

## **INTERREG MED Programme 2014-2020**

### **BLUEfasma**

*Empowering innovation capacity of SMEs, maritime clusters and networks in MED islands and coastal areas to support blue circular economy growth in fishing/aquaculture*

#### **Deliverable.**

#### **Policy Recommendations and Key messages**

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## **TABLE OF CONTENTS**

### **1. INTRODUCTION**

### **2. KEY ISSUES**

- 1. Funding**
- 2. Governance**
- 3. Review and harmonisation of legislation**
- 4. Sea waste collection**
- 5. Innovation to turn waste into profit**
- 6. Qualification and quantification of waste**
- 7. Collective organisation and action**
- 8. Eco-labelling and certification schemes**
- 9. Technology transfer**
- 10. Knowledge dissemination**
- 11. Generational turnover**
- 12. Gender equality**

### **3. POLICY RECOMMENDATIONS**

## 1. INTRODUCTION

This report has been developed in the context of BLUEfasma, a European Interreg MED project developed between November 2019 and June 2022.

BLUEfasma is a territorial cooperation project to trigger change in the fisheries and aquaculture sector in Mediterranean insular and coastal areas, reinforcing the adaptation of Circular Economy (CE) practices.

The project tackles the transnational challenge of continual depletion of natural resources and the below EU-average Mediterranean Circular Economy innovation performance in fishing and aquaculture. Its overall objective is to empower innovation capacity of SMEs, maritime clusters and networks, protected areas to boost Blue Circular Economy growth in insular and coastal areas. Circular Economy prevents depletion of resources by closing energy and materials loops, leading to smart and sustainable growth as a key Mediterranean joint asset.

BLUEfasma is targeted to European and Mediterranean policy makers and stakeholders.

The work carried out by the 14 BLUEfasma partners from 9 Mediterranean countries both in the field work of the Blue Living Labs and in the drafting of the White Paper has made it possible, on the one hand, to identify existing CE practices and the barriers and drivers for their further development and generalisation and, on the other hand, to draw up proposals to foster CE in sustainable fishing and aquaculture.

The aim of this report is to capitalise on all the work done, by identifying the key issues raised by the BLUEfasma project and proposing Policy Recommendations for the successful integration and implementation of the CE principles in Mediterranean fisheries and aquaculture, as well as funds allocation for business investment in R&I in these sectors.

## 2. KEY ISSUES

### 2.1 Funding

The EU CE Package in 2015 came after the policies implemented to reduce climate-altering emissions on the replacement of fossil fuels with renewable ones and on energy efficiency. The aim was also to reduce the EU's dependence on foreign countries for supplies of raw materials and to create new job opportunities and economic growth in environmentally friendly sectors.

However, these objectives have not yet been achieved in the fisheries and aquaculture sector. It is therefore at a clear disadvantage when it comes to implementing circular economy criteria. Fishing boats in the Mediterranean are still today powered by diesel engines with a consumption equivalent to approximately 80% of the costs of fishing production. It is therefore essential to focus on the financing of policies affecting the sector so that the delay in replacing fossil fuels, the consequences of which are still being felt, is not repeated when it comes to promoting the circular economy.

This obstacle is recognised in Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021 establishing the European Maritime, Fisheries and Aquaculture Fund (EMFAF) and amending Regulation (EU) 2017/1004: "Union structural funds that have been provided to the maritime economy to meet CO<sub>2</sub> emission targets, increase resource efficiency and reduce the environmental footprint, have not reached the fisheries sector".

Regulation (EU) 2021/1139 foresees EMFAF funding targets directly related to the Circular Economy in fisheries and aquaculture. For instance, regarding data collection, management, use and processing in the fisheries sector, and research and innovation programmes (art. 23) and to enable a sustainable blue economy in coastal, island and inland areas, and to promote the development of fishing and aquaculture communities (art. 51).

Similarly, funding programmes at both national and regional level (e.g. Research and Innovation Smart Specialisation Strategy) must be adequately targeted to provide the fisheries and aquaculture sectors with sufficient resources to be able to implement circular economy practices on a large scale.

Implementing the needs identified in the BLUEfasma project requires the necessary funding, both from the EMFAF and other funds, to carry it out. In doing so, special care must also be taken to provide the fisheries and aquaculture sector with sufficient funding on equal terms with other sectors.

With reference to the funds used by the partner country that is not an EU member state, national financial mechanisms, supported by the EU and other donors, that offer funding opportunities for the fishing and aquaculture sector should also follow the same recommendation.

## 2.2 Governance

An essential issue linked to funding is governance in the mechanisms for applying for and managing such funding. Regulation (EU) No 1303/2013 of the European Parliament and of the Council of 17 December 2013 states that "as an essential principle, responsibility for drawing up and implementing participatory local development strategies should be given to local action groups representing community interests" (Whereas 31).

In the regulation of community-led local development, the correlation of Articles 32 and 34 provides for a balance: On the one hand, the composition of local action groups should not be such that neither public administrations nor any particular interest group represents more than 49% of the voting rights in decision-making. On the other hand, the duty to devise a non-discriminatory and transparent selection procedure and objective criteria for the selection of operations, ensuring that at least 50% of the votes in selection decisions are cast by partners who are not public authorities, and allowing for selection by written procedure.

These mechanisms must be scrupulously respected so that the fisheries and aquaculture sectors can participate in a real and effective way in the governance of participatory local development and all that depends on and is related to it.

## 2.3

## 2.4 Review and harmonisation of legislation

Some European legislation is currently a hindrance to the CE developments. Such is the case of Regulation (EC) No. 767/2009, on the placing on the market and use of feed, that prohibits the use of animal waste (manure) to feed other animals, for both food-producing and non- food producing species (Art. 6, Annex III). This standard, conceived for protection of human health and feed safety, poses a relevant barrier for the implementation of methods such as Integrated Multi-Trophic Aquaculture (IMTA) schemes, in

which bivalves and other species are fed on fish tank waste that includes fish feed waste and faeces.

The absence of European regulation in other areas is also a hindrance. This is the case of aquaponics that has no clear legal status in the EU. Yet aquaponics systems integrate the recirculating aquaculture system (RAS) and hydroponics methods with advantages for minimising water and nutrient use.

Another legislative issue which is currently not conducive to the development of the blue circular economy is the heterogeneity sometimes in the national adoption of EU legislation. With reference to the national legislation in a partner country that is not an EU member state, national legal documents shall also be aligned and harmonized with the EU *acquis* in the relevant area.

Clearly an updated, coherent, and harmonised legislative framework within the EU is needed to support and create the framework for the development of CE in fishing and aquaculture.

## 2.5 Sea waste collection

Over the last twenty years, local initiatives by fisher people who load all the rubbish they collect with their nets while fishing onto their boats and take it ashore have multiplied. This work is done on a voluntary basis by the fisher people because on a social and economic level, they are one of the groups more directly affected by the problem. Globally, it is estimated that 70% of marine litter is found on the seabed, directly affecting fisheries' livelihoods, damaging fish stocks and fishing gear.

Success stories show that public cooperation is needed to support these pro bono initiatives. It is necessary to establish means for the deposit and selective collection of the rubbish once ashore as well as its transport to recycling plants; establish the data collection protocol to know the amount of waste and the type of waste collected and identify sectors for which the waste is secondary raw material and establish commercial relations with them.

PESCA NETA (Catalonia), a project launched in 2020 to contribute to the cleanliness of the Mediterranean and ensure the correct management of all the waste recovered. The 32 fishermen's guilds of the Territorial Federations of Girona, Barcelona and Tarragona are involved. All the boats collect all the waste that arrives in their nets daily. The waste is then sorted, counted, and taken to port for further treatment.

ENALEIA (Greece), a urban non-profit social enterprise, contributes to the collection of over 250 tonnes of plastics from the sea.

ENALEIA involves the cooperation with recycling companies to place recycling bins of plastic in various ports of Greece, with the ultimate goal to reintegrate them into the Circular Economy. The discarded equipment is further taken to garbage sorting centres and classified to three streams of which about 65% of the collected plastics from the sea are transformed and enter the CE.

## 2.6 Innovation to turn waste into profit

There are several sources of fish waste, both from fisheries and aquaculture. There are whole fishes -unsold fish, fish farm mortality-; fish parts -heads, skins, scales, bones from processing or preparation for sale-; shells without organic matter and shells with flesh and/or organisms attached to the shell (epibionts).

From existing research work and pioneering projects, there have been identified several recovery options. Thus, shells coming from aquaculture can be treated and valorised in compost and methanisation (agriculture), paving stones and slab of concrete (industry), pharmaceuticals and cosmetics, animal feed and soles and glasses (plastic industry). Fish parts can be also valorised and used in the textile industry, for petfood and as fertiliser.

Other cases of waste recycling in the fishing sector are in non-organic materials, such as the recycling of scrapped fibre fishing boats to recycle the waste and use it to produce small turbines.

This circular economy work is in some cases being carried out by subsidiaries of large groups. In other cases, it is a small business initiative. In any case, if fish and shell waste is to be reintroduced into the economy in sufficiently significant volumes in environmental terms, it needs to be mainstreamed. Because of the wide variety of uses that can be made of this waste, it is an opportunity for companies in the sector and new entrepreneurs, but it requires clear institutional support and a boost to its commercial outlet on the market.

Real support for these initiatives must be accompanied by appropriate fiscal regulations that recognise the environmental contribution they make.

Angibaud (subsidiary of Veolia Company) has a processing plant located in Béziers (Occitanie, France). They recover and process fish by-products into fertiliser for agricultural markets. Currently 1500 tonnes of fish waste are collected and treated, but the plant's capacity would allow for up to 3000-3500 tonnes. 95% of the inputs comes for Recyfish, a fish waste collection programme created in SUD PACA. Empty pallet boxes are made available to various stakeholders involved in the programme (wholesalers, fishmongers or supermarkets) who fill them with fish waste.

#### Case 2

La Coved (diversification of the Saur group) is a waste management company in Toulouse (Occitanie, France). They sort and recycle around 8000-9000 tonnes of waste each year, including 3000 tonnes of oyster shells and 2000 tonnes of mussel shells. They are collecting shell waste on several production zones located in Occitanie (Bouzigues, Loupian, Frontignan, Sete, Marseillan and Mèze). Once treated, the shells are crushed. This powder can be used as a soil improver in vineyards to compensate for the calcium deficit in certain vineyards. Oyster shells are also used in the creation of artificial habitats installed in ports and intended to encourage the re-establishment of biodiversity. These are steel cages filled with oyster shells.

#### Case 3

Regional Development Agency of Dubrovnik-Neretvna County, Croatia (DUNEA) focused on bivalve farming in Mali Ston Bay (biggest producer of the European flat oyster in the Mediterranean).

DUNEA assisted in the establishment of mutually beneficial partnerships between shell producers and other industries: local poultry farms (crushed shells as a calcium supplement in poultry feed), agriculturists (neutralisation of acidic and metal contaminated soils); 3D printing companies (3D-printing of jewellery, souvenirs, tiles, furniture and other items); artisans (making of souvenirs and jewellery); construction and quarry companies (crushed shells and dust remaining after cutting stones used for the production of tiles, furniture or artificial stone; quarry machines used for shell crushing).

## 2.7 Qualification and quantification of waste

Unlike the agriculture sector where end-of-waste criteria have been clearly established, in the fisheries and aquaculture sector this has not yet been



done. This affects the effectiveness and efficiency of waste separation and subsequent recycling. The setting of end-of-waste criteria in fishing and aquaculture is a needed step to move forward.

In addition to this gap, the types of waste and the points of waste production in fishing and aquaculture are very diverse. There are additional difficulties such as separated materials that sometimes can only be used for specific transformation or goods. Also, the fact that to foster trust in the quality of remanufactured products a high standardisation is required.

With the positive news that the waste generated by fisheries and aquaculture has so many possibilities in its recycling to become secondary raw materials, it is needed to count on data to assert the subsequent viability of the initiatives. It is therefore necessary to establish mechanisms to quantify the quantity of waste produced in the different areas and the quantity of the different secondary raw materials resulting from recycling. This will make it possible to size requirements needed in the different phases (collection, recycling, production, etc.) and to assess the viability of projects (placing a new product on the market requires the knowledge that there will be enough raw material - secondary raw material, in this case - to produce and supply it).

## 2.8 Facilitating collective organisation and action

The sharing economy and the valorisation of unused values (by the possibility that more than one stakeholder uses several times the same good) is an inherent element of circularity. Integrated and collaborative production is more sustainable.

In the case of the Mediterranean fisheries and aquaculture sector, production is mainly in the hands of small companies and fishing cooperatives (small groups of fishers). In most cases, they have limited turnovers, are severely affected by weather and climate change, and presently facing the COVID 19 pandemic consequences.

The promotion and support of coordinated collaborations among producers, as well as the administrative and fiscal facilitation of their implementation, are of the essence for the development of CE in the sector.

Similarly, to meet the challenges of circularity in a common Mediterranean Sea, it is necessary to strengthen and develop multilateral cooperation frameworks in the region for joint responses to common challenges and opportunities.

## 2.9 Eco-labelling and certification schemes

Providing information on the origin of the raw materials and on the quality and safety standards of secondary raw materials is fundamental to promote the marketability of fishing and aquaculture products in a circular economy framework.

Research has identified a requirement as well for sustainable food-labelling systems that allow consumers to make informed purchases on the environmental impacts of their purchasing choices.

However, there is currently a gap referred to lack in eco-labelling and certification schemes, quality standards and product stewardship for secondary raw materials and by-products.

## 2.10 Technology transfer

Technology transfer for innovation in the selectivity of fishing tools, fishing activities and improvement of energy efficiency needs to be enhanced.

Innovations for the reduction of waste in sea and support for the replacement of consumable plastic materials used for fishing with biodegradable materials can be achieved with technology transfer.

The manufacture of biodegradable materials has enabled the replacement of plastic and other inorganic materials in other sectors. With appropriate research, this substitution can be transferred to the fishing sector by allowing the production of nets and other fishing gear in biodegradable materials. This avoids the generation of waste from unusable nets and their subsequent recycling. It also avoids the generation of non-recoverable waste from nets lost at sea when they fall to too deep depths to be recovered.

Technology transfer to gain energy efficiency is especially necessary to replace the current engines of fishing fleets and reach zero CO<sub>2</sub> emissions. There is a great need for engine replacement by combining the importance of an instrument ensuring the safety of navigation with the reduction of harmful emissions. Research needs to be promoted and encouraged in the same way as it has been done for land transport and, in part, for the nautical and merchant sector. By incorporating the use of non-polluting natural energies in the sector, production costs will be considerably reduced, and investment capacity will be freed to implement CE improvements.

In this regard, it should be recalled that among the objectives to be supported by the EMFAF is the strengthening of the transfer and use of research, innovation, and technology in the sustainable blue economy (art. 51 c Regulation (EU) 2021/1139).

## 2.11 Knowledge dissemination

Successful implementation of the Blue Circular Economy requires changes in both producers and consumers. There is no doubt that the sector will benefit from all the outreach work already being done in other sectors and from the growing general awareness of sustainable development goals. But work needs to be done to further permeate this knowledge and the development of circular practices specifically in fisheries and aquaculture.

Thus, among producers, it is important to convey information on the benefits (savings) that can be obtained from an efficient use of resources (energy efficiency and precision aquaculture) and the benefits (additional gains and cost reduction) of a circular management of waste (secondary and by-product streams) and secondary raw materials.

The success of the various dissemination workshops held by the project partners in the Blue Living Labs shows that knowledge transfer is one of the essential paths to pave the way for the implementation of the Circular Economy in fisheries and aquaculture.

## 2.12 Generational turnover

The promotion of the Circular Economy can be a driver for the necessary improvement of the generational turnover in fishing and aquaculture.

Some constraints in the fishing and aquaculture sector are related to demographic characteristics. The average age of fisher people nowadays is high, because, as it stands, it is difficult to attract young people to these jobs.

The physical hardship of the work, as well as its perceived lack of economic future, discourages young people from joining. This affects not only young people who are alien to the world of fishing and are not attracted to it, but also the young people of families who have been involved in fishing for generations.

The promotion of the Blue Circular Economy and the initiatives linked to it create a whole new range of sustainable services, product-as-service models and digital solutions that bring a better quality of life, innovative jobs and

upgraded knowledge and skills. This opens a range of opportunities and attractions for new generations to join the sector.

It should be borne in mind that the present non-incorporation of young people to the fishing and aquaculture sector has two further negative effects. On the one hand, it undermines the wealth of knowledge and experience of the fishing areas in which they work that has been accumulated by the many small family businesses through which fishing has traditionally been carried out in the Mediterranean. On the other hand, the very future of these small businesses is put at risk, with the loss for the market that this entails.

Losses of this kind for the sector are further hindrances to the development of a Blue Circular Economy because local knowledge and local location are needed to effectively implement such measures. These are issues that need to be considered when designing funding to promote EC in the sector. Formulas such as payment of first-location premiums and the activation of integrated business packages (youth packages) are possibilities to take into consideration.

## 2.13 Gender equality

The promotion of the Circular Economy is a driver for the necessary improvement of gender equality in fishing and aquaculture.

These sectors have traditionally been occupied by male workforces. The predominance of physical labour and the harshness of work on the high seas have customarily reinforced gender roles, so that women's presence in these fields is still very much in the minority.

Along the same lines seen for the need to redirect and change the reluctance of the younger generation to enter the fisheries and aquaculture sector, the development of these sectors towards the blue economy and boosting added value opens the door to the incorporation of women in the value chain, thus contributing to the reversal of old inertias and the enhancement of inclusiveness.

The transversality with which equality is currently conceived and regulated in the European Union, as well as its linkage as a premise and principle in the funding requirements are an opportunity for the fisheries and aquaculture sectors in their development towards the circular economy.

## **3. POLICY RECOMMENDATIONS**

### **3.1 Funding**

Promote and enhance integration of EMFAF with other Funds and ensure that the allocation of funding is realistic and adequate to enable the fisheries and aquaculture sectors to transform and incorporate Circular Economy.

### **3.2 Governance**

Establish effective control mechanisms to ensure that the process of selecting operations complies with the governance criteria laid down in Community legislation.

### **3.3 Review and harmonisation of legislation**

Review and update European legislation to allow for current techniques and successful innovations that promote circularity in aquaculture with safety for humans and fish.

Promote greater integration in the adoption of EU legislation on waste and waste treatment and reduce heterogeneity between Member States' legislation.

Interactions between Aquaculture and Natura 2000 sites and Maritime Spatial Planning should also be considered by public authorities, as detailed in the PHAROS4MPAS' project recommendations for the aquaculture sector: future trends include both a development and increase of fish aquaculture production on one hand, and an increase in the number and coverage of MPAs on the other. (BGC Position Paper on MSP 2021)

### **3.4 Supporting and improving the collection of sea waste**

Promote legislation, green fiscality, and public-private cooperation for the consolidation and efficiency of sea waste collection by fishing boats, developing an integrated system, as well as financial and logistical measures for their management and means for data collection.

### 3.5 Innovation to turn waste into profit

Encourage viable and sustainable economic models for the transformation of waste into profit by supporting the development of existing and new projects and developing environmental compensation mechanisms.

### 3.6 Qualification and quantification of waste

Adopt end-of-waste criteria for promoting and easy reuse of fishing and aquaculture waste and promote appropriate mechanisms for the quantification and sorting of waste.

### 3.7 Facilitating collective organisation and action

Support the process of strengthening and developing collective organisation and multilateral cooperation frameworks for joint responses to common challenges and opportunities.

### 3.8 Creating labels on the added value of the recycled origin

Develop and implement European eco-labelling and certification schemes for sustainable fishing, secondary raw materials, and by-products.

### 3.9 Technology transfer

Promote technology transfer and legislate funding criteria accordingly to foster innovation both in the selectivity of fishing tools and in the fishing activities and energetic efficiency. For example, consider the geographic information system (GIS) tools which include multiple criteria for MSP that have been developed for aquaculture siting, such as the AquaSpace GIS tool. (BGC Position Paper on MSP 2021)

### 3.10 Knowledge dissemination

Adopt a targeted communication to disseminate information and promote the knowledge on CE among the sector, consumers, and decision makers.

### 3.11 Generational turnover

Promote the Blue Circular Economy and the funding to be earmarked for its development with a strategic vision in terms of generational renewal.

### 3.12 Gender equality

Promote the Blue Circular Economy and the funding to be earmarked for its development with a gender perspective.

## 1. Annex

## 2. POLICY RECOMMENDATIONS' BREAKDOWN

### 1. Funding

**Barrier:** Underfunding of fisheries and aquaculture sectors to date

**Beneficiaries:** Financing bodies; fisheries and aquaculture sectors

**Link to existing policy instruments/strategies:** <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R1139&from=EN>

**Impacts/outcomes:** Implementation of blue circular economy policies and best practices

### 2. Governance

**Barrier:** Article 32.b Regulation (Eu) No 1303/2013 of the European Parliament and of the Council of 17 December 2013

Standard application of Art. 37 of the above-mentioned Regulation contrary to its real meaning, diluting the real participation of the traditional fishing sector.

Lack of follow-up by supra-national or at least state-level authorities

**Beneficiaries:** Local action groups

**Link to existing policy instruments/strategies:** Decree regulating the Catalan Council of Maritime Co-management  
<https://cido.diba.cat/legislacio/12056569/decret-3212021-de-20-de-juliol-del-consell-catala-de-cogestio-maritima-departament-daccio-climatica-alimentacio-i-agenda-rural>



**Impacts/outcomes:** Decision-making by the sectors concerned

### 3. Review and harmonisation of legislation

**Barrier:** Plurality of legislative bodies -by reason of political geography- regulating problems that are transboundary in nature

**Beneficiaries:** National legislations

**Link to existing policy instruments/strategies:** <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32021R1139&from=EN>

**Impacts/outcomes:** Greater coherence in intra-state and inter-state legislation; shared response to common problems

### 4. Supporting and improving the collection of sea waste

**Barrier:** Lack of sufficient public-private co-ordination; financing

**Beneficiaries:** All Blue Economy sectors

**Link to existing policy instruments/strategies:** <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0240&rid=1>

[UNEP MAP Guidelines for Fishing for Litter  
https://wedocs.unep.org/bitstream/handle/20.500.11822/6072/16ig22\\_28\\_22\\_10\\_eng.pdf](https://wedocs.unep.org/bitstream/handle/20.500.11822/6072/16ig22_28_22_10_eng.pdf)

**Impacts/outcomes:** reduced marine pollution; increased volume of waste recycled

## 5. Innovation to turn waste into profit

**Barrier:** consumerist culture with regard to purchase new commodities and goods; reduced willingness to pay (and trust) for secondary raw materials or second-hand market goods;

**Beneficiaries:** secondary raw materials' market

**Link to existing policy instruments/strategies:**  
<https://www.ecoembes.com/es>

**Impacts/outcomes:** reduction of dependence on raw materials from third countries, precision aquaculture, pollution reduction

## 6. Qualification and quantification of waste

**Barrier:** Lack of end-of-waste criteria; lack of sufficient public-private co-ordination; financing

**Beneficiaries:** secondary raw materials' producers

**Link to existing policy instruments/strategies:** EC JRC  
Methodology to develop End-of-Waste Criteria  
<https://publications.jrc.ec.europa.eu/repository/handle/JRC53238>

**Impacts/outcomes:** improved recycling policies and strategies; increased volume of waste recycled

## 7. Facilitating collective organisation and action

**Barrier:** Average size - between micro and small - of the enterprises in the sector

**Beneficiaries:** companies in the sectors involved

**Link to existing policy instruments/strategies:**  
[www.pescadorsdebalears.com](http://www.pescadorsdebalears.com); [www.confrariespescadors.cat](http://www.confrariespescadors.cat); cooperative

peschiere; prud'homies de pêcheurs; Pan Cypriot Association of Professional Coastal Fishermen; Decree regulating the Catalan Council of Maritime Co-management  
<https://cido.diba.cat/legislacio/12056569/decret-3212021-de-20-de-juliol-del-consell-catala-de-cogestio-maritima-departament-daccio-climatica-alimentacio-i-agenda-rural>

**Impacts/outcomes:** Implementation of policies and good practices

## 8. Creating labels on the added value of the recycled origin

**Barrier:** Lack of legislation and fiscal incentives

**Beneficiaries:** Recycled-origin-product manufacturers; aware consumers

**Link to existing policy instruments/strategies:**  
<https://www.fao.org/3/cb7838en/cb7838en.pdf>

**Impacts/outcomes:** added value of the product, circular economy awareness-raising in society

## 9. Technology transfer

**Barrier:** lack of specific research to counteract the effects of humidity on the transfer from inland to marine engines; funding

**Beneficiaries:** fisheries and aquaculture

**Link to existing policy instruments/strategies:** Blue bioeconomy roadmap for Portugal <https://blueandgreen.ciimar.up.pt/>

**Impacts/outcomes:** reduction of CO2 pollution; reduction of production costs; increasing capacity to invest in circular economy initiatives

## 10. Knowledge dissemination

**Barrier:** Habits and customs acquired by producers and consumers

**Beneficiaries:** Recycled-origin-product manufacturers; aware consumers

**Link to existing policy instruments/strategies:** Catalan Maritime Network <https://www.blunetcat.eu/es/>

**Impacts/outcomes:** Improved attitudes towards a circular fishing and aquaculture

## 11. Generational turnover

**Barrier:** Lack of attractiveness of the fisheries sector as perceived by the new generations

**Beneficiaries:** existing family businesses in the sector; youth employment

**Link to existing policy instruments/strategies:** [https://www.europarl.europa.eu/doceo/document/A-9-2021-0230\\_EN.html](https://www.europarl.europa.eu/doceo/document/A-9-2021-0230_EN.html)

**Impacts/outcomes:** decrease in the average age of employment in the sector; survival of family businesses

## 12. Gender equality

**Barrier:** Gender stereotypes

**Beneficiaries:** companies in the sector, women employment

**Link to existing policy instruments/strategies:** <https://www.fao.org/flw-in-fish-value-chains/resources/articles/women-in-fisheries-as-agents-of-change-to-reduce-flw/en/>

<https://www.fao.org/gfcm/activities/fisheries/small-scale-fisheries/rpoa-ssf>

<https://www.fao.org/fao-stories/article/en/c/1471294/>

**Impacts/outcomes:** more equality; increased eligibility for public funding