

Assessing the Role of Fish Ecology in Pollutant Exposure: Investigating Microplastic Presence in Commercially Sold Fish from Laguna De Bay and its Connection with Fish Feeding Habits

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ABSTRACT

Plastic pollution continuously degrades our aquatic ecosystem and public health due to the local “sachet economy”. Plastics disintegrate into smaller pieces called microplastics (MP), which consistently pose extreme environmental risk due to their prevalence, especially in freshwater bodies that act as catchment basins. Laguna de Bay, the largest lake in the country, is ecologically and economically important, providing resources and supplying fish commodities in Metro Manila. It houses various species, including mollusks, birds, and fish. Fish are mobile organisms dwelling in pelagic to benthic areas, and have diverse feeding habits including being omnivores, carnivores, herbivores, and detritivores; most are opportunistic, feeding on what is abundant and available in their environment. Having various dwelling and feeding habits, fish become highly vulnerable to pollutant exposure, absorbing and digesting pollutants from different parts of the water. Provided that, the study aims to understand how the feeding habits of commercially available fish from Laguna de Bay affect their microplastic uptake by identifying the abundance and characteristics of MPs and evaluating which fish species and which organs are the most vulnerable to pollutant exposure. This would be done by procuring fish from local piers and markets, and the flesh, gills, and gastrointestinal tract would be dissected; then microplastics would be isolated to be visualized for identification. Results could possibly contribute significantly to understanding which fish species are at high risk of pollutant exposure and the risks it poses in the food web due to bioaccumulation, providing more baseline knowledge for freshwater waste management.