

Plastic flux for innovation and business opportunities in Flanders (PLUXIN)

Lisa Devriese¹, Erik Toorman², Colin Janssen³, Jana Asselman⁴, Sindy Sterckx⁵, Els Knaeps⁵, Bert Teunkens⁶, Stefan Van Damme⁶, and Gert Everaert^{*,1}

¹Flanders Marine Institute, Oostende (BE), ²KU Leuven, Department of Civil Engineering, Heverlee (BE), ³Ghent University, Laboratory of Environmental Toxicology and Aquatic Ecology, Ghent (BE), ⁴Ghent University, Blue Growth Research Lab, Oostende (BE), ⁵Flemish Institute for Technological Research, Mol (BE), ⁶University of Antwerp, Antwerpen (BE). *gert.everaert@vliz.be

Rationale

Plastic should be **removed at the source** prior to ending up in the marine environment.

Where, when and how should action be taken?

Critical **knowledge gap** about the whereabouts of plastics and about their flux towards the marine environment.

Legislation is being developed.

Basic data on concentrations and fluxes will create opportunities to develop **new economic activities**.

The PLUXIN project kicked off in September 2020 and is a **three year** EUR 1.8 million basic research project funded by VLAIO through the Blue Cluster in Flanders with **two main objectives**.

Objectives

Scientific objective - Where is the plastic and how to detect?

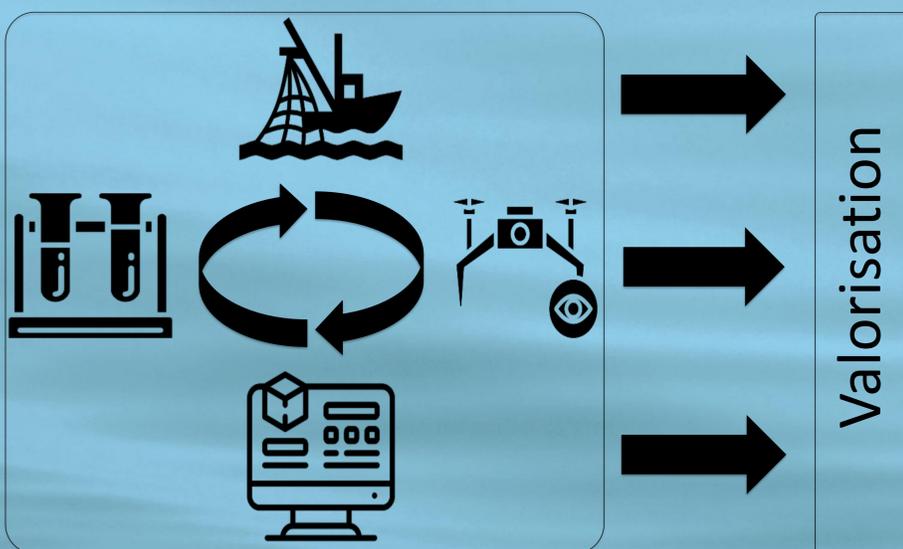
- 3D insight in whereabouts of micro- and macroplastic
- Automated detection of plastic via remote sensing

Valorisation objective - Identify, map, and initiate pathways for valorisation. Stimulate innovation and economic development in Flanders.



Way forward

Laboratory experiments, remote sensing and in-situ **observations** in combination with numerical **models** for a better understanding of **sources, circulation patterns** and **fate of plastic** in the aquatic environment.



Expected output

Protocol for sampling, detecting and identifying micro- and macroplastic aligned with EU initiatives.

Known quantities of plastic present in rivers and harbours.

Conceptual model to quantify plastic flux.

Quantified flux of plastic to the ocean.

Unraveled **accumulation zones** of plastic.

Quantified **travel speed** of plastic through the water column.

Hyperspectral information for automated detection.

Automated **detection technology** and method.

See you at MICRO2022 with our results



Vlaams Instituut voor de Zee vzw
Flanders Marine Institute

KU LEUVEN



**Ecosystem Management
Research Group (Ecobe)**
University of Antwerp



Environmental Toxicology



vito
remote sensing



Samen sterk voor groei