Plastic pollution in a stream that runs through a medium-sized city in Argentina

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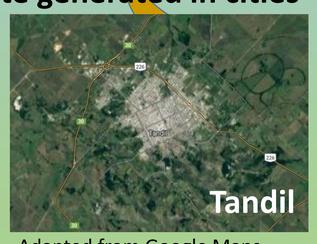
Keywords: Microplastics, wastewater treatment plant, mesoplastics, macroplastics, stream

Plastic waste in freshwater bodies

WWTP

waste generated in cities



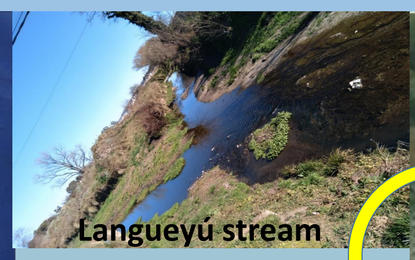
Adapted from Google Maps
https://www.google.com.ar/maps

storm water discharges

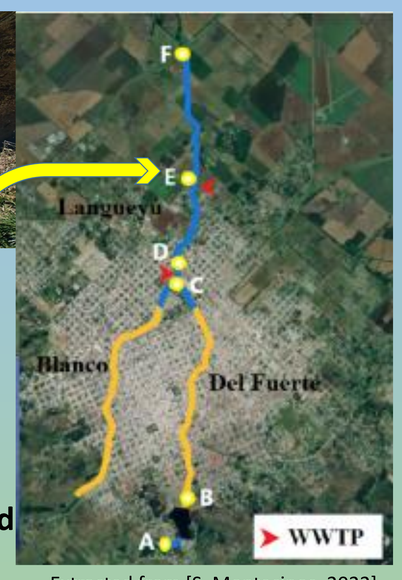
directly dumped into the water body

This work…

Adapted from Google Maps
https://www.google.com.ar/maps



highly polluted area



Extracted from [S. Montecinos, 2022]

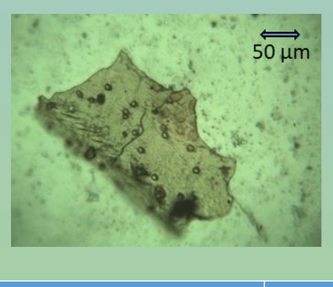
This work is an exhaustive study that includes the quantification of the micro, meso and macroplastics present in this highly polluted point, and analyzes their possible sources.

microplastics (MPs) (< 5 mm)	mesoplastics (5 mm – 2.5 cm)	macroplastics (>2.5 cm)

Samples of water and sediment were extracted from the stream and analyzed.

MPs

- Extracted using glass containers
- Filtered (45 µm mesh size)
- Oxidative digestion
- Washed
- Filtered (45 µm mesh size)
- Deposition of sub-samples on glass slides
- Optical microscopy characterization



	stream water (items/m^3)	sediment (items/m^2)
Microfibers	$5.8 \cdot 10^6$	$9.7 \cdot 10^5$
Microparticles	$3.9 \cdot 10^6$	$4.6 \cdot 10^6$
MPs	**$9.7 \cdot 10^6$**	**$5.6 \cdot 10^6$**

Mesoplastics

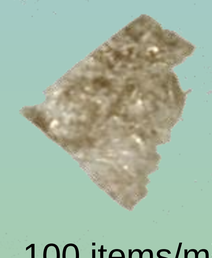
- Collection of sediment from the banks of the stream
- Dried
- Filtered
- Extraction of mesoplastics using a steel clamp
- Washed, dried, weighed, counted and visually characterized

45.6 items/kg dry sediment

(1360 items/m^2)

Macroplastics

- Manual collection from delimited zones
- Washed
- Dried
- Weighed
- Counted and visually characterized



100 items/m^2

- The transport of microplastics at a distance of 3 km from the mentioned point was analyzed, finding that there is retention of microparticles in the stream bed.
- The influence of the discharges from the wastewater treatment plants on the stream was corroborated.

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