

## The Impact of Microplastics on Filter-feeding Megafauna

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In this presentation we reconstruct the scientific *story* of the invisible war between the charismatic megafauna (baleen whale, filter feeder sharks and manta ray) against the smallest marine debris (microplastics) and their potential toxicological effects. The first warning of this emergent threat was reported by the Fossi and collaborators for Mediterranean baleen whales (*Balaenoptera physalus*) in 2012, and few years later (2014 and 2017) confirmed also, by the same team, for filter feeder shark such as basking shark (*Cetorhinus maximus*) and whale shark (*Rhincodon typus*). The authors report that filter-feeding megafauna are particularly susceptible to high levels of microplastic ingestion and exposure to associated toxins due to their feeding strategies, target prey, and for habitat overlap with micro-plastic pollution hot spots. Given the abundance of microplastics in some hot spot areas, such as the Mediterranean Sea, along with the high concentrations of Persistent Bioaccumulative and Toxic (PBT) chemicals, plastic additives and the detection of specific biomarker responses in the skin biopsies of these endangered species the authors suggest that the exposure to microplastics because of direct ingestion and consumption of contaminated prey poses a major threat to the health of this endangered marine species. For these finding and because many megafauna species investigated by this research team are charismatic and iconic indicators that serve as flagship species for marine conservation, this research field became recently a new “trend topic”. Currently the scientific community and the media are very attracted to this “story” despite this subject at the beginning has been treated with great suspicion. This scientific topic is also developed in the project Plastic Busters MPAs, recently financed by EU (Med-Interreg), focused on the study of the impact of microplastics on cetaceans inhabiting the Mediterranean SPAMI Pelagos Sanctuary. While umbrella species are useful for directing intervention strategies, flagship species could provide a global assessment of microplastics pollution and a mechanism for communicating awareness and stimulating action to tackle marine plastic pollution in all the marine ecosystems (Germanov et al 2018).