



OCTOBER 2017

CLEANING MARINE LITTER IN THE MEDITERRANEAN AND THE BALTIC SEA

SUBTITLE:

Newly funded EU Horizon 2020 project CLAIM seeks to develop and apply innovative marine cleaning technologies and approaches

SUMMARY:

Five different innovations in marine litter management ranging from devices preventing micro and macro-litter entering our seas to using macro litter as energy, are at the core of the newly funded EU Horizon 2020 project CLAIM.

MAIN BODY:

Newly funded, EU Horizon 2020 project targets increasing pollution in marine areas by focusing on the development of innovative cleaning technologies and approaches.

CLAIM: Cleaning marine Litter by developing and Applying Innovative Methods will seek out new strategies for prevention and in situ management visible and invisible marine litter with a focus on the Mediterranean and Baltic Sea.

Recognized as a major environmental problem, the presence and accumulation of plastic debris in the marine environment has seen a substantial increase with global production of plastics increasing twenty-fold in the last fifty years. For 2010 alone, estimations show that between 4.8 and 12.7 million tons of plastic litter entered the marine environment.

“Marine Litter has been detected worldwide in all major marine habitats, in sizes from microns to meters. Especially in the marine and coastal environment of semi-enclosed seas, such as the Mediterranean and Baltic Sea, litter pollution is a challenging restoration and governance issue.” comments Co-coordinator, Dr. Nikoleta Bellou, Hellenic Centre for Marine Research (HCMR), Greece.



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Five key technological innovations will prevent litter from entering the sea at two main source points: wastewater treatment plants and river mouths.

In terms of waste water treatment an automated cleaning device will be developed and tested to filter out micro-plastic and prevent bigger microlitter from entering marine areas.

On the nano level, a photocatalytic device will use project-developed and validated green nanostructured coatings to degrade common invisible nano-plastics, such as polypropylene (PP), polyethylene (PE), PVC and nylon, using the power of sunlight.

At river mouths, floating booms equipped with cameras monitoring the collection of litter will be strategically placed to collect visible floating pieces, before or as they enter the sea.

A thermal treatment device, pyrolizer, will be also optimized for the production and exploitation of the syngas (fuel gas mixture) from the breakdown of macroplastics to be ultimately used as energy-sources for ships and for heating in ports.

Among other methods planned by the project is also the development of a new filtering system for detecting micro-plastic in open seas by using ships of opportunity or, FerryBoxes.

Real-world testing will be at the core of the CLAIM innovation cycle with new technologies being tested in-situ in key areas across the Mediterranean and the Baltic Sea (Baltic Sea (near Denmark), Lyon Gulf, Ligurian Sea, Saronikos Gulf). Alongside tests, the Europe-wide consortium will seek out new business models to enhance the economic feasibility for upscaling CLAIM innovations.

Data collected during the project will feed into new models determining the concentrations of macro and microlitter on basin scale both in Mediterranean and the Baltic Sea.

“Involving multiple parties and taking up an ecosystems approach will be at the heart of CLAIM’s research” explains coordinator Dr. George Triantafyllou, Hellenic Centre for Marine Research, Greece. “Apart from introducing innovative technologies we also want to stress on the importance of healthy oceans and seas for ecosystem services and hence also for society’s wellbeing.”

CLAIM is funded under Horizon 2020 Call BG-07-2017: Blue green innovation for clean coasts and seas. The project has a duration of four years and brings together nineteen institutions, six of which are small or medium enterprises (SMEs), from across Europe. The official project kick-off will take place in November 2017.

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MULTIMEDIA:

Fig 1: CLAIM's In-situ testing areas across the Mediterranean and the Baltic Sea (Baltic Sea (near Denmark), Lyon Gulf, Ligurian Sea, Saronikos Gulf)



Credit: CLAIM



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Fig 2: Newly funded, CLAIM offers real-world solutions to tackle marine litter



Credit: Michael Prevenios, HCMR



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