

"SPlasH! - Stop to plastic in H2O!" An EU Project to investigate the port environment: results on microlitter contamination in seawater, sediment, and biotic samples

<u>Anna Reboa</u>, Laura Cutroneo, Giovanni Besio, Arianna Malatesta, Mario Petrillo, Laura Canesi, Irene Geneselli, Alessandro Stocchino, Marco Capello University of Genoa



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PORTS





PROJECT RESULTS

4 921

4.91

491

4 91

4.916



0.006

- DATA COLLECTION ABOUT MICROPLASTIC DISTRIBUTION IN PORT AREAS
- DEVELOPMENT OF INNOVATIVE

MICROPLASTIC SAMPLING DEVICE

- MODELLING OF MICROPLASTIC TRANSPORT
- DATA ACQUISITION ABOUT MICROPLASTIC ROLE AS VECTOR OF CHEMICALS (METALS)







WATER COLUMN AND SEDIMENT SAMPLING: PORT OF GENOA







WATER COLUMN AND SEDIMENT SAMPLING: PORT OF TOULON







FISH SAMPLING: PORT OF GENOA AND S'ENA ARRUBIA FISHPOND









RESULTS: WATER COLUMN

PORT OF GENOA







RESULTS: WATER COLUMN PORT OF TOULON







RESULTS: SEDIMENT PORT OF GENOA







RESULTS: SEDIMENT PORT OF TOULON







WATER COLUMN: POLYMERS FREQUENCY



TL

GE







SEDIMENT: POLYMERS FREQUENCY









RESULTS: FISH







RESULTS: FISH (Mugilidae)









RESULTS: FISH



POLYESTER FILAMENT: OPTICAL (LEFT) AND RAMAN (RIGHT)





CONCLUSIONS: WATER AND SEDIMENT

- A lower MPs density has been found in water samples from the Port of Genoa collected in December than May, possibly due to the seasonal precipitation rate
- The study of MPs density in sediment samples from the Port of Genoa in affected by the constant dredging activities in the area
- MPs contamination in samples from the Port of Toulon showed more variability when collected near marinas







CONCLUSIONS: FISH

- It can be supposed that particles can be retained in fish stomachs after digestion, including MPs
- Particles analyzed in fish stomachs were mostly filaments and fragments; results from the present study support data from literature (Odum, 1968; Almeida, 2003; Whitfield et al., 2012), that highlight a dimensional particle selection in the feeding process of Mugilidae fishes
- Samples from the Port of Genoa showed a higher MPs contamination compared to samples from S'Ena Arrubia, both regarding the number of fish and the variety of plastic polymers, in accordance with a greater anthropic impact in the area







FUTURE PROSPECTS

Data acquired by SPlasH! Project will be useful to develop the management of MPs contamination in port areas; further sampling campaigns will be held to increase knowledge and awareness on this environmental threat

An additional sampling campaign has been already carried out regarding MPs contamination in fish stomachs, and results will be compared to the ones from SPlasH! Project









