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Analysis of Microplastic Pollution in Kawakawa Fish (Euthynnus affinis) in the Waters of Peninsular Malaysia

[Analisis Pencemaran Mikroplastik dalam Ikan Tongkol (Euthynnus affinis) di Perairan Semenanjung Malaysia]

Sining, Sinoretha[a]; Arba'In, Adlin I.[a]; Amizuri, Maisarah I.[a]; Lazim, Azwan Mat[b]; Miskon, Fuad M.[c]; Faudzi, Fikriah[d]; Ghaffar, Mazlan A.B.D.[e, f]; Musa, Syafiq M.[a, g]

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[a] Marine Science Programme, Department of Earth Sciences and Environment, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, UKM Bangi, Selangor, 43600, Malaysia

[b] Department of Chemical Sciences, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, UKM Bangi, Selangor, 43600, Malaysia

[c] Institute of Oceanography and Maritime Studies, International Islamic University Malaysia (Kuantan Campus), Pahang, Kuantan, 25200, Malaysia

[d] Department of Marine Science, International Islamic University Malaysia (Kuantan Campus), Pahang, Kuantan, 25200, Malaysia

[e] Faculty of Science and Marine Environment, Universiti Malaysia Terengganu, Kuala Terengganu, Terengganu, 21030, Malaysia

[f] UMT-OUC Joint Academic Center for Marine Studies, Institute of Climate Adaptation and Marine Biotechnology (ICAMB), Universiti Malaysia Terengganu, Kuala Terengganu, Terengganu, 21030, Malaysia

[g] Marine Ecosystem Research Center (EKOMAR), Faculty of Science and Technology, Universiti Kebangsaan Malaysia, UKM Bangi, Selangor, 43600, Malaysia

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Abstract

Microplastic pollution in the marine environment has reached increasingly alarming levels globally. Research on microplastic contamination in marine organisms remains limited in Malaysia, particularly for species that are also consumed as seafood and are staple dishes, such as the kawakawa fish (Euthynnus affinis). This study extracted a total of 207 organs from 69 kawakawa fish, with three organs (i.e., gastrointestinal tract, gills, and skin) taken from each fish sampled from four major fish landing sites in Malaysia: Kuala Terengganu, Terengganu; Kuantan, Pahang; Mersing, Johor; and Kuala Selangor, Selangor. The results showed that the skin of the kawakawa fish had the highest microplastic content (1.52 ± 0.91 microplastics per gram) compared to the gill and gastrointestinal tract organs. The predominant type of microplastic identified was fiber (89.95%), followed by fragments (10.05%). The most frequently detected colors of microplastics were black (61.58%) and blue (21.39%). Microplastics in the size range of 0.01-1.00 mm were the most commonly found. There was a positive correlation between the abundance of microplastics and the body size of the fish, indicating that microplastic content in kawakawa fish increases with age and body size. The data from this study found microplastics in all the organs of the kawakawa fish examined, therefore, it is recommended that the outer skin of kawakawa fish be thoroughly cleaned, and internal organs such as the gills and gastrointestinal tract be gutted before being used in any food preparation to reduce the risk of microplastic ingestion by humans through the consumption of this fish.

Author keywords

Commercial fish; kawakawa fish; marine pollution; microplastic

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