

## WP2 Report

# D.2.2.3 End-of-Life Fishing Gear in Transition

## *Economic Assessment and policy recommendations*

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# Table of Contents

- GLOSSARY ..... 2**
- 1 INTRODUCTION ..... 3**
- 2. Overview – Stakeholder Engagement & Summary of Findings ..... 6**
  - 2.1 Stakeholder engagement overview ..... 6**
    - 2.1.1 Webinars ..... 7
    - 2.1.2 National Workshops & One to One Meetings ..... 7
  - Norway ..... 9**
  - Ireland..... 10**
  - Sweden..... 12**
  - Finland ..... 13**
  - Iceland ..... 15**
  - 2.2 Summary of Findings by Country..... 16**
    - 2.2.1 Norway..... 16
    - 2.2.2 Ireland..... 17
    - 2.2.3 Sweden..... 17
    - 2.2.4 Finland ..... 17
    - 2.2.5 Iceland ..... 18
- 3. Policy Recommendations ..... 20**
  - 3.1 Methodology ..... 20**
    - 3.1.1 SWOT Analysis..... 20
  - 3.2 Policy Recommendations ..... 21**
    - 3.2.1 Pillar 1: Policy and Regulatory Framework for Circular Fishing Gear ..... 22
    - 3.2.2 Pillar 2: Financial Policy & Public investment Recommendations ..... 24
    - 3.2.3 Pillar 3: Policy to Support Market Development Recommendations ..... 27
    - 3.2.4 Stakeholder Engagement Framework (Horizontal Principle)..... 29
    - 3.2.5 Implementation Enablers (Horizontal Principle)..... 30
    - 3.2.6 Implementation Roadmap ..... 31
    - 3.2.7 Policy Impact Assessment ..... 32
    - 3.2.8 Desired Outcomes ..... 32
    - 3.2.9 Stakeholder Grouping & Relevant Actions ..... 33
- 4. Conclusions..... 35**
- 5. References ..... 37**

# GLOSSARY

**Fishing port.** A port that is mainly used by fishing vessels, i.e. vessels that are used to catch fish or other living natural resources mainly commercially.

**Ghost Nets.** Ghost nets are runaway or abandoned nets, trolls or other scammers. They are part of the plastic garbage problem of the oceans. They cause harm to the fishing industry, the environment and shipping. In addition, they continue their task, i.e. fishing, for a long time after they have been abandoned. Fish, but also other animals, such as birds and marine mammals, can get stuck in the nets. (Finnish Environment Institute, 2022).

**Plastic containing fishing gear.”** Any item or piece of equipment that is used in fishing or aquaculture to target, capture or rear marine biological resources or that is floating on the sea surface and is deployed with the objective of attracting and capturing or of rearing such marine biological resources”. (Directive (EU) 2019/904).

## ACRONYMS AND ABBREVIATIONS

EEA	European Economic Area
EU	European Union
WFD	Waste Framework Directive (2008/98/EC)
SuPD	Single-use plastics directive (2019/904/EC)
EPR	Extended producer responsibility
NPA	Northern Periphery and Arctic
VSME	Voluntary sustainability reporting standard for non-listed micro, small and medium enterprises
CSRD	Corporate Sustainability Reporting Directive
EOL	End-of-life
MARPOL	International Convention for Prevention of Pollution from Ships
ALDFG	Abandoned, lost or discarded fishing gear
HDPE	High density polyethylene
UHMWPE	Ultra-high molecular weight polyethylene
PRO	Producer Responsibility Organisation
PP	Polypropylene
PE	Polyethylene
SuP	Single-use plastics



# 1 INTRODUCTION

Blue Circular Nets (CIRCNETS) is an INTERREG project funded by Northern Periphery and Arctic 2021–2027 (NPA) programme, which addresses marine litter issues. Single-use plastics and fishing gear are the most significant sources of marine plastic litter also in Europe, and the European Union has taken substantial steps in tackling these threats to the marine environment. Many single-use plastic (SUP) items have been banned and replaced with items made from more sustainable materials, but a similar approach is not yet possible with plastic containing fishing gear. Therefore, a different kind of approach has been taken. End-of-life (EOL) fishing gear, nets and other fishing equipment, which are approaching their best before date, should be collected separately and recycled in order to prevent them from ending in the waterways and contributing to the marine plastic pollution.

The more specific aim of CIRCNETS is to support the setting up of a collection system for EOL fishing gear in the NPA region. The EU's SUP directive requires that producers and importers of plastic containing fishing gear in all EU member countries organise the collection of EOL fishing gear based on the extended producer responsibility (EPR) principle. Finding out, how collection can be organised regionally in a most efficient and economical way, which also adheres to the "do no significant harm" principle, requires solutions to be looked at from other regions, which have already taken steps towards this. However, the collection of fishing gear opens a possibility to proceed towards a more circular economy and find ways that the collected materials can be recycled locally and regionally.

Undoubtedly the starting point for any economic potential discussion, is what is the available feedstock. Report D.1.1.1 was a Review of current collection and disposal practices to establish what is currently happening in the NPA area and to give a sense of how and where any potential feedstock to fuel opportunities might come from. Reuse potential of collected materials as well as environmental factors were initial drivers of collection schemes. However, the implementation of the SUP Directive and separate collection mandate for EOL fishing gear since 1<sup>st</sup> January 2025 has enforced the issue.

The next natural question is how much feedstock is available and what quality is it? Report D.1.2.1 'Review of quantities & qualities of fishing gear in the NPA area' pointed to the fact that there are many gaps in this information across the region and what is out there in terms of data is unreliable. Article 13 of the Single Use Plastics Directive (EU) 2019/204 requires that the member states who are implementing EPR for plastic contained in fishing gear report annual figures on the inputs of fishing gear to the markets and the collected fishing gear waste. This must happen within 18 months of the end of the reporting year for which they were collected. This will improve the data situation and once collected, should enable some more accurate assessment of the situation. The first reporting period shall be the calendar year 2022. By mid-2024, these figures should have been reported to the Commission and data shall be available via the European Environment Information and Observation Network (EEA Data Hub).

D.1.3.1 'Review of EOL fishing gear report: Review of EOL gear collection and responsibilities in the NPA region' highlighted that there will be a significant skewing of the issue while historical waste is initially dealt with. When looking at the responsibilities around receiving gear, handling it and treating it – the glaring point is that there is clearly a role for local, regional and national recycling facilities – not withstanding that the obstacle here is the lack of treatment facilities , where materials would be separated from fishing gear, cut into smaller pieces before being sent to a recycling facility.

D.2.1.1 then examined the collection and recycling systems of fishing and aquaculture gear present in the partner countries, investigated best practice and BAT's that could be applied - drawing conclusions that there is potential in applying learnings from the Icelandic collection and recycling scheme and the practices in Sweden across other countries; investment in pre-sorting techniques are essential and further research in recycling methods as well as measures such as recycling fees and premium prices on recycled-end products could be applied to cover the collection and recycling costs.

After the above mentioned steps in the project, we turned our attention to various stakeholders. These included recyclers & industry specialists, who were approached through technology audits and focussed questions. The aim was to ascertain experiences in applying different technologies at different stages of the value chain and the potential for the application of technology to further development in the space. The resulting report D.2.3.2 on EOL Technology Best Practice pointed to potential in Track & Trace, Product Development & Circular Design, Chemical Recycling and High Value Recycled applications e.g. 3D printing.

In order to build upon the wealth of information gathered for the above reports, through surveys, stakeholder engagement and desktop research, we wanted to add depth while exploring the economic opportunities and ensure that we met with the relevant actors in the NPA region and explore the challenges, opportunities and hear it directly from those who operate in the space.

To this end we organised several webinars and, workshops across the partner countries with the aim of collecting opinions and views of the stakeholders about the economic potential of EOL fishing gear recycling. In some countries there were also one-to-one interviews with key stakeholders. This deliverable report provides a summary of our findings from these discussions, which have led to emerging policy recommendations in relation to reuse and recycling of marine plastics from end-of-life fishing gear.

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For more information about the project, visit the website of the project at <https://www.interreg-npa.eu/projects/CIRCNETS/home/>



# 2

## **OVERVIEW – STAKEHOLDER ENGAGEMENT & SUMMARY OF FINDINGS**



## 2. Overview – Stakeholder Engagement & Summary of Findings

This report summarises the regional CIRCNETS economic opportunities identified in Regional Economic Opportunities Workshops held in Norway, Finland, Ireland, and Sweden. At the time of writing (October 2025) we stand at a point where the EU SUP EPR regulation has had 10 months in effect since the directive implementation deadline of end of 2024. Any fishing gear containing plastic purchased after the 1st of January 2025 comes within the scope of the regulations. Any gear purchased before that deadline is considered as ‘legacy gear’ when it comes to its end of life (EOL). Significant quantities of EOL gear exists in ports, harbours, aquaculture farms and storage sheds across the Northern Periphery and Arctic region. Funding for dealing with EOL gear purchased before and after the 1st of January 2025 deadline will ostensibly be managed under two different schemes or models. Producer Responsibility Organisations (PROs) will use fees received from gear placed on the market by Producer members of the PRO to fund management of EOL gear within their scheme; while dealing with legacy gear remains uncertain and solutions will vary from country to country.

To give context to the region that we are focussing on – Ireland, Finland and Sweden are all bound by the SUP directive, which requires that EU member countries must extend EPR to cover also EOL fishing gear. Each country decides about the national implementation of the EPR and how to organise the separate collection of the fishing gear (including plastic containing aquaculture gear) and the collection targets. The manufacturers and importers must form a PRO, which will organise this based on the EPR principles. Norway and Iceland are not part of EU, but in Iceland there has been a “voluntary” EPR in place for EOL fishing gear since 2005. Norway is also expected to decide on the national implementation of EPR for fishing gear, and comprehensive discussions are still ongoing as to what this will look like.

### 2.1 Stakeholder engagement overview

Over the period May 2024-December 2025 stakeholder engagement was on going. Engagement varied across partner countries. The engagement and gathering of input occurred through webinars where key speakers were engaged, in person workshops where speakers delivered presentations to audiences, followed by focus groups with key questions and one to one interviews with selected stakeholders to enhance and deepen understandings.

## Who We Engaged with

Here is the broad range of stakeholders with whom we engaged. Below, under the outlined detail for each Country you will find more information on the national stakeholders involved.



## How we engaged

Recognising the different realities of the sector in each country, the inputs and information gathering on economic potential and EPR readiness took different forms across the different countries. This is outlined in the individual countries below. Different formats allowed for different 'depths' of inputs and insights. The engagement revealed common cross cutting challenges and opportunities which form the basis of the policy recommendations in Section 3.

### 2.1.1 Webinars

Two webinars were organised in the project to inform stakeholders and other interested parties about the economic potential of EOL fishing gear. Speakers with expertise on different perspectives were engaged and over 100 people attended between the two webinars.

These differed from the workshops and one-to-one meetings with stakeholders, where the aim was to involve stakeholders in discussion and hear their opinions about the challenges and opportunities related to EOL fishing gear recycling.

### 2.1.2 National Workshops & One to One Meetings

In person workshops were held in 2024 and 2025 in Norway, Ireland and Sweden. In Finland, a series of one-to-one meetings with stakeholders were held. In Iceland, where there already is a 'voluntary' EPR Scheme in place, there was a discussion with a major Icelandic gear producer, who are taking part in the national collection scheme to give some indication as to how the industry themselves view the scheme.

The aims and objectives in bringing people together were to:

1. **Explore the preparedness** of the industry to the implementation of an EPR scheme for fishing gear containing plastic.
2. **Explore the economic potential** of end-of-life (EOL) fishing gear and its potential benefits to the NPA region.
3. **Facilitate knowledge exchange:** Enable stakeholders to share best practices, innovations, and challenges within the fishing gear industry.
4. **Collaborate on solutions:** Encourage stakeholders to collaborate in addressing common issues such as sustainability, efficiency, and the environmental impact of fishing gear.
5. **Promote networking:** Establish a platform for stakeholders to cultivate relationships, exchange contacts, and foster partnerships for future collaborations.
6. **Enhance industry standards:** Workshops can play a pivotal role in setting industry standards, enhancing practices, and advocating for responsible use of fishing gear.
7. **Support continuous learning:** Assist stakeholders in staying informed about the fishing gear industry's latest trends and regulations (i.e., EPR) through shared knowledge and expertise.

All workshops and discussions worked from the following prompt questions in their engagements.

1. What do you know about the implementation of EPR for fishing gear?
  - How prepared are you?
  - Have you prepared for the EPR scheme?
2. Do you know about any incentives or penalties for compliance or non-compliance?
  - What do suggest could be used as incentives to encourage compliance?
3. What do you see as challenges/barriers and opportunities in the implementation of the EPR scheme?
  - Do you think the implementation costs will be substantial? Elaborate with examples (% of unit cost).
  - Do you see opportunities (e.g. in fishing gear design, recycling technologies, new product development)?
4. What do you see as the main challenges/opportunities in achieving economic potential with EOL fishing gear?
5. Are you aware of any best practices in the collection of EOL fishing gear and getting it into a circular value chain?
  - in your country/Region or elsewhere?

The following sections present a summary of what happened in each country.

## **Norway**

### **Workshop Ålesund May 15<sup>th</sup>, 2024**

The workshop was held in Ålesund, Norway, at the Norwegian University of Science and Technology (NTNU) on May 15, 2024. The primary focus of the workshop was to analyse the economic potential for end-of-life fishing gear and the preparedness of the target group for an EPR scheme for fishing gear. The workshop benefitted from the attendance of 24 stakeholders and two esteemed guest speakers from Seafood Norway (Sjømat Norge) and the Fishermen's organization (Fiskarlaget), who presented online about the preparedness for EPR in the aquaculture industry and in the fishing industry, respectively. A diverse group of stakeholders participated, including fishing gear producers, recyclers, users of recycled marine plastics, government representatives, and non-governmental organizations such as beach cleaners and interest groups.

The stakeholders were divided into groups to address four distinct questions and outcomes of each group were presented at the end of the session. The participants were asked about their knowledge about EPR for fishing gear, how to incentivise compliance/penalise non-compliance with EPR implementation, about the main challenges and barriers for EPR implementation and for achieving economic potential with EOL fishing gear.

### **Preparedness for EPR**

Some of the participants were aware about the changes brought by the SUP directive for fishing gear in the form of EPR. EPR should increase the sustainability of the whole fishing sector, but there are multifaceted considerations that demand attention. Collective preparedness is currently challenged by a lack of clear communication, hesitancy, and limited information. To successfully implement the EPR scheme, stakeholders must proactively engage in knowledge-sharing, seek guidance from relevant authorities, and lay the groundwork for effective adoption.

The role of incentives and penalties was deemed as crucial in fostering compliance with EPR regulations. Potential incentives such as tax breaks, subsidies for eco-friendly gear, or market access rewards can encourage stakeholders to embrace responsible practices. Conversely, penalties for non-compliance could include fines, restricted market access, or mandated corrective actions to drive accountability.

Challenges in EPR implementation for fishing gear, which were raised in the discussions, included high initial costs for gear redesign, collection logistics, and recycling infrastructure. However, there were also opportunities in innovative fishing gear design, advanced recycling technologies, and the potential for new product development. The costs of implementation, though substantial initially, can be offset by long-term benefits and increased market competitiveness.

## Economic Opportunities and Challenges

Participants in the focus group identified a mix of economic challenges and opportunities associated with realizing value from end-of-life fishing gear. Overall, the discussion highlighted that while there is clear economic potential, it is constrained by cost, complexity, and regulatory factors.

**Key challenges** centre on cost and operational complexity. Recycled materials derived from EOL fishing gear are often more expensive than virgin plastics, particularly when additional processing such as colouring or certification is required. Ensuring consistent material quality also remains difficult, limiting their suitability for certain applications. Sorting EOL gear is especially challenging due to the diversity of materials, product types, and sizes, with small or labour-intensive fractions often proving unprofitable to recycle. These issues are compounded by high logistics and processing costs, limited incentives for fishermen to return and sort gear, gaps in knowledge around Extended Producer Responsibility (EPR), and regulatory uncertainty that increases investment risk and complicates value-chain development.

**Opportunities** lie primarily in innovation, collaboration, and the transition to circular systems. Advances in recycling technologies could improve material quality and reduce costs, enhancing competitiveness with virgin plastics. Growing market demand for sustainable products creates commercial opportunities for recycled fishing gear materials, particularly where sustainable procurement policies are adopted. Participants also noted potential profitability from recycling as an alternative to disposal, through reduced landfill costs and new revenue streams from recovered materials. Improved sorting systems, better incentives for responsible disposal, stable and circular-oriented regulations, and stronger collaboration across the value chain were seen as key enablers. Together, these measures could optimize resource use, unlock economic value, and support a viable circular economy for EOL fishing gear.

## Ireland

### Workshop University of Galway, 9<sup>th</sup> September 2025

The workshop took place on Tuesday 9th September from 10am-1pm in the University of Galway. There were 20 in attendance representing a wide range of Stakeholders. The presentations, which paved way for subsequent discussions, included several topics: Review of the PRO's current work in this field as well as several case studies from industry working on this field.

### Preparedness for EPR

Discussions indicated a baseline level of awareness of Extended Producer Responsibility (EPR) for fishing gear within the sector, but overall preparedness remains mixed. Participants were generally aware of the existence of a scheme but recognised that this awareness does not yet extend consistently to fishers operating on the ground, many of whom have limited

understanding of what EPR will mean in practice for their roles, responsibilities, or day-to-day operations. Communication gaps were therefore identified as a key barrier to effective implementation.

In terms of compliance, participants recognised that EPR schemes are underpinned by enforcement mechanisms. Examples from previous EPR regimes, such as packaging waste regulations, were cited where prosecution of non-compliant “free loaders” had occurred. While enforcement was seen as necessary to ensure a level playing field, there was a strong emphasis on the importance of incentives to encourage early and voluntary compliance, particularly among fishers as end users of fishing gear.

Suggested incentives included both social and financial measures. Peer pressure and visibility were viewed as powerful drivers, with participants highlighting the importance of being seen to “do the right thing” and avoiding practices such as dumping or storing unwanted gear on piers, in sheds, yards, or fields. Financial incentives were also proposed, particularly compensation per kilogram of EOL fishing gear returned for recycling. This approach was seen as a way to offset increased gear costs associated with recycling fees, allowing fishers to reinvest compensation in new gear and reducing resistance to EPR-related price increases.

### **Economic Opportunities and Challenges**

Workshop participants identified clear economic potential in end-of-life (EOL) fishing gear through reuse, recycling, and circular manufacturing, alongside notable structural and operational challenges. A significant share of fishing gear remains reusable at end of life; for example, an estimated 50–60% of a gillnet can be reused, with components such as chains, ropes, floats, doors, and rubbers often redeployable. Remaining materials, particularly nylon, are recyclable and already exported to specialist recyclers, though transport costs reduce economic returns.

Opportunities were highlighted in improved segregation and dismantling, either at producer facilities or through local operations, which could enhance material quality, support higher-value recycling, and create employment. Social enterprise models were seen as promising, with fishers well positioned to support collection and sorting due to their technical expertise and existing involvement in initiatives such as Fishing for Litter. Participants also stressed the importance of improved tracking, traceability, and communication to demonstrate environmental benefits and showcase products made from recycled fishing gear.

Key challenges include stockpiling of legacy gear, high transport and logistics costs, and the need for sufficient volumes to achieve economies of scale. Segregation at source was identified as critical, yet many collection points lack the space, infrastructure, or equipment required. Uncertainty around EOL gear volumes complicates investment planning, while some materials remain non-recyclable and require disposal. Centralised collection models were viewed as impractical, and participants noted knowledge gaps around future schemes and limited domestic recycling capacity, indicating the need for further investment.

## Sweden

### Workshop Sotenäs Marine Recycling Centre 24<sup>th</sup> May 2024 and 4<sup>th</sup> June 2024

The workshop was held in Sotenäs Marine Recycling Centre on 4<sup>th</sup> June 2024. There were two separate workshops– the first focusing on the more commercial side of the industry and the second focusing on sports fishing sector. The participants included representatives of fishermen’s producer organisation, fishing gear producers and various national authorities working with marine litter and producer responsibility issues.

The Swedish workshops were built around the same questions that had been asked from the participants in the Norwegian workshop.

### Preparedness for EPR

Participants demonstrated a strong awareness of the forthcoming EPR requirements for fishing gear in Sweden. They noted that producers must establish or join a Producer Responsibility Organisation (PRO) by the end of 2024, with municipalities beginning harbour-based collection in 2025 and cost recovery by PROs starting in 2027. While regulatory requirements for PROs are defined, uncertainty remains around governance structures, cost allocation, and the financial risk of being an early adopter. Authorities indicated that the current priority is to encourage producer participation rather than impose sanctions, given the early stage of implementation. Practical preparedness is already evident, particularly through Fiskarföreningen Norden’s long-standing collection of end-of-life trawls and involvement in initiatives such as the Sotenäs Marine Recycling Center and the “Fiskereturen” project. Participants identified key incentives for compliance as free and easily accessible disposal, clear information flows via PROs, and effective collaboration between producers and municipalities. However, challenges remain, including low volumes, high collection and sorting costs, and uncertainty around who will carry out resource-intensive sorting. Opportunities were identified in gear marking and traceability systems, as well as improved gear design aligned with EU standard EN 17988 to support dismantling, repair, and recycling.

### Economic Opportunities and Challenges

Participants consistently emphasized that the primary motivation for managing end-of-life fishing gear is environmental rather than economic. While collection and recycling were described as essential, clear economic value has yet to be realised. Recycled raw materials are available, but demand remains limited, and virgin materials are significantly cheaper, preventing recycled materials from competing in the market. The absence of recycling targets within producer responsibility frameworks, which currently focus mainly on collection, further limits economic incentives and the closure of material loops. As a result, participants viewed the economic potential of EOL fishing gear as uncertain in the short term, with future viability dependent on stronger market demand, supportive policy frameworks, and measures that make recycled materials more competitive.

## **One to One meeting with Representatives of a Sports Fishing gear producer**

The producer – and the sports fishing gear sector in general – is well informed about the EPR for fishing gear and what lays behind these decisions, but the frameworks is still unclear, bureaucratic, and difficult to implement. There is no functioning producer responsibility organization yet and there are major uncertainties around future collection, recycling costs, and municipal requirements. Many companies have started to prepare themselves for EPR – to collect data on plastics, to explore the creation of a producer responsibility organization, and to consult the authorities – but there is a lot of questions in the air. Many still feel that the issue is poorly prepared. Parallel strategies are being pursued that include lobbying for adjustments to the rules, some are planning for compliance, whereas others are even considering closing operations in Sweden. They know that non-compliance may incur penalties (e.g., a 20,000 SEK fee) but they see environmental benefits – such as a cleaner marine environment and increased awareness – as the strongest incentives rather than financial ones. Key challenges include the low economic value and small volumes of sport fishing gear, limited reuse or recycling potential, unclear regulations, and potentially high implementation costs. Opportunities are seen mainly in reducing plastic use, improving information and collection of certain items, and, more broadly, in the long-term shift toward less plastic-intensive products. However, these are considered largely separate from the EPR scheme for fishing gear.

## **Finland**

In Finland the fishing and aquaculture sector is relatively small, so rather than trying to gather all the key stakeholders in the same room, one to one discussion's were held with key organisations working on this field. These meeting were organised with various fishing gear producers and importers, recycling companies and representatives of local fishing groups. Also, one company that was interested in recycling of nylon approached the project team and one-to-one discussion was organised with them.

The meetings were open discussions without a precise question list. The stakeholders could talk freely about their thoughts regarding the SUP directive and its implementation in Finland and how it had affected them. With the recyclers, the aim was to find out how they operate and what kind of requirements they have for the waste that they receive, in order to get an understanding of what would have to be done with the collected fishing gear before it can be recycled.

## **Producers and importers – Summary**

The interviewed fishing gear producers/importer acknowledged significant challenges with the implementation of EPR for fishing gear. As they have to sign into a PRO and fund its operations, the producers and the importers have to increase the prices of their products subsequently. They perceived that the system is pushing them out of business, as customers are turning to other sellers, which are not bound by EPR and can sell similar products for lower prices. Online sales from abroad, for instance Chinese major webstores, which are offering products for leisure fishers, are hitting this market segment. Some professional fishers and aquaculture

producers are also buying and fetching products from the abroad, from those countries which have not yet implemented EPR fully or have decided to freeze planned investments.

As the interviewed producers included also companies involved in recreational fishing gear production, they expressed concern that recreational fishing in general is not sufficiently recognized at the EU level. Plastic containing fishing rods and lures are included in the EPR, even if the main cause of marine plastic pollution are nets, not rods and lures. A common criticism was directed also to fact that the producer responsibility fees are determined by the whole weight of the gear, not just the weight of the plastic. This is challenging for recycling in a way as well, since fishing gear is made of several materials and for the recycling to be economically feasible, there should be enough recyclable plastics. The producers also stressed that reuse is already happening within the industry (and is particularly strong in aquaculture).

### Plastic Recyclers – Summary

The discussion with the contacted plastic recyclers was promising. They are not recycling plastic from fishing gear at the moment, but they would be willing to do test runs provided that the supplied material is separated into single material segments and that volumes are big enough (at least 2-3 tons, or if the material requires washing, at least 10 tons).

The sender must know what materials the waste contains, the waste must be clean without much organic matter, and it should be in a compact form, meaning that it should be in quite small fragments.

As was mentioned, the project team had a one-to-one meeting with a company, that is not producing fishing gear, but which has significant side stream of nylon. Currently the company send this to an Italian recycling company that produces nylon thread also from fishing nets. However, shorter transportation distances would be ideal, but the currently collected waste/side stream of nylon is not sufficient for it to be recycled in Finland. Since nylon is a key material for many sectors (e.g. agriculture, clothes and fishing gear), by combining material from different waste streams it might be possible to reach this level, which would open door for either domestic or Nordic nylon recycling. This illustrates an opportunity for collaboration between sectors and jurisdictions.

### Economic Opportunities and Challenges

Producers and plastic recyclers agreed that while recycling end-of-life fishing gear offers clear environmental benefits, its **economic potential is currently limited**. Challenges include small and inconsistent material volumes, contamination, multi-material complexity, and competition from cheap virgin plastics, which reduce profitability. High-value materials such as nylon offer opportunities, particularly if combined with other industrial side streams to achieve sufficient volumes, and improved gear design could simplify dismantling and recycling. Recyclers emphasized that economically viable processing requires clean, sorted inputs and sufficient scale, and both sides noted that coordinated collection, pre-processing, and stable policy frameworks are essential to unlock market demand and make recycling financially feasible.

## **Fishers – professional and recreational – Summary**

The project team had discussions with professional fisher interest groups, which were not very optimistic about the implementation of EPR for fishing gear. The industry is facing significant profitability issues already due to increasing fuel and other costs, and the increased prices of fishing gear – due to the producer responsibility fees – seem to only add into these. It seems that every part of the production line adds their fees to the price of the product, making the price increase more than a singular fee. The fishers have no other option than to add this to the price of their catch, in a situation where domestic fishing and aquaculture is challenged by exports. Fishers had tried to influence the discussion about the national implementation of the EPR for fishing gear, but they felt that their concerns were not properly taken into account. Similarly, the general feeling is that the sector has not been consulted properly when the EPR scheme was put together and that there is still communication challenges.

The project team has also attended several public events, where the recreational fishers and general public has been informed about the EPR and the separate collection of fishing gear. The information about the scheme has been generally well received, but some development needs have been pointed out as well. The availability of collection points especially in Northern Finland was raised and a solution was even offered to this. Some municipalities offer mobile collection during summer in sparsely populated areas, where people can take many different waste fractions, why not also fishing gear?

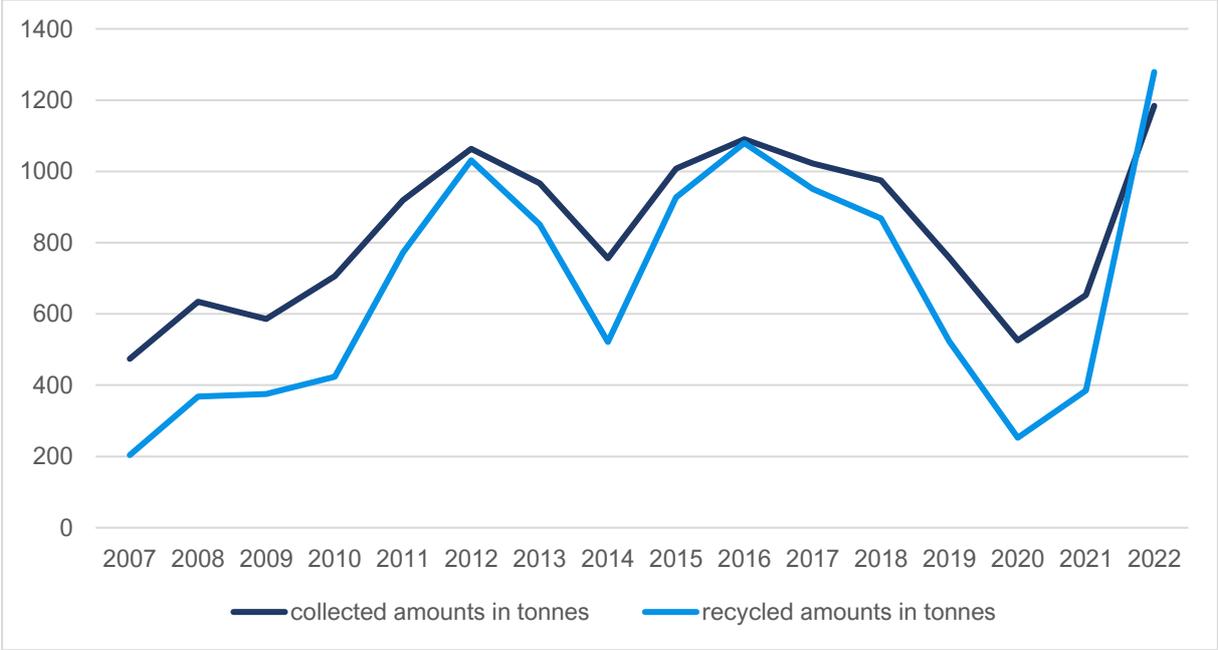
## **Iceland**

In Iceland, stakeholder engagement on fishing gear recycling has taken a different approach compared with Norway, Ireland, and Sweden, reflecting the long-established voluntary system in place since 2005. Instead of workshops, the project engaged key stakeholders through one-to-one discussions with representatives of the Producer Responsibility Organisation (SFS), gear producers, and potential recyclers, including Hampiðjan and Pure North. These discussions highlighted both the operational model and the challenges faced by the Icelandic system.

The Icelandic recycling system is funded through an environmental fee, which ensures proper handling of end-of-life gear and is widely supported by producers and fishers for its environmental benefits. The system is coordinated by SFS, which shields individual companies from bearing the full costs, and achieves very high return rates, with nearly all sold trawls returned within months. Hampiðjan plays a central role by recycling nylon and collaborating with specialized recyclers across Europe, including managing historical gear. A key aspect of the service model is efficient direct collection from vessels, cooperation with shipping companies, and streamlined logistics, which together allow the system to function smoothly.

When it comes to actual waste gear, a major challenge is the high cost of sorting, driven by Iceland's high wage levels. As a result, much of the gear is currently sent abroad for sorting. There is, however, growing interest in developing domestic recycling capacity—led by Pure North—but for this to be feasible, sorting would need to take place within Iceland.

Despite its effectiveness, the system faces additional challenges. Returned gear is often unsorted, mixed-polymer ropes (e.g., Dyneema) cannot yet be mechanically recycled, and chemical recycling technologies are still under development. Material value declines if gear is stored for long periods, and container-based collection can lead to mixing that reduces quality. Recycling is rarely profitable—only clean nylon has notable market value—and success requires continuous coordination, critical material volumes, and behavioural changes among fishers. Nonetheless, the Icelandic model demonstrates that clear roles, strong collaboration, and consistent material flows can create an effective national recycling system even in a context with high operational costs.



Graph: Collected and recycled fishing gear in Iceland, 2007 – 2022

## 2.2 Summary of Findings by Country

The findings from the national workshops and meetings are summarised here.

### 2.2.1 Norway

The CIRCNETS workshop emphasised that implementing Extended Producer Responsibility (EPR) for fishing gear involves complex considerations, including preparedness, incentives, penalties, and economic viability within a circular economy framework. While EPR offers significant sustainability potential, current challenges include unclear communication, stakeholder hesitancy, and limited information. Successful adoption requires proactive collaboration, knowledge-sharing, and guidance from authorities to build a strong foundation. Incentives such as tax breaks and subsidies can encourage compliance, while penalties like fines and restricted market access ensure accountability. Despite high initial costs for redesign

and recycling infrastructure, opportunities in innovation and long-term benefits make EPR a promising pathway for a sustainable fishing industry.

### **2.2.2 Ireland**

Opportunities include leveraging existing plastics manufacturers, creating circular products, and promoting reuse and recycling through skilled fishers and specialised facilities. Collaboration among fishermen for collection and segregation, combined with storytelling and traceability, can add value and improve public perception. Challenges involve stockpiled legacy gear, high transportation costs, and the need for large volumes to make recycling economically viable. Segregation of different plastic fractions, infrastructure investment, and addressing fishing gear contamination are critical hurdles. Knowledge gaps, unclear legislation interpretation regarding Producers, and lack of an action plan further complicate EPR implementation for fishing gear.

### **2.2.3 Sweden**

In Sweden there has been a national collection scheme for EOL fishing gear and the collected gear has been sorted and prepared for recycling at the Sotenäs Marine Recycling Center. This has been supported financially by the Swedish Agency for Marine and Water Management, but the situation has changed as of beginning of 2025 because of the introduction of EPR. Producers had to establish or join a Producer Responsibility Organization (PRO) by the end of 2024, with municipalities beginning gear collection in 2025 and PROs covering related costs from 2027. While some organisations like FF Norden and Sotenäs Marine Recycling Centre have been engaged in collection and design improvement projects, overall preparedness remains limited. Current enforcement avoids punitive sanctions, focusing instead on encouraging producer registration, with suggested incentives including free and accessible waste return and clear information requirements. Key challenges include low volumes, high costs, resource-intensive sorting, and lack of demand for recycled materials, while opportunities lie in gear marking systems, eco-design, and collaboration to enhance recycling feasibility. Economic potential is constrained by cheap virgin materials and absent markets for recycled gear, though environmental benefits are considered invaluable.

### **2.2.4 Finland**

The current EPR scheme faces significant challenges, including bureaucracy, payment issues, collection logistics, and recycling feasibility, leading to distrust among fishers and gear producers. There is concern that domestic production in Finland could decline, replaced by imports, as the scheme does not fully account for industry realities despite its sustainability goals. Strengthening cooperation among stakeholders is essential, as many feel excluded from decision-making, though recreational fishers have responded positively to collection initiatives. Economic potential lies in combining side streams and collaborating with Nordic countries to address low volumes of collected gear and make recycling viable. Additionally, there is growing interest in testing recycling methods for fishing gear within the recycling sector.

### **2.2.5 Iceland**

Iceland's recycling system for fishing gear is funded by an environmental fee on products, managed by SFS, which ensures producers and shipping companies do not bear system costs. Hampiðjan plays a key role by receiving historical gear for recycling, prioritizing material recovery over incineration, and maintaining near-total return rates for sold gear as part of its customer service. While nylon recycling can be profitable, most materials are unsorted, and recycling generally only covers transport costs. Mixed polymer ropes like Dyneema remain a major challenge, requiring chemical recycling (pyrolysis). Hampiðjan collaborates with multiple European recyclers and sorting companies, emphasising that critical mass and proper sorting at source are essential for system efficiency. Iceland's small size and strong cooperation make the system effective, but success depends on continuous sorting improvements, gear design changes, and steady material flows to recyclers. A strength of the system worth noting here, is a 'leasing model' is offered to customers, whereby gear is provided as required and when it needs repair, it is returned, fixed and put back in use.

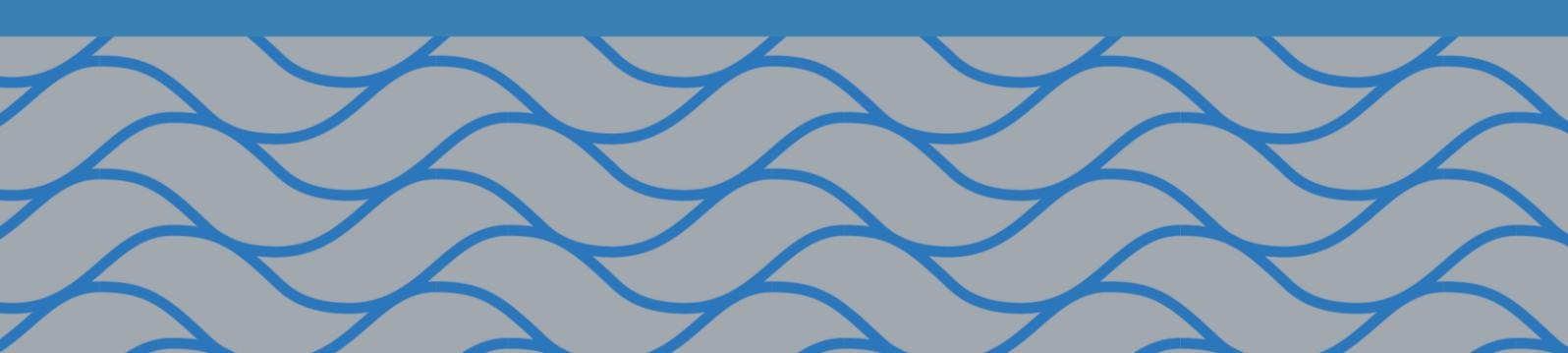
#### **What is next?**

Building on these shared challenges and opportunities identified across countries, Section 3 sets out policy recommendations to strengthen EPR implementation and unlock economic potential for end-of-life fishing gear.



# 3

## **POLICY RECOMMENDATIONS**



# 3. Policy Recommendations

## 3.1 Methodology

In order to structure stakeholder inputs to allow us draw conclusions into policy relevant insights, we used a SWOT analysis. Using the insights and feedback from the range of stakeholders throughout the various engagements common responses were grouped into a SWOT Analysis. This enabled us to map the landscape and gave a clearer picture of what types of policy level interventions might ease certain challenges and threats as well as capitalise on the opportunity.

### 3.1.1 SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Strong Ethos of Reuse in the sector</li> <li>• Some Best practice examples to learn from</li> <li>• Positive attitude towards environmental practices</li> </ul>	<ul style="list-style-type: none"> <li>• Poor Collection Systems in place</li> <li>• Challenges around communication with stakeholders in design of schemes</li> <li>• Uncertain feedstock to create viable value chains</li> <li>• Confusion over definitions and scope of legislation</li> <li>• Lack of Data Sharing across the value chain</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Multiple pilots with recycled fishing gear across the region</li> <li>• A willingness from recyclers &amp; plastic product producers to incorporate EOL Fishing Plastics into their lines</li> <li>• Eco-Design</li> <li>• Track &amp; Trace – both for tracking gear as well as role in storytelling for recycled products.</li> <li>• For Social Enterprise and additional employment opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>• Uncertain volumes</li> <li>• Challenge to find a profitable model</li> <li>• Uncertain consumer demand for recycled raw materials and products</li> </ul>

These insights underpin the structure of the policy recommendations presented in this chapter. To address regulatory gaps, financial barriers, and market failures in a coherent manner, the recommendations are organised under three complementary policy pillars:

1. **Policy & Regulatory Framework** – establishing responsibility, standards, and certainty
2. **Financial Policy & Public Investment Instruments** – enabling infrastructure and innovation therefore bringing viability and capacity.
3. **Market Development & Demand Creation** – creating demand and value, ensuring viable end-markets.

Two horizontal principles—**stakeholder engagement** and **implementation enablers**—support all pillars to ensure local relevance, social impact, and long-term resilience.

## 3.2 Policy Recommendations

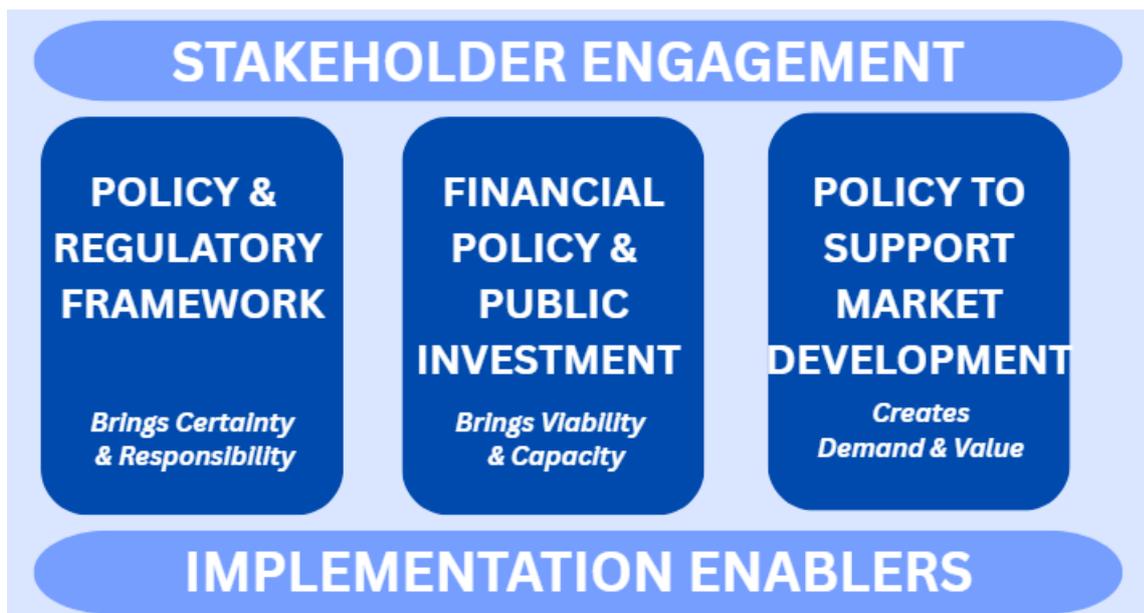
**These policy recommendations are underpinned by:**

1. Circular economy hierarchy (reuse → recycling → recovery)
2. Proximity principle
3. Polluter pays (EPR)
4. Community-led implementation
5. Market creation, not market distortion

Many concerns, challenges and opportunities presented themselves throughout the stakeholder engagement across the NPA region. These were categorised, analysed and presented in the SWOT in 3.1.1. The approach also optimises the opportunities as outlined in the SWOT above and mitigates against the challenges and threats.

For the Northern Periphery and Arctic (NPA) region of Europe, policy recommendations for managing recycled fishing and aquaculture gear containing plastics should integrate both financial considerations and community-focused social enterprise impacts. These approaches advance the circular economy, reduce marine pollution, and foster local job creation.

The following illustrates the Policy Recommendations that emerged, underpinned by two Horizontal principles. These are detailed in the following sections.



### 3.2.1 Pillar 1: Policy and Regulatory Framework for Circular Fishing Gear

This pillar establishes the regulatory certainty, design standards, and lifecycle responsibility required to enable circular management of fishing and aquaculture gear in the Northern Periphery and Arctic (NPA) region. It addresses structural weaknesses identified through stakeholder engagement, particularly fragmented responsibility, unclear material flows, and inconsistent design practices.

Goal: To create certainty, responsibility and design for circularity.

#### 1) Implementation of Extended Producer Responsibility (EPR) in Marine Plastics

**Problem Addressed:** The absence of full lifecycle responsibility has resulted in fragmented collection systems, uncertain material flows, and limited investment in recycling infrastructure. Producers and assemblers of fishing and aquaculture gear must bear the costs for the full lifecycle of their products, including collection, recycling, and treatment. While current requirements focus mainly on collection, properly handling separately collected waste is essential.

**Policy mechanism:** EPR is mandated under the EU Single-Use Plastics (SUP) Directive and shifts financial responsibility to those placing gear on the market.

#### Expected Impact:

- Stable and predictable feedstock for recyclers
- Incentives for producers to adopt eco-design and material simplification
- Improved data availability to support investment and market development

#### 2) Implementation of mandatory eco-design standards for fishing gear

**Problem Addressed:** Fishing gear is often complex, multi-material, and difficult to dismantle, reducing reuse and recycling potential.

**Policy Mechanism:** The EU Commission initiated a standardisation request on the circular design of fishing gear in 2021. This led to the development of the EN 17988” Circular design of fishing gear and aquaculture equipment” series of standards. These sector specific standards address issues aligned to the ecodesign requirements. Without these standards, the industry would lack a cohesive framework to address these issues. The EN 17988 series provides clear guidelines to minimize environmental harm, support circular economy, and align with EU directives such as the Port Reception Facilities (PRF) Directive and the Single Use Plastics (SUP) Directive. Mechanisms need to be introduced to encourage or mandate adherence to this instrument.

**Key Design Requirements:**

- Reduce the number of materials used in gear construction
- Design for disassembly to facilitate stripping at end of life and improve recycling rates
- Introduce Material marking or identification systems

**Expected Impact:**

- Higher recycling yields
- Increased use of durable components
- Reduced plastic pollution and enhanced material reuse

**3) Set recycled content targets for specific product categories & Pilot Uses of Marine Plastics:**

**Problem Addressed:** Demand for products containing recycled fishing gear materials remains uncertain.

**Policy Mechanism:** Set targets for recycled content for ranges of products (e.g. sportswear clothing manufacturers, car makers) offer opportunities for recycled fishing gear and promote local procurement for recycled materials. Support pilot uses of recycled fishing gear plastics in public procurement projects.

**Expected Impact:**

- Creation of anchor demand for recycled materials
- Reduced landfill and incineration costs
- Increased visibility and public acceptance of recycled marine plastics

**4) Measurement frameworks for reuse**

**Problem Addressed:** Reuse is widespread in practice but largely unmeasured (or hard to quantify), limiting recognition and policy support.

**Policy Mechanism:** Develop standardised metrics to measure and report reuse of fishing gear components, particularly durable items already removed at end-of-life (e.g. ropes, floats, chains, trawl doors).

### **Expected Impact:**

- Recognition of existing circular practices
- Improved policy targeting
- Incentives for further reuse-oriented design

### **Contribution to Circular Economy Outcomes**

This pillar provides the regulatory foundation upon which financial investment, market development, and community-led solutions can operate. By clarifying responsibility, harmonising design standards, and creating demand signals, it directly addresses the systemic weaknesses identified in the SWOT analysis while enabling downstream policy measures.

### **3.2.2 Pillar 2: Financial Policy & Public investment Recommendations**

This pillar addresses the economic and infrastructural barriers that prevent circular management of end-of-life fishing and aquaculture gear from operating at scale in the NPA region. It recognises that market forces alone are insufficient in remote and sparsely populated regions, and that targeted public investment is required to de-risk early-stage infrastructure, logistics, and innovation.

Goal: To enable financially viable and regionally appropriate circular systems by supporting investment and innovation.

#### **1. Invest in dedicated recycling infrastructure and technology to process end-of-life fishing gear locally**

**Problem Addressed:** The lack of local processing capacity results in material export, increased costs, and lost economic value, undermining the proximity principle.

**Policy Mechanism:** Invest in regionally appropriate recycling infrastructure to process end-of-life fishing gear locally, including:

- Regional or shared recycling centres in NPA regions This could be a mix of supporting existing or part-fund new regional recycling centres.
- Infrastructure upgrades at ports (e.g. shredders, net washing equipment)
- Enhanced Port Reception Facilities to meet obligations under the Port Reception Facilities Directive for managing wastes from fishing gear repair

### **Expected Impact:**

- Reduced transport and export costs
- Retention of material value within local economies
- Increased recycling rates and regulatory compliance

### **Case Study**

The following case study from Sweden (in Marine Plastics: Innovative Solutions to Tackling Waste) provides a model on how to develop a recycling centre for fishing gear following implementation of the EPR:

### **Case Study: Economic Policy Driving Circular Solutions for Retired Fishing Gear**

In 2018, the Swedish marine recycling centre (SMRC) was established under Symbioscentrum with a clear mission: to become a flagship for innovation and knowledge in tackling ocean plastics and retired fishing gear. Backed by strong political will and active engagement from the fishing community, SMRC represents Sweden's first marine recycling hub, designed to integrate the entire value chain—from gear design to collection and recycling—while fostering the development of new circular products.

From an economic policy perspective, SMRC addresses a critical market failure: the lack of commercial viability in recycling marine plastics. Initially, the centre faced significant funding challenges. The operational model required substantial resources, yet the direct revenue potential was limited. This scenario underscores the importance of public intervention in markets where environmental benefits outweigh immediate financial returns. Public funding became the cornerstone of SMRC's strategy, enabling infrastructure development and research that private actors were unwilling to finance.

The long-term economic vision is to transition SMRC toward commercial sustainability by supplying high-value recycled materials to businesses. This aligns with circular economy principles, reducing dependency on virgin plastics and creating secondary raw material markets. Economic policy instruments—such as subsidies, grants, and extended producer responsibility (EPR) schemes—play a pivotal role in bridging the gap between environmental necessity and market incentives. By internalising the external costs of marine waste and incentivising recycling innovation, these policies ensure that initiatives like SMRC can thrive.

SMRC's model demonstrates how targeted economic policies can transform environmental challenges into opportunities for industrial symbiosis, job creation, and resource efficiency. It highlights the need for sustained public-private collaboration to scale solutions that protect marine ecosystems while fostering economic resilience.

## **2. Audit and repurpose existing infrastructure**

**Problem Addressed:** Existing facilities are often underutilised or not optimised for marine plastics, leading to unnecessary capital expenditure.

**Policy Mechanism:** Conduct regional audits to identify existing infrastructure suitable for repurposing, including:

- Waste transfer stations with shredding capacity
- Net washing facilities in manufacturing sites
- Drying and storage facilities at ports

**Expected Impact:**

- Lower capital requirements
- Faster implementation timelines
- Improved cost efficiency

### **3. Fund comprehensive collection and transport systems:**

**Problem Addressed:** Inconsistent and fragmented collection systems create uncertainty in feedstock volumes and increase operational costs.

**Policy Mechanism:** Provide funding for integrated collection and transport systems, including:

- Designated collection points at fishing ports
- Scheduled “milk rounds” (rotating collection cycle that goes to the source) for aquaculture facilities
- End-of-life fishing gear amnesty programmes
- Baling systems to improve transport efficiency

**Expected Impact:**

- More reliable material flows
- Reduced logistics costs
- Clearance of legacy stockpiles

### **4. Provide targeted innovation & SME Support**

**Problem Addressed:** SMEs, social enterprises, and co-operatives face barriers to innovation due to limited access to capital and research capacity.

**Policy Mechanism:** Introduce targeted financial support mechanisms such as:

- Innovation grants and climate action vouchers
- Funding for collaboration with research institutions
- Support for development of mixed virgin/recycled polymer applications

**Expected Impact:**

- New products and markets for recycled gear materials
- Technological advancements in processing
- Strengthened regional innovation ecosystems

### **5. Establish accessible green financing tools**

**Problem Addressed:** Early-stage recycling operations often face operational deficits and risk exposure that deter private investment.

**Policy Mechanism:** Develop green financing instruments including:

- Green loans to address cash-flow gaps
- Public–private partnerships for capital-intensive infrastructure

- Risk-sharing mechanisms to crowd in private investment

**Expected Impact:**

- Improved financial viability of recycling facilities
- Increased private sector participation
- Long-term system resilience

**Contribution to Circular Economy Outcomes**

This pillar provides the financial backbone for circular fishing gear systems in the NPA region. By reducing risk, lowering capital barriers, and supporting innovation, it enables regulatory measures to translate into operational reality while delivering local economic and social benefits.

**3.2.3 Pillar 3: Policy to Support Market Development Recommendations**

This pillar focuses on creating stable and transparent markets for recycled fishing and aquaculture gear materials. It addresses the market failures identified through stakeholder engagement, particularly uncertainty around demand, price volatility, and lack of traceability, which currently limit investment and scaling.

Goal: To stimulate sustained demand for recycled fishing gear materials.

**1) Mandate digital product passports for fishing gear materials and products**

**Problem Addressed:** Lack of traceability and verified data undermines confidence in recycled materials and limits market uptake.

**Policy Mechanism:** Mandate digital product passports for fishing gear materials and products to:

- Enable verification of carbon savings versus virgin polymers
- Support Voluntary sustainability reporting standard (VSME) for non-listed micro, small and medium enterprises and Corporate Sustainability Reporting Directive (CSRD) reporting requirements
- Counter greenwashing and green hushing through independently verified data

**Expected Impact:**

- Increased trust and transparency
- Improved B2B and B2C market access
- Enhanced regulatory compliance

**2) Use Public Procurement as a Market Anchor**

**Problem Addressed:** Early-stage recycled material markets lack sufficient demand signals to achieve scale.

**Policy Mechanism:** Mandate or incentivise the use of recycled fishing gear materials in public projects (e.g. benches, tables, street furniture, building materials), incorporating QR codes to demonstrate traceability.

**Expected Impact:**

- Stable baseline demand
- Increased visibility of recycled marine plastics
- Demonstrated government leadership

**3) Support Quality Product Market Development:**

**Problem Addressed:** Value creation from storytelling and traceability is underutilised, despite consumer willingness to pay premiums for sustainable products.

**Policy Mechanism:** Support development of quality products that incorporate recycled fishing gear and clearly communicate environmental and social benefits, particularly in fashion, sportswear, and consumer goods.

**Expected Impact:**

- Higher-value markets for recycled materials
- Improved financial viability of recycling operations
- Positive reputational impacts for the fishing sector

**4) Unlock the Nylon Recycling Bottleneck**

**Problem Addressed:** Significant volumes of monofilament nylon nets remain in storage due to processing constraints.

**Policy Mechanism:** Support targeted stripping, sorting, and baling operations to isolate nylon for high-value recycling, building on existing B2B market demand.

**Expected Impact:**

- Immediate revenue opportunities
- Reduced legacy stockpiles
- Strengthened high-value recycling streams

**5) Facilitate exchange platforms for recycled materials:**

**Problem Addressed:** Information asymmetry between waste generators and material users limits efficient material matching.

**Policy Mechanism:** Establish exchange platforms to share data on:

- Material type
- Quantity and availability
- Collection, preparation, and traceability requirements

This can evolve toward digital product passports and Environmental Product Declarations (EPDs).

**Expected Impact:**

- Improved material matching
- Reduced transaction costs
- Increased utilisation of usable waste streams

**Contribution to Circular Economy Outcomes**

This pillar ensures that recycled fishing gear materials have viable and transparent end markets. By combining public procurement, digital traceability, and targeted market support, it transforms waste materials into valuable secondary raw materials and underpins long-term system sustainability.

**3.2.4 Stakeholder Engagement Framework (Horizontal Principle)**

These recommendations focus on involving and empowering communities and industry stakeholders.

- **Create Local Knowledge-Sharing:** Sharing lessons learned and best practices in gear collection and recycling can foster local innovation and community engagement, helping communities feel ownership over solutions. For example, Ireland’s HaultBack PRO is funding preparation of a standard operating procedure for net and lobster pot dismantling. This will be shared with all stakeholders. Matching waste generators with waste users will require facilitated communication and awareness raising.
- **Empower Social Enterprises and Fishing Co-operatives:** By involving social enterprises and fishers’ co-operatives in collection, sorting, and processing, these organisations can provide local employment and revenue, especially in smaller ports and sparsely populated areas. They help create social value and address specific community needs. Fishers are keen to tell a good new story about themselves and their industry.
- **Education and Outreach:** Raise the profile of gear recycling within fishing communities about the environmental and social benefits of proper recycling and opportunities for community-driven business models. Involve community members, fishers, local businesses, and NGOs in policy discussions and the structure of EPR and recycling schemes for relevance and local buy-in.
- **Involve community members, fishers, local businesses, and NGOs in policy discussions** concerning the structure of EPR and recycling schemes. This ensures relevance and local buy-in, increasing the likelihood of successful implementation.

### 3.2.5 Implementation Enablers (Horizontal Principle)

These are practical recommendations that facilitate the effectiveness of the above recommendations.

- 1) **Utilise existing infrastructure:** existing plant and equipment may be utilised (for example waste transfer stations/recycling centres with shredders, net washing facilities in net manufacturers factories, drying/storage sheds in ports) for purposes for which they were not originally intended.
- 2) **Fund pilot projects that create tangible products from recycled gear** (e.g., car components, building materials, consumer goods) with clear community benefits. These demonstrate the social and economic impact of recycling while proving technical feasibility and building public support.
- 3) **Establish systematic collection infrastructure including:**
  - Designated collection points at all fishing ports
  - Scheduled collection services for aquaculture facilities
  - Amnesty programs to clear legacy stockpiles
  - Clear protocols for gear acceptance and handling
- 4) **Create standard operating procedures** for aspects such as: Gear dismantling by type (nets, pots, lines); Material sorting and preparation; Quality standards for recyclates; Safety protocols for handling contaminated gear; Documentation and traceability requirements; Facilitate waste generator-user matching.
- 5) **Implement tracking systems to monitor:**
  - Volumes of gear collected by type and location
  - Recycling rates and material destinations
  - Reuse of components
  - Economic impacts (jobs created, revenue generated)
  - Environmental outcomes (waste diverted, carbon savings)

This data is essential for evaluating program effectiveness, adjusting policies, and reporting on circular economy progress

Considering the CIRCNETS project, we can stand over the need for cross border and cross-country co-operation. Co-ordination on aspects like the Structure of the EPR systems, consistent reporting frameworks and best practice exchange will strengthen and enhance the efforts and outcomes.

### 3.2.6 Implementation Roadmap

A staged and iterative implementation roadmap linking evidence gathering, policy design, and real-world delivery, with continuous feedback to refine and strengthen outcomes across the NPA region.

#### Stage A: Evidence Gathering (Economic Report)

- Collect data on gear volumes, recycling costs, market potential for polymers.
- Analyse financial viability and social impact (job creation, community benefits).
- Identify gaps in infrastructure and logistics.

OUTPUTS: Economic & market report | Baseline metrics | Gap analysis

#### Stage B: Policy Translation (Model Development)

- Convert findings into **policy levers**:
- EPR obligations → cost allocation framework.
- Infrastructure gaps → investment roadmap.
- Social enterprise potential → community engagement strategies.
- Define **KPIs and compliance mechanisms** (e.g., % recycled content, traceability standards).

OUTPUTS: Policy frameworks | Investment models | KPI & monitoring tools

#### Stage C: Implementation & Feedback

- Pilot projects and funding schemes.
- Monitoring and reporting systems (digital product passports, reporting requirements for VSME/CSRD compliance).
- Continuous feedback loop to refine the model based on real-world outcomes.

OUTPUTS: Operational systems | Verified impact data | Scalable models

### 3.2.7 Policy Impact Assessment

As outlined in the Policy Impact Assessment, there are clear positive benefits for the Northern Periphery and Arctic (NPA) region when these policies are implemented successfully.

Environmental Impacts	Economic Impacts
<ul style="list-style-type: none"> <li>• Reduction in marine litter and abandoned fishing gear through improved collection and EPR enforcement</li> <li>• Increased reuse and recycling rates driven by eco-design standards and material tracking</li> <li>• Reduced reliance on virgin plastics and associated carbon emissions</li> </ul>	<ul style="list-style-type: none"> <li>• Creation of local and regional jobs through recycling infrastructure and social enterprises</li> <li>• Development of secondary raw material markets, particularly for recycled nylon</li> <li>• Reduced waste management and landfill costs for ports and local authorities</li> <li>• Improved investment certainty through predictable material flows</li> </ul>
Social Impacts	Governance & Systems Impacts
<ul style="list-style-type: none"> <li>• Strengthened role of social enterprises and fishing co-operatives in circular value chains</li> <li>• Job creation in remote and coastal communities</li> <li>• Improved reputation and social licence of the fishing and aquaculture sectors</li> </ul>	<ul style="list-style-type: none"> <li>• Clear allocation of responsibility through EPR frameworks</li> <li>• Improved data availability via digital product passports and reporting systems</li> <li>• Greater policy coherence across NPA countries through harmonised approaches</li> </ul>

### 3.2.8 Desired Outcomes

Integrated financial and social enterprise policies in the NPA will:

- Reduce marine litter and avoid environmental harm from abandoned, lost or otherwise discarded plastic fishing/aquaculture gear.
- Create sustainable job opportunities and revenue streams in local communities.
- Mobilise local knowledge, innovation, and ownership, which improves compliance with new regulations and makes recycling systems more efficient and resilient.

Each recommendation leverages existing EU directives and proven models in the NPA for a holistic approach to fishing gear waste management.

### 3.2.9 Stakeholder Grouping & Relevant Actions

Stakeholders' relevant actions and interests are suggested in the table below.

Stakeholder	Relevant Actions	Interests
Policy Makers & Regulators	Convert findings into <b>policy levers</b> (EPR obligations → cost allocation framework). Define <b>KPIs and compliance mechanisms</b> (e.g. % recycled content, traceability standards). Monitoring and reporting systems for <b>VSME/CSRD compliance</b> .	Regulatory compliance, environmental protection, alignment with EU directives.
Local Communities & Social Enterprises	Mobilise local knowledge, innovation, and ownership. Develop <b>community engagement strategies</b> . Create <b>sustainable job opportunities and revenue streams</b> .	Economic development, social impact, job creation.
Fishing & Aquaculture Industry	Reduce marine litter and find solution for abandoned/retired gear. Participate in <b>pilot projects and funding schemes</b> . Tell a good news story for the catching sector.	Operational sustainability, cost efficiency, reputation.
Investors & Financial Institutions	Infrastructure gaps → <b>investment roadmap</b> . Analyse <b>financial viability and market potential</b> for recycled polymers.	Return on Investment (ROI), risk mitigation, green investment opportunities.
Technology Providers & Innovators	Develop <b>digital product passports</b> and monitoring systems. Innovate recycling technologies and logistics solutions.	Market growth, partnerships, tech adoption.



# 4

## CONCLUSIONS



## 4. Conclusions

Implementing the proposed policy pathway offers the Northern Periphery and Arctic region a practical and coordinated route toward a fully functioning circular system for fishing and aquaculture gear. By combining regulatory certainty, targeted investment, and market development, the recommendations move beyond fragmented waste management toward systemic change. Successful implementation will reduce marine pollution, stabilise circular value chains, and unlock new economic opportunities in coastal communities. It will lower long-term costs for industry and public authorities, strengthen investor confidence through improved traceability and data systems, and enhance governance through clearer responsibility and cross-border coherence. Taken together, these benefits position the NPA region not only to address marine plastics effectively, but to lead in developing resilient, community-embedded circular economy solutions.



# 5

## REFERENCES



## 5. References

<https://cfsd.org.uk/wp-content/uploads/2022/04/BCE-Local-Innovation-Systems-FINAL-March-2022.pdf>

Marine Plastics, Innovative Solutions to Tackling Waste: Chapter 10 Sotenäs Marine Recycling Centre in Sweden: A Case Study Related to Waste Fishing Gear; Martin Charter and Paul Whitehead  
[https://link.springer.com/chapter/10.1007/978-3-031-31058-4\\_10](https://link.springer.com/chapter/10.1007/978-3-031-31058-4_10)

<https://cfsd.org.uk/wp-content/uploads/2020/07/FINAL-V2-BCE-MASTER-CREATING-BUSINESS-OPPORTUNITIES-FROM-WASTE-FISHING-NETS-JULY-2020.pdf>

[https://www.interreg-npa.eu/media/1iki3xnc/circnets\\_report\\_d311.pdf](https://www.interreg-npa.eu/media/1iki3xnc/circnets_report_d311.pdf)

<https://www.universityofgalway.ie/circnets/circnets-bluecirclenets/>

<https://westerndevelopment.ie/key-projects/european-projects/circnets/>

[https://www.universityofgalway.ie/media/researchcentres/serg/files/circnets\\_report\\_d211.pdf](https://www.universityofgalway.ie/media/researchcentres/serg/files/circnets_report_d211.pdf)

<https://www.sciencedirect.com/science/article/pii/S2666916123000245>

[https://www.interreg-npa.eu/media/4ezf23jy/circnets\\_gull\\_bulletin\\_2\\_2025.pdf](https://www.interreg-npa.eu/media/4ezf23jy/circnets_gull_bulletin_2_2025.pdf)

<https://circular-cities-and-regions.ec.europa.eu/news/ccri-success-ecoefishent-project-creates-valuable-products-fishing-waste>

<https://www.interreg-npa.eu/media/vaeol5eb/interreg-npa-connecting-the-dots-programme-final.pdf>

<https://www.interreg-npa.eu/projects/circnets/>

[cen-tc-466\\_n222\\_en-17988-two-pager-final.pdf](cen-tc-466_n222_en-17988-two-pager-final.pdf)

[New European standards for the circular design of fishing gear and aquaculture equipment have been published - CEN-CENELEC](#)

<https://openknowledge.fao.org/server/api/core/bitstreams/f126ddd0-b423-430d-89c8-488667a9add9/content>

<https://www.epa.ie/publications/corporate/submissions--position-papers/SCP210404.2-EPA-Submission-NSPSA-2030.pdf>

[https://freelitterat.eu/wp-content/uploads/2025/03/Atlantic-Strategy\\_final-version.pdf](https://freelitterat.eu/wp-content/uploads/2025/03/Atlantic-Strategy_final-version.pdf)

[https://www.universityofgalway.ie/media/researchcentres/serg/files/circnets\\_report-d111.pdf](https://www.universityofgalway.ie/media/researchcentres/serg/files/circnets_report-d111.pdf)

<https://keep.eu/projects/18662/Circular-Ocean-EN/>

[https://wwwcdn.imo.org/localresources/en/OurWork/PartnershipsProjects/Documents/GloLitter/Fishing\\_Gear\\_Recycling\\_Technologies\\_and\\_Practices.pdf](https://wwwcdn.imo.org/localresources/en/OurWork/PartnershipsProjects/Documents/GloLitter/Fishing_Gear_Recycling_Technologies_and_Practices.pdf)

<https://www.ospar.org/documents?v=41242>

<https://www.europarl.europa.eu/legislative-train/theme-environment-public-health-and-food-safety-envi/file-single-use-plastics-and-fishing-gear-reducing-marine-litter-from-plastics>

Guidance Note commercial fishing gear types and technical measures (used in Ireland) <https://theskipper.ie/wp-content/uploads/2023/08/FFSU-FC-GN-OC-25-Guidance-Note-on-Commercial-Fishing-Gear-Types-and-Technical-Measures-V1.pdf>

# circnets

## Improving the management of end-of-life fishing gear

Blue Circular Nets (CIRCNETS) supports collection, treatment and recycling of fishing gear, so that these end-of-life nets are disposed appropriately, and they will not end up in seas and degrade the marine environment.

[interreg-npa.eu/projects/circnets/](https://interreg-npa.eu/projects/circnets/)



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