

REFERENCES

- Alina, A. A., Soeprobowati, T. R., & Muhammad, F. (2015). Kualitas air Rawa Jombor Klaten, Jawa Tengah berdasarkan komunitas fitoplankton. *Jurnal Akademika Biologi*, 4(3), 41-52.
- Amin, R. M., Sohaimi, E. S., Anuar, S. T., & Bachok, Z. (2020). Microplastic ingestion by zooplankton in Terengganu coastal waters, southern South China Sea. *Mar. Pollut. Bull.*, 150, 110616.
<https://doi.org/10.1016/j.marpolbul.2019.110616>
- Andrady, A. L. (2017). The plastic in microplastics: a review. *Mar. Pollut. Bull.*, 119(1), 12-22. <https://doi.org/10.1016/j.marpolbul.2017.01.082>
- Artham, T., Sudhakar, M., Venkatesan, R., Madhavan Nair, C., Murty, K. V. G. K., & Doble, M. (2009). Biofouling and stability of synthetic polymers in sea water. *Int. Biodeter. Biodegr.*, 63(7), 884-890.
<https://doi.org/10.1016/j.ibiod.2009.03.003>
- Aryani, D., Khalifa, M. A., Herjayanto, M., Solahudin, E. A., Rizki, E. M., Halwadiyah, W., Istiqomah, H., Maharani, S. H., Wahyudin, H., & Pratama, G. (2021). Penetration of microplastics (polyethylene) to several organs of Nile Tilapia (*Oreochromis niloticus*). *IOP Conf. Series: Earth and Environmental Science*, 715, 012061. <https://doi.org/10.1088/1755-1315/715/1/012061>
- Asare, M. L., Cobbina, S. J., Akpabey, F. J., Duwiejuah, A. B., & Abuntori, Z. N. (2018). Heavy metal concentration in water, sediment and fish species in the

Bontanga reservoir, Ghana. *Toxicology and Environmental Health Sciences*,

10(1), 49-58. <https://doi.org/10.1007/s13530-018-0346-4>

Atmawati, S. N. (2012, Dec 04). *Perbedaan keanekaragaman zooplankton di daerah sekitar keramba dan sekitar warung apung Rawa Jombor hubungannya dengan kualitas perairan*. Universitas Negeri Yogyakarta.

Retrieved June 7, 2021, from <https://eprints.uny.ac.id/8183/>

Barboza, L. G. A., Lopes, C., Oliveira, P., Bessa, F., Otero, V., Henriques, B.,

Raimundo, J., Caetano, M., Vale, C., & Guilhermino, L. (2020).

Microplastics in wild fish from North East Atlantic Ocean and its potential for causing neurotoxic effects, lipid oxidative damage, and human health risks associated with ingestion exposure. *Science of the Total Environment*,

717, 134625. <https://doi.org/10.1016/j.scitotenv.2019.134625>

Beiras, R., Bellas, J., Cachot, J., Cormier, B., Cousin, X., Engwall, M.,

Gambardella, C., Garaventa, F., Keiter, S., Le Bihanic, F., Lopez-Ibanez, S.,

Piazza, V., Rial, D., Tato, T., & Vidal-Linan, L. (2018). Ingestion and

contact with polyethylene microplastics does not cause acute toxicity on marine zooplankton. *Journal of Hazardous Materials*, 360, 452-460.

<https://doi.org/10.1016/j.jhazmat.2018.07.101>

Botterel, L. R., Beaumont, N., Dorrington, T., Steinke, M., Thompson, R. C., &

Lindeque, P. K. L. (2019). Bioavailability and effects of microplastics on marine zooplankton: a review. *Environ. Pollut.*, 245, 98-110.

<https://doi.org/10.1016/j.envpol.2018.10.065>

BPS-Statistics of Klaten Regency. (2021). Kabupaten Klaten dalam angka 2021.

BPS. Retrieved July 18, 2021, from

<https://klatenkab.bps.go.id/publication/2021/02/26/add915bd6dfac08aa4f8354/kabupaten-klaten-dalam-angka-2021.html>

Cole, M., Lindeque, P., Fileman, E., Halsband, C., & Galloway, T. S. (2015). The impact of polystyrene microplastics on feeding, function and fecundity in the marine copepod *Calanus helgolandicus*. *Environ. Sci. Technol.*, 49, 1130–1137. <https://doi.org/10.1021/es504525u>

Cole, M., Lindeque, P., Fileman, E., Halsband, C., Goodhead, R., Moger, J., & Galloway, T. S. (2013). Microplastic ingestion by zooplankton. *Environ. Sci. Technol.*, 47, 6646–6655. <https://doi.org/10.1021/es400663f>

Coppock, R. L., Galloway, T. S., Cole, M., Fileman, E. S., Queirós, A. M., & Lindeque, P. K. (2019). Microplastics alter feeding selectivity and faecal density in the copepod, *Calanus helgolandicus*. *Sci. Total Environ.*, 687, 780–789. <https://doi.org/10.1016/j.scitotenv.2019.06.009>

Costa, E., Piazza, V., Lavorano, S., Faimali, M., Garaventa, F., & Gambardella, C. (2020). Trophic transfer of microplastics from copepods to jellyfish in the marine environment. *Front. Environ. Sci.*, 8, 5711732. <https://doi.org/10.3389/fenvs.2020.571732>

Cox, K., Conventon, G., Davies, H., Dower, J., Juanes, F., & Dudas, S. (2019). Human consumption of microplastics. *Environ. Sci. Technol.*, 53, 7068–7074. <https://doi.org/10.1021/acs.est.9b01517>

de Sa, L. C., Luis, L. G., & Guilhermino, L. (2015). Effects of microplastics on juveniles of the common goby (*Pomatoschistus microps*): Confusion with prey, reduction of the predatory performance and efficiency, and possible influence of developmental conditions. *Environ. Pollut.*, 196, 359-362.

<https://doi.org/10.1016/j.envpol.2014.10.026>

Di, M., & Wang, J. (2018). Microplastics in surface waters and sediments of the Three Gorges Reservoir, China. *Science of the Total Environment*, 616-617, 1620-1627. <https://doi.org/10.1016/j.scitotenv.2017.10.150>

El-Gendy, K. S., Gad, A. F., & Radwan, M. A. (2021). Physiological and behavioral responses of land molluscs as biomarkers for pollution impact assessment: a review. *Environmental Research*, 110558.

<https://doi.org/10.1016/j.envres.2020.110558>

EPA. (2014). *Priority pollutant list. 40 CFR Part 423, Appendix A. EPA.*

Retrieved June 27, 2021, from

<https://www.epa.gov/sites/production/files/2015-09/documents/priority-pollutant-list-epa.pdf>

Eriksen, M., Mason, S., Wilson, S., Box, C., Zellers, A., Edwards, W., Farley, H., & Amato, S. (2013). Microplastic pollution in the surface waters of the Laurentian Great Lakes. *Mar. Pollut. Bull.*, 77(1-2), 177-182.

<https://doi.org/10.1016/j.marpolbul.2013.10.007>

FAO/WHO. (1984). *List of Maximum Levels Recommended for Contaminants by the Joint FAO/WHO Codex Alimentarius Commission. 2nd Edition.*

FAO/WHO.

Firmansyah, F., Oktavilia, S., Prayogi, R., & Abdulah, R. (2019). Indonesian fish consumption: an analysis of dynamic panel regression model. *IOP Conf. Series: Earth and Environmental Science*, 246, 012005.

<https://doi.org/10.1088/1755-1315/246/1/012005>

Fischer, E. K., Paglialonga, L., Czech, E., & Tamminga, M. (2016). Microplastic pollution in lakes and lake shoreline sediments - a case study on Lake Bolsena and Lake Chiusi (Central Italy). *Environ. Pollut.*, 213, 648-657.

<https://doi.org/10.1016/j.envpol.2016.03.012>

Fotopoulou, K. N., & Karapanagioti, H. K. (2012). Surface properties of beached plastic pellets. *Mar. Environ. Res.*, 81, 70-77.

<https://doi.org/10.1016/j.marenvres.2012.08.010>

GESAMP. (2015). *Sources, fate and effects of microplastics in the marine environment: a global assessment*. International Maritime Organization.

Godoy, V., Blazquez, G., Calero, M., Quesada, L., & Martin-Lara, M. (2019). The potential of microplastics as carriers of metals. *Environ. Pollut.*, 255,

113363. <https://doi.org/10.1016/j.envpol.2019.113363>

Hidalgo-Ruz, V., Guttow, L., Thompson, R. C., & Thiel, M. (2012). Microplastics in the marine environment: a review of the methods used for identification and quantification. *Environ. Sci. Technol.*, 46, 3060-3075.

<https://doi.org/10.1021/es2031505>

Holmes, L. A., Turner, A., & Thompson, R. C. (2012). Adsorption of trace metals to plastic resin pellets in the marine environment. *Environ. Pollut.*, 160, 42-

48. <https://doi.org/10.1016/j.envpol.2011.08.052>

Indonesian Government Regulation Number 22 Year 2021. (2021).

Penyelenggaraan perlindungan dan pengelolaan lingkungan hidup.

Retrieved July 11, 2021, from

<https://peraturan.bpk.go.id/Home/Details/161852/pp-no-22-tahun-2021>

Indrayani, E. & Hadisusanto, S. (2008). *Biomassa zoobentos, kandungan nutrisi sedimen dan kualitas air berdasarkan zonasi di Rawa Jombor, Kabupaten Klaten, Jawa Tengah*. Universitas Gadjah Mada. Retrieved June 12, 2021, from http://etd.repository.ugm.ac.id/home/detail_pencarian/38486

Irfan, T., Khalid, S., Taneez, M., & Hashmi, M. Z. (2020). Plastic driven pollution in Pakistan: the first evidence of environmental exposure to microplastic in sediments and water of Rawal Lake. *Environ. Sci. Pollut. Res.*, 27(13), 15083-15092. <https://doi.org/10.1007/s11356-020-07833-1>

Jung, M. R., Horgen, F. D., Orski, S. V., Rodriguez, V., Beers, K. L., Balazs, G. H., Jones, T. T., Work, T. M., Brignac, K. C., Royer, S., Hyrenbach, K. D., Jensen, B. A., & Lynch, J. M. (2018). Validation of ATR FT-IR to identify polymers of plastic marine debris including those ingested by marine organisms. *Mar. Pollut. Bull.*, 127, 704-716. <https://doi.org/10.1016/j.marpolbul.2017.12.061>

Khan, S., Cao, Q., Zheng, Y. M., Huang, Y. Z., & Zhu, Y. G. Health risks of heavy metals in contaminated soils and food crops irrigated with wastewater in Beijing, China. *Environ. Pollut.*, 152, 686-692. <https://doi.org/10.1016/j.envpol.2007.06.056>

Kusumaningtyas, F. (2015). *Kandungan logam berat kadmium (Cd) pada ikan nila (Oreochromis niloticus), air, dan sedimen serta kualitas air di Rowo Jember, Klaten*. Universitas Negeri Sebelas Maret. Retrieved June 22, 2021, from <https://digilib.uns.ac.id/dokumen/detail/43139/Kandungan-Logam-Berat-Kadmium-Cd-Pada-Ikan-Nila-Oreochromis-niloticus-Air-dan-Sedimen-Serta-Kualitas-Air-di-Rowo-Jember-Klaten>

Lin, L., Pan, X., Zhang, S., Li, D., Zhai, W., Wang, Z., Tao, J., Mi, C., Li, Q., & Crittenden, J. C. (2020). Distribution and source of microplastics in China's second largest reservoir - Danjiangkou Reservoir. *Journal of Environmental Sciences*, 102, 74-84. <https://doi.org/10.1016/j.jes.2020.09.018>

Luis, L. G., Ferreira, L., Fonte, E., Oliveira, M., & Gulhermino, L. (2015). Does the presence of microplastics influence the acute toxicity of chromium(VI) to early juveniles of the common goby (*Pomatoschistus microps*)? a study with juveniles from two wild estuarine populations. *Aquatic Toxicology*, 164, 163-174. <https://doi.org/10.1016/j.aquatox.2015.04.018>

Martinez-Tavera, E., Duarte-Moro, A. M., Sujitha, S. B., Rodrihuez-Espinosa, P. F., Rosano-Ortega, G., & Exposito, N. (2020). Microplastics and metal burdens in freshwater Tilapia (*Oreochromis niloticus*) of a metropolitan reservoir in Central Mexico: potential threats for human health. *Chemosphere*, 266, 128968. <https://doi.org/10.1016/j.chemosphere.2020.128968>

- McNeish, R., Kim, L., Barrett, H., Mason, S., Kelly, J., and Hoellein, T. (2018).
Microplastic in riverine fish is connected to species traits. *Scientific Reports*,
8, 11639. <https://doi.org/10.1038/s41598-018-29980-9>
- Munier, B. & Bendell, L. I. (2018). Macro and micro plastics sorb and desorb
metals and act as a point source of trace metals to coastal ecosystems. *PLoS
ONE*, 13(2), e0191759. <https://doi.org/10.1371/journal.pone.0191759>
- Naqash, N., Prakash, S., Kapoor, D., & Singh, R. (2020). Interaction of freshwater
microplastics with biota and heavy metals: a review. *Environmental
Chemistry Letters*, 18, 1813–1824. <https://doi.org/10.1007/s10311-020-01044-3>
- NCD Risk Factor Collaboration (NCD-RisC). (2020). Height and body-mass
index trajectories of school-aged children and adolescents from 1985 to
2019 in 200 countries and territories: a pooled analysis of 2181 population-
based studies with 65 million participants. *Lancet*, 396, 1511-1524.
[https://doi.org/10.1016/S0140-6736\(20\)31859-6](https://doi.org/10.1016/S0140-6736(20)31859-6)
- Ng, T. H., Tan, S. K., & Low, M. E. Y. (2014). Singapore mollusca: 7. the family
ampullariidae (Gastropoda: Caenofastropoda: Ampullarioidea). *Nature in
Singapore*, 7, 31-47.
- Norfaronni, R. M. & Sardiyatmo, S. (2014). Pengaruh perbedaan transparansi
bubu dan umpan terhadap hasil tangkapan ikan wader (*Rasbora
agyrotaenia*) di Rawa Jombor, Kabupaten Klaten. *Journal of Fisheries
Resources Utilization Management and Technology*, 3(4), 111-119.

- Ramadan, A. H. & Sembiring, E. 2020. Occurrence of microplastics in surface water of Jatiluhur reservoir. *E3S Web of Conferences*, 148, 07004.
<https://doi.org/10.1051/e3sconf/202014807004>
- Riede, K. (2004). *Global register of migratory species - from global to regional scales. Final Report of the R&D-Projekt 808 05 081*. Federal Agency for Nature Conservation.
- Rina, T. R., Purnama, I. L. S., & Nugroho, A. P. (2020). *Pencemaran lingkungan perairan dan strategi pengelolaan untuk budidaya keramba jaring dan warung apung Rawa Jombor, Klaten, Jawa Tengah*. Universitas Gadjah Mada. Retrieved June 24, 2021, from
<http://etd.repository.ugm.ac.id/penelitian/detail/186971>
- Roch, S., Friedrich, C., & Brinker, A. (2020). Uptake routes of microplastics in fishes: practical and theoretical approaches to test existing theories. *Scientific Reports*, 10, 3896. <https://doi.org/10.1038/s41598-020-60630-1>
- Rochman, C. M., Hentschel, B. T., & Tes, S. J. (2014). Long-term sorption of metals is similar among plastic types: implications for plastic debris in aquatic environments. *PLoS ONE*, 9(1), e85433.
<https://doi.org/10.1371/journal.pone.0085433>
- Salam, M. A., Paul, S. C., Zain, R. A. M. M., Bhowmik, S., Nath, M. R., Siddiqua, S. A., Aka, T. D., Iqbal, M. A., Kadir, W. R., Ahamad, R. B., Kaleque, M. A., Rak, A. E., & Amin, M. F. M. (2020). Trace metals contamination potential and health risk assessment of commonly consumed

fish of Perak River, Malaysia. *PLoS ONE*, 15(10), e0241320.

<https://doi.org/10.1371/journal.pone.0241320>

Sul, J. A. I. D. & Costa, F. (2014). The present and future of microplastic pollution in the marine environment. *Environ. Pollut.*, 185, 352-364.

<http://dx.doi.org/10.1016/j.envpol.2013.10.036>

Sun, C., Ding, J., & Gao, F. (2021). Chapter Two: methods for microplastic sampling and analysis in the seawater and fresh water environment. In G. Weber, U. T. Bornsheuer, and R. Wei, *Enzymatic Plastic Degradation*. (pp. 27-45). Academic Press.

Suseno, P. (2020, August 27). *Jijik! Rawa Jombor Klaten banyak pengunjung tapi juga banyak sampah*. Retrieved April 7, 2021, from

<https://www.solopos.com/jijik-rawa-jombor-klaten-banyak-pengunjung-tapi-juga-banyak-sampah-1077912>

Turner, A. & Holmes, L. (2015). Adsorption of trace metals by microplastic pellets in fresh water. *Environ. Chem.*, 12(5), 600-610.

<https://doi.org/10.1071/EN14143>

US EPA. (2015). *US EPA Integrated Risk Information System (IRIS)*. Retrieved

July 20, 2021, from <https://www.epa.gov/iris>

Wagner, M. & Lambert, S. (2018). *Freshwater microplastics emerging environmental contaminants?*. Springer.

Wang, J., Peng, J., Tan, Z., Gao, Y., Zhan, Z., Chen, Q., & Cai, L. (2017).

Microplastics in the surface sediments from the Beijiang River Litoral zone: composition, concentration, surface textures and interaction with heavy

metals. *Chemosphere*, 171, 248-258.

<https://doi.org/10.1016/j.chemosphere.2016.12.074>

Wu, J., Jiang, Z., Liu, Y., Zhao, X., Liang, Y., Lu, W., & Song, J. (2021).

Microplastic contamination assessment in water and economic fishes in
different trophic guilds from an urban water supply reservoir after flooding.

Journal of Environmental Management, 299, 113667.

<https://doi.org/10.1016/j.jenvman.2021.113667>

Zhao, S., Zhu, L., & Li, D. (2015). Microplastic in three urban estuaries, China.

Environ. Pollut., 206, 597-604.

<http://dx.doi.org/10.1016/j.envpol.2015.08.027>