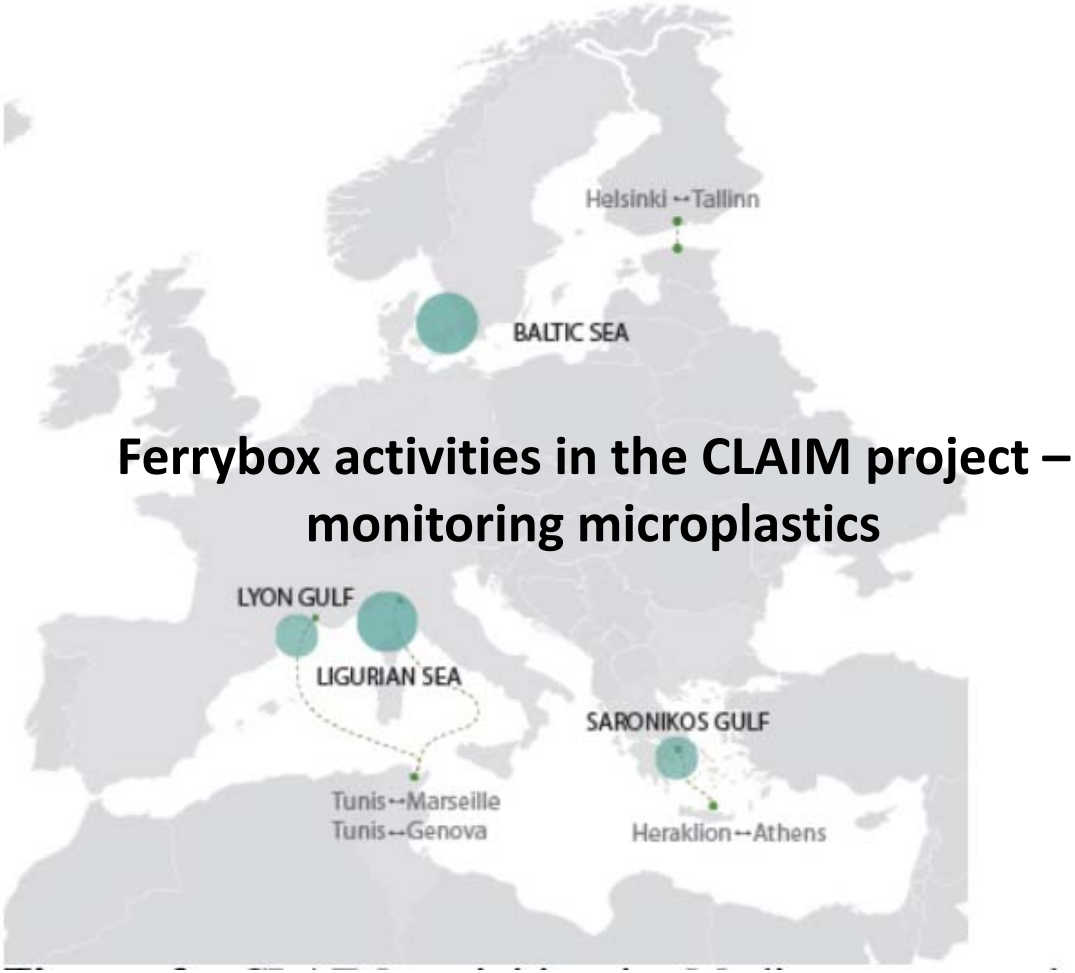

Ferrybox activities in the CLAIM project – monitoring microplastics

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8thFerryBox Workshop, Oslo-Kiel-Oslo

CLAIM

Cleaning Litter by developing and Applying Innovative Methods in European seas

EC, H2020,

start November 2017

Aim: Development of innovative cleaning technologies and approaches, targeting the prevention and in situ management of *visible and invisible marine litter* in the Mediterranean and Baltic Seas.

Among its tasks, => develop a method to measure microlitter on board ships (Ferrybox).

A **passive filtering system** will be developed and placed in the existing flow through circuit

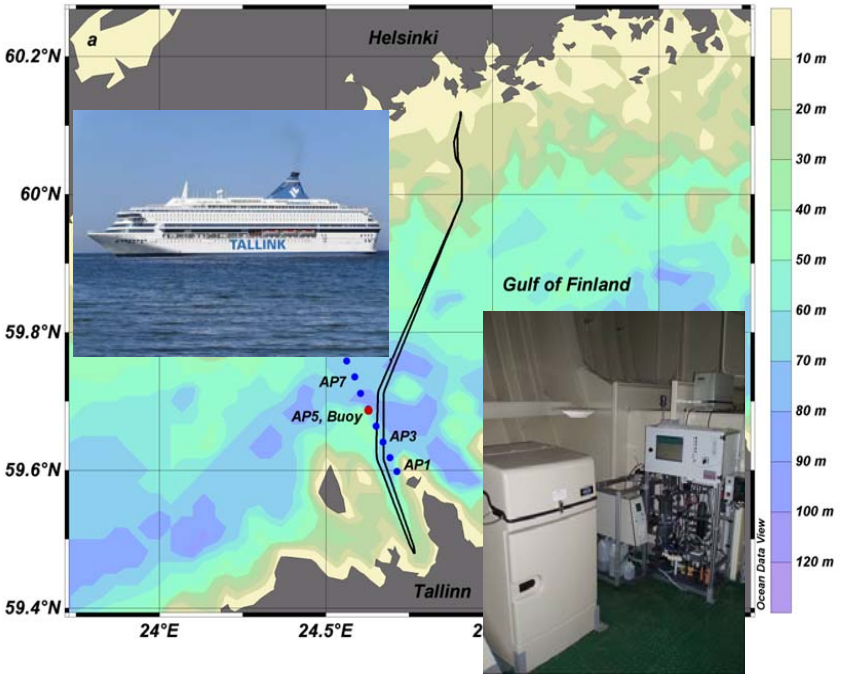
Steps

- **Review** of technologies that could be integrated in FerryBoxes,
- **Lab tests** from a continuous pumping system of urban coastal sea water,
- **Field test** on board a **R/V** equipped with FerryBox, (Baltic Sea).
- **Field test** on board a **Ferries** equipped with FerryBox (2 in the Med Sea, 1 in the Baltic Sea).
- Microplastic concentration (FB+other) data used for **model validation**. Modelling tools will be used to identify pathways and accumulation areas of plastic litter.

CLAIM microplastic measurement activities in

- Mediterranean (Saronikos Gulf, Gulf of Lyon and Ligurian Sea) + FB Heraklion-Athens, Tunis-Marseille & Tunis-Genova
- Baltic (Belt Sea), + FB (Helsinki-Talinn)

BALTIC SEA



Ferrybox on board Silja Europa (Tallinn-Helsinki),

water intake from the surface layer (4 m)
sampling rate 20 s (spatial resolution about 160 m),

parameters: **T, S, Chl *a* fluorescence**.

One trip forth and back across the gulf a day.
Data retrieval once a day via GSM connection.

Flow-through system on board R/V Salme,
water intake at 2 m depth,
sampling interval 1 min (spatial resolution about 250 m),

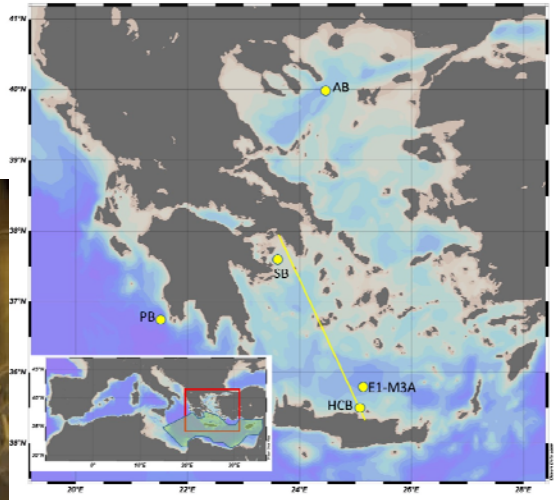
parameters: **T, S, Chl *a* fluorescence, turbidity, and oxygen**.

Every year about 20-30 cruises conducted; 6 monitoring cruises along a regular track.

E. MEDITERRANEAN SEA

POSEIDON Ferrybox System (HCMR)

High-Speed Ferry "Festos Palace" covering the distance every night in 7 hours (speed > 20 knots).



The FB route **Piraeus – Heraklion** meets three Poseidon stations/buoys.

E. MEDITERRANEAN SEA

POSEIDON Ferrybox System (HCMR)

Temperature-Conductivity (Thermo-Salinometer FSI)

Fluorescence-Turbidity (Scufa II Turner Design)

Dissolved **Oxygen** (Aanderaa optode)

pH (Meinsberg probe)

2018 Planned upgrades

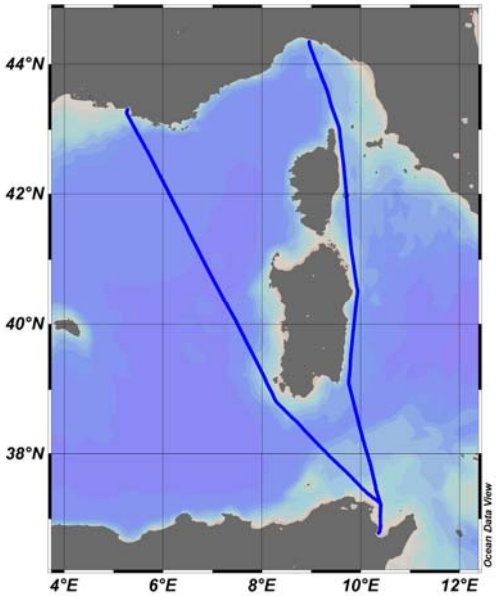
CO_2 sensor (CONTROS)

Water Sampler

W. MEDITERRANEAN SEA

FerryBox
INSTM

FerryBox system installed on board C/f Carthage of the Tunisian Navigation Company (CTN)



ROUTES

Two zonal transects **Tunis-Marseilles** and **Tunis-Genoa**, crossing the Algero Provinçal basin, the Tyrrhenian Sea and the Ligurian Sea.

Parameters

T, S, Chla, Turbidity, dissolved Oxygen , pH and Cytometry

- The upgrade of FerryBox systems within **CLAIM**, offering the capacity to monitor plastics, is expected to be adopted throughout the harmonized European FerryBox network
- The measurements of microlitter on board ships of opportunity will significantly reduce its monitoring costs, as compared to existing methodologies.

To be continued in the 9th FerryBox Workshop...