

Evidence of microplastics ingestion by *Crassostrea gigas* (Pacific oyster) at the austral Buenos Aires marine-coastal areas (Southwest Atlantic)



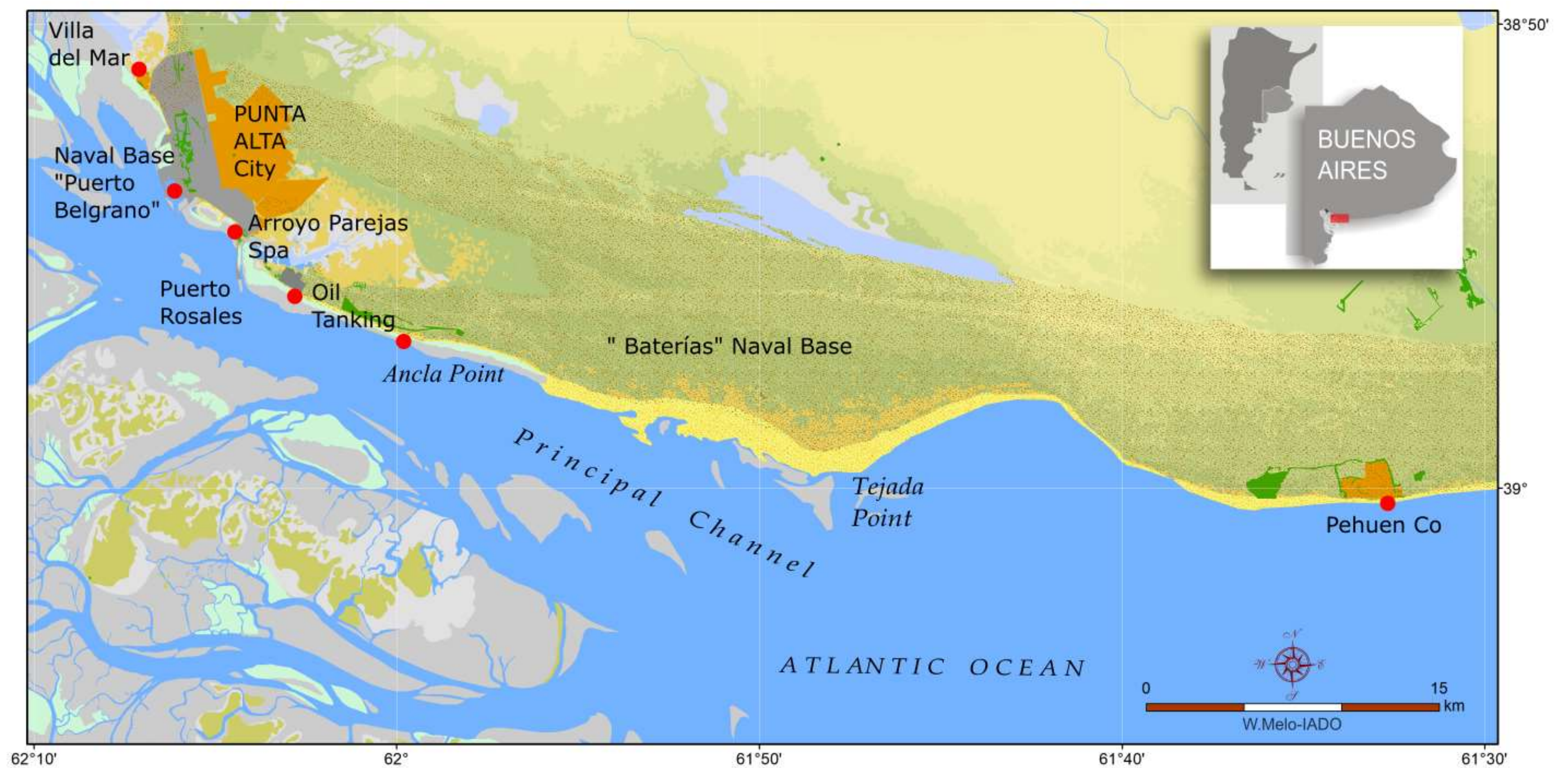
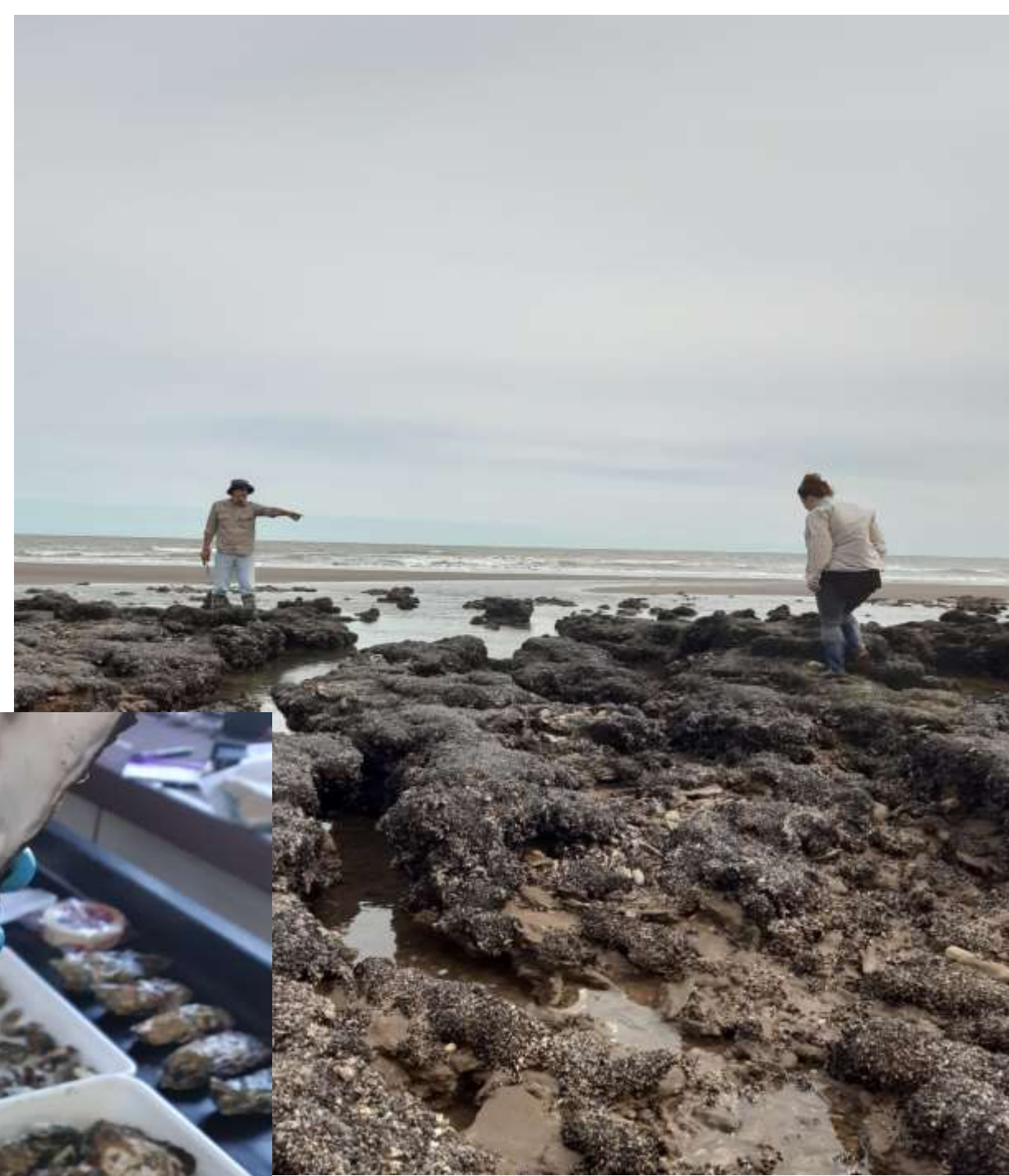
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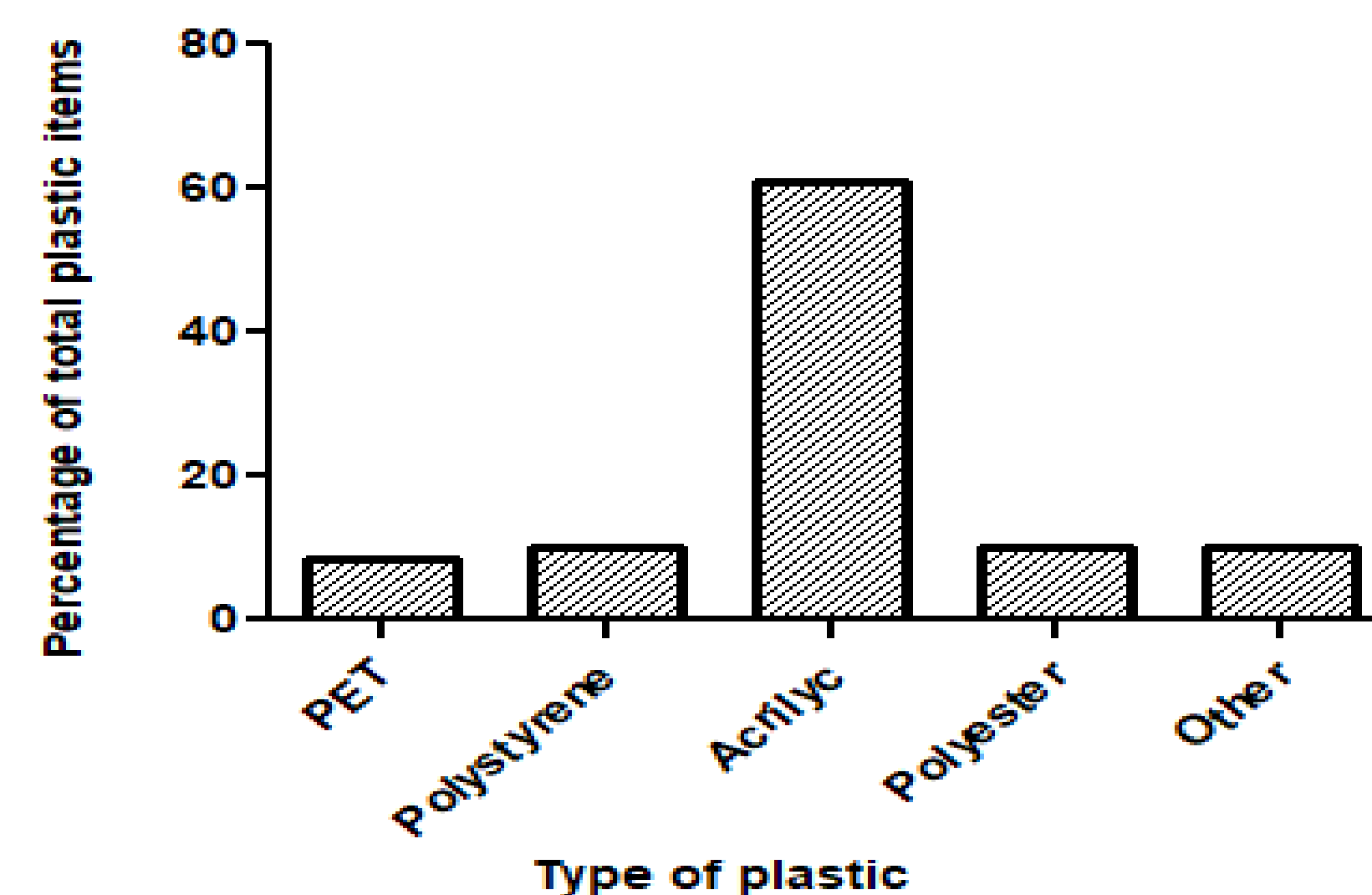
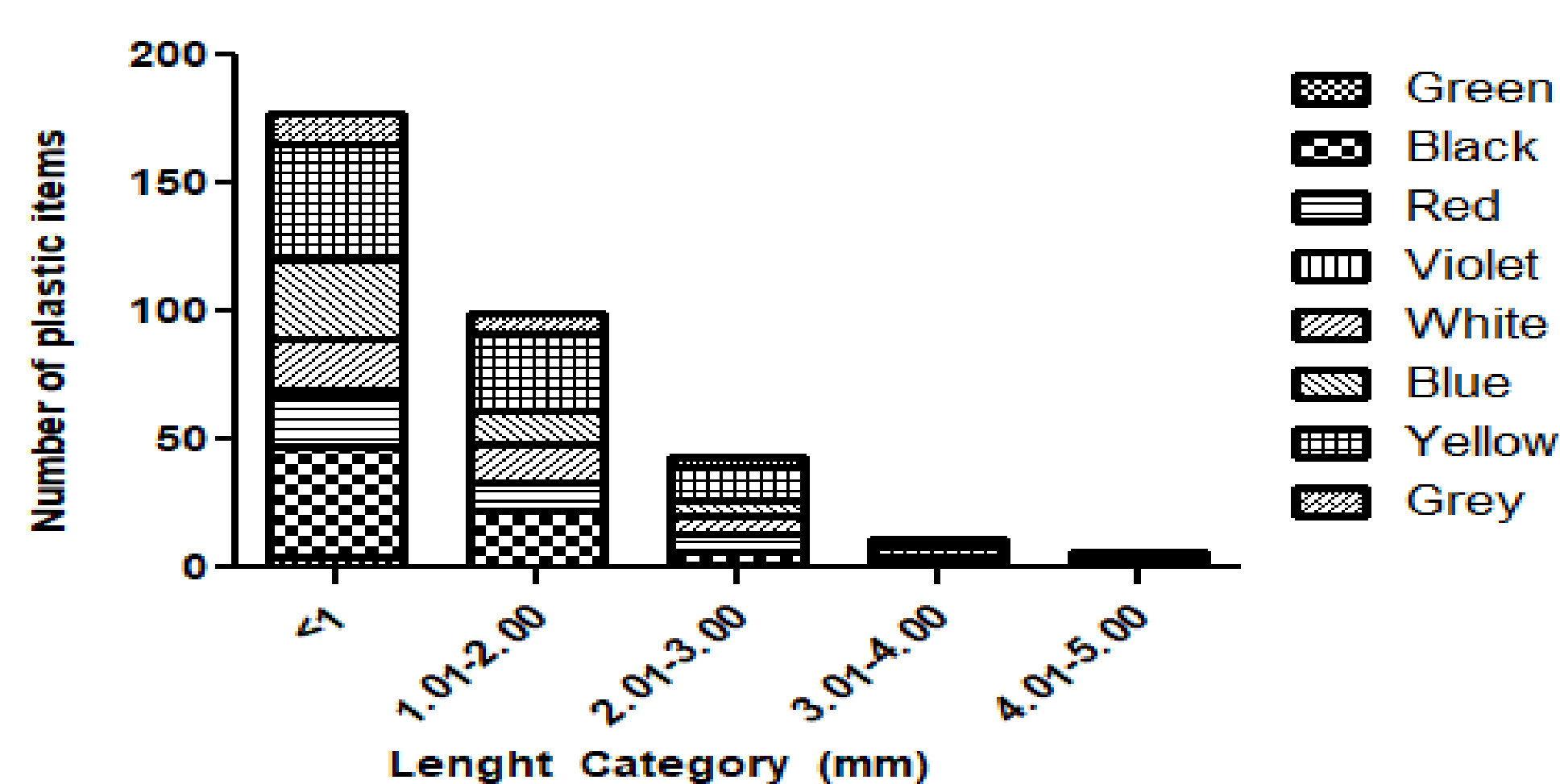
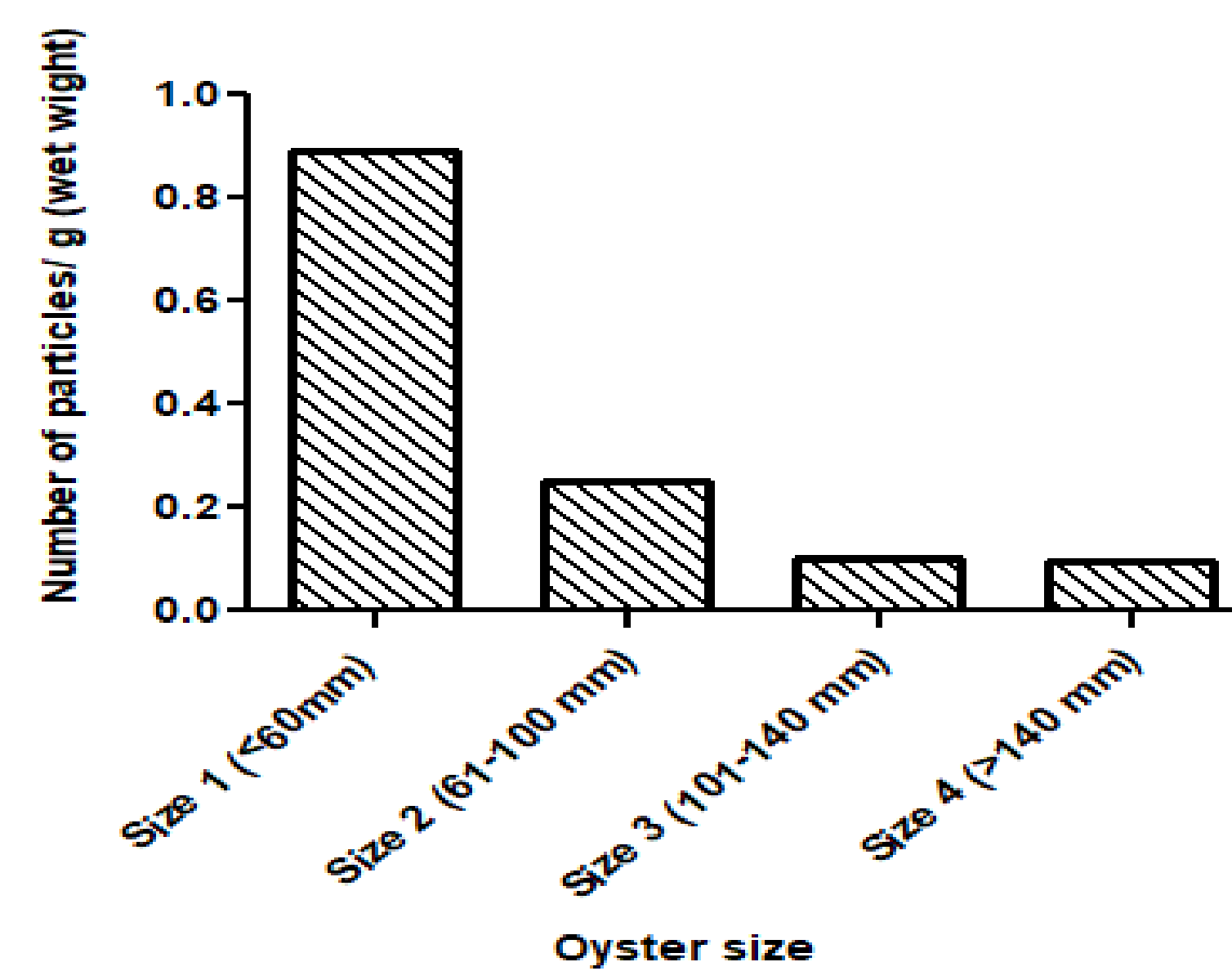
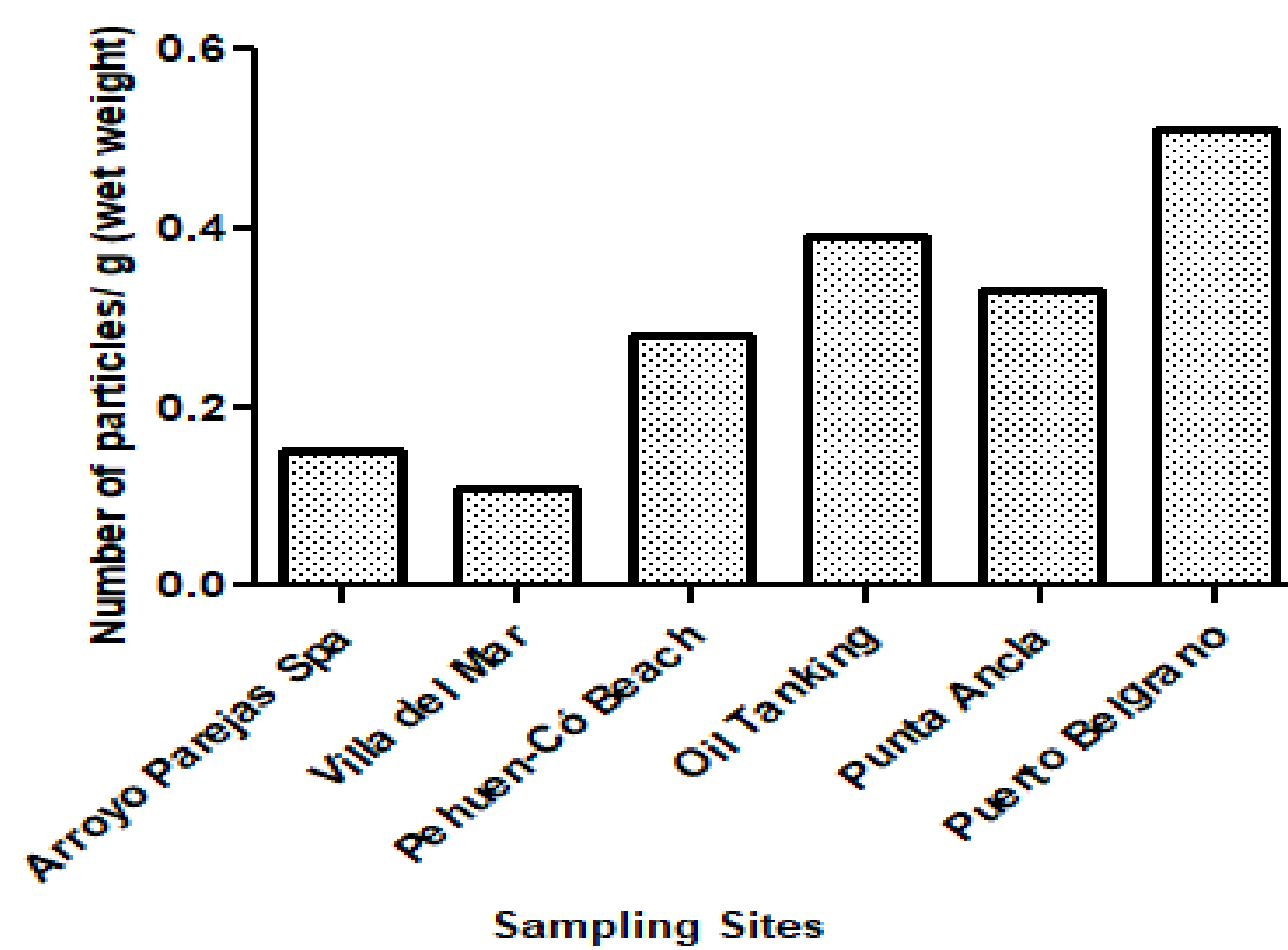
Current studies on emerging pollutants have demonstrated the abundance of Microplastic (MPs) in coastal environments around the world and the austral Buenos Aires Province (Argentina) coasts are not the exception. Sampling locations included two National Harbours in the nearness ("Villa del Mar" and "Arroyo Parejas"), oil transport facilities, industrial and recreational/tourism activities ("Pehuen-Có"), artisanal fishing and not completely treated wastewater discharges which set a proper scenario for the invasion of the alien species Pacific Oyster (*Crassostrea gigas*).



For the first time, we analyzed the occurrence of MPs in oysters from 29 composed samples collected between November 2021- April 2022 which were kept at -20 °C until hydrogen peroxide treatment (30% H₂O₂) and filtration (GF/F, 47 mm and 0.7 μm pore). Microplastic items were observed under a Nikon SMZ1500 lens and analyzed by spectroscopy FT-IR (Perkin Elmer).



In total, 334 items were counted in 145 individuals, with an average size of 82 μm. Total MPs levels ranged from 0.11 items/g to 0.51 items/g (wet weight) (average 0.30 ± 0.15 items g⁻¹) particles/g wet weight in the oysters. The dominant shape of MPs were fibers (98.71%) while seldomly, films structures were found in the oysters. The predominant color was yellow and black (26.63% and 21.89%, respectively), followed by blue and white (15.38% and 14.50%, respectively). "Puerto Belgrano" and "Oil Tanking" were the coastal locations which showed the highest rate of microplastic ingestion by oysters (> anthropogenic pressure > MPs levels). Acrylic was the most abundant type of MPs identified, indicating that the marine paint can be a main source of MPs.



This research provides the first baseline data on microplastic contamination status in oysters in a relevant environmental area from the Western South Atlantic coastline. Considering the marked advance of the Pacific oyster on these coasts and its negative impact in itself (loss of beaches, injuries to bathers and intoxication due to consumption), it is relevant to monitor the content of microplastics given the implications to food security and potential risks to human.