
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Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Eamrat, R., Taweesan, A., & Pussayanavin, T. (2022). *Assessment of Microplastics Distribution and Related Water Quality in an Urban Canal, Thailand*. *8*(4), 1172–1184. https://doi.org/10.22059/POLL.2022.340679.1407

Effendi, H. (2016). River Water Quality Preliminary Rapid Assessment Using Pollution Index. *Procedia Environmental Sciences*, *33*, 562–567. https://doi.org/10.1016/j.proenv.2016.03.108

EFSA PANEL. (2016). *Presence of microplastics and nanoplastics in food , with particular focus on seafood EFSA Panel on Contaminants in the Food Chain (CONTAM)*. *14*(May). https://doi.org/10.2903/j.efsa.2016.4501

Emmerik, T. Van, Loozen, M., Oeveren, K. Van, Lebreton, L., Nguyen, P., Schwarz, A., & Slat, B. (2018). *A Methodology to Characterize Riverine Macroplastic Emission Into the Ocean*. *5*(October), 1–11. https://doi.org/10.3389/fmars.2018.00372

Emmerik, T. Van, Mellink, Y., Hauk, R., Waldschläger, K., & Schreyers, L. (2022). *Rivers as Plastic Reservoirs*. *3*(January), 1–8. https://doi.org/10.3389/frwa.2021.786936

Estahbanati, S., & Fahrenfeld, N. L. (2016). Influence of wastewater treatment plant discharges on microplastic concentrations in surface water. *Chemosphere*, *162*, 277–284. https://doi.org/10.1016/j.chemosphere.2016.07.083

Evode, N., Qamar, S. A., Bilal, M., & Iqbal, H. M. N. (2021). *Plastic waste and its management strategies for environmental sustainability*. *4*(August). https://doi.org/10.1016/j.cscee.2021.100142

Fan, J., Zou, L., & Zhao, G. (2021). *Microplastic abundance, distribution, and composition in the surface water and sediments of the Yangtze River along Chongqing City , China*. 1840–1851.

Forrest, S. A., McMahon, D., Adams, W. A., & Vermaire, J. C. (2022). Change in microplastic concentration during various temporal events downstream of a combined sewage overflow and in an urban stormwater creek. *Frontiers in Water*, *4*. https://doi.org/10.3389/frwa.2022.958130

Fu, L., Li, J., Wang, G., Luan, Y., & Dai, W. (2021). Adsorption behavior of organic pollutants on microplastics. *Ecotoxicology and Environmental Safety*, *217*(November 2020), 112207. https://doi.org/10.1016/j.ecoenv.2021.112207

Gambardella, C., Morgana, S., Ferrando, S., Bramini, M., Piazza, V., Costa, E., Garaventa, F., & Faimali, M. (2017). Ecotoxicology and Environmental Safety E ff ects of polystyrene microbeads in marine planktonic crustaceans. *Ecotoxicology and Environmental Safety*, *145*(July), 250–257. https://doi.org/10.1016/j.ecoenv.2017.07.036

Geyer, R. (2020). CHAPTER 2 - Production, use, and fate of synthetic polymers.

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
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Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

In *Plastic Waste and Recycling*. Elsevier Inc. https://doi.org/10.1016/B978-0-12-817880-5.00002-5

Gündoğdu, S. (2022). Polymer Types of Microplastic in Coastal Areas. In: Hashmi, M.Z. (eds) Microplastic Pollution. *Springer, Heidelberg, Emerging Contaminants and Associated Treatment Technologies*. https://doi.org/https://doi.org/10.1007/978-3-030-89220-3_4

Guo, J., Huang, X., Xiang, L., Wang, Y., Li, Y., Li, H., & Cai, Q. (2020). Source, migration, and toxicology of microplastics in soil. *Environment International*, *137*(February), 105263. https://doi.org/10.1016/j.envint.2019.105263

Hamdan, A. M., Lubis, S. S., Nazla, C. T., Jaswita, D., Maulida, Z., Munandar, A., Hamdi, H., Ardiansyah, R., & Khairuzzaman, H. (2023). Magnetic susceptibilites of suspended sediment and microplastic abundance in a tropical volcanic estuary. *Regional Studies in Marine Science*, *61*, 102927. https://doi.org/10.1016/j.rsma.2023.102927

Hao, L., Wang, P., Gojenko, B., Yu, J., Lv, A., Li, F., Kenjabaev, S., Kulmatov, R., & Khikmatov, F. (2023). Five decades of freshwater salinization in the Amu Darya River basin. *Journal of Hydrology: Regional Studies*, *47*, 101375. https://doi.org/10.1016/j.ejrh.2023.101375

Harris, G. (2009). *Salinity* (G. E. Likens (ed.); Encycloped). Academic Press. https://doi.org/https://doi.org/10.1016/B978-012370626-3.00103-4.

He, W., Zhang, J., & Yu, X. (2018). *Effect of Runoff Variability and Sea Level on Saltwater Intrusion : A Case Study of Nandu River Estuary , China*. 9919–9934. https://doi.org/10.1029/2018WR023285

Headley, J. V., Crosley, B., Conly, F. M., & K., Q. E. (2005). *The Characterization and Distribution of Inorganic Chemicals in Tributary Waters of the Lower Athabasca River , Oilsands Region , Canada This article was downloaded by : [Canadian Research Knowledge Network] Access details : Access Details : [subscript*. *February*. https://doi.org/10.1081/ESE-200033418

Heerema, C. J., Talling, P. J., Cartigny, M. J., Paull, C. K., Bailey, L., Simmons, S. M., Parsons, D. R., Clare, M. A., Gwiazda, R., Lundsten, E., Anderson, K., Maier, K. L., Xu, J. P., Sumner, E. J., Rosenberger, K., Gales, J., Mcgann, M., Carter, L., Pope, E., … Team, C. C. E. (2020). What determines the downstream evolution of turbidity currents? *Earth and Planetary Science Letters*, *532*, 116023. https://doi.org/10.1016/j.epsl.2019.116023

Helard, D., Indah, S., & Wilandari, M. (2021). *Spatial Variation of Electrical Conductivity , Total Suspended Solids , and Total Dissolved Solids in the Batang Arau River , West Sumatera , Indonesia Spatial Variation of Electrical Conductivity , Total Suspended Solids , and Total Dissolved Solids in t*. 1041. https://doi.org/10.1088/1757-899X/1041/1/012027

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Helm, P. A. (2017). Analytical Methods Improving microplastics source apportionment : a role for microplastic morphology and taxonomy ? *Analytical Methods*, *00*, 1–4. https://doi.org/10.1039/C7AY90016C

Hidalgo-ruz, V., Gutow, L., Thompson, R. C., & Thiel, M. (2012). Microplastics in the Marine Environment: A Review of the Methods Used for Identification and Quantification. *Environmental Science and Technology*.

Hidayaturrahman, H., & Lee, T. (2019). A study on characteristics of microplastic in wastewater of South Korea : Identification , quantification , and fate of microplastics during treatment process. *Marine Pollution Bulletin*, *146*(June), 696–702. https://doi.org/10.1016/j.marpolbul.2019.06.071

Horton, A. A., & Dixon, S. J. (2017). Microplastics : An introduction to environmental transport processes. *WIREs Water*, *November*, 1–10. https://doi.org/10.1002/wat2.1268

Horton, A. A., Walton, A., Spurgeon, D. J., Lahive, E., & Svendsen, C. (2017). Microplastics in freshwater and terrestrial environments: Evaluating the current understanding to identify the knowledge gaps and future research priorities. *Science of the Total Environment*, *586*, 127–141. https://doi.org/10.1016/j.scitotenv.2017.01.190

Hostnik, I., Bajt, O., & Kova, M. (2023). *Microplastic pollution in small rivers along rural – urban gradients : Variations across catchments and between water column and sediments*. *858*(November 2022). https://doi.org/10.1016/j.scitotenv.2022.160043

Hübner, M. K., Michler-kozma, D. N., & Gabel, F. (2020). Microplastic concentrations at the water surface are reduced by decreasing flow velocities caused by a reservoir. *Fundam. Appl. Limnol. 194/1*, *1*(August), 9135. https://doi.org/10.1127/fal/2020/1307

Huey, G. M., & Meyer, M. L. (2010). *Turbidity as an Indicator of Water Quality in Diverse Watersheds of the Upper Pecos River Basin*. 273–284. https://doi.org/10.3390/w2020273

Hurley, R., Woodward, J., & Rothwell, J. J. (2018). Microplastic contamination of river beds significantly reduced by catchment-wide flooding. *Nature Geoscience*, *11*(April). https://doi.org/10.1038/s41561-018-0080-1

Ilyas, M., Ahmad, W., Khan, H., Yousaf, S., Khan, K., & Nazir, S. (2018). Plastic waste as a significant threat to environment - A systematic literature review. *Reviews on Environmental Health*, *33*(4), 383–406. https://doi.org/10.1515/reveh-2017-0035

Issac, M. N., & Kandasubramanian, B. (2021). Effect of microplastics in water and aquatic systems. *Environ Sci Pollut Rest Int*, *28(16)*, 19544–19562.

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

https://doi.org/10.1007/s11356-021-13184-2

Izza, K., Afkarina, I., Moersidik, S. S., & Utomo, S. W. (2020). *Distribution and environmental risk of microplastics pollution in freshwater of Citarum Watershed*. *03012*, 1–7.

Jambeck, J. R., Geyer, R., Wilcox, C., Siegler, T. R., Andrady, A., Narayan, R., & Law, K. L. (2015). Plastic waste inputs from land into the ocean. *Science*, *1*. https://doi.org/10.1126/science.1260352

Jiang, J., Hanun, J., Chen, K., Hassan, F., Liu, K., Hung, Y., & Chang, T. (2023). Current levels and composition profiles of microplastics in irrigation water. *Environmental Pollution*. https://doi.org/10.1016/j.envpol.2022.120858

Kabir, A. H. M. E., Sekine, M., Imai, T., Yamamoto, K., Kanno, A., & Higuchi, T. (2022). Microplastics in the sediments of small-scale Japanese rivers : Abundance and distribution , characterization , sources-to-sink , and ecological risks. *Science of the Total Environment*, *812*, 152590. https://doi.org/10.1016/j.scitotenv.2021.152590

Karamanlioglu, M., Preziosi, R., & Robson, G. D. (2017). Abiotic and biotic environmental degradation of the bioplastic polymer poly(lactic acid): A review. *Polymer Degradation and Stability*, *137*, 122–130. https://doi.org/10.1016/j.polymdegradstab.2017.01.009

Kementerian Lingkungan Hidup dan Kehutanan. (2021). *STATISTIK 2020 Statistika Kualitas Air, Udara, dan Tututan Lahan* (H. Sakina (ed.)). Direktotrat Jenderal Pengendalian Pencemaran dan Kerusakan Lingkungan.

Kementerian Lingkungan Hidup dan Kehutanan. (2022a). *Capaian Kinerja Pengelolaan Sampah*. https://sipsn.menlhk.go.id/sipsn/public/data/capaian

Kementerian Lingkungan Hidup dan Kehutanan. (2022b). *Komposisi Sampah berdasarkan Jenis Sampah*. https://sipsn.menlhk.go.id/sipsn/public/data/komposisi

Kementerian Lingkungan Hidup dan Kehutanan. (2022c). *Timbulan Sampah*. https://sipsn.menlhk.go.id/sipsn/public/data/timbulan

Kementerian Pekerjaan Umum dan Perumahan Rakyat. (2010). *POLA PENGELOLAAN SUMBER DAYA AIR WILAYAH SUNGAI PROGO – OPAK – SERANG*.

Keputusan menteri Pekerjaan Umum No.590/KPTS/M/2010. (2010). *Pengelolaan Sumber Daya Air Wilayah Sungai Progo-Opak-Serang*.

Kitheka, J. U. (2019). Salinity and salt fluxes in a polluted tropical river : The case study of the Athi river in Kenya. *Journal of Hydrology: Regional Studies*, *24*(June), 100614. https://doi.org/10.1016/j.ejrh.2019.100614

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Kooi, M., Besseling, E., Kroeze, C., Wezel, A. van, & Koelmans, A. (2018). Modeling the fate and transport of plastic debris in freshwaters: review and guidance. *Springer, Heidelberg, In: Wagner M, Lambert S(eds) Freshwater Microplastics: Emerging Environmental Contaminants*.

Krause, S., Baranov, V., Nel, H. A., Drummond, J. D., Kukkola, A., Hoellein, T., Sambrook Smith, G. H., Lewandowski, J., Bonnet, B., Packman, A. I., Sadler, J., Inshyna, V., Allen, S., Allen, D., Simon, L., Mermillod-Blondin, F., & Lynch, I. (2021). Gathering at the top? Environmental controls of microplastic uptake and biomagnification in freshwater food webs. *Environmental Pollution*, *268*, 115750. https://doi.org/10.1016/j.envpol.2020.115750

Kunz, A. (2021). *Microplastic pollution of rivers – A case study in the Tamsui river in northern Taiwan*. 2–5.

Kunz, A., Schneider, F., Anthony, N., & Lin, H. (2023). Microplastics in rivers along an urban-rural gradient in an urban agglomeration : Correlation with land use , potential sources and pathways ☆. *Environmental Pollution*, *321*(January), 121096. https://doi.org/10.1016/j.envpol.2023.121096

Kwan, P., & Fok, L. (2017). Characterisation of plastic microbeads in facial scrubs and their estimated emissions in Mainland China. *Water Research*, *122*, 53–61. https://doi.org/10.1016/j.watres.2017.05.053

Kye, H., Kim, J., Ju, S., Lee, J., Lim, C., & Yoon, Y. (2023a). Heliyon Microplastics in water systems : A review of their impacts on the environment and their potential hazards. *Heliyon*, *9*(3), e14359. https://doi.org/10.1016/j.heliyon.2023.e14359

Kye, H., Kim, J., Ju, S., Lee, J., Lim, C., & Yoon, Y. (2023b). Microplastics in water systems : A review of their impacts on the environment and their potential hazards. *Heliyon*, *9*(3), e14359. https://doi.org/10.1016/j.heliyon.2023.e14359

Lake, S., & Xu, X. (2022). *Distribution Characteristics and Source Analysis of Microplastics in Urban Freshwater Lakes : A Case Study in*.

Lambert, S., & Wagner, M. (2018). *Microplastics are contaminants of emerging concern in freshwater environments: an overview* (Freshwater).

Lavabetha, A. R. R. R., Hidayaturrahmah, Muahamat, & S, H. B. (2015). PROFIL DARAH IKAN TIMPAKUL (Periophthalmodon schlosseri) DARI MUARA SUNGAI BARITO KALIMANTAN SELATAN Andi. *BIOSCIENTIAE*, *12*, 78–89.

Lenaker, P. L., Baldwin, A. K., Corsi, S. R., Mason, S. A., Reneau, P. C., & Scott, J. W. (2019). Vertical Distribution of Microplastics in the Water Column and Surficial Sediment from the Milwaukee River Basin to Lake Michigan.

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Environmental Science and Technology, *53*(21), 12227–12237. https://doi.org/10.1021/acs.est.9b03850

Lesatri, P., Trihadiningrum, Y., Wijaya, B. A., Yunus, K. A., & Firdaus, M. (2020). Distribution of microplastics in Surabaya River , Indonesia. *Science of the Total Environment*, *726*, 138560. https://doi.org/10.1016/j.scitotenv.2020.138560

Lestari, P. (2021). *Distribusi dan Degradasi Sampah Plastik pada Air, Sedimen, dan Biota di Kali Surabaya*.

Lestari, P., Trihadiningrum, Y., Wijaya, B. A., Yunus, K. A., & Firdaus, M. (2020). Distribution of microplastics in Surabaya River , Indonesia. *Science of the Total Environment*, *726*, 138560. https://doi.org/10.1016/j.scitotenv.2020.138560

Li, Y., Lu, Z., Zheng, H., Wang, J., & Chen, C. (2020). Microplastics in surface water and sediments of Chongming Island in the Yangtze Estuary , China. *Environmental Sciences Europe*. https://doi.org/10.1186/s12302-020-0297-7

Lima, A. R. A., Costa, M. F., & Barletta, M. (2014). Distribution patterns of microplastics within the plankton of a tropical estuary. *Environmental Research*, *132*, 146–155. https://doi.org/10.1016/j.envres.2014.03.031

Lippiatt, S., Opfer, S., & Arthur, C. (2013). *NOAA (National Oceanic and Atmospheric Administration) Marine Debris Monitoring and Assessment: Recommendations for Monitoring Debris Trends in the Marine Environment*. *November*.

Liro, M., Emmerik, T. van, Wy˙zga, B., Liro, J., & Miku´s, P. (2020). Macroplastic Storage and Remobilization in Rivers. *Water*, *12*, 22–29.

Liu, F., Olesen, K. B., Borregaard, A. R., & Vollertsen, J. (2019). Science of the Total Environment Microplastics in urban and highway stormwater retention ponds. *Science of the Total Environment*, *671*, 992–1000. https://doi.org/10.1016/j.scitotenv.2019.03.416

Lusher, A. L., Welden, N. A., Sobral, P., & Cole, M. (2017). Sampling, isolating and identifying microplastics ingested by fish and invertebrates. *Roya Society Of Chemistry*, *9*(June 2016), 1346–1360. https://doi.org/10.1039/c6ay02415g

Ma, J., Zhao, J., Zhu, Z., Li, L., & Yu, F. (2019). Effect of microplastic size on the adsorption behavior and mechanism of triclosan on polyvinyl chloride. *Environmental Pollution*, *254*, 113104. https://doi.org/10.1016/j.envpol.2019.113104

Manajemen Rumah Sakit. (2013). *Kadar Amoniak Limbah RS di Temanggung Mebihi Ambang Batas*. https://manajemenrumahsakit.net/2013/03/kadar-amoniak-limbah-rs-di-temanggung-mebihi-ambang-batas/

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Mangarengi, N. A. P., Zakaria, R., Langka, P., & Riswanto, N. A. (2021). Distribution of Microplastic Abundance and Composition in Surface Water around Anthropogenic Areas (Case Study : Jeneberang River, South Sulawesi, Indonesia). *Earth and Environmental Science*, 0–12. https://doi.org/10.1088/1755-1315/1134/1/012039

Mani, T., Hauk, A., Wal, U., & Burkhardt-holm, P. (2015). Microplastics profile along the Rhine River. *Nature Publishing Group*, *December*, 1–7. https://doi.org/10.1038/srep17988

Mashhadi, S. K. M., Yadollahi, H., & Mashhad, A. M. (2016). Design and manufacture of TDS measurement and control system for water purification in reverse osmosis by PID fuzzy logic controller with the ability to compensate effects of tempe ... *Turkish Journal of Electrical Engineering & Computer Sciences*, *January*. https://doi.org/10.3906/elk-1402-65

Mccleskey, R. B., Cravotta, C. A., Miller, M. P., Tillman, F., Stackelberg, P., Knierim, K. J., & Wise, D. R. (2023). Applied Geochemistry Salinity and total dissolved solids measurements for natural waters : An overview and a new salinity method based on specific conductance and water type. *Applied Geochemistry*, *154*(January), 105684. https://doi.org/10.1016/j.apgeochem.2023.105684

Mennekes, D., & Nowack, B. (2023). *Predicting microplastic masses in river networks with high spatial resolution at country level*. *1*(June). https://doi.org/10.1038/s44221-023-00090-9

Merriam, E. R., Id, M. P. S., & Id, J. T. P. (2022). *Source water vulnerability to elevated total dissolved solids within a mixed-use Appalachian River basin*. 1–17. https://doi.org/10.1371/journal.pwat.0000035

Mori, T., Miyagawa, Y., Onoda, Y., & Kayaba, Y. (2018). Flow-velocity-dependent effects of turbid water on periphyton structure and function in flowing water. *Aquatic Sciences*, *80*(1), 1–12. https://doi.org/10.1007/s00027-017-0552-1

Mujtahidah, T., Siswanto, U., Hidayati, S., & Jailani, A. Q. (2021). Identification of the Distribution of Asian Redtail Catfish (Hemibagrus nemurus) Based on Geographical Information Systems (GIS) in the Progo River, Magelang, Central Java. *Journal of Aquaculture Science*, *6*(1), 12–23. https://doi.org/10.31093/joas.v6i1.125

N, M. W. I., Sudarno, & Istirokhatun, T. (2014). *ANALISIS PENENTUAN KUALITAS AIR DAN BEBAN PENCEMARAN UNTUK PARAMETER FECAL COLIFORM DI HULU SUNGAI PROGO KABUPATEN TEMANGGUNG*. 1–8.

Nathanson, J. A. (2023). Water Pollution. In *Britanica*.

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

https://www.britannica.com/science/water-pollution

National Oceanic and Atmospheric Administration. (2016). *Point vs. Non-Point Water Pollution: What's the Difference?* https://response.restoration.noaa.gov/point-vs-non-point-water-pollution-what-s-difference

Negm, A. M., & Romanescu, G. (2020). *Water Resources Management in Romania* (A. G. Kostianoy (ed.)). Springer Water.

Nerland, I. L., Halsband, C., Allan, I., & Thomas, K. V. (2014). *Microplastics in marine environments: Occurrence, distribution and effects*.

NOAA. (2022). *Water quality describes the condition of the water, including chemical, physical, and biological characteristics, usually with respect to its suitability for a particular purpose such as drinking or swimming*. Florida Keys National Marine Sanctuary. https://floridakeys.noaa.gov/ocean/waterquality.html

Nollet, L. (2007). *Handbook of Water Analysis*. CRC Press.

Okunola A, A., Kehinde I, O., Oluwaseun, A., & Olufiropo E, A. (2019). Public and Environmental Health Effects of Plastic Wastes Disposal: A Review. *Journal of Toxicology and Risk Assessment*, *5*(2). https://doi.org/10.23937/2572-4061.1510021

Omer, N. H. (2019). Water Quality Parameters. *Water Quality - Science, Assesment and Policy*.

Ou, Y., Xue, Z. G., Li, C., Xu, K., White, J. R., Bentley, S. J., & Zang, Z. (2020). A numerical investigation of salinity variations in the Barataria Estuary, Louisiana in connection with the Mississippi River and restoration activities. *Estuarine, Coastal and Shelf Science*, *245*(December 2019), 107021. https://doi.org/10.1016/j.ecss.2020.107021

Patty, S. I., Huwae, R., Kainama, F., Oseanografi, P., & Dalam, P. L. (2020). *Variasi Musiman Suhu, Salinitas dan Kekeruhan Air Laut di Perairan Selat Lembeh, Sulawesi Utara (Seasonal Variations of Temperature, Salinity and Turbidity of the Lembeh Strait's waters, North Sulawesi)*. *8*(1), 110–117.

Pazos, R. S., Bauer, D. E., & Gómez, N. (2018). Microplastics integrating the coastal planktonic community in the inner zone of the Río de la Plata estuary (South America). *Environmental Pollution*, *243*, 134–142. https://doi.org/10.1016/j.envpol.2018.08.064

Peng, G., Xu, P., Zhu, B., Bai, M., & Li, D. (2017). Microplastic in freshwater river sediments in Shanghai, study of risk assesment in mega cities. *Environmental Pollution*, *234*, 448–456.

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Permenkes No.32. (2017). *PERATURAN MENTERI KESEHATAN REBUPLIK INDONESIA* (No. 32).

Plastic Europe. (2019). *Plastics-The Facts 2019. An Analysis of European Latest Plastics Production, Demand and Waste Data.* Plastics Europe. https://www.plasticseurope.org/en/resources/publications/1804-plastics-facts-2019

PP RI No.22/. (2021). *Baku Mutu Air Nasional* (No. 22; Issue 097089).

PPID Kab. Bantul. (2017). *Data Penggunaan Lahan Tahun 2017*. https://ppid.bantulkab.go.id/data-penggunaan-lahan-tahun-2017/

Prapanchan, V. N., Kumar, E., Subramani, T., Sathya, U., & Li, P. (2023). *A Global Perspective on Microplastic Occurrence in Sediments and Water with a Special Focus on Sources , Analytical Techniques , Health Risks , and Remediation Technologies*.

Priyambada, G., Kurniawan, B., Sitompul, R. G., & Darmayanti, L. (2023). The abundance of microplastics in Siak tributary sediments in the watershed area, Pekanbaru City, Riau (Case Study Sago River). *Materials Today: Proceedings*, *xxxx*, 1–6. https://doi.org/10.1016/j.matpr.2023.03.207

Purwaningrum, P. (2016). Upaya mengurangi timbulan sampah plastik di lingkungan. *Indonesian Journal of Urban and Environmental Technology*, *8(2)*, 141.

PUSDATARU. (2015). *Data Debit Sungai Progo-Borobudur Tahun 2010-2015*. https://pusdataru.jatengprov.go.id/opdt/dataset/data-debit-sungai-progo-borobudur-tahun-2010-2015/resource/82943416-1ec4-4d81-8fd2

Quddus, R. (2014). *TEKNIK PENGOLAHAN AIR BERSIH DENGAN SISTEM SARINGAN PASIR LAMBAT (DOWNFLOW) YANG BERSUMBER DARI SUNGAI MUSI*. *2*(4), 669–675.

Ragusa, A., Svelato, A., Santacroce, C., Catalano, P., Notarstefano, V., Carnevali, O., Papa, F., Ciro, M., Rongioletti, A., Baiocco, F., Draghi, S., Amore, E. D., Rinaldo, D., Matta, M., & Giorgini, E. (2021). Plasticenta : First evidence of microplastics in human placenta. *Environment International*, *146*, 106274. https://doi.org/10.1016/j.envint.2020.106274

Rahman, D. A. (2016). KOMPARASI KEPADATAN DAN PERTUMBUHAN PENDUDUK. *Buana*, *1*, 323–337.

Ritchie, J. C., & Schiebe, F. R. (2000). *Water Quality. In: Schultz, G.A., Engman, E.T.* (Remote Sen). Springer Berlin Heidelberg. https://doi.org/https://doi.org/10.1007/978-3-642-59583-7_13

Rochman, C. M., Brookson, C., Bikker, J., Djuric, N., Earn, A., Bucci, K., Athey,

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
Anggraeni Intan Maharani, r. Prieskarinda Lestari, S.T., IPM.; Bayu Dwi Apri Nugroho, S.T.P., M.Agr., Ph.D., IPU. AS
Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

S., Huntington, A., Mcilwraith, H., Munno, K., Frond, H. De, Kolomijeca, A., Erdle, L., Grbic, J., Bayoumi, M., Borrelle, S. B., Wu, T., Santoro, S., Klasios, N., … Hung, C. (2019). *Rethinking Microplastics as a Diverse Contaminant Suite*. *38*(4), 703–711. https://doi.org/10.1002/etc.4371

Ronca, S. (2017). Chapter 10 - Polyethylene. In *Brydson's Plastics Materials* (Issue 1930). Elsevier Ltd. https://doi.org/10.1016/B978-0-323-35824-8.00010-4

Ruiz, S., Hallett, P., & Or, D. (2023). *Bioturbation - Physical Processes* (Reference). Elsevier. https://doi.org/https://doi.org/10.1016/B978-0-12-822974-3.00180-4.

Rusydi, A. F. (2017). Correlation between conductivity and total dissolved solid in various type of water : A review Correlation between conductivity and total dissolved solid in various type of water : A review. *Global Colloquium on GeoSciences and Engineering*, *118*(Earth Environ. Sci.), 012019. https://doi.org/10.1088/1755-1315/118/1/012019

Rutkowska, B., Szulc, W., Wyżyński, W., Gościnna, K., Torma, S., Vilček, J., & Koco, Š. (2022). Water Quality in a Small Lowland River in Different Land Use. *Hydrology*, *9*(11), 1–14. https://doi.org/10.3390/hydrology9110200

Samir, S., Elsamahy, T., Koutra, E., Kornaros, M., El-sheekh, M., Abdelkarim, E. A., Zhu, D., & Sun, J. (2021). Degradation of conventional plastic wastes in the environment : A review on current status of knowledge and future perspectives of disposal. *Science of the Total Environment*, *771*, 144719. https://doi.org/10.1016/j.scitotenv.2020.144719

Sang, W., Chen, Z., Mei, L., Hao, S., Zhan, C., Li, M., & Liu, J. (2021). Science of the Total Environment The abundance and characteristics of microplastics in rainwater pipelines in Wuhan , China. *Science of the Total Environment*, *755*, 142606. https://doi.org/10.1016/j.scitotenv.2020.142606

Sarkar, D. J., Sarkar, S. Das, Das, B. K., Manna, R. K., Behera, B. K., & Samanta, S. (2019). Spatial distribution of meso and microplastics in the sediments of river Ganga at eastern India. *Science of the Total Environment*, *694*, 133712. https://doi.org/10.1016/j.scitotenv.2019.133712

Schmutz, S., & Sendzimir, J. (2018). Riverine Ecosystem Management: Science for Governing Towards a Sustainable Future. In *Die Bodenkultur: Journal of Land Management, Food and Environment* (Vol. 69, Issue 3). https://doi.org/10.2478/boku-2018-0017

Scott, E. E., & Haggard, B. E. (2019). *Turbidity and Ion Concentrations Vary with Land Use and Underlying Geology at the West Fork of the White River*.

Scott, E. E., & Haggard, B. E. (2021). *Natural Characteristics and Human Activity Influence Turbidity and Ion Concentrations in Streams*. *172*, 34–49.

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
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https://doi.org/10.1111/j.1936-704X.2021.3353.x

Seltenrich, N. (2015). *New Link in the Food Chain? Marine Plastic Pollution and Seafood Safety*. *123*(2), 34–42.

Shah, C. R. (2017). Which Physical, Chemical and Biological Parameters of water determine its quality? *ResearchGate*, *June*, 1–74. https://doi.org/10.13140/RG.2.2.29178.90569

Sheng, W., Hadibarata, T., Yuniarto, A., Ho, K., Tang, D., Abdullah, F., Syafrudin, M., Al, D. A., & Al-mohaimeed, A. M. (2021). Characterization of microplastics in the water and sediment of Baram River estuary , Borneo Island. *Marine Pollution Bulletin*, *172*(August), 112880. https://doi.org/10.1016/j.marpolbul.2021.112880

Silva, A. B., Bastos, A. S., Justino, C. I. L., da Costa, J. P., Duarte, A. C., & Rocha-Santos, T. A. P. (2018). Microplastics in the environment: Challenges in analytical chemistry - A review. *Analytica Chimica Acta*, *1017*, 1–19. https://doi.org/10.1016/j.aca.2018.02.043

Siswoyo, E., & Mai, N. H. A. (2022). Environmental monitoring and policy for sustainable public facilities: case study of a hospital in Yogyakarta. *IOP Conference Series: Earth and Environmental Science*, *1095*(1). https://doi.org/10.1088/1755-1315/1095/1/012031

Sivapriya, V., Radhakrishnan, K., & Hussain, S. M. (2022). Benthos and its interaction with marine and estuarine ecosystem. *Ecology and Biodiversity of Benthos*, 315–336. https://doi.org/10.1016/B978-0-12-821161-8.00008-8

Smith, M., Love, D. C., Rochman, C. M., & Neff, R. A. (2018). Microplastics in Seafood and the Implications for Human Health. *Current Environtmental Health Report*, *5(3)*, 375–386. https://doi.org/10.1007/s40572-018-0206-z

Srivastava, G., & Kumar, P. (2013). Water Quality Index With Missing Parameters. *International Journal of Research in Engineering and Technology*, *02*(04), 609–614. https://doi.org/10.15623/ijret.2013.0204035

Sulthonuddin, I., Hartono, D. M., & Utomo, S. W. (2018). *Water Quality Assessment of Cimanuk River in West Java Using Pollution Index*. *9*, 1–7.

Sun, Y., Bakker, T., Ruf, C., & Pan, Y. (2023). Effects of microplastics and surfactants on surface roughness of water waves. *Scientific Reports*, *13*(1), 1–18. https://doi.org/10.1038/s41598-023-29088-9

Suryatmaja, H., Nugraha, W. D., & Syarifudin. (2015). Penentuan Status Mutu Air Dengan Metode IKA-NSF Guna Pengendalian Lingkunan (Studi Kasus : Sungai Progo, Provinsi Daerah Istimewa Yogyakarta). *Teknik Lingkungan*, *4*.

Syamsu, F. R., Ph, D., & Harsanto, P. (2016). *ASSESSMENT MORFOLOGI*

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
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Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

SUNGAI PROGO (Studi Kasus: Tengah – Hilir Sungai Progo Yogyakarta). *2016*(20120110104).

Talbot, R., & Chang, H. (2022a). Microplastics in freshwater : A global review of factors affecting spatial and temporal variations ☆. *Environmental Pollution*, *292*(PB), 118393. https://doi.org/10.1016/j.envpol.2021.118393

Talbot, R., & Chang, H. (2022b). Microplastics in freshwater: A global review of factors affecting spatial and temporal variations. *Environmental Pollution*, *292*(PB), 118393. https://doi.org/10.1016/j.envpol.2021.118393

Trestrail, C., Walpitagama, M., Hedges, C., Truskewycz, A., Miranda, A., Wlodkowic, D., Shimeta, J., & Nugegoda, D. (2020). Science of the Total Environment Foaming at the mouth : Ingestion of fl oral foam microplastics by aquatic animals. *Science of the Total Environment*, *705*, 135826. https://doi.org/10.1016/j.scitotenv.2019.135826

Tyler, A., Hunter, P., Keukelaere, L. De, Ogashawara, I., & Spyrakos, E. (2022). Remote Sensing of Inland Water Quality. In *Encyclopedia of Inland Waters (Second Edition)* (pp. 570–584). Elsevier. https://doi.org/https://doi.org/10.1016/B978-0-12-819166-8.00213-9.

United Nations Environment Programme. (2021). *DROWNING IN PLASTIC - Marine litter and plastic waste vital graphics*.

Utami, I., Rahmawati, S., Tricahya, F. H., Pidianto, & Sakti, A. D. (2021). *THE ABUNDANCE AND CHARACTERISTICS OF MICROPLASTICS IN THE SEDIMENTS OF THE PROGO RIVER OF YOGYAKARTA , THE ABUNDANCE AND CHARACTERISTICS OF MICROPLASTICS IN THE SEDIMENTS OF THE PROGO RIVER OF YOGYAKARTA , INDONESIA*. *May 2022*. https://doi.org/10.46754/jssm.2021.12.021

Utami, I., Resdianningsih, K., & Rahmawati, S. (2022). *Temuan Mikroplastik pada Sedimen Sungai Progo dan Sungai Opak Kabupaten Bantul*. *XXII*(1).

Uurasjärvi, E., Pääkkönen, M., Setälä, O., Koistinen, A., & Lehtiniemi, M. (2021). Microplastics accumulate to thin layers in the stratified Baltic Sea. *Environmental Pollution*, *268*. https://doi.org/10.1016/j.envpol.2020.115700

Vallero, D. (2014). *Chapter 17-Air Pollutant Kinetics and Tranformation* (D. Vallero (ed.); Fundamenta). Academic Press. https://doi.org/https://doi.org/10.1016/B978-0-12-401733-7.00017-7.

Vandra, B., Sudarno, & Nugraha, W. D. (2016). STUDI ANALISIS KEMAMPUAN SELF PURIFICATION PADA SUNGAI PROGO DITINJAU DARI PARAMETER BIOLOGICAL OXYGEN DEMAND (BOD) DAN DISSOLVED OXYGEN (DO) (Studi Kasus ; Buangan (Outlet) Industri Tahu Skala Rumahan Kecamatan Lendah Kabuoaten Kulon Progo,

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
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Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Provinsi Daer. *Teknik Lingkungan*, *5*.

Vasilopoulou, G., Kehayias, G., Kletou, D., Kleitou, P., Triantafyllidis, V., Zotos, A., Antoniadis, K., Rousou, M., Papadopoulos, V., Polykarpou, P., & Tsiamis, G. (2021). Investigación de microplásticos utilizando muestras de zooplancton de las costas de chipre (mediterráneo oriental). *Water (Switzerland)*, *13*(16).

Vayghan, A. H., Rasta, M., Zakeri, M., & Kelly, F. J. (2022). Spatial distribution of microplastics pollution in sediments and surface waters of the Aras River and reservoir: An international river in Northwestern Iran. *Science of the Total Environment*, *843*.

Wahjono, H. (2007). Rancang Bangun Sistem Database Kualitas Air Limbah. *Jai*, *3*(1), 73–80.

Wang, B. B. (2021). *Research on drinking water purification technologies for household use by reducing total dissolved solids (TDS)*. 1–14. https://doi.org/10.1371/journal.pone.0257865

Wang, T., Li, B., Zou, X., Wang, Y., Li, Y., Xu, Y., Mao, L., Zhang, C., & Yu, W. (2019). Emission of primary microplastics in mainland China : Invisible but not negligible. *Water Research*, *162*, 214–224. https://doi.org/10.1016/j.watres.2019.06.042

Wang, Zhan, Id, S. E. T., Id, P. S., & Id, M. F. (2018). Poor extraction efficiencies of polystyrene nano- and microplastics from biosolids and soil. *PLOS ONE*, 1–13.

Wang, ZhiChao, Yang, J.-L., Yang, F., Yang, W.-H., Li, W.-P., & Li, X. (2021). Distribution Characteristics of Microplastics in Ice Sheets and Its Response to Salinity and Chlorophyll a in the Lake Wuliangsuhai. *Huan Jing Ke Xue*, *42(2)*, 673–680. https://doi.org/10.13227/j.hjkx.202007042

Wei, Y., Ma, W., Xu, Q., Sun, C., Wang, X., & Gao, F. (2022). *Microplastic Distribution and Influence Factor Analysis of Seawater and Surface Sediments in a Typical Bay With Diverse Functional Areas : A Case Study in Xincun Lagoon , China*. *10*(February), 1–13. https://doi.org/10.3389/fenvs.2022.829942

Welden, N. A. C., & Lusher, A. L. (2017). Impacts of changing ocean circulation on the distribution of marine microplastic litter. *Integrated Environmental Assessment and Management*, *13*(3), 483–487. https://doi.org/10.1002/ieam.1911

Wiesinger, H., Wang, Z., & Hellweg, S. (2021). Deep Dive into Plastic Monomers, Additives, and Processing Aids. *Environmental Science and Technology*, *55*(13), 9339–9351. https://doi.org/10.1021/acs.est.1c00976

Wilson. (2017). *Characterization and Analysis of Microplastics*. Elsevier.

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
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Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Wilson, P. C. (2010). *Water quality note: Water clarity (Tubidity suspendied solids and color)*. 1–8.

Win, M., & Istirokhatun, T. (2014). *ANALISIS PENENTUAN KUALITAS AIR DAN BEBAN PENCEMARAN UNTUK PARAMETER FECAL COLIFORM DI HULU SUNGAI PROGO KABUPATEN TEMANGGUNG*.

World Health Organization. (2017). Water Quality And Health - Review Of Turbidity: Information for regulators and water suppliers. *Who/Fwc/Wsh/17.01*, 10. https://www.who.int/water_sanitation_health/publications/turbidity-information-200217.pdf%0Ahttp://www.who.int/water_sanitation_health/publications/turbidity-information-200217.pdf

Wright, N. G., & Crosato, A. (2011). *The Hydrodynamics and Morphodynamics of Rivers* (2.07). Elsevier Science Ltd.

Wright, S. L., & Kelly, F. J. (2017). *Plastic and Human Health: A Micro Issue?* https://doi.org/10.1021/acs.est.7b00423

Wu, F., Pennings, S. C., Tong, C., & Xu, Y. (2020). Variation in microplastics composition at small spatial and temporal scales in a tidal flat of the Yangtze Estuary, China. *Science of the Total Environment*, *699*, 134252. https://doi.org/10.1016/j.scitotenv.2019.134252

Xu, J., Eagan, J. M., Kim, S., Pan, S., Lee, B., Klimovica, K., Jin, K., Lin, T., Howard, M. J., Ellison, C. J., Lapointe, A. M., Coates, W., & Bates, F. S. (2018). *Compatibilization of Isotactic Polypropylene (i PP) and High-Density Polyethylene (HDPE) with i PP − PE Multiblock Copolymers*. https://doi.org/10.1021/acs.macromol.8b01907

Yakushev, E., Gebruk, A., Osadchiev, A., Pakhomova, S., Lusher, A., Bavel, B. Van, Vorozheikina, E., Chernykh, D., Razgon, I., & Semiletov, I. (2021). *Microplastics distribution in the Eurasian Arctic is affected by Atlantic waters and Siberian rivers*. 1–11. https://doi.org/10.1038/s43247-021-00091-0

Yona, D., Zahran, M. F., Fuad, M. A. Z., Prananto, Y. P., & Harlyan, L. I. (2021). *Mikroplastik di Perairan: Jenis, Metode Sampling, dan Analisis Laboratorium* (T. U. Press (ed.)). UB Press. https://books.google.co.id/books?hl=en&lr=&id=QIZTEAAAQBAJ&oi=fnd&pg=PR5&dq=yona+d+2021+mikroplastik+di+perairan++jenis+metode+sampling+dan+analisis&ots=WxjbJiepWa&sig=bl-KcCo7uR9Y-L2uBHA06WYVtVM&redir_esc=y#v=onepage&q=yona d 2021 mikroplastik di peraira

Yonkos, L. T., Friedel, E. A., Perez-reyes, A. C., Ghosal, S., & Arthur, C. D. (2014). *Microplastics in Four Estuarine Rivers in the Chesapeake Bay, U.S.A.*

UNIVERSITAS
GADJAH MADA
Distribusi Pencemaran Mikroplastik Berdasarkan Karakteristik Ukuran dan Pengaruhnya terhadap Kualitas Air Parameter Fisikokimia di Sungai Progo
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Universitas Gadjah Mada, 2023 | Diunduh dari http://etd.repository.ugm.ac.id/

Zhang, K., Hossein, A., Tubi, A., Fang, J. K. H., Wu, C., & Lam, P. K. S. (2021). *Understanding plastic degradation and microplastic formation in the environment : A review *. 274*. https://doi.org/10.1016/j.envpol.2021.116554

Zhou, G., Wang, Q., Zhang, J., Li, Q., Wang, Y., Wang, M., & Huang, X. (2020). Distribution and characteristics of microplastics in urban waters of seven cities in the Tuojiang River basin, China. *Environmental Research*, *189*(July), 109893. https://doi.org/10.1016/j.envres.2020.109893

Zhou, Q., Tu, C., Yang, J., Fu, C., Li, Y., & Waniek, J. J. (2021). Trapping of Microplastics in Halocline and Turbidity Layers of the Semi-enclosed Baltic Sea. *Frontiers in Marine Science*, *8*(November), 1–13. https://doi.org/10.3389/fmars.2021.761566