Experiences from Early Adopters in EOSC
RELIANCE Open challenge for Sustainable Development

Microplastics Monitoring Methodology in Seawaters

TERESA CECCHI[1], MARIA RAPA[2]
[1]ITT Montani Fermo, Italy
cecchi.teresa@istitutomontani.edu.it
[2]University Politechnica of Bucharest
maria.rapa@upb.ro

Reliance

Main activities carried out with the RELIANCE Services

- The service we used is **ROHUB**
- Development of a **workflow research object**
- **Rationale:** harmonization of preanalytical and analytical steps in microplastic quantification and characterization is an urgent research need
- **Aim:** the RO is focused on presenting a tentative microplastics (MPs) sampling and analysis methodology in seawater environment.

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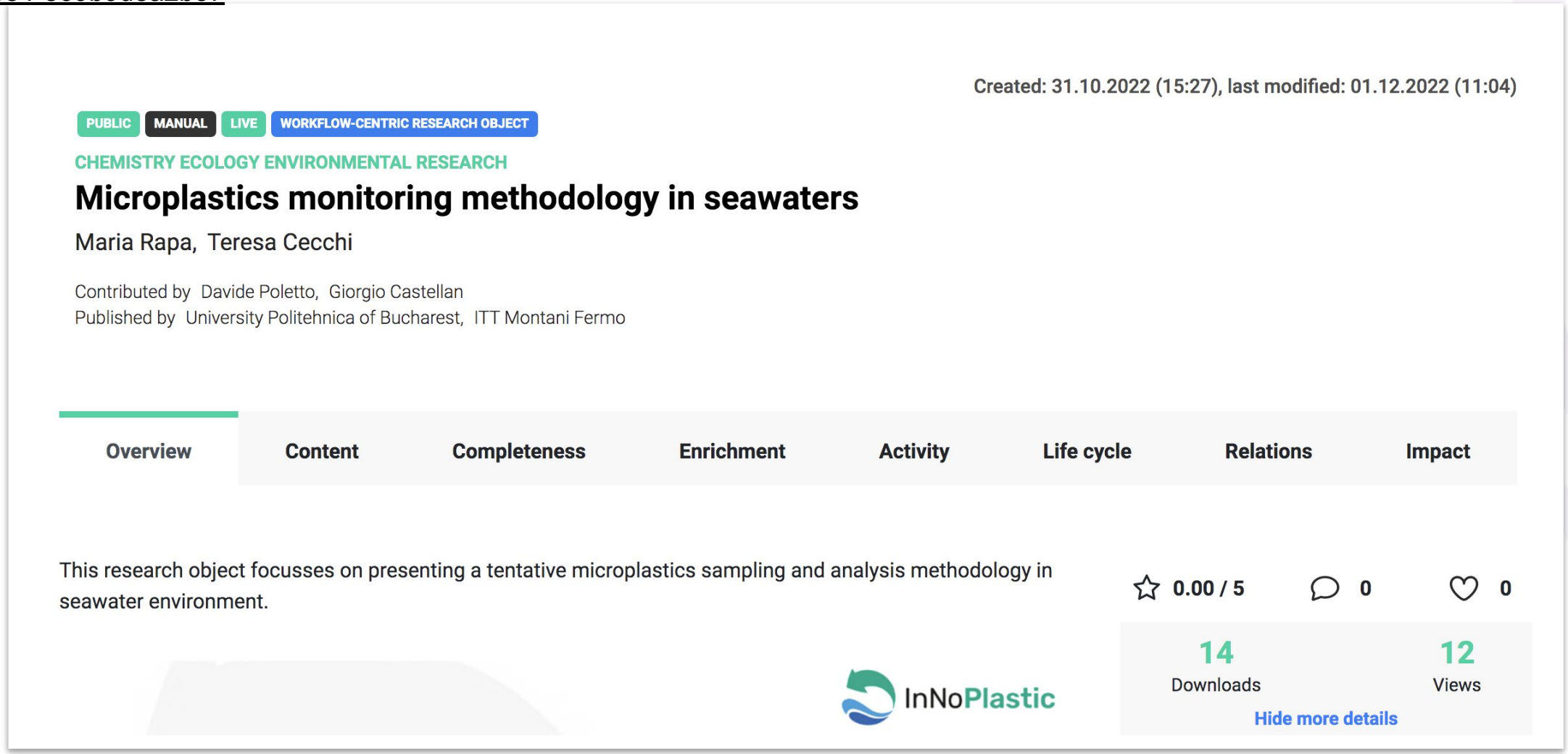
Main activities carried out with the RELIANCE Services

https://reliance.rohub.org/roedit?ro=a1fe8d87-7ca4-4846-ab84-869b9d8a2b57



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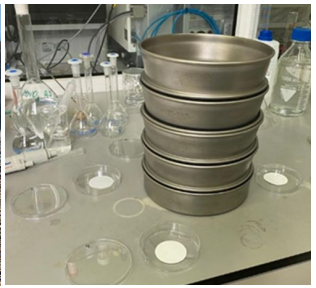
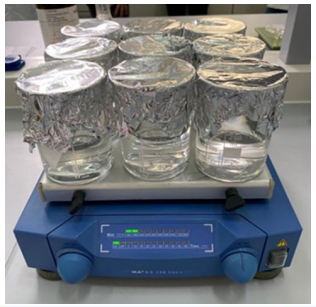
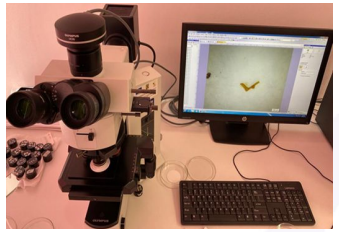
RESEARCH OUTCOMES

Sampling






3 water samples of 5L collected from Venice, and 4 from Croatia (Dec 2021 and June 2022) in stainless steel jerry cans

Cascade Sieving → Digestion → Filtration

Preanalytical Steps

Optical Microscopy

Nanoparticles (NPs) Analysis

Analytical Steps

Results

- MPs/L
- MPs Size Category
- MPs Morphology
- MPs Color
- NPs/mL
- Mean (nm)

- *Most MPs are fibers*
- *The highest concentrations were observed in the most iconic locations of Venice city center*
- *The conc. of NPs is cca. 10 billion times higher than MPs (to be further investigated)*

FINAL CONSIDERATIONS AND REMARKS

Added value of using EOSC-RELIANCE digital assets:

- possibility to combine the approach of a research-oriented teaching in an educational lab with the European network of scientists in the microplastic research field;
- empowering digital natives with sustainability competence through project-based learning and citizen science;
- It is conducive to developing students' talent and engagement with tools able to enhance and facilitate the exchange of data, the cooperation and knowledge sharing;
- RO tags help retrieve this workflow
- RO helps networking
- RO can be crucial in collaborative research to harmonize the applied procedures

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FINAL CONSIDERATIONS AND REMARKS

Gaps to be filled out

- the reliability of knowledge extracted from raw data needs an assessment tool different from the “like” concept featured with stars like rating open to any users. Science cannot be “voted” as liked or disliked (Thumb up or down).
- Browsing the overall data base of the ROs, in particular tags can be improved as the scroll window should display all possible options

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Thank you for your attention!

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