



Technical performance of smart port-based solutions for EOL fishing gear



End-of-life (EOL) fishing gear waste represents a major source of marine plastic pollution. In Europe the available facilities and capacity for processing are a significant limiting factor in the ability of ports to successfully collect and recycle old and discarded gears. To this end, SEARCULAR has designed a smart 'Blue Point' model to address these challenges and support the implementation of a Plastic2Plastic strategy.

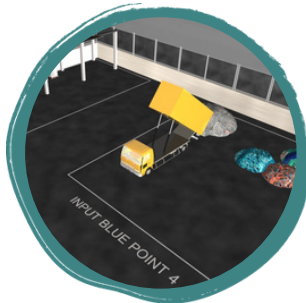
Background

Sustainable management of fishing gear at the end of its life is compulsory in the EU. However, issues relating to sorting, logistics, and traceability mean that a lot of fishing gear still ends up in landfill or incinerators.

SEARCULAR has developed a smart 'Blue Point', a centralised collection and sorting facility for EOL fishing gear which is designed to handle various material streams, including plastic and metal components. Once processed, the materials will be directed towards established recycling routes and non-recyclable residues will be sent to energy recovery or safe disposal. These Blue Points will help address the complex nature of collecting and conditioning EOL fishing gear which are composed of multi-material plastics, and contaminated with organic matter and other impurities.



Left: Discarded gear at the Port of Pasaia.



Right: 3D animation conceptualising SEARCULAR's smart Blue Point design.

SEARCULAR aims to reduce marine litter and microplastic pollution originating from European fisheries. This report presents the work and outcomes of Work Package 4 (Deliverable D4.3). More information about our work on port solutions for EOL fishing gear can be found [on our website](#).

Our Research

Our research concluded that the **Blue Point concept is technically feasible at the scale required for the Basque Country, where an estimated 500 tonnes of EOL gear is produced each year**. Key conclusions from the pilot-scale simulation and associated operational tests include:

- A flexible and adaptive port-based management model is required to allow for variations in waste generation caused by seasonality and extreme weather events.
- The Blue Point must be conceived as a centralised facility connected to decentralised local collection points, and requires a combination of manual, mechanical and digital capabilities.
- Chemical recycling via pyrolysis is a technically viable route for plastic waste streams that are difficult to recycle mechanically.
- The 'digital traceability system element' of the Blue Point is essential as it allows full monitoring of material flows and can work in conjunction with our proposed [Digital Passport](#).
- The effectiveness of the Blue Point model depends not only on infrastructure and equipment, but also on the establishment of clear, standardised and operationally feasible procedures for waste handling in ports.

Next Steps

This research demonstrates the operational and technical feasibility of SEARCULAR's Blue Point model and identifies Bilbao as the optimal location to implement a centralised Blue Point for the Basque country. The learnings from this report also provide the blueprint for scaling up this design across Europe.