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

## Life Cycle Assessment of Fishing Gear in Ireland

WORK PACKAGE 1 - ACTIVITY 2, TASK 1

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Atlantic Area



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<b>Work package 1 :</b>	PREVENTION BY IMPROVING WASTE MANAGEMENT AND RECYCLING
<b>Activity and task :</b>	<b>Management and recycling of waste fishing gear – Studies on fishing gear life cycle</b>
<b>Date</b>	01 JULY 2025
<b>Version</b>	V1
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# 1.0 Context

## 1.1 Waste Management Systems of the Fishing Activity

### 1.1.1 Current Waste Management Framework

In Ireland, ports serve as collection points for the management of fishing related wastes, including waste generated from repair and maintenance of fishing gear, waste oils and galley waste supported by the requirements of the Port Reception Facilities (PRF) Directive (EU 2019/883) and national legislation (S.I. No. 351 of 2022, Port Reception Facilities for the Delivery of Waste from Ships).

The Port Reception Facilities Plans developed by ports outline the practical implementation of these obligations, including the provision of waste reception facilities for fishing gear waste and Fishing For Litter (FFL) material (passively fished waste).

### 1.1.2 Availability of Reception Facilities

The Waste Management Plans for port reception facilities show that ports provide varying levels of infrastructure for fishing gear waste and FFL collections. The table below summarises the types of facilities available at selected Irish ports. The capacity and collection arrangements differ between ports, with larger ports generally offering more comprehensive systems than smaller or seasonal harbours.

The six larger fishery harbour centres (FHC) under the control of the Department of Agriculture, Food and the Marine (DAFM) have staff that accept and help manage waste from fishing boats and bring it to the relevant waste management facility within their compounds. The 6 FHCs are Killybegs, Caatletownbere, Rossaveal, Howth, Dunmore East and Dingle.

Table 1: Fishing Gear Waste and Fishing for Litter Facilities at Selected Irish Ports

Port / Harbour	Fishing Gear Waste Facility	Fishing for Litter (FFL) Facility	Other Relevant Waste Streams
Baltimore	Retired nets & fishing gear compound	FFL one-tonne bags	Waste oil, oil filters, oily rags, hazardous waste
Dunmore East (FHC)	Significant quantities of gear stored on site, including legacy gear.	Large 30 cu. Yd. skip provided. In locked compound with access controlled by FHC staff.	Waste oil, oil filters, oily rags, hazardous waste
Castletownbere (FHC)	Storage for retired gear	Skip for FFL (40m <sup>3</sup> )	Waste oil, oil filters, batteries, oily rags
Kinsale	Pallet boxes for retired nets & gear. Skip for	FFL one-tonne bags	Waste oil, oil filters, batteries, oily rags



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	bulky waste. 1100 litre bins at Harbour Master's Office.		
Union Hall	Compound for retired gear	FFL handled separately for gear waste	Waste oil, oil filters, batteries, oily rags
Greencastle, Donegal	Skips for retired gear	Managed separately at key sites	Waste oil, oil filters, recyclables (at some sites)
Kilmore Quay, Wexford	Bulky waste, FFL and beach collection skips at Kilmore Quay. Storage area for retired gear at Duncannon Harbour.	FFL collection skip at Kilmore Quay	Waste oil, oil filters, oily rags, batteries

### 1.1.3 Challenges

There are several challenges that affect the effective collection, transport and treatment of fishing gear waste at Irish ports. A key issue is the incorrect use of the facilities at ports. The misplacement of waste into the incorrect bin/skip makes it more challenging to recycle and distorts the accuracy of the data collected from these facilities.

Reporting challenges include use of different reporting templates used by FHC and local authorities. The EPA are the competent authority for reporting on the quantities of gear placed on and coming off the market annually. EPA are relying on DAFM, local authorities, BIM (for FFL) and the Department of the Marine (DTTAS) for their source information.

Another challenge is the lack of standardisation between ports. These differences in facilities lead to inconsistencies in the disposal of waste. If facilities are limited, or not well sign posted, then fishers may use whatever bins are available or nearest to them. In-person meetings conducted by CTC with Harbour Masters in April-June 2025 indicated that some fishers don't care about segregation while others are very much committed to proper waste management practices.



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*Photo: Bulky waste skip contents Dunmore East, May 2025*



*Photo: Bulky waste skips for beach clean materials, galley & process waste and FFL (Fishing for Litter) in Kilmore Quay, May 2025*

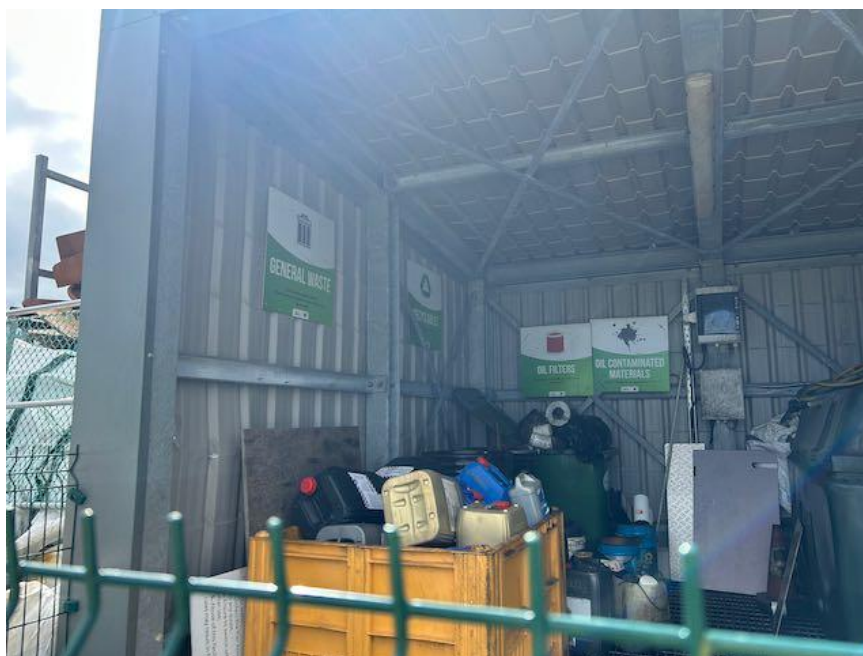


Photo: Covered waste storage facility at Adam's Quay, Kinsale Fishing Port (April 2025)

## 1.2 Fishing Fleets of Ireland

The composition of Ireland's fishing fleet in 2022, as outlined in the Annual Fisheries Report (BIM, 2024), is shown in Table 2. The total number of registered vessels was 1,985, with polyvalent vessels making up the majority at 1,714 units. These vessels are versatile and can operate across different types of fisheries, indicating a flexible fleet structure.

Table 2: Structure of the Irish Fleet 2022

Fleet Segment	Number of Vessels
Aquaculture	98
Specific	140
Polyvalent	1,714
Beam Trawl	10
RSW Pelagic	23
<b>Total</b>	<b>1,985</b>

However, this figure also includes vessels that were not operational during the year. According to the Annual Fisheries Report 2024, which reflects vessels actively engaged in fishing, only 1,318 vessels were operational in 2022. The majority of active vessels were under 10 meters, indicating a fleet dominated by inshore, small-scale operators.





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Table 3: Estimated weight of plastic fishing gear placed on the market per fleet segment

Gear Types	Number of vessels (primary gear)	Number of vessels (second gear)	Estimated plastic weight (tonnes) of gear in 2022
Pots*	783	380	96
Purse seine	13	2	28
Pelagic Trawls	117	84	104
Demersal Trawls	139	104	382
Beam trawl	9	1	36
Gillnets	481	362	132
Longlines	79	253	14
<b>Total</b>	<b>1,621</b>	<b>1,186</b>	<b>792</b>

\*Excluding steel frame. With steel frame pot total is 1,391 tonnes, total waste is 2,087 tonnes

Source: Eunomia, 2024

The 2024 Eunomia report also describes the largest volumes of waste fishing gear types in Ireland:

- Demersal trawls:** most of the Irish fleet operates as quad-riggers targeting prawns, using 4 nets at a time (with spares on board and further trawls stored on land). Many of these vessels will operate (and store) heavier groundfish gear to fish on a seasonal basis.
- Gillnets/trammel nets:** these are individually relatively light sets made of thin monofilament. But each vessel sets multiple nets, and so the total amount of gear used per vessel is significant. As different nets are used seasonally (a few weeks a year) to target certain species, the average replacement rate is estimated to be 10 years.
- Pelagic nets:** These mid-water trawl and purse seine nets are individually large, and each is a significant weight of plastic (nylon) estimated at 3.8 tonnes for large nets. Each operator will have multiple nets to target certain small pelagic species, but used on a seasonal basis and with no abrasion from the seabed will last longer than demersal trawls (est. 5 years).
- Pots** (plastic only, excluding steel frame): The amount of pots operated per vessel increases substantially with size: small boats work a few hundred pots, while the larger vivier crabbers can work thousands of pots. The replacement rate for large vessels is shorter than for smaller vessels as vivier crabbers fish the gear all year in tougher offshore conditions.



## 2.0 Manufacturing and Commercialisation

### 2.1 Overview of Main Types of Fishing Gear Used in Ireland

The following table lists the registered producers under the current EPR scheme, *Haul It Back*. These include the main manufacturers and suppliers of fishing gear in Ireland, but it is likely that there are others as well including users importing gear directly.

Table 4: EPR Registered Producers (as of 20 June 2025)<sup>1</sup>

Alisha Mary Fisheries Ltd.	Mowi Ireland
Atlantic Weave Ltd.	MoreNet Teoranta
Byrne Nets	Sheehan's Fishing Company Ltd.
Caragh Clams Ltd.	Silver Strand Rope Works Ltd.
Carrymacarry Net Works Ltd.	Skipper Shellfish Ltd.
Cavanagh Nets Ltd.	Swan-Net Gundry Ltd.
GK Nets	Triskell Seafood Ltd.
JFC Marine	W and J Knox Ltd.
KT Nets Ltd.	

The Irish fishing fleet uses a range of gear types for different species and fishing practices such as trawl nets, pots and longlines. These gear types consist of multiple components, most of which are made from plastic materials such as HDPE (high density polyethylene), polypropylene (PP), nylon, and rubber or metal composites.

The tables below (5-7) summarise the key components and main materials used in each gear type, based on Ireland's national gear taxonomy.

Table 5: Trawl Nets - Components & Materials

Gear Type	Component	Material
Demersal Trawl	Net body	HDPE
	Cod end	HDPE
	Headline	HDPE
	Footrope	HDPE, metal
	Chafing/ rubbing ropes	PP

<sup>1</sup> <https://reelitback.ie/producers/>



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	Strengthening netting sections	PA
	Bobbins	Metal
	Rollers	Rubber
	Discs	Rubber
	Chains	Metal
Pelagic Trawl	Net body	PA
	Brailer	PA
	Headline	HDPE
	Footrope	HDPE
Beam Trawl	Netting	HDPE/PA
	Cod end	HDPE
	Headline	HDPE
	Ropes	HDPE/PA
Purse Seine	Netting	PAPES
	Headrope	HDPE
	Footrope (chain)	Metal

*Table 6: Thin Twine Gears - Components & Materials*

<b>Gear Type</b>	<b>Component</b>	<b>Material</b>
Gillnets	Net panel	Nylon
	Headline	PE
	Leadline	PP/lead
Longline	Mainline	HDPE/PE
	Branchline	Nylon
	Hook	Metal
	Longline set	Monofilament nylon

*Table 7: Other Plastic Gear - Components & Materials*



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<b>Gear Type</b>	<b>Component</b>	<b>Material</b>
Crab/Lobster Pots	Frame	Steel/PVC
	Netting	PE
	Ring	Nylon
	Base	Rubber/PE
	Aquamesh	Steel/PVC
Shrimp Pots	Frame	PE
	Netting	PE
Prawn Pot	Frame	Steel/PVC
	Netting	PE
	Binding	PE
	Ring	Nylon
Whelk Pots	Barrel	HDPE
	Weight	Cement
	Netting	PE

These tables show that PP, PE, HDPE and PA (Nylon) are the most commonly used plastic materials in Irish fishing gear. These plastics are found in components like netting, ropes, and lines. Many parts are coated (lead or steel combination ropes), mixed with other materials, or physically attached to metal or rubber, which makes dismantling and recycling more difficult - a key issue for implementing effective EPR schemes under the Single Use Plastic Directive.



### 3.0 Use of Fishing Gear

Fishing gear in Ireland is used across a variety of vessel sizes and fisheries ranging from inshore potting to offshore trawling. The useful life of gear varies by type, level of use, and exposure to environmental conditions. According to gear taxonomy data, main netting structures such as demersal trawl net bodies are typically used for around 4 years, while cod ends are replaced more frequently, usually after just one year of use. These replacement cycles reflect a combination of exposure to seabed contact and the role of the component. More frequent replacement of high wear items help maintain fishing efficiency. The table below shows typical replacement rates for the components of different gear types.

Table 8: Typical Replacement Rates For Components from Trawls

Gear Type	Component	Material	Replacement Rate (Years)
Demersal Trawl	Net body	HDPE	4
	Cod end	HDPE	1
	Bobbins	Metal	20
	Rollers	Rubber	5
	Discs	Rubber	3
	Chains	Metal	20
Pelagic Trawl	Net body	PA (Nylon)	5
	Brailer	PA	1
	Footrope	HDPE	2
Beam Trawl	Netting	HDPE/PA	2
	Cod end	HDPE	1

A survey of Irish whitefish boat owners carried out by the Clean Technology Centre in 2021 found that nets are typically used for 2-4 years, with an average of 2.4 years before being replaced. Most boats purchase new nets as needed, but very few nets are ever fully discarded when taken off the boat. Instead, retired gear is commonly stored indefinitely for parts or for use as a backup net, with only 2 out of 10 surveyed boat owners placing a time limit on gear storage. These findings reflect the resource conscious approach taken by fishers to prolong gear use and reduce operational costs.



## 4.0 Lost or Abandoned Fishing Gear: Causes and Consequence

Lost, abandoned, or discarded fishing gear (often referred to as ALDFG: Abandoned, Lost or Discarded Fishing Gear) represents a significant contributor to marine litter. Gear may be lost accidentally due to poor weather conditions or snags on the seabed. Recent evidence also suggests that improper disposal of retired gear onshore, including abandonment in general waste streams contributes significantly to the presence of fishing gear in the marine environment. Understanding both accidental loss and intentional or improper disposal is key to addressing the problems with fishing gear waste.

### 4.1 Evidence from Beach Clean Initiatives

Recent assessments of beach clean skips by the Clean Technology Centre for BIM Coordinated Local Aquaculture Management Systems (CLAMS) group provide valuable insights into the types of waste found along Irish coasts, where shellfish farming and fishing operate. Two such initiatives were organised in Clew Bay, Co. Mayo and Roaringwater Bay, Co. Cork. These beach cleans and assessments illustrate the scale of the issue and challenges posed by managing fishing gear.

#### **Clew Bay**

In Clew Bay (September 2023), 1.56 tonnes of material were collected during a community-led clean up initiative. Fishing/aquaculture gear accounted for 42% of the materials assessed. Items included lobster pots, nets, ropes, buoys, and shrimp baskets, many of these seemed to be retired rather than lost which could indicate improper disposal. Approximately 21.6% of the skip was estimated to be SUP related retired gear, the rest being general fishing related or litter materials.



*Photo: Clew Bay beach clean waste after skip was emptied, prior to waste characterisation*



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### Roaringwater Bay

In Roaringwater Bay (August 2023), beach clean and pier clean activities revealed a wide range of discarded fishing/aquaculture gear. The skip contained loose ropes, twine, HDPE drums, floats, and fish boxes, as well as domestic and process waste.

Notably, mussel collectors were excluded from recycling efforts due to organic and inorganic contamination, while a shift in mussel farming practices was noted, replacing leaded seine ropes with recyclable polypropylene alternatives.



*Photos: Beach clean material on Lahertanvally Pier, mussel collectors for disposal*



*Photo: Beach clean materials in waste skip at Lahertanvally Pier Roaringwater Bay, Cork*



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An Taisce's Clean Coasts programme is responsible for the collection of beach litter around the Irish coastline. An Taisce supports coastal communities, providing them with clean-up kit for beach cleans, organising marine litter surveys in accordance with the Ocean Conservancy's International Coastal Clean-up, liaising with stakeholders, offering grant support for projects, and running several awareness raising campaigns.



*Photo: Pots, fish boxes and other materials collected by Tomhaggard Clean Coasts Group, Co. Wexford*



Photo: Fishing gear collected by Tomhaggard Clean Coasts Group and available for reuse is deposited in the waste management compound at Kilmore Quay Port, Co. Wexford

## 4.2 Fishing Gear Waste Identified in Port Municipal Skips

Recent characterisation studies of mixed municipal waste skips at Irish ports, carried out by the CTC in 2024, provide further insight into the disposal routes of fishing gear waste. The surveys examined skips at two Department of Agriculture, Food and the Marine (DAFM) fishery harbour centres (FHCs), Dingle and Dunmore East and two Local Authority managed ports, Kinsale and Kilmore Quay. The findings of the surveys show significant quantities of end-of-life fishing gear entering municipal skips. The results are summarised in the tables below.

Table 9: Weights of Fishing Gear in Skips (containing plastic and non-plastic)

Port	fishing gear containing plastic kg	other fishing gear kg (metal or rubber)	Total skip weight kg
Dingle FHC	99	0	1580
Dunmore East FHC	275.45	1.50	7850
Kilmore Quay	2053.00	60.00	3620
Kinsale port (dry)	279.60	0.00	542
<b>Total</b>	<b>2707.34</b>	<b>61.50</b>	<b>13322</b>

Table 10: Fishing gear containing Plastic as a % Composition of Total Skip Contents



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Port	% composition fishing gear containing plastic	Port Type
Dingle FHC	6.28%	DAFM
Dunmore East FHC	3.63%	DAFM
Kilmore Quay	56.71%	Co. Co.
Kinsale port (wet)	37.8%	Co. Co.
Kinsale port (dry)	51.59%	Co. Co.

The results in Tables 9 and 10 highlight the significant presence of fishing gear waste in mixed municipal waste skips at some Irish ports. These surveys provide important baseline data for understanding how much fishing gear is currently entering general waste streams. The findings show considerable variation between DAFM fishery harbour centres (Dingle and Dunmore East) showing a much lower proportion of fishing waste in their municipal skips in comparison to the County Council managed ports (Kilmore Quay and Kinsale).

This evidence supports the view that along with accidental gear loss at sea, poor onshore waste management practices also significantly contribute to the problem of lost or discarded fishing gear. These results are particularly relevant in the context of the Extended Producer Responsibility (EPR) scheme being introduced under the Single Use Plastics Directive (SUP), where accurate reporting on fishing gear waste will be required. The high levels of waste gear in municipal skips at some ports highlights a key gap in current waste handling.



*Photo: Bulky waste skip contents from Kilmore Quay, Co. Wexford (2023)*



## 5.0 End-of-Life Fishing Gear

The end-of-life management of fishing gear is a critical stage both from an environmental and regulatory perspective. Proper handling at this stage can prevent gear from becoming a waste management issue and instead enable recovery, recycling, or reuse in alignment with circular economy objectives. This section presents available data on waste volumes, current practices in reuse and repair, dismantling, transportation, and the treatment options for gear at end of life.

### 5.1 Volumes of Fishing Gear Waste Generated

The Eunomia report states that *‘the EPA’s SUPD report indicates that 692 tonnes was collected in 2022, following a characterisation study carried out on the 12 main ports in Ireland. This figure can be compared to Table 11 below, showing the volume of plastic fishing gear placed on the market for the same year from the Analysis of the Marine Fishing Gear Market in Ireland, a report prepared by Eunomia in October 2024. The breakdown is shown in the table above and it sums to 792.15 tonnes. (Eunomia, 2024), though anecdotally the total plastics going on to the market may be as much as double this figure.*

*Table 11: Estimated Weight of Plastic Placed on the Market in Ireland in 2022*

<b>Gear Type</b>	<b>Estimated Weight of Plastic (tonnes)</b>
Pots	95.82
Purse Seines	28.43
Pelagic Trawls	104.10
Demersal Trawls	382.00
Beam Trawls	36.00
Fixed and Drift Nets	129.50
Trammel Nets	2.10
Longlines	14.20

### 5.2 Reuse and Repair Practices

The reuse and repair of fishing gear, particularly nets and ropes, are common practices within the commercial fishing sector as a way to expand the lifespan of gear and reduce costs. These activities help reduce costs, minimise downtime, and extend the lifespan of valuable components. According to the Clean Technology Centre’s 2023 Whitefish Net Management Survey for BIM, onboard repairs are carried out by 80% of the fishers surveyed, while 90% also performed onshore maintenance, either by crew or with support from net suppliers.



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Limitations such as lack of indoor storage, gear degradation, and the time or skill required for major repairs can reduce reuse potential. Where gear cannot be repaired easily, it may remain in informal storage, awaiting disposal or stripping.

While these practices extend the useful life of gear, they also result in a build-up of unused material, much of which will eventually require dismantling or disposal. Importantly, this repair process typically results in a significant number of off cuts being discharged into the local environment. While these do not aggregate into a large tonnage, these are very visible and are particularly animating for those that use our coastlines recreationally. This is one area, the ongoing repair of nets, either on land or at sea, that has yet to be explored in terms of improved systems.

### 5.3 Dismantling and Segregation: Practices and Associated Challenges

In 2023, the Clean Technology Centre (CTC) employed Ships Nets And Wire Ltd. to break down fishing gear with the objective of assessing the potential for material recovery and recycling. The trials were done in accordance with the requirements set out by potential recyclers, ensuring the separation of materials into clean, single material streams. The trials involved the manual stripping of whitefish trawl net, gillnets, and combination ropes. The dismantling process revealed the mix of materials used. The breakdown of materials by weight for the whitefish trawl net is presented below.

*Table 11: Whitefish Trawl Net Breakdown*

Total Weight	HDPE (KG)	Nylon (KG)	Lead (KG)	PP (KG)	Rubbers (KG)	Steel (KG)	ABS (KG)	Combination Not Stripped
764kg	220kg	3.8kg	34.6kg	16.4kg	318.16kg	83.6kg	20kg	67kg



Photo: Seine net prior to stripping by Ship Nets and Wire Ltd.

The combination rope, which has both polypropylene and steel elements, was not dismantled due to the labour intensity of the process, reflecting a barrier to full separation for recycling. From speaking with Harbour Masters in fishing ports in 2025, metal recyclers will not accept combination steel or lead rope for recycling.

## 5.4 Collection and Transportation Systems

Fishing gear waste collected at ports is typically transported by licensed waste contractors to treatment or disposal facilities. The type of waste determines how it is transported, with skips used for most items and oil stored in tanks. FFL waste is meant to be managed separately and reported to BIM. How FFL is managed varies from port to port; in general, it is currently disposed of with other bulky waste in skips. Hazardous waste streams are sent to specialist treatment centres. Waste contractors must provide records of the quantities collected, disposal methods and final destinations of the waste stream. EPA and NWCPO agreed to introduce List of Waste codes for fishing gear waste, and this was published in February 2025<sup>2</sup>. The relevant sections from the new guidance relating to fishing gear containing plastics are reproduced in the following tables:

Table 2.1 - Noteworthy LoW Entries from Sub-chapter 02 01 LoW Entry	Detailed Description
02 01 04 waste plastics (except packaging)	<p>This is a parent entry i.e. sub-entries exist for this entry, details of which are outlined in Table 2.2 below, and further details are presented in Appendix I.</p> <p>This entry applies to non-packaging waste plastics arising from agriculture, horticulture, aquaculture, forestry, hunting and fishing.</p> <p>Sub-entries were created under this parent entry to facilitate the separate capture of data for fishing gear and in particular single</p>

<sup>2</sup> <https://www.epa.ie/publications/monitoring--assessment/waste/national-waste-statistics/Guidance-on-the-Interpretation-and-Application-of-List-of-Waste-Entries-and-Sub-Entries- V.1.pdf>



	<p>use plastic (SUP) fishing gear that must be reported in accordance with S.I. No. 516 of 2021, European Union (Single Use Plastics) Regulations 20213 and S.I. No. 612 of 2022, European Union (Extended Producer Responsibility) (Fishing Gear Containing Plastic) Regulations 20224.</p> <p>This parent entry is available on the NWCPO and EPA portals for LA WFP, LA CoR ARs and EPA Licence EPR returns.</p>
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<b>Table 2.2 - LoW Sub-entries from Sub-chapter 02 01 LoW Parent Entry</b>	<b>LoW Sub-entry</b>	<b>Detailed Description</b>
02 01 04 waste plastics (except packaging)	02 01 04 FISHGR waste plastic fishing gear	This sub-entry applies to all types of fishing and aquaculture gear containing plastic. This sub-entry is available on the NWCPO portal for LA WCP ARs.
02 01 04 OTHER waste plastics (except packaging) other than fishing gear		This sub-entry applies to all other types of non-packaging waste plastic – relevant to sub-Chapter 02 01 – not captured under 02 01 04 FISHGR. One such application is for farm plastics i.e. silage wrap and sheeting, netting and twine. This sub-entry is available on the NWCPO portal for LA WCP ARs.

## 5.5 Treatment and Management Options

The treatment of end-of-life fishing gear in Ireland currently follows several pathways depending on the material type, condition of the gear, and available infrastructure. These options include recycling, landfill and incineration.

### Reuse and Recycling

Clean, segregated gear materials - such as nylon (collected, stripped, baled and exported), PE and PP nets (resized by manufacturers as fishing nets or by companies specialising in sports nets and nets for other commercial uses), polypropylene ropes (reused as longlines in mussel farming) and floats (stripped for reuse) can be sent for recycling. However, reuse or recycling success depends on the condition of the material and the extent of material separation.

### Landfill and Incineration

Where segregation has not been done, much of the mixed material gear goes to either landfill or incineration. Heavily fouled nets and ropes that can't be economically cleaned go to landfill, as well as gear that contains composite materials, such as steel-cored ropes. These combination ropes (steel or lead coated in plastic) present particular difficulty as a waste stream as metal recyclers no longer accept them; however, a fledgling pyrolysis industry in Ireland<sup>3</sup> may offer a solution for recovery of steel or lead for recycling and naphtha from plastics for a fossil fuel substitute in the petrochemicals industry.

<sup>3</sup> <https://www.rte.ie/news/business/2024/0827/1466869-trifol-and-shell-sign-supply-agreement/>



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It has been noted by both waste collectors and Harbour Masters that this option for fishing gear is becoming less viable. Due to the nature of nets, they tangle in the sorting and handling equipment used by incinerators. In landfills, where methane recovery is now used extensively, they catch on augers and cause significant disruption. Therefore, this management option, which is at the bottom of the waste hierarchy, appears to have a limited time left.



## 6.0 End-of-Life Materials Destinations

EPA reported that 2,618 tonnes of fishing gear was placed on the market in Ireland and 692 tonnes of fishing gear was collected in 2022<sup>4</sup>.

The table below summarises the sources and current destinations of end-of-life fishing gear containing plastic.

*Table 12: Destinations for end-of-life fishing gear containing plastic*

<b>Material</b>	<b>Source(s)</b>	<b>Technology</b>
Nylon	Monofilament nets	Collect, strip, bale and export. Chemical recycling process to produce polyamide 6.
HDPE (high density polyethylene)	Oyster bags, mussel barrels/floats. Floating rings in fish farms.	Collect, strip, clean. Injection moulding after granulation.
PE (polyethylene)	Trawl nets, purse seine nets	Repurpose as sports nets, skip and trailer nets. Granulate nets to produce material suitable for plastics recyclers.
Mixed plastics (PE and PP)	Fishing and aquaculture gear	Pyrolysis to produce oils, waxes and parafins.
PP (polypropylene)	rope	Granulate for injection moulding (if clean and stripped)

Metal waste including chains and trawl doors typically last much longer than nets and ropes and are suitable for recycling as scrap metal at end of life. Combination ropes (lead or steel coated with plastic) are not generally accepted by scrap metal collectors. Floats and rubber rings generally end up in bulky waste skips when no longer in use. Ultra high molecular weight polyethylene (UHMWPE) ropes are also problematic for recyclers as they cannot be easily cut or shredded.

<sup>4</sup> <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/single-use-plastics/>



## 7.0 Conclusions and Recommendations

### 7.1 Conclusions

#### **Gear Composition**

Fishing gear in Ireland is primarily made from plastic polymers such as high-density polyethylene (HDPE), polypropylene (PP), and nylon (PA). These materials are used due to their strength and durability. However, in some cases the materials are combined with metal or rubber, making them difficult to separate or recycle.

#### **Use and Replacement Practices**

Gear is routinely repaired and reused. Components such as nets are frequently patched to extend their useful life. Despite these practices, wear from seabed contact and heavy catches means that some components still have short replacement cycles. Gear is often stored indefinitely after retirement, indicating a blurred line between gear in use and gear awaiting disposal. Additionally, the ongoing repair contributes to waste gear, including a large volume of small offcuts which visually impact out coastlines.



*Photo: Storage of gear at Union Hall, Co. Cork (April 2025)*

#### **Disposal Practices**

Improper disposal remains a widespread issue. Ports with limited infrastructure or unclear signage contribute to incorrect use of disposal facilities, leading to gear being discarded in ways that obstruct recycling, distort waste data, or risk environmental damage.



*Photo: Fishing gear storage, Kinsale Port (April 2025)*

## 7.2 Recommendations

### Infrastructure and Collection

- Expand port reception facilities to ensure harbours have appropriate physical infrastructure for receiving all types of gear waste. Personnel resources may also be an issue for local authority ports.
- Introduce standardised bin types and labelling across all ports to avoid misplacement of waste and improve segregation.

### Engagement & Training

- Provide training and guidance for fishers on best practices for end-of-life gear handling, segregation, and reuse potential.
- Facilitate port to port knowledge sharing between ports with effective systems and those lacking information.
- Explore options to address the net offcuts, both at sea and on land, to keep them out of the marine environment and in a more circular economy.

### Data

- Require the use of the list of European waste codes for all waste, collected, handled or processed to support accurate waste clarification and data collection. Unique codes have been introduced by the NWCPO and EPA to facilitate traceability of fishing gear through the waste management chain, namely:
  - 02 01 04 FISHGR for fishing gear containing plastic (e.g. nets, ropes, oyster bags)
  - 02 01 10 FISHGR for fishing gear containing metal (e.g. chains, trawl doors)
  - *Photo: Pots, fish boxes and other materials collected by Tomhaggard Clean Coasts Group, Co. Wexford*
  - 02 01 99 FISHGR for mixed waste fishing gear (e.g. unstripped trawl net containing plastics, metal, rubber)



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