

LIFE IP INTEMARES

Integrated, innovative and participative management of the Natura 2000 Network in the Spanish marine environment.

Lost Fishing Gear

General Criteria for the Management of Abandoned, Lost, or Discarded Fishing Gear (ALDFG)

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General Criteria for the Management of Abandoned, Lost or Discarded Fishing Gear (ALDFG)

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Management:

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Editors:

The LIFE INTEMARES project, “Integrated, innovative and participative management of the Natura 2000 Network in the Spanish marine environment”, is one of the largest marine conservation projects in Europe, which aims to work towards the effective management of the marine Natura 2000 Network in Spain, with social participation and science as basic tools.

The project is coordinated by the Biodiversity Foundation from the Ministry for the Ecological Transition and the Demographic Challenge, and includes a wide and diverse partnership, with the Ministry itself through the General Directorate of Biodiversity, Forests and Desertification; the Regional Government of Andalusia, through the Department of Sustainability, Environment and Blue Economy, in addition to the Environment and Water Agency; the Spanish Institute of Oceanography (IEO-CSIC); AZTI; the University of Alicante; the Polytechnic University of Valencia; the Spanish Fisheries Confederation, SEO/BirdLife and WWF–Spain. It receives funding from the European Union LIFE Programme.

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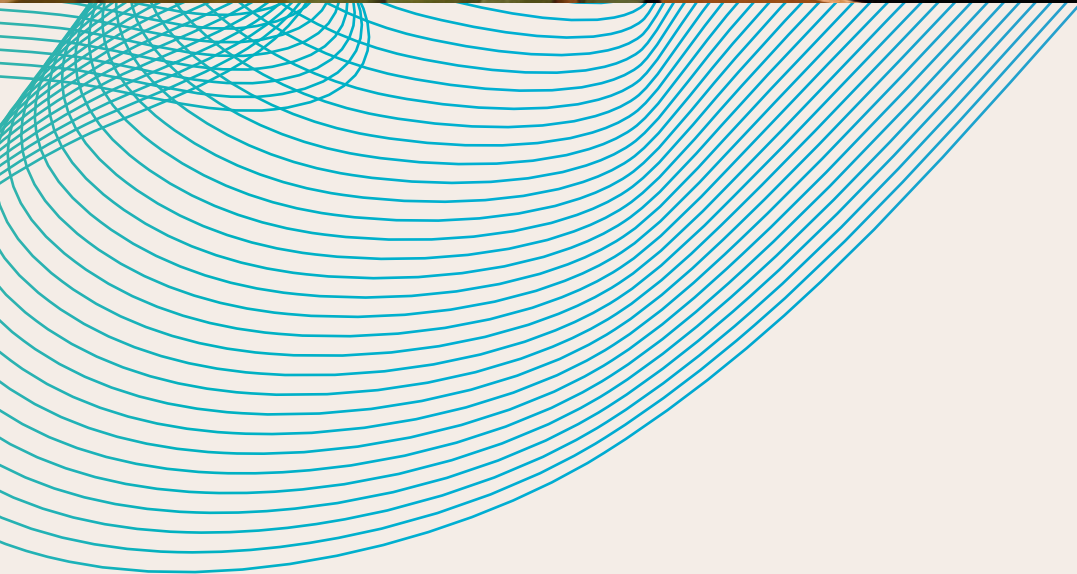
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Executive Overview

The General Direction of the Coast and Sea of the Ministry for Ecological Transition and Demographic Challenge has launched the “INTEMARES-Lost Gear” initiative, which aims to develop general action criteria for the management of Abandoned, Lost or Discarded Fishing Gear (ALDFG), as well as the development of pilot actions to test their effectiveness in Natura 2000 Marine Network areas. These actions are a part of the wider LIFE IP INTEMARES project, which aims to achieve an effectively managed network of Natura 2000 marine areas, with active participation from the involved sectors. The work derived from this action aims to generate a tool for the better detection, characterization and assessment of actions on lost or abandoned fishing gear.

Fishing gear and its components become a specific type of **marine litter** when, uncontrolled, they reach the seabed or drift, with the potential to cause serious harm to marine ecosystems, habitats and species. Their effect on biodiversity can be extremely varied, including abrasion, crushing, baiting or ghost fishing. They are also dangerous for the safety of people using the sea and coastal areas. This type of debris, aside from being very characteristic, can be difficult to detect and remove due to different aspects related to its size, weight, location, composition, time spent in the environment and degree of interaction and/or colonization of different species.

From 2021 to 2023 work has been carried out on several **tools** in order to be able to inventory, locate, evaluate and, if necessary, extract and manage the different lost elements that make up the extensive and varied catalog of components used for professional and recreational fishing in the different marine areas of Spain. These tools rely on the advice, opinion and participation of different and varied stakeholders: fishermen, administration (at different levels), Civil Guard Maritime Service, Maritime Rescue, recreational and professional diving centers, clubs and companies, insurance companies, conservationists and researchers, experts in marine biodiversity and environmental organizations. Thus, **agreed working guidelines**, strategies, interaction and valuation limitations, in addition to a collaboration network have been generated to make the management of these elements as efficient, safe and responsible as possible. **HyT Association is the coordinating entity behind this work.** The first of the actions was a search for contacts



among the sectors identified as key to the management of ALDFG, to whom the information on the implementation of the project was sent. Interviews and meetings were also held with representatives of several of these sectors to refine certain technical aspects of the proposal. With the information obtained, a form was prepared and sent to the identified sectors to gather relevant information concerning important aspects of the project. Following the receipt of the completed forms and the interviews, meetings and consultations, a criteria proposal was finally drafted, undergoing a series of revisions in the process. This proposal was then tested through a series of demonstrative actions, with a repository and database subsequently created and made available at artesperdidos.es.

This document presents the general criteria for action.



2023

The diagram features a horizontal timeline with a series of yellow dots. A vertical dashed line marks the year 2023. Four key events are connected to the timeline by lines: 'Oct 22' (3rd online surveys), 'Jan 23' (Second draft), 'Feb 22' (Multi-sectoral workshop for the validation of the second draft), and 'Jun 23' (Publication). A dashed arrow labeled 'Diffusion' points to the right from the end of the timeline.

Oct 22
3rd online surveys

Feb 22
Multi-sectoral workshop for the validation of the second draft

Jan 23
Second draft

Jun 23
Publication

Diffusion

Background. Introduction

1.1/ Fishing activity in Spain

Historically, our country has been a leading world fishing power, with one of the largest professional fleets dedicated to this activity, although such activity has seen a significant reduction primarily due to the establishment of Exclusive Economic Zones, adaptation to the available quotas and the reduction of the fleet's fishing capacity.

As of December 31st, 2020, the Spanish fleet is composed of a total of 8,839 fishing vessels, of which 8,427 units belong to the fleet fishing in the National Fishing Ground, the largest number of vessels being dedicated to small gear, with 6,895 units. The Spanish fishing sector directly employs 32,000 people, to which must be added the 20,787 jobs generated by the fishing industry. During 2020, Spanish households consumed 1,148.2 million kilos of fish products and spent 10,239.5 million euros on these products. In terms of annual per capita fish consumption, this amounted to 24.8 kilos of consumption and 221.5 euros of expenditure. The high annual per capita consumption of fish in our country means that Spain imports nearly 5% of total fish importation worldwide.

The Spanish fleet mainly fishes in waters close to the coast, within the National Fishing Ground, and also has a long tradition of fishing in waters of other member states of the European Union in Community waters, as well as in international fishing grounds, whether in international waters, in waters of third-party countries or in waters subject to the regulatory framework of regional fishing organizations.

1.2/ Types of fishing gear in Spain

The available literature concludes that for practical purposes there is no clear differentiation between the definitions of fishing gear and fishing tackle. Fishing gear is composed of line, hooks, knots... forming a set of objects assembled for line fishing. Fishing gear can be used for any type of fishing which comprises specific components and a specific technique.

According to this definition, in order to simplify and facilitate its identification, fishing gear is considered to include tackle, nets and other elements, meaning that any element, alone or as a whole, shall be considered as fishing gear for the purposes of this document: "... any item or component of equipment that is used in marine fishing to attract, seek, catch or breed marine biological resources or that floats on the surface and is deployed for the purpose of attracting, catching or breeding such marine biological resources".

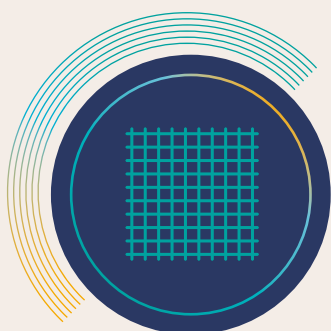
A wide variety of fishing techniques and gear are used in Spain, adapted to each area and target species, forming part of the historical and cultural heritage of each area. The information that appears here is based on Law 5/2023 March 17th, on sustainable fishing and fisheries research and on Regulation (EU) 2019/1241 relating to the conservation of fishery resources and the protection of marine ecosystems through technical measures.

» **Components:** fishing gear is composed of different materials including nets, lines or threads, hooks, plastic mesh, ropes or cords, buoys or floats, weights, chains, shackles, anchors, iron, steel, aluminum, rubber, carbon fiber or wood structures.

- » **Types of fishing gear:** generally classified into two main categories depending on the way they work and the type of species for which they are intended:
- **Active fishing gear:** gear that moves in the aquatic environment so as to meet the target species (purse seine, trawl, trolling).
 - **Passive fishing gear:** whose use does not require active movement of the gear, in which the target species interacts with the fishing gear and is trapped (longline, gillnetting, trapping gear, etc.).



Thus, according to their structure and operation, the main types of fishing gear are defined below in order to facilitate identification:



1. Net gear

Fishing gear consisting of a net composed of threads, ropes or filaments intertwined or knotted together to form lozenges or squares, called meshes.

Fixed nets

Nets anchored to the bottom by means of leaded lines, made up of one or more pieces of netting of different sizes in which the catch is trapped. The main fixed nets are: gill nets, entangling nets and trammel nets, with their names varying according to their different technical characteristics, such as the *rasco*, *volanta*, *beta*, *trasmallo* or *miño*, among others.

Trawl net

RA towed net consisting of a cone or funnel-shaped body that widens at the front in the form of arms or bands and is closed at the back by a codend, where the catch is retained. Trawls can be towed by one or two vessels and can work attached to the bottom or at different depths in the water column, depending on the target species.

Purse seine

A net that catches fish by encircling them on both sides and underneath, with the help of boats.

Drift gillnets

A gillnet held at or below the surface of the water by floating devices, drifting with the current, either independently or with the vessel to which it is attached. It may be equipped with devices designed to stabilize the net or limit its drift. **In Spain its use is prohibited, with strictly controlled and minor exceptions of for small gear** (e.g. Xeito gear, in Galicia for catching sardines).



2. Hook gear

Fishing gear consisting of a string or line to which a hook is attached with natural or artificial bait, depending on the species to be caught. There are many different varieties that can fish on the surface or on the bottom, or even be dragged by boats. The longline is a type of fishing gear comprising a central line of variable length to which branches (branch lines) are attached with hooks at intervals. The central line is anchored horizontally or vertically on or near the bottom, or it may be left to drift on the surface. Handlines consist of a single line with one or more pieces of bait or baited hooks. Other hook gear includes trolling, longlining or spinning, among others. Normally, the weights for this gear are made of lead.



3. Trap gear

Passive fishing gear that attracts target species through bait or as shelter, consisting of a rigid structure that has an easily accessible but difficult to exit entrance.

- Traps or wheels
- *Alcatruces* or *cadufos* (for octopus)
- Cages or pots



4/ Others

Tools such as rakes for manual catches and dredges for operating from boats, harpoons or rifles.



In Spain the use of drift gillnets is prohibited, with strictly controlled and minor exceptions for small gear.



1.3/

Marine litter and Good Environmental Status

Marine litter is one of the key anthropogenic pressures on our oceans and affects marine life on all levels, from individual organisms to the wider ecosystem. It is defined as any persistent solid material, manufactured or processed, discarded or abandoned in the marine or coastal environment. Marine litter consists of objects that have been manufactured or used by people and deliberately discarded in the seas, rivers or beaches, transported to the sea indirectly by rivers, sewage, storms or winds, or accidentally lost, including materials lost at sea during episodes of bad weather.

This is one of the elements to be controlled and reduced through the monitoring and evaluation programs of the state of the marine environment in our country, within the framework of the so-called **Marine Strategies**. These strategies are the key planning tool for the marine environment in Spain, through the application of the Marine Strategy Framework Directive (MSFD), implemented by the Marine Environment Protection Act. Their main objective is to achieve the **Good Environmental Status (BEA)** of our seas: giving rise to ecologically diverse and dynamic, clean, healthy and productive oceans and seas in the context of their intrinsic conditions, in which the use of the marine environment is sustainable, thus protecting its potential for a wide variety of uses, activities and resources by current and future generations.

The Spanish marine environment is divided into five marine subdivisions: North Atlantic, South Atlantic, Strait of Gibraltar and Alboran, Levantine-Balearic and Canary Islands, for each of which a marine strategy must be prepared, with a 6-year period in which updates can be made. Within these demarcations there are also marine or maritime-terrestrial protected areas included in various regional, national or international inventories, many of them included in the Natura 2000 Network, a coherent European ecological network that guarantees the maintenance or, where appropriate, the restoration, in a favorable state of conservation, of certain types of natural habitats and of certain animal and plant species.

Good Environmental Status is assessed through **11 descriptors**, which form the basis for describing and determining the environmental status of the marine environment. One of these descriptors, **Descriptor**



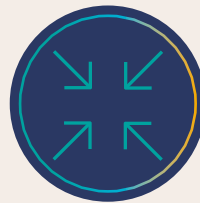
10, refers to marine litter (BM), which includes the following monitoring programs within the Marine Strategies:

- » **BM-1:** Marine litter on beaches
- » **BM-2:** Floating debris
- » **BM-3:** Marine litter on seabed
- » **BM-4:** Microparticles in water
- » **BM-5:** Microparticles in sediment
- » **BM-6:** Microparticles on beaches
- » **BM-7:** Citizen science
- » **BM-8:** Marine litter in biota

Good Environmental Status of the marine environment must be achieved through the implementation of appropriate measures. The program of measures dedicated to Descriptor 10 includes the development of general action criteria for the management of lost or abandoned gear that poses a threat to species and habitats.

2/ AIM

The principal aim of this document is to establish basic criteria to facilitate the task of locating, evaluating, making decisions on and, if necessary, removing abandoned, lost or discarded fishing gear, ALDFG, from the marine environment through specific and consensual procedures. In no case is it a normative or binding document, nor does it attribute obligations beyond those already included in the current regulations; it is designed for guidance and informational purposes. Thus, the document's secondary aims are:



Minimize and mitigate the impacts of ALDFG on marine life and ecosystems.



Assess the negative effects of ALDFG on species, habitats and/or marine and coastal ecosystems in the different marine districts.



Cataloguing, inventory and geo-referencing of ALDFG in Spanish territorial waters.



Encourage participation and collaboration in the management of ALDFG.



Promote the recovery and/or restoration of seabeds affected by ALDFG.



For the preparation of this document, different stakeholders were consulted in the different phases of detection, evaluation and, if necessary, withdrawal and management of ALDFG. A search and consultation of projects, regulations and studies related to the different aspects to be dealt with was carried out and a database was created with representatives of the most important actors located, including the professional and recreational fishing sector, professional and recreational diving, diving insurance companies, governing bodies for environmental and fishing matters, port authorities, support and security entities at sea depending on the state or autonomous governing body (Maritime Rescue, maritime service of the Civil Guard, environmental agents, etc.), researchers and experts in marine biodiversity, managers and technicians in marine biodiversity, managers and technicians in the field of marine biodiversity and the management of ALDFG), researchers and experts in marine biodiversity, managers and technicians of marine protected areas and third sector conservation organizations. All parties concerned were sent a consultation form with questions relating to the different sections of the

document's contents, in order to gather their opinions. In parallel, meetings and interviews were organized with the different sectors to obtain detailed information on key technical aspects.

This document is therefore intended to include the criteria to be taken into account to ensure homogeneous action is taken in the event of finding ALDFG. It contains:

1. What should be done when ALDFG is found.
2. How to assess the state of the ALDFG and its interaction with the environment.
3. Who is qualified to act and recommendations for doing so.
4. Where to manage ALDFG-derived waste, if any, after its removal.
5. Potential compensatory measures.

Thus, the steps to be followed from the time of alert through to evaluation and, if necessary, removal of ALDFG are described: alert and location, collection of information, evaluation and, if necessary, action on ALDFG, and management of the waste. It also includes possible complementary actions for follow-up, inspection and compensatory or preventive actions after the initial procedures.



In no case is this document a normative or binding document; it is designed for guidance and purely informational purposes.

3/ Geographical Scope

Spanish marine subdivisions

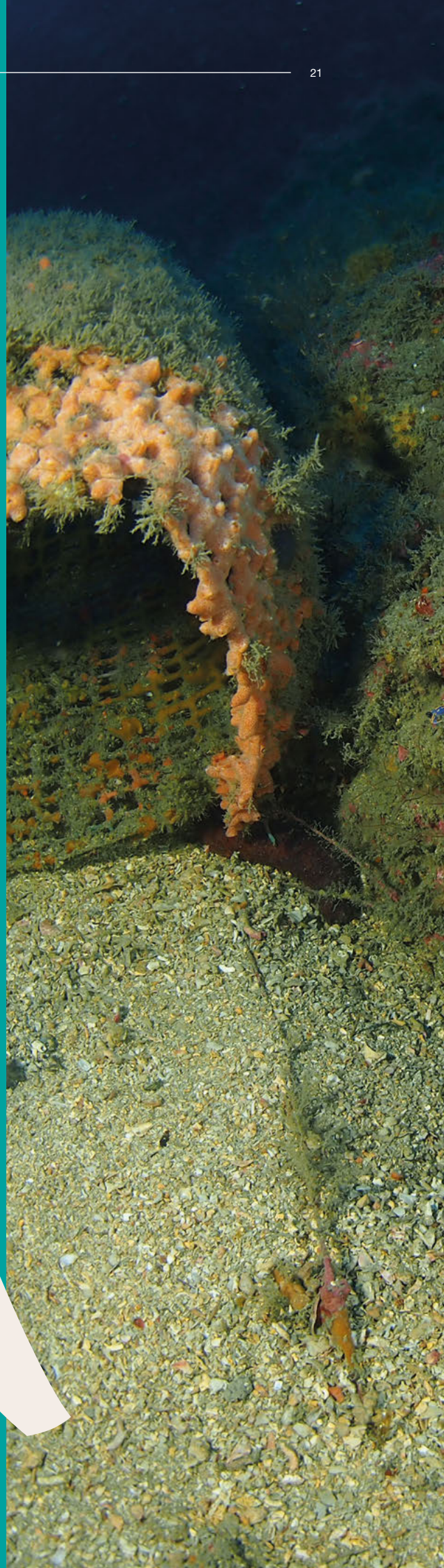


The scope of application for the general criteria outlined in this document follows the Spanish marine subdivisions according to those established in Article 6.2 of Law 41/2010, December 29th, 2010, on the protection of the marine environment, i.e. the marine environment corresponding to Spain's sovereignty or jurisdiction.

The LIFE IP INTEMARES project has provisionally tested the criteria at the following Natura 2000 Network sites:

- » **South Atlantic marine subdivision:** surroundings of La Breña and Marshes of Barbate and Cape Trafalgar: *ALDFG incidental finding during a recreational dive.*
- » **Strait-Alborán marine subdivision:** surroundings of Seco de los Olivos, Bay of Almería and Cape Entinas-Sabinar: *ALDFG finding during a boat crossing.*
- » **Levantine-Balearic marine subdivision:** Escarpe de Mazarrón underwater valleys environment: *ALDFG removal organized by recreational divers.*
- » **Canarian marine subdivision:** Eastern and southern Lanzarote-Fuerteventura marine area: *cleaning of the seabed with the participation of recreational divers.*
- » **North Atlantic marine subdivision:** Rías Baixas of Galicia marine area: *Action for removal of ALDFG conducted by professional organizations.*

All these demonstrative actions can be consulted at <https://www.artesperdidos.es/recursos>



4/ Abandoned, Lost or Discarded Fishing Gear (ALDFG)

4.1/

Definition

Abandoned, Lost or Discarded Fishing Gear, or **ALDFG**, is defined as any fishing gear, or its remains or loose parts, that is out of the control of its owner, either on the bottom, in mid-water or floating on the surface of the sea and that, due to a variety of circumstances, may have lost its function as a fishing tool by not retaining its normal configuration and operation.



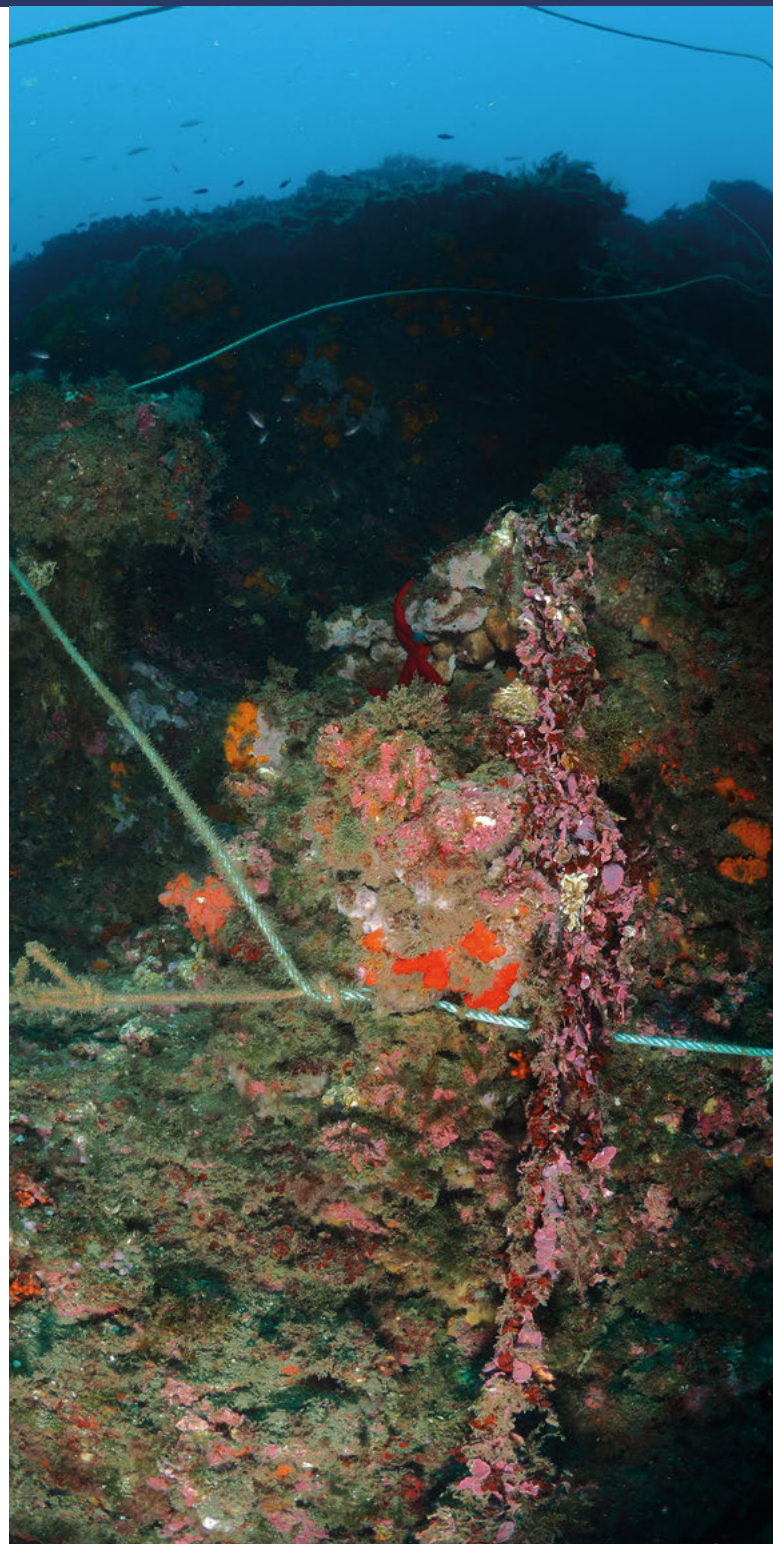
Loss of control by the owner is a prerequisite for classification as ALDFG.



The performance of activities with the intention of impeding the right to exercise fishing activity is considered a very serious infringement of Law 5/2023, March 16th, on sustainable fishing and fishing research.



When determining whether or not a find is ALDFG, handling of the fishing gear should be avoided so that it does not lose any aspect of its function and configuration.





4.2/ Considerations

The following are some considerations for the correct identification of ALDFG:

» **Absence of control of the ALDFG by its owner.** This is a prerequisite for considering an element as ALDFG. This can be provoked by:

- Unintentional loss of control: This can be due to multiple factors such as loss of buoyage, structural breakage, broken lines or loss of anchoring elements. The causes are extremely varied, such as accidents with boats or other fishing gear, snagging on the bottom, sea storms, currents, degradation of materials, etc.
- Intentional abandonment: very infrequent in the case of complete fishing gear, given the high economic cost. The main causes are usually the impossibility of recovering the gear due to snagging, abandonment of debris in the form of cut pieces of net cloth and remains of ropes resulting from gear repairs, or to avoid possible penalties in the event of an alleged infraction.

» **Composition.**

- Complete fishing gear, retaining all its structural integrity.
- Remains or parts of fishing gear, whether pieces of nets, panels of net sections, filaments, pots and pot holders, ropes, anchoring elements, signaling elements or any other of its elements (including remains of lines and lost elements of recreational fishing).

» **State.**

- Functional fishing gear: which remains operative and retains its original configuration and therefore continues to fish as under normal circumstances (usually gear that has lost its tracking system and continues to fish without the owner's control).
- Fishing gear that has lost its normal functioning or configuration: entangled, snagged, in the form of tangled nets or filaments, or any other equivalent situation.

» **Positioning in water.**

- On the bottom: hooked, entangled or spread on the sea bed.
- In mid-water: can be found complete or as loose elements, drifting* (at the mercy of the currents) or spread on the sea bed by their anchoring elements.
- On the surface: drifting* at the mercy of currents, can be found complete or as loose or entangled elements, including cuttings of netting, lines, signaling elements, etc.

** Note: Do not confuse the concepts of drifting elements or drifting gear with gear itself that has drifted; surface longline and drifting gillnets.*

4.3/

Identification

The identification of passive gear is the element used to determine the owner of the gear, a fact that may affect its classification as marine litter.

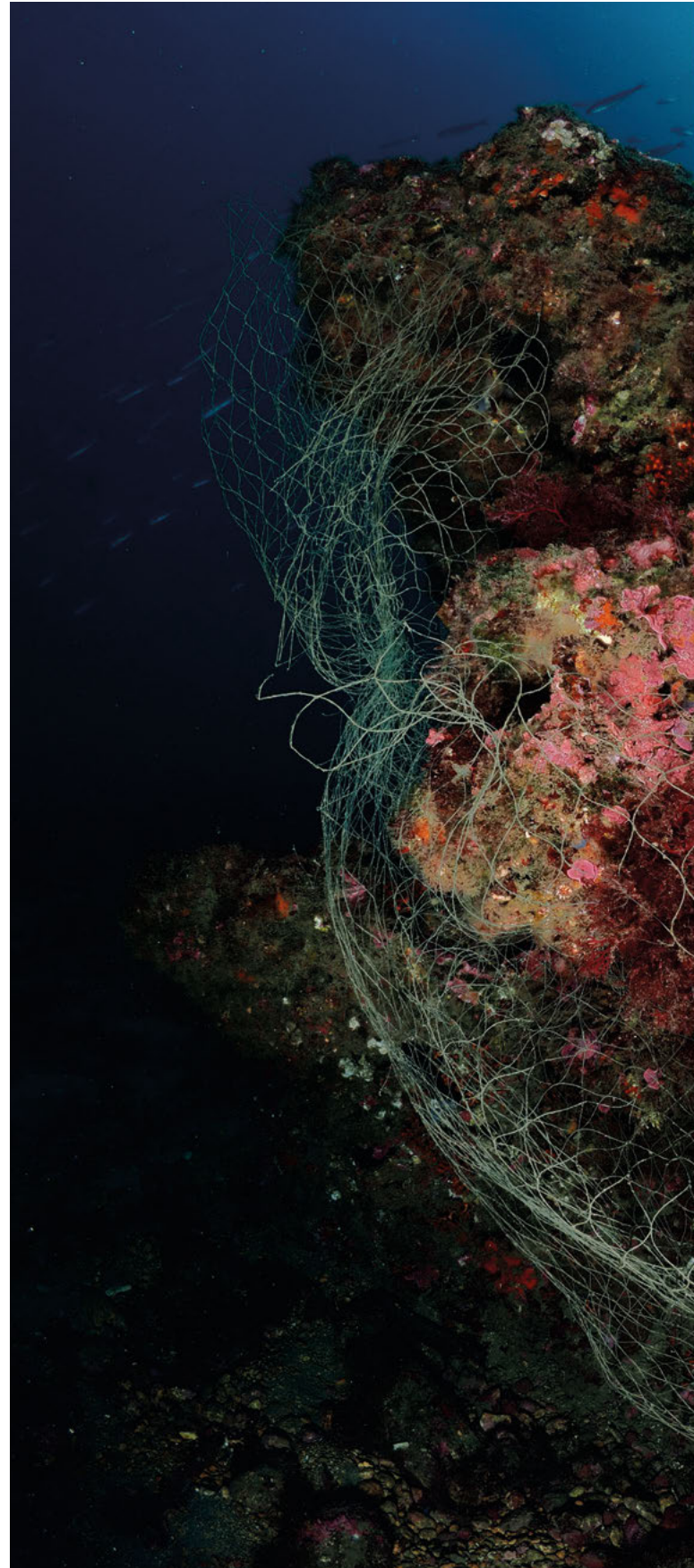
A series of fishing regulations exist that regulate the marking of fishing gear with regard to issues such as marking devices and owner identification marks, **but in any case, the control or interpretation of compliance with fishing regulations is beyond the scope of this document.**

EXCLUSIVELY FOR THE PURPOSES OF THE APPLICATION OF THIS DOCUMENT, THE PRESENCE OF ANY FLOTATION ELEMENT SUCH AS BUOYS OR ANY OTHER EQUIVALENT ELEMENT, AS WELL AS THE PRESENCE OF ANY LABEL ATTACHED TO THE NET OR FILAMENT, SHALL BE CONSIDERED AS IDENTIFICATION. IN GENERAL, THE PRESENCE OF ANY OF THESE DEVICES WITH ANY KIND OF OWNER'S MARK SHALL BE SUFFICIENT FOR GEAR TO BE CONSIDERED IDENTIFIED.

In practice, cases may arise such as the use of bottles, demijohns or pieces of expanded polystyrene without identification that are part of fishing gear that is under the control of its owner and that, for the purposes of this document, a priori should not be considered ALDFG.

On the other hand, it should be noted that the absence of flotation elements does not necessarily imply unidentified gear, as it may have tags attached to it underwater whose existence cannot be ascertained without the appropriate means.

In such cases, returning to the gear to its owner may be possible.





**In general, Abandoned,
Lost or Discarded
Fishing Gear (ALDFG)
is considered marine
litter.**

4.4/

ALDFG as marine litter

In general, ALDFG is considered marine litter. However, ALDFG that, once recovered by any procedure, is returned to its owner and can continue to be used for fishing, should not be considered marine litter. Likewise, those elements derived from “trash fishing” activities are not included in this document as they have their own criteria document.

4.5/

Origin and quantification of ALDFG

In 2021, the United Nations Environment Program estimated that some 640,000 tons of fishing gear is abandoned each year in the oceans. The same organization also states that fishing nets discarded or lost without being returned in the world’s oceans represent about 10% of the plastic waste volumen present in our oceans. The European Union estimates that about 20% of the fishing gear used in Europe is dispersed in the Mediterranean Sea, approximately 11,000 tons. In addition to this, 6% of all nets used, 9% of all passive fishing gear, such as pots, and 29% of all longlines, are abandoned at sea.

Although it is estimated that only 3% of marine litter in our country comes from fishing activities, as of that moment they pose a risk to marine life and its ecosystems, given that ALDFG can cause direct or indirect damage to ecosystems, habitats and/or species in the short, medium and long term. These dangers can be more severe when they occur in protected marine areas, emblematic ecosystems (phanerogam meadows, coral reefs, etc.), unique habitats or affect endemic or endangered species.

The most likely causes of ALDFG are interactions with other fishing methods such as trawling, snagging on the bottom due to underwater obstacles or storms, the abandonment of lines and parts of the net as waste at sea after repair work and the loss of locating elements.

4.6/

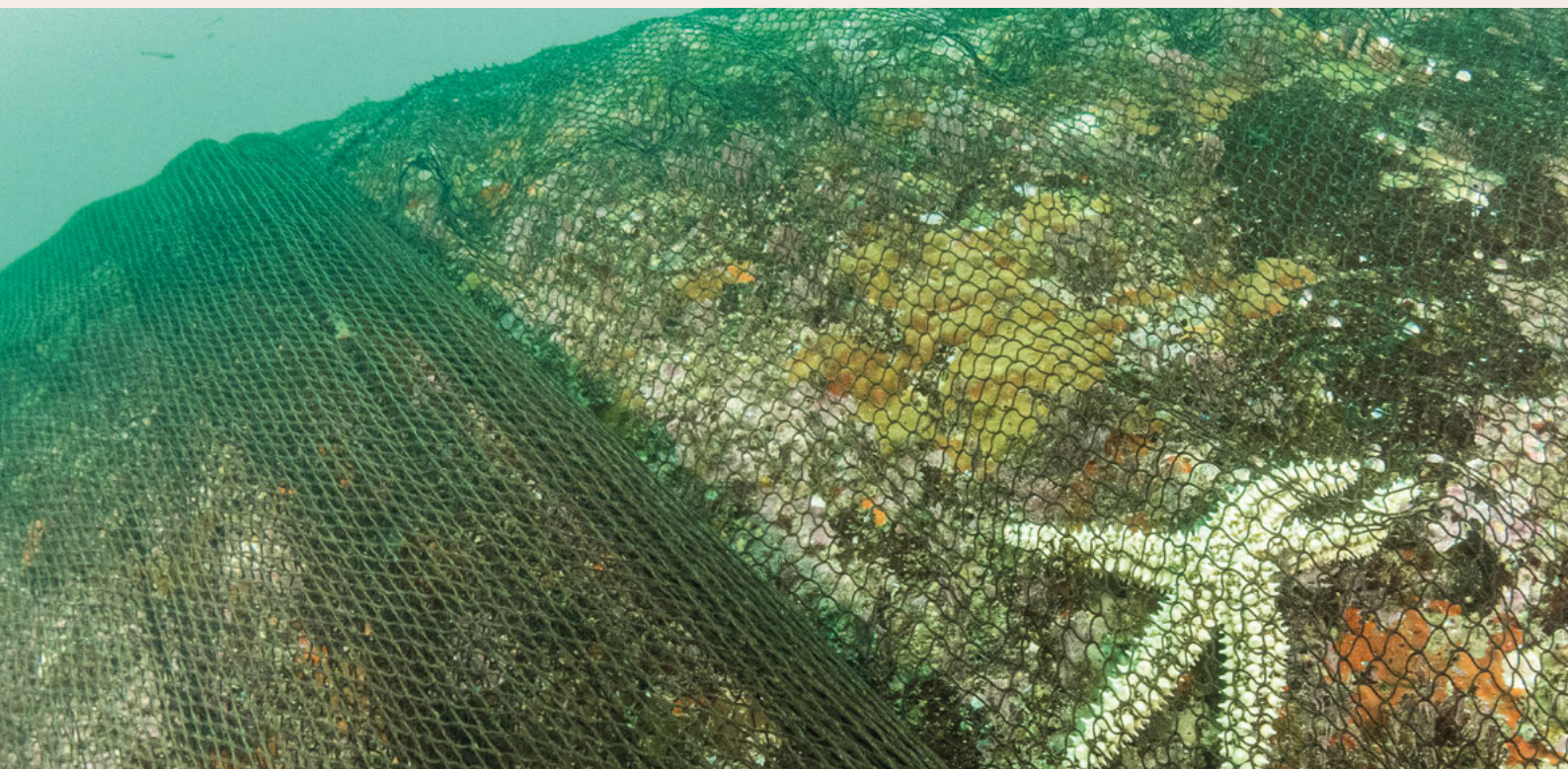
Potential impacts caused by ALDFG

The Global Ghost Gear Initiative (GGI) divided the potential risk of major ALDFG groups into 2 factors, probability and impact, and both were ranked from

one to five based on their intensity, in their report on developing a best practice framework for gear management. The report showed the likelihood of gear being abandoned, lost or discarded and the impact of that gear on the environment when abandoned, lost or discarded; this includes entanglement in marine life and habitat damage.

Potential impacts caused by ALDFG								
	On bottom/ habitats	Baiting/ Ghost fishing	Injuries	Burial/ drowning	Bioaccu- mulation/ contamination	Abrasion/ Tearing/ Erosion	Vector invasive species	Safety and navigation
Hook gear	#	#	#		#	#		#
Net gear (gillnetting)	#	#	#	#	#	#		#
Net gear (trawl)	#	#	#	#	#	#		#
Netting gear (purse seine)	#	#	#	#		#		#
Trap gear	#	#			#			
Remains of drifting gear on the surface*		#	#	#	#	#	#	#

Summary of fishing gear types and their possible effects on becoming ALDFG (From UB and CEPESCA). Drifting gear or gear debris on the surface should not be confused with drifting fishing gear per se: some ALDFG or parts of them may remain floating or suspended in the water column for some time after being lost, broken or abandoned. Such debris constitutes a risk for fauna, boats and people.



Localized effects can be:

I - Impact on species and habitats



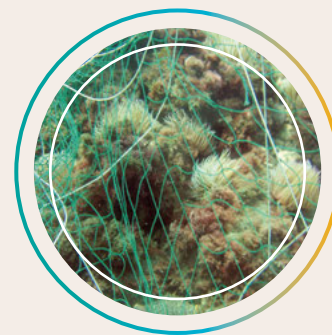
Baiting/Ghost fishing

For a certain period of time, the gear or its fragments may continue to fulfill their function on the bottom or in the water column, fishing species that are not destined for commercialization. In addition, animals may approach the gear to feed on other trapped organisms and may also be retained. It seems that the biggest problem lies with net gears when they become ALDFG.



Injuries

Understood as bodily alterations or damage caused by an injury, blow or disease. Injuries can be suffered by a multitude as a result of interaction with many of the materials that make up ALDFG: cuts, burns, abrasions and amputations are some of the effects that such waste may cause.



Burial

The entire gear set or portions of it can bury habitats and species causing, firstly, crushing. Secondly, in a short period of time, these gears can prevent the buried species or habitats from developing biological activities or physical-chemical exchanges for their survival (for example, in phanerogam meadows, coraligenous, etc.).



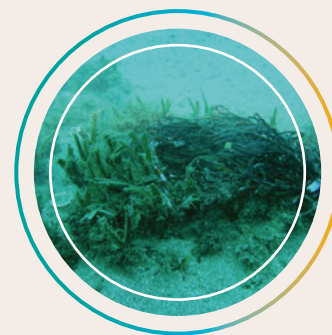
Abrasion/Tearing/Erosion

Many habitats and, in particular, rigid species can be torn, ripped or damaged by the friction of such gear or its components, which are dragged or moved by currents or waves, causing them to sway and causing the total or partial elimination of species (e.g. corals, gorgonians, bryozoans, sponges, mollusks, etc.).



Drowning

Both drifting and grounded ALDFG present a huge risk of trapping and drowning species: although this effect is more visible in drifting ALDFG (sea-birds, mammals and turtles), deaths of some of these species have also been documented in grounded ALDFG.



Bio-accumulation

The weights used to fix many gears to the bottom or to hold them in a certain position are composed of lead, a heavy metal that dissolves in the environment over time and can bio-accumulate in species.



Vector of species

ALDFG can travel great distances along the bottom or surface from the time they are lost or abandoned until they become entangled or trapped.

During this "journey", the different parts that compose the gear are colonized by different organisms that in many cases end up in places far away from their natural distribution areas that it is unlikely they would be able to reach if they were not transported. In the case of drifting ALDFG, this risk is of significant relevance.

2- Impact on people



Safety

Both in bathing areas and on beaches, when drifting ALDFG comes ashore, it poses a risk to bathers and other users of the coast. ALDFG materials are dangerous due to the risk of cuts, scratches, sinking or entrapment, among others.



Quality of coastal areas

ALDFG is a type of marine litter and as such degrades the visual quality of coastal areas and generate other associated risks on appearance. If it is not removed promptly, it runs the risk of becoming trapped in structures (entangled in docks, ports, jetties) or half-buried in the sand, complicating their elimination.

3- Impact on navigation



There are several effects that ALDFG can have on recreational and professional vessels. It may create problems for navigation by getting caught in propellers; in addition, it can cause breakage of fishing structures, anchor lines and other navigational elements.

4- Impact on the marine environment (pollutants)



Over time, ALDFG breaks down into smaller elements (in the case of plastic materials, into microplastics) and into its chemical compounds and additives, some of which are considered a risk to the health of species and humans.

5- Impact on landscape



The increase in marine litter causes users to reject sea-related activities, which sometimes has an impact on the society and economy of coastal areas.



5/ Management of ALDFG

5.1/

Stakeholders

Coordination between the different actors is vital to minimize the effect that ALDFG can have on marine areas and species, always following correct safety and assessment criteria.

Professional fishing
Recreational fishing
Recreational diving
Professional diving
Diving insurance
Public entities in ports and the sea (Port Authorities, Maritime Rescue)
Services of the central or regional governments responsible for supporting the management and protection of fishing resources
State security forces and corps with action at sea (Navy, Guardia Civil, National, Regional and Municipal Police)
Local entities
Researchers and scientists specializing in marine biodiversity
Managers and technicians of marine protected areas
Government administrations and public entities in the marine field
Third sector and/or conservation entities
Fishing inspection services (regional and national)
Manufacturers and producers of nets and other fishing tools

Groups of sectors potentially interested in ALDFG management

■ Professional fishing sector

Within any context of professional fishing (shellfishing on foot, in autonomous diving or on board vessels), fishermen are fundamental actors who can participate in: loss prevention, loss alerts, ALDFG discovery, removal of drifting ALDFG remains, support to survey and removal actions, etc.

■ Recreational diving sector

The purpose of recreational diving is non-competitive sport, fun, recreation, pastime or physical exercise. In its various forms, during dives, divers may detect and report the presence of ALDFG, including removal, under certain conditions (planning, safety, training and cover). Recreational divers should not perform underwater work or use tools beyond the mandatory and recommended equipment for safe diving. Divers are one of the most important actors in the detection and reporting of ALDFG.

Within the field of recreational diving, **technical diving** is becoming increasingly popular. Technical divers are recreational divers with a high level of knowledge, technique and skills relating to risk activities for non-profit purposes, significantly exceeding the standards of skill and technique specified by agencies for recreational diving. They have specific accident and liability insurance for the activity and certified training.

■ Scientific diving sector

The purpose of scientific diving is to carry out studies or projects linked to a scientific research activity and is carried out exclusively in this capacity by means of a permit from the Public Administration responsible for the research in question. Scientific divers have specific knowledge and skills concerning diving techniques relevant to the marine environment, its organisms and other related elements.

■ Commercial/professional diving sector

This type of diving is carried out by individuals who belong to the staff of a professional diving company and who, as such, have insurance, education and training accreditations, and who carry out an economic or business activity that cannot be carried out under the denomination of the other diving modalities. In the case of individuals with this qualification who participate in activities organized on a voluntary basis, they would only be covered by their certification and corresponding recreational insurance, as they are not carrying out a commercial/labor activity.

■ Public services diving sector

Government personnel, except for military diving, including the State Security Corps and agencies under the Ministries and autonomous and local administrations.

■ Diving insurance sector

All divers, regardless of their level of skill and training, must have accident and liability insurance. This factor is relevant for the organization of activities related to the management of ALDFG, as depending on the characteristics of this policy there may be activities that are covered and others that are not. It is therefore very important to ascertain these characteristics, which will also be influenced by the certification of the insured person and the training for which he/she has been certified.

■ Yachtsmen and nautical observers sector

Any vessel, whether sailed by a professional mariner or recreational boater, may detect drifting ALDFG during its passage.

■ Sector of environmental entities with action at sea

This includes entities that, due to their nature, radius of action and/or experience, have vessels and personnel with experience in the location and management of drifting ALDFG, which can even provide support in the management of macrofauna that could be affected by drifting ALDFG.

■ Fisheries inspection services sector

Services of the central or autonomous regional government administrations responsible for the control, inspection and surveillance of maritime fishing activities.

■ Network manufacturers and producers sector

Extended Producer Responsibility (EPR) systems could eventually be applied to gear manufacturers and producers, so that they become involved in improving the collection and treatment of fishing gear. Their role will be vital when the time comes, although pilot or experimental initiatives may already be underway.



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5.2/

Coordination structure

For the proper management of ALDFG, it is desirable to coordinate the stakeholders to identify who is who when it comes to organizing and participating in an action.

■ Protected area management entity

Unit/s of the government administration responsible for the management of the protected area under current legislation are in charge of approving, where appropriate, ensuring its correct implementation, managing authorizations and other aspects of its management. Current legislation does not directly attribute functions related to ALDFG management to them.

■ Organizing entity/ies

Entities that organize, in coordination with the relevant bodies, a possible action related to ALDFG. These entities promote activities and can act in different ways: financial, coordinating, executing, or performing one or more of these functions. They will determine the characteristics and purpose of the action, the profile of the participants to be carried out. Such entities include universities, technological or research centers, fishing guilds or associations, diving clubs or centers, regional offices or observatories, municipalities, volunteer networks, sponsors, etc.

■ Assistant entities

Entity or entities that provide the means and organize the area where the activity will take place, provide the participants with the necessary material and carry out the training on the corresponding activity according to the guidelines outlined by the organizing entity, maintaining unaltered the object and type of action designed by the latter. Depending on the nature of the action, these assistant entities include diving clubs or centers operating in the area or professional diving companies. Fishing vessels may also act as assistants during removal and survey work.

■ Support and safety at sea entities

This group includes entities such as Port Authorities, the Civil Guard, Maritime Rescue and the Navy, with vital functions in their areas of work and that can play a highly relevant role in certain aspects of ALDFG management, such as removal, assessment, custody and support actions. This also includes government technicians, inspectors, watchmen, technicians, environmental support agents at sea.

■ Observers, participants and assistants

Individuals or entities that may detect findings or participate in any of the actions related to ALDFG management: this includes yachtsmen and crew of recreational boats, recreational divers during dives, participants in cleanups of the sea bed, etc.

6/ General aspects of action related to ALDFG

The general criteria for action seek to structure the management of ALDFG in the best way possible, from the moment of its generation through to detection and management. A correct initial decision can save a lot of time and, therefore, the negative interaction of ALDFG with habitats and species will be less. In many cases related to ALDFG, time is of the essence, while always correctly following safety criteria. In some cases, therefore, assessment for management may begin at the moment of discovery. In others, the best course of action is to report the find and carry out a subsequent evaluation.

ALDFG general criteria for action are based on finding, analysis/evaluation, management, registration and complementary actions.

Location

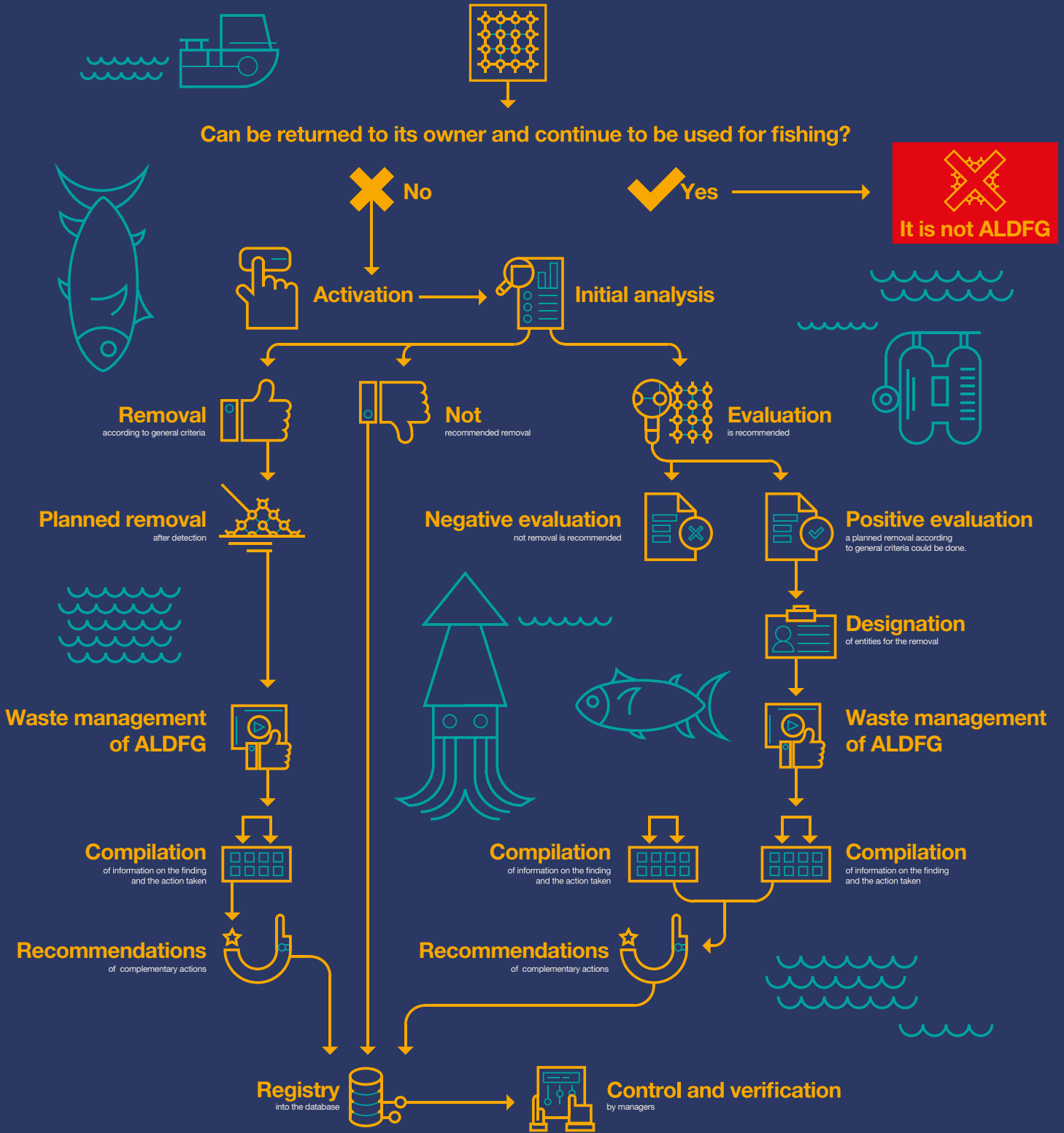
The discovery or location of ALDFG or a remnant may occur:

- » During navigation by any type of vessel, in the case of ALDFG or its parts, drifting.
- » During dives, by divers in their different modalities (recreational, organized and directed to a seabed cleanup or similar, in the context of a scientific campaign or during commercial works).
- » In oceanographic campaigns or projects focused on the seabed, at great depth, with the use of Remotely Operated Vehicles (ROV).
- » A fishing vessel reporting the loss of a fishing gear at the time, that it cannot recover by its own means.

In findings such as large ALDFG remains adrift or with trapped fauna, or ALDFG reported by a fishing vessel without recovery capacity that is adrift, the recommended course of action is to call the Civil Guard maritime service, Maritime Rescue or 112/channel 16 VHF (at sea). For ALDFG located by divers on the bottom or in mid-water or for large items on the bottom detected in oceanographic surveys, it is best to collect as much information as possible and follow the general procedures discussed below.

IT IS ESSENTIAL TO VERIFY THAT THE FISHING GEAR IS NO LONGER IN THE CONTROL OF ITS OWNER, GIVEN THAT THE HANDLING OR REMOVAL OF FISHING GEAR BY PRIVATE INDIVIDUALS IS STRICTLY PROHIBITED.


Finding of a fishing gear out of the owner's control



Analysis / Evaluation

An **initial analysis** is carried out at the moment of discovery by the people or teams that locate the element, following verification of the item's classification as ALDFG. The analysis is based on gathering the available information on what has been found, on what is acting and in what way, taking into account all the conditioning factors at the time: conditions at sea, location, effects of the ALDFG on species/habitats, risks, safety and characteristics of the find and of the team or entity that locates it. From this analysis, a recommendation for removal, an evaluation or a recommendation of non-viability can be ascertained.

A **technical evaluation** is a post-discovery assessment process regarding the feasibility or otherwise of a removal intervention. This can be carried out by the managers of the protected area, by an equivalent administrating body if the find takes place outside a protected area, or by the entities or persons authorized by the above (universities, research centers or authorized entities), with all the information gathered on the find. To facilitate the evaluation, the tool provided can be used, accessible to authorized users at: www.artesperdidos.es, performing the function of weighing up multiple factors to facilitate the decision making process.



Whenever there are doubts on site, it is recommended to collect as much information as possible and to carry out a complete off-site assessment.

Decision Table for initial ALDFG analysis

Factor	Issues to be assessed	Possible cases in the finding of ALDFG																							
Technical	The size and weight of the ALDFG is approachable at the time of discovery*	S	S	S	S	S	N	N	N	N	N	N	S	S	S	S	S	S	S	N	N	N	N	N	
Landscape	The ALDFG presents scarce integration in the substrate/habitat*	S	S	S	S	N	S	N	N	N	N	N	N	S	S	N	S	S	N	S	N	S	S	N	
Technical	The available personnel and resources are sufficient and trained for the action*	S	S	S	N	N	S	S	N	N	N	S	N	N	N	S	S	N	N	S	S	N	N	S	S
Environmental	ALDFG removal is possible without affecting biodiversity/habitats*	S	S	N	N	N	S	S	S	N	N	S	S	N	S	N	N	N	S	N	N	S	N	N	N
Environmental	Conditions are optimal (sea, visibility, waves, currents, currents, etc.)*	S	N	N	N	N	S	S	S	S	N	S	S	S	S	N	S	N	S	S	N	N	N	N	

Removal could be carried out according to the general criteria	X																							
An evaluation is recommended		X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X
Removal of ALDFG is not recommended											X	X									X	X	X	

(*) Always under safety criteria of people and equipment.

Decision table for initial analysis at the time of discovery after identification of ALDFG. The table shows different possibilities that may occur during a find, based on five variables, the combinations of which offer an on-site recommendation.

DURING THE TIME ALDFG SPENDS AT SEA, A RELEVANT INCREASE IN THE NUMBER OF SPECIES AND INDIVIDUALS THAT COLONIZE IT, DIVERSITY, BIOMASS AND PRODUCTION CAN BE OBSERVED. THE NUMBER AND TYPOLOGY OF THESE ORGANISMS MAY BE SIGNIFICANT, AND THIS FACTOR MUST BE TAKEN INTO ACCOUNT WHEN EVALUATING THEIR MANAGEMENT.

For both the initial analysis and the technical evaluation, three general factors are considered: environmental, landscape and technical:

1. Environmental factors

Include aspects related to biodiversity, both from the point of view of their impact and their state at the time of discovery:

■ Status of ALDFG in the environment.

Although there is no strict dating pattern, the various tests carried out to check the timing of colonization by marine organisms in ALDFG point to a more or less marked succession, initiated by algae with little structure and followed by other organisms of greater size and complexity, facilitated by the previous ones. However, this growth of biofouling is site-specific. This variable, a consequence of the local diversity of benthic organisms, may also vary locally due to environmental conditions, location, ALDFG type and composition, depth and time, among others.

Even so, in the course of succession, an increase in the main parameters describing the community is observed: number of individuals, number of species, diversity, biomass and production. Therefore, it is necessary to take into account the total inventory of species that have grown and are growing on a given ALDFG and the percentage of coverage of all these on it, since even if there are no vulnerable species or habitats affected, we may be eliminating a potential substrate that is already widely colonized by groups of organisms and that may already be at an advanced stage of succession, in the phase of favoring priority species. Results indicate that ALDFG are rapidly covered by biofouling, and can reach relevant coverage values within a year. Thus, by making a visual assessment or through photographs of the element, we can evaluate its value in terms of the environmental factor "integration or generation of habitat".

In terms of fauna, after the enrichment provided by plant species, this seems to begin traditionally with hydrozoans, which facilitate the settlement, among others, of cnidarians, polychaete worms, bivalve mollusks of medium or large size and cirriped crustaceans such as barnacles or goose barnacles. Of these, those that form rigid structures seem to be the most useful for dating period of time during which the item has been in the sea. In the experiments and projects consulted, it seems that, among the different types of ALDFG, it is the nets that, over time, show the greatest diversity of biofouling organisms. Therefore, learning to identify the different groups of organisms at a general level can help us to apply this assessment. On the other hand, new colonization environments may be subject to colonization by opportunistic or invasive species, which should also be evaluated before any manipulation or management action is taken.





■ Species/habitats affected.

Many ALDFG affect or interact with emblematic species or priority habitats. In each marine subdivision there are “flagship or indicator” organisms that must be defined in order to assign a value to the species/habitats affected. Identifying these species and/or habitats is important when carrying out a specific action relate to ALDFG.

Habitats	Species groups
<i>Posidonia oceanica</i> meadows	Marine mammals
<i>Cymodocea nodosa</i> meadows	Marine turtles
<i>Zostera</i> spp. meadows	Marine birds
Laminaria algae forests	Gorgonians and other large corals
Reefs and coral structures	Cartilaginous fish
Maërl bottoms	Large bony fish
Others	Large mollusks

Main habitats and species for impact analysis.

2. Landscape factors

Are subjective, but are based on the fact that depending on the time and area where the ALDFG is located, it is necessary to assess its integration into the landscape or its impact on it. It is also necessary to assess whether the percentage of impact is relevant with respect to the total landscape, or whether it is visible and accessible to divers and certain marine species, in order to assess whether action is essential.

3. Technical factors

Include the safety of people and equipment, the area in which the ALDFG is located, depth, its size/weight relative to available logistics, the estimated cost of the action, the availability of personnel, their training and insurance. For example, although ALDFG may affect deep vulnerable habitats, the technical resources to manage their removal may not always be available.

With the different environmental, biotic and technical information we can make a comprehensive assessment that facilitates decision making on finding ALDFG. This comprehensive assessment should not be taken as rigid norms but rather as a guide for the team responsible for the analysis or assessment to help them make a decision. Above all, common sense, safety, and technical and personal priorities are paramount.



THERE ARE SEVERAL ALTERNATIVES OR POSSIBILITIES FOR THE MANAGEMENT OF RELEVANT FINDINGS THAT REQUIRE EVALUATION AND, IF NECESSARY, REMOVAL. THE AIM IS TO SPEED UP, AS MUCH AS VIABLY POSSIBLE, THE PROCESS OF ANALYSIS, EVALUATION AND, IF NECESSARY, REMOVAL, IN ORDER TO MINIMIZE THE EFFECTS OF ALDFG.

Offshore and onshore management

The management carried out in each marine or maritime-terrestrial area with respect to ALDFG depends on multiple factors, from its declaration or not as a protected area and its typology, the pre-existence of management plans, the logistical and budgetary viability or the existence of an organizational network involved in ALDFG management. In addition, each local administration or site may have its own organizational structure. There are several alternatives or possibilities for the management of relevant findings that require evaluation and, if necessary, removal.

The objective is to expedite, as far as possible, the action of analysis, evaluation and, if necessary, removal, in order to minimize the effects of the ALDFG. One of them is the designation of authorized entities, such as professional diving companies that carry out work on an ad hoc or temporary assignment basis. Another tool could be the authorization of private entities that can voluntarily carry out removals, as long as they meet the criteria of specific standards for training, safety and policies; these entities could be diving centers in the area or groups, or environmental entities conducting activities at sea. Generating a working network involving the technical bodies of the government administration and the State Security

Forces and Corps can also speed up management in certain cases. There are some areas or entities that even have their own personnel and means that could support these actions.

It is important to emphasize that an ALDFG extraction should only be carried out if it does not pose a danger to the safety of people and equipment, and if the environmental benefits outweigh the effects or potential effects on species and habitats during the process of extraction.

Removing heavy objects requires proper training, specific equipment and the use of materials such as lifting balloons, lines or booms. Certain recreational and technical divers are trained and their insurance covers the use of some of these tools, but it is necessary to establish this beforehand in each case. Commercial/professional divers are more qualified in technical terms to carry out refloatings of significant size and risk, and also have the relevant insurance, in addition to being the actors qualified to carry out paid commercial activities. A number of private companies and entities dependent on government administration offer these technical services. This does not exempt any diver from complying with the necessary safety requirements and policies, and receiving specific training on minimizing impacts to the environment and its species, in the case of ALDFG removal.

The sustainable disposal of ALDFG is a complex operation, as it is often encrusted with organic matter and recycling options are limited. At present, ALDFG falls into the category of municipal solid waste and should therefore generally be managed in the same way.

If the ALDFG arrives at a port and its size and weight make it easy to handle, it is best to dispose of it in the waste collection systems available at the port, the most appropriate being the container for fish waste or, where appropriate, the one indicated by the port.

If ALDFG of considerable dimensions and weight arrives at a port and it is not possible to manage it with the means available at the port, it is recommended that it be brought to the attention of the port authorities or the City Council so that adequate management operations can be arranged. In organized seabed clearance actions, this aspect should have been previously discussed with the corresponding local administration or by taking the waste to an authorized management point.

If the waste comes from an organized action on beaches with the participation of entities and volunteers, this aspect should have been previously discussed with the corresponding local administration or by taking the waste to an authorized management point.

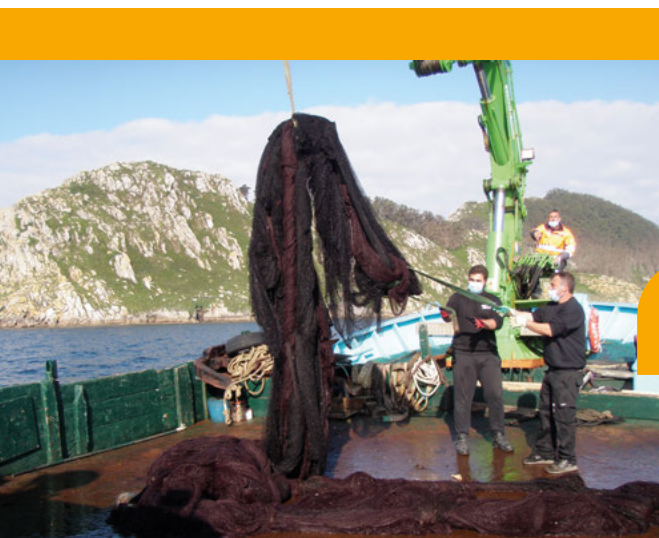
If the ALDFG comes from actions organized with the participation of entities dependent on government administration or professional diving companies, the criteria established in the corresponding prevention and action plans must be followed.

Data report

The inventory and monitoring of any impact on the environment is a very important tool for better immediate and adaptive management. This is even more important, if possible, in protected areas such as Natura 2000 Network zones. In the case of ALDFG, and even if part of it is removed from the seabed, it is very important to know the areas, typologies, habitats and species affected, as well as the measures taken concerning this issue. The INTEMARES Lost Gear project has created a **form and an associated database** accessible at www.artesperdidos.es, which compiles the observations and records of the collaborating platforms and of the different actions generated since its implementation. This form contains information about different aspects that have been considered useful for obtaining information and possible management of ALDFG. This entry in the database can be made, in each case, by the observer or the entity responsible for the action.

The information collected in the record for the database is:

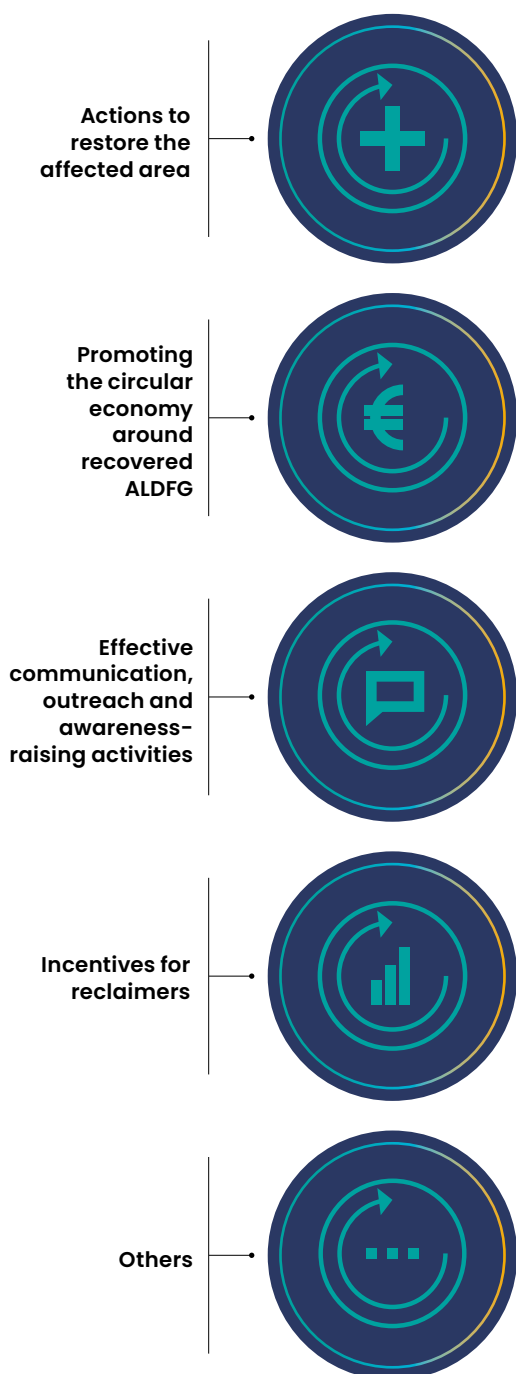
1. Observer information.
2. Information about the area (province, RN2000 area, location, dive).
3. Seabed information (bottom type, depth, orientation, etc.).
4. Habitat/species information (Spanish Inventory of Habitats and Species of Community Interest)
5. Information about the ALDFG (components, status...).
6. Information about its effect (condition, dating, impacts...).
7. Graphic information (photos, videos).
8. Information about management action to be performed (immediate removal, analysis with removal, evaluation with or without removal, etc.).



www.artesperdidos.es is the platform created to inventory the different findings and share information, technical and communication tools between the different actors to facilitate ALDFG management.

Complementary actions

Parallel to the evaluation and management of ALDFG, multiple complementary actions can be carried out, for example, communication and dissemination actions of the activity, to increase the scope of the activities, or compensatory actions or impact minimization, such as:



Likewise, if after the assessment it is decided not to remove the ALDFG, measures can also be taken to minimize the risk to marine life. Such as:

- » **Facilitation** of escape routes, minimizing the potential effects of the ALDFG, e.g., in pots and other traps (opening exit routes), in nets (eliminating sections that can still catch fish), fishing lines and/or ropes (cutting sections that can affect species), in nets (eliminating sections that can still catch fish), fishing lines and/or ropes (cutting sections that can affect species that can still catch fish).
- » **Signaling** for different groups that may interact with the ALDFG.
- » **Periodic visits** to release specimens of vulnerable species if they appear over time.
- » **Information** about the presence of ALDFG in the area, to warn other users.
- » **Monitoring** of colonization and integration rates.

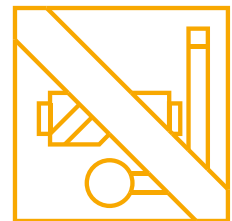


Procedure to follow when ALDFG is found during dives with scuba diving equipment

This section describes the case of ALDFG located and/or managed by autonomous diving teams (recreational, technical, scientific, professional) in ordinary recreational dives, in research activities or in technical or commercial work.

As a general rule, always based on the criteria of safety and planning, **it is not recommended to act on ALDFG that have not been previously analyzed and/or evaluated, for which there is no programmed action plan or for which the notifications and/or express authorizations from the relevant administration(s) have not been processed, depending on the location.**

Likewise, it is recommended to have support vessels in those diving modalities in which they are not required by current regulations. Therefore, in dives not planned for ALDFG removal, the most convenient course of action is to take an inventory and collect all the necessary information, in order to subsequently carry out the evaluation.



For safety reasons, no action related to ALDFG is recommended under any circumstances when using the apnea diving technique and it is therefore not included in this document.



Fortuitous findings

In the event of a finding in dives not organized for ALDFG removal (unplanned or fortuitous finding), it is best to take an inventory and collect all the necessary information for subsequent evaluation, if conditions permit and the safety of the equipment can be maintained. Although this recommendation is a priority for recreational diving, for safety and prevention reasons it can be extended to other types of scuba diving.

Organized ALDFG removal actions

■ Actions organized with the participation of volunteers.

The so-called “seabed cleanups” are actions organized by individuals, local entities, companies, third sector entities or a number of them. They are not usually focused only on ALDFG but possible ALDFG findings should be taken into account when planning the dive and briefing with the participants. The various steps should be properly planned. A clear briefing should be given beforehand, in addition to standard dive safety information, covering the site-specific characteristics and risks of the activity to be performed, as well as associated prevention procedures. Pre-dive checks should be carried out covering all equipment to be used for the activity and it is advisable to mark pre-established signs to

stop activities and other possible actions during the activity if ALDFG is located.

■ Actions organized for the removal of ALDFG by government administrations.

In this case, the actors may be the State Security Forces and Corps, public entities dependent on the Administration, professional diving companies, professional fishermen and/or highly skilled technical-recreational diving teams. These are significant events and are a great opportunity to emphasize the importance of safety, the participation of all, the importance of recording the findings and a good opportunity to encourage communication actions, environmental education, observation and mitigation actions, such as restoration, regeneration, recycling of ALDFG, among others.

AS A GENERAL RULE, IT IS NOT RECOMMENDED TO ACT ON ALDFG THAT HAVE NOT BEEN PREVIOUSLY ANALYZED AND/OR EVALUATED, FOR WHICH THERE IS NO PROGRAMMED ACTION PLAN OR FOR WHICH THE NOTIFICATIONS AND/OR EXPRESS AUTHORIZATIONS FROM THE RELEVANT AUTHORITY(/IES) HAVE NOT BEEN PROCESSED, DEPENDING ON THE LOCATION.

7.1/

Identification. Main findings on the seabed

The variety of different ALDFG that can be found on the seabed makes it necessary to describe the main findings and their characteristics. These usually occur as a consequence of the interaction of fishing gear with elements of the seabed or with other fishing methods or due to storms with strong currents that cause their displacement and the loss of anchoring or beaconing elements, making it impossible to locate them.



7.1/a. Entangled or entangled non-functional fishing gear, formed by remains of nets, lines or filaments, including loose elements such as ballast elements, ropes, pieces of net cloths, remains of lines or any other type of fishing component. Regardless of whether or not they have identification, due to their condition, they are considered to be out of the owner's control.



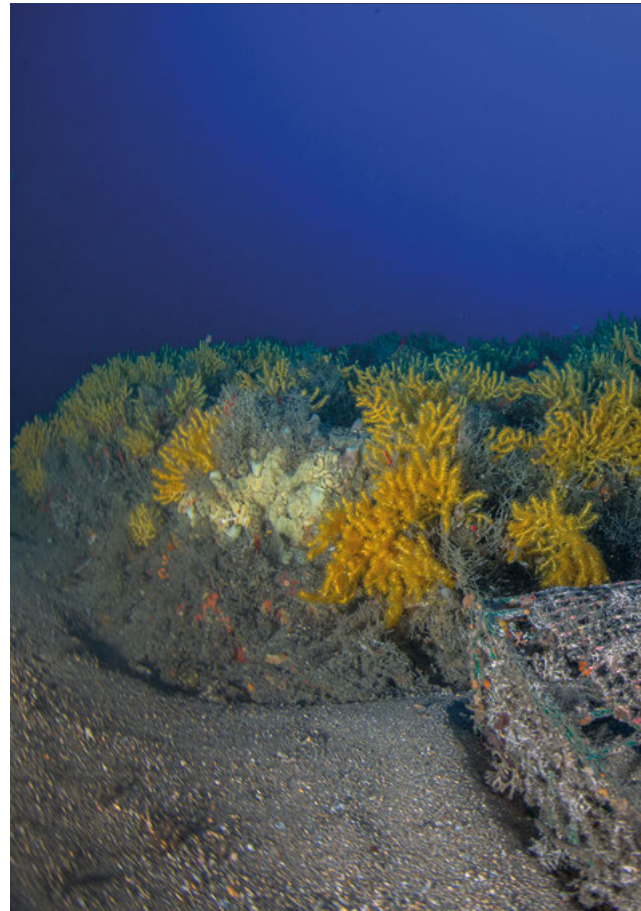
7.1/b. Functional fishing gear that continues to fish but for whatever reason is out of the owner's control, usually due to loss of buoyage. Sometimes it may have been displaced.



7.1/c. Fishing gear or the remains of drifting along the bottom, gillnets or bottom longlines. It is possible that, due to the total or partial loss of its ballast elements, it may drift along the bottom freely until becoming entangled with an obstacle. **Extremely dangerous for divers as they can get caught in the ALDFG.**



7.1/d. Trapping elements such as pots, traps and gannets, which may be with or without identification. They have usually lost their beaconing elements.





7.2

Alert. Location/finding

Underwater, all divers must adhere to the training provided by their accredited organizations and insurance policies. It is the responsibility of each diver to ensure this compliance. The entire underwater group must be as optimized as possible to minimize the risk of entanglement or other incidents. Thus, divers should be organized in the water according to their certification, training, experience and insurance.

Regardless of the type, condition, species affected or size, the safety of people and equipment must always be a priority. This means that elements should not be handled or removed underwater if a prior analysis has not been carried out or if the appropriate personal and material equipment is not available. After checking for safety, we must verify that the item is actually lost or abandoned. To do this, a safe approach can be made if the conditions of the environment and the experience and training of the group allow it.

It is recommended to evaluate the possibility of identifying and estimating the typology and state of the ALDFG located according to the typology of finds described in section 7.1. If possible, it is recommended to take photos and videos of the find and note the depth and any reference of location underwater, as well as the estimated geographic coordinates.



Underwater, all divers must adhere to the training provided by their accredited organizations and their insurance policies. It is the responsibility of each diver to ensure this compliance.

7.3/

Analysis/Evaluation of ALDFG

All phases must be carried out in accordance with safety, insurance coverage and training criteria.

Analysis.

After conducting an inspection to ensure that there are no identification elements, labels, marks or any surface marking elements, and once it has been confirmed that it is indeed ALDFG, we can proceed to the analysis. To do so, the recommendations below should be followed:

- » Examine for wildlife already trapped or colonizing the ALDFG.
- » Assess the appearance, size and apparent weight. Is the item or tool of an approachable size? If it is excessively heavy for the means at our disposal it is best to proceed with imaging and other data, record the find and leave it where it is until further evaluation is made.
- » Assess whether the ALDFG is “free” or hooked/attached/entangled to some element of the environment. Try to identify where the ALDFG is hooked/caught/entangled. If it is heavily entangled, it is recommended to leave it where it is until the evaluation is completed. If the ALDFG can move freely in the water column, whether whole or in part, it is better to stay away and leave it as it is.
- » If the item is highly integrated in the environment, it is recommended to leave it where it is until further evaluation is carried out.
- » The coloring and appearance of the element provides information about the organisms that cover it. Thus, normally the presence of many different colors and “textures” or shapes usually translates into greater species diversity (more colors and shapes, more species present). In this case, it is recommended to leave it where it is until further evaluation.
- » Assess the presence of cavities, holes, cracks etc. that could harbor organisms (fish, mollusks, crustaceans, colonial organisms, etc.) and analyze to what extent they could be affected by removing the element that served as shelter and/or substrate. In this case, it is recommended to leave it in the place where it was detected until the evaluation is carried out.



IN THE EVENT OF ENCOUNTERING GILLNETS OR LONGLINES THAT RETAIN THEIR FUNCTIONALITY, WHOLE OR IN PART, IT IS ADVISABLE TO PROCEED WITH EXTREME CAUTION AND REMAIN ALERT, SINCE THIS IS AN EXTREMELY DANGEROUS SITUATION DUE TO THE RISK OF ENTRAPMENT OR SNAGGING. IT IS RECOMMENDED TO MOVE AWAY FROM THE ALDFG AND KEEP YOUR DISTANCE.

Evaluation.

In cases where the ALDFG is located in a protected or sensitive area or is affecting a vulnerable habitat/species, the relevant authority or the persons/entities qualified or authorized to do so may carry out an assessment to determine how best to manage the element. To carry out this assessment there are tools available at artesperdidos.es.

In the case of actions implemented quickly in response to recently generated ALDFG on the seabed being reported, it may not be necessary to analyze aspects related to biodiversity, integration, colonization or landscape.

7.4/

Management at sea

Underwater elements of ALDFG should not be handled or removed without prior analysis or if the appropriate personal equipment and materials are not available

With regard to management at sea, two main actions can be established:

■ No removal:

No object should be removed if the above safety and operational conditions make removal inadvisable.

Traps such as pots, traps and gannets with beacons (section 7.1 d), even if they are not identified, shall not be removed, since a priori it is understood that they are under the control of their owner.

Fishing gear or debris drifting along the bottom (section 7.1 c) and functional fishing gear (section 7.1 b) without beacons or surface markings should also not be removed. In the case of unmonitored but identified gear, it may be recoverable and returned to its owner. If the gear is identified, the maritime inspection services can be informed via e-mail inspecpm@mapa.es. Otherwise, the Civil Guard or Maritime Rescue should be informed, given the danger of its management.

In cases where there is no risk to the safety of divers and the option of direct removal is not foreseen, it is

recommended that the location of the find be referenced so that it is possible to locate its exact position for future recovery actions.

■ Removal:

ALDFG removal is contemplated in cases in which ALDFG appears in the form described in section 7.1 a), non-functional fishing gear, debris, etc. with or without identification. **It should be remembered that removal must only be carried out during planned dives and following all safety, insurance and training criteria. Likewise, it is recommended to have support vessels accompanying diving modalities in which they are not required by current regulations.**

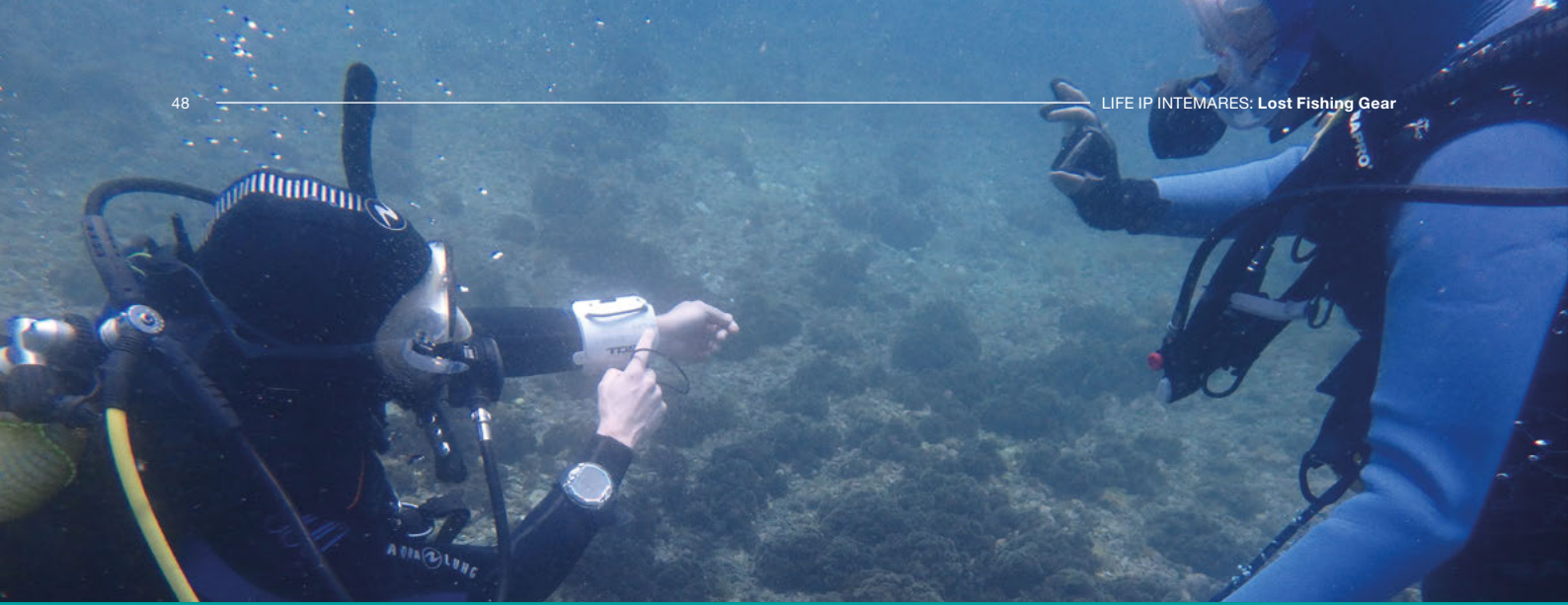
Removal is also contemplated in cases where trap gear, pots or gannets are found (section 7.1 d) without identification of the owner or buoys or flotation elements.

In the case of findings in RN2000 areas, any action will require administrative authorization from the relevant managing body.

If the decision is made to remove ALDFG on planned dives, the following general guidelines should be followed:

- » **In activities aimed at cleaning the seabed**, with the participation of volunteers with different levels of training, experience and insurance, only ALDFG that can be removed manually, with the equipment available for recreational diving and only by trained persons, should be removed. **Recreational divers are not generally authorized to use tools, beyond the mandatory safety items (dive knife or scissors, marker buoy) and some recommended items, such as dive netting.** Small items such as recreational fishing weights and lines, and in general items that fit in the diving net, could be managed as ALDFG and an on-site analysis of each item could be carried out for their removal. Leads, lines and other tools could be removed manually (preferably with anti-cutting gloves) or fragmented, preferably using scissors.

Recreational divers should not overload their mesh bag (as a recommendation no more than 4kg) nor should they use their BCD as a lifting device for heavy objects. For items where the use of e.g. lifting



balloons is necessary, this should only be done by personnel who are trained, qualified and covered by their policy for the use of lifting balloons.

- » **Professional and technical diving teams have their own work system**, using lifting balloons, among other more specific cutting or signaling tools. In these cases it is recommended that, since the elements involved may be affecting the marine environment and its species, and sometimes located in protected areas such as Natura 2000 Network areas, the teams collaborate with people or entities with knowledge of marine biology and the general criteria of this document, in order to learn about specific aspects of certain species or habitats. It is also possible to choose to train technical teams or professional diving companies, for certain removals. In this case, training in marine biology and application of these general criteria is also recommended.

In coordinated removal actions, in addition to the participation of divers, ALDFG can be recovered by a boat with a crane or boom, if it is participating in the activity.

In general, for all divers, the following is recommended:

- » Pre-plan the dive.
- » Make safety a priority.
- » Always use PPE that corresponds to training, qualifications and experience.
- » Do not carry hanging elements that can get caught (climbing carabiners, hooked octopus, hanging balloons or buoys, excessively long lines, fin clips, etc.).
- » Check buoyancy and be aware of body and equipment position at all times.
- » Maintain full attention on the function being performed and do not lose sight of teammates.

- » Do not use the hydrostatic jacket as a refloat element.
- » Do not remove objects that may leak chemicals that could be harmful when in contact with skin or equipment.
- » Preferably use strong, sharp scissors rather than knives, as these cut fishing lines, light nets and small ropes with less disturbance than a diving knife, as they do not require a sawing motion.
- » Remove, always following the plan, accessible parts selectively and leave those that are more complicated or dangerous.
- » Try to transport any element in a compact way, and dedicate the necessary time to do so. Do not allow loose lines, ropes or other loose structures to get caught on your own or other members' equipment.
- » In dive groups, following the schedule and whenever possible, only one team acts on one element of the ALDFG at a time; thus, one team works on the ALDFG while the other team observes the hazards, or takes photos.
- » Stop, think and act in the event of any incident, in order to find a solution with colleagues and the rest of the team. Keep calm.

7.5/ Onshore management

The sustainable disposal of ALDFG is a complex issue, as it is often encrusted with organic matter and recycling options are limited. At present, ALDFG falls into the category of municipal solid waste and should therefore generally be managed in the same way.

If the ALDFG arrives at the port and its size and weight are easily handled, it is best to dispose of it in the waste collection systems available at the port, the



most appropriate being the container for fish waste or, where appropriate, the one indicated by the port.

If the ALDFG arrives at the port and is of large dimensions and weight and it is not possible to manage it with the means available at the port, it is recommended that it be brought to the attention of the port authorities or the City Council so that management operations can be arranged. In organized seabed cleaning actions, this aspect should have been discussed beforehand with the corresponding local administration or by taking the waste to an authorized management point.

If the waste comes from an organized action on beaches with the participation of entities and volunteers, this aspect should have been discussed beforehand with the corresponding local administration or by taking the waste to an authorized management point.

If the ALDFG comes from actions organized with the participation of entities dependent on government administration or professional diving companies, the criteria established in the corresponding prevention and action plans must be followed.

7.6/

Registry of ALDFG

It is recommended to record the finding and its typology, location, species affected, as well as the management action carried out, in the national database (www.artesperdidos.es) or through existing ALDFG and marine litter detection platforms and projects, as it provides valuable information for comprehensive management and knowledge of the problem. At www.artesperdidos.es you can view the inventory of records from multiple existing

platforms and projects, as well as the possibility of including your own findings through an independent profile of the entity (diving club or center, federation, association...).

7.7/

Complementary actions

ALDFG warning/removal actions in recreational diving can be very eye-catching, and it is important to communicate the action to the press or provide coverage via social networks. In all cases, any communication action must be carried out responsibly and with common sense, following the general criteria recommended in this document, so as not to incite a call to arms without the necessary knowledge of the dangers involved.

In addition to assessing possible recovery actions of the affected area after removal of ALDFG, it may be interesting, at least in vertebrate and invertebrate organisms of slow movement (urchins, holothurians, brittle stars, nudibranchs, etc.), to remove the element while leaving the organisms that were in it in the environment. A scrupulous cleaning examination is recommended before handling, during removal or lifting to the vessel, during the trip to shore and once ashore. Survival of any marine organism in contact with air can range from a few seconds to a few minutes.

It is advisable to seek collaboration with entities that can use the item by integrating it into the value chain, for example, through initiatives that seek to give it a second life.

8 / Procedure to follow when ALDFG is found drifting on the surface

The following procedure describes how to deal with the scenario of a vessel encountering drifting ALDFG on the surface during its passage. The situation can vary greatly depending on the conditions at sea, the size or apparent weight of the ALDFG in relation to the vessel, the type of vessel and the activity in progress at the time of the find. Therefore, the following steps are indicative only.



All types of vessels: recreational, fishing or research vessels are susceptible to encountering drifting ALDFG during their voyages.

8.1 / Identification. Main surface findings

The variety of different cases that may occur makes it necessary to describe the main findings and their characteristics.

- » **Entangled or entangled non-functional fishing gear formed by nets, lines or filaments**, including loose elements such as buoys, ropes, pieces of netting, remnants of lines or any other component of fishing gear regardless of whether or not they have identification since, due to their condition, they are considered to be beyond the control of their owner.
- » **Presence of lines on the surface that go to the bottom and supposedly form part of a fishing gear, such as a gillnet or trap gear**, which may be fishing below the surface of the water without losing its functionality or be trapped on the bottom. This situation could occur when, for whatever reason, the fishing gear has lost its floating beacon elements and is without the control of its owner. It is not possible to determine whether it is really a fishing gear, whether functional or not, or something else, so a priori it cannot be considered as ALDFG. In these cases it may be advisable to inform the Civil Guard or Maritime Rescue.
- » **Floating beacon elements without identification**, whether buoys or equivalent devices such as demijohns, bottles, pieces of expanded polystyrene, etc., which indicate the possible position of fishing gear underwater. It is not possible to



determine whether it is really fishing gear, functional or not, or something else, so a priori it cannot be considered as ALDFG. In such cases, it may be advisable to inform the Civil Guard or Maritime Rescue.

- » **Complete and functional fishing gear drifting on the surface with or without beacon elements**, which are not under the owner's control. Highly improbable case, since they are relatively easy to recover by their owner. **Their management is not the subject of this document** given the technical difficulty in determining whether they are really out of control by personnel outside the Inspection Services.

8.2/ Alert and finding location

ALDFG drifting on the surface may be sighted by chance during navigation or searched for by the crew. The use of binoculars for this purpose is highly recommended. After sighting an item likely to be considered as ALDFG, provided that it is safe for the vessel and its crew, it is recommended to make a safe approach to check the type of item in question. To do so, whenever possible, the engine should be turned off to avoid possible entanglement and the wind and current should be taken into account so as not to be displaced towards or against the item. If possible, examine the appearance of the object, and try to locate any identifying elements, such as buoys or labels.

Once the existence of ALDFG has been confirmed, it is recommended that, as far as possible, the area of the sighting and its geographical coordinates be located by GPS or photo-referenced, as well as taking photographs of the find and determining the direction of the wind and currents.

8.3/

Analysis and evaluation

When ALDFG is found on the surface (section 8.1.a), it is recommended to estimate its size, volume and apparent weight.

Next, and whenever possible, the presence of trapped fauna and its condition should be evaluated. If live animals are present, an attempt should be made to release them without causing further damage during the release process. In case of accidental capture of cetaceans, they must be returned to the sea with due precautions to cause minimum damage and I12 should be notified of their position and condition, as well as if they pose a danger to navigation. In the case of interaction of a sea turtle with fishing gear, it should be transferred to port and I12 notified, who will then activate the action protocol for its recovery and study.

It should be remembered that the handling of floating elements at sea may entail risks to the safety of the vessel and its crew, so their safety must remain a priority. In addition, one of the potential effects of drifting ALDFG is to be a vector of, sometimes invasive, species. Therefore, it is recommended that caution be exercised when handling drifting ALDFG.

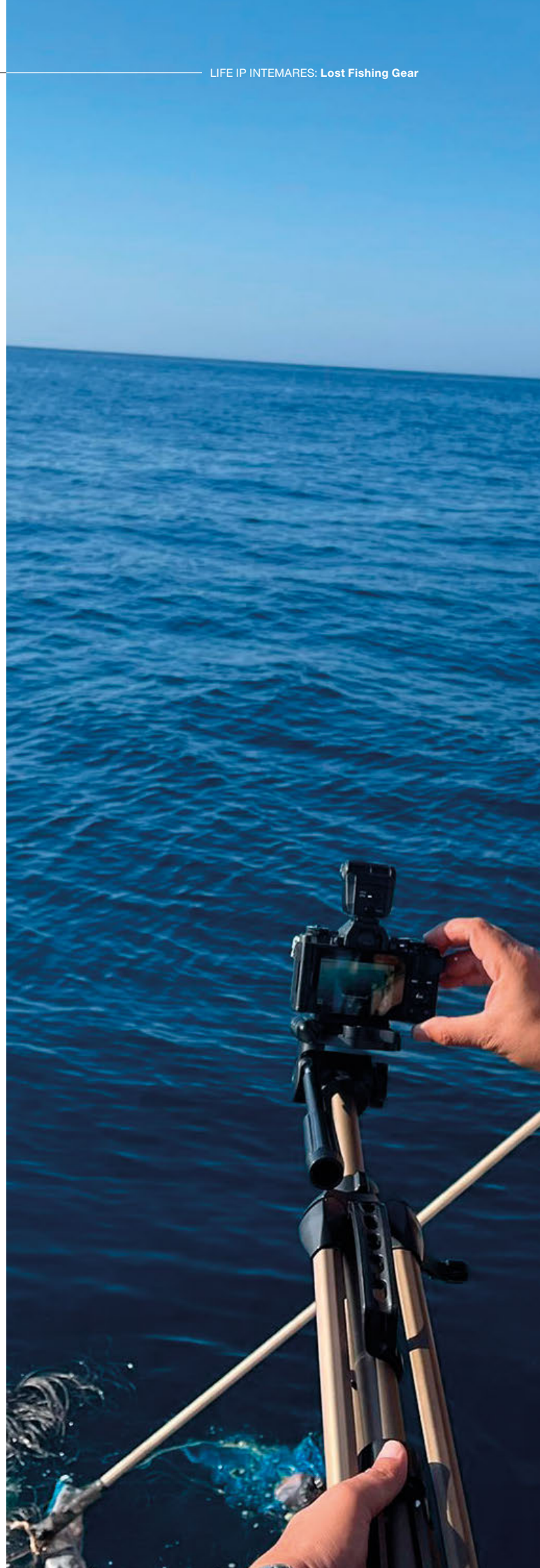
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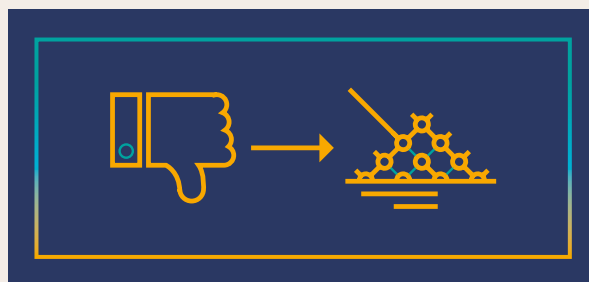
Management at sea

The possible actions for ALDFG management at sea are defined as follows:



It is not recommended that personnel jump into the sea to facilitate the removal of ALDFG due to the potential danger to human safety posed by entanglement.

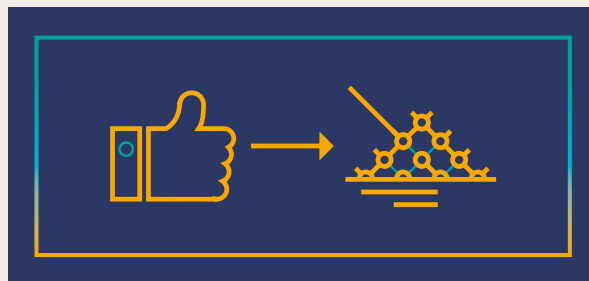




■ No removal:

There are cases in which removal is not considered a relevant management measure:

- Loose ropes going to the bottom that may belong to fishing gear (section 8.1.b) and unidentified beacons (section 8.1.c).
- ALDFG described in section 8.2.a) where removal is not considered feasible due to its size, weight or volume, safety issues or insufficient material or human resources. In these cases the item should be left at sea. Channel 16/coastal radio should be contacted to report the finding.



■ Removal:

Whenever operational and safety circumstances permit, the removal of ALDFG described in section 8.1.a, i.e. entangled non-functional fishing gear or any other remnants or parts of loose fishing gear drifting, with or without identification, could be carried out.

If there is no macrofauna trapped within it, the item may be hoisted aboard using boathooks or similar elements, or by using a crane or boom for larger elements (on vessels that have one). The safety of people must be prioritized and safety elements, such as gloves, must be used. The element shall be isolated and placed firmly on deck until arrival at port.

8.5/

Onshore Management

The sustainable disposal of ALDFG is a complex issue, as it is often encrusted with organic matter and recycling options are limited. At present, ALDFG fall into the same category as municipal solid waste and should therefore be managed in generally the same way.

If the ALDFG arrives at the port and its size and weight are easy to handle, it is best to dispose of it in the waste collection systems available at the port, the most appropriate being the container for fish waste or, where appropriate, the one indicated by the port.

If the ALDFG arrives at the port and is of large dimensions and weight and it is not possible to manage it with the means available in the port, it is recommended to inform the port authorities or the City Council to arrange its management operations.

If the ALDFG comes from actions organized with the participation of entities dependent on government administration, the criteria established in the corresponding prevention and action plans must be followed.

In no case should ALDFG be left on the quay or in the port area outside a container without the corresponding authorization.

8.6/

Registry of ALDFG

It is recommended to record the finding and its typology, location, species affected, as well as the management action carried out in the national database (www.artesperdidos.es) or through other ALDFG and marine litter detection platforms and projects, as they provide valuable information for integrated management and knowledge of the problem.

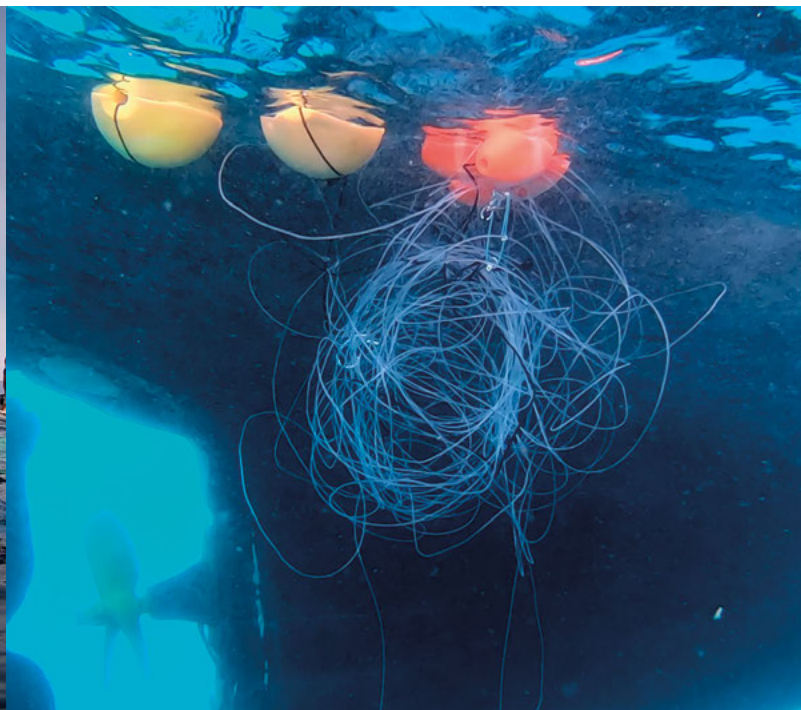
www.artesperdidos.es offers the visualization of the inventory of records from multiple existing platforms and projects, as well as the possibility of including your own findings through an independent profile of the entity (diving club or center, federation, association...).

8.7/

Complementary actions

This scenario may be accompanied by the following complementary actions:

- » Communication via social networks providing information about the action.
- » It is advisable to seek collaborations with entities that can use the item by integrating it into the value chain, for example, through initiatives that seek to give it a second life.





9 Procedure to be followed in case of loss of fishing gear (ALDFG) by a fishing vessel during fishing operations

In this case, ALDFG is generated when a fishing vessel loses or breaks an item of fishing gear during fishing operations and is unable to recover it. This includes the partial loss of gear, i.e. sections of net or line that for any reason become separated, as well as any other structural element lost during fishing operations, such as ropes, anchoring, ballast or flotation elements.

The reporting the loss of gear, as well as its entry in the database, is very useful for obtaining information and promoting specific ALDFG recovery campaigns with material and human resources capable of recovering those losses that under normal circumstances are difficult to salvage.



THIS PROCEDURE IS VOLUNTARY AND DOES NOT EXEMPT THE SKIPPERS OF FISHING VESSELS FROM THE OBLIGATIONS THEY MUST COMPLY WITH IN CASES OF LOSS OF FISHING GEAR, IN ACCORDANCE WITH THE REGULATIONS IN FORCE.



IN THE EVENT THAT THE LOST GEAR MAY POSE A POTENTIAL HAZARD TO NAVIGATION, MARITIME RESCUE SHOULD BE NOTIFIED.



9.1/

Main circumstances that cause loss and make recovery impossible

Fishermen are the main parties interested in recovering fishing gear that has escaped their control, given the economic cost of their loss. The recovery rate of fishing gear by its owners is high; however, there are circumstances that prevent its recovery. The main causes of loss of control and impossibility of recovery are as follows:

- » **Bottom snags:** Trawl gear that gets snagged on some element of the seabed during the maneuver, losing the entire rig or some of its parts. Recovery is usually possible, but sometimes there may be technical difficulties. Also, gillnets or bottom longlines that become entangled in some element of the seabed due to storms or strong currents, or by interaction with other gear. Their recovery in deep waters or with many obstacles on the bottom is complicated. Finally, it is possible that in any type of fishing only a part or section of the hooked gear may be lost.
- » **Loss of structural elements:** locating buoys or anchoring elements, when these elements are lost, the owner may lose the gear's location as it is no longer detectable on the surface or may change position due to the action of storms and sea currents.

Debris caught unintentionally during fishing operations may include fishing gear. These cases are covered in a specific general criteria document applicable to trash fishing and are not included here.

9.2/

Alert. Location/finding

After losing the item, it is recommended its location be recorded via GPS or the place of loss be photo-referenced, indicating the geographical coordinates, depth and other environmental variables, in addition to the wind direction and current. The data collected in the logbook can be of great relevance. Communication with the corresponding fishing guild or association can also be of great help to obtain relevant information.

9.3/

Analysis/Evaluation

It is recommended that a description of the length of the lost element and its dimensions be made, as well as the presence of identification and marking elements to facilitate its identification and location for possible subsequent search and extraction actions.

9.4/

Management at sea

If the item or ALDFG drifted on the surface or under the water column, its recovery is not possible and it poses a hazard to navigation. Maritime Rescue should be notified.

9.5/

Management onshore

Not applicable since the gear, if recovered, is returned to its owner.

9.6/

Registry of ALDFG

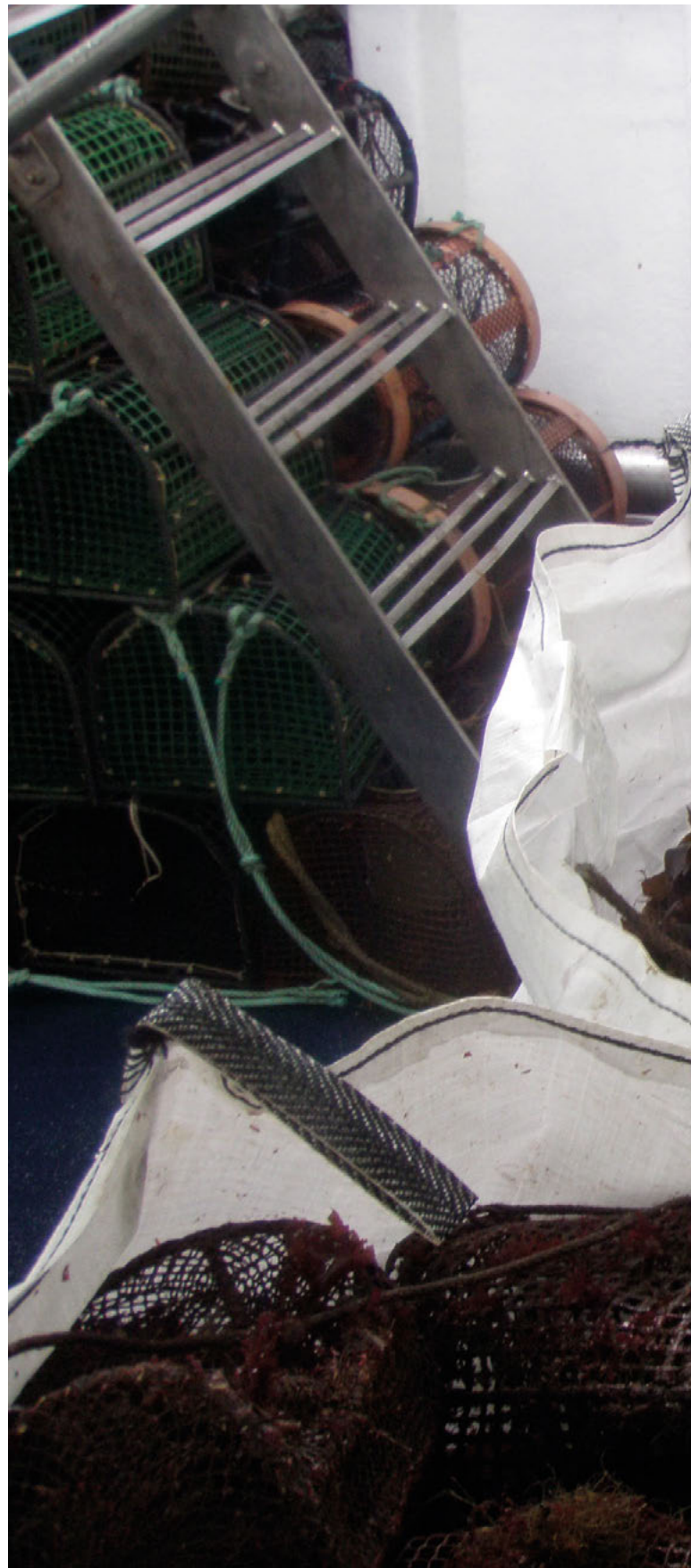
It is recommended to record the finding and its typology, location, species affected, etc. in the database www.artesperdidos.es. This function can be facilitated by the fishing guilds or other associations, who best know the day-to-day workings of the fleet and have immediate access to all the information.

It is extremely important to record where the loss of the gear or parts of it that could not be recovered took place and under what circumstances the loss occurred so that recovery can be assessed, if necessary, through other mechanisms.

9.7/

Complementary actions

Communication informing about the action can be the best complementary action when losing and/or recovering gear. This information can be shared through social networks, giving visibility to the efforts of the sector in the correct management of this problem and encouraging other boaters and fishermen to do the same.





10/ Regulatory framework

The applicable regulations related to the different aspects that affect ALDFG management are as follows:

- » **Marine Strategy Framework Directive (MSFD).** *Directive 2008/56/EC of the European Parliament and of the Council of 17th June 2008* establishing a Framework for Community Action in the field of Marine Environmental Policy requires Member States to take the necessary measures to achieve or maintain good environmental status of the marine environment by 2020 at the latest. To this end, each Member State must draw up a marine strategy for each marine region or sub-region (or such smaller subdivision as each State may determine).
- » **Regulation (EU) 2019/1241** of the European Parliament and of the Council of 20th June 2019 on the conservation of fishery resources and the protection of marine ecosystems through technical measures, which lays down technical measures concerning the capture and landing of marine biological resources, the use of fishing gear and the interaction of fishing activities with marine ecosystems. Article 6 defines the different types of fishing gear.
- » **Council Regulation (EC) No 1224/2009** of 20th November 2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy. Its Article 48 regulates lost gear, establishing the duty of the master to try to retrieve it as soon as possible and in case he is unable to do so, the obligation to communicate it to the competent authority.
- » **Commission Implementing Regulation (EU) No 404/2011** of 8th April 2011 laying down detailed rules for the implementation of Council Regulation (EC) No 1224/2009 establishing a Community control system for ensuring compliance with the rules of the Common Fisheries Policy. Section 2, Marking and identification of fishing gear, regulates these aspects, referring to the obligation to mark fishing gear, the conditions to be met by the labels and the regulation on buoys outside the 12-mile limit.
- » **Royal Decree 502/2022, of June 27th**, which regulates fishing in national fishing grounds. In its article 27, Beacons of the gears of volanta, bottom longline and trawl, and in its article 38, Beacons of the minor gears, the conditions of beaconing and signaling that these gears must comply with are regulated.
- » **Law for the protection of the marine environment.** Law 41/2010, of December 29th, 2010, on the protection of the marine environment, constitutes the transposition to the Spanish regulatory system of Directive 2008/56/EC, of June 17, 2008, establishing a framework for Community action in the field of marine environmental policy (Marine Strategy Framework Directive), with the main objective of achieving or maintaining a good environmental status of the marine environment by 2020 at the latest. In order to achieve this, marine strategies are created as a planning tool for the marine environment.
- » **Fishing Law.** Law 5/2023, of March 17th, on sustainable fishing and fishing research. The purpose of this law is the regulation of maritime fishing, which includes the requirements for access to fishing resources, their protection, sustainable use, conservation, regeneration and management measures, the promotion of data collection, knowledge and oceanographic fishing research under the competence of the State, the regulation of

access to genetic resources considered as fishing resources and the cooperation and coordination between the State and the Autonomous Communities. This law partially repeals the Fishing Law. Law 3/2001, of March 26, 2001, on State Maritime Fishing. It defines “fishing gear” and in its article 17.3, provides that fishing gear containing plastic and its waste, as defined in Law 7/2022, of April 8, on waste and contaminated soils for a circular economy, shall be subject to the provisions regulated therein, as well as to the regulatory development of the extended producer responsibility regime provided for in its article 60.5.

- » **Law 3/2001, of March 26th, 2001**, on State Maritime Fishing, partially repealed by Law 5/2023, of March 17, 2002, on sustainable fishing and fishing research. In its article 101 b), it typifies as a very serious infringement the performance of activities with the purpose of preventing the right to exercise the fishing activity.
- » **Diving Law.** The Royal Decree 550/2020, of June 2nd, which determines the safety conditions for diving activities, unifies and updates the rules that regulate the safety of both human life at sea and navigation, in relation to diving. It establishes a general regulation that will be applied to all diving modalities, with the exception of military diving and diving for public service purposes, which will be governed by their own rules. These general rules have focused on establishing a minimum age for diving, the physical condition of divers and the need for training. On the other hand, other specific safety standards are also published for recreational, sport, professional, scientific and extraction of living marine resources (extractive diving).
- » **Waste Law.** Law 7/2022, of April 8th, on waste and contaminated soils for a circular economy pursues compliance with the new waste targets established in the European Union directives that make up the Circular Economy Package, as well as those derived from the single-use plastics directive (Directive (EU) 2019/904). The law defines fishing gear in a similar way to Law 5/2023, of March 17th, on sustainable fishing and fisheries research but including aquaculture and inland waters. It also defines “Fishing gear waste” as any fishing gear that meets the definition of waste (any substance or object that its holder discards or intends or is required to discard) including all separate components, substances or materials that were part of the fishing gear or attached to it when it was discarded. It also includes abandoned or lost fishing gear and its components. On the other hand, in its Article 60.5, it establishes that the Government shall develop extended producer responsibility schemes for

fishing gear in accordance with the provisions of Title IV before January 1st, 2025.

- » **Law on Volunteering.** Law 45/2015, of October 14th, on Volunteering aims to recognize, facilitate and promote the action of citizens in volunteer services and to point out the legal conditions under which such activities are carried out within the national territory. The Autonomous Communities may have their own regulation adapted to these principles.
- » **Habitats Directive.** Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora is a European Union Directive adopted in 1992, which aims to conserve, protect and improve the quality of the environment, including the conservation of natural habitats and of wild fauna and flora, in the European territory of the Member States to which the Treaty applies. Its full name is the Directive on the conservation of natural habitats and of wild fauna and flora.
- » **Birds Directive.** Directive 2009/147/EC on the conservation of wild birds is a European Union Directive adopted in 2009. It replaces Council Directive 79/409/EEC of 2nd April 1979 on the conservation of wild birds, which has been substantially amended several times, and it was therefore decided to codify it in 2009 for the sake of clarity. Its purpose is to protect all European wild birds and the habitats of a number of species, in particular through the designation of Special Protection Areas (SPAs).
- » **Natural Heritage and Biodiversity Law.** Law 42/2007 of December 13th, 2007, on Natural Heritage and Biodiversity, establishes the basic legal regime for the conservation, sustainable use, enhancement and restoration of natural heritage and biodiversity. The principles that inspire the law focus on the maintenance of essential ecological processes and basic vital systems, the preservation of biological, genetic, population and species diversity, the variety, uniqueness and beauty of natural ecosystems, and geological and landscape diversity.
- » **Natura 2000 Network.** Although it is not a regulation as such, it is the European Union’s main instrument for nature conservation. The Habitats Directive and the Birds Directive, together with various laws and regulations, form the backbone of the European Union’s biodiversity conservation policy and constitute the regulatory framework for the Natura 2000 Network at an EU level.

- » **MARPOL Convention.** The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78, short for “marine pollution”) is a convention or set of international regulations aimed at preventing pollution from ships. It was developed by the International Maritime Organization (IMO), a specialized agency of the UN. It was initially adopted in 1973, but never entered into force. The main matrix of the current version is the modification by the 1978 Protocol and has been amended since then, due to numerous corrections. It entered into force on October 2nd, 1983. To date, 119 countries have ratified it. Its objective is to preserve the marine environment through the complete elimination of pollution by oil and other harmful substances, as well as the minimization of possible accidental discharges. Its Annex V sets out the rules for preventing pollution caused by garbage from ships.
- » **State Ports Law.** Royal Legislative Decree 2/2011, of September 5th, which approves the Consolidated Text of the State Ports and Merchant Marine Law, whose purpose is: a) To determine and classify the ports under the jurisdiction of the General State Administration; b) To regulate the planning, construction, organization, management, economic-financial regime and policing thereof; c) To regulate the provision of services in said ports, as well as their use; d) To determine the state port organization, providing the ports of general interest with a system of functional and management autonomy for the exercise of the powers attributed by this Law, and to regulate the appointment by the Autonomous Communities of the governing bodies of the Port Authorities; e) To establish the regulatory framework of the Merchant Marine; f) To regulate the Administration of the Merchant Marine; and g)



To establish the system of infractions and sanctions applicable in the area of the Merchant Marine and in the port area of state competence.

- » **Directive on the reduction of the impact of certain plastic products on the environment.** Directive (EU) 2019/904 of the European Parliament and of the Council of 5th June 2019 seeks to regulate and reduce the impact that plastic causes in the marine environment. Among its targets are plastic-generated fishing materials. Although it focuses on single-use plastics, its implementation has implications for the fisheries sector and producers.





Financing and project development

Spanish European maritime, fisheries and aquaculture fund program (FEMPA).

The 2030 Agenda for Sustainable Development of the United Nations (2030 Agenda), established the conservation and sustainable use of oceans, seas and marine resources in goal no. 14 of the seventeen Sustainable Development Goals (SDGs), being Regulation (EU) 2021/1139 of the European Parliament and of the Council of 7 July 2021, establishing the European Maritime, Fisheries and Aquaculture Fund (EMFF), one of the tools for the achievement of this objective

and its implementation, with the fund contributing to the achievement of the Union's environmental and climate change mitigation and adaptation objectives. The FEMPA should support the development of portfolios of projects that contribute to environmental, economic and social sustainability and address the environmental challenges of the CFP.

In the area of collection, management and treatment of lost gear, the following table shows the priorities and eligible actions contemplated in the FEMPA program for Spain:

Page	Content
11	Ports represent the first link of entry of fishery products into the commercial chain, therefore, among other issues, it is a priority to: <ul style="list-style-type: none"> » Improve equipment for waste and lost gear management.
12	Among the priorities in the Artisanal Coastal Fisheries, parallel to the entire Program, are the following: <ul style="list-style-type: none"> » Integration in the protection of the marine environment, highlighting the collection of waste and lost gear. <p>Much of the support to the PCA will be articulated through the DLP, highlighting the complementarity of the FEMPA with EAFRD actions in rural coastal communities.</p>
12	Likewise, the priorities in the protection and conservation of the marine environment and governance include, among other things: <ul style="list-style-type: none"> » Conservation and protection of protected areas, NR 2000 and other areas such as fishing reserves, contributing to the MAPs (Priority Action Frameworks) and sharing with the PRTR the objective of increasing from 13% of the marine protected area at present to 30% in 2030. To achieve this, it will be necessary to recover degraded habitats and make the different human activities (recreational and fishing) compatible by mitigating their impacts. » The collection, management and treatment of marine litter and lost gear, cost-benefit and cost-effectiveness analysis. » Involvement of important stakeholders such as fishermen, NGOs, scientific organizations and other public and private entities.
166	Among the measures aimed at waste collection with the participation of fishermen at sea and on beaches, the FEMPA will be able to support: <ol style="list-style-type: none"> 1. Compensation to fishermen for passive collection at sea or in the intertidal area of waste such as lost gear, garbage or other debris by fishermen/ shellfish gatherers on board or on foot 2. Outreach, awareness-raising and training activities in the fight against marine litter, including plastic waste and lost gear, to encourage the prevention and reduction of marine litter and promote the role of the fishing sector in this fight. 3. Pilot projects with the objective of developing new systems for the collection of marine litter and lost gear. The operations on pilot projects will be carried out by: <ul style="list-style-type: none"> » Operators in the sector or, » Technological or innovation companies in collaboration with fishermen and/or non-profit entities or, » Scientific or Technical Organizations recognized in Spain in collaboration with fishermen and/or non-profit organizations.
215	Regarding the contribution of aquaculture to good environmental status and the provision of environmental services, the following are mentioned, among others: compensation in the case of environmental restoration, the collection of waste, lost gear from the fishing and aquaculture sector, garbage or other waste at sea, in transitional or intertidal waters, and the prevention of escapes and management of predators.

In addition, the FEMPA Program for Spain, approved by the European Commission by decision of November 29, 2022, as the main support instrument, establishes among the objectives for the period 21-27 to maintain fishing as a sustainable activity through sustainable management and conservation of marine ecosystems, contributing to the progress towards a greener Europe.

However, although the granting of this type of aid is provided for in the FEMPA Program for Spain, the respective Autonomous Regions are responsible for the regulation and subsequent call for applications for aid, always respecting the provisions of European regulations, the national program and the selection criteria document to be approved by the FEMPA Monitoring Committee.

For more information, please consult the FEMPA Program for Spain at the following link: https://www.mapa.gob.es/es/pesca/temas/fondos-europeos/sfc2021-prg-2021esl4mfpr001-11_tcm30-637317.pdf.

Pleamar Program - Biodiversity Foundation

The Pleamar Program is the initiative through which the Biodiversity Foundation has developed its activity as Intermediate Management Body (IGO) of the Operational Program of the European Maritime and Fisheries Fund (EMFF) in the period 2014-2020 and will develop its activity as IGO of the European Maritime, Fisheries and Aquaculture Fund (EMFF) for the period 2021-2027. The objective of this program is to support the fisheries and aquaculture sector in its commitment to sustainability and its commitment to the conservation of natural heritage, in line with the Common Fisheries Policy (CFP). To this end, this funding program supports projects that promote the Blue Economy through the development of activities within the following areas:

- » **Promote, through research, sustainable fisheries, the recovery and conservation of aquatic biological resources**, reinforcing that fishing activities are economically, socially and environmentally sustainable and contributing to reduce the impact of fishing.
- » **To promote, through research, sustainable aquaculture activities**, as well as the processing and marketing of fishery and aquaculture products, thus contributing to food security in the Union.
- » **Strengthen, through the generation of scientific knowledge, the international governance of the oceans** and make the seas and oceans safe,

secure, clean and sustainably managed, by promoting knowledge of the marine environment.

The Pleamar Program is structured through different lines of action in which projects of a very diverse nature can be financed. Among these lines of action, both in the FEMP and in the FEMPA, there is a line of action for marine waste.

Specifically, the Pleamar Program in the period 2014-2020, established axis 5 Waste, dedicated to the collection and treatment of marine waste, or environmental innovation related to the development or introduction of new technical or organizational knowledge to improve the management, collection, sorting, treatment or reuse of waste generated by the fisheries or aquaculture sector or that affect their daily activity. In the 5 calls of the Pleamar Program published in this period, a total of 18 projects were financed under this axis, with a total cost of €2.5M.

In 2023, the first call for the awarding of grants by the Fundación Biodiversidad F.S.P. will be published, on a competitive basis, for the promotion of the blue economy and the promotion of sustainable fisheries and aquaculture, within the framework of the Pleamar Program, co-financed by the European Maritime, Fisheries and Aquaculture Fund (EMFF).

Within this framework, in terms of marine litter, and more specifically, lost or abandoned fishing gear, this call will have a specific axis of action (Axis 3 Waste) that seeks to respond to Priority 1 of the FEMPA (Promoting sustainable fishing and the recovery and conservation of aquatic biological resources) and which, among other typologies, will include the possibility of financing projects related to the management of ALDFG.

At the time of writing this document, we are working on the next publication of the call for the Pleamar Program for the year 2023, but it must be taken into account that this program will remain in force until at least 2027, so that the conditions of the grants may vary annually according to the regulations governing the grants. All information concerning the program can be consulted on the following web site: <https://www.programapleamar.es>.

12/ Projects of interest

There are multiple initiatives and projects that work and/or study the effects, management and solutions to the ALDFG issue. At the time of writing this document, of those that are active on our coastline, although they are international in scope, the following have been selected:

CLEAN ATLANTIC. CleanAtlantic, the project of CETMAR (Centro Tecnológico del Mar, Vigo) aims to protect biodiversity and ecosystem services in the Atlantic Area by improving the prevention, monitoring and removal of marine litter. It is an international project operating in the Atlantic area, which has carried out multiple actions related to marine litter in general and ALDFG in particular. The project is funded by the INTERREG Transnational Atlantic Area Program

FANTARED. Projects focused on assessing the extent of fishing gear that is abandoned, lost or discarded, as well as its effects on the environment. Pilot projects and tests carried out in Spain, Portugal and the United Kingdom (FANTARED 1, 1995-1996, gillnets) and in Spain, France, Norway, Portugal, the United Kingdom and Sweden (FANTARED 2 1998-2005, on gillnets in all countries and on pots in Portugal). Both projects were funded by the LIFE Program.

GHOST DIVING. Ghost Diving is an organization founded in 2009 and run by volunteer technical divers who have specialized in the removal of lost fishing gear and other marine litter. Its main objective is to expose the problem of abandoned, lost or discarded fishing gear around the world by removing this fishing gear, visualizing it to the public. It is a project that includes the recovery and revaluation of the product, financed through Ghost diving and different partners.

GLOBAL GHOST GEAR INITIATIVE. The Global Ghost Gear Initiative (GGGI) is an alliance of stakeholders from the fishing industry, private sector, business, NGOs, academia and governments that focuses on

solving the problem of lost and abandoned fishing gear around the world. It is funded through different partners and initiatives

MARNOBA. The MARNOBA Platform, an initiative of Asociación Vertidos Cero and KAI Marine Services aims to collect, store and display in a simple way information about marine litter on beaches, floating and bottom, through the use of an application for mobile devices (App MARNOBA), freely downloadable and available for iOS and Android systems). It is financed with own funds and different initiatives

OBSERVADO.ES. European citizen science platform for recording observations of all types of biodiversity. It is funded through different partners and initiatives.

OBSERVADORES DEL MAR. A citizen science portal for collaboration in marine research, which collects observations and experiences on the phenomena occurring in the sea. Coordinated by the Institute of Marine Sciences of Barcelona (CSIC), it includes the participation of experts from different national and international research centers that validate and comment on the observations received

OCEANETS. Oceanets is a project of prevention, recovery, reuse and recycling of fishing gear to obtain value-added products in the textile industry. Oceanets is a project coordinated by AIMPLAS in collaboration with the University of Vigo, the Fishing Shipowners Cooperative of the Port of Vigo (ARVI), ECOALF, SINTEX and Asociación Vertidos Cero, funded by the Executive Agency for Small and Medium Enterprises of the European Commission and the European

Maritime and Fisheries Funds (EASME), which includes the recovery and revaluation of the product. It was financed through the European EASME initiative and its various partners.

PESCAFANTASMA. Since 2015 the University of Barcelona has been managing this project at a regional level in the Autonomous Community of Catalonia to address the problem of lost or abandoned fishing gear. In collaboration with the Generalitat, a multitude of actions have been carried out including a valuation and extraction protocol, communication actions and other measures. It is financed through the agreement between the University of Barcelona and the Generalitat de Catalunya.

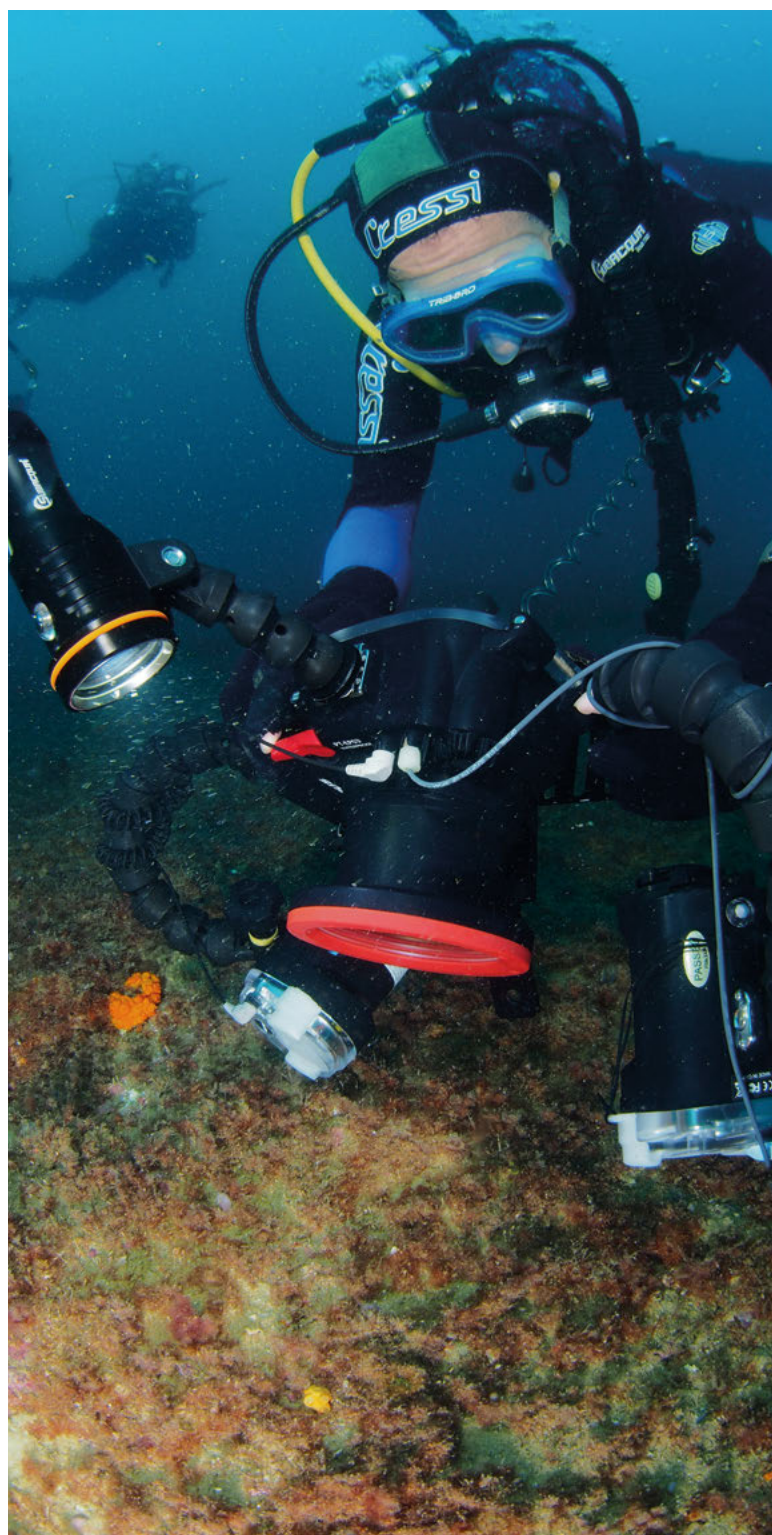
PROYECTO PLUMBUM. Initiative of the Hippocampus Association focusing on the issue of marine environmental pollution, and specifically on weights derived from recreational, sport and professional fishing and elements associated with this activity, including the recovery and revaluation of the product. It is financed with its own funds and different initiatives

RED PROMAR. The Network of Observers of the Marine Environment in the Canary Islands (RedPROMAR) is a tool of the Government of the Canary Islands for the monitoring and surveillance of marine life in the archipelago. It is an information system that records the continuous changes that are taking place in our oceans, using the concept of "Citizen Science". It is financed with its own funds and different initiatives.

SOS REDES. The initiative, managed since 2014 by Asociación Hombre y Territorio, seeks to highlight, publicize, obtain information and act in relation to the remains of fishing gear and gear lost or abandoned on the seabed in protected areas, especially as it affects habitats and endangered species. Focused on the Strait-Alborán Marine subdivision, it has collected data on the presence of fishing gear on the submerged coastline and technical actions have been developed for the study and evaluation of fishing gear in rigid species within Special Areas of Conservation. It is financed with its own funds and different initiatives.

TODOS POR LA MAR. This project of the Alnitak Cultural Association aims to bridge the gap between marine conservation and the public, encouraging active involvement of citizens at different levels. It presents a high level of work and data reporting in relation to drifting ALDFG and its interaction with cetaceans and sea turtles. It is financed with its own funds and different initiatives.

RED-USE: Towards a responsible fishing gear management system. CEPESCA's project aims to define a responsible management system to improve



the collection and treatment of fishing gear based on mapping of the actors involved in the process and the analysis of its plastic components, introducing circular economy criteria. It is financed through the PLEAMAR Program.

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Lost Fishing Gear

General Criteria for the Management of Abandoned,
Lost, or Discarded Fishing Gear (ALDFG)

2023

