



PLASTOX

Andy Booth

SINTEF Ocean, Norway

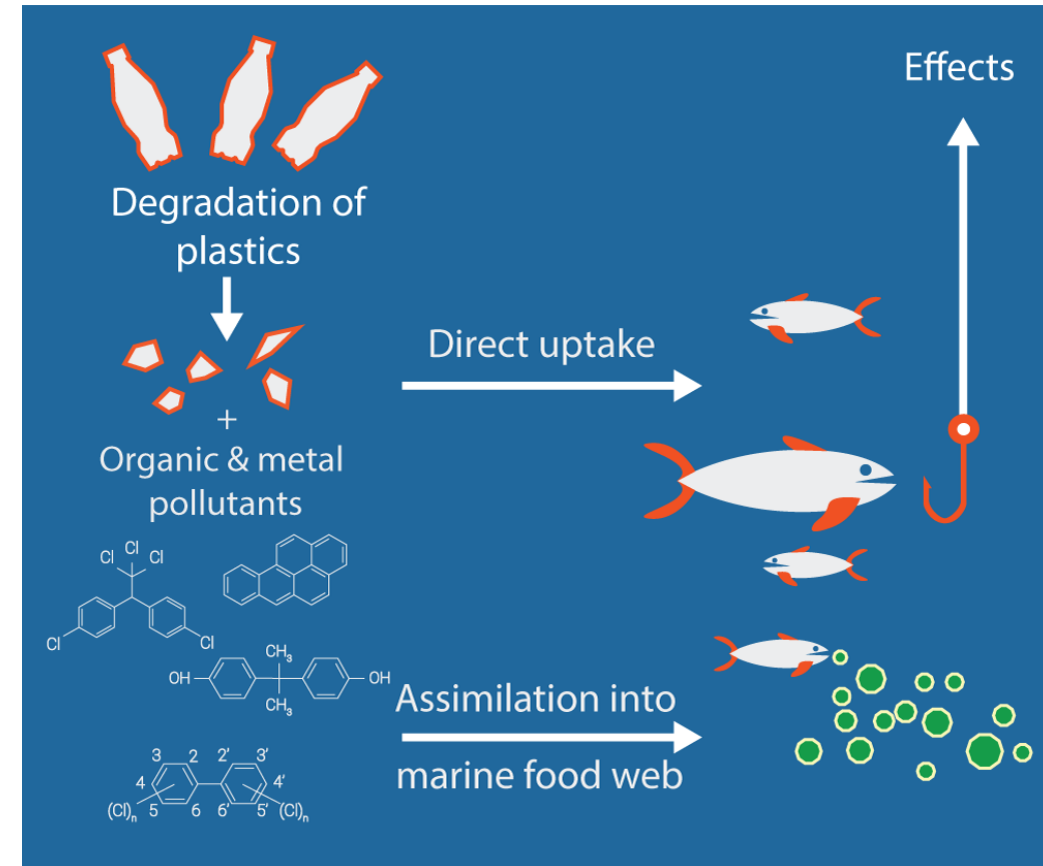
# Direct and indirect ecotoxicological impacts of microplastics on marine organisms

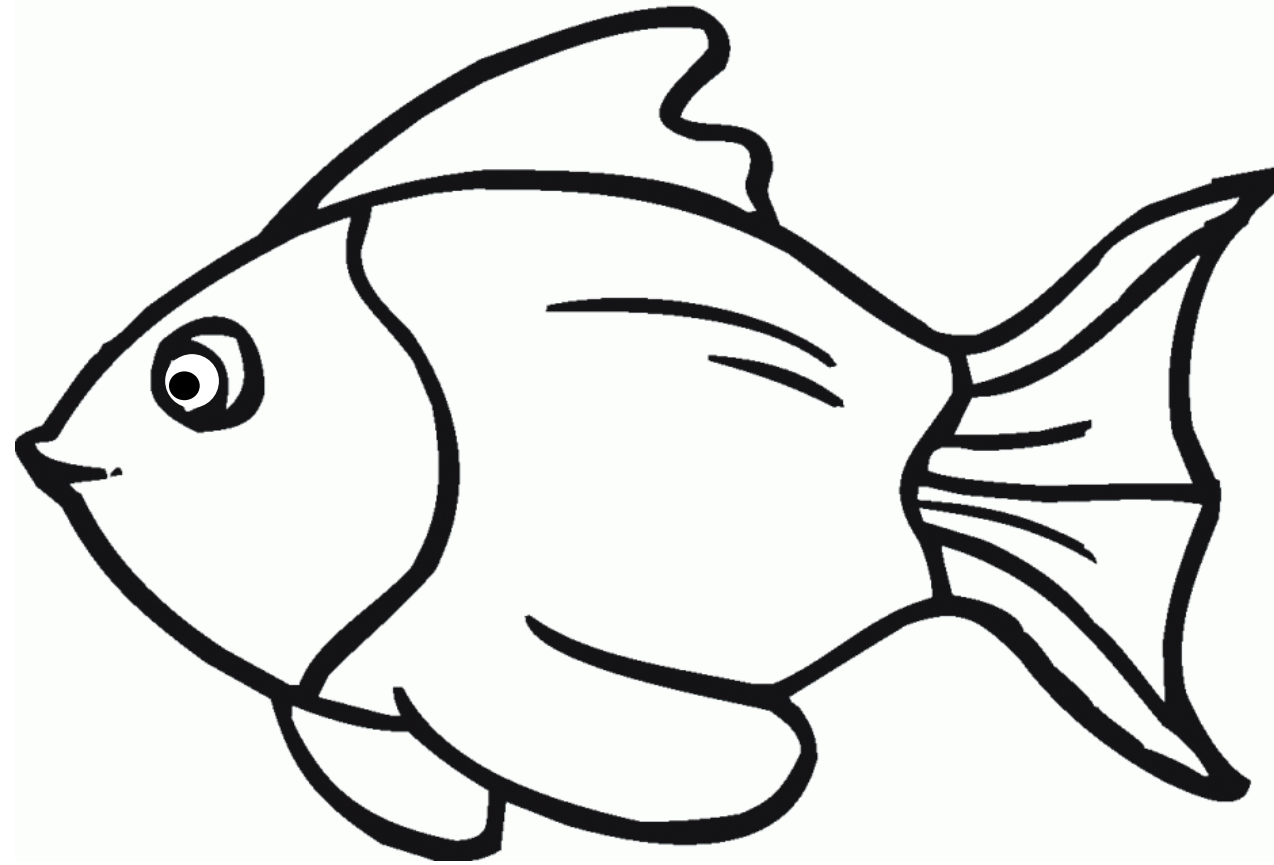
PLASTOX investigates the **ingestion, food-web transfer, and ecotoxicological impact of MPs**, and associated persistent organic pollutants, metals and plastic additive chemicals, on key European marine species and ecosystems.

Total budget = 3.5 m€

Total JPI Oceans funding = 2.0 m€

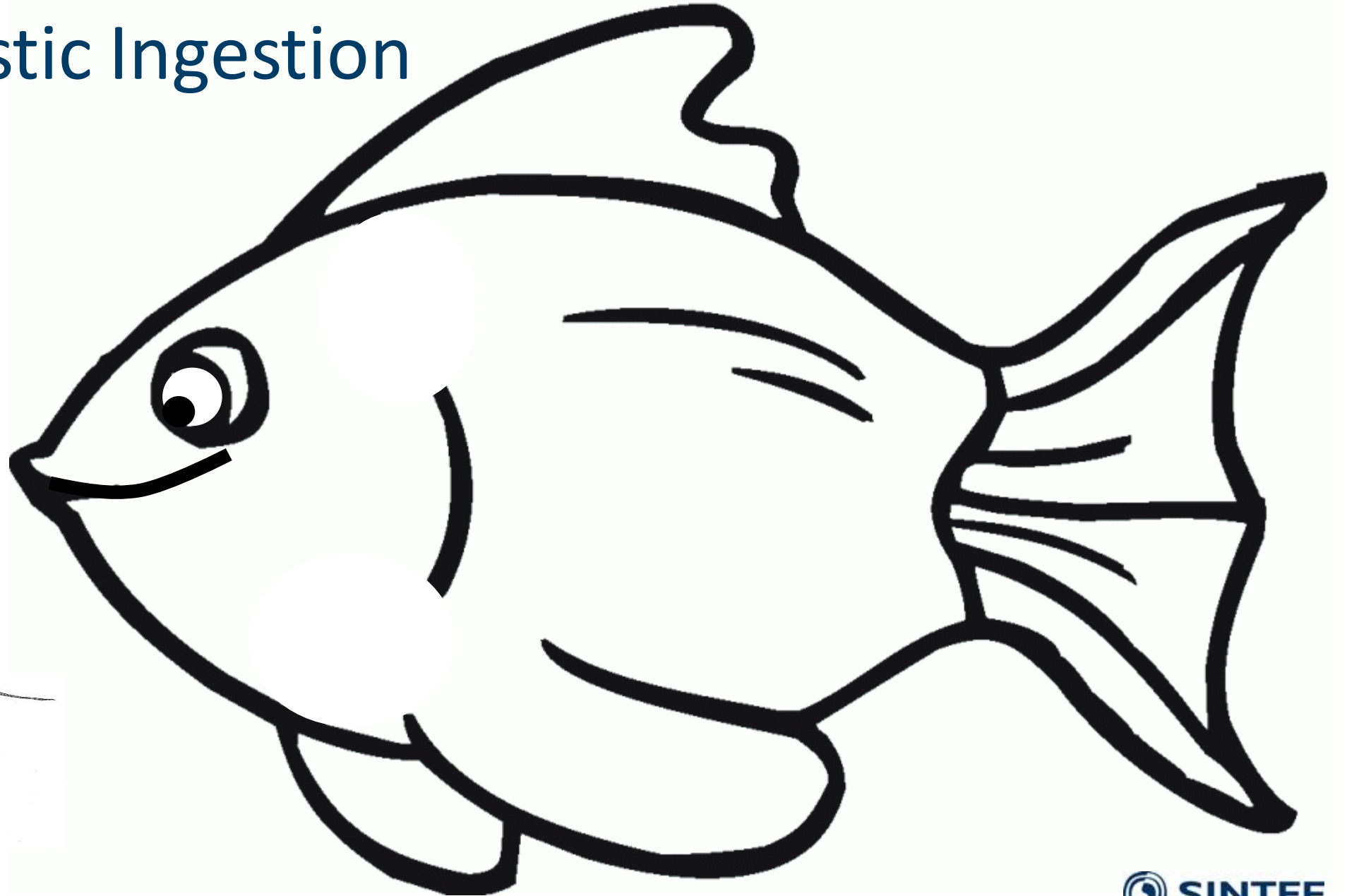
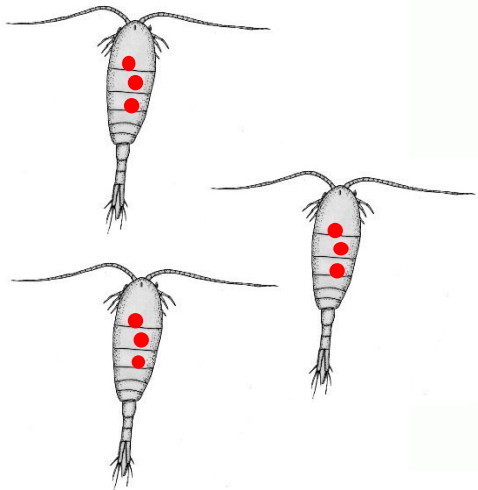
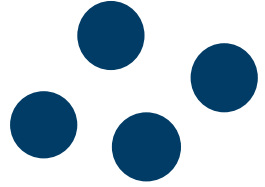
Coordinator: Andy Booth ([andy.booth@sintef.no](mailto:andy.booth@sintef.no))



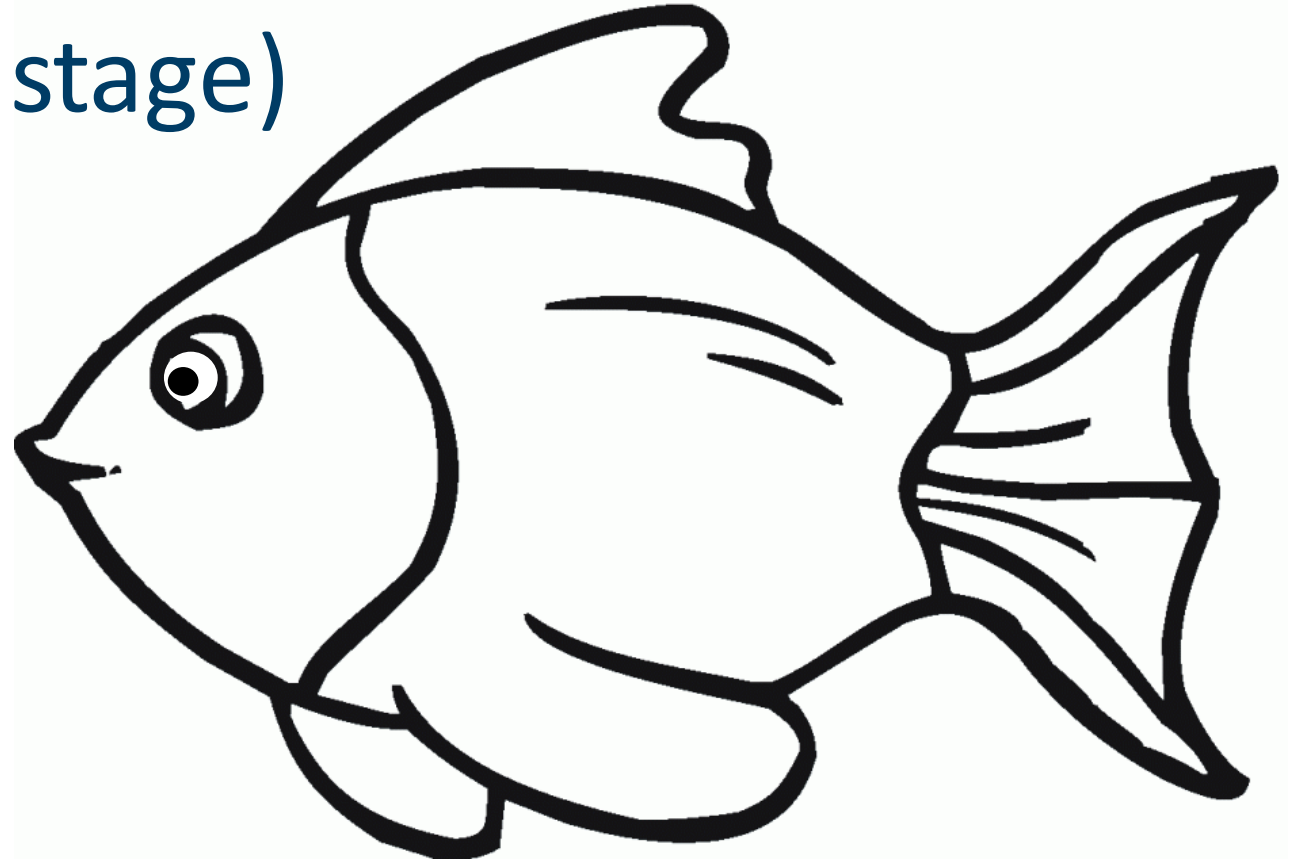


**Brian**

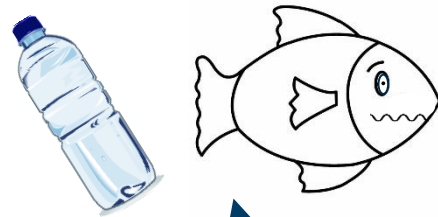
# (Micro)plastic Ingestion



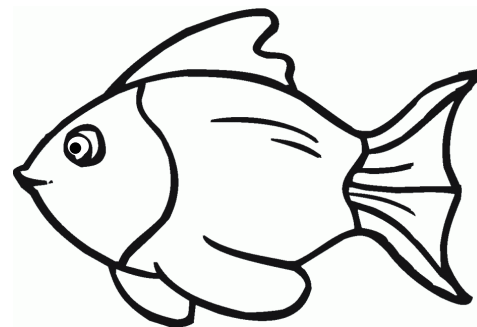
# Question of size (and life stage)



**Organism size**

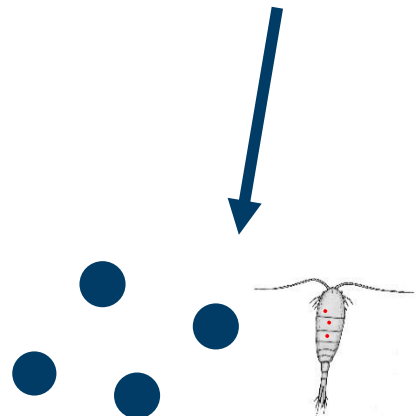
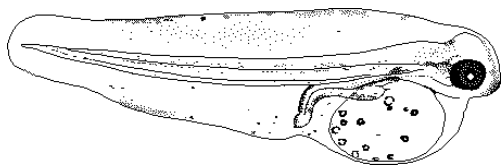


**Prey size**



**Barbara**

**Life stage**

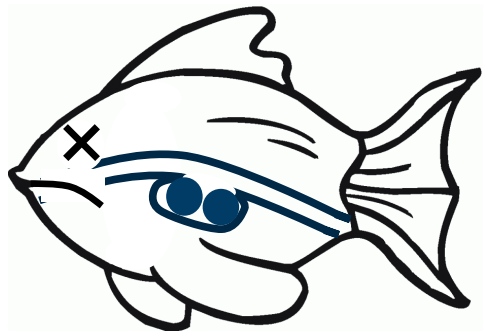


# Acute toxicity

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## Obstruction or blockage

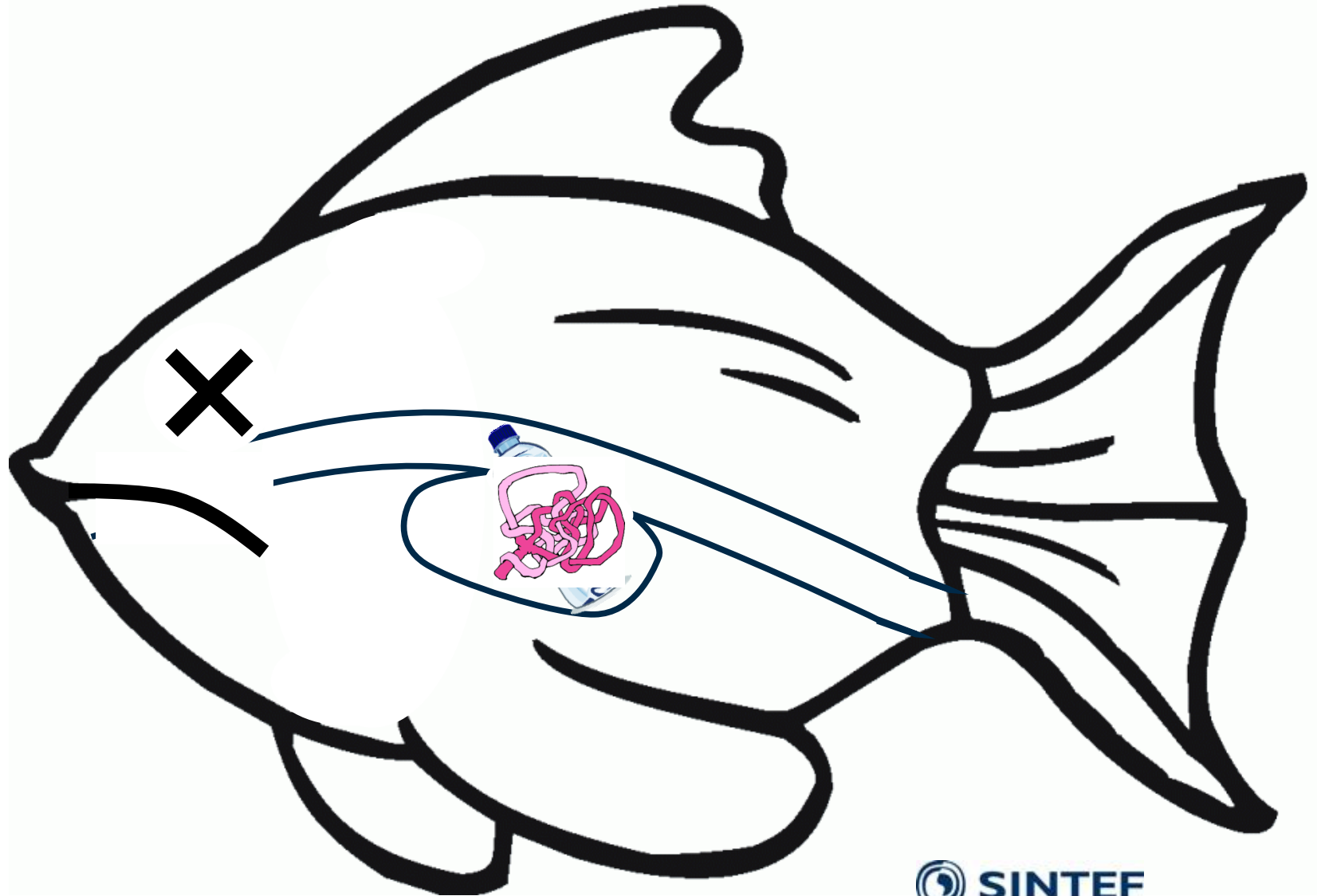
Prevents further ingestion of food



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**Organism size**

Diminished feeding stimulus  
(pseudo-satiation)



# Evidence of sublethal effects



*Dunaliella tertiolecta*



*Brachionus* spp.



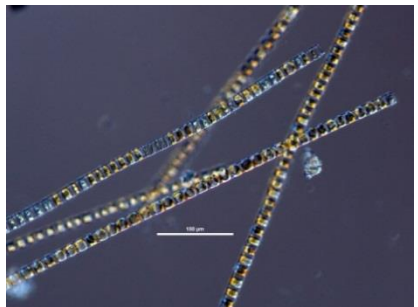
*Perna viridis*



*Crassostrea gigas*



*Arenicola marina*



*Skeletonema costatum*



*Centropages typicus*



*Lytechinus variegatus*



*Mytilus edulis*



*Pomatoschistus microps*

.....but still relatively limited studies

# Wide range of sublethal effects

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Wide range of impacts observed for different species following exposure to MPs

Reduced feeding

Weight loss

Inflammatory  
responses

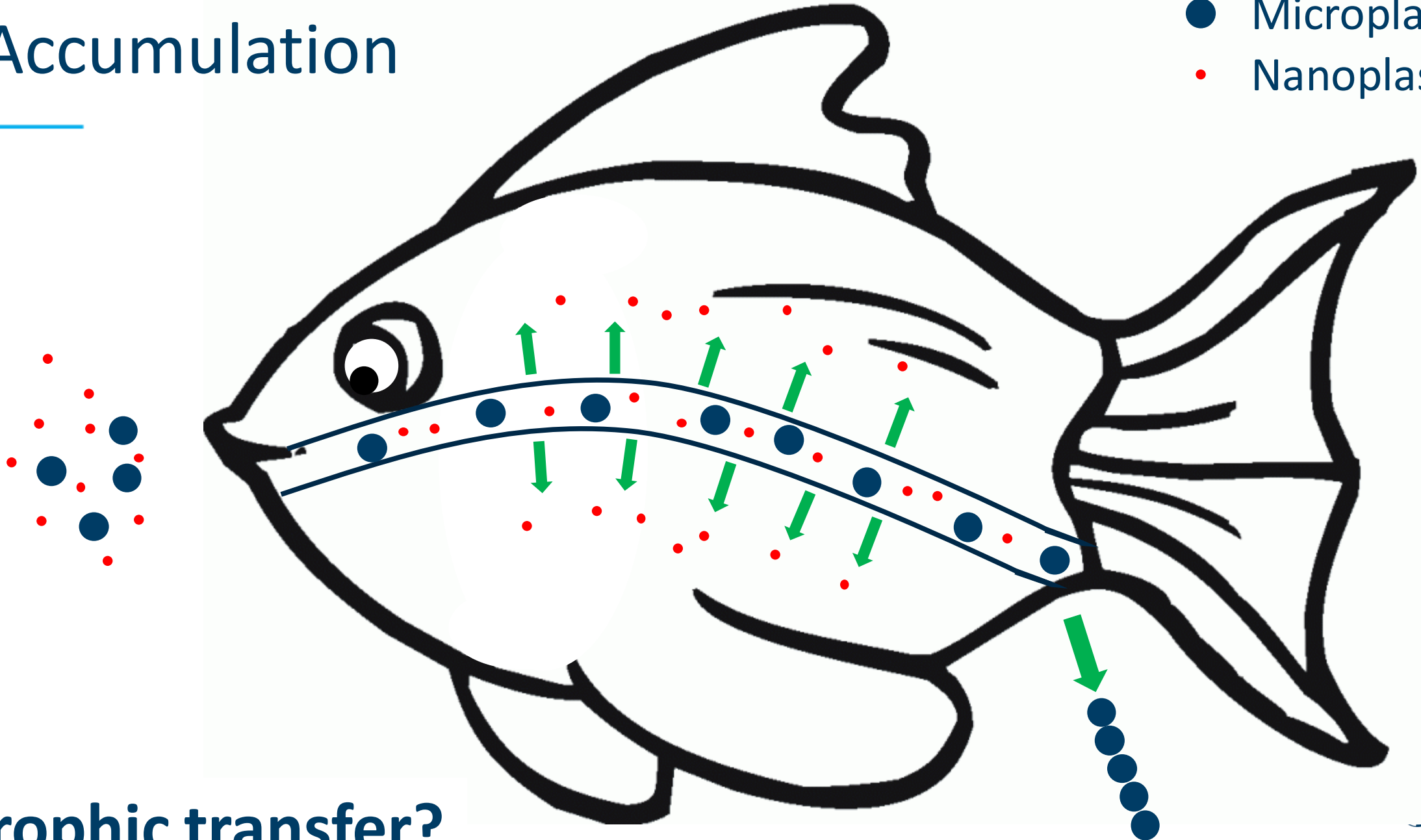
Developmental  
abnormalities

Reproductive  
abnormalities



# Accumulation

- Microplastic
- Nanoplastic



Trophic transfer?



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**FCT FACULDADE DE CIÊNCIAS E TECNOLOGIA UNIVERSIDADE NOVA DE LISBOA**



**ALMA MATER STUDIORUM UNIVERSITÀ DI BOLOGNA**



**IMARES WAGENINGEN UR**



**Aix-Marseille université mio**  
Mediterranean Institute of Oceanography




**NTNU Norwegian University of Science and Technology**



**IVL Swedish Environmental Research Institute**



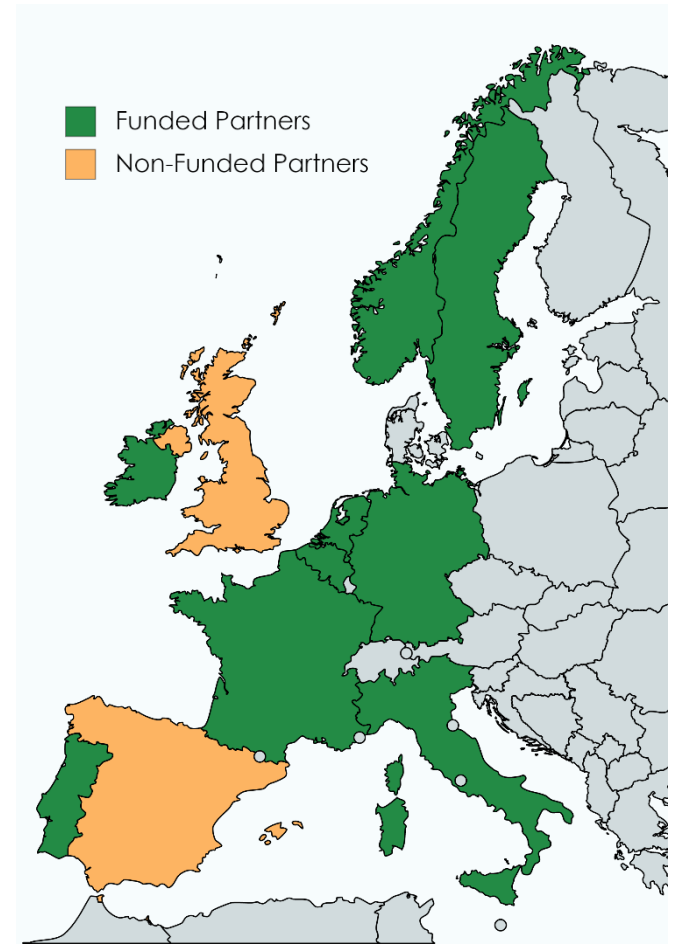
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**BSH BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE**

15 partners from 11 countries



Thank You

JPI OCEANS

PLASTOX

