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# Abundance of microplastics in oysters *Crassostrea gigas* and water from a highly anthropized estuary.

Maialen Arduso\*<sup>†1</sup>, Benjamín Abasto , Carolina Colombo , Ana Forero-López , Carla Spetter , Natalia Buzzi , and Melisa Fernández Severini

<sup>1</sup>Instituto Argentino de Oceanografía (IADO), CONICET/UNS, CCT-Bahía Blanca, – Camino La Carrindanga, km 7.5, Edificio E1, B8000FWB, Bahía Blanca, Buenos Aires, Argentina., Argentina

## Abstract

Microplastics -MPs- (plastic < 5 mm) have become one of the leading environmental problems due to the large amount released into aquatic and terrestrial ecosystems and their possible impacts on organisms and human health. Estuaries are positioned as sinks of MPs, due to the presence of natural and industrial effluents. In Argentina, the Bahía Blanca estuary -BBe- is the second largest estuary in the country and is highly anthropized since it has one of the largest deep ports, the largest petrochemical complex, and urban settlements with untreated sewage waters. The oyster *C. gigas* is widely used as MPs biomonitoring and is commonly distributed in BBe. This study assesses the concentrations of MPs in surface water and in whole tissue of oysters *C. gigas*, from the BBe. Two sites of the estuary were sampled, one in the inner zone and the other in the middle area. MPs ranged from 6 to 50 items L<sup>-1</sup> in water and from 0 to 2 items g<sup>-1</sup> ww in oyster tissue. There were no significant differences between the water samples and oysters ( $p > \alpha = 0.25$ ) according to the different sites. Fibers were the most abundant MPs in water and oyster samples, with 78% and 95%, respectively. The color was mainly transparent, followed by blue and black. Regarding the size in water, the MPs < 0.5 mm represented 50%, followed by particles between 1 and 5 mm with 36%. In oysters, MPs between 1 and 5 mm were 48%. Many fibers could originate from the mechanical degradation of clothing textiles and hygiene products that enter the aquatic environment through sewage. Due to the ubiquitous nature of MPs in the environment and their different effects on organisms, studies of this kind represent the basis for implementing sustained monitoring of MPs in water, sediments, and biota.

**Keywords:** Microplastics, Oysters, Water, Coastal zone

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\*Speaker

<sup>†</sup>Corresponding author: maia.ardusso@gmail.com