



Challenges and opportunities in developing circular fishing gear

How can this brief support you

This SEARCULAR policy brief showcases findings from our research and innovation project that can support relevant targets laid out by current EU legislation.

The [European Green Deal](#) dictates that Europe should do all in its power to implement more sustainable practices for people and planet.

Specifically, this brief showcases how SEARCULAR's results can support progress towards:

- **50% collection rate of end-of-life fishing gear** as determined by the [Single Use Plastics \(SUP\) Directive](#)
- **Building capacity at port to provide adequate collection facilities** as directed by the [Port Reception Facilities Directive \(EU\) 2019/883](#)
- **The design of fishing gear in line with the voluntary [Circular Design of Fishing Gear Standards EN 17988](#) in order to create high-quality secondary raw materials** from EOL fishing gear to support [The Circular Economy Action Plan](#).

Key Recommendations

1

A co-creative and iterative approach to the development and implementation of alternative gears should be adopted to achieve targets for a 50% reduction in marine plastic litter from fisheries. SEARCULAR has demonstrated possible alternatives that utilise plastic free materials as well as improvements in management of EOL gears that pave the way for future refinement and scale-up of solutions.

2

Policy should focus on the prevention of marine litter at source by promoting formal approval of a portfolio of scientifically-proven solutions. SEARCULAR has proven the use of alternative materials for the design of fishing gear that reduce marine plastic pollution. Promoting their uptake through standards, and incentivised certification schemes will enhance uptake by producers and end-users.

3

Alignment of gear design regulation with the [standards for Circular Design of Fishing Gear](#) and with the [Safe and Sustainable by Design \(SSbD\) framework](#) will support a circular management model for fishing materials, including social, economic and environmental sustainability. Through our work with ports and EOL gear management, SEARCULAR has demonstrated new routes for recycling unwanted material.



European Green Deal



SUP Directive



CE Action Plan



PRF Directive



CE Fishing Gear Standards



SSbD

Background Research

SEARCULAR has worked proactively across the fishing gear value chain to develop and demonstrate four solutions that support circularity and reduce marine plastic litter across the fishing sector. A key challenge consistently highlighted by our work has been that uptake of new technologies and solutions will be limited if there is no market demand¹. Circularity is a transition and SEARCULAR has demonstrated significant steps towards this.

Despite positive feedback from industry, and encouraging results from at-sea testing of our innovations and lab analysis of environmental impact, it is likely our solutions will not be competitive on an open market².

Policy support to create a lead market, or the implementation of regulation promoting alternative designs and more circular fishing gear is integral to reach the targets laid out by the European Commission. For example, following the recommendations laid out in the [EN 17988 series for 'Circular design of fishing gear and aquaculture equipment'](#), and the [SSbD framework](#) lead to fishing gear products that do not contain substances of concern and that can be dismantled more easily, resulting in more reuse of parts and components or higher quality recycling. In turn, this will support the industry in achieving collection and recycling rates for fishing gear as set out in the [SUP Directive](#).



A co-creative and iterative approach to the development and implementation of alternative gears should be adopted to achieve circularity for fishing gears.

This will support targets for a 50% reduction in marine plastic litter from fisheries. Each step along this transition pathway should be recognised and incentivised.

Through four solutions, SEARCULAR has demonstrated the need to engage with key stakeholders at each stage of development to enhance social acceptance and end-user adoption¹. Whether through the use of novel, alternative materials^{3,4} or using recycled materials^{5,6,7}, engagement with manufacturers and end-users is integral to the development of solutions. To support design, refinement, and scale-up for widespread use, further support and incentives should be implemented. This would support government targets for a 50% reduction in marine plastic litter from fisheries, as determined by the [SUP Directive](#).

Formal approval or certification of a portfolio of scientifically-proven solutions for a variety of fisheries could enhance their uptake across the industry.

This shift in focus to the prevention of marine litter at source would enhance progress towards the target for the reduction of marine plastic pollution from fisheries.

SEARCULAR has proven the use of alternative materials for the design of fishing gear that reduce marine plastic pollution. Through robust development, laboratory testing and testing at sea aboard commercial fishing vessels^{3,4,8,9} we have shown that novel, alternative materials can be successful under commercial environments. Promoting the implementation of proven solutions through regulation or certification schemes would likely enhance uptake by producers and end-users, as has been shown through other certification schemes such as the MSC Sustainability Certification.

This is vital in reducing marine plastic pollution produced by European fisheries as laid out in the [SUP Directive](#), [European Green Deal](#), and [Circular Economy Action Plan](#).



The design of gear is integral to support effective recycling of end-of-life gear and reducing plastic use at source.

Alignment of policy and regulation with the [standards for Circular Design of Fishing Gear](#) and with the [Safe and Sustainable by Design \(SSbD\) framework](#) will support a circular management model for fishing gear. SEARCULAR has developed two solutions that utilise EOL gear, both of which highlight the need for easy disassembly and clear material use to enhance recyclability for high-quality recyclates^{5,10}. Our Gear Lifecycle Factsheet (GLF) concept¹¹, implements Digital Product Passport initiatives¹² and provides an example of how gears could be labelled to showcase both their manufacture and best practice for EOL, aligning with the requirements set out in the [EN 17988 Standards series](#).

Additionally, two of our solutions have explored the use of alternative materials to reduce plastic marine litter at source^{3,4}. By integrating biodegradability into fishing design via the use of biodegradable polymers or organic materials, the design of gear can lead to a significant reduction in marine plastic pollution from fisheries, while maintaining catch efficiency. Furthermore, our environmental safety testing has shown that these materials have minimal impact on the marine environment, habitats and wildlife².

SEARCULAR is a research and innovation project – comprising 13 partners – working together with industry to reduce marine litter and microplastic generated by fishing gear.

Tailored to the requirements of diverse fisheries, SEARCULAR has developed and tested [4 innovative solutions](#) to tackle marine plastics from fishing gears at source, and ultimately, support sustainable fisheries and healthy marine environments for generations to come.

References and Resources

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How to cite:

Emily Easman, Maria Uyarra, Oihane C. Basurko, SEARCULAR Consortium (2026). Challenges and opportunities in developing circular fishing gear. SEARCULAR Policy Brief 1. June 2026

