

Bioavailability of Microplastics in the Marine Environment surrounding K. Thilafushi

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Abstract

Microplastics from Thilafushi enter the marine environment and accumulate in fish, leading to bioaccumulation and potential human health risks. This study found cotton, polyester, and polyolefin as the most common polymers, emphasizing the urgent need for improved waste management in the Maldives.

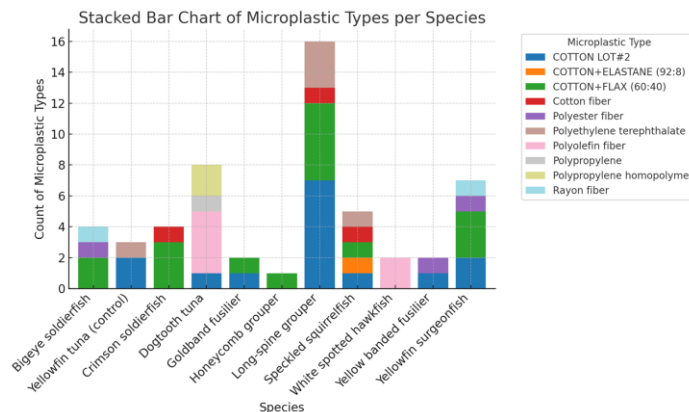
Background

- Thilafushi is Maldives' main landfill → large amounts of plastic waste.
- Microplastics are generated via **incineration, UV degradation, and mechanical stress**.
- These particles enter the marine environment → accumulate in fish consumed locally.
- Major concern: **biomagnification up the food chain** and impacts on human health.



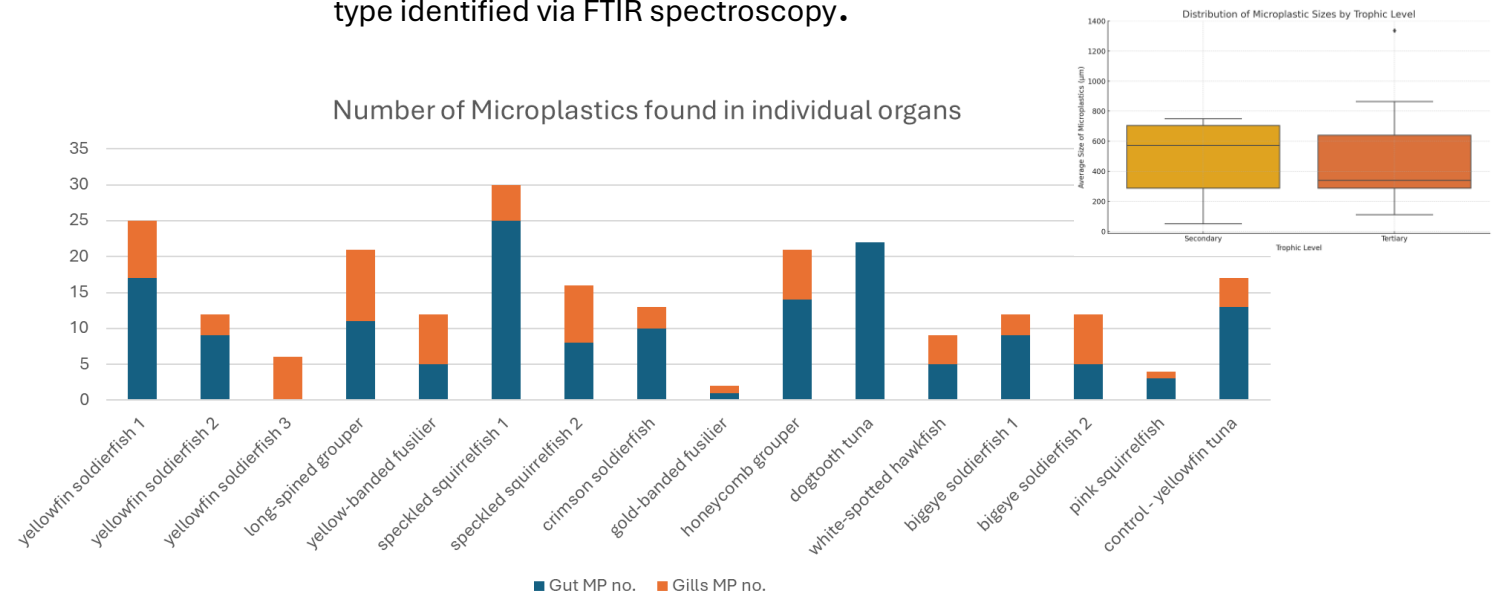
Key Findings

Most common microplastics: Cotton Polyester Polyolefin



Methods

Fish organs dissected and digested (30% KOH:NaClO).Density separation (1.5 g/ml NaCl solution).Residues filtered and observed under microscope. Polymer type identified via FTIR spectroscopy.



Sources

Clothing, bags, ropes, furnishings.
Packaging, plastic bags, pipes, vehicle parts.

References

Fossi et al. (2020). Impact of Microplastics on Filter-Feeding Megafauna.Yee et al. (2021). Impact of Microplastics and Nanoplastics on Human Health.

Conclusion

Clear biomagnification trend detected. Microplastic contamination in fish → potential health risks to humans. Urgent need for better waste management strategies.

