



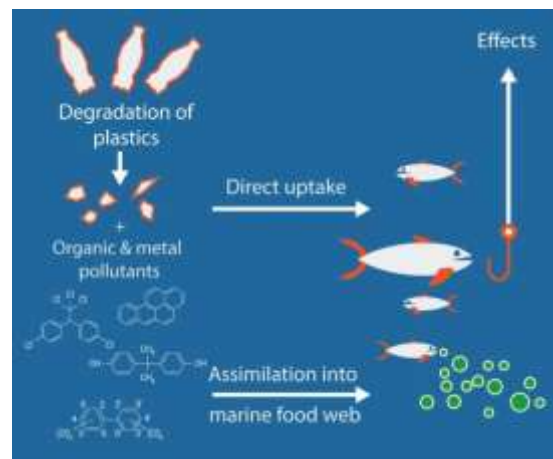
"PLASTOX: A big assessment of small particles?"

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Lecture Hall, November 23, 1 p.m.

Although microplastic (MP) ingestion has been demonstrated for a range of species representing most trophic levels, the number of studies reporting impacts associated with MP ingestion is small. Impacts observed for different species include reduced feeding, weight loss, reproductive and developmental abnormalities, and phagocytic activity and inflammatory responses. These impacts are significantly influenced by particle size, with smaller sizes typically eliciting more significant effects on organisms. The role of MPs as vectors for transporting known environmental pollutants (e.g. persistent organic pollutants and metals) appears to be important. However, there is currently insufficient data available to be able to draw strong conclusions regarding the impacts of MPs on marine organisms. Furthermore, there is a lack understanding regarding the effects of MP exposure and uptake at the population level and across food webs. There remains a need to address the following knowledge gaps concerning MP effects:

- i. Potential effects of MPs on marine species at different life stages
- ii. Determination of MP uptake, internalisation and potential for trophic transfer
- iii. Understanding the role of MPs as vectors for exposure and bioaccumulation of POPs and metals
- iv. The role of plastic additive chemicals on the potential effects of MPs to aquatic species
- v. Use of environmentally relevant MP test materials and the importance of physicochemical properties



PLASTOX is funded under the JPI Oceans Pilot Action "Ecological Aspects of Microplastics". The project investigates the ingestion, accumulation, food web transfer, and ecotoxicological impact of MPs, together with persistent organic pollutants (POPs), metals and plastic additive chemicals, on key European marine species and ecosystems. Acute and sublethal ecotoxicological effects of MPs are assessed on marine organisms from phyto- and zooplankton to shellfish and fish. Adsorption and desorption behaviour of organic and inorganic pollutants to MPs are investigated using common POP and metal contaminants. The influence of MP physicochemical properties (size, shape, surface area and composition) on these processes will be evaluated. To study ecological effects of MPs, laboratory tests and mesocosm studies will be combined with field-based observations and manipulative field experiments at stations representing a wide range of European marine environments (Mediterranean, Adriatic, North, and Baltic Seas and the Atlantic).