



**Creating products and knowledge  
for the Mediterranean**



# **BUSINESS CASE: MARINE LITTER**

ODYSSEA General Assembly Lisbon 2018

Ghada El Serafy

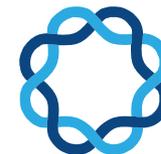
Deltares

[Ghada.ElSerafy@deltares.nl](mailto:Ghada.ElSerafy@deltares.nl)



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727277

# Marine Litter



ODYSSEA

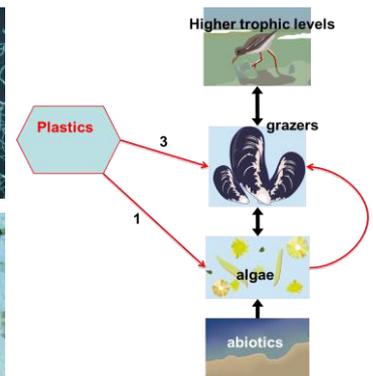
- Global concern → affecting all the oceans of the world.
- Every year, millions of tonnes of litter end up in the ocean worldwide, affecting:

*Marine environment*  
*Tourism*  
*Fishing and aquaculture*  
*Human health*  
*Aesthetics*

**ODYSSEA solution proposes:**

**Monitor the effects of plastic pollution on marine ecosystems and local economies**

**Timely information to coastal communities on marine litter washed ashore**



# Solution



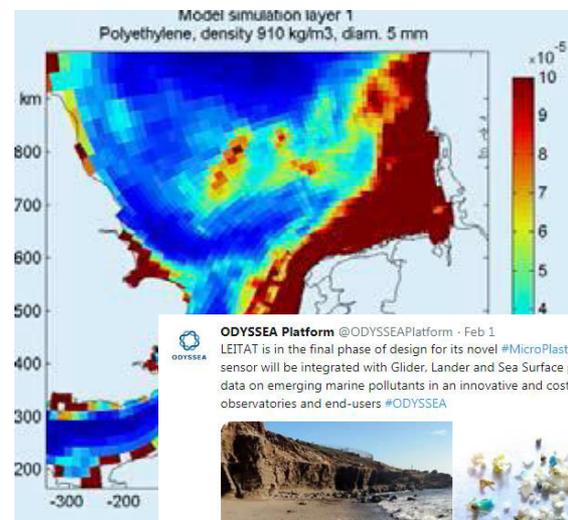
ODYSSEA

## Operational and unique service to:

1. Mapping macro and micro plastic hotspots in the Mediterranean
2. Provide early warning of marine litter washed ashore

## ODYSSEA expertise in:

- Setting up and running operational numerical models in hindcast and forecast mode
- Deploying and operating novel microplastics sensors
- Harvesting citizen science information
- Operating a user friendly web platform to easily access information (ODYSSEA platform)



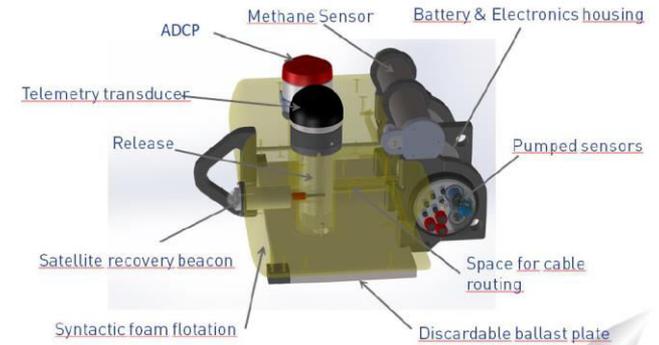
ODYSSEA Platform @ODYSSEAPlatform · Feb 1  
LEITAT is in the final phase of design for its novel #MicroPlastics sensor. The sensor will be integrated with Glider, Lander and Sea Surface platforms to provide data on emerging marine pollutants in an innovative and cost-effective way for observatories and end-users #ODYSSEA



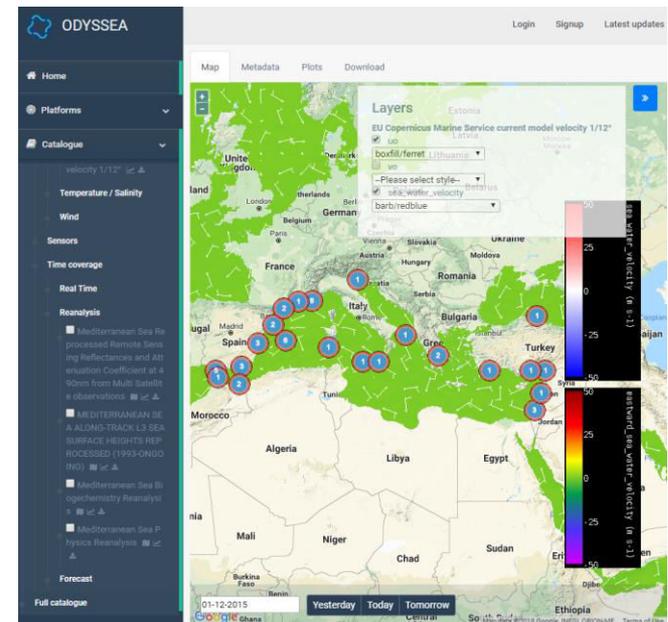
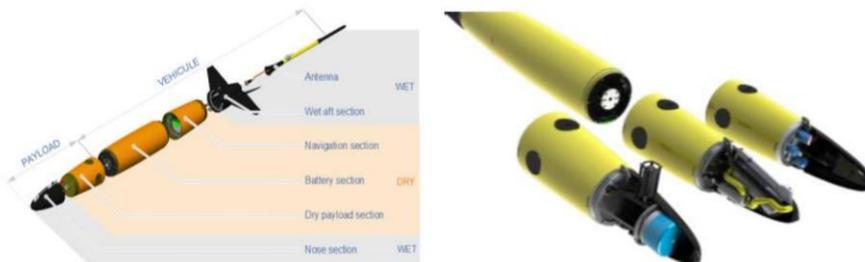
Source: OSPAR

# Service description

- Deploying and operating microplastics sensors at coastal observatories:
  - **Glider payload 3:** Microplastic count and classification
  - **MSL type B:** Microplastic count and classification
  - **Surface monitoring type A**

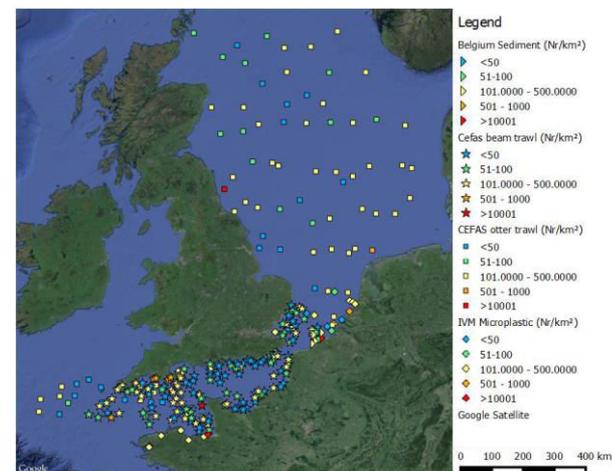
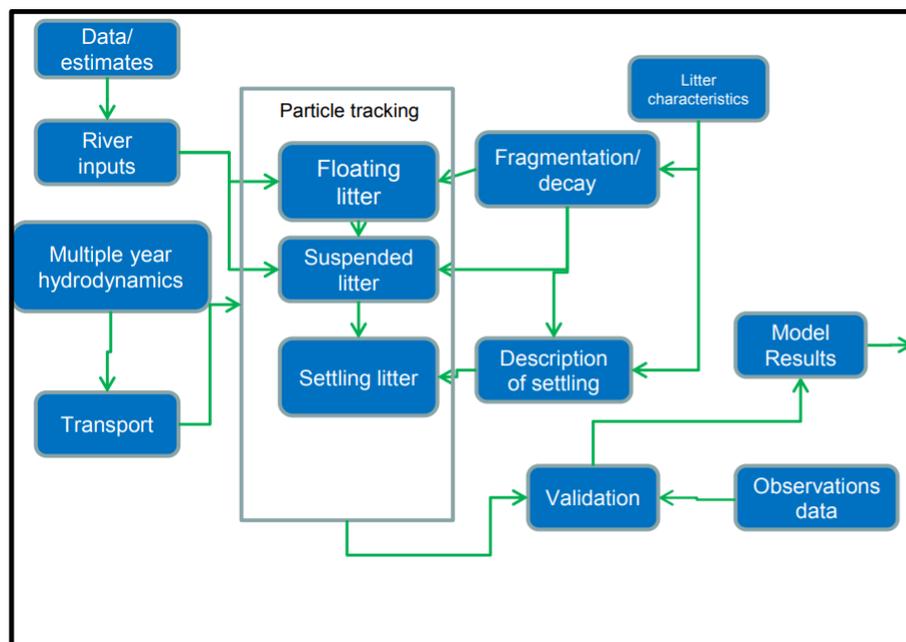


Characteristic	Information
Manufacturer	Leitat
Power consumption	450mW
Operation mode	continuous measurements, synchronous or asynchronous data notification
Sampling rate	3x channels at 5 KHZ (200ms)
Size detection	Detects MP from 0.5 mm to 5 mm



# Service description

- Operational Transport model for plastic distribution using **Delft3D-PART** 
- High resolution hindcast and forecast models provide information to find plastic convergence zones

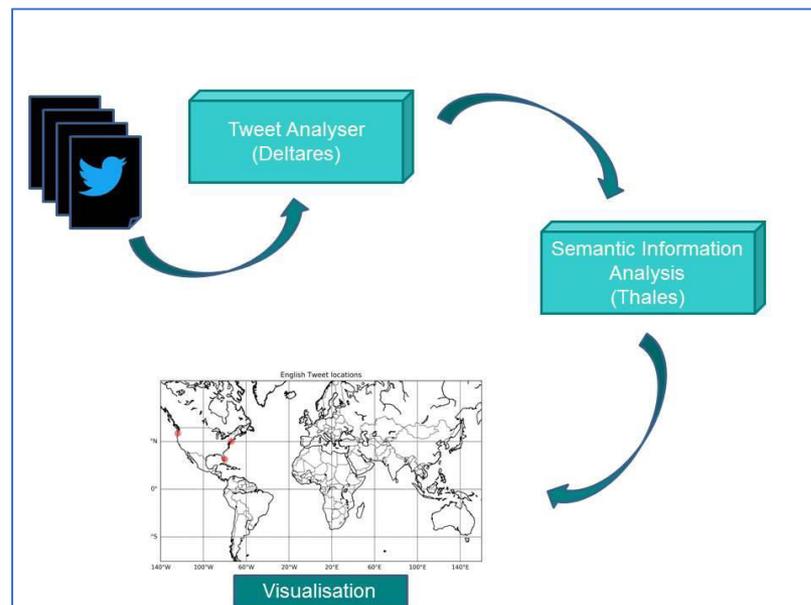


# Service description



ODYSSEA

- Mapping plastic litter in surface waters of the Mediterranean Sea using citizen science
- Test the potential of using information reported by citizens for:
  - Collecting marine litter monitoring data
  - Model calibration and validation



# Expected outcomes for society



ODYSSEA

Potential sectors	Benefits of provided service
<p><u>Tourism:</u> Many countries around the Mediterranean Sea heavily depend on tourism. Clean beaches and sea are important for the local economy. Marine litter affects the <b>aesthetics of a beach</b> and is a <b>nuisance for recreational activities</b> such as bathing, snorkelling, or surfing.</p>	<p>The service will <b>warn stakeholders</b> from the industry (e.g. beachfront resorts, diving centers, sailing center) on occurrences to help them <b>optimize possible response</b> (private beach cleaning operations, reallocation of excursions, etc.).</p>
<p><u>Offshore and onshore recycling companies:</u> <b>Sustainable operation</b> of recycling industry can be enhanced by mapping the marine litter in the Mediterranean Sea</p>	<p><b>Identifying accumulation areas</b> will help companies which turn trash into products.</p>
<p><u>NGOs/Environmental organisations:</u> Cleaning operations rely on <b>timely and accurate information</b> of the marine litter.</p>	<p><b>Optimize cleaning operations</b> to reduce the effects of plastic pollution on marine ecosystems and local economies</p>
<p><u>Public authorities:</u> Public authorities are responsible for issuing <b>early warnings</b> and implementing protection and preparedness plans</p>	<p><b>Informed decision making.</b> Authorities can provide <b>early warning</b> to coastal communities on marine litter washed ashore</p>