Only a matter of taste? Explanatory variables for microplastic ingestion by juvenile seabream

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Abstract

Despite the fact that first reports on microplastic (MP) ingestion by marine fish date back to the 1970's and that considerable scientific and public concern has been raised recently over the potential detrimental effects of micro-sized (i.e., $<$ 5 mm) plastic items, research on the explanatory variables for uptake as well as on the physiological effects of exposure and ingestion is still at an early stage.
This presentation will summarise the current scientific knowledge on driving factors for MP ingestion on the basis of a literature review in combination with an *in-situ* and *in-vivo* study on MP ingestion using omnivorous juveniles of the white seabream *Diplodus sargus* (Linnaeus, 1758) as a model organism.
The results obtained challenge the existing hypotheses that omnivores in general and early life-history stages of fish growing up in coastal nurseries in particular are prone to elevated MP ingestion rates. High inter-individual differences in trophic resource utilisation and consequent MP uptake variability were substantiated, a phenomenon potentially neglected by scientific studies in the past, which necessitates adequate sample sizes along with a contextualisation of gastrointestinal tract contents with environmental prey and MP availabilities. The outcomes further argue for the holistic integration of field and laboratory studies to determine the species- and life-stage specific driving factors for and potential detrimental effects of MP ingestion to enable a thorough evaluation of the ecological and economic risks arising for coastal fish stocks and fisheries.

Keywords: microplastics, early life history stages of fish, seabream, ingestion

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