

Environmental Research, Technology Demonstration and Conference Project

ECF Project:	ECF 2018-42
Project Title:	Monitoring plastic litter in the Hong Kong coastal environment: assessment of its sources and temporal variation
Principal Investigator:	Dr Christelle Not, Department of Earth Sciences and SWIRE Institute for Marine Science, The University of Hong Kong
Total Approved Grant:	\$499,825
Duration:	2/7/2019 to 1/7/2021
Project Status/Remarks:	Completed
Project Scope:	<p>Hong Kong has been recognised as a hotspot for marine plastic pollution. Both macroplastic and microplastic pieces, plastic pieces bigger than 5 mm and smaller than 5 mm respectively, are found in higher concentrations on Hong Kong beaches, seawater, and sediment than internationally. However, this high level of pollution is not constant throughout the year and no clear temporal trend has been put forward by the different studies. In addition, very little is known of the potential sources of the plastic litter, in particular those for microplastics. The lack of basic knowledge on the temporal variability and potential sources of plastic litter limit the appropriate management of the issue. The project aims to monitor the quantity and the type of plastic found on the beaches and in the coastal waters of Hong Kong every two weeks for one year in order to highlight periods with higher contamination by plastic. Knowing the temporal variability of the plastic pollution will allow efficient planning of cleaning efforts. In addition, understanding the sources of the plastic pollution is necessary to develop efficient waste management strategies.</p>
Summary of the Findings/Outcomes:	<p>The presence of plastic in the ocean and its potential impact for marine life but also human is gaining an international coverage, yet we still poorly understand the dynamic of the presence of plastic. In Hong Kong, previous studies had suggested a difference in the abundance of microplastics between the western and eastern parts of Hong Kong but also between the wet and dry season. The project team monitored the microplastics abundance and type in four sites in the west and four sites in the east of Hong Kong every two weeks for one year. The findings revealed that the difference between the east and the west was not that strong and microplastics in water were also very abundant in the southeast part in Hong Kong. In addition, the data indicated that the temporal variability was more complexed that the seasonal changed and required further study. Finally, when investigating the type of microplastics, the project team noticed that Styrofoam or expanded polystyrene could count up to 90% of the microplastics found in some sample, suggesting the need to pay a special attention of such plastics in order to investigate their sources and behaviour in the environment.</p>