

Towards a better understanding of plastics and microplastics in the ocean and sea-based sources of marine litter

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GESAMP – Joint Group of Experts on Scientific Aspects of Marine Environmental Protection
(GESAMP Chair 2013 – 2019)

GESAMP Working Groups:

- WG40 - Sources, fate & effects of marine plastics and microplastics (co-led IOC & UNEP, plus partners), 2012 -
- WG43 – Sea-based sources of marine litter (co-led FAO & IMO, with UNEP & partners), 2019 -

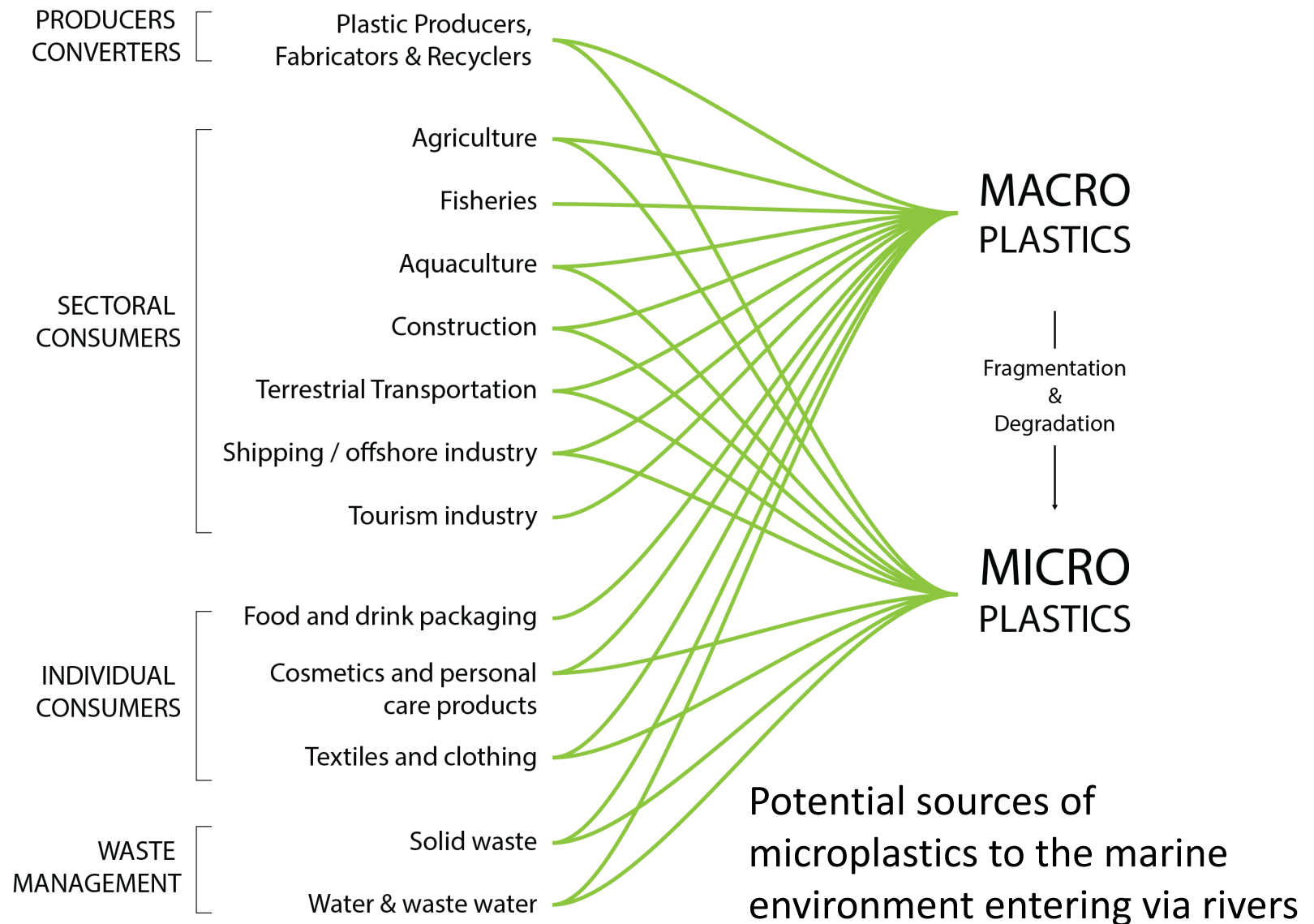
WG40: history and works programme

- 2008 –microplastics as an emerging issue
- 2010 – International Conference on microplastics as a vector for chemicals
- 2012 – WG40 initiated
- 2015 - Global assessment of microplastics
- 2016 – Global assessment of microplastics: Part Two, and contribution to report to UNEA -2
- 2019 – Guidelines for the monitoring & assessment of plastic litter & microplastics
- 2019 – International Conference on risk assessment of marine plastic litter and microplastics, June, Geneva
- 2019 – new phase: Risk assessment of marine litter and nano-/micro- plastics



www.gesamp.org/publications

GESAMP 2016 – Reports & Studies 93



Social, economic & environmental risks marine litter & microplastics

Exposure pathways:

- Ingestion
- Inhalation
- Entanglement
- Rafting
- Collision
- Encounter rate

Factors:

- Size & shape of particles
- Size & complexity of macro-litter
- Chemical composition
- Bio-films, including pathogens

Environmental endpoints:

- Individual organisms
- Populations
- Habitats
- Ecosystems

Societal endpoints:

- Human health
- Fisheries & aquaculture
- Coastal tourism
- Navigation



Microplastic in seafood

Striking the right balance:
benefits of seafood consumption vs.
potential risk from microplastics

Public perception
& risk
communication is
key

Application of Codex Alimentarius – Food code
(WHO/FAO)

Contaminants in seafood:

- Risk assessment
- Risk management
- Risk communication



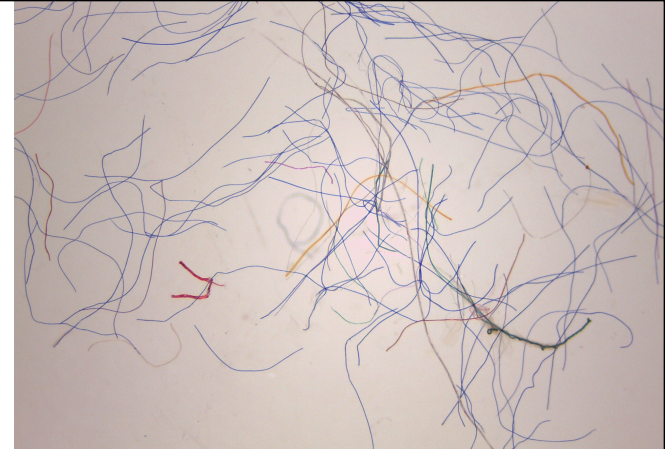
<http://www.fao.org/fao-who-codexalimentarius/en/>

Size, morphology & chemistry of microplastics



(GESAMP 2016, 2019)

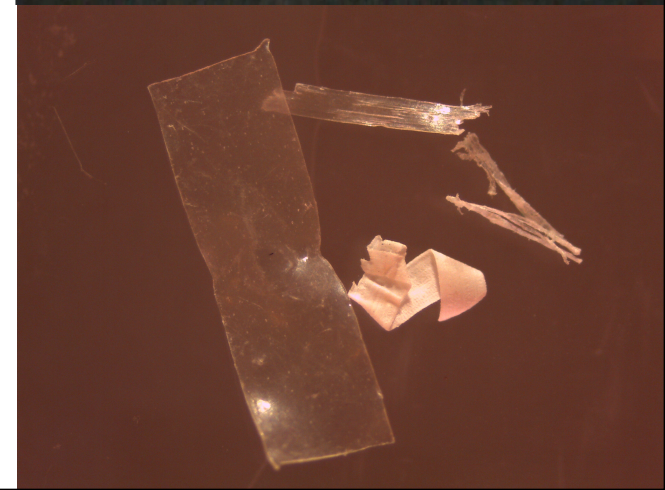
Fibres



Pellets



Films



Impacts of macro-plastic – examples of policy concerns

Sectors

- Shipping & coastal industries
- Fisheries & aquaculture
- Biodiversity, habitats & animal welfare

Policy concerns – fisheries & aquaculture

- Depletion of commercial species by ghost fishing entanglement
 - Indirect loss of income
 - Decrease in food security
- Direct loss of income
 - Damage to fishing gear
 - Contaminated catch
 - Lost fishing time caused by navigation hazards



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Beach seine fishery, Ghana

GESAMP WG43: sea-based sources of marine litter

Rationale:

- ‘80% litter from land’ – tendency to ignore sea-based contribution
- ALDFG has a disproportionately higher socio-ecological impact
- MEPC 73 - adopted IMO Action Plan to address marine plastic litter from ships
- MEPC 73 – requested IMO, in cooperation with FAO, to form a GESAMP WG
- FAO –requested by Member States to address fisheries- & aquaculture-related litter
- WG43 will report to MEPC, COFI, LC/LP

ALDFG – Abandoned, Lost or otherwise Discarded Fishing Gear

MEPC - Marine Environment Protection Committee

COFI – Committee on Fisheries; LC/LP – London Convention & Protocol

GESAMP WG43: sea-based sources of marine litter

Terms of reference (simplified):

- Identify sources (shipping, fisheries/aquaculture, others)
- Estimate relative contribution
- Analyse production & use of plastics in fisheries/aquaculture & shipping sectors
- Assess data gaps identified from ToRs 1-3
- Identify ALDFG* hot spots
- Quantify impacts of ALDFG
- Identify options for intervention to reduce losses

Initial report – March 2020

*ALDFG – Abandoned, Lost or otherwise Discarded Fishing Gear



Thank you!

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