



# SEARCULAR: towards the practical implementation of a circular economy for fisheries

**SEARCULAR**  
Circular Solutions for Fishing Gears

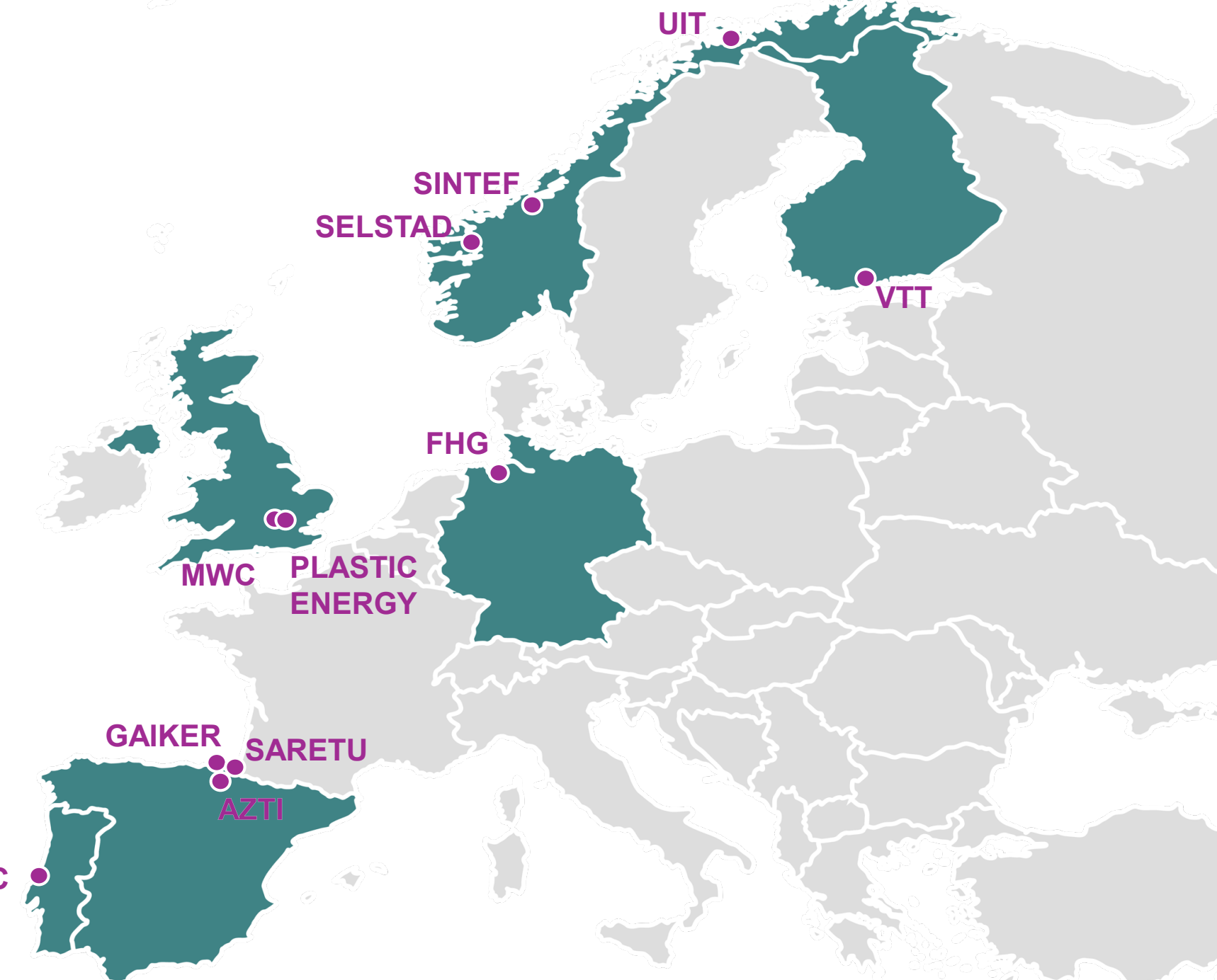


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## OBJECTIVE

The main objective of SEARCULAR is to reduce the amount of marine litter and microplastic from among the most relevant European fishery contributors (demersal trawlers, demersal seiners, tropical tuna purse seiners) and to introduce circular economy practices within the fishing sector value chain including ports, by fostering behavioural change. Together we are working in close collaboration with the fishing industry to pave the way for implementation of circular solutions for fishing gear.



## WHAT'S THE PROBLEM?

Each year, over 8 million metric tonnes of plastic end up in the oceans  
Globally it is estimated that between 600,000 and 800,000 metric tonnes of Abandoned, Lost or otherwise Discarded Fishing Gear (ALDFG) enter the oceans annually

According to the UN Food and Agriculture Organization (FAO), such gear accounts for about 10% of marine litter by weight  
Studies suggest that ALDFG constitutes up to 70% of all macroplastics in the ocean by weight and these macroplastics may degrade into micro- and nanoplastics in the marine environment representing a potential risk to the aquatic fauna.



## WHAT'S THE SOLUTION?

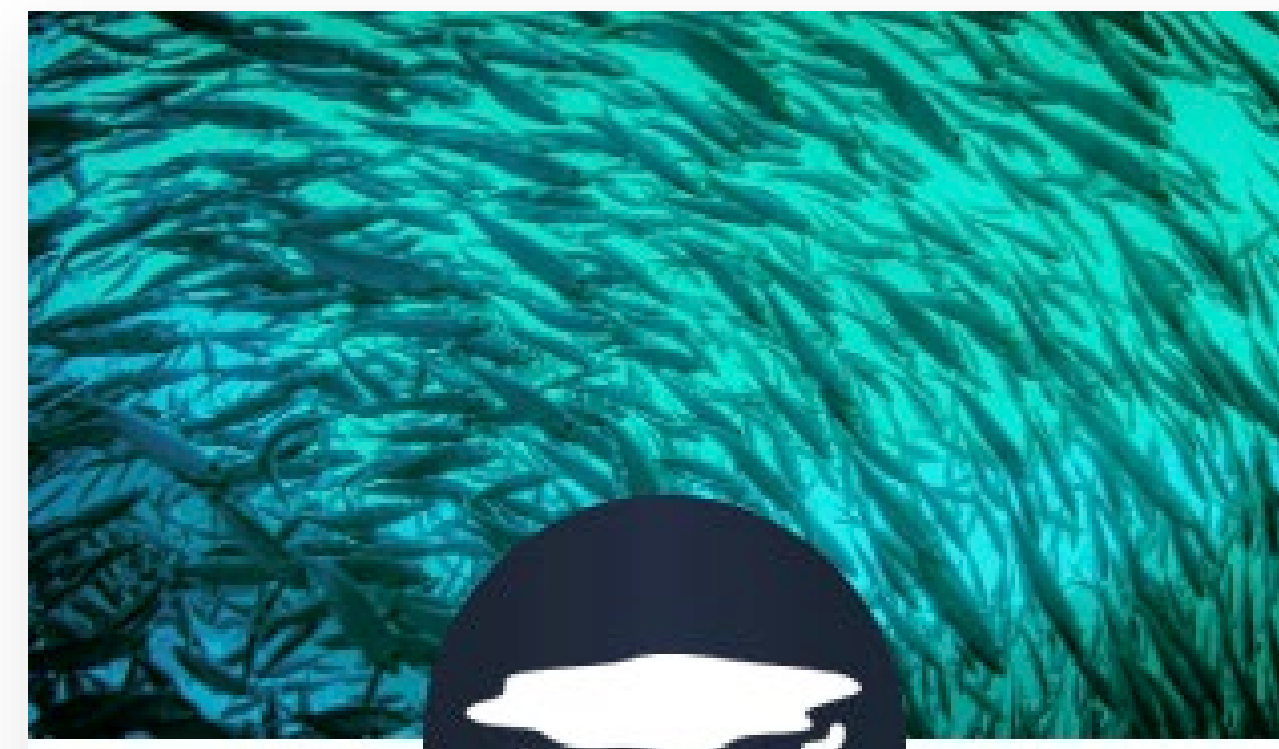
SEARCULAR is developing 4 potential solutions to support sustainable fisheries and healthier marine environments:



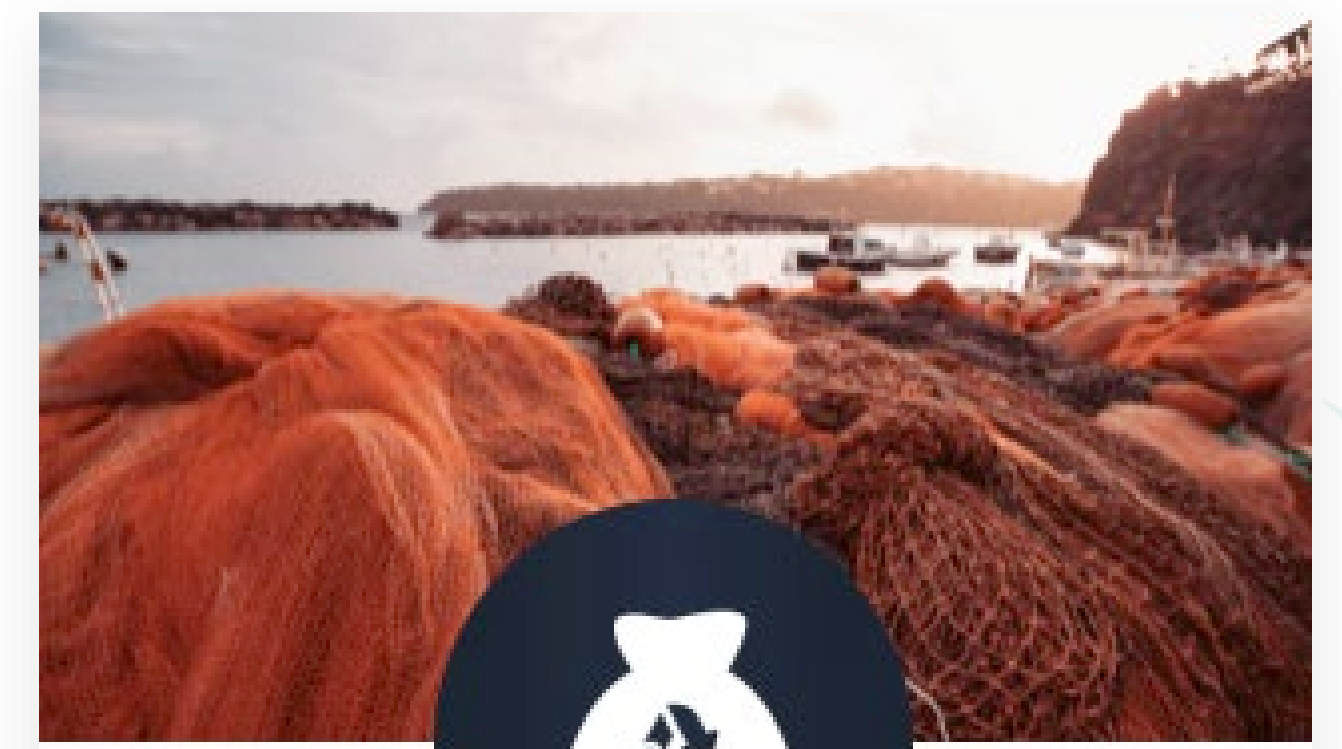
**Recycled dolly ropes** from discarded, recovered and reconditioned purse seine nets that considerably reduce marine litter



**Bio-seine ropes** made from more resistant biodegradable polymers, with extended lifespan and reduced abrasion and plastic pollution



**Biodegradable Aggregating Device (FAD)** which reduces plastic accumulation in fish sensitive marine areas



**Circular port-based approach** to facilitate collection, recycling and reuse of previously end-of-life fishing gears

## Environmental safety

- Accelerated UV Degradation: Simulation of aging by sunlight over multiple years (Recycled dolly ropes)
- Biodegradation: Laboratory studies to assess aerobic microbial degradation (Biodegradable seine ropes)

Characterisation: additives, micro- and nanoplastics  
Water collection for marine ecotoxicity studies



## Life Cycle Assessment

- LCA helps identifying the environmental impacts of the solutions and the hotspots causing them
- LCA ensures that no impacts are shifted between life cycle stages or impact categories
- Conducted following ISO 14040:2006 & ISO 14044:2006 standards

## Economic sustainability

- Cost-Benefit Analysis (CBA) along the value chain:
- allow the identification of critical phases of the production that may jeopardise the commercialization
  - identify actions to overcome critical points

## Social acceptability

- ADKAR will be used to evaluate the behavioural change and acceptability of SEARCULAR solutions by stakeholders (port authorities, fishermen, etc.)
- Solutions are co-created together with stakeholders to maximise acceptability

## More information:



## Contribution to EU plastic Directives and standards

1. Policy recommendation on current plastic directives and schemes (SUP, PRF, EPR, Fishing for Litter, etc.) for the DG-MARE
2. Development of new or improvement of existing standards (CEN/TC 466 working group) for the design of fishing gears and to port reception facilities, for cleaning, disassembly and decommission technologies in preparation for repurposing, etc.