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Towards a Clean Litter-Free European Marine Environment through Scientific Evidence Innovative Tools and Good Governance

Plastic Marine Litter Research

Knowledge for a Clean Sea

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SEVENTH FRAMEWORK PROGRAMME

Framework Program 7
Ocean for Tomorrow Program

Marine Strategy Framework Directive (MSFD) Descriptor 10:

"Properties and quantities of marine litter do not cause harm to the coastal and marine environment"

Honolulu Declaration, Rio +20 Earth Summit, UNEP/GESAMP, IMO, OSPAR, etc.

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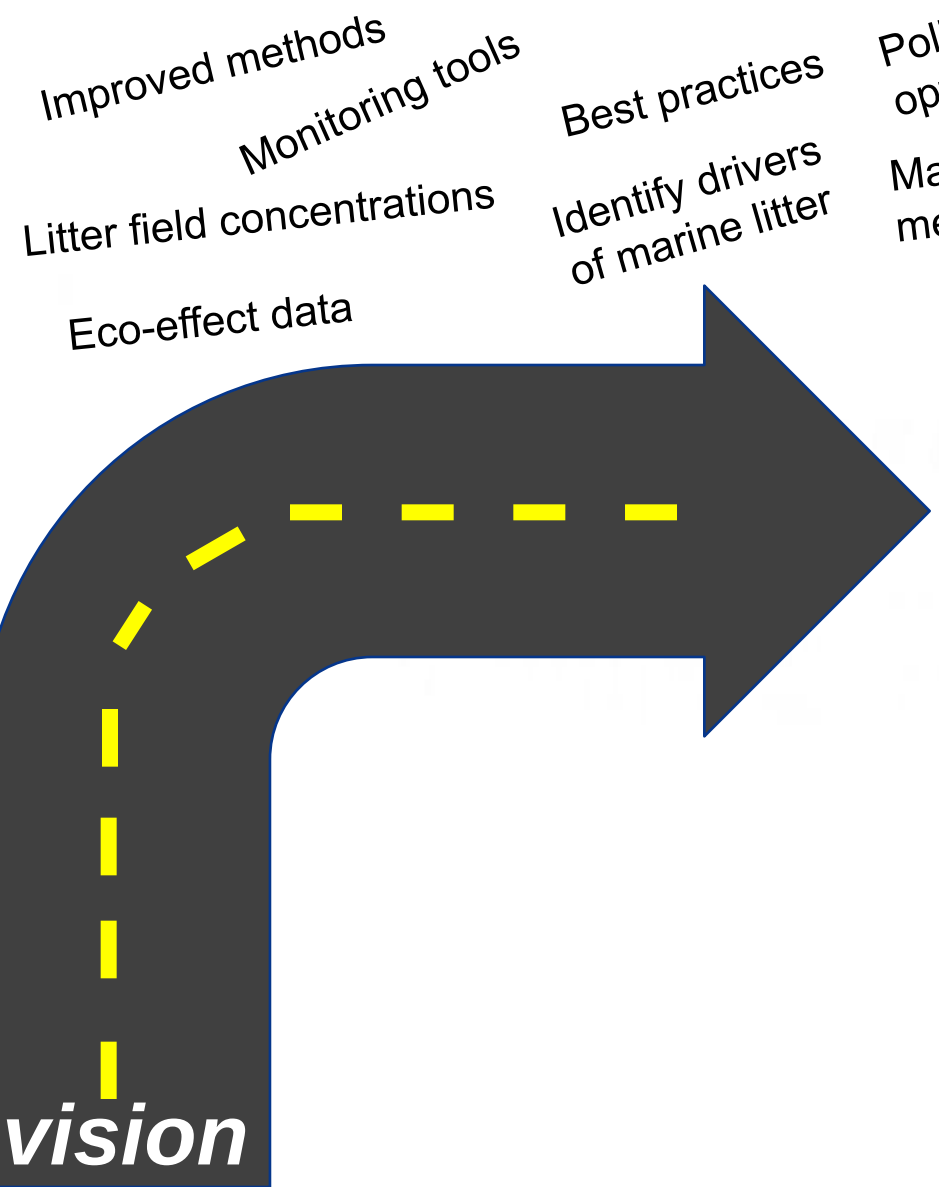
Overarching Goal of CleanSea Project



Roadmap to 'good environmental status' for marine litter in 2020

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The CleanSea Project

EU FP7
2013-2015

Complex phenomena resist understanding or resolution when approached from single disciplines!

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4 Marine Regions
Baltic Sea
NE Atlantic
EUROPE
Black Sea
Mediterranean Sea

CleanSea at a glance

- **Title** Towards a Clean, Litter-Free European Marine Environment through Scientific Evidence, Innovative Tools and Good Governance.
- **Instrument and theme** FP7 Collaborative project, Theme ENV "The Ocean for Tomorrow"
- **Duration** 36 months
- **Start date** 01/01/2013
- **Total Cost** € 3,788,527
- **EC Contribution** € 2,986,570
- **Coordinator** VU University Amsterdam, Institute for Environmental Studies (VU-IVM), NL. Dr. Heather Leslie, heather.leslie@vu.nl
- **Consortium** 17 partners from 11 countries representing the four European regional seas
- **Website** www.cleansea-project.eu
- **Keywords** Marine litter, Marine Strategy Framework Directive (MSFD), Good Environmental Status (GES), microplastics, marine ecosystem impacts, ecosystem approach, monitoring, socio-economic drivers and barriers, governance, legislation, innovative tools, participatory approach, mitigation measures, policy options.

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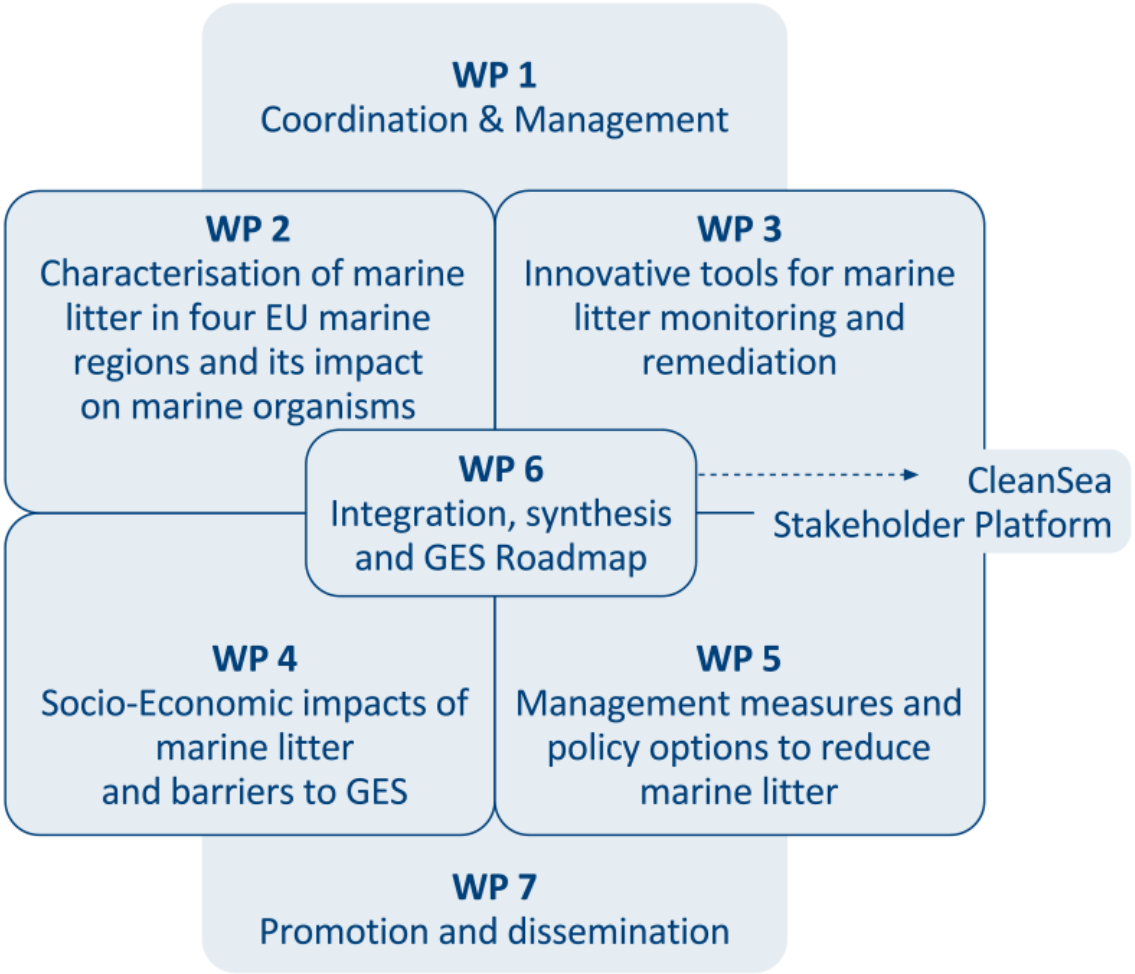
CleanSea interdisciplinary structure

www.cleansea-project.eu



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Objectives WP3

- Propose and demonstrate the utility of **innovative marine monitoring systems** capable of efficiently providing data for a range of GES indicators.

- **Integrating** innovative **monitoring systems** with **hyperspectral imaging** to provide tools for large scale, cost-effective monitoring.

- Investigate **rates of fragmentation** of macro- to micro-litter under field conditions;

- **Identification** of **distribution**, **accumulation** and **hotspots** of litter by using **hydrodynamic models** on the data gathered in WP2 and WP3.

- To provide **novel 'litter' remediation** (and monitoring) tools for sources and *hotspots*.

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Hydrodynamic modeling

Deltares Netherlands, ISI Netherlands, KIMO Netherlands

Fishing for Litter Project

KIMO Data

Synchronisation

- Input data needed
  - KIMO (Fishing for Litter)
  - ISI (River input)
- Focus on North Sea
  - Identification hotspots
- Other areas
  - Baltic sea
  - Black sea
  - Mediterranean sea

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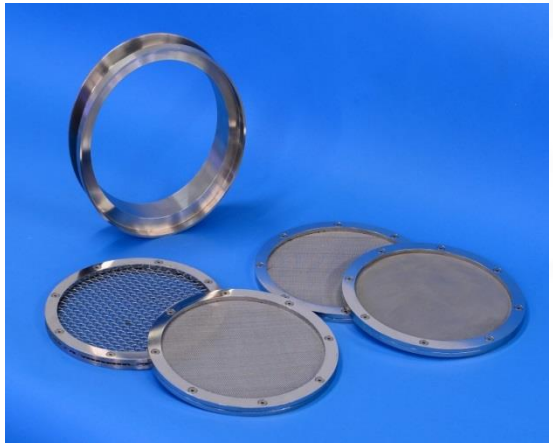
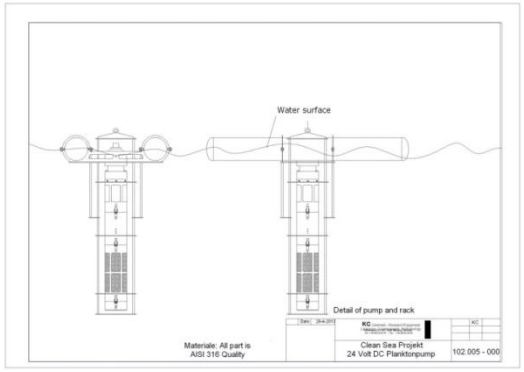
SEVENTH FRAMEWORK PROGRAMME

Sampler for the water column

Mesh size of Filters	30,000 litres an hour
500 micron filter	28,000 liters an hour
300 micron filter	25,000 liters an hour
50 micron filter	20,000 liters an hour
500+300 micron filter	20,000 liters an hour
300+50 micron filter	13,000 liters an hour
500+300+50 micron filter	8,000 liters an hour

Operation depth.	0 to 6000 meters





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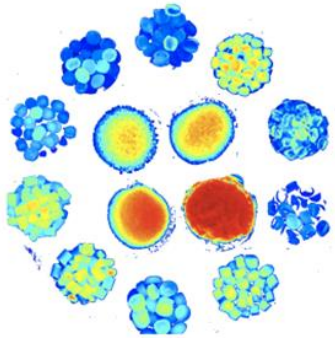
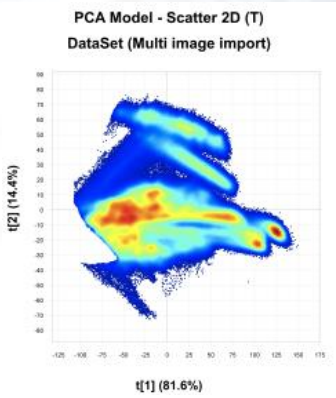
SEVENTH FRAMEWORK PROGRAMME

Hyperspectral Imaging

Hyperspectral analysis





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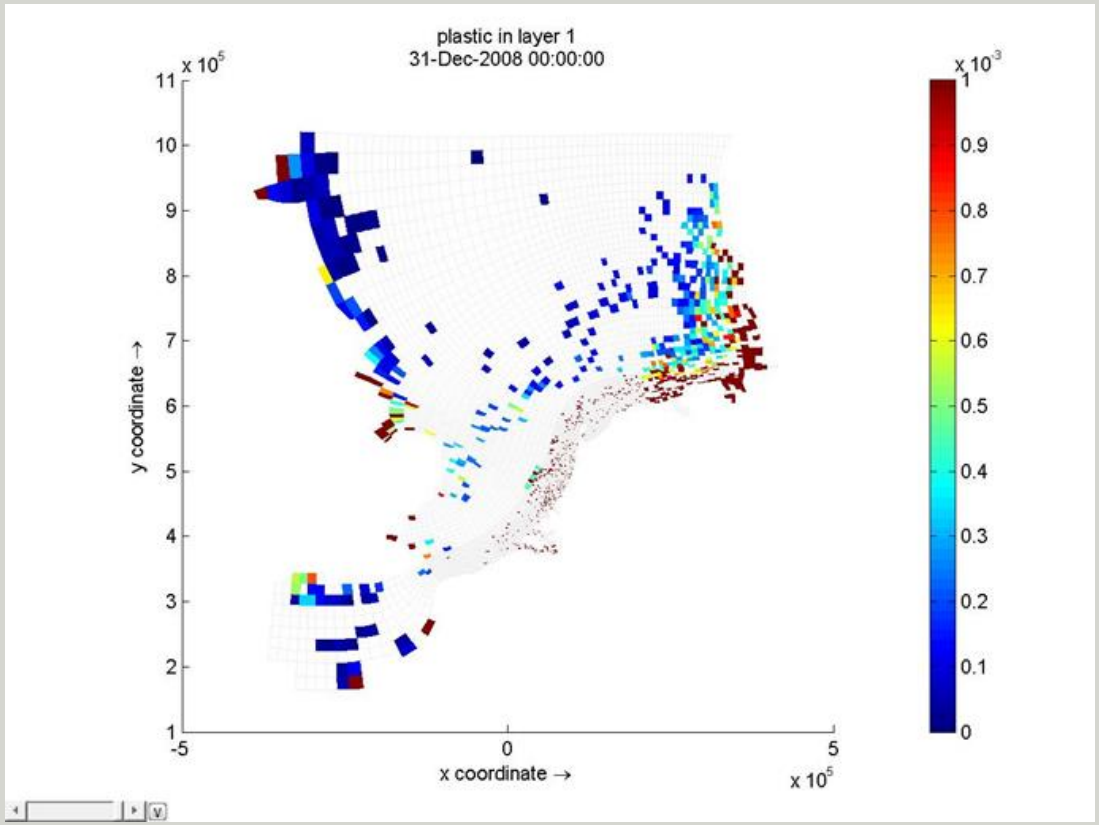
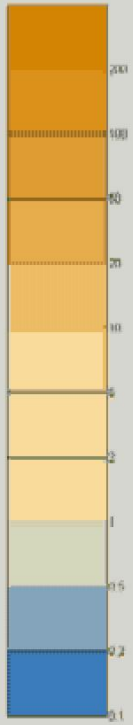
Hydrodynamic Modelling





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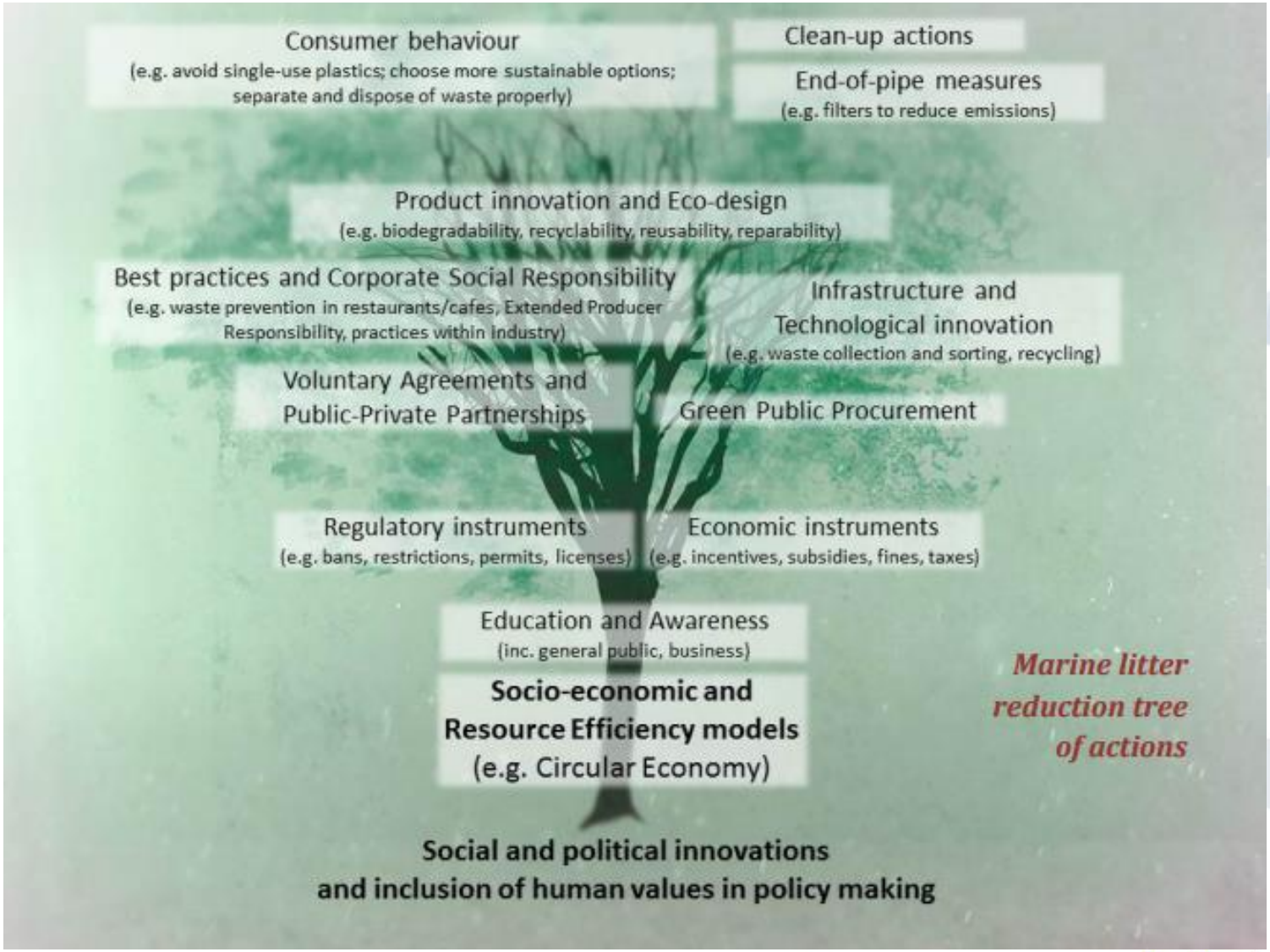
Policy options for litter-free seas



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