



Recycled materials for circular fishing gears

How can this brief support you

SEARCULAR has worked to evidence the best practice and approaches for incorporating recycled materials at manufacture, and recycling at end-of-life, in order to reduce marine litter, microplastics, and marine pollution from European fisheries throughout the whole fishing gear lifecycle.

Under the [Circular Economy Action Plan 2020](#), and [Design of gear under standards \(EN 17988\)](#),

SEARCULAR has trialled and refined prototype dolly ropes composed of recycled materials^{1,2}, and targeted a plastic-2-plastic approach by promoting uptake of chemical recycling (pyrolysis) of fishing nets and end-of-life (EOL) gears³.

In support of achieving these circular economy directives as part of the [European Green Deal](#), this brief outlines SEARCULAR's clear policy recommendations for gear recycling in order to reach EU fisheries targets.

Key Recommendations

1

Approve and certify gears that are circular by design – based on material performance across the whole lifecycle. Scientifically-proven gears that demonstrate benefits, such as reducing marine plastic pollution, a high recycling efficiency, facilitating plastic-2-plastic recycling, and meeting sustainable by design criteria across the whole Life Cycle Assessment should be incentivised for widespread uptake⁴.



2

Implement smart Blue Points, port reception facilities that effectively integrate end-of-life fishing gear management. SEARCULAR's smart Blue Points facilitate the effective sorting and conditioning of EOL gear, channeling materials to the required collection stream (e.g. mechanical or chemical recycling) and facilitating conversion into secondary raw materials⁵. To support this, a programme of measures – similar to those implemented under the [Marine Strategy Framework Directive \(MSFD\)](#) – should be offered to vessels and ports for returning EOL gear to be appropriately recycled.



3

Set threshold targets for the optimal percentage composition of recycled materials at manufacture, alongside a standardised and transparent digital product passport⁶. To support this, policy and regulation must be aligned with [circular design standards](#).⁷ Financial, access, or market-based incentives should be provided to support fishers in adopting gears designed and manufactured with a higher percentage of recycled materials.



Background Research

There are challenges and opportunities when it comes to achieving a circular economy for fishing gear in Europe. One of the challenges to reaching the targets set out in the [European Green Deal](#) is to incorporate recycled materials into gears at manufacture, and at the same time, recycle components of end-of-life gear to develop secondary raw materials.

SEARCULAR has showcased the complexity but potential benefits of recycling old fishing gear⁵. For example by utilising both mechanical and chemical recycling, value can be added to waste materials³, providing an incentive to collect and return materials to port, and reducing fisheries related marine litter at sea and on land.

Considering the full lifecycle of fishing gears via **Life Cycle Assessment (LCA)**⁴ enables a more complete understanding of the environmental impact of production, product longevity, and use and reuse at the end of life. Our LCA considers the environmental costs of production of alternative materials, gear longevity, potential pollution risk, and end-of-life management. Gaining this understanding of impacts across the full value chain is integral to achieving truly sustainable circularity for fishing gears.

In this brief, we highlight our policy recommendations to help reduce fisheries-based marine plastic pollution and to overcome challenges and barriers to recycling and operationalising gear circularity.



Incentivise the use of gears that are circular by design – based on material performance across the whole lifecycle

Different materials have different environmental impacts at sea^{4,5}, by making smart choices about the composition of materials used in gear, environmental impacts and plastic pollution can be minimised and where possible eliminated. **SEARCULAR has been developing new designs for gears using both recycled plastics and alternative materials** (See Policy Brief 2). We have successfully demonstrated that components of fishing gear can be recycled using both mechanical and thermochemical recycling processes to produce new plastic products and fishing gear^{1,3}.

Viewing gear performance and plastic pollution reduction across the whole life cycle is critical when comparing gear alternatives, and validated solutions that work for industry and perform strongly across the whole LCA should be granted formal approval or certification to help enhance social acceptance and promote uptake.

Implement smart Blue Point port reception facilities that integrate end-of-life fishing gear into local waste management streams.

SEARCULAR's results indicate that promoting and incentivising the collection of gears, and the uptake of chemical recycling (pyrolysis) of end-of-life fishing gear is a highly effective method of reducing environmental impacts at sea^{3,5}. By reducing barriers to collection of EOL gears, and adding value to waste materials, fishers are motivated to return and recycle old gear at port⁸, reducing marine plastic pollution.

Fishing gears are composed of multiple mixed materials – some of which are not suitable for mechanical recycling⁵. SEARCULAR's smart blue point system has shown that with clearly dedicated collection hubs, allowing for sorting, cleaning and sufficient conditioning, **end-of-life materials not suitable for mechanical recycling can undergo pyrolysis and produce oils suitable for plastic production and the manufacture of secondary products³ – the end goal of a plastic-2-plastic model.**

For SEARCULAR's full recommendations for smart port reception facilities [see Policy Brief 4](#).

POLICY BRIEF 3

Set threshold targets for the optimal percentage composition of recycled materials at manufacture

Under the [European Green Deal](#) the European Commission should **introduce minimum thresholds for the percentage composition of recycled plastics at manufacture**. This is in addition to the provision of financial incentive, formal approval, or regulation for scientifically-proven circular gears to facilitate recycling at end-of-life and enable scalable plastic-2-plastic solutions³. Where possible recycled materials from fishing gear should be prioritised, enabling a fishing-2-fishing or fishing-2-plastic circular system^{2,3}.

To support this SEARCULAR is proposing the rollout of a standardised Gear Tag and Gear Lifecycle Factsheet (GLF)⁶ – to act as a Digital Product Passport⁹ – which provides transparency on the gears manufacture and lifecycle, and signposts the relevant waste management strategies to encourage effective end-of-life recycling. SEARCULAR's Smart Blue Points and their associated mobile app has showcased how material traceability can be supported¹⁰. While SEARCULAR has demonstrated the commercial potential of recycled material from fishing gears, the manufacturing of this material, particularly the extrusion process, remains complex, currently resulting in low yields⁴. Further research is needed to support waste managers and manufacturers in successfully implementing these circular approaches.



SEARCULAR is a European Horizon-funded research and innovation project under Mission Protect our Oceans and Waters. SEARCULAR has 13 partners, from across Europe and is working with the fishing industry to co-develop solutions that 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.

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References and Resources

- 1 Naia Gonzalez, Mari Jose Suarez, Oihane C. Basurko, 2025. Production of recycled PA dolly ropes. SEARCULAR Deliverable 1.1
- 2 Behm et al., 2025. [Reducing marine litter and microplastics from fishing industry – a case example from SEARCULAR project](#). VTT. [LCM Conference 2025](#), Palermo. p81-86.
- 3 Hernan Calvo, Paule Espana, 2026. EOL fishing gears pyrolysis for “Plastic2Plastic” strategy. SEARCULAR Deliverable 4.2
- 4 Hélène Gomes, et al., SEARCULAR Consortium, 2026. Sustainability validation of SEARCULAR solutions. SEARCULAR Deliverable 5.2
- 5 Ismo Ruohomäki, Paule España, 2025. Guidelines on Good Management Practices for EOL fishing gear, SEARCULAR Deliverable 4.1
- 6 Benedict Wilson, Emily Easman, Stephan Kabasci, Oihane C. Basurko, 2026. SEARCULAR's Gear Lifecycle Factsheet (GLF) a Digital Product Passport for fishing gear
- 7 [Design of Gear Under Standards](#)
- 8 Alonso, C., González, N., Basurko, O.C., Cuende, E., Alvestad, A., Grønlund, J., Zudaire, I., Grande, M., España, P., Asueta A. & M.C. Uyarra, 2026. Report on stakeholder assessment / engagement activities. SEARCULAR Deliverable 5.1
- 9 [What is the Digital Product Passport?](#)
- 10 Paule España, Asier Asueta, 2026. Technical performance of Smart port-based solutions for EOL Fishing gear. SEARCULAR Deliverable 4.3



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