



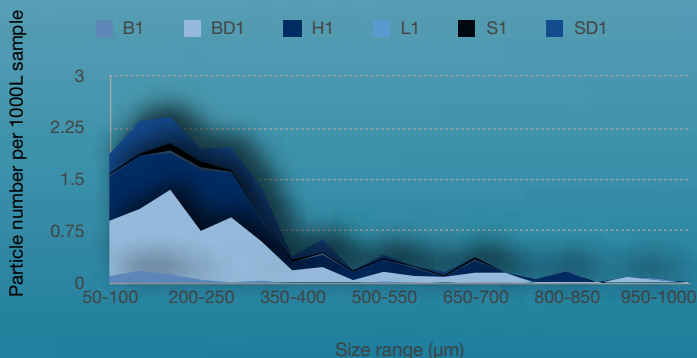
Project Deep SEE

Preliminary quantitative and qualitative investigation of microplastics sampled from Maltese nearshore waters

The project "Deep SEE" aims to discover the microplastic pollution of the Maltese nearshore waters from an innovative perspective. The project has been funded by The International Ocean Institute EMB Bursary Award 2022-2023.

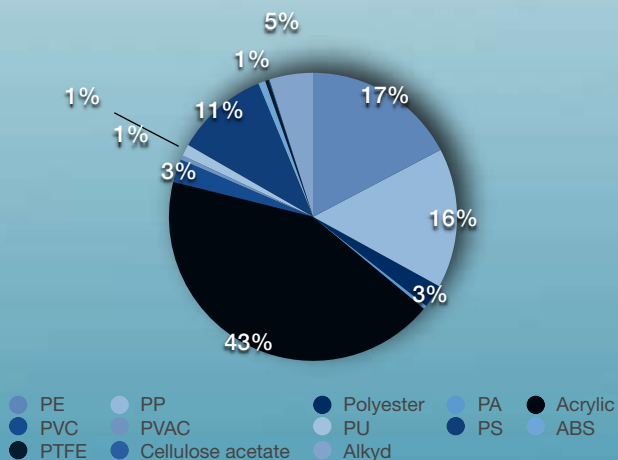
The survey has been carried out to map the different layers of the sea, to determine the contamination not just at the surface but also at different depths within the water column. Since the plastic particles have different sizes, shape, density and weight, the study of different accumulation zones were considered to ensure a complete view of the total plastic pollution within this specific environmental matrix.

Microplastic particles size distribution



The survey focused on three pollution hot spot around the island (Xghajra, Lapsi , Hofra ż-Żghira) and a control site at Selmun. Surface samples were collected from all four sites. In this study, the sampling method was also adapted to collect subsurface samples at two of the locations. This was achieved using the same Manta net and on the same day to keeping the environmental and technical conditions (such as net size, sampling time, temperature, and salinity) as constant as possible. The analytical examination of the samples carried out by Eurofins Analytical Services Hungary Ltd. shows interesting trends. The majority of the size of the found polymers in the matrixes were typically between 50-350 µm. The largest amount of polymers were Acrylic (42.9%), PE (17.3%), PP (15.7%) and PS (10.5%).

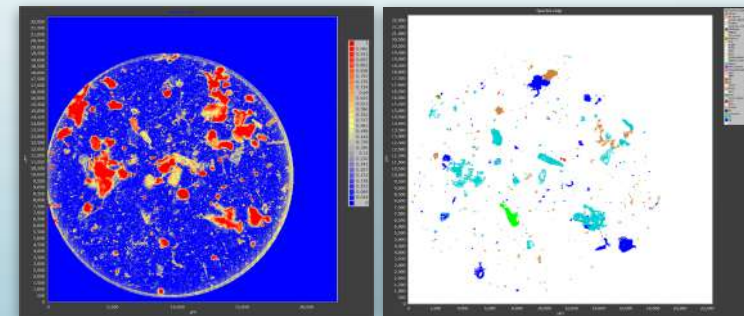
Polymer type distribution



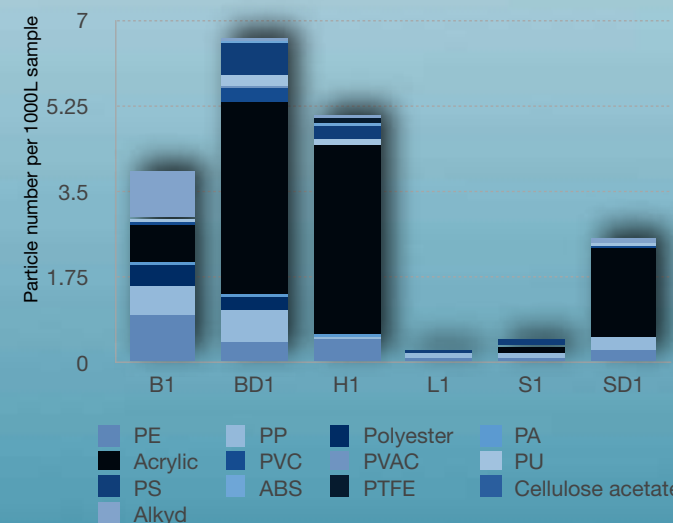
Water column sampling



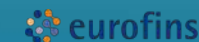
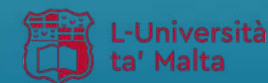
FTIR Imaging microscope spectra map



Relative microplastic content detected



Test samples were collected from two different depth (6-7m and 10-11m from the surface). The accredited laboratory results show significant difference between the in parallel surface (B1, S1) and deep sampling (BD1, SD1) contamination results in terms of certain polymers, especially in the case of Acrylic pollution. The phenomenon might be linked to environmental conditions (salinity, buoyancy) and the nature of certain polymers such as density, size, shape or weight.



Analytical Services

