

## Export of microplastics to coastal areas in Central Chile: The contribution of Biobío River

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Plastic particles were collected from Biobío River (and their tributaries - upper, middle, and lower area) and from Itata river (mouth) of central Chile, in 2 different periods (summer: January and winter: July 2022). Samples were collected using a plankton net with a circular mouth opening of 25 × 50 cm and 330 μm mesh size. Plastics were analyzed using Fourier-transform infrared spectroscopy for polymer identification and physical characterization. Clear differences were observed between seasons with ~50% increase in plastic particles, during winter (57 particles) and summer (25 particles), synthetic fibers were the most abundant particles found. Polyethylene terephthalate (PET) (50-80%) and Polypropylene (PP) (40-65%) were the most abundant polymers along the river. Results showed lower zone of the Biobío and Itata river were the most diverse sampled zone (size, shape, colour, and type of material). The export of plastic particles accounted for 550 mg/m<sup>3</sup> during summer and ~7800 mg/m<sup>3</sup> in winter such differences are mainly attributed to the changes in precipitation regimes between seasons. Our results are lower than the reported in previous studies from the North Hemisphere, and Asia, nevertheless, were higher than other areas in the southern hemisphere (Colombia, Australia, and South Africa). These findings provide new information regarding plastic pollution and particularly to know the health status of rivers in central Chile.