



# ECOTOXICOLOGICAL IMPACTS OF MICROPLASTICS ON MARINE ORGANISMS

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## Primary microplastics (MPs)

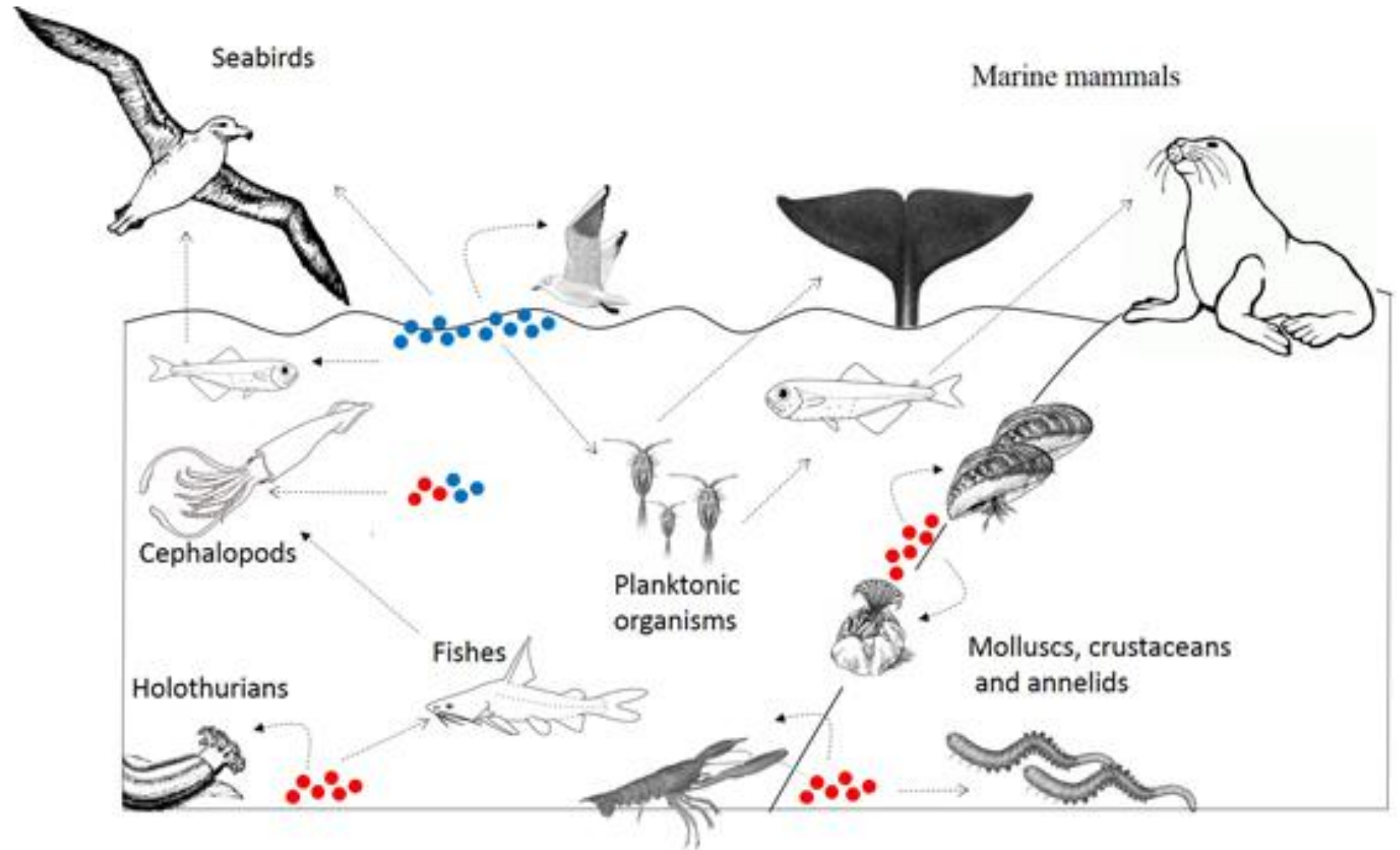
- Micro-size (< 5 mm) plastic particles/beads for consumer products

## Secondary MPs

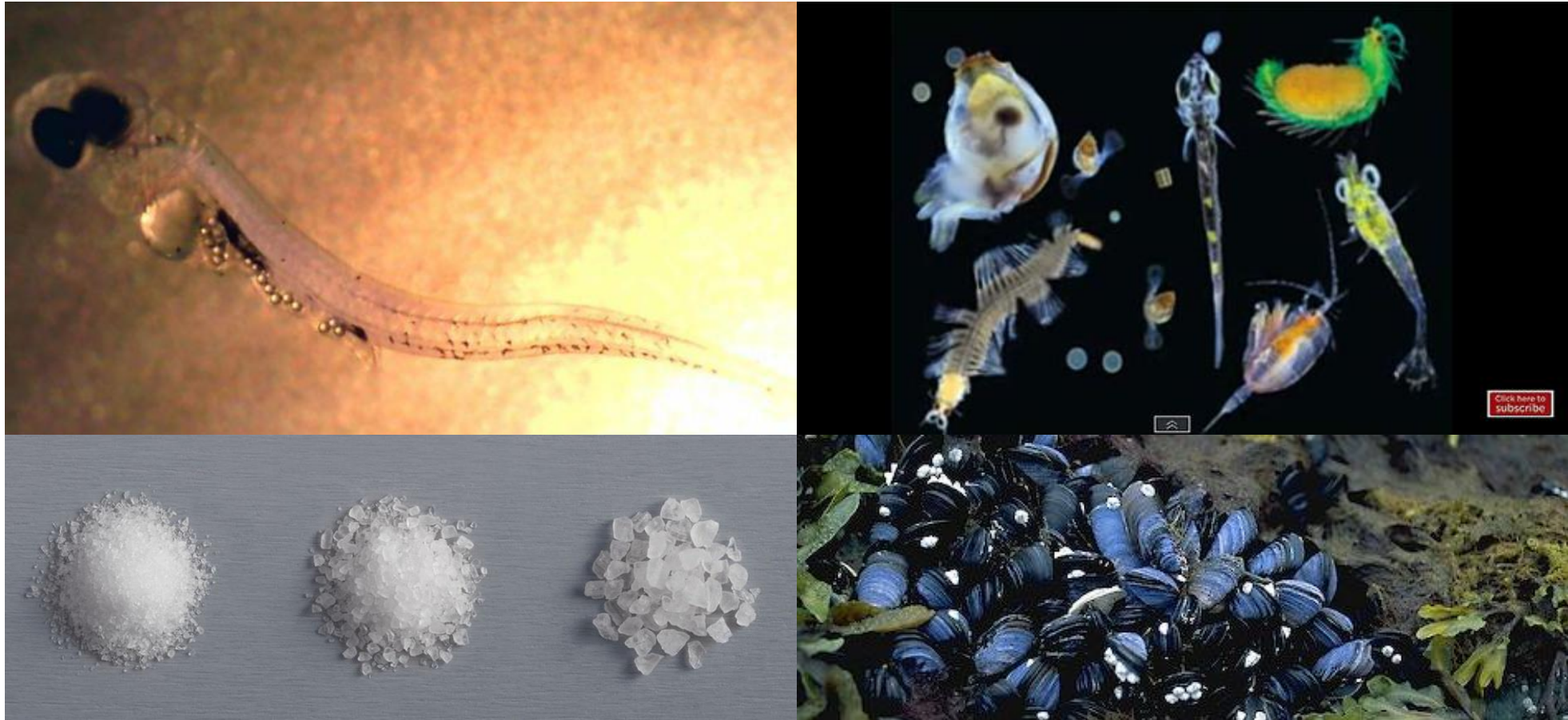
- Large plastic items not degradable, but fragment over time.
- Micro-fragments of standard plastic litter (e.g. bottles, fishing-nets, bags or textiles)



- MPs found in all marine habitats
- Uptake of MPs by various marine biota.
- MPs entering marine food webs
- May pass to larger organisms ending up in human food.



# Microplastic contamination



Wide range of marine species from most trophic levels  
Sediment & water column species

# Evidence of sublethal impacts.....



*Arenicola marina*



*Pomatoschistus microps*



*Daphnia magna*



*Lytechinus variegatus*



*Centropages typicus*

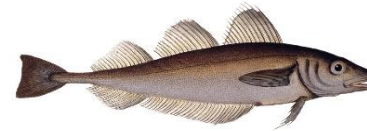
.....but relatively limited studies

# Impact studies relevant to the (sea)food industry

Water Column

Sediment

Ingestion studied in commercial fish species



Whiting



Indian mackerel



European hake



Pacific anchovy



Thickback sole



*Boops boops*



Mussels



Oysters

Egestion? Impacts?

Limited studies - Mostly shellfish

# Selected knowledge gaps

- Effects of MPs on aquatic species at different life stages (including food species)
- Evidence for MP impacts to populations, communities and ecosystems
- MP uptake, internalisation and potential for transfer to larger species

# Joint Programming Initiative: Healthy and Productive Seas and Oceans



22 Participating countries

EC non-voting member

Ministries and Research Funders

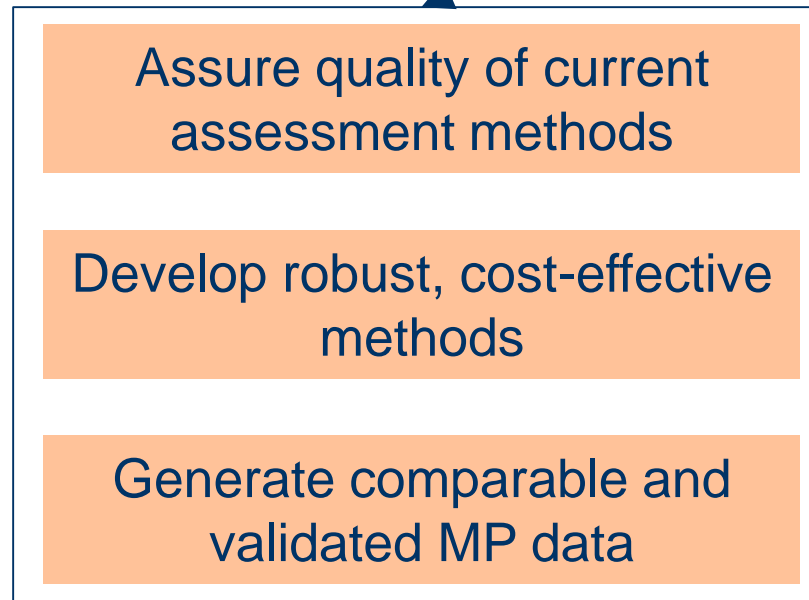


# Microplastics Pilot Action

Focus



Goals



# JPIO Microplastics Projects

JPI  
**OCEANS**



# BASEMAN

# PLAST



## Direct and indirect ecotoxicological impacts of microplastics on marine organisms

The PLASTOX project will investigate the ingestion, food-web transfer, and ecotoxicological impact of MPs together with the persistent organic pollutants (POPs), metals and plastic additive chemicals associated with them, on key European marine species and ecosystems.

**Total budget = 3.5 m€**

**Total JPI Oceans funding = 2.0 m€**

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