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ADVANCING TOWARDS LITTER - FREE
ATLANTIC COASTAL COMMUNITIES
BY PREVENTING AND REDUCING
MACRO AND MICRO LITTER

Study on fishing gear life cycle in France (Regional focus on Brittany)

WORK PACKAGE 1 - ACTIVITY 2, TASK 1



Work package 1:	PREVENTION BY IMPROVING WASTE MANAGEMENT AND RECYCLING
Activity and task:	Management and recycling of waste fishing gear – Studies on fishing gear life cycle
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Contents

1. INTRODUCTION.....	3
1.1. The French port system and overview of Brittany ports.....	4
1.1.1 - Overview of ports and fishing activity in France and the Brittany region.....	4
1.1.2 - Fishing waste management in French ports	5
1.1.3 - Examples of Brittany ports and their waste management systems.....	6
1.1.4 - Mains hurdles to selective collection and the dismantling of WFG for recycling..	7
1.2. Value chain of various players	8
2. MANUFACTURE.....	9
2.1. Various types of fishing gear	9
2.1.1 - Gillnets.....	9
2.1.2 - Trawls	10
2.1.3 - Dredges.....	11
2.1.4 - Pots / Traps.....	12
2.2. Plastic matter in fishing gear: description and specificities	14
<i>Fishing gear is made of several materials, though mainly plastic, which is used in the netting and ropes. Trawls contain the largest variety of materials, in particular metal draglines and rubber-padded footropes.....</i>	
<i>The EU Single-Use Plastic Directive, which targets WFG among other waste, relates only to plastic components. This study therefore focuses solely on the plastic matter used in fishing gear.....</i>	
2.2.1 - Main polymers used in fishing gear: generalities and technical specificities of polymers	14
2.2.2 - Plastic components in nets	15
2.2.3 - Plastic components in trawls.....	16
2.2.4 - Plastic components in dredges	19
2.2.5 - Plastic components in pots & traps.....	19
2.3. The fishing gear market: players and flow volumes.....	20
2.3.1 - Organisation and main players in France and Brittany.....	20
2.3.2 - Market volumes	22
3. USE.....	24
3.1. Use and lifespan	24
3.1.1 - PA gillnets.....	24
3.1.2 - Trawls	24
3.1.3 – Dredges	24
3.1.4 – Pots / traps.....	25
3.2. ALDFG: causes, consequences and mapping.....	25
3.2.1 - Causes.....	25
3.2.2 - Consequences	26
3.2.3 - Mapping	27
4. END-OF-LIFE	28
4.1. Summary of Waste Fishing Gear (WFG) flows generated on a regional scale ...	28
4.2. Repair and reuse.....	30



Study on fishing gear life cycle in France

4.2.1– Gillnets	30
4.2.2– Trawls	30
4.2.3 – Dredges 31	
4.2.4 – Pots / traps.....	31
4.3. Dismantling and sorting: practices and specific issues per type of WFG	31
4.3.1 - Gillnet dismantling	31
4.3.2 - Used trawl dismantling.....	32
4.3.3 - Dredge dismantling 34	
4.3.4 - Pot / trap dismantling	34
4.4. Collection and transport.....	35
4.4.1 - The case of gillnets	35
4.4.2 - The case of trawls 36	
4.4.3 - The case of dredge and pot or trap nets	37
4.5. End-of-life scenarios	37
4.5.1 - Generalities on treatment solutions.....	37
4.5.2 - Focus on recycling 38	
5. RECOMMENDATIONS & SOLUTIONS.....	41
5.1. Is there a biodegradable alternative?	41
5.1.1 – INDIGO and TEFIBIO: Biodegradable plastic for gillnets	42
5.1.2 - LINC BioMer: Biodegradable trawl and ropes	42
5.1.3 - BAITFISH & CARAMBAR: Fish traps and pots containing biodegradable plastic	43
5.1.4 – SeaBioMat 44	
5.1.5 - Project outside of France: GLAUKOS	44
5.2. Awareness building and training for present and future fishermen.....	44
5.2.1 – Initial training 44	
5.2.2 – Vocational training 45	
5.3. Improve flow tracking.....	45
5.4. Eco-designed fishing gear	46
5.4.1 – The new AFNOR standard.....	46
5.4.2 – Considerations by Comité France Océan 47	
6. SUMMARY OF LIFE CYCLE AND CONCLUSION 48	
6.2. Summary of fishing gear life cycle.....	48
6.3. Conclusion	50
7. REFERENCES.....	51



1. INTRODUCTION

1.1. The French port system and overview of Brittany ports

1.1.1 - Overview of ports and fishing activity in France and the Brittany region

France has around 60 fishing ports, 32 of which are currently equipped with an auction centre, known as the *halle à marée* or “tide market”, where fishery produce is sold directly from the boats.

The fishing ports are located along France’s three maritime coastlines: the Atlantic, the English Channel and the Mediterranean. The Atlantic coast, which is home to the ports of the Nouvelle-Aquitaine, Pays de la Loire, Brittany and Normandy regions, registered around 1,600 active fishing vessels in 2022. (Source: SIH 2022 which specifies 1,596 vessels “registered under the FPC [community fishing fleet]”, out of a total of 4,072 vessels in metropolitan France (Source: FRA 2024 fleet file). Among these vessels, 3,400 measure less than 12 metres (Source: 2021 data - France Agrimer), i.e., 83% of the fleet, and just 158 vessels measure more than 24 metres.

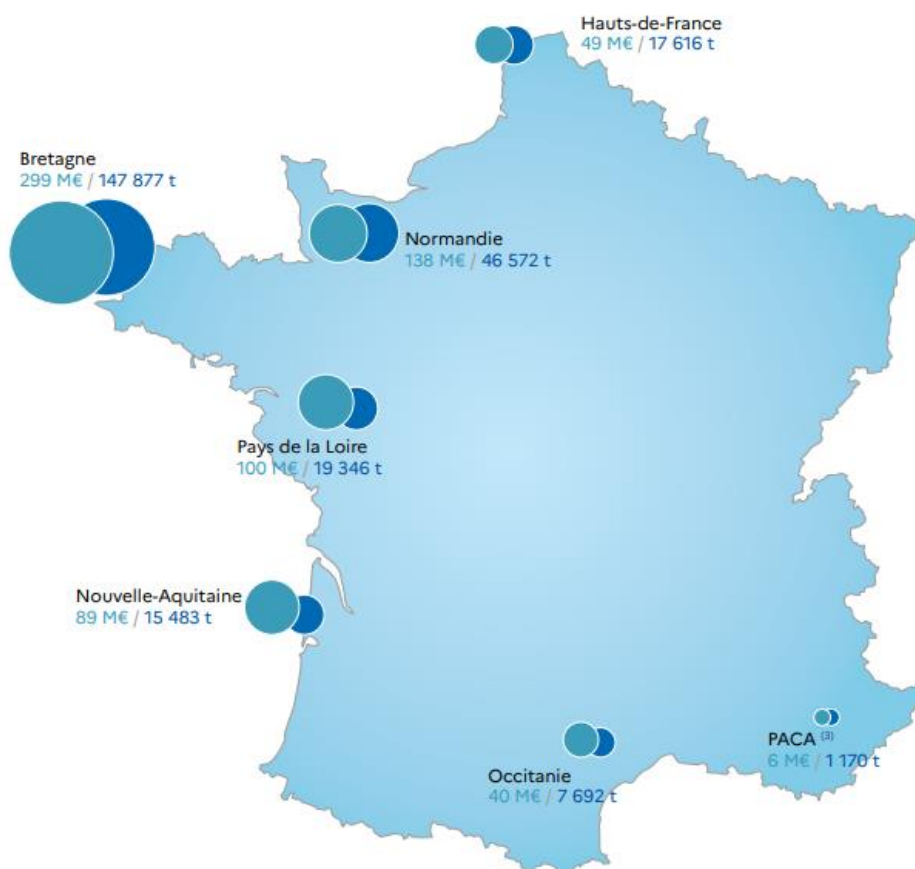
The majority of ports combine fishing with trade and recreational activities, and sometimes also include a ship repair activity or passenger transport.

Note that in the last two years, the French fishing fleet lost 90 vessels following governmental measures to provide financial aid to those exiting the fleet (the Individualised Support Plan - PAI). These measures were implemented in response to the serious economic difficulties faced by the fishing sector post-BREXIT. It must also be pointed out that among these 90 “reformed” boats, 40 came from the Brittany fleet (including 26 from the Guilvinec maritime district), mostly offshore trawlers and pot vessels.

Brittany nevertheless remains France’s leading region in terms of annual fishing volume (see figure 1): in 2022, it represented a turnover of €299 million for 147,877 tonnes of fishing produce sold, i.e., 58% of the national volume landed in metropolitan France.



Ventes
Valeur (millions d'euros) / Quantité (tonnes) (2)



(1) Hors algues et pêche en eau douce
(2) Équivalent poids vif
(3) Données hors criée- VISIOMer

Source : VISIOMer/FranceAgriMer

Figure 1: Map of the financial worth (in millions of euros) and volume (tonnes) of fresh fish landed per region in 2022 (FranceAgriMer, 2023)

The Brittany region alone is home to 1,200 fishing vessels, across 28 ports. The majority of these boats are between 7m and 10m long, followed by 10m-12m vessels, and those under 7m in third place. Gillnets are the main fishing gear for around 300 of these boats; 270 are engaged primarily in trawling, and 200 in dredging. A significant number of these vessels use both trawling and dredging. The remainder of the Brittany fleet consists of pot vessels, trolling boats, seiners and small multi-purpose vessels. (Source: Fleet file FRA 2024)



1.1.2 - Fishing waste management in French ports

While “ship waste reception and treatment plans” (WRTP) exist in most ports and cater for all activities (trade, fishing and recreation), port managers are currently solely responsible for the collection of plastic fishing waste.

WRTP essentially manage large flows, such as wood, metal, ordinary industrial waste (OIW), oils and hazardous waste (HW). Virtually none of these plans provide a specific category for waste fishing gear (WFG). In many ports, WFG is consequently mixed with OIW, then incinerated or sent to landfills.

1.1.3 - Examples of Brittany ports and their waste management systems

Despite a European directive on port reception facilities¹ requiring ports to provide vessels with specific waste collection infrastructures, and the Single-Use Plastic Directive² which imposes a fishing gear EPR (Extended Producer Responsibility) in Member States as of 01/01/2025, the **selective** collection of WFG is not an obligation. A large proportion of French ports have therefore not implemented selective collection.

Some ports have nevertheless chosen to collect this WFG separately for recycling purposes.

In the Brittany region, this is notably the case for the port of **Roscoff**, which is home to around 40 fishing vessels. In Roscoff, used trawls and traps are deposited in a dedicated skip for landfill, while used gillnets are collected in plastic crates located in the port waste disposal site. Some of these nets are dismantled upstream (by fishermen themselves or retired workers remunerated for this task) to remove ropes and separate the polyamide netting for subsequent recycling. A port agent then sorts and packs the nets in 1m³ big bags, pending collection by a service provider once an adequate volume has been attained to fill a lorry (around 40 big bags). Up until August 2025, the nets were then sent to a French recycling company in Brittany, which produced recycled PA granules.

This is also the case for the port of **Audierne**, which has a fleet of around 30 vessels, mostly trolling boats and gillnetters, as well as a few pot vessels for octopus fishing. At this port, fishermen avail of a dedicated area in a sheltered hangar for net mending and dismantling, in exchange for a fee authorising the temporary occupation of publicly-owned land (AOT), to enable the selective collection and recycling of used gillnets. The indoor walls of the hangar are equipped with hooks for fishermen to hang their nets and thus facilitate headline dismantling. Waste nets are thus dismantled and the PA netting,

¹ [Directive \(EU\) 2019/883 of the European Parliament and of the Council of 17 April 2019 on port reception facilities for the delivery of waste from ships](#)

² [Directive \(EU\) 2019/904 on the reduction of the impact of certain plastic products on the environment](#)



partially cleaned, is deposited in big bags by the fishermen (who also mount their nets) without the intervention of port agents. This form of organisation, in place for several years, is one of the most efficient in Brittany in terms of good practices in waste gillnet management. Thanks to facilities provided free of charge, fishermen avail of good working conditions to dismantle their used nets and sort the netting which is then collected by the company Filet Recyclage. The netting is next sent to a recycling company located in Europe.

At the port of **Guilvinec**, where around 100 fishing vessels, mainly trawlers, are registered, a collection system for WFG, separated from other waste, is also in place. All forms of WFG, such as nets or trawls, etc., are deposited in a specific skip, although trawls make up the majority of this waste. There is, however, no recycling: firstly, as the various plastic components are not sorted upstream, and secondly, because this skip is regularly polluted by other forms of waste. Furthermore, France does not currently have a trawl recycling sector. The contents of this skip are therefore sent to a landfill.

The port of **Conquet**, which harbours a fleet of 21 vessels, mostly gillnetters, has also installed a specific WFG skip in the port waste collection area. Not all fishermen have adopted this waste sorting procedure, however. In addition, most of the discarded nets have not been dismantled and contain the headlines, including leaded ropes. This explains why landfill is the current outlet for such WFG waste. The port's management nevertheless strives to encourage recycling but the fishermen are reluctant to take on the task of systematic headline dismantling which would enable the separation of recyclable PA netting. This example illustrates the difficulty for a port to set up efficient selective waste collection, a prerequisite to the recycling WFG plastics.

Details on the WFG management practices of these and other French ports can be found in deliverable 1.1.2 of the Free LitterAT project and at: <https://goodpractices.freelitterat.eu/>

1.1.4 - Mains hurdles to selective collection and the dismantling of WFG for recycling

To date, no port in France can claim to collect separately all forms of WFG. Possible exceptions are the ports of La Cotinière on Oléron Island in Nouvelle-Aquitaine, and Granville in Normandy, where an experiment in the framework of the FIRENOR project initiated a selective collection process and the hiring of a port agent specifically responsible for the collection and dismantling of WFG.

There are two main hurdles to selective collection at ports:

- Economic:
Most ports do not possess specific resources to manage fishing waste, and it is above all the lack of human resources (technical agents) which prevents WFG



sorting, given that fishermen do not systemically carry out this separation task. The example of Conquet, presented in the previous paragraph, is a perfect illustration.

- Land surface:
Selective collection of WFG requires the port to provide fishermen with a dedicated area, under controlled access if possible, housing separate containers for each form of WFG (big bags, skips, Geobox crates, etc.) and adapted signage. Many ports have only a limited space devoted to fishing activity. Moreover, this surface is shared by trade, recreational and fishing activities. This aspect is even more problematic for fishing ports located in town centres.

Selective collection of various WFG is an essential prerequisite for the recycling of such waste. This alone is insufficient, however; to enable the recycling of plastics, waste gear must be dismantled to separate the various components and isolate each type of plastic. This is a costly and time-consuming operation, and more particularly so for certain categories of WFG. In economic, logistic and environmental terms, dismantling at the port is the ideal solution, but *who carries out this step and how is it funded* remains the key question.

The main hurdle to the setting up of WFG dismantling at ports, an absolute prerequisite for recycling, is thus the economic aspect.

In part 4.3 of this study, we will expand on current practices and the specific dismantling and sorting issues associated with each type of WFG.

1.2. Value chain of various players

In France, the value chain for fishing gear, from manufacture or import to end-of-life management involves the following players:

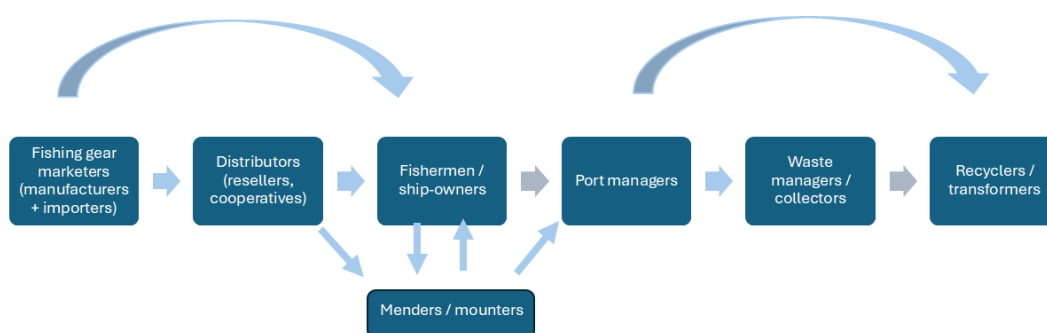


Figure 2: *The fishing gear value chain in France (Source: MK Développement)*

French fishermen buy their fishing gear most often from maritime suppliers located at ports, directly from manufacturers or importers (= initial marketers), or, more rarely,



from resellers. In the case of gillnets, fishermen can buy the various components separately (netting, ropes and floats) and have them mounted by a local player, who often also carries out repairs.

When the gear has become too worn to be repaired, it is discarded by the fishermen at the port. The port management is then responsible for this waste. Most often, the latter has contracted a specialist waste collection & management company which oversees all the fishing port waste. With a few exceptions, this waste service provider recovers the WFG and sends it to the end-treatment outlet.

The waste is transported by lorry:

- Either to a non-hazardous waste landfill with other OIW (Ordinary Industrial Waste). This type of facility is an ICPE (Classified Installations for Environmental Protection) subject to strict environmental standards.
- Or to a recycling plant where the plastic matter is shredded and most often transformed into granules for the plastics industry.

This chain describes the general path of WFG, but variants can be observed in some cases. They will be described in detail below in the paragraph on fishing gear end-of-life.

2. MANUFACTURE

2.1. Various types of fishing gear

2.1.1 - Gillnets

The net is passive gear placed on the seabed and held in place vertically by a floating line on the upper part and a lead line on the lower part. There are two main types of gillnets, according to their composition of one or several nettings:

- The **set gillnet** consists of a single netting. The mesh is adapted to the size of the fish, so that the head passes through the mesh and is retained by the line behind the gills. It is used to catch fish that travel in shoals (cod, haddock, whiting, or saithe, etc.).



Figure 3: Set gillnet consisting of a single netting (Source: SMEL)



A specific type of set gillnet, **the spider net**, is common in Brittany. It is widely used in Saint-Malo, for example, where around 4000 tonnes of spider crab are landed at the port annually.

This gillnet is made of a single netting with a wide mesh, usually of 240mm, which differentiates it from other standard set gillnets for targeted fishing.



Figure 4: Fishing with spider nets (Source: CDPMEM 35)

- **The trammel net** is made of 3 overlaid nettings. The two outer nettings have wide meshing, while the larger inner netting has a narrow mesh. Having passed through the outer wide-mesh netting, the fish are entangled and retained by their fins, spines or claws. This net is used to fish virtually all seabed species (sole, plaice, flounder, lemon sole, ray, turbot, or monkfish, etc.)

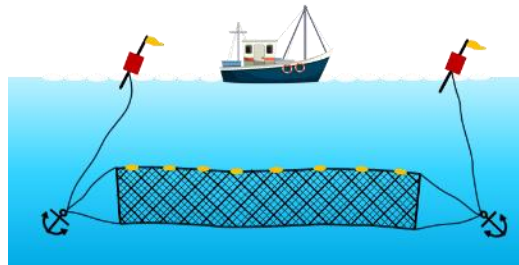


Figure 5: Set gillnet consisting of 3 overlaid nettings (Source: SMEL)

2.1.2 - Trawls

Trawls are large conical fishing nets in the shape of a funnel. Among the several types of trawls, the main ones are the bottom trawl and the pelagic trawl.

- The bottom trawl (see figure 6) is the most widely used on the Atlantic coast. As its name suggests, this trawl (see figure 6) targets species living on the seabed.

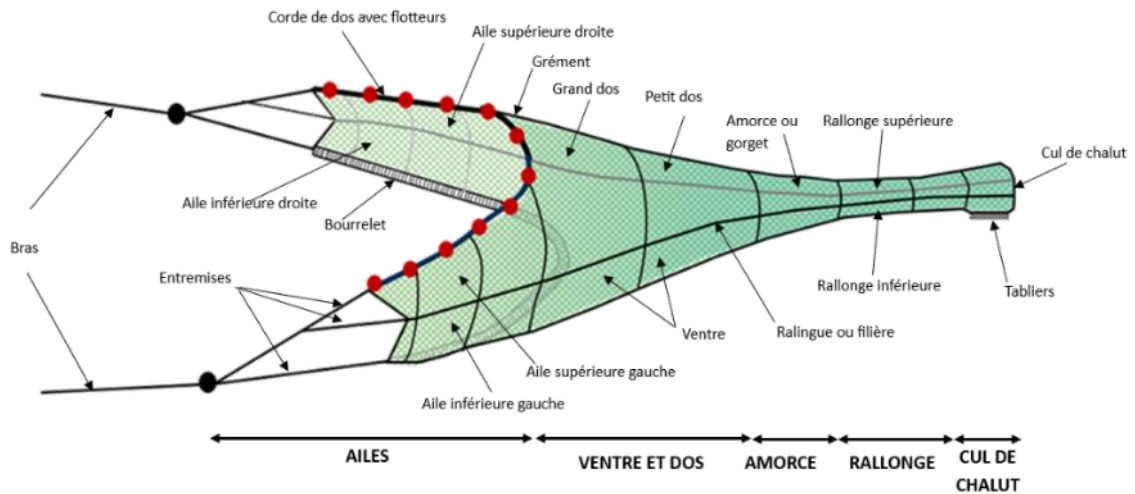


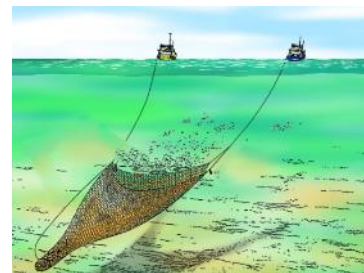
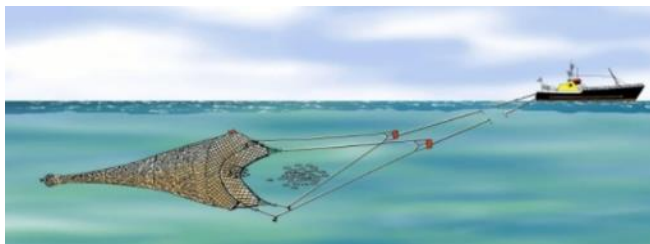
Figure 6: Diagram of a bottom trawl (Source: SMEL)

Headline with floats > right upper wing > rig > square > top panel > cod end opening > cod end (rallonges + cul) > aprons > cod end (rallonge inf.) > seldge > lower panel > left upper wing > left lower wing > bridles > sweeps > right lower wing > padded footrope



Figure 7: A trawler equipped with a bottom trawl (Source: SMEL)

- The pelagic trawl is suitable for mid-water fishing. The trawl is hauled by a single boat with trawls doors, or by two boats positioned at a distance from each other to open the net to its maximum horizontally. This fishing method targets pelagic fish (living in mid-water) such as bass, bream or mackerel.





*Figure 8: Diagrams of a pelagic trawl hauled by 1 or 2 boats
(Source: IFREMER)*

There are other types of lesser-used trawls:

- The twin trawl (2 trawls, side by side, hauled by the same boat)
- The langoustine trawl

The trawl net, also known as “netting” or “base layer” consists of several parts. The upper part is held by a **headline** equipped with floats, and the lower part with a weighted **footrope**. The opening is extended laterally by **wings** which channel the fish and guide them towards its tip and the pouch called the **cod end**.

2.1.3 - Dredges

Dredging is used to catch scallops. Dredges vary according to the Normandy or Brittany regions, due to the typology of the seabed, which can be rugged or sandy. The two main types found in Brittany are:

- Wheeled dredges (or “English dredges”), less common, are used on hard and rugged seabed, such as in Saint-Malo or occasionally in Saint-Brieuc. This gear consists of a metal frame and a net known as a “bag”. It is dragged along the sediment and a rake to the front digs up shallow-buried shellfish such as scallop. The most modern models are equipped with springs.

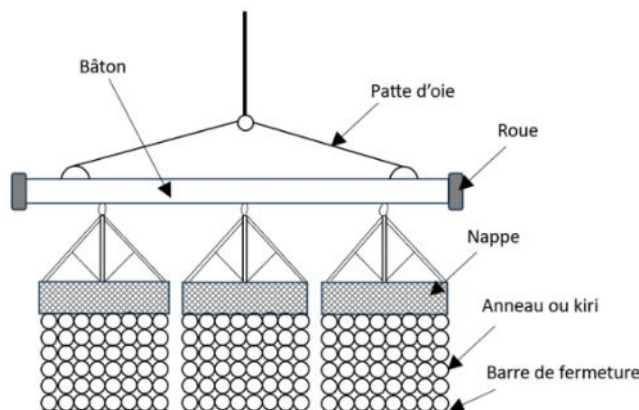


Figure 9: Diagram of a wheeled dredge without springs and photos of wheeled dredges on a fishing boat (Source: SMEL)

Wheeled dredge (from top to bottom)

Fork > bar > shoe > netting > ring or kiri > locking bar



- The “Brittany” dredge, much larger than the previous model (the frame measures between 1.8m and 2m) and mounted in pairs by boat, is more common in Brittany. It is designed for fishing on sandy seabeds, does not have a net bag and therefore no plastic components.



Figure 10: Brittany dredges (Source: SMEL and IFREMER)

2.1.4 - Pots / Traps

Pots and traps are used to capture shellfish (lobster, crab, spider crab or velvet crab), whelk (gastropod) and cuttlefish. These traps are attached along a ground line (see figure below).

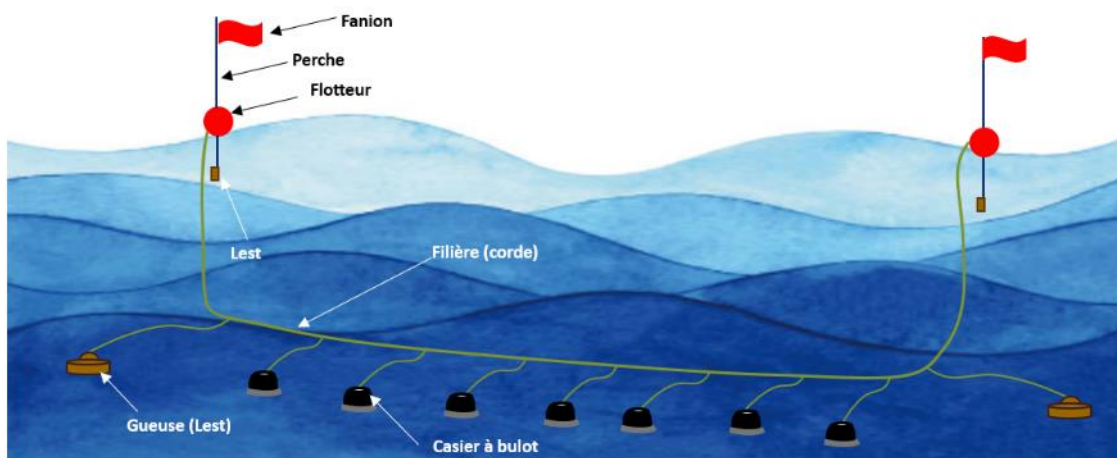


Figure 11: Diagram of a whelk pot ground line (Source: SMEL)

(from top to bottom and from left to right)

Flag > Rod > Float > Weight (lest) > Pig iron (gueuse) > ground line > whelk pot

The animals are attracted to bait placed in the pot (the smell spreads through the water) or use the pots to lay their eggs (cuttlefish for example) during the breeding season. The shape and features of a pot / trap are specific to each target species. Several models are thus used according to the target.



Lobster and spider crab pots generally consist of a rigid frame covered by a netting and a funnel-like opening (see below).



Figure 12: Lobster pots (left) and a spider crab pot (right) (Source: SMEL)

The **cuttlefish pot** is also made of a rigid structure covered by netting, but has two openings on the sides of the trap only.

The **whelk pot** differentiates from the aforementioned shellfish pots in that the trap is formed not of a net, but a hard plastic object. Its most common shape resembles a black dome with an opening at the top, positioned on a slab (see diagram figure 11). Other models, based on plastic drums in a variety of colours, can be found in some fishing ports.



Figure 13: Whelk pots (Source: SMEL)

Octopus traps, used widely in Brittany, are much smaller and lighter than the previous examples and are often “homemade” by the fishermen. There is thus a vast range of models. Two main categories nevertheless stand out:

- Very lightweight and colourful traps, known as “Playmobil” (see figure below)
- Heavier traps in a cubic or semi-cylindrical shape, with a metal frame and in various colours.



Figure 14: “Playmobil” octopus traps (left) and various other types of octopus traps used in Brittany (right) - (Source: IFREMER)



Fish traps have a similar role to pots (with bait), but are designed for catching fish. These foldable traps are bulkier than pots and originate from Norway, where they are used to capture several species of popular fish. In Brittany, however, their use to catch conger eel and pouting, which are less popular with consumers, remains artisanal and anecdotal. There are thus very few to be found in Brittany fishing grounds.



Figure 15: Fish traps (Source: IFREMER)

2.2. Plastic matter in fishing gear: description and specificities

Fishing gear is made of several materials, though mainly plastic, which is used in the netting and ropes. Trawls contain the largest variety of materials, in particular metal draglines and rubber-padded footropes.

The EU Single-Use Plastic Directive, which targets WFG among other waste, relates only to plastic components. This study therefore focuses solely on the plastic matter used in fishing gear.

2.2.1 - Main polymers used in fishing gear: *generalities and technical specificities of polymers*

The most common plastics found in fishing gear are **Polyamide (PA)**, **Polyethylene (PE)** and **Polypropylene (PP)**. These polymers are also the most widely used in the petrochemical sector to produce everyday household objects, as well as items for professional use.

Some fishing gear, mainly ropes, can also contain Polyester or PET (polyethylene terephthalate).

The table below describes the technical specificities of each polymer:



POLYMER	TECHNICAL SPECIFICATIONS
POLYESTER (PET)	<ul style="list-style-type: none"> • Colour : white • Melting-point : 220-206°C, blackens during combustion • Density : 1.38 • Buoyancy : sinks • Elongation at break : 14-16% • Fatigue strength : excellent • Abrasion resistance : excellent • UV resistance : excellent • Water absorption : none • Value for money : excellent
POLYAMIDE (PA ; NYLON)	<ul style="list-style-type: none"> • Colour : all colours • Melting-point : 210-220°C, white smoke during combustion, can be stretched when hot • Density : 1.14 • Buoyancy : sinks • Elasticity : high • Elongation at break : 16-20% • Abrasion resistance : excellent • UV resistance : good • Water absorption : high
POLYETHYLENE (PE)	<ul style="list-style-type: none"> • Colour : green • Melting-point : 135°C • Density : 0.96 • Buoyancy : floats • Elongation at break : approx. 26% • Abrasion resistance : good • UV resistance : good • Water absorption : none • Alternate name : crystal
HIGH MOLECULAR DENSITY POLYETHYLENE (HMPE, HDPE, REHT)	<ul style="list-style-type: none"> • Colour : all colours • UV resistance : good • Creep sensitive • E.g., Dyneema TM -hollow braid made of several fibres, splays and emits a wax-like smell during combustion • Non-welded strands, several fibres are easily separable
POLYPROPYLENE (PP)	<ul style="list-style-type: none"> • Colour : green • Melting-point : 160-166°C • Density : 0.89 to 0.94 according to grade • Buoyancy : slight, floats • Elongation at break : low elasticity • Abrasion resistance : excellent • UV resistance : highly sensitive • Appearance : glossy, rigid plastic

Figure 16: Technical specificities of the main polymers used in fishing gear (Source: INDIGO report)



2.2.2 - Plastic components in nets

Gillnets are generally composed of PA 6 or PA 6.6 with monofilament threads (a) for set gillnets, or multi monofilaments (b) for trammel nets. A specific type of net, the spider crab net, is made of PA 6.12 multifilaments (c). All these nets come in a range of colours.

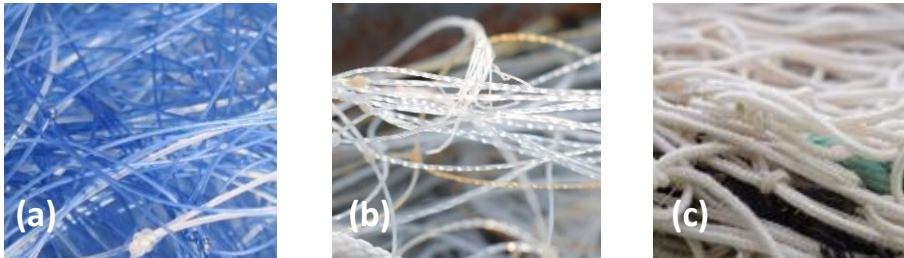


Figure 17: Filaments used in nets: monofilament (a), multi-monofilaments (b), multifilaments (c) (Source: SMEL)

The ropes used to mount set gillnets and trammel nets are referred to as “floating” for the upper part of the netting and “weighted” for the lower part. Fishermen may use solid ropes, most often in PP, to which PVC floats are attached to ensure net buoyancy (a). Other more complex configurations use hollow ropes or “tube ropes” in PP, into which small floats (b), chains (c) or tubes (d) made of PVC can be inserted (a) & (b).

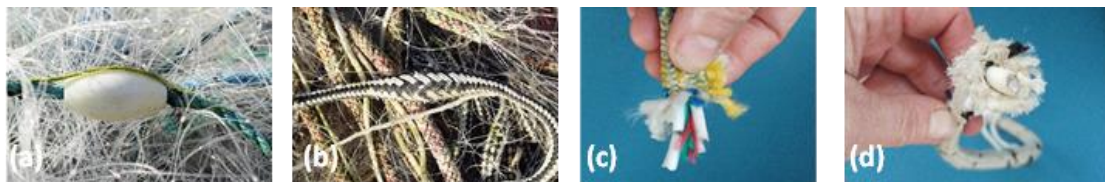


Figure 18: Various floating rope models: with external float (a), internal float (b), chains (c), tube (d) (Source: SMEL)

The leaded ropes which hold the net on the seabed are weighted by lead chains incorporated into a rope (a), or braided sleeve (b) embedded in the rope during manufacture (see photos below).

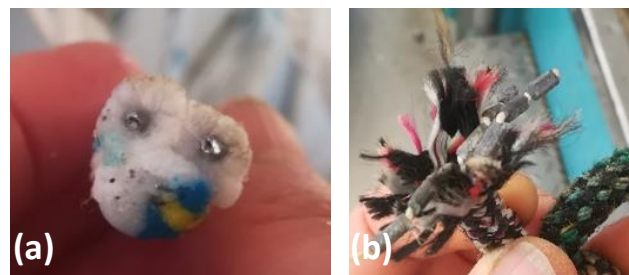


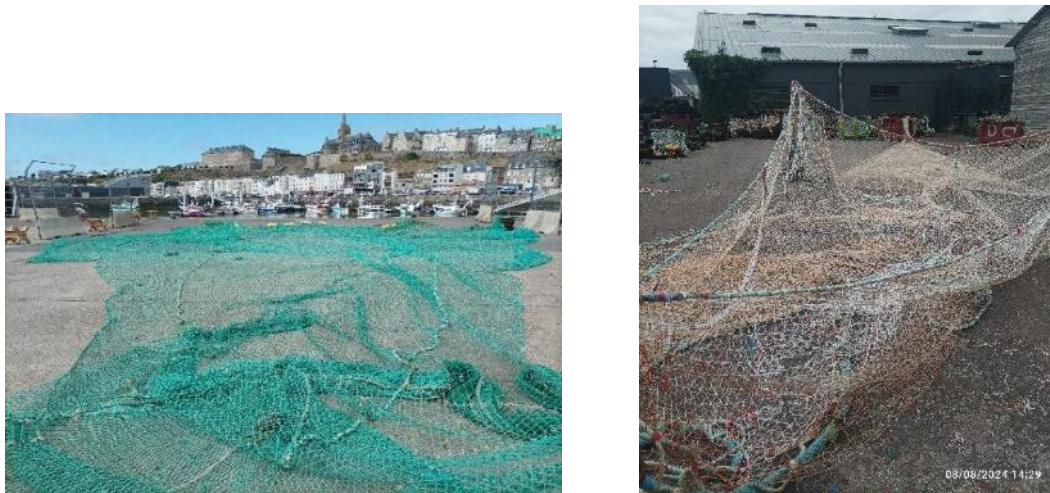
Figure 19: Different types of weighted rope: rope (a), sleeve (b) (Source: SMEL)



Gillnets also contain very fine strings which bind the netting to the rope. Depending on the distributor, they can be made of either PA, or very often PET (a cheaper alternative to PA).

2.2.3 - Plastic components in trawls

The netting or “base layer” of bottom trawls in use in the Atlantic and English Channel are mainly composed of high-density polyethylene (HDPE) which can come in various colours. There are also bottom trawls in PA 6, however, for fishing seabed species such as sole. Pelagic and semi-pelagic trawls are generally made of PA 6 (see figure 20). They are to be found for the most part in the Mediterranean.



*Figure 20: Bottom trawl base layer in HDPE (left) and semi-pelagic trawl netting in PA (right)
(Source: SMEL)*

Furthermore, some cod ends (see figure 21) contain base layers whose basic matter, the braiding, is made of mixed PE / PP monofilaments. A rubber guard in the form of aprons or padding protects the cod ends, whose ropes are doubled at the braiding to resist abrasion.





*Figure 21: Trawl code ends in HDPE and reinforced rubber protection
(Source: SMEL)*

The trawl nettings used in the Mediterranean are made exclusively of PA 6 with square mesh (see figure 22).



Figure 22: Polyamide trawl nettings used in the Mediterranean, here at Port-la-Nouvelle (Source: MK Développement)

For beam trawls (figure 23 a), fishermen use HDPE **dolly ropes** (figure 23 b & c) to protect the netting. Different colours can be found on the market (orange, white, blue or black). There is, however, growing objection to their use (from protection groups and some European bodies) because they fray and deteriorate rapidly in the sea, releasing significant amounts of microplastics into the water.



*Figure 23: Beam trawl (a) and dolly ropes (b & c) –
(Source: SMEL)*

According to trawl marketers, a total of around 80% HDPE and 20% PA is sold across France. Trawl nettings are made of these two materials.

Trawl ropes are most often made of mixed plastics. The main ones are:



Study on fishing gear life cycle in France

- Polysteel (figure 24) which represents the main volume of trawl ropes. This is a copolymer (polypropylene + polyethylene) in which the two polymers are merged and thus inseparable. Widely used at present and relatively inexpensive, this type of rope is 40% more resistant to UV and abrasion than standard PP rope, which is increasingly rare in trawls.



Figure 24:
Polysteel rope (Source: UBS)

- DYNEEMA (figure 25), a synthetic fibre of UHMWPE, or Ultra-High Molecular Weight PE, which is currently non-recyclable. This matter is known for its high resistance to bending, UV and abrasion, thus making it an advantageous choice for fishing. This type of rope is sometimes used as a footrope in pelagic or bottom trawls.



Figure 25: Dyneema rope (Source: SMEL)

- Nylon (PA 6 and PA 6.6), which is found in pelagic trawls and very rarely in bottom trawls.

Braiding (cords) and string are used to mount and repair trawl base layers:

- PA 6, used to attach the base layer along the ropes, is found in small amounts and comes in various colours (figure 26 a, b & c).
- PE is used to repair PE trawl base layers (figure 26 d). The same polymer is generally used. PE is also used to create markers along the trawl (figure 26 e & f).



Figure 26: Various braiding and strings used to repair and mount trawls (Source: SMEL)

2.2.4 - Plastic components in dredges

Wheeled dredges (the rarest in Brittany):

The nets of these dredges are traditionally made most often of white PA (fig. 27-a). Techniques are changing, however; a growing number of fishermen use HDPE (fig. 27 b to e) as it is more resistant to abrasion and lighter than PA when in contact with water. This HDPE comes in a variety of colours.



Figure 27: Plastics used in wheeled dredge netting: PA (a) and HDPE (b to e). (Source: SMEL)

The ropes used to mount these dredges are relatively similar in a given fishing port. A rope made of PE and PET also exists (fig 28 a). Configurations in the mounting of netting can vary from one port to another, including the use of braided (fig. 28 b) or stranded (dolly rope - fig. 28 c) HDPE ropes, or leather strips (fig. 28 d).

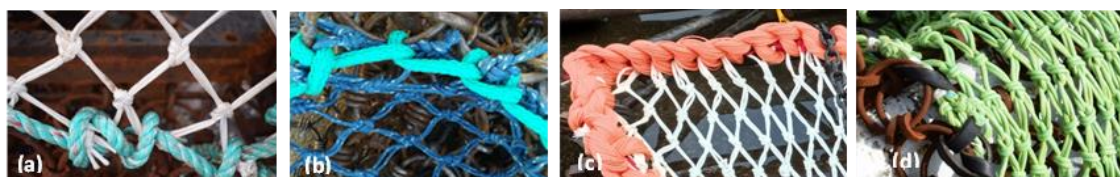


Figure 28: Various ropes used to mount wheeled dredges. (Source: SMEL)



“**Brittany**” dredges (the most common in Brittany):

Much larger than the wheeled dredges, Brittany dredges do not contain netting, as the bag is made of metal rings (see figure 10). They therefore contain no plastic.

2.2.5 - Plastic components in pots & traps

Shellfish pots are made of a HDPE net which covers a frame, most often made of metal (sometimes HDPE), and come in various shapes according to the model and target species. The black plastic opening is made of hard HDPE (see photo below).



Figure 29: Lobster pot (Source: SMEL)

The netting of **cuttlefish pots** can be made of PA or HDPE and its lateral openings are also made of HDPE, or occasionally of laminated or galvanised wire mesh.



Figure 30: Examples of cuttlefish pots, used on the left, new on the right. (Source: SMEL)

Whelk pots are mainly made of hard plastics, and the dome of HDPE (see figure 31). A number of different models can be found. Accessories in various materials (rubber elastics, metal rivets, stainless steel strapping, etc.) are added to fishing gear during mounting.





Figure 31: Various types of whelk pots (Source: SMEL)

The **octopus traps** used in Brittany are most often made of HDPE. Some octopus traps are banned in certain departments and authorised in others. This is notably the case of the “parlour” trap. Its use is subject to authorisation from the Departmental Director of Territories and the Sea. The use of this 2-chamber trap (consisting of 2 parts and/or a one-way entrance) is prohibited in Brittany maritime waters. It is authorized in the Loire-Atlantique area, however.

Pots and traps, regardless of their type, are attached along a floating rope. Two markers used to locate the line are attached to weighted ropes that follow the line of pots (see figure 11, paragraph 2.1.4). Fishermen often use **solid ropes made of PP/PE copolymer** as they are more resistant to abrasion.

It must be pointed out that there are generally several materials in pots, and up to 4 different types of ropes containing various polymers.

Fish trap nets are made of PE or PP.

2.3. The fishing gear market: players and flow volumes

2.3.1 - Organisation and main players in France and Brittany

- The gillnet and trawl market

Located at or near ports, maritime supply cooperatives selling fishing gear are key local players in terms of fishing gear distribution, but are mostly resellers. The cooperatives at Paimpol and Lorient are among the largest in Brittany.

In parallel, there is the category of “initial marketers”, who are either manufacturers (increasingly rare at present) or importers. They can also combine both activities, selling either directly to fishermen, or via cooperatives or other resellers (also known as “merchants”). The main marketers are listed below.

- ALPRECH FILETS: Based in Boulogne-sur-Mer in northern France (Pas-de-Calais department - 62), they sell imported gillnets and their catchment area is primarily northern France and Normandy.
- COPEBO: Also based in Boulogne-sur-Mer in Pas-de-Calais (62), they import and sell trawls (base layers, ropes, braiding and cables) sourced mainly from Portugal or other French marketers.
- KERFIL (formerly KLM): Based in Guengat in the Finistère department (29), Brittany, they sell imported nets, ropes and trawls.



- LE DREZEN: The leading initial French marketer of trawls and currently the only company still producing part of their trawls in France (they import braid reels and manufacture base layers in their factory). Based in Treffiagat (Finistère department (29)), Brittany, they also sell gillnets imported from Asia.
- ETS A. MONDIET: Based in Le Teich (Gironde department (33)), near Bordeaux, they are the leading marketer of gillnets in France, and distribute on a national scale, including in Brittany.
- NABERAN: A Spanish trawl manufacturer with a subsidiary in France (based in Guilvinec, Brittany). They sell Spanish-made trawls.
- TECHNOROPE, a subsidiary of the Coopérative Maritime de Lorient (Morbihan department (56), Brittany), they mount and sell imported trawls.

These players sell either net or trawl components (the gear is then mounted by fishermen or a local specialist), or mount gear with ropes and other components (floats, padding, etc.) and sell fully-mounted gear.

A small handful of imports are carried out directly by fishermen or fishing consortia. This practice is observed notably in fishing grounds located near borders; it is thus very rare in Brittany.

- The pot / trap market

A large proportion of pots / traps are sold to fishermen by maritime supply cooperatives, who do not manufacture these items themselves. Some fishermen buy directly from manufacturers, or order French or imported pots / traps online. There are several French pot / trap manufacturers, but the main producer supplying Brittany fishermen is BREIZ MER, a company based in Santec in the Finistère department (29).

Two other pot / trap manufacturers were identified: InterCoop Production, based in Beauvoir-sur-Mer, Loire-Atlantique (44), and ALPRECH FILETS (who also distribute gillnets). Both companies sell pots / traps in Brittany, via maritime cooperatives for the former and directly to fishermen for the latter.

Note that fishermen very often “customise” their pots and traps after purchase to adapt them to their specific needs and differentiate their gear. There is also a highly-developed second-hand market for this type of gear.

- The dredge market

The dredge market in Brittany is limited due to the very long lifespan of this gear, and the absence of a plastic net in “Brittany” dredges (the most widely used in the region).

In the vast majority of cases, fishermen have the frame of their dredges built by port blacksmiths and buy the metal ring mesh from A.M.O. (Atelier Mécanique de l’Ouest), a Brittany-based manufacturer located in Landivisiau, near Morlaix. A minor proportion



sources supplies from APPLIMAR, a company based in Carantec, also near Morlaix, which manufactures dredges from start to finish.

In the northern part of Brittany, where wheeled dredges are used, fishermen generally buy HDPE or PA netting from maritime cooperatives.

2.3.2 - Market volumes

- Estimation of market volumes in France

The FILIPECH survey, led by the Coopération Maritime between 2021 and 2022, provided an estimation of gillnet and trawl volumes (PA and HDPE base layers) sold in France, excluding ropes:

- **PA gillnets: 500 tonnes per year.** This estimation was based on data provided by the main French distributor of gillnets and cross-referenced with customs data on Asian imports. The 500t per year figure was confirmed in 2025 by this same distributor in a renewed survey.
- **Trawls (HDPE and PA base layers):** between 300 and 400 tonnes per year. This figure was corroborated in 2025 by the leading French trawl marketer, who estimated a current global market of **300 tonnes per year** in France.

Note that the analyses of customs data (import volume statistics) were based on the following customs codes:

- Code 56081180 – “Nets made for fishing, with knotted meshes, of synthetic or artificial textile fibres (excluding dip nets and nets made of string, cordage or rope)”
- Code 56081120 – “Nets made for fishing, with knotted meshes, obtained from string, cord or rope made of synthetic or artificial textile materials (excluding landing nets)”

The results nevertheless enable partial interpretation only, in so much as these codes also include nets for pleasure fishing and possibly other types of fishing gear, given the significant differences observed between marketers’ estimations and import volumes from Europe’s main trawl base layer suppliers (Spain and Portugal).

The eco-body ECOLOGIC, in the framework of a survey led in 2024 on behalf of five French fishing gear distributors, in preparation for the EPR (Extended Producer Responsibility), revealed fairly similar figures to those of the FILIPECH project, along with a forecast of 800 tonnes sold per year for the global gillnet and trawl base layer market in 2025.



- Estimation of market volumes in Brittany:

As part of this study, the two main French marketers of trawls and gillnets provided their sales figures (as a percentage) for Brittany. By extrapolation, if we apply this percentage to the total volume sold on a national scale, we obtain an estimation of volumes sold in Brittany.

- **PA gillnets:** 500t *50% = **250 tonnes per year.**
- **HDPE and PA trawl base layers:** 300t *33% = **100 tonnes per year**

It must be remembered that these figures are an estimation only. The recent enactment requiring marketers to transmit their annual sales figures for fishing gear (per type of gear) to the French administrative authorities should enable more accurate figures by the end of 2025.

Regarding traps and dredges, no sales figures have been obtained to date, either for Brittany or on a national level, due to the lack of data from previous studies on the subject, and for pots / traps due to the significant proportion of online purchasing by fishermen.

It can nonetheless be specified that for dredges, given that Brittany dredges are 100% metal, there is only a very limited flow of new plastic products linked to the use of this gear. Such products are used solely for wheeled dredges on rugged seabed in northern Brittany.

The new pot / trap market rose dramatically between 2018 and 2020. In the last two years, however, this market has come to a standstill due to:

- The substantial number of potters having ceased their activity in the framework of the French Government's post-BREXIT support plan.
- A sharp decline in the resource.

Only the second-hand pot market remains highly active.

3. USE

3.1. Use and lifespan

3.1.1 - PA gillnets

The average lifespan of a gillnet varies greatly from one region to another, and even from one port to another. It has a relatively short lifespan which depends on the type of seabed (e.g., in Conquet, gillnets are changed very frequently due to the rugged seabed), the target species (e.g., spider crab nets can be renewed after each tide due to the



damage caused to equipment), and each fisherman's technique and level of care given to their gear.

The various parts of the gillnet do not have the same lifespan; the netting is changed annually at the end of the season, while the floating and weighted lines may be kept for several years (up to 10 years maximum) and are mounted on new netting to create new gear. Some fishermen dispose of their used nets without dismantling the lines, however. In this case the gear is not reused.

Overall, **this fishing gear has a short lifespan**, and is generally disposed of at the end of the fishing season (at least for the netting).

3.1.2 - Trawls

In France, trawls can be used for 3 to 10 years, even 20 years in certain rare cases, before requiring a total replacement. **The average lifespan can be estimated at between 5 to 10 years**, but varies greatly depending on the specific fishing techniques of each region, seabeds (rugged, rocky or sandy) and the practices of each skipper-fisherman.

It must be noted that there is a high rate of repair for this gear. The lifespan of the trawl is extended significantly by repairing damage as it occurs and replacing worn components by new parts.

3.1.3 – Dredges

Wheeled dredges:

The metal part of the dredge has a virtually unlimited lifespan, while the netting is most often replaced once, and sometimes twice, per year.

As a reminder, these dredges are not widely used in Brittany, however.

Brittany dredges:

This gear has a practically indefinite lifespan as it is made exclusively of metal.

3.1.4 – Pots / traps

Pots and traps have a relatively long lifespan in theory, but this largely depends on the conditions of use (weather, seabed type) and the robustness of the frame material.

Shellfish pots, which are submerged all year long, can last 4 to 5 years, and up to 10 years, depending on the manufacturing quality and the seabed they are used on (sandy or rocky). Some gear can last up to 20 years when this form of fishing is only a secondary activity for the fisherman.



Submerged from March to June only, cuttlefish pots generally have a longer lifespan, possibly up to 20 years. For certain pots with a galvanised frame, for example, the base layer and ropes are changed after 10 years of use, but the frame can last for several more years.

Whelk pots also have a long lifespan, 10 years on average, because fishermen carry out frequent repairs to their gear.

Pots and traps are often lost at sea, owing to weather conditions and cohabitation with trawling activities (trawlers and dredgers). Pots and traps recovered at sea are returned to land by trawlers. They are known as “ghost traps”. These used traps, recovered passively, are most often disposed of in dedicated port waste facilities.

3.2. ALDFG: causes, consequences and mapping

3.2.1 - Causes

ALDFG stands for *Abandoned, Lost or Discarded Fishing Gear*. Since the alert raised by the FAO in 2009 relative to ALDFG, numerous studies have been led to examine the issue and put forward solutions to reduce the amount of ALDFG and its impact on the environment.

According to a survey carried out among French fishermen in Brittany, Normandy and Hauts-de-France in the framework of the French-British INDIGO project in 2021, the 103 respondents listed the following as causes of ALDFG:

- Bad weather (the unanimous first cause)
- Lack of awareness and training (which can lead to deliberate dumping)
- Various operational factors related to fishing, such as gear recovery cost.
- Conflicts over fishing equipment
- Illegal, unreported and unregulated fishing (IUU).
- Vandalism and theft
- Difficult access to inadequate onshore collection facilities, and the cost of said access (response from a small minority).

It must be emphasized that the vast majority of fishermen responding to the survey (**almost 90%**) claimed that when they encounter gear lost at sea, they take it **ashore** for disposal; a very small proportion claimed to have left ALDFG where they found it (2%), or that they could not take it ashore and therefore discarded it at sea (5%). Likewise, a low percentage of fishermen (4%) claimed to have reported the location of ALDFG to the competent authorities. (Source: INDIGO – deliverable T 1.1.1 - *Inventory of plastics used in the fishing and aquaculture industry*).



In terms of frequency, it appears that the professionals surveyed encounter ALDFG at least once or several times a year, and sometimes several times a week. Such results are cause for concern.

Figure 31 below presents the types of ghost gear most commonly found by the fishermen surveyed by INDIGO. The results show that gillnets are the most frequently encountered (63%), followed by ropes (44%) and pots / traps (43%). It must be noted that, as confirmed by Link et al. (2019), Richardson et al. (2018), and several respondents, gillnets are very probably lost due to collisions with active fishing gear.

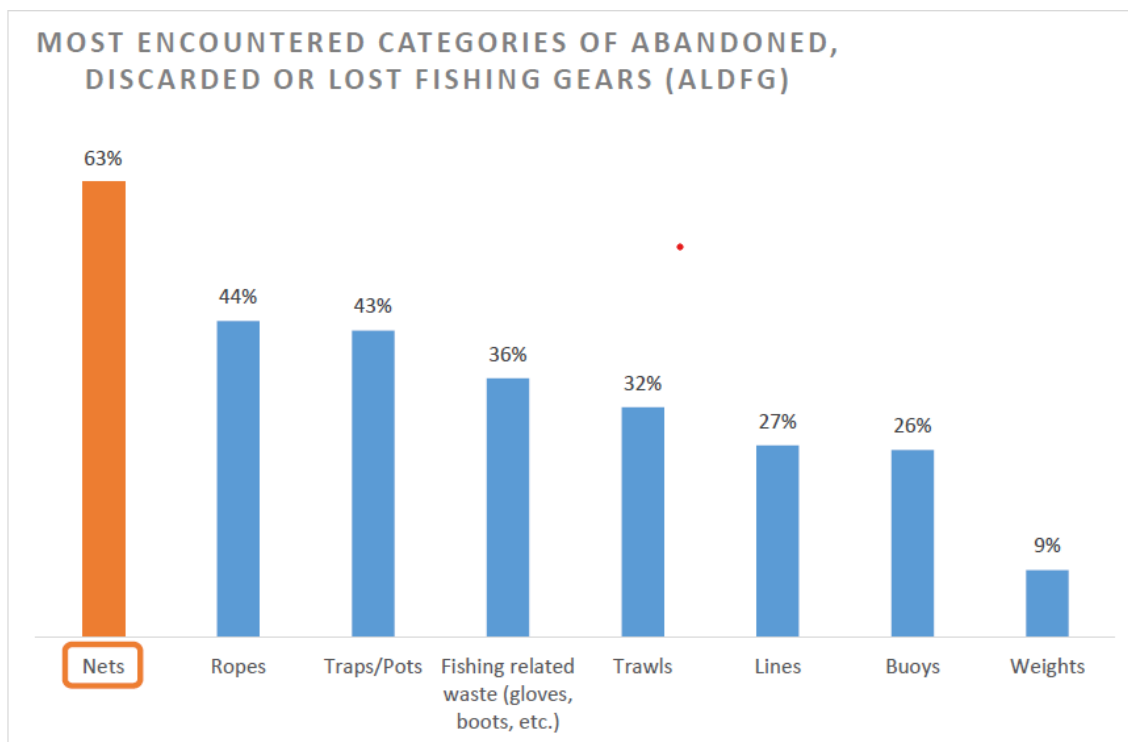


Figure 32: ALDFG categories most often encountered by fishermen (Source: INDIGO study - 2021 survey)

3.2.2 - Consequences

Winds and currents can cause ALDFG to drift over long distances before sinking to the seabed or washing up on coastlines. This results in the following damage:

- Physical deterioration of benthic habitats
- Ghost gears which continue to trap some marine species for months and even years, and represent a sailing hazard as they can become entangled in boat propellers.
- Macroplastic pollution of coastlines and beaches: fishing nets are listed among the 20 most common forms of litter found during beach and marine cleanups.



(Source: *Bilan Zéro Déchet Sauvage 2019-2023 [Zero Litter Report 2019-2023]* by the NPO MerTerre)

In addition, UV rays and waves cause the plastic components of these ALDFG to disintegrate gradually, resulting in ingestion by sea animals.

ALDFG pollution thus affects marine organisms on various levels of biological organisation: through capture, choking, ingestion and contamination by microplastics.

3.2.3 - Mapping

“Risk” zones and areas with high concentrations of ALDFG have been identified and require specific attention:

- “Sensitive” areas such as seagrass zones, coral reefs, mangroves and breeding grounds.
- High entanglement risk zones (HERZ), such as shipwrecks, reefs, rocks or prominent submarine reliefs.
- Oceanic convergence zones.
- High-concentration fishing grounds, in particular with passive fishing gear.

These recommendations were issued by the “Ghost Fishing Gear” working group, led by the Comité France Océan [French Ocean Committee], in September 2024.

This observation highlights the need for the most accurate ALDFG mapping possible. Hence the development of the Fish & Click programme by IFREMER in 2020. This tool, accessible via a free application and website, draws on the collaboration of volunteer citizens (walkers, swimmers, sailors, etc.) in reporting the presence and type of ALDFG in a given area.

Figure 33 presents the results of Fish & Click data gathered between 2020 and 2022, off the coasts of the areas studied by the INDIGO project (Brittany, Normandy and Hauts-de-France). The data corresponds to 2,285 sightings reported by at least 475 citizens, as well as scientists for sightings at sea. (Source article: *Using citizen science to inventory and map ALDFG*, published in the Marine Pollution Bulletin N°220 - 2025)

These are the most recent figures to date.

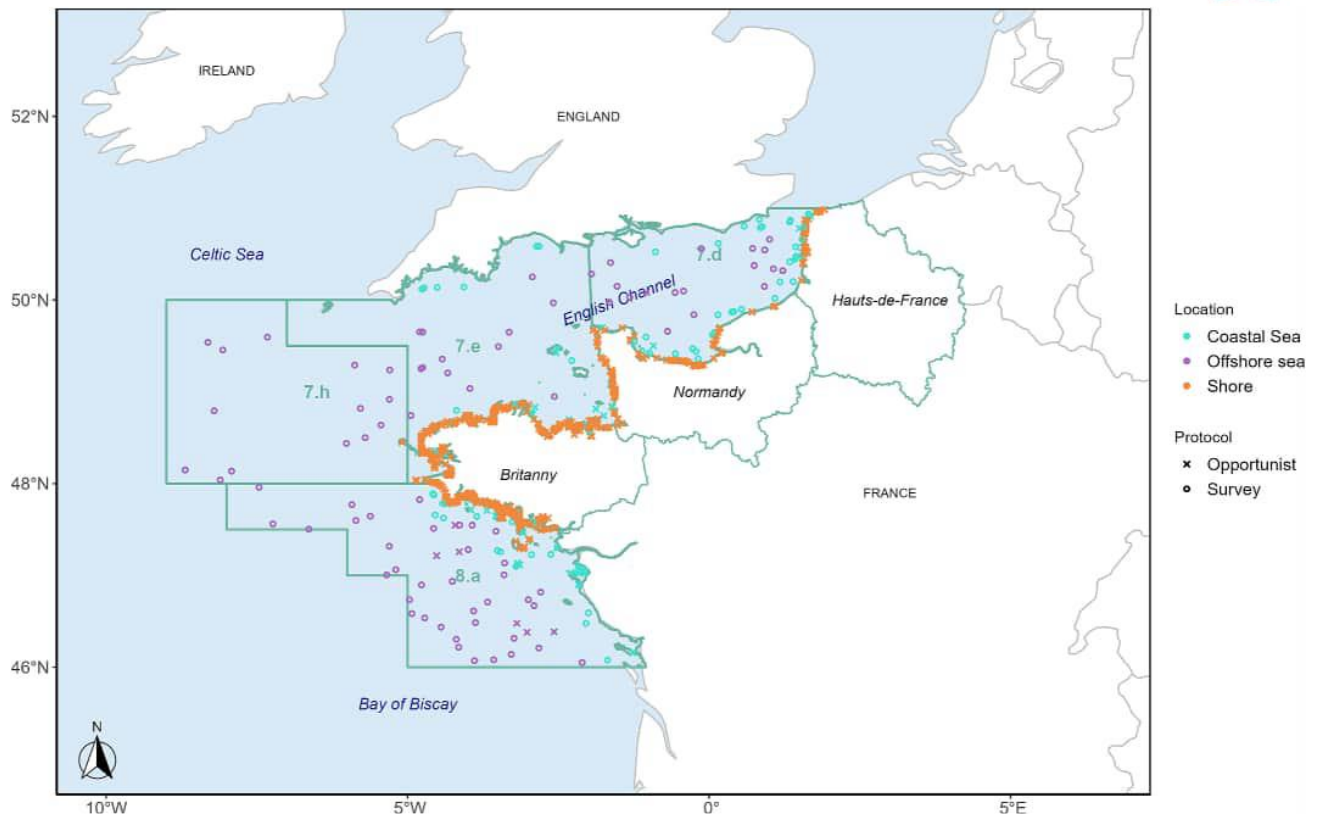


Figure 33: Map of Fish & Click sightings collected from May 2020 to June 2022 in the area studied by the INDIGO project (Source: Marine Pollution Bulletin n° 220 – 2025)

Offshore and coastal sightings recorded during this study revealed:

- A wide variety of ALDFG: 29 different categories, of which the highest are buoys, ropes, lines, nets and pots/traps, etc.
- A heterogeneous abundance depending on the areas.

With the exception of whelk pots present in very low quantities in highly-limited areas, the other ALDFG categories are omnipresent in all areas. Closer analyses of spatial distribution nevertheless revealed certain trends, such as lower densities along the coast of area 7.d (see figure 32) for all ALDFG, and more nets, ropes, lines and buoys in Brittany.

It is also worth noting that the small fragments of rope resulting from net-mending represent the most frequently-described category of ALDFG in Fish & Click sightings. (Source article: *Using citizen science to inventory and map ALDFG*, published in the Marine Pollution Bulletin N°220 - 2025)



4. END-OF-LIFE

4.1. Summary of Waste Fishing Gear (WFG) flows generated on a regional scale

Activity 1.1.3 of the FREE LITTER AT project enabled the compilation of data on WFG deposits collected at Brittany ports. The table below summarises this information. Note that it specifies only the ports from which a tonnage of annually-collected WFG could be obtained.

Fishing port (Department)	Number of boats	Fleet type	WFG volume / tonnage	Treatment	Main WFG generated
Esquibien (Finistère)	39	Trolling boats, gillnetters	35 to 40t	Recycling	Polyamide gillnets
Concarneau (Finistère)	103	Trawlers, gillnetters, tuna seiners, seiners	40t (used nets & trawls)	Landfill	Nets and trawls
Douarnenez (Finistère)	27	Deep-sea and coastal fishing	11t (2023) - used nets & trawls	Landfill	Nets and trawls
Le Guilvinec (Finistère)	98	Deep-sea fishing (trawler)	92t	Landfill	Trawls
Le Conquet (Finistère)	20-22	Pot vessels and gillnetters	50t (2017) Brittany-based recyclers: 20m ³ per 3 weeks	Base layer and net recycling by Fil&Fab (up to August 2025)	
Loctudy (Finistère)	44	Langoustine and deep-sea trawlers	40t (2021-2022-2023 average) - Used nets & trawls	Landfill	



Roscoff (Finistère)	88	81 gillnetters and 7 trawlers	135t of nets (2023)	Nets recycled by Fil&Fab (up to August 2025) and landfill for trawls + used pots/traps	Polyamide (PA) gillnets
Saint Guénolé Penmarc'h (Finistère)	49	Trawlers, gillnetters, sardine boats, small vessels	33t	Landfill	Nets and trawls
Saint-Malo (Ile-et-Vilaine)	30	Coastal & deep-sea fishing	40t	?	Dredges and nets
Lorient Keroman (Morbihan)	110	Trawlers, gillnetters, trolling boats	33t recyclable and 31t non-recyclable	Gillnet recycling via Filets Recyclage	Nets and trawls
Port-Tudy, Ile de Groix (Morbihan)	6	Trolling boats, gillnetters, pot vessels	30m ³	Landfill	Nets
Loguivy-de-la-mer (Côtes d'Armor)	18	Gillnetters, dredgers	30t per year for the ports of Pors-Even, Loguivy and Paimpol	Recycling of nets in good condition and landfill for soiled nets	Nets
Pors-Even (Côtes d'Armor)	30	15 trawlers, 15 gillnetters	30t per year for the ports of Pors-Even, Loguivy and Paimpol	Recycling of nets in good condition and landfill for soiled nets	Nets and trawls



4.2. Repair and reuse

4.2.1– Gillnets

The gillnet has a short lifespan, generally lasting for one season only. It can nevertheless be repaired periodically during the season, in particular the base layer, with polyamide thread.

The netting is disposed of at the end of its life, but the ropes can be retained by fishermen for reuse or mounting on new nettings to create new gear. It must be noted that this is not a systematic practice, and is more frequent in some ports than others. Some fishermen dismantle the gear themselves, or another structure may deal with this task. Such is the case at the port of La Cotinière on Oléron Island, where a social & inclusive company specialises in this dismantling and remounting (see photos below). The dismantling costs invoiced to the fishermen range from €4 to €5 for a 50-metre net.



Figure 34: Used gillnet management at La Cotinière - from collection (left) to rope dismantling (centre) and re-mounting (right) (Source: PECHPROPPE report)

Some distributors, such as Ets A. MONDIET, also offer this service, which extends the lifespan of ropes and lowers the purchasing cost of new net.

This is a practice to be encouraged in so far as it helps not only to limit the amount of waste thanks to reused ropes, but also promotes the recycling of PA nets once they have been separated from their ropes, which contain a different plastic component.

4.2.2– Trawls

Trawls are costly and bulky forms of gear. They are used for several fishing seasons, and the base layers are damaged on a regular basis. They can be repaired by the fishermen (or specialised net-menders) with polyamide thread, or more often polyethylene thread for repairs to the inner layer of netting (see figure 34).



Figures 35 & 36: A net-mending operation at Granville port (left) and a trawl base layer being repaired with various types of PE (right) (Source: SMEL)

Such net-mending operations help to extend the life of trawls subjected to harsh mechanical constraints (friction, abrasion, stretching, etc.). This is the case in particular for deep-sea trawls, the lower belly section and lower wings of which are in contact with the sea floor.

Net-mending operations generally take place on the quays of the port, in hardware workshops, or aboard vessels when urgently required during a tide. They produce a multitude of HDPE fragments from the repaired base layers. These pieces of plastic are rarely collected and thus find their way to sea with the wind, rain and port activities.

4.2.3 – Dredges

Wheeled dredges, a rarity in Brittany, very seldom require repairs as the plastic part (in the net) is renewed annually at the end of the season.

Brittany dredges, which are made exclusively of metal, are highly-robust gears with an extremely long lifespan and require only very periodical repair.

4.2.4 – Pots / traps

Pots and traps are repaired numerous times throughout their life cycle. Fishermen carry out repairs in order to extend the lifespan of their gear.

Thanks to these repairs, some pots / traps can last up to 10 years, and even 20 years for those used in seasonal fishing activities.



4.3. Dismantling and sorting: practices and specific issues per type of WFG

4.3.1 - Gillnet dismantling

At some ports, fishermen pay to have their PA gillnets dismantled in order to recover the ropes which will be reused in new gear made with new netting. This dismantling task is carried out most often by retired fishermen, for example, or specific organisations (such as the Atelier du Pêcheur workshop at Lorient port), social & inclusive economy players (e.g., in Paimpol and La Cotinière), or net manufacturers (e.g., Ets Armand Mondiet). It thus represents a cost for fishermen.

According to data transmitted by La Navicule Bleue (a non-profit organisation which dismantles gillnets for fishermen in Oléron Island - Charente Maritime) in 2023, **30 minutes are required on average to dismantle 50 metres of netting.**

If the port has set up a collection facility for gillnet recycling, such as in Roscoff or Audierne, used polyamide netting can be recycled if it has been partially cleaned and deposited in a dedicated container (1m³ big bag in general). Otherwise, waste netting is disposed of as OIW (ordinary industrial waste) in a landfill, or more rarely incinerated.

Specific issue with spider crab nets:

Spider nets made of multifilament threads are heavier than standard “nylon” nets, and more complex to dismantle. Furthermore, experiments to recycle the PA 6.12 in these nets have proven inconclusive due to the weaving of the matter and its thickness (Source: RECYPECH – nets from Boulogne-Sur-Mer port in northern France).



*Figure 37: Storage of spider nets in current use
(Source: SMEL)*

4.3.2 - Used trawl dismantling

Trawls are complex gears made of several materials assembled together, such as netting, ropes, cabled cord, padding, buoys and cables). Their dismantling is therefore no easy task. When a trawl is disposed of in its entirety, professionals do not dismantle the netting ropes. Several polymers are thus entwined and it is impossible to recycle the matter as this would require the separation of various types of plastic.

In the framework of past projects led by SMEL or the Coopération Maritime (RECYPECH, FILIPECH, FIRENOR), trawl dismantling experiments were carried out at several Atlantic



and English Channel ports. SIE (Social & Inclusive Economy) organisations separated HDPE netting from ropes, enabling the waste trawl base layers to undergo recycling tests.

At the port of Guilvinec in Brittany for example, several entire trawls were experimentally dismantled as part of the FILIPECH project (see figure 38). Simple but very sharp and highly-resistant knives are used to perform this manual task.



Figure 38: A used trawl dismantling operation to recycle HDPE netting (Source: FILIPECH report - port of Guilvinec)

In parallel, a slightly different experiment was led at the port of La Turballe in Loire-Atlantique as part of the FILIPECH project. Fishermen and port agents were encouraged to dismantle the trawls themselves for the separate collection of waste HDPE netting. In addition to an awareness session organised on the ground, dismantling instructions were displayed at the port and transmitted to port workers (see figure 39).

FILIPECH

Trawl dismantling instructions : Polyethylene trawl nets (PE) for collection !



Figure 39: Poster displays with trawl dismantling instructions for fishermen and port workers (Source: FILIPECH report)



This form of awareness-raising unfortunately did not produce satisfactory results due to weak action on the part of fishermen and port agents: only 3 big bags of used netting were collected.



It must nonetheless be pointed out that the dismantling of netting for matter recycling generates high volumes of waste with other non-recyclable materials.

*Figure 40: Padding and rope for disposal following experimental dismantling of HDPE netting.
(Source: FILIPECH report)*

For a medium-sized trawl, the HDPE netting weighs between 250kg and 350kg.

To date and to our knowledge, only one facility in Brittany, located at St-Guénolé port near Guilvinec, carries out this dismantling operation on site to store used netting in big bags pending a matter recycling solution.

Dismantling is a highly time-consuming and thus costly step. This parameter, in addition to the lack of strict regulation and a matter recycling outlet, explains why dismantling is not carried out at present (with the exception of the above-mentioned La Houle facility) outside of specific experimental operations.

4.3.3 - Dredge dismantling

The netting in wheeled dredges, used more specifically on rugged sea floors in the north of Brittany, is removed from the metal frame by fishermen on an annual basis for renewal. This is a systematic practice producing plastic waste which is easily collectable and recyclable, but only if collected separately from other WFG (see figure 41).



*Figure 41: Used wheeled dredge netting
(Source: SMEL)*

At present, while fishermen systematically remove this netting, there is neither a sorting nor selective collection system for this WFG, and thus no recycling of the plastic matter.

Dismantling does not apply to Brittany dredges, as they contain no plastic elements.



4.3.4 - Pot / trap dismantling

Pots and traps are made of a variety of materials and accessories which means that sorting matter during dismantling is often a long and complex task. At the end of their life, pot or trap lines are often reused by fishermen to weigh shellfish pots and avoid premature wear to nets.

In the framework of the FIRENOR project, led in Normandy from 2021 to 2023, experimental dismantling of used pots / traps was carried out. 17 to 33 minutes are required on average per trap according to the model in question. In addition, the only material for potential recycling is the metal component; the (plastic) net is often very soiled and difficult to recycle. **There are thus two ongoing issues with this WFG: highly time-consuming dismantling, and plastic components which are too encrusted to be recycled.**

This is also the case of whelk pots, which have no net but a hard plastic dome (PP). After around 10 years of use, this dome is so encrusted that it is impossible to envisage the recycling of its matter (see figure 42). This explains why the pots are not dismantled, apart from the line ropes attaching the pots together.



*Figure 42 (opposite): Storage of used whelk pots
(Source: SMEL - 2023)*

However, there are substantial deposits of used rope linked to the dismantling of pot / trap lines: leaded rope on one hand, and float lines on the other (plastic only). Float lines recovered from these operations potentially represent a very high volume of recyclable used plastic. But in order to recycle these ropes, they must be sorted from other waste and the various types of plastic are to be separated. No form of sorting is carried out at present and the ropes are therefore disposed of.



4.4. Collection and transport

Alongside sorting and dismantling, the selective collection of WFG at ports is a key step and essential prerequisite for matter recycling. Collection and transport procedures can vary according to the type of gear.

4.4.1 - The case of gillnets

For several years now, ports in France and Brittany have offered selective collection procedures for used gillnets (PA, also referred to as “nylon”). The organisation of this selective collection remains difficult in some ports due to various factors: communication with fishermen, a lack of dedicated areas for net dismantling and subsequent storage pending removal, the condition of the nets, and inadequate or non-existent port facilities, etc.

At ports where selective collection is organised and operational, the dismantled nets (ropes removed) are deposited in big bags of generally 1m³. These big bags are then stored, outside on a hard surface preferably, possibly in a dedicated area, within the port zone. The port management then organises removal to a waste PA net recycling centre. In rarer cases, a service provider commissioned by the port authority to manage all port waste organises the removal and transport of big bags to a recycling facility.

At present, in so far as the fishing gear recycling (FGR) sector is not operational, transport costs are at the charge of the port management. In practice, the intermediary generally applies a fee per tonne of removed nets, and oversees the transport of this waste to a recycling facility. This fee can range from €50 to €120 per tonne, depending on the condition of the nets and agreements between the port and the collection company, and in rare cases, positive reuse is observed.

As a rule, a semi-trailer lorry (e.g., Tautliner or curtainsider) with a load capacity of 85m³ is used to load the big bags laterally via a removable curtain on either side of the vehicle (see figure 43).



Figure 43: A Tautliner lorry (Source: FILIPECH report) and loading big bags of used gillnets (Source: Filets Recyclage)



The port must provide the workers and equipment to load the lorry during these operations (see figure 44).

Figure 44 (opposite): Loading big bags containing used nets at the port of La Cotinière (Source: FILIPECH report)



In terms of the volume transported, data collected from various ports with selective collection and removal by Tautliner to a recycling facility reveals that optimised loading enables the transport of around **6 tonnes of used (“nylon”) gillnets**.

The cost of this form of transport ranges between €1,500 and €2000 per lorry when delivery is made to Spain.

4.4.2 - The case of trawls

Very few ports currently organise selective collection of used trawls. The port of Guilvinec in Brittany, for example, installed a dedicated skip for used nets (all forms of fishing gear in theory: gillnets, trawls, etc.) in the port’s micro-facility for waste collection. While this skip contains trawl elements primarily, as trawlers make up most of the port fleet, its contents are sent to a landfill.

In fact, if used trawls are not dismantled to separate materials (PE netting, ropes, padding, etc.), they cannot be sent for recycling.

Experimental projects have nevertheless been carried out in this context. This is notably the case for the FILIPECH project, which led a pilot scheme for the dismantling and collection of used trawls at the ports of Guilvinec and St Guénolé, with a view to recycling the HDPE matter in nets at Plastix in Denmark (the only company currently able to recycle WFG PE and PP in an industrial format). This test demonstrated that dismantled nets can be transformed into rPE granules of satisfactory quality.



Big bags containing dismantled PE trawl nets weigh an average 100kg (between 80kg and 120kg - see figure 45). Storage on pallets facilitates handling but is not an absolute need for loading.

Figure 45: Big bags containing dismantled trawl nets pending removal from the port of Guilvinec (Source: FILIPECH project)

As with PA gillnets, the most suitable type of lorry for big bag collection is also a semi-trailer Tautliner (curtainsider), with lateral loading via removable curtains (see figures 43 & 44).

The size of this type of lorry (13.6m long x 2.45 wide x 2.7m high) allows for a **maximum load** of sixty 1m³ big bags, i.e., **6 tonnes of netting**.

4.4.3 - The case of dredge and pot or trap nets

French ports do not currently carry out any form of selective collection for this waste, although experiments were led as part of the FIRENOR project (in Normandy) at the ports of Granville and Port-en-Bessin on selective collection of WFG including pots, traps and dredges.

These tests enabled separate collection of used pots / traps, which were then dismantled by the waste management provider contracted for the collection and sorting of WFG skips. The hard PE plastic elements were separated (whelk domes, frames, cones), but this step is too time-consuming to envisage its implementation in the context of a viable activity; these hard plastic elements were therefore not specifically transported to a recycling facility.

Regarding wheeled dredge nets, the FIRENOR experiment led to the collection and separation of 200kg of used PA nets (i.e., 5% of the total weight of collected WFG), but they were not recycled.

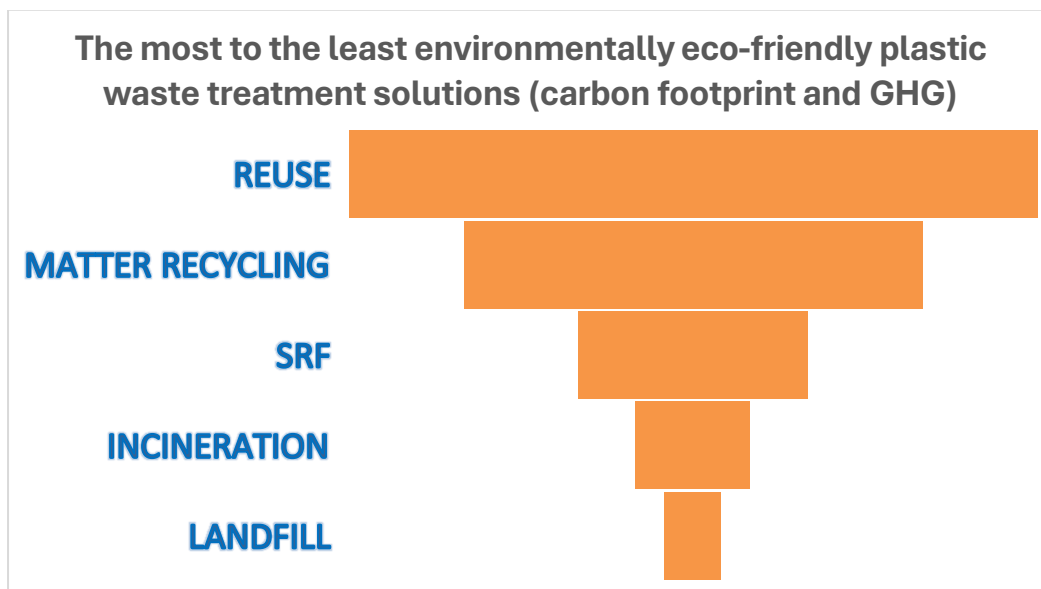
4.5. End-of-life scenarios

4.5.1 - Generalities on treatment solutions

Several solutions exist for the treatment of plastic waste, and thus WFG containing plastic. Some are more effective than others in terms of reducing carbon footprint and greenhouse gas emissions. These solutions can also be ranked from the most to the least environmentally-friendly. The figure below shows that landfill is the least favourable



solution. While France is working towards “zero landfill by 2030”, this regrettably remains the most common WFG elimination solution to date. Inversely, the most environmentally-friendly solutions are reuse and recycling.



*Figure 46: Ranking of plastic waste treatment solutions
(Source: MK Développement)*

Note that the transformation of waste into SRF (solid recovered fuel) to fuel boilers or cement kilns could offer an advantageous intermediary solution for highly-soiled or multi-material plastic waste (e.g., ropes).

To date, no experiments have been led in France on WFG for SRF, but tests have been carried out with plastic waste from shellfish farming, specifically collection cups and mussel nets (as part of the RECYCONCH project). These tests proved conclusive in the case of collection cups, which consist of PE or PP disks mounted on a central PVC tube. Mussel nets proved unsuitable for SRF due to a high moisture rate and high amounts of organic and mineral contamination (remains of mussels, shell, soil or pebbles, etc.).

4.5.2 - Focus on recycling

4.5.2.1 - Generalities on WFG recycling in France

At present, end-of-life treatment for WFG in France is mostly landfill for unsorted and non-dismantled WFG, along with incineration in rare cases, and matter recycling for PA6 gillnets whose ropes have been removed upstream.



The table below (figure 47) summarises the industrial recycling solutions available in France or Europe for the 4 types of WFG examined.

FISHING GEAR (in Brittany)	MAIN PLASTIC COMPONENTS	WFG*: recycling solutions	
		FRANCE	EUROPE
GILLNETS	POLYAMIDE	NO	YES
TRAWLS	HDPE POLYAMIDE PP	NO	YES Denmark (Plastix)
DREDGES	POLYAMIDE HDPE	NO	NO
TRAPS	HDPE POLYAMIDE	NO	NO

*: WFG = Waste fishing gear

Figure 47: Types of plastic present in the main fishing gears used in Brittany and recycling solutions (Source: MK Développement)

In recent years in France, numerous projects, mentioned throughout this report, have addressed the improvement of WFG treatment. Such projects include PECHPROPPE, RECYPECH, FILIPECH, FIRENOR, or VALNET. Through experimentation, they have explored the collection, sorting & cleaning, dismantling, transport and matter recycling of various forms of WFG, with a view to proposing an alternative to landfill or incineration, while taking economic and regulatory aspects into account.

It must be noted that there are several forms of recycling for plastics: chemical recycling involving matter depolymerisation and repolymerisation, and mechanical recycling which does not intervene on a molecular level. The chemical recycling of plastics is not carried out in France, or only very periodically (e.g., Earthwake, which mechanically performs pyrolysis on certain non-recyclable plastic waste - a technique similar to chemical recycling) and in the framework of research programmes. However, the Italian company Aquafil, specialised in nylon (PA 6) recycling, chemically regenerates the PA 6 of waste fishing nets at its plant in Slovenia. Mention can also be made of the Spanish project, OCEANETS³ (2019-2021), which optimised a pilot factory devoted to the

³ More information at: https://cinea.ec.europa.eu/featured-projects/oceanets_en#:~:text=OCEANETS%20project%20aims%20at%20preventing,managing%20these%20complex%20waste%20materials



chemical recycling of polyamide fishing nets to create high-quality fibres for the textile sector.

4.5.2.2 – Polyamide gillnets

A portion of polyamide flows from used gillnets collected at ports was recycled in France in recent years, by a young French company, (Fil&Fab). However, in the absence of a viable economic model, the company was forced to close in September 2025. All PA gillnet flows for recycling are now sent to Spain.

PA gillnet netting can be recycled to produce rPA granules, i.e., a recycled raw material (RRM). This RRM can be used to manufacture various plastic objects, made of pure plastic or mixed with virgin plastics. The most common examples of use are vehicle accessories, but rPA from gillnets has been used for finer applications in recent years, such as spectacle frames, watch straps, surfboard fins (see figure 48), or knife handles.



Figure 48: Plastic items manufactured with rPA granules sourced from recycled fishing nets (Source: Fil&Fab)

PA is a high-added-value resin; rPA granules now have real commercial value on the market. There is growing interest from several French (and Brittany) industrialists in this type of matter.

Such is the case for KER GLENN, a Brittany-based company focused on circularity, which uses rPA from used fishing nets to produce pocket knives for sailors.



Figure 49 (opposite): Sailors' knives with handles made from rPA sourced from used fishing nets (Source: KER GLENN)

4.5.2.3 – Trawls

Regarding the more complex question of trawls, the work of the RECYPECH project can be highlighted. This study explored possible matter recycling solutions for offcuts and base layers of PE trawls, and PA base layers, which represent the majority of waste from trawl use in France. The decision to run tests exclusively in recycling was guided by the following elements:



- Incineration is highly complicated for this form of waste, as its highly-resistant mesh structure is problematic. The netting becomes entangled in the shredder blades and does not tear, resulting in breakdowns.
- Furthermore, energy reuse via SRF has not been tested on this type of waste in France, and does not appear to interest waste treatment industrialists.

Experiments with PE netting from trawls collected and dismantled at the port of Lorient, then sent to Denmark for recycling, produced encouraging results: granules of satisfactory quality were obtained (see figure 50).

Figure 50 (opposite): rPE granules produced by Plastix in Denmark with used trawls from Brittany (Source: MK Développement)



In parallel, as part of the same project, experimental recycling of PE netting in France was carried out with a company specialised in waste management. This experiment produced more mixed results. They revealed that a pre-cutting operation using a machine for used textile treatment is required, and that the sediment-soiled fibres raise a technical challenge as they generate large amounts of dust during the various processing steps.

Experiments on PA trawl netting were limited to shredding tests in France by a player specialised in PA gillnet treatment. This first step, an essential pre-requisite prior to extrusion of the matter, could not be completed successfully.

In conclusion, the issue of recycling used trawl nets in France has yet to be resolved, as the Danish solution, while effective, is neither economically nor environmentally viable.

However, since early 2025, an original and periodical outlet has been found to eliminate a small proportion of France's used trawls: they are sent to Ukraine to serve as protection against Russian drones⁴.

4.5.2.4 – Dredges and pots / traps

There is no solution currently available in France for the matter recycling of plastic elements in wheeled dredges and traps or pots.

However, if a technical solution is found in the future to recycle the PA netting of used trawls, it could also be applied to wheeled dredge nets (renewed annually), provided selective collection is implemented.

⁴ <https://www.theguardian.com/world/2025/nov/08/old-fishing-nets-vital-protection-against-russian-drones-ukraine>



5. RECOMMENDATIONS & SOLUTIONS

5.1. Is there a biodegradable alternative?

Several research projects in France, some in partnership with other European countries, are exploring alternatives to the use of standard plastic in fishing gear. The main and most recent projects will be presented below, in addition to a project being led outside of France on the same theme.

5.1.1 – INDIGO and TEFIBIO: Biodegradable plastic for gillnets

Gillnets made of standard plastic are used for an average duration of 2 years, with a lifespan of around 200 years. This raises problems when they are lost at sea; in addition to accidentally entrapping marine species, their disintegration will generate microplastic pollution over this long period.

The **INDIGO project** - INnovative Fishing Gear for Ocean - was set up to experiment a solution limiting these harmful effects. The aim was to create and test in the marine environment a gillnet made of biodegradable plastic, with a lifespan (less than 5 years) close to the average use time (2 years).

Led from 2019 to 2023, this French-British Interreg project united scientists, fishermen and industrialists around a common goal: to explore an alternative to the plastic in gillnets and mussel nets and limit their impact on the marine environment.



The project led to the development of mussel net prototypes (chain mail), which were tested in shellfish farms in Normandy (see figure 49). No prototype was produced for application to gillnets, however, as the mechanical properties of the monofilaments were deemed too limited for satisfactory use by professionals.

*Figure 51 (opposite): Prototypes of biodegradable mussel nets tested in Normandy
(Source: SMEL)*

The **TEFIBIO project** (2021-2023), led in the north of France under the initiative of Picardie Estuaries and Opal Coast Marine Nature Reserve, was aimed at designing and testing a fishing net (PA mesh) using recyclable or compostable bio-sourced materials,



which would biodegrade without releasing persistent microplastics. The project resulted in the development of an experimental biodegradable net, tested at sea to measure its “fishability” and resistance compared to a standard witness net. The tests at sea revealed a slightly lower resistance and fishability to the standard witness net, although these two factors reached an equivalent level to the witness net in the final trials. Test results on the composting of these “biodegradable” nets were less conclusive, however, as the industrially-produced compost does not provide sufficient nutrients to plants.

5.1.2 - LINC BioMer: Biodegradable trawl and ropes

The aim of the ongoing collaborative project, LINC BioMer, is to design an offshore biodegradable trawl, with a lifespan adapted to professional fishing, while reducing its impact on the environment (in the event of loss at sea).

Led by the Coopération Maritime since late 2023, this project was inspired by LE DREZEN, a historic manufacturer of fishing gear (France’s leading trawl distributor), and draws on encouraging initial results obtained in 2019. LE DREZEN had actually developed a compostable, biodegradable rope made of bio-sourced materials, using matter produced by SEABIRD’s R&D activities. A preliminary test on this rope was carried out at sea, but revealed several shortcomings, such as the low mechanical resistance of bioplastic products and the relatively high associated cost.

The LINC BioMer project is currently working to resolve these shortcomings and go further, by designing an integral fishing gear prototype in biodegradable matter, acceptable to professionals in terms of mechanical properties and cost.

Several players are involved in achieving this goal: the Coopération Maritime (leads and coordinates offshore tests in real conditions with partner shipowners); LE DREZEN; CompositIC, a specialist in end-of-life formulation and research at Université Bretagne Sud, and the IFREMER laboratories in Lorient and Brest, specialised in fishing technology and marine structure knowledge.

The study includes optimised formulation of eco-designed matter, physical-chemical tests, ecotoxicology (products released and products absorbed) and biodegradation via accelerated ageing in a laboratory or in application conditions (tests at sea).

The project is on course and results are expected to be published in 2027.



5.1.3 - BAITFISH & CARAMBAR: Fish traps and pots containing biodegradable plastic

The main objective of the BAITFISH project, led by IFREMER Lorient (2018-2020), was to develop standard plastic fish traps targeting fish of commercial interest in the Bay of Biscay, and more specifically black sea bream.

At the same time, the project aimed to develop a biodegradable thread to be incorporated in the manufacture of fish traps, in certain specific locations, to limit the impact of ghost traps. The biodegradation of this thread was successfully tested in a laboratory and at sea, but tests at sea with the thread incorporated into the trap could not be carried out.

The CARAMBAR project, launched in 2024 and coordinated by IFREMER, forms a continuity with the previous BAITFISH project. One of the areas of development is the incorporation in pots and traps of biodegradable materials and the comparative study of biodegradation in a cold (St Pierre and Miquelon) and a warmer marine environment (Martinique Island). As with BAITFISH, the goal is to limit the risks of ghost fishing in the event of loss at sea. The principle is as follows: when fishing gear is lost at sea, the biodegradable threads disintegrate rapidly and enable panels to fall free, which prevents the gear from continuing to trap marine organisms.

5.1.4 – SeaBioMat

This 4-year French-Belgian Interreg project, involving 7 partners and launched in late 2024, is led in France by IFREMER with the support of AQUIMER. The project is coordinated by the Belgian research institute, CENTEXBEL, a specialist in the field of textile fibres. Its main aim is to develop bio-sourced and/or biodegradable materials adapted to the marine environment, as an alternative to the plastic component of fishing gear. Specific applications have yet to be defined, but are currently in discussion between the Belgian EV ILVO research institute and Belgian fishermen involved in the project. Two key applications are envisaged with the development of demonstrators: dolly ropes in bottom trawls and fish traps.

5.1.5 - Project outside of France: GLAUKOS

The aim of the Glaukos project (2020-2024), involving 14 partners of which 9 were European, was to develop biodegradable and “bio-recyclable” bio-sourced fibres for the eco-design of fishing gear and clothing.



One of the key results of this project was the development of 3 new bio-sourced plastics (bio-polymers) offering improved biodegradability without lowering technical performance (solidity).

Figure 52: Net produced in the framework of the GLAUKOS project (Source: Glaukos website)

The project did not go as far as the development of an eco-designed fishing net. This is nevertheless the aim of the partners for a possible upcoming project.

5.2. Awareness building and training for present and future fishermen

5.2.1 – Initial training

At present, the question of WFG is rarely (or never) covered by the initial training programme for fishermen, and is solely at the discretion of instructors. There is, however, a demand from some training institutions. On the impetus of certain projects, awareness sessions may be organised with some classes (e.g., a session by UBS with a class in Guilvinec high school as part of the Free LitterAT project in 2025.), but this form of action remains marginal and thus has little impact.

A generalised roll-out of this type of intervention for students preparing a higher education technical diploma (1st & 2nd year BTS) or a profession-oriented high school certificate (French *Baccalauréat Professionnel*) in maritime training institutions, adapted educational tools, and compulsory modules within official apprenticeship programmes would undoubtedly enhance the awareness of future generations of fishermen.

5.2.2 – Vocational training

With regard to vocational training modules, often highly intensive and focused on safety at sea, the environmental aspect of fishing gear containing plastic is also all too rarely evoked.

That said, on an international level, a **reform to the Convention on the Standards of Training for seagoing fishing vessel crews** (STCW-F, which applies to crews of vessels measuring more than 24 metres) is under way. The reform provides, in particular, for the introduction of compulsory knowledge on the preservation of marine environments, prevention related to lost fishing gear, and procedures to enable the removal / management of obsolete gear, etc.⁵

⁵ Source: Professional maritime training department - DGAMPA



5.3. Improve flow tracking

The Comité France Océan [French Ocean Committee] (created in 2018 under the initiative of the French Prime Minister and on request of NGOs) has been working since 2024 on the drafting of a set of recommendations to limit ghost fishing gear (ALDFG), which causes significant damage to marine wildlife and generates micro- and macro-plastic waste in seas.

The following are examples of these recommendations:

- Map “risk” zones to improve the recovery process of ALDFG.
- Launch an economic study on the potential costs and benefits of the fight against ALDFG.
- Itemise and harmonise existing data collected by scientists to facilitate its availability.
- Create a national platform for exchange on ALDFG bringing together all players (fishermen, outfitters, ports, scientists, regulatory bodies and NGOs, etc.) to foster collaboration.
- Systematise the **marking of fishing gear** and aquaculture equipment, to retrace the following information: type of gear, owner, vessel, manufacturer and country of origin.

Note that such marking is already compulsory on a European level according to the implementing regulation EU 404/2011, in certain cases, particularly for passive gear and beam trawls.

More recently, on 12 November 2025, the European Commission adopted a revision of the “control” regulation in effect, with an amendment easing certain gear-marking requirements as of January 2026, in particular for vessels under 15 metres using passive gear along coastlines.

- Finalise France’s membership of the Global Ghost Gear Initiative (GGGI) to enable active participation in solving the issue on a worldwide scale.
- Strengthen education and awareness on the impact of ALDFG on marine biodiversity through the drafting of a “guide to good environmental practices for the removal of ghost fishing gear”.
- Create an aid fund specifically for the recovery of ALDFG, within the European Maritime, Fisheries and Aquaculture Fund (EMFAF).
- Encourage systematic collection of shellfish farming waste by sector players following extreme weather events.



5.4. Eco-designed fishing gear

The notion of “eco-designed” fishing gear covers numerous possibilities for more environmentally-friendly designs, notably:

- Gear produced from bio-sourced and/or offshore-biodegradable polymers, with equivalent technical characteristics to standard plastic fishing gear.
- Gear made of onshore-biodegradable polymers, to limit landfill disposal.
- Gear produced from more standard polymers, locally available and easily recycled, while avoiding the tangle of matters which limits the possibility of recycling (=promote gear made of mono-matter materials).

5.4.1 – The new AFNOR standard

The European Committee for Standardization (CEN), under the impetus of the Netherlands and in accordance with the demand expressed in the SUP Directive ⁶, requested the setting up of standards for the design of fishing gear and aquaculture equipment containing plastic to promote their circularity and recyclability. A working group composed of several volunteer Member States was thus set up and led to the creation of a 6-part standard, validated by the CEN.

AFNOR, the French body responsible for transposing this standard on a national scale, published the articles relative to these 6 parts of the standard which correspond to recommendations (EN 17988-1 to 6). They are geared for the most part towards manufacturers and distributors of fishing gear, but also concern all players involved in gear life cycle (vendors, fishermen, fish farmers, ports, net mounters and waste managers, etc.).

They lay down recommendations (and not obligations) relative to:

- Design
- Materials and components used in manufacturing
- Assembly / manufacturing
- Use (user manual) and maintenance
- Marking
- End-of-life management

⁶ “Without prejudice to the technical measures provided for in Council Regulation (EC) No 850/98 (24), [\(24\)](#), the Commission shall request the European standardisation organisations to develop harmonised standards for the circular design of fishing gear in order to encourage preparation for reuse and facilitate recyclability at the end of its life.” - European Parliament and Council Directive (EU) 2019/904 of the of 5 June 2019 on the reduction of the impact of certain plastic products on the environment



This standard was developed to support the implementation of directives pertaining not only to Single-Use Plastic (SUP), but also Port Reception Facilities (PRF) and Extended Producer Responsibility (EPR).

It must be noted that, to date, the recommendations listed in this standard are rarely applied by fishing gear producers. A study on a European level would enable us to know if marketers in other countries have succeeded in implementing this standard, the difficulties they may have encountered and/or observed benefits.

5.4.2 – Considerations by Comité France Océan

The previously-mentioned Comité France Océan is also considering the drafting of recommendations for the eco-design of fishing gear. The main leads relative to this question are:

- Create a list of polymers, additives, loads and reinforcements usable in the sustainable design of fishing gear. Quality and safety standards resulting from this task would enable the approval of fishing gear deemed sufficiently robust and non-polluting only.
- Implement a form of control to ensure compliance with the standards set out in the previous point, via a component data sheet detailing the polymers, additives, loads and reinforcements present in the gear. This data sheet would be developed by gear manufacturers.
- Provide a clear regulatory definition of “offshore biodegradability” to highlight the advantages and drawbacks of these potential alternatives.
- Support a research effort to develop biodegradable fishing gear.

It must be emphasised that these are simply leads for consideration at this point, and not official recommendations.



6. SUMMARY OF LIFE CYCLE AND CONCLUSION



6.1. Summary of fishing gear life cycle

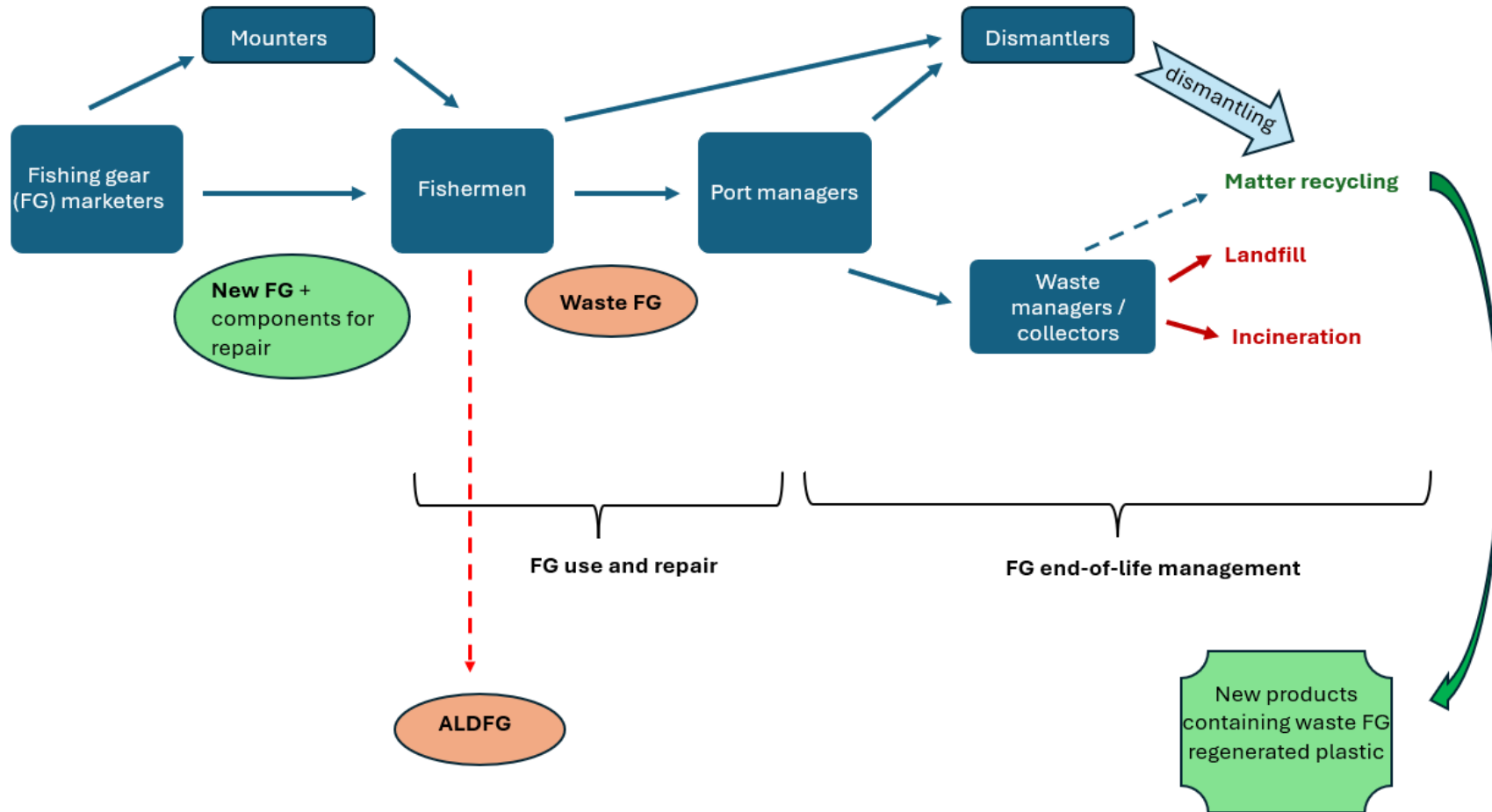


Figure 53: Diagram summarising the fishing gear life cycle in France (Source: MK Développement)

The diagram above summarises the life cycle of fishing gear, showing the origin and end destination of WFG via the value chain, from the marketing of the new product (by manufacturers or importers) to use (by fishermen), repair, and the elimination of the waste product via a landfill or incineration solution, or via a matter recycling process enabling a second life for the plastic. In France, this last solution is applied only to gillnets at present.

6.2. Conclusion

Despite the European SUP (Single-Use Plastics) and PRF (Port Reception Facilities) directives, in addition to the resulting national regulations, fishing gear recycling sectors in France, as in other Member States, are struggling to establish themselves.

Only a portion of polyamide gillnets are currently recycled via a mechanical matter-recycling process. This form of recycling can no longer be carried out on an industrial scale in France, as the only company operating this process closed down in September 2025.

The hurdles slowing and preventing the development of these matter recycling sectors are due to several factors. The main factors include:

- The reduced scale of WFG deposits, including on a national scale.
- The variety of matters and plastics contained in fishing gear which require dismantling (costly and time-consuming).
- Encrusted salt and sediment, etc. which requires cleaning.
- The unfavourable economic context for recycled plastic given the low cost of virgin resins on the market.
- The absence of strict regulation on the inclusion rate of recycled plastic, across almost all of the plastics sector.
- The high cost of recycling processes for WFG plastics.

Leads for improvement could nevertheless help to remove some of those hurdles. In addition to the focus points and recommendations presented in paragraph 5, other leads could include:

- The pooling of flows:
A regional, even national pooling of various types of WFG flows could help to achieve economies of scale for a recycling sector. This pooling is only practicable provided a future industrial tool can deal with all the different types of WFG and their plastic components (PE, PA and PP).
- Stricter regulation on plastic landfill:
A national (and/or European) regulation strictly limiting the possibility of landfill for plastic-containing waste would inevitably encourage a redirection of flows

towards recycling sectors. For WFG at present, the economic aspect encourages landfill to the detriment of recycling.

- New regulation in the vehicle sector:

On 18 June 2025, the European Commission voted in an obligation for car manufactures to include a minimum rate of recycled plastic in new vehicles. The 27 Member States agreed to a goal of 15% by 2031, and a minimum of 25% by 2035. The majority of plastics currently found in cars are: PP at 40%, PE from 8% to 15%, PA from 8% to 10% and PET also from 8% to 10%. There is thus hope that this new regulation will help to boost market demand for recycled plastic for these various resins. It may therefore represent an outlet opportunity for WFG plastics. These outlets are currently lacking and thus do not encourage the development and viability of a recycling sector.

In parallel to these leads, we can hope that the many projects initiated in recent years around the design of biodegradable and/or bio-sourced fishing gear will provide concrete solutions to reduce marine plastic pollution linked to the use of this gear.

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composites cimentaires, pour créer un béton fibré éco-responsable. POLE
AQUIMER.