

---

# Assessment of microplastic particles ingested by *Mytilus galloprovincialis* along the Adriatic coast

Marija Fornažar<sup>\*1</sup>, Victor Stinga Perusco , Ana Baricevic , Daniela Maric Pfannkuchen ,  
Tjasa Kogovsek , Martin Pfannkuchen , and Mirta Smodlaka Tankovic<sup>†</sup>

<sup>1</sup>Center for Marine Research, Ruder Boskovic Institute – G. Paliaga 5, 52210 Rovinj, Croatia

## Abstract

One of the most widespread pollutant and an emerging threat to marine ecosystem are microplastic particles (MPs) smaller than 5mm in size (Mercogliano et al., 2021). After MPs being ingested by an organism via filter feeding or predation they can cause changes in feeding and reproductive behavior but also have a toxic effect due to pollutants and other harmful compounds adsorbed on the surface of MPs (Bajt, 2021) which puts the ecosystem food chain at risk. MPs have been detected in mussels and fish around the world and many other marine organisms. Due to their broad geographical distribution and easy accessibility, mussels have been widely used for biomonitoring studies in the marine environment (Pizzurro et al., 2022). As filter feeding organisms, mussels process large volumes of water (7-8 L on average) and consequently accumulate and concentrate surrounding pollutants (Bajt, 2021). They provide a suitable amount of tissue for analysis and are easily collected (Pizzurro et al., 2022). For this research, mussels *Mytilus galloprovincialis*, were sampled in 6 different stations located in the Adriatic Sea in the framework of the INTERREG IT-HR MARLESS pilot project with a total of 176 analyzed mussels. Samples were digested with acid and extracted with saturated sodium chloride solution. The solution was then filtered on a filter which was examined under the stereomicroscope. MPs were categorized by shape, size and color. MPs are found in all the sampled regions. The results showed that the average frequency of MP occurrence (%F) is 80% with an average numerical abundance (%N) of 3 MP per mussel. Filaments are found to be the most prevalent group followed by plastic fragments while pellets were found only in one sample.

**Keywords:** microplastics, Adriatic Sea, mussels, *Mytilus galloprovincialis*

---

<sup>\*</sup>Speaker

<sup>†</sup>Corresponding author: mirta@cim.irb.hr