



CICLO

CONFERÊNCIAS 19|20

ISPA - INSTITUTO UNIVERSITÁRIO

MICROPLASTICS, THE COASTAL ECOSYSTEMS AND THE TRANSBOUNDARY ISSUES: ECOLOGICAL INTERACTIONS AND THE "SOURCE-TO-SEA" APPROACH



ANDRÉ DE ARAÚJO LIMA

MARE; ISPA - INSTITUTO UNIVERSITÁRIO

In May 2019, during the Basel Conference in Geneva, ~180 governments pointed out that microplastics are hazardous waste due to their toxicity, capacity of adsorbing pollutants and of fragmentation. Marine plastics have a clear transboundary nature, emphasizing that this problem has a global scale connected by international impacts. Plastic is acknowledged as one of the world's most pressing issues with epidemic proportions estimated around 100 million tonnes now found in the oceans, being ~90 % from land-based sources.

The connectivity among rivers, coasts and ocean (environmental gradient) has been widely discussed through the so-called source-to-sea continuum. Here we discuss the Goiana estuary (northeast coast of Brazil), a Marine Protected Area of the type extractive reserve. There, 14,724 microplastics, were collected during twelve months. Mangrove creeks were also contaminated, totaling 1,662 items collected within two months in 12 creeks. Microplastics are found during the entire year, with abundances comparable to fish eggs and half of fish larvae density. Microplastics are retained within the estuary during the dry season, when the stratification of the water column functions as a physical boundary. During rainy season, when river runoff is high, microplastics are flushed seaward, posing river basins as the main sources of microplastics to the open ocean.

For this estuary, 11 fish species of commercial/ecological importance were contaminated with blue microfilaments derived from fishing nets and washing machines. Contamination was higher in latter phases, when diet and foraging became more complex. Adult piscivore fishes are more susceptible to contamination since they feed on previously contaminated fishes. Usually, the highest contamination were observed during the late rainy season in seaward zones. This means that although fishes may have a great spatial range, the different ontogenetic phases of most species inhabit specific estuarine habitats at least for an entire season; and it might coincide with peaks of microplastic availability. Thus, the patterns of estuarine use by different phases of fishes are useful tools to improve management regarding the environmental contamination with microplastics.

2 MARÇO 2020

12H30 | AUDITÓRIO 1

ENTRADA LIVRE

HOST
**GONÇALO
SILVA**



ISPA
INSTITUTO UNIVERSITÁRIO

RUA JARDIM DO TABACO, 34
1149 - 041 LISBOA
T. 218 811 700 | CGI@ISPA.PT
www.ISPA.PT | f ISPAMEDIA | @ISPAMEDIA