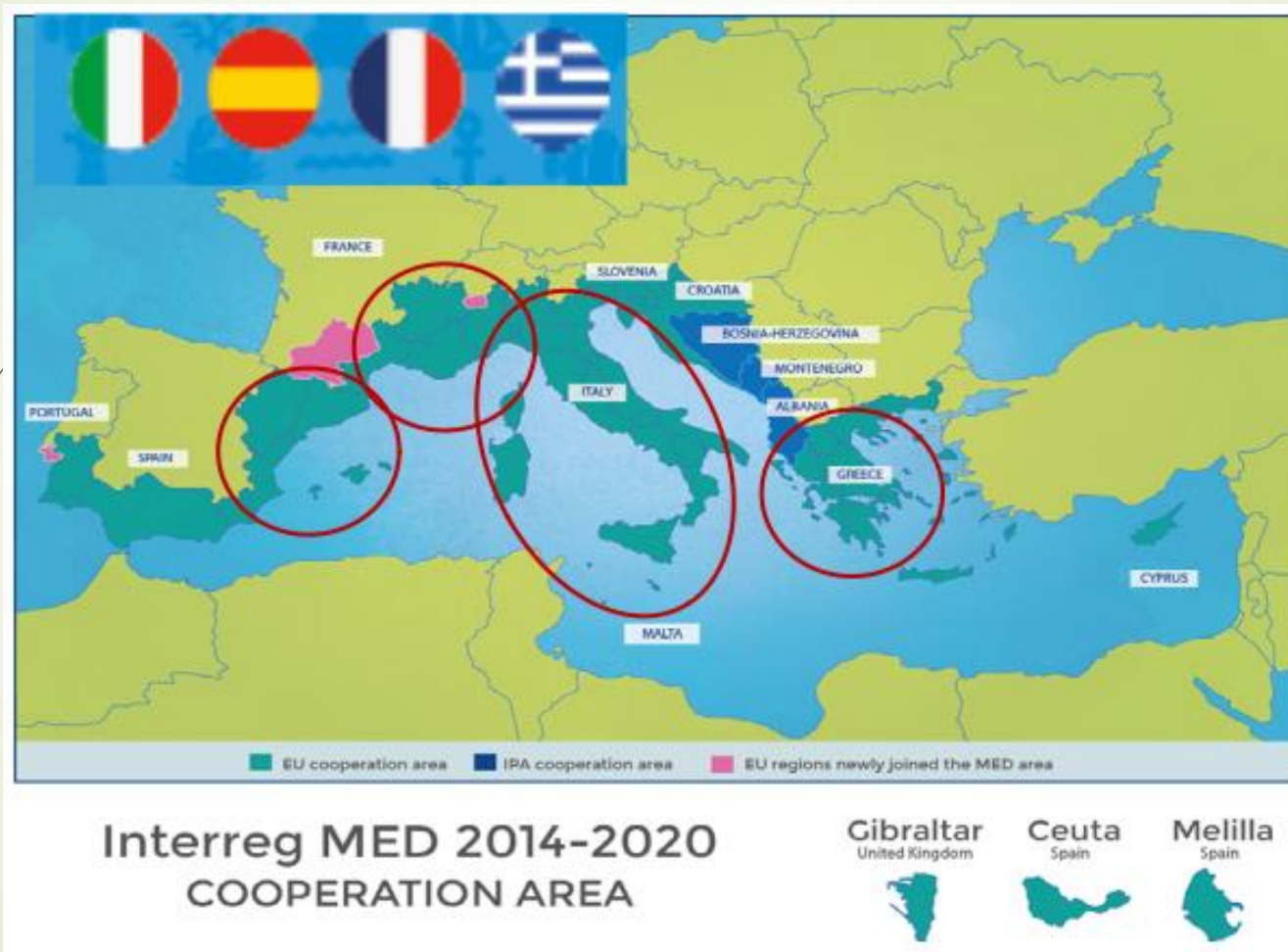


The MEDSEALITTER project (2017-2019)

Developing Mediterranean-specific protocols to protect biodiversity from litter impact at basin and local MPAs scales.



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Objectives

- To **protect and promote** Mediterranean **natural** and **cultural resources**
- To **maintain biodiversity** and natural ecosystems through strengthening the management and networking of **Marine Protected Areas (MPAs)**



- Developing Mediterranean-specific **protocols** to protect biodiversity from **litter impact** at basin and local MPAs scales
- Studying and testing new techniques to **monitor marine litter** and its impacts in the Mediterranean Sea

The MEDSEALITTER project:

How it fits within The Circular Economy Action Plan – The European Green Deal?

PLASTICS



Consumption of plastics is expected to double in the coming 20 years.

By 2050, plastics could account for 20% of oil consumption, 15% of greenhouse gas emissions, and there could be more plastics than fish in the ocean.



Single-use products will be **phased out** wherever possible and replaced by durable products for multiple use.

Acting on microplastics - restricting intentionally added microplastics, increasing the capture of microplastics at all relevant stages of the product lifecycle.



FOOD and PACKAGING



In 2017 packaging waste reached in Europe a record of **173 kg per inhabitant**.



New legislative initiatives on reuse to **substitute single-use packaging**, tableware and cutlery by reusable products in food services, as well as targets for reducing packaging waste will be proposed.

Legislative requirements

Monitoring programmes should **collect information** on:

- **Amount, distribution and composition**
- **Rates and sources**
- **Variations**
- **Impacts**

FMML monitoring is indeed **functional to**:

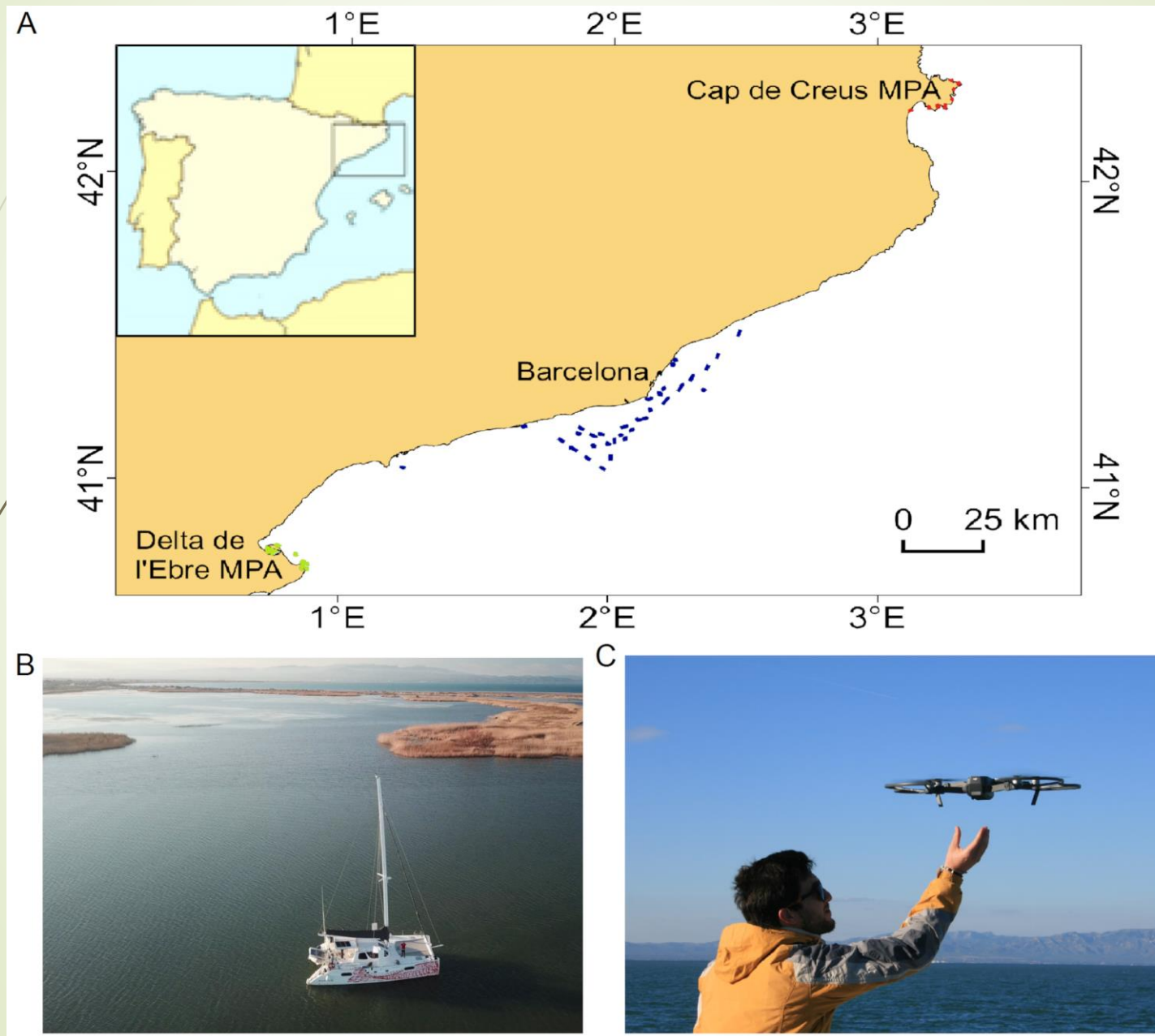
- **Trends**
- **Accumulation areas and sources**
- **Assess changes**
- **Risks and mitigation policies**

Variables and covariates

Variables	Covariates (observation parameters that could influence the sighting probability)
Number of items	a. Sampling design and period
Size class	b. Type of platform (height and speed)
Composition/type	c. Technique (visual observation/automatic photography)
Geographical position	d. Experience of the observers
	e. Weather and visibility conditions (Beaufort, wind direction, visibility, sun glare, etc.)
	f. Strip width
	g. Size of items: lower size limit, classes
	h. Type and colour of items

Monitoring of marine litter in MPAs, the MEDSEALITTER experience:

1) Monitoring of floating marine litter by drones

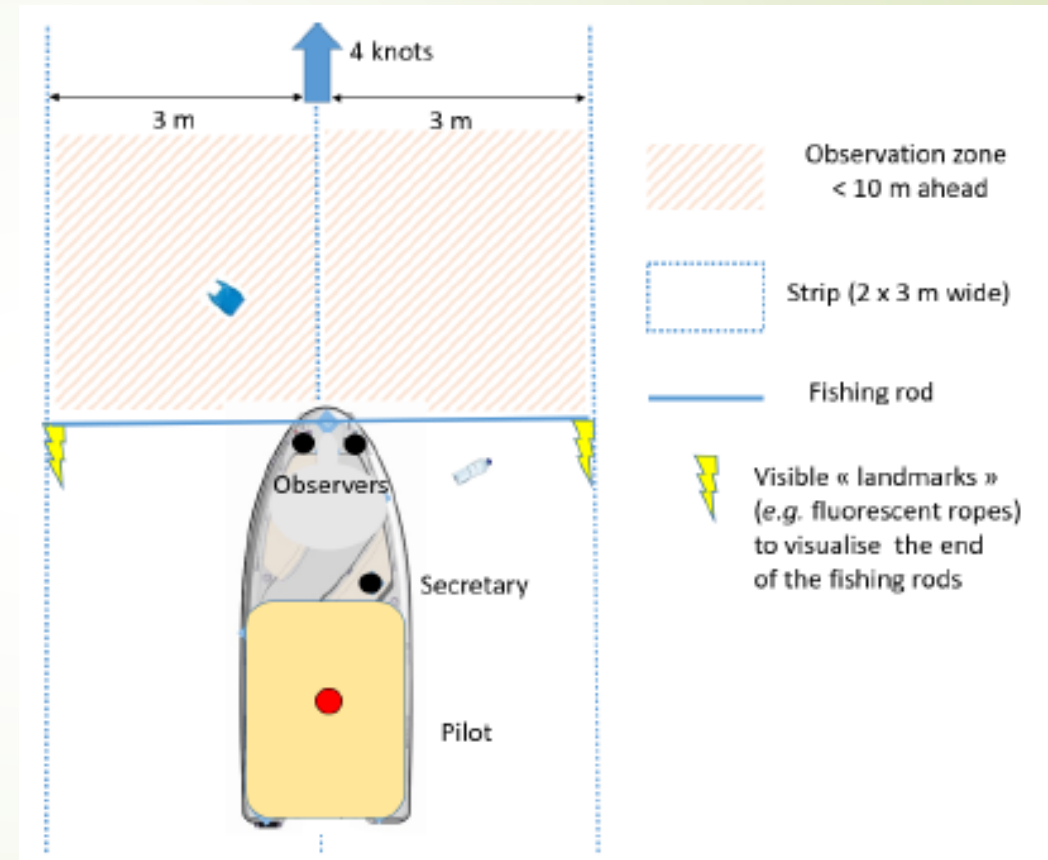
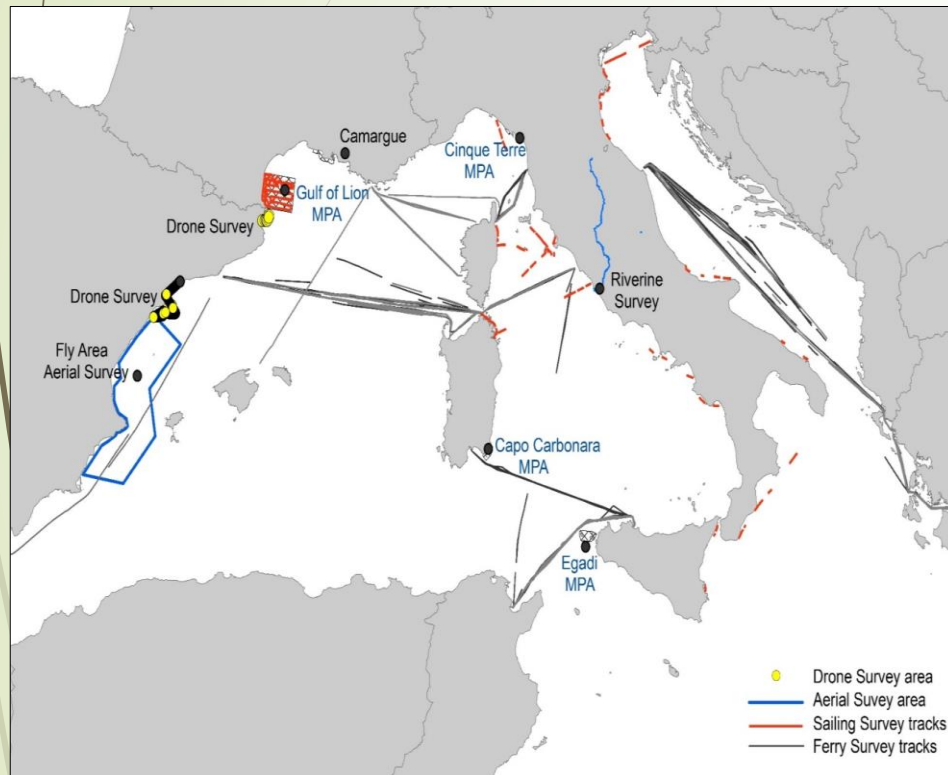


Monitoring of marine litter in MPAs, the MEDSEALITTER experience:

→ Monitoring of floating marine litter by drones

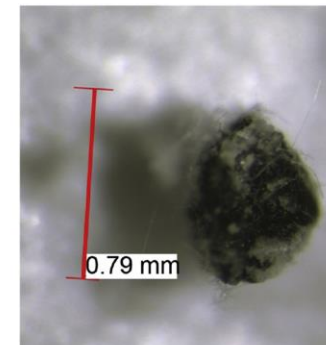
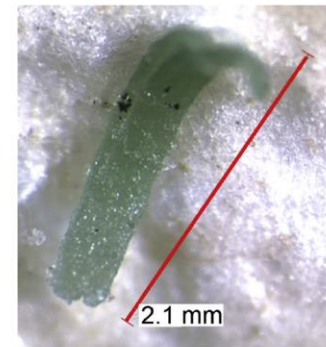
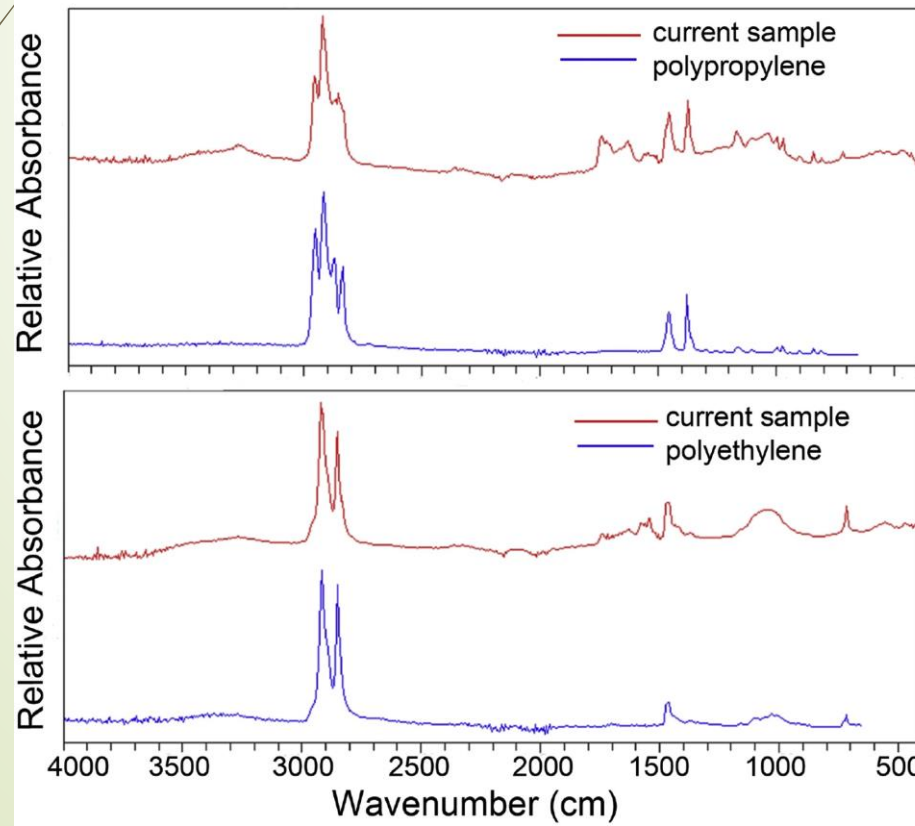
Monitoring of marine litter in MPAs, the MEDSEALITTER experience:

2) Monitoring of floating marine litter by medium and small size vessels



Monitoring of marine litter in MPAs, the MEDSEALITTER experience:

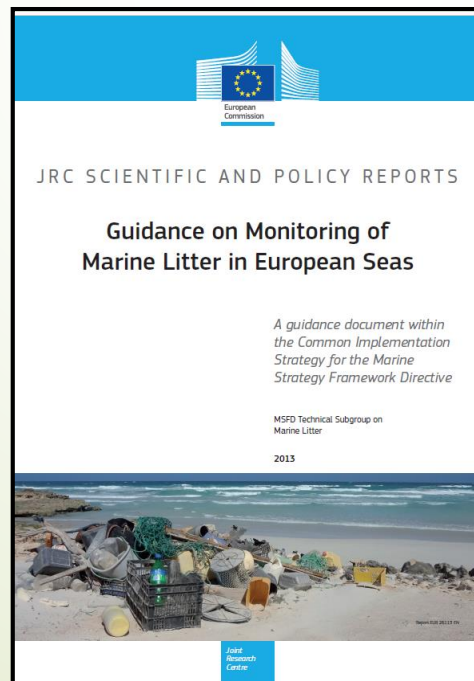
3) The bogue (*Boops boops*) as a bioindicator of microplastic pollution



The MEDSEALITTER project:

Training and transferring

- Training and Transferring workshops addressed to Mediterranean MPAs and stakeholders
- Protocol subscription and application to current monitoring plans; baseline for revision of the EU guidance on marine litter monitoring in European Seas



The take-home message

- The **MEDSEALITTER project** developed standard monitoring protocols to protect biodiversity from litter impact
- The **monitoring of marine litter** is essential to **evaluate risks** and **mitigation policies**. Furthermore, to understand the possible sources and pathways through the environment and to promote new legislative initiatives against plastics
- The **MPA managers** are the **key component** to conduct a regular marine litter monitoring within the Marine Protected Areas

Articles published within the MEDSEALITTER project

- ✓ Arcangeli, A., David, L., Aguilar, A., Atzori, F., Borrell, A., Campana, I., ... Vighi, M. (2020). Floating marine macro litter: Density reference values and monitoring protocol settings from coast to offshore. Results from the MEDSEALITTER project. *Marine Pollution Bulletin*, 160, 111647.
- ✓ Garcia-Garin, O., Vighi, M., Aguilar, A., Tsangaris, C., Digka, N., Kaberi, H., & Borrell, A. (2019). Boops boops as a bioindicator of microplastic pollution along the Spanish Catalan coast. *Marine Pollution Bulletin*, 149, 110648
- ✓ Garcia-Garin, O., Aguilar, A., Borrell, A., Gozalbes, P., Lobo, A., Penadés-Suay, J., ... Vighi, M. (2020). Who's better at spotting? A comparison between aerial photography and observer-based methods to monitor floating marine litter and marine mega-fauna. *Environmental Pollution*, 258, 113680
- ✓ Garcia-Garin, O., Borrell, A., Aguilar, A., Cardona, L., & Vighi, M. (2020). Floating marine macro-litter in the North Western Mediterranean Sea: Results from a combined monitoring approach. *Marine Pollution Bulletin*, 159, 111467.
- ✓ Garcia-Garin, O., Vighi, M., Sala, B., Aguilar, A., Tsangaris, C., Digka, N., ... Borrell, A. (2020). Assessment of organophosphate flame retardants in Mediterranean Boops boops and their relationship to anthropization levels and microplastic ingestion. *Chemosphere*, 252, 126569.
- ✓ MEDSEALITTER consortium, (2019). Common monitoring protocol for marine litter. Deliverable 4.6.1. <https://medsealitter.interreg-med.eu/what-we-achieve/deliverable-database/>
- ✓ Tsangaris, C., Digka, N., Valente, T., Aguilar, A., Borrell, A., de Lucia, G. A., ... Matiddi, M. (2020). Using Boops boops (osteichthyes) to assess microplastic ingestion in the Mediterranean Sea. *Marine Pollution Bulletin*, 158, 111397.

Inter alia...

Thank you very much for your attention!



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