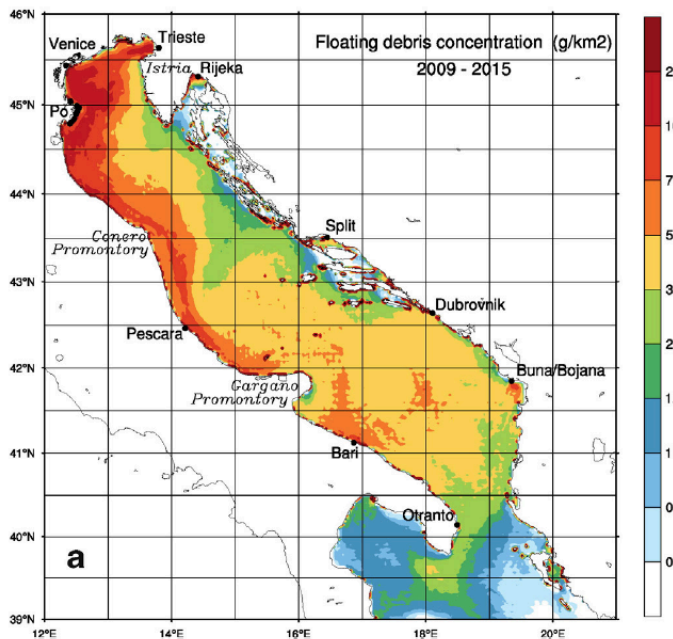# Plastic debris pollution in Montenegro: Lessons learned from the DeFishGear and AMAre projects

Svitlana Liubartseva, Giovanni Coppini, Rita Lecci, and Ivan Federico
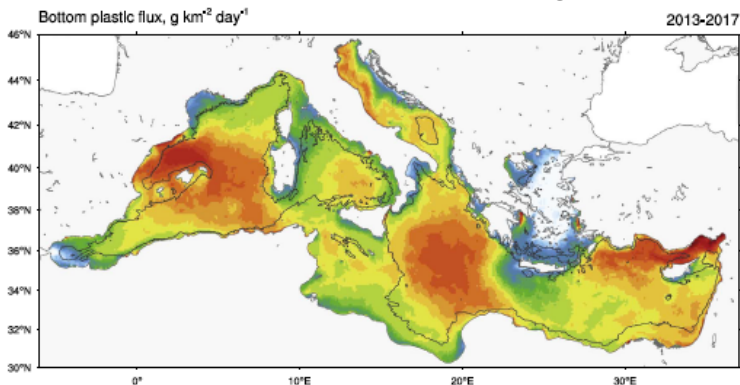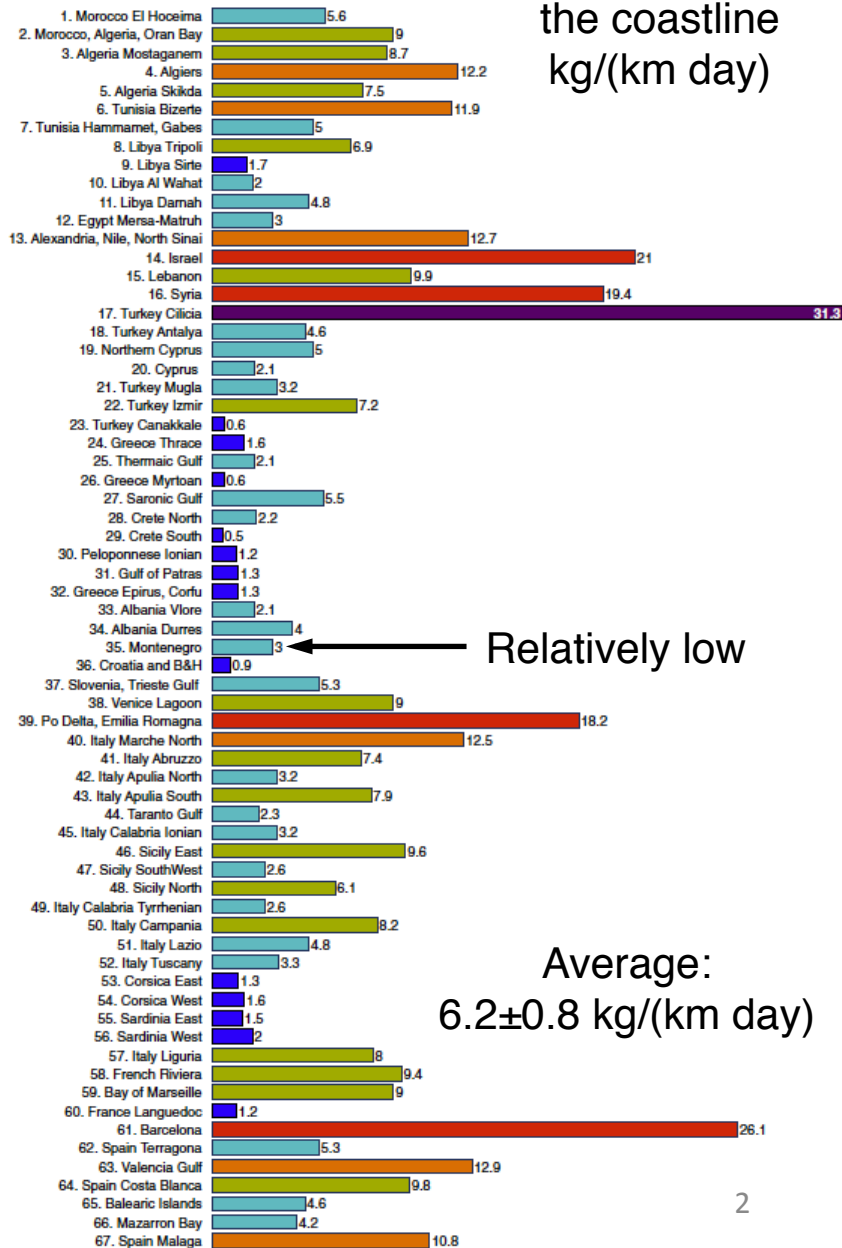*CMCC – Centro EuroMediterraneo sui Cambiamenti Climatici*

Modeling

Plastic floating at the sea surface g/km²
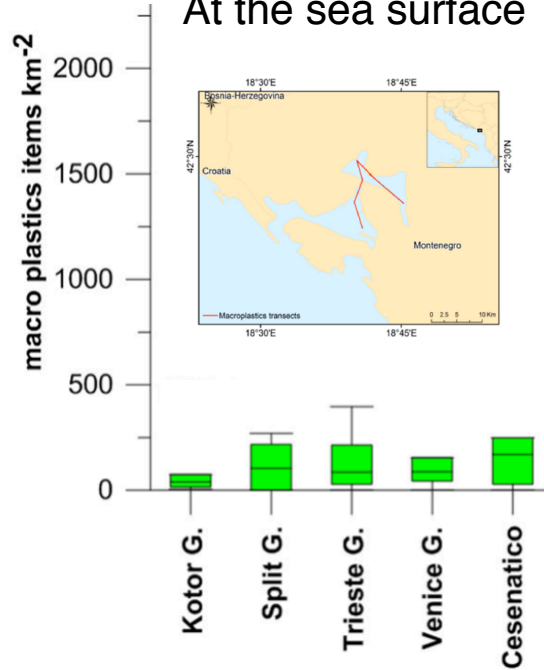

Plastic flux to the seabed g/(km² day)

from Liubartseva et al, 2016, 2018

Plastic flux onto the coastline kg/(km day)
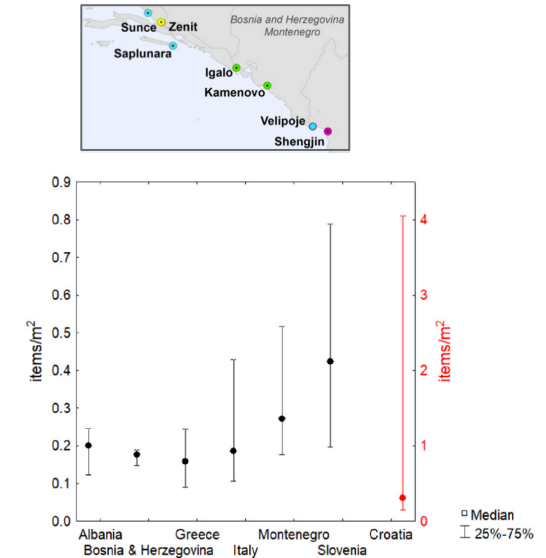

Relatively low

Average: 6.2±0.8 kg/(km day)

Observations

At the sea surface

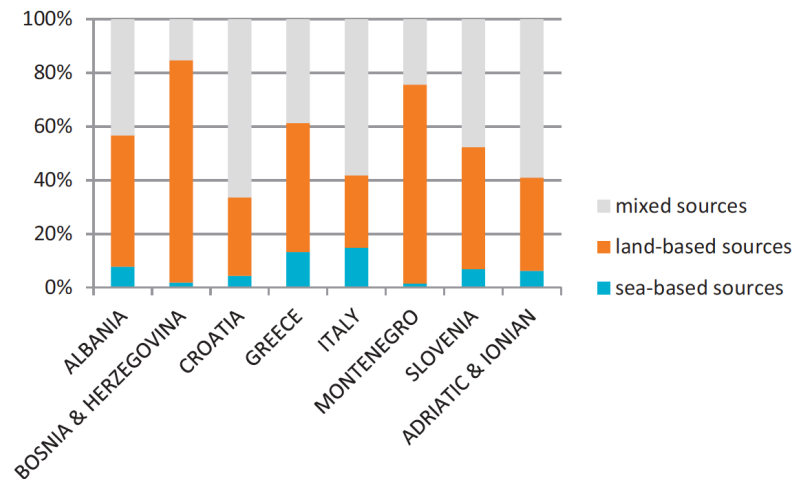## On the beaches of Igalo and Kamenovo

On the seabed of the Kotor Bay

from Zeri et al., 2018, Vlachogianni et al., 2018, Fortibuoni et al., 2019
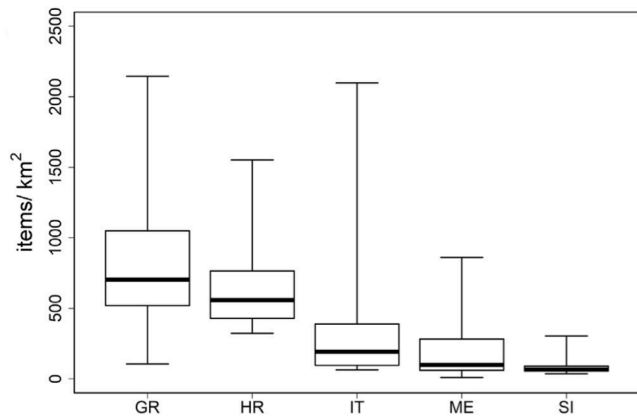
Sources of plastic litter received by Montenegro

Modeling

Observations

74.1% of land-based sources
1.5% of sea-based sources

The Montenegro coastlines receive:
60% of its own litter
35% from the neighbors
5% from shipping lanes

Sea/Land-origin
Ratio:
Model 5%
Observations 2%

from Liubartsevaet al., 2018, Vlachogianni et al., 2018

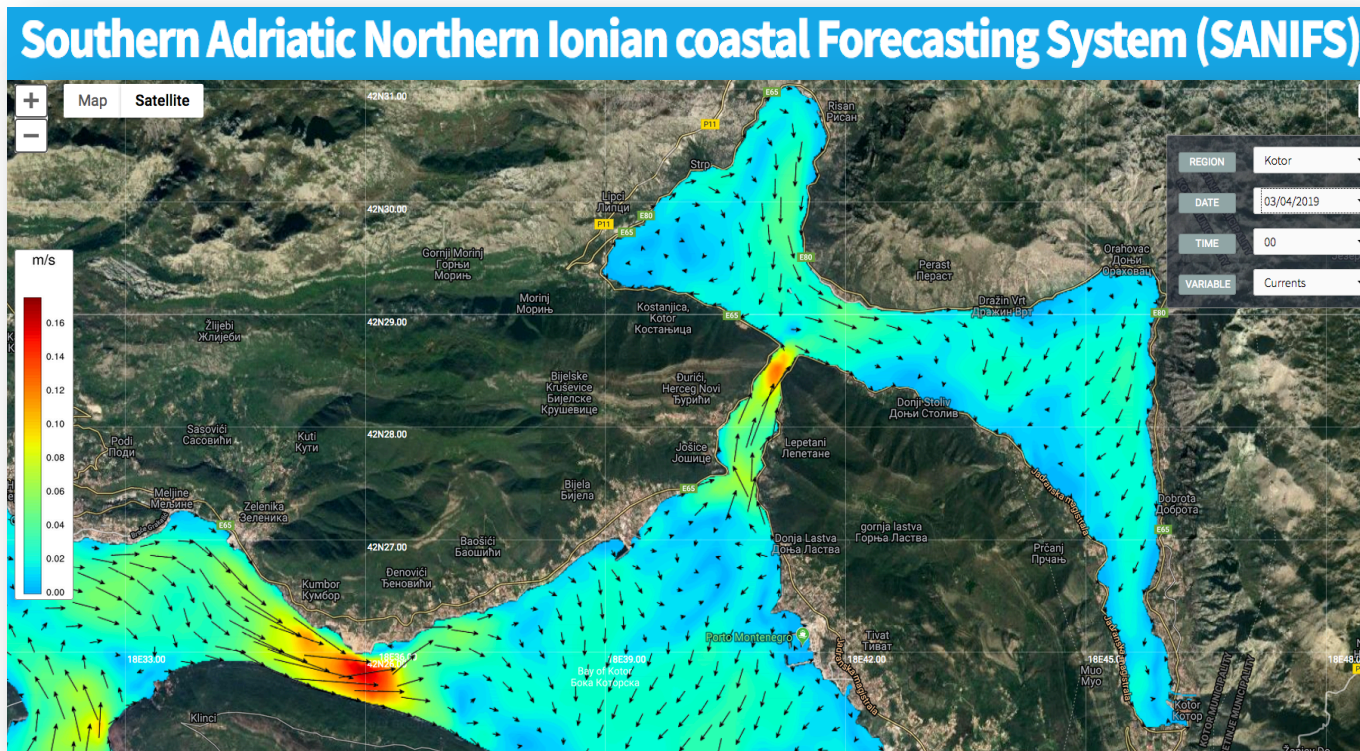# Montenegro basins as the best natural laboratory for studying the fragmentation of plastic
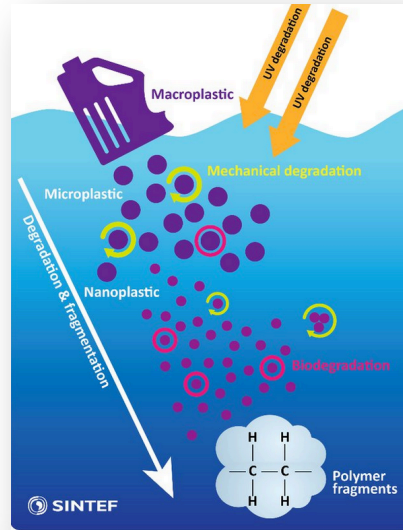
The Kotor Bay is ideal for studying the mechanical stress

The Skadar Lake is ideal for studying the UV influence

from Booth al., 2017

Conclusion

- Evaluation of the model against observations shows quite a good agreement

- For the first time, observations and modeling have enriched each other

- Now, we can compute the transport of plastic, beaching and sedimentation stochastically

- Next step is anticipated to compute fragmentation as a main process of microplastic generation

http://oceanlab.cmcc.it/sanifs/