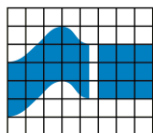




Current situation and measures to mitigate microplastic pollution in the marine environment

dr. Tine Bizjak, Tamara Bizjak





Microplastics (MP)

- Plastic particles between 0,001 and 5 mm in size
- Primary MP
- Secondary MP





EU legislation targeting MP in marine environment

Marine Strategy Framework Directive (Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy)

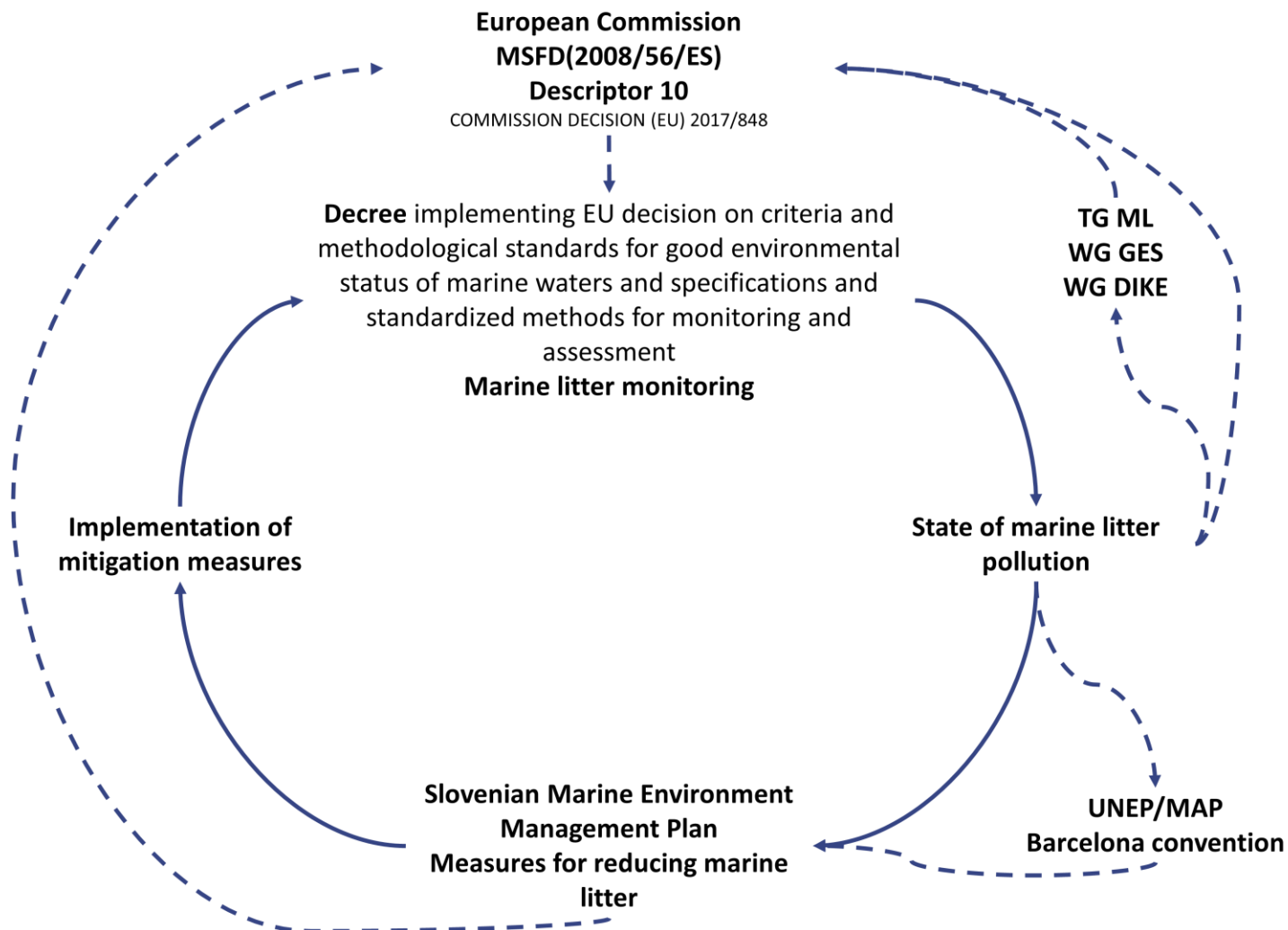
Good Environmental Status: “The environmental status of marine waters where these provide ecologically diverse and dynamic oceans and seas which are clean, healthy and productive”.

Descriptor 10: Marine litter does not cause harm

COMMISSION DECISION (EU) 2017/848 of 17 May 2017:

D10C2: The composition, amount and spatial distribution of **micro-litter on the coastline, in the surface layer of the water column, and in seabed sediment, are at levels that do not cause harm to the coastal and marine environment.**

D10C3: The amount of litter and micro-litter ingested **by marine animals is at a level that does not adversely affect the health of the species concerned.**



MP monitoring by IWRS

- More than 10 years of experience
- EU support is crucial
- IWRS contributed to the development of MP monitoring methodology in Slovenia



DeFishGear

Interreg
Danube Region

AQUATIC PLASTIC

TETHYS4ADRION

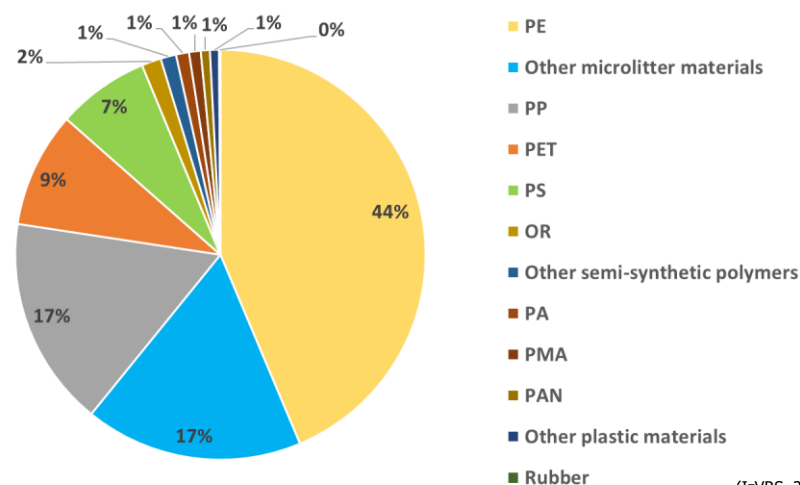
Co-funded by
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Current situation - MP in Slovenian sea

- Sea sediments 55 ± 35 microlitter items per kg
- Beach sediments 37 ± 29 microlitter items per kg
- Sea surface $0,13 \pm 0,15$ microlitter items per m^2 (IzVRS, 2024)
- World oceans 2,76 microlitter items per m^2 of sea surface,
- Atlantic 4,98 microlitter items per m^2 of sea surface (Mutuku et al., 2024)

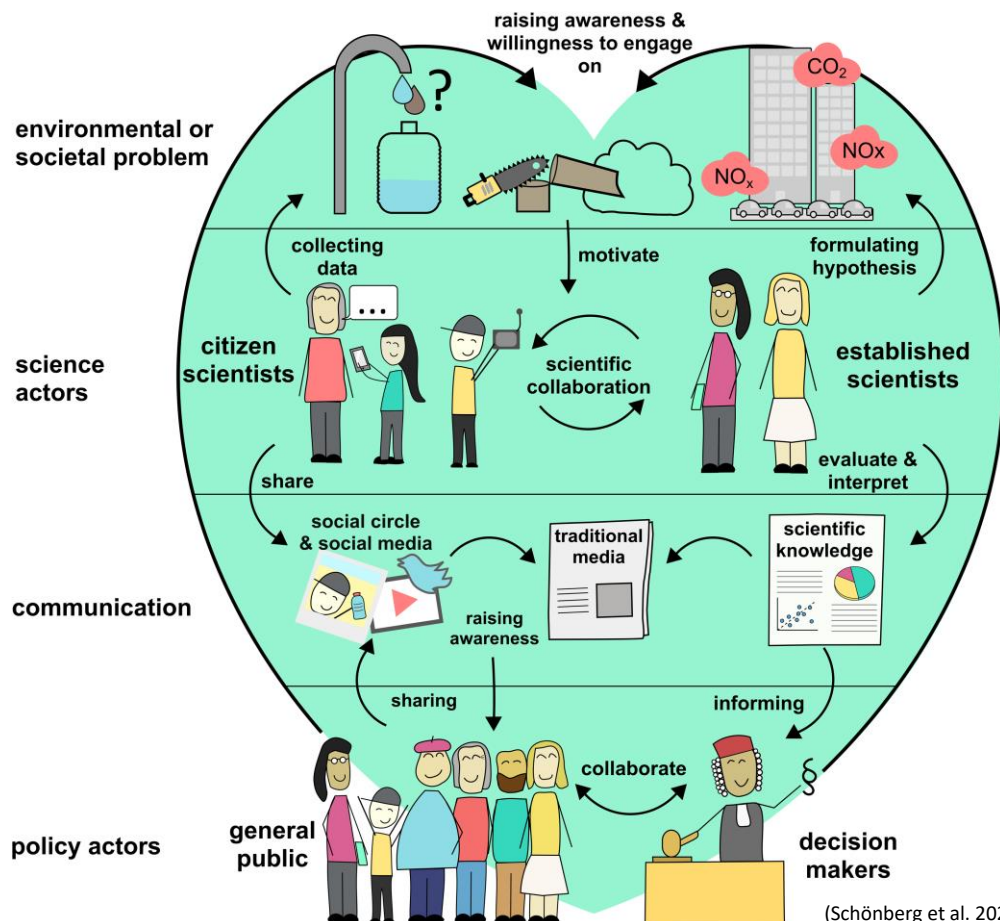
Chemical composition of sea surface microlitter items



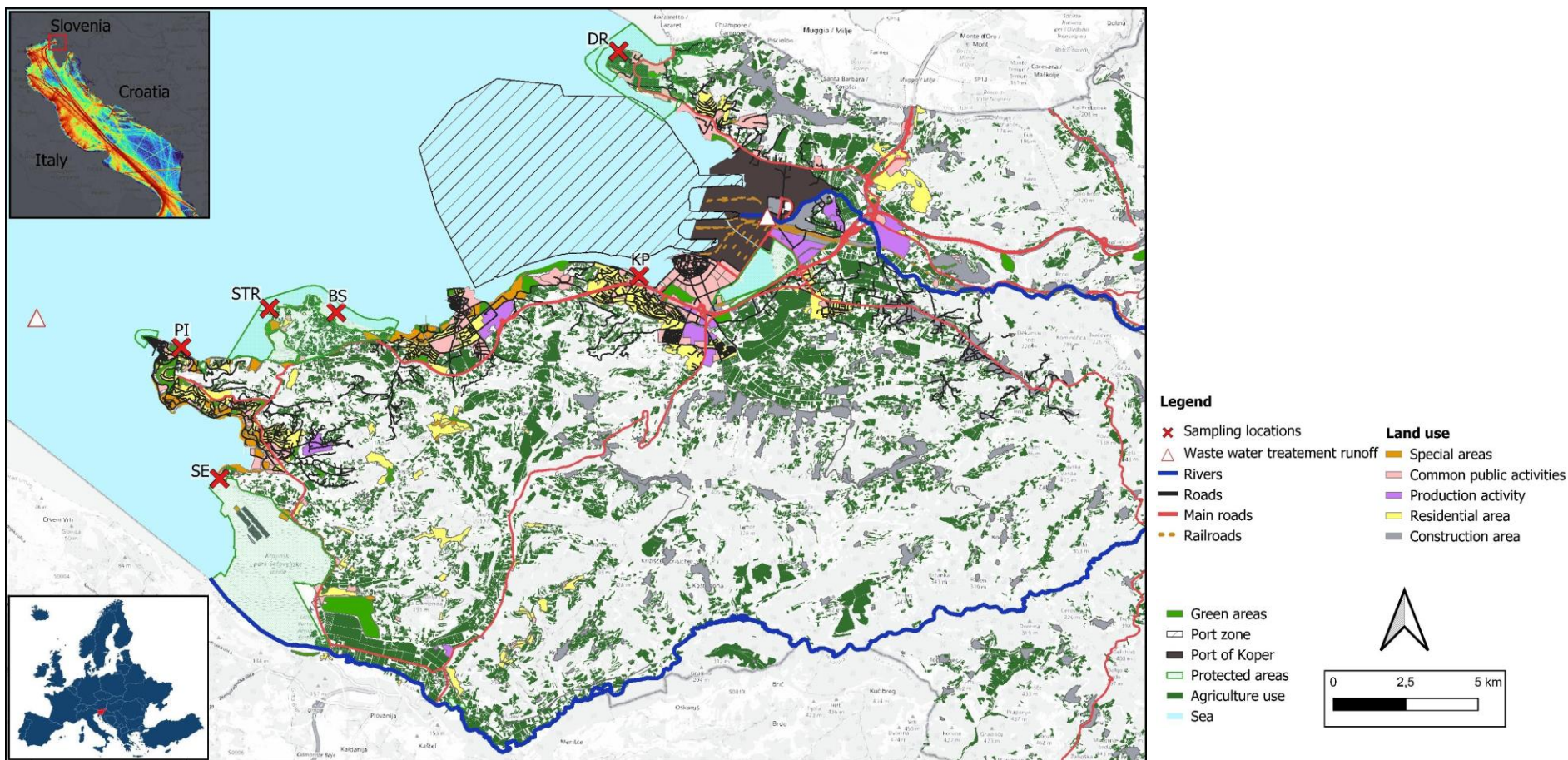
(IzVRS, 2024)

Raising awareness

- “*Plastic Pirates – Go Europe!*”
- Stakeholders' involvement (round tables, workshops)



Identifying MP sources





Other EU legislation targeting MP pollution

- UWWTD
- WFD – in process
- SUP Directive
- European Green Deal
- Zero Pollution Action Plan
- REACH restriction on microplastics intentionally added to products
- EU decision MP in drinking water, etc.
- ...

Holistic approach addressing MP pollution




IWRS MP in rivers and underground water






Innovations in MP research

- Developing field of research
- Sampling system developed with Geological Survey of Slovenia
 - SLO Patent
 - EU patent
- Benefits:
 - Reduces contamination
 - Lowers sampling costs
 - Facilitates laboratory analysis
 - Wide applicability (various environments, microbiological research, etc.)
- Connecting institutions (EU projects)

(19)  **Europäisches Patentamt**
European Patent Office
Office européen des brevets

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(71) Applicants:
• Geoloski zavod Slovenije
1000 Ljubljana (SI)
• Institut za vode Republike Slovenije
1000 Ljubljana (SI)

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(72) Inventors:
• Mali, Nina
1000 Ljubljana (SI)
• Kovac Virsek, Manca
1290 Grosuplje (SI)
• Bizjak, Nejc
1433 Radece (SI)
• Bizjak, Tine
1000 Ljubljana (SI)

(74) Representative: Patenti Biro AF d.o.o.
Kotnikova ulica 32
1000 Ljubljana (SI)

(54) **A DEVICE FOR SAMPLING LIQUIDS, A METHOD FOR SAMPLING LIQUIDS USING SAID DEVICE AND USES THEREOF**

(57) The present invention belongs to the field of devices for sampling liquids. The invention relates to a device for sampling liquids, a method for sampling liquids using said device and uses of the device and the method. The device for sampling liquids comprises:
- an inlet pipe (2, 2') with at least two legs, wherein on one leg the inlet pipe (2, 2') is configured for connection to a pump or pumping site (3, 3'), and on the second leg the inlet pipe is configured for connection to a distribution unit (4, 4').
- a connection pipe (41a) between the inlet pipe (2, 2') and the distribution unit (4, 4'), wherein the connection pipe may be in the same level as the inlet pipe (2, 2') and the distribution unit (4, 4') or the connection pipe is under the distribution unit (4, 4').
- the distribution unit (4, 4') having at least two, preferably three or four, symmetrically arranged legs, wherein at least two remaining legs are (41b) are configured for connection to a corresponding sampling unit (6, 6'), and wherein a pressure measuring device (42, 42') is installed in the distribution unit (4, 4'), and
- at least two sampling units (6, 6'), which are essentially pipe elements provided with a valve (61, 61'), at least one filter holder (62, 62') configured to receive at least one filter, and a flow measuring device (63, 63') installed upstream or downstream the filter holder (62, 62').

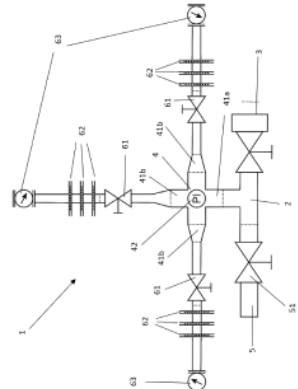


Figure 1

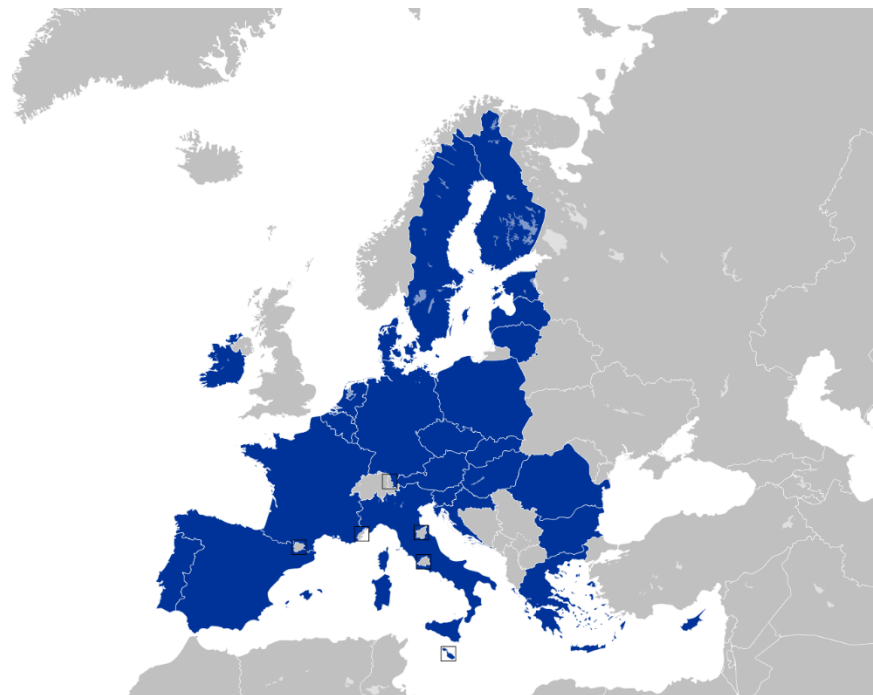
EP 4 567 402 A1

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Vision of MP free environment

Macro-regional
cooperation is crucial for
effective mitigation of
MP pollution





**TEDEN SREDOZEMSKO OBALNE
IN MAKROREGIONALNIH
STRATEGIJ**

Izola, Slovenija
15. – 17. september 2025

**MEDITERRANEAN COAST
AND MACRO-REGIONAL
STRATEGIES WEEK**

Izola, Slovenia
15 – 17 September 2025



THANK YOU FOR YOUR ATTENTION!



Contact: dr. Tine Bizjak
tine.bizjak@izvrs.si



EU Strategy for the
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