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# POLICY BRIEF

## Implications of microplastic pollutants on tuna fisheries in the Pacific Islands region

### Purpose

This policy brief provides an overview of the source of microplastic pollutants and their potential impact on pelagic fisheries in the Pacific.

### Key messages

- Microplastics are tiny (<5 mm) pieces of plastic that result from the disposal and breakdown of larger plastic items.
- Microplastics are highly durable and persistent in the marine environment.
- Microplastics originate from a range of sources, over 1.5 million tonnes of microplastics enter our oceans annually, however only 2% is estimated to come from activities at sea. Household and industrial abrasives are the some of largest sources of microplastics.
- Microplastics can be ingested by fish, including commercially important fish, and their long-term impacts, including on human health from consumption, are still being researched.
- A range of international initiatives are underway to combat marine pollution, and there is increasing momentum to adopt a legally binding plastics treaty.
- The importance of the tuna industry to the economies of the Pacific region and for current and future food security necessitates the need for an increased understanding of the prevalence of microplastics in Pacific tuna and its synergies with other pollutants and their combined impact on the region's food systems.
- The development of a set of standards for "safe" levels of microplastics in food are needed.



## Significance of pelagic fisheries in the Pacific Islands region

Pelagic fisheries in the western and central Pacific Ocean (WCPO) make important contributions to economic development, employment and food security of the Pacific community. The tuna industry makes extraordinary contributions to the government revenues of many Pacific Island Countries and Territories (PICTs), and employs over 20,000 people across the region.

With growing human populations and declines in the availability of reef fish, it is estimated that by 2035, 25% of all fish required to ensure food security for Pacific Island peoples will need to be supplied by pelagic species.

### What is the issue?

In 2017, the United Nations determined that anywhere from around 5 to 13 million tonnes of plastic are dumped into the ocean annually. This amount increases every year by 4–5 percent, and is expected to reach 33 billion tonnes by 2050.

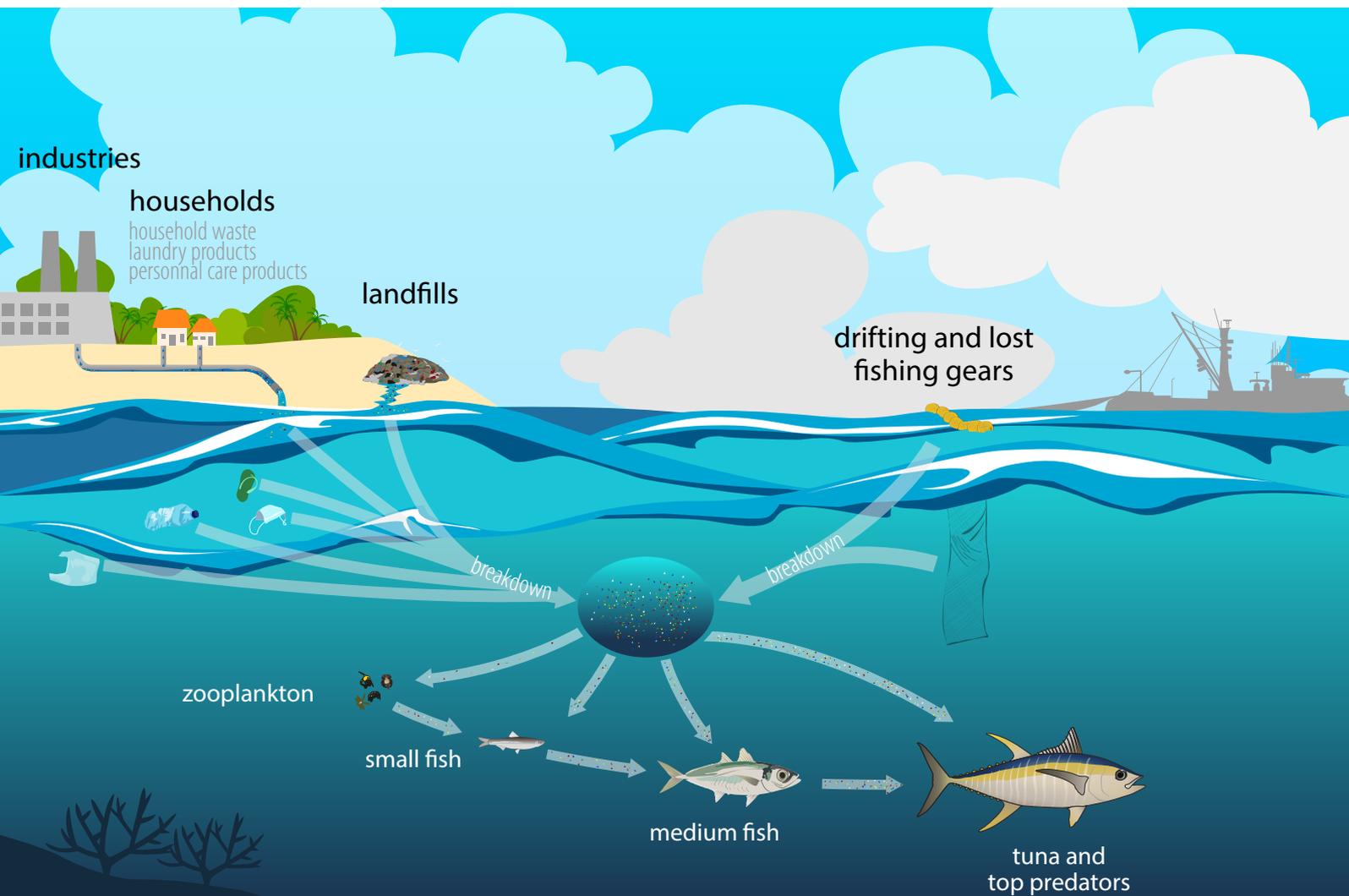
Over 1.5 million tonnes of primary microplastics are released into the ocean annually, and of this, only 2% is estimated to come from activities at sea. Sources of microplastics include cosmetics, personal care products, household waste, laundry products, and industrial abrasives. They are also generated

from the degradation and weathering of fishing gear, plastic cages, floats and buoys, shipping litter, seafood packaging, household and industrial waste, plastic bags, food containers and tyres. Even if the discharge of microplastics into the sea was stopped, the ongoing degradation of larger litter would result in a sustained increase in microplastics.

### How do microplastic pollutants impact Pacific fisheries?

A United Nations (FAO) assessment found that the number of marine fish species that are known to have ingested plastic has quadrupled in the last four decades. This could be because there are more microplastics in the ocean, or because scientific sampling and detection methods have improved, or both.

Microplastics can also be ingested by other marine biota, including corals, plankton, sea birds, sea turtles and marine mammals that mistake plastic for plankton or other prey. The United Nations has documented over 800 species contaminated with plastic, via ingestion or entanglement, and 220 of these species, including commercially important fish and invertebrates, were found to have ingested microplastics. This has flow-on effects throughout the food chain; predatory fishes such as sharks, groupers and tunas are more likely to ingest plastic; thus, species higher on the food chain are at greater risk.



Plastics and microplastics end up in the sea and enter the marine food web

The health benefits of consuming fish are well-known, and so the development of a set of standards for “safe” levels of microplastics in food are needed. International scientific committees such as the Joint Food and Agriculture Organization of the United Nations/World Health Organization Expert Committee on Food Additives have not evaluated the food safety concern posed by microplastics.

## Policy considerations

### **Domestic**

A range of policy responses can assist in preventing the distribution of microplastics.

- Comprehensive legislation to prevent microplastics from entering the marine environment
- Banning the sale of microbeads in cosmetic and personal care products
- Improved waste disposal
- Encouraging sustainability-focused supply chains
- Working with industry to design innovative commercial solutions
- Advocating for research to both reduce the distribution of plastic into the marine environment, and to further understand its distribution and impacts on the food web
- Monitoring and quantifying microplastics included in food safety management systems

### **International**

Microplastic pollutants are attracting international attention. Governments are tackling the issue of marine plastics and marine pollution through a variety of forums and instruments. While there are a number of relevant initiatives, these are not always harmonised or well-coordinated. A non-exhaustive list of them is provided at the end of this policy brief.

The International Convention for the Prevention of Marine Pollution from Ships, 1973 (MARPOL 73/78), and its revised Annex V, is the primary instrument for regulating marine pollution discharged from ships. This treaty, however, does not address all sources of pollution that wind up in the ocean.

Because fisheries are only a very small contributor to microplastics found in the ocean, and because sources of them are so varied, this issue cannot be solved through fisheries forums alone. There are international initiatives on the horizon that may contribute to minimising the impact of microplastics on fishery resources in the Pacific.

For example, there is increasing momentum to establish a new, legally binding plastics treaty. The United Nations Environment Programme’s Ad-Hoc Open-Ended Expert Group on Marine Litter and Microplastics considered the idea in 2020, which is backed by many governments. The Expert Group also identified other international responses, including the role of regional fisheries bodies and the Code of Conduct for Responsible Fisheries as a regional legal policy response.

Pacific Island countries have an opportunity to ensure that fisheries considerations are integrated into future action plans, declarations, or legally binding instruments. They also have an opportunity to strengthen the implementation of the Western and Central Pacific Fisheries Commission’s conservation and management measure on marine pollution (CMM 2017/04 in order to prevent larger plastic items (e.g. fishing gear, water and soda bottles, bags or polyester fibres) from fragmenting and becoming secondary microplastics. This could be done by:

- exploring implementation challenges in the WCPFC;
- seeking assistance from the International Maritime Organization to address technical implementation challenges, particularly for Pacific Island countries that have not yet ratified MARPOL 73/78 Annex V but want to do so;
- encouraging WCPFC members to provide adequate port reception facilities; and
- advocating for training and awareness programmes, as called for in the CMM.

Implementation of CMM 2017/04 is specifically identified as an action in the Secretariat of the Pacific Regional Environment Programme’s “Pacific Regional Action Plan on Marine Litter 2018–2025”.

## Next steps

Managing microplastics is a global challenge and the Pacific would benefit from seeking greater international cohesion between policy instruments and action-focused plans for addressing this issue.

At a technical level, increased sampling for plastic ingestion in marine biota and humans could assist in identifying linkages between microplastics and long-term, population-level impacts, impacts on the food web, and socioeconomic impacts on Pacific Island communities. Further research is critical, given the evidence that suggests microplastics will persist in the marine environment far into the future.



Secondary microplastics derived from large plastic items break-down.

## Non-exhaustive list of marine plastic legal instruments

- 2010: Convention on Biological Diversity (CBD) adopts the Aichi Biodiversity Target 8, which calls for the reduction of pollution to levels that are not detrimental to ecosystem function and biodiversity.
- 2011: The United Nations Environment Programme (UNEP) declared plastic marine debris and its ability to transport toxic substances as one of the main emerging issues in our global environment.
- 2011: UNEP adopted the Honolulu Strategy, a framework for a comprehensive and global effort to reduce the ecological, human health, and economic impacts of marine debris.
- 2012: CBD report released on the “Impacts of marine debris on biodiversity: Current status and potential solutions”.
- 2012: The Global Programme of Action for the Protection of the Marine Environment from Land-based Activities adopted the Manila Declaration, which recognises that marine litter is a global problem that directly threatens coastal and marine habitats and species, economic growth, human health and safety, and that a significant portion originates from land-based activities.
- 2014: United Nations Environment Assembly adopted a resolution on marine plastic debris and microplastics that encourages governments to take comprehensive action to address marine plastic debris.
- 2015: Sustainable Development Goal 14 on ocean, seas and marine resources commits to preventing and significantly reducing marine pollution of all kinds by 2025.
- 2015: G7 countries adopted the Action Plan to Combat Marine Litter. The action plan acknowledges the role of the private sector, innovators and entrepreneurs in developing alternatives and solutions for minimising marine litter.
- 2016: United Nations Environment Assembly adopted a resolution on oceans and seas and on marine litter and microplastics.
- 2016: “Stop Plastic Waste” campaign – launched at the United Nations Framework Convention on Climate Change – aimed at promoting the reduction of plastic waste pollution of the oceans.
- 2016: Convention on Biological Diversity Decision XIII/10, addressed the impacts of marine debris and anthropogenic underwater noise on marine and coastal biodiversity.
- 2017: Western and Central Pacific Fisheries Commission adopted a conservation and management measure on marine pollution.
- 2018: G7 adopted an Ocean Plastics Charter that emphasises the need to work with small island states.
- 2018: G20 adopted the G20 Action Plan on Marine Litter.
- 2018: The Secretariat of the Pacific regional Environment Programme approved the Pacific Regional Action Plan on Marine Litter 2018–2025.

## Further reading

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Cover picture: Landfill site in Majuro, Marshall Islands.  
Photo: Alice Leyney.

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