



Study supporting the evaluation of the landing obligation – Common Fisheries Policy

Final Report

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Framework lead: Deloitte Consulting B.V. SC lead: MRAG Europe, in collaboration with Deloitte Consulting B.V. and Wageningen University

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Contact: CINEA EMFAF CONTRACTS

E-mail: CINEA-EMFAF-CONTRACTS@ec.europa.eu

European Commission
B-1049 Brussels
BELGIUM

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List of abbreviations

Term	Description
ACDR	Aggregated Catch Data Reporting system
AER	Annual Economic Report
AIS	Automatic Identification System
AZTI	Centro de Investigación Marina y Alimentaria (Spain)
BIM	Bord Iascaigh Mhara (Ireland)
BISAC	Black Sea Advisory Council
B _{MSY}	Biomass that enables a fish stock to deliver maximum sustainable yield
BOE	Official Bulletin of the State
BRD	Bycatch Reduction Device
BSAC	Baltic Sea Advisory Council
CCTV	Closed Circuit Television
CCUP	Outermost regions Advisory Council
CECAF	Fishery Committee for the Eastern Central Atlantic
CEFAS	Centre for Environment, Fisheries and Aquaculture Science (UK)
CFP	Common Fisheries Policy
CFTO	Compagnie Française du Thon Océanique
CINEA	European Climate, Infrastructure and Environment Executive Agency
CIRCABC	Communication and Information Resource Centre for Administrations, Businesses and Citizens
CPUE	Catch Per Unit Effort
CQM	Catch Quota Management
CSIC	Spanish National Research Council (El Consejo Superior de Investigaciones Científicas)
DCF	Data Collection Framework
DFAD	Drifting Fish Aggregating Device
DPUE	Discard Per Unit Effort
DWF	Distant water fleet
EASME	Executive Agency for Small and Medium-sized Enterprises
EEZ	Exclusive Economic Zone
EFCA	European Fisheries Control Agency
EFF	European Fisheries Fund
EMFF	European Maritime Fisheries Fund

Term	Description
EMFAF	European Maritime Fisheries and Aquaculture Fund
EMS	Electronic monitoring system
EQM	Evaluation Questions Matrix
ETP	Endangered, threatened, and protected species
EUMOFA	European Market Observatory for Fisheries and Aquaculture Products
EWG	Expert Working Group
FAD	Fishing Aggregating Device
FAMENET	Fisheries and Aquaculture Monitoring, Evaluation and Local Support Network
FAO	Food and Agriculture Organization
FCM	Fully Catch-Monitored system
FDF	Fully-documented Fisheries
FDI	Fisheries Dependent Information
FMC	Fisheries Monitoring Centre
F_{MSY}	Fishing mortality rate equivalent to maximum sustainable yield
FRA	Fishing Restricted Area
FTE	Full-time Equivalent
GES	Good Environmental Status
GFCM	General Fisheries Commission for the Mediterranean
GSA	Geographical Subarea
GVA	Gross Value Added
HLG	High Level Group
ICCAT	The International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IEO	European Institute of Oncology
IOTC	Indian Ocean Tuna Commission
IQR	Inter-quartile range
ISSF	International Seafood Sustainability Foundation
ITQ	Individual Transferable Quota
JTED	Juveniles and Trash Excluder Devices
KPI	Key performance indicator
kW	Kilowatt
LOA	Length overall
LSF	Large-scale fleet

Term	Description
MAC	Market Advisory Council
MAP	Multiannual Plan
MAPA	Ministry of Agriculture and Fisheries (Spain)
MCRS	Minimum conservation reference size
MCS	Monitoring, Control, and Surveillance
MEDAC	Mediterranean Advisory Council
MSFD	Marine Strategy Framework Directive
MSY	Maximum sustainable yield
NAFO	Northwest Atlantic Fisheries Commission
NEAFC	Northeast Atlantic Fisheries Commission
NGO	Non-government organisation
NSAC	North Sea Advisory Council
NVWA	Netherlands Food and Consumer Product Safety Agency
NWA	Netherlands Research Agenda
NWW	North Western Waters
NWWAC	North Western Waters Advisory Council
OPPAO	Organización de Productores de Pesca de Altura del Puerto de Ondarroa
OPROMAR	Organización de Productores de Pesca Fresca del Puerto y Ría de Marín
PELAC	Pelagic Advisory Council
REM	Remote electronic monitoring
RFMO	Regional Fisheries Management Organisation
RSW	Refrigerated sea water
RVO	Rijksdienst voor Ondernemend Nederland
SDG	Sustainable Development Goals
SEAFO	South East Atlantic Fisheries Organisation
SFPA	Sustainable fisheries partnership agreement
SMBRD	Square Mesh Bycatch Reduction Device
SMC	Square Mesh Cylinder
SMEFF	Sustainable management of external fishing fleets
SMP	Square Mesh Panel
SSB	Spawning stock biomass
SSCF	Small-scale Coastal Fisheries
SSF	Small-scale fisheries

Term	Description
STECF	Scientific, Technical and Economic Committee for Fisheries
SUREDEPAR	Survival and recovery of species discarded in the trawl fisheries in Atlantic waters
SWW	South Western Waters
TAC	Total Allowable Catch
TFC	Transferable Fishing Concessions
TMR	Technical Measures Regulation
VMS	Vessel Monitoring System
WEcR	Wageningen Economic Research
WGNPBW	ICES Working Group on Northern Pelagic and Blue Whiting Fisheries
WGWIDE	Working Group on Widely Distributed Stocks
WMR	Wageningen Marine Research
WPUE	Weight Per Unit Effort
WUR	Wageningen University & Research
WWF	World Wide Fund for Nature

Abstract

Widespread discarding practices across European fishing activity resulted in the gradual introduction of an obligation to land catches (known as ‘the landing obligation’) as part of the 2013 common fisheries policy reform. The landing obligation requires catches of specific species be brought and retained on board fishing vessels, recorded, landed and counted against applicable quotas. The phased introduction started in 2015 and became fully applicable on 1 January 2019. The landing obligation is intended to support the objectives of the common fisheries policy.

Five years on from the full implementation, the European Commission Directorate-General for Maritime Affairs and Fisheries launched a study to support a policy evaluation. The study includes an evaluation of evidence against the Better Regulation guidelines criteria: effectiveness, efficiency, relevance, coherence, and European Union added value. In addition to complementarity and sustainability to provide a more comprehensive overview of the landing obligation.

The evidence-based evaluation indicates the landing obligation has not yet reached its potential. The study highlights some localised success in reducing discarding, but a lack of largescale reductions. Progress has been Hindered by key challenges which has limited implementation of behavioural changes, including insufficient control and enforcement, operational complexity, regional disparities, and economic feasibility.

Executive Summary

In 2013, the European Union (EU) Common Fisheries Policy (CFP) was reformed to improve the conservation of marine biological resources and the long-term viability of the fishing sector through the reduction of unsustainable fishing practices (Regulation (EU) No 1380/2013). A fundamental aspect of the reform lies in Article 15(1), known as the landing obligation, which states: *"All catches of species which are subject to catch limits and, in the Mediterranean, also catches of species which are subject to minimum sizes as defined in Annex III to Regulation (EC) No 1967/2006, caught during fishing activities in Union waters or by Union fishing vessels outside Union waters in waters not subject to third countries' sovereignty or jurisdiction, in the fisheries and geographical areas listed below shall be brought and retained on board the fishing vessels, recorded, landed and counted against the quotas where applicable, except when used as live bait..."* Five years on from the full implementation of the landing obligation on 1 January 2019, the European Commission Directorate-General for Maritime Affairs and Fisheries (DG MARE) launched a study to support the evaluation of the landing obligation set out in Article 15 of Regulation (EU) No 1380/2013 as part of a wider CFP review.

The study used a combination of desk research incorporating more than 300 documents, focused case studies, and stakeholder insights (e-survey, e-mail and verbal interviews) to support an ex-post evaluation of the landing obligation against seven criteria: effectiveness; efficiency; relevance; coherence; EU-added value; complementarity; and sustainability following the Better Regulation Guidelines. The scope of the study comprises Regulation (EU) No 1380/2013 recitals 26, 27, 28, 29, 31, 32, 67, as well as Articles (2)(5)(a); 7; 10(2)(a); 14; 15; 16(2); discard plans, and European Commission Delegated Regulations specifying the details of implementation of the landing obligation. More specifically, an evaluation against Article (2)(5)(a) of the CFP Regulation (EU) No 1380/2013: *"[the CFP shall, in particular] gradually eliminate discards, on a case-by-case basis, taking into account the best available scientific advice, by avoiding and reducing, as far as possible, unwanted catches, and by gradually ensuring that catches are landed."* Additional articles of Regulation (EU) No 1380/2013 with direct relevance to the landing obligation were included in the effectiveness evaluation. This included: Article 2(5)(e), Article 2(5)(f), Article 2(5)(g), Article 2(5)(h), and Article 2(5)(j).

The geographic scope of the study included the Baltic Sea, North Sea, the Western Waters of the North-east Atlantic, Mediterranean Sea, Black Sea, the Outermost Regions, and distant water fleet (covering all other Union waters and non-Union waters not subject to third countries' sovereignty or jurisdiction). The determination and evaluation of compliance with the CFP legislative framework was beyond the scope of the study (including, but not limited to, aspects of accuracy of catch weighing, reporting, and quota deduction).

The objectives and implementation of the landing obligation

The landing obligation was intended as a key instrument to gradually eliminate discarding of species subject to catch limits, and in the Mediterranean MCRS restrictions, caught during fishing activities in Union waters or by Union fishing vessels. Discarding being the practice of returning unwanted catches to the sea. A practice considered wasteful, yet widespread. The reasons for discarding vary across regions, species, and fisheries, but typically fall under similar categories: lack of quota; individuals below minimum conservation size; individuals damaged or predated on; less profitable species; high grading (actively selecting to retain just the most profitable size category); gear and catch composition restrictions; or lack of market.

The intention of the landing obligation was to change the total allowable catch (TAC) management system used to limit fishing pressure and removals from an essentially landings-based system to a TAC system which considers the whole catch. This includes catches of juvenile and undersized fish that would have previously been discarded. In order to disincentivise targeting of undersize individuals, Regulation (EU) No 1380/2013 restricted sale of undersize and over quota fish to non-human consumption, limiting economic return. This, in turn, was intended to encourage a more selective approach to fishing, with the ultimate goal of fishers implementing methods and strategies that avoid catching such fish. A potential response to the restriction to non-human consumption was the possibility of generating a viable market for such under sized and over-quota species.

The 2013 CFP Regulation recognises the difficulty in implementing the landing obligation in mixed fisheries and provides that, in order to cater for unwanted catches that are unavoidable, even when all the measures for their reduction are applied, certain exemptions from the landing obligation should be established. These exemptions include species with high survival rates and fisheries that have disproportionate landing costs and proven difficulty in handling unwanted catches. Specifically, for the latter, the allowance for discarding unwanted catches is contingent upon them constituting no more than a specific percentage, typically less than 5%, of the total catch – a threshold known as "de minimis." The third and fourth exemptions refer to prohibited species and fish damaged by predation, as described in Article 15(4) of the CFP Regulation.

The landing obligation was designed to be applied across all EU fishing opportunities, applying the same basic concept of retaining certain species catches of undersize and over-quota individuals, while facilitating a regional approach to account for geographic variations in fisheries and stocks through the establishment of Multiannual Plans (MAPs). MAPs provide a legal basis within which to manage fisheries and fish stocks at a regional scale, encompassing the dynamic nature of different fleet segments and single or

mixed fisheries operating in different areas. Each MAP contains conservation objectives and goals for the management of key stocks (e.g. fishing at MSY), and measures for implementing the landing obligation.

At a Member State level, Member States were encouraged to reduce unwanted catches. In line with the 2013 CFP Regulation objectives, efforts to reduce and or avoid unwanted catches through initiatives to improve the selectivity of fishing gear and methods should be prioritised. Additionally, where national quota management systems do not align with expected fishing patterns and catch compositions, Member States are permitted to adjust catch limits through flexibility in quota allocations. Whereby, swaps between Member States within a year, between years (inter-annual) or stocks (inter-species) are permissible. This is especially relevant for mixed fisheries where multiple regulated species are caught together.

Over the period of implementation, a range of external factors have influenced the landing obligation. The most obvious ones are the United Kingdom withdrawal from the EU and COVID-19, which affected the fisheries and aquaculture sector in all Member States, though not necessarily to the same extent. Furthermore, the Russian aggression against Ukraine had a broad effect through inflation, especially fuel price rises. As well as climate change in terms of unpredictable challenges for fisheries.

Limitations of the findings

Several key limitations were encountered during the evaluation of the landing obligation. Firstly, the **large number of exemptions** available to fishers in each sea basin made it difficult to directly trace impacts within a fleet, fishery and sea basin, whereby different exemptions are potentially applicable to the same activity. The **only data available at the scale of exemption were from a retrospective link** between the pre aggregated logbook data of the STECF FDI database and lists of applicable exemptions. Secondly, Member State scientific discard and economic indicator data collection framework **sampling strategies do not match that of the landing obligation “case by case” implementation**, masking trends. On top of this, the **annual variability** in data has made it challenging to establish clear, overarching trends. Furthermore, the level of **control and enforcement at local and regional levels** led to challenges in determining whether the landing obligation had been successful in achieving its objectives. Resulting from strong drivers for non-compliance, combined with a lack of data associated with this (unobserved) discarding, non-compliance has been anecdotally acknowledged to occur, yet it has not been possible to quantify this and its subsequent impact on the objectives of the landing obligation.

The evaluation criteria of relevance and effectiveness findings are primarily based on desk research, as the relevance and effectiveness of the landing

obligation have been extensively reported by multiple sources. To complete the analysis of some (sub)indicators, insights from the e-survey or stakeholder interviews were also included. As these findings are considered more subjective, the source and number of respondents are listed when utilised.

Effectiveness in achieving or progressing towards the landing obligation objectives

The landing obligation has **not been effectively implemented**. The landing obligation has not eliminated discarding or incentivised sustainable fishing practices. While **notable successes have been achieved**, such as the promotion of selective fishing practices and increased operational flexibility, persistent **challenges continue to hinder the full realisation** of the landing obligation's objectives. Widespread use of exemptions, such as high survivability and *de minimis*, have disrupted efforts to implement more selective fishing, effectively maintaining the status quo in practice. The effectiveness of the landing obligation is challenged by resource allocation and training accessibility, especially for public authorities, in addition to compliance.

Discard rates have remained relatively unchanged, on average within fisheries, decreased by just under 2% since the implementation of the landing obligation. There is, however, **significant variability** across fisheries, regions and species. The volume (by weight) of EU landings for non-human consumption increased from 2013 until 2017 during the phasing-in period of the landing obligation, then decreased until 2021. Although some interest has been observed in bulk purchase of non-human consumption catch, **processing facilities and market development has been slow in many regions**, limiting the overall effectiveness. In Spain and Portugal, insufficient processing facilities and demand have even led to some catches ending in landfill. Stakeholders agreed development of alternate use to have been limited by insufficient infrastructure investment, high handling and processing costs, a lack of market demand, and regulatory barriers. Establishing and expanding market outlets for minimum conservation reference size (MCRS) catches remains critical to the success of the landing obligation.

Quota swaps have been, and continue to be, a crucial flexibility mechanism in the management of choke species and maintaining operational flexibility under the landing obligation and wider CFP objectives. Between 2014 and 2023, **quota swaps increased** by 200%, with notable spikes in 2017 and 2023. These swaps demonstrate the reliance on flexibility to allow countries to better coordinate and optimise their available quotas based on their current specific needs and fishing capacities compared to relative stability allocations.

The CFP aims to contribute to food supply and security while considering consumer and producer interests. As such, the landing obligation, among other factors, have notably affected production volume and market dynamics.

Landings (live weight) and value have both decreased in comparison to levels prior to the landing obligation. While **consumer prices grew** by 42% in real terms compared to 2013 for fishery and aquaculture products.

Pilot studies show **selective gear can reduce unwanted catches**, although balancing ecological benefits with economic impacts remains challenging for wide scale voluntary adoption. Evidence of a change in behaviour among fishing fleets has been reported where economic or quota incentives are available, as part of exemption conditions, or legal mandate. As anticipated by the 2011 Impact Assessment, **mixed fisheries have struggled to reduce capture of undersized individuals**. Good practices were identified, particularly in selective gear modifications and bycatch reduction in regions like the North and Baltic Seas. The slow pace of selectivity improvements and the reluctance of some fishers to adopt new practices highlight the need for continued support and incentives to encourage the widespread adoption of selective gears.

The effectiveness of the landing obligation varies regionally. While regions like the North Sea have made notable strides in compliance and selectivity, others, such as the Mediterranean Sea, face more significant challenges due to socio-economic factors and infrastructural limitations. Bycatch reduction has been achieved effectively through the use of non-entangling DFADs and biodegradable gear within the French tropical tuna purse seine fleet for example. In contrast, the Baltic trawl fisheries have not experienced a reduction in cod discards, underlining insufficient progress in selectivity improvements and persistent compliance challenges. As a result, the bottom trawl fleet operating in the Baltic cod's main distribution area, as of 9 April 2025 has been mandated to more selective gears, for example a roofless selection device.

Short-term economic impacts were anticipated by the 2011 Impact Assessment, however, **economic indicators such as revenue have not yet recovered**.

→ Despite the additional workload associated with the landing obligation, **employment decreased**. These declines are compounded by external factors, relating to COVID-19, continued overfishing, stricter regulations, and technological advancements. Findings from desk research indicate that **small-scale coastal fisheries have experienced greater economic challenges**, in particular those in the Mediterranean Sea. These fisheries are impacted by increased costs associated with handling and landing additional catches. Such costs have been reported as deterring strict adherence to the landing obligation.

Desk research aligns with stakeholder perceptions associated with **instances of non-compliance hindering the effectiveness** of the landing obligation. Financial and logistical challenges impede practical implementation. The amended Control Regulation (EU) No 2023/2842 requirement of electronic monitoring is anticipated to facilitate at-sea control.

Efficiency in terms of actual costs to benefits

The intended goal of assessing the efficiency of the landing obligation is to ensure that it is implemented in a manner that optimises the use of resources, reduces unnecessary costs, and enhances the economic viability of the fisheries sector. The transition to new practices imposes additional costs and workloads. The evaluation revealed **varying administrative costs and economic impacts** across different regions, reflecting the complexity and challenges of implementing the landing obligation effectively. There is **potential to reduce costs** and achieve improved results with less public funding.

Administrative costs associated with the landing obligation vary significantly across regions within public authorities and for operators. Countries like Finland experience minimal public authority administrative costs due to pre-existing limited discard practices. Other Member States face **significant financial and logistical challenges**, particularly those with complex fisheries and operational structures such as mixed fisheries bottom trawling practices in the Netherlands. At the operator level, **significant additional costs** can be associated with adoption of new practices. These include gear modification, increased sorting and storage capacity, and administrative resources.

In several Member States, the use of **de minimis exemptions helps manage unwanted catches and reduces administrative burdens**. This has its own administrative costs and burdens. In 2023, the STECF reviewed 103 exemption applications, with 81 related to *de minimis* exemptions and the remainder to high survivability, indicating an increasing reliance on such measures, which require scientific justification and review.

The landing obligation has **fostered enhanced regional coordination** through standardised data and plans, thereby improving cross-border collaboration in fisheries management. This is particularly the case in relation to Joint Recommendations to STECF on regional exemptions.

Relevance to current and emerging needs

The evaluation considers the extent to which the landing obligation adapts to and supports current and emerging key EU strategies and sector-specific requirements. While the landing obligation aims to reduce discards and promote sustainable practices, these goals primarily align with policy needs rather than those of the fishers.

In relation to current EU strategic objectives, the landing obligation has **relevance to some goals within the 2030 Biodiversity strategy**. This primarily relates to the provisions of the strategy that support sustainable resource use and aim to reduce non-target species mortality. The landing obligation lacks tailored regulations for sensitive habitats, and the contribution to

extending protected land and sea areas is limited. Furthermore, the landing obligation does not account for the restoration of degraded ecosystems. In relation to the **Farm to Fork strategy there is some relevance**, through promoting sustainable food production. However, its limited impact on food affordability, nutritional quality, and ecosystem-based management diminishes its relevance. The obligation does not adequately support employment opportunities and reskilling, **having limited relevance to the Just Transition framework**.

→ In relation to sector groups, **the landing obligation is most relevant to fisheries**. Desk research and fisher stakeholder views indicate a perception that the landing obligation is unnecessary for their operations. The high number of exemptions highlights fishers struggle to fully implement the landing obligation effectively without compromising other sectoral goals. There is a **disconnect between the landing obligation objectives and the broader goals of the fisheries sector** through a desire to maintain the status quo. While some arguments highlight potential benefits, such as promoting selective fishing, the focus should shift towards ensuring fishers can maintain economic stability. **Challenges remain within the mixed fishery and small scale and coastal sectors** in particular.

The landing obligation is **relevant to public authorities and Advisory Councils**, effective implementation faces significant challenges. Public authorities require increased funding, resources and clearer guidelines for enforcement. **Each Advisory Council highlights challenges specific to their region and fisheries**, such as quota alignment in the North Sea. In general, there is a call for regulatory simplification, greater monitoring and control mechanisms, and infrastructural improvements. The Market Advisory Council (MAC) raises concerns about the lack of market development for undersized fish, limiting economic viability.

There is **limited relevance to the aquaculture sector**. The primary impact relates to availability of feed inputs like fishmeal and fish oil from the wild capture sector. The landing obligation currently lacks a mechanism to foster collaboration between aquaculture and fisheries in this regard.

The analysis reveals that the landing obligation is **relevant to both trade associations and non-government organisations (NGOs)**, although **not considered sufficiently robust** to meet their respective needs. Trade associations seek regulatory stability and financial support to aid compliance, while NGOs call for broader ecological protections and stricter enforcement. Addressing these challenges could enhance the landing obligation's relevance across the fishing sector. There is **limited relevance to the academic and research sector**. There is a lack of sufficient monitoring data and funding to support long-term research assessments. The preserved lack of opportunities

for input into policy formulation makes the landing obligation less relevant to this sector.

Coherence with other EU interventions of international agreements

The **intention of the landing obligation was to be coherent with a number of other pieces of EU legislation**, creating synergies, each working to improve fishing practices, selectivity, and stock sustainability. These include, the wider CFP Regulation (EU) No 1380/2013 framework, including the former Technical Measures Regulation (EC) No 894/97 (repealed by Regulation (EU) No 2019/1241), the Control Regulation (EC) No 1224/2009 (amended by Regulation (EU) No 2023/2842), funding mechanisms (EMFF and EMFAF), and annual regulations setting out fishing opportunities. **Implementation of the landing obligation has not been entirely internally coherent.** Particularly in relation to the CFP objective of “achieving economic, social and employment benefits, and of contributing to the availability of food supplies”. Furthermore, limited enforcement, coupled with the widespread use of flexibilities incentivises the continuation of the status quo. Measures to mitigate the negative economic impacts of the landing obligation and promote the effectiveness of the measure by encouraging trade-offs appear to be lacking.

With regard to flexibilities, the CFP Regulation (EU) No 1380/2013 sets out a number of interventions that seek to ensure flexibility in support of the practical implementation of the landing obligation, including initial quota uplifts; inter-annual and inter-species flexibility mechanisms; quota swapping; and exemptions (high survivability and *de minimis*). These interventions have permitted **so much flexibility that the measure is not coherent with its original objectives**. This flexibility from Member State to Member State and between different fleet segments within Member States has not led to better implementation of the landing obligation.

In terms of coherence with wider EU legislation, there seems to be **broadly coherence with the objectives of the MSFD 2008/56/EC and Habitats Directive 92/43/EEC**. Whereby the landing obligation reduces bycatch and contributes to a healthy marine environment, as called for by the MSFD 2008/56/EC. The potential contribution of the landing obligation to the protection of marine habitats is less easy to establish. The legal requirements within the landing obligation are **not coherent with the Waste Framework Directive, nor the Farm to Fork policy**, given the requirement to bring ashore catches for non-human consumption, representing a waste of potential food.

At the strategy level, in terms of its overall objective, the landing obligation was **coherent with the objectives of the Europe 2020 Strategy** at the time of its adoption for sustainable and inclusive growth, seeking to ensure the long-term sustainability of the fisheries sector. However, **actual implementation has not been coherent**, in the short-term at least, with the objective of inclusive

economic growth given the additional costs to fishers and the absence of concrete measures to minimise the impacts of the landing obligation at the socio-economic level. Furthermore, as the landing obligation is currently enforced, it **is not entirely coherent with the 2030 Biodiversity Strategy**, committing to ensuring “*environment-related legislation with an impact on biodiversity is better implemented, enforced and - where necessary - reviewed and revised.*”

The landing obligation applies to EU fishing activities both within and beyond national jurisdictions, demonstrating **coherence with international efforts** to minimise discards and improve fisheries’ sustainability. The landing obligation reflects principles in the FAO’s 1995 Code of Conduct for Responsible Fisheries and aligns with steps taken by RFMOs to reduce discards and adopt discard bans, consistent with international trends. In relation to the United Nations SDGs (Resolution 70/1), the landing obligation is **coherent in terms of its overall objectives and the general objectives of two specific SDG targets**. That of specific target of SDG 14.4, which effectively regulates harvesting and ends overfishing, and rapidly restores fish stocks to a level that achieves maximum sustainable yield, and that of specific target of SDG 12.3, which calls for reductions in per capita global food waste.

EU-added value providing results beyond what would have been achieved by Member States

Assessing the EU-added value of the landing obligation is valuable for understanding whether Member States need EU-level intervention to achieve sustainable fisheries management. The **landing obligation has enabled Member States to achieve outputs that would have been challenging to accomplish independently**. Recent MAP evaluations reveal while EU interventions through the landing obligation have provided monitoring and funding support, their added value and impact remain constrained by significant challenges. Small-scale and coastal fisheries, especially in regions like the Mediterranean, face substantial economic barriers to compliance. For example, the substantial economic barriers to compliance encountered by small-scale coastal fisheries linked to limited market opportunities for low-value species. Even with support, like that from the EMFF/EMFAF, the financial burden of the landing obligation has remained significant.

Tailored adaptations that consider the unique constraints and opportunities of Member States are essential for promoting sustainable and economically viable European fisheries. **There is a need for greater region-specific adaptations to alleviate financial pressures and enhance the landing obligation’s EU-added value.** The potential to realise these improvements depends on adapting policies to meet the diverse needs of Member States, ensuring that the landing obligation achieves its intended objectives and delivers genuine EU Added Value.

Complementarity with EU and Member State policies and interventions

The complementarity assessment of the landing obligation with other Member State interventions and EU-funded projects reveals a **multifaceted and nuanced picture**. While the landing obligation aims to support sustainable fishing practices and reduce discards, its integration with Member State initiatives and effectiveness **varies across different regions and initiatives**. Based on case studies and stakeholder views, notable areas of support and integration include EMFF and EMFAF projects (focused on selectivity, evidence supporting exemption development, and education), the overall synergy between EU funds and national efforts is uneven.

The landing obligation created **an additional control and enforcement requirement** for Member States. There is however substantial desk research highlighting that illegal discarding is still occurring. Partially due to a lack of supporting funding for Member States, and partly due to the difficulty in at-sea monitoring. The amended Control Regulation (EU) No 2023/2842 surrounding electronic monitoring systems is anticipated to support this aspect of complementarity.

Desk research indicates that **some Member States have adapted their quota management systems** as a result of the landing obligation, in order to provide additional flexibility. Portugal adapted their quota management system in 2019 to provide more flexibility and implemented specific measures for mackerel, megrim, alfonsoinos, horse mackerel, sole and anglerfish. In 2020, a new quota management system was adopted for anchovy to improve and better control quota utilisation, establishing the fishing season and daily catch limits by vessel. France has adopted a different approach, making use of inter-annual quota flexibility, authorising a vessel to go to 10% beyond its quota of a particular TAC, subsequently deducted from the national quota the following year.

There is a **need for better alignment of EU initiatives with local fisheries management** to maximise the contribution the landing obligation can make to conservation and management objectives.

Sustainability of the changes resulting from the landing obligation

Evaluating the sustainability of the landing obligation within the CFP Regulation (EU) No 1380/2013 framework has provided critical insights into its potential long-term impact on EU fisheries management. While there are **pockets of progress** and some success stories, broader **adaptation and compliance remain inconsistent**. Resistance to change has been prevalent compounded by difficulties in at-sea enforcement. Fishers have been reluctant to change fishing practices due to the high costs and perceived economic losses. Moreover, flexibilities built in to facilitate gradual changes in behaviour (quota

uplift, quota flexibility, and exemptions) have resulted in **continuance of the pre-landing obligation status quo**.

The **long-term sustainability of the landing obligation is hindered by economic challenges and the policy's rigid structure**, which does not always align with the diverse ecological and operational realities across different fisheries.

Lessons learned

The following are areas where **increased attention or investment** could have further enhanced the achievements of the landing obligation:

- There has been lower than anticipated compliance across all sea basins. Increased Member State level at-sea control and enforcement, incorporating use of EMS, would likely have resulted in greater compliance and faster adaptation of fishing behaviour.
- A lack of funding, or access to funding, for innovative trials, research into developing new technologies, compensation mechanisms, and control and enforcement methods limited the anticipated behavioural changes from fishers. Additional funding for this may have resulted in a greater reduction in unwanted catches.
- It is apparent that small-scale and coastal fishers have experienced economic and administrative challenges in complying with the landing obligation. Additional support would have benefited this sector.
- • There is a growing dependence on *de minimis* exemptions and flexibility mechanisms which are facilitating fishers to maintain the status quo, having lost the incentive to adapt fishing behaviours. Restricting the duration of some of these mechanisms would have retained the incentive to develop new practices.
- • A lack of regional-specific strategies has prevented consideration of the scale of diversity and variability between sea basins. Applying an approach beyond regional exemptions would have fostered a greater degree of region-specific planning and adaptations to account for the differences in fishing practices within each sea basin.
- Infrastructure and market development for the previously discarded portion of the catch has not progressed as expected, with undersize and over-quota catches achieving low to no economic return, to the extent of becoming landfill. Although an active, profitable market for such catches was not intended, some economic return and use was anticipated. Such development would have benefited from additional funding to support infrastructure and development of supply chains.

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- Collaboration between fishers, Member States, scientists and policy makers has begun in some areas, however a greater involvement of fishers in the development of alternate approaches, development of best practices, and uptake of more selective gear would give a greater sense of ownership of solutions to key challenges within the landing obligation and promote informed decisions.
 - Limitations of the sampling programmes for discard estimation and economic variables restricted direct comparison with potential fine scale impacts of exemptions to the landing obligation. Data collection under the Data Collection Framework would benefit from increased investment to collect meaningful data at a finer strata resolution to support direct linkages to fine scale impact evaluation.
 - Limitations to EU wide fisheries dependant information restricted a full understanding of impacts at the level of exemptions. Revisions to the aggregated logbook data submitted by Member States to the STECF FDI database would have allowed direct comparison of reported catches at this scale.

Resumé analytique

Une réforme de la politique commune de la pêche (PCP) de l'Union européenne (UE) adoptée en 2013 visait à améliorer la conservation des ressources biologiques de la mer et la viabilité à long terme du secteur de la pêche à travers la réduction des pratiques de pêche non durables (règlement (UE) n° 1380/2013). Un aspect fondamental de la réforme réside dans l'article 15, paragraphe 1, connu sous le nom d'obligation de débarquement, qui stipule : « *Toutes les captures des espèces faisant l'objet de limites de capture et, en Méditerranée, celles soumises à des tailles minimales définies à l'annexe III du règlement (CE) no 1967/2006, réalisées au cours d'activités de pêche dans les eaux de l'Union ou par des navires de pêche de l'Union en dehors des eaux de l'Union dans des eaux ne relevant pas de la souveraineté ou de la juridiction de pays tiers, dans les pêcheries et les zones géographiques énumérées ci-après, sont ramenées et conservées à bord des navires de pêche, puis enregistrées, débarquées et imputées sur les quotas le cas échéant, sauf lorsqu'elles sont utilisées comme appâts vivants...* » Cinq ans après la mise en œuvre intégrale de l'obligation de débarquement le 1er janvier 2019, la direction générale des affaires maritimes et de la pêche de la Commission européenne (DG MARE) a lancé cette étude à l'appui de l'évaluation de l'obligation de débarquement énoncée à l'article 15 du règlement (UE) n° 1380/2013 dans le cadre d'un réexamen plus large de la PCP.

L'étude s'est appuyée sur le recoupement de recherches documentaires qui ont intégré plus de 300 documents, ainsi que des études de cas ciblées et la récolte de perspectives de parties prenantes (enquête par e-mail, entretiens par e-mail et verbaux) afin d'étayer une évaluation ex post de l'obligation de débarquement en fonction de sept critères : efficacité, efficience, pertinence, cohérence ; valeur ajoutée au niveau UE ; complémentarité ; et la durabilité ; ceci conformément aux lignes directrices visant à mieux légiférer (Better Regulation Guidelines). Le champ d'application de l'étude comprend les considérants 26, 27, 28, 29, 31, 32 et 67 du règlement (UE) no 1380/2013, ainsi que les articles 2(5) a), 7, 10(2)a), 14, 15 et 16(2), les plans de rejets en mer, et les règlements délégués de la Commission européenne précisant les détails de la mise en œuvre de l'obligation de débarquement. Plus précisément, il s'agissait d'évaluer l'obligation de débarquement au regard de l'article 2, point 5, point a), du règlement PCP (UE) no 1380/2013 : « [la PCP vise en particulier à] *éliminer progressivement les rejets au cas par cas compte tenu des meilleurs avis scientifiques disponibles, en évitant et en réduisant autant que possible les captures indésirées et en faisant en sorte progressivement que les captures soient débarquées.* » Il a été tenu compte en outre dans l'évaluation de l'efficacité d'autres articles du règlement (UE) n° 1380/2013 ayant un rapport direct avec l'obligation de débarquement. Il s'agit notamment de l'article 2, paragraphe 5, point e), de l'article 2, paragraphe 5, point f), de l'article 2,

paragraphe 5, point g), de l'article 2, paragraphe 5, point h), et de l'article 2, paragraphe 5, point j).

La portée géographique de l'étude comprenait la mer Baltique, la mer du Nord, les eaux occidentales de l'Atlantique Nord-Est, la mer Méditerranée, la mer Noire, les régions ultrapériphériques de l'Union et la flotte hauturière (couvrant toutes les autres eaux de l'Union et les eaux en dehors de l'Union qui ne relèvent pas de la souveraineté ou de la juridiction de pays tiers). La détermination et l'évaluation du respect du cadre législatif de la PCP dépassaient la portée de l'étude (tout comme, mais sans que cela soit limitatif, les aspects de l'exactitude de la pesée des captures, de la déclaration des captures, et de l'imputation des quotas).

Les objectifs et la mise en œuvre de l'obligation de débarquement

L'obligation de débarquement a été conçue comme un instrument clé pour éliminer progressivement les rejets d'espèces soumises à des limites de captures, et dans la Méditerranée les restrictions en termes de taille minimale de référence de conservation, lors d'activités de pêche dans les eaux de l'Union ou par des navires de pêche de l'Union. Le rejet est la pratique consistant à remettre à la mer les prises non désirées, une pratique considérée comme gaspilleur, mais répandue. Les raisons des rejets varient selon les régions, les espèces et les pêcheries, mais relèvent généralement de catégories similaires : absence de quota ; taille inférieure à la taille minimale de référence de conservation ; imperfections ou dégâts causés par des prédateurs ; espèces moins rentables ; un calibrage élevé (en sélectionnant activement de ne retenir que la catégorie de taille la plus rentable) ; les restrictions relatives au type d'engin ou à la composition des prises ; ou l'absence de débouché.

L'intention de l'obligation de débarquement était de modifier le système de gestion du total admissible des captures (TAC) qui sert à limiter la pression sur les stocks et les captures pour passer d'un système essentiellement basé sur les débarquements à un système de TAC qui tient compte de l'ensemble des captures. Cela comprend les captures de poissons juvéniles et de poissons n'atteignant pas la taille minimale qui auraient été rejetés auparavant. Afin de dissuader le ciblage des poissons n'atteignant pas la taille minimale, le règlement (UE) n° 1380/2013 a limité la vente de poissons n'atteignant pas la taille minimale ou hors quota à la consommation non humaine, limitant ainsi le retour économique. Ceci, à son tour, visait à encourager une approche plus sélective à la pêche avec comme but ultime l'utilisation par les pêcheurs de méthodes et de stratégies qui évitent de capturer de tels poissons. Une réponse potentielle à la restriction à la consommation non humaine était la possibilité de créer un marché viable pour ces espèces sous-dimensionnées et dépassant les quotas.

Le règlement PCP de 2013 reconnaît la difficulté de mettre en œuvre l'obligation de débarquement dans les pêcheries mixtes et prévoit que, afin de parer aux captures indésirées qui sont inévitables, même lorsque toutes les mesures de réduction de celles-ci sont appliquées, certaines exemptions à l'obligation de débarquement devaient être établies. Ces exemptions comprennent les espèces ayant des taux de survie élevés et les pêcheries dont les coûts de débarquement sont disproportionnés et dont la difficulté à gérer les prises indésirées est reconnue. Plus précisément, pour ces derniers, la limite autorisée pour les rejets des captures indésirées est subordonnée à ce qu'elles ne représentent pas plus d'un pourcentage spécifique, généralement inférieur à 5 %, de la capture totale – un seuil connu sous le nom de « seuil de minimis ». Les troisième et quatrième exemptions concernent les espèces dont la pêche est interdite et les poissons endommagés par la prédation, tels que décrits à l'article 15, paragraphe 4, du règlement PCP.

L'obligation de débarquement a été conçue pour être appliquée à toutes les possibilités de pêche de l'UE, en appliquant le même concept de base consistant à conserver les captures de certaines espèces de poissons n'atteignant pas la taille minimale ou hors quota, tout en facilitant une approche régionale pour tenir compte des variations géographiques des pêcheries et des stocks grâce à l'établissement de plans pluriannuels de gestion. Les plans pluriannuels de gestion constituent la base juridique permettant de gérer les pêcheries et les stocks halieutiques à l'échelle régionale, englobant la nature dynamique des différents segments de la flotte et des pêcheries monospécifiques ou mixtes opérant dans différentes zones. Chaque plan contient des objectifs de conservation et des objectifs pour la gestion des principaux stocks (par exemple, la pêche au rendement maximal durable - RMD), ainsi que des mesures pour mettre en œuvre l'obligation de débarquement.

Au niveau des États membres, les États membres ont été encouragés à réduire les captures indésirées. Conformément aux objectifs du règlement PCP de 2013, il convenait de privilégier les efforts visant à réduire et/ou à éviter les captures indésirées par le biais d'initiatives visant à améliorer la sélectivité des engins et des méthodes de pêche. En outre, lorsque les systèmes nationaux de gestion des quotas ne sont pas alignés sur les schémas de pêche et de composition des captures attendus, les États membres sont autorisés à ajuster les limites de capture en faisant preuve de souplesse dans l'attribution des quotas en permettant des échanges entre États membres au cours d'une année, d'une année à l'autre (interannuels) ou d'un stock (inter espèces). Cela est particulièrement pertinent pour les pêcheries mixtes où plusieurs espèces réglementées sont capturées ensemble.

Au cours de la période de mise en œuvre de l'obligation de débarquement, une série de facteurs externes ont influé sur celle-ci. Les plus évidentes sont le retrait du Royaume-Uni de l'UE et la COVID-19, qui ont eu des conséquences

pour le secteur de la pêche et de l'aquaculture dans tous les États membres, quoique pas nécessairement dans la même mesure. En outre, l'agression russe contre l'Ukraine a eu un impact à large échelle à travers l'inflation, en particulier la hausse des prix du carburant. Le changement climatique est également source de défis imprévisibles pour les pêcheries.

Limitations des constats

Plusieurs limites clés ont été rencontrées lors de l'évaluation de l'obligation de débarquement. Tout d'abord, le **grand nombre d'exemptions** dont disposaient les pêcheurs dans chaque bassin maritime rendait difficile le suivi direct des impacts au sein d'une flotte, d'une pêcherie et d'un bassin maritime, étant donné que différentes exemptions sont potentiellement applicables à la même activité. Les **seules données disponibles à l'échelle des exemptions provenaient d'un lien rétrospectif** entre les données avant agrégation des journaux de bord provenant de la base de données « Fisheries Dependent Information » du Comité Scientifique, Technique et Economique des Pêches (CSTEP) et les listes d'exemptions applicables. Deuxièmement, les stratégies d'échantillonnage du cadre de collecte de données scientifiques et d'indicateurs économiques des États membres **ne correspondent pas à celles de la mise en œuvre « au cas par cas » de l'obligation de débarquement**, masquant ainsi les tendances. De plus, la **variabilité annuelle** des données a rendu difficile l'établissement de tendances claires et globales. De plus, le niveau de contrôle et d'application de la **loi aux niveaux local et régional** a fait en sorte qu'il a été difficile de déterminer si l'obligation de débarquement avait permis d'atteindre ses objectifs. En raison de facteurs importants qui poussent au non-respect de l'obligation pris ensemble avec un manque de données au sujet des rejets (non observés), il est reconnu de manière anecdotique que l'obligation n'est pas respectée, mais il n'a pas été possible ni de quantifier cette situation ni par conséquent son impact sur les objectifs de l'obligation de débarquement.

Les constats par rapport aux critères d'évaluation de la pertinence et de l'efficacité sont principalement fondés sur des recherches documentaires, car de multiples sources ont publié des informations sur la pertinence et l'efficacité de l'obligation de débarquement. Les résultats de l'enquête en ligne ou des entretiens avec les parties prenantes ont servi à compléter l'analyse de certains (sous-)indicateurs. Comme ces résultats-ci sont à considérer comme étant plus subjectifs, la source et le nombre de répondants sont indiqués lors de l'utilisation de ces sources.

Effacité dans l'atteinte ou la progression vers les objectifs de l'obligation de débarquement

L'obligation de débarquement n'a **pas été mise en œuvre de façon efficace**. L'obligation de débarquement n'a pas éliminé les rejets ni donné une impulsion aux pratiques de pêche durables. Bien que **des succès notables aient été obtenus**, tels que la promotion de pratiques de pêche sélective et une flexibilité opérationnelle accrue, des défis persistent qui **continuent d'entraver la pleine réalisation** des objectifs de l'obligation de débarquement. Le recours généralisé à des exemptions, telles que celles sur la capacité de survie élevée et le *de minimis*, a perturbé les efforts visant à mettre en œuvre une pêche plus sélective, de sorte que dans la pratique le statu quo a été maintenu. L'efficacité de l'obligation de débarquement est mise à l'épreuve par le manque de ressources et d'accès à la formation, en particulier pour les autorités publiques, en plus de la question du respect de l'obligation.

Les taux de rejet sont restés relativement inchangés, en moyenne dans l'ensemble ils ont diminué d'un peu moins de 2 % depuis la mise en œuvre de l'obligation de débarquement. Il existe toutefois **une variabilité importante** entre les pêcheries, les régions et les espèces. Le volume (en poids) des débarquements dans l'UE destinés à la consommation non humaine a augmenté de 2013 à 2017 pendant la période de mise en œuvre progressive de l'obligation de débarquement, puis a diminué jusqu'en 2021. Bien qu'un certain intérêt ait été observé pour l'achat en vrac de captures destinés à la consommation non humaine, l'investissement dans des **installations de transformation et des débouchés s'est fait attendre dans de nombreuses régions**, ce qui a limité l'efficacité globale. En Espagne et au Portugal, le manque d'installations de traitement et l'absence de demande a même conduit à ce que certaines captures finissent dans des décharges. Les parties prenantes ont convenu que le développement d'autres utilisations a été limité par des investissements insuffisants dans l'infrastructure, des coûts de manutention et de traitement élevés, un manque de demande du côté du marché et des obstacles réglementaires. L'établissement et l'expansion de débouchés commerciaux pour les captures de taille minimale de conservation de référence restent essentielles pour la réussite de l'obligation de débarquement.

Les échanges de quotas ont été, et continuent d'être, un mécanisme de flexibilité crucial dans la gestion des espèces à quotas limitants et dans le maintien de la flexibilité opérationnelle dans le cadre de l'obligation de débarquement et des objectifs plus larges de la PCP. Entre 2014 et 2023, **les échanges de quotas ont augmenté de 200 %**, avec des pics notables en 2017 et 2023. Ces échanges démontrent la mesure dans laquelle la flexibilité est devenue importante pour permettre aux pays de mieux coordonner et d'optimiser les quotas à leur disposition en fonction de leurs besoins spécifiques

du moment et de leurs capacités de pêche par rapport aux niveaux de stabilité relative fixés au départ.

La PCP vise à contribuer à l'approvisionnement et à la sécurité alimentaires tout en tenant compte des intérêts des consommateurs et des producteurs. À ce titre, l'obligation de débarquement a eu, parmi d'autres facteurs, un impact notable sur le volume de production et la dynamique du marché. **Les débarquements (en poids vif) et la valeur ont tous deux diminué** par rapport aux niveaux antérieurs à l'obligation de débarquement, alors que **les prix à la consommation ont augmenté** de 42 % en termes réels par rapport à 2013 pour les produits de la pêche et de l'aquaculture.

Des études pilotes montrent que **les engins sélectifs peuvent réduire les captures indésirées**, bien qu'il reste difficile d'établir l'équilibre entre les avantages écologiques et les impacts économiques qui mènerait à une adoption volontaire de ceux-ci à grande échelle. Des signes d'un changement de comportement parmi les flottilles de pêche ont été signalés lorsque des incitations économiques ou en termes de quotas sont disponibles, soit dans le cadre de conditions d'exemption ou soit par obligation suite à une réglementation. Comme pressenti par le rapport d'analyse d'impact de 2011, **les pêcheries mixtes ont eu du mal à réduire les captures de poissons n'atteignant pas la taille minimale**. De bonnes pratiques ont été identifiées, en particulier en ce qui concerne la modification sélective des engins et la réduction des captures accessoires dans des régions telles que la mer du Nord et la mer Baltique. La lenteur dans l'introduction des améliorations de la sélectivité et la réticence de certains pêcheurs à adopter de nouvelles pratiques soulignent la nécessité de continuer le soutien et de fournir des incitatifs afin d'encourager l'adoption généralisée d'engins sélectifs.

L'efficacité de l'obligation de débarquement varie d'une région à l'autre. Alors qu'il y eu des progrès notables en matière de respect de l'obligation et de sélectivité dans des régions comme la mer du Nord, des facteurs socio-économiques et des limitations infrastructurelles font que d'autres régions, telle la mer Méditerranée, se trouvent confrontées à des défis plus importants. La réduction des prises accessoires a été réalisée efficacement grâce à l'utilisation de dispositifs de concentration de poissons dérivant non emmêlant et d'engins biodégradables au sein de la flotte française de thons tropicaux à senne coulissante, par exemple. En revanche, les pêcheries au chalut de la Baltique n'ont pas connu de réduction des rejets de cabillaud, ce qui souligne l'insuffisance des progrès en matière d'amélioration de la sélectivité et les problèmes persistants de respect de l'obligation. En conséquence, une réglementation est en place depuis le 9 avril 2025 qui oblige la flotte de chaluts de fond opérant dans la principale zone de répartition du cabillaud de la Baltique d'utiliser davantage d'engins sélectifs, par exemple un dispositif de sélection « roofless ».

Le rapport d'analyse d'impact de 2011 prévoyait des répercussions économiques à court terme, mais les **indicateurs économiques tels que les revenus ne se sont toujours pas encore** rétablis. Malgré la charge de travail supplémentaire associée à l'obligation de débarquement, **l'emploi a diminué**. Ces baisses sont aggravées par des facteurs externes, tels que la COVID-19, le fait que la surpêche continue, les réglementations plus strictes et les progrès technologiques. Les résultats des recherches documentaires indiquent que c'est **la pêche artisanale côtière à petite échelle qui a connu les défis économiques les plus importants**, en particulier en mer Méditerranée. Selon les sources documentaires les coûts associés à la manutention et au débarquement de captures plus grandes ont augmenté pour ces pêcheries. Cette augmentation a eu un effet dissuasif au regard du strict respect de l'obligation de débarquement.

La recherche documentaire est en ligne avec les perceptions des parties prenantes qu'il existe des **cas de non-conformité qui entravent l'efficacité** de l'obligation de débarquement. Des défis financiers et logistiques entravent la mise en œuvre dans la pratique. Les modifications au règlement (UE) n° 2023/2842 en matière de contrôle de pêche qui renforceront la surveillance électronique devrait cependant faciliter le contrôle en mer.

Efficiencia en términos de costos reales por relación a los beneficios

L'objectif visé par l'évaluation de l'efficacité de l'obligation de débarquement est de s'assurer qu'elle est mise en œuvre de manière à optimiser l'utilisation des ressources, à réduire les coûts inutiles et à renforcer la viabilité économique du secteur de la pêche. La transition vers de nouvelles pratiques impose des coûts et des charges de travail supplémentaires. L'évaluation a révélé **des coûts administratifs et des répercussions économiques variables** d'une région à l'autre, ce qui est un reflet de la complexité et des défis liés à la mise en œuvre efficace de l'obligation de débarquement. Il est **potentiellement possible de réduire les coûts** et d'obtenir de meilleurs résultats avec moins de financement public.

Les coûts administratifs associés à l'obligation de débarquement varient considérablement d'une région à l'autre au sein des autorités publiques et pour les opérateurs. Des pays comme la Finlande connaissent des coûts administratifs très limités de la part des pouvoirs publics en raison de pratiques préexistantes qui limitaient les rejets. D'autres États membres sont confrontés à **d'importants défis financiers et logistiques**, en particulier ceux qui ont des pêcheries complexes et des structures opérationnelles telles que les pratiques de chalutage de fond des pêcheries mixtes aux Pays-Bas. Au niveau de l'opérateur, des **surcoûts importants** peuvent être associés à l'adoption de nouvelles pratiques. Il s'agit notamment de la modification des équipements, de l'augmentation de la capacité de tri et de stockage, ainsi que des ressources administratives.

Dans plusieurs États membres, le recours à des ***exemptions de minimis*** permet de gérer les captures indésirées et de réduire les charges administratives. Cela amène cependant ses propres coûts et charges administratives. En 2023, le CSTEP a examiné 103 demandes d'exemption, dont 81 concernaient des *exemptions de minimis* et le reste une capacité de survie élevée, ce qui indique que le secteur s'appuie de plus en plus sur de telles mesures, qui nécessitent une justification et un examen scientifiques.

L'obligation de débarquement a **favorisé une meilleure coordination régionale** grâce à des données et des plans standardisés, améliorant ainsi la collaboration transfrontalière dans la gestion des pêcheries. C'est notamment le cas en ce qui concerne les recommandations conjointes aux CSTEP sur les exemptions régionales.

Pertinence par rapport aux besoins actuels et émergents

L'évaluation examine dans quelle mesure l'obligation de débarquement s'adapte aux stratégies clés actuelles et émergentes de l'UE et aux exigences sectorielles, et les soutient. Bien que l'obligation de débarquement vise à réduire les rejets et à promouvoir des pratiques durables, ces objectifs s'alignent principalement sur les besoins politiques plutôt que sur ceux des pêcheurs.

Par rapport aux objectifs stratégiques actuels de l'UE, l'obligation de débarquement est **pertinente pour certains objectifs de la stratégie en faveur de la biodiversité à l'horizon 2030**. Ceci est vrai principalement pour celles des dispositions de la stratégie qui soutiennent l'utilisation durable des ressources et visent à réduire la mortalité des espèces non ciblées. L'obligation de débarquement n'incorpore pas une réglementation adaptée aux habitats sensibles, et sa contribution à l'extension des zones terrestres et maritimes protégées est limitée. De plus, l'obligation de débarquement ne tient pas compte de la restauration des écosystèmes dégradés. En ce qui concerne la **stratégie « De la ferme à la table »**, l'obligation de débarquement n'est pertinente que dans une certaine mesure, c'est-à-dire à travers la promotion d'une production alimentaire durable. Cependant, son impact limité sur l'accessibilité des aliments en termes de prix, la qualité nutritionnelle et la gestion écosystémique diminue sa pertinence. L'obligation ne soutient pas de manière adéquate les possibilités d'emploi et la reconversion, **car elle n'a qu'une pertinence limitée pour le cadre politique de l'Union européenne en faveur d'une transition juste**.

En ce qui concerne les différents sous-secteurs de l'industrie de la pêche, **l'obligation de débarquement est la plus pertinente pour les pêcheurs**. Les recherches documentaires et les perceptions des parties prenantes du côté des pêcheurs indiquent que l'obligation de débarquement n'est pas nécessaire à leurs activités. Le nombre élevé d'exemptions met en évidence le fait que les

pêcheurs ont du mal à mettre en œuvre pleinement l'obligation de débarquement sans compromettre d'autres objectifs sectoriels. Il y a un **décalage entre les objectifs de l'obligation de débarquement et les objectifs plus larges du secteur de la pêche** en raison du désir de la part des pêcheurs de maintenir le statu quo. Bien que certains arguments mettent en évidence des avantages potentiels de cette obligation, tels que la promotion de la pêche sélective, l'accent de la politique de pêche devrait évoluer vers le maintien de la stabilité économique des pêcheurs. **Des défis subsistent dans les secteurs de la pêche mixte et en particulier dans les secteurs côtiers et à petite échelle.**

L'obligation de débarquement est **pertinente pour les autorités publiques et les conseils consultatifs**, mais la mise en œuvre efficace se heurte à des défis importants. Les autorités publiques ont besoin de plus de financements et de ressources ainsi que de lignes directrices plus claires au regard de l'application de la loi. **Chaque conseil consultatif met en évidence les défis spécifiques à sa région et à ses pêcheries**, tels que l'alignement des quotas en mer du Nord. D'une manière générale, on réclame une simplification de la réglementation, des mécanismes de surveillance et de contrôle renforcés et des améliorations des infrastructures. Le Conseil consultatif pour les marchés (MAC) s'inquiète du manque de développement de marché pour les poissons n'atteignant pas la taille minimale, ce qui limite la viabilité économique de la pêche.

La **pertinence pour le secteur de l'aquaculture est limitée**. L'impact principal concerne la disponibilité d'intrants alimentaires tels que la farine et l'huile de poisson provenant du secteur de la capture sauvage. L'obligation de débarquement ne dispose actuellement pas d'un mécanisme pour favoriser la collaboration entre l'aquaculture et la pêche à cet égard.

L'analyse révèle que l'obligation de débarquement est **pertinente à la fois pour les associations professionnelles et les organisations non gouvernementales (ONG)**, bien qu'elle **ne soit pas considérée comme suffisamment solide** pour répondre à leurs besoins respectifs. Les associations professionnelles souhaitent une stabilité réglementaire et un soutien financier pour faciliter le respect de l'obligation, tandis que les ONG appellent à des protections écologiques plus larges et à une application plus stricte. S'attaquer à ces défis pourrait renforcer la pertinence de l'obligation de débarquement dans l'ensemble du secteur de la pêche. La **pertinence pour le secteur universitaire et de la recherche est limitée**. Il n'y a pas suffisamment de données de surveillance ni de financement pour permettre aux chercheurs d'évaluer la situation à long terme. Le manque de possibilités de participer à l'élaboration des politiques rend l'obligation de débarquement moins pertinente pour ce secteur.

Cohérence avec les autres interventions de l'UE dans le cadre d'accords internationaux

L'intention de l'obligation de débarquement était d'être cohérente avec un certain nombre d'autres actes législatifs de l'UE, en créant des synergies, où chaque acte contribue à améliorer les pratiques de pêche, la sélectivité et la durabilité des stocks. Il s'agit notamment du cadre plus large du règlement (UE) n° 1380/2013 de la PCP, y compris l'ancien règlement (CE) n° 894/97 relatif aux mesures techniques (abrogé par le règlement (UE) n° 2019/1241), du règlement de contrôle (CE) n° 1224/2009 (modifié par le règlement (UE) n° 2023/2842), des mécanismes de financement (FEAMP et FEAMPA) et des règlements annuels fixant les possibilités de pêche. **La mise en œuvre de l'obligation de débarquement n'a pas été entièrement cohérente en interne.** En particulier en ce qui concerne l'objectif de la PCP « d'obtenir des retombées positives économiques, sociales et en matière d'emploi et à contribuer à la sécurité de l'approvisionnement alimentaire ». De plus, les lacunes dans l'application de la loi, conjuguée au recours généralisé à la flexibilité, encourage le maintien du statu quo. Il semble qu'il n'existe pas de mesures visant à atténuer les effets économiques négatifs de l'obligation de débarquement et à promouvoir l'efficacité de la mesure en encourageant les compromis.

En ce qui concerne la flexibilité, le règlement (UE) n° 1380/2013 de la PCP prévoit un certain nombre d'interventions visant à garantir une certaine flexibilité à l'appui de la mise en œuvre pratique de l'obligation de débarquement, y compris des relèvements des quotas initiaux, des mécanismes de flexibilité entre les années et entre les espèces, des échanges de quotas et des exemptions (capacité de survie élevée et *de minimis*). Ces interventions ont permis **une telle souplesse que la mesure n'est pas cohérente avec ses objectifs initiaux.** Cette flexibilité d'un État membre à l'autre et entre les différents segments de la flotte au sein des États membres n'a pas permis d'améliorer la mise en œuvre de l'obligation de débarquement.

En termes de cohérence avec la législation européenne au sens large, il semble y avoir **une cohérence globale avec les objectifs de la directive établissant un cadre d'action communautaire dans le domaine de la politique pour le milieu marin 2008/56/CE et de la directive 92/43/CEE relative aux habitats.** L'obligation de débarquement réduit les prises accessoires et contribue à un environnement marin sain, comme préconisé par la directive 2008/56/CE. Il est moins facile d'établir la contribution potentielle de l'obligation de débarquement à la protection des habitats marins. Les exigences réglementaires relatives à l'obligation de débarquement ne sont **pas cohérentes avec la directive-cadre sur les déchets, ni avec la politique « De la ferme à la table »** compte tenu de l'obligation de ramener à terre des captures destinées à la consommation non humaine, ce qui représente un gaspillage de nourriture potentielle.

Au niveau de la stratégie politique, en termes de l'objectif global de l'obligation de débarquement de viser à assurer la durabilité à long terme du secteur de la pêche, celui-ci était **cohérent avec les objectifs** tels qu'établis au moment de son adoption **par la stratégie Europe 2020** pour une croissance intelligente, durable et inclusive. Cependant, dans la pratique la **mise en œuvre n'a pas été cohérente**, du moins à court terme, avec l'objectif d'une croissance économique inclusive, compte tenu des coûts supplémentaires pour les pêcheurs et de l'absence de mesures concrètes pour minimiser les impacts de l'obligation de débarquement au niveau socio-économique. En outre, telle que l'obligation de débarquement est actuellement appliquée, elle **n'est pas tout à fait cohérente avec la stratégie en faveur de la biodiversité à l'horizon 2030**, qui s'engage à veiller « à améliorer la mise en œuvre et le respect de législation environnementale exerçant une incidence sur la biodiversité et, le cas échéant, entreprendra de la réexaminer et de la réviser. »

L'obligation de débarquement s'applique aux activités de pêche de l'UE à l'intérieur et au-delà des juridictions nationales, ce qui témoigne **de la cohérence avec les efforts internationaux** visant à réduire au minimum les rejets et à améliorer la durabilité des pêcheries. L'obligation de débarquement reflète les principes du Code de conduite pour une pêche responsable de la FAO de 1995 et s'aligne sur les mesures prises par les organisations régionales de gestion de pêche (ORGP) pour réduire les rejets et adopter des interdictions de rejets, conformément aux tendances internationales. En ce qui concerne les Objectifs de Développement Durable (ODD) des Nations Unies (résolution 70/1), l'obligation de débarquement est **cohérente en termes d'objectifs globaux et d'objectifs généraux de deux cibles spécifiques des ODD**. Il s'agit d'une part le cible spécifique de l'ODD 14.4, qui a pour effet de réglementer la capture et de mettre fin à la surpêche, et rétablit rapidement les stocks de poissons à un niveau permettant d'atteindre un rendement maximal durable, et d'autre part le cible spécifique de l'ODD 12.3, qui appelle à la réduction du gaspillage alimentaire mondial par habitant.

Valeur ajoutée de l'UE en termes de résultats au-delà de ce que les États membres auraient pu réaliser

L'évaluation de la valeur ajoutée par l'UE à travers l'obligation de débarquement est importante pour comprendre si les États membres ont besoin d'une intervention au niveau de l'UE pour parvenir à une gestion durable de la pêche. En effet, **l'obligation de débarquement a permis aux États Membres d'obtenir des résultats qu'il aurait été difficile d'accomplir de manière indépendante**. De récentes évaluations des plans multiannuels (MAP) révèlent que si les interventions de l'UE dans le cadre de l'obligation de débarquement ont fourni un soutien en matière de suivi et de financement, leur valeur ajoutée et leur impact restent limités par des défis importants. La pêche artisanale et côtière, en particulier dans des régions comme la Méditerranée, se heurte à

d'importants obstacles économiques au respect de l'obligation. Il s'agit par exemple des obstacles économiques importants au respect de l'obligation rencontrés par la pêche côtière à petite échelle liés aux peu de débouchés pour les espèces de faible valeur. Même avec un soutien tel que celui du FEAMP/FEAMPA, la charge financière de l'obligation de débarquement est restée importante.

Des adaptations sur mesure, qui tiennent compte des contraintes et des opportunités uniques des États membres, sont essentielles pour promouvoir une pêche européenne durable et économiquement viable. Il est **nécessaire de procéder à des adaptations plus importantes au niveau de chaque région** afin d'alléger les pressions financières et de renforcer la valeur ajoutée de l'obligation de débarquement au niveau de l'UE. Le potentiel de réalisation de ces améliorations dépend de l'adaptation des politiques pour répondre aux divers besoins des États membres, en veillant à ce que l'obligation de débarquement atteigne les objectifs visés et apporte une véritable valeur ajoutée européenne.

Complémentarité avec les politiques et interventions de l'UE et des États membres

L'évaluation de la complémentarité de l'obligation de débarquement avec d'autres interventions des États membres et des projets financés par l'UE révèle une **image multiforme et nuancée**. Bien que l'obligation de débarquement vise à soutenir des pratiques de pêche durables et à réduire les rejets, son intégration aux initiatives des États membres et son efficacité **varient selon les régions et les initiatives**. Sur la base d'études de cas et de points de vue des parties prenantes, les projets FEAMP et FEAMPA (axés sur la sélectivité, les preuves à l'appui de l'élaboration d'exemptions et la formation) constituent des domaines notables de soutien et d'intégration, mais la synergie globale entre les fonds de l'UE et les efforts nationaux est inégale.

L'obligation de débarquement a créé **une exigence supplémentaire en matière de contrôle et d'application** de la part des États membres. Cependant, de nombreuses recherches documentaires ont montré que le problème des rejets illégaux subsiste encore. Les raisons en sont un manque de financement pour soutenir les États membres, et en partie la difficulté de la surveillance en mer. La révision du règlement de contrôle dans le cadre du règlement (UE) n° 2023/2842 concernant les systèmes de surveillance électronique devrait soutenir cet aspect de complémentarité.

Les recherches documentaires ont indiqué que **certains États membres ont adapté leurs systèmes de gestion des quotas** à la suite de l'obligation de débarquement, afin d'offrir une flexibilité supplémentaire. Le Portugal a adapté son système de gestion des quotas en 2019 afin d'offrir plus de flexibilité et a mis en œuvre des mesures spécifiques pour le maquereau, la cardine,

l'alfonsinos, le chinchard, la sole et la baudroie. En 2020, un nouveau système de gestion des quotas a été adopté pour l'anchois afin d'améliorer et de mieux contrôler l'utilisation des quotas, en établissant la saison de pêche et les limites de capture quotidiennes par navire. La France a adopté une approche différente, en faisant appel à la flexibilité des quotas interannuels, en autorisant un navire à dépasser de 10 % le quota de chaque TAC. Ce dépassement est amputé ensuite du quota national de l'année suivante.

Il est **nécessaire de mieux aligner les initiatives de l'UE sur la gestion locale des pêcheries** afin de maximiser la contribution que l'obligation de débarquement peut apporter aux objectifs de conservation et de gestion.

Pérennité des changements résultant de l'obligation de débarquement

L'évaluation de la durabilité de l'obligation de débarquement dans le cadre du règlement (UE) n° 1380/2013 de la PCP a fourni des informations essentielles sur son impact potentiel à long terme sur la gestion des pêcheries de l'UE. Bien qu'il y ait **des progrès ponctuels** et quelques réussites, **l'adaptation et la conformité avec l'obligation au sens large manquent de cohérence**. La résistance au changement a prévalu, aggravée par les difficultés liées à l'application de la réglementation en mer. Les pêcheurs ont été réticents à changer leurs pratiques de pêche en raison des coûts élevés et les supposés pertes économiques. De plus, les assouplissements intégrés pour faciliter les changements graduels de comportement (augmentation des quotas, assouplissement des quotas et exemptions) ont permis **de maintenir le statu quo préalable à l'obligation de débarquement**.

La **viabilité à long terme de l'obligation de débarquement est entravée par les défis économiques et la structure rigide de la politique de pêche**, qui ne s'aligne pas toujours sur les diverses réalités écologiques et opérationnelles des différentes pêcheries.

Enseignements tirés

Voici des domaines dans lesquels une **attention ou des investissements accrus** auraient pu améliorer les résultats de l'obligation de débarquement:

- Le taux de conformité avec l'obligation de débarquement a été inférieur aux prévisions dans tous les bassins maritimes. Un renforcement des contrôles et de l'application de la loi en mer menés par les États membres et intégrant l'utilisation du systèmes électroniques de surveillance, aurait probablement entraîné une plus grande conformité et une adaptation plus rapide du comportement des pêcheurs.
- Le manque de financement ou d'accès au financement pour les essais novateurs, la recherche sur le développement de nouvelles technologies, les

mécanismes d'indemnisation et les méthodes de contrôle et d'application de la loi a limité les changements de comportement qui avaient été préconisés de la part des pêcheurs. Un financement supplémentaire à cette fin aurait pu entraîner une plus grande réduction des prises indésirées.

- Il est évident que les pêcheurs artisanaux et côtiers ont rencontré des difficultés économiques et administratives pour se conformer à l'obligation de débarquement. Un soutien supplémentaire aurait profité à ce secteur.
- On assiste à une dépendance croissante à l'égard des exemptions de minimis et des mécanismes de flexibilité qui rendent plus facile pour les pêcheurs le maintien du statu quo, car l'incitation à adapter les comportements de pêche ainsi disparaît. Limiter la durée de certains de ces mécanismes aurait conservé l'incitation à développer de nouvelles pratiques.
- L'absence de stratégies régionales spécifiques a empêché la prise en compte de l'ampleur de la diversité et de la variabilité entre les bassins maritimes. L'application d'une approche allant au-delà des dérogations régionales aurait favorisé une meilleure planification spécifique à chaque région ainsi que des adaptations spécifiques pour tenir compte des différences de pratiques de pêche au sein de chaque bassin maritime.
- Le développement de l'infrastructure et de débouchés pour la partie des captures précédemment rejetée n'a pas progressé comme prévu, les prises n'atteignant pas la taille minimale et hors quota ayant un rendement économique faible ou nul, au point que ces captures ont parfois terminé dans une décharge. Bien qu'il n'ait pas été prévu de créer un marché actif et rentable pour ces prises, on s'attendait à un certain rendement économique et à une certaine utilisation. Un financement supplémentaire pour soutenir les infrastructures et le développement des chaînes d'approvisionnement aurait été bénéfique dans ce contexte.
- Dans certaines zones, une collaboration entre les pêcheurs, les États membres, les scientifiques et les décideurs politiques a été entamée, mais une plus grande implication des pêcheurs dans l'élaboration d'approches alternatives, l'élaboration de meilleures pratiques et l'adoption d'engins plus sélectifs donnerait aux pêcheurs un plus grand sentiment d'être partie prenantes des solutions aux principaux défis liés à l'obligation de débarquement et favoriserait des décisions éclairées.
- Les limites des programmes d'échantillonnage pour l'estimation des rejets et les variables économiques ont fait qu'une comparaison directe avec les impacts potentiels à petite échelle des dérogations à l'obligation de débarquement n'est pas possible. Augmenter l'investissement dans la collecte de données dans le cadre du règlement relatif à l'établissement d'un cadre de l'Union pour la collecte de données mènerait à la collecte de données d'une plus grande utilité, c'est-à-dire beaucoup plus détaillées, afin

de fournir un appui direct à l'évaluation des impacts à un plus grand degré de désagrégation.

- Les limitations des informations sur les pêcheries à l'échelle de l'UE ont été une contrainte qui a limité une compréhension complète des impacts au niveau des exemptions. La révision des données agrégées des journaux de bord remises par les États membres à la base de données sur les pêcheries du CSTEP auraient permis une comparaison directe des captures déclarées à cette échelle.

1 Introduction

In 2013, the European Union Common Fisheries Policy (CFP) was reformed to improve the conservation of marine biological resources and long-term viability of the fishing sector through the reduction of unsustainable fishing practices (Regulation (EU) No 1380/2013). A fundamental aspect of the reform lies in Article 15(1), known as the landing obligation, which states: *"All catches of species which are subject to catch limits and, in the Mediterranean, also catches of species which are subject to minimum sizes as defined in Annex III to Regulation (EC) No 1967/2006, caught during fishing activities in Union waters or by Union fishing vessels outside Union waters in waters not subject to third countries' sovereignty or jurisdiction, in the fisheries and geographical areas listed below shall be brought and retained on board the fishing vessels, recorded, landed and counted against the quotas where applicable, except when used as live bait..."*

Five years on from the full implementation of the landing obligation on 1 January 2019, the European Commission Directorate-General for Maritime Affairs and Fisheries (DG MARE) launched a study to support the evaluation of the landing obligation set out in Article 15 of the CFP Regulation (EU) No 1380/2013 as part of a wider CFP review.

The specific objective of the study was to gather evidence for an assessment on how the specific landing obligation intervention had performed and was working, and why it was performing as it did. The scope of the study comprises Regulation (EU) No 1380/2013 recitals 26, 27, 28, 29, 31, 32, 67, as well as Articles (2)(5)(a); 7; 10(2)(a); 14; 15; 16(2); discard plans, and European Commission Delegated Regulations specifying the details of implementation of the landing obligation (as listed in ANNEX 1). More specifically, in terms of meeting one of the objectives of the CFP, outlined under Article (2)(5)(a) of Regulation (EU) No 1380/2013: *"[the CFP shall, in particular] gradually eliminate discards, on a case-by-case basis, taking into account the best available scientific advice, by avoiding and reducing, as far as possible, unwanted catches, and by gradually ensuring that catches are landed."* Additional articles of Regulation (EU) No 1380/2013 with direct relevance to the landing obligation were included in the effectiveness evaluation. This included: Article 2(5)(f), Article 2(5)(e), Article 2(5)(h), Article 2(5)(g), and Article 2(5)(j).

The study covers all EU sea basins, here considered to be: (i) North Sea and Baltic Sea, (ii) North Western Waters (NWW), (iii) South Western Waters (SWW), (iv) Mediterranean and Black Sea, and (v) EU Outermost Regions and the distant water fleet (DWF). The DWF is considered to be all other Union waters and non-Union waters not subject to third countries' sovereignty or

jurisdiction but where species are caught during fishing activities by Union fishing vessels. The determination and evaluation of compliance within the CFP legislative framework is beyond the scope of this study (including, but not limited to, aspects of accuracy of catch weighing, reporting, and quota deduction).

1.1 Evaluation questions

In order to evaluate the landing obligation, an intervention logic (See Section 2.1) was developed in line with the EU Commission's Better Regulation guidelines ⁽¹⁾ evaluating the landing obligation against seven criteria assisted by overarching questions (Table 1). Using these questions an Evaluation Question Matrix (EQM) was prepared encompassing indicative judgment criteria against which to frame the evolution and associated outcomes (ANNEX 2).

Table 1: Evaluation criteria and key questions

Evaluation criteria	Key evaluation question
Effectiveness	To what extent was the landing obligation implemented effectively? To what extent did the landing obligation contribute to the objectives of the CFP?
Efficiency	To what extent has the landing obligation been implemented efficiently?
Relevance	To what extent is the landing obligation relevant to the needs of the target groups? To what extent is the intervention (landing obligation) still relevant? To what extent is the landing obligation relevant to European strategic objectives?
Coherence	To what extent is the landing obligation internally (within the EU) and externally coherent?
EU added value	To what extent could the identified outputs and results have been achieved without the landing obligation / EU intervention?
Complementarity	To what extent has the intervention proved complementary to other (Member States') interventions and initiatives in the field of fisheries management and conservation
Sustainability	If the landing obligation were to be removed, what might be the likely effects?

1.2 Methodology

For the evaluation of the landing obligation, a comprehensive research methodology was employed starting with desk research, including in-depth case

⁽¹⁾ Better regulation: guidelines and toolbox: https://commission.europa.eu/law/law-making-process/planning-and-proposing-law/better-regulation/better-regulation-guidelines-and-toolbox_en

studies and targeted data analysis (ANNEX 3). Ten case studies were developed (to be found in Section 3.5 and ANNEX 4), focusing on the performance of landing obligation implementation in diverse cases. The case study approach provided a context-specific manner to assess complexities, dynamics and underlying factors in relation to the uptake of the landing obligation at a finer, more nuanced scale than detectable at sea basin scale, including:

- challenges encountered with implementation of the landing obligation;
- fishery and Member States' experience with pilot projects for increasing gear selectivity, reducing unwanted catches, or other examples of successful implementation of the landing obligation, including trials of technological advances and fully documented fisheries;
- fishery and Member States' experience with cases where measures to increase gear selectivity were not, or could not, be deployed or cases where difficulties were experienced in implementing the landing obligation, specifically, the role of choke species and exemption derogations (following Article 15(4) of the CFP Regulation (EU) No 1380/2013);
- identification of the training carried out by Member States with the objective of increasing gear selectivity, ending discarding, improving handling of unwanted catches and awareness of the legal provisions among fishers.

In parallel, pre-existing primary and secondary data from key sources were analysed, including Fisheries Dependent Information (FDI) from the Scientific, Technical and Economic Committee for Fisheries (STECF) and annual economic databases, along with quota swap reports. A summary of all data sources is given in ANNEX 3 along with descriptions of the analysis and limitations. These sources provide crucial quantitative data on the landing obligation, offering a macro-level view of its implementation across different Member States.

Insights from desk research and data analysis were triangulated with perceptions of stakeholders. In the first instance this was carried out via a targeted e-survey distributed to over 200 stakeholders / stakeholder groups. A total of 71 responses were collated (of which 48 were recorded as having reached the end of the survey). Respondents encompassed a diverse range of stakeholder groups including public authorities (29), fishing industry and producer organisations (24), Advisory Councils (5), scientific research bodies (6), Non-governmental Organisations (NGOs) (3), and "Other" (4; consultancy, trader, and recreational fisheries). This survey provided valuable insights into the perceptions of the landing obligation intervention.

Targeted follow-up stakeholder outreach was conducted (27 stakeholders contacted) to address specific gaps in the data and/or clarify certain findings. This resulted in direct responses from 21 stakeholders (Member State

authorities (8), fishing industry (1), scientific research (2), STECF members (3), Advisory Council representatives (5), and 2 “Others”), enriching the dataset and allowing further refinement to the analysis. A synopsis of stakeholder engagement can be found in ANNEX 5.

The combination of all these sources helped address the evaluation questions defined in the EQM.

1.3 Limitations

Several key limitations were encountered during the evaluation of the landing obligation. Firstly, the large number of exemptions available to fishers in each sea basin made it difficult to directly trace impacts within a fleet, fishery and sea basin, whereby different exemptions are potentially applicable to the same activity. For example, an activity may have been exempt from retaining certain species under high survivability exemptions and or *de minimis* exemptions. Although the use of specific exemptions may be required to be reported within the logbook, there is a lack of EU wide data sources available which include this information directly linked to the logbook. This was a limitation of the evaluation. The only data available to the evaluation study at the scale of exemption were as a result of EASME/EMFF/2018/011 Specific Contract Lot 1 No. 14 and Lot 2 No. 13 (CINEA-EMFF, 2023), retrospectively linking Member State aggregated data submitted to the STECF FDI database to lists of applicable exemptions. The findings of the EU study (CINEA-EMFF, 2023) highlighted STECF FDI data version used to examine discard rates before and after the introduction of the landing obligation applied two separate data aggregation methods which would have impacted the discard rate calculations limiting direct comparisons of the impacts. As a result, this study attempted an update of this retrospective linking using a revised version of the STECF FDI data which contained comparable discard estimates before and after the landing obligation. This update, although having some utility for consideration within the study had its own limitations resulting from amendments to the structure and fishing activities classifications in some sea basins not previously considered within the EC Specific Contract (CINEA-EMFF, 2023).

Secondly, the sampling strategies of Member State scientific data collection (discards and economic indicators), under the data collection framework, does not reflect that of the landing obligation implementation. Discard data and economic indicators are not collected at the level at which exemptions are applied. This gives rise to a potential mismatch in resolution of important fisheries datasets used in the evaluation. Fine scale trends are potentially masked through application of, for example, a discard pattern generated for a DCF Level 5 strata for a particular gear type and species target assemblage being applied to all DCF Level 6 classes (gear type, species target, and mesh size range or selectivity device) associated with that Level 5 classification. This

results in blurring or obscuring any trend achieved by a selectivity device or exemption.

On top of this, the annual variability in data has made it challenging to establish clear, overarching trends in juvenile fish capture reduction. This variability complicates the ability to measure definitively the overall effectiveness of technological changes across fisheries.

The level of control and enforcement at local and regional levels led to challenges in determining whether the intervention had been successful in achieving its objectives. Resulting from strong drivers for non-compliance, combined with a lack of data associated with this (unobserved non-compliance), has been anecdotally acknowledged to occur, yet has not been possible to quantify this and its subsequent impact on the objectives of the landing obligation.

These challenges for the study were partially overcome by focusing on major trends, triangulating between multiple information sources and providing individual case studies. Additionally, we provide recommendations on improving the level of monitoring, via the data collection framework, and incorporation of exemptions, under which fishing activity is occurring, into EU wide data sets (including the STECF FDI and ADCR databases) to support the quality of the evaluation processes. The evaluation criteria of relevance and effectiveness findings are primarily based on desk research, as the relevance and effectiveness of the landing obligation have been extensively reported by multiple sources. To complete the analysis of some (sub)indicators, insights from the e-survey or stakeholder consultations were also included. As these findings are considered more subjective, the source and number of respondents are listed when utilised.

1.4 Report structure

This report is structured into five Chapters.

1. Introduction to the landing obligation topic and purpose of the report.
2. Rationale and expectations of the landing obligation intervention, highlighting points of comparison with the 2011 European Commission Impact Assessment 'Impact Assessment of Discard Reducing Policies' (EC, 2011; hereafter 2011 Impact Assessment) expectations.
3. Details on the regional and fleet-based application of the landing obligation in terms of development since its implementation and current state of play.
4. Evaluation of the landing obligation against seven evaluation criteria.

5. Conclusions of the evaluation and recommendations.

A series of annexes with supporting information are included at the end of the report:

- Discard Plans and Delegated Acts considered within the evaluation
- Evaluation Question Matrix
- Methodology
- Case studies
- Synopsis report of Stakeholder engagement and E-Survey questions
- Evolution of fishing practices since the implementation of the landing obligation
- Evolution of fisheries management and regional rules associated with the landing obligation
- Information on discard rates from STECF FDI data
- Good practices towards reducing unwanted catches
- STECF FDI catches above and below MCRS
- Summary of barriers to implementation
- Overview of benefits and costs
- References and legislation

2 Rationale of the intervention and expected outcome

2.1 Description of the intervention and its objectives

The CFP has been through a number of reforms since its separation from the Common Agricultural Policy in the 1970s, each of which intended, amongst other aspects, to bring about sustainable exploitation of fisheries resources. Prior to the most recent reform in 2013, focus was placed on the reduction of discarding. Discarding being the practice of returning unwanted catches to the sea. This is a practice considered wasteful, yet is a widespread issue (Guillen et al. 2018). The reasons for discarding vary across regions, species, and fisheries, but typically fall under similar categories, many of which were highlighted within the EU Commission 'Impact Assessment on Discard

Reducing Policies' study led by MRAG (Unpublished) carried out ahead of the 2013 CFP reform, and included:

- Catching fish for which fishers do not have quota and are therefore unable to land and sell.
- Catching species which are damaged or less profitable.
- Catching undersize fish which are not legally permitted to be sold (such as under MCRS).
- High grading (practice of selectively fishing so that only portion of fish above MCRS are brought ashore), this could occur when quotas were restrictive and sale price was size dependent.
- Unintended impacts of gear and catch composition restrictions via, for example, the former Technical Measures Regulation (EC) No 894/97 ⁽²⁾.
- Absence or limited accessibility to alternative markets for fish which are less popular or cannot be sold for human consumption.

One of the major issues with discarding, particularly in EU fisheries has been its lack of consideration within quota restrictions, which prior to the landing obligation, were accounting for only the landed portion of the catch. This gave potential for fish stocks to be harvested beyond levels considered to result in the long-term sustainability of the stock, and fishing pressure to exceed scientific advice on maximum sustainable yields (MSY). This is also the case for non-target species within a fishery which can result in overexploitation due to incidental capture and subsequent discarding, the extent of which is often unknown due to the lack of reporting. As a result, the overall fishing mortality (resulting from the wanted and unwanted portions of the catch) can be above that which can support long term sustainability. The long-term sustainability of stocks are important commitments for the EU in terms of Sustainable Development Goals and requirements to achieve Good Environmental Status.

The landing obligation was intended as a key instrument to gradually eliminate discarding of species subject to catch limits, and in the Mediterranean MCRS restrictions, caught during fishing activities in Union waters or by Union fishing vessels. The intention being to implement a change to the total allowable catch (TAC) management system used to limit fishing pressure and removals, from an essentially landings-based system to a TAC system which considers the whole catch. Whereby all fish caught should be deducted from a vessel's TAC (quota) and landed. This includes catches of juvenile and undersized fish that would have previously been discarded.

⁽²⁾ OJ L 132, 23.5.1997, p. 1–27

The CFP Regulation (EU) No 1380/2013 restricts the prevention of directly using undersized and over quota fish for human consumption, intended to disincentivise their capture through a lower economic return, compared to fish sold for human consumption. This, in turn, was intended to encourage a more selective approach to fishing, with the ultimate goal to implement methods and strategies that avoid catching such fish. Another potential response to the restriction on human consumption was the possibility of generating a viable market for such under sized and over-quota species.

Under EU law, the landing obligation was introduced on a fishery-by-fishery basis via a phased implementation. Article 15(1) of the CFP Regulation (EU) No 1380/2013 sets out the timeline, requiring all pelagic fisheries across all sea basins to comply by 1 January 2015 at the latest, through to full implementation for all other species by 1 January 2019.

Prior to the phasing in of the landing obligation, Article 14(2) of the CFP Regulation (EU) No 1380/2013 stipulated that “*Member States may produce a “discard atlas” showing the level of discards in each of the fisheries covered by the landing obligation*”. As a result, in 2014, a discard atlas was produced by the Scheveningen Group (North Sea), the North Western Waters group, and the South Western Waters group, documenting the current knowledge of discard patterns for different fishing fleets in each region. In all cases, data on landing and discards was compiled from the official STECF database, yet only data from 2010 to 2012 was used noting quality and coverage limitations in each report. Nevertheless, the publication of these reports provided a baseline on which to compare discard rates and study the evolution of trends as the landing obligation became applicable to species and fisheries on a case-by-case basis.

The main conclusions drawn from the discard atlas highlight the highest discard rates found in mixed demersal fisheries in all sea basins, compared to much lower discard rates in passive gear (e.g. gillnetters and longliners), with an average of 40% of the catch in weight being discarded from the North Sea demersal fisheries while up to 90% of the catch was reportedly discarded in the Spanish Iberian bottom trawl fishery. The reasons for discarding vary across regions, species and fisheries but are typically driven by fish falling under the minimum size restrictions, quota restrictions, low market value or injured/damaged fish which cannot be eaten or sold (Catchpole et al., 2014). In particular for the mixed fisheries, reducing catches of quota-restricted species is very challenging due to the inherent nature of these fisheries to target a variety of species at the same time. Species with lower quotas that co-occur with species of fishing interest are commonly referred to as “choke species” as their incidental capture can limit fishing opportunities on a co-occurring target species once catch quota limits on choke species are reached. In the event that the quota of such choke species is exhausted, the whole fishing activity must stop. The risk of exceeding quotas for choke species is commonly known as the “choke effect”. As a result, the lack of quota for some species was identified as

the main driver for discarding in mixed fisheries and certain fish were identified as becoming important choke species under the landing obligation.

The landing obligation was designed to be applied across all EU fishing opportunities, applying the same basic concept of retaining certain species catches of undersize and over-quota individuals, while facilitating a regional approach to account for geographic variations in fisheries and stocks through establishment of Multiannual Plans (MAPs). MAPs provide a legal basis within which to manage fisheries and fish stocks at a regional scale, encompassing the dynamic nature of different fleet segments, and single or mixed fisheries operating in different areas. Each MAP contains conservation objectives and goals for management of key stocks (e.g. fishing at MSY), and measures for implementing the landing obligation. At the time of reporting, four MAPs have been established, covering the waters of the Baltic Sea (Regulation (EU) No 2016/1139 ⁽³⁾), North Sea (Regulation (EU) No 2018/973 ⁽⁴⁾), Western Waters (Regulation (EU) No 2019/472 ⁽⁵⁾) and Western Mediterranean Sea (Regulation (EU) No 2019/1022 ⁽⁶⁾).

Regarding the management and implementation of the landing obligation at a Member State level, Member States are encouraged to do their utmost to reduce unwanted catches. In line with the 2013 CFP Regulation (EU) No 1380/2013 objectives, efforts to reduce and or avoid unwanted catches through initiatives to improve selectivity of fishing gear- and methods should be prioritised. Additionally, where national quota management systems do not align with expected fishing patterns and catch compositions, Member States are permitted to adjust catch limits through flexibility in quota allocations. Making swaps between Member States within a year, between years (inter-annual) or stocks (inter-species). This is especially relevant for mixed fisheries where multiple regulated species are caught together.

The 2013 CFP Regulation (EU) No 1380/2013 recognises the difficulty in implementing the landing obligation in mixed fisheries and provides that, in order to cater for unwanted catches that are unavoidable, even when all the measures for their reduction are applied, certain exemptions from the landing obligation should be established. These exemptions include species with high survival rates and fisheries that have disproportionate landing costs and proven difficulty of handling unwanted catches. Specifically, for the latter, the allowance for discarding unwanted catches is contingent upon them constituting no more

⁽³⁾ OJ L 191, 15.7.2016, p. 1–15

⁽⁴⁾ OJ L 179, 16.7.2018

⁽⁵⁾ OJ L 83, 25.3.2019, p. 1

⁽⁶⁾ OJ L 172, 26.6.2019

than a specific percentage, typically less than 5%, of the total catch - a threshold known as "*de minimis*." The third and fourth exemptions refer to prohibited species and fish damaged by predation, as described in Article 15(4). Article 15(5) then goes on to identify that these aspects should be specified in regional multiannual plans.

Where no MAP or management plan is adopted for a fishery, Article 15(6) of the 2013 CFP Regulation (EU) No 1380/2013 empowers the EU Commission to adopt delegated acts setting out temporary exemptions in the form of "discard plans", operational for an initial period of three years and potentially renewed for a further total period of three years. These discard plans are based on joint recommendations developed by Member States with a direct interest in the management of fishing activities subject to the landing obligation. Under Article 18, Member States are required to cooperate at a regional level, known as "regionalisation", within Member State Regional Groups to prepare joint recommendations on conservation measures. Currently, seven groups are in place: BaltFish; the North-Western Waters Group; the Scheveningen Group; the South-Western Waters Group; PescaMed; ADRIATICA; and SudEstMed. During the drafting process of the joint recommendations, these groups are also required to consult the relevant Advisory Council(s) to ensure all stakeholder interests are reflected in the joint recommendations.

The initial joint recommendations are submitted to the EU Commission which are subsequently assessed by the STECF. During expert working group meetings, STECF are required to review the information submitted within the initial joint recommendation and provides the best available scientific evidence to support the requested measure, such as an exemption from the landing obligation (i.e. high survivability exemption). In particular, the conservation measures to be adopted must be compatible with the CFP objectives, the scope and objectives of the relevant EU conservation measures, the scope and conservation objectives stated in the relevant MAP, and be at least as stringent as existing EU conservation measures. A draft of the delegated act is then assessed by the Expert Group for Fisheries and Aquaculture before it is officially adopted.

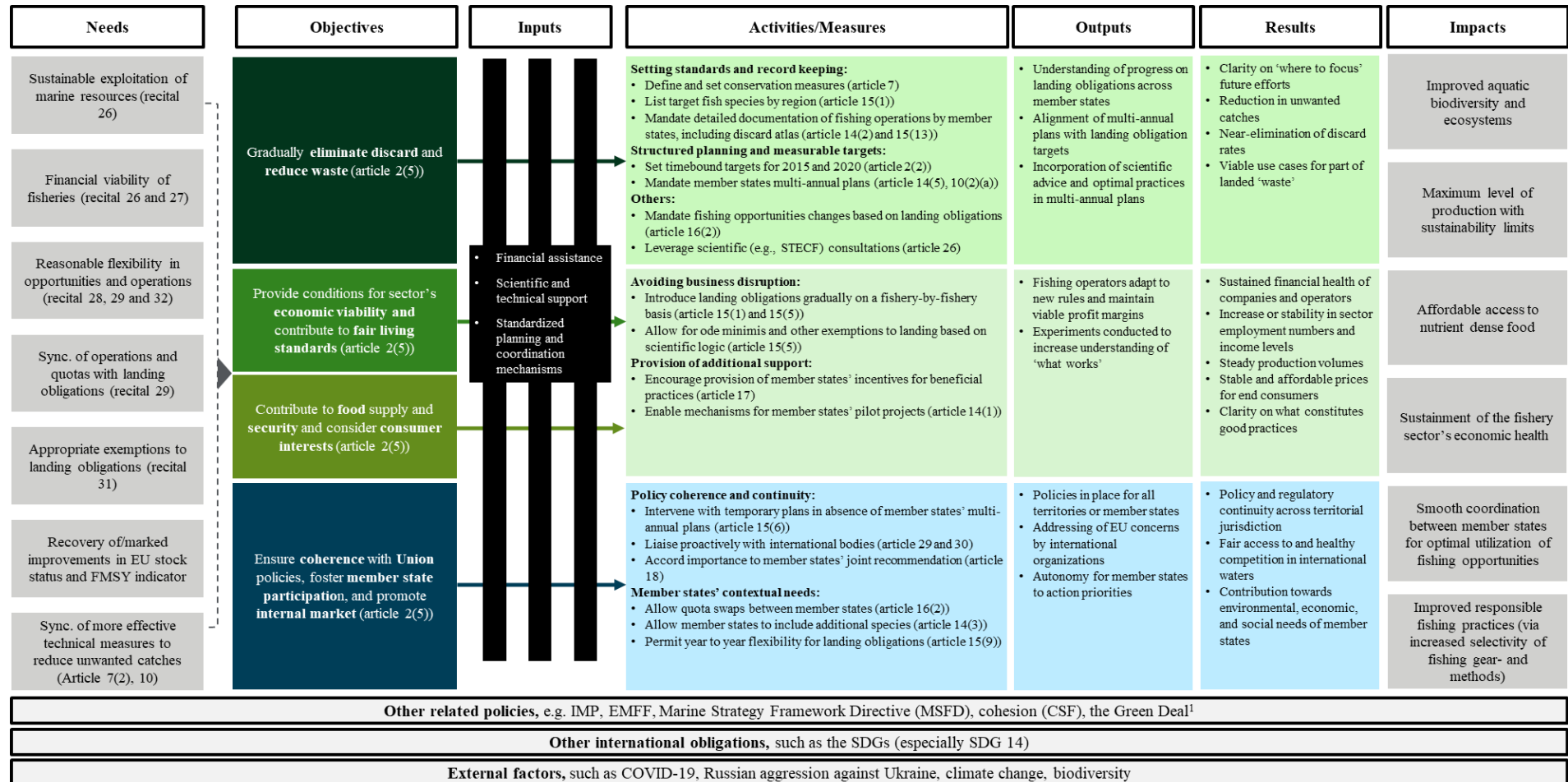
Furthermore, delegated acts setting out measures to implement the landing obligation are also detailed in the MAPs for each sea basin. These delegated acts supplement the MAP by defining other conservation measures that support the plan's objectives, in accordance with Article 18 of the CFP Regulation (EU) No 1380/2013. This includes provisions to improve selectivity; prohibit or limit the use of certain fishing gears or activities in certain areas or during specific time periods; and support the fixing of MCRS for any of the stocks to which the regulation applies. The provisions linked to the landing obligation are stipulated under the following Articles within each MAP:

- Article 7 of the Baltic MAP;

- Article 11 of the North Sea MAP;
- Article 13 of the Western Waters MAP; and
- Article 14 of the Western Mediterranean MAP.

Figure 1 presents the intervention logic for this study. The Intervention logic links the needs and objectives (as defined in Article 2) to its impacts. Needs refer to the specific requirements, or gaps, that must be addressed in order to achieve the objectives of the intervention. Inputs refer to the resources which are required to implement the intervention successfully. Outputs and Results can be encountered in the short to medium term, where Impacts are visible on the longer term and sometimes harder to address fully to the specific intervention.

Figure 1 - Intervention logic for landing obligation



Note: 1. Other relevant adoptions, e.g., Amending Regulation (EU) 2022/1278; The recitals and articles mentioned are from the Regulation (EU) No 1380/2013 of 11 December 2013 on the Common Fisheries Policy

2.2 Points of comparison

The 2011 Impact Assessment describes policy options for discard reductions. Those policy options serve as a basis to identify those key problems related to the occurrence of discarding that shaped the landing obligation as the successor of the 2002 CFP reform. This section describes the main objectives of the landing obligation, as a point of comparison for the evaluation.

In chapter five of the 2011 Impact Assessment, the expected impacts of a discard reduction policy are described compared to the situation of no change (e.g. no implementation of a discard reduction policy option). The discard reduction policy considered in the 2011 Impact Assessment assumed the unwanted portion of catches, previously discarded, would be landed and counted against the quota system for all quota-managed species. Previously within the “no change” situation, the quota system had applied only to the landed portion of catches. An overview of the expected impacts of a discard reduction policy on environmental, economic, social and governance indicators was provided. Below are the main expected impacts described, which only highlights the main expected impacts for 2012, 2017 and 2022 (if available). For a complete overview we refer to the 2011 Impact Assessment with all details and nuances.

One aspect raised by the 2011 Impact Assessment and worth noting, although not assessed with a specific indicator, is the wasteful nature of discarding, from an economic and social perspective. Whereby there is a waste of energy and cost associated with catching fish only for it to be discarded, but also from the perspective of a waste of wealth and resources, given the importance of fish as a source of protein.

Environmental indicators

The discard reduction policy was not intended to change the overall CFP objective of managing stocks at or below a fishing mortality equivalent to maximum sustainable yield (F_{MSY}). The 2011 Impact Assessment policy options did acknowledge the difficulty within mixed fisheries of all stocks reaching MSY targets, providing an option within which a “most sensitive” rule would need to be applied in the case of mixed-fisheries.

Under a discard reduction policy, results from the modelling in the 2011 Impact Assessment suggest the average size of fish in the stock would decrease in the long term. This is as a result of assumed improved selectivity in fishing practices, leaving juvenile and undersize fish within the population. The requirement to land all commercial species would decrease the average size within the landings within the early years of implementation, whereby the previously discarded small individuals become part of the landings. The 2011 Impact Assessment expected, even after 2015 (given an implementation in 2012), there would still be some

incidental landings of smaller fish resulting from fishing activity as was reported by the predicted landings size distribution.

Within the 2011 Impact Assessment, no change in fleet structure was modelled as a result of the discard reduction policy. Fleets may, or may not, respond to the policy change by changing practices. It is noted that different fleets can be expected to be impacted differently by the discard reduction policy. For example, the single most largely represented EU fleet, the Spanish demersal trawlers fleet, is likely to be the highest impacted fleet segment as a result of the discard reduction policy due to high level of observed discarding by this fleet.

Economic indicators

Introducing a discard reduction policy was expected to initially reduce all economic indicators (at 2012) including gross added value, economic sustainability, net profit margin, and economic performance. This is a result of vessels having to count all individuals of TAC species including undersized individuals, against quota. As these small size classes of fish are assumed (with one or two exceptions) to achieve lower prices, the maximum possible returns on quota holdings are not achieved. From year 2017 onwards, however, it was expected that the economic indicators would be more positive under a discard reduction policy than without this policy. This positive turnaround was expected due to a number of factors expected by 2017:

- The catch profile will have moved towards the landing of larger size classes as market forces (smaller fish achieving lower prices) drive selectivity improvements and fishing patterns to avoid catching smaller fish; and
- Stocks are predicted to have recovered to or close to B_{MSY} levels and therefore in many instances overall quota levels can increase but still catches under a discard reduction policy are higher than without because all previously discarded large fish can be sold.

Reductions in indicators such as Return on Investment resulting from the inclusion of capital costs from investment in more highly selective gear and Remote Electronic Monitoring (REM) in the initial years of implementation recovered after 10 years.

Also towards 2022 (10 years), the net profit margin with a discard reduction policy was expected to be higher than without a discard reduction policy. There could be differences per Member State depending on the fleet type.

Social indicators

There was no expected change in the employment within the fishing sector as a result of the implementation of a discard reduction policy. A proxy of number of employees (by full time equivalent; FTE) on board of vessels is used for employment.

An increase in gross value added (GVA) per employee were expected with the implementation of a discard reduction policy, compared to a situation where this is not implemented as a result of increased GVA and maintenance of FTE. It is expected that this leads to increases in salary for the sector (given by crew wage per FTE). The degree of increase was expected to vary between regions. The attractiveness of the sector increase will go beyond monetary value. Case study findings indicate that, naturally, fishers do not enjoy having the poor social image which is synonymous with discarding.

Safety at sea is expected to increase as a result of the discard reduction policy, under the assumption of a correlation between increased economic performance and increased safety (made within the 2011 Impact Assessment), whereby fewer risks will be taken by vessel operators. The expectation being that the pace at which fleets reach zero non-fatal accidents will increase.

Governance indicators

The level of monitoring and enforcement was expected to increase with the introduction of a discard reduction policy. Management costs were used as a proxy for this. It was assumed increased monitoring and enforcement would equate to increased management costs, as a result of, for example observers on board of fishing vessels and/or EMS (such as REM).

In the 2011 Impact Assessment an expectation of a greater requirement for data under the Data Collection Framework (DCF) was noted due to the intention to move more stocks to be managed under MSY. The 2011 Impact Assessment went on to indicate, that with reductions in discards as a result of new policies, landings data would become full catch data (landings and unwanted catches). The documentation associated with catch reporting would then reduce the requirement to make estimations on discarding levels based on observed catches and landings records theoretically increasing the accuracy and quality of data without increasing the level of data provided by Member States, assuming accurate catch reporting from full compliance. The 2011 Impact Assessment did not account for the continued requirement for at sea monitoring of non-quota species.

The rate of quota utilisation was anticipated to reduce as a result of a discard reduction policy. This was based on the assumption that fishing would cease when quota of any one species caught (target or bycatch) was reached, resulting in an underutilisation of quotas in the initial stages of the policy.

Finally, there is the administrative burden expectation, ensuring that vessels have sufficient quota for each species they are expected to encounter requires an increased level of planning and catch coordination, opposed to a system where only vessels holding quota would be landing catches. Supplying this level of information for vessels in real-time, and the additional management of swapping quotas (within and between Member States) was expected to increase the administrative burden, and therefore public sector costs.

3 Regional and fleet level application

This Chapter provides an overview of the implementation and current status of the landing obligation, examining how Member States have incorporated this policy into their fishery management regulations, how fishing practices have evolved to comply with its requirements, and the extent of discarding within EU fisheries. It also looks at the enforcement of the landing obligation by national and regional authorities across different sea basins and fleet segments, highlighting ongoing compliance challenges, the role of exemptions, and recent regulatory and technical advancements aimed at improving selectivity and reducing discards.

Due to significant regional differences in fleet composition, fisheries, and stock distribution, the application of the landing obligation has varied across sea basins, leading to distinct management approaches and conservation measures. A detailed summary of how fishing practices have evolved since the landing obligation's implementation in each sea basin is provided in ANNEX 6. Additionally, an overview of regional rules, technical measures, and conservation strategies linked to the landing obligation for different fleet segments under EU intervention can be found in ANNEX 7. These annexes further illustrate key regional disparities and provide specific examples of how regulatory frameworks have been adapted to local conditions.

3.1 Overview of the status of the landing obligation

The CFP Regulation (EU) No 1380/2013 included different starting dates of application of the landing obligation depending on the fisheries and geographical subareas, with the latest date of application being 1 January 2019. Presently there are eight delegated acts outlining specifications for the landing obligation for specific fish stocks currently in force across the four MAPs. There are no MAPs for the Black Sea, DWFs and outermost regions within the framework of the CFP, and thus the landing obligation. There is a discard plan for turbot fisheries in the Black Sea.

If correctly controlled and enforced, the landing obligation would act as a strong incentive to increase gear selectivity and reduce the volume of unwanted fish caught and hauled on board in the first place. This can be achieved through spatial and temporal avoidance and technical selectivity measures (see STECF 23-15 for more details; STECF, 2024a). However, according to STECF Adhoc-21-01 (STECF, 2021a) and the recent annual EU Commission Communication on the functioning of the CFP (EC, 2023a), the implementation of the landing obligation remains weak and has been made too complicated due to the existence of numerous rules, exemptions and derogations adopted by the EU Commission.

It is evident that there remain many challenges to the actual implementation of the landing obligation, namely control and enforcement. This has also been reflected

in compliance evaluation reports produced by the European Fisheries Control Agency (EFCA) ⁽⁷⁾, which point towards widespread non-compliance with the landing obligation in several sea basins. By extension, the lack of enforcement is curtailing incentives to change fishing practices (Kraak, 2023), and there is substantial evidence that illegal discarding is still occurring (Schubert et al., 2023). However, progress in efforts to increase the size and species selectivity of EU fisheries is well documented, and the 2023 EU Communication (EC, 2023a) praised recent collaborations to date, stating “cooperation between stakeholders and knowledge about the landing obligation has increased tremendously.”

However, there is little evidence of a behavioural change among fishing fleets based on exploitation patterns and uptake of selective fishing gears is generally low unless economic or quota incentives are available (Cosgrove et al., 2019; Calderwood et al., 2021; STECF, 2021b Steins et al., 2023; Fauconnet, 2024); or the use of selectivity devices have been enshrined in EU law (Regulation (EU) No 2019/1241 ⁽⁸⁾). For example, Commission Delegated Regulation (EU) No 2024/3093 ⁽⁹⁾ which introduced the mandatory use of more selective gears (e.g. a 'roofless selection device') in flatfish bottom trawl fisheries within ICES subdivisions 22-26, allowing cod to escape and thereby reducing incidental catches of cod in the Baltic Sea. Operators have until 9 April 2025 to adapt their fishing gears to comply with these new rules.

STECF 22-01 (STECF, 2022a) referred to the findings from the recent FAMENET (Fisheries and Aquaculture Monitoring, Evaluation and Local Support Network) report, which noted that, although there had continued to be an increase in selectivity projects supported by the European Maritime and Fisheries Fund (EMFF), there had also been an observed increase in funding requests for scientific projects to support exemptions. This was particularly the case for mixed fisheries where the risk of choke situations occurring is particularly high, a key concern which was voiced by many Member States in the ad hoc contract evaluated by STECF 22-01 (STECF, 2022a) and by the fishing industry across the literature (Calderwood et al., 2016; Pointin et al., 2019; Robert et al., 2020). This is mainly due to the negative socio-economic impact on fishing fleets as vessels must cease fishing operations prematurely when one species quota is exhausted before another.

A summary of Member States' annual reports on the implementation of the landing obligation, submitted to the EU Commission, has highlighted that the most important measures used by Member States to prevent choke situations were quota swaps and inter-annual flexibility, with a few reported instances of the inter-species flexibility mechanism being used (ad hoc contract evaluated by STECF 22-01) (STECF, 2022a). Additional measures included amendments to national

⁽⁷⁾ www.efca.europa.eu/en/content/compliance-evaluation

⁽⁸⁾ OJ L 198, 25.7.2019, p. 105–201

⁽⁹⁾ OJ L 2024/3093, 10/12/2024

legislation, such as spatial/temporal closed area measures to address bycatch issues and registration of catches of fish below MCRS; and new controls to monitor implementation e.g. the EFCA last-haul monitoring and analysis inspection approach. Further steps taken by Member States to both raise awareness of and ensure compliance with the landing obligation include the dissemination of information to relevant stakeholders, e.g. reporting obligations for and dedicated training workshops and seminars for fisheries officers.

However, the annual Communication from the Commission to the European Parliament and the Council (EC, 2023a) indicates that control and enforcement of the landing obligation remains a serious issue, and recent EFCA reports emphasise that non-compliance is assumed to be high or very high for a number of fisheries in the Baltic Sea, North Western Waters and South Western Waters. The Commission declared that “*overall, Member States have not adopted the measures needed to achieve proper control and enforcement.*” This includes effective control and enforcement of fishing activities at sea and the accurate recording of catches and discarded quantities. Failure to combat instances of misreporting and/or undocumented discarding of catches is a significant problem as it undermines the accuracy and quality of data, which is key for scientific advice on fisheries conservation measures (e.g. achieving the MSY objective). Based on the Member States’ annual reports and STECF 22-01 (STECF, 2022a), it is clear Member States continue to rely on traditional control tools (such as at-sea inspections and dockside/auction inspections of the landings/logbooks), which are deemed inadequate by the Commission as they only provide a very limited snapshot of compliance at the time of monitoring. The deficiencies in implementation should be seen in the light of the strong drivers of non-compliance and lack of “buy-in” commonly voiced by the sector.

Nevertheless, some Member States and Advisory Councils (e.g. the Baltic Sea Advisory Council, BSAC) have highlighted concerns in their annual reports about continuing misreporting of discards, a matter which has also been raised in recent EFCA compliance reports, a recent European Parliament Initiative report (European Parliament, 2021) and European Market Observatory for Fisheries and Aquaculture Products (EUMOFA) studies (EC, 2020a). It is widely recognised that REM tools are the most effective and cost-efficient way to control the landing obligation. Under the amended Control Regulation (EU) No 2023/2842, the use of CCTV will be compulsory for some specific fleet segments. According to Article 13(2), Member States must ensure that vessels measuring 18 metres or more in overall length and identified as posing a “high-risk for non-compliance with the landing obligation” have an operational REM system on board. This risk assessment is to be carried out in accordance with implementing acts under Article 95(1) whereby certain fisheries may be subject to specific control and inspection programmes.

So far, Denmark and the Netherlands have equipped vessels with REM systems as part of national pilot projects (not used for enforcement purposes) and similar pilot projects have been initiated in Sweden and Spain. However, there has been considerable apprehension and backlash within the fishing industry against fully

documented fisheries for control purposes (Plet-Hansen et al., 2017). In a 2021 European Parliament Initiative report, the EU Commission and Member States were nevertheless urged to step up efforts and take further action to ensure full documentation and data collection to properly implement the landing obligation and achieve the objectives of the CFP (European Parliament, 2021).

3.2 Overview of the current level of discarding in the EU

To date, **discarding within EU fisheries has not been reduced**, and continues to be a common practice across all sea basins. Despite efforts to develop more selective gears and fishing patterns, there is robust evidence that the landing obligation has not met its objective and considerable challenges remain, particularly for mixed fisheries. During the implementation of the landing obligation, the phasing in period was intended to give authorities and the industry time to adapt to the requirements of the landing obligation. However, within the literature and catch data, there is evidence that discarding of unwanted catches is still occurring and, in some cases, discarding rates are comparable to, or even higher than, those observed before the implementation of the landing obligation (Valentinsson et al., 2019).

A recent EU Study provided a comprehensive overview of discard rates before (2011-2014), during, and after (2019) the landing obligation became fully implemented (CINEA-EMFF, 2021). Based on STECF FDI data, the results showed that discard rates did not show clear trends or patterns as a result of the landing obligation. Instead, there are clear differences between fisheries, reflecting the complex interactions between management measures, stock status, fishers' behaviour and data coverage of sampling programmes. No distinction was observed moreover in discard rates between fisheries and species that have, or do not have, an exemption from to the landing obligation. However, measures related to the landing obligation were not fully implemented until the last year of data (2020), so these conclusions should be considered with caution.

Using a revised version of the same STECF FDI database, this study conducted an analysis of the trends in discarding practice to update the understanding of species discard rates across fleets and sea basins. The following data outputs are presented in the Annexes:

- ANNEX 8 contains visualisations of species discard rates across the period 2013 to 2022 by fleet within the different sea basins;
- ANNEX 9 presents summaries of trends in discard rates (decrease, stable, increase) across species managed under the landing obligation before (2013-2014) and after (2021-2022) implementation;
- ANNEX 10 provides more detailed visualisations of trends in discard rates (decrease, stable, increase) giving the percentage change in average discard rates for species managed under the landing obligation before (2013-2014) and after (2021-2022) implementation.

From these, **no single trend in discard rates across all sea basins, fleets and fisheries can be clearly identified**; rather, there is a high degree of variability, both before and after the latest date of application of the landing obligation. This variability is partly due to differences in fishing operations across fleet and fishery segments in different Member States and is further influenced by the inherent noise in the data, which may obscure any clear trends. Discard sampling is notoriously variable and based on low sampling coverage within a given sampling frame.

For example, within the NWW demersal trawl (OTB) fishery, mid-size vessels (12-18 m and 18-24 m), a known large fleet that tends to be better sampled, appear to have little overall reduction in discards across the 10 year period (ANNEX 8). However, when discard rates are broken down by species within fishery segments within the NWW, there are more species with a lower or stable average discard rate than increasing. In the 24-40 m OTB (bottom otter trawl) demersal species fleet, a fleet dealing with a mixed fishery, there are 15 species where discards have reduced by more than 5% (ANNEX 9), including cod, hake and megrim (ANNEX 10) between the time prior to the landing obligation introduction and 2021-2022. Additionally, 13 species showed changes which are in the +/- 5% range while discards increased for 8 species.

The reasons for discarding vary across regions, species and fisheries but are typically driven by fish falling under minimum conservation reference sizes, quota for a particular species having been exceeded, low market value, non-marketable species, or injured/damaged fish which cannot be eaten or sold. For the mixed fisheries, the lack of quota for some species has been the main driver for discarding, and certain fish were identified as having become important choke species under the landing obligation, such as those with zero TAC advice from the International Council for the Exploration of the Sea (ICES) (particularly cod in the NWWs).

Further to these general trends in discarding rates are the potential impacts of exemptions from the landing obligation made through Delegated Regulations. These exemptions apply to species with high survival rates, fisheries that have disproportionate landing costs and the proven difficulty of handling unwanted catches (the "*de minimis*" exemption), or returning prohibited species and fish damaged by predation, as described in Article 15(4) of the CFP Regulation (EU) No 1380/2013. However, the STECF FDI data does not currently incorporate this level of detail in its reporting format, making it difficult to determine the rationale behind each exemption and assess its impact on discard rates. The 66th Plenary of STECF (PLEN-21-01) noted that the increase in Joint Recommendations for exemptions suggests that Member States are more intent on adopting derogations to maintain the status quo than on improving overall selectivity of fishing practices (STECF, 2021c). STECF-23-04 and 23-06 (STECF, 2023b) highlight that "short-term losses associated with improvements in selectivity is one of the main justifications for the proliferation of exemptions currently observed" (STECF, 2023b).

This trend is evident in the latest STECF evaluations of joint recommendations on the landing obligation and Technical Measures Regulation (EU) 2019/1241 containing requests to renew existing exemptions beyond the end of 2023 (STECF, 2023b). Joint recommendations were submitted by Member State groups from the North Sea, North Western Waters, South Western Waters, and various regional groups in the Mediterranean (SudEstMed, PescaMed and ADRIATICA). STECF Expert Working Groups (EWGs 23-04 and 23-06) reviewed 103 exemptions in total, 81 for *de minimis* exemptions and 22 for high survivability. Detailed information on the supporting studies and EWG assessments for these exemptions is provided in STECF-23-04 and 23-06 (STECF, 2023b).

An estimation of the proportion of catches affected by exemptions has been made using the EU study on estimating discards (CINEA-EMFF, 2023). However, the application resulting from this project does not show the proportion of catches affected by exemptions directly. Instead, to be able to review this, interrogation of the processed data behind the application was required. It should be noted here that within this study exemptions were applied to data held within the STECF FDI database, and not at the time of fishing. Therefore, the value of proportions is only a potential proportion. Further to this, not all landings submitted to the STECF FDI database have associated discards, and this will therefore present an underestimate of both total catches and volume of discards associated with exemptions. The presented discards represent those submitted by Member States to the FDI, where no additional raising has been carried out. This is the only study which has attempted to provide information on the allocation of catches to exemptions. It should also be noted however, that the authors of this study highlighted a number of caveats and limitations of the work and noted outcomes should be taken as uncertain.

There are limited instances where sampling coverage is 70% or more (i.e. 70% of the landings volume of a species within a basin have associated discard estimates). As such, Figure 2 to Figure 4 encompass all landings, and any reported discarding regardless of sampling coverage. In the North Sea, whiting catches have the highest percentage of *de minimis* discarding with over 25%, whereas cod has low and variable percentages, less than 10%. In terms of high survivability exemption, over 50% of ray catches and around 10% of Norway lobster catches are discarded under this category. Proportions of common sole and plaice under this exemption have been variable. Notably, in the North Western Waters, ray catches are not marked as being discarded under a high survival exemption, and very little of the Norway lobster catch is marked as such. In several recent years plaice has had around 25% of its catch discarded under the high survival exemption. As with the North Sea, between 10 and 25% of whiting are discarded under the *de minimis* exemption. Small proportions of cod and haddock catches have, in some years, occurred under this exemption. Only rays show high survival exemption discarding in the South Western Waters, of around 10-15%. There is greater occurrence of *de minimis* discarding, including megrims at around 10-15%, whiting (10-20%), as well as low levels of hake and mackerel (of 10% or less). In the Baltic Sea, no discards were assigned to an exemption by the EU study. Very little information is available for the Outermost Regions, limited

to blackspot seabream and is not presented here. No information on the Mediterranean and Black Seas, or distant waters was revised within the EU study.

A comparison of the volume of landed and discarded (with and without potential exemption) was made against predicted stock size from ICES stock assessments. The comparison was made against the 2022 assessment year, having been deemed the most relevant to the time series of presented within the EU study. Spawning stock biomass was used as a proxy for stock size, and comparison was only made against those stocks where an estimation of SSB was available. ICES assessment data was accessed through the “icesSAG” R package (Millar et al., 2025). Figure 5 provides an illustration of the comparison.

The proportion of discards under exemption compared to common sole stock sizes is very low, where available total catches are relatively low compared to estimated stock sizes. This is the case for several other species stocks, such as whiting, megrim, and monkfish. In contrast, the catches of cod are much closer to estimated stock sizes, particularly cod in the Celtic Sea (cod.27.7e-k) where in 2019, the reported catches from the EU study are higher than the estimated stock. It should be noted that the data used for the EU study are not identical to those used by ICES within the stock assessment. Furthermore, the assessment carried out in 2018 to advice quota setting in 2019 may have had a different perception of the stock to that of the 2022 assessment. There are several herring stocks where a similar, though less pronounced pattern is observed. Hake in the Cantabrian Sea and Atlantic Iberian waters (hke.27.8c9a) has a higher proportion of exempted discards than many other stocks, its contribution as proportion of the stock is declining as a consequence of the stock size increasing while catches remains roughly stable.

Given the low sampling coverage, an absence of discards does not mean discards are not occurring, rather they have not been reported into the STECF FDI database. Therefore, the proportion of discards should be considered an underestimation, and will have a greater contribution to the stock than observed in this comparison.

Figure 2 - Potential exemption classification of species catches in the North Sea as a proportion of total reported species catch

Note, species are given as FAO 3-letter alpha codes.

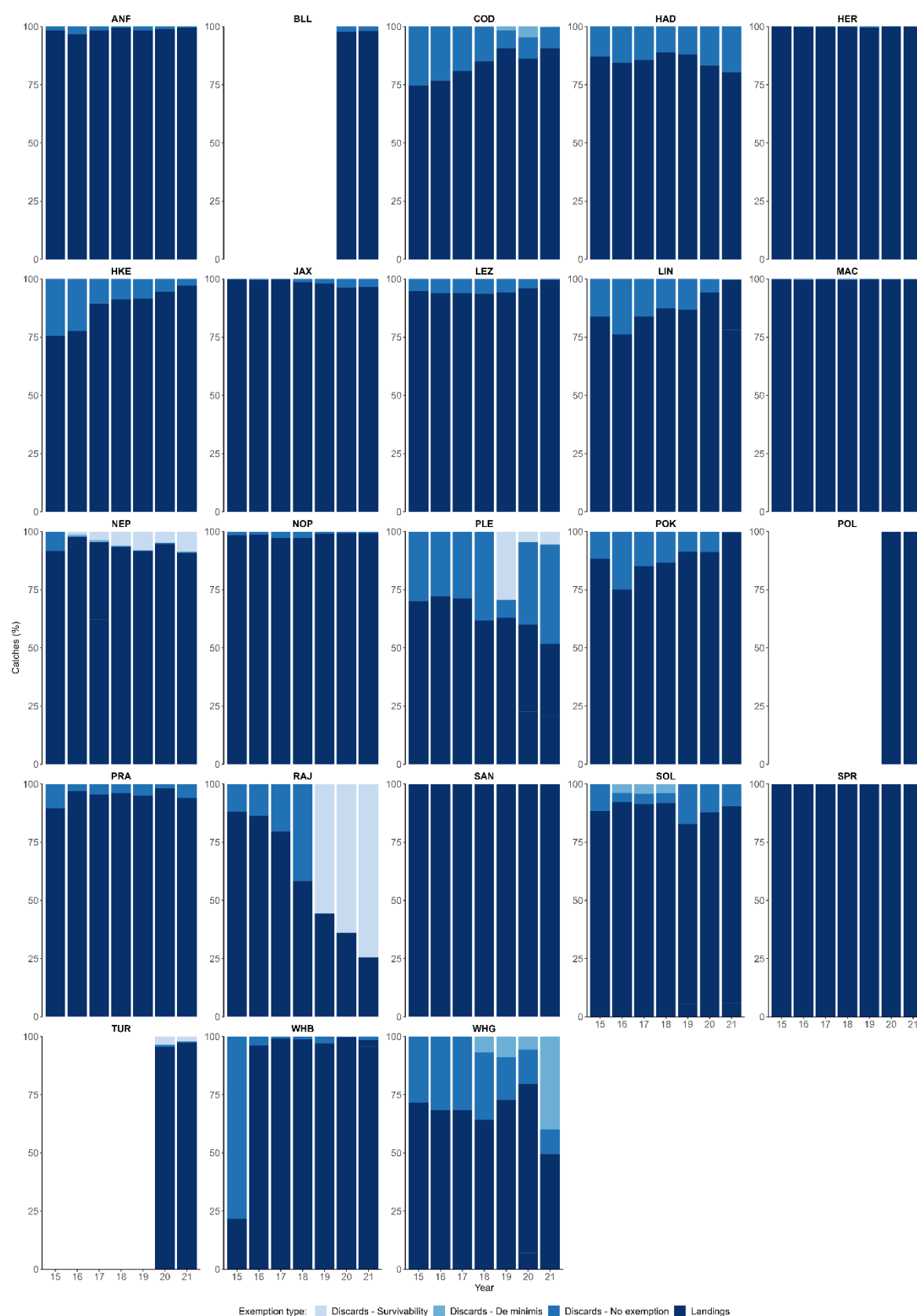


Figure 3 - Potential exemption classification of species catches in the North Western Waters as a proportion of total reported species catch

Note, species are given as FAO 3-letter alpha codes.

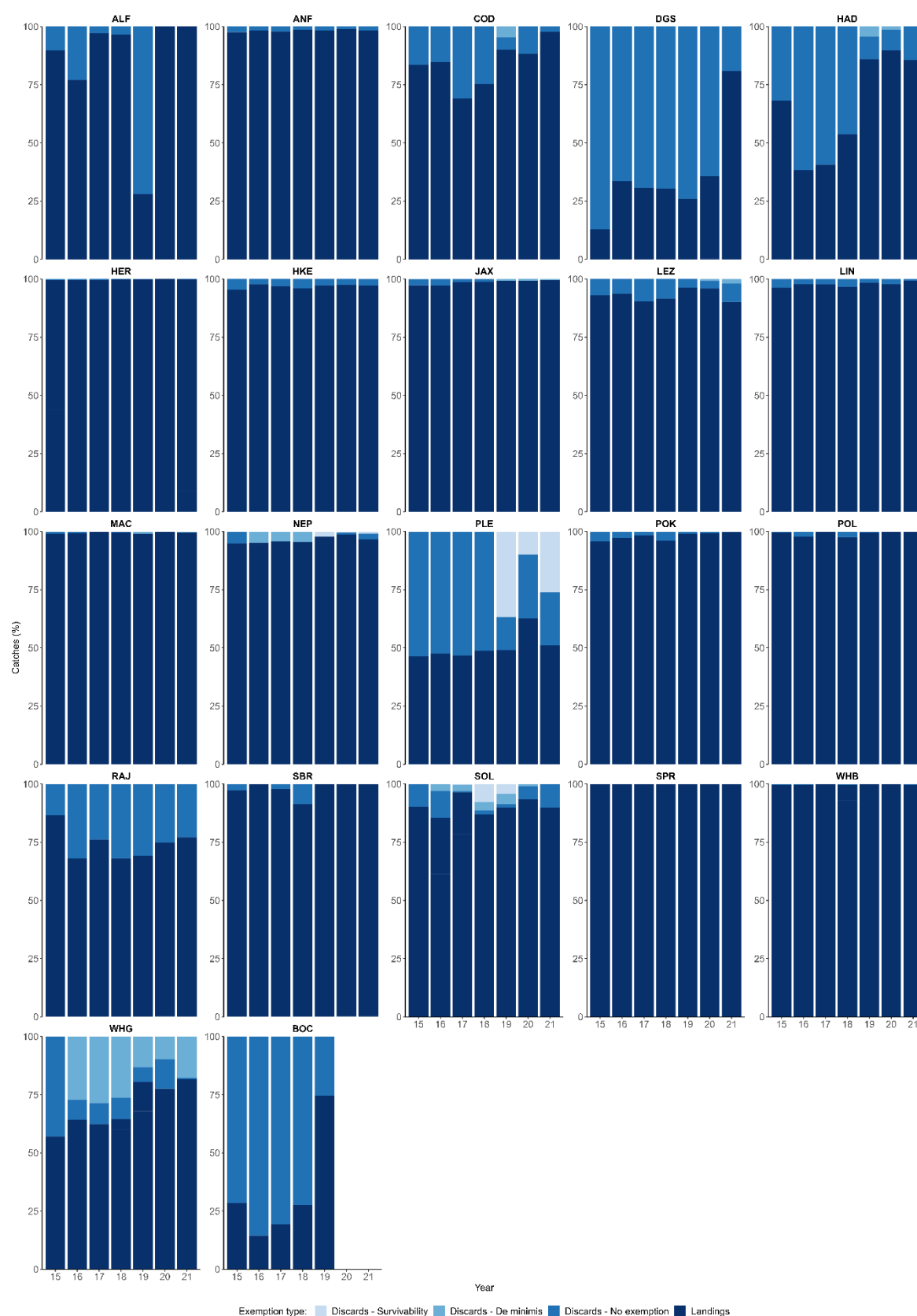


Figure 4 - Potential exemption classification of South Western Waters species catches as a proportion of total reported species catch

Note, species are given as FAO 3-letter alpha codes.

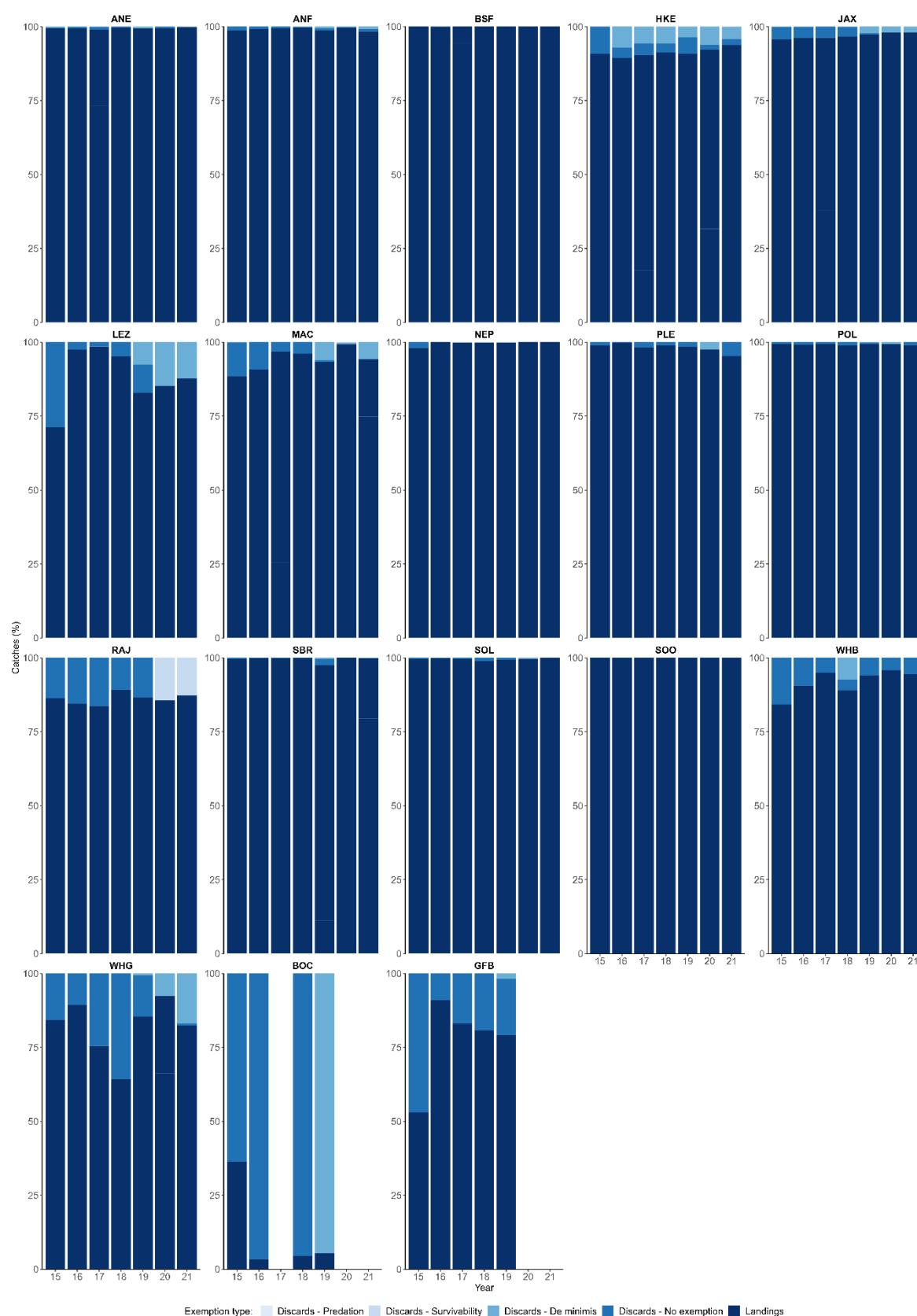
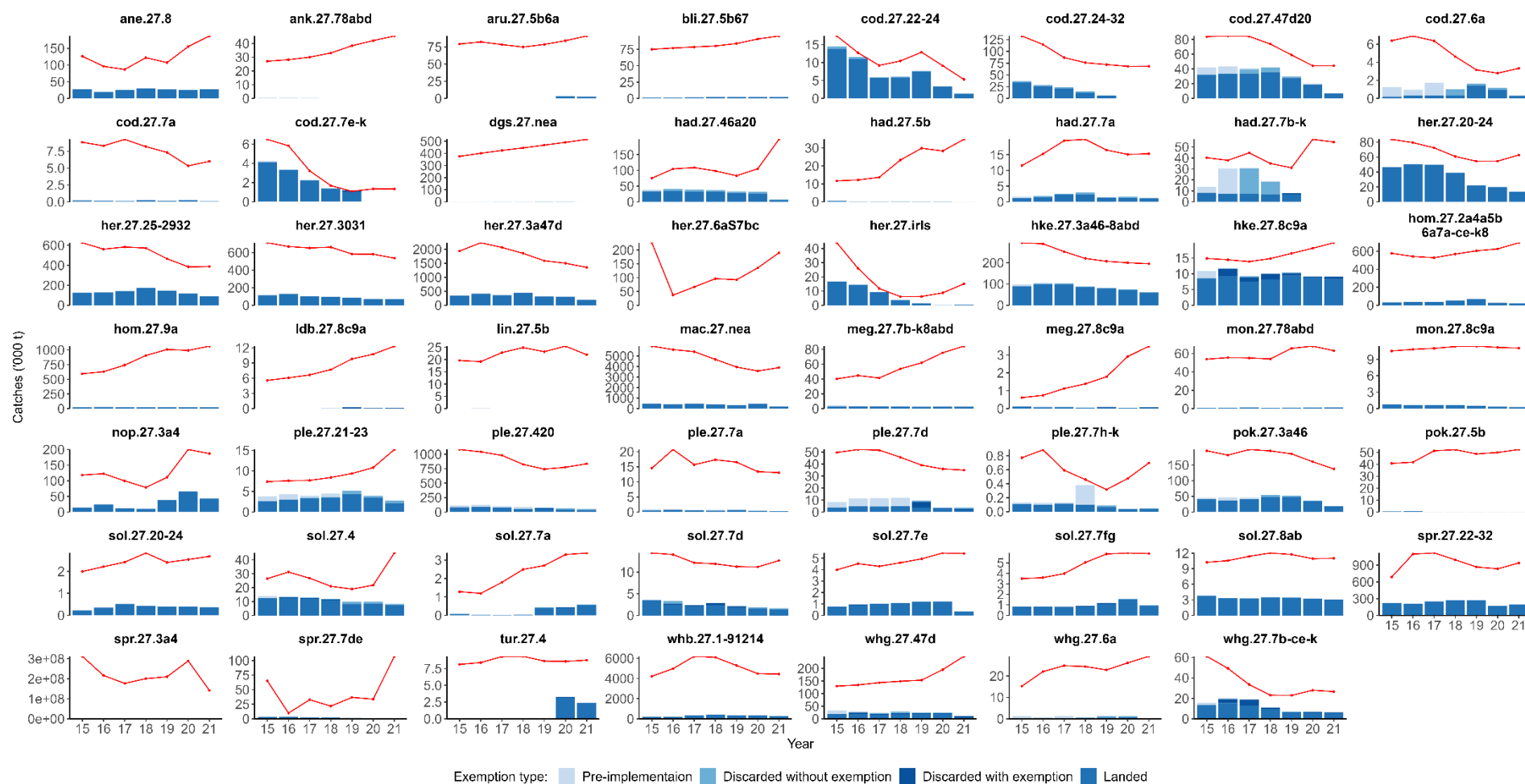


Figure 5 - Potential exemption classification of stock catches as compared to stock size

Note, Red line denotes stock size estimated in 2022 ICES stock assessment. Species are given as FAO 3-letter alpha codes.



3.3 Good practices and technical innovations

The implementation of the landing obligation should provide a strong incentive to increase the selectivity of fishing operations in EU fisheries. To achieve this, Member States need to prioritise effective control measures and improvements in selective fishing gears or methods that avoid and reduce unwanted catches as far as possible as a conservation measure.

In particular, significant efforts have been made by stakeholders from different Member States and scientific institutions to research innovative fishing gear, technologies and practices that reduce unwanted catches, and contribute to the eventual elimination of discards in European fisheries. Examples of these projects are the Horizon 2020 research projects: DiscardLess ⁽¹⁰⁾ and MINOUW ⁽¹¹⁾. These projects resulted in very specific tools such as:

- The MINOUWApp ⁽¹²⁾, a web-based tool designed to integrate and map multiple sources of data to assess the spatial distribution of fishing effort in relation to areas of potential high discards (D'Andrea et al., 2020). Fishing effort and discard data for the period 2012 – 2016 were sourced from the STECF, the ICES and the General Fisheries Commission for the Mediterranean (GFCM) for selected European fisheries to showcase the potential application of this tool to adapt fishing strategies to enhance compliance with the landing obligation. Due to confidentiality purposes regarding these data, a fictional case study near the Palmyra Atoll is presented as a reference example.
- A catalogue and manual of selectivity tools ⁽¹³⁾.
- Solutions proposed by fishers, broken down by technical solutions (gear changes), tactical (fishing behaviour changes) and management solutions ⁽¹⁸⁾.
- Solutions for onboard handling of unwanted, unavoidable catches and on how these catches could be used once they are landed, following implementation of the landing obligation ⁽¹⁸⁾.

Prior to the 2013 CFP reform (EU, 2013), most gear selectivity technical measures outlined in regulations followed a top-down prescriptive approach (STECF, 2012; 2013), reducing the likelihood of buy-in from the fishing industry. Up to this point and since 1980 there had been 10 gear specifications and operational technical measures outlined within EU regulations and implementing rules for fisheries

⁽¹⁰⁾ www.discardless.eu/www.discardless.eu/deliverables.html.

⁽¹¹⁾ <https://minouw-project.eu/>.

⁽¹²⁾ <https://minouw.shinyapps.io/minouwApp/>

⁽¹³⁾ Link to public deliverables and publications of DiscardLess:
<https://cordis.europa.eu/project/id/633680/results>

(Kraak, 2023). One of the key issues addressed by the 2013 CFP reform Regulation (EU) No 1380/2013 was regionalisation, with new regulations allowing seven regional groups (made up of Member States) to provide joint recommendations to the EU Commission on issues such as technical measures increasing gear selectivity. This change allowed the formulation of conservation measures that were region-specific and therefore more fit for purpose. Throughout the phasing-in period of the landing obligation (2015 to 2019), STECF worked on a series of reports providing advice on proposals for new gear from Member States, assessments of alternative measures, and protocols for trialling alternative gears – including self-sampling, observer programmes, electronic monitoring, and modelling techniques. The Technical Measure Regulation (EU) No 2019/1241 (in force since 2019) also allows for more bottom-up approaches to the development of gear selectivity measures, explicitly permitting the implementation of pilot projects with the “*aim of exploring methods for the avoidance, minimization, and elimination of unwanted catches*” (EU, 2019; Kraak, 2023).

Within the existing body of literature, a review of good practices related to the implementation of the landing obligation was conducted for this study and identified 53 studies documenting either modifications to gear or fishing methods to reduce unwanted catches. Across the seven marine regions, the vast majority of these good practices pertain to demersal trawls (39 of 51). This is probably because of their particular need for selectivity given both the high fish abundances and richness associated with this part of the water column. Relatively few successfully identified good practices were found in studies on pelagic trawls (2), purse seine (4), longline (2), pot and trap (2), gillnet and trammel net fisheries (2). A detailed description of each pilot project and associated good practices is in ANNEX 11.

In the Baltic Sea, bycatch reduction devices (BRDs) were the main focus of these pilot studies, such as a cod escape window in the bottom of a *Nephrops*-directed mixed demersal trawl fishery net (Palder et al., 2023), a BACOMA codend to release juvenile fish, particularly cod, in demersal trawl fisheries (Herrmann et al., 2015), a flatfish escape window for a cod-directed trawl fishery (Santos et al., 2016), and the use of SELTRA and T90 codends in Norway lobster (*Nephrops norvegicus*; Savina et al., 2022) and mixed demersal fisheries (Herrmann et al., 2015) respectively. In the North Sea, gear modifications included SMPs and square mesh cylinders (SMCs) in a variety of trawl net locations designed to enhance the escapement of undersized individuals or non-target species from trawl nets (Vogel et al., 2017a,b). Additional measures include the use of grids to create a physical barrier preventing fish from entering *Nephrops* trawls (Melli et al., 2018) and split codends to separate fish bycatch from Norway lobster catches, thereby maintaining fish quality (Karlsen et al., 2015). Similar measures, such as T90, SMCs and split codends, have also been piloted in the North Western Waters (Oliver et al., 2021), as well as the use of inclined separator panels to divide catches of Norway lobster from finfish bycatch in the Celtic Sea and Atlantic Ocean (Cosgrove et al., 2019).

Novel techniques, such as underwater videos to conduct real-time catch escapement monitoring, have also been used to monitor the effectiveness of selectivity devices. For example, Simon et al. (2020) conducted a study in a demersal mixed fishery to determine if the colour of an SMP affected the escape rate of fish within a trawl net. The results not only indicated that net colour influenced the escape rates of fish but also showcased the benefits of using automated video analysis as an avenue for research, allowing better data collection on technical gear trials in future.

Since 1 January 2017, the installation of a chute discarding system has been mandatory for Nephrops trawlers in the Bay of Biscay. A study by Merillet et al. (2018) reported that this device, which allows fishers to discard undersized Norway lobster during sorting, also decreased Norway lobster discard mortality. This potentially has wide applications across other Norway lobster directed fisheries throughout European waters – though this method would potentially need to be mandatory to ensure its implementation (Merillet et al., 2018).

A summary of the evolution of fishing practices since the starting dates of application of the landing obligation per sea basin is provided in ANNEX 6, which also details progress in specific fleet segments to increase gear selectivity. Following the conclusion of successful gear trials, many gear modifications are enforced under the Technical Measures Regulation (EU) No 2019/1241 or listed under conditions for vessels to be eligible for *de minimis* and high survivability exemptions. Several of the aforementioned gear modifications (T90, BACOMA, and SELTRA codends) are reflected in the STECF FDI data and have been fully implemented within fisheries across the North Sea and Baltic Sea.

Unless the use selective gears are mandatory under EU law, voluntary uptake is generally low, even in fisheries with high unwanted catches (Fauconnet, 2024). The literature provides limited insight into whether good practices are actively applied by fisheries to comply with the landing obligation. However, some cases of voluntary adoption of selective gears following successful trials have been documented.

For instance, Fauconnet (2024) highlights examples where gear trials in EU fisheries led to widespread adoption among fishers. One such case is the *Project 50%* in the English beam trawl fishery, where fishers developed modifications, including larger mesh sizes in various sections of the trawl (codend, sleeve, battings, lower panel, and square section), as reported by Catchpole et al. (2018). Similarly, the success of the 100 mm T90 extension in reducing unwanted catches of boarfish, pelagic species, and undersized fish in mixed demersal fisheries in the Celtic Sea has led to its voluntary adoption by various vessels, demonstrating the effectiveness of the French *Ce/Select* project (Robert et al., 2020). In pelagic fisheries, a participatory project to trial non-entangling fish aggregating devices (FADs) has resulted in widespread voluntary adoption across EU fleets as good practice for reducing bycatch and incidental mortality of target, non-target, and endangered, threatened, and protected (ETP) species (Murua et al., 2016).

However, in many cases, successful pilot studies do not translate into widespread implementation – this is a particularly pronounced issue in the Mediterranean and Black Sea, where numerous successful studies have taken place without the apparent implementation of gears at the fishery-wide level. For example, several studies have tested T90 codends, finding them to be effective BRDs in crustacean and finfish demersal trawl fisheries (Maynou et al., 2021a,b; Geraci et al., 2023; Petetta et al., 2020a; Sola & Maynou, 2018). Additionally, a variety of square mesh panels were also found to be effective BRDs such as the SM40 (a 40 mm square mesh codend) (Petetta et al., 2023); lateral SMPs paired with smaller mesh size in the trawl belly (Bonanomi et al., 2020); and 45-50 mm square mesh codends in coastal and deep-sea otter trawl fisheries, respectively (Company et al., 2021).

The lack of implementation may stem from a disconnect between the pilot study stage and the level at which joint recommendations are made, or simply due to low uptake and buy-in at the industry level. According to the STECF evaluations on joint recommendations, the prevailing rationale as to why gear selectivity measures are not employed is that fishers state that the accompanying loss of commercial catches would not be economically viable (STECF, 2021b; 2023b; 2024c). Furthermore, the latest ICES advice on innovative gears, informed by fishers and gear technology experts participating in the second Workshop on Innovative Fishing Gears (WKING2), highlights that beyond economic concerns, social and political factors also hinder the adoption of new selective gear technologies (ICES, 2023a). These barriers include regulatory uncertainty, an absence of a level playing field when gears are adopted voluntarily and industry reluctance to invest in unproven methods when they have spent years perfecting the use of their current gear.

One potential solution to this issue of poor industry uptake is greater involvement of industry stakeholders during the development phase of innovative selective gear designs to ensure they are practical and applicable across fleet segments. Encouraging active participation fosters a sense of ownership and collaboration among fishers, facilitating knowledge-sharing and increasing compliance with new technologies (ICES, 2020a; Kraak and Hart, 2019). Additionally, integrating social scientists alongside gear technology experts could help address broader challenges in gear adoption and implementation (ICES, 2023a)

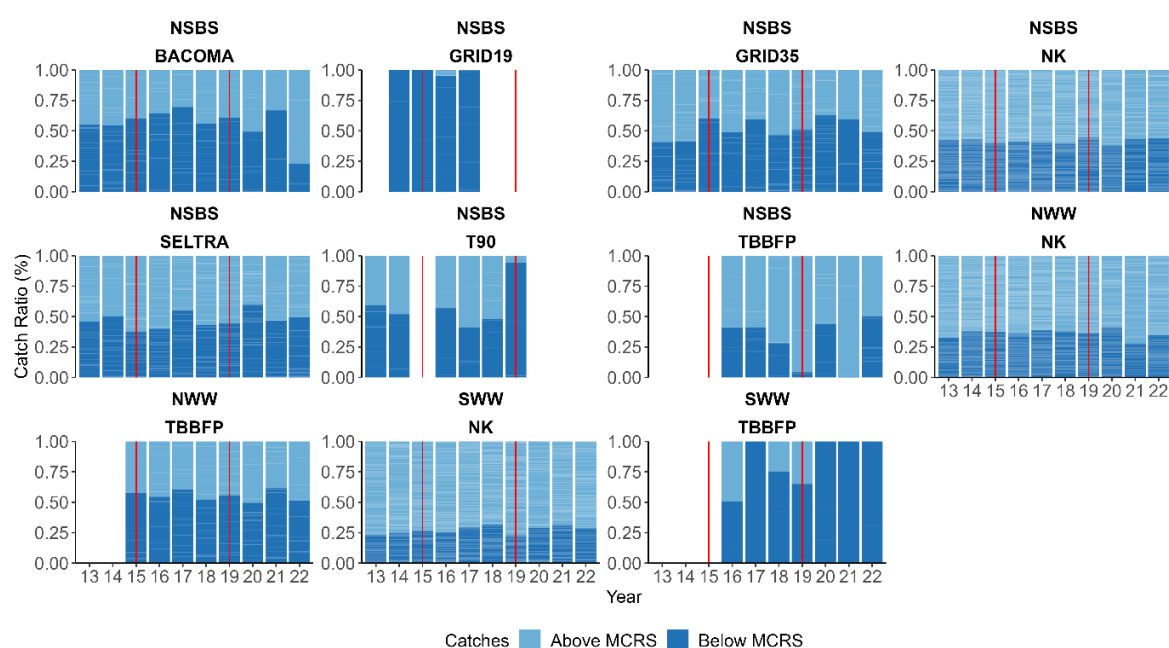
In a recently published study by Mantopoulou Palouka et al. (2024) looking at changes in selectivity within EU fish stocks, a gradual improvement of selectivity in the North East Atlantic was noted over the past 20 years based on an indicator associated with mean selectivity of juveniles against stock specific pilot reference points. In 2021, 12 of the 23 stocks showed more juveniles being selected than their proposed reference points. Most cod stocks in the NE Atlantic and hake stocks in the Mediterranean exhibited particularly high selection of juveniles. In the Mediterranean region, only two of the 10 stocks considered exhibited sustainable selectivity levels in 2021. The study noted these findings should be treated with caution, owing to reliance of the selectivity indicator on stock assessment settings and caveats related to the reference point estimation.

Given the long-term trend examined within the study by Mantopoulou Palouka et al. (2024), this study used length-based landings and discard data available within the STECF FDI database, to examine the level of catches under MCRS occurring with the use of technical selectivity gear measures. Within the dataset, a number of gear selectivity measures associated with Technical Measures are reported (as specified by the 2023 FDI data call; EC, 2023b), e.g. TBBFP for beam trawlers using a “Flemish Panel” against level of catches under MCRS where for no gear selectivity measure identified (NK).

A ratio of “unwanted catches” to “wanted catches” (based on the above – below MCRS threshold) was examined. Figure 6 contains stacked bar plot visualisations depicting the proportion of undersized catch weight within the catches (landings and discards) for a specific technical measure within a sea basin as reported within the STECF FDI database Tables D and F associated with discard and landings length data respectively (as listed in Appendix 11 of the STECF FDI 2023 data call (CINEA-EMFF, 2023)). The two red lines represent the start and end of the landing obligation phasing period. Only those records with both landing and discard records are included. No raising has been carried out. Detailed data visualisations for each sea basin are presented in ANNEX 12. To observe more specific catch trends for different fleet segments before and after the landing obligation phasing period, percentage changes were plotted for individual species against fisheries by region and technical gear measure (ANNEX 12) identifying where unwanted catches had increased (red), decreased (green), or remained consistent (amber).

Figure 6 - Undersize catch as a proportion of total catch weight associated with Technical Measures gear selectivity devices by sea basin.

(NSBS = North Sea and Baltic Sea; SWW = South Western Waters; NWW = North Western Waters)



Based on the STECF FDI data, selectivity of fishing techniques does not appear to have increased. The FDI data shows the limited application of technical gear measures across EU sea basins. The Baltic and North Sea regions was found to have implemented the largest number, with six technical selectivity gear specifications (BACOMA (codend), GRID19 (selectivity grid), GRID35 (selectivity grid), SELTRA (Seltra panel) (codend), T90 (codend), and TBBFP (Flemish Panel). However, within the Western Waters biological information was only available for the Flemish Panel (TBBFP). No technical selectivity gear specifications were observed in the Mediterranean and Black Sea region, Outermost Regions or DWFs. The only gear selectivity device introduced during or after 2015, and therefore after the introduction of the landing obligation, was the Flemish Panel used within the North Sea, Baltic Sea, and Western Waters.

These results raise questions around both the actions of both regional groups responsible for bottom-up development of innovative selective fishing gears as well as the data collection and reporting mechanisms feeding into STECF FDI data. The very limited uptake of gear selectivity technical measures seen in the STECF FDI data is consistent with the conclusions of recent evaluations carried out by STECF of Joint Recommendations requesting exemptions from the landing obligation and any amendments or derogations from technical measures regarding Article 15 of the Technical Measures Regulation (EU) 2019/1241 (STECF, 2021b; 2023b; 2024c). These note that despite many experiments testing selective gears, there are still few examples of such gears being proposed within Joint Recommendations. One possible explanation for the low numbers of gear selectivity technical measures is the scale at which it is reported. The newly embraced bottom-up element of gear selectivity pilots may not be reflected in the current reporting mechanisms for STECF FDI data calls, meaning gear selectivity measures employed on a small national or regional scale may not be included in reporting templates. However, the process of implementing these selective gears ultimately results in the adoption of new delegations and the advancement of Joint Recommendations put forward by regional groups, which would include these newly proposed Joint Recommendations (EU, 2019; Kraak, 2023).

The rates of unwanted catch observed across regions and gear selectivity measures show no clear patterns over the time. Unwanted catches throughout 2013-2022 often appear lowest for three technical gear specifications: BACOMA codends, often used in Baltic and North Sea trawls targeting cod; T90 codends, used in demersal trawls to remove roundfish from crustacean trawls; and not specified, where no gear selectivity technical measure was present. The Flemish Panel was shown to have had variable effects on unwanted catches, potentially owing to it having been implemented more recently than other selectivity devices and its application to mixed beam trawl fisheries, which have the potential to produce varied catch compositions.

Within the Baltic Sea, use of BACOMA codends by the demersal bottom otter trawl fleet (OTB_DEF) have, on average, resulted in more stable, or smaller increases in undersize catches of Atlantic cod, European plaice, and European flounder, post landing obligation (2021-2022) compared to 2013-2014 than those same fleet

segments operating without a selectivity device., as illustrated in Figure 7. However, only undersized cod showed a decreasing trend (declining by more than 5%), which was limited to the 18-24 m vessel length category.

Figure 7 - Baltic Sea gear selectivity measures change in unwanted catch rate pre- and post- phasing of the landing obligation.

(Left: BACOMA; right: NK = Not Specified).



Based on the STECF FDI data, a review of STECF reports and wider literature on gear selectivity measures, **there does not appear to be a marked increase in the uptake of more selective fishing techniques and gears.** There appears to be a barrier to the implementation of successfully trialled gears at the fishery-wide level. To encourage adoption of more selective gear, understanding the motivational behaviour and attitudes underpinning discarding is crucial to bolster behaviour change. Early engagement and close collaboration with industry players during the development stage of innovative gear trials is now fully recognised and implemented in most projects on fishing selectivity. By bringing together relevant

stakeholders with complementary expertise, such as fishers, scientists, gear manufacturers and fishery managers, initiatives can adopt a holistic approach to develop and test different gear designs or tactics to increase selectivity. In particular, proactive involvement of fishers can facilitate knowledge sharing of how best gear can be adapted to local specifics, such as according to different vessel configurations, and help encourage a sense of ownership and desire to make the trial a success. This in turn can promote the uptake and compliance with the landing obligation. Examples of these initiatives include DiscardLess, the Gearing Up project ⁽¹⁴⁾ and FAST TRACK (Feekings et al., 2019).

However, long-term success of participatory research depends on the incentives of stakeholders to participate. Financial incentives can help to compensate for the initial investment and short-term economic losses fishers may experience during the transitory period to incentivize uptake. This can take the form of quota-based incentives, such as the Irish '*Nephrops* scheme,' which demonstrated potential as powerful drivers for adopting more selective gears (Cosgrove et al., 2019). Another approach would be the use of compensation mechanisms. For instance, the Fishing Opportunities Regulation (Council Regulation (EU) No 2022/110) introduced incentives for vessels in the western Mediterranean, offering additional trawling days to those meeting specific criteria, such as efficient closure areas during spawning periods or adopting selective gear to reduce juvenile catches. Non-monetary incentives have also been proven effective, with Catchpole et al. (2018) and Feekings et al. (2019b) reporting the recognition of fishers' involvement in selectivity gear trials led to a promotion of a good public image of fishers.

3.4 Challenges and barriers to implementation

The introduction of the landing obligation represented a significant shift in EU fisheries management, transitioning from the well-established management system of a landing-based TAC system to a system that records the entire catch, whereby all catches of species subject to catch limits and, in the Mediterranean Sea, catches of species subject to MCRS must be landed and deducted from the vessel's quota. By requiring fishers to retain and land regulated species, the policy aims to improve data collection on catches, ensure total allowable catch quotas are not exceeded, and encourage changes in fisher behaviour to avoid undesirable catch composition, thereby contributing to the conservation of fish stocks and marine ecosystems.

To allow time for adaptation, the legal requirements of the landing obligation was introduced gradually. However, despite nearly ten years having passed since it was introduced and more than five years since it became fully applicable, studies and reports from the EU and the STECF highlight low compliance and weak implementation. A recent EU Study further supports this, finding no significant change in discarding practices, with evidence of ongoing discarding practices

⁽¹⁴⁾ www.fishingintothefuture.co.uk/project/gearing-up/

(CINEA-EMFF, 2021). The EU Study highlighted a key challenge associated with the landing obligation, which is effective control and enforcement, calling for a shift from traditional control methods to activities at sea.

The effectiveness of the landing obligation in achieving conservation goals and its impact on specific species vary depending on various factors such as enforcement, stakeholder cooperation and adaptation of fishing practices. Barriers to implementation can be categorised in four main groupings: ecological (based around the fish and the fisheries that are being targeted), economic (financial implications for implementing and maintaining the landing obligation for various parties), institutional (cultural or organisational circumstances encountered that could prove a barrier to implementation) and operational (those relating to physical barriers to implementing the landing obligation). A detailed description of the barriers that are encountered can be found in ANNEX 13.

Although there is evidence of notable progress in stakeholder collaboration at both regional and national scales, such as the Horizon 2020 research projects (DiscardLess and MINOUW), the Gearing Up project, SMARTFISH (SMARTFISH, 2021) and FAST TRACK (Feekings et al., 2019), and selectivity improvement studies, significant challenges persist. The literature has reviewed the main challenges faced by Member States and fisheries in implementing the landing obligation and these are discussed below. A summary of these challenges encountered by Member States and fisheries across the different sea basins is in the following Table.

Table 2: Summary table of main challenges faced by Member States and fleet segments by sea basin identified within the literature

Challenges/barriers	Baltic Sea	North Sea	North Western Waters	South Western Waters	Mediterranean Sea	Black Sea	Outermost Regions	Distant water fleet
Ineffective monitoring and enforcement	✓	✓	✓	✓	✓	✓	✓	✓
Poor data quality and lack of reporting on catch below MCRS	✓					✓		
Balancing sustainability goals to increase selectivity with maintaining economic viability	✓	✓	✓	✓	✓	✓		
Low acceptance and compliance among fishers	✓	✓	✓				✓	
Issues with choke species		✓	✓			✓		
Improving species and gear selectivity		✓	✓	✓	✓		✓	
Limited uptake of selective gear		✓	✓					

Challenges/barriers	Baltic Sea	North Sea	North Western Waters	South Western Waters	Mediterranean Sea	Black Sea	Outermost Regions	Distant water fleet
High number of exemptions		✓	✓					
Impact of the UK's withdrawal from the EU		✓	✓					
Fishers' reluctance to collaborate in pilot projects				✓				
Lack of market for catches below MCRS				✓				
Integrating landing obligation into an effort-based management framework					✓			
Majority of fleet made up of small-scale fishers					✓			
Handling and processing of unwanted catches						✓		
EU legislation not aligned with local fishery characteristics							✓	

As shown in Table 2, it is evident that ineffective monitoring and enforcement, maintaining economic feasibility and difficulties improving species and gear selectivity are the dominant challenges experienced by Member States across all sea basins. Further details and specific examples of where these challenges have been documented are described below.

3.4.1 Monitoring and enforcement

Challenges with monitoring discarding practices are widely reported. Recent findings in the 2021 EU Study (CINEA-EMFF, 2021) stated that 64% of stakeholder respondents from the Baltic Sea and North Sea did not believe the landing obligation was being complied with. The lack of enforcement and the perceived absence of effective penalties were also reported as major challenges, as seen in the most recent annual report on Poland (STECF, 2022a), which concluded that having inspectors physically onboard for the duration of a fishing trip may be the only solution. Control experts agree that the use of REM or CCTV on board is the most cost-effective method for fully documenting fisheries. STECF (2022a) notes that many Member States are testing innovative control tools for monitoring and control of the landing obligation, over and above what is used traditionally. In the North Sea, all Member States intend to participate in the regional REM pilot supported by EFCA.

The roll-out of REM across EU fisheries in the North Sea would be a significant step towards the effective implementation of the landing obligation. This

commitment aligns with the amended Control Regulation (EU) No 2023/2842 and the mandatory use of CCTV on board certain vessels by 2028. However, installing REM across all fleet segments may be challenging, as the minimum requirements for REM vary depending on the type of fishing gear to be used, vessel characterisation, vessel configuration, vessel length and target species or group of target species. Moreover, industry pushback, as reported by Plet-Hansen et al. (2017), may present barriers to this advancement, highlighting the need for continued dialogue and collaboration between regulators and fishers to address concerns and ensure successful adoption of these monitoring technologies.

Additionally, there are implementation problems with the control and monitoring (e.g. electronic processes) in the South Western Waters. In the recent annual report on Spain, the need for more time and funding to implement the landing obligation is stressed, highlighting ongoing issues with control and monitoring. Specifically, problems have been reported with controlling landings of horse mackerel and Norway lobster in the Gulf of Cadiz, as well as issues with onboard sorting of catch.

Control and enforcement of discarding practices are even more difficult for the EU's DWFs due to their remote spatial distribution. According to the literature, there is a growing body of research investigating the use of REM to enhance compliance with the landing obligation. In a recent study by Briand et al. (2018), the efficiency and the potential of an Electronic Monitoring System (EMS) were evaluated within the ICCAT framework, aligning with the vision of fully documented fisheries. The study compared EMS with regular observer programmes in estimating non-target species and discards on French tropical tuna purse seine vessels. While the EMS produced accurate estimates for tuna discards, it struggled to accurately identify and quantify non-target species like sharks and billfish compared to traditional observer programmes. This discrepancy was attributed to the handling and sorting of these species occurring in areas not covered by camera angles, highlighting the need for improved system design to enhance the documentation of all discarded species. The authors concluded that with improved camera placement and increased crew cooperation, EMS could serve as a valuable compliance tool for monitoring discards, suggesting it's potential dual use for monitoring compliance with the landing obligation, particularly in remote fisheries where traditional observer coverage is limited.

3.4.2 Economic feasibility of the industry

Economic concerns are a central issue, as fishers can incur significant costs from compliance with the landing obligation. The 2021 EU Study highlighted this challenge, with countries like Latvia noting that handling catches below the MCRS is costly, and the low market price makes it difficult to cover these expenses, potentially increasing the risk of non-compliance. Similarly, in Bulgaria, the socio-economic impact of handling undersized fish due to the unsuitable conditions for storing, processing and or destroying the undersized fish is a challenge for the catching sector. This challenge is compounded by the apparent lack of funding for

improvements to port infrastructure and vessel modifications, resulting in inadequate facilities to deal with unwanted catches.

Balancing sustainability goals with maintaining the economic viability of fisheries has been flagged as a widespread issue across all EU fisheries. Implementing gear modifications and conservation measures must consider both environmental benefits and the potential short-term economic impacts on fishing communities, acknowledging the need for solutions that support sustainable practices while ensuring industry survival. For instance, Cosgrove et al. (2015) reported increasing codend mesh size beyond 80 mm in the Irish Sea Nephrops fishery nearly doubled economic losses for relatively small gains in the reduction of catches of small Norway lobster. Thus, an increase in codend mesh size to 90 or 100 mm was not considered to be economically feasible as a means of reducing catches of small Norway lobster in short term. Additionally, a study testing alternative gears in demersal mixed fisheries showed that a 100 mm T90 extension reduced unwanted catches of Gadidae, Triglidae, and Caproidae, but it also caused commercial losses of small-grade target gadoid species (Robert et al., 2020). For fleets dependent on small-grade haddock and whiting, this gear modification could lead to unsustainable commercial losses.

For particular fisheries, such as the Dutch shrimp fishery, a study by Neitzel et al. (2023) found that implementing the landing obligation is extremely challenging and often not feasible. This is due to high additional costs, safety concerns, and practical difficulties, especially for vessels without sorting belts. Even for those with sorting belts, compliance requires costly vessel modifications or results in significant income loss. The challenges are further complicated by seasonal and location-based variations in the volume and composition of bycatch, which increase sorting time and expenses. Similarly, a study by Steins et al. (2023) observed comparable challenges in the Dutch demersal fishery, where the uptake of proven gear modifications (selective fishing gear) is close to zero. The reasons include economic losses, high investment costs, a “one size fits all” counterproductive or bureaucratic regulatory framework and reluctance to change expressed by the fishers. Increasing costs are also a major challenge for the mixed flatfish fishery in the Netherlands. Here, implementing the landing obligation, provided that there are no exemptions, may require extra labour on board or a reduction in the number of hauls per trip, representing additional costs.

The economic burden of adopting new devices or undergoing vessel modifications can act as a barrier to implementation, as fishers must fund the purchase before they receive EMFF funding, making it difficult for some fishers to access these financial resources. In regions like the Mediterranean and Black Sea, where small-scale and multi-species fisheries dominate, the costs of compliance often outweigh the economic benefits (STECF, 2023). Economic difficulties for the Spanish fleet, particularly the trawler fleet in Northern Iberian waters, are highlighted by Rodríguez-Rodríguez et al. (2019), which concluded that while the landing obligation will undoubtedly contribute to the reduction of discards, it will also cause (at least) a short-term reduction in fishing companies' income ranging from 14.5% in the worst-case scenario to 5.3% in the most favourable. These economic

losses, confounded by some fisher reluctance to accept the landing obligation, were shown to be a driver for a lack of willingness of fishers in the North Spanish bottom trawl fishery to test different selective trawl gears with scientists (Valeiras et al., 2021).

3.4.3 Improving species and gear selectivity

Improving selectivity remains a key challenge in mixed fisheries across various sea basins, where the risk of exceeding catches of species with limited quotas can lead to early closures, known as the "choke effect." While management measures like inter-annual quota flexibility and exemptions help mitigate this, enhanced gear selectivity is critical. Selective gear, such as size-selective nets and hooks, aim to target specific species, reducing the accidental catch of choke species.

Technological advancements, including escape panels and sorting grids, have been trialled to improve trawl selectivity, but results have been mixed. For instance, Uhlmann et al. (2023) found a non-significant reduction in plaice mortality using a flip-up rope in Belgian beam trawlers, while an increased grid surface area in North Sea demersal trawls had little effect on selectivity (Brinkhof et al., 2022). Similarly, projects like SELECMER (Leonardi et al., 2009), SELECCAB (Viera et al., 2010), SELECFISH (Weiller et al., 2014), and SELUX (Lancelot et al., 2021) trialling various selectivity devices (e.g. square mesh panels, selectivity grids, square-mesh cylinders, and light technology, respectively) reported significant commercial losses, making widespread adoption challenging (STECF, 2023b).

Similarly, in the Mediterranean, the multi-species, multi-gear nature of fisheries complicates selectivity. In a recent review of the western Mediterranean MAP, stakeholders agreed that *"although the landing obligation had stimulated scientific research into more selective gears and survivability studies [...] for mixed demersal fisheries, they believe that there will be a limit to the degree of selectivity"* (EU Commission, 2024). Within the literature and the ad hoc contract evaluated by STECF 22-01 (STECF, 2022a), Greece noted that enhancing selectivity for one species can lead to losses in commercial value for others, representing a barrier to adoption (Sola and Maynou, 2018; Brčić et al., 2018), while France, Italy, and Spain highlighted challenges related to sorting and handling catches due to limited infrastructure (STECF, 2023b).

The Outermost Regions, like the Azores, face similar issues. For example, a study on circle hooks intended to mitigate bycatch in deep-water longline fisheries found that they increased, rather than reduced, catches of deep-water sharks (Fauconnet et al., 2024).

In the South Western Waters, improving selectivity in mixed fisheries remains problematic. In the latest Joint Recommendations, Member States in the South Western Waters requested the highest number of *de minimis* exemptions (21) across all sea basins, with 17 specifically for demersal fisheries. Hake is a key

species but also a choke risk, with Spanish, French, and Portuguese fleets reporting over 90% of discarded hake below MCRS (STECF, 2023b).

Improving selectivity is challenging and the disproportionate costs of handling unwanted undersized hake generate additional economic losses. Supporting information for the Spanish fleet states that *“in terms of lost opportunity costs, bottom trawlers in subareas 8 and 9 are estimated to experience losses amounting to €2,763,053 if the requested de minimis exemption for hake is not granted. This equates to 30.1% of the total losses estimated for all fleets subject to all the requested exemptions for all species in the Joint Recommendation, if all such exemptions are not granted.”* (STECF, 2023b).

Despite several selectivity studies in the Spanish and French trawling fleets showing successful technical and tactical measures to increase selectivity (e.g. SEL-LO, CASELEM (Brčić *et al.*, 2023) SMARTFISH (SMARTFISH, 2021), and SELECTLUGO22 (Valeiras *et al.*, 2022) projects and Vogel *et al.*, 2017a), the results indicate that increased selectivity is not easily achievable in the short term and although selectivity can be improved, no optimal solutions have been found, and no substantive changes or uptake of any gear modifications in the different fisheries have been implemented (STECF, 2023b).

Even in cases where successful experimental techniques were tested, studies report minimal uptake by the fishing industry (Cosgrove *et al.*, 2019). Quota-based incentives, such as the Irish ‘*Nephrops* scheme,’ show potential as powerful drivers for adopting more selective gears (Cosgrove *et al.*, 2019).

3.4.4 Choke species

The implementation of the landing obligation has **introduced significant challenges, particularly in mixed fisheries where choke species create economic and operational barriers**. These species, caught incidentally but subject to their own quotas, can severely limit fishing activity by reaching quota limits before other target species. For the North Sea in particular, the issue of choke species has been previously noted by Member States and the Regional Advisory Councils as the biggest single problem in implementing the landing obligation.

Choke species typically limit the catch of target species due to differences in the life history of a number of species, with some being more productive than others or differences in relative abundance between areas (Baudron & Fernandes, 2015; Kuriyama *et al.*, 2016; Mortensen *et al.*, 2018). Choke species are not just an EU problem. For example, the multispecies groundfish fishery in British Columbia Canada has had similar problems with rockfish species (Davis, 2008). Previously, these choke species would have been discarded and not counted against quotas, but they have the potential to reach their assigned quota before other target species. The inclusion of choke species in the landing obligation provides a number of implementation challenges to industry and fishers.

A study by Pointin et al. (2019) on the French otter trawl fishery highlighted the economic losses caused by choke species, which curtailed fishing activities earlier in the year. Horse mackerel was identified as a primary choke species, with its reduced quota significantly affecting trawlers while other species' quotas remained stable. To lessen the likelihood of choke species being caught, France uses inter-annual quota flexibility, authorising a vessel to catch up to 10% beyond its quota of a particular TAC, which is subsequently deducted from the national quota the following year. Despite the advantage of using inter-annual quota flexibility, Pointin et al (2019) found that increasing bycatch reduction efforts by 30% was not enough to avoid economic losses unless there was a significant increase in quotas, with a recommended increase of at least 75%.

Implementation of the landing obligation presents major challenges in the North Western Waters, especially for mixed fisheries. In the Celtic and Irish Sea, several commercial species are often caught together, leading to potential choke situations where restrictive quotas may force fishing activities to cease. Cod, haddock and whiting frequently co-exist in mixed species assemblage but often have uneven quotas, resulting in cod and haddock being identified as key choke species, especially in Irish fisheries (Calderwood et al., 2016).

Studies have shown that the mixed nature of demersal fisheries limits vessels' ability to reduce catches of quota-restricted species (Calderwood and Reid, 2019). Several studies have focused on mapping the spatial distribution of discards in mixed fisheries (Robert et al., 2019; Calderwood et al., 2020). Among these is the Discard Atlas of the North Western Waters Demersal Fisheries, prepared by Member States and the North Western Waters Advisory Council under Article 14 of the CFP Regulation (EU) No 1380/2013 (Catchpole et al., 2014). However, while these maps could theoretically help fishers avoid unwanted catches, Robert et al. (2019) found that certain species are widely distributed and different fishing gears often interact in ways that make it hard to avoid catching them. Consequently, avoiding discards becomes more complex, making *de minimis* exemptions essential for sustaining fisheries and maintaining economic feasibility.

3.4.5 Low acceptance and compliance among fishers

Recent findings in the 2021 EU Study (CINEA-EMFF, 2021) stated that 64% of stakeholder respondents from the Baltic Sea and North Sea did not believe the landing obligation was being complied with. Generally, there is **little acceptance and comprehension** of the policy since fishers do not see the legitimacy of the measure. Specifically, Germany's annual report on the implementation of the landing obligation in 2021 underscores the differences in regional regulations as a challenge for fisher compliance, with detailed rules outlined in the discard plans for the North Sea making it challenging for fishers to grasp and adhere to the landing obligation compared to the clearer regulations in the Baltic Sea. Similarly, Latvia reported that complicated regulations were difficult to interpret, leading to different interpretations by fishers.

According to the most recent annual report on the Netherlands' implementation of the landing obligation (STECF, 2022a), there is in general a lack of support for the landing obligation by the Dutch demersal sector, implying a high risk of non-compliance. The industry's reluctance to implement the landing obligation is also a major challenge in Belgium. Therefore, greater monitoring and control are required to ensure fishers are compliant in order to reduce unwanted catches and report all their catches. However, although inspectors are well informed on the rules of the landing obligation, the high number of exemptions complicates control and enforceability, especially with regards to accurate discard reporting (i.e. misreporting of actual discard rates against registered discard levels).

Within the literature, very limited information was found on specific cases relating to fisheries in the Outermost Regions encountering difficulties implementing the landing obligation. Most of the information below is based on the Azores. According to a study based on semi-structured interviews conducted with Azorean small-scale fishers to document their perceptions about discards and the landing obligation, most fishers strongly oppose it, viewing it as inappropriate for their fisheries (Fauconnet et al., 2019b). All fishers admitted to discarding part of their catch, primarily due to catching undersized fish and the low market value of certain species. While the reported low level of discarding may be socially accepted within the fishing community, it highlights the challenge of enforcing the landing obligation at sea. Given the practical difficulties of detecting discarding in real time, fishers can often get away with discarding catch when they are confident no control authorities are present. As a result, effective monitoring for non-compliance remains a critical issue, as enforcement efforts largely rely on indirect methods such as REM and observer programs. Additionally, some respondents reported that unwanted catch, including undersized valuable fish, is landed and sold illegally. This was also reported by an EU study which highlighted strong opposition among fishers to regulations prohibiting the sale of unwanted undersized catch for direct human consumption (Villasante et al., 2019). Fishers also expressed concerns that catches would count against quotas, potentially leading to premature choke of the fishery, particularly for species like "alfonsinos" with limited quotas and deepwater sharks with zero TAC (Villasante et al., 2019). Furthermore, representatives of fish auctions were concerned about the financial costs of collecting and dealing with the unwanted catch. Some boat owners argued that the requirement to land all fish could incentivise discarding, as crew members may refuse to leave unwanted catch behind to feed their families or earn extra income (Villasante et al., 2019).

3.4.6 Regional examples

Baltic Sea

In the Baltic Sea, the second EU Commission report on the implementation of the Baltic MAP highlighted concerns about the **misreporting of catches** in mixed pelagic fisheries which might weaken the accuracy of stock assessments and

effectiveness of fisheries management (EC, 2024a). Specifically, members of BSAC have reported significant volumes of catch misreported in the mixed sprat/herring fishery, weakening the accuracy and reliability of stock assessments and hindering the outcomes of the Baltic MAP.

Stakeholders perceive the application of the Margin of Tolerance ⁽¹⁵⁾ under Article 13 of the Baltic MAP - initially set at 10% of the total catch and, as of Regulation (EU) No 2023/2842, amended to 20% per species for a transitional period until January 10, 2028 - as having led to less precise catch estimations due to a more lenient margin of error. BSAC members have expressed concerns that this has resulted in **poor quality catch data** being submitted to stock assessors, contributing to the poor status of the central Baltic herring (EC, 2024a). Similarly, there was evidence of misreporting in the Baltic cod fishery (Valentinsson et al., 2019); however, it is in fact no longer permitted to target cod due to poor stock status. This is supported by Schubert et al (2023) documenting widespread illegal discarding of undersized cod and flatfish in the German Western Baltic Sea (ICES subdivision 22-24) in 2018, with dead fish observations 98 times higher than in 2011.

This suggests that the landing obligation may have inadvertently worsened discarding practices, particularly in gillnet fisheries. The increase in discarding could be linked to the dominance of a strong 2016 year-class of cod, resulting in higher catches of undersized fish, or to "high grading," where fishers discard smaller catches to maximise the value of their quotas (Möllmann et al., 2021). However, recent ICES estimates report a decline in recorded discards, from 34 tonnes in 2016 to less than 1 tonne in 2022, indicating discrepancies between reported data and actual practices at sea (ICES, 2023b). This clearly highlights the challenges in obtaining reliable discard information for stock assessments, especially considering that current discard estimates rely on vessel observer data, which typically exhibits low sampling coverage in the gillnet fishery (Schubert et al., 2023).

North Sea and North Western Waters

In the ad hoc contract evaluated by STECF 22-01 (STECF, 2022a), the **withdrawal of the UK from the EU** was highlighted as a challenge for Member States operating in the North Sea and NWW due to the reduction in fishing opportunities. This was reported as having negatively impacted the sector in 2021 as it hindered Member States' ability to swap quotas. Belgium, the Netherlands and Spain emphasised that the reduction in TACs had amplified the risk of choke situations, with the Netherlands stating more quota swaps were needed to cover bycatches of stock with no quota. In Spain, for whom the UK was a key Member State for quota swapping, precautionary closures of various stocks were necessary to mitigate any negative effects on their fleet. As a result, all three

⁽¹⁵⁾ The margin of tolerance is the difference between the estimated quantity of species recorded in the fishing logbook and the actual weight of the catch once landed.

Member States reported the use of inter-annual flexibility, and high survivability and *de minimis* exemptions to prevent fishing activities having to close early.

South Western Waters

In the South Western Waters, it was reported that discarding still occurs due to the **low or lack of commercial value and/or market for unwanted catches** (Silva et al., 2015). Portugal's recent annual reports indicated that there were not enough fishmeal factories and markets for unwanted catches so that a proportion of such catches had gone to landfill (STECF, 2022a). This is a clear waste of resources and goes against one of the main objectives of the landing obligation which is to reduce wasteful fishing practices.

Mediterranean Sea

In the Mediterranean, **quotas are not the primary management system** (except for certain fish stocks in particular geographical subareas (GSA) e.g. blue and red shrimp in the Strait of Sicily (GSAs 12 to 16)), meaning the landing obligation applies to all species subject to an MCRS. Fisheries management relies on effort-based controls (e.g. gear restrictions, spatial and seasonal closures, effort limitations), making it harder to monitor and enforce the landing obligation, especially given that the Mediterranean fleet is largely composed of small-scale fishers.

The diverse nature of Mediterranean fisheries leads to varying discarding patterns, with bycatch often including non-marketable species and those with limited commercial value that are retained for species subject to MCRS or catch limit (Tsagarakis et al., 2017). **Variability in catch composition**, even among vessels using the same gear, makes it challenging to implement the landing obligation accurately as catch quantities affected by the regulation cannot be estimated with high precision (Damalas et al., 2018). This was also highlighted by Bellido et al. (2017) who observed the **limited access to reliable data** on the different Mediterranean fishing fleets as a major problem.

Moreover, there are concerns about a **potential illegal market for undersized fish, and reluctance to explore alternative uses of undersized catches not fit for human consumption**, which could provide economic benefits (Bellido et al., 2017). This is supported by a study that showed that many fishers in South European fisheries were sceptical about the landing obligation, perceiving no mid to long term benefits from this policy (Maynou et al., 2018).

Outermost Regions

The rules of the CFP apply to the Outermost Regions, including the landing obligation. However, evidence from the literature suggests that the uniform application of EU-wide legislation may not always be conducive to effective fisheries management in these regions (Fauconnet et al., 2019b; Villasante et al.,

2019). The **structure and scope of EU common policies often overlook the unique characteristics of Outermost Region fisheries compared to mainland counterparts**. These characteristics include the limited capacity to process or utilize discards, lower incidence of bycatch due to the multi-gear and opportunistic nature of fishing, and the influence of distinctive geographical and/or bathymetric features on fishing activities (Vierira, 2019). Additionally, socio-economic factors, such as the heavy dependence of local communities on small-scale fisheries and the relatively limited market access, further differentiate Outermost Region fisheries from those in mainland Europe (Carvalho et al., 2011; Constance et al., 2025).

Beyond fisheries, the EU recognizes the need for differential treatment of the Outermost Regions across various policy areas, as outlined in Article 349 of the Treaty on the Functioning of the European Union (TFEU) ⁽¹⁶⁾. This article acknowledges the structural social and economic constraints of Outermost Regions, including their remoteness, insularity, small size, difficult topography and climate and economic dependence on a limited number of sectors, and allows for tailored measures to address these challenges. However, fisheries regulations have often been designed with a one-size-fits-all approach, which may not always align with the specific realities of Outermost Region fisheries (Constance et al., 2025).

While some of these characteristics are not exclusive to the Outermost Regions, the combination and intensity of these factors make the Outermost Region fisheries uniquely vulnerable to rigid regulatory frameworks. As such, **the development of specific measures should be considered by Member States to better account for the specificities of these regions in the context of the landing obligation**.

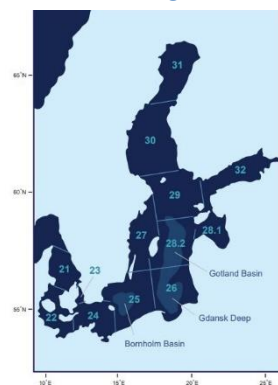
⁽¹⁶⁾ OJ C 326, 26.10.2012

3.5 Case studies: the landing obligation in practice

This section contains short summaries of the ten case studies focussing on demonstrating the nuances in application of the landing obligation across the various sea basin regions. The full case studies are in ANNEX 4 and the method used to determine the selection is in ANNEX 3.

BALTIC SEA CASE STUDY: Trawl fisheries in the Baltic discarding cod

- Métier: Baltic cod trawl fishery
- Employment (in FTE's): N.A.
- Fisheries communities* involved: N.A.
- Targeted species: Cod
- Main discarded species: Cod, plaice (and flounder)
- Outcome: Challenge; Pilot (n) / Training (n)



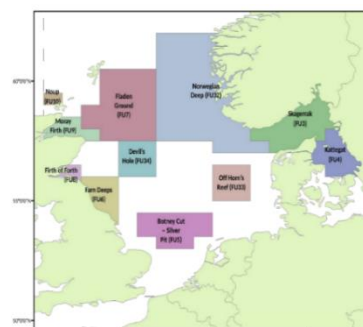
Baltic Sea ecoregion (ICES, 2022a)

Review of landing obligation implementation for Baltic cod trawl fishery until the closure of the fishery for eastern cod in July 2019 and the western cod in 2022, including discard rates for both stocks. The focus is on cod as the main target species. Small indications for cod in the current demersal flatfish fishery are also provided. Data quality for stock assessments has deteriorated (cross-country discrepancies, reduced growth, disappearance of larger cod despite promising recruitment) (Valentinsson, et al., 2019), discarding of cod has not decreased in the Baltic despite a reduced minimum conservation reference size and there are no indications of increased gear selectivity in the fishery. There is a long history of scientific selectivity trials, with more recent bottom-up gear research initiatives on Baltic cod trawls. However, port and ship infrastructure, additional workload, economic profitability, limited control mechanisms and the lack of workable solutions embody challenges for implementation of the landing obligation in the Baltic. There is no longer a significant cod trawl fishery in the Baltic, as most operations have left the fishery.

Best practices	Description
Catch quota system	All catches of species subject to catch limits (landed or not) theoretically subtracted from quota
MCRS reduction	For cod reduced from 38cm to 35cm decreased discards
Challenges faced	Description
Control mechanisms	Lack of control of landing obligation, fishers' behaviour influenced by onboard observers
Minimal acceptance of gear designs	Gear innovations by fishers striving to reduce discards often rejected, lack of flexibility and credibility given to fishers
No economic motivation to decrease discards	Buyers in ports needed for all landed fish, no market for small fish, extra workload (3-4 hours extra per haul)
No adequate port / ship infrastructure	Limited ship and port infrastructure to handle landings, impractical

NORTH SEA CASE STUDY: Dutch Norway lobster fisheries, discarding flatfish and roundfish

- Métier: Demersal otter-trawl nets (OTB,
- OTT, QUA, 80 mm mesh)
- Employment: 100-120
- Fishing Communities*: primarily Den Oever,
- Den Helder, Wieringen, Urk, Ostend
- Target species: Norway lobster
- Discard species: Flatfish & roundfish
- Outcome: Challenge; Pilot (part)/ Training (n)

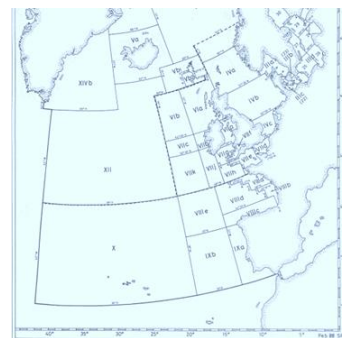


This case study examines the impact of the landing obligation on Dutch Norway lobster fisheries in the North Sea, based on research on Nephrops fishers' self-sampling. Between 2019 and 2023, Norway lobster constituted 30-75% of total landings, with flatfish and roundfish as significant non-target species. Due to their high survival rates, Norway lobster and some main non-target species are exempt from the landing obligation, allowing the discarding of these species. However, this exemption can only partially explain the lack of observed changes in catch, discards, and landings (and thus selectivity) after the landing obligation was implemented. In current practices, low market value and below MCRS fish is immediately discarded. The primary reason for discarding is a lack of incentives to retain all captured fish onboard, and concerns about the practicality and effectiveness of the landing obligation in achieving conservation goals without significant economic losses. Consequently, compliance is low, with minimal risk of repercussions for the fishers.

Best practices	Description
Effective self-sampling of fishers	Self-sampling can be successful, with minimal differences in data quality between scientific observations and self-sampling practices (Jurrius et al., 2023). Therefore, self-sampling information can be incorporated into stock assessment advice for Norway lobster in data-limited areas where they are caught in Dutch fisheries.
Collaboration with fishers	Strong collaboration between scientists and fishers is possible and beneficial for effective data collection and fisheries management.
Increased selectivity (species knowledge)	Discard rates slightly reduced by incorporating considerations of area, season (quarter), and time of fishing (day/night) more strongly into fishing practices.
Challenges faced	Description
Low incentives for compliance	Increased incentives and stakeholder engagement are crucial for successful landing obligation implementation. Increased political incentivisation could be achieved by engaging stakeholders in governance processes and including fishers in decision-making processes. There could also be incentives, such as exclusive access to restricted areas or subsidies.
Practicalities of landing obligation	Fear of increased costs, longer processing times and a larger workload inhibit fishers from wanting to explore ways of increasing compliance with the landing obligation further. Moreover, it is easy to avoid the control practices of the NVWA (Nederlandse Voedsel- en Warenautoriteit / Netherlands Food and Consumer Product Safety Agency) minimising the risk of not complying with landing obligation.
Low adoption of selective gear	Opportunities exist to increase selectivity and reduce bycatch in Norway lobster fisheries (e.g. SEPNEP), but incentives must be enhanced to ensure compliance with the landing obligation.

NORTH WESTERN WATERS CASE STUDY: Dutch pelagic trawl fishery, targeting blue whiting, discarding hake

- Métier: Mid-water pelagic trawl
- Employment: 1776 sea days (2022)
- Fishing Communities*: Katwijk, IJmuiden, Scheveningen (Netherlands)
- Target species: Blue whiting
- Discard species: Hake
- Outcome: Success; Pilot (y) / Training (n)



The implementation of the landing obligation has overall been a success for the Dutch pelagic trawl fishery. The overall implementation was feasible for this métier and trawlers anticipated it well. Increased catch retention on board embodies the discard avoidance strategy for this type of fishery with discard rates being low.

Best practices	Description
Low overall discard rate	High catch selectivity making implementation feasible
Onboard capacities	Sufficient extra onboard freezing capacities
Area avoidance	Avoidance of areas with high likelihood of unwanted species

Challenges faced	Description
Hygiene arrangements	Hygiene rules not allowing handling of e.g. tuna
Too large species	Too large (protected) species do occur in the catches
Incorrect haul volume estimation	Volumes per haul need proper calculation, risk of ripping nets

NORTH WESTERN WATERS CASE STUDY: Irish pelagic trawl targeting boarfish

- Métier: Mid-water pelagic trawl
- Employment: unknown for this specific métier – 2776 jobs in the Irish fleet with 1963 vessels of which 23 are involved in the boar fish fishery
- Fishing Communities*: Killybegs (Ireland), Skagen (Denmark), Fuglafjørður (Faroes)
- Target species: Boarfish
- Discard species: n.a.
- Outcome: Success; Pilot (n) / Training (n)



The Irish pelagic trawl targeting boarfish works with 17 refrigerated sea water vessels and 6 polyvalent vessels using midwater pelagic trawls. The Irish fleet has the majority of the quota, and the main seasons for the Irish fleet are the last and first quarter in the year. It is a clean and directed fishery; thus the landing obligation poses a lower risk. Bycatch of boarfish in other fisheries (pelagic and demersal) might be a problem. With the recent expansion of the boarfish biomass and the range extension to the north, it is expected that discards in non-target pelagic fisheries are likely to increase. There thus is a need for better discard data for boarfish in other fisheries.

Best practices	Description
Low overall discard rate	High catch selectivity in this métier making implementation feasible
Area and seasonal management	If needed, areas can be closed seasonally to avoid too many mixed catches with other pelagic species
Challenges faced	Description
None identified	

SOUTH WESTERN WATERS CASE STUDY: bottom trawling, discarding blue whiting, Atlantic horse mackerel, hake & others

- Métier: OTB & PTB (pair bottom trawl) DEF & MPD_>=55_0_0
- Employment (in FTE's): ESP NAO DTS 2440 NGI = 1281
- Fisheries communities* involved: Ports of Marin, Bueu, Ribeira (Galicia), and Ondarroa (Basque Country)
- Targeted species: Hake, megrims, anglerfish, mackerel, Atlantic horse mackerel, blue whiting
- Main discarded species: PTB: Blue whiting 63%, Atlantic horse mackerel 16%, hake 15%, mackerel 4%, 2% other species
- OTB: Atlantic horse mackerel 38%, mackerel 25%, blue whiting 15%, megrims 9%, hake 8%, boarfish 3%, 2% other species
- Outcome: Challenge; Pilot (n) / Training (n)



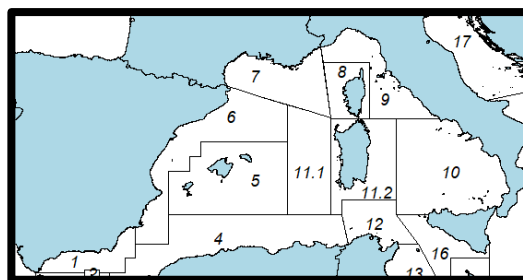
Cantabrian Sea & Iberian Atlantic coast

This is an illustration of the landing obligation implementation in mixed fisheries. The institutional and regulatory framework is in place, including delegated acts establishing high survivability and *de minimis* exemptions. In addition, research has been carried out both to improve selectivity and to analyse onboard operations. Scientists and fishers have worked together to address the problem of discards by carrying out trials at sea to test technological innovations such as changes in mesh configuration and gear modifications. The results show that there is potential to improve selectivity, but that the landing obligation affects the economic performance of fishing operations. There is no evidence that fishing practices have changed since the introduction of the landing obligation. However, fishers now report discards, though some misreporting may occur in these fisheries. The EMFF was used to fund projects and some minor investments by fishing operators. There is a need to continue at-sea trials to test improvements. EMFAF can be vehicle for improving selectivity and onboard operations through research and onboard operations.

Best practices	Description
Cooperation between scientists and industry	Experiments have been carried out at sea on fishing vessels, with the technical assistance of experienced fishers.
Use of the EMFF	The EMFF was used to fund research projects involving costly trials at sea.
Exemptions	The legislation provides for a number of mechanisms (derogations) to mitigate the impact of the landing obligation on the fisheries sector. These are based on the best available science and adopted by the Commission by means of delegated acts.
Challenges faced	Description
Choke species	This is a challenge in all mixed fisheries and is difficult to address at this stage. This may mean that discards will continue to be a problem for the sector.
Selectivity improvements require more research and trials	Although experienced researchers are available to carry out research on this issue, the costs of research and testing at sea are very high and require a significant effort.
Income reduction	The landing obligation implies a reduction in income with a consequent negative impact on fishing operators and ancillary activities.

MEDITERRANEAN CASE STUDY: North West bottom trawl fishery targeting round fish

- Métier: OTB
- Employment: ~5000
- Fishing Communities: ~50
- Target species: Hake, red mullet, deep-water rose shrimp, Norway lobster, red shrimps
- Discard species: Atlantic horse mackerel, hake, deep-water rose shrimp, red mullet
- Outcome: no implementation; Pilot (n) / Training (n)



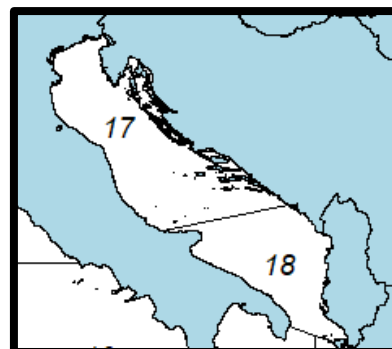
In the western Mediterranean Sea, bottom trawl fisheries are mixed fisheries exploiting a wide range of species (e.g. European hake, red mullets, deep-water rose shrimp, cephalopods, and high value crustaceans, such as Norway lobster, deep-water rose shrimp, red shrimps). A pilot study was performed to test the selectivity of the T90 mesh configuration in the extension piece compared to the traditional trawl net under the EU H2020 project MINOUW (Sola and Maynou, 2018a). Additional studies were performed under the EU project IMPEMED (Sbrana, 2021; Sbrana et al., 2022; Ferragut-Perello et al., 2023).

Despite some encouraging insights from those studies, there is little evidence of a change in selectivity in the North West Mediterranean fisheries. The approach very much remains to request *de minimis* exemptions to the LO because of the difficulties and disproportionate costs in handling unwanted catches. Avoidance of unwanted catches should be incentivized through promoting bottom up processes and increasing fishers' awareness.

Best practices	Description
T90 mesh configuration in the extension piece	This experimental net significantly reduced the catches of small-size hake and red mullet, reducing unwanted catches of regulated species under the landing obligation
Challenges faced	Description
Economic loss	While reducing the catch of undersized fish, the experimental net produced losses in commercial catch and income estimated at 17% and 18%, respectively, which may pose a barrier to the adoption of this solution

MEDITERRANEAN CASE STUDY: Western Adriatic bottom otter trawl fisheries, targeting crustaceans and shrimp

- Métier: OTB
- Employment: ~,000
- Fishing Communities: ~25
- Target species: Caramote prawn, spottail mantis squilla, hake, red mullet, deep-water rose shrimp, Norway lobster, red shrimps
- Discard species: Spottail mantis squilla, tub gurnard, hake, red mullet, deep-water rose shrimp, Atlantic horse mackerel
- Outcome: No implementation; Pilot (n) / Training (n)



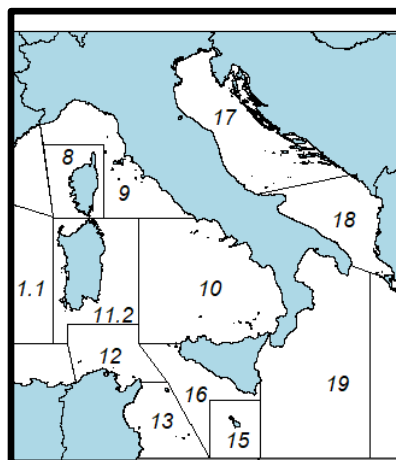
In the western Adriatic Sea, bottom trawl fisheries are mixed fisheries exploiting a wide range of species (e.g. mantis shrimp, Caramote prawn, European hake, red mullet, deep-water rose shrimp, cephalopods, and high value crustaceans, such as Norway lobster, deep-water rose shrimp, red shrimps, mostly in the southwestern Adriatic). Norway lobster is also caught in the shallower waters of the northwestern Adriatic. A pilot study was performed (Petetta et al., 2020a) to evaluate the effect on the size selectivity of seven commercially important species in the Mediterranean bottom trawl fishery of changing from a diamond mesh codend (T0) to a 90° turned mesh codend (T90).

The short-term economic losses that may be caused by the introduction of more selective meshes are hampering the interest of the fishing industry in moving towards new trawl nets. Therefore, the approach of Member States still remains to requesting exemptions (i.e., *de minimis*) to maintain the status quo.

Best practices	Description
T90 mesh in the codend	The results of the pilot study (Petetta et al., 2020) demonstrated that this simple modification can be effective in improving the codend size selection for all the main target species and thus reduce discards.
Challenges faced	Description
Economic loss	While there was a reduction in the catch of undersized fish, a reduction of around EUR 40000 in profits and about EUR 65000 in GVA were estimated on average per vessel for the Italian fleet segment of demersal trawlers between 18 and 40 metres operating in Geographical Subarea (GSA) 17. These losses are relative to the baseline scenario without the implementation of the selection grid (Sbrana, 2021).

MEDITERRANEAN CASE STUDY: North-west Adriatic Sea small-scale fleet, bottom-set nets and pots, targeting cephalopods and roundfish

- Métier: GTR (Trammel Nets), GNS (Set Anchored Gillnet), FPO (Pots and Traps), FYK (Fyke Nets)
- Employment: ~ 500 (at Italian nationally level)
- Fishing Communities: ~20
- Target species: Common sole, common cuttlefish, sea bream, sea bass, meagre, etc.
- Discard species: Low amounts of common sole
- Outcome: No implementation;
- Pilot (n) / Training (n)



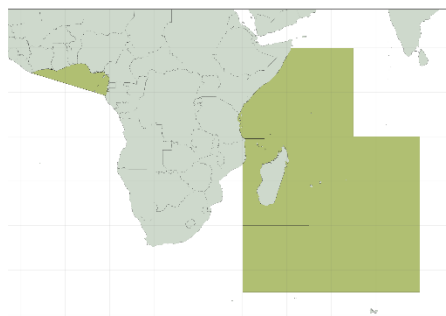
In the north-western Adriatic Sea small-scale fisheries, three main types of set gears are used: gillnets, trammel nets and traps to exploit different target species (i.e., roundfish, common sole, cuttlefish) throughout the year (Grati et al., 2018). Discards of target species are very low, although unwanted catches are reported. The landing obligation (LO) is not applicable, since *de minimis* exemptions have been granted for trammel and gill net fisheries; the landing obligation is not applicable to trap fishery for cuttlefish, a species without an MCRS. The presence of unwanted catches of Endangered, Threatened, and Protected (ETP) species is not relevant for these fisheries. Some bycatch of elasmobranchs (e.g. sharks, mostly *Mustelus* spp., skate and ray) is observed in gill net and trammel net fisheries. A pilot study (Petetta et al., 2020b) was performed to test a collapsible pot and compare its catch efficiency with that of the local traditional trammel nets.

Although the study by Petetta et al. (2020b) provided interesting results, the fishing industry is still sceptical because of the economic costs to move to the new gears. This process should be streamlined through financial support (e.g., EMFAF funds).

Best practices	Description
Potential to switch over to collapsible pots	The innovative pots tested in the pilot study (Petetta et al., 2020b) seem to provide a sound alternative to the traditional trammel nets used in the Adriatic Sea, at least in spring and summer, for concern the small-scale fishery targeting common cuttlefish. These pots do not require a different vessel rigging or changes to the onboard practices; moreover, they can be used without baits and their foldable design means involves that they can be easily stored on board the typical Mediterranean SSF vessels.
Challenges faced	Description
Further tests required	Similar tests need to be extended to other areas and seasons, including using bait, to provide a clearer assessment of their efficiency. The conversion from trammel net fishery to pot fishery is a costly process (e.g. modification of the winch, purchase of the new gears, etc.) The process would need to be funded/supported.

DISTANT WATER CASE STUDY: French tropical tuna purse seiners

- Métier: Drifting fish aggregating devices
- Employment: ~2500
- Fishing Communities*: Primarily Port Victoria (Seychelles) and Abidjan (Côte d'Ivoire) in the Atlantic
- Target species: Skipjack & yellowfin tuna
- Discard species: Small tuna species, shark, billfish and pelagic
- Outcome: Discarding reduced but prevalent
- Pilot (y) / Training (y)



The main fishing grounds of the French tuna purse seine fleet are in the Indian and Atlantic Oceans. Non-entangling and biodegradable drifting fish aggregating devices (DFADs) have the potential to improve catch selectivity and reduce bycatch. Training and pilot projects showed significant improvements in bycatch reduction and adherence to the LO.

Best practices	Description
Adoption of non-entangling DFADs and the use of biodegradable gear	Reduced bycatch rates of vulnerable species like sharks and billfish, improved selectivity and reduced environmental impact from abandoned or lost gear
Training programmes and application of avoidance strategies	Training programmes played a crucial role in equipping fishers with the knowledge needed to handle bycatch properly, improving survival rates for released species such as sharks and sea turtles. Fishers also adopted area avoidance strategies, which involved using real-time data to avoid regions with a high bycatch risk, further contributing to compliance with the landing obligation.
Increased collaboration with scientific observers	Fishers' increased collaboration with scientific observers helped improve data collection on bycatch species, leading to better management decisions (WWF, 2019; ISSF, 2020).
Challenges faced	Description
Increased operational complexity of handling and retaining all bycatch species	There are logistical challenges, particularly for small tuna and other species with low commercial value. Fishers expressed concerns about the increased time and effort required to sort and land previously discarded catches, which added to the cost of operations.
Limited capacity of onboard storage	This leads to difficulties in retaining all bycatch, especially during periods of high fish aggregation.
Challenges in complying with species-specific bycatch handling requirements	This is particularly difficult for shark and billfish, which require specialised gear and handling techniques (Anonymous, personal communication, 28 August, 2024)

OUTERMOST REGIONS CASE STUDY: Azorean small-scale fishers

- **Métier:** Small-scale, demersal fisheries targeting deep-sea species using bottom longlines and traps
- **Employment:** ~1000-2000
- **Fishing Communities:** Primarily Ponta Delgada, Horta, and Madalena small close-knit communities
- **Target species:** Blackspot seabream, wreckfish, conger eel
- **Discard species:** Conger eel, blue whiting, common pandora, Atlantic mackerel
- **Outcome:** Discarding reduced but economic concerns
- **Pilot (y) / Training (y)**



This case study focuses on the impact of the landing obligation on highly artisanal small-scale fisheries in the Azores, which reduces the need for extensive discard management. Here fisheries predominantly target demersal species using selective methods like longlines and traps. The primary reason for discarding in the Azores has previously been in response to compliance with MCRS regulations, species with low market value and, deep-sea species that are caught unintentionally without a market (Soto-Oñate et al., 2021). The landing obligation has had a relatively minor operational impact on the local fleet compared to industrial fisheries (Villasante et al., 2019). The practical implications of landing obligation compliance, including changes in fishing practices, handling of unwanted catches, and the economic impacts on fishers are highlighted. Training successfully equipped local fishers with skills to implement gear selectivity modifications and handle unwanted catches. The pilot project tested various modifications to bottom longlines to reduce the catch of undersized or non-target species.

Best practices	Description
Close collaboration between local government, fishers, and research institutions	Pilot projects and workshops educated fishers on the importance of selectivity and reducing unwanted catches. One of the key successes was the adaptation of gear to minimise bycatch without reducing the economic viability of fisheries. Fishers were involved in testing different gear configurations, and their feedback was critical in making the landing obligation more manageable.
Port-based inspections and electronic monitoring	Port-based inspections and electronic monitoring provided transparent and effective compliance with regulations (EMREP Report, 2022).
Challenges faced	Description
Economic impact on fishers	One of the major difficulties was the economic impact on fishers, especially when they had to land previously discarded species with low or no market value (Fauconnet et al., 2019a). The additional onboard storage required to comply with the landing obligation added operational costs, and introduction of non-profitable species to the market.
Logistical issues in adopting EMS	The region's artisanal fleet, consisting mostly of small boats, faced logistical issues in adopting EMSs, and some fishers were resistant to gear modifications due to traditional fishing practices (Morato et al., 2019).

4 Evaluation of the landing obligation

This Chapter provides an evaluation of the landing obligation intervention applying the Better Regulation Guidelines and assessing the relevance, effectiveness, efficiency, coherence, EU added value, complementarity, and sustainability of the landing obligation.

4.1 Effectiveness

Evaluation question	Indicative judgment criteria
To what extent was the landing obligation implemented effectively?	Extent to which expectations have been met, if not, the hindrance factors have been identified (compliance and implementation)
	Extent to which expectations have been met, if not, the hindrance factors have been identified (landing obligations contributed to the CFP objectives, specifically Article 2(5)(a) of the CFP. Other identified articles are evaluated separately) <i>Article 2(5)(a) = The CFP shall, in particular: (a) gradually eliminate discards, on a case-by-case basis, taking into account the best available scientific advice, by avoiding and reducing, as far as possible, unwanted catches, and by gradually ensuring that catches are landed</i>
	Extent to which expectations have been met, if not, the hindrance factors have been identified (the level of unwanted catches (<minimum conservation reference size catches or juveniles) in the fisheries)
	Extent to which expectations have been met, if not, the hindrance factors have been identified (the handling on board, use and market outlet for the <MCRS catches)
	Extent to which expectations of the landing obligation intervention have been met, if not, the hindrance factors have been identified (percentage of the % of juveniles present in the catch composition)
	Extent to which the landing obligation has contributed to identifying training needs and providing accessible, affordable opportunities to enhance selectivity and reduce unwanted catches
To what extent did the landing obligation contribute to the objectives of the CFP?	Extent of landing obligation interventions' contribution to the CFP objectives, Article 2(5)(a) (Gradually eliminate discard and reduce waste)
	Extent of landing obligation interventions' contribution to the CFP objectives, Article 2(5)(f) (Provide conditions for sector's economic viability and contribute to fair living standards)
	Extent of landing obligation interventions' contribution to the CFP objectives, in line with Article 2(5)(e) and (h) (Contribute to food supply and security and consider consumer interests)
	Extent of landing obligation interventions' contribution to the CFP objectives, in line with Article 2(5)(g) and (j) (Ensure coherence with Union policies, foster member state participation, and promote internal market)
	Extent to which the landing obligation intervention incentivised fishers to discontinue discarding (aid, extra quotas, access to closed areas or exemptions)
	Extent to which landing obligation interventions incentivised the fishers to discontinue discarding (access to scientific information)
	Extent to which landing obligation interventions incentivised fishers to discontinue discarding (freedom in gear selection)
	Extent to which landing obligation interventions incentivised fishers to discontinue discarding (funding for innovation in processing and marketing)
	Extent to which landing obligation interventions incentivised fishers to discontinue discarding (improved monitoring systems - traditional or REM)

Evaluating the effectiveness of the landing obligation within the framework of the CFP is essential for understanding its influence on promoting sustainable fishing practices and reducing discards. As a fundamental element of modern fisheries management, the landing obligation mandates that all catches of species subject to catch limits and, in the Mediterranean Sea those subject to MCRS, must be retained on board, accurately recorded, landed, and counted against quotas. This policy is designed to drive significant behavioural change among fishers, encouraging the adoption of more selective techniques to minimise environmental impact and promote long-term sustainability in the fisheries sector.

The goal of assessing the effectiveness of the landing obligation is to evaluate how well it achieves its objectives. These objectives include gradually eliminating discards on a case-by-case basis taking into account the best available scientific advice reducing unwanted catches, increasing selectivity (avoiding and reducing unwanted catches), ensuring all catches of species subject to catch limits, and in the Mediterranean MCRS restrictions, are landed and fostering more sustainable fishing practices, and enhancing compliance across the EU's diverse fisheries.

The landing obligation aims to minimise discards by mandating that all catches, including non-target species, be landed, thereby promoting sustainable exploitation of fish stocks. This involves evaluating the extent to which the policy has influenced positive changes in fishers' behaviour, reduced discards and contributed to the CFP's overarching goals. A comprehensive assessment requires examining the compliance and implementation across regions and fisheries, delving into MAPs, gathering stakeholder feedback, and analysing case studies to gain insights into the operational and socio-economic challenges influencing the policy's success.

The content highlights regional disparities in the effectiveness of the landing obligation. While regions like the North Sea have made notable strides in compliance and selectivity, others, such as the Mediterranean Sea, face more significant challenges due to socio-economic factors and infrastructural limitations. Stakeholder feedback underscores the administrative burdens and financial pressures associated with the landing obligation, which affect its implementation and perceived effectiveness. Additionally, the analysis uncovers the critical role of exemptions, which, although providing necessary flexibility, sometimes maintain existing practices instead of promoting innovative, selective methods.

4.1.1 Extent to which expectations have been met, if not, the hindrance factors have been identified (compliance and implementation)

This section evaluates the extent to which the expectations of the landing obligation have been met, focusing on compliance and implementation. It examines its effectiveness in achieving the primary goal of eliminating discards and promoting sustainability within fisheries management by reducing unwanted catches, catching only what is necessary and increase in selectivity.

Link between Landing Obligation effectiveness and MAPs

The link between MAPs and the landing obligation can be described by reviewing Article 15 of the CFP Regulation (EU) No 1380/2013, which states that the details of the landing obligation can be added to the MAPs as referred to in Article 9 and 10 and specified further where relevant. Reviewing the MAPs can provide the strategic framework necessary for the effective implementation of the landing obligation by ensuring that management measures are in place to support the reduction of unwanted catches and discards. By incorporating the landing obligation into the MAPs, the implementation measures per Member State can be concretely described. However, this is not done in all regions. Regions like the North Sea and Mediterranean Sea have MAPs with full or partial sea basin coverage, detailed scopes addressing stocks, fishery areas, and indicators, as supported by recent STECF evaluations (e.g. STECF 15-04 (STECF, 2015) and STECF 23-01 (STECF, 2023d)). Although the evaluation of the MAPs and the integration of LO in specific MAPs is out of scope of this evaluation, MAPs can be an effective tool for the LO implementation by detailing out specific provision, exemptions and management practices. This can serve as inspiration as a good practice for other Member States and international stakeholders to bring into their respective fisheries management practices.

MAPs can achieve success in conservation efforts by setting clear objectives and measures for sustainable fishery management, optimising exploitation patterns, and protecting sensitive species and habitats. By aligning with these goals, MAPs can help ensure that fisheries operate within ecological limits, promoting long-term sustainability.

Insights on operational effectiveness

Insights from focused case studies provide a deeper understanding of the varied implementation levels and challenges associated with the landing obligation across different regions.

Despite making some strides in selectivity, **Mediterranean fisheries** exhibit limited behavioural change. Many Member States continue requesting exemptions, maintaining the status quo and restricting advancements in selectivity and compliance. This persistence in old practices indicates a resistance to fully embracing the landing obligation's goals.

The **North Sea** Dutch Norway lobster fisheries have low compliance levels, due to ineffective and enforcement measures as well as insufficient incentives, mean there is a lack of motivating factors that encourage fishers to adhere to the landing obligation requirements. Incentives could include financial subsidies, grants, or other economic benefits that make compliance more attractive or feasible. These might also encompass regulatory incentives such as reduced administrative burdens or access to certain fishing areas if compliance is met. Without these incentives, compliance is perceived as economically burdensome, leading to resistance among fishers. Concerns about the practicality and economic impact of the landing obligation exacerbate this issue.

In the **North Sea** Dutch pelagic trawl fishery, overall compliance appears to be high, yet issues persist with the data collection and monitoring of the cetacean bycatch⁽¹⁷⁾ and a lack of adequate control, accounting, and enforcement mechanisms. In the **South Western Waters** of the Iberian Waters of the Cantabrian Sea, there is a lack of enforcement of the landing obligation, and fishing practices remain largely unchanged. While some progress has been made, such as recording discards in logbooks, the overall compliance challenges continue to be a significant hurdle. With regards to the **Baltic Sea trawl fisheries**, compliance is particularly low in demersal fisheries, compounded by inadequate infrastructure that hinders adherence. The logistical burden of landing all catches of species subject to the landing obligation complicates the achievement of the landing obligation's objectives, as evidenced by ongoing illegal discarding.

Finally, the **Outermost Region** Azorean small-scale fishery, there is high compliance due to the pre-existing use of selective fishing methods and low discard rates, which align closely with the objectives of the landing obligation. The fleet's use of selective gear effectively minimises bycatch, leading to low discard rates. As a result, the impact on this fishery has been relatively minor compared to industrial fisheries, although some adjustments in reporting and handling practices have been observed.

The case studies underscore the complexity of achieving comprehensive compliance, and presence of varying levels of compliance with the landing obligation, highlighting the need to understand why enforcement is so variable across regions. Factors contributing to this variability include differing resource allocations, inconsistent interpretation of regulations, and the uneven presence of monitoring systems. These discrepancies result in a patchwork of enforcement effectiveness, which in turn affects the overall compliance landscape. This variability suggests that regional specificities play a significant role in enforcement outcomes, pointing to the complexity of uniformly implementing the landing obligation across different fisheries.

Operational challenges and socio-economic considerations

The effectiveness of the landing obligation is hampered by operational challenges, particularly in the Baltic Sea, where inadequate port infrastructure and storage facilities hinder compliance. The logistical burden of landing all catches subject to the landing obligation, especially undersized fish, complicates achievement of the objectives of the landing obligation. In the Western Mediterranean, socio-economic concerns - such as potential economic losses for fishermen and social implications for communities - affect successful implementation and perceived effectiveness.

⁽¹⁷⁾ Reference:

https://www.ascobans.org/sites/default/files/document/ascobans_ac28_inf3.3b_progress-report-north-sea-plan-2023.pdf

4.1.2 Extent to which expectations have been met, if not, the hindrance factors have been identified (landing obligation contributed to each of the CFP objectives, specifically Article 2(5)(a))

This section evaluates the impact of landing obligation interventions in achieving the CFP objectives, specifically Article 2(5)(a), which sets out one of its objectives as the gradual elimination of discards.

Trends in discard rates

Primary data analysis illustrates a complex landscape of discard rates across European fisheries (STECF FDI Data). Discard rates have on average, within fisheries, decreased by just under 2% since the implementation of the landing obligation (comparison of pre implementation (2013-2014) with post implementation (2021-2022)) (see Section 3.2 and

ANNEX 8 to ANNEX 10). There is however, significant variability and impacts across fisheries, regions and species. For example, species like the blackbelled anglerfish (*Lophius budegassa*), ancillary seabream (*Pagellus acarne*), and Mediterranean horse mackerel (*Trachurus mediterraneus*) have seen notable reductions, whereas blue ling (*Molva dypterygia*), European anchovy (*Engraulis encrasicolus*) and European pilchard (*Sardina pilchardus*) [OBJ] have experienced substantial increases.

An ICES analysis of 150 fish stocks further highlights this variability, indicating that while 78% of stocks showed no change in discard rates, 14% experienced reductions, and 8% saw increases (ICES, 2020b). This demonstrates that while some progress has been achieved, the effects of the landing obligation are uneven, with certain species like whiting and Atlantic cod showing decreases. In contrast, others, such as European plaice and haddock, have increased.

From the analysis as per Section 3.2, an estimation of the proportion of catches affected by exemptions was made using data from an EU study (CINEA-EMFF, 2023), based on the STECF FDI database. The application developed in the study does not show these proportions directly, so analysis of the underlying data was necessary. Exemptions were applied to reported data, not at the time of fishing, making the results indicative only. Not all landings in the FDI database have associated discard data, leading to potential underestimates of total catches and discards. Of the in information available, in the North Sea, over 25% of whiting catches are discarded under the *de minimis* exemption, with cod under 10%; over 50% of ray and around 10% of Norway lobster catches are under the high survivability exemption. In the North Western Waters, discards of rays and Norway lobster under high survivability are minimal, but up to 25% of plaice and 10–25% of whiting are discarded under exemptions. In the South Western Waters, rays, megrim, whiting, hake, and mackerel are discarded under exemptions, mostly under 20%. No discards were linked to exemptions in the Baltic Sea. Data for the Outermost Regions, Mediterranean Sea, Black Sea, and distant waters was limited or not included. This information was linked to stock status from ICES assessments to examine exemption proportions compared to stock size. It was noted with the low level of sampling coverage, differing data sources, and perception of the stock at the time of fishing vs that of the assessment year results in uncertainty in the outputs.

Regional dynamics and variability

Regional analysis reveals further complexities. In the North Sea, for instance, there was an increase in non-human consumption landings of undersized fish, like herring, mackerel, and haddock, from 2017 to 2022 (ACDR data). This shift suggests that while the landing obligation is altering fishing practices, the outcomes vary significantly across regions and fisheries.

This variability is largely driven by factors such as minimum conservation reference sizes, exceeded quotas, low market value, and the presence of non-marketable species. The challenges are further compounded in mixed fisheries, where 'choke' species and quota limitations exacerbate discard issues (EC, 2022b; DiscardLess, 2019). This highlights the multifaceted nature of achieving the CFP objectives uniformly across regions

Role of exemptions and derogations

Despite the objective of eliminating discards, Member States have increasingly sought exemptions through Joint Recommendations. This trend indicates a preference for maintaining current practices rather than advancing selective fishing techniques, as noted by the STECF Adhoc-21-01 report (STECF, 2021a). As also further elaborated in section 3.2, exemptions under the Landing Obligation play a crucial role in shaping discard trends by allowing fishers to legally return certain catches to the sea under specific conditions. These exemptions apply to species with high post-discard survival rates, fisheries facing disproportionate landing costs, and situations where handling unwanted catches is particularly challenging (de minimis exemptions).

While intended to provide flexibility and mitigate economic or operational burdens, exemptions can also contribute to maintaining discard levels by enabling the continuation of certain discarding practices. The increasing number of exemption requests suggests that many Member States prioritize derogations over improvements in selectivity, often citing short-term economic concerns. However, the lack of detailed exemption data in the STECF FDI database makes it difficult to fully assess their impact on overall discard trends. Such reliance on exemptions reflects hesitancy to fully embrace the landing obligation's transformative potential, leading to varied implementation across species, fisheries, and regions.

Insights from Case Studies

The examination of the North Sea Dutch Norway Lobster Fisheries and the Baltic Trawl Fisheries offers valuable insights into the challenges and regional variability affecting compliance with the landing obligation. These two case studies are highlighted due to their illustrative examples of specific issues impacting the implementation of sustainable practices.

- **North Sea Dutch Norway Lobster Fisheries:** The practice of discarding catch that is difficult to sell (e.g. due to smaller size) catches persists, primarily driven by economic concerns and a lack of sufficient incentives to alter existing habits.

An example of these economic concerns is the cost associated with landing and processing bycatch that has little to no market value, which can strain already tight profit margins for fishers. This situation underscores the critical need for stronger incentives and regulations that can effectively promote and encourage sustainable fishing practices. For instance, implementing financial subsidies for the processing of bycatch or creating new market opportunities for less valuable species could provide the necessary economic motivation to change current discarding practices.

- **Baltic Trawl Fisheries:** Efforts to reduce minimum size requirements for cod have not resulted in a change in discard rates, nor have they improved gear selectivity. For instance, despite adjustments to size regulations, fishers continue to struggle with high bycatch rates of undersized cod, which often leads to discarding due to market preferences and economic constraints. This stagnation suggests a pressing need for targeted strategies that can enhance compliance with the landing obligation, specifically tailored to address the unique challenges of the Baltic region. The lack of progress in this area points to systemic issues, such as inadequate gear technology and insufficient incentives for fishers to invest in more selective equipment, that require focused interventions to facilitate the adoption of more selective fishing practices and compliance with regulations.

These case studies have been selected to provide insights into the specific challenges fisheries face in different regions and illustrate the need for region-specific solutions. Other case studies, while informative on other issues, were not included in this analysis to maintain focus on these particular issues.

Stakeholder feedback and regional variability

Stakeholder feedback from e-surveys indicates mixed trends in discard rates: 46% noted no change, 33% observed reductions, and 21% reported increases. Enhanced reporting accuracy and regulatory constraints contribute to perceived increases in discard rates, while operational challenges, such as inadequate quotas and limited adoption of selectivity measures, impede progress. (E-Survey, S1 Q1, n48).

Some regions have benefited from technological advances, such as selective fishing gear, which have helped reduce discards. However, the stability in discard rates in certain areas is attributed to ongoing discarding under exemptions from the landing obligation. This highlights the need for tailored, region-specific strategies to address these challenges effectively, aligning more closely with the CFP's overarching objectives (Swedish Anglers' Association, anonymised, 2024; Fisher, 2024; E-Survey, S1 Q10, n29).

4.1.3 Extent to which expectations have been met, if not, the hindrance factors have been identified (the level of unwanted catches (less than minimum conservation reference size catches or juveniles in the fisheries))

This section evaluates the effectiveness of the landing obligation in reducing unwanted catches, including those below the MCRS. It examines trends in unwanted catch rates, regional variability and practical challenges, utilisation of unavoidable catches, stakeholder insights, and the influence of exemptions and incentives.

Trends in unwanted catches

Between 2013 and 2022, STECF FDI data indicates a slight increase in unwanted catches, with percentages rising from 6% of total catches under MCRS to 9%. While gear technologies like BACOMA and T90 codends have shown promise in reducing unwanted catches in specific species such as European plaice and flounder, the annual variability in data has made it challenging to establish clear, overarching trends in juvenile fish capture reduction. This variability complicates the ability to measure definitively the overall effectiveness of these technological changes across fisheries (STECF FDI data).

Variability in unwanted catches

Analysis reveals significant variability in unwanted catch rates across time, regions, and fisheries, with no clear patterns emerging (STECF FDI data). While selective fishing gear, like the BACOMA and T90 codends have proven effective in trials (Savina et al., 2022; Herrmann et al., 2015), their adoption across EU fisheries has been limited (Steins et al., 2023; Neitzel et al., 2023). This is reflected by limited reporting within STECF FDI data. This limited uptake has been noted as resulting from economic concerns, fears of losing commercial catches, complexities in mixed fisheries, and insufficient incentives and support (STECF, 2021b; 2023b; 2024c; Steins et al., 2023; Neitzel et al., 2023).

Regional variability and practical challenges

The impact of the landing obligation on various fisheries across regions presents a diverse picture, highlighting both successes and ongoing challenges. In the **Azorean small-scale fishery**, the implementation of the landing obligation has led to use of more selective fishing gear (refining fishing techniques), supported by training and pilot projects to implement the new gear. However, changes have been small as there was already not much bycatch. For the **French tropical tuna purse seiners**, the story is one of success. Bycatch reduction has been achieved effectively through the use of non-entangling DFADs and biodegradable gear. These advancements have been bolstered by comprehensive training programmes that have significantly increased compliance and adoption rates, showcasing a positive synergy between technological innovation and educational support. In contrast, the **Baltic trawl fisheries** have not experienced a reduction

in cod discards, underlining insufficient progress in selectivity improvements and persistent compliance challenges. This indicates a need for more targeted strategies and stronger incentives or regulatory changes to enhance adherence and effectiveness in these fisheries. The **South Western Waters bottom trawling** operations similarly demonstrate stagnation, with no evident change in fishing practices since the implementation of the landing obligation. This lack of impact on selectivity and discard rates suggests that additional measures or incentives might be necessary to drive meaningful change in these areas.

In the **North Sea Dutch Norway lobster fisheries**, discards continue unabated, driven by economic concerns and a lack of sufficient incentives for change. This situation highlights the critical role of economic factors in influencing compliance and the need for policies that can align economic incentives with sustainability goals. Finally, in the **Mediterranean and Adriatic fisheries**, pilot studies have shown promise, indicating that selective gear can enhance size selectivity. However, the implementation of these technologies is hindered by economic losses and technical difficulties.

Utilisation of unavoidable catches

Efforts to utilise unavoidable unwanted catches have generated interest from commercial bulk outlets, indicating a potential market for these resources (Mangi & Catchpole, 2014). However, the realisation of this potential is hampered by several challenges. Inadequate processing infrastructure and limited market outlets are significant obstacles, as many facilities lack the capacity to efficiently handle these catches, leading to increased costs and logistical challenges (Silva et al., 2015; Rodriguez-Rodriguez et al., 2019). For instance, Portugal's annual reports have highlighted that insufficient fishmeal factories and market access have resulted in some catches ending up in landfills (STECF, 2022a). This highlights the need for improved infrastructure and market strategies to fully leverage the potential of unwanted catches.

Feedback via the e-survey highlights gaps in scientific studies that limit the implementation of measures to avoid and reduce unwanted catches, particularly in regions like the Mediterranean Sea (E-Survey, S2 Q6, n21). While progress was noted in specific areas, there has been no overall reduction in unwanted catches. (E-Survey, S2 Q6, n21). Implementing gear and technique modifications must balance environmental benefits with potential economic impacts on fishing communities, ensuring solutions support sustainable practices and industry survival. Recurring themes in the survey feedback emphasise the need for further studies on the financial impacts of selective fishing techniques, better dissemination of existing findings, and increased funding for pilot projects.

Exemptions and incentives

Exemptions associated with the landing obligation, such as high survivability and *de minimis* exemptions, have disrupted efforts to implement more selective fishing, effectively maintaining the status quo in practice. This has hampered the landing obligation's potential to significantly reduce unwanted catches (STECF, 2021).

While the European Commission is empowered to introduce rules or measures to address cases disproportionately affected by the landing obligation, it has not yet fully exercised this power. Evidence of potential for future action is seen in ongoing discussions and proposals aimed at better accommodating diverse regional conditions. However, should such measures be introduced, there is a concern that Member States might increasingly seek exemptions for various scenarios. This could ultimately undermine the goal of the landing obligation to promote selective fishing practices.

The main factors contributing to the challenges in implementing the landing obligation include a lack of willingness within the fishing sector to adopt necessary measures, alongside attempts by some Member States to circumvent the rules, often by seeking exemptions which should be balanced with the broader objectives of sustainability.

4.1.4 The extent to which expectations have been met, if not, the hindrance factors have been identified (the handling on board, use and market outlet for the unwanted catches)

This section assesses whether the expectations of the landing obligation have been met regarding handling on board, utilisation, and market outlets for catches below the MCRS. Through desk research and stakeholder E-Survey responses, the assessment provides a comprehensive understanding of the effectiveness of the landing obligation.

Handling on board.

The landing obligation aims to ensure that all catches, including those below MCRS and over quota, of species under catch limits, and in the case of the Mediterranean with a MCRS, are brought and retained on board, recorded, landed and counted against the quotas where applicable. This involves minimising handling time, improving catch quality, and using selective gears to reduce the capture of undersized fish. Despite the intention, compliance with onboard handling requirements varies significantly. Mixed demersal fisheries, in particular, struggle with avoiding undersized fish captures (STECF, 2022a; CINEA-EMFF, 2021). Selective gear such as T90 and BACOMA codends have shown partial success, reducing handling times and improving processing efficiency in some regions (Savina et al., 2022; Herrmann et al., 2015). Yet, uptake is limited due to economic and operational concerns (Steins et al., 2023; Neitzel et al., 2023). The increased workload for crews and the need for infrastructure modifications complicate operations, as fish must be separated into undersized and marketable categories.

Stakeholders in the E-Survey (E-Survey, S1 Q10, n29) reported challenges such as increased costs and time (66%), insufficient hold capacity (59%), and difficulty adapting vessels (52%). Financial constraints, worsened by events like Brexit and COVID-19, added to these issues.

Use of unwanted catches

The landing obligation requires unwanted catches to be channelled into non-human consumption markets, to prevent generating high values which would incentivise continued landing of unwanted catches whilst also preventing waste. This has required development of value-added products. Utilisation of these catches varies widely by region. Some areas have developed markets for products like fishmeal, while others lack market outlets and infrastructure (Silva et al., 2015; Rodriguez-Rodriguez et al., 2019). Processing inefficiencies lead to increased costs, and the low market value often results in fishers discarding undersized fish at sea (ICES, 2022a; STECF, 2021). In Spain and Portugal, insufficient processing facilities and demand lead to some catches ending in landfill (STECF, 2022a). Horizon 2020 projects such as DiscardLess and MINOUW suggest solutions, including the use of selectivity tools and the development of value-added products. (DiscardLess, 2019; MINOUW, 2017). Support initiatives for the development of new products and markets for undersized fish is still needed.

Stakeholder feedback (E-Survey, S1 Q11, n32) shows limited progress in port infrastructure, which is crucial for enhancing the utilisation of MCRS catches. Only 22% note improvements, and barriers such as funding (35%) and space (39%) are still prevalent. This highlights the ongoing challenges in establishing the necessary infrastructure to support the efficient processing and market integration of these catches. Only 22% note improvements, and barriers such as funding (35%) and space (39%) are still prevalent.

Market outlets

Establishing and expanding market outlets for MCRS catches is critical to the success of the landing obligation. However, market development has been slow in many regions, limiting the overall effectiveness (Bellido et al., 2017; Maynou et al., 2018). A lack of robust markets and economic incentives leads to insufficient compliance motivation, underscoring the need for better support mechanisms and strategies (EC, 2023a; STECF, 2022a). While countries like Denmark and the Netherlands have invested in REM systems to manage MCRS catches (Plet-Hansen et al., 2017; Jurrius et al., 2023), broader EU-wide efforts are necessary. In the e-survey (E-Survey, S1 Q12, n27), 74% of stakeholders reported difficulty establishing markets for non-human consumption products, hindered by high costs, lack of infrastructure, and regulatory barriers.

These findings reveal the complex challenges in managing MCRS catches, highlighting the need for targeted strategies to improve compliance and develop effective market outlets in order to align more closely with the CFP's objectives.

4.1.5 Extent to which expectations of the landing obligation intervention have been met, if not, the hindrance factors have been identified (percentage of juveniles present in the catch composition)

This section evaluates the effectiveness of the landing obligation in reducing the percentage of juveniles present in catch compositions. Utilising descriptive statistics from STECF FDI data and insights from stakeholder e-surveys, the assessment provides a comprehensive analysis of current outcomes and challenges.

Trends in juvenile catches

Primary analysis of STECF FDI data from before (2013-2014) and after (2021-2022) implementation of the landing obligation indicates an increase in unwanted catches, with those below the MCRS rising from 6% of total catches to 9%. Despite measures aimed at reducing juvenile catches, no consistent trend has emerged, partly due to high variability in catches and sampling levels (STECF FDI data).

Stakeholder insights

While there have been efforts to reduce the presence of juveniles in catch compositions through measures such as increasing mesh sizes and implementing selective fishing gear, the expected reductions in juvenile catches have not been consistently achieved. Key hindrance factors identified include practical challenges in mixed fisheries, where handling unwanted catches on board is difficult due to limited space and operational constraints (E-Survey, S1 Q1, n48). Additionally, exemptions associated with the landing obligation have disrupted incentives for more selective fishing, maintaining the status quo in fishing patterns and practices (E-Survey, S1 Q1, n48). Respondents also highlighted insufficient adoption of more selective fishing technologies and modifications, which have limited the overall effectiveness of these measures (E-Survey, S1 Q4, n27).

Therefore, while some progress has been made in certain regions and fisheries, the extent to which the expectations of the landing obligation intervention have been met on a large scale has been limited by these operational and regulatory challenges.

4.1.6 Extent to which the landing obligation has contributed to identifying training needs and providing accessible, affordable opportunities to enhance selectivity and reduce unwanted catches

This section evaluates the effectiveness of the landing obligation's contribution to identifying training needs and providing accessible, affordable opportunities to enhance selectivity and reduce unwanted catches.

Effectiveness in promoting selectivity and training

Implementing the landing obligation has led to improvements in selectivity by adopting more selective fishing gear and refined fishing techniques. This progress has been supported by targeted training and pilot projects aimed at implementing new gear strategies. For example, in the Azorean small-scale fishery within the Outermost Regions case study, where initial bycatch levels were low, even minor gear modifications significantly enhanced selectivity.

Additionally, sustainable fisheries training pilots across seven European countries covering various sea basins demonstrate the landing obligation's role in effectively identifying and meeting training needs. These initiatives, along with EASME and EMFF-funded studies and pilot projects, focused on gear selectivity, as evidenced by projects such as the NWW Dutch pelagic trawl fishery targeting blue whiting and discarding hake (Case study 3: NWW Dutch pelagic trawl fishery).

Challenges in enforcement and resource allocation

Implementing the landing obligation has led to improvements in selectivity by adopting more selective fishing gear and refined fishing techniques. This progress has been supported by targeted training and pilot projects aimed at implementing new gear strategies. For example, in the Azorean small-scale fishery within the Outermost Regions case study, where initial bycatch levels were low, even minor gear modifications significantly enhanced selectivity.

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Despite these advancements, the effectiveness of the landing obligation is challenged by resource allocation and training accessibility, especially for public authorities. Budget constraints limit public authorities' capacity to enforce the landing obligation fully, notably in high-traffic fishing regions. This reliance on manual inspections over more effective modern control technologies such as REM has meant that the landing obligation is not enforced during fishing activities at sea. This highlights a need for increased funding, political support and resources. Furthermore, enforcement personnel often lack up-to-date knowledge and tools for effective compliance checks, underscoring the need for capacity-building initiatives and targeted training (STECF, 2022a).

Economic impacts on small-scale fisheries

The economic implications of the landing obligation further impact its effectiveness, particularly for small-scale and coastal fisheries. Increased operational costs from compliance strain their financial resources, hindering their ability to invest in workforce expansion or training programs. Without financial

support or training tied directly to landing obligation compliance, these fisheries struggle to benefit from employment growth or reskilling opportunities central to the Just Transition goals of the EU Green Deal (EC, 2019). Fishers in regions like the North Sea and Baltic have reported that rigid landing obligation requirements compounded economic difficulties, illustrating the need for supportive measures for workforce reskilling (STECF, 2023c).

Need for reskilling and transition support

The 2022 CFP Survey Report reports show that the landing obligation's narrow focus on catch management does not include reskilling initiatives crucial to helping fishers transition to sustainable practices or alternative livelihoods, such as aquaculture or marine conservation roles. Fishers in mixed fisheries regions like the Mediterranean Sea and North East Atlantic face challenges adapting to landing obligation requirements without adequate training or resources to support such transitions (EC, 2022b).

In summary, while the landing obligation has effectively enhanced selectivity and reduced unwanted catches through training and pilot projects, its effectiveness is limited by enforcement challenges, economic constraints, and insufficient reskilling initiatives. Addressing these areas is crucial to fully realise the landing obligation's potential in promoting sustainable fishing practices and supporting the just transition within the fishing sector.

4.1.7 Extent of landing obligation interventions' contribution to the CFP objectives, Article 2(5)(a) (Gradually eliminate discard and reduce waste)

This section evaluates the effectiveness of the landing obligation intervention in contributing to the CFP objectives outlined in Article 2(5)(a) which sets out one of its objectives, specifically focusing on the gradual elimination of discards and reduction of waste.

Ecological effectiveness in discard and waste reduction

The 2022 CFP Survey Report highlights the landing obligation's effectiveness in reducing waste and discards by mandating fishers to land applicable catches, thereby aiming to decrease waste from discarded bycatch (EC, 2022b). However, the report identifies that inconsistent enforcement across regions significantly undermines the effectiveness of the landing obligation in eliminating discards. This inconsistency can lead to continued waste and discard issues, reducing the ecological impact of the regulation's goals.

Role of Electronic Monitoring Systems (EMS)

Non-governmental organisations (NGOs) and environmental advocates emphasise the importance of EMSs in enhancing the effectiveness of both discard and waste reduction under the landing obligation. EMSs provide precise

monitoring of compliance, thereby reducing instances of illegal discards and unreported waste. However, the limited adoption of EMS hinders full compliance verification. This restricts the landing obligation's capacity to enforce discard and waste reduction consistently.

Economic implications

The 2023 Annual Economic Report (AER) on the EU fishing fleet notes that while the landing obligation is intended to enhance sustainability by reducing discards and waste, it presents economic challenges, particularly for small-scale fishers (STECF, 2024b). The increased costs associated with handling and landing all catches, including non-marketable species, can deter strict adherence to the rules (STECF, 2024b). This economic burden may limit the regulation's practical effectiveness in reducing discards and waste, as fishers might be less incentivised to comply fully with the landing obligation due to financial constraints.

The findings indicate that while the landing obligation has the potential to significantly reduce both discards and waste, its effectiveness is hampered by enforcement inconsistencies and economic pressures on fishers. The requirement that the catches are brought and retained on board, recorded, landed and counted against the quotas where applicable, aligns with sustainability principles but required improvement in compliance measures, such as broader adoption of EMS, to ensure more effective implementation. This was addressed through the amended Control Regulation (EU) No 2023/2842 by including provisions on REM. Additionally, addressing the economic challenges faced by fishers, particularly small-scale operators, is crucial to aligning ecological objectives with financial realities and achieving the desired outcomes of reduced discards and waste.

4.1.8 Extent of landing obligation interventions' contribution to the CFP objectives, Article 2(5)(f) (Provide conditions for sector's economic viability and contribute to fair living standards)

This section explores how landing obligation interventions have contributed to the CFP objectives of providing conditions for the sector's economic viability and contributing to fair living standards.

Employment trends in the fisheries sector

A review of secondary data annexed to the 2023 STECF AER show a 9% reduction in total estimated employment and FTEs in the fishing sector from 2013 to 2021 (STECF, 2023c). In 2021, 121,917 fishers were employed in the EU fishing fleet, corresponding to 81,747 FTEs. Employment decreased by 9.7% over the period 2018-2021 and 16.7% in FTEs compared to 2018.

Interviews with stakeholders indicate that the decline in FTE in the fishing industry can be attributed primarily to a lack of interest among young people in pursuing careers in fishing. The sector is not perceived as highly paid or economically attractive, resulting in an aging workforce, especially in the Mediterranean region,

where most fishermen are older men (Swedish Anglers' Association, anonymised, 2024; Fisher, 2024)

This decline is also attributed to overfishing, stricter regulations, and technological advancements reducing labour needs, such as the modernisation of boats and the mechanisation of processing activities at sea (STECF, 2023b). Additional factors include economic pressures, climate change, and Brexit-related uncertainties (STECF, 2023c).

Financial health of companies in fishing operations

A review of secondary data annexed to the 2023 STECF AER (STECF, 2023c) reveals that the GVA, gross profit and net profit (excluding subsidies) generated by the EU fishing fleet in 2021 were EUR 3.3 billion (a 1.3% increase compared to 2020), EUR 1.18 billion (-0.3%), and EUR 561 million (+23%), respectively. (STECF, 2023c). Revenue remained relatively stable between 2013 and 2018, oscillating around EUR 6.6 billion, but decreased in 2019 and 2020. Revenue increased by 6% in 2021, though not reaching 2019 levels. Total costs mirrored revenue trends, decreasing sharply by 10% in 2020 due to the COVID-19 pandemic, and recovered in 2021 to EUR 5.7 billion, increasing by 4% compared to 2020. Financial health declined from 2016 to 2020 due partly to stricter quotas, depleted fish stocks, and rising operational costs, with a marginal increase in 2021 from post-pandemic recovery and government support (STECF, 2023c).

During the interview, the North Western Waters Advisory Council (NWWAC) representative pointed to the administrative burden of the landing obligation and complex regulations, particularly for skippers. Vessel owners and skippers are concerned about making mistakes, adding pressure to work safely and profitably. This burden scares away potential fishers and investors, impacting the EU's fisheries sector's sustainability and food self-supply (North Western Waters Advisory Council, anonymised, 2024).

Trends on quota reallocation between years for flexibility in operations

CIRCABC quota swap reports indicate that the total transferred quantity increased by 33% from 2014 to 2023, with a high spike in 2019 of about 169,000t. A decreasing trend has been observed since 2020. Herring is the most transferred species, accounting for about 25% of total weight transferred in 2023, followed by mackerel and hake.

From engagement with stakeholders via the E-survey for this study, it is clear that inter-annual flexibility has become a critical management tool since the introduction of the landing obligation. Although widely used, some areas require improvement, and challenges in implementation persist. There are concerns about Member States 'abusing' flexibility to increase quotas, affecting ecosystem sustainability (E-Survey, S1 Q10, n29).

Volumetric share and value of unwanted catch covered through viable alternate uses

Desk research reveals that fishmeal and fish oil are significant products derived from non-food catches. In 2022, the EU's fishmeal imports were 247,234t, worth EUR 403 million (EUMOFA, 2023). The volume (by weight) of EU landings for non-food increased from 2013 until 2017 and decreased until 2021 (EUMOFA, 2023). Major fish landed for industrial use include sandeel, blue whiting, sprat, and herring. EU consumption of fishmeal decreased by around 40% from 2009 to 2022 (EUMOFA, 2023).

The E-survey findings reveal that while there are efforts to handle unwanted catches through viable alternate uses, challenges remain. These include insufficient volume to justify infrastructure investment, high handling and processing costs, lack of market demand, and regulatory barriers. There is limited interest from market and industry stakeholders, resulting in stagnation and missed opportunities for innovation (E-Survey, S1 Q12, n27).

Results from pilot projects and experiments by Member States

Desk research on pilot projects and experiments by Member States show mixed results in implementation and contribution to CFP objectives under Article 2(5). Good practices were identified, particularly in selective gear modifications and bycatch reduction in regions like the North and Baltic Seas. However, uptake and widespread implementation have been limited due to economic viability concerns and resistance from the fishing industry. Some pilot studies demonstrated potential for improving selectivity and reducing unwanted catches, but balancing ecological benefits with economic impacts remains challenging (Steins et al., 2023; Neitzel et al., 2023).

Across the sea basins, 51 good practices were identified in reported pilot studies results. These range from the implementation of certain technical gear measures within fisheries to the importance of considering fleet characteristics when designing new quota systems (Van Helmond et al., 2017). The vast majority of these good practices pertain to demersal trawls (39 of 51). likely due to their need for selectivity, given both the high fish abundance and richness associated with this part of the water column. Relatively few successfully identified good practices were found in studies on pelagic trawls (2), purse seine (4), longline (2), pot and trap (2), gillnet and trammel net fisheries (2).

4.1.9 Extent of landing obligation intervention's contribution to the CFP objectives, Article 2(5)(e) and (h) (Contribute to food supply and security and consider consumer interests)

This section addresses the extent to which the landing obligation intervention has contributed to the objectives of the CFP, specifically in terms of contributing to food supply and security while considering consumer interests.

Price trends and market influences

According to the 2023 “EU Fish Market” report by EUMOFA consumer prices for fishery and aquaculture products rose by an average of 3.6% annually from 2014 to 2023 (EUMOFA, 2023).

Fish prices began to increase significantly in 2016 and, by 2022, had risen by 42% in real terms compared to 2013. This growth aligns with increased prices for imported products, as the EU heavily relies on imports to satisfy consumer demand. Contributing factors include the US import ban on Russian fish, UK tariffs on Russian imports, strong US market demand, and the lifting of COVID-19 import restrictions. (EUMOFA, 2023)

The CFP aims to contribute to food supply and security while considering consumer and producer interests. As such, the landing obligation interventions, among other factors, have notably affected production volume and market dynamics. From 2013 to 2023, the live weight of landings decreased by 16%, from 4,099t to 3,427t, while the value declined by 10%, from EUR 6.1 billion to EUR 5.5 billion (EUMOFA, 2023; STECF, 2023c). Between 2013 and 2018, a 10% increase in the total live weight of landings was observed, followed by a marked decline of 10% within a year.

Atlantic herring remained the most landed species by weight among the EU fleet in 2021, with 463,325t, followed by European sprat, blue whiting, Atlantic mackerel, skipjack tuna, and sandeels. Regarding value, European hake topped the rankings at EUR 331 million, followed by skipjack tuna, yellowfin tuna, and Atlantic mackerel (EUMOFA, 2023; STECF, 2023c). Only the landings of skipjack tuna, yellowfin tuna, and European anchovy increased. Overall, the landings of the top six species by weight decreased compared to 2020.

Despite these fluctuations, EU seafood production has remained relatively stable over recent decades. The EU boasts over 54,200 active vessels, landing about 3.6 million tonnes of seafood - a 9.5% decrease compared to 2020 - valued at EUR 6 billion in 2021, reflecting a 3.9% increase from the previous year. EU aquaculture production constitutes approximately 25% of total seafood production, yielding around 1.2 million tonnes worth EUR 4.3 billion (EC, 2024d).

Price levels of fishery products for end-consumers

Fish retail prices across Denmark, France, Germany, Hungary, Ireland, Italy, Netherlands, Poland, Portugal, Spain, and Sweden increased by approximately 30% from 2014 to 2024, with the most significant rise in 2021 (8.7%) and a decrease in 2017 (-1.2%). (EUMOFA, 2023). Energy costs, a major factor for the EU fishing fleet, contributed to these price hikes as crude oil prices surged in 2021 and hit unprecedented levels in 2022. Consequently, fish prices rose to EUR 1.51/kg in 2021, an 8% increase from 2020, with projections indicating further increases in 2022 (STECF, 2023).

Between 2014 and 2023, consumer prices for fishery and aquaculture products grew by an average of 3.6% annually. By 2022, prices had risen by 42% in real terms compared to 2013, reflecting the EU's reliance on fish imports to meet

demand. Inflation in 2022 further inflated fish prices by over 10% compared to the previous year (EUMOFA, 2023).

Expenditure of end-consumers

In 2022, household expenditure on fishery and aquaculture products in the EU reached EUR 62.9 billion, marking an 11% increase from 2021 and a 34% rise in real terms compared to 2013 (EU, 2023). This upward trend began in 2018 and continued through 2022, driven by rising inflation and geopolitical dynamics. Despite a nearly 17% drop in home fish consumption in major EU markets from 2021 to 2022, factors such as the Russian aggression against Ukraine influenced energy, transport costs, and trade flows, exacerbating competition for raw materials.

Interviews

Input from the NWWAC Advisory Council highlights the tensions between responsible food policy regarding the CFP's landing obligations. (North Western Waters Advisory Council, anonymised, 2024). They point out the inconsistency of landing undersized fish only to discard them, emphasising that the ability to return non-marketable fish to their natural environment - allowing them to grow and potentially be caught later when marketable - has been forfeited. The obligation to store non-marketable fish onboard adds pressure on economic sustainability, particularly when the fishing sector faces spatial constraints, crew shortages, and ongoing crises like Brexit, COVID-19, and the Ukraine conflict. (North Western Waters Advisory Council, anonymised, 2024)

4.1.10 Extent of landing obligation interventions' contribution to the CFP objectives, Article 2(5)(g) and (j) (Ensure coherence with Union policies, foster Member State participation, and promote the internal market)

This section evaluates the contribution of the landing obligation to the CFP objective of coherence with Union policies, fostering Member State participation, and promoting the internal market.

Intra-EU trade trends

According to the 2023 “EU Fish Market” report by EUMOFA (EUMOFA, 2023), the intra-EU trade of fishery and aquaculture products reached 6 million tonnes in 2022, valued at EUR 27.4 billion. This marks an 11% increase in value from the previous year despite stable volumes. Between 2013 and 2022, trade volume grew by 23%, although a dip was noted between 2018 and 2020, from 5.85 to 5.65 million tonnes. A significant portion of intra-EU trade comprises re-exports of products initially imported from non-EU countries, which undergo multiple commercial exchanges and processing steps within various Member States.

Quota swaps and operational flexibility

Quota swaps are a crucial mechanism in the management of choke species and maintaining operational flexibility under the landing obligation. Whereby Member State allocations are based on a relative stability distribution formed prior to the first European TACs were set and have been vital part of the fishing industry for decades. With regards to recent years, from 2014 to 2023, swapped quotas rose from 0.56 million tonnes to 1.7 million tonnes, a 200% increase, with notable spikes in 2017 (48% from 2016) and 2023 (252% from 2022). These swaps demonstrate Member States' dedication to flexibility and effective catch limit management, which enhances intra-country trade by allowing countries to better coordinate and optimise their available quotas based on their specific needs and fishing capacities. This flexibility facilitates smoother exchanges and reduces the risk of overfishing certain species, further promoting sustainable fishing practices. While some Member States like Cyprus, Germany, Italy, Romania, and Slovenia do not engage in these swaps, the practice remains widespread. Stakeholder e-survey results (E-Survey, S1 Q9, n35) indicate that 70% of respondents reported quota swaps initiated in their Member State.

Member State collaboration and regionalisation

The CFP's regionalisation process encourages collaboration among Member States within regional groups, particularly when applying for exemptions or funding. This cooperation enhances participation and reduces potential conflicts. Stakeholder interviews indicated that there are no conflicts with the landing obligation; instead, Member States work collaboratively to develop Joint Recommendations for exemptions (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024; STECF, anonymised, 2024).

Trade with third countries

Stakeholder interviews revealed that trade between the EU and third countries has increased primarily in terms of exports, driven by heightened demand for premium seafood products. This growth is supported by trade agreements and improved logistics that facilitate efficient distribution (Department of Fisheries and Marine Research Cyprus, anonymised, 2024). Examples of this include increased exports of high-value species such as Atlantic salmon and bluefin tuna to markets in Asia and North America. Despite facing regulatory barriers in third countries, such as stringent import/export requirements, and economic challenges, like fluctuating exchange rates, trade volumes have remained stable. This stability is partly due to the EU's commitment to sustainable fishing practices, which enhances the reputation and marketability of its seafood products. The emphasis on sustainability ensures that fish stocks are managed responsibly, preventing overfishing and maintaining healthy marine ecosystems, which in turn supports consistent trade volumes over the long term.

4.1.11 Extent to which the landing obligation interventions incentivised fishers to discontinue discarding (aid, extra quotas, access to closed areas or exemptions)

This section evaluates how interventions related to the landing obligation, such as financial aid, extra quotas, access to closed areas, and exemptions, have incentivised fishers to reduce discarding practices.

Financial aid and selective practices

Financial aid through EMFF and its successor, the European Maritime Fisheries and Aquaculture Fund (EMFAF), has supported the development of selective fishing practices. Projects such as MENDES 2 and SICAPTOR have benefited from this support, with a focus on improving gear selectivity (refer to ANNEX 4, case study 2 on SWW). However, the high costs and complex administrative procedures associated with accessing these funds have discouraged broader voluntary investment, thus limiting the overall impact of this aid.

Quota management and operational challenges

Interventions such as extra quotas through TAC uplifts, alongside high survivability and *de minimis* exemptions, have yielded mixed outcomes. Quota swaps between Member States are widely adopted, providing flexibility in managing bycatch and reducing the need for discards. Under the landing obligation quotas are based on the total volume of fish caught, not just what is landed, meaning every fish, including those that would have been discarded, counts towards the quota. TAC is the total amount of a specific species that can be caught over a certain period, usually a year, and is now calculated based on total catch, including discards. This incentivizes fishers to avoid non-target species, as everything caught affects their quota. Quota swaps between countries ensure fishers can land their catch instead of discarding it due to quota limitations, while national quota management initiatives and weekly catch limits help align quotas with landing obligation requirements.

Of the stakeholders responding to the E-survey carried out for this study (E-Survey, S1 Q8, n40), approximately 70% indicated that they had initiated quota swaps between Member States. However, economic concerns, such as the fluctuating market prices for fish and the increased costs of transportation and logistics associated with quota swaps, challenge the further effectiveness of these interventions. Market development challenges, including limited demand for undersized catch and the need for marketing strategies to promote such products, also hinder progress (E-Survey, S1 Q8, n40). Additionally, better internal quota management is necessary to address discarding issues more effectively. Internal quota management involves optimising the allocation and use of catch quotas within a Member State to ensure that quotas are fully utilised, reducing the incentive to discard fish that cannot be legally landed due to exceeding quotas. This can include real-time monitoring, improved forecasting of fish stocks, and flexible reallocation of quotas among fishers to adapt to changing circumstances.

Access to closed areas

The adoption of closed or temporarily closed areas has been significant in various regions, helping to protect vulnerable species and reduce unwanted catches. These measures have been widely adopted across different regions and fleet segments, reducing discards by restricting access to certain areas during critical periods (E-survey, S1 Q8, n40).

Exemptions and their impact

Exemptions, such as high survivability and *de minimis* exemptions, have been critical in managing discards but are not uniformly applied. While these exemptions provide fishers with flexibility, inconsistent application due to their difficulty in being monitored and being changed regularly for different fisheries and periods (annual / triennial) limits their overall impact (CINEA-EMFF, 2021). Exemptions allow fishers to continue operations without penalising them for landing certain species that might otherwise have been discarded, which ostensibly supports the goals of the landing obligation by reducing waste. However, stakeholder perceptions reveal that many do not find the exemptions from fishing quotas adequate or proportionate, suggesting a need for better alignment with the practical realities of fishing operations. This misalignment hinders incentives to improve selective fishing and further complicates effective implementation (E-survey, S2 Q22, n32).

Other stakeholder Insights

Survey results indicate that specific interventions within the landing obligations, such as aid and exemptions, have had varied impacts on incentivising fishers to discontinue discarding. Financial aid has been instrumental in funding to look into innovations, yet operational challenges persist, notably with landing non-marketable fish (E-survey, S2 Q12, n39). Despite these challenges, quota swaps are commonly utilised, though there is room for improvement in internal management flexibility.

Overall, while interventions like financial aid, extra quotas, access to closed areas, and exemptions show promise in incentivising fishers to discontinue discarding, their success is limited by operational challenges, inconsistent application, and the need for comprehensive support and alignment with the practical realities faced by fishers.

4.1.12 Extent to which landing obligation interventions incentivised fishers to discontinue discarding (access to scientific information)

This section assesses the impact of landing obligation interventions on incentivising fishers to reduce discards, focusing on access to scientific information and its role in guiding practices.

Insights on discard rates and unwanted catches

Data analysis reveals significant efforts by stakeholders from various Member States and scientific institutions to develop and pilot innovative fishing gear, technologies, and practices to reduce unwanted catches and eliminate discards in European fisheries (EC, 2022b). Notable projects include the Horizon 2020 initiatives DiscardLess and MINOUW (DiscardLess, 2019; MINOUW, 2015). These projects have compiled data on gear selectivity trials across EU sea basins and made them accessible through online tools, facilitating knowledge-sharing and stakeholder involvement.

For instance, DiscardLess was designed to provide essential knowledge, tools, and technologies to gradually eliminate discarding. (DiscardLess, 2019). At the same time, the Gearing Up project aids fishers, net makers, and managers in finding practical solutions to reduce bycatch (Fishing into the Future, 2015). However, the uptake of this information is challenged by economic constraints and practical difficulties in adopting new technologies and practices. In Belgium, the fishing industry's reluctance to implement the landing obligation and the time-consuming nature of developing technical adaptations were highlighted as significant obstacles (Fishing into the Future, 2015). This sentiment is echoed in the Netherlands, where the unpredictability of successful innovation in selectivity was noted (Fishing into the Future, 2015).

Stakeholder insights on scientific access

The stakeholder e-survey, particularly Question 6 in Section 2 (E-Survey, S2 Q6, n21), addressed the availability of scientific advice on eliminating discards, increasing selectivity, and avoiding unwanted catches. While some scientific advice, such as salmon trap netting and selectivity campaigns in Italy, is available and utilised, significant gaps persist. The Mediterranean region, notably, lacks sufficient selectivity studies and economic analyses on increased mesh sizes. Respondents emphasised the need for additional studies, better dissemination of findings, and increased funding for pilot projects by private entities.

Stakeholder perceptions

Feedback from stakeholders, including responses to Question 22 of Section 2 (E-Survey, S2 Q22, n32), reveals mixed opinions on the landing obligation's effectiveness in incentivising fishers to land all catches. Scepticism is prevalent among many respondents, highlighting the challenges in achieving compliance and adopting discard reduction practices.

These findings underscore the potential of scientific information to influence fishing practices positively while also highlighting the barriers that still exist. Continued efforts to support and engage stakeholders are essential to enhance compliance and foster innovation in reducing discards.

4.1.13 Extent to which landing obligation interventions incentivised fishers to discontinue discarding (freedom in gear selection)

This section evaluates how the interventions under the landing obligation have incentivised fishers to reduce discarding by increasing the gear selection and supporting innovation in processing and marketing.

Freedom in gear selection can provide fishers with the ability to adapt their practices to be more selective and reduce discards. This flexibility can encourage compliance with the landing obligation, as fishers can choose gears that best suit their target species while minimising unwanted catches. However, the overall success of this approach is limited due to the economic and operational challenges associated with implementing new gear technologies. The slow pace of selectivity improvements and the reluctance of some fishers to adopt new practices highlight the need for continued support and incentives to encourage the widespread adoption of selective gears.

Pilot projects and experiments by Member States have yielded valuable insights into increasing selectivity and reducing discards through gear modifications. Still, the uptake of these new gear selections has been inconsistent. While certain studies demonstrated the effectiveness of selective gear, such as the T90 codend and various types of sorting grids, widespread adoption has been limited. This is primarily due to economic concerns and resistance from fishers, who are often reluctant to change gear due to potential short-term commercial losses. For example, in the North Sea and Baltic Sea, fishers showed minimal voluntary uptake of selective gear modifications due to the perceived increase in operational costs and complexity. The Fast-Track project highlighted that although fishers could optimise gear design, the success of such initiatives requires flexibility in the management system and adequate incentives. (Feekings et al., 2019) Therefore, while freedom in gear selection has the potential to incentivise fishers to discontinue discarding, its success is heavily dependent on economic viability, regulatory support, and stakeholder engagement.

Section 2, Question 9 of the E-survey addressed the uptake of selective gears among various regions and fleet segments, with a significant number of respondents indicating that selective gears have been adopted, though not universally. Specific examples of gear innovations, such as the Flemish Panel and modifications in mesh sizes, have contributed to reduced discards (E-Survey, S 1 Q 8, n40).

However, these initiatives are limited by regional and sectoral variations, highlighting the uneven adoption of selective gear across different fisheries. Section 1, Question 12 (n39) from the E-Survey, focused on identifying and understanding the challenges faced in the implementation, control, and enforcement of the landing obligation, points out the challenges in achieving increased selectivity in specific fisheries, noting that it is hard to attain due to various operational difficulties. Additionally, Section 1, Question 1 (n48) from the

E-Survey is about understanding stakeholders' perspectives on trends in discard rates within the fishing fleets they oversee or are associated with. Most respondents mentioned that while some regions and sectors have seen positive trends with decreasing discard rates due to more selective fishing techniques, most regions have not seen significant changes and some even report increases. The text also highlights that the overall uptake of more selective fishing methods is limited due to financial burdens and other barriers (E-Survey, S1 Q9, n28).

4.1.14 Extent to which the landing obligation interventions incentivised fishers to discontinue discarding (funding for innovation in processing and marketing)

This section assesses the effectiveness of landing obligation interventions in incentivising fishers to discontinue discarding through funding for innovation in processing and marketing.

The landing obligation was designed to change fishers' behaviour by encouraging them to avoid catching unwanted fish in the first place. However, when funding for innovation in processing and marketing transforms previously discarded catches into economically valuable products, it may inadvertently provide incentives for fishers to continue catching these unwanted species, as it becomes economically beneficial. This could undermine the landing obligation's original intention of behavioural change aimed at reducing unwanted catches. While developing markets for these catches offers economic advantages, it is essential to balance this with the goal of reducing unwanted catches overall.

Regarding the objective of making the best use of the unavoidable unwanted catch, studies such as Mangi & Catchpole (2014) show that there is sufficient interest from commercial bulk outlets to utilise discards that are not destined for human consumption. These outlets, however, either pay a very low price for the discards or charge to receive them. This, therefore, creates an incentive to fish more selectively. The relatively low value of bulk discards is unlikely to create an incentive for fishers to begin targeting undersize or over-quota individuals (Mangi & Catchpole, 2014).

Additionally, while there is potential for utilising unavoidable unwanted catches, the economic incentive to do so remains limited due to the low value offered by bulk outlets. This lack of financial motivation aligns with the broader objective of encouraging fishers to adopt more selective fishing practices, thereby minimizing the occurrence of unwanted catches in the first place. By focusing on selectivity, the industry can work towards reducing the volume of discards and enhancing the sustainability of fisheries. In summary, while commercial bulk outlets are interested in utilising discards, the low economic returns they provide do not incentivise fishers to target undersized or over-quota individuals. Instead, this situation supports the push towards more selective fishing practices, which are crucial for sustainability and reducing unwanted catches.

4.1.15 Extent to which landing obligation interventions incentivised fishers to discontinue discarding (improved monitoring systems - traditional or REM)

This section examines the effectiveness of monitoring and control systems in ensuring compliance with the landing obligation, focusing on the role of REM tools and stakeholder perspectives.

Effectiveness of traditional monitoring systems

Implementation of previous EU control systems by Member States has been less effective in the past than desired in ensuring full compliance with the landing obligation (CINEA-EMFF, 2021). Traditional monitoring methods, such as inspections at sea, provide only limited snapshots of compliance, making it difficult to detect and prevent discarding. These methods are inadequate for fully documenting catches and enforcing the CFP Regulation (EU) No 1380/2013.

Role of REM tools

REM tools are widely recognised as the most effective and cost-efficient means of ensuring compliance with the landing obligation. Multiple pilot projects across Europe (e.g. Mangi et al. (2015) and via the current EMFAF programmes 2021-2027 ⁽¹⁸⁾) and globally (e.g. key Australian fisheries ⁽¹⁹⁾ and across the United States ⁽²⁰⁾) have demonstrated that REM can accurately document catches, reduce misreporting, and ensure compliance with size and quota regulations.

REM technology helps deter fishers from discarding unwanted or non-quota species undetected, thereby promoting compliance with landing requirements (Mangi et al., 2015). For public authorities, REM offers a cost-effective solution with extensive coverage, enabling better allocation of resources such as sea inspections. Implementing the landing obligation and increasing REM as a compliance tool have shown progress in improving fishing selectivity in European fisheries and positively altering fishers' behaviours.

However, while REM is cost-efficient for regulatory bodies, it can impose financial burdens on fishers due to the expenses associated with the installation, maintenance, and operation of the technology. The funding is accessible, but challenging to access especially for SSF (who have with limited financial resources). Furthermore, REM is not a one-size-fits-all solution and may pose challenges, such as increased operational costs and adjustments to traditional fishing methods alongside complex data management requirements (Kraak, 2023).

⁽¹⁸⁾ <https://oceans-and-fisheries.ec.europa.eu/funding/emfaf-programmes-2021-2027>

⁽¹⁹⁾ www.afma.gov.au/fisheries-management/monitoring-tools/electronic-monitoring-program

⁽²⁰⁾ www.fisheries.noaa.gov/national/fisheries-observers/electronic-monitoring

In cases where REM is deemed unnecessary after a risk assessment, observer data remains the most effective method for gathering information on bycatch and discards. Such data, when analysed alongside existing information, can be instrumental in reassessing which vessels should be categorised as "high risk" and require REM in the future. This ongoing evaluation ensures that REM deployment is both strategic and effective, balancing the needs and capabilities of both public authorities and fishers.

Under the revised EU control system rules, there is no explicitly binding requirement to install REM onboard certain vessels less than 18 metres. A significant challenge of REM is the substantial initial implementation and setup costs, especially for smaller vessels. Additionally, REM faces the hurdle of stakeholder engagement; many fishers view it as an intrusive addition to existing monitoring systems such as Vessel Monitoring Systems (VMS), Automatic Identification Systems (AIS), detailed electronic logbooks, and observer programmes. As a result, many fishers and Producer Organisations (POs) have been reluctant to participate in pilot projects. Engaging with fishers to demonstrate the long-term benefits of REM is crucial to gaining acceptance and ensuring future implementation.

In summary, while REM provides a cost-effective means for public authorities to monitor compliance, it presents financial and operational challenges for fishers. Addressing these challenges through proactive engagement and demonstrating the potential benefits is essential for the broader acceptance and successful deployment of REM systems.

Stakeholder insights on monitoring systems

According to stakeholder e-survey results, the impact of improved monitoring systems on incentivising fishers to discontinue discarding is mixed, though positive trends are noted. Answers to Section 1, Question 13 (E-Survey, S1 Q13, n36) indicates that most respondents have observed the implementation of additional control and monitoring tools since 2021, including REM systems, electronic logbooks, aerial surveillance, and onboard scientific observers. REM, in particular, has been implemented through pilot projects and in some industrial fisheries, enhancing compliance with the landing obligation (EC, 2022b).

Stakeholder responses from the e-survey (E-Survey, S1 Q14, n31) indicate that approximately 58% of respondents are unaware aware of pilot studies or trials focusing on REM systems, such as CCTV cameras, to evaluate their effectiveness in ensuring compliance. Section 1, Question 11 (E-Survey, S1 Q11, n32) points to challenges in control and enforcement, such as difficulties in gathering evidence for successful prosecution and insufficient electronic monitoring tools. These insights suggest that while traditional and REM systems represent positive steps, further improvements are needed to close existing gaps.

These findings highlight the critical role of REM tools in advancing compliance with the landing obligation while also emphasising the need for improved

implementation strategies and stakeholder engagement to fully realise their potential.

4.1.16 Overall findings on Effectiveness

The implementation of the landing obligation has not been effectively implemented in reducing discards and promoting sustainable fishing practices. While notable successes have been achieved, such as the promotion of selective fishing practices and increased operational flexibility, persistent challenges continue to hinder the full realisation of the landing obligation's objectives.

Since the landing obligation became applicable, there has been success in fostering some selective fishing practices, particularly through gear innovations like the T90 coded and the Flemish Panel. These tools have contributed to reduced discard rates in specific fisheries, marking progress toward the goals set by the CFP. However, the adoption of these selective gears is uneven due to economic concerns and resistance from fishers who fear short-term commercial losses. "Commercial loss" refers to the potential short-term decrease in revenue that fishers may face when adopting selective fishing gears due to reduced catch volumes, increased operational costs, and challenges in meeting market demands. This reluctance underscores the need for enhanced economic incentives and regulatory support to encourage broader adoption.

Quota swaps and exemptions are valuable tools for providing operational flexibility, allowing Member States to manage choke species more effectively. Both have been used extensively. The significant increase in quota swaps between 2014 and 2023 highlights their importance as a management strategy to aid implementation of the landing obligation. Nevertheless, there are challenges with the timing and availability of swaps, complicating fisheries management and sometimes resulting in temporary closures.

The landing obligation has introduced significant economic and operational burdens for fishers, particularly in handling and marketing unwanted catches. The requirement to sort and store unwanted catches separately increases operational costs and logistical challenges, deterring compliance. Although financial aid from EMFF/EMFAF has alleviated some burdens, high upfront costs and a lack of market demand for non-human consumption products remain substantial barriers.

The effectiveness of the landing obligation varies significantly across different regions. Progress is evident in areas like the North Sea and the Baltic Sea. While the Mediterranean Sea and Outermost Regions have seen less progress. This regional variability is influenced by diverse operational practices, economic conditions, and ecological contexts, necessitating tailored approaches to enhance effectiveness.

Stakeholder feedback reveals a strong perception that the landing obligation has not significantly improved the financial viability of fisheries, with many fishers expressing scepticism about any long-term benefits. Enhanced stakeholder

engagement and collaboration are crucial to addressing these concerns, fostering a shared understanding of the landing obligation's goals, and ensuring alignment with broader sustainability and economic objectives.

Several factors need to be revisited to ensure the effectiveness of the landing obligation in reaching its objectives. These objectives include reducing overall discard rates, enhancing fishers' economic viability, improving compliance and enforcement, promoting market development for unwanted catches, and tailoring strategies to regional needs. In addition, there are compliance issues, and enforcement is often weak, hindering the effectiveness of the landing obligation. Financial and logistical challenges impede practical implementation, including a lack of effective control and enforcement measures, necessitating more flexible, region-specific strategies. Mixed outcomes across regions highlight the need for continued tailoring of approaches that consider local socio-economic and ecological contexts. These findings suggest that while the landing obligation intervention establishes a framework for managing discards, it has not been effectively implemented, and additional value have not yet been realized.

4.2 Efficiency

Evaluation question	Indicative judgment criteria
To what extent has the landing obligation been implemented efficiently?	Extent to which measures to implement the landing obligation were realised at a reasonable cost to the administration and operators (ratio of administrative cost)
	Extent to which coordination between Member States is easier due to standardised data and plans
	Extent to which inefficiencies and obstacles were identified of the landing obligation, and solutions were put in place to overcome them
	Extent to which potentials to reduce costs and achieve the same or improved results of the landing obligation with less public funding (EFF, EMFF, EMFAF) are identified
	Extent to which potentials to reduce costs and achieve same or improved results of the landing obligation with less public funding (Horizon 2020, Horizon Europe, other important funds)
	Extent to which potentials for other policy instruments or mechanisms compared to the landing obligation to provide better cost-effectiveness
	Extent to which discard exemptions which are not scientifically justified, are attributable to very low volumes

Assessing the efficiency of the landing obligation within the CFP framework is crucial to balancing regulatory compliance with economic viability and practicality across diverse fishing regions. The landing obligation requires all catches of species subject to catch limits and, in the Mediterranean Sea, also catches of species subject to MCRS to be retained and accounted for, with the aim of reducing discards and encouraging more selective fishing practices. Evaluating efficiency focuses on how resources are utilised to achieve the intended outcomes of the policy, aiming to identify cost-effective strategies that maximise benefits while minimising unnecessary expenditures.

The intended goal of assessing the efficiency of the landing obligation is to ensure that it is implemented in a manner that optimises the use of resources, reduces unnecessary costs, and enhances the economic viability of the fisheries sector. This involves scrutinising the financial and operational impacts on Member States and operators, including the costs associated with gear modification, increased sorting and storage capacity, and administrative resources. The analysis explores the strategic use of exemptions, such as *de minimis* exemptions, which help manage unwanted catches and reduce operational costs. Effective use of these exemptions can mitigate financial burdens while supporting sustainable practices.

The landing obligation has fostered enhanced regional coordination through standardised data and plans, thereby improving cross-border collaboration in fisheries management. This coordination is essential for aligning efforts and policies among Member States, ensuring consistent implementation and management of fisheries resources.

Identifying and addressing inefficiencies remains critical to enhancing efficiency. While pilot projects suggest potential cost-saving opportunities, inconsistencies in financial support and limited collaboration continue to pose challenges. The potential to reduce costs while achieving improved results with less public funding is promising, with programmes like EMFAF and Horizon Europe playing crucial roles in supporting these efforts.

4.2.1 Extent to which measures to implement the landing obligation were realised at a reasonable cost to the administration and operators (ratio of administrative cost)

This section evaluates the implementation challenges and cost management strategies associated with the landing obligation. Insights from stakeholder interviews and case studies provide a comprehensive understanding of the financial and operational impacts across different fisheries. The countries highlighted in this section were chosen because the interviewees from these regions provided the most relevant and insightful input on the challenges and solutions related to the landing obligation.

Country-specific insights on implementation

In **Finland**, the impact of the landing obligation is minimal due to negligible discard levels, resulting in low costs for managing authorities. Approximately EUR 200,000 is allocated for scientific research on salmon survival, reflecting effective fisheries policies and low discard challenges (Finnish Ministry of Agriculture and Forestry, anonymised, 2024). The **Netherlands** faces a more complex implementation due to mixed fisheries and bottom trawling practices. Collaboration among governmental bodies and institutions like the Wageningen Marine Research is essential, necessitating significant financial investment. Financial support from EMFF/EMFAF programmes is crucial to facilitating these processes (Dutch

Ministry of Agriculture, Fisheries, Food Security and Nature - Team Fisheries, anonymised, 2024).

Cyprus benefits from *de minimis* exemptions, which help manage unwanted catches and reduce costs for stakeholders. EMFF/EMFAF supports efforts like the permanent cessation of certain trawlers, aligning with sustainable practices and ensuring cost-effectiveness (Department of Fisheries and Marine Research Cyprus, anonymised, 2024). In **Slovenia**, the use of *de minimis* exemptions helps maintain low operational costs. Effective regional coordination, particularly through the Adriatica group, ensures efficient implementation and minimised administrative expenses. Slovenia's leadership in Joint Recommendations and regional coordination is fundamental to managing costs effectively (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024).

Operational challenges and additional costs

The case studies reveal challenges across different fisheries in terms of operational costs. In the Azorean small-scale fishery, fishers face increased operational costs from landing previously discarded species with low market value, impacting onboard storage and economic performance. Similarly, the French tropical tuna purse seiners recognise economic benefits in reducing bycatch, as discarding low-value species can increase costs. In the North-Western Mediterranean and Adriatic fisheries, exemptions are common due to limited onboard facilities, complicating discard management and raising costs. The bottom trawling sector in the South Western Waters experiences issues with reduced space, increased handling time, and bycatch management due to landing all species against quotas.

Stakeholder engagement and additional workload

Stakeholder engagement via the e-survey highlights significant additional costs for operators adopting new practices, including gear modification, increased storage capacity, and the need for additional administrative resources. While some costs are mitigated through EMFF/EMFAF, the financial burden remains substantial, with mixed responses from operators as to awareness of and access to support funds. While 43% confirmed availability, 17% stated that there was no support, and 45% were unsure (E-Survey, S1 Q18, n30).

The landing obligation intervention increases workloads for operators and administrators. The Baltic trawl fishery case study highlights increased workloads due to intensified control and monitoring measures, including costly onboard observers and CCTV. Crew workload reportedly doubled as they sorted and stored unwanted catches separately.

Implementation challenges and strategic solutions

Implementation challenges include increased crew size and onboard sorting activities in the Netherlands affecting economic performance. Infrastructure to

handle bycatch is crucial, potentially requiring government and industry collaboration for cost-sharing and technological advancements (Wageningen Marine Research, anonymised, 2024). In Cyprus and Slovenia, strategic use of exemptions is critical for managing operational costs. Both countries focus on regional collaboration to standardise data and processes, facilitating effective discard management (Department of Fisheries and Marine Research Cyprus, anonymised, 2024; Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024). Slovenia highlighted the benefits of regional coordination through Adriatica, by using Joint Recommendations as guiding principles to manage the costs and ensure compliance. The effective use of exemptions and strategic collaborations is key to minimising costs and supporting sustainable fishing practices in these regions (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024).

4.2.2 Extent to which coordination between Member States is easier due to standardised data and plans

This section assesses how the standardisation of data and plans has facilitated collaboration and coordination among Member States in implementing fisheries policies across the EU. The countries highlighted in this section were chosen because the interviewees from these regions provided the most relevant insights into the effects of standardisation since the introduction of the landing obligation.

Regional coordination and collaborative efforts

Stakeholder interviews reveal that the introduction of the landing obligation has increased nuanced collaboration and coordination. An interview with a Finnish government stakeholder (Finnish Ministry of Agriculture and Forestry, anonymised, 2024) highlighted that in the Baltic Sea, coordination between Member States has been straightforward and effective, largely due to strong pre-existing regional cooperation. The use of standardised data and plans has facilitated this collaborative environment, ensuring that Member States can align efforts and policies effectively. This streamlined approach supports consistent policy implementation and enhances the overall management of fisheries resources in the region.

In **Slovenia**, a government stakeholder (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024) emphasised the importance of regional coordination, particularly in the Adriatic. Facilitated through Article 18 of the CFP Regulation (EU) No 1380/2013, this coordination enabled Slovenia's informal inclusion in the Adriatica regional group shortly after its introduction. This inclusion allowed for active participation in initiatives and the preparation of Joint Recommendations on discard plans for the landing obligation. Since formally joining the Adriatica regional group in 2021, Slovenia has played a leadership role, chairing the group during the preparation of Joint Recommendations for small pelagic and demersal fisheries discard plans. **Cyprus's** involvement in their regional High-Level Group, SudEstMed, with other Eastern Mediterranean

Member States, was highlighted by stakeholders (Department of Fisheries and Marine Research Cyprus, anonymised, 2024). While Cyprus does not share stocks under the landing obligation with these states, the coordination has been instrumental in preparing Joint Recommendations for derogations from the landing obligation. The use of standardised data and collaborative frameworks has facilitated this process, ensuring effective participation in regional fisheries management efforts.

National coordination and implementation

In the Netherlands, the Dutch government stakeholder interviewed (Wageningen Marine Research, anonymised, 2024) noted extensive national collaboration. This involves multiple government departments, including policy and enforcement agencies, to address the complexities of their mixed fisheries. Standardised data have been crucial in aligning efforts and ensuring consistent policy implementation across sectors. This coordination supports the Netherlands' ability to manage its fisheries effectively and comply with EU regulations.

4.2.3 Extent to which inefficiencies and obstacles were identified of the landing obligation, and solutions were put in place to overcome them

Identifying inefficiencies and technological solutions

Pilot projects suggest significant potential for cost savings through enhanced selectivity and handling processes, though specific monetary values are not readily available. These projects indicate potential operational efficiencies, but integrating such technologies requires substantial investments and adjustments to regulatory frameworks. Stakeholder interviews reveal that the use of AI technology offers promising improvements in catch sampling, specifically in reducing unwanted bycatch in Fully Documented Fisheries (FDF) (Wageningen Marine Research, anonymised, 2024). However, implementation is constrained by existing infrastructure and regulatory frameworks.

In **the Netherlands**, mixed fisheries face considerable bycatch challenges, particularly in bottom trawling, impacting economic performance due to increased costs associated with sorting and monitoring catches. The lack of adequate facilities for processing discards and top-down regulations failing to account for practical realities lead to inefficiencies. The burden of compliance without corresponding infrastructural support exacerbates these challenges (Wageningen Marine Research, anonymised, 2024).

Leveraging exemptions and scientific support for efficiency

The use of exemptions, particularly *de minimis* exemptions, helps manage administrative costs effectively in **Cyprus** (Department of Fisheries and Marine Research Cyprus, anonymised, 2024) and operational costs in Slovenia (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024). These

exemptions are crucial for managing daily, low-catch fishing activities, ensuring economic stability and operational efficiency without significant cost increases (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024). They highlight the disproportionate costs of handling unwanted catches and necessitate ongoing policy evaluation to ensure practicality and economic viability (Department of Fisheries and Marine Research Cyprus, anonymised, 2024).

Cyprus employs scientific support for *de minimis* exemptions, relying on data frameworks to inform management (Department of Fisheries and Marine Research Cyprus, anonymised, 2024). **Slovenia** supports scientific research through the EU Data Collection Framework, enabling informed decision-making and enhancing policy compliance (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024). At the regional level, collaboration via High Level Groups supports coordinated efforts in fisheries management (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024; Department of Fisheries and Marine Research Cyprus, anonymised, 2024). In **Finland**, scientific investments are prioritised to ensure compliance and data-driven management, demonstrating an efficient approach to handling potential inefficiencies, such as studies on the survival of released salmon (Finnish Ministry of Agriculture and Forestry, anonymised, 2024). Cyprus plans selectivity studies to improve gear selectivity, addressing the multispecies nature of fisheries (Department of Fisheries and Marine Research Cyprus, anonymised, 2024).

Strategic solutions for addressing inefficiencies

Common challenges identified include increased costs, vessel adaptations, and insufficient port infrastructure. These require strategic solutions to improve efficiency. Effective use of quota swaps has shown progress in managing choke species, thereby reducing inefficiencies and improving quota management practices. Despite the availability of financial and legal support mechanisms, such as EMFF/EMFAF, inconsistent access to these funds remains a challenge, as highlighted by stakeholder responses to the e-survey conducted within this study (E-Survey, S1 Q12, n39; S2 Q9, n28; S2 Q21, n30). This indicates a need for streamlined support to fully realise potential efficiencies.

4.2.4 Extent to which potentials to reduce costs and achieve the same or improved results of the landing obligation with less public funding (EFF, EMFF, EMFAF) are identified

This section evaluates the potential to reduce costs and achieve the same or improved results in fisheries management using less public funding, focusing on the European Fisheries Fund (EFF) 2007-2013, EMFF 2014-2020, and EMFAF 2021-2027. Given that EMFAF is the successor to the EMFF, which itself succeeded the EFF, examining these funds together provides a comprehensive overview of their role in supporting the implementation of the landing obligation under the CFP Regulation (EU) No 1380/2013.

Utilisation of funds across Member States

In **Slovenia**, EFF/EMFF/EMFAF funding has played an important role in meeting EU Data Collection Framework requirements. These funds co-finance activities, such as data collection on discards, which are essential for implementing the landing obligation. Slovenia's support for continued EU co-financing highlights the importance of these funds in maintaining fisheries sustainability, as detailed in their Operational Programme for EMFAF 2021-2027. This includes measures to enhance fishing gear selectivity and preserve marine biodiversity (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024).

In the **Netherlands**, the interviewed stakeholder noted that while funds like the EMFF are crucial, the economic burden of implementing the landing obligation remains significant. There is a strong emphasis on technological innovation and economic incentives to mitigate these costs. EU co-financing for research initiatives, particularly those involving AI and advanced data collection methods is essential (Wageningen Marine Research, anonymised, 2024).

In **Finland**, the landing obligation required minimal implementation activities due to low discard levels. Although some costs are incurred for scientific studies, such as those on salmon survival, the role of the EFF/EMFF/EMFAF has not been prominent (Finnish Ministry of Agriculture and Forestry, anonymised, 2024).

In **Cyprus**, stakeholders are largely unaware of funding sources beyond established EU mechanisms like EMFAF. Operational costs related to the landing obligation remain stable, with a focus on scientific support tied to *de minimis* exemptions. The limited reference to EFF/EMFF/EMFAF usage implies either limited involvement or a need for better awareness and utilisation of available funds (Department of Fisheries and Marine Research Cyprus, anonymised, 2024).

Challenges and opportunities in fund utilisation

The case studies reveal various challenges and opportunities related to the effective use of EFF/EMFF/EMFAF funds. For example, in the Western Adriatic bottom otter trawl fisheries, the use of these funds to enforce landing obligation provisions has been limited, particularly in relation to control, inspection, and handling of unwanted catches. In the North Western Waters Dutch pelagic trawl fishery, sustainable fisheries training pilots funded by EASME and the EMFF have demonstrated potential for selectivity improvements. Similarly, in the bottom trawling in South Western Waters, EMFF-funded projects have enhanced trawl net selectivity, facilitating the development of innovative fishing practices and underscoring the role of these funds.

4.2.5 Extent to which potentials to reduce costs and achieve same or improved results of the landing obligation with less public funding (Horizon 2020, Horizon Europe, other important funds)

This section evaluates the potential to reduce costs and achieve the same or improved results in the fisheries sector using less public funding, focusing on Horizon 2020, Horizon Europe, and other significant funds.

Utilisation of funding in the Netherlands

Interviews conducted in the Netherlands, where the most relevant insights were gathered, revealed that funding from Horizon 2020 and Horizon Europe has not been fully leveraged within the fisheries sector. Experts suggest that these programmes could contribute significantly to cost reductions and improved efficiency without compromising results. Additionally, the Netherlands has access to national research grants from institutions like Wageningen University & Research (WUR) and policy-supporting research through programmes such as the Dutch Research Agenda (NWA) (Wageningen Marine Research, anonymised, 2024). These funds support scientific expertise and innovative projects, and the structured approach to securing government contracts ensures effective funding allocation. Key areas with potential for cost reduction include targeted research and technological advancements supported by these national funds.

Gaps in funding awareness

The availability or awareness of funding beyond established EU mechanisms in countries like Cyprus and Slovenia appears limited, as indicated by stakeholder interviews (Department of Fisheries and Marine Research Cyprus, anonymised, 2024; Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024). This suggests a gap in exploring alternative financial avenues within the fisheries sector. Improved communication and awareness of these funding sources could unlock further opportunities for cost-effective innovation and efficiency improvements.

Various EU-funded initiatives, such as the Horizon 2020 MINOUW project, have concentrated on enhancing fishing gear selectivity (MINOUW, 2017). These projects aim to optimise fishing equipment to minimise bycatch and discards, offering long-term cost savings by reducing waste and boosting efficiency (as noted within the SWW Bottom Trawl and North Western Mediterranean case studies). Sustainable fisheries training pilots and gear selectivity studies across Member States also suggest potential efficiency improvements through the broad adoption of these enhanced practices (see NWW Dutch Pelagic case study).

4.2.6 Extent to which potentials for other policy instruments or mechanisms compared to the landing obligation provide better cost-effectiveness

This section examines the potential for other policy instruments or mechanisms to enhance the cost-effectiveness of implementing the landing obligation. The aim is to explore additional strategies that Member States might employ to optimise resources and improve the efficiency of the landing obligation.

Stakeholder awareness and existing policies

E-survey responses indicate limited awareness of Member State policies focused on enhancing the cost-effectiveness of implementation of the landing obligation. Only 13% of respondents were aware of the existence of such policies (E-Survey, S2 Q20, n32). These policies include the introduction of a Transferable Fishing Concessions (TFC) system ⁽²¹⁾, funding for pilot projects aimed at increasing selectivity, and EMFF-funded projects focusing on selectivity measures, survivability assessments, and the extracting value from discarded products. However, the majority of respondents were either unaware of or uncertain about the implementation of additional policies, reflecting a significant gap in awareness and dissemination.

Implications of limited awareness

The lack of awareness about these initiatives suggests that their potential benefits in enhancing cost-effectiveness may not be fully realised. Effective dissemination and communication are crucial to ensuring that stakeholders are informed about available policy instruments. Without adequate awareness, the uptake and effectiveness of these initiatives could be severely limited, hindering efforts to optimise the implementation of the landing obligation. This highlights the need for improved communication strategies and stakeholder engagement to maximise the impact of these policy instruments and support sustainable fishing practices.

4.2.7 Extent to which discard exemptions which are not scientifically justified are attributable to very low volumes

This section evaluates the use of *de minimis* and high survivability exemptions within the landing obligation framework under the CFP. These exemptions are designed to reduce discards and promote sustainable fishing practices by mandating the landing of all catches, except where specific exemptions apply.

The *de minimis* exemption typically applies to cases where discards are a very low percentage of the total catch, often below a specific threshold of around 5%. This

⁽²¹⁾ Transferable Fishing Concessions (TFC) can be defined as a form of rights-based fisheries management that entitle the holder to a specific proportion of its Member State's annual fishing quota or allowable fishing effort. Source: Lucchetti et al., 2014

exemption is allowed when the costs of landing and handling these discards are disproportionate, making it an essential tool for balancing operational feasibility and sustainability.

High survivability exemptions are granted when there is scientific evidence demonstrating that a significant portion of discarded fish survives after being released. This type of exemption is crucial in fisheries where the species' survival rates post-discard justify the non-landing of catches, thereby supporting sustainable practices without compromising fish stock health.

Trends and increasing reliance on *de minimis* exemptions

The *de minimis* exemption has become increasingly prevalent, indicating a growing reliance on such measures (CINEA-EMFF, 2021). From review of the delegated acts in force (see ANNEX 1), in 2020, 31 exemptions were related to *de minimis* out of a total of 98 exemptions identified, accounting for 32% of all exemptions. Of these, 15 exemptions were purely *de minimis*, while 16 were a combination of *de minimis* and high survivability. In 2021, 36 exemptions were related to *de minimis* out of 98 total exemptions, representing 37%, with 25 purely *de minimis* and 11 a combination. By 2022, 38 exemptions were related to *de minimis* from a total of 98 exemptions, making up 39%, with 27 purely *de minimis* and 11 a combination.

This trend highlights the complexity of providing scientific justification for both exemption types, as evidence-based assessments are crucial to ensure that these exemptions do not undermine sustainability goals.

Role of Joint Recommendations

Joint Recommendations, applications for obtaining exemptions, were particularly common during the early phases of the landing obligation. In 2023, the STECF reviewed 103 exemption applications, with 81 related to *de minimis* exemptions and the remainder to high survivability. This process underscores the necessity of robust scientific evidence to support exemption requests, which applies equally to both exemption types.

Varying discard rates and the need for exemptions

Data provided by the Commission associated with a synthesis of the landing obligation measures and discard rates (CINEA-EMFF, 2021), and a follow-on update on the time series discard rates (EASME/EMFF/2018/011 Specific Contract Lot 1 No. 14 and Lot 2 No. 13; unpublished) reveals varying discard rates across different fisheries, highlighting where *de minimis* and high survivability exemptions are applicable. In some fisheries, discards constitute a small fraction of the catch, but the costs of landing and handling them justify the use of *de minimis* exemptions. In contrast, high survivability exemptions are considered when survival rates post-discard are high, supporting the case for not landing specific catches.

Specific observations on *de minimis* exemptions include:

- The percentage of total estimated discards below MCRS ranges from 0% to 99% of the total catch.
- Discards of megrims below the MCRS account for only 1-2% of discards.
- For whiting, discards below MCRS are consistently greater than 70% from 2019 to 2022 in the North Sea beam trawl fisheries, with this exemption continuing under Delegated Regulation (EU) No 2023/2459 ⁽²²⁾.
- High discards of cod and haddock are reported in Nephrops-directed otter trawl fisheries in Kattegat-Skagerrak, sometimes accounting for 99% of discards in 2022, despite low overall catch volumes (STECF FDI Data). This exemption continues under Delegated Regulation (EU) No 2023/2459.

Stakeholder perspectives on *de minimis* exemptions

During stakeholder interviews, the significance of *de minimis* exemptions was underscored, especially in mixed fisheries like those in the Netherlands, where significant bycatch complicates compliance. The logistical and economic costs of adhering to the landing obligation can be prohibitive without exemptions. Strategically applying these exemptions helps balance the costs and benefits, ensuring that compliance costs do not outweigh the sustainability benefit.

The narrative around *de minimis* exemptions highlights the delicate balance between regulatory compliance and economic feasibility, especially in fisheries with minimal discards. The strategic use of exemptions is crucial to maintaining both ecological and economic interests, ensuring that the landing obligation's objectives are met without imposing undue burdens on the fishing industry.

4.2.8 Overall findings on Efficiency

The implementation of the landing obligation under the CFP has been analysed through diverse information sources, including primary and secondary data (STECF FDI data; EC, 2022a, b), desk research, focused case studies, and stakeholder engagement (through e-surveys and interviews). This comprehensive analysis has revealed varying administrative and economic impacts across different regions, reflecting the complexity and challenges of implementing this policy effectively.

Administrative costs associated with the landing obligation vary significantly across regions. For instance, Finland incurs minimal costs due to low pre-existing discard levels, with an estimated EUR 200,000 spent on scientific evidence for salmon survival. This efficient management is attributed to the country's effective fisheries policies and streamlined processes. The Netherlands, for its part, faces substantial financial burdens due to complex mixed fisheries bottom trawling practices. In

⁽²²⁾ OJ L, 2023/2459, 6.11.2023.

several Member States, the use of *de minimis* exemptions helps manage unwanted catches and reduces administrative burdens.

Operators also face significant additional costs when adopting new practices under the requirements of the landing obligation. These include gear modification, increased sorting and storage capacity, and administrative resources. While programmes like the EMFF/EMFAF offer some relief, variability in awareness and access to these funds remains a challenge. Mixed responses from operators about the availability of support highlight the need for improved communication and dissemination of funding opportunities.

The need for standardised data and plans has enhanced coordination between Member States, as demonstrated by Finland's effective regional cooperation in the Baltic Sea and Slovenia's active involvement in the Adriatic Sea. These frameworks facilitate alignment and collaborative efforts in implementing fisheries policies, underscoring the importance of standardisation in cross-border cooperation. Similarly, stakeholders from Cyprus highlight their involvement in regional management efforts, ensuring effective participation despite not sharing stocks under the landing obligation with neighbouring states.

Identifying and addressing inefficiencies remains a critical aspect of implementing the landing obligation. Targeted exemptions, such as those for Slovenia's small pelagic and demersal fisheries, have helped maintain economic stability. However, inefficiencies persist, including vessel adaptation challenges and insufficient port infrastructure. Pilot projects and innovations suggest potential cost-saving opportunities and operational efficiencies, although inconsistent access to financial support and limited collaboration remain obstacles.

The potential to reduce costs and achieve improved results with less public funding is promising, driven by enhanced cost-effectiveness and alternative policy instruments. Funding programmes like the EMFAF (and its predecessors) and Horizon Europe (and its Horizon2020 predecessor) have played and play crucial roles in supporting these efforts. However, the analysis reveals considerable variability in administrative and operational costs associated with the landing obligation across different regions and fisheries. While countries like Finland experience minimal costs due to pre-existing limited discard practices, others face significant financial and logistical challenges, particularly those with complex fisheries and operational structures.

4.3 Relevance

Evaluation question	Indication judgment criteria
To what extent is the landing obligation relevant to the needs of the target group?	Extent to which the landing obligation is relevant to the needs of Aquaculture
	Extent to which the landing obligation is relevant to the needs of the fisheries sector

Evaluation question	Indication judgment criteria
	Extent to which the landing obligation is relevant to the needs of small-scale coastal fisheries (SSCF)
	Extent to which the landing obligation is relevant to the needs of trade associations and Non-Government Organisations (NGOs)
	Extent to which the landing obligation is relevant to the needs of academia and research
	Extent to which the landing obligation is relevant to the needs of public authorities and Advisory Councils
To what extent is the intervention (landing obligation) still relevant?	Extent to which the landing obligation intervention is relevant for the sustainable exploitation of marine resources
	Extent to which the landing obligation intervention is relevant for the financial viability of fisheries
	Extent to which the landing obligation intervention provides relevant and reasonable flexibility in opportunities and operations
	Extent to which the landing obligation intervention is relevant for the synchronisation between operations, quotas, and landing obligations
	Extent to which reasonable exemptions are relevant to landing obligations
To what extent is the landing obligation relevant to European strategic objectives?	Extent to which the landing obligation is relevant to the Biodiversity Strategy 2030
	Extent to which the landing obligation is relevant to the Farm to Fork Strategy
	Extent to which the landing obligation is relevant to the Just Transition Framework

This section assesses the relevance of the landing obligation in addressing the diverse needs of various target groups within the fisheries sector, its alignment with the objectives of the EU Green Deal, and its significance in broader sustainability and economic contexts. The evaluation considers the extent to which the landing obligation adapts to and supports key EU strategies and sector-specific requirements. Relevance to fishers means that policies, like the landing obligation, should enhance their economic viability by ensuring compliance doesn't lead to financial loss or undue operational burdens. Such policies must be operationally practical, allowing fishers to work within their existing frameworks and resources. Flexibility and adaptability are crucial, enabling fishers to adjust to changing conditions and market demands. Offering incentives, such as financial support or subsidies, can ease compliance. Involving fishers in policy development ensures their perspectives are considered, increasing acceptance and ownership. The long-term sustainability of fisheries resources is vital for their future livelihood. Clear communication and guidance further assist fishers in navigating complex regulations effectively.

While the landing obligation aims to reduce discards and promote sustainable practices, these goals primarily align with policy needs rather than those of the fishers. Currently, many fishers perceive the landing obligation as unnecessary for their operations. While some arguments highlight potential benefits, such as promoting selective fishing, the focus should shift towards ensuring fishers can maintain economic stability.

The obligation's impact extends to aquaculture by influencing feed inputs like fishmeal and fish oil; however, it lacks mechanisms to foster collaboration between aquaculture and fisheries, limiting its relevance to aquaculture's needs. Within the wild capture fisheries sector, the landing obligation encourages more selective fishing. Nonetheless, its implementation faces challenges due to economic costs and limited industry ownership, reflecting its mixed relevance in fostering compliance and sustainable practices.

Small-scale coastal fisheries face unique challenges under the landing obligation, primarily due to resource constraints and the rigid requirements of the policy. The obligation imposes financial and operational burdens, making compliance difficult without jeopardising economic viability. This limits the landing obligation's relevance to small-scale fisheries, which require more flexibility and compensation to meet compliance standards effectively.

Trade associations seek stability and financial support mechanisms to align business strategies with the landing obligation but face challenges due to legislative complexities. NGOs advocate for stronger enforcement and ecological protections beyond discard reduction, while academia struggles with insufficient data and standardised criteria for assessing the impact of the landing obligation. These groups find the obligation relevant but in need of enhancements to meet their specific goals and research needs.

Public authorities and advisory councils require increased resources and consistent guidelines to implement the landing obligation effectively. The policy's complexity and regional variations pose challenges, impacting its relevance in achieving uniform compliance and supporting sustainable management. Advisory councils highlight the need for better quota alignment and regulatory simplification to enhance the impact of the landing obligation.

The landing obligation's alignment with EU strategic policies, such as the Biodiversity Strategy 2030 (EC, 2021a), Farm to Fork Strategy (EC, 2020b), and Just Transition Framework, is mixed. While it supports sustainable practices and resource use, limitations in enforcement, economic viability, and adaptability hinder its full alignment with these strategies. The obligation does not significantly contribute to expanding protected areas or restoring ecosystems, indicating limited relevance in achieving the EU Green Deal's broader biodiversity and sustainability objectives.

The evaluation of the landing obligation's relevance highlights its strengths in promoting sustainability and reducing discards but also reveals significant challenges in aligning with the diverse needs of target groups and strategic EU policies. Addressing these challenges is crucial for enhancing the policy's relevance and ensuring that it effectively supports the EU's environmental, economic, and social goals within the fisheries sector.

4.3.1 Extent to which the landing obligation is relevant to the needs of Aquaculture

This section examines the landing obligation's relevance to the aquaculture sector, particularly in terms of its implications for feed inputs and potential for integrated sustainability practices. The analysis highlights both the challenges and opportunities for synergy between capture fisheries and aquaculture that are not realised within the current framework.

Current focus on capture fisheries

The 2023 STECF Annual Economic Report (STECF, 2023c) notes that the existing landing obligation framework is primarily focused on capture fisheries. This singular focus overlooks the potential for broader policy development that could address both the growth and sustainability needs of aquaculture. By emphasising behavioural changes to eliminate or reduce discards, the landing obligation may unintentionally limit the availability of important feed inputs for aquaculture, such as fishmeal and fish oil. This could lead to increased feed costs and sourcing difficulties for aquaculture operations (EC, 2021b).

Challenges in feed input availability

While the landing obligation aims to preserve marine ecosystems through discard reduction, it inadvertently poses challenges for aquaculture by restricting access to byproducts essential for feed. This limitation affects the economic viability of aquaculture operations, highlighting a gap in the landing obligation's relevance to ensuring a sustainable feed supply chain compatible with aquaculture needs.

Potential for collaboration and shared sustainability gains

Collaborative efforts between capture fisheries and aquaculture could yield shared sustainability benefits, especially through the mutual utilisation of byproducts. Such integration could enhance resource efficiency and minimise waste. However, the current landing obligation lacks mechanisms to promote these partnerships, thereby limiting its relevance to aquaculture's goals for integrated sustainability practices (STECF, 2023c).

4.3.2 Extent to which the landing obligation is relevant to the needs of the fisheries sector

This section explores the relevance of the landing obligation within the fisheries sector, focusing on its intended goals, stakeholder perceptions, and the challenges faced in its implementation.

Stakeholder perceptions

Stakeholder interviews conducted during this evaluation study provide additional insights into the relevance of the landing obligation for fishers (Fisher, 2024;

Swedish University of Agricultural Sciences, anonymised, 2024). Fishers acknowledge that the landing obligation incentivises increased selectivity of fishing gear and recognise its intended benefits on maintaining healthy fish stocks in terms of size and quantity. However, these interviews also reveal a lack of ownership within the fishing industry regarding the adoption of the landing obligation.

Challenges in mixed and multi-species fisheries

Findings from the effectiveness section indicate mixed results in relation to unwanted catch and bycatch, particularly in mixed and multi-species fisheries, where it is challenging to avoid non-target species. The main concerns among fishers relate to the economic costs associated with the landing obligation, including reduced profitability due to additional handling costs, low discard revenue, and increased administrative burden (Fauconnet, 2024; Fisher, 2024; Swedish University of Agricultural Sciences, anonymised, 2024).

Exemptions and industry resistance

The high number of exemptions currently in place underscores the industry's ongoing desire to maintain the status quo, highlighting their struggle to fully implement the landing obligation effectively without compromising other sectoral goals. This resistance illustrates the perceived relevance of the landing obligation, which some stakeholders view as potentially conflicting with broader fisheries sector objectives (STECF, 2022a).

The analysis reveals that while the landing obligation aims to incentivise more selective fishing practices, its relevance is limited by a lack of industry ownership and mixed implementation results, particularly in mixed and multi-species fisheries. Economic and administrative challenges, including increased costs and burdens, further hinder the adoption of the landing obligation, especially among smaller operators. Additionally, the high number of exemptions highlights a disconnect between the landing obligation's objectives and the broader goals of the fisheries sector, pointing to a need for better alignment with the industry's economic and sustainability aims.

4.3.3 Extent to which the landing obligation is relevant to the needs of small-scale coastal fisheries (SSCF)

This section explores the relevance of the landing obligation to SSCF, focusing on the unique challenges these fisheries face and the impact on their economic viability. Table 3 gives detailed information on the classification of small and large-scale fleets.

Table 3: Fleet characteristics, adapted from STECF 2023a

Fleet	Classification
Small-scale coastal fleet (SSCF)	• Typical multi-gear, multi-species fleet primarily uses trammel nets, set gillnets, pots, set longlines, and hand lines • Operates within 12 miles of landing points • Vessels are usually owned by small families or individuals • Utilises multiple fishing gears per vessel • Represents the largest part of the EU fleet in terms of vessel count • Small-scale coastal fleets often achieve higher production prices compared to large-scale fleets due to quality differences like freshness and size, and shorter supply chains • Provides employment and economic support, preserving cultural and social ties through generational fishing knowledge • Often engages in sustainable fishing, using selective techniques, and minimising bycatch to maintain ecological balance
Large-scale fleet (LSF)	• Comprises all fishing vessels over 12 metres using static gears and all fishing vessels using towed gears • High-capacity vessels capable of long-distance and extended-duration fishing trips • Often operate in international waters and engage in industrial fishing • Use sophisticated and heavy fishing gear, such as trawlers and purse seiners • Significant impact on fish stocks, often targeting large volumes of fish for commercial markets

Challenges faced by SSCF

Specific insights into small-scale and coastal fishers reveal that they experience greater challenges due to the landing obligation than larger fleets. Their limited resources and budget constraints make it difficult for them to comply with all the requirements without jeopardising their economic viability (EC, 2022b; STECF, 2022a; STECF, 2023c).

Increased operational costs

The obligation to land all catches has imposed financial strain on SSCF, as they are required to handle additional bycatch, meet discard requirements, and adhere to extensive reporting obligations. These demands have led to increased operational costs, significantly reducing profitability for small-scale fishers. The lack of adequate storage and handling facilities further exacerbates these challenges, leading to operational inefficiencies (STECF, 2023c).

Infrastructure and technology limitations

SSCF often lack the necessary infrastructure or technology to comply easily with the landing obligation. This lack of adaptability makes compliance difficult and costly, underscoring the need for better support and resources tailored to their specific needs. The absence of financial compensation or support measures tied to the landing obligation further limits its relevance, as SSCFs struggle to meet

compliance standards without endangering their economic stability (EC, 2022b; STECF, 2022a).

Their unique challenges and resource limitations compromise the landing obligation's relevance to small-scale and coastal fisheries. Addressing these issues with targeted support and infrastructure improvements is essential to align the landing obligation with the economic realities of SSF.

4.3.4 Extent to which the landing obligation is relevant to the needs of trade associations and Non-Government Organisations (NGOs)

This section examines the perspectives of trade associations and NGOs on the relevance of the landing obligation, focusing on the challenges they face and their recommendations for improving its relevance.

Need for a stable regulatory environment and financial support

Trade associations emphasise the necessity of a stable regulatory environment to facilitate long-term, compliance-aligned business strategies. The unpredictability surrounding the landing obligation requirements complicates business planning for their members. Associations also highlight the need for financial support mechanisms to assist businesses, especially smaller ones with limited resources, in managing the costs of compliance investments, such as discard handling and storage infrastructure. Although they strive to provide clear guidelines on coping with the landing obligation, trade associations find this challenging due to complex legislation and perceived inconsistencies in compliance across organisations and regions (EC, 2022b).

Advocacy for broader ecological protections and stricter enforcement

NGOs experience difficulties in assessing the effectiveness of the landing obligation and note a need for independent evaluations and regular updates to comprehend its impact on biodiversity and identify improvement areas. While supporting the reduction of discards, NGOs advocate for the landing obligation to encompass broader ecological protections, criticising the current framework as too narrow. They argue that without strong enforcement mechanisms, the landing obligation risks becoming irrelevant, as non-compliance could undermine conservation objectives. NGOs support stricter oversight and the increased use of EMSs to ensure accountability in the fishing sector (EC, 2022b).

The analysis reveals that both trade associations and NGOs see the landing obligation as relevant but not sufficiently robust to meet their respective needs. Trade associations seek regulatory stability and financial support to aid compliance, while NGOs call for broader ecological protections and stricter enforcement. Addressing these challenges could enhance the landing obligation's relevance and effectiveness across the fishing sector.

4.3.5 Extent to which the landing obligation is relevant to the needs of academia and research

This section explores the challenges academia faces in assessing the relevance of the landing obligation, particularly concerning its long-term environmental and economic impacts. Addressing academic needs is crucial, as they provide essential data and analysis that inform policy decisions. Adequate data collection not only supports academic research but also aids regulatory authorities in achieving compliance and sustainability goals. Ensuring robust data and collaborative efforts is thus vital for both effective monitoring and policy development.

Challenges in assessing long-term impacts

Academia currently struggles to assess the long-term environmental and economic results of the landing obligation due to insufficient monitoring data (EC, 2022b). The lack of comprehensive data collection and limited funding for monitoring activities inhibit the ability to evaluate the full impact of the landing obligation over time.

Need for clear definitions and standardised criteria

The absence of clear definitions, standardised criteria, and guidelines within the landing obligation complicates scientific analysis, making it challenging for researchers to draw definitive conclusions about its outcomes. This regulatory framework provides a foundation but falls short of supporting the holistic, cross-disciplinary research required to understand its complex effects (STECF, 2024b).

Limited opportunities for academic contribution

The current framework offers limited formal opportunities for researchers to influence policy formulation, diminishing the landing obligation's relevance to academic needs. The lack of engagement channels for academia restricts their ability to contribute valuable insights into policy development, thereby limiting the potential for evidence-based improvements (EC, 2022b).

The analysis indicates that academia finds the landing obligation's relevance limited due to inadequate data and funding for long-term research, and a lack of standardised criteria hinders comprehensive scientific evaluation. Additionally, restricted opportunities for academic input into policy formulation further reduce its relevance to the academic community's needs. Addressing these issues with enhanced data collection, clear guidelines, and increased engagement with academia could improve its relevance and support more informed policy development.

4.3.6 Extent to which the landing obligation is relevant to the needs of public authorities and Advisory Councils

This section evaluates the perspectives of Member State public authorities and various Advisory Councils on the relevance of the landing obligation, focusing on their challenges and recommendations for enhancing its implementation.

Public authorities: funding and enforcement challenges

Member State public authorities face significant challenges in enforcing the landing obligation due to budget constraints that limit their capacity, particularly in regions with extensive or high-traffic fishing activities (EC, 2022b). There is a pressing need for increased funding, resources, and capacity-building initiatives to improve compliance checks by enforcement personnel. Public authorities also require clear and consistent guidelines to ensure uniform implementation across regions. However, current policies leave room for varying interpretations, complicating enforcement and leading to inconsistencies in compliance. The latest STECF report stresses the need for standardised reporting formats to compare and aggregate compliance data effectively across Member States (STECF, 2024b). Additionally, public authorities struggle with operational difficulties, such as managing quotas and adapting to new regulations, which can hinder the impact of the landing obligation (E-Survey, S1 Q 1, n 48).

Challenges across advisory councils

The implementation of the landing obligation presents various challenges for Advisory Councils, each highlighting specific issues pertinent to their regions and fisheries:

- **North Sea Advisory Council (NSAC):** This Council points to challenges such as choke species, where rapid quota exhaustion can halt mixed fisheries, and the misalignment between quotas and catch compositions complicates management and compliance. The complexity and rigidity of EU fisheries regulations lead to low compliance and buy-in from fishers. Furthermore, economic challenges associated with necessary gear adaptations can potentially destabilise quotas and impact fishing communities negatively (NSAC, 2017).
- **Baltic Sea Advisory Council (BSAC):** BSAC identifies significant hurdles due to insufficient monitoring and control mechanisms, along with the necessity for comprehensive scientific data that considers ecosystem interactions and socio-economic impacts. The lack of such data hampers effective implementation and compliance (BSAC, 2017).
- **Pelagic Advisory Council (PelAC):** This council highlights data deficiencies that hinder the ability to sufficiently track compliance with the landing obligation, raising concerns about the rate of non-compliance and the effectiveness of current monitoring systems (PelAC, 2022).

- **Black Sea Advisory Council (BISAC):** BISAC stresses the need for enhanced infrastructure to meet the requirements of the landing obligation, which is crucial for transparent application. They also emphasise the importance of improving stakeholder engagement in policy-making processes to ensure the landing obligation is relevant and effective (BISAC, 2021).
- **Market Advisory Council (MAC):** The MAC raises concerns about the lack of market development for undersized fish, limiting economic viability. Additionally, they highlight the increased operational burdens on fishers, who do not see a corresponding growth in income, which discourages adherence to the landing obligation (MAC, 2023).

The analysis indicates that while the landing obligation is relevant to public authorities and Advisory Councils, effective implementation faces significant challenges. Public authorities require increased funding, resources and clearer guidelines for enforcement, while Advisory Councils call for regulatory simplification, better quota alignment, and infrastructural improvements.

4.3.7 Extent to which the landing obligation intervention is relevant for the sustainable exploitation of marine resources

This section evaluates the relevance of the landing obligation intervention in promoting the sustainable exploitation of marine resources, focusing on enforcement challenges, economic impacts and ecological considerations.

Inconsistent enforcement and compliance challenges

Reported inconsistencies in enforcement across regions undermine the landing obligation's ability to prevent discards effectively, allowing continued non-compliance that potentially contributes to waste and weakens the regulation's ecological impact (EC, 2022b; Fauconnet, 2024). NGOs and environmental advocates highlight the need for EMSs as essential tools for ensuring compliance and reducing illegal discards. However, the adoption of EMSs has been better incorporated within the current framework to support consistent enforcement of sustainable fishing practices.

Economic strain on small-scale fisheries

The landing obligation has placed an economic strain on small-scale fisheries, as increased operational costs associated with handling and landing all catches, including non-marketable species, may discourage strict adherence to the rules (STECF, 2023c). This financial burden creates a disconnect between ecological objectives and financial sustainability, limiting the intervention's practical relevance to sustainable resource exploitation.

Need for broader biodiversity protections

There is a clear need for policies that incorporate broader biodiversity protections and a more comprehensive approach to marine conservation (STECF, 2023c). The 2023 Fisheries Dependent Information EWG report and stakeholder feedback highlight issues with widespread non-compliance, exacerbated by numerous exemptions, which diminish the landing obligation's impact and can perpetuate unsustainable fishing practices. The rigid application of the landing obligation, without region-specific adaptability, may inadvertently pressure sensitive species and harm long-term stock health.

Impact of non-indigenous species

Stakeholder interviews, especially from countries like Cyprus, express concerns about the presence of non-indigenous species, complicating the sustainability landscape. Incentives to allow these species to thrive can negatively impact the ecosystem, further challenging sustainable resource exploitation (Department of Fisheries and Marine Research Cyprus, anonymised, 2024; Fisher, 2024; Swedish University of Agricultural Sciences, anonymised, 2024).

The analysis indicates that while the landing obligation is important for the sustainable exploitation of marine resources, its relevance is curtailed by enforcement inconsistencies, economic burdens on small-scale fisheries, and a lack of comprehensive conservation policies. Addressing these challenges with enhanced monitoring, financial support, and adaptable conservation strategies could strengthen the landing obligation's relevance and effectiveness in promoting sustainable marine resource use.

4.3.8 Extent to which the landing obligation intervention is relevant for the financial viability of fisheries

This section explores the impact of the landing obligation on the financial viability of fisheries, highlighting the economic challenges faced across different regions and the perception of the fishing industry.

Economic burden and regional challenges

The landing obligation, while aimed at promoting sustainable fishing practices, is perceived as a financial burden by many in the fishing industry. This is especially true for fisheries in the Mediterranean and Black Sea regions, which are characterised by mixed fisheries and SSCF. These fisheries face significant financial challenges as the landing obligation exacerbates operational costs due to diverse bycatch with little market value. Inadequate infrastructure to manage these requirements further compounds the situation, forcing fishers to absorb additional costs without proportionate revenue from bycatch sales. This highlights a regional disconnect between the landing obligation's sustainability goals and local economic realities (EC, 2022b).

Financial impacts in the Baltic and North Sea Regions

In the Baltic and North Sea region, fishers struggle with high bycatch rates, and the landing obligation's requirement to land non-commercial species affects profit margins, especially for smaller operators. The economic strain was intensified during the COVID-19 pandemic, as reduced seafood demand compounded the financial pressure from compliance costs, such as storage and transport for low-value bycatch. This situation underscores the landing obligation's limited relevance to economic sustainability during economic downturns (STECF, 2023a).

Administrative and reporting challenges

The administrative and reporting burdens imposed by the landing obligation present considerable challenges for small and medium-sized fisheries. These burdens involve detailed record-keeping, documentation of catches, and compliance with reporting requirements, all of which demand significant time and resources. Fisheries must meticulously track and report the quantities and types of fish landed, discarded, and retained, often using specific forms or digital platforms mandated by regulatory bodies. This level of detailed reporting requires additional personnel or time, translating into indirect costs that can strain financial resources. As a result, these administrative obligations reduce overall profitability and compound the financial challenges faced by fisheries under the existing structure of the landing obligation (STECF, 2023c).

Socio-economic impacts and stakeholder perceptions

While limited socio-economic impacts may result from low compliance rather than effective design, stakeholders disagree that the landing obligation has positively impacted financial viability. They cite operational and logistical burdens without corresponding financial benefits, reflecting a gap in the landing obligation's support for financial stability (STECF, 2022b; E-Survey, S1 Q12, n39; E-Survey, S2 Q22, n32).

The analysis reveals that the landing obligation poses significant financial challenges for fisheries, particularly in regions with mixed fisheries and SSCF. It highlights the need for alignment between sustainability goals and economic realities, improved infrastructure and market solutions for low-value bycatch, and reconsideration of administrative burdens to enhance the financial viability of fisheries under the landing obligation.

4.3.9 Extent to which the landing obligation intervention provides relevant and reasonable flexibility in opportunities and operations

This section examines the operational challenges posed by the landing obligation and evaluates its flexibility in accommodating the diverse needs of fishers across various regions and fishing practices.

Operational constraints and regional challenges

The landing obligation imposes significant operational challenges for fishers, particularly in regions like the Mediterranean Sea and Baltic Sea, where mixed fisheries and high species diversity are prevalent (EC, 2022b). The obligation to land all bycatch of species subject to catch limits (in addition to MCRS in the Mediterranean Sea) creates logistical hurdles, as fishers must handle and store diverse species with varying marketability, complicating their routine operations and increasing the complexity of managing the daily catch.

Disruption to traditional practices

In mixed-species fisheries, the landing obligation disrupts traditional fishing practices, necessitating changes in how fishers manage their catch (Fauconnet, 2024). This disruption leads to increased operational burdens, emphasising the need for tailored incentives and flexible handling requirements. Such adjustments could better align the landing obligation with the operational realities fishers face and potentially mitigate negative impacts while supporting sustainable practices.

Challenges for small-scale and seasonal fisheries

Small-scale and seasonal fisheries, particularly in the North Sea and Atlantic, encounter specific challenges under the landing obligation's rigid rules (STECF, 2023c). The requirement to land all catches, regardless of feasibility, complicates storage, handling, and transportation, limiting fishers' ability to adapt to market demands or seasonal stock variations and constraining operational effectiveness.

Gear-specific challenges

Fishers using specific types of gear, such as small-scale passive gear in the Baltic Sea, find compliance difficult under the landing obligation (STECF, 2024b). The current framework does not sufficiently address the nuances of different fishing methods and gear types, affecting fishers' operational capacity and highlighting the need for more flexible regulations that consider these variations. The analysis indicates that while the landing obligation aims to promote sustainable fishing, its lack of flexibility presents significant operational challenges for fishers. To enhance its relevance and effectiveness, the framework could benefit from incorporating tailored incentives, flexible handling requirements, and considerations for gear-specific needs, thereby aligning more closely with the diverse operational realities of the fishing industry.

4.3.10 Extent to which the landing obligation intervention is relevant for the synchronisation between operations, quotas, and landing obligations

Conflicts between landing obligation and quota allocations

Desk research highlights frequent conflicts between the landing obligation and quota allocations, especially in regions like the Baltic Sea and North Sea, where mixed fisheries and high bycatch rates are prevalent (EC, 2022b; Fauconnet, 2024). Fishers in these areas often exceed their quotas, yet are required to land all catches, leading to "choke" fisheries. This forces them to make difficult decisions, such as halting fishing activities upon reaching quota limits, resulting in lost operational time, or risking non-compliance. This disconnect hinders effective synchronisation between the landing obligation's requirements and quota management, diminishing the alignment between regulatory goals and the operational realities of fishing.

Challenges in Atlantic and Mediterranean Regions

Similar operational challenges are observed in regions like the Atlantic and Mediterranean (STECF, 2023c). Fishers encounter situations where landing all bycatch can lead to quota overages or early exhaustion, particularly for low-quota species caught incidentally, like cod. This impacts their ability to maximise quota utilisation throughout the season, as they may be forced to cease operations early due to limited flexibility in discarding non-target species.

Impact on resource use and economic stability

Although the landing obligation is intentionally designed to disrupt traditional fishing practices to enhance sustainability, it poses challenges to achieving optimal resource use and maintaining economic stability. Quotas, based on ecological analyses, are intended to limit fishing efforts on specific species. Before the landing obligation, choke species were already a concern, and the obligation aims to address these issues by enforcing compliance and ecological balance.

The analysis indicates that while the landing obligation seeks to promote ecological balance, its current implementation can lead to significant conflicts with quota management. The lack of flexibility in handling bycatch and non-target species impacts fishers' operational efficiency and economic stability. To improve alignment with the operational realities of fishing, the framework could benefit from more adaptive quota management strategies that consider the diverse challenges faced by fishers across different regions.

4.3.11 Extent to which reasonable exemptions are relevant to landing obligations

This section explores the complex scenario surrounding the current exemptions to the landing obligation, highlighting mixed perceptions regarding their adequacy and impact on fisheries operations.

Perceptions of exemptions' adequacy

Desk research reveals mixed perceptions about the adequacy of existing exemptions to the landing obligation (EC, 2022b; STECF, 2023c; STECF, 2024b;

STECF, 2024a). Many fishers, particularly in sectors like small-scale fisheries, feel that the current exemptions are too limited and fail to adequately address high-volume bycatch situations. This sentiment is echoed in the Baltic Sea, where fishers report being required to land catches that exceed quota allocations or have minimal market value, highlighting a gap between the landing obligation's provisions and operational needs (EC, 2022b).

Financial strain and seasonal challenges

The landing obligation exacerbates financial strain on fishers, especially in the Mediterranean Sea and North Sea (STECF, 2023c). Seasonal fluctuations often result in unintended bycatch of low-quota species, forcing fishers to land non-target species that cannot be sold. Additionally, gear-specific challenges are noted, with small-scale fisheries using passive gear struggling with compliance due to limited onboard space (STECF, 2024b). Fishers express a need for targeted exemptions that take into account regional and seasonal variations in catch compositions, allowing for the discarding of non-viable bycatch under certain circumstances (EC, 2022b).

Debate on exemptions' relevance and effectiveness

Despite the notable number of exemptions observed during the STECF evaluation of Joint Recommendations on the landing obligation and on the Technical Measures Regulation (EU) 2019/1241 (STECF 23-04 and 23-06; STECF, 2024a), there is considerable debate about their relevance and effectiveness. Stakeholder engagement through e-surveys reveals that some stakeholders view exemptions as practical necessities, while others see them as impediments to achieving the landing obligation's objectives (E-Survey, S1 Q12, n39; E-Survey, S2 Q22, n32).

The analysis indicates that while exemptions are intended to address practical challenges in implementing the landing obligation, their current scope and impact are perceived differently across the fishing industry. To enhance their relevance and effectiveness, there may be a need for more tailored exemptions that consider specific regional, seasonal, and sectoral needs, thereby better aligning the landing obligation with the diverse realities of fisheries operations.

4.3.12 Extent to which the landing obligation is relevant to the Biodiversity Strategy 2030?

This section assesses the relevance of the landing obligation in relation to the goals outlined in the 2030 Biodiversity Strategy, a key component of the EU Green Deal, using insights from desk research and stakeholder engagement.

Alignment with the 2030 biodiversity strategy

The EU 2030 Biodiversity Strategy aims to restore natural ecosystems and protect at least 30% of the EU's land and sea areas. While the landing obligation seeks to minimise discards by requiring fishers to land all catches, thereby supporting

sustainable resource use and reducing non-target species mortality, its contribution to extending protected land and sea areas is limited. The landing obligation does not incorporate spatial management or the zoning mechanisms that would be necessary for supporting area-based conservation goals, such as the expansion of MPAs (STECF, 2023c).

Challenges in spatial management and ecosystem-based approaches

The absence of tailored regulations for sensitive habitats poses a challenge, as standard bycatch handling requirements do not account for the unique needs of these environments. This misalignment limits the landing obligation's relevance in supporting broader biodiversity conservation efforts (EC, 2022b). Results from stakeholder e-surveys reflect mixed opinions on the obligation's relevance, with about 60% of respondents disagreeing that it significantly advances biodiversity and marine habitat protection objectives (E-Survey, S2 Q23, n30).

Restoration of degraded ecosystems

The landing obligation does not actively restore degraded ecosystems or rehabilitate impacted marine habitats, focusing instead on maintaining fish stocks by reducing discards (EC, 2022b). It lacks adaptive measures for spatial biodiversity objectives crucial for ecosystem-based management, meaning it does not directly address habitat restoration or prioritise sensitive areas (STECF, 2024b). Therefore, the landing obligation is not relevant to the restoration objectives outlined in the Biodiversity Strategy.

The landing obligation's current performance does not significantly contribute to the restoration of degraded ecosystems. Therefore, it does not fully align with the restoration objectives outlined in the 2030 Biodiversity Strategy.

4.3.13 Extent to which the landing obligation is relevant to the Farm to Fork Strategy

This section evaluates the relevance of the landing obligation to the Farm to Fork Strategy's goals to transform the EU's food system into a healthier, more sustainable, and environmentally friendly system.

Ensuring sufficient, affordable and nutritious food within planetary limits

The landing obligation mandates the landing of all catches of species subject to catch limits, to reduce discards and promote sustainable fish stock exploitation (STECF, 2023c). This approach aligns with the Farm to Fork Strategy by fostering responsible fishing practices and potentially contributing to a stable food supply. However, it often results in increased operational costs for fishers, who bear the expenses of handling and processing bycatch with little market value. These costs frequently transfer along the supply chain, leading to higher seafood prices, which may impact consumer affordability, thus misaligning with the affordability aspect of the Farm to Fork Strategy (EC, 2022b). Furthermore, the landing obligation does

not directly address nutritional quality, as it includes species not suitable for direct human consumption, limiting its relevance to the nutritional goals of the strategy.

Supporting sustainable food production

The landing obligation aims to support sustainable food production by reducing bycatch mortality, thus maintaining healthier fish populations in line with the Farm to Fork Strategy's sustainability objectives. However, its economic demands challenge fisheries, especially small-scale operators, as they navigate increased expenses related to bycatch management (STECF, 2023c). During crises like the COVID-19 pandemic, the landing obligation's inflexibility exacerbated financial pressures by enforcing strict compliance amid reduced market demand (MINOUW, 2017; DiscardLess, 2019). This lack of flexibility in economic resilience and ecosystem conservation limits the landing obligation's relevance to sustainable food production systems.

Promoting more sustainable food consumption and healthy diets

While the landing obligation encourages sustainability by reducing waste and incentivising responsible practices, its impact on promoting sustainable consumption and healthy diets is limited (EC, 2022b). Advisory Council feedback criticises the landing and destruction of undersized fish, which prevents their maturation and marketability, adding pressure on the industry and limiting economic sustainability. The obligation's rigidity during periods of fluctuating demand increases waste and economic strain, hindering the transformation of bycatch into affordable, nutritious food products, thereby misaligning with the Farm to Fork Strategy's aims (STECF, 2023c; EC, 2020b).

The analysis indicates that while the landing obligation is relevant to some objectives of the Farm to Fork Strategy, such as promoting sustainable practices, its limited impact on food affordability, nutritional quality, and ecosystem-based management diminishes its relevance. To increase its relevance to the strategy, the landing obligation would need to incorporate more flexible, market-oriented approaches that address the economic and nutritional components essential for sustainable food systems.

4.3.14 Extent to which the landing obligation is relevant to the Just Transition Framework

This section evaluates the alignment of the landing obligation with the Just Transition Framework, which aims to support regions and communities in transitioning towards sustainable livelihoods by facilitating employment opportunities, reskilling, and economic diversification.

Employment and reskilling limitations

The landing obligation introduces operational changes, such as increased handling and storage needs for bycatch. However, it has not facilitated structured

employment opportunities or reskilling programmes, often leading to additional unpaid work for existing crew members rather than creating new jobs or structured training initiatives. This indicates a disconnect with the employment facilitation objectives of the Just Transition Framework (EC, 2022b).

Economic impact on small-scale fisheries

Higher operational costs resulting from the landing obligation particularly affect small-scale fisheries (STECF, 2023c). This economic burden hampers their ability to invest in workforce expansion or training programmes essential for sustainable practices. Without financial support or training initiatives tied to compliance, fisheries are unlikely to experience the employment growth or skills development central to the Just Transition Framework goals.

Challenges during economic downturns

The rigid requirements of the landing obligation exacerbate financial pressures on fishers during economic downturns, such as those in the North Sea and Baltic regions. This underscores the absence of supportive measures for transitioning into alternative roles within the sustainable fishing or blue economy sectors, highlighting a gap in the landing obligation's framework concerning employment resilience and job transition opportunities.

Support for sustainable practices transition

The landing obligation's focus on catch management does not include provisions for assisting fishers in transitioning to more sustainable practices or alternative livelihoods, such as roles in aquaculture or marine conservation. Fishers, particularly in regions like the Mediterranean and Atlantic, face challenges in adapting to requirements without sufficient training or resources. This lack of support limits the landing obligation's relevance to the employment and training goals emphasised in the Just Transition Framework.

The analysis indicates that the current framework of the landing obligation does not align effectively with the Just Transition Framework's objectives of facilitating sustainable employment and reskilling. To improve its relevance, the landing obligation would need to integrate support mechanisms for job transition, economic diversification, and skill development, enabling fishers to adapt to a sustainable future.

4.3.15 Overall findings on Relevance

The current framework lacks mechanisms to foster collaboration between the fisheries and aquaculture sectors, limiting the potential for integrated sustainability practices. To align with the landing obligation's environmental goals, there is a pressing need to fund research into sustainable feed alternatives. In the fisheries sector, the landing obligation was designed to reduce discards and encourage more selective fishing practices. However, the results have been mixed, especially

in mixed-species fisheries. Fishers face significant economic challenges, including additional handling costs, low discard revenue, and an increased administrative burden. The high number of exemptions highlights ongoing compliance issues, suggesting a need for a balanced approach that considers fleet type and regional challenges. The SSCF is disproportionately affected by the landing obligation due to limited resources and budget, leading to compliance difficulties and reduced profitability. Increased operational costs from compliance requirements impose a financial strain on SSCF, necessitating more flexibility and financial compensation.

From the perspective of non-fishing groups, trade associations emphasise the need for a stable regulatory environment to facilitate compliance-aligned business strategies. Financial support mechanisms are essential to offset compliance-related costs, particularly for smaller businesses with limited resources. Environmental NGOs advocate for broader ecological protections beyond discard reduction, underscoring the need for stricter enforcement to ensure accountability across the fishing sector. This has been addressed in the amended Control Regulation (EU) 2023/2842. Academia and research institutions face challenges in assessing the long-term outcomes of the landing obligation due to limited data and unclear guidelines. The current framework does not support the cross-disciplinary research necessary for understanding the complex outcomes of its implementation. Member State public authorities require increased funding and resources for effective monitoring and enforcement. Challenges include managing quotas and adapting to new regulations, with a critical need for clear and consistent guidelines. Advisory Councils have flagged issues such as quota misalignment, complex regulations, and inadequate monitoring as significant hurdles.

In terms of relevance to the EU Green Deal objectives, the landing obligation aligns with some sustainability goals. While it contributes to sustainable food production, it often increases operational costs, impacting the affordability and economic viability of fisheries. The obligation does not adequately support employment opportunities and reskilling, falling short of fully aligning with the Just Transition framework. The landing obligation faces enforcement challenges, economic viability issues and lacks adaptability to specific ecological conditions. Due to increased operational costs, it is perceived as a financial burden, particularly for SSCF. The rigidity of the landing obligation creates operational challenges, underscoring the need for more adaptable regulations. Conflicts between quota allocations and landing requirements hinder the relevance of fisheries management. While exemptions are necessary to address practical challenges, they also undermine the overall framework, indicating significant implementation challenges and mixed perceptions about their adequacy. These conflicts and exemptions highlight the complex scenario faced by different stakeholders, affecting the landing obligation's relevance and its ability to meet diverse needs under the current framework.

4.4 Coherence

Evaluation questions	Indicative judgment criteria
To what extent is the landing obligation internally (within the EU) coherent?	The extent to which landing obligation interventions are coherent with other interventions which have similar objectives
	The extent to which the landing obligation and its measures generated synergies and/or compensated possible trade-offs with other interventions
	Extent to which the landing obligation intervention generated synergies with other EU legislation
	Extent to which the landing obligation intervention is coherent for achieving EU cross cutting objectives both at national and EU level
	Extent to which the landing obligation intervention showed contextual flexibility and were suitably adjusted to ensure coherence
To what extent is the landing obligation externally coherent?	Extent to which the landing obligation intervention is coherent with international obligations, including the Sustainable Development Goals (SDGs)
	Extent to which the landing obligation is coherent with other international interventions which have similar objectives

In evaluating the coherence of the landing obligation, it is useful first to recall both the basic elements of the measure and its overarching objective. Breaking down the basic elements of the landing obligation, the first considers the requirement that all catches of species that are subject to catch limits (in addition to MCRS in the Mediterranean region) must be brought and retained on board the fishing vessel concerned, recorded, landed and counted against the quotas where applicable. This is subject to certain limited exceptions, including when used as live bait; species in respect of which fishing is prohibited as identified in a legal act; species with high survival rates; catches falling under *de minimis* exemptions; and specimens showing damage caused by predators. The second considers what is to happen to catches that are subject to the landing obligation. The measure provides that these catches may only be used for purposes other than direct human consumption, including fish meal, fish oil, pet food, food additives, pharmaceuticals, and cosmetics. In addition, as discussed below, a number of mitigation measures were provided to ease the introduction of the landing obligation. It is also important, in terms of assessing the measure's coherence, to note that the overarching objective of the landing obligation is not simply to require all caught fish to be landed and then used for non-food purposes but rather to incentivise behaviour changes and it is intended to encourage fishers to fish in a more selective manner in order to avoid, if not reduce as far as possible, unwanted catches in the first place.

At the same time, the landing obligation cannot be seen in isolation. It forms part of a wider regulation, the CFP Regulation (EU) No 1380/2013, and a broader package of measures intended to achieve the objectives of the CFP. These objectives include ensuring that fishing activities are environmentally sustainable in the long-term, achievement of maximum sustainable yield and an ecosystem approach to fisheries management. The broader measures include the Technical

Measures Regulation (EU) No 2019/1241, the Control Regulation (EC) No 1224/2009, amended by Regulation (EU) No 2023/2842 and annual regulations setting out fishing opportunities for certain fish stocks or group of fish stocks, commonly referred to as the TAC and quota regulations. More specifically, the setting of a TAC and quotas should encourage fishers to fish in a more selective manner, given that unwanted-yet-landed fish count against quota, thereby, in theory, acting as an incentive to reduce bycatch. Moreover, landing and, therefore, documenting all the catch should, logically, reduce uncertainty in determining optimal fishing mortality rates and, therefore, improve the integrity of TAC and quota management (Guillen et al., 2018) based on an assumption of full compliance and enforcement.

In the context of an ex-post evaluation, in assessing the question of coherence, it is necessary to distinguish between two aspects. Firstly, the coherence of the measure as intended by the legislator. Secondly, the coherence of the measures in practice, in terms of the manner in which it has been implemented and its consequent impacts.

4.4.1 The extent to which landing obligation is coherent with other interventions which have similar objectives

As outlined in the previous section, the landing obligation was designed to be coherent with other interventions relating to the objectives of the CFP including as regards gear selectivity. At the time of its adoption, the landing obligation was coherent with the former Technical Measures Regulation (EC) No 894/97 which expressly referred to discards in its recitals (as well Regulation (EC) No 850/98⁽²³⁾ relating to the protection of juvenile marine organisms). The landing obligation is also coherent with the current Technical Measures Regulation (EU) No 2019/1241, which specifically refers in its recital to the role that technical measures should play in reducing unwanted catches and eliminating discards. In addition, Section 5 of Chapter II, which is headed “*measures to reduce discards*”, provides that Member States may conduct pilot projects with the aim of exploring methods for the avoidance, minimisation, and elimination of unwanted catches (Article 14), while Article 22 provides for the Member States to submit joint recommendations for the establishment of technical measures in temporary discard plans.

Progress in efforts to increase size and species selectivity within EU fisheries is well documented. The 2023 EU Communication (EC, 2023a) praised recent collaborations to date, stating that “cooperation between stakeholders and knowledge about the landing obligation has increased tremendously.” However, from primary data there is little evidence overall of a large-scale change in behaviour or major improvements in selectivity in EU fisheries, as evidenced by our analysis of discard rates and volumes of specimens above and below MCRS (STECF FDI database). Desk research highlights that uptake of selectivity

⁽²³⁾ OJ L 125, 27.4.1998, p. 1–36

measures has been generally low unless economic or quota incentives are available (Cosgrove et al., 2019; Calderwood et al., 2021; Steins et al., 2023).

In general terms, there are a number of ways in which the manner in which the landing obligation has been implemented does not appear coherent with other interventions with similar objectives. For example, the increased costs to fishers of landing unwanted catch (in terms of lost storage space on board and handling costs), in combination with the lack of markets for unwanted catch (Silva et al., 2015; Tsagarakis et al., 2017), with the result that landed fish is disposed of to landfill, does not appear coherent with the CFP objective of “achieving economic, social and employment benefits, and of contributing to the availability of food supplies.”

While the implementation of the landing obligation should have been coherent with the overall objectives of the CFP, in terms of increasing the accuracy of landing data by recording unwanted catches and discards within the logbooks. However, from desk research, it is possible to observe that data has become less accurate as a result of the landing obligation, particularly in the Baltic (see Section 3.4.6). This in turn risks weakening the accuracy of stock assessments and therefore the overall effectiveness of fisheries management (EC, 2024a).

The TAC and quota system is a fundamental aspect of the management of fisheries outside the Mediterranean region. However, TAC and quota were adjusted by 36% uplifts annually on the basis of the advice of ICES to smooth the transition from landing- to catch-based quotas (Borges, 2021). When coupled with the widespread use of generic exemptions (STECF, 2021; 2023a; 2023b) these are not coherent with, indeed threaten, the integrity of that system by increasing fishing mortality.

At the same time, the failure to enforce the landing obligation effectively, a situation that arises in part due to the adoption of an excessively complex number of rules, exemptions and derogations adopted by the EU Commission (STECF, 2021; EC, 2023a; Kraak, 2023) is not coherent with the objective of encouraging behavioural change. There is substantial desk research highlighting that illegal discarding is still occurring (Schubert et al., 2023; Kraan & Verweij, 2020; Catchpole et al., 2014). Some stakeholders agree non-compliant discarding practices are still occurring unmonitored or reported at sea, for example within FAMENET (EC, 2022b) and EC (2021a) and case study interviews carried out as part of this study (Anonymous; 2024, June 27; Anonymous, 2024, August 1). ⁽²⁴⁾

Similarly, the increase in the number of Joint Recommendations by the Member States to the Commission requesting exemptions, particularly on high survivability and *de minimis* grounds (STECF 2021; 2023a; 2023b), while designed to facilitate the phased introduction of the measure, does not appear coherent with the objective of improving the overall selectivity of fishing practices.

⁽²⁴⁾ http://ec.europa.eu/atwork/applying-eu-law/infringements-proceedings/infringement_decisions/?lang_code=en

4.4.2 The extent to which the landing obligation and its measures generated synergies and/or compensated possible trade-offs with other interventions

In theory, the landing obligation should have generated synergies with the revised Technical Measures Regulation (EU) No 2019/1241 in terms of promoting gear selectivity using pilot projects. EU funding mechanisms, including the EMFF and EMFAF, should also provide synergies in terms of determining new methods and approaches to bycatch reduction. In other words, these related measures are in theory coherent with the measure.

Desk-based research highlighted that many of the EMFF/EMFAF projects focused on studies into the high survivability of species and the unavoidable aspects of mixed fisheries in terms of putting forward species or *de minimis*-based exemptions in order to continue the status quo (STECF 2021; 2023a; 2023b; STECF, anonymised, 2024). This was also highlighted in the stakeholder interviews (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024; STECF, anonymised, 2024). Several Mediterranean Member States interviewed noted a future intention to utilise the EMFAF funding for selectivity trials (Slovenian Ministry of Agriculture, Forestry and Food, anonymised, 2024; Department of Fisheries and Marine Research, Cyprus, anonymised, 2024).

What is less evident is how the landing obligation and related measures seek to compensate for the negative impacts of the measure through, for example, compensation measures. The landing obligation has a clear economic cost for fishers, not only in terms of lost space on board that must be used to store unwanted catches but also the fact that it will very often be necessary to store this catch separately to the catch that will subsequently be sold for food purposes. Other costs include the additional administrative costs of sorting and moving unwanted fish both on board and at port as well as the costs of final disposal. What seems to be missing are measures to mitigate the negative economic impacts of the landing obligation in order to promote the effectiveness of the measure by encouraging trade-offs.

4.4.3 Extent to which the Landing obligation intervention generated synergies with other EU legislation

In terms of the generation of synergies with other EU legislation, such as the Marine Strategy Framework Directive 2008/56/EC ⁽²⁵⁾ (MSFD) as amended by Directive 2017/845 ⁽²⁶⁾, it is again appropriate to consider the issue of coherence both in terms of the intention of the legislator and the manner in which the measure has been implemented.

⁽²⁵⁾ OJ L 164, 25.6.2008, p. 19–40

⁽²⁶⁾ OJ L 125, 18.5.2017, p. 27–33

The MSFD required the Member States to “*take the necessary measures to achieve or maintain good environmental status in the marine environment by the year 2020 at the latest*” (Article 1(1)). This applies to all ‘marine waters’, which are defined to mean the marine waters, seabed, and subsoil over which where a Member State has or exercises jurisdiction. The Directive, supplemented by Commission Decision (EU) 2017/848 ⁽²⁷⁾, does not directly restrict maritime activities, including fishing, as such. Instead, the definition of “good environmental status” (GES) is based on a list of generic qualitative descriptors contained in Annex I of the Decision. A number of the qualitative descriptors for determining GES potentially relate to fishing activities including: (1) biological diversity is maintained; (2) populations of all commercially exploited fish and shellfish in that Region are within safe biological limits; (3) all elements of the marine food webs, to the extent that they are known, occur at normal abundance and diversity and levels capable of ensuring the long-term abundance of the species and the retention of their full reproductive capacity.

In theory, if implemented in the manner foreseen by the legislator in terms of reducing levels of bycatch (non-target and undersize individuals), the landing obligation should contribute to the three descriptors set out in the previous paragraph. However, to the extent that bycatch is not reduced by the landing obligation, even if catches are landed and disposed of in accordance with the measure, there will be no net ecological benefit, given that the fish contained in those catches have been permanently removed from the marine environment. Primary data demonstrates there has not been any substantial change in bycatch levels since the implementation of the landing obligation, as is evidenced by our analysis of discard rates and volumes of specimens above and below MCRS (STECF FDI data).

In terms of stakeholder views, from the e-survey, results show that a narrow majority of respondents (16 of 28, or 57%; E-survey S2 Q23) disagreed with the proposition that the objectives of the landing obligation help protect the marine environment (MSFD), of which 4 (14%) from across a diversity of stakeholder groups strongly disagreed.

The basic aim of the Habitats Directive 92/43/EEC ⁽²⁸⁾ is to contribute towards ensuring biodiversity through the conservation of natural habitats, and annexed species of wild flora and fauna, in order that species that are of ‘Community interest’ be maintained at or restored to a favourable conservation status. The species of wild fauna include a number of types of marine mammals (such as seals and cetaceans) and birds. From desk research, there are some arguments within the literature that high-level predators (e.g. marine mammals and birds) in fact benefit from the practice of discarding (e.g. Heath, 2012; and Fondo et al., 2015) and may therefore have been negatively impacted by the landing obligation through a reduction in food availability. Overall however, it is difficult to argue the

⁽²⁷⁾ OJ L 125, 18.5.2017, p. 43–74

⁽²⁸⁾ OJ L 206, 22.7.1992, p. 7–50

landing obligation is not coherent with the Habitats Directive, not least given the GES descriptor indicates all elements of the marine food web, to the extent they are known, occur at normal abundance and diversity, and levels capable of ensuring long-term abundance of the species and the retention of their full reproductive capacity (and not through anthropogenic feeding systems (i.e. discards)). Indeed, to the extent that the landing obligation reduces bycatch and contributes to a healthy marine environment, as called for by the MSFD, again its objectives would seem to be broadly coherent with those of the Habitats Directive as regards the conservation of marine species. The potential contribution of the landing obligation to the protection of marine habitats would appear less easy to establish and that is presumably why a clear majority of stakeholder e-survey respondents responded that the landing obligation does not contribute to maintaining or restoring marine habitats at a favourable conservation status (63% of 27 respondents; E-survey, S2 Q23, n27).

4.4.4 Extent to which the landing obligation intervention is coherent for achieving EU cross-cutting objectives both at national and EU level

Recital 4 of the CFP Regulation (EU) No 1380/2013 states that it should *“contribute to the Europe 2020 Strategy for smart, sustainable and inclusive growth, and should help to achieve the objectives set out therein.”* The priorities set out in the Europe 2020 Strategy (EC, 2010) included “sustainable growth”, promoting a more resource- efficient, greener and more competitive economy, and “inclusive growth” in terms of fostering a high-employment economy delivering economic, social and territorial cohesion. The Strategy also stressed the importance of ensuring that the benefits of economic growth spread to all parts of the Union, including its outermost regions, in order to strengthen territorial cohesion.

In terms of its overall objective, the landing obligation is clearly aligned with the objectives of sustainable and inclusive growth in terms of seeking to ensure the long-term sustainability of the fisheries sector. However, in terms of actual implementation, given the additional costs to fishers and the absence of concrete measures to minimise the impacts of the landing obligation at the socio-economic level, it is hard to see how the measure is coherent, in the short term at least, with the objective of inclusive economic growth. This aspect was raised as an expectation within the 2011 Impact Assessment. It was expected that, in the long term, the landing obligation would support economic growth of sustainably harvested stocks (by 2017). This was due to be from stocks being harvested sustainably and short-term costs being overcome. Large numbers of stocks are still outside sustainable limits as reported by the UN in relation to SDG Goal 14 (UN, 2022).

Other reports continue to highlight that the economic costs associated with landing and processing unwanted catches remain high and a risk to non-compliance as a result. In association with landing, this relates to alternate use of storage space on

board, the costs associated with the additional time required to sort and pack catch, and of transporting fish to be landed. These are costs, which it had been intended would be minimised by changes in behaviour, but the anticipated change in behaviour has yet to occur on a large scale. The additional processing requirements and lack of alternative uses for unwanted catches (such as use for fish meal, fish oil, pet food, food additives, pharmaceuticals and cosmetics) creates further costs with little compensation (e.g. Neitzel et al., 2023; Pointin et al., 2019; and stakeholder engagement carried out within the EC – CINEA-EMFF, 2021). France has highlighted that uncertainty in demand and low volumes of unwanted catches have deterred investment in facilities to process these catches (STECF, 2022a). Similarly, Greece reported in 2019 that inadequate transport infrastructure was resulting in disproportionate costs for handling unwanted catches, further exacerbating the financial strain on the sector. Within this study one scientific stakeholder interviewed highlighted the high impact on economic performance, particularly of mixed fishery and bottom trawl fisheries (Wageningen Marine Research, anonymised, 2024).

The Waste Framework Directive ⁽²⁹⁾ sets out the basic concepts and principles for waste management in the EU, including the EU “waste hierarchy”, which sets out waste prevention as the highest priority. It was amended in 2018 to require, among other matters, the Member States to adopt specific food waste prevention programmes within their waste prevention programmes and to reduce food losses along production and supply chains by 2030. Similarly, a key objective of the Farm to Fork Strategy for a “fair, healthy and environmentally friendly food system” (EC, 2020b) is the reduction of food loss and food waste, with the Commission undertaking to implement food loss and waste prevention in EU policies.

A key objective of the landing obligation, as framed, is evidently to prevent losses and waste through the discarding of unwanted bycatch. That objective is clearly coherent with the Waste Framework Directive. Moreover, the prohibition of the use of bycatch landed under the landing obligation for direct human consumption is a key element of the measure in terms of seeking to induce behavioural change. However, if other uses for fish landed in accordance with the landing obligation cannot be easily found (for fish meal, fish oil, pet food, food additives, pharmaceuticals and cosmetics), then in practice such fish are disposed of to landfill as waste. Disposal is at the very bottom of the waste hierarchy and should be the last resort in terms of waste management.

Obviously if fish landed in accordance with the landing obligation could be sold for human consumption for profit, then that would defeat the objective of the obligation in terms of inducing behavioural change. If there is no possibility of using such fish for other purposes due, for example, to a lack of demand or the existence of suitable processing facilities, they will in accordance with the definition contained in the

⁽²⁹⁾ OJ L 312, 22.11.2008, p. 3.

Waste Framework Directive, become “waste” at the point at which the holder discards them or is required to discard them.

At the same time, the Waste Framework Directive requires the Member States to prevent waste generation by, among other matters, encouraging food donation and other redistribution for human consumption, prioritising human use over animal feed and the reprocessing into non-food products. The fact that fish landed in accordance with the landing obligation may be used for animal feed and processing for non-food purpose and may not be used for human consumption, even on the basis of food donation as a temporary measure while behaviour change is effected, does not appear to be coherent with the requirements of the Waste Framework Directive or the Farm to Fork policy.

For example, Portugal's recent annual report for 2021 (reviewed by the ad-hoc contract for STECF PLEN-22-01) indicated that there are not enough fishmeal factories and markets for unwanted catches, leading to a proportion of such catches going to landfill (STECF, 2022a). Similarly, Slovenia reported that unwanted catches had to be transported up to 150 km inland to a central facility near Ljubljana for incineration. In such cases, the disposal costs far exceeded the value or volume of the unwanted catches, further undermining the policy's intent. This is a clear waste of resources and goes against one of the main objectives of the landing obligation to reduce wasteful fishing practices as well as the objectives of the Farm to Fork Strategy and the Waste Framework Directive. Indeed, in accordance with the EU waste hierarchy, as set out in the Waste Framework Directive, if waste cannot be prevented then the second preferable option should be food donation followed by the use for animal feed. “Disposal” is last in the EU waste hierarchy and should be the last option for addressing catches landed under the landing obligation.

Nor is it easy to conclude that the manner in which the landing obligation is currently enforced is entirely coherent with the 2030 Biodiversity Strategy (EC, 2021a), which, amongst others promised that “environment-related legislation with an impact on biodiversity [would be] is better implemented, enforced and - where necessary - reviewed and revised.” Of course, the landing obligation is a fisheries measure and not an environmental measure as such, but given increased focus on the ecosystem-based approach to fisheries management in the revised CFP, and the numerous references to the environment in the instrument (including the reference to environmental sustainability in the long term in Article 2) it is hard not to conclude that the CFP Regulation (EU) No 1380/2013 and therefore the landing obligation, is environment-related.

From the desk research, it can be seen that the landing obligation is not well monitored or enforced (see Section 3.4.1 and Section 3.4.5). This is a view shared by stakeholders, such as CINEA-EMFF (2021) and interviews carried out within this study (Swedish University of Agricultural Sciences, anonymised, 2024; and STECF, anonymised, 2024), i.e. that, at least as far as the landing obligation is concerned, it is not coherent with the 2030 Biodiversity Strategy in practice.

4.4.5 Extent to which landing obligation intervention showed contextual flexibility and were suitably adjusted to ensure coherence

As described elsewhere in this report, beyond the basic requirements of the landing obligation measure, the CFP Regulation (EU) No 1380/2013 sets out a number of additional interventions that seek to ensure contextual flexibility, presumably to take into account both the significant changes in terms of fishing practices that the landing obligation imposes as well as the relatively rapid roll out of its provisions (when compared to the slower pace applied in Norway; Gullestad et al., 2015). These interventions include, in no particular order:

- Quota uplifts.
- Inter-annual and inter -species flexibility mechanisms.
- The possibility of quota swaps.
- Focus on expanding the scope of *de minimis* exemptions.

At an EU level, a request was made to ICES to provide scientific advice on the level at which to increase TACs to move from a landing- to catch-based TAC system within Union waters. Uplifts resulted in increased TACs of around 36% (Borges, 2021) providing a flexibility to fishers intended to allow for landing of unwanted catches. However, Borges (2021) highlights that this has not led to any significant declines in discarding in EU fisheries; the TAC uplifts intended to facilitate transition to catch-based TACs may have simply resulted in a widespread increase in fishing mortality.

Primary data available within the CIRCABC posted quota swap reports show variable use over time, in terms of between Member States and inter-species swaps within Member States. With regard to the introduction of the landing obligation, increase in swaps from 2014 to 2023, swapped quotas rose from 0.56 million tonnes to 1.7 million tonnes, a 200% increase. During the phase-in period (2015-2019) the most noticeable change in trends occurred in the Baltic region where swaps between Member States increased in 2017 and continued for a period of two to three years. Inter-species swaps within Member States have fluctuated across the period 2013-2023, with some evidence of increased swapping since the phase-in period (2015-2019).

Desk research provides further insights into Member State flexibility; whereby France uses inter-annual quota flexibility, authorising a vessel to go to 10% beyond its quota of a particular TAC, which is subsequently deducted from the national quota the following year. Despite the advantage of using inter-annual quota flexibility, Pointin et al. (2019) reports that without significant quota top-ups (at least 75%), changes in fishing practices consisting in reducing the overall bycatch by 30% would be insufficient to reduce losses. During stakeholder interviews, it was noted by one industry body (Danish Fishers Producer

Organisation, anonymised, 2024) that the use of the “inter annual flexibility” is being limited by the annual TAC/quotas.

Desk-based research indicates that the increase in Joint Recommendations requesting exemptions (STECF, 2021; 2023a; 2023b) suggests Member States are more focused on maintaining the status quo rather than improving the overall selectivity of fishing practices. During stakeholder interviews, it was noted by a science representative (STECF, anonymised, 2024) that an excessive number of exemptions being applied within the landing obligation offer some flexibility to fisheries. The level of exemption applications also supports the pre-landing obligation status quo of fishing activities.

In addition to EU and regional level flexibilities, desk research indicates some Member States have adapted their quota management systems to provide additional flexibility. For example, within the ad-hoc contract for STECF 22-01 Portugal adapted their quota management system in 2019 to provide more flexibility and implemented specific measures for mackerel, megrim, alfonsoinos, horse mackerel, sole and anglerfish (STECF, 2022a). A “sub quota” system was developed to control the volumes of catch discarded under *de minimis* exemptions for each relevant stock, with all reported discards counted against these “sub quotas”. In 2020, a new quota management system was adopted for anchovy to improve and better control quota utilisation, establishing the fishing season and daily catch limits by vessel. However, due to the relatively few stocks covered by TACs and the quota regime in the South Western Waters, the availability of quota swaps is limited, and, for most stocks, Portugal can only swap with Spain. Despite measures to prevent choke situations, fisheries closures still occurred, for example in 2020.

While the overarching objective of the landing obligation is fairly simple (i.e. incentivising behaviour change), in practice the interventions permitting flexibility within the system permit so much flexibility that the measure is not achieving or coherent with its original objectives. This flexibility from Member State to Member State and between different fleet segments within Member States has not led to better implementation of the landing obligation, but rather the utilisation of flexibilities to maintain the status quo. The level of complexity within flexibilities has increased the difficulty of implementing the landing obligation.

4.4.6 Extent to which the landing obligation intervention is coherent with international obligations, including the Sustainable Development Goals

At the international level, the importance of minimising discards has been on the agenda of the international community for a number of years. As far back as 1995, the Code of Conduct for Responsible Fisheries, under the auspices of the Food and Agriculture Organization of the United Nations, called on States to minimise discards, reflecting a similar principle set out in the UN Fish Stocks Agreement relating to straddling and highly migratory fish stocks (FAO, 1995).

While at the global level international law imposes no obligation to prevent discards or to land bycatch, in the 2023 report to the 78th session of the United Nations General Assembly on oceans and the law of the sea, the United Nations Secretary-General noted the important steps taken by Regional Fisheries Management Organisations (RFMOs) in reducing discarding and adopting discard bans, including by the Northwest Atlantic Fisheries Organisation (NAFO) ⁽³⁰⁾, the North East Atlantic Fisheries Commission (NEAFC) ⁽³¹⁾ and the International Commission for the Conservation of Atlantic Tunas (ICCAT) ⁽³²⁾ all of which include the EU among their members.

Moreover, in accordance with CFP Regulation (EU) No 1380/2013, the landing obligation also applies to fishing activities by Union fishing vessels in areas beyond national jurisdiction as well as in Union waters, although this is expressed to be “without prejudice to the EU’s international obligations”, and power is conferred upon the European Commission to adopt delegated acts for the purpose of implementing such obligations into EU law, including derogations from the landing obligation. Nevertheless, the landing obligation is clearly coherent with this trend at the international level towards discard bans.

In relation to the SDGs adopted by the United Nations General Assembly on 25th September 2015 under Resolution 70/1 ⁽³³⁾ the overall objective of the landing obligation is also coherent with the general objectives of SDG 14.4 in terms of effectively regulating harvesting and ending overfishing, and rapidly restoring fish stocks to a level that achieve maximum sustainable yield, even though SDG 14 does not specifically refer to discarding. Goal 14.4 states: *“By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics”* (UN Resolution 70/1). Desk research highlighted that this target has not been met, and in 2023 the UN considered that fishery resources continued to be threatened by overfishing as one of numerous factors (UN, 2023). The UN noted in its 2022 update report (UN, 2022) that more than a third (35.4%) of global stocks were overfished in 2019, an increase of 1.2% since 2017. This is a

⁽³⁰⁾ NAFO/COM Doc. 17-26. 39th Annual Meeting of NAFO - September 2017: Action Plan in the Management and Minimization of Bycatch and Discards. Serial No. N6759. Available from: www.nafo.int/Portals/0/PDFs/com/2017/comdoc17-26.pdf

⁽³¹⁾ NEAFC Recommendation 10: 2023 “Recommendation for the banning of discards in the NEAFC Regulatory Area”. Entry into force: February 11, 2023.

⁽³²⁾ 17-01 Recommendation by ICCAT on Prohibition on Discards of Tropical Tunas Caught by Purse Seiners provides in its article 2 that “(n)o bigeye, skipjack and/or yellowfin tuna caught by a purse seiner may be discarded during the set once the net is completely closed and when more than half of the net has been retrieved.

⁽³³⁾ UN General Assembly Resolution 70/1 (2015) - Transforming our world: the 2030 Agenda for Sustainable Development: <https://documents.un.org/doc/undoc/gen/n15/291/89/pdf/n1529189.pdf>

period in which implementation of the landing obligation was already being phased in. The UN highlighted the Mediterranean Sea and the Black Sea as the regions with the second highest percentage of fish stocks at biologically unsustainable levels, 63.3% (UN, 2022) dropping slightly to 62.5% (UN, 2024).

Under Goal 12, “Ensure sustainable consumption and production patterns”, target 12.3 calls for “*By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses*” (UN Resolution 70/1). In 2022, 19% of global food was wasted, totalling 1.05 billion tonnes and still considered to be a large issue (UN, 2024). While the overall objective of the landing obligation, in the sense of reducing bycatch, is coherent with this goal, the manner in which it has been implemented is not.

4.4.7 Extent to which the landing obligation is coherent with other international interventions which have similar objectives

In terms of analysing the coherence of the EU landing obligation by reference to international experience with regards to discard bans, bans have been introduced in a number of jurisdictions over the years, including Iceland, Norway and New Zealand. While it is not necessary to attempt to describe all these cases in detail, the manner in which the landing obligation was implemented in Norway is interesting in terms of a more coherent approach to aligning the different aspects of the measure. For example, the measure was adopted over a much longer time period, from 1987 to 2014, than the implementation period of the EU landing obligation, which was fully implemented by January 2019 within only six years of the adoption of the CFP Regulation (EU) 1380/2013.

The initial focus of Norway’s discard ban was on single-species fisheries, which by their nature render catch selectivity a less challenging issue. In the EU context, as described in Chapter 3 in this report, the landing obligation has been hardest to implement in the many multi-species mixed fisheries in Union waters. Next, under Norway’s model, compensation is paid to fishers to cover some of the administrative costs (including sorting catch at sea) of implementing the discard ban. In addition, the discard ban has been accompanied by a major focus on enforcement that does not have an obvious equivalent at EU level. And finally, a key element of Norway’s practice is the widespread use of temporarily closed areas once under-sized or over-quota stocks are caught (Gullestad et al., 2015), a measure which was reportedly also carried out by a Canadian discard ban within a groundfish fishery (Clucas, 1997). Iceland and New Zealand both implemented an individual transferable quota system (ITQ) with their discard bans, the intention being to allow quota flexibility (Clucas, 1997), although the success of this as a flexibility measure to reduce discards is uncertain (e.g. Branch et al., 2006; and Acheson et al., 2015). The EU does not have equivalent measures.

4.4.8 Overall findings on Coherence

The overarching objective of the landing obligation is to incentivise changes in fishing behaviour through a requirement to land unwanted catches, whilst preventing the use of unwanted catches for direct human consumption. In principle, the landing obligation is therefore internally coherent with several other EU interventions. These include the objectives of the wider CFP framework, including the Technical Measures Regulation (EU) No 2019/1241, the Control Regulation (EC) No 1224/2009 (amended by Regulation (EU) No 2023/2842) and annual regulations setting out fishing opportunities for certain fish stocks or group of fish stocks, commonly referred to as the TAC and quota regulations. These regulations are all aimed at fishing sustainability and fishing selectively.

In practice, the landing obligation has been implemented in several ways that do not appear coherent with the CFP objective of “achieving economic, social and employment benefits, and of contributing to the availability of food supplies.” For example, the required large-scale changes in fishing behaviour to improve selectivity have not occurred. Furthermore, illegal discarding, coupled with the widespread use of flexibilities (including generic *de minimis* exemptions) incentivises the continuation of the status quo. Measures to mitigate the negative economic impacts of the landing obligation and promote the effectiveness of the measure by encouraging trade-offs appear to be lacking.

The approach to the implementation of a discard reduction policy differs between the EU landing obligation approach and Norwegian discard ban. Norway’s implementation had a more coherent approach to aligning the discard reduction policy with other fisheries management measures. This included, for example, the slow gradual introduction of the ban, coupled with a large increase in enforcement, and use of supporting methods (e.g. use of temporary closed areas).

The landing obligation would seem to be broadly coherent with the objectives of the MSFD 2008/56/EC and Habitats Directive 92/43/EEC. The landing obligation reduces bycatch and contributes to a healthy marine environment, as called for by the MSFD 2008/56/EC. While some of the literature suggests that the landing obligation reduces food availability for high level predators protected under the Habitats Directive an argument that the landing obligation is not therefore coherent with that directive is not persuasive not least due to the focus of the MSFD on natural food webs. The potential contribution of the landing obligation to the protection of marine habitats would appear less easy to establish.

In terms of its overall objective, the landing obligation was aligned with the overall objectives of the Europe 2020 Strategy, which include sustainable and inclusive growth in terms of seeking to ensure the long-term sustainability of the fisheries sector. However, in terms of actual implementation, the landing obligation did not reach coherence with the strategy’s objective of inclusive economic growth.

In terms of resource wastage, the landing obligation has not resulted in the intended reduction in capture of unwanted individuals, nor has there been

sufficient development of non-human markets or processing facilities to make use of unwanted catches. In practice therefore, the landing obligation is not coherent with the Waste Framework Directive or the Farm to Fork Strategy for a “*fair, healthy and environmentally friendly food system*” targeted at reducing food losses and food waste. Furthermore, as the landing obligation is currently enforced, it is difficult to conclude that it is entirely coherent with the 2030 Biodiversity Strategy, which commits to ensuring “*environment-related legislation with an impact on biodiversity is better implemented, enforced and - where necessary - reviewed and revised.*”

The extent to which the landing obligation intervention is externally coherent, both with non-EU legislation and with regards to EU international commitments, it is clear that the landing obligation reflects principles in the FAO's 1995 Code of Conduct for Responsible Fisheries and aligns with steps taken by RFMOs to reduce discards and adopt discard bans, consistent with international trends. The landing obligation applies to EU fishing activities both within and beyond national jurisdictions, demonstrating coherence with international efforts to minimise discards and improve fisheries' sustainability.

In relation to the United Nations SDGs (Resolution 70/1), the landing obligation is coherent in terms of its overall objectives and the general objectives of two specific targets. That of specific target of SDG 14.4, which effectively regulates harvesting and ends overfishing, and rapidly restores fish stocks to a level that achieves maximum sustainable yield, and that of specific target of SDG 12.3, which calls for reduction of food waste and food losses, including post-harvest losses, along supply chains by 2030. However the manner in which the landing obligation has been implemented has not been coherent with this goal.

4.5 EU Added value

Evaluation question	Indicative judgment criteria
To what extent could the identified outputs and results have been achieved without the landing obligation / EU intervention?	Extent to which the landing obligation resulted in additional value, compared to what could have been achieved by Member States at national and regional levels
	Additional outputs and results of the landing obligation provided in relation to the Member State national and regional outputs
	Extent to which the landing obligation intervention managed to cope with external crisis situations

Evaluating EU added value involves examining whether EU support, like that from the EMFF/EMFAF, has effectively mitigated the economic challenges associated with the landing obligation, such as the costs of landing low or non-commercial species. This evaluation is crucial to determining whether the financial and compliance burdens can be better managed through coordinated EU efforts rather than disparate national approaches. This aligns with the subsidiarity principle, which ensures intervention occurs only where it adds significant value.

EU interventions aim to enhance the quality and effectiveness of fisheries management through unified policies like the landing obligation. By assessing EU added value, policymakers can evaluate whether the landing obligation leads to significant improvements in areas such as selective fishing gear usage and discard reduction - improvements that might be less feasible through isolated national actions. The evaluation also considers whether the operational outcomes are more robust and impactful under a collective EU strategy, thereby supporting the subsidiarity principle by justifying EU-level action over individual Member State efforts.

The evaluation of EU added value focuses on determining the extent to which a centralised approach can address regional disparities in fisheries management. Member States have diverse ecological and economic contexts, and the landing obligation's effectiveness can vary significantly. By assessing the added value of EU intervention, stakeholders can identify if a unified policy is necessary to ensure equitable benefits and address specific regional challenges.

Assessing the EU-added value of the landing obligation is valuable for understanding whether Member States need EU-level intervention to achieve sustainable fisheries management. This evaluation aids in deciding if the collaborative efforts under the CFP are essential for realising the policy's objectives or if individual national actions suffice. By focusing on the necessity of EU intervention, the evaluation ensures that the landing obligation delivers genuine benefits that support both regional needs and collective EU goals.

4.5.1 Extent to which the landing obligation resulted in additional value, compared to what could have been achieved by Member States at national and regional levels

This section evaluates the extent to which landing obligation interventions have resulted in additional value beyond what could have been achieved by Member States at national and regional levels.

Economic impact and compliance challenges

The STECF AER on the EU fishing fleet has underscored the economic strain imposed by landing obligation requirements, particularly when landing species with low or no commercial value (STECF, 2023c). Although EU interventions through EMFF/EMFAF funding have facilitated compliance improvements and infrastructure advancements, such as selective gear and processing facilities, the financial burden remains significant. In regions like the Mediterranean and Black Seas, where small-scale and multi-species fisheries are prevalent, the costs of compliance often exceed the benefits (STECF, 2023c). This economic disparity leads to inconsistent results, with some regions struggling to achieve landing obligation targets due to limited market opportunities for low-value species. The report suggests adopting a more flexible approach, allowing region-specific

adaptations to support fisheries in diverse regions while still fulfilling the sustainability goals of the landing obligation.

Mixed perceptions of quality outputs

The first report on the implementation of the MAP for the fisheries exploiting demersal stocks in the Western Mediterranean Sea stated that NGOs saw potential benefits in the landing obligation, particularly in promoting the use of selective gear, which they regarded as positive quality output. However, industry stakeholders emphasised the negative socio-economic impacts, resulting in mixed perceptions of quality gains from the landing obligation (EC, 2024b).

Research advancements but limited operational change

While some stakeholders viewed the landing obligation as a catalyst for research into selective fishing methods, the overall sentiment, as outlined in the first report on the implementation of the MAPs for the North Sea and Western Waters and the fisheries exploiting those stocks, is that these measures have not translated into substantial outputs. The perceived quality of outputs remains mixed, with some advancements in scientific research but limited operational change (EC, 2024c).

Challenges with compliance and quality contributions

According to the second report on the implementation of the MAP for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks, persistent non-compliance and stock misreporting have led stakeholders to doubt the landing obligation's contribution to quality outputs. These issues reflect a perception that the expected quality improvements from landing obligations have not materialised (EC, 2024a).

Observed impact through effectiveness indicators

The landing obligation interventions have had a limited impact on national and regional efforts. This has primarily come through monitoring and funding support. This support has enabled Member States to achieve outputs that might have been challenging independently. However, the impact of the landing obligation is inconsistent, especially in regions with diverse and small-scale fisheries like the Mediterranean and Black Seas. The financial and logistical burdens of landing low-value species place a strain on smaller operators despite subsidies. EFCA's monitoring efforts, including EMS and vessel tracking, have improved oversight in high-risk areas but face enforcement challenges in multi-species fisheries, complicating consistent landing obligation adherence.

Because the one-size-fits-all approach has limitations, the Mediterranean Advisory Council (MEDAC) reports ongoing issues with high bycatch rates and varied fishing practices. This is due to the diverse ecological and socio-economic characteristics present in the Mediterranean region, where numerous small-scale fisheries operate under different environmental conditions and target a wide variety of species (STECF, 2023c). Such diversity makes the blanket application of

rules less effective, as it fails to consider the specific needs and challenges of different fisheries.

This suggests a need for region-specific adaptations. While the landing obligation supports international commitments like SDG 14, its uneven success across EU waters has limited progress toward broader sustainability targets, underscoring the need for flexible, tailored strategies to address unique regional challenges (STECF, 2023c).

4.5.2 Additional outputs and results of the landing obligation in relation to Member State national and regional outputs

This section examines the additional outputs and results of the landing obligation in relation to the national and regional outputs of Member States.

Economic challenges and regional differences

The STECF AER on the EU Fishing Fleet has underscored the economic strain imposed by landing obligation requirements, particularly when landing species with low or no commercial value (STECF, 2023c). It has highlighted the economic challenges the landing obligation poses, especially when it involves landing species with low or no commercial value.

Although EU support through the EMFF/EMFAF has enabled some Member States to enhance compliance and infrastructure, such as selective gear and processing facilities, the financial burdens remain considerable. These burdens primarily affect small-scale and multi-species fisheries, which are common in regions like the Mediterranean Sea and Black Seas. The costs associated with compliance, infrastructure investment, and limited market opportunities for low-value species disproportionately impact these smaller operators. As a result, compliance costs often outweigh the benefits, leading to economic disparities and inconsistent outcomes across regions. Some regions struggle to meet landing obligation targets due to these financial challenges and lack of viable market opportunities for low-value species. A more flexible approach, allowing for region-specific adaptations, is suggested to support diverse fisheries while achieving the sustainability goals of the landing obligation (STECF, 2023c).

Perceptions on quality and effectiveness

NGOs highlight potential benefits, particularly in promoting selective gear usage, which they perceive as a positive quality outcome. In contrast, industry stakeholders focus on socio-economic impacts, reflecting mixed views on quality gains from the landing obligation (EC, 2024b). Further EU analysis has suggested that, although the landing obligation may have stimulated research into selective fishing methods, these efforts have not led to substantial operational changes. While some advancements in scientific research are noted, the overall shift towards practical application remains limited (EC, 2024c). Moreover, there are ongoing doubts about the landing obligation's actual contribution to quality

improvements, given persistent challenges with non-compliance and stock misreporting (EC, 2024a). These quality improvements refer to the reliability and accuracy of data on fish stocks, the effectiveness of fisheries management practices, and the overall sustainability of fishery operations. The challenges of non-compliance and stock misreporting undermine these goals, as they affect the integrity of fish stock assessments and the ability to implement effective management strategies.

E-Survey insights on the landing obligation's EU Added Value

During the stakeholder e-survey respondents were asked if the landing obligation had resulted in additional value and results in the national and regional output in Member States (E-survey, S2, Q24, n27). Approximately 80% of respondents indicated that they do not see any output or result additional to what could be achieved by Member States at national and regional levels, revealing widespread scepticism concerning the added value of EU interventions under the landing obligation. For instance, a respondent from Cyprus highlighted that the exemptions and MCRS applied to very few species, reduced incentives for fishers to adopt selective gear. Another stakeholder pointed out issues with the non-implementation of the landing obligation rather than a lack of regional cooperation. This casts doubt on the relevance of the landing obligation compared to national and regional interventions.

Due to ongoing issues such as non-compliance and stock misreporting, stakeholders have doubts regarding the landing obligation's contribution to quality outcomes. This scepticism suggests that the anticipated quality improvements from landing obligations have not been realised.

Limited impact and regional challenges

The first report on the implementation of the MAP for the fisheries exploiting demersal stocks in the Western Mediterranean Sea reveals that the landing obligation interventions have had a limited impact on national and regional efforts, primarily through monitoring and funding support (EC, 2024b). While this support has enabled Member States to achieve outputs that would have been challenging to accomplish independently, the overall impact of the landing obligation remains inconsistent. This is particularly evident in regions with diverse and small-scale fisheries, such as the Mediterranean Sea and Black Sea. Here, the financial and logistical burdens of landing low-value species strain smaller operators despite the availability of subsidies (EC, 2024b).

Monitoring and enforcement efforts

The EFCA has enhanced oversight through EMS and vessel tracking, improving monitoring in high-risk areas. However, enforcement challenges persist in the Mediterranean region, where multi-species fisheries complicate consistent adherence to the landing obligation. The one-size-fits-all approach to the landing obligation reveals its limitations, as the MEDAC reports ongoing issues due to high

bycatch rates and varied fishing practices. This suggests a need for region-specific adaptations to better address the diversity of EU fisheries (EC, 2022c).

Effectiveness indicators and quality outputs

Ongoing discarding practices indicate that the expected quality outputs - such as reduced unwanted catches and improved stock management - have not been fully achieved. Effectiveness indicators suggest that anticipated improvements in fisheries management through landing obligations remain limited (EC, 2024b).

Other analysis highlights that, while some research progress has been made, practical implementation of more selective fishing practices remains insufficient. (EC, 2024c). This underscores the limited enhancement of quality outputs by landing obligation interventions beyond existing national and regional actions.

Minimal changes in discarding practices

Reports from ICES and STECF show minimal changes in discarding practices, suggesting that anticipated quality outputs - such as improved stock assessments and sustainable fishing practices - have not been realised. (EC, 2024a).

4.5.3 Extent to which the landing obligation intervention managed to cope with external crisis situations

This section focuses on how stakeholders perceive the landing obligation's effectiveness in dealing with crises such as climate emergencies, the COVID-19 pandemic, and geopolitical tensions like the Russian aggression in Ukraine. It assesses whether EU actions provided benefits that EU Member States could not achieve independently.

Inflexibility amid climate change

The STECF AER on the EU fishing fleet highlights the role of the landing obligation in promoting sustainable fishing practices by enforcing discard reduction across EU Member States. However, it points out that the landing obligation's rigid, standardised approach restricts flexibility during climate-related crises, such as extreme weather events and changes in fish distribution. These crises create unpredictable challenges for fisheries, necessitating rapid adaptation to altered catch patterns. This rigidity especially impacts small-scale and multi-species fisheries, such as those in the Mediterranean and Black Sea, where complexity with the landing obligation is already difficult due to ecological diversity. During climate emergencies, the landing obligation's inflexibility can add operational and financial burdens, reducing the resilience of economically and ecologically vulnerable fisheries (STECF, 2023c).

Economic strain during crises

The STECF AER on the EU fishing fleet underscores the economic strain that rigid landing obligation requirements can place on fisheries during crises. While the discard reduction goals align with sustainability objectives, the obligation to land all catches, including low-value and non-marketable species, creates financial pressure, particularly during crisis conditions. For small-scale fisheries operating on narrow margins, these requirements can lead to unsustainable losses when combined with climate-driven challenges, such as disrupted fish populations or adverse weather patterns. The report suggests that region-specific adaptations to the landing obligation could mitigate the financial impact on smaller, resource-limited fisheries during environmental crises (STECF, 2023c).

Surge in operational costs

The 2023 AER on the EU fishing fleet provides additional context on the role of the landing obligation amid external crises. It particularly emphasises the effect of rising energy costs on fleet operations. The increase in fuel prices in the period preceding this report had added financial burdens across EU fisheries, making adherence to the landing obligation more costly and challenging, especially in energy-intensive operations. This additional cost had reduced profitability for fleets required to land low-value species. This had particularly affected small-scale fisheries and those in economically vulnerable areas like the Baltic and Mediterranean Seas. The report suggests that while the landing obligation is beneficial for discard reduction, adjustments may be needed during times of high operational costs or environmental disruption to prevent exacerbating financial pressures on fisheries already impacted by climate or geopolitical factors (STECF, 2023c).

COVID-19 impact

The COVID-19 pandemic exacerbated the challenges faced by fisheries due to the landing obligation's rigid requirements. As market access became limited because of lockdowns and logistical bottlenecks, the profitability of low-value species plummeted, leaving fisheries with unsalable excess catch. Many small-scale fisheries, which depend heavily on fresh, locally sold products, incurred losses on low-demand species they were required to land. Despite some financial relief through the EMFF, the lack of flexibility in the landing obligation's requirements led to increased waste and unnecessary operational costs. The report suggests that allowing exemptions or temporary modifications to the landing obligation during market disruptions could have eased economic pressures on fishers, aiding their recovery from the crisis (Dentes De Carvalho Gaspar et al., 2020).

Russian aggression in Ukraine

The 2023 AER on the EU fishing fleet discussed how the landing obligation's structure, which was intended to manage discards and promote sustainability, proved challenging to uphold amid the economic disruptions caused by the Russian aggression in Ukraine, particularly due to the sharp rise in fuel prices. As energy costs soared, operational expenses for fisheries increased, making it more financially burdensome to meet the landing obligation's requirement to land all

species, including low-value catches. This rigidity exerted additional pressure on fisheries, especially in small-scale and economically vulnerable regions, which struggled to adapt to the rapid cost increases. Introducing flexibility in landing obligation requirements, such as temporary exemptions or modified landing obligations for low-value species, might have alleviated some financial strain on fisheries, enhancing their resilience to such external crises (STECF, 2023c).

E-Survey insights

The stakeholder survey results reveal that landing obligation interventions have struggled significantly to cope with crisis situations, including climate emergencies, COVID-19, and the Russian aggression in Ukraine. Stakeholders unanimously disagreed with the hypothesis that these interventions were effective during crises. Operational challenges and economic pressures associated with the landing obligation were heightened during these periods. For example, landing non-marketable fish imposes costs and threatens economic sustainability, particularly when faced with limited sea space, crew shortages, and crises like Brexit, COVID-19, and the Ukraine conflict (E-Survey, S2 Q24, n27).

4.5.4 Overall findings on EU Added Value

The analysis of EU-added value highlights the extent to which there are significant challenges in realizing the full EU-added value of the landing obligation within the EU's fisheries management framework. Despite structured support systems through monitoring and funding, these interventions have not fully achieved the desired economic and sustainability outcomes.

Small-scale and coastal fisheries, especially in regions like the Mediterranean, face substantial economic barriers to compliance. These challenges are only partially alleviated by existing financial supports, often resulting in compliance costs outweighing potential economic benefits, particularly for low-value catches with limited market opportunities and the lost opportunity to retain and land more fish of a higher value and discard the rest. This situation underscores the need for flexible, region-specific adaptations to alleviate financial pressures and enhance the landing obligation's EU-added value. Furthermore, the inflexibility of EU interventions, especially during crisis scenarios, limits the potential to achieve significant impacts on fisheries management and sustainability goals.

Despite measures for discard management as part of the landing obligation, the ongoing issue of illegal discarding reveals the inefficacy of current measures in delivering substantial improvements. The findings emphasize a critical need for strategic refinements to create more flexible, region-specific strategies that adapt to the diverse operational realities of European fisheries. If policies were aligned with the practical challenges faced across different regions, the EU could enhance the effectiveness of the landing obligation, thereby realizing genuine EU-added value.

While EU interventions through the landing obligation have provided monitoring and funding support, their added value and impact remain constrained by significant challenges. Tailored adaptations that consider the unique constraints and opportunities of Member States are essential for promoting sustainable and economically viable European fisheries. The potential to realize these improvements depends on adapting policies to meet the diverse needs of Member States, ensuring that the landing obligation achieves its intended role and delivers genuine EU Added Value.

4.6 Complementarity

Evaluation question	Indicative judgement criteria
To what extent has the intervention proved complementary to other (Member States) interventions and initiatives in the field of fisheries- management and conservation	Landing obligation interventions helped in the achievement of other related interventions by Member States

This section explores the extent to which the landing obligation complements other initiatives in fisheries management and conservation. By examining the integration of the landing obligation with national policies and EU-funded projects, this assessment seeks to identify whether the landing obligation supports or enhances existing efforts, highlighting its role in the broader fisheries management landscape.

Assessing complementarity is crucial for understanding how the landing obligation interacts with, and supports, Member State and regional policies. This evaluation focuses on how the policy complements existing efforts to reduce discards and ensure sustainable practices across Member States. By examining the synergy between the landing obligation and national/regional initiatives, policymakers can gain insights into its added value as an EU intervention.

The landing obligation aims to work in tandem with Member States' policies by enhancing efforts to minimize discards and promote sustainable fishing practices. This complementarity ensures that the landing obligation does not operate in isolation but rather strengthens national and regional conservation and management goals. For instance, the policy encourages the use of selective fishing gear and improves infrastructure, which can bolster existing national efforts and provide a unified approach to sustainability challenges.

The goal is to establish whether the landing obligation effectively collaborates with existing initiatives to achieve shared conservation and management goals. By aligning with and enhancing national and regional strategies, the landing obligation can drive more significant progress towards sustainability targets, ultimately leading to a more cohesive and effective management framework across the EU.

Insights from the e-survey (E-Survey, S2 Q26, n21) reveal mixed stakeholder perceptions of the landing obligation's support for national policies focused on

discard reduction and catch management. While 40-45% of respondents agree that the landing obligation supports these initiatives, 55-60% disagree, indicating a lack of consensus on its effectiveness in enhancing national efforts. This disparity suggests that perceptions of the landing obligation's complementarity with national policies are varied, warranting further examination of integration in practice.

Stakeholders were also queried about the complementarities between the landing obligation and EU funds (E-Survey, S2 Q20, n32). Projects such as H2020 MINOUW, IMPEMED, were highlighted for their role in enhancing selectivity and supporting infrastructure for enforcement. However, respondents view the support as limited, particularly in areas such as control and inspection activities. This indicates a need to strengthen the connection between EU projects and the practical enforcement of the landing obligation to maximise its impact.

The case studies highlight challenges and opportunities in implementing the landing obligation with EU funding. In the Western Adriatic bottom otter trawl fisheries, inadequate EMFF/EMFAF funding for enforcement has created significant gaps hindering conservation efforts. The North Western Mediterranean bottom trawl fishery has experienced a disconnect between pilot studies and enforcement, limiting its management contributions. The North Western Waters Dutch pelagic trawl fishery has benefited from educational initiatives for gear selectivity but needs more support to translate education into enforcement. Meanwhile, the Spanish bottom trawling in South Western Waters has shown the importance of targeted funding for selectivity improvements, emphasising the need for better enforcement integration to achieve conservation goals.

The findings from stakeholder feedback and case studies indicate a complex picture of the landing obligation's complementarity with national policies and initiatives. While there are notable areas of support and integration, particularly in projects focused on selectivity and education, the overall synergy between EU funds and national efforts is uneven. Stakeholders expressed mixed views on the landing obligation's effectiveness in complementing national goals, highlighting gaps in enforcement and practical implementation. The assessment underscores the need for better alignment of EU initiatives with local fisheries management to maximise the landing obligation's contributions to conservation and management objectives.

4.6.1 Landing obligation interventions helped in the achievement of other related interventions by Member States

Stakeholder agreement and disagreement

In the e-survey (E-Survey, S2 Q26, n21), stakeholders were asked to evaluate whether the landing obligation intervention had been effective in supporting other national policies and initiatives focused on discard reduction and ensuring all catches are landed. Between 40% and 45% of respondents (strongly) agreed that the landing obligation supported these national initiatives, while 55% to 60%

(strongly) disagreed. This suggests a lack of consensus and support for the hypothesis that the EU landing obligation has enhanced national efforts to eliminate discards and reduce unwanted catches.

Integration with EU-funded projects

Respondents were also queried about the complementarities between the landing obligation and other EU funds (E-Survey, S2 Q20, n32). EU-funded projects such as Horizon 2020 MINOUW and IMPEMED were mentioned, as well as funds from EMFF/EMFAF, which are intended to enhance selectivity and support infrastructure to enforce landing obligation provisions. However, the support from these funds is currently viewed as limited, particularly in areas such as control, inspection activities, and handling of unwanted catches.

Changes made by MS in response to the Landing Obligation

The landing obligation introduced additional control and enforcement requirements for Member States. However, extensive desk research suggests that illegal discarding persist. This is partly due to the limited financial support available to Member States and partly due to the challenges associated with at-sea monitoring. The revised Control Rules on electronic monitoring systems are expected to enhance complementarity in addressing these issues.

Desk research also indicates that some Member States have adjusted their quota management systems in response to the landing obligation to increase flexibility. In 2019, Portugal modified its quota management system to enhance adaptability, implementing specific measures for mackerel, megrim, alfonsinos, horse mackerel, sole, and anglerfish. In 2020, a new quota management system was introduced for anchovy to improve quota utilization and strengthen control, setting the fishing season and daily catch limits per vessel. France has taken a different approach by utilizing inter-annual quota flexibility, allowing vessels to exceed their individual TAC quotas by up to 10%, with the excess subsequently deducted from the national quota in the following year.

Inadequate funding in Adriatic fisheries

In the Western Adriatic bottom otter trawl fisheries, which target crustaceans and shrimp, the use of EMFF/EMFAF funds to support enforcement measures related to the landing obligation is currently inadequate. The case study highlighted significant gaps in funding and resources for control and inspection activities, as well as for handling or processing unwanted catches. These findings suggest a pressing need for increased funding to bolster conservation efforts effectively.

Disconnected funding in Mediterranean fisheries

In the North Western Mediterranean bottom trawl fishery, which targets round fish, stakeholders noted that while pilot studies and additional selectivity tests had been conducted under EU-funded projects such as Horizon 2020 MINOUW and IMPEMED, the deployment of EMFF/EMFAF funds to support enforcement

measures remained insufficient. This gap indicates a disconnect between project activities and the practical enforcement of the landing obligation, limiting its contribution to broader fisheries management initiatives.

Educational initiatives in Dutch fisheries

The case study on the North Western Waters Dutch pelagic trawl fishery, which targets blue whiting and discarding hake, illustrates the role of EMFF and EMFAF funding in promoting educational and selectivity-focused activities. Sustainable fisheries training pilots were implemented across several European countries to support studies and pilot projects related to gear selectivity. However, there remains a need for more comprehensive support to transition these educational activities into effective enforcement measures, thereby enhancing the impact of the landing obligation on fisheries conservation.

Selectivity improvements in South Western Waters

Finally, Spanish bottom trawling in South Western Waters, which involves discarding species like blue whiting, Atlantic horse mackerel, and hake, benefited from EMFF/EMFAF projects focused on improving selectivity through trawl net optimisation. While these initiatives underscore the importance of targeted funding in enhancing selectivity, they also emphasise the necessity of better integration with enforcement actions to ensure full compliance with the landing obligation and its contribution to national and EU-wide conservation goals.

The findings indicate a complex picture of how the landing obligation interacts with national policies and initiatives. While there are areas of support and integration, notably in projects aimed at improving selectivity and education, the overall synergy between EU funds and national efforts remains uneven. Stakeholders expressed mixed views on the effectiveness of the landing obligation in complementing national goals, highlighting gaps in enforcement and practical implementation that limit its perceived value. The case studies reflect varied regional experiences, illustrating both successes and challenges in aligning EU initiatives with local fisheries management.

4.6.2 Overall findings on Complementarity

The assessment of the landing obligation's complementarity with other Member State interventions and EU-funded projects reveals a multifaceted and nuanced picture. While the landing obligation aims to support sustainable fishing practices and reduce discards, its integration with Member State initiatives and effectiveness vary across different regions and initiatives.

The alignment of the landing obligation with national policies focused on discard reduction and sustainable fishing practices is perceived differently among stakeholders. While a portion of respondents acknowledge its supportive role, a significant number express scepticism about its effectiveness in enhancing

national efforts. This disparity highlights the need for improved alignment and clearer communication about the landing obligation's objectives and benefits.

EU-funded projects, including Horizon 2020 MINOUW and IMPEMED, as well as funding from EMFF/EMFAF, play a crucial role in enhancing selectivity and building infrastructure for enforcement. However, stakeholders indicate that the support from these funds is often limited, particularly in areas such as control and inspection activities. This suggests a need for better coordination and increased funding to ensure these projects effectively complement the landing obligation.

Overall, the findings indicate that while there are areas of successful integration, the complementarity between the landing obligation and both national and EU-funded initiatives is inconsistent.

4.7 Sustainability

Evaluation question	Indicative judgment criteria
If the landing obligation were to be removed, what might be the likely effects?	Landing obligations interventions played a significant role in the productivity and sustainability of marine ecosystems

Evaluating the sustainability of the landing obligation within the CFP framework is crucial for understanding its long-term impact on the European Union's fisheries management. This assessment is important to ensure that the policy contributes effectively to environmental conservation, economic viability, and resilience amidst dynamic marine environments.

Assessing sustainability is essential for determining whether the landing obligation supports long-term environmental goals such as conserving marine ecosystems, recovering biodiversity, and maintaining marine habitats. Moreover, it evaluates the economic viability of fisheries, ensuring that they can adapt to environmental changes while balancing regulatory compliance with economic realities.

The sustainability evaluation examines the policy's impact on both environmental and economic factors. In regions like the Mediterranean, where ecological diversity and multi-species interactions complicate compliance, the rigid framework of the landing obligation poses challenges. Evaluating sustainability involves determining whether the policy effectively supports fisheries' resilience against climate-related disruptions, such as extreme weather events and shifts in fish stock distributions, while also mitigating economic burdens.

Insights from stakeholders, gathered through e-survey and case studies, highlight varied perceptions of the sustainability of the landing obligation. While many express scepticism regarding its contribution to marine conservation, some acknowledge its potential benefits, particularly in the sustainable exploration of marine resources. This evaluation also considers practical impacts on fishing practices, such as the adoption of selective gear to reduce bycatches and the economic constraints that hinder widespread implementation.

Understanding how the landing obligation addresses regional disparities is a critical component of sustainability evaluation. The policy's effectiveness can vary significantly across regions with unique ecological and operational challenges. Assessing sustainability helps identify whether the policy provides equitable benefits and supports diverse fisheries in achieving long-term environmental and economic goals.

Landing obligation interventions played a significant role in the productivity and sustainability of marine ecosystems.

4.7.1 Landing obligation interventions played a significant role in the productivity and sustainability of marine ecosystems

Strengths and limitations of the landing obligation

The landing obligation aims to create a cohesive structure for managing discards and contributing to sustainable fishing practices across the EU. However, its rigid framework can hinder flexibility, especially during climate emergencies like extreme weather events or shifts in fish stock distributions due to warming seas. This one-size-fits-all approach lacks adaptability, imposing additional challenges on fisheries already dealing with environmental volatility, particularly in complex, multi-species regions such as the Mediterranean Sea. (STECF, 2023a)

Stakeholder perceptions on marine conservation

Insights from stakeholder engagement via the e-survey (E-Survey, S2 Q23, n30) reveal that a majority of stakeholders perceive the landing obligation as having minimal impact on the productivity and sustainability of marine ecosystems. More than 43% of respondents disagreed and 14% strongly disagreed with the notion that the landing obligation contributes positively to aspects of marine conservation, such as:

- protecting the marine environment;
- aiding in the recovery of ocean biodiversity;
- maintaining and restoring marine habitats to a favourable conservation status within the EU;
- supporting fishers and enhancing productivity; and
- improving the sustainable exploration of marine resources.

Despite prevalent scepticism, about 34% of respondents (30% agreeing and 4% strongly agreeing) acknowledge potential benefits, indicating some positive perceptions regarding the sustainable exploration of marine resources.

Case study insights on fishing practices

The case studies offered in-depth insights into changes in fishing practices resulting from the landing obligation. Overall, most case studies concluded that, while the fishing industry does not oppose using alternative fishing gear (such as biodegradable or more selective gear) to reduce bycatch, significant changes in the technical aspects and fishing strategies have not been widely implemented due to perceptions of associated economic losses.

Implementation of selective gear

In certain cases, such as the DWF of French tropical tuna purse seiners and the outermost regions of the Azorean small-scale fishery, more selective fishing gear has been introduced, reducing bycatches. This implementation was supported by pilot projects and training for fishers. These efforts have shown some success in refining fishing techniques and reducing bycatch.

Resistance to change

Despite pilot projects funded by EMFF/EMFAF, new gear designs are often rejected by fishers, so there are no significant changes in selectivity as a result. The complexity of mixed fisheries presents particular challenges, as the lack of sufficient incentives and support discourages the adoption of more selective fishing gear. High costs associated with introducing new gear often led to economic losses for fishers, further hindering implementation.

Despite the implementation of pilot projects funded by the EMFF and the EMFAF, the adoption of new gear designs in the fisheries sector has faced significant challenges, as evidenced by the case studies focusing on the North Western Mediterranean bottom trawl fishery targeting round fish, the Western Adriatic bottom otter trawl fisheries targeting crustaceans and shrimp, and the North-west Adriatic Sea small-scale fleet using bottom-set nets and pots targeting cephalopods and roundfish.

In these studies, the findings reveal a consistent pattern of resistance to change among fishers. The complexity of mixed fisheries, such as those in the Mediterranean and Adriatic seas, adds layers of difficulty to the transition towards more selective fishing practices. The lack of sufficient incentives and support structures plays a critical role in discouraging fishers from adopting more selective gear. Furthermore, the high costs associated with introducing new gear often result in economic losses for fishers, creating a substantial barrier to implementation. Thus, even with available funding and pilot initiatives, the anticipated improvements in gear selectivity are not realized, leaving traditional practices largely unchanged.

Existing selectivity and exemptions

In some regions, the landing obligation has had little impact on selectivity as fishers were already using selective methods. Exemptions such as high survivability and *de minimis* exemptions have disrupted incentives to adopt more selective techniques, maintaining existing fishing patterns. These insights highlight

the nuanced response to the landing obligation across different fisheries, emphasising both resistance due to economic factors and limited success stories where selective gear was actually introduced. The findings suggest that while there are pockets of progress, overall adaptation and compliance with the landing obligation remain inconsistent, primarily due to economic challenges and the complex nature of mixed fisheries.

4.7.2 Overall findings on Sustainability

Evaluating the sustainability of the landing obligation within the CFP framework provides critical insights into its long-term impact on European Union fisheries management. While its goal is to contribute to environmental conservation, economic viability, and resilience, the execution and outcomes of the policy are varied and complex. The sustainability evaluation reveals that the landing obligation's rigid framework sometimes poses challenges, particularly in ecologically diverse regions like the Mediterranean. These areas face unique challenges due to multi-species interactions and environmental volatility, which the landing obligation may not adequately accommodate. This lack of regional flexibility can hinder efforts to adapt to climate-related disruptions, such as shifts in fish stock distributions and extreme weather events.

Insights from stakeholder engagement indicate scepticism about the landing obligation's positive impact on marine conservation. Over half of the stakeholders surveyed expressed doubt that the policy significantly contributes to protecting the marine environment, aiding biodiversity recovery, or maintaining marine habitats. However, a minority recognise its potential in promoting the sustainable exploration of marine resources, suggesting some perceived benefits.

Case studies provide a closer look at the impact of the landing obligation on fishing practices. While some regions, like the French tropical tuna purse seiners and the Azorean small-scale fishery, have successfully introduced more selective gear through pilot projects and training, widespread implementation remains limited. Economic constraints and the complexity of mixed fisheries often discourage the adoption of alternative fishing methods.

Resistance to change is prevalent, with many fishers reluctant to adopt new gear due to the high costs and perceived economic losses. Moreover, flexibility in terms of quota uplifts, quota flexibility, and exemptions, sometimes undermine incentives to shift to more sustainable techniques. In summary, the sustainability of the landing obligation is hindered by economic challenges and the policy's rigid structure, which does not always align with the diverse ecological and operational realities across different fisheries. While there are pockets of progress and some success stories, broader adaptation and compliance remain inconsistent.

5 Conclusions and Recommendations

This study evaluated the performance of the **landing obligation** to gather evidence to assess how this intervention has performed, is currently working and specifically why it performs the way it does. The geographic scope of the study included the Baltic Sea, North Sea, Western Waters of the northeast Atlantic, Mediterranean Sea, Black Sea, Outermost regions, and DWF (covering all other Union waters and non-Union waters not subject to third countries' sovereignty or jurisdiction).

The results of this evaluation followed the Better Regulation Guidelines and cover all five mandatory evaluation criteria (effectiveness, efficiency, relevance, coherence and EU value added), as well as complementarity and sustainability. The evaluation was supported by extensive desk research, including primary and secondary data analysis, ten diverse case studies, in addition to stakeholder engagement (through an e-survey and targeted interviews).

The main objective of the landing obligation, introduced with the 2013 CFP reform, is to contribute to one of the objectives of the CFP Regulation (EU) No 1380/2013 to gradually **eliminating discards** on a case-by-case basis. This was expected to be achieved by encouraging fishers to use **more selective fishing gear** to avoid and reduce unwanted catches, and by requiring all catches of species subject to catch limits and, in the Mediterranean Sea those subject to MCRS, to be landed. The landing obligation was fully implemented in 2019, following a phased introduction that began in 2015.

5.1 Conclusions by evaluation criterion

5.1.1 Effectiveness

The **overall effectiveness** of the landing obligation in reducing discards, i.e. achieving the objective of gradually eliminating discards in accordance with the CFP (Article 2(5)(a)), **has been very low**. While discard reductions have been noted in some regions, fleets, and fisheries, other fisheries continue to face challenges in implementation. This is due in particular to (i) insufficient incentives for compliance coupled with an absence of effective control and enforcement, (ii) inadequate adoption of selective fishing technologies, and (iii) derogations and exemptions that allow discarding to continue. Evidence of a change in behavioural among fishing fleets has been reported where economic or quota incentives are available, or they have been legally mandated to comply.

Analysis of discard rate trends from available literature and STECF FDI data across **sea basins and fisheries reveals significant variability**, with no consistent pattern identifiable across all regions. While the use of BACOMA codends in trawls from the North Sea and Baltic Sea, and T90 codends in

demersal trawls to remove roundfish from crustacean fisheries have shown to reduce the level of unwanted catches, these were already in use prior to the implementation of the landing obligation. However, since 2015, increased selectivity of gears has been adopted in several fisheries, following successful gear selectivity trials and the requirement to meet the necessary gear modifications/conditions required by both *de minimis* and high survivability exemptions. For example, operators in the western and southern **Baltic Sea** now have until 9 April 2025 to adapt their gear to the new requirements, e.g. a 'roofless selection device' in the flatfish bottom trawl fisheries to reduce cod bycatch. Elsewhere, in the **North Sea**, the SELTRA sorting box and sorting grids have been adopted in the Nephrops mixed demersal fish/Nephrops and Pandalus fisheries. Sweden has also phased out less selective gear on favour of SELTRA 300 in the Skagerrak. Furthermore, use of a Flemish Panel in the beam trawl fishery was made mandatory for Dutch and Belgium vessels, as well as for all beam trawlers taking advantage of the *de minimis* exemption for common sole below the MCRS. Also to comply with *de minimis* exemptions, a SEPNEP selectivity device is now required to reduce unwanted catches of plaice in the Nephrops fishery. Other examples from the Atlantic **North Western Waters**, highlight it is now mandatory to use SMP for the West of Scotland Nephrops fishery to reduce catches of whiting and haddock, whereas other bottom trawls or seines using specific mesh sizes or catches of Norway lobster must adopt one of several new gear devices, such a square mesh panel or sorting grid. The Flemish Panel is now also applied for beam trawlers for common sole and haddock to meet *de minimis* exemptions.

The ten case studies within the evaluation further highlight **regional disparities in the effectiveness**. For example, in the North Sea Dutch Norway lobster fishery, economic concerns drive discarding of unmarketable catches, requiring improved market support and regulatory adjustments. Equally, in the Baltic Sea trawl fishery, the persistence of cod discards underscores the need for selective gear adoption and operational flexibility. Nevertheless, the French distant water tropical tuna purse seine fishery has shown use of non-entangling and biodegradable DFADs have the potential to improve catch selectivity and reduce bycatch. Overall, stakeholder feedback indicates the landing obligation has not significantly improved the financial viability of fisheries.

Insights from desk research into reducing unwanted catches of juvenile fish and those under MCRS indicate both **technological progress** and **operational and regulatory challenges**. More selective gears and larger mesh sizes have successfully reduced juvenile bycatch in some pilot programmes. However, limited onboard space and high costs hinder broader adoption, as well as exemptions that undermine the landing obligation's overall objectives.

Further challenges exist in handling, utilisation and market development for juvenile fish and those under MCRS. Desk research shows **underdeveloped market systems** have insufficient processing and marketing infrastructure for low-value catches, limiting their economic viability. Innovative solutions, though promising, face barriers in scalability and adoption. Small-scale fisheries in

particular face challenges in compliance due to limited resources and infrastructure.

Both our desk research and stakeholder e-survey results indicate that **economic and regulatory measures**, as well as **monitoring systems**, are **required to incentivise compliance** with the landing obligation. Economic incentives such as financial aid, extra quota, and access to closed areas show potential but need better support mechanisms and strategies. Freedom in gear selection could also be beneficial but is constrained by economic feasibility and limited stakeholder buy-in. REM and traditional monitoring, control and surveillance (MCS) systems enhance compliance but are not yet broadly adopted. Engaging with fishers to highlight the long-term benefits of REM is crucial for broader acceptance.

Resistance from fishers and economic constraints remain significant barriers.

In the case of the landing obligation's objective of ensuring coherence with Union policies, fostering Member State participation and promoting internal markets, desk research shows **quota swaps and trade agreements have strengthened the internal market**. However further refinements are needed to address timing and logistical constraints. Enhancing the integration and flexibility of the landing obligation could improve its alignment with both regulatory goals and the practical realities faced by fishers.

5.1.2 Efficiency

The analysis of the landing obligation implementation under the CFP reveals significant regional variation in its economic, administrative, and operational impacts. These findings highlight the challenges of achieving compliance while promoting sustainability and economic stability across EU fisheries. The **transition to new practices imposes additional costs and workload**, complicating compliance with the landing obligation. Addressing these challenges requires targeted financial support and infrastructural enhancements to ensure alignment with the goals of the CFP, facilitating improved fisheries management and reduced discards across EU waters. Enhanced regional collaboration and strategic use of exemptions remain pivotal in managing costs and ensuring compliance, thereby fostering sustainable fisheries practices throughout the EU.

Ultimately, the successful implementation of the landing obligation hinges on balancing regulatory requirements with practical operational capabilities. Continuous evaluation and adaptation are necessary to meet the diverse needs of the fisheries sector. By leveraging standardised data and collaborative frameworks, Member States could achieve more cohesive and effective control and enforcement to implement the CFP. This would contribute to sustainable fisheries management across the EU, promoting ecological balance and economic sustainability within the fisheries sector. The **ongoing reliance on *de minimis* exemptions highlights the need for policy flexibility and tailored strategies** to address specific conditions while ensuring compliance and sustainability

objectives. However, while implementation of the landing obligation through MAPs **facilitates an adaptive approach to addressing regional specificities**, this flexibility can also lead to **regional complexity of exemptions, making monitoring and enforcement of management measures more challenging** and ultimately less efficient.

The **administrative costs** of implementing the landing obligation **vary widely across regions**. Results from the stakeholder e-survey reveal efficient systems, like those in Finland, which incur minimal costs due to low discard levels and streamlined processes (e.g. EUR 200 000 for salmon survival studies). In contrast, countries like the Netherlands face substantial costs due to complex mixed fisheries and bottom trawling practices. Elsewhere, *de minimis* exemptions in countries like Cyprus and Slovenia help reduce administrative burdens and support cost-effective implementation. In addition, insights from the e-Survey show that **operators face increased costs** from gear modifications, storage, and administrative requirements. Despite financial aid through EMFF/EMFAF, **awareness and accessibility of these funds remain inconsistent**, leaving some operators unsupported.

Stakeholder interviews were conducted to assess how **standardisation enhances collaboration efforts in implementing fisheries policies across the EU**. Results demonstrated that standardised data and collaborative frameworks (e.g. Finland in the Baltic Sea, Slovenia in the Adriatic) improve cross-border cooperation, highlighting the benefits of regional collaboration. Furthermore, coordination efforts have proven effective even in regions like Cyprus, where shared stocks under the landing obligation are limited.

An analysis of the **inefficiencies and obstacles encountered** in implementing the landing obligation underscores its complexity. Desk research and interviews highlighted that targeted exemptions could reduce economic burdens, as seen in Slovenia's small pelagic and demersal fisheries. However, inefficiencies such as vessel adaptation challenges, increased costs, and insufficient port infrastructure persist. Pilot projects and technological innovations show promise for cost-saving and operational improvements, though access to funding and collaboration remains uneven. Results from case studies, interviews and desk research suggest there is substantial potential to reduce costs and improve results with less public funding by leveraging **alternative policy instruments** and ensuring cost-effectiveness.

Overall, the landing obligation offers significant potential to lower costs by improving data collection and gear selectivity, enhancing fisheries management and sustainability. Nonetheless, to fully harness these cost efficiencies and achieve better outcomes with reduced public funding, it is crucial to address the current funding gaps in enforcement and handling processes, alongside improving awareness and communication of existing policies and initiatives.

5.1.3 Relevance

Overall, the outcome of the **evaluation shows mixed results, with the objectives of the landing obligation remaining highly relevant to the needs in some areas and less so in others**. A total of eight different target groups were considered in our evaluation: aquaculture, the fisheries sector, the small-scale coastal fleet, trade associations, NGOs, public authorities and Advisory Councils, and academia and research institutions. The results showed that the landing obligation is **less relevant to the needs of aquaculture** farmers, particularly when it comes to sustainable sources of fish meal and fish oil, as the landing obligation remains predominantly focussed on wild capture fisheries. While **fostering collaboration between EU fisheries and aquaculture is necessary**, the landing obligation does not currently provide mechanisms to facilitate these partnerships.

Within the fisheries sector, strong evidence shows increased gear selectivity **can lead to a reduction in unwanted catches**. However, the results are complex. Desk research and case studies reveal that higher catch selectivity is more prevalent in pelagic fisheries than in demersal or mixed fisheries. Both **demersal and mixed fisheries** face numerous economic and operational challenges that hinder effective implementation, making it difficult to avoid catching unwanted species. This has led to a high number of exemptions and delegated acts. Further to this, while interviews indicate fishers clearly understand the objectives of the landing obligation, there is little or no ownership in adopting it. For example, funding from the **EMFF/EMFAF has frequently been used to support exemptions** rather than to increase gear selectivity.

To date, several general sector challenges remain, including additional costs for handling and storage, and administrative requirements. These reduce profitability and increase resistance to the landing obligation. Interviews with fishers indicate that the **lack of market development for unwanted catches** undermines economic incentives for compliance. Fishers also face increased operational burdens without corresponding income growth, further weakening the landing obligation's relevance and effectiveness. These issues are compounded by complex and rigid regulatory requirements.

Representatives of **trade associations** highlighted the need for a stable regulatory environment, financial support for compliance investments, and simplified legislation to aid in long-term planning and adherence. **NGOs** argued that the landing obligation lacks comprehensive ecological protections, advocating stricter enforcement, enhanced monitoring (e.g. electronic systems), and clearer guidelines to ensure biodiversity conservation. **Academia and research institutions** noted a lack of long-term monitoring data on a relevant scale and that a lack of funding hampers the ability to assess the environmental and economic impacts of the landing obligation. **Public authorities and Advisory Councils** also highlighted the fact that, although funding has increased, it remains insufficient for the effective monitoring and enforcement required for the comprehensive data

collection and standardised reporting formats needed for improving cross-regional compliance assessments.

The analysis highlighted the partial alignment of the landing obligation with the goals of the **EU Green Deal**, revealing both strengths and significant gaps across the 2030 Biodiversity Strategy, Farm to Fork Strategy, and the Just Transition Framework. Desk research and interviews show that the landing obligation has made a **limited contribution to the objectives of the Biodiversity Strategy**. Whilst the intervention in theory aligns with sustainable practices, such as reducing ecological waste and maintaining sustainable fish stocks, it falls short in practice. It also does not address broader biodiversity goals, such as expanding marine protected areas or prioritising ecosystem-based management for sensitive habitats or degraded ecosystems.

The intervention demonstrates **partial alignment with the Farm to Fork Strategy**. While it supports sustainability in food production and promotes responsible practices, it has several limitations regarding affordability, accessibility, sustainability, and nutritional goals and economic challenges. For instance, increased operational costs for handling, storing, and processing bycatch often translate into higher seafood prices, reducing affordability. Furthermore, the landing obligation does not adequately address market demand for landed bycatch and limits its relevance to nutritious food supply goals through prevention of sale for direct human consumption.

The evaluation also shows that the landing obligation is currently **misaligned with the Just Transition Framework**. Operational changes driven by the landing obligation, such as bycatch handling, introduce new tasks but primarily rely on existing crew members rather than creating new job opportunities or reskilling programmes in fisheries or alternative sectors (e.g. aquaculture or marine conservation).

Economic challenges across various regions suggest a misalignment between the landing obligation's requirements and the financial sustainability of fisheries. Financial incentives and support, as highlighted in the report, are crucial for facilitating the transition to more selective fishing methods and enhancing economic stability. These measures are essential to ensuring fisheries remain both ecologically and economically viable. While the landing obligation aims to encourage sustainable fishing practices, its current rigidity presents significant operational challenges across diverse fisheries. Developing more adaptable regulations that consider regional and gear-specific conditions is vital to ensure that fishers can conduct their operations effectively and sustainably.

5.1.4 Coherence

The extent to which the landing obligation is coherent with **other interventions which have similar objectives reveals significant challenges and mixed results**. Overall, the landing obligation has faced significant implementation and

coherence challenges. It has struggled to balance operational realities with CFP objectives, particularly in fostering selectivity, economic sustainability, and compliance.

In principle the landing obligation aligns with Technical Measures Regulation (EU) No 2019/1241, which emphasises the reduction of unwanted catches and discards. However, coherence in practical implementation is less obvious due to challenges in data accuracy and operational execution, particularly in multi-species fisheries. While efforts to improve size and species selectivity have seen some progress, large-scale behavioural changes in fishing practices have not been observed. Adoption of selectivity measures remains low unless incentivised economically or through quotas.

The landing obligation has imposed increased costs on fishers for handling and landing unwanted catches, often leading to these catches being discarded on land or disposed of in landfills. This contradicts the CFP's objectives of economic, social, and employment benefits, as well as sustainable food supplies. Further to this, the rising number of Joint Recommendations for exemptions, particularly for high survivability and *de minimis* provisions, undermines efforts to improve overall fishing selectivity, diminishing the incentives to change behaviour towards more sustainable practices. Implementation of the landing obligation has been weak due to a complex web of rules, exemptions, and derogations. and Illegal discarding persists. In comparison, Norway's discard ban presents a more coherent model, emphasising gradual implementation, economic compensation for fishers, robust enforcement, and adaptive measures like temporarily closed areas. Similar approaches in Iceland and New Zealand, such as Individual Transferable Quota systems, provide flexibility but have their effectiveness in reducing discards is uncertain. These contrasts highlight gaps in the EU's approach.

The extent to which the landing obligation and its measures have **generated synergies and/or compensated for possible trade-offs among them is complex**. Overall, while the landing obligation is conceptually aligned with related measures, the practical implementation suffers from insufficient focus on mitigating economic impacts and promoting innovation, leaving significant room for improvement. The landing obligation is theoretically coherent with the Technical Measures Regulation (EU) No 2019/1241 and EU funding mechanisms like EMFF/EMFAF, which aim to promote gear selectivity and develop methods for bycatch reduction. These synergies were intended to foster innovative practices and improve fisheries management. In practice, however, desk research has shown many EMFF/EMFAF projects have focused on high survivability studies and exemptions for mixed fisheries, effectively maintaining the status quo. Some Mediterranean Member States have expressed the intention of using EMFAF for selectivity trials, but progress remains limited. Results from desk research and the E-Survey reveal the landing obligation imposes significant economic costs on fishers, including lost storage space, additional handling requirements, and disposal costs for unwanted catch. Despite these burdens, there are no clear compensation mechanisms to offset these impacts, limiting incentives for compliance.

The landing obligation **theoretically aligns with the MSFD objectives** to achieve good environmental status by reducing bycatch and supporting ecological balance. However, practical implementation has not significantly reduced bycatch levels, limiting ecological benefits and raising questions about its impacts on environmental sustainability. Stakeholder perspectives reflect scepticism about the landing obligation's contribution to marine environmental protection under the MSFD. The landing obligation's alignment with the **Habitats Directive**, which aims to conserve biodiversity and maintain species at favourable conservation status, is more evident in its potential to support marine species conservation by reducing bycatch. However, concerns persist about its limited contribution to the protection of marine habitats, as highlighted by a majority of e-survey respondents who found it ineffective in this regard.

The landing obligation aligns with the **Europe 2020 Strategy** sustainable growth goals by promoting long-term fisheries sustainability, but its short-term implementation challenges, including high costs and lack of socio-economic mitigation, undermine its inclusive growth objectives. Economic pressures on fishers, insufficient processing infrastructure, and inefficiencies in managing unwanted bycatch hinder its effectiveness and discourage compliance. Although the landing obligation aims to reduce waste in line with the **EU Farm to Fork Strategy**, its prohibition on using bycatch for human consumption can lead to edible catches being discarded in landfills or incinerated, creating inefficiencies. Poor enforcement and operational gaps further limit the landing obligation's contribution to environmental objectives, such as the **2030 Biodiversity Strategy**, despite its ecosystem-based approach. Addressing these challenges requires enhanced implementation, enforcement, and investment in infrastructure to mitigate economic burdens, reduce waste, and align more closely with EU sustainability and biodiversity strategies.

Overall, quota uplifts aimed at **facilitating a flexible transition to a catch-based TAC system have not led to significant reductions in discards** and may have resulted in increased fishing mortality, undermining the objective of the landing obligation. The use of flexibility mechanisms such as inter-annual and inter-species flexibility, quota swaps, and Member State adaptations have been varied. While these provide operational flexibility, they have not consistently promoted behavioural change or improved selectivity, often supporting the pre-landing obligation status quo. An increase in Joint Recommendations for exemptions, such as *de minimis*, has shifted focus away from improving fishing practices. The high level of exemptions has enabled the continuation of previous fishing behaviours, reducing the effectiveness of the landing obligation. The extensive flexibility provided to Member States and fleet segments has increased complexity and hindered coherent implementation. Rather than incentivising behaviour change, these flexibilities have primarily been used to maintain existing practices. Despite measures like Portugal's sub-quota system and tailored quota management for specific stocks, the overall system remains fragmented. Limited quota swap opportunities and resulting choke situations highlight ongoing implementation difficulties and inefficiencies. The excessive flexibility within the landing obligation

framework has undermined its core objective of behavioural change, leading to poor implementation and reduced coherence with its original goals.

The landing obligation **aligns with international obligations and objectives, including the SDGs**. It reflects principles in the FAO's 1995 Code of Conduct for Responsible Fisheries and aligns with steps taken by RFMOs to reduce discards and adopt discard bans, consistent with international trends. The landing obligation applies to EU fishing activities both within and beyond national jurisdictions, demonstrating coherence with international efforts to minimize discards and improve fisheries sustainability. Desk research shows the landing obligation is broadly aligned with SDG 14.4's aim to regulate harvesting, end overfishing, and restore fish stocks to maximum sustainable yield levels. However, despite these efforts, global overfishing remains a significant issue, with 35.4% of global fish stocks overfished as of 2019, particularly in the Mediterranean and Black Sea regions.

5.1.5 EU value added

Overall, **the assessment of added value of the landing obligation relative to what Member States could achieve independently at the national and regional levels was mixed**. A range of challenges were identified through the evaluation of desk research and stakeholder engagement (e-survey).

Small-scale fisheries struggle with the economic burdens of complying with the landing obligation. The **cost of compliance often exceeds the economic benefits due to limited market opportunities for low value catch**. Existing financial support mechanisms, such as the EMFF/EMFAF, are considered inadequate to address these challenges fully. The rigid, one-size-fits-all approach of **EU interventions does not sufficiently account for the diverse operational realities of European fisheries**. Small-scale fisheries, especially in regions with unique constraints, require more tailored, region-specific adaptations. The **inflexible nature of EU policies during crises** (e.g. COVID-19 pandemic) further limits the landing obligation's impact, restricting its ability to adapt to fluctuating circumstances and regional needs.

Despite the establishment of discard measures as part of the landing obligation, **illegal discarding continues**, indicating limited effectiveness of current measures. This **persistence diminishes the EU added value of the landing obligation**. To fully realise the EU added value of the landing obligation, **strategic refinements are necessary**. These should: (i) enhance financial support mechanisms, ensuring they adequately cover compliance costs, (ii) introduce flexibility to address region-specific and crisis-related challenges, and (iii) align policies more closely with the practical realities and sustainability objectives of fisheries across Europe.

The landing obligation holds significant potential to contribute to broader sustainability and economic viability goals. However, this potential remains

unrealised without a tailored and adaptive approach to the specific needs of Member States in different regions, to enhance the effectiveness of landing obligations and realise their intended benefits within the European fisheries sector fisheries management.

5.1.6 Complementarity

The findings indicate **mixed perceptions about the impact of the EU landing obligation on national fisheries management and conservation initiatives**. While some respondents to the stakeholder e-survey recognised complementary EU-funded projects like Horizon 2020 MINOUW and IMPEMED in the Mediterranean region, as well as funding from the EMFF/EMFAF for improving selectivity and infrastructure, it is not possible to draw a clear conclusion.

In total, less than half (40-45%) of respondents to the e-survey agreed that the landing obligation had **supported national policies related to discard reduction** effectively and ensured that all catches were landed, while a notably larger proportion (55-60%) disagreed. This indicates limited perceived alignment or reinforcement of national initiatives by the landing obligation.

While specific EU-funded projects and financial instruments are acknowledged, case studies showed **support remains limited, particularly for control, inspection, and processing activities**. This highlights gaps in implementation and operational effectiveness of the landing obligation.

In summary, the landing obligation's integration with other fisheries management and conservation measures appears partial and inconsistent, with notable areas for improvement in how funding is applied and practical enforcement.

5.1.7 Sustainability

This evaluation underscores that while the landing obligation represents a step toward sustainable fishing practices, its **long-term success depends on increased flexibility, economic support, and enhanced collaboration with stakeholders** to overcome systemic challenges. While the intervention **establishes a cohesive EU-wide framework** aimed at reducing discards and promoting resource conservation and accountability, the landing obligation's overarching approach **fails to address the dynamic and diverse conditions of fisheries**. This is particularly evident in complex mixed fisheries, where balancing bycatch reduction with economic viability remains challenging.

The adoption of selective fishing gear is **hindered by high upfront costs and potential economic losses**, deterring fishers from embracing change. Further to this, provisions like high survivability and *de minimis* exemptions reduce incentives to adopt selective gear, thereby maintaining existing fishing patterns. Stakeholder scepticism further highlights these issues, with 55% questioning the landing

obligation's ability to positively impact marine conservation, citing minimal effects on biodiversity recovery, habitat restoration, or productivity enhancement.

Despite these challenges, **there are measurable successes**. For example, targeted implementation of selective fishing gear, supported by pilot projects and training, has effectively reduced **bycatch in specific contexts**, such as the Azorean small-scale fishery and French tropical tuna fleets. Furthermore, **34% of stakeholders recognize the potential benefits** of the landing obligation in enabling sustainable exploitation of marine resources.

5.2 General conclusions

There remain several challenges (or barriers) to implementation of the intervention. The most prevalent of these experienced by Member States in all sea basins include ineffective **monitoring and enforcement, maintaining economic feasibility** and difficulties in **improving species and gear selectivity**. In addition, to demonstrate relevance and effectiveness of the landing obligation, improvements are required in the level of monitoring, via the data collection framework, to enhance the quality of fisheries dependent data available for the Member States to feed into EU wide data sources. **This ensures the analyses can be conducted with sufficient detail to reflect the case-by-case application of the landing obligation across all fleet and fishery segments**. Discard estimates and reporting must appropriately capture the impacts of exemption and gear selectivity methods used during fishing activity. Currently, this level of granularity is not available within EU wide data sources, except where exemptions have been applied retrospectively to pre-aggregated data. As a result, the STEFC FDI database should be enhanced, or an alternative EU wide database established, which includes the exemptions under which fishing activity is occurring, as reported within the vessels fishing logbook.

Through Article 15 of the CFP regulation (EU) No 1380/2013, the landing obligation shall be specified in MAPs, **which can be an effective tool** for the implementation of the LO by Member States, by outlining specific provisions, exemptions and management practices. This has **not yet been done in all regions**, including Outermost Regions, for example.

Balancing sustainability goals with maintaining the economic viability of fisheries has been flagged as a widespread issue across all EU fisheries. Compliance with the landing obligation can incur significant costs to fishers. A **lack of enforcement by Member States** is thought to contribute to low levels of compliance.

Monitoring discarding practices is very challenging across EU fleet segments. The **use of REM or CCTV onboard vessels** is considered by experts as the most cost-effective method to document fisheries fully, which aligns with the Control Regulation (EC) No 1224/2009 as amended by Regulation (EU) No 2023/2842 and the mandatory use of CCTV onboard certain vessels at high risk of no

compliance by 2028. However, it has been shown that EMS can struggle to accurately identify and quantify non-target species, for example on French tropical tuna purse seine vessels (Briand et al., 2018). Reducing discards requires **improving gear selectivity**, which remains costly and challenging particularly in mixed fisheries across various sea basins, where catching species with limited quotas can lead to early closures. Quota-based incentives, however, have been shown as powerful drivers for adopting more selective gears in the Irish ‘*Nephrops* scheme’. Overall, **results from gear trials have been varied**, creating a barrier to widespread adoption. For example, while there is evidence from several Spanish and French trawl fleets of successful technical and tactical measures to increase selectivity, there has been no uptake of any gear modifications.

The **landing obligation recognises the challenges of eliminating discard practices**, particularly in mixed fisheries, where multiple regulated species are captured together and risk choke situations. For fisheries that have disproportionate landing costs and proven difficulty of handling unwanted catches or returning of prohibited species, fish with high survivability and fish damaged by predation, certain ***de minimis* exemptions can be established through delegated acts**. The nature of mixed fisheries has been shown to be complex, making *de minimis* exemptions essential for sustaining these fisheries and maintaining economic viability. In addition, quota swaps and inter-annual flexibility were the most important measures used by Member States to prevent choke situations.

The EMFF/EMFAF has been used to support projects to increase gear selectivity and reporting systems and therefore minimise the number of exemptions. However, there has been an observed increase in number of in funding **requests for scientific projects to support *de minimis* exemptions**.

Several challenges remain in the implementation of the landing obligation, shown by significantly **varying levels of effectiveness across different regions**. This variation is influenced by several factors, including diverse operational practices, economic conditions, and ecological contexts, highlighting the importance of ensuring that the intervention includes a wide range of measures to accommodate regional specificities. Further examples from different regions are provided below:

- **Baltic Sea:** Misreporting of catches in the mixed pelagic fisheries may weaken the accuracy of stock assessments and effectiveness of fisheries management, whereas stakeholders perceive the application of the Margin of Tolerance of the Baltic Sea MAP to have provided an incentive to misreport catches, leading to poor scientific stock assessment of herring.
- **North Sea and North Western Waters:** One of the biggest challenges reported was the withdrawal of the UK from the EU, reducing fishing opportunities and thus hindering Member States’ ability to swap quotas, whilst a reduction in TACs amplified the risk of choke species. More specifically, Belgium, the Netherlands and Spain indicated the reduction in TACs had

increased the risk of choke situations, while the Netherlands highlighted more quota swaps are needed to cover bycatches of stock with no quota.

- **South Western Waters:** Discarding still occurs due to the low or lack of commercial value and/or market for unwanted catches. This is exacerbated by few opportunities to utilise quota flexibilities.
- **Mediterranean Sea:** Given the preponderance of small-scale fishers in the region, it is particularly difficult to monitor species subject to the MCRS and to enforce the obligation. Other significant challenges include wide variability in catch composition, vessels and gear, limited access to reliable data and the potential illegal market for undersized fish.
- **Outermost Regions and Distant Water Fleet:** The structure and scope of EU regulations make it challenging to process discards, reduce bycatch from small scale multi-species and multi-gear fisheries in the Outermost Regions, which is exacerbated by the logistical issues involved in adopting electronic monitoring. In addition, while it can be challenging to monitor and enforce management measures within the distant water fleet, the case study from the French purse-seine fishery, showed it is feasible to reduce bycatch and unwanted fish, through use of innovate gear design.

Addressing implementation gaps, operational flexibility, and economic support is essential. Through targeted interventions and collaborative efforts, the landing obligation can contribute effectively to the CFP's sustainability objectives, ensuring resilient fisheries and ecological health across EU waters. By addressing these challenges, the landing obligation can achieve meaningful reductions in discards, support economic viability, and enhance the resilience of EU fisheries.

5.3 Recommendations

Robust evidence shows that the landing obligation **establishes a solid framework** for reducing discards and promoting sustainability, but the **overall effectiveness has been very low across all regions**. Through the evaluation, the following recommendations and good practices/examples have been identified to support implementation of the landing obligation.

5.3.1 Effectiveness

- **Strengthen MCS:** Member States should take the necessary measures to ensure the effective monitoring and enforcement of the landing obligation on all fishing vessels flying the flag of an EU country, including Outermost Regions and distant water fleets.
- **Strengthen catch monitoring and data collection:** The STECF FDI database should be enhanced, to include a link to the exemptions under which fishing activity is occurring, on a haul-by-haul basis.

- **Foster collaboration:** Build trust with fishers through increased cooperation and shared ownership of solutions, fostering a collaborative approach to addressing landing obligation challenges.
- **Reduce reliance on *de minimis* exemptions:** Critically assess the growing number of Joint Recommendations for exemptions to ensure they do not undermine the primary goal of reducing discards. Reducing exemptions in each region, particularly those related to *de minimis*, would enhance the overall effectiveness of the landing obligation.
- **Flexibility mechanisms:** Ensure flexibility mechanisms (e.g. quota swaps) retain an incentive to create positive changes in behaviour to adopt more selective gear devices. This will ensure flexibility supports the transition to a catch-based system without compromising the landing obligation's core objectives.
- **Provide additional financial support:** Offer financial support (including compensation mechanisms) and incentives for the adoption of selective fishing gear and improved handling facilities, particularly for small-scale coastal fisheries, to encourage compliance and better practices.
- **Adapt regionally:** Develop region-specific strategies that consider the socio-economic and ecological context of different regions, ensuring more effective application of the landing obligation.
- **Invest in infrastructure:** Further development of supply chains for non-human consumption of fish, including investment in innovations in processing, market infrastructure, and consumer awareness for low-grade catches to enhance the value of bycatches and reduce waste.
- **Promote informed decisions:** Improve the dissemination of scientific data to stakeholders, helping them make informed decisions and foster greater compliance with the landing obligation.

5.3.2 Efficiency

- **Integrate economic mitigation strategies:** Establish clear compensation mechanisms to offset the economic costs of the landing obligation, including handling, storage, and disposal costs. This would improve compliance incentives and reduce economic pressure on fishers.
- **Expand funding opportunities:** Enhance access to funding programmes (e.g. EMFAF, Horizon Europe) and create targeted support for gear modifications and infrastructure upgrades that improve compliance and sustainability.
- **Adapt policies to regional needs while maintaining clarity in implementation:** Tailor landing obligation policies to local ecological, economic, and operational contexts, drawing from best practices in successful systems to ensure regional efficiency.

- **Foster collaboration:** Strengthen partnerships among Member States, fishers, and stakeholders to build trust, align objectives, and standardise practices for data collection, reporting, and monitoring, ensuring efficient implementation.
- **Invest in infrastructure:** Address gaps in port facilities and logistical support to improve the handling, storage, and processing of unwanted catches, reducing waste and improving operational efficiency.
- **Increase flexibility:** Optimise the use of exemptions (e.g. *de minimis*) to strike a balance between ecological goals and economic realities, ensuring flexibility does not undermine the system's efficiency.
- **Enhance communication:** Establish clear and effective communication channels to disseminate regulatory updates, funding opportunities, and address stakeholder concerns, improving transparency and coordination.
- **Promote regional cooperation:** Encourage functioning of High-Level Groups like the Adriatica group to align strategies, enhance data sharing, and improve collective outcomes across regions, promoting greater efficiency in managing the landing obligation.

5.3.3 Relevance

- **Adaptable frameworks:** Develop adaptable regulations that consider fleet diversity and the unique needs of fisheries, particularly those of small-scale fisheries, ensuring that the landing obligation is relevant and feasible across varying contexts.
- **Stronger enforcement:** Member States to ensure compliance of fleet with EMS requirements under amended Control Regulation (EU) No 2023/2842 to improve monitoring and compliance and invest in training national enforcement personnel to ensure effective implementation and adherence to the landing obligation.
- **Financial support:** Increase funding for compliance costs, discard handling, infrastructure upgrades, and research into sustainable practices, ensuring that fishers are supported in meeting the obligations without undue economic burden.
- **Market development:** Promote the development of markets for unwanted catches through value-added processing and marketing initiatives, encouraging the use of unwanted catches and reducing waste.
- **Integrated sustainability:** Foster collaboration between the fisheries and aquaculture sectors to align the landing obligation with ecosystem-based management approaches and the EU Green Deal objectives, ensuring that the landing obligation contributes to broader biodiversity protection and sustainable fisheries management goals.

- **Exemptions:** Reassess the exemption frameworks to ensure region-specific application of the landing obligation, with short-term flexibility to allow adaptation.
- **Workforce support:** Provide reskilling programs and economic support to help fishers transition to more sustainable practices, ensuring the workforce can adapt to evolving environmental and regulatory demands.

5.3.4 Coherence

- **Enhance data accuracy and operational execution:** To improve coherence with the Technical Measures Regulation (EU) No 2019/1241, efforts should be made to enhance data accuracy and streamline operational execution, particularly in multi-species fisheries. This will support better decision-making and more effective implementation of selectivity measures.
- **Promote synergies with other EU regulations:** More emphasis should be placed on fostering synergies between the landing obligation and other EU initiatives like the Technical Measures Regulation (EU) No 2019/1241 and EMFF/EMFAF. Encouraging innovation in gear selectivity and bycatch reduction should be prioritised, moving beyond high survivability studies to practical solutions.
- **Improve infrastructure for bycatch management:** Increased investment in processing infrastructure, such as fishmeal factories, should be prioritised to reduce the inefficiencies in managing unwanted bycatch. This would help align the landing obligation with broader sustainability and waste reduction goals.
- **Strengthen alignment with environmental strategies:** The landing obligation should be more effectively integrated with environmental goals such as the 2030 Biodiversity Strategy and the MSFD. This would enhance its ecological benefits and contribute to the protection of marine species and habitats.
- **Collaborate with international efforts:** The EU should strengthen collaboration with regional fisheries management organizations (RFMOs) and international bodies to ensure that the landing obligation aligns more effectively with global sustainability efforts, particularly SDG 14.4 which aims to end overfishing.

5.3.5 EU Value added

- **Flexibility and adaptation:** Develop region-specific policies and crisis-response mechanisms that accommodate the diverse operational contexts of European fisheries, ensuring that the landing obligation is flexible and effective across different Member States.
- **Enhanced funding:** Expand and simplify access to financial support mechanisms, such as EMFAF, to help mitigate compliance costs, ensuring

small scale fisheries are not disproportionately affected by the landing obligation.

- **Market development of low-value catches:** Promote market opportunities for low-value catches by partnering with food industries, launching public awareness campaigns, and supporting value-added processing initiatives to reduce waste and generate economic value.
- **Improved monitoring and enforcement:** Strengthen discard management frameworks through technological innovations, such as EMS, and harmonise enforcement protocols across Member States to ensure consistency and effectiveness in the implementation of the landing obligation.
- **Alignment with sustainability goals:** Integrate landing obligation frameworks with EU sustainability objectives, such as biodiversity protection and the EU Green Deal, to maximise the environmental and economic benefits of the landing obligation and ensure it contributes to the EU's broader sustainability and climate goals.

5.3.6 Complementarity

- **Policy alignment:** Establish clear guidelines to integrate landing obligation initiatives with national fisheries policies, ensuring that these efforts complement existing management programmes, especially in regions like the Mediterranean and North Western Waters. This ensures consistency in objectives across different levels of governance.
- **Collaboration forums:** Create Member State forums or task forces to facilitate the exchange of best practices, harmonise landing obligation efforts, and encourage cross-regional cooperation. These platforms would foster consistency in policy implementation and increase the overall effectiveness of the landing obligation.
- **Regional initiatives:** Design and implement region-specific programmes tailored to the unique ecological and operational challenges of each area. These initiatives should provide targeted funding, technical assistance, and better alignment with national fisheries strategies, ensuring the measures are adaptable and locally relevant.
- **Impact evaluation:** Introduce mechanisms for the ongoing monitoring and evaluation of landing obligation initiatives to assess their effectiveness and ensure they continuously align with the objectives of the landing obligation. Regular assessments will allow for adjustments and improvements over time.

5.3.7 Sustainability

- **Enhance flexibility in policy design:** Adapt the framework to account for regional ecological and operational diversity, especially in mixed fisheries and

areas vulnerable to climate-induced changes and multi-species fisheries, such as the Mediterranean.

- **Increase economic support:** Provide financial incentives and subsidies to mitigate the economic burden of adopting selective gear and transitioning to sustainable fishing practices.
- **Reassess exemptions:** Reevaluate provisions like high survivability and *de minimis* exemptions to ensure they do not undermine efforts to promote gear selectivity and reduce discards.
- **Promote stakeholder engagement:** Promote open communication with fishers and other stakeholders to address scepticism and highlight the tangible benefits of compliance, particularly in marine conservation and resource sustainability.
- **Expand pilot projects and training:** Scale up successful initiatives, such as those in the Azorean small-scale fishery and French tropical tuna fleets, to demonstrate best practices and refine selective gear techniques.
- **Address challenges in mixed fisheries:** Develop tailored strategies for complex fisheries where balancing bycatch reduction and economic viability is particularly challenging.
- **Evaluate regional disparities:** Assess the policy's regional effectiveness and adapt implementation strategies to ensure equitable benefits across diverse ecological and economic contexts.

5.4 General recommendations

- **Strengthen monitoring and enforcement:** Implement REM onboard vessels as per the amended Control Regulation (EU) No 2023/2842. Address challenges of EMS to ensure effectiveness across all fleet segments.
- **Enhance gear selectivity:** Offer quota-based incentives and economic support to promote adoption of selective gears. Look to address barriers to adoption, such as economic viability and lack of enforcement.
- **Improve data collection and analysis:** Ensure detailed data collection across all fleet segments to assess discard practices effectively.
- **Provide economic and operational support:** Ensure sustainability goals are balanced with economic viability by offering targeted financial support to fishers. Further use of EU financial instruments to fund gear selectivity, reporting systems, and *de minimis* exemption research.
- **Foster collaboration and targeted interventions:** Ensure regional adaptability of the landing obligation by tailoring measures to address specific regional needs. Strengthen cooperative efforts to close gaps in enforcement, economic support, and operational flexibility.

6 Annexes

- Annexes:
 1. Discard Plans and Delegated Acts considered within the evaluation
 2. Evaluation Question Matrix
 3. Methodology
 4. Case studies
 5. Synopsis report of Stakeholder engagement
 6. Evolution of fishing practices since the implementation of the landing obligation
 7. Evolution of fisheries management and regional rules associated with the landing obligation
 8. STECF FDI discard rates across species
 9. STECF FDI trends in average discard rates
 10. STECF FDI trends in average discard rates by species
 11. Good practices towards reducing unwanted catches
 12. STECF FDI catches above and below MCRS
 13. Summary of barriers to implementation
 14. Overview of benefits and costs
 15. E-Survey questions
 16. References
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ANNEX 1: Discard Plans and Delegated Acts considered within the evaluation

MAPs

Regulation (EU) 2016/1139 of the European Parliament and of the Council of 6 July 2016 establishing a multiannual plan for the stocks of cod, herring and sprat in the Baltic Sea and the fisheries exploiting those stocks, amending Council Regulation (EC) No 2187/2005 and repealing Council Regulation (EC) No 1098/2007. OJ L 191, 15.7.2016, p.1-15.

Regulation (EU) 2018/973 of the European Parliament and of the Council of 4 July 2018 establishing a multiannual plan for demersal stocks in the North Sea and the fisheries exploiting those stocks, specifying details of the implementation of the landing obligation in the North Sea and repealing Council Regulations (EC) No 676/2007 and (EC) No 1342/2008. OJ L 179, 16.7.2018.

Regulation (EU) 2019/472 of the European Parliament and of the Council of 19 March 2019 establishing a multiannual plan for stocks fished in the Western Waters and adjacent waters, and for fisheries exploiting those stocks, amending Regulations (EU) 2016/1139 and (EU) 2018/973, and repealing Council Regulations (EC) No 811/2004, (EC) No 2166/2005, (EC) No 388/2006, (EC) No 509/2007 and (EC) No 1300/2008. OJ L 83, 25.3.2019, p. 1.

Regulation (EU) 2019/1022 of the European Parliament and of the Council of 20 June 2019 establishing a multiannual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea and amending Regulation (EU) No 508/2014. OJ L 172, 26.6.2019.

Delegated Acts

Baltic and North Sea Region

Commission Delegated Regulation (EU) 2018/306 of 18 December 2017 laying down specifications for the implementation of the landing obligation as regards cod and plaice in Baltic Sea fisheries. OJ L 60, 2.3.2018, p. 1–4.

Commission Delegated Regulation (EU) 2018/47 of 30 October 2017 authorising the use of alternative T90 trawls in Baltic Sea fisheries, by way of derogation from Council Regulation (EC) No 2187/2005. OJ L 7, 12/01/2018, p. 21–22.

Commission Delegated Regulation (EU) 2023/2459 of 22 August 2023 supplementing Regulation (EU) 2018/973 of the European Parliament and of the Council by specifying details of the landing obligation for certain fisheries in the North Sea for the period 2024-2027.

Commission Delegated Regulation (EU) 2024/1296 of 28 February 2024 supplementing Regulation (EU) 2016/1139 of the European Parliament and of the Council concerning an exemption from the application of the landing obligation as regards salmon in the Baltic Sea for the period 2024-2026. OJ L, 2024/1296, 7.5.2024.

North and South Western Waters Regions

Commission Delegated Regulation (EU) 2023/2623 of 22 August 2023 supplementing Regulation (EU) 2019/472 of the European Parliament and of the Council by specifying details of the landing obligation for certain fisheries in Western Waters for the period 2024-2027. OJ L, 2023/2623, 22.11.2023.

Commission Delegated Regulation (EU) 2021/2324 of 23 August 2021 amending Regulation (EU) 2019/1241 of the European Parliament and of the Council as regards technical measures for certain demersal and pelagic fisheries in the Celtic Sea, the Irish Sea and the West of Scotland. OJ L 465, 29/12/2021, p. 1–7.

Mediterranean and Black Sea Region

Commission Delegated Regulation (EU) 2023/2918 of 22 August 2023 supplementing Regulation (EU) No 1380/2013 of the European Parliament and of the Council as regards the establishment of a *de minimis* exemption to the landing obligation for certain demersal fisheries in the Adriatic and south-eastern Mediterranean Sea. OJ L, 2023/2918, 28.12.2023.

Commission Delegated Regulation (EU) 2023/2462 of 22 August 2023 supplementing Regulation (EU) 2019/1022 of the European Parliament and of the Council by specifying details of the landing obligation for certain demersal stocks in the western Mediterranean Sea OJ L 2462 6.11.2023, p. 1.

Commission Delegated Regulation (EU) 2023/2460 of 22 August 2023 supplementing Regulation (EU) No 1380/2013 of the European Parliament and of the Council as regards the establishment of a *de minimis* exemption to the landing obligation for certain small pelagic fisheries in the Mediterranean Sea. OJ L, 2023/2460, 6.11.2023.

Commission Delegated Regulation (EU) 2022/2587 of 18 August 2022 amending Regulation (EU) 2019/1241 of the European Parliament and of the Council as regards the minimum conservation reference size of Venus shells (Venus spp.) in certain Italian territorial waters. OJ L 338, 30.12.2022, p. 40–43.

Commission Delegated Regulation (EU) 2022/2287 of 12 August 2022 amending Delegated Regulation (EU) 2021/2065 establishing a discard plan for turbot fisheries in the Black Sea as regards the extension of the high survivability

exemption to the landing obligation for turbot in the Black Sea. OJ L 303, 23.11.2022, p. 1–2.

Distant Waters Region

Commission Delegated Regulation (EU) 2022/824 of 15 March 2022 amending Delegated Regulation (EU) 2015/98 on the implementation of the Union's international obligations, as referred to in Article 15(2) of Regulation (EU) No 1380/2013 of the European Parliament and of the Council, under the International Convention for the Conservation of Atlantic Tunas and the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries. OJ L 147, 30.5.2022, p. 1–2.

Expired Delegated acts

Commission Delegated Regulation (EU) No 1396/2014 of 20 October 2014 establishing a discard plan in the Baltic Sea. OJ L 370, 30/12/2014, p. 40–41.

Commission Delegated Regulation (EU) No 1392/2014 of 20 October 2014 establishing a discard plan for certain small pelagic fisheries in the Mediterranean Sea. OJ L 354, 28.12.2013, p. 22.

Commission Delegated Regulation (EU) 2015/98 of 18 November 2014 on the implementation of the Union's international obligations, as referred to in Article 15(2) of Regulation (EU) No 1380/2013 of the European Parliament and of the Council, under the International Convention for the Conservation of Atlantic Tunas and the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries. OJ L 16, 23.1.2015, p. 23–26.

Commission Delegated Regulation (EU) 2015/2438 of 12 October 2015 establishing a discard plan for certain demersal fisheries in north-western waters. OJ L 336, 23/12/2015, p. 29–35.

Commission Delegated Regulation (EU) 2015/2439 of 12 October 2015 establishing a discard plan for certain demersal fisheries in south-western waters. OJ L 336, 23.12.2015, p. 36–41.

Commission Delegated Regulation (EU) 2015/2440 of 22 October 2015 establishing a discard plan for certain demersal fisheries in the North Sea and in Union waters of ICES Division IIa. OJ L 336, 23.12.2015, p. 42–48.

Commission Delegated Regulation (EU) 2016/2374 of 12 October 2016 establishing a discard plan for certain demersal fisheries in South-Western waters. C/2016/6444. OJ L 352, 23.12.2016.

Commission Delegated Regulation (EU) 2016/2375 of 12 October 2016 establishing a discard plan for certain demersal fisheries in North-Western waters. OJ L 352, 23/12/2016, p. 39–47.

Commission Delegated Regulation (EU) 2016/2376 of 13 October 2016 establishing a discard plan for mollusc bivalve *Venus* spp. in the Italian territorial waters. OJ L 352, 23/12/2016, p. 48–49.

Commission Delegated Regulation (EU) 2017/86 of 20 October 2016 establishing a discard plan for certain demersal fisheries in the Mediterranean Sea. OJ L 14, 18/01/2017, p. 4–8.

Commission Delegated Regulation (EU) 2017/87 of 20 October 2016 establishing a discard plan for turbot fisheries in the Black Sea. OJ L 14, 18.1.2017, p. 9–11.

Commission Delegated Regulation (EU) 2017/2167 of 5 July 2017 amending Delegated Regulation (EU) 2016/2374 establishing a discard plan for certain demersal fisheries in South-Western waters. C/2017/4505. OJ L 306, 22.11.2017, p. 2–5.

Commission Delegated Regulation (EU) 2018/44 of 20 October 2017 amending Delegated Regulation (EU) 2016/2374 establishing a discard plan for certain demersal fisheries in South-Western waters. C/2017/6995. OJ L 7, 12.1.2018, p. 1–5.

Commission Delegated Regulation (EU) 2018/46 of 20 October 2017 establishing a discard plan for certain demersal and deep-sea fisheries in North-Western waters for the year 2018. IO L 7, 12.1.2018, p. 13–20.

Commission Delegated Regulation (EU) 2018/161 of 23 October 2017 establishing a *de minimis* exemption to the landing obligation for certain small pelagic fisheries in the Mediterranean Sea. OJ L 30, 2.2.2018, p. 1–5.

Commission Delegated Regulation (EU) 2018/211 of 21 November 2017 establishing a discard plan as regards salmon in the Baltic Sea. C/2017/7672. OJ L 41, 14.2.2018, p. 1–3.

Commission Delegated Regulation (EU) 2018/191 of 30 November 2017 amending Commission Delegated Regulation (EU) 2015/98 on the implementation of the Union's international obligations, as referred to in Article 15(2) of Regulation (EU) No 1380/2013 of the European Parliament and of the Council, under the International Convention for the Conservation of Atlantic Tunas, regarding the Mediterranean stock of swordfish. OJ L 36, 9.2.2018, p. 13–14.

Commission Delegated Regulation (EU) 2019/2200 of 10 July 2019 amending Delegated Regulation (EU) 2015/98 on the implementation of the Union's international obligations, as referred to in Article 15(2) of Regulation (EU) No 1380/2013 of the European Parliament and of the Council, under the International Convention for the Conservation of Atlantic Tunas and the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries. OJ L 332, 23/12/2019, p. 1–2.

Commission Delegated Regulation (EU) 2020/4 of 29 August 2019 amending Delegated Regulation (EU) 2017/86 establishing a discard plan for certain demersal fisheries in the Mediterranean Sea. OJ L 2, 6.1.2020, p. 5–10.

Commission Delegated Regulation (EU) 2021/1417 of 22 June 2021 supplementing Regulation (EU) 2016/1139 concerning the specifications for the landing obligation as regards salmon in the Baltic Sea for the period 2021-2023. C/2021/4330. OJ L 305, 31.8.2021, p. 3–5.

Commission Delegated Regulation (EU) 2021/2064 of 25 August 2021 supplementing Regulation (EU) No 1380/2013 of the European Parliament and of the Council as regards the establishment of a *de minimis* exemption to the landing obligation for certain demersal fisheries in the Adriatic and south-eastern Mediterranean Sea. OJ L 421, 26.11.2021, p. 9–13.

Commission Delegated Regulation (EU) 2021/2065 of 25 August 2021 establishing a discard plan for turbot fisheries in the Black Sea. OJ L 421, 26.11.2021, p. 14–16.

Commission Delegated Regulation (EU) 2022/2564 of 16 August 2022 amending Delegated Regulation (EU) 2021/2064 supplementing Regulation (EU) No 1380/2013 of the European Parliament and of the Council as regards the establishment of a *de minimis* exemption to the landing obligation for certain demersal fisheries in the Adriatic and south-eastern Mediterranean. OJ L 330, 23/12/2022, p. 126–129.

ANNEX 2: Evaluation Question Matrix

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
Effectiveness	To what extent was the landing obligation implemented effectively?	Extent to which expectations have been met, if not, the hindrance factors have been identified (compliance and implementation)	Presence and comprehensiveness (as per CFP) of member states' multi-annual plans and applicable compliance reports	Desk research or secondary data
				Case study
				E-survey
		Extent to which expectations have been met, if not, the hindrance factors have been identified (landing obligations contributed to each of the CFP objectives, specifically Article 2(5)(a)) <i>Article 2(5)(a) = The CFP shall, in particular:(a) gradually eliminate discards, on a case-by-case basis, taking into account the best available scientific advice, by avoiding and reducing, as far as possible, unwanted catches, and by gradually ensuring that catches are landed</i>	Comparison of performance versus target for the gradual elimination of discards	Descriptive statistics from FAMENET and EUROSTAT data
				Case study
				E-survey
		Extent to which expectations have been met, if not, the hindrance factors have been identified (the level of unwanted catches (<minimum conservation reference size catches or juveniles) in the fisheries)	Comparison of performance versus targets for unwanted catches including MCRS catches or juveniles	Interviews
				STECF FDI data descriptive statistics
				Case study
				E-survey

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
		Extent to which expectations have been met, if not, the hindrance factors have been identified (the handling on board, use and market outlet for the <MCRS catches)	Comparison of performance versus targets for the handling on board, use and market outlet for the MCRS catches	Desk research or secondary data E-survey
		Extent to which expectations of the landing obligation intervention have been met, if not, the hindrance factors have been identified (percentage of the % of juveniles present in the catch composition)	Comparison of performance versus targets for the % of juveniles present in the catch composition	Descriptive statistics from STECF FDI data E-survey
			Effectiveness in promoting selectivity and training	Desk research or secondary data
		Extent to which the landing obligation has contributed to identifying training needs and providing accessible, affordable opportunities to enhance selectivity and reduce unwanted catches	Challenges in enforcement and resource allocation	Desk research or secondary data
			Economic impacts on small-scale fisheries	Desk research or secondary data
			Need for reskilling and transition support	Desk research or secondary data
	To what extent did the landing obligation contribute to the objectives of the CFP?	Extent of landing obligation interventions' contribution to the CFP objectives, Article 2(5)(a) (Gradually eliminate discard and reduce waste)	Ecological effectiveness in discard and waste reduction	Desk research
			Role of EMSs	Desk research
			Economic implications	Descriptive statistics from STECF AER data, interviews
		Extent of landing obligation interventions' contribution to the	Employment trends in	Interviews

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
		CFP objectives, Article 2(5)(a) (Provide conditions for sector's economic viability and contribute to fair living standards)	the fisheries sector	Descriptive statistics from EUROSTAT and FAMEDENT data
			Financial health of companies in fishing operations	Desk research or secondary data (economic data from financial databases for registered companies)
				Interviews
			Trends on quota reallocation between years for flexibility in operations	Descriptive statistics from STECF FDI data
				E-survey
			Volumetric share and value of unwanted catch covered through viable alternate uses	Descriptive statistics from STECF FDI data
				E-survey
		Extent of landing obligation interventions' contribution to the CFP objectives, Article 2(5)(a) (Contribute to food supply and security and consider consumer interests)	Results from pilot projects and experiments by member states	Desk research or secondary data
			Price trends and market influences	Desk research, Descriptive statistics from EUMOFA data
			Price levels of fishery products for end-consumers	Desk research, Descriptive statistics from EUMOFA data
				Interviews

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
			Expenditure of end-consumers	Descriptive statistics from EUMOFA and STECF FDI data
			Quota swaps and operational flexibility	Descriptive statistics from STECF FDI data E-survey
		Extent of landing obligation interventions' contribution to the CFP objectives, Article 2(5)(a) (Ensure coherence with Union policies, foster member state participation, and promote internal market)	Intra-EU trade	Interviews Secondary data
			Member State collaboration and regionalisation	Desk research, interviews
			Trade with third countries	Interviews
		Extent to which the landing obligation intervention incentivised fishers to discontinue discarding (aid, extra quotas, access to closed areas or exemptions)	Insights on discard rates, landing rate, unwanted catches, handling on board, use of <MCRS catches, % of juveniles etc. of incentive beneficiaries (and non-beneficiaries for comparison)	Descriptive statistics from STECF FDI data and FAMENET data Case studies
				E-survey
		Extent to which landing obligation interventions incentivised the fishers to discontinue discarding (access to scientific information)	Insights on discard rates, landing rate, unwanted catches, handling on board, use of <MCRS	Descriptive statistics from STECF FDI data and FAMENET data

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
			catches, % of juveniles etc. of incentive beneficiaries (and non-beneficiaries for comparison)	E-survey
		Extent to which landing obligation interventions incentivised fishers to discontinue discarding (freedom in gear selection)	Insights on discard rates, landing rate, unwanted catches, handling on board, use of <MCRS catches, % of juveniles etc. of incentive beneficiaries (and non-beneficiaries for comparison)	Descriptive statistics from STECF FDI data and FAMENET data
				E-survey
		Extent to which landing obligation interventions incentivised fishers to discontinue discarding (funding for innovation in processing and marketing)	Insights on discard rates, landing rate, unwanted catches, handling on board, use of <MCRS catches, % of juveniles etc. of incentive beneficiaries (and non-beneficiaries for comparison)	Descriptive statistics from STECF FDI data and FAMENET data
				E-survey
		Extent to which landing obligation interventions incentivised fishers to discontinue discarding (improved monitoring systems - traditional or REM)	Insights on discard rates, landing rate, unwanted catches, handling on board, use of <MCRS catches, % of juveniles etc. of incentive beneficiaries (and non-beneficiaries for comparison)	Descriptive statistics from STECF FDI data and FAMENET data
				E-survey
Efficiency	To what extent has the landing obligation been implemented efficiently?	Extent to which measures to implement the landing obligation were realised at a reasonable cost to the administration and operators (ratio of administrative cost)	Administrative cost to member states (per unit volume of reduced unwanted catches)	Interviews

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
			Additional cost to adopt new practices by operators (per unit volume of reduced unwanted catches)	E-survey
			Share of total discard reduction achieved without financial support	Interviews
				Case study
		Extent to which coordination between Member States is easier due to standardised data and plans	Perspective of stakeholders from nodal agencies of member states	Interviews
			Insights on increase in cost of operations (per unit value or volume of production)	Interviews
		Extent to which inefficiencies and obstacles were identified of the landing obligation, and solutions were put in place to overcome them	Cost saving opportunities identified through investments in experiments and pilot projects	Desk research or secondary data from identified data sources
			Cost of providing required scientific support (per unit volume of reduced unwanted catches)	Interviews
			Incorporation of and progress on inefficiency reduction measures	E-survey
		Extent to which potentials to reduce costs and achieve the same or improved results of the landing obligation with less public funding (EFF, EMFF, EMFAF) are identified	Perspective of sectoral experts and fund representatives	Interviews, case study

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
		Extent to which potentials to reduce costs and achieve same or improved results of the landing obligation with less public funding (Horizon 2020, Horizon Europe, other important funds)	Perspective of sectoral experts and fund representatives	Interviews
		Extent to which potentials for other policy instruments or mechanisms compared to the landing obligation to provide better cost-effectiveness	Comparative and impact insights of different policy instruments	E-survey
		Extent to which discard exemptions which are not scientifically justified, are attributable to very low volumes	Share of exemptions allowed due to lower volumes	Descriptive statistics
				Desk research or secondary data
				Interviews
Relevance	To what extent is the landing obligation relevant to the needs of the target group?	Extent to which the landing obligation is relevant to the needs of Aquaculture	Perspective of experts (inside and outside the target group)	E-survey
		Extent to which the landing obligation is relevant to the needs of the fisheries sector	Perspective of experts (inside and outside the target group)	Desk research or secondary data
				Stakeholder consultation
				E-survey
		Extent to which the landing obligation is relevant to the needs of small-scale coastal fisheries (SSCF)	Perspective of experts (inside and outside the target group)	Desk research or secondary data
		Extent to which the landing obligation is relevant to the needs of trade associations and Non-Government Organisations (NGOs)	Perspective of experts (inside and outside the target group)	E-survey
				Desk research or secondary data

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
		Extent to which the landing obligation is relevant to the needs of academia and research	Perspective of experts (inside and outside the target group)	E-survey
				Desk research or secondary data
		Extent to which the landing obligation is relevant to the needs of public authorities and Advisory Councils	Perspective of experts (inside and outside the target group)	E-survey
				Desk research or secondary data
		Extent to which the landing obligation intervention is relevant for the sustainable exploitation of marine resources	Alignment of the element considered with objectives of landing obligation intervention	Desk research or secondary data
				E-survey
		Extent to which the landing obligation intervention is relevant for the financial viability of fisheries	Alignment of the element considered with objectives of landing obligation intervention	Desk research or secondary data
				E-survey
	To what extent is the intervention (landing obligation) still relevant?	Extent to which the landing obligation intervention provides relevant and reasonable flexibility in opportunities and operations	Alignment of the element considered with objectives of landing obligation intervention	Desk research or secondary data
		Extent to which the landing obligation intervention is relevant for the synchronisation between operations, quotas, and landing obligations	Alignment of the element considered with objectives of landing obligation intervention	Desk research or secondary data
		Extent to which reasonable exemptions are relevant to landing obligations	Alignment of the element considered with objectives of landing obligation intervention	Desk research or secondary data
				Case study
				E-survey
	To what extent is the landing obligation relevant to European strategic objectives?	Extent to which the landing obligation is relevant to the Biodiversity Strategy 2030	Mapping of landing obligation objectives to overarching EU strategic objectives	Desk research or secondary data

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
		Extent to which the landing obligation is relevant to the Farm to Fork Strategy	Mapping of landing obligation objectives to overarching EU strategic objectives	Desk research or secondary data
		Extent to which the landing obligation is relevant to the Just Transition Framework	Mapping of landing obligation objectives to overarching EU strategic objectives	Desk research or secondary data
Coherence	To what extent is the landing obligation internally (within the EU) coherent?	The extent to which landing obligation interventions are coherent with other interventions which have similar objectives	Perspective of sector experts on level of synergy	E-survey
		The extent to which the landing obligation and its measures generated synergies and/or compensated possible trade-offs with other interventions	Perspective of sector experts on level of synergy	E-survey
				Desk research or secondary data
				Stakeholder consultation
		Extent to which the landing obligation intervention generated synergies with other EU legislation	Contribution of landing obligation intervention impact with targets in relevant legislation	Desk research or secondary data
		Extent to which the landing obligation intervention is coherent for achieving EU cross cutting objectives both at national and EU level	Mapping of landing obligation objectives to overarching EU or Member States' KPIs	Desk research or secondary data
		Extent to which the landing obligation intervention showed contextual flexibility and were suitably adjusted to ensure coherence	Perspective of stakeholders from nodal agencies of Member States	E-survey
				Desk research or secondary data

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
	To what extent is the landing obligation externally coherent?	Extent to which the landing obligation intervention is coherent with international obligations, including the SDGs	Conformance or contribution of interventions with clauses of international obligations	Desk research or secondary data
		Extent to which the landing obligation is coherent with other international interventions which have similar objectives	Similarities with non-EU discard bans	Desk research
EU value added	To what extent could the identified outputs and results have been achieved without the landing obligation / EU intervention?	Extent to which the landing obligation resulted in additional value, compared to what could have been achieved by Member States at national and regional levels	Perspective of stakeholders from nodal agencies of member states	E-survey
			Observed impact through the effectiveness indicators	Desk research or secondary data
				Descriptive statistics
			Observed impact through the effectiveness indicators	Descriptive statistics
				Desk research or secondary data
		Additional outputs and results of the landing obligation provided in relation to the Member State national and regional outputs	Stakeholder perception of the quality of output (e.g., impact on vulnerable species)	E-survey
			Observed impact through the effectiveness indicators	Descriptive statistics
				Desk research or secondary data
		Extent to which the landing obligation intervention managed to cope with external crisis situations	Perspective of a wide set of sector stakeholders	E-survey
			Correlation between crisis situations and progress along effectiveness indicators	Desk research or secondary data

Evaluation Criteria	Evaluation Question	Indicative judgement criteria	Indicators for evaluation	Data collection method
Complementarity	To what extent has the intervention proved complementary to other (Member States) interventions and initiatives in the field of fisheries- management and conservation.	Landing obligation interventions helped in the achievement of other related interventions by Member States	Perspective of stakeholders from nodal agencies of member states	E-survey
				Case study
Sustainability	If the landing obligation were to be removed, what might be the likely effects?	Landing obligations interventions played a significant role in the productivity and sustainability of marine ecosystems	Perspective and data-driven insights from sectoral experts involved in research along each objective under article 2(5)(a)	Interviews
				Desk research or secondary data
				Descriptive statistics
				E-survey

ANNEX 3: Methodology

Validation methodology

An e-survey was conducted during the summer of 2024 to obtain insights from a broad stakeholder group related to the implementation of the landing obligation. The table below provides an overview of the stakeholders targeted with the e-survey. The e-survey was available in five languages; English, Italian, Portuguese, French and Spanish. Insights provided an attribution of success (or failure) of the regulation and help answer the questions on effectiveness, efficiency, relevance, coherence and EU-added value. ANNEX 15 contains a copy of the e-survey used.

Table 4: Stakeholder groups targeted with e-survey

Stakeholder group	Organisations
European and regional stakeholders	EU Commission (DG MARE)
	DG MARE support unit (FAMENET)
	The Advisory Councils (Industry and NGOs) e.g., Mediterranean Advisory Council, Pelagic Advisory Council
International stakeholders	Food and Agriculture Organisation (FAO)
National stakeholders	Member States' fisheries and environmental national administration (policy department and executive agency)
	The national authorities in charge of vocational education and training design and programming
	The ministries of labour and/or social affairs in charge of protection of workers
	Research institutions in the Member States
Producers	Fishers (Fisheries Local Action Groups)
	Producer Organisations
	NGO's and environmental organizations - Institutions concerned with the improvement of the European marine environment in general and landing obligations in particular

After the closure and analysis of the e-survey, some 27 stakeholders, including advisory councils, were contracted for follow-on interviews for clarifications and more in-depth insights into answers and to seek additional perspectives on the landing obligation. Topics which were discussed varied per interview to minimize burden for the interviewees and provided targeted insights to the study

team. An overview of the outcomes of stakeholder engagement is provided in ANNEX 5.

Evaluation method

In the pursuit of enhancing the quality and effectiveness of regulatory interventions across the European Union, the Better Regulation Guidelines serve as an essential framework. These guidelines provide a structured approach to evaluating policies, ensuring they are well-designed, effectively implemented, and yield the desired outcomes. Central to this process is the EQM, a systematic tool employed to assess various dimensions of regulatory performance.

The EQM addresses five evaluation criteria: Relevance, Effectiveness, Efficiency, Coherence, and EU Added Value. Each criterion plays an important role in the comprehensive evaluation process, enabling policymakers to derive meaningful insights and make informed decisions. By examining these dimensions, the evaluation aims to ensure that EU interventions remain fit for purpose, responsive to emerging challenges, and aligned with the overarching goals of the Union.

- **Relevance:** This criterion evaluates how well an intervention addresses current and future needs and problems within the EU. It ensures that policies remain pertinent and responsive to evolving challenges, which is crucial for maintaining regulatory relevance.
- **Effectiveness:** This criterion examines the extent to which the objectives of an intervention are achieved and the relationship between these objectives and the results or impacts. It helps evaluate the success of a policy in meeting its intended goals, which is a core aspect of effective regulation.
- **Efficiency:** This criterion focuses on the cost-effectiveness of achieving results and impacts. It assesses whether the benefits of an intervention justify the costs, ensuring that resources are used optimally. This aligns with the Better Regulation aim of maximising impact while minimising unnecessary burdens.
- **Coherence:** This criterion examines the consistency of an intervention with other policies and its internal components. It ensures that policies do not conflict with each other and that all parts work synergistically towards common objectives. Coherence is essential for creating a cohesive and integrated regulatory framework.
- **EU Added Value:** This criterion assesses the unique benefits of coordinated EU-level action compared to what could be achieved by individual Member States. It highlights the importance of collective action and the additional value generated by EU-level interventions, which is a fundamental.

Additional evaluation criteria were included to assess complementarity and sustainability of the landing obligation. Complementarity examines how the landing obligation interacts with other Member States' interventions and initiatives in fisheries management and conservation, ensuring efforts are aligned and mutually reinforcing. Sustainability assesses the impact of the landing obligation on promoting sustainable marine ecosystems, particularly by reducing unwanted catches via more selective fishing gear.

The EQM evaluated the landing obligation by linking evaluation questions to specific judgement criteria, and expanded with additional sub-criteria. These criteria delineate the aspects to be evaluated, providing a structured framework for assessment. This comprehensive evaluation aims to enhance policy effectiveness, ensure accountability, and guide future regulatory improvements within the EU.

Data sources

The below table (Table 5) provides a list of data sources utilised within this evaluation, and their associated limitations. It is important to emphasise the substantial effort undertaken to clean and link the data within the STECF FDI database, particularly the biological data, to ensure robust and accurate analysis. This process was critical to transforming detailed data into a coherent dataset suitable for comprehensive analysis and evaluation.

Member States submit landings and discard information at a highly disaggregated level (métier on DCF level 6, or level 7 when associated with large pelagic fish, segmented by vessel length categories). Where discard information has been submitted, this has been calculated by Member States at the level of their national DCF sampling program, the level of disaggregation of these sampling programs is less than that of the data disaggregation within the FDI database. As such each Member State submits their data calculated to a "sampling frame" and then apportion out the discards to the FDI database level of disaggregation. This does create the illusion of distinct discard patterns at a much finer scale than is actually available.

To reduce distortion of discard rates as sampled by Member States, analysis of this dataset has been limited to those record combinations where discard information was submitted. Landings not associated with discards have not been considered. Furthermore, data has been aggregated to the level of area (FAO sub-region, demarked by an indication of the Exclusive Economic Zone (EEZ)/ geographic indicators in which the fishing occurred), Member State, year, vessel length category, gear type, use of gear technical modifications (as detailed within Technical Measures Regulation (EU) No 2019/1241), and target assemblage, and Member State defined discard sampling frame. It is acknowledged that in some instances this will be more disaggregated than the sampling frame and less in others.

For the purposes of data interrogation with regards to unwanted catches, making use of the STECF FDI biological length data, all those below MCRS, whether they were discarded or not were deemed to be unwanted catches. The rationale for this was that where an MCRS is present for a species, all catches above the MCRS show the gear to be successfully fishing selectively (catching individuals above MCRS, and not below MCRS). As such, even those above MCRS that were discarded were counted as “wanted” catches. To obtain an unwanted catch rate, weights below MCRS landings and discards were summed and divided by all those above MCRS. This gave a catch ratio or percentage of “unwanted catches” to “wanted catches” (based on the above – below MCRS threshold). To observe more specific catch trends for before and after the phasing in period of the landing obligation, catch rate data across 2013-2014 and 2021-2022 were averaged, before an unwanted catch difference value was produced – identifying whether unwanted catches had increased or decreased in 2021-2022 compared to 2013-2014.

For the purposes of examining impacts of exemptions on landings and discards, additional information is taken from a combination of two previous projects for the EU Commission (EC 2021, EC 2023a). The first of which developed an R shiny app (an interactive data visualisation platform) to view trends in discard rates within the EU associated with earlier data submissions to the FDI database encompassing data from 2011 to 2019. The second updated this shiny app into an R package (FDIDASHBOARD) to include data from 2020 and 2021. This app provided the ability to identify whether catches were associated with a delegated derogation to the landing obligation, or not. It did not however provide the ability to identify which exemptions applied through the application itself but were identified within the data pre-processing. The experts within the STECF FDI EWG, along with the authors of the second of these two projects highlighted concerns over the use and subsequently, drawing of any conclusions associated with trends, of discard rates incorporating the earlier part of the data series, that prior to the introduction of the landing obligation due to data quality issues in the estimation of discards prior to 2015 (CINEA-EMFF, 2023). In 2023, a full time series data call was launched to deal with this concern by the EWG.

Building on the EU study outcomes (CINEA-EMFF, 2023), this study replaced the data underlying the project analysis with the most recent STECF FDI data from 2013 to 2022. This most recent STECF FDI data incorporates a revision to the estimation of discards prior to 2015. The revised data call not only requested a full revision of the time series held, but also made changes to the specific format (types of data) and submission granularity (categories within those data types; EC, 2023b). Unfortunately, this has meant that the linkages between the revised FDI database and the R shiny app established in the EC (2023a) project are no longer valid in all instances. This is particularly in relation to mapping data to regional fisheries where previous mesh size range categories used in the mapping process are no longer present. It is beyond the

scope of this project to update this, although an update to the mapping of this app would be recommended.

The outputs of this data update should, therefore, be interpreted with awareness of its limitations. Data within specific regional fisheries may be underrepresented. Data where mapped links between mesh size and fishery are broken are assigned to either the “unknown” fishery category, or assigned to a gear specified portion of the “unknown”, such as “Dem trawl other”.

Examining the proportion of data assigned to a mapped fishery category, this appears to have impacted the North Sea and Baltic Sea region the most, with around 67% of records assigned to a fishery compared to over 80% in the original rendering. The North Western Waters and South Western Waters appears to have been less impacted with continued high proportions of records remaining associated with a fishery.

Table 5: Summary of data sources available to the evaluation

Data source	Data considered	Challenges	Limitations
STECF Fisheries Dependent Information (FDI) database - Year range: 2013-2023 Confidential; Disaggregated	- Table A – Catch summary - Table C – F – Landings/ Discard age/ length data	- Level of disaggregation beyond that of the requirements for this project, resulting in a need to aggregate in an appropriate manner consistent with maintaining integrity of provided discard information. - Links had to be formed between the provided data tables to allow use of biological data at the same level of disaggregation as the catch table. - Quality of data associated with vessels of 10m or less in length as a result of lesser reporting requirements of the small-scale fleet segment.	- No information on application of exemption derogations - Limited detail on selectivity modifications/technical measures applied - Discards raised to Member State sampling domains
EASME/EMFF/2018/011 Specific Contract Lot 2 No. 04. Synthesis of the Landing Obligation measures and discard rates (EC, 2022a); and EASME/EMFF/2018/011 Specific Contract Lot 1 No.14 and EASME/EMFF/2018/011 Specific Contract Lot 2 No. 13. Update of time series discard rates (CINEA-EMFF, 2023). - Year range: 2011-2021 Confidential; Disaggregated	Shiny app package and associated background data containing information on discards associated with landing obligation exemptions	- Authors of this work identified risks associated with use of data originating from combination of STECF FDI “classic” (pre-2015) and FDI “new” (2015 onwards) data due to differences in methods used to generate raised discard information at the Member State level. - Concerns raised over quality and availability of data within “classic” data.	- Risks identified by authors associated with use of results originating from comparison of STECF FDI “classic” and FDI “new” data - Risks identified by authors associated with quality of discard information within STECF FDI “classic” data (pre-2015, representing the pre landing obligation data within this study)

Data source	Data considered	Challenges	Limitations
CIRCABC posted quota swap reports - Year range: 2013-2024 - Public; Aggregated	Annual reports of quota swaps within a year within and between Member States (including UK pre-Brexit)	Change in reporting style between pre and post 2021 report years	Limited to Member State level swaps of stocks
STECF Annual Economic Report EU fleet economic and transversal data; and Scientific, Technical and Economic Committee for Fisheries (STECF) - The 2023 Annual Economic Report on the EU Fishing Fleet (STECF 23-07) Annex, Prellezo, R., Sabatella, E., Virtanen, J., Tardy Martorell, M. and Guillen, J. editor(s), Publications Office of the European Union, Luxembourg, 2023, doi:10.2760/423534, JRC135182. - Year range: 2013-2021 - Public; Aggregated	- Estimated total number of vessels - Full Time Equivalent - Estimated energy consumption - Days at sea - Landed weight - Landed value - Estimated revenue - Estimated Gross Value Added - Estimated Gross profit - Gross profit margin	- Data for segments containing less than 10 vessels excluded or clustered due to confidentiality. - Quality of data associated with vessels of 10 m or less in length as a result of lesser reporting requirements of the small-scale fleet segment.	- Miss-match in resolution between economic data and FDI data. - No information on application of exemption derogations. - Limited detail on selectivity modifications/technical measures applied.

Data source	Data considered	Challenges	Limitations
ACDR database - Year Range: 2012-2023 Confidential; Aggregated	Annual reported catches, including portions landed below MCRS and for more general non-human consumption	Within pre-2016, use of the FAO species and FAO area reporting cells is not 100% consistent. In these instances use of identifiable species and areas from regional species and regional area reporting cells have been transcribed.	- ACDR catch records have a low level of resolution. - Catches are reported without gear or fishery information, except in certain instances - Catches below MCRS do not appear to be consistently reported across time and region - Not possible to separate industrial catches from those as a result of the landing obligation reported as non-human consumption - Variability in whether fields reporting discards, fishmeal, and the category for non-human consumption of undersize fish are used.
European Market Observatory for Fisheries and Aquaculture Products (EUMOFA) - Year range: 2009-2024 Public; Aggregated	Annual reports of first sale values (2010-2024). Aggregated on a monthly basis by Member State, region, species, and presentation code	“Destination use” reporting cell included “food” and “non-food” differentiation used intermittently.	- Unable to differentiate non-food category into wanted and unwanted catches as a result of the landing obligation - No detail on fleets
	Monthly consumption (2009-2024). Aggregated on a monthly basis by Member State and species	Limited to top species each month, the vast majority of consumption labelled as “other” species category	No detail on origin or fleet provided
	Annual landings (2009-2021)	Aggregated landings	- Unable to differentiate non-food category into wanted and unwanted catches as a result of the landing obligation - No detail on fleets

Data source	Data considered	Challenges	Limitations
Fisheries and Aquaculture Monitoring, Evaluation and Local Support Network (FAMENET) CFP survey report (2022). - Public; Aggregated - Confidential; Disaggregated	Individual stakeholder responses	Questions designed for a wider purpose of commenting on the CFP, for which the landing obligation is one part	Limited targeted questions relating to the landing obligation

Case study methodology

The case studies provide a more context-specific manner to assess complexities, dynamics, and underlying factors in relation to the uptake of the landing obligation compared to Tasks 2 and 3, e.g. species- or fishery-specific and/or at a more local scale rather than a regional scale (across nations and sea basins). The case studies were selected across different sea basins, fish stocks, fisheries, and performance in terms of catch selectivity. This should ensure sufficient level of diversity in the cases while providing an overview of why (not) certain case studies were successful in terms of catch selectivity. Specifically, the case studies provide more depth in:

- The difficulties encountered with implementation of the landing obligation.
- Specific fisheries and Member States' experience with pilot projects for increasing selectivity, reducing unwanted catches, or other examples of successful implementation of the landing obligation, including trials of technological advances and fully documented fisheries.
- Specific fisheries and Member States' experience with cases where measures to increase selectivity are not, or cannot, be deployed or cases where difficulties were experienced in implementing the landing obligation, specifically, the role of choke species and LO exemptions (following Article 15(4) CFP Regulation (EU) No 1380/2013).
- The training carried out by Member States with the objective to increase selectivity, end discarding, improve handling of unwanted catches and awareness of the legal provisions among fishers.

Ten case studies that cover one or more of these four performance factors have been examined and range across fish stocks and fisheries covering the five sea basin regions detailed within the scope of the study. The case studies were selected based on the information and analysis performed in the early stages of the study, and among others based on the identification of good practices (both 'dos' and 'don'ts').

For the purposes of this study five sea basin regions have been identified: North Sea and Baltic Sea, North Western Waters, South Western Waters, Mediterranean and Black Sea, and the EU Outermost Regions and distant fleet. For the case study selection, eight sea basins were considered, as the North Sea and Baltic Sea were looked at separately, as were the Mediterranean and the Black Sea, and the EU Outermost Regions with the distant fleet.

A short-list of 10 case studies was presented to the Commission as a result of the structured methodology aimed to make justifiable choices based on a list of 141 potential case studies identified within the early stages of the study.

The criteria 'sea basins' was used as a starting point as the team wanted to include at least one case from each sea basin. Nevertheless, the team recognises that the outcomes may have differed if the approach took a different starting point. Selection criteria used were:

- Geographical representation: Anticipating at least one representation across from each of the five sea basin regions.
- Representation across fisheries: Multiple fisheries (at least demersal (including mixed fisheries) and pelagic DWF, freezer trawler and refrigerated sea water (RSW)) and at least SSF (small scale fisheries)) should be represented among the case studies.
- Balanced representation across landing obligation implementation and outcome success rate: An aim for 50/50 balance between successful (decrease in discard rates, due to either increased selectivity, avoidance of discards, or increased discard survival probabilities) and challenging (no noteworthy change or increase in discard rates).
- Inclusion of pilot project(s): At least one, but preferably multiple, cases studies where pilot projects have been conducted will be selected (subject to data availability). The intention is that these would be cases in which technological advances have been trialled and / or put in place that helped to improve selectivity, fully documented fisheries, or with REM, within the Member States including EMFF and EMFAF projects.
- Studies in which training was carried out regarding the landing obligation, including vocational education, training design and programming or awareness raising.
- Representation across target species: Multiple fish stocks (at least demersal (including mixed fisheries) and pelagic species) will be represented among the case studies (subject to data availability).

The cases were selected following the next steps.

1. Create an overview of the nr of cases per regional sea
2. Select cases in seas with only a few cases, based on the criteria listed above. These seas were: Outermost Regions, Distant water and the Black Sea.
3. Some cases need to be excluded (i.e. cases irrelevant to the project, cases based on models and not on empirical studies, review papers that did not look at fishery levels, cases with unspecified fisheries or fleets, cases outside the scope of the project, or data poor cases)
4. Prioritize cases that are 'scarce' based on exclusions and availability per fleet. After this step, 5 cases had been selected.

5. Based on the current selection of 5 cases, assess the available cases with the required criteria. Every choice, filters down the number of available cases (i.e. pelagic done, only demersal; within demersal - Nephrops fisheries chosen, exclude further Nephrops cases; if only mostly successful cases are chosen, continue with only challenging cases etc.)

The case studies were performed by different teams of researchers, all using the same method. Researchers would first perform a literature study on the case, followed by semi-structured interviews with key stakeholders. Results were summarised per case study in a common template. One-page summaries of the case studies can be found in Section 3.5, within more detailed descriptions provided in ANNEX 4.

ANNEX 4: Case studies

The ten case studies were selected based following an initial review of literature and data, followed by a structured selection methodology that took into account: representativeness across different sea basins, fish stocks, fisheries, and performance in terms of catch selectivity (see the Interim Report for a detailed methodology). Moreover, the identification of good practices (both 'do's' and 'don'ts') were taken into account. The selected cases were reviewed and accepted by the Commission as cases that should ensure sufficient level of diversity while providing an overview of why certain case studies were (un)successful in terms of catch selectivity and/ or discard reduction.

The case studies below are a three-page summary of the full analysis conducted for each case study. A more detailed overview of each case study was provided to CINEA as supplementary material.

Table 6. A summary of the ten case studies used to further understand the landing obligation in specific contexts.

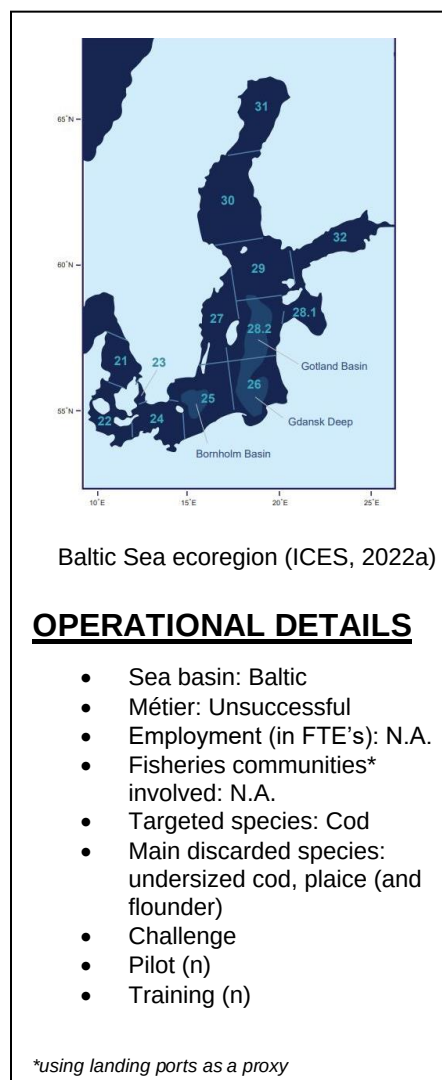
Sea basin	Fleet	Type of fishery	Species	Success/ challenge/ both	Pilot	Training
Baltic Sea	Baltic cod trawl fishery	demersal trawl	Demersal	Difficulties	No	No
North Sea	Dutch Norway lobster fleet	demersal trawl	Demersal	Both	Partially	Yes
Northern Western Waters	Dutch pelagic trawl fishery	Pelagic trawl, purse seine	Pelagic	Both	Yes	No
	Irish boarfish fishery	Pelagic trawl, purse seine	Pelagic	Success	No	No
Southern Western Waters	Spanish trawler fleet	demersal trawl	Mostly demersal, some pelagic	Challenge	No	No
Mediterranean	NW Mediterranean bottom trawl fishery	Demersal trawl	Demersal	Both	Yes	No
	Western Adriatic bottom otter trawl fishery	Demersal trawl	demersal	Success	Yes	No
	North-west Adriatic Sea small-scale fleet	Passive fisheries	Demersal, benthopelagic	Success	Yes	No
Distant Waters	French tropical tuna purse seiners	Pelagic trawl, purse seine	Pelagic	Both	Yes	Yes
Outermost Regions	Azorean small-scale fishery	Line, hooks	Demersal	Challenge	No	No

Case study 1: Baltic trawl fisheries in discarding cod

This study analyses the implementation of the landing obligation for Baltic cod trawl fishery until the closure of the fishery for eastern cod in July 2019 and the western cod in 2022, including discard rates for both stocks respectively. The focus is on cod as main target species. Small indications for cod in the current demersal flatfish fishery are also provided.

BRIEF SUMMARY

Data quality for stock assessments has deteriorated (cross-country discrepancies, reduced growth, disappearance of larger cod despite promising recruitment) (Valentinsson, et al., 2019), discarding of cod has not decreased in the Baltic despite a reduced minimum size and there are no indications of increased gear selectivity in the fishery. There is a long history of scientific selectivity trials, more recent bottom-up gear research initiatives on Baltic cod trawls. However, port and ship infrastructure, additional workload, economic profitability, limited control mechanisms and lacking practice-oriented interventions embody challenges for the landing obligation implementation in the Baltic. Nowadays, there is no longer a cod trawl fishery in the Baltic, most of them left the fishery, workload, economic profitability, limited control mechanisms and lacking practice-oriented interventions embody challenges for the landing obligation implementation in the Baltic. Nowadays, there is no longer a cod trawl fishery in the Baltic, most of them left the fishery.



BACKGROUND

Geographical scale/sea basin: The Baltic Sea is a semi-enclosed, shallow sea basin between Sweden, Finland and the Central European mainland,

bordered by eight EU Member States ⁽³⁴⁾. It covers 420,000 km² while being one of the greatest brackish waters globally (EC, 2024a). In the 20th century, the Baltic Sea has undergone tremendous changes. Eutrophication, overfishing, pollution, hazardous substances (pharmaceuticals, plastic waste) and land use alter the ecosystem (HELCOM, 2023).

Thorough description of métier: This case study evaluates the implementation of the landing obligation for the Baltic cod trawl fishery. The study analyses how scientific data used for stock assessment has been affected by the landing obligation and how the knowledge of Baltic cod selectivity has been used and developed since its introduction. The introduction of the landing obligation in Baltic cod fisheries has been unsuccessful and has failed to deliver any of the expected benefits as the discarding of unwanted catches still occurs comparable to the years before the landing obligation (see ANNEX 19), in spite of a lowered MCRS in 2015. In fact, there are even indications that discarding may have increased. In one of the interviews, this was clarified as follows: The cod stock decreased a lot in the Baltic, fishers then decreased the mesh size because fish became close to MCRS. They went down in selectivity and scientists observed that the discards even increased with the landing obligation introduction (but no correlation with the landing obligation, more with continuously shrinking fish size).

Targeted fish stock: The target fish stock is the Atlantic cod (*Gadus morhua*) as it is one of the most affected species in the Baltic (poor health, reduced size distribution, few large individuals, low productivity). Two distinct populations of cod can be found in the Baltic (Eastern and Western) which follow different spawning times (observable from the otolith shape). Due to cod being a top predator species, changes in species abundance and distribution affect the whole food web (ICES, 2021a,b).

National context regarding legislation, monitoring and LO enforcement: The Regulation (EU) No 2016/1139 of the European Parliament and of the Council establishes a multiannual plan for cod stocks in the Baltic Sea and the fisheries exploiting those. All Baltic coastal states, except Russia, and their fisheries activities are regulated by the CFP. A management plan for cod stocks, of Council regulation (EC) No 1098/2007, was in force from 2007 until 19/07/2016; it was then replaced by 2016/1139. Since 1920s, fisheries data is recorded and monitored for the Baltic Sea, for herring and cod. ICES accumulates Baltic fish stocks statistics for fish resource assessments (HELCOM, 2024). Scientific advice from ICES and STECF underline that the exploitation of some of the stocks of cod, sprat and herring are in excess of that required to achieve MSY. Onboard observers have furthermore been monitoring discard volumes since 1996 on Baltic cod trawlers. Since 2002, monitoring has

⁽³⁴⁾ www.copemius.eu/nl/node/9003

been carried out under the EC data collection regulations (Regulation (EU) No 199/2008 ⁽³⁵⁾, Commission Decision (EC) No 2010/93 ⁽³⁶⁾, Regulation (EU) No 2017/1004 ⁽³⁷⁾, and Commission Decision (EU) No 2016/1251 ⁽³⁸⁾) (Valentinsson, et al., 2019).

Relevant factors that may have influenced the implementation of the landing obligation: For this case study, interviewees stated that the implementation of the landing obligation was not influenced by the following characteristics: the structure of the fishing fleet, fleet dynamics, fishing effort, institutional structures, area avoidance strategies, fleet spatial behavioural flexibility, fuel prices, political changes and spatial competition. Nonetheless, poor port infrastructure did embody hurdles for incoming fishers when trying to land all caught fish (especially in small harbours due to their limited storage facilities). More space on ships is required since on board, normally, MCRS fish should not be stored next to the other fish (human consumption rules). Since catch selectivity practices did not increase for the Baltic cod trawl fishery, fishers landing all fish are predominantly faced with infrastructural challenges. Furthermore, buyers are needed for all landed fish.

OVERVIEW OF RESULTS

Region-specific factors for the landing obligation: In 2015, the Baltic cod embodied the first demersal species realising the full implementation of the landing obligation. Involved fisheries were phased-in altogether (plaice followed in 2017). In 2021, sustainable growth of EU fisheries was observable. The Baltic embodied an exception (continuation of diminishing commercial stocks due to environmental degradation of the sea basin) (EC, 2023a). For the Danish fleet, the cod fishery was the most important fishery, not only from the local fleet but even for Danish vessels from the North Sea which would come to the Baltic targeting cod from January to April in the Western part of the Baltic (migrating spring fishery). The cod fishery was an immensely important fishery back in the days (for Denmark). In Germany, also all harbours and trawlers were affected. Danish vessels from the North Sea which would come to the Baltic targeting cod from January to April in the Western part of the Baltic (migrating spring fishery). The cod fishery was previously an immensely important fishery (for Denmark). In Germany, also all harbours and trawlers were affected.

⁽³⁵⁾ OJ L 60, 5.3.2008, p. 1–12

⁽³⁶⁾ OJ L 41, 16.2.2010, p. 8–71

⁽³⁷⁾ OJ L 157, 20.6.2017, p. 1–21

⁽³⁸⁾ OJ L 207, 1.8.2016, p. 113–177

Overview of the avoidance of discards and unwanted catches: Unwanted catch species for the Baltic cod trawl are relatively straightforward since only flounder and plaice form part of the catches. This differs quite substantially for other demersal trawl fisheries in Europe where the diversity of unwanted catches is higher (greater variation of bycatch species) (Valentinsson, et al., 2019).

Main reasons for discarding: 14% of the total catch weight were discards in 2019 (Birgersson et al., 2022). Main reasons were:

- Undersized cod specimen (below 35 cm)
- Undersized plaice (below 25 cm)
- Low economic value for flounder (Madsen et al., 2021)

Compliance to LO (if available): Low level of compliance found in demersal fisheries in the Baltic Sea, in particular for the fixed and towed gears fleet catching cod (and plaice). Compliance with the landing obligation in the Baltic is extremely difficult to control by the EFCA. Control observers on board cod fishers' vessels estimate how much of the catch is below MCRS. A comparison is then made with the logbook data. However, onboard observation programmes are limited, and fishers' behaviour is influenced by them.

PERFORMANCE ANALYSIS

Performance in catch selectivity: Unchanged catch selectivity

Technological advances used: Over a time period of 25 years, a number of changes in codend selectivity (L50) had been implemented in Baltic cod trawls (Valentinsson, et al., 2019). Fishers in the Baltic are permitted by EU legislation to use two alternative codend designs (Madsen, et al., 2021) to avoid discards and unwanted catches: (a) Bacoma codend (square mesh panel inserted in the top panel of a conventional diamond-mesh codend); (b) T90 codend (conventional diamond meshes orientated at 90 degrees).

Outcome success rate: Challenging (no noteworthy change or increase in discard rates). Landing obligation performance and outcome success rate was challenging for the Baltic since no noteworthy change in discard rates occurred. Fishers separated unwanted catches in separate baskets in case they would be controlled. The majority of the below MCRS fish was not landed or recorded adequately. Furthermore, the cod stock decreased tremendously in the Baltic, leading to fishers decreasing the mesh size because the fish became close to MCRS. Their selectivity decreased and it appeared as if discards even increased with the introduction of the landing obligation (no correlation with the landing obligation, more with decreasing fish size). At the same time, various industry-led gear design interventions were developed aimed at changing the

catch selectivity success rate and minimizing discard rates. However, the gear designs were often rejected and led to frustration within the industry.

Fisheries practices and related experiences: With the implementation of the landing obligation, a discussion on fish survival arose in the Baltic. Fishers were angry that they needed to land fish, believing in high survival possibilities. Scientists believe that fishers should not be forced to land fish but instead record all their catches and receive reductions for their quota for all catches. Reduction in quota is seen as a key driver for changing fishing behaviour. Furthermore, it is stated that it is advantageous for the fisher to decide which gear he wants to fish with.

Choke species encountered (if applicable): Plaice was the former choke species in the Baltic cod trawl fishery. Due to severe environmental changes in recent years which render cod, the former target species, to be a bycatch species while plaice, the former choke species, for all countries except Denmark, is doing well. Unless the bycatch of cod can be ruled out, the flatfish fishery nowadays ought to stop when the cod quota is used up.

LO exemptions applied (if applicable): Between 2015 and 2017, a survival exemption for negligible cod catches with pots and traps was valid (Commission Delegated Regulation (EU) No 1396/2014) (Valentinsson et al., 2019).

Best practices of the implementation of the LO: From a biological point of view, the implementation of the landing obligation for cod made sense, since this species is susceptible to being hauled up and down. The catch quota system is an effective tool. Reducing relatively high discards in the Baltic by lowering the MCRS from 38cm to 35cm diminished discard quantities was a good practice.

Difficulties encountered with the implementation of the landing obligation: The landing obligation resulted in a 180 degree change in regulations from discarding fish being mandatory to discarding becoming illegal jeopardizing the quality of the landings data. The implementation of the landing obligation and its success was in the first place extremely difficult to control and monitor, hence discarding continued (onboard observers cost-intensive, CCTV favoured by scientists, not particularly by fishers. There was no increase in gear selectivity (lack of flexibility and credibility given to industry-led gear design approaches). Fishers were furthermore neither motivated by, nor received, economic advantages for discard reductions. At the same time, the workload on board increased enormously. It is said that the workload doubled for the crews on the vessels. No improvement in scientific data quality took place, high underreporting and inconsistency was present and the overall depletion of Eastern and Western cod stock and poor environmental conditions resulted in the closure of the Baltic cod fishery (Valentinsson, et al., 2019).

Lessons learned: A study on the practicalities of the implementation of the landing obligation for the industry should have been taken into consideration. Fishers have been working for many years on decreasing discards, not only in the Baltic but all across for the important stocks. A fishery-by-fishery approach would have been useful. With the LO introduction, the discard ban was introduced in the Baltic cod trawl fishery. However, its performance and success were impossible to control. Especially at sea, this is even more intricate. A mindset change of fishers was strived for. The industry itself came up with several gear innovations designs aiming for decreasing discards, however those were often rejected demotivating fishers. The lack of trust, ownership and involvement in decision-making led to a larger gap between scientists, managers, policy makers and fishers. A more bottom-up, practice-oriented approach is needed.

BEST PRACTICES AND CHALLENGES

Best practices	Description
Catch quota system	All catches (landed or not) subtracted from quota

Challenges faced	Description
Control mechanisms landing obligation	Lack of control of landings, fishers' behaviour influenced by on board observers
Minimal acceptance of industry-led gear designs	Gear innovations from fishers striving reducing discards often rejected, lack of flexibility and credibility given to fishers
No economic motivation to decrease discards	Buyers in ports needed for all landed fish, no market for small fish, extra workload (3/4 hours extra per haul)
Not adequate port and ship infrastructure	Limited ship and port infrastructure to handle landings, unpractical

Case study 2: Bottom trawling in SWW, discarding blue whiting, Atlantic horse mackerel, hake and others

BRIEF SUMMARY

This case study illustrates how the landing obligation has been implemented in mixed fisheries. The institutional and regulatory framework is in place, and Spain has transposed the delegated acts on high survivability, inter-species flexibility and minimal exemptions into its legislation. In addition, research has been carried out both to improve selectivity and to analyse onboard operations. It is noteworthy that both scientists and fishermen have worked together to address the problem of discards by carrying out trials at sea to test technological innovations such as changes in mesh configuration and gear modifications. The results show that there is potential to improve selectivity, but that the landing obligation affects the economic performance of fishing operations. There is no evidence that fishing practices have changed since the introduction of the landing obligation. However, the reporting of discards is now a practice carried out by skippers. Although some misreporting may

occur in these fisheries. The EMFF has been used to fund projects and some minor investments by fishing operators. There is a need to continue trials at sea to test technological improvements. The EMFF and its successor, the EMFAF, can be vehicles for improving selectivity and onboard operations through both research and onboard investment.

Geographical scale/sea basin: The case study covers the geographical area of the Spanish waters of the Cantabrian Sea and along the Iberian Atlantic Coast to the limit of Portuguese waters, which corresponds to the ICES divisions 8.c and 9.a. The fishing area has its coastal limit at 100 m depth, and its outer part is delimited by the edge of the continental shelf.



Cantabrian Sea & Iberian Atlantic coast

OPERATIONAL DETAILS

- Sea basin: SWW
- Métier: OTB_DEF_>=55_0_0;
OTB_MPD_>=55_0_0;
PTB_MPD_>=55_0_0
- Employment (in FTE's): subset of the ESP NAO DTS 2440 NGI. This fleet segment has 1 281 FTE.
- Fisheries communities* involved: Ports of Marin, Bueu, and Ribeira (Galicia), and Ondarroa (Basque Country)
- Targeted species: hake, megrims, anglerfish, mackerel, Atlantic horse mackerel, blue whiting
- Main discarded species: Demersal Pair Trawlers (PTB): Blue whiting 63%, Atlantic horse mackerel 16%, hake 15%, mackerel 4%. Bottom Otter trawlers (OTB): Atlantic horse mackerel 38%, mackerel 25%, blue whiting 15%, megrims 9%, hake 8%, boarfish 3% .
- Outcome: Challenge
- Pilot: no
- Training: no

**using landing ports as a proxy*

Thorough description of métier: The Spanish bottom trawl fleet operating in the study area comprises three different métiers at DCF level 6:

- OTB_DEF_>=55_0_0: Otter bottom trawl targeting demersal fish (at least 55mm).
- OTB_MPD_>=55_0_0: Otter bottom trawl targeting mixed pelagic and demersal fish (at least 55 mm).
- PTB_MPD_>=55_0_0: Pair bottom trawl targeting mixed pelagic and demersal fish (at least 55 mm)

In the reference year (2016) the fleet was composed of 77, with an average length of 28.25 m, similar technology and fishing gear and even though it represents only 9.3% of the Spanish trawling fleet, it concentrates 29.4% of the tonnage.

Targeted fish stock: Main target species are hake (*Merluccius merluccius*), megrims (*Lepidorhombus boscii* and *Lepidorhombus whiffiagonis*), anglerfish (*Lophius budegassa* and *Lophius piscatorius*), mackerel (*Scomber scombrus*), Atlantic horse mackerel (*Trachurus trachurus*), and blue whiting (*Micromesistius poutassou*). Catch and discard rate varies depending on the métier. Thus, OTB_DEF targets hake, megrims, and anglerfish with nearly 50% of discard rate; OTB_MPD targets mainly Atlantic horse mackerel but also hake, mackerel and blue whiting with 25% of discard rate; and PTB_MPD targets blue whiting, hake and mackerel, with less than 16% of discard rate (Rodriguez-Rodriguez et al., 2019).

National context regarding legislation, monitoring and enforcement of the landing obligation: The implementation of the landing obligation in Spain is carried out by the Ministry of Agriculture and Fisheries (MAPA) and its Fisheries Secretariat. This is regulated by Order APA/514/2019 ⁽³⁹⁾, later amended by Order APA/579/2020 ⁽⁴⁰⁾. These are implemented by ministerial resolutions, each of which deals with three exemptions: minimis, inter-species flexibility, and high survivability. Measures to improve the selectivity of fishing gear are also the subject of ministerial resolutions. The minimis exemptions are published annually in the Official Bulletin of the State (BOE). It specifies the species, the stock, the area, the fleet concerned (according to the various Spanish fleet censuses) and the maximum amount of the minimis in relative (percentage of the quota) and absolute terms. The high survival exemption is implemented on an annual basis. This includes all the species and stocks concerned in the North-West Waters, the South-West Waters and the Mediterranean, the relevant fishing gear and the instructions for the release of the different species.

⁽³⁹⁾ BOE-A-2019-6884

⁽⁴⁰⁾ BOE-A-2020-6903

Enforcement is conducted by the fishing control department of the Fisheries Secretariat.

Relevant factors that may have influenced any of the aforementioned characteristics: Mixed fisheries pose many problems for the LO. These are inherent in a fishery where targeting profitable species carries the risk of catching other species of lower economic value or below the MCRS. The fact that all species have to be landed and counted against the quota introduces the problem of reduced space on board, increased handling time and the problem of bycatch. Technological advances are still being developed and all require testing at sea, which is expensive. This requires a major research effort and cooperation with the fishing industry. At present, the state of knowledge does not allow selectivity to be improved to such an extent that income is not affected. The landing obligation imposes high costs in terms of handling and storage of fish that would otherwise be discarded. Fishermen are economic actors and may not change their fishing practices if this means a loss of income. Nonetheless exemptions are in place to attempt to alleviate the problems of the implementation.

OVERVIEW OF RESULTS

Region-specific factors for the landing obligation: The most important factor that may influence the application of the landing obligation may probably be the high variety of species that are caught in these fisheries. These are species that acquire a very high value in certain areas and times of the year. Several studies have been made to improve the selectivity of choke species, but other species that tend to have a high value for ship owners have also escaped from the net. Therefore, the corresponding economic viability study carried out on the new catch scenario determines that the losses are relevant, and the reduction of unwanted catch would have a very negative influence on the viability of the company.

Overview of the avoidance of discards and unwanted catches: Many works have been done on selectivity studies since the landing obligation began in 2016. Both AZTI and IEO have carried out studies and sea trials to test technical measures to reduce unwanted catch. None of these measures have proven to be effective in reducing unwanted catch without negatively influencing profitable catch. However, these efforts have served to justify the always difficult task of improving selectivity in a fishery as mixed as trawling in the Iberian waters of the Cantabrian and Atlantic Seas. With this, it has been possible to justify the *de minimis* exceptions to deal with the inevitable bycatch of target species such as hake or megrims.

Since the implementation of the LO, a new problem has raised, and fishermen need to find a solution in collaboration with scientists, the bycatch of sensitive

species (ETP species). Specifically in Iberian waters of the Bay of Biscay, common dolphin has been one of the species that has presented the highest bycatch and to which a great effort has been dedicated to minimizing it. Efforts have been directed towards the installation of EMSs (EMS) to characterize and quantify the capture, as well as the installation of acoustic deterrent devices (pingers) and testing their effectiveness.

Other ETPs are also becoming more and more relevant, such as birds and some fish (mainly elasmobranchs). With these groups, information is being collected through onboard observers and EMS, and in a later step mitigation systems will be proposed for those cases in which it is considered that there is a specific problem and a solution can be sought.

Main reasons for discarding: Information provided by onboard observer data collection programs AZTI-IEO:

- Hake and megrims: Fish under minimum size.
- Mackerel: lack of quota and fish under minimum size.
- Atlantic horse mackerel: low market value and lack of quota.
- Blue whiting: low market value, fish under minimum size and damaged fish.
- Boarfish: market absence.

Handling of unwanted catches: The main issues for handling unwanted catches onboard seem to be an increase in crew working hours as well as the reduction of the storage capacity and the additional supported costs. The main issues on shore are related to handling services (transport, handling and storage of merchandise, wholesale trade services, etc.), ice and fresh water.

Main species with high survival potential: In Spanish waters of ICES zone 8 and 9, there is an exemption due to high survival rate that applies to rays (Rajidae) in the trawl fleet. It is included in the resolution of March 27, 2024, of the General Secretariat of Fisheries, which publishes the list of species for 2024 that have an exemption from the landing obligation due to high survival capacity.

Changes in fishing effort: There have not been changes in fishing practices due to the implementation of landing obligation.

Awareness of fishers on increase selectivity, end discarding, improve handling of unwanted catches: Generally, it can be said that no change has been observed in the attitude of the crews as a result of the implementation of the landing obligation. No selectivity measure has been applied, discarding continues in the same way and the unwanted catch, therefore, is not handled and stored on board. Therefore, for practical purposes no change is seen. This assessment has been obtained through the knowledge of onboard sampling

within the routinary program of observers, conversations with shipowners, sampling on shore and other activities that are carried out jointly with the commercial fleet. The only change that could be mentioned would be that skippers have the obligation to record the discard in the logbook. This seems to have improved over the years, but even so, it is far from reflecting the reality of what happens on board, since it is recorded well below the actual amounts that are discarded.

Future requested training with the objective to increase selectivity: Until now, it has not been possible to improve selectivity without affecting the viability of the fishing companies, but efforts to reduce unwanted catch and adapt as best as possible to the landing obligation continue. Both IEO and AZTI continue with studies of the trawl fleet on the Iberian coast of the Cantabrian Sea and the Northwest. As well as in the ICES 8abd area of the Bay of Biscay, where studies are being carried out that can also be applied in this case study.

EMFF/ EMFAF: The EMFF funded some projects that aimed to improve selectivity such as the study and optimization of trawl net selectivity in the Cantabrian and Northwest fishing grounds with a view to its optimization within the framework of the adaptation to the regulation on landing obligation (MENDES 2), which was led by AZTI. Implementation of an electronic system of documentation of the total catch for a sustainable and online management of fisheries resources (SICAPTOR), which was led by CSIC; Survival and recovery of species discarded in the trawl fisheries in Atlantic waters (SUREDEPAR), which was led by the University of Cadiz. In addition, there have been some minor investments made by private operators on Art.38.1.b - Equipment investment - Reduction of unwanted catches. It is worth mentioning that the fishing operators wishing to implement technological improvement have to paid in advance and then request its reimbursement after an administrative process. This may discourage voluntary actions to improve selectivity of fishing gear.

Compliance to landing obligation: No information is available. For Spain in general and for these fleets in particular, the information is treated as confidential. However, in September 2021 the EC called on Spain and France to ensure compliance with the landing obligation. The EC considered that these Member States have failed to ensure the control and enforcement of the obligation to land all fish subject to catch limits and minimum sizes in the Mediterranean ⁽⁴¹⁾.

PERFORMANCE ANALYSIS

Performance of landing obligation implementation and outcome success rate: Several studies have been carried out aiming to improve selectivity in the Bay of Biscay. Kopp et al, 2018 analysed the effectiveness of a T90 extension

⁽⁴¹⁾ https://ec.europa.eu/commission/presscorner/detail/en/inf_21_4681

piece to improve selectivity in bottom trawl multi-species fisheries, but the fishing ground was in French waters and the mesh size broader than our case study. They improved selectivity for Atlantic horse mackerel, among others. Alzorriz et al. (2016), questioned the effectiveness of technical measures implemented by the Basque bottom otter trawl fleet and its implications under the landing obligation. Selective properties of a 70 mm diamond mesh codend and a 100 mm top SMP for hake (*Merluccius merluccius*) was studied in French waters of ICES area 8, and they concluded that the SMP was largely ineffective at releasing undersized hake. In the case study area, we could not find any scientific publication regarding the present request, but some sea trials developed by AZTI under the MENDES project. In this project, selectivity tests for PTB_MPD have demonstrated the effectiveness of a 80 mm SMP in the lower plane of the codend, in reducing a fraction (16% by weight) of hake under minimum reference size (the unwanted catch of this species) that enters the net. In addition, it is possible to improve the selectivity of hake by size in the codend of the net, equipped with the SMP. Selectivity tests on OTB at ICES 9a demonstrated the limited effectiveness of an SMP located in the upper plane of the codend, in reducing unwanted catch of main target species such as hake (-4%) and megrims (-4%). However, it contributes to substantially reducing the unwanted catch of Atlantic horse mackerel. A Square Mesh Codend SMC of 60 mm mesh size substantially reduces the level of unwanted catches of hake and Atlantic horse mackerel (an additional 35% compared to the commercial 70 mm rhomboid mesh codend). However, in megrims the opposite effect occurs, with a relative increase in under size fish retained in the SMC codend of 11%.

Outcome success rate: Challenging (unchanged or increased discard rates). The economic evaluations on the effect on ship owner companies of the introduction of these selective devices indicate that, in the case of PTB_MPD, the introduction of the SMP would be economically viable, while in the case of OTB neither the SMP, nor the CMC codend, manage to counteract the negative effect of the landing obligation, since the reduction in unwanted catch achieved for species subject to TAC would not be sufficient. The study concludes by pointing out the need to carry out a greater number of experimental tests at different times of the year, in order to implement improved technical measures that increase the effectiveness of selective devices, reducing the levels of unwanted capture to the maximum. The studies performed above confirm the prediction of our selected case study (Rodriguez-Rodriguez et al., 2019), which concludes that the landing obligation is undoubtedly going to contribute to reducing discards but also to provoke (at least) a short-term reduction in fishing companies' income that goes from 14.5% in the worst scenario to 5.3% in the most favourable one. Regarding selectivity, in mixed fisheries improvements are difficult and demand is elastic and, hence, prices will not compensate a fall in production.

Technological advances used: Gear modification, such as Square Mesh Panels and Square Mesh codends has been tested. The SMP were located at different positions on the extension piece located between the net and the codend, and the contact surface was also modified, increasing or decreasing it in order to obtain the best balance between escape and retention of the catch. Decrease in discard rates, due to either increased selectivity, avoidance of discards/reduction of unwanted catches, or increased discard survival probabilities are challenging (no noteworthy change or increase in discard rates).

Choke species encountered: Choke species, as mentioned above, are hake, megrims, mackerel, Atlantic horse mackerel, blue whiting, and boarfish. Hake, Atlantic horse mackerel, megrims and blue whiting catches are distributed throughout the year and mackerel is mainly captured in winter period (January-February). Boarfish has also a seasonal pattern, with occasional extreme catches.

Landing Obligation exemptions applied: *de minimis* exemption, in accordance with delegated act 2023/2623. The regulation is in force in Spain as per resolution of 27 March 2024. Survival flexibility, in accordance with delegated act 2023/2623. The regulation is in force in Spain as per resolution of 23 March 2024.

Best practices of the implementation: There are a number of projects on selectivity improvement that have counted on with the engagement of the fishing sector e.g. the DESCARSEL projects led by IEO, or MENDES led by AZTI. In the latter trials were made on private vessels. Stakeholder engagement involved the Producer Organizations of Organización de Productores de Pesca de Altura del Puerto de Ondarroa (OPPAO) in the Basque Country, and Organización de Productores de Pesca Fresca del Puerto y Ría de Marín (OPROMAR) in Galicia.

Difficulties encountered with the implementation of the landing obligation: The landing obligation, understood as the requirement to land all catches of populations subject to catch limits, including those that are undersized or due to quota restrictions, has never been enforced in the Iberian waters of the Cantabrian Sea. It is evident that this type of catch has never been landed in the main fishing ports of the area. Some progress has been made, such as recording discards in logbooks (although to a lesser extent than what was discarded), implementation of exemptions, and increasing fleet awareness. However, in practice, fishing activities have continued as they did before the landing obligation came into effect. Fishing operators have not felt compelled to change their habits. Implementing the landing obligation entails additional onboard tasks, resource consumption, issues with landed catches, and economic losses due to the reduction of quota resulting from recording unwanted catches. As a result, the fleet sees no reason to voluntarily comply

with the landing obligation and has chosen to follow the easier path of discarding species at sea. Moreover, no control or sanctions have been observed for vessels that continue this practice.

Lessons learned: There is very little published scientific literature on the implementation of the LO in the study area. Scientific studies have shown that, at this stage of knowledge, it is not possible to improve selectivity without affecting the viability of fishing enterprises of having less commercial value catch. Since the introduction of the landing obligation, fishing operations have not changed much in terms of discarding practices, while improvements in selectivity have been limited. There is a need to continue to explore technological solutions and trials at sea. One tangible change is the obligation for skippers to declare discards in the logbook. However, there may be some degree of misreporting. The EMFF and its successor fund, the EMFAF, provide opportunities for research on selectivity involving scientists and the fishing industry. Improvements in selectivity eligible under the EMFF/EMFAF require fishermen to make advance payments, which are reimbursed after a complex administrative procedure. This may discourage voluntary investment in technological improvements.

BEST PRACTICES AND CHALLENGES

Best practices	Description
Cooperation between scientists and fishing sector	Experiments have been carried out at sea on fishing vessels, with the technical assistance of experienced skippers and crews.
Use of the EMFF	The EMFF has been used to fund research projects involving costly trials at sea.
Exemptions	The legislation provides for a number of mechanisms (derogations) to mitigate the impact of the landing obligation on the fisheries sector. These are based on the best available science.

Challenges faced	Description
Choke species	This is a challenge in all mixed fisheries and is difficult to address at this stage. This may mean that discards will continue to be a problem for the sector.
Selectivity improvements require more research and trials	Although experienced researchers are available to carry out research on this issue, the costs of research and testing at sea are very high and require a great deal of effort from all interested parties.
Income reduction	The landing obligation implies a reduction in income with a consequent negative impact on fishing operators and ancillary activities.

Case study 3: NWW Dutch pelagic trawl fishery, targeting blue whiting, discarding hake

BRIEF SUMMARY

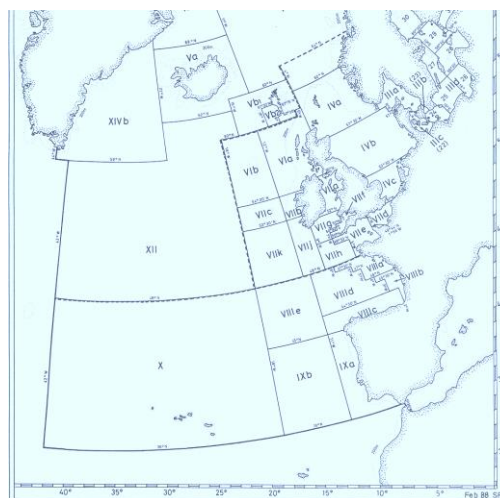
The implementation of the EU landing obligation was overall a success for the Dutch pelagic trawl fishery. The overall implementation was feasible for this métier and trawlers anticipated well. Increased catch retention on board embodies the discard avoidance strategy for this type of fishery with discard rates being low.

BACKGROUND

Geographical scale/sea basin: The Northern Western Waters are a complex region with no agreements in place for dividing fishing rights among the coastal states. Blue whiting, the most plentiful fish in this area, suggests healthy stock levels. However, disputes persist over the fishing quotas among EU coastal states and non-EU countries.

Thorough description of métier: Mid-water pelagic trawl vessels are usually characterised by a rather low bycatch rate and an effective single species fishery (detecting schooling fish with echo-sounding equipment on board). Worldwide pelagic fisheries usually catch fish for fish meal and bait. Dutch freezer trawlers in this regard stand out since their target is fish for human consumption only. Hence, caught fish are being processed and stored in freezers on board. Compared to demersal fisheries, discard in Dutch pelagic trawl fisheries occurs sporadic.

Targeted fish stock: The blue whiting stock counts a total biomass of 2.2 mln. tonnes in 2021 (+22% to 2020) (ICES 2021b). Since the mid-1990s, a nearly threefold increase of spawning stock correlated to salinity and temperature increase can be underlined (ICES 2007). Dutch pelagic trawlers landed 63 mln. kg in 2022 (28% of the landings).



OPERATIONAL DETAILS

- Sea basin: Northern Western Waters
- Métier: Mid-water pelagic trawl
- Employment (in FTE's): 1,776 sea days (2022) (Agrimatie, 2023)
- Fisheries communities* involved: Katwijk, IJmuiden, Scheveningen (www.pelagicfish.eu)
- Targeted species: Blue whiting
- Main discarded species: Hake
- Outcome: Success
- Pilot (y): Hake sorting grid
- Training (n): N.A.

**using landing ports as a proxy*

National context regarding legislation, monitoring and LO enforcement:

On European level, policy advice, negotiations and interest representation of the Dutch pelagic trawlers fleet are channelled via the association *Europêche*, *EAPC* and via the ICES Working Group on Northern Pelagic and Blue Whiting Fisheries (WGNPBW). With the Landing Obligation (LO), the DCF transitioned from a discards monitoring to a catch monitoring scheme. Since 2002, the European freezer trawler fleet has employed two separate observer programs to sample catches. The changes in fishing quotas following Brexit have led to EU fishermen still having access to UK waters, but with reduced quotas.

Relevant factors that may have influenced any of the aforementioned

characteristics: In 2022, total fuel costs increased by €13 million in 2022 (80% rise compared to 2021). In 2022, the Dutch pelagic trawl fishery consumed an estimated 37 million litres of fuel (2 million litres more than in 2021).

OVERVIEW OF RESULTS

Region-specific factors for the landing obligation: A sharing arrangement for the blue whiting stock between the EU, Norway, Iceland and the Faroe Islands is in place. Parties agreed on catch limits and distributed quotas. Bilateral arrangements are made with regard to access and transfer of quotas. On an annual basis, the NEAFC adopts management and conservation procedures for blue whiting (ICES 2007).

Overview of the avoidance of discards and unwanted catches: Seasonality is a major driver when it comes to avoiding discards and unwanted catches. Target blue whiting fishery from January to April has discard rates in this period of no more than 2%. Nonetheless, discard rates can jump to 100% outside of the beforehand mentioned season.

Main reasons for discarding: Main reasons for discard include species with no commercial interest, species below minimum landing size, damaged or low quality species or quota limit (ICES, 2007; van Helmond & van Overzee, 2010).

Handling of unwanted catches: Dutch pelagic trawlers sometimes release a portion of the catch before it is sorted. This kind of handling of unwanted catches is called "*slippage*" or "*unsorted discards*" (10% of the discards). When doing so, the codend is opened with the net still being in the water, or part of the catch is pumped out into the sea from chilling tanks (Borges, et. al 2008).

The role the pilot project has played within the context of successfulness of implementing the landing obligation: In the Dutch pelagic trawl fishery targeting blue whiting with hake discards, a pilot was carried out testing a hake sorting grid. Increased catch selectivity was observed. However, it was a challenge to retain more blue whiting while enabling the escape of hake.

Nowadays, these trawlers do no longer fish during the period when they used to have bycatch of hake, thus the hake grid is not in use.

Changes in fishing effort (before and after pilot implementation): Dutch pelagic trawlers do not fish much anymore in areas where hake is abundant. Therefore, it is hard to make a comparison whether the fishing effort changed before and after the pilot with the hake grid but it is assumed that the fishing effort was not altered.

Awareness of fishers on increase selectivity, end discarding, improve handling of unwanted catches (before and after pilot): The awareness noticed is not linked to the pilot but fishers do release larger protected species as quick as possible. The boarfish (*Capros aper*) is also an unwanted species (hard to remove from the net, thus time-consuming and an economic advantage, no quota in the Netherlands). Fishers try to avoid those fishing grounds with boarfish (same for areas where sharks are common).

Future requested training with the objective to increase selectivity: Crew members of pelagic trawlers expressed that they are interested in species identification training for a better sorting of catches. By doing so, handling of also quota species and no quota species could be improved.

EMFF/ EMFAF: The EMFF-BlueEconomy-2018-863529 funds the project on '*Catching the Potential: Setting the Standard for Sustainable Fishing*' where Dutch pelagic freezer trawlers were participating in. Sustainable fisheries training pilots were carried out in seven different European countries covering several sea basins ⁽⁴²⁾. In addition, EASME and EMFF funded a '*study on ownership and exclusive rights of fisheries means of production*' which also looked at one of the segments of the Dutch fleet, namely the large-scale trawler fleet, using midwater trawls and targeting pelagic fish species (CINEA-EMFF, n.d.; MRAG, AZTI & NEF, 2019).

Compliance to LO (if available): Compliance is considered being rather high. In case of protected species, trawlers are obliged to release them. Infringements concern cetacean bycatch and overall lacking control, accounting and enforcement of the landing obligation in the Netherlands (McBride, 2022). Misreporting of fish catches, overfishing and fish fraud were reported in 2022, claiming that the NVWA failed to systemically check and weigh adequately what is landed by the Dutch trawlers. With proceeding court ruling, new checking

⁽⁴²⁾ https://cinea.ec.europa.eu/featured-projects/catching-potential-setting-standard-sustainable-fishing_en

procedures, portside security and increased staff employment were introduced ⁽⁴³⁾.

PERFORMANCE ANALYSIS

Performance in catch selectivity (reduced, unchanged, or increased catch selectivity): Unchanged catch selectivity (y + elaboration): Representatives of the Dutch pelagic trawlers and scientists state that the implementation of the landing obligation did not impact on fishers changing their catch selectivity due to already beforehand being very selective with fishing. Increased catch selectivity (y + elaboration): An increased catch selectivity was observable during the hake grid pilot since it marked a success, namely a reduction in bycatch of strong swimming fish such as mackerel and saithe when targeting blue whiting. In a message from the skipper who participated in the hake grid pilot at that time, he indicated that they are no longer fishing during the period when they used to have bycatch of hake (shifting of fishing period). The hake grid is not used.

Performance of LO implementation and outcome success rate in terms of discard rates (successful (decreased discard rates): Before the LO implementation, discards for this fishery in Northern Western Waters was always below 5% for target species (blue whiting, horse mackerel, mackerel, herring). Therefore, achieving successful discard rate outcomes in line with the landing obligation was considered the most feasible for this métier and type of fishery. With the LO implementation, gutters onboard were sealed. This performance was an industry-led approach and a result of increased catch retention on board, thus a discard avoidance strategy.

Technological advances used: An "excluder" has been introduced to prevent bycatch of sensitive species, which also works positively for other species (van Rijn et al., 2017)

Fisheries practices and related experiences (if available): Pelagic fisher trawlers were observed as having reacted inventive and quick to the LO implementation, while also having looked on time for a market for the landed discard (especially also for damaged fish in this case, not undersized fish which is in contrast to the Dutch cutter fishery).

Choke species encountered: N.A.

LO exemptions applied: A *de minimis* exemption for blue whiting in the industrial pelagic trawler fishery (Union waters of ICES subarea 4, 5b and ICES subareas 6 and 7). Maximum quantity for blue whiting is a total of 5% of the

⁽⁴³⁾ www.fishsec.org/2023/12/13/major-concerns-raised-as-netherlands-acknowledges-lack-of-control-in-fisheries-sector/

total annual catches (Specific requirements: This exemption applies to vessels that have catch on board process into surimi base ⁽⁴⁴⁾).

Best practices of the implementation: Overall, this case study shows a success example regarding the implementation of the landing obligation. Prior to the landing obligation, discards were already very low for this type of fishery, percentage-wise speaking of the total catch. Exceptions were (barely) requested since it was largely feasible. Onboard facilities enabled this process and all the fish can be handled (~70% of the ship consists of the freezing and sorting compartments). Flexibility is even enlarged since these pelagic shipping companies have also freezing storage on land.

Difficulties encountered with the implementation of the landing obligation: There is a bycatch quota for bluefin tuna in place, however one may not cut them on board as fishing regulations do not allow this (hygiene agreements). However, sometimes, those caught tuna are too large to be frozen in (and would rot from the inside within those weeks onboard). In the past it had happened that catches were too great and the net was open in the water, releasing the caught blue whiting which is of course prohibited under the landing obligation.

Lessons learned: The crew of Dutch pelagic trawlers reacted more negatively in general towards the implementation of the landing obligation. The perception improved over the last years. Another general lesson learned for Dutch pelagic freezer trawlers is, that their catch is too large exceeding the needed processing time on board of the trawler. Therefore, the volume per haul ought to be well-calculated and estimated.

BEST PRACTICES AND CHALLENGES

Best practices	Description
Low overall discard rate	High catch selectivity in this métier making the implementation feasible
Onboard capacities	Sufficient extra onboard freezing capacities
Area avoidance	Avoidance of areas with high likeliness for unwanted species

⁽⁴⁴⁾ www.rvo.nl/sites/default/files/2024-04/Vrijstellingen%20op%20de%20aanlandplicht%20in%20de%20Noordzee%20en%20de%20Noordwestelijke%20wateren%202024.pdf

Challenges faced	Description
Hygiene arrangements	Hygiene rules not allowing handling of e.g. tuna
Too large species	Too large (protected) species do occur in the catches
Incorrect haul volume estimation	Volumes per haul need proper calculation, risk of ripping nets

Case Study 4: NWW Irish pelagic trawl targeting boarfish

BRIEF SUMMARY

This case study is about the Irish pelagic trawl targeting boarfish. This is done with 17 Refrigerated Sea Water) vessels and 6 polyvalent vessels using midwater pelagic trawls. The Irish fleet has the majority of the quota, and the main seasons for the Irish fleet are the last and first quarter in the year, so winter time. It is a clean and directed fishery, thus the LO poses no problem to the fleet. Bycatch of boarfish in other fisheries (pelagic and demersal) might be a problem. With the recent expansion of the boarfish biomass and the range extension of to the north, it is expected that discards in non-target pelagic fisheries are likely to increase. There thus is a need for better discard data for boarfish in other fisheries.

BACKGROUND

Geographical scale/sea basin: The case study is part of the geographical area of the North Western Waters, which cover the Atlantic ICES areas 5, 6 and 7 (STECF 2023). Data collection for the stock assessment of boarfish was in ICES areas 6-8. The boarfish stock is believed to cover a greater area than that, into subarea 10 (Egerton et al., 2017).

Thorough description of métier: Directed boarfish fisheries are performed by pelagic (Refrigerated Sea Water) vessels with midwater pelagic trawls. 'These vessels typically also target mackerel (*Scomber scombrus*), horse mackerel (*Trachurus trachurus*), herring (*Clupea harengus*) and blue whiting (*Micromesistius poutassou*)' (Stange et al., 2016). It is performed by Irish (17 RSW, 6 polyvalent vessels), Scottish (1 or 2) and Danish (2 or 3) vessels (Interview 4b&c). Typically pelagic fisheries targeting *boarfish* typically use 32–54 mm mesh sizes. Some of the Irish vessels do pair trawling (interview 4b&c). The Irish fleet has the majority of the quota, and the main seasons for the Irish fleet are the last and first quarter in the year, so wintertime. The majority of the catch has been landed in Killybegs (interview 4b&c).



OPERATIONAL DETAILS

- Sea basin: Northern Western Waters
- Métier: Midwater pelagic trawl
- Employment (in FTE): unknown for this specific métier – 2.776 jobs in the Irish fleet with 1.963 vessels of which 23 are involved in boar fish fishery
- Fisheries communities* involved: Killybegs (Ireland), Skagen (Denmark), Fuglafjørður (Faroe Islands)
- Targeted species: boarfish (*Capros aper*)
- Main discarded species: N.A.
- Outcome: Success
- Pilot (n): N.A.
- Training (n): N.A.

*using landing ports as a proxy

Targeted fish stock: Boarfish (*Capros aper*)**National context regarding legislation, monitoring and LO enforcement:**

Boarfish is a relatively new fishery, so only in 2011 a TAC was set for the first time. Prior to that in October 2010, the European Commission issued a communication (Annex 1 of Regulation (EC) No 850/1998 ⁽⁴⁵⁾) that temporarily halted the rapidly expanding and still unregulated boarfish fishery. A technical regulation prohibited fishing for boarfish with mesh sizes smaller than 100 mm, where trawlers targeting boarfish typically used mesh sizes of 32–54 mm. An Irish Member of the European Parliament spearheaded an initiative to amend the regulation, allowing the boarfish fishery to continue. This soon led to the development of an interim management plan for boarfish, accelerated by the fortuitous gathering of several key stakeholders interested in the boarfish fishery, who were already convened to discuss other pelagic stocks (Stange et al., 2016). The TAC in 2024 is 27,349t, with 18.899 for Ireland ⁽⁴⁶⁾. “In order to mitigate potential bycatch of other TAC species in the boarfish fishery, a closed season is in place from 15 March to 31 August, to prevent bycatches of mackerel” (Marin Trust 2021; interview 4b&c). Boarfish can also be a bycatch in other fisheries, such as the horse mackerel fishery. As it can be difficult to distinguish between boarfish and horse mackerel on the echosounder, it is difficult to avoid catching it (interview 4a). Since 2011, there has been a provision for bycatch of boarfish to be taken from the Western and North Sea horse mackerel EC quotas. This was about 1% of the total TAC in 2015 ⁽⁴⁷⁾ ⁽⁴⁸⁾. In some fisheries (i.e. North Sea horse mackerel fishery (JAX/4BC7D)), if the amount is not too large (<5%) it can be taken from the quota of Horse mackerel (*Trachurus* spp) for boarfish combined with haddock, whiting and mackerel ⁽⁴⁹⁾.

Relevant factors that may have influenced any of the aforementioned

characteristics: Discards in the boarfish fishery are not a problem, as it is a directed fishery that can be highly selective when taking seasonality and place into account. Potentially there is a problem for some pelagic and demersal fisheries catching *boarfish* as a bycatch (see next section).

The fishery is relatively new: ‘by the middle of the 20th century, there were reports of increased abundance’ (Egerton et al 2017). ‘Aside from a targeted Portuguese fishery in the 1960s, boarfish were largely caught and discarded as nuisance bycatch in pelagic and demersal fisheries’ (Egerton et al 2017). In

⁽⁴⁵⁾ OJ L 125, 27.4.1998, p. 1–36

⁽⁴⁶⁾ https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202400257

⁽⁴⁷⁾ <https://visserij.nl/2015/11/17/aanlandplicht-creeert-problemen-waar-geen-problemen-waren/>

⁽⁴⁸⁾ www.visserijnieuws.nl/nieuws/algemeen/18945/compromis-uitzondering-evervis

⁽⁴⁹⁾ https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L_202400257

2001, the first targeted boarfish fishery began (Egerton et al., 2017). The Irish also tried to catch boarfish for human consumption, with an eye on the market in China. This did not work out because the fish was spiny, had to be rather large (14cm) and the colour was a marketing problem (interview 4b&c).

OVERVIEW OF RESULTS

Region-specific factors: Potentially there is a problem for some pelagic and demersal fisheries catching boarfish as a bycatch. Thus far, based on available data, discards of boarfish in non-directed fisheries do occur but are small (in scale of magnitude) and therefore pose no problem for the stock (interview 2). Discards in non-target pelagic fisheries are unquantified but are likely to have increased in recent years due to the stock expansion in biomass and the range extension of boarfish to the north. One of the interviewees points at an interesting observation, that reported discards of boarfish in other fisheries were 1000 tons in 2022, but at start of the fishery (i.e. in 2003) 10.000 tons. Whereas the stock now is three times larger. Thus that is counter-intuitive, and could point to non-registration of catches since the LO (interview 1 and Working Group on Widely Distributed Stocks (WGWIDE) 2023 table 3.15 page 139). It is expected that the reopening of the western horse mackerel fishery will result in higher discards of boarfish. There thus is a need for better discard data for boarfish in other pelagic fisheries (Interview 4b&c).

Overview of the avoidance of discards and unwanted catches: Discards in the boarfish fishery are not a problem, as it is a directed fishery that can be highly selective when taking seasonality and place into account. Only in some months, in some places more mixing may occur, which can be solved by temporary closures. “In order to mitigate potential bycatch of other TAC species in the boarfish fishery, a closed season is in place from 15 March to 31 August, to prevent bycatches of mackerel” (Marin Trust 2021; interview 4b&c).

Main reasons for discarding: No species are discarded.

Handling of unwanted catches: N.A.

The role the pilot project has played within the context of successfulness of implementing the landing obligation: N.A.

Changes in fishing effort (before and after pilot implementation): N.A.

Awareness of fishers on increase selectivity, end discarding, improve handling of unwanted catches (before and after pilot): N.A.

Future requested training with the objective to increase selectivity: N.A.

EMFF/ EMFAF: N.A.

Compliance to LO (if available): Compliance to the LO is not a problem in the boarfish fishery, as there are no major species as significant bycatch (if seasonality and place are taken into account). In fisheries *where boarfish is a bycatch* this is potentially more of a problem. In addition the discard percentage granted is most likely above the fishery's unwanted catch so the exemption will cover the totality of discards and more. Boarfish in the NWW is specifically mentioned as case in hand here by Borges (2021).

PERFORMANCE ANALYSIS

Performance in catch selectivity (reduced, unchanged, or increased catch selectivity): N.A.

Performance of LO implementation and outcome success rate in terms of discard rates: N.A.

Technological advances used: N.A.

Fisheries practices and related experiences (if available): N.A.

Choke species encountered: N.A.

LO exemptions applied: No, not in the boarfish fishery

Best practices of the implementation: In general the boarfish fishery has an overall low discard rate, thus this makes the LO feasible. If needed areas can be closed seasonally.

Difficulties encountered with the implementation of the LO: none

Lessons learned: The LO has not posed a problem to the boar fish fishery as it is a clean and directed fishery. Thus far, based on available data, discards of boarfish in non-directed fisheries do occur but are small (in scale of magnitude) and therefore pose no problem for the stock (interview 4d). With the recent expansion of the boarfish biomass and the range extension of to the north, it is expected that discards in non-target pelagic fisheries are likely to increase. There thus is a need for better discard data for boarfish in other fisheries.

BEST PRACTICES AND CHALLENGES

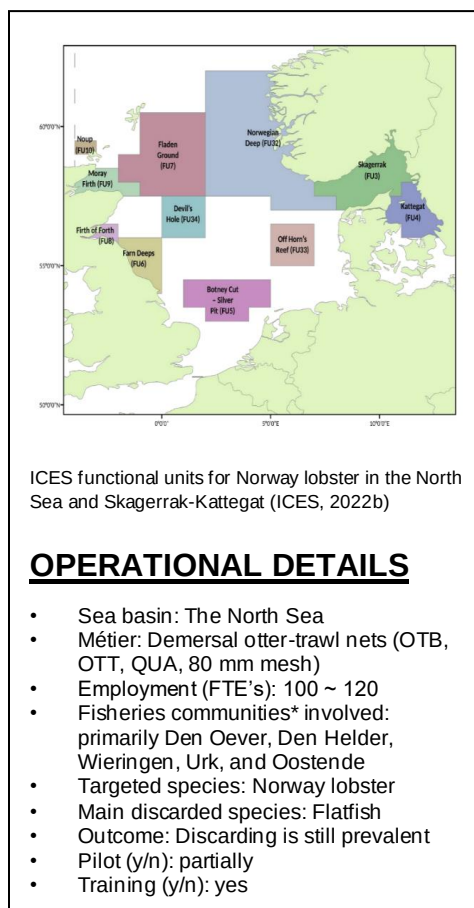
Best practices	Description
Low overall discard rate	High catch selectivity in this métier making the implementation feasible
Area and seasonal management	If needed areas can be closed seasonally to avoid too much mixed catches of in boar fish fishery with other pelagic species

Challenges faced	Description
none	

Case study 5: North Sea Dutch Norway lobster (*Nephrops norvegicus*) fisheries, discarding flatfish and roundfish

SUMMARY

This case study examines the impact of the landing obligation on Dutch Norway lobster fisheries in the North Sea, based on research on *Nephrops* fishers' self-sampling. Between 2019 and 2023, Norway lobster constituted 30-75% of total landings, with flatfish and roundfish as significant non-target species. Due to their high survival rates, Norway lobster and some main non-target species are exempt from the landing obligation, allowing the discarding of these species. However, this exemption can only partially explain the lack of observed changes in catch, discards, and landings (and therewith selectivity) after the landing obligation was implemented. In current practices, all unmarketable catch is immediately discarded. The primary reason for discarding is a lack of incentives, and concerns about the practicality and effectiveness of the landing obligation in achieving conservation goals without significant economic losses. Consequently, compliance is low, with minimal risk of repercussions for the fishers.



BACKGROUND

Geographical scale/sea basin: The North Sea: FU5, FU33, and outside FU areas.

Thorough description of métier: Approximately 20 Dutch-registered vessels target Norway lobster using otter-trawls (Molenaar et al., 2016). In 2022, 24 vessels had at least one trip with Norway lobster comprising at least 30% of the catch. Employment in the *Nephrops* fisheries is estimated to be between 100 and 120 FTEs. Norway lobster are caught through otter trawl fisheries, including otter trawl (OTB), otter twin trawl (OTT), and quadrig (QUA) with 70-99 mm mesh size. Dutch fishers mostly use 80 mm quadrig nets. (Jurrius et al., 2023; Interview 5b).

Targeted fish stock: Norway lobster is the target species. In Jurrius et al. (2023), Norway lobster constituted 30-75% of total landings, with flatfish (25-60%) and roundfish (up to 15%) as significant non-target species. The dominant non-target species were plaice, turbot, anglerfish, and Atlantic cod (ibid).

National context regarding legislation, monitoring and LO enforcement: Fisheries in the Netherlands are managed under the EU CFP, with a single TAC quota. Monitoring and enforcement are conducted by the NVWA (Jurrius et al., 2023). However, fishers may sometimes be aware of the presence of controlling vessels, either through Automatic Identification System (AIS) or communication with other fishers and might adjust their practices accordingly to ensure they appear to comply with the landing obligation (Interview 5a).

Relevant factors of the aforementioned characteristics:

Factors that influence this highly valued fishery include competition for and restrictions in space, total allowable catch quota (both with further limitations caused by Brexit). Legislation and increased knowledge of the species influence fishing practices and discard rates (Letschert et al., 2021).

OVERVIEW OF RESULTS

Region-specific factors for the landing obligation: In ICES area 4, between 2021 and 2023, Norway lobster, and some of the bycatch species sole, plaice, and turbot, were exempt from the landing obligation due to their high survival rate, allowing discarding (Rijksdienst voor Ondernemend Nederland (RVO), 2020).

Overview of the avoidance of discards and unwanted catches: No significant changes in selectivity have been observed post-landing obligation (Jurrius et al., 2023).

Main reasons for discarding: The primary reason for discarding is the lack of incentives (Catchpole et al., 2008). Low market value and below-minimum-conservation-size quota fish are discarded because fishers believe: 1) landing live undersized fish is unethical, 2) throwing the biological material of dead fish back is beneficial to the ecosystem, 3) this low-value catch might count against their quota, and 4) fishers do not have the capacity and manpower on board to sort and store the entire catch (Interview 5a and 5b).

Handling of unwanted catches: Unwanted catches are immediately discarded overboard (Interview 5a).

Main species with high survival potential: Norway lobster

The role **training and/ or pilot projects** have played within the context of successfulness of implementing the landing obligation: The training and pilot study was successful in ensuring the quality of fisheries self-sampling data.

However, it did not furthermore focus on enhancing successfulness of implementing the landing obligation.

Changes in catch selectivity as a result of training/ pilot programs: The material for this case study lacked direct insights into changes in landings and discards before the implementation of the landing obligation. There has been no decrease in discard rates but a slight increase in selectivity, which could be an effect of increased knowledge on variables influencing Norway lobster bycatch rates, such as fishing area, quarter of the year, and time of day (Jurrius et al., 2023). Further research is needed for conclusive findings.

Changes in fishing effort (before and after pilot/training implementation): Fishing effort has remained consistent, apart from quarterly fluctuations and a decrease in 2021 due to the COVID-19 pandemic and high oil prices (Jurrius et al., 2023).

Awareness of fishers on increase selectivity, end discarding, improve handling of unwanted catches (before and after training/pilot): Dutch fishers often disagree with the landing obligation primarily due to concerns about its practicality and effectiveness in achieving conservation goals without significant economic losses. Fishing practices have not changed. However, specific innovative gear like "SEPNEP" (Molenaar et al., 2021) can increase selectivity, although adoption is limited due to insufficient incentives and a lack of a level playing field (Interview 5a).

Future requested training with the objective to increase selectivity: Enhanced incentives and effective enforcement of the landing obligation are needed. Increased political incentive could be achieved by engaging stakeholders in governance processes, and include fishers in decision-making processes, which could increase support for the landing obligation (Kraan & Verweij, 2020, Catchpole et al., 2008). There could also be economic incentives, such as exclusive access to restricted areas or financial subsidies (Catchpole et al., 2008).

EMFF/ EMFAF: Yes, funded by the EU Fund for Maritime Affairs and Fisheries (EMFF).

Compliance to LO: Low compliance to landing obligation. In line with this observation, the European Commission has decided to open infringement proceedings against the Netherlands concerning non-compliance with obligations regarding the control and enforcement of the landing obligation under the CFP Regulation (EU) No 1380/2013 and the Control Regulation (EC) No 1224/2009 as amended by Regulation (EU) No 2023/2842. It is unlikely that fishers will voluntarily comply with the new set of rules, thus there remains a gap still to be bridged (Kraan and Verweij, 2020).

PERFORMANCE ANALYSIS

Performance in catch selectivity: Only slight increase in selectivity due to improved knowledge on Norway lobster traits, not motivated by landing obligation.

Performance of LO implementation and outcome success rate in terms of discard rates: Challenging, because not significantly reduced discard rates.

Technological advances used: Innovative developments that aid in self-sampling for fishers. More selective nets for Norway lobster like "SEPNEP" are developed, but are underutilized, as there is too little incentive for the fisheries to adapt these innovative gears.

Fisheries practices and related experiences: Discarding remains common as Dutch fishers often disagree with the landing obligation primarily due to concerns about its practicality and effectiveness in achieving conservation goals without significant economic losses.

Choke species encountered: Not applicable, as many bycatch species in Dutch Nephrops fisheries are exempt from landing obligations, and despite LO for non-exemption species, Nephrops fishers continue fishing and discarding until satisfied with their catch.

LO exemptions applied: Norway lobster are exempt due to high survival rates (Regulation (EU) No 2018/2034 ⁽⁵⁰⁾). For non-target species, there are exemptions for sole, plaice and turbot (RVO, 2020).

Best practices of the implementation: Self-sampling practices were of high quality, and with good communicating between fishers and researchers, ensuring the quality of fisheries self-sampling data, which can therefore be incorporated into future stock assessment advice.

Difficulties encountered with the implementation of the landing obligation: The main difficulty in implementing the landing obligation is non-compliance by fisheries. This non-compliance is primarily due to disagreements about its practicality and effectiveness in achieving conservation goals without significant economic losses. Additionally, the consequences for non-compliance are minimal and easily avoidable.

Lessons learned: Increased incentives for compliance to the LO and stakeholder engagement in Nephrops fisheries management are crucial, and should be encouraged for successful LO implementation, as current compliance

⁽⁵⁰⁾ OJ L 327, 21.12.2018, p. 8–16

monitoring practices are unsuccessful (Kraan & Verweij, 2020; Catchpole et al., 2008).

BEST PRACTICES AND CHALLENGES

Best practices	Description
Effective self-sampling of fishers	Self-sampling can be successful, with minimal differences in data quality between scientific observations and self-sampling practices. (Jurrius et al., 2023). Therefore, self-sampling information can soon be incorporated into stock assessment advice for Norway lobster in data-limited areas where they are caught in Dutch fisheries.
Collaboration with fishers	Strong collaboration between scientists and fishers is possible and beneficial for effective data collection and fisheries management.
Increased selectivity due to enhanced knowledge of the species	Discard rates were slightly reduced by incorporating considerations of area, season (quarter), and time of fishing (day/night) more strongly into fishing practices.

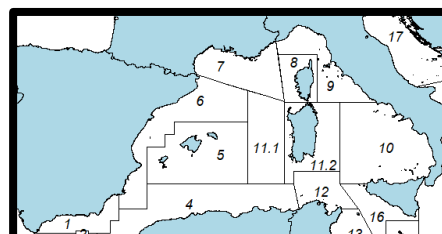
Challenges	Description
Low incentives for compliance	Increased incentives, a level playing field and stakeholder engagement are crucial for successful LO implementation. Increased political incentive could be achieved by engaging stakeholders in governance processes, and include fishers in decision-making processes, which could increase support for the landing obligation (Kraan & Verweij, 2020, Catchpole et al., 2008). There could also be economic incentives, such as exclusive access to restricted areas or financial subsidies (Catchpole et al., 2008).
Practicalities of landing obligation	Fear of increased costs, longer processing times and a larger workload inhibit the fishers of wanting to experiment with selective gear, to increase compliance to the LO further. Also, controlling practices by NVWA can easily be avoided, minimizing the risk of not complying to landing obligation (Interview 5b).
Low adoption of selective gear due to insufficient incentives	Opportunities exist to increase selectivity and reduce bycatch in Norway lobster fisheries (e.g., SEPNEP, Swedish grid), but incentives must be enhanced to improve the level playing field and to ensure compliance with the landing obligation. (Interview 5a).

Case study 6: North Western Mediterranean bottom trawl fishery, targeting round fish

BRIEF SUMMARY

In the western Mediterranean Sea, bottom trawl fisheries are mixed-fisheries exploiting a wide range of species both on the continental shelf (e.g., European hake, red mullets, deep-water rose shrimp, cephalopods, etc.) and slope (high value crustaceans, such as Norway lobster, deep-water rose shrimp, red shrimps).

A pilot study was performed to test the selectivity of the T90 mesh configuration in the extension piece compared to the traditional trawl net (Sola and Maynou, 2018a) under the EU H2020 project MINOUW. Additional studies were performed under the EU project IMPEMED (Sbrana, 2021; Sbrana et al., 2022; Ferragut-Perello et al., 2023).



OPERATIONAL DETAILS

- Sea basin: western Mediterranean
- Métier: OTB
- Employment (in FTE's): ~ 5000
- Fisheries communities* involved: ~ 50
- Targeted species: HKE, MUT, DPS, NEP, red shrimps
- Main discarded species: HOM, HKE, DPS, MUT
- Outcome: no implementation of the LO
- Pilot (y/n): n
- Training (y/n): n

**using landing ports as a proxy*

Despite some encouraging insights from those studies, there is little evidence of a change in selectivity in the North West Mediterranean fisheries. The approach very much remains to request de minimis exemptions to the LO because of the difficulties and disproportionate costs in handling unwanted catches. Avoidance of unwanted catches should be incentivized through promoting bottom up processes and increasing fishers' awareness.

BACKGROUND

Geographical scale/sea basin: western Mediterranean Sea (FAO-GFCM GSAs 1, 2, 5, 6, 7, 8, 9, 10, 11); Spanish, French and Italian waters.

Thorough description of métier: Despite some differences at local scale, a traditional trawl net (two panels trawl) is typically used, rigged without a top and low bridles and with a larger slack on the lower panel. Due to its rigging, the traditional trawl net vertical opening is small (around 1.5 m); this net is mostly used to catch species living in contact with the bottom.

Targeted fish stock: The main target species are European hake, *Merluccius merluccius*, red mullet, *Mullus barbatus*, deep-water rose shrimp, *Parapenaeus longirostris*, Norway lobster (*Nephrops norvegicus*), and red shrimps (*Aristeus antennatus* and *Aristaeomorpha foliacea*). Discards of commercial species mainly affects species of low commercial value, such as horse mackerels (*Trachurus* spp.). Discarding of European hake, deep-water rose shrimp, and red mullet is also reported, though in lower amounts.

National context regarding legislation, monitoring and LO enforcement: The Spanish, French and Italian fisheries legislative national frameworks follow the CFP provisions. The management schemes include effort control (permanent and temporary withdrawal) combined with technical measures, such as spatio-temporal closures, restrictions concerning fishing gears and MCRS. The LO is mainly implemented through Commission delegated regulations and not through national legal acts.

Relevant factors that may have influenced any of the aforementioned characteristics: in the western Mediterranean bottom trawl fisheries, where fishers engage in mixed fisheries, the overall quantity and composition of the catch may affect the discarding decision: when catches are low, bycatch species of low commercial value may provide a supplemental income to the fishers, while in the opposite case, these might have been discarded (Tsagarakis et al., 2024).

OVERVIEW OF RESULTS

Region-specific factors for the landing obligation: In the Mediterranean, the Landing Obligation is applicable to species with MCRS.

Overview of the avoidance of discards and unwanted catches: The pilot study (Sola and Maynou, 2018a) and the recent EU project IMPEMED showed that different selectivity devices (e.g., T90 mesh configuration, selection grids, etc.) would produce some improvement of the size selectivity (Sbrana, 2021; Sbrana et al., 2022; Ferragut-Perello et al., 2023). However, no significant changes in technical aspects of the fishing gears and fishing strategies aimed at reducing unwanted catches have been implemented so far by the fishing industry (STECF, 2023, 2024c).

Main reasons for discarding: non-commercial species, individuals below MCRS or damaged, market demand.

Handling of unwanted catches: Most of the vessels operating in the bottom trawl fisheries in the western Mediterranean are medium sized (12-24 m Length Overall (LOA)), and operate daily trips. Vessels have limited on board facilities for managing and storing possible discards separately.

Main species with high survival potential: Despite a general lack of discard survivability studies in the Mediterranean, elasmobranchs (i.e., skates, rays and sharks) are known to have rather high survival potential according to studies performed in areas other than the Mediterranean (STECF, 2023). Some evidence is available regarding the vitality on board and survivability of discarded Norway lobster (García-De-Vinuesa et al., 2020; 2022).

The role **training and/ or pilot projects** have played within the context of successfulness of implementing the landing obligation: The selectivity devices (e.g., T90, grids, larger meshes in codends, etc.) tested under the pilot study (Sola and Maynou, 2018a) and other projects (Sbrana, 2021; Sbrana et al., 2022; Ferragut-Perello et al., 2023) demonstrated that reducing unwanted catches of regulated species under the LO is achievable.

Changes in catch selectivity as a result of training/ pilot programmes: No changes in selectivity are currently implemented in the NW Mediterranean trawl fisheries (STECF, 2023, 2024c). Despite the results of the pilot study (Sola and Maynou, 2018a) and other projects (Sbrana, 2021; Sbrana et al., 2022; Ferragut-Perello et al., 2023) showed significant increase in selectivity can be achieved, these are coupled with some economic losses, due to reduced catches (Sola and Maynou, 2018b; Sbrana, 2021).

Changes in fishing effort (before and after pilot/training implementation): No changes in fishing effort.

Awareness of fishers on increase selectivity, end discarding, improve handling of unwanted catches (before and after training/pilot): Interviewed fishers were sceptic towards the LO efficacy in reducing discards. The main problems in implementing the LO seem to be due to the difficulties to manage discards on board and processing them at the landing points.

Future requested training with the objective to increase selectivity: Further selectivity and socio-economic studies to progress towards more selective and efficient fisheries are needed.

EMFF/ EMFAF: The pilot study and the additional selectivity tests were performed under EU funded projects (H2020 MINOUW, IMPEMED). According to the stakeholders interviewed, the use of EMFF/EMFAF funds to support measures and infrastructures to enforce the LO provisions is still limited.

Compliance to LO: Since *de minimis* exemptions have been granted to bottom trawl fisheries in the western Mediterranean (COM Delegated Regs. 2023/2462, 2021/2066 ⁽⁵¹⁾, 2017/86 ⁽⁵²⁾), compliance to LO cannot be evaluated.

PERFORMANCE ANALYSIS

Performance in catch selectivity (reduced, unchanged, or increased catch selectivity): Unchanged.

Performance of LO implementation and outcome success rate in terms of discard rates (successful (decreased discard rates) or challenging (unchanged or increased discard rates)): Unchanged; LO is not implemented since exemptions are granted to these fisheries.

Technological advances used: Several selectivity devices (e.g., T90, grids, larger meshes in codends, etc.) were tested under the pilot study (Sola and Maynou, 2018a) and other projects (Sbrana, 2021; Sbrana et al., 2022; Ferragut-Perello et al., 2023).

Fisheries practices and related experiences: The majority of the bottom trawl vessels in the western Mediterranean operate daily fishing trips. Catches are sorted by the crew on the deck, and no processing (e.g., freezing, filleting, etc.) occurs. Landings are sold fresh at auction. Larger vessels (24-40 m; about 100 vessels) may perform 2/3-days fishing trips, but still landings are sold fresh.

Choke species encountered: This is not applicable to trawl fisheries in the NW Mediterranean, since none of the demersal stocks exploited are managed through a TAC/quota system

LO exemptions applied: Commission Delegated Regulation (EU) 2023/2462. In particular, *de minimis* exemptions applies for:

European hake and mullets (*Mullus* spp.), up to a maximum of 5% of the total annual catches of those species caught by vessels using bottom trawls;

European seabass, annular seabream, sharpsnout seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, red seabream, common pandora, common seabream, wreckfish, common sole, gilthead seabream and deep-water rose shrimp, up to a maximum of 5% of the total annual catches of those species caught by vessels using bottom trawls.

Best practices of the implementation: The T90 mesh configuration tested in the pilot study (Sola and Maynou, 2018), as well as the selectivity devices

⁽⁵¹⁾ OJ L 421, 26.11.2021, p. 17–21

⁽⁵²⁾ OJ L 14, 18.1.2017, p. 4–8

tested in the IMPEMED project (Sbrana, 2021; Sbrana et al., 2022; Ferragut-Perello et al., 2023) reduced the unwanted catches of regulated species under the LO.

Difficulties encountered with the implementation of the landing obligation:

Exemptions are granted in the light of disproportionate costs for sorting, managing, and storing the possible discards; vessels are dispersed across many ports and landing sites that is a limit for the processing/handling of discards once ashore; there is a lack of suitable infrastructure to collect and manage such material at the landing sites (Spedicato et al., 2022; STECF, 2023). In addition, while the results of the pilot study (Sola and Maynou, 2018a) and other projects (Sbrana, 2021; Sbrana et al., 2022; Ferragut-Perello et al., 2023) showed improvements in selectivity, these are coupled with economic losses (Sola and Maynou, 2018b; Sbrana, 2021).

Lessons learned: Despite the landing obligation being in force for nearly ten years, and the encouraging results of selectivity studies (though coupled with the estimation of economic losses in the short term), there is little evidence of a change in behaviour or major improvements in selectivity in EU Mediterranean fisheries. As observed by STECF (STECF 23-04 and 23-06), the approach of Member States and the High-Level Group (PescaMed) is to request exemptions to maintain the status quo.

According to the results of the interviews performed under the EU project MedBLand (Spedicato et al., 2022) and the ones performed during the implementation of this case study (Interview 6a, 6b, 6c), stakeholders highlighted the difficulties in implementing the LO for reasons linked to the lack of suitable infrastructures onboard and on the land, as well as to the deficiency of interest from the processing industry given the low volume of discards. Incentives to identify innovative solutions at local level with the cooperation of the local administration and fishers' associations can help in establishing new practices for the management of discards at the landing sites.

In addition, the risk of economic losses in the short-term is representing a barrier for the conversion to more selective trawl nets (Interview 6b, 6c). Hence, there is a need to improve the utilization of the EMFAF funds (Interview 6a, 6c).

BEST PRACTICES AND CHALLENGES

Best practices	Description
T90 mesh configuration in the extension piece	The experimental net significantly reduced the catches of small-size hake and red mullet, reducing unwanted catches of regulated species under the LO

Challenges faced	Description
Economic loss	Despite the reduction of undersized fish, the experimental net produced losses of commercial catch and income estimated at 17% and 18%, respectively, which may pose a barrier to the adoption of this solution

Case study 7: Western Adriatic bottom otter trawl fisheries, targeting crustaceans and shrimp

BRIEF SUMMARY

In the western Adriatic Sea, bottom trawl fisheries are mixed-fisheries exploiting a wide range of species both on the continental shelf (e.g., mantis shrimp, Caramote prawn, European hake, red mullets, deep-water rose shrimp, cephalopods, etc.) and slope (high value crustaceans, such as Norway lobster, deep-water rose shrimp, red shrimps, mostly in the south-western Adriatic). Norway lobster is also caught on the shallower waters of the north-western Adriatic.

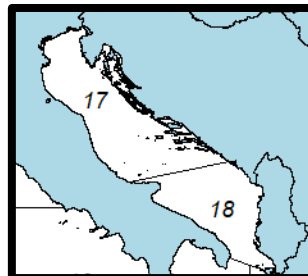
A pilot study was performed (Petetta et al., 2020a) to evaluate the effect of changing from a diamond mesh codend (T0) to a 90° turned mesh codend (T90) on the size selectivity of seven commercially important species in the Mediterranean bottom trawl fishery.

The short-term economic losses that may be caused by the introduction of more selective meshes are hampering the interest of the fishing industry in moving towards new trawl nets. Therefore, the approach of Member States still remains to requesting exemptions (i.e., de minimis) to maintain the status quo.

BACKGROUND

Geographical scale/sea basin: western Adriatic Sea (FAO-GFCM GSAs 17 and 18); Italian waters.

Thorough description of métier: Different types of trawl nets are used in the area. The traditional trawl net ('Volantina') is an asymmetric 2-panels net (with the upper panel shorter than the lower panel) rigged without top and low bridles and with a larger slack on the lower panel. Due to its rigging, the traditional trawl net vertical opening is small (around 1.5m). Some vessels use the 'Americana' trawls: this trawl has an asymmetrical 4-face net with an overall length of about 40m, a 30m long headrope, and a 40 m long footrope. A single pair of otter



OPERATIONAL DETAILS

- Sea basin: western Adriatic
- Métier: OTB
- Employment (in FTE's): ~ 3000
- Fisheries communities* involved: ~ 25
- Targeted species: TGS, MTS, HKE, MUT, DPS, NEP, red shrimps
- Main discarded species: MTS, GUU, HKE, MUT, DPS, HOM
- Outcome: no implementation of the LO
- Pilot (y/n): n
- Training (y/n): n

**using landing ports as a proxy*

boards and one central clump are used to maintain the horizontal opening of the two nets.

Targeted fish stock: The main target species are mantis shrimp, *Squilla mantis*, Caramote prawn, *Penaeus kerathurus*, European hake, *Merluccius merluccius*, red mullet, *Mullus barbatus*, deep-water rose shrimp, *Parapenaeus longirostris*, Norway lobster (*Nephrops norvegicus*), and red shrimps (*Aristeus antennatus* and *Aristaeomorpha foliacea*). Discards mainly affect non-commercial species, but also species with low commercial value, such as horse mackerels. Discards of target species are also reported and mainly concern mantis shrimp, tub gurnard, European hake, red mullet, and deep-water rose shrimp.

National context regarding legislation, monitoring and LO enforcement: The Italian fisheries legislative national frameworks follow the CFP provisions. The management schemes include effort control (permanent and temporary withdrawal) combined with technical measures, such as spatio-temporal closures, restrictions concerning fishing gears and MCRS. The LO is mainly implemented through Commission delegated regulations and not through national legal acts.

Relevant factors that may have influenced any of the aforementioned characteristics: Most of the demersal trawl fisheries operating in the Mediterranean Sea simultaneously target different species sharing the same grounds at the same time. Besides the target species, there are several other species caught more or less frequently which can both provide additional income to fishers, or be discarded because of little or no commercial value. The catch of unwanted species is one of the main issues in bottom trawl fisheries' management, since it contributes, together with the catch of undersized or damaged specimens of commercial species, to the high discard rates reported throughout the Adriatic Sea (Petetta et al., 2023).

OVERVIEW OF RESULTS

Region-specific factors for the landing obligation: In the Mediterranean, in general, and in the Adriatic Sea, in this specific case, the Landing Obligation is applicable to species with MCRS.

Overview of the avoidance of discards and unwanted catches: The recent EU project IMPEMED (Sbrana, 2021; Petetta et al., 2022) showed that different selectivity devices (e.g., T90 mesh configuration, selection grids) would produce some improvement of the size selectivity. However, no significant changes in technical aspects of the fishing gears and fishing strategies aimed at reducing unwanted catches have been implemented so far (STECF, 2023, 2024).

Main reasons for discarding: non-commercial species, individuals below MCRS or damaged, market demand.

Handling of unwanted catches: As reported by STECF (2023), according to the information provided by the High Level Group (HLG) ADRIATICA to support the request for a *de minimis* exemption, most of the vessels operated in the bottom trawl fisheries in the Adriatic are medium sized (12-24 m LOA), and operate daily trips. Vessels have limited on board facilities for handling and storing the possible discards, separately (STECF, 2023).

Main species with high survival potential: Despite a general lack of discard survivability studies in the Mediterranean, elasmobranchs (i.e., skates, rays and sharks) are known to have rather high survival potential according to studies performed in areas other than the Mediterranean (STECF, 2023).

The role **training and/ or pilot projects** have played within the context of successfulness of implementing the landing obligation: The results of the pilot study (Petetta et al., 2020a) demonstrated the efficiency of the T90 configuration in excluding undersized specimens, especially of hake, whose average L50 was above the MCRS of 20 cm. The adoption of this practical and inexpensive solution can contribute to improve the management of the demersal resources targeted by the Mediterranean bottom trawl fishery.

Changes in catch selectivity as a result of training/ pilot programmes: The results of the pilot study (Petetta et al., 2020a) demonstrated that the T90 mesh configuration on the codend can effectively improve the codend size selection for all the main target species and thus reduce discards.

Changes in fishing effort (before and after pilot/training implementation): No changes in fishing effort.

Awareness of fishers on increase selectivity, end discarding, improve handling of unwanted catches (before and after training/pilot): Interviewed fishers were sceptic towards the LO efficacy in reducing discards. The main problems in implementing the LO seem to be due to the difficulties to manage discards on board and at land (Interview 7a, 7c).

Future requested training with the objective to increase selectivity: The concerned Member State and the High-Level Group in charge of the Adriatic fisheries (ADRIATICA) shall draft, taking advantage of the LO exemption granted for the period 2024-2027, medium-term plans to implement thorough selectivity and socio-economic studies to progress towards more selective and efficient fisheries.

EMFF/ EMFAF: the use of EMFF/EMFAF funds to support measures or infrastructures to enforce the LO provisions is still limited both for control and inspection activities, and for handling or processing the unwanted catches.

Compliance to LO: Not applicable, since *de minimis* exemptions have been granted to bottom trawl fisheries in the Adriatic Sea.

PERFORMANCE ANALYSIS

Performance in catch selectivity (reduced, unchanged, or increased catch selectivity): Unchanged.

Performance of LO implementation and outcome success rate in terms of discard rates (successful (decreased discard rates) or challenging (unchanged or increased discard rates)): Unchanged; LO is not implemented since exemptions are granted to these fisheries.

Technological advances used: The pilot study (Petetta et al., 2020a) tested the efficiency of the T90 mesh configuration on the codend in improving selectivity. Further studies tested the T90 mesh configuration in the extension piece and selective grids (Sbrana, 2021; Petetta et al., 2022).

Fisheries practices and related experiences: The majority of the bottom trawl vessels in the western Adriatic Sea operate daily fishing trips. Catches are sorted by the crew on the deck, and no processing (e.g., freezing, filleting, etc.) occurs. Landings are sold fresh at the auction. Larger vessels may perform 2/3-days fishing trips, but still landings are sold fresh.

Choke species encountered (if applicable): This is not applicable to trawl fisheries in the western Adriatic, since none of the demersal stocks exploited are managed through a TAC/quota system.

LO exemptions applied (if applicable): Commission Delegated Regulation (EU) No 2023/2918 ⁽⁵³⁾ supplementing the CFP Regulation (EU) No 1380/2013 as regards the establishment of a *de minimis* exemption to the landing obligation for certain demersal fisheries in the Adriatic and south-eastern Mediterranean Sea. In particular, *de minimis* exemptions applies for:

European hake and mullets (*Mullus* spp.), up to a maximum of 5% of the total annual catches of those species caught by vessels using bottom trawls;

European seabass, annular seabream, sharpsnout seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, red seabream, common pandora, common seabream, wreckfish, common sole, gilthead seabream and deep-water rose shrimp, up to a maximum of 5% of the total annual catches of those species caught by vessels using bottom trawls.

⁽⁵³⁾ OJ L, 2023/2918, 28.12.2023

Best practices of the implementation: The results of the pilot study (Petetta et al., 2020a) demonstrated that a simple modification, such as the T90 mesh configuration, can effectively improve the codend size selection for all the main target species and thus reduce discards.

Difficulties encountered with the implementation of the landing obligation: Exemptions are granted in the light of disproportionate costs for sorting, managing, and storing the possible discards; vessels are dispersed in many ports and landing sites that is a limit for the collection of discards at a larger scale (Interview 7a, 7c); there is a lack of suitable infrastructures to collect and manage such material at the landing sites. Moreover, the risk of short-term economic losses is a barrier for the implementation of more selective gears (Interview 7a, 7b,7c).

Lessons learned: The lesson learnt from the pilot study (Petetta et al., 2020a) and the following tests performed under the EU project IMPEMED (Sbrana, 2021; Petetta et al., 2022) was that the design changes that work for the codend do not necessarily work for other parts of the trawl (e.g., extension piece). In fact, they can even have negative effects. In addition, the short-term economic losses may hamper the interest of the fishing industry in moving towards more selective trawl nets (Interview 7a, 7b,7c).

Despite the landing obligation being in force for nearly ten years, there is little evidence of a change in behaviour or major improvements in selectivity in EU Mediterranean, in general, as well as the Adriatic fisheries. The approach of MSs and HLGs remains requesting exemptions to maintain the status quo (STECF, 2024).

BEST PRACTICES AND CHALLENGES

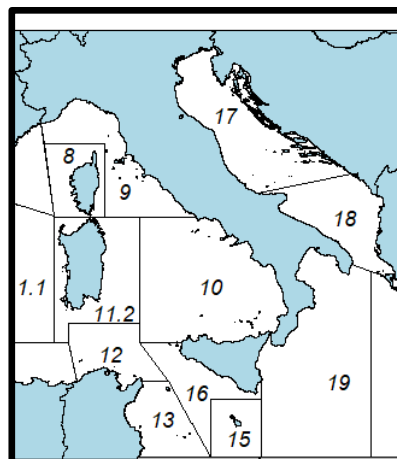
Best practices	Description
T90 mesh in the codend	The results of the pilot study (Petetta et al., 2020a) demonstrated that this simple modification can effectively improve the codend size selection for all the main target species and thus reduce discards.

Challenges faced	Description
Economic loss	Despite the reduction of undersized fish, losses of around 40 thousand euro in profits and about 65 thousand euro in GVA were estimated on average for a vessel belonging to the Italian fleet segment of demersal trawlers between 18 and 40 meters operating in GSA 17 in case of implementation if the selection grid (Sbrana, 2021).

Case study 8: North-west Adriatic Sea small-scale fleet, bottom-set nets & pots, targeting cephalopods and roundfish

BRIEF SUMMARY

In the north-western Adriatic Sea small-scale fisheries, three main types of set gears are used: gillnets, trammel nets and traps to exploit different target species (i.e., roundfish, common sole, cuttlefish) throughout the year (Grati et al., 2018). Discards of target species are very low, although unwanted catches are reported. The Landing Obligation (LO) is not applicable, since *de minimis* exemptions have been granted for trammel and gill net fisheries; the LO is not applicable to trap fishery for cuttlefish, a species without MCRS. The presence of unwanted catches of ETP species is not relevant for these fisheries. Some bycatch of elasmobranchs (e.g., sharks, mostly *Mustelus* spp., skates and rays) is observed in gill net and trammel net fisheries. A pilot study (Petetta et al., 2020) was performed to test a collapsible pot, and compare its catch efficiency with that of the local traditional trammel nets.



FAO-GFCM GSA 17, Italian coastal waters.

OPERATIONAL DETAILS

- Sea basin: north-western Adriatic Sea
- Métier: GTR, GNS, FPO, FYK
- Employment (in FTE's): ~ 500 (at Italian national level)
- Fisheries communities* involved: ~ 20
- Targeted species: common sole, common cuttlefish, sea breams, sea bass, meagre, etc.
- Main discarded species: common sole (low amounts)
- Outcome: no implementation of the LO
- Pilot (y/n): n
- Training (y/n): n

**using landing ports as a proxy*

Although the study by Petetta et al. (2020b) provided interesting results, the fishing industry is still sceptical because of the economic costs to move to the new gears. This process should be streamlined through financial support (e.g., EMFAF funds).

BACKGROUND

Geographical scale/sea basin: north-western Adriatic Sea (FAO-GFCM GSA 17), Italian coastal waters.

Thorough description of métier: The gill nets used in the area are made of polyamide monofilament, are 3-6 m high and have a great floating buoyancy and a mesh size ranging from 70 to 100 mm. A specific type of gill net is used to

target common sole: this is a polyamide monofilament with a low height (1.6-2.5 m) and a very low floating buoyancy which allows the gear to partially lay down on the seabed. Trammel nets are generally made of a polyamide twisted filament, the outer panels and the inner one are 2-3 m high respectively and the mesh size is 340 mm (stretched) in the formers and 40-70 mm in the latter. Fyke nets for cuttlefish consist of plastic rings sustaining an external net and two internal cone-shaped bags. The nets are made of a polyamide twisted filament and had different mesh sizes according to their position. The gears are placed on the seabed with the opening oriented against the sea current. Pots for cuttlefish have a rectangular shape and consists of an iron frame covered by a net made of polyamide twisted filament.

Targeted fish stock (in case of mixed-fisheries, the description of the common catch, discard rate / selectivity): The main target species are the common sole *Solea solea* and the common cuttlefish *Sepia officinalis*; sea breams like *Diplodus* spp., *Sparus aurata* and *Lithognathus mormyrus* are other targets of this mixed fishery. Official data report very low or null discard rates of common sole.

National context regarding legislation, monitoring and LO enforcement: The Italian fisheries legislative framework is following the CFP provisions. The management scheme includes effort control (permanent and temporary withdrawal) combined with technical measures, such as spatio-temporal closures, restrictions concerning fishing gears and MCRS. A management plan for demersal stocks was implemented in 2011 in GSA 17. This plan has been extended several times. As adopted before the entry into force of the EU Reg. 1380/2013, the aspects related to the LO (estimation/characterization of discards) were not contemplated.

Relevant factors that may have influenced any of the aforementioned characteristics: In the north-western Adriatic Sea small-scale fisheries, species are caught at the same time, at highly varying quantities, and landed in many different landing ports spread out geographically along the coast, making a single stock approach challenging. Landings are usually sold in fish auctions run by the local fishers' associations; however, part of the landings can be sold directly to consumers at the landing points (Grati et al., 2018).

OVERVIEW OF RESULTS

Region-specific factors for the landing obligation: In the Mediterranean, the Landing Obligation is applicable to species with MCRS.

Overview of the avoidance of discards and unwanted catches: Set gears are usually considered more selective and less harmful to stocks and habitats than towed gears. Nonetheless, several studies performed in the north-western

Adriatic Sea report unwanted catches (mainly by catch species or non-commercial benthic species) in the demersal SSFs (Fabi and Sartor, 2001a,b; Fabi et al., 2002; Fabi and Grati, 2008). No significant changes in technical aspects of the fishing gears and fishing strategies aimed at reducing unwanted catches occurred.

Main reasons for discarding: non-commercial species, individuals below MCRS or damaged, market demand.

Handling of unwanted catches: Most of the vessels operated in the SSFs in the north-western Adriatic are medium-small sized (up to 18m LOA), and operate daily trips of 4-5 hours, so the time for sorting unwanted catches is very limited. Also, many vessels have limited on board facilities for managing and storing the possible discards, separately.

Main species with high survival potential: Despite a general lack of discard survivability studies in the Mediterranean, elasmobranchs (i.e., skates, rays and sharks) are known to have rather high survival potential.

The role **training and/ or pilot projects** have played within the context of successfulness of implementing the landing obligation: The results of the pilot study (Petetta et al., 2020) showed that there is the future potential to switch over to the collapsible pots to replace the trammel nets targeting common cuttlefish.

Changes in catch selectivity as a result of training/ pilot programmes: The results of the pilot study (Petetta et al., 2020) indicate that pots can achieve the objectives of reducing discards and bycatch in SSFs without penalizing the catch of commercial species.

Changes in fishing effort (before and after pilot/training implementation): No changes in fishing effort.

Awareness of fishers on increase selectivity, end discarding, improve handling of unwanted catches (before and after training/pilot): Despite being aware of the importance to improve selectivity and reducing discards to achieve a better and more sustainable exploitation of marine resources, fishers involved in small-scale fisheries in the north-western Adriatic, that were contacted to gather information on this case study, are sceptical towards any technical change in gears or change in fishing strategies, since this is a costly process, that could not happen without funding/support (Interview 8a, 8b, 8c).

Future requested training with the objective to increase selectivity: Similar tests should be extended to other areas and seasons, also using baits, to provide a clearer assessment of their efficiency.

EMFF/ EMFAF: Not applicable as the pilot study (Petetta et al., 2020) was conducted with the contribution of the LIFE Financial Instrument of the European Community, Tartalife Project - Reduction of sea turtle mortality in professional fishing (LIFE12NAT/IT/000937). Public funding/support may be needed to streamline the process of converting common cuttlefish fisheries from trammel nets to the new pots.

Compliance to LO: Not applicable, since exemptions have been granted to trammel net and gill net fisheries, and the LO is not applicable to trap fishery for cuttlefish.

PERFORMANCE ANALYSIS

Performance in catch selectivity (reduced, unchanged, or increased catch selectivity): The findings of this pilot study, although not conclusive, clearly indicate that these alternative gears go some way towards reducing bycatch and discards in SSFs while maintaining the commercial catch.

Performance of LO implementation and outcome success rate in terms of discard rates (successful (decreased discard rates) or challenging (unchanged or increased discard rates)): Unchanged; LO is not implemented since exemptions are granted to these fisheries. LO is not applicable to cuttlefish fishery using traps, since no regulated species (with MCRS) are involved in the fishery.

Technological advances used: The pilot study (Petetta et al., 2020) tested collapsible pots, and compared their catch efficiency with that of the local traditional trammel nets.

Fisheries practices and related experiences: Small scale vessels involved in the demersal fisheries in the north-western Adriatic Sea are small-sized (up to 12 m LOA), and operate daily trips targeting the demersal stocks in the coastal areas. Discards and unwanted catches are generally low. Most of the vessels have limited on board facilities for sorting and storing the unwanted catches separately.

Choke species encountered: since no quota/TAC system is applied to the demersal fisheries in the Adriatic Sea, choke species are not encountered.

LO exemptions applied: Commission Delegated Regulation (EU) No 2023/2918 supplementing the CFP Regulation (EU) No 1380/2013. In particular, *de minimis* exemptions applies for:

- European hake and red mullets (*Mullus* spp.), up to a maximum of 1% of the total annual catches of those species caught by vessels using gillnets and trammel nets (GSN, GN, GND, GNC, GTN, GTR, GEN);

- European seabass, annular seabream, sharpsnout seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, red seabream, common pandora, common seabream, wreckfish, common sole and gilthead seabream, up to a maximum of 2% of the total annual catches of those species caught by vessels using gillnets and trammel nets (GNS, GN, GND, GNC, GTN, GTR, GEN).

Best practices of the implementation: The innovative pots tested in the pilot study (Petetta et al., 2020) seem to provide a sound alternative to the traditional trammel nets used in the Adriatic Sea, at least in spring and summer, as concerns the small-scale fishery targeting common cuttlefish. These pots do not require a different vessel rigging nor changes to the on-board practices; moreover, they can be used without baits and their foldable design involves that they can be easily stored on board the typical Mediterranean SSF vessels.

Difficulties encountered with the implementation of the landing obligation: Exemptions are granted in the light of disproportionate costs for sorting, managing, and storing the possible discards; vessels are dispersed in many ports and landing sites that is a limit for the collection of discards at a larger scale; there is a lack of suitable infrastructures to collect and manage such material at the landing sites (Spedicato et al., 2022; STECF, 2023).

Lessons learned: Despite the landing obligation being in force for nearly ten years, there is little evidence of a change in behaviour or major improvements in selectivity in EU Mediterranean fisheries (STECF, 2023). The approach followed by Member States and HLGs is to request exemptions to maintain the status quo. The exemptions are granted through Commission delegated regulations (STECF, 2023).

In addition, the conversion from trammel net fishery to pot fishery is a costly process (e.g., modification to the winch, purchase of the new gears, etc.). The process would need to be funded/supported (Anonymous, 2024b; c).

BEST PRACTICES AND CHALLENGES

Best practices	Description
Potential to switch over to the collapsible pots	The innovative pots tested in the pilot study (Petetta et al., 2020) seem to provide a sound alternative to the traditional trammel nets used in the Adriatic Sea, at least in spring and summer, as they concern the small-scale fishery targeting common cuttlefish. These pots do not require a different vessel rigging nor changes to the on board practices; moreover, they can be used without baits and their foldable design involves that they can be easily stored on board the typical Mediterranean SSF vessels

Challenges faced	Description
Further tests required	Similar tests should be extended to other areas and seasons, also using baits, to provide a clearer assessment of their efficiency. The conversion from trammel net fishery to pot fishery is a costly process (e.g., modification to the winch, purchase of the new gears, etc.). The process would need to be funded/supported.

Case study 9: Distant Water Fleet French tropical tuna purse seiners

SUMMARY

This discussion is focused on the French tuna purse seine fleet, covering its geographical location, fishing methods, bycatch management, and compliance with the Landing Obligation. The fleet's primary fishing grounds in the Indian and Atlantic Oceans are explored, emphasizing the use of non-entangling and biodegradable drifting fish aggregating devices (DFADs) to improve catch selectivity and reduce bycatch. The impact of training and pilot projects on fishing practices was highlighted, showing significant improvements in bycatch reduction and adherence to the landing obligation. We also discussed various factors influencing the fleet's operations, such as port infrastructure, fleet dynamics, and regional regulations, reflecting the latest developments and challenges faced by the French tuna purse seine fleet.



Seychelles region. Source: Teleki et al., 1999

OPERATIONAL DETAILS

- Sea basin: Distant Water Fleet
- Métier: Drifting fish aggregating devices (DFADs)
- Employment (FTE's): ~ 2500
- Fisheries communities* involved: primarily Port Victoria (Seychelles) and Abidjan (Côte d'Ivoire) in the Atlantic
- Targeted species: skipjack tuna (*Katsuwonus pelamis*) and yellowfin tuna (*Thunnus albacares*)
- Main discarded species: Small tuna species, Sharks, Bullfish and pelagic
- Outcome: Discarding is reduced but prevalent
- Pilot (y/n): Yes (EMFF)
- Training (y/n): yes

BACKGROUND

Geographical scale/sea basin: Primarily in the Indian and Atlantic Oceans. In the Indian Ocean, vessels operate near the Seychelles and Mauritius, particularly in the Western Indian Ocean. The Mozambique Channel and Somali Basin are critical areas for fishing operations due to the presence of skipjack and yellowfin tuna. In the Atlantic Ocean, the fleet is active around the Gulf of Guinea, with major landing ports in Abidjan (Côte d'Ivoire) and Las Palmas (Spain)

Thorough description of métier: Encircling tuna schools with large nets that are closed at the bottom, a method resembling a drawstring purse, to capture entire schools of tuna. Drifting fish aggregating devices (DFADs) are commonly used to attract tuna schools, especially skipjack and yellowfin tuna. The fishing métier operates with a focus on high efficiency, targeting areas of high tuna density (ISSF, 2020; ICCAT, 2021).

Targeted fish stock: The French tuna purse seine fleet primarily targets skipjack tuna (*Katsuwonus pelamis*) and yellowfin tuna (*Thunnus albacares*). These stocks are central to French purse seine operations, while bycatch includes minor tuna species, sharks, and billfish (ICCAT, 2021; ISSF, 2020).

National context regarding legislation, monitoring and LO enforcement: For ICCAT tropical tuna fisheries crucial regulation are: 1) the Council Regulation (EU) No 2017/2107 ⁽⁵⁴⁾ laying down management, conservation and control measures applicable in the Convention area of ICCAT, and amending Council Regulations (EC) No 1936/2001 ⁽⁵⁵⁾, (EC) No 1984/2003 ⁽⁵⁶⁾ and (EC) No 520/2007 ⁽⁵⁷⁾, which establishes a multiannual management plan for tuna and related species in the Atlantic, and 2) Commission Delegated Regulation (EU) NO 2015/98 on the implementation of the Union's international obligations, as referred to in Article 15(2) of the CFP Regulation (EU) No 1380/2013, under the ICCAT and the Convention on Future Multilateral Cooperation in the Northwest Atlantic Fisheries. For IOTC, the regulation a crucial regulation is Regulation (EU) No 2022/2343 laying down management, conservation and control measures applicable in the IOTC Area of Competence, amending Council Regulation (EC) No 1936/2001, Regulation (EC) No 1984/2003, and Regulation (EC) No 520/2007.

Relevant factors of the aforementioned characteristics:

One key factor is the structure of the fleet, which is highly modernized and consists of large-scale vessels equipped with advanced technologies like drifting fish aggregating devices (DFADs). (ICCAT, 2021). Other factors include fuel prices, port infrastructure and bilateral agreements with coastal nations

OVERVIEW OF RESULTS

Region-specific factors for the landing obligation: The EU regulations along with regional recommendations ensure that French tuna vessels operating in both oceans adhere to strict discard reduction measures, helping achieve the landing obligation objectives. Monitoring is enforced through onboard observers and VMS (IOTC, 2021; ICCAT, 2021).

Overview of the avoidance of discards and unwanted catches: The French tuna purse seine fleet employs non-entangling DFADs and follows bycatch mitigation practices to avoid unwanted catches. These practices include

⁽⁵⁴⁾ OJ L 315, 30.11.2017, p. 1–39

⁽⁵⁵⁾ OJ L 263, 3.10.2001, p. 1–8

⁽⁵⁶⁾ OJ L 295, 13.11.2003, p. 1–42

⁽⁵⁷⁾ OJ L 123, 12.5.2007, p. 3–13

releasing bycaught species like sharks, sea turtles, pelagic fish and billfish when alive, as mandated by Indian Ocean Tuna Commission (IOTC) and ICCAT.

Main reasons for discarding: The primary reasons for discarding include low market value for species such as small tunas and pelagic fish, and the inability to store certain species onboard due to limited space. Quota restrictions for species like billfish also contribute to discarding behaviour (Interview 9a). Additionally, sharks are frequently discarded as part of bycatch regulations aimed at protecting vulnerable species, as mandated by ICCAT and IOTC (ICCAT, 2021; ISSF, 2020).

Handling of unwanted catches: Unwanted catches, particularly sharks, billfish, and turtles, are released alive when possible, following bycatch mitigation guidelines from IOTC and ICCAT (Interview 9a). If species cannot be released alive, they are retained and landed, per the Landing Obligation.

Main species with high survival potential: Sea turtles and some shark species, such as silky sharks.

The role **training and/ or pilot projects** have played within the context of successfulness of implementing the landing obligation: The training was successful in ensuring the crew members are equipped to handle bycatch and pilot helped to test biodegradable DFADs to reduce bycatch entanglement and improve tuna selectivity. Additionally, the national scientific observers of the OCUP program were trained to analyse camera images either to improve the data collected on board or to collect observer data when no observer is on board.

Changes in catch selectivity as a result of training/ pilot programs: These trials, conducted in collaboration with the International Seafood Sustainability Foundation (ISSF) and other research organizations, have shown promising results in reducing the capture of non-target species like sharks and billfish. Additionally, pilots aimed at enhancing vessel monitoring and data collection to comply with the Landing Obligation (LO) have been implemented (ISSF, 2020; WWF, 2019). The training is organized through partnerships with WWF, ISSF, and the French Ministry of the Sea and covers the use of non-entangling DFADs, proper release techniques, and compliance with the landing obligation.

Changes in fishing effort (before and after pilot/training implementation): Fishing effort has remained consistent with the introduction of the landing obligation, but there is an increased focus on bycatch reduction and selectivity measures. Vessels have adjusted their use of DFADs and targeted fishing areas to reduce interactions with non-target species, thereby minimizing discards (ICCAT, 2021).

Awareness of fishers on increase selectivity, end discarding, improve handling of unwanted catches (before and after training/pilot): Fishermen recognize the economic advantages of reducing bycatch, as discarding low-value species can increase operational costs and reduce profitability. Fishers support the adoption of new technologies such as non-entangling DFADs and biodegradable gear to reduce bycatch. Training programs have further increased compliance with the landing obligation, although there is some resistance to the added complexity of handling all bycatch species (Anonymous, personal communication, August 20, 2024). Fishermen express concerns about the difficulty of releasing sharks and billfish alive, but training programs have helped address these issues (WWF, 2019; ISSF, 2020).

Future requested training with the objective to increase selectivity: Future training should focus on improving bycatch identification and handling, particularly for species with higher survival potential like sharks and turtles. Stakeholder consultations highlight the need for training in the use of biodegradable DFADs and other selectivity-improving gear. Fishermen also require guidance on how to manoeuvre their vessels to avoid bycatch hotspots. Enhanced training on species-specific handling techniques would further improve compliance with bycatch reduction regulations and the landing obligation (WWF, 2019; ISSF, 2020).

EMFF/ EMFAF: Yes, funded by the EU Fund EMFF.

Compliance to landing obligation: Compliance with the landing obligation has been generally good among the French tuna fleet, supported by strong enforcement from IOTC and ICCAT. However, fishers are challenged by the increased complexity of retaining and processing all bycatch species. To address these issues, additional training programs and improvements in port infrastructure have been implemented to ensure efficient handling and monitoring of landed bycatch (Interview 9b). The French Ministry of the Sea continues to oversee national compliance, ensuring that vessels meet the requirements of both the landing obligation and regional regulations (WWF, 2019; ICCAT, 2021).

PERFORMANCE ANALYSIS

Performance in catch selectivity: After the introduction of non-entangling and biodegradable DFADs, along with crew training on bycatch handling and release techniques, selectivity improved significantly.

Performance of landing obligation implementation and outcome success rate in terms of discard rates (successful (decreased discard rates) or challenging (unchanged or increased discard rates)): Successful, as can be seen in the success of the pilot projects. This can be attributed to several

factors, including the adoption of biodegradable DFADs, which significantly reduced the incidence of shark and billfish bycatch. As a result, discard rates for vulnerable species, such as silky sharks, were reduced by up to 15% compared to pre-implementation levels. This was accompanied by an increase in the survival rates of released species, thanks to improved handling practices, particularly for sharks and sea turtles.

Technological advances used: Key technological advances include the use of biodegradable DFADs and non-entangling gear to minimize bycatch, alongside VMS for real-time tracking. Additionally, species-specific handling tools were introduced, such as specialized release gear for sharks and sea turtles, further improving discard survival rates (ISSF, 2020).

Fisheries practices and related experiences: The French fleet adopted practices such as DFAD deployment at optimized depths to reduce shark interactions and the use of area avoidance strategies to prevent encounters with bycatch hotspots. Fishermen reported improved awareness of bycatch mitigation techniques following training programs, including the proper handling and release of non-target species. Fishers found non-entangling DFADs effective in reducing entanglement of sharks and billfish, though further improvement was needed in reducing the bycatch of small tuna species (Interview 9b).

Choke species encountered: Choke species, particularly small tunas (frigate and bullet tuna), are commonly encountered. Choke situations typically occurred during peak tuna migrations, impacting the fleet's compliance with the Landing Obligation (ICCAT, 2021).

LO exemptions applied: Landing Obligation exemptions were applied in specific cases where species were deemed to have high survival rates if released alive. This includes sharks and billfish that could be released using specialized handling tools and protocols. Additionally, exemptions were granted for species under quota restrictions, where landing all catches would have exceeded catch limits.

Best practices of the implementation: the widespread adoption of non-entangling DFADs, which reduced bycatch rates of vulnerable species like sharks and billfish. The use of biodegradable gear not only improved selectivity but also reduced the environmental impact of abandoned or lost gear. Good matches between methods were obtained for tuna discards. Results on tuna discards showed that the EMS was able to reproduce onboard observer work and estimate equivalent volume of discards of all species of tunas combined and of the most common tuna species (skipjack tuna) or group of tuna species (yellow fin/blue fin tuna).

Difficulties encountered with the implementation of the landing obligation: The increased operational complexity of handling and retaining all bycatch

species presented logistical challenges, particularly for small tunas and other species with low commercial value. The increased time and effort required to sort and land all catches, which added to the cost of operations. The limited capacity of onboard storage led to difficulties in retaining all bycatch, especially during periods of high fish aggregation. Divergences were noted for non-target catch. In particular, for sharks, billfishes or high commercial value species, EMS underestimated occurrence and volume compared to regular observers. These species can be handled at different places on board and EMS usually failed to document their retrieval due to camera distance or dead angles.

Lessons learned: The importance of comprehensive training programs was evident. The introduction of non-entangling DFADs and biodegradable gear significantly improved bycatch selectivity and reduced discards, showing that technological innovations can play a critical role in enhancing compliance with sustainability regulations.

BEST PRACTICES AND CHALLENGES

Best practices	Description
Adoption of non-entangling DFADs and the use of biodegradable gear	Reduced bycatch rates of vulnerable species like sharks and billfish, improved selectivity and reduced the environmental impact of abandoned or lost gear
Training programs and application of avoidance strategies	Training programs played a crucial role in equipping fishers with the knowledge needed to handle bycatch properly, improving survival rates for released species such as sharks and sea turtles. Fishers also adopted area avoidance strategies, which involved using real-time data to avoid regions with high bycatch risk, further contributing to compliance with the Landing Obligation (LO).
Increased collaboration with scientific observers	Fishers' increased collaboration with scientific observers helped improve data collection on bycatch species, leading to better management decisions (WWF, 2019; ISSF, 2020).

Challenges	Description
Increased operational complexity of handling and retaining all bycatch species	presented logistical challenges, particularly for small tunas and other species with low commercial value. Fishers expressed concerns about the increased time and effort required to sort and land all catches, which added to the cost of operations
Limited capacity of onboard storage	This leads to difficulties in retaining all bycatch, especially during periods of high fish aggregation.
Challenges in complying with species-specific bycatch handling requirements	This is particularly difficult for sharks and billfish, which require specialized gear and handling techniques (Interview 9a)

Case study 10: Outermost Regions Azorean small-scale fishery

SUMMARY

This discussion focuses on the impact of the landing obligation on small-scale fisheries in the Azores, examining aspects such as discard rates, targeted fish stocks, and the challenges faced by local fishers in adapting to the regulation. The analysis covers the effectiveness of pilot projects and training programs designed to improve catch selectivity and reduce unwanted catches. Additionally, the practical implications of landing obligation compliance, including changes in fishing practices, handling of unwanted catches, and the economic impacts on fishers are highlighted. The sections below provide an overview of how Azorean fisheries have navigated the landing obligation, highlighting both the successes and ongoing challenges in maintaining sustainable fishing practices in the region.



Azores (Source: Britannica)

OPERATIONAL DETAILS

- Sea basin: Outermost region
- Métier: small-scale, demersal fisheries targeting deep-sea species using bottom longlines and traps
- Employment (FTE's): ~1000 - 200
- Fisheries communities* involved: primarily Ponta Delgada, Horta, and Madalena small close knit communities
- Targeted species: blackspot seabream, wreckfish, and conger eel
- Main discarded species: Conger eel, blue whiting, Common pandora and Atlantic mackerel
- Outcome: Discarding is reduced but economic concerns
- Pilot (y/n): Yes (EMFF)
- Training (y/n): yes

BACKGROUND

Geographical scale/sea basin: The Azores Archipelago is located in the Mid-Atlantic Ocean, comprising nine islands that form part of Portugal's EEZ. Its sea basin is known for its high biodiversity, especially in demersal species due to the presence of seamounts and steep slopes that provide rich fishing grounds (Villasante et al., 2019). This geographical isolation has fostered artisanal fishing techniques and a focus on the sustainable exploitation of local marine resources (Fauconnet et al., 2019).

Thorough description of métier: The primary métier consists of small-scale, demersal fisheries targeting deep-sea species using bottom longlines and traps. These métiers are characterized by highly selective fishing techniques with minimal discards (Fauconnet et al., 2019). Commonly targeted species include blackspot seabream (*Pagellus bogaraveo*), wreckfish (*Polyprion americanus*), and conger eel (*Conger conger*). The vessels are generally small (under 12 meters), and the fishing operations are often seasonal, reflecting the availability

of key species. Azorean fishers employ these methods due to the region's artisanal nature and high species selectivity (Soto-Oñate et al., 2021).

Targeted fish stock: The primary target species in Azorean fisheries include blackspot seabream, wreckfish, and conger eel. These species are fished using longlines, with a focus on sustainability and minimal discards due to selective gear usage (Villasante et al., 2019). Discard rates are relatively low, with high species selectivity (Fauconnet et al., 2019).

National context regarding legislation, monitoring and landing obligation enforcement: In the Azores, the implementation of the landing obligation is governed by both EU regulations and local legislation specific to Portugal's EEZ. The overarching legal framework is the CFP Regulation (EU) No 1380/2013, which includes the landing obligation mandate. This regulation aims to reduce discards and ensure that all catches of regulated species are landed and accounted for, contributing to sustainable fisheries management. Locally, Portugal has adopted the CFP Regulation (EU) No 1380/2013 through national legislation, specifically under Decree-Law No. 35/2015, which outlines the application of the landing obligation in Portuguese waters, including the Azores. This decree transposes EU fisheries regulations into Portuguese law and provides the legal framework for enforcing the landing obligation in the archipelago. Under this legislation, fishers are required to land all catches of species subject to catch limits, ensuring that previously discarded species are fully utilized. In addition, Decree-Law No. 278/87, as amended, governs the use of fishing gear and methods, which indirectly supports landing obligation enforcement by regulating the types of gear that can be used, ensuring high selectivity and reduced bycatch.

Relevant factors of the aforementioned characteristics:

The fishing fleet is primarily composed of small-scale vessels, using selective gear that minimizes bycatch, resulting in low discard rates. As a result, the landing obligation has had a relatively minor operational impact on the local fleet compared to industrial fisheries (Villasante et al., 2019). However, the small size of the vessels also limits their capacity to adapt to regulations that require additional onboard storage and processing of previously discarded species. Furthermore, the geographical isolation of the Azores presents logistical challenges for fishers, such as higher fuel costs, longer travel times to fishing grounds, and limited access to larger markets (Morato et al., 2019). Additionally, economic constraints, including fluctuations in fuel prices and market demand, influence the profitability of small-scale fishing operations. Fishers may find it challenging to cope with the increased operational costs associated with landing all catches, especially species of lower market value that were previously discarded (Soto-Oñate et al., 2021). However, Strong institutional support from local and national government agencies, as well as research institutions like the University of the Azores, has been crucial in helping fishers adapt to landing obligation regulations (Interview 10a).

OVERVIEW OF RESULTS

Region-specific factors for the landing obligation: Small-scale fisheries predominantly target demersal species using selective methods like longlines and traps. These fisheries are highly artisanal, which reduces the need for extensive discard management. The region's geographical isolation and small fleet size influence the implementation of the landing obligation. The high selectivity of fishing gear leads to low discard rates, making the landing obligation less disruptive compared to more industrialized fisheries. Additionally, local cultural practices emphasize sustainability, and the tight-knit fishing communities work closely with government bodies to ensure compliance with the landing obligation. (Interview 10a).

Overview of the avoidance of discards and unwanted catches: The fisheries in the Azores have a naturally high level of selectivity due to the use of bottom longlines, traps, and handlines, which help avoid unwanted bycatch. This selective fishing results in lower discard rates. The high-value target species, such as blackspot seabream and wreckfish, are caught with minimal impact on non-target species. Local fishers have developed methods over generations that further reduce the potential for unwanted catches (Fauconnet et al., 2019).

Main reasons for discarding: The primary reason for discarding in the Azores is compliance with MCRS regulations, as well as species with low market value. Additionally, deep-sea species that are caught unintentionally but do not meet the market or size standards are often discarded. (Soto-Oñate et al., 2021).

Handling of unwanted catches: Unwanted catches are usually retained when economically viable or when regulations require their landing. Fishers often store low-value catches for personal use or sell them at local markets (Fauconnet et al., 2019).

Main species with high survival potential: blackspot seabream and conger eel have high survival potential due to the selective nature of fishing methods and the deep-sea habitats where they are caught (Morato et al., 2019).

The role **training and/ or pilot projects** have played within the context of successfulness of implementing the landing obligation: The training was successful in equipping the local fishers on improving selectivity, gear modifications, and handling of unwanted catches. Additionally, a pilot project tested various modifications to bottom longlines to reduce the catch of undersized or non-target species.

Changes in catch selectivity as a result of training/ pilot programs: These programs include workshops organized by the regional government and research institutions. The emphasis is on improving selectivity, gear modifications, and handling of unwanted catches. Fishermen are also trained in

the legal requirements of reporting catches and utilizing onboard technology to monitor discards (Soto-Oñate et al., 2021). The pilot involved close collaboration between local fishers, scientists, and fisheries managers, and it demonstrated positive outcomes in terms of increased selectivity and reduced discards. The pilot also explored the economic viability of retaining previously discarded species (Interview 10a).

Changes in fishing effort (before and after pilot/training implementation):

The implementation of the landing obligation has not resulted in significant changes in fishing effort in the Azores due to the low discard rates and selective fishing methods already in place. However, some adjustments in catch reporting and handling procedures have been observed (Villasante et al., 2019).

Awareness of fishers on increase selectivity, end discarding, improve handling of unwanted catches (before and after training/pilot): Fishers in the Azores generally have a high level of awareness regarding the importance of selectivity and sustainable fishing practices, largely due to the artisanal nature of the fisheries. Stakeholder consultations and interviews reveal that fishers view the landing obligation as a manageable regulation due to the region's traditionally low discard rates (Fauconnet et al., 2019). However, there are concerns about the economic impact of landing previously discarded species with low market value. Fishers are motivated to improve selectivity further, recognizing the long-term sustainability benefits for their communities and the ecosystem (Interview 10a).

Future requested training with the objective to increase selectivity: Future training should focus on advanced gear technology and further improving fishers' understanding of bycatch reduction techniques. Topics such as gear modifications, species-specific handling to increase survival rates, and better use of onboard technology for monitoring catches would benefit small-scale fishers. Additionally, training on market diversification, helping fishers find value in previously discarded species, would improve the economic viability of complying with the landing obligation (Interview 10a).

EMFF/ EMFAF: Yes, funded by the EU EMFF.

Compliance to landing obligation: Compliance with the landing obligation in the Azores has been relatively high due to the pre-existing low discard rates and selective fishing practices (Villasante et al., 2019). Fishers in the region have been receptive to the regulations, particularly due to the close cooperation between government authorities and the fishing communities. There are concerns about the economic impact of landing previously discarded species, fishers are generally compliant (Interview 10b). The use of port-based inspections and random checks, combined with the region's artisanal fishing methods, has ensured effective landing obligation enforcement (Soto-Oñate et al., 2021).

PERFORMANCE ANALYSIS

Performance in catch selectivity: Due to the already selective nature of the artisanal gear (bottom longlines and traps), the introduction of new technology did not lead to significant reduced selectivity. In some cases, selectivity improvements were noted after the implementation of pilot projects and training, especially in reducing bycatch of pelagic species like blue whiting (Villasante et al., 2019).

Performance of landing obligation implementation and outcome success rate in terms of discard rates: Pilot projects helped refine fishing techniques, resulting in a lower bycatch of undersized species like common pandora and pelagic species like blue whiting (Fauconnet et al., 2019). Fishers' adherence to new guidelines also contributed to this success, and discard survival probabilities increased for some species with improved handling methods (Interview 10b).

Technological advances used: The pilot projects introduced bottom longline modifications and improved net selectivity, reducing bycatch. EMS were tested in some vessels to enhance onboard monitoring of catches and discard management, which increased compliance with the Landing Obligation (EMREP Report, 2022).

Fisheries practices and related experiences: Azorean fishers have long relied on artisanal fishing methods, using selective gear like bottom longlines and handlines to target demersal species. The introduction of new fishing practices focused on improving selectivity by altering the deployment of fishing gear and reducing the bycatch of non-target species. Fishers also received training on handling low-value catches to meet landing obligation requirements. Despite initial resistance to the changes, stakeholders recognized the long-term benefits of reducing discards and improving catch efficiency, which has resulted in overall positive outcomes (Fauconnet et al., 2019).

Choke species encountered: Choke species, particularly Blue whiting, undersized Atlantic mackerel. When these species are caught in higher volumes and exceed quotas, it creates operational challenges

Landing obligation exemptions applied: Some landing obligation exemptions were applied for deep-sea species like conger eel, as the economic feasibility of landing low-value bycatch was limited. Exemptions were also granted for species where discard survival rates were proven to be high, as in the case of some pelagic fish like Atlantic mackerel, particularly when released quickly after capture (Soto-Oñate et al., 2021).

Best practices of the implementation: Close collaboration between local government, fishers, and research institutions helped create practical solutions.

Pilot projects and workshops educated fishers on the importance of selectivity and reducing unwanted catches. Fishermen were involved in testing different gear configurations, and their feedback was critical in making the landing obligation more manageable. (Interview 10b) Additionally, port-based inspections and electronic monitoring provided transparent and effective compliance with regulations (EMREP Report, 2022).

Difficulties encountered with the implementation of the landing obligation:

The economic impact on fishers, especially when they have to land previously discarded species with low or no market value, such as undersized common pandora and blue whiting (Fauconnet et al., 2019). The additional onboard storage required to comply with the landing obligation added operational costs, and fishers feared losing revenue due to the introduction of non-profitable species to the market (Interview 10b).

Lessons learned: The key lessons learned from the Azores experience highlight the importance of engaging fishers early in the regulatory process. Continuous dialogue between fishers, government, and scientific bodies is essential to address ongoing challenges (Villasante et al., 2019).

BEST PRACTICES AND CHALLENGES

Best practices	Description
Close collaboration between local government, fishers, and research institutions	Pilot projects and workshops educated fishers on the importance of selectivity and reducing unwanted catches. One of the key successes was the adaptation of gear to minimize bycatch without reducing the economic viability of fisheries. Fishermen were involved in testing different gear configurations, and their feedback was critical in making the LO more manageable
Port-based inspections and electronic monitoring	port-based inspections and electronic monitoring provided transparent and effective compliance with regulations (EMREP Report, 2022).

Challenges	Description
Economic impact on fishers	One of the major difficulties was the economic impact on fishers, especially when they had to land previously discarded species with low or no market value, such as undersized common pandora and blue whiting (Fauconnet et al., 2019). The additional onboard storage required to comply with the LO added operational costs, and fishers feared losing revenue due to the introduction of non-profitable species to the market.
Logistical issues in adopting EMSs	The region's artisanal fleet, consisting mostly of small boats, faced logistical issues in adopting EMSs, and some fishers were resistant to gear modifications due to traditional fishing practices (Morato et al., 2019).

ANNEX 5: Synopsis report of stakeholder engagement

E-survey

The e-survey aimed to assess the impact of the landing obligation in aligning with the objectives of the 2013 CFP Regulation (EU) No 1380/2013. Its purpose was to gather evidence to support a future EU Commission evaluation of the Landing Obligation, specifically in terms of meeting the objectives outlined under Article (2)(5)(a) of the CFP. Conducted between November 2023 and February 2024, to which 71 responses were received, of which 48 registered as completing the survey. Respondents were from received from various stakeholder groups, including public authorities, the fishing industry, and NGOs. The survey was disseminated in multiple languages (English, Spanish, French, Portuguese, and Italian) and spread across eight regions (Baltic Sea, North Sea, NWW, SWW, Mediterranean Sea, Black Sea, DWF and outermost regions), ensuring comprehensive participation from 22 EU Member States.

Survey structure

The questionnaire consisted of two sections: Section 1, titled 'Current State of Play', included 14 questions aimed at understanding the existing fisheries management and conservation measures within each region or Member State. Section 2, titled 'Evaluation of Landing Obligation', comprised 26 questions evaluating the implementation and impact of the Landing Obligation.

Respondents

A total of 48 respondents participated, representing seven types of stakeholders: Public Authorities, Producer Organisations, Fishing Industry, Advisory Councils, Scientific Research, NGOs, and others (such as consultancy, administration, traders, and Recreational Fisheries Associations).

Geographical representation

The survey included responses from 22 Member States, excluding the Czech Republic, Hungary, Luxembourg, Malta, and Slovakia. Notably, responses were geographically distributed across various sea basins, with the Southern Western Waters having the highest representation.

Challenges and successes

The survey explored various challenges and successes related to the Landing Obligation, including discard rate trends, conservation measures, compliance, stakeholder engagement, and the effectiveness of MAPs.

Diverse stakeholder representation

The e-survey engaged a broad array of participants, ensuring extensive representation across various sectors. Among the respondents, 38% were from Public Authorities, signifying a strong regulatory presence in the survey. Producer Organisations and the Fishing Industry each constituted 17% of the participants, reflecting significant input from those directly involved in the fisheries sector. Other stakeholder groups included Advisory Councils, Scientific Research bodies, NGOs, and additional categories like consultancies and traders. Despite this wide representation, there was a noticeable underrepresentation of Advisory Councils and NGOs, which suggests that while the insights gathered are valuable, caution should be exercised when generalising the findings across all potential stakeholders.

Current fisheries management and discard trends

The survey unveiled mixed trends regarding discard rates across different regions and sectors. About 50% of respondents reported no change in discard rates, indicating stability in their operations—meanwhile, 36% observed reductions, a positive signal towards the effectiveness of current fisheries management practices. However, 14% noted an increase in discards, pointing to ongoing challenges. These trends varied by sector, with public authorities and producer organisations experiencing both stable and increasing discard rates, highlighting the complex dynamics within fisheries management and the influence of different operational and regulatory environments.

Exploring discard rate trends

The survey responses provided insights into the reasons behind the recorded discard rate trends. Increases in discards were often attributed to enhanced reporting accuracy, which reflects improved data collection and compliance with reporting requirements. Regulatory constraints and operational challenges, such as inadequate quotas and limited selectivity measures, were also cited as contributing factors. Stability in discard rates was associated with exemptions that disrupted incentives for selective fishing and the inherent complexities of managing mixed fisheries. On the other hand, decreases in discard rates were linked to technological advancements and strategic fishing practices, such as the adoption of more selective fishing gear and improved market conditions.

Conservation efforts through MAPs

The survey indicated that the implementation of MAPs positively impacted the reduction of non-target species and improvements in catch composition. These plans, designed to manage fishing efforts over several years, appear effective in aligning with conservation goals. However, measures aimed at adapting fishing capacity and promoting selective fishing, while beneficial, introduced operational challenges. These challenges include increased processing costs and the need for more selective fishing practices, suggesting that while these measures advance conservation efforts, they also require careful management and support.

Compliance challenges

Compliance with the Landing Obligation varied among respondents, with significant challenges noted in operational efficiency and quota management. Issues such as data accuracy and the complexity of regulations posed hurdles for effective compliance. Insufficient incentives for accurate reporting and the operational burden of meeting landing requirements further complicated compliance efforts. Control and enforcement faced additional challenges, including gaps in data accuracy and the need for better alignment of regulations with practical realities, which hindered full adherence to the Landing Obligation.

Engagement and familiarity among stakeholders

The survey highlighted active participation from NGOs, many of which were involved in developing joint recommendations, showcasing their engagement in the policy-making process. This involvement underscores the importance of diverse stakeholder input in shaping effective fisheries management. However, the survey also revealed variations in awareness regarding exemptions and regulatory changes, pointing to gaps in communication and stakeholder engagement. These gaps suggest a need for improved dissemination of information and more inclusive consultation processes to ensure comprehensive understanding and compliance across all stakeholder groups.

Conclusion

The e-survey provided a comprehensive evaluation of the Landing Obligation's impact, reflecting diverse perspectives from various stakeholder groups across multiple sea basins. Despite achieving broad representation, certain groups, such as advisory councils and NGOs, were underrepresented, which underscores the need for cautious interpretation of the findings. The survey revealed mixed trends in discard rates, with stability, reductions, and increases

all noted, driven by factors such as improved reporting, regulatory constraints, and technological advancements.

The implementation of MAPs showed positive effects on conservation efforts, though they introduced operational challenges that need addressing. Compliance with the Landing Obligation remains variable, with significant challenges related to operational efficiency, data accuracy, and regulatory complexities, highlighting areas for improvement in enforcement and incentive structures.

Active engagement from stakeholders, particularly NGOs, was noted, though gaps in communication and awareness of regulatory changes were evident. These findings underscore the importance of enhanced communication, inclusive stakeholder engagement, and tailored approaches to effectively address the diverse challenges and opportunities within fisheries management.

The survey highlights the need for continuous evaluation and adaptation of strategies to meet the objectives of the 2013 reformed CFP, ensuring sustainable and economically viable fisheries management across the EU.

Stakeholder interviews

The stakeholder interviews aimed to gather a wide range of perspectives on the implementation and impact of the landing obligation under the 2013 reformed CFP. These interviews sought to uncover the diverse challenges and opportunities faced by various stakeholders, including governmental bodies, research institutions, fishing associations, and advisory councils, across different regions and sectors. A total of nine individual consultations were conducted, involving key stakeholders such as the Swedish Anglers' Association, Department of Fisheries and Marine Research in Cyprus, Finland Ministry, Slovenian Ministry, STECF, Denmark Fisher Association, Swedish University of Agricultural Sciences, Wageningen Marine Research, and the Dutch Ministry of Agriculture, Fisheries, Food Security and Nature. Additional insights were gathered from representatives of various Advisory Councils, including the Black Sea, North Western Waters, and Mediterranean Advisory Councils. By capturing these insights, the consultations aim to inform future policy adjustments and highlight areas where the Landing Obligation may need refinement to meet its intended conservation and economic objectives effectively. The findings provide a comprehensive understanding of the complexities involved in achieving sustainable fisheries management across the EU.

Consultation 1: Swedish Anglers' Association, anonymised

Swedish Anglers' Association, anonymised, expressed concerns about the misuse of inter-annual flexibility in salmon quota management, arguing that such practices undermine the CFP's objectives, particularly regarding MSY levels. The association advocates for strict adherence to the EU-determined salmon catch quota of 15,116, opposing flexibility that could compromise stock recovery. Swedish Anglers' Association, anonymised recommended increased controls on salmon fishing, including a sealing system akin to Finland's, to enhance traceability and compliance. He also called for mandatory release of wild trout to protect vulnerable stocks and criticised exemptions for fishing north of 62°55'N, which he views as counterproductive to salmon stock restoration efforts.

Consultation 2: Department of Fisheries and Marine Research, Cyprus, anonymised

Department of Fisheries and Marine Research, Cyprus, anonymised, highlighted the unique challenges Cypriot fisheries face in the eastern Mediterranean, where the landing obligation does not significantly enhance sustainable exploitation. Many commercial species in Cyprus need a MCRS, limiting the scope and effectiveness of the obligation. Department of Fisheries and Marine Research Cyprus, anonymised suggested focusing the obligation on species that are critical to fisheries to drive meaningful impact. He also noted the pervasive influence of non-indigenous species, which threaten local ecosystems and economic viability, advocating for targeted measures to address these challenges. Upcoming studies under the EMFAF aim to improve gear selectivity, reflecting Cyprus's commitment to sustainable and multispecies fisheries management.

Consultation 3: Finnish Ministry of Agriculture and Forestry, anonymised

Finnish Ministry of Agriculture and Forestry, anonymised, reported minimal impact from the landing obligation in Finland due to the pre-existing low discard rates. The implementation was straightforward, with costs primarily associated with scientific research on salmon survival estimated at 200,000 euros. Effective regional cooperation in the Baltic Sea facilitated smooth coordination among Member States, ensuring successful implementation without significant inefficiencies. Finland remains focused on maintaining these cooperative efforts and integrating scientific evidence into its sustainability measures.

Consultation 4: Slovenian Ministry of Agriculture, Forestry and Food, anonymised

Slovenian Ministry of Agriculture, Forestry and Food, anonymised, emphasised the importance of *de minimis* exemptions for Slovenian fisheries, which are small-scale with low daily catch volumes. These exemptions are vital for maintaining economic viability, particularly in the predominantly small pelagic and demersal fisheries. Successful regional coordination in the Adriatic has allowed Slovenia to actively participate in joint recommendations and initiatives. EU funding, especially through the EFF/EMFF/EMFAF, supports crucial data collection and gear selectivity improvements. Slovenian Ministry of Agriculture, Forestry and Food, anonymised underscored the need for continued EU co-financing to sustain these efforts, recognising the challenges of enhancing selectivity in mixed fisheries.

Consultation 5: STECF, anonymised

STECF, anonymised, identified numerous barriers to the effective implementation of the landing obligation, notably the excessive number of exemptions and the lack of economic incentives. While exemptions help prevent choke situations, they complicate the distinction between legal and illegal discards, perpetuating the status quo. STECF, anonymised advocated creating economic incentives to encourage selective fishing practices, particularly in mixed and demersal fisheries. He emphasised the need for more scientific research to provide evidence of the economic benefits of such practices, suggesting that a revision of the landing obligation could enhance its effectiveness.

Consultation 6: Danish Fishers Producer Organisation, anonymised

Danish Fishers Producer Organisation, anonymised, highlighted the limited use of inter-species and inter-annual flexibility tools, which he views as essential for managing unavoidable bycatches. Despite their potential, restrictive regulations have hindered their effective use. Danish Fishers Producer Organisation, anonymised argued for greater autonomy for Member States in fisheries management, allowing for more flexible use of these tools to address national needs. He emphasised the need for a tailored approach that considers the specific characteristics of local fisheries, advocating for regulatory adjustments to maximise the tools' benefits.

Consultation 7: Swedish University of Agricultural Sciences, anonymised

Swedish University of Agricultural Sciences, anonymised, expressed scepticism regarding the landing obligation's added value, highlighting continued

unreported discarding despite the obligation and associated exemptions. He noted that increased quotas have not resulted in improved outcomes and may lead to higher fishing mortality rates. Valentinsson stressed the importance of proper enforcement to ensure that the landing obligation effectively promotes sustainable marine resource exploitation, as current practices may obscure true discard volumes and hinder conservation efforts.

Consultation 8: Wageningen Marine Research anonymised

Wageningen Marine Research anonymised, discussed the challenges of implementing effective control and enforcement mechanisms under the landing obligation. He noted the impracticality of the obligation for mixed fisheries due to inadequate infrastructure for processing discards and the significant economic burdens on fishers. Wageningen Marine Research, anonymised emphasised the need for automation in catch registration and suggested that a more pragmatic approach, incorporating fisher input and infrastructural development, is required for successful implementation. His insights highlight the necessity of aligning the landing obligation with the diverse realities of European fisheries.

Consultation 9: Dutch Ministry of Agriculture, Fisheries, Food Security and Nature - Team Fisheries, anonymised

Dutch Ministry of Agriculture, Fisheries, Food Security and Nature - Team Fisheries, anonymised, detailed the implementation costs of the landing obligation in the Netherlands, finding them reasonable given the involvement of various government sectors and external stakeholders. Despite administrative challenges, a collaborative approach facilitated effective policy implementation. However, standardised data and plans did not significantly ease coordination between Member States, indicating a need for streamlined processes. They stressed the importance of EU funding in addressing financial challenges and supporting efforts to improve selectivity and reduce discards.

Other Consultations: Advisory Councils

Representatives from several Advisory Councils, including the Black Sea, North Western Waters, and Mediterranean Advisory Councils, reiterated their official positions without offering new insights. These consultations affirmed their existing stances, as detailed in their communications with the EU Commission, consistently advocating for their established perspectives on the landing obligation.

Conclusion

The stakeholder consultations reveal a diverse and challenging landscape for the implementation of the landing obligation across different regions. While some areas report minimal impacts, others face significant hurdles related to regulatory complexities, economic disincentives, and enforcement issues. The consultations underscore the need for regionally tailored approaches that account for local fishery characteristics, enhanced cooperation among Member States, and strategic incentives to achieve the CFP's conservation and economic objectives. Addressing the identified barriers will require leveraging scientific research, fostering economic conditions conducive to compliance, and encouraging innovation within the fisheries sector to ensure effective implementation of the landing obligation.

Case Studies

In each of the case studies stakeholders were interviewed to gain more in depth information on the cases. Interviewees participated with informed consent, and were promised to be quoted anonymously.

In the table below the interviewed stakeholders are listed. When reference is made in the case studies (ANNEX 4) to the interviews, the abbreviations below are used.

CS#	Case studies	Abbreviation for referencing	Interview background
1	Baltic trawl fisheries in discarding cod		xxx
2	Bottom trawling in SWW, discarding blue whiting, Atlantic horse mackerel, hake and others		NA
3	NWW Dutch pelagic trawl fishery, targeting blue whiting, discarding hake	Interview 3a	Fisheries scientist in the Netherlands working on the research observer program on board pelagic trawlers fishing in European waters
		Interview 3b	Interview with a scientist working for the Dutch industry
		Interview 3c	Interview with a Fisheries representative
4	NWW Irish pelagic trawl targeting boarfish	Interview 4a	Informant – Dutch scientist knowledgeable on Dutch pelagic fisheries
		Interview 4b&c	Interview with a scientist working for the Irish industry and a representative of the Irish industry
		Interview 4d	Interview with a scientist of the Irish Marine Institute knowledgeable on pelagic stocks

CS#	Case studies	Abbreviation for referencing	Interview background
5	North Sea Dutch Norway lobster (<i>Nephrops norvegicus</i>) fisheries, discarding flatfish and roundfish	Interview 5a	Interview with a Fisheries Innovation Researcher on the Fishing Industry's views on Landing obligation. IJmuiden. (2024, June 27).
		Interview 5b	Interview with a Scientific Observer on the Norway Lobster Fishery. IJmuiden. (2024, August 1).
6	North Western Mediterranean bottom trawl fishery, targeting round fish	Interview 6a	Interview with a Fisheries Scientist on the Fishing Industry's views on Landing obligation. Barcelona, Spain.
		Interview 6b	Interview with a bottom trawling fisher. Livorno, Italy.
		Interview 6c	Interview with a fishers' association representative. Barcelona, Spain.
7	Western Adriatic bottom otter trawl fisheries, targeting crustaceans and shrimp	Interview 7a	Interview with a Fisheries Scientist on the Fishing Industry's views on Landing obligation. Ancona, Italy.
		Interview 7b	Interview with a bottom trawling fisher. Rimini, Italy.
		Interview 7c	Interview with a fishers' association representative. Rimini, Italy
8	North-west Adriatic Sea small-scale fleet, bottom-set nets + pots, targeting cephalopods + roundfish'	Interview 8a	Interview with a Fisheries Scientist on the Fishing Industry's views on Landing obligation. Ancona, Italy.
		Interview 8b	Interview with a SSF fisher. Rimini, Italy.
		Interview 8c	Interview with a SSF fisher. Marina di Ravenna, Italy.
9	Distant Water Fleet French tropical tuna purse seiners	Interview 9a	Interview with a Fisheries sector expert from IFREMER affiliated the regional French fishing authorities views on Landing obligation. Online. (2024, August 28).
		Interview 9b	Interview with a member of the regional French fishing directorate. Online. (2024, August 20).
10	Outermost Regions Azorean small-scale fishery	Interview 10a	Interview with a High Degree Technician (PhD) with Services Directorate for Resources, Fishing Fleet and Aquaculture views on Landing obligation. Online. (2024, September 16).
		Interview 10b	Interview with a member of the Regional Directorate for Fisheries in Portugal. Online. (2024, August 29).

ANNEX 6: Evolution of fishing practices since the implementation of the landing obligation.

This Annex provides an overview of how fishing practices have evolved to comply with the requirements of the landing obligation, with regards to discards, unwanted catches, and progress to increase gear selectivity. This review is primarily informed by annual national reports, STECF evaluations and FDI data analysis.

Baltic Sea

In the Baltic Sea, covering union waters in ICES divisions 3b, 3c, and 3d, commercial fisheries predominantly target cod, herring, and sprat, comprising about 95% of the total catch. Pelagic fisheries primarily employ mid-water trawls for sprat and herring, while demersal fisheries use bottom trawls and gillnets for cod and flatfish, mainly flounder (ICES, 2022a). Other gear types include dredging for blue mussel; longlines fisheries for cod, salmon, sea trout and eel; and trap nets and fyke nets for herring, salmon, whitefish, eel and other freshwater species. Fishing activities in the region involve vessels from nine nations, including the following EU Member States which have a direct interest in the fisheries management of the region: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland and Sweden.

Due to the relatively low species diversity and very low discards associated with pelagic fisheries for sprat and herring, the implementation of the landing obligation was considered to be less problematic in the Baltic compared to other sea basins. By extension, the Baltic was the first sea basin to implement a multiannual plan (Regulation (EU) No 2016/1139) for the fisheries management of cod, herring and sprat stocks in the Baltic Sea.

In general, within the ad hoc contract evaluated by STECF 22-01 (STECF, 2022a), Member States reported no significant difficulties regarding compliance to the landing obligation in pelagic fisheries. However, as a result of recent ICES stock assessments, quota has been reduced to conserve key commercial stocks currently assessed as being exploited above F_{MSY} , namely central Baltic herring, and sprat (ICES, 2022a). As a result, it was reported that Denmark does not allow fishing for sprat in the western Baltic Sea (ICES subdivision 22 - 24) due to the restrictive quota for herring, considered to be choke species. In addition, Finland reported sprat as a potential choke species. However, the risk of choke situations is mostly avoided by quota swaps, mainly inter-species flexibility.

In demersal fisheries, the risk of unwanted catches is high given the nature of mixed fisheries where multiple species are caught together. This becomes a bigger issue when there are bycatches of a low quota species. For example,

cod and plaice which have been subject to the landing obligation since 2015 and 2017 respectively, in mixed trawl and gillnet fisheries. To alleviate the risk of choke situations, exemptions to discard catches of cod and plaice caught by certain static gear (including trap nets, creels/pots, fyke nets and pound nets) due to high survivability have been in place since 2018 under Article 3 of Commission Delegated Regulation (EU) No 2018/306 ⁽⁵⁸⁾ and several technical measures have been implemented to mitigate unwanted catches in trawl fisheries (see further details in Section 3.3.4). These include increasing the mesh size from 110 mm to 120 mm T90 for towed gear or using 105 mm fitted with a 120 mm Bacoma exit window or better selectivity characteristics for cod (Regulation (EU) No 2019/1241). However, STECF 20-01 reported the increase of mesh size in Bacoma escape windows from 110 mm to 120 mm in the cod fishery was found to have adverse effects due to the increased fishing pressure on larger fish and increased unwanted bycatch of juveniles (STECF, 2020a).

Despite these technical measures and seasonal closures during the stock's spawning season (15 February – 31 March) in 2016 – 2018 as part of the Baltic cod multi-annual management plan (Regulation (EU) No 2016/1139) and further closures in 2022, the eastern Baltic cod stock is at critically low levels and recruitment of the western Baltic cod stock is at the lowest observed level in over 30 years (Madsen et al., 2021; Rufener et al., 2023). As a result, in 2024, the Council of the European Union decreased the bycatch allowance of the western cod stock to 340 tonnes (-30% compared to 2023) and maintained the same bycatch allowance of 595 tonnes for the eastern cod stock ⁽⁵⁹⁾. Therefore, further changes in fishing behaviour are required to reduce fishing pressure on these stocks whilst avoiding negative impacts on the fishing sector.

Multiple pilot trials have also investigated the use of selection devices to reduce unwanted bycatch. Examples include FRESWIND (Flatfish Rigid EEscape WINDows), which reduces flatfish bycatch in roundfish-directed fisheries (Santos et al., 2016), and the flatfish excluder (FLEX) which allows flatfish to escape before entering the codend while roundfish selectivity occurs in the codend (Santos et al., 2020). Furthermore, in 2015, the MCRS for western and eastern Baltic cod stocks was changed from 38cm to 35cm to reduce levels of cod discards and volume of catches that may not be sold for human consumption. (Rindorf et al., 2021).

However, the poor status of Baltic cod stocks has led to drastic reductions in catch quota for cod, forcing mixed trawl fisheries to avoid cod bycatch and focus on flatfish species. This has resulted in the emergence of flatfish fisheries in the Baltic Sea, where cod has become a choke species. Conservation measures have been implemented to protect cod stocks, including spawning closures in

⁽⁵⁸⁾ OJ L 60, 2.3.2018, p. 1–4

⁽⁵⁹⁾ https://oceans-and-fisheries.ec.europa.eu/news/baltic-sea-agreement-reached-2024-fishing-opportunities-2023-10-24_en

the western Baltic (SD 22–24), which STECF concluded to be greatly beneficial for recruitment (ICES, 2022a) and emergency fishing restrictions for vessels targeting eastern Baltic cod in ICES subdivisions 24, 25, and 26 (Regulation (EU) No 2019/1248 ⁽⁶⁰⁾). In the recent annual reports, Germany has initiated pilot studies into selectivity of mixed demersal gear to avoid cod in the Baltic. Although uptake of selective gears was described as low in 2019, the cod emergency measures may have increased the uptake rate.

North Sea

The North Sea encompasses Union waters in ICES divisions 2a, 3a, and subarea 4. Over 100 fish stocks are harvested in this region, with pelagic species such as herring and mackerel caught using pelagic trawls and seines accounting for a significant portion of the total commercial landings (ICES, 2022b). In contrast, sandeel and haddock, which form the largest fraction of demersal landings, are mainly caught with otter trawls and seines. Other gear types used in the North Sea include beam trawls for sole, plaice, and other flatfish; gillnets; longlines targeting saithe, cod, haddock, ling, and tusk; dredges for scallops and blue mussels; and pots for edible crab, lobster, and whelk. Fishing activities is mainly regulated through a combination of technical measures, including gear specifications and closures, and TACs and quota allocations.

Due to the presence of highly diverse mixed fisheries and a wide variety of fishing gear employed in the region, difficulties with the implementation of the landing obligation have been widely reported by Member States and the fishing industry. Consequently, fisheries have adapted their fishing practices to reduce discards by improving size and species selectivity in line with new technical measures (EU 2019/1241) and to meet the necessary gear modifications/conditions required by both *de minimis* and high survivability exemptions, especially mixed demersal fisheries. Examples of these selection devices include a SELTRA sorting box and sorting grids which are now mandatory in Nephrops mixed demersal fish/Nephrops and *Pandalus* fisheries in Skagerrak, as well as the demersal mixed fishery under the *de minimis* exemption for whiting and bottom trawl fishery under the high survivability exemption for plaice (Delegated Regulation (EU) No 2023/2459). Recently, in Sweden, scientific studies by SLU-aqua showed that SELTRA 300 gear catches 6.32 times less cod below MCRS compared to the SELTRA 270. Consequently, Sweden phased out the less selective SELTRA 270 gear in the Skagerrak in national regulation starting 1 November 2020.

Furthermore, the use of a “Flemish panel” in beam trawl fishery was made mandatory for Dutch and Belgium vessels, as well as for all beam trawlers

⁽⁶⁰⁾ OJ L 195, 23.7.2019, p. 2–4

taking advantage of the *de minimis* exemption (up to 5%) for common sole below the MCRS. Concurrently, other *de minimis* exemptions also require the use of selectivity devices, including a SEPNEP to reduce unwanted catches of plaice in the Nephrops fishery in subarea 4 and a sorting grid, sieve net or any other device that is approved by the EU Commission in accordance with Article 15(2) of Regulation (EU) No 2019/1241 in brown shrimp fisheries in Divisions 4b and 4c.

Outside of the selectivity modifications required under *de minimis* exemptions, uptake of increased selectivity is unknown and while many studies related to the landing obligation are being carried out in the North Sea, many Member States have noted the slow pace of realising selectivity improvements. In Belgium, one of the most significant difficulties encountered was the industries' reluctance to implement the landing obligation and stated in their annual report that the development of technical adaptations is time-consuming. This sentiment is echoed by the Netherlands who reported in 2020 that the success of an (selectivity) innovation process takes a long time and is hard to predict its successfulness. In 2021, voluntary uptake of selectivity measures was limited mainly due to the willingness and ability of fishers in the absence of a level playing field within the fishery. While in Denmark, fishers viewed the landing obligation as overly bureaucratic and penalises fishers unfairly. In 2019, Denmark identified a range of choke species, including cod in ICES subarea 3a and in 2021, the industry highlighted *inter alia* that the possibilities to further increase the selectivity in the cod fishery have been exhausted.

However, despite the identification of multiple choke species, no Member State has had to change its quota management system since the implementation of the landing obligation, relying on quota swaps and inter-annual flexibility mechanisms to prevent the early close of fishing activities. Nevertheless, Member States largely affected by Brexit, such as Belgium and the Netherlands, highlighted that the reduction in fishing opportunities due to the withdrawal of UK from the EU has restricted the ability to swap quotas and the reductions in quota because of quota transfers from the EU to the UK have negatively impacted the sector and increased the choke risk in some fisheries. In addition to selectivity measures and the landing obligation, fishing practices have also been changed due to the gradual implementation of closed or restricted areas to protect important spawning grounds (e.g. cod under Regulation (EU) No 2020/123 ⁽⁶¹⁾) and depleted stocks, such as sandeel in ICES divisions 4a and 4b (Regulation (EU) No 2019/1241).

⁽⁶¹⁾ OJ L 25, 30.1.2020, p. 1–156

North Western Waters

The North Western waters include the shelf area west of Scotland (ICES Division 6a), the Irish Sea (ICES Division 7a) and the Celtic Sea (ICES Divisions 7b-c and 7e-k). Within these ecoregions, the main EU fishing fleets are from Belgium, Spain, Denmark, France, Ireland and the Netherlands, as well as non-EU fleets from the UK and Norway.

Pelagic fisheries dominate the region in terms of catch weight, with midwater trawling for blue whiting, mackerel, horse mackerel, herring, boarfish, and sprat being the primary fishing activity (ICES, 2022c). For demersal fisheries, vessels mainly use gillnets and longlines to target hake offshore, as well as bottom-trawling to target gadoids, Norway lobster and various benthic species, such as anglerfish, megrim, flatfish and rays (ICES, 2022c). However, the location of these fisheries varies considerably due to the spatial and temporal heterogeneity of the species and fishing grounds within the ecoregion. This is clearly shown from the predominant catches in each area (ICES, 2022c), as described below:

- In the West of Scotland, Norway lobster account for the highest landings, mainly taken using otter trawls, and pots to a smaller extent;
- In the Irish Sea, Norway lobster account for the highest landings (>90% of total landings), mainly taken in trawl fisheries;
- In the Celtic Sea and west of Ireland, hake account for the majority of the landings, mainly taken in longline and gillnet fisheries.

Due to the clear spatial differences in fishing activities, the implementation of a broad-scale regulation is difficult, yet technical measures related to the gear specifications for different targeted fisheries have been introduced and periodically updated to reflect regional and national efforts to increase selectivity through pilot projects on gear modifications and spatial and temporal avoidance of catches below MCRS.

Under the Horizon 2020 DiscardLess project, one of the case studies was the mixed demersal whitefish fishery in the Celtic Sea (see DiscardLess Celtic Sea case study; Reid et al., 2017). A collaborative effort with fishers and scientists worked together to identify areas with elevated levels of unwanted species (TAC limited or undersize fish), using both tacit knowledge and scientific data from observer trips and surveys. To avoid choke situations, fishers explained they used the following approaches:

- Change of fishing grounds in response to high levels of the choke species or small fish.
- Avoidance of spawning/nursery areas used as a tactic to avoid <MCRS catches.

- Information sharing between fishers on areas to be avoided due to choke or high levels of <MCRS fish.
- “Moving on” after high catches of choke or <MCRS fish.
- Change of target species.
- Increases in mesh size in the codend or across the net.
- Square mesh panels.
- Changing gear/metier, i.e. switching from one gear to another with a different selectivity.
- Multiple rigs (twin or quad) in Nephrops fisheries.

To avoid unwanted catches, multiple studies relevant to the landing obligation have been conducted. In particular, Ireland has proactively supported and carried out several studies into the avoidance of unwanted catches in the Nephrops and whitefish demersal trawl fishery, e.g. the use of T90 mesh in a trawl fishery targeting whiting (Browne et al., 2016). The outputs of the French CelSelect project were also mentioned in the DiscardLess case study report, which highlighted the successful results of the 100 mm T90 extension to decrease not-target species (boarfish and pelagic species) and allow undersized size to escape (results in Robert et al., 2020). This device is now implemented on various vessels during commercial trips on a voluntary base which highlights the success of this collaborative project.

Interestingly, this study has not been included in any of the annual reports submitted by France and there are no additional studies on avoidance and selectivity included, although studies to support the implementation of exemptions have been carried, with survivability of skates and rays being a priority during 2019. Similarly, Spain has also conducted several studies to support high survivability and *de minimis* exemptions, predominantly carried out on trawlers, pair trawlers and gillnetters targeting hake, megrim and anglerfish, as well as an extensive array of scientific studies into selective gears and measures to avoid discards, mainly in trawl fisheries. Examples of these studies include Project AZTI-CASELEM (selectivity trials trawl hake, megrim and monkfish ⁽⁶²⁾) and SMARTFISH (size selectivity in the Basque bottom trawl fishery; results in Cuende et al., 2022a). In 2019, Spain reported that the results of the trials will be followed by national legislation to make the use of selective gears mandatory in trawl fisheries in areas 6 and 7 from 1 July 2020.

The results from some of these selectivity studies have been enshrined into EU law (Regulation (EU) No 2019/1241) and recent delegated acts (Delegated Regulation (EU) No 2023/2623). Under Regulation (EU) No 2019/1241, new

⁽⁶²⁾ www.azti.es/en/proyectos/caselem/

technical measures included baseline mesh sizes for static and towed gear, as well as closed and restricted areas for fishing e.g. the Irish Sea cod box. Subsequently, examples of updated measures include Regulation (EU) No 2019/2239 which introduced the mandatory use of SMP for the West of Scotland Nephrops fishery to reduce catches of whiting and haddock; and Delegated Regulation (EU) No 2021/2324 which introduced new technical measures for fishing vessels operating with bottom trawls or seines (mesh size 70-99 mm; and Norway lobster catches >30%) in ICES division 7a (Irish Sea) to have either a square mesh panel, sletra panel, sorting grid with 35 mm bar spacing, CEFAS Netgrid or Flip-flat trawls. Similar selective devices are listed under the technical measures for Norway lobster survivability exemptions in North Western Waters and equally specific devices are required for some *de minimis* exemptions, such as a “Flemish panel” for beam trawlers in ICES sub-area 7a is applied to common sole and for haddock in ICES sub-areas 7b, 7c and 7e to 7k.

Information on the uptake of selective gear is not available in the literature although it can be assumed that fisheries are implementing these measures to adhere with the requirements of the *de minimis* and high survivability exemptions. However, in the annual reports, Ireland stated it has set up a ‘Nephrops Scheme’ to incentivise the uptake of more selective gears by allocating additional catching opportunities to participating vessels, albeit no information on the actual uptake rate has been reported. Additionally, cross-checking of landings of last-haul analysis with shore-based inspections is taking place in France, mainly aimed at tracking unwanted catches covered by exemptions.

Regarding quota management systems, the ad hoc contract evaluated by STECF 22-01 (STECF, 2022a) provides a detailed timeline of any changes to quota management tools to prevent choke situations occurring. Many Member States frequently use quota swaps to prevent fishing activities from having to close early due to choke species. In 2019, France adapted their quota swap strategy to cover catches of potential choke species previously discarded (e.g. boarfish in areas 6,7 and 8). Boarfish are a quota species and therefore subject to the landing obligation, however, France has no national boarfish quota and therefore catches of boarfish could choke the French whitefish demersal fisheries in the Celtic Sea (Robert et al., 2020). France also introduced an open quota pool to lessen the likelihood of choke situations.

Spain revised their internal quota management system to facilitate allocating more species on an individual basis, providing the possibility of transfers between vessels or even between fleets segments if necessary to balance needs and avoid choke situations. Ireland also amended their quota system in relation to specific quota management regimes for anglerfish and whitefish species; and implemented a quota balancing scheme to balance quota overshoots by individual vessels.

In 2021, Member States highlighted the subsequent reduction of TACs due to the withdrawal of the UK from the EU has had a negative impact on the industry and choke issues were particularly challenging in 2021. In cases like this, monitoring the implementation of the landing obligation can be challenging and control tools are essential to ensure compliance when choke situations arise. Since 2019, the Netherlands had undertaken a pilot project with REM for scientific purposes and in 2021, Spain reports that a pilot project of the use of REM-systems for control purposes are being implemented onboard 35 fishing vessels (sole) and electronic reporting for the artisanal fishing fleet has been introduced to analyse logbook data faster.

Overall, it is evident that Member States have made significant advancements to facilitate the implementation of the landing obligation. Fishing practices have clearly evolved due to the number of selectivity studies and technical measures in place which govern what fishing gear- and methods can be used and where.

South Western Waters

The South Western Waters include the areas in the Bay of Biscay and the Iberian Coast (ICES subareas 8 and 9), waters around the Azores (ICES subareas 10), and EU waters north of Africa around Madeira and the Canary Islands in Fishery Committee for the Eastern Central Atlantic (CECAF) zones 34.1.1, 34.1.2 and 34.2.0. Within these ecoregions, the main EU fishing fleets are from Spain, Portugal, France the Netherlands and Belgium, as well as non-EU fleets from the UK and the Faroe Islands, albeit to a lesser extent (ICES, 2022d). A summary of the fisheries found in each sub-region is provided below.

On a regional level, there is a huge variability in the types of fisheries targeting different fish stocks in the South Western Waters. Compared to other sea basins, such as the adjacent North Western Waters, there are fewer technical measures in place, and many of those measures are less restrictive. For instance, the baseline mesh sizes for towed fishing gear outlined in Part B of Annex VII of the Technical Measures Regulation (EU) No 2019/1241 are smaller (only 70 mm) and lack specific conditions related to gear modifications. Nevertheless, temporary closures are established to protect populations of hake and Norway lobster in ICES division 9, red seabream in ICES sub-area 8, as well as gear restrictions for pelagic trawls in ICES division 8c to protect anchovy.

The lack of selectivity measures suggests a lack of studies into increasing selectivity but this is not the case. For example, Spain has reported relevant studies under the North Western Waters section and a project under the regional MINOUW programme evaluated the use of light technology and alternative fishing gear (pots) to improve the catch efficiency of Norway lobster and reduce bycatch in deep-water crustacean fisheries. However, the results were inconclusive for reducing bycatches of non-commercial or low-commercial

value species such as blue whiting (MINOUW, 2017). In comparison, Portugal has not included any information of selectivity studies and instead has focused on supporting *de minimis* and survivability exemptions. These include, but are not limited to, the PPCENTRO project for survivability experiments on blackspot seabream caught by longline and skates and rays caught by trawl and trammel nets, as well as the SARDINHA2020 project on the survivability of sardine and chub-mackerel. A list of these exemptions is included in ANNEX 1. There are no selectivity modifications/conditions detailed under the survivability or *de minimis* exemptions in the South Western Waters.

Portugal has reported difficulties in encouraging fishers to adopt selective gears due to losses of marketable catches, stating that "if used extensively, those technical devices may make fisheries uneconomic". They conclude that it is impossible to create a selective gear that avoids discards for all species. Furthermore, the lack of market demand for unwanted catches means that some catches are going to landfill, and fishers are not receiving an economic return from bringing these unwanted catches onshore. In response, the South Western Waters Advisory Councils have proposed several potential solutions: 1) exempting stocks with low quotas or species with low market value; 2) providing financial support to the processing industry for research and development of innovative products from unmarketable species; and 3) providing commercial incentives for creating a fish collection network and storage capacity for unwanted catches.

Under the MINOUW project, a case study compared two policies for mitigating unwanted catches in the Southern Iberian Hake stock: age selectivity improvements versus banning the sale of different age ranges. The bioeconomic modelling results emphasized that changes in fishing technologies that reduce selectivity can alleviate the problem of discards in the fishery, yielding better results than sale ban strategies in terms of increasing yields and stocks and reducing discards. However, no fishing technologies were actually tested in this study ⁽⁶³⁾.

Studies into choke situations suggest anglerfish, red seabream, megrim, skates and rays, alfonsinos and deep-water sharks as potential choke species. To address this, Portugal adapted the quota management system in 2019 to provide more flexibility and implemented specific measures have been put in place for mackerel, megrim, alfonsinos, horse mackerel, sole and anglerfish. A "sub quota" system was developed to control the volumes of catch discarded under *de minimis* exemptions for each relevant stock, with all reported discards counted against these "sub quotas." In 2020, a new quota management system was adopted for anchovy to improve and better control quota utilization, establishing the fishing season and daily catch limits by vessel. However, due to

⁽⁶³⁾ <http://minouw-project.eu/case-studies-new/case-study-1-3-north-and-south-iberian-hake-stocks/>

the relatively few stocks covered by TACs and the quota regime in the South Western Waters, there is limited availability of quota swaps, and for most stocks, Portugal can only swap with Spain. Despite measures to prevent choke situations, fisheries closures occurred in 2020 for alfonsinos and skates and rays.

Overall, it can be gleaned from the literature that fishing practices have shown moderate changes in adhering to technical measures and spatial/temporal restrictions. The limited number of selectivity studies and lack of gear modifications associated with technical measures and species/fishery exemptions highlights the challenges and complexities of the different fisheries and fleet segments where small-scale fisheries make up a large majority of fishing activity. This gap underscores the need for increased research and innovation in developing and implementing effective selectivity measures, as well as better education and incentives for fishers to adopt these practices.

Mediterranean Sea and Black Sea

Under Article 4 of the CFP, the Mediterranean Sea is defined as the “*Maritime Waters of the Mediterranean to the East of line 5°36' West*” while the Black Sea refers to the GFCM (General Fisheries Commission for the Mediterranean) geographical sub-area as defined in Resolution GFCM/33/2009/2.

The Mediterranean and Black Sea are segmented into five subareas: Western, Central, Adriatic, Eastern and Black Sea. Within these regions, fisheries are typically multispecies, with a large variety of fishing gears being employed to exploit the stocks. Although catches are composed of more than 100 commercial species, their bulk comprise 5 to 8 species, including sardine, European anchovy, hake, red mullets, and shrimps.

Purse seiners and pelagic trawlers make up the largest contribution to total landings in the GFCM area (58.9%), predominately landing small pelagic fish—mainly sardine in the Mediterranean Sea and European anchovy in the Black Sea (FAO, 2023). Trawlers and beam trawlers are responsible for the second largest share of the total landings (18%) targeting demersal species such as deep-water rose shrimp, European hake and red mullet (FAO, 2023). Despite representing 82% of the fishing fleet, small-scale vessels contribute to 15% of the total catch, accounting for 30% of total revenue. Small-scale fisheries use multiple gears to target a wide range of species. Primary gear types include trammel nets, gillnets, combined nets or small longliners to target largely demersal species including turbot, red mullet, surmullet, common sole and common cuttlefish (FAO, 2023).

Approximately 87% of fishing effort is in the Mediterranean Sea while only 13% of vessels operate in the Black Sea. The main EU Member States fishing in the Mediterranean Sea are Greece, Italy, Croatia, France, Spain, Cyprus, Malta,

Slovenia and Portugal, as well as other countries such as Tunisia, Türkiye, Egypt and Algeria. In the Black Sea, fewer nations are active here and mainly comprise of Bulgaria and Romania and non-EU fleets from Türkiye, Ukraine and Georgia.

Mediterranean Sea

The combination of effort-based management, quota management (only for bluefin tuna), the application of MCRS and local specificities in fishing activities across the Mediterranean Sea has resulted in regional observations in fishing- and discarding practices (Tsagarakis et al., 2017). For bottom trawlers, a recent FAO study reported a slight reduction in discard ratios, suggesting this could be linked to the adoption of technical and spatial restrictions detailed in the Technical Measures Regulation (EU) No 2019/1241, as well as fisheries restricted areas (FRAs) established by the GFCM and multiannual management plans which have been adopted for species fish stocks and their fisheries. The increase in discarding for some species was reported to be a result of the increase in presence of non-indigenous species (FAO, 2023), which was also the case for small-scale fishers (Papageorgiou and Moutopoulos, 2023).

However, due to the multi-species and multi-gear nature of Mediterranean Sea fisheries, particularly for small-scale fisheries, it is very challenging to monitor and study current fishing practices and therefore there is limited information available in some areas. This is confounded by only two out of eight Member States with fishing activity in the Mediterranean submitting reports on the implementation of the landing obligation for 2021 (ES and GR), with very little information submitted by Croatia, Italy and Malta in previous years. However, conclusions can be made from previous annual reports which suggest the landing obligation has had no impact on the fisheries in Cyprus, provided *de minimis* exemptions remain in place for the demersal fisheries. This was also reported under the DiscardLess project for the western Mediterranean which reported the first two years of implementation to small-pelagic fisheries had not resulted in major consequences due to the use of “slipping” and the *de minimis* exemptions (see DiscardLess Case Study: Western Mediterranean; Quetglas et al., 2017).

Under the fisheries management of GFCM, Member States are encouraged to establish closed or restricted areas within their national waters. In 2016, an existing nursery area in Malta has been closed under a GFCM recommendation (GFCM Recommendation GFCM/40/2016/4). In 2017, Greece introduced fishery restrictions in one area for the protection of juvenile hake, limiting the activity of over 280 vessels previously operating in the area, and in 2019 Greece implemented a permanent fisheries closure from 1 to 31 May south of Thassos Island for the protection of juvenile European hake (Presidential Decree 24/2018). Very few Member States have carried out any studies

investigating selective gears or avoidance measures. In 2019, Greece conducted a gear selectivity project (EPILEXIS) in the Aegean Sea, focusing on selectivity studies on 5 most commercial species. The results were reported under a DiscardLess case study which showed that square mesh size has the better selectivity and reduces discards (see DiscardLess Case Study: Eastern Mediterranean; Argyrou & Triantaphyllidis, 2017). However, in 2021, Greece stated *“improvement in selectivity of one species in Greek trawl multi species fisheries often means a loss of commercial value of other species”* and resolved to investigate trawl selectivity (e.g. by increasing the mesh size of the extension piece) in the next few years, with the support of EMFAF funding. Under the DiscardLess programme, case studies focused on the Western Mediterranean reported the results of different technical measures in the bottom trawl fishery (Guijarro et al., 2017) and a selectivity manual prepared by the IEO ⁽⁶⁴⁾.

However, despite the number of studies on gear selectivity, there are no references to required gear modifications under the Technical Measures Regulation (EU) No 2019/1241 or the discard plan (Regulation (EU) No 2023/2462) listing the *de minimis* and high survivability exemptions. While this could be assumed to show that efforts to increase selectivity has not been prioritised, many stakeholders and fishers would argue that fishing practices are already selective and the presence of spatial and temporal restriction, as well as effort controls, have had a positive impact on the reduction of unwanted catches.

Black Sea

In the Black Sea, the landing obligation applied to species which define the fisheries from 1 January 2017. Turbot is one of those species and in 2016, Bulgaria and Romania submitted a joint recommendation to the EU Commission concerning a discard plan for turbot fisheries based on evidence of high survivability for turbot caught with bottom set gillnets. This is the only exemption in the Black Sea, established under Commission Delegated Regulation (EU) No 2022/2287 ⁽⁶⁵⁾. Technical measures stipulate a 400 mm mesh size for bottom set gillnets targeting turbot in GFCM Geographical Sub-Area 29, as well as a mesh size of at least 40 mm for towed gear across the whole area (EU 2019/1241).

Turbot area quota species and in the most recent annual reports, Bulgaria considered that turbot fisheries have the potential of becoming choke as turbot and other demersal species are caught with similar gears (gillnets with mesh size >400 mm). To help mitigate this risk, Romania used inter-annual flexibility for turbot to prevent fisheries from exceeding the national quota. However, no

⁽⁶⁴⁾ www.discardless.eu/selectivity_manual

⁽⁶⁵⁾ OJ L 303, 23.11.2022, p. 1–2

specific selectivity measures have been mitigated and it is reported that most studies have been conducted to support the scientific evidence for survivability exemptions. This indicates a lack of progress to increasing selectivity within Black Sea fisheries.

Furthermore, very little information is available for catches below MCRS. Romania reports that main risk with respect to the landing obligation is undersized catches not being reported in the otter trawl fisheries and the fishery for turbot with gillnets. However, controls are in place to monitor landings and Romania stated that they intend to implement initiatives to prevent below MCRS catches from being used for direct consumption under the new operational program 2021-2027. Bulgaria also reported enforcing control measures based on risk assessments, namely sprat (medium risk) and turbot (high risk), and monitors landings at ports, the fish markets/auctions and enforces inspection benchmarks.

In relation to discarding practices, a recent FAO report published data on discard ratios in the Black Sea, showing purse seiners, set longlines and small-scale fisheries characterised by low discards (<15%), while bottom trawlers show moderate discarding (between 15 and 40%) (FAO, 2023). Although the recent 2021 EU Study emphasised that discard ratios have progressively decreased since the implementation of the landing obligation, particularly in the midwater trawl fishery (CINEA-EMFF, 2021a).

Outermost Regions

Very limited information is available to inform our understanding of changes in fishing practices in EU Outermost Regions. In the recent ad hoc contract evaluated by STECF 22-01 (STECF, 2022a), no information was provided for the outermost regions except for the Azores. Here, Portugal reported that a project related to the selectivity of the bottom longline in avoidance of deep-water sharks had commenced. However, the results demonstrated that the use of circle hooks as bycatch mitigation measure for deep-water sharks did not significantly reduce catches and it was concluded that other potential measures should be explored (Fauconnet et al., 2024).

Furthermore, a DiscardLess project focused on the impact of the landing obligation on deep-sea bottom and drifting hook-and-line fisheries (see DiscardLess Case Study: Azores; Morato et al., 2017). Findings from this project showed that for many fishers, the interviews were the first time they had heard about the landing obligation, and for those who were aware, there was considerable confusion about the regulation's details and practicalities and its likely impact on their fishing activities. The final report states that 100% of fishers disagreed with the landing obligation and had no intention of complying with it. Due to the high selectivity of the fishing gears used by small-scale fisheries, the landing obligation is perceived as inadequate, as existing

management tools are considered more appropriate to the specificities of the local fisheries. Most fishers argue that they are already using the most selective gear that exist, adhering to technical measures on hook size, hook shape and switching from bottom longline to handline. This perception was also reported by Fauconnet et al. (2019b) where many fishers disagreed with the landing obligation and stated they were already using different tactical and technical measures to avoid unwanted catches, regardless of the landing obligation. As a result, it is unlikely fishing practices have changed notably since the implementation of the landing obligation in 2019.

There was no information available on changes in fishing practices or increases in fisheries selectivity within Madeira, the Canary Islands or the French Outermost Regions was found. There are also no discard plans in place which set out exemptions from the landing obligation in these fleets.

Distant Water Fleet (DWF)

The EU Distant Water Fleet comprises fishing vessels over 24 m in length that fly the flag of a Member State and fish primarily in non-EU waters. Fisheries management is divided between the EU legal Framework, regional governing bodies known as Regional Fisheries Management Organisations (RFMOs) and Sustainable Fisheries Partnership Agreement (SFPA) when fishing in the EEZ of a third country.

For the DWF, the landing obligation came into force in 2017 for species defining the fishery through to full implementation in 2019. While Union vessels must adhere to the landing obligation outside Union waters, they also need to comply with RFMO regulations, which may lead to additional provisions through delegated acts. For instance, Commission Delegated Regulation (EU) No 2015/98 includes amendments allowing specific exemptions for bluefin tuna and swordfish to maintain compliance with ICCAT and other RFMO requirements.

To support control and effort monitoring of the landing obligation in the DWF, studies on EMS have been conducted for the French tropical tuna purse seine fishery (Briand et al., 2018) and the use of lesser entangling and non-entangling FAD designs in tuna purse seine fleets (Murua et al., 2016).

ANNEX 7: Evolution of fisheries management and regional rules associated with the landing obligation

Baltic Sea

Table 7: Fish stocks ('the stocks concerned') included in the MAP (subject to TAC/quota/LO) as outlined the Baltic Sea Multiannual Plan

Common Name	Scientific Name	Area/Division/Sub-Division
Cod	<i>Gadus morhua</i>	ICES Subdivisions 22-24 (Western Baltic cod)
		ICES Subdivisions 25-32 (Eastern Baltic cod)
Herring	<i>Clupea harengus</i>	ICES Subdivisions 25, 26, 27, 28.2, 29 and 32 (Central Baltic herring)
		ICES Subdivision 28.1 (Gulf of Riga herring)
		ICES Subdivision 30 -31 (Bothnian Sea herring);
		ICES Subdivisions 22-24 (Western Baltic herring);
Sprat	<i>Sprattus</i>	ICES Subdivisions 22-32 (Baltic sprat).
Atlantic salmon	<i>Salmo salar</i>	ICES Subdivision 22-32 (Baltic salmon)

Table 8: Fish stocks subject to special conservation measures when caught as bycatch as outlined in Article 6 of the Baltic Sea Multiannual Plan

Common Name	Scientific Name	Area/Division/Sub-Division
Plaice	<i>Pleuronectes platessa</i>	ICES Subdivision 22-32
Flounder	<i>Platichthys flesus</i>	ICES Subdivision 22-32
Turbot	<i>Scophthalmus maximus</i>	ICES Subdivision 22-32
Brill	<i>Scophthalmus rhombus</i>	ICES Subdivision 22-32

Table 9 Fish stocks managed by TACs and subject to the LO in the Baltic Sea

Common Name	Scientific Name	Area/Division/Sub-Division
Atlantic salmon	<i>Salmo salar</i>	ICES Subdivision 22-31 (Main basin salmon)
Atlantic salmon	<i>Salmo salar</i>	ICES Subdivision 32 (Gulf of Finland salmon)
Plaice	<i>Pleuronectes platessa</i>	ICES Subdivision 22-32

Delegated Acts

As Delegated Regulation (EU) No 1396/2014 expired in 2017, Member States proposed additional measures for the landing obligation under the new multiannual plan. New measures for cod and plaice landing obligations were set by Commission Delegated Regulation (EU) No 2018/306, including exemptions for high survivability. Similarly, Delegated Regulation (EU) No 2018/211 ⁽⁶⁶⁾ established a discard plan for salmon, implementing a high survivability exemption until 2020, which was later extended to 2023 by Regulation (EU) No 2021/1417 ⁽⁶⁷⁾. This regulation expired on 31 December 2023. Based on the conclusions drawn from STECF and the Expert Group for Fisheries and Aquaculture, the EU Commission extended these measures to 2024-2026 under Commission Delegated Regulation (EU) No 2024/1296. The summary of additional scientific evidence demonstrating high survival rates for salmon provided to STECF is reported in PLEN 22-03 (STECF, 2023c) and a further review of additional evidence submitted to support the exemption is detailed in PLEN 23-01 (STECF, 2023d).

Furthermore, the EU Commission is empowered to adopt delegated acts regarding technical measures not already covered by Regulation (EU) No 2019/1241. The delegated act currently in force is Commission Delegated Regulation (EU) No 2018/47 ⁽⁶⁸⁾ authorising the use of alternative T90 trawls in Baltic Sea fisheries, by way of derogation from Council Regulation (EC) No 2187/2005 ⁽⁶⁹⁾ (no longer in force).

Technical measures

Under Annex VIII of the Technical Measures Regulation (EU) No 2019/1241, various provisions are established to regulate fishing practices in specific Baltic fisheries. These measures encompass restrictions on mesh sizes, types of fishing gear permitted, and specifications aimed at minimising the capture of undersized fish. Additionally, temporal and spatial closures are implemented to safeguard the spawning grounds of key species such as cod, salmon, flounder, and plaice, as well as to protect vital benthic habitats.

⁽⁶⁶⁾ OJ L 41, 14.2.2018, p. 1–3

⁽⁶⁷⁾ OJ L 305, 31.8.2021, p. 3–5

⁽⁶⁸⁾ OJ L 7, 12.1.2018, p. 21–22

⁽⁶⁹⁾ OJ L 349, 31.12.2005, p. 1–23

Change in minimum conservation reference sizes (MCRS)

The MCRS for commercial species caught in specific geographical areas of the Baltic Sea are listed in Part A of Annex VIII. Under Article 7 (d) of the Baltic Multiannual Plan, the EU Commission is empowered to adopt delegated acts or discard plans regarding the fixing of MCRSs, to ensure the protection of juveniles of marine organisms. Within the initial discard plan for the Baltic Sea (Regulation (EU) No 1396/2014), it was agreed that the minimum size for cod should be decreased from 38 cm to 35 cm. Not only would this reduce levels of discarding, but also reduce the level of catches that may not be sold for human consumption. As a result of there being no arguments related to first spawning to support the fixing of MCRS at 38 cm, the MCRS for cod in the Baltic was fixed at 35 cm and continues to be enforced.

Gear Specifications

For towed gear, the standard mesh size is 120 mm constructed from T90 or at least 105 mm fitted with a Bacoma exit window of 120 mm. However, smaller mesh sizes may be used if bycatches of cod do not exceed 10% of the total catch in live weight or other selectivity modifications are used, which have the same or better selectivity and have been approved by the EU Commission. The below mesh sizes for specific fisheries may be used in the listed geographic areas:

- At least 90 mm for fisheries targeting flatfish and whiting in sub-divisions 22 and 23
- At least 32 mm for fisheries targeting herring, mackerel, horse mackerel and blue whiting in sub-divisions 22-27
- At least 16 mm for fisheries targeting sprat in sub-divisions 22-27
- At least 16 mm for fisheries targeting species not subject to catch limits in the Baltic Sea
- At least 16 mm for fisheries targeting small pelagic species in sub-divisions 28-32
- Less than 16 mm for fisheries targeting sandeel in the Baltic Sea

However, in accordance with Commission Delegated Regulation (EU) No 2024/3093, when the directed fishery for cod is prohibited, only the following mesh sizes should apply for the demersal fishery operating in ICES subdivision 22-26. When fishing for flatfish, bottom trawls shall use a Roofless selection device added to either the baseline gears, a modified T90 codend (with a mesh size of at least 125 mm and a reinforcement of the selvedges with lastridge ropes), or a square mesh codend (consisting of two panels and a minimum

mesh size of at least 125 mm). In addition, in ICES subdivisions 24-26 the modified T90 codend may be used without the Roofless selection device. The technical specifications of these selection devices are provided in Commission Implementing Regulation (EU) No 2024/3094.

Previously, Council Regulation (EC) No 2187/2005 established technical conservation measures for Baltic Sea fisheries. Although this regulation is no longer in effect, Commission Delegated Regulation (EU) No 2018/47 provides a derogation from Annex II, permitting the use of alternative T90 trawls. As stated under Article 4, alternative specifications for the T90 trawl codend may be used if the mesh size of the codend is at least 115 mm, with specific requirements for mesh configuration and codend length. However, it must be highlighted that this delegated act contains a technical mistake which makes the gear non-constructable in practice. Therefore, any 115 mm gear existing in practice is illegal as it cannot have been constructed in compliance with the rules of the delegated act. Member States must ensure catches made with alternative specifications are recorded separately from other fishing methods.

For static nets, the baseline mesh size is 110 mm, or 157 mm when fishing for salmon. Similarly, the small mesh size may be used for certain directed fisheries provided that bycatches do not exceed 10% of the total catch weight or exceed 5 specimens of salmon. The below mesh sizes for specific fisheries may be used across the whole of the Baltic Sea:

- At least 90 mm for fisheries targeting flatfish species
- Less than 90 mm for fisheries targeting small pelagic species
- At least 16 mm for fisheries targeting species which are not subject to catch limits

Additionally, restrictions are imposed on the use of gillnets, entangling nets or trammel nets of more than 9 km for vessels with an overall length of less than 12 m and 21 km for vessels with an overall length of more than 12 m. The maximum immersion time for such gear is 48 hours, except when fishing under ice cover.

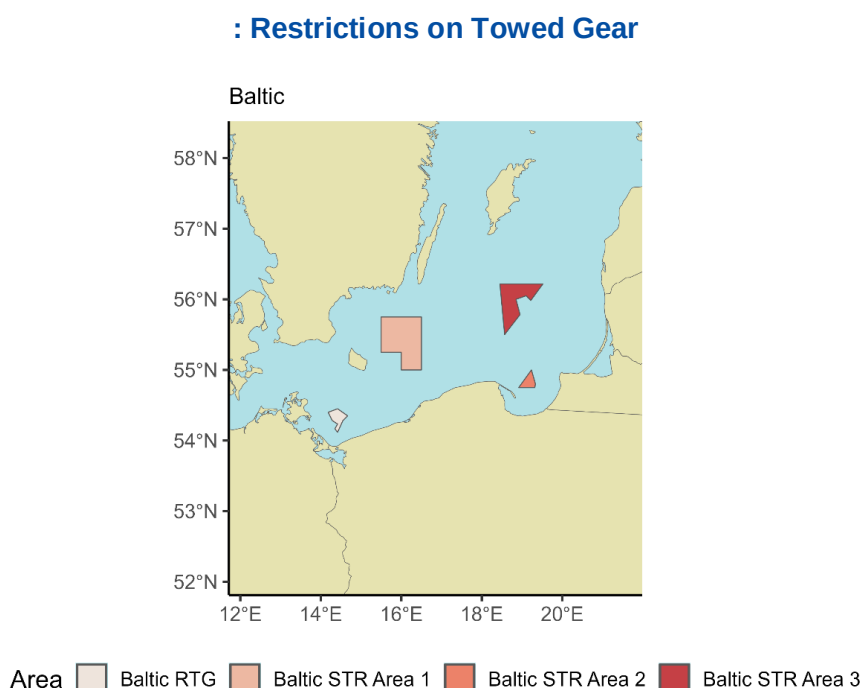
Closed or restricted areas

Within the Baltic Sea, several restrictions are in place to manage fishing activities, including spatial restrictions on specific gear types, temporal restrictions of certain fisheries and targeted efforts to manage fishing capacity in the Gulf of Riga. These restrictions are outlined below.

1. **Restrictions on fishing with towed gear:** A permanent ban is enforced on all towed gear within designated geographical areas.

- **Restrictions on fishing for salmon and sea trout:** Seasonal closures apply to all gear types targeting salmon (*Salmo salar*) or sea trout (*Salmo trutta*) beyond 4 nautical miles from the shoreline in subdivisions 22-31 from June 1st to September 15th, and in subdivision 32 from June 15th to September 30th annually, with the exception of trap nets.
 - **Specific measures for the Gulf of Riga:** Regulations in sub-division 28-1 dictate that vessels must possess a fishing authorisation according to Article 7 of Regulation (EC) No 1224/2009 and operate with engine power not exceeding 221 kW at any time. Furthermore, trawling is prohibited in waters less than 20 m in depth.
2. **Spatial-temporal restrictions:** Temporary restrictions on all fishing activities are enforced from May 1st to October 31st annually within specified geographic areas, except for directed salmon fishing using gillnets, entangling nets, trammel nets with a mesh size equal to or larger than 157 mm, or drifting lines.
 - **Restrictions on fishing for flounder and turbot:** Retention of flounder is prohibited in sub-divisions 26-29 south of 59° 30' N between February 15th and May 15th, with additional restrictions in Subdivision 32 until May 31st. Similarly, the retention of turbot is restricted in sub-divisions 25, 26 and 28 south of 56° 50' N from June 1st to July 31st. Directed fishing for flounder and turbot with trawls, Danish seines or similar gear with a codend mesh size equal to or greater than 90 mm or with gillnets, entangling nets or trammel nets with a mesh size equal to or greater than 90 mm is prohibited. However, allowances are made for retaining bycatches of flounder and turbot up to 10% of the total catch by live weight during specified periods.
3. **Restrictions on fishing for eel:** The retention on board of eel caught with any active gear shall be prohibited. When accidentally caught, eel shall not be harmed and shall be promptly released.

Figure 8 - Map of closed and restricted areas to fishing. STR: Spatio-temporal restrictions; RFMO



High survivability exemptions

Under Article 3 of Commission Delegated Regulation (EU) No 2018/306, by way of derogation from Article 15(1) of the CFP Regulation (EU) No 1380/2013, the landing obligation shall not apply to cod and plaice caught with trap-nets, creels/pots, fyke-nets and pound nets in the fisheries for herring, sprat and cod. In such cases when a cod or plaice is caught without an available quota or below the MCRS, the fish should be discarded immediately.

Furthermore, under Article 3 of Commission Delegated Regulation (EU) No 2024/1296 the landing obligation shall not apply to salmon caught in the Baltic Sea with fyke nets or trap nets, except pound nets or pontoon traps unless they are fitted with an attached knot-less bag ('Vittjanpåse') or a water hold in the fishing vessel where the salmon can be emptied. This exemption, for each Member State concerned, applies to a maximum of 8% of the total annual catches of salmon in, respectively, ICES subdivisions 22-31 and ICES subdivision 32.

Table 10: High survivability exemptions

Common Name	ICES area	Gear type name	Technical Measure	Condition(s)
Cod	Division 3b, 3c, 3d	Trap nets (FIX)	NA	The landing obligation does not apply to this species caught in the fisheries of herring, sprat and cod
		Creels/Pots (FPO)		
		Fyke Nets (FYK)		
		Pound Nets (FPN)		
Plaice	Division 3b, 3c, 3d	Trap nets (FIX)	NA	The landing obligation does not apply to this species caught in the fisheries of herring, sprat and cod
		Creels/Pots (FPO)		
		Fyke Nets (FYK)		
		Pound Nets (FPN)		
Salmon	Division 3b, 3c, 3d	Trap nets (FIX)	NA	For each Member State concerned, this exemption shall apply to a maximum of 8% of the total annual catches of salmon in, respectively, ICES subdivisions 22-31 and ICES subdivision 32.
		Pound nets (FPN)	NA	
		Pontoon Nets (FYK)	Fitted with an attached pontoon knotless bag to which salmon is channelled without being lifted above the water surface; or combined with a water hold in the fishing vessel where the salmon is directly placed	
		Fyke Nets (FYK)	NA	

de minimis exemptions

No *de minimis* exemptions are in place for Baltic fisheries.

North Sea

The North Sea covers union waters in ICES divisions 2a, 3a and subarea 4. It is important to note that fisheries management is governed by a combination of regulations, including the EU CFP, UK legislation, and Norwegian legislation. For this section, we are only focusing on fishing operations within EU waters.

From 1 January 2015, the landing obligation in the North Sea initially applied to small pelagic fisheries (i.e. fisheries for herring and mackerel) and industrial fisheries (*inter alia*, fisheries for sandeel). The following year, a phased

implementation of target fisheries was implemented for fisheries targeting cod, haddock, whiting, and saithe; Norway lobster; common sole and plaice; hake; and Northern prawn. Without a multiannual plan, a discard plan was established under Commission Delegated Regulation (EU) No 2015/2440 for certain demersal fisheries, including survivability and *de minimis* exemption Norway lobster, common sole and a combined quantity of common sole and haddock. In 2018, the EU adopted Regulation (EU) No 2018/973, the 'North Sea Multiannual Plan', specifying the management measures for the exploitation of demersal fish stocks across the Union waters of the North Sea and its adjacent waters. The species implicated in the plan and the relevant areas over which the plan extends are listed in Table 11.

Table 11: Fish stocks included in the North Sea Multiannual Plan

Common Name	Scientific Name	Area/Division/Sub-Division
Cod	<i>Gadus morhua</i>	Subarea 4 (North Sea)
		Division 7d (Eastern Channel)
		Division 3a.20 (Skagerrak)
Haddock	<i>Melanogrammus aeglefinus</i>	subarea 4 (North Sea)
		Division 6a (West of Scotland)
		Division 3a.20 (Skagerrak)
Plaice	<i>Pleuronectes platessa</i>	Subarea 4 (North Sea)
		Division 3a.20 (Skagerrak)
Saithe	<i>Pollachius virens</i>	Subarea 4 (North Sea)
		Subarea 6 (Rockall and West of Scotland)
		Division 3a (Skagerrak and Kattegat)
Sole (common)	<i>Solea solea</i>	Sub-Area 4 (North Sea)
		Division 3a (Skagerrak and Kattegat)
		Subdivision 22 – 24 (Western Baltic Sea)
Whiting	<i>Merlangius merlangus</i>	Subarea 4 (North Sea)
		Division 7d (Eastern English Channel)
Anglerfish	<i>Lophius piscatorius</i>	Division 3a (Skagerrak and Kattegat)
		Subarea 4 (North Sea)
		Subarea 6 (Rockall and West of Scotland)
Northern Prawn	<i>Pandalus borealis</i>	Division 4a East (Northern North Sea, Norwegian Deep)
		3a.20 (Skagerrak)
Norway lobster	<i>Nephrops norvegicus</i>	Division 3a (Functional Units 3-4); Subarea 4 (North Sea) (Botney Gut-Silver Pit - Functional Unit 5; Farn Deeps - Functional Unit 6; Fladen Ground - Functional Unit; Firth of Forth - Functional Unit 8; Moray Firth - Functional Unit 9; Noup - Functional Unit 10; Norwegian Deeps - Functional Unit 32; Horn's Reef - Functional Unit 33; Devil's Hole - Functional Unit 34)

Delegated acts

Article 11 of Regulation (EU) No 2018/973 empowers the EU Commission, based on joint recommendations developed by Member States, to adopt delegated acts to supplement that regulation by specifying details of the landing obligation for all stocks of species in the North Sea to which the landing obligation applies. Based on new Joint Recommendations for the North Sea submitted by the regional group of Member States (the ‘Scheveningen Group’) this plan has been updated several times. To date, the landing obligation is implemented in the North Sea through the Commission Delegated Regulation (EU) No 2023/2459 for the period 2024-2027, which provides a set of exemptions and management measures for several species.

Technical measures

Under Annex V of the Technical Measures Regulation (EU) No 2019/1241, various provisions are established to regulate fishing practices in specific North Sea fisheries.

Change in minimum conservation reference sizes (MCRS)

The MCRS for commercial species caught in specific geographical areas of the North Sea are listed in Part A of Annex V. There has not been a request to change a MCRS for any species subject to the landing obligation.

Gear Specifications

For towed gear, the baseline mesh size is 120 mm or at least 90 mm in Skagerrak and Kattegat. However, smaller mesh sizes may be used provided that bycatches of cod, haddock and saithe do not exceed 20% of the total catch in live weight per fishing trip or if other selectivity modifications are used that have been assessed by STECF and approved by the EU Commission.

Below is a summary of the baseline mesh sizes for towed gear in the North Sea, providing the stated conditions are met.

Table 12: Gear specifications for mesh sizes in towed gear

Mesh Size	Fishing Areas	Gear Type	Target Species	Required Conditions/ Selectivity Modifications
At least 100 mm		Otter Trawls	Plaice and sole	A square mesh panel of at least 90 mm shall be fitted.

Mesh Size	Fishing Areas	Gear Type	Target Species	Required Conditions/ Selectivity Modifications
	North Sea south of 57° 30' N	Beam Trawls		
		Seines		
At least 80 mm	ICES Divisions 4b and 4c	Beam Trawl	Sole	A panel with a mesh size of at least 180 mm fitted in the upper half of the anterior part of the net shall be fitted.
		Bottom Trawls	Whiting, mackerel and species not subject to catch limits	A square mesh panel of at least 80 mm shall be fitted.
At least 80 mm	North Sea	All fishing gear	Norway lobster (<i>Nephrops norvegicus</i>)	A square mesh panel of at least 120 mm or sorting grid with a maximum bar spacing of 35 mm or equivalent selectivity device shall be fitted.
			Species not subject to catch limits	A square mesh panel of at least 80 mm shall be fitted.
			Skates and rays	
At least 80 mm	ICES division 4c	Otter Trawls	Sole	A square mesh panel of at least 80 mm shall be fitted.
At least 70 mm (square mesh) or 90 mm (diamond mesh)	Skagerrak and Kattegat	All fishing gear	Norway lobster (<i>Nephrops norvegicus</i>)	A sorting grid with a maximum bar spacing of 35 mm or equivalent selectivity device shall be fitted.
At least 40 mm	Whole area	All fishing gear	Squid (<i>Iolignidae</i> , <i>ommastrephidae</i>)	
At least 35 mm	Skagerrak and Kattegat	All fishing gear	Northern prawn (<i>Pandalus borealis</i>)	A sorting grid with a maximum bar spacing of 19 mm or equivalent selectivity device shall be fitted.
At least 32 mm	Whole area except Skagerrak and Kattegat	All fishing gear	Northern prawn (<i>Pandalus borealis</i>)	A sorting grid with a maximum bar spacing of 19 mm or equivalent selectivity device shall be fitted.
At least 16 mm	Whole area	All fishing gear	Small pelagic species	
		All fishing gear	Norway pout	A sorting grid with a maximum bar spacing of 35 mm in the Norway pout fishery shall be fitted.

Mesh Size	Fishing Areas	Gear Type	Target Species	Required Conditions/ Selectivity Modifications
		All fishing gear	Common and Aesop shrimps	A separator trawl or sorting grid must be fitted in accordance with nationally or regionally established rules.
Less than 16 mm	Whole area	All fishing gear	Sandeel	

For static nets and driftnets, vessels must use a mesh size of at least 120 mm. Nevertheless, vessels may use smaller mesh sizes for the North Sea, Skagerrak and Kattegat provided that the associated conditions are complied with and bycatches of cod, haddock and saithe do not exceed 20% of the total catch in live weight per fishing trip. The below mesh sizes for specific fisheries are listed below:

- At least 100 mm for fisheries targeting haddock, whiting, dab and bass;
- At least 90 mm for fisheries targeting flatfish or species not subject to catch limits; and
- At least 50 mm for fisheries targeting small pelagic species.

Closed or restricted areas

Within the North Sea, several restrictions are in place to manage fishing activities, including spatial restrictions on specific gear types to protect important commercial species and juvenile species, seasonal closures and spatial restrictions on certain gear types within coastal waters. These restrictions are outlined below.

- **Closure of an area to protect sandeel in ICES divisions 4a and 4b:** Fishing for sandeel with any towed gear with a codend mesh size less than 32 mm shall be prohibited within the geographical area bounded by the east coast of England and Scotland.
- **Closure of an area to protect juvenile plaice in ICES subarea 4:** Vessels exceeding 8 m in overall length shall be prohibited from using any demersal trawl, beam trawl, Danish seine or similar towed gear within the defined areas, including within 12 nautical miles of the coasts of France north of latitude 51°00' N, Belgium, and the Netherlands up to latitude 53°00' N. However, vessels and paired vessels whose engine power does not exceed 221 kW may use bottom trawls or Danish seines and bottom pair trawls, respectively. When using beam trawls, the aggregate length must not exceed 9 m, except with mesh sizes between 16 and 31 mm, or if fishing primarily for common shrimp with mesh sizes between 80 and 99 mm. For vessels exceeding this engine size, fishing is permitted so long as the vessel

is not targeting plaice and sole and adheres to the mesh size regulations. Vessels permitted to fish in these areas must be listed by each Member State, with the total engine power not surpassing the recorded power as of January 1, 1998, and must hold a fishing authorisation as per Article 7 of Regulation (EC) No 1224/2009.

- **Restrictions on the use of beam trawls within 12 nautical miles of the coast of the United Kingdom:** It is prohibited to use any beam trawl inside of 12 nautical miles from the coast of the UK, unless the vessel is under 24 m with an engine power of the vessel less than 221 kW and the beam length is no more than 9m, except when fishing for common shrimp (*Crangon crangon*) with a minimum mesh size of less than 31 mm.
 - **Restrictions on fishing for sprat to protect herring in ICES division 4b:** Fishing with towed gear featuring a codend mesh size below 32 mm or static nets with less than 30 mm mesh size is prohibited in specific geographical areas from 1 October to 31 March every year. These areas include ICES statistical area 39E8, encompassing a defined boundary along the east coast of the United Kingdom, and the Moray Firth and Firth of Forth inner waters. Moreover, from July 1st to October 31st, fishing in a delineated region along the west coast of Denmark is prohibited.
1. **Specific provisions for the Skagerrak and Kattegat in ICES division 3a:**
 - a. Beam trawls are prohibited in the Kattegat
 - Prohibited for vessels to retain any salmon and sea trout
 - From July 1st to September 15th, using towed gear with a codend mesh size below 32 mm is prohibited within three nautical miles of the baselines in the Skagerrak and Kattegat, except when engaged in directed fishing for Northern Prawn (*Pandalus borealis*). However, for directed fishing for eelpout (*Zoarces viviparous*), gobies (Gobiidae) or scorpion fish (*Cottus* spp.) for use as bait, nets with any mesh size may be used.
 2. Use of static nets in ICES divisions 3a and 4a: In waters with a depth of less than 600 m, gear exceptions are allowed for:
 - Bottom set gillnets for hake, with a mesh size of 100 mm to 100 meshes deep, not exceeding 25 km per vessel, and a maximum soak time of 24 hours.
 - Entangling nets for anglerfish, with a mesh size of 250 mm to 15 meshes deep, not exceeding 100 km total length per vessel, and a maximum soak time of 72 hours.

However, directed fishing for deepwater sharks in these depths is prohibited. Accidental catches of prohibited deepwater sharks must be recorded, released unharmed, while those subject to catch limits should be retained on

board and landed against quotas. If quotas are insufficient, Article 105(5) of Regulation (EC) No 1224/2009 may be invoked. If any Member State's vessels exceed 10 tonnes of accidental deepwater shark catches, then those vessels may no longer avail of the derogations set out.

High survivability exemptions

High survivability exemptions are detailed for a number of commercial species from Article 3 to Article 10 within the Commission Delegated Regulation (EU) No 2023/2459. A vast majority of these exemptions have been continued from the previous discard plan (Delegated Regulation (EU) No 2020/2014 ⁽⁷⁰⁾). A summary of these exemptions is given in the Table below.

Table 13: High survivability exemptions in the North Sea

Common name	ICES area	Gear type	Technical Measure	Required Condition(s)/Selectivity Modification
Norway Lobster	Division 3a, Subarea 4	Pots FPO		N/A
		Bottom trawl (OTB, OTT, TBN)	Codend ≥ 80 mm	N/A
			Codend with a mesh size ≥ 70 mm	Must be equipped with a species selective grid with bar spacing maximum 35 mm
Common sole	Division 4c	Otter trawl (OTB)	Codend with mesh size 80-99 mm	Applies within 6 nautical miles of the coast but outside identified nursery areas, for vessels with a max length of 10 with max engine size of 221 kW fishing in waters with depth ≤ 30 metres for maximum tow duration of 90 minutes
Multiple species	Division 3a, subarea 4	Pots, Fyke nets (FPO, FYK)		Applies to all species subject to catch limits caught with these gears
Plaice	Division 3a, Subarea 4	Nets (GNS, GTR, GTN, GEN)		N/A
		Danish seines		N/A
		Bottom trawl	Mesh size ≥ 120 mm	Applies to catch and bycatch of the species targeting flatfish or round fish in the union waters

⁽⁷⁰⁾ OJ L 415, 10.12.2020, p. 10–21

Common name	ICES area	Gear type	Technical Measure	Required Condition(s)/Selectivity Modification
		(OTB, PTB)	Mesh size 90 – 119 mm	Must be equipped with a Seltra panel with a top panel of 140 mm mesh size (square mesh)
			Mesh size 90 – 119 mm	Must be equipped with a top panel of 300 mm mesh size (square mesh)
	Subdivision 3a (Kattegat)	Bottom trawl OTB, PTB	Mesh size 90 – 119 mm	Must be equipped with square mesh panel of at least 120 mm Applies from 1 October to 31 December every year for target fishery of flatfish or round fish in the Union waters.
	Subarea 4	Bottom trawl OTB, PTB	Mesh size 80 – 119 mm	Applies to target fishery of flatfish or round fish in the union waters
Turbot	Subarea 4	Beam trawls TBB	Cod-end ≥ 80 mm	N/A
Skates and ray	Division 3a, Subarea 4	Fishing gear		N/A
Mackerel	Division 3a, Subarea 4	Purse seine		Applies with compliance of the following conditions: the catch is released before the 80% point of retrieval; the gear is fitted with a visible buoy clearly marking the limit for point of retrieval; the vessel and the gear are equipped with electronic systems that records and documents when, where and to what extent the gear has been hauled for all fishing operations.
Herring	Division 3a, Subarea 4	Purse seine		

de minimis exemptions

de minimis exemptions are detailed for several commercial species and fishery fleet segments under Article 11 of the Commission Delegated Regulation (EU) No 2023/2459. A vast majority of these exemptions have been continued from the previous discard plan (Delegated Regulation (EU) No 2020/2014). A summary of these exemptions is given in the Table below.

Table 14: *de minimis* exemptions for commercial species in the North Sea

Species / Fishery	ICES area	Gear type	Required Condition(s)/ Selectivity Modification	Maximum % permitted to be discarded
Common Sole below and above the MCRS	Division 3a, Subarea 4	Trammel nets and gill nets (GN, GNS, GND, GNC, GTN, GTR, GEN, GNF)	N/A	3%
Common Sole below the MCRS	Subarea 4	Beam Trawl (TBB) with a mesh size of 80-119 mm	Flemish panel	5%
Norway lobster fishery	Division 3a	Bottom trawl (OTB, OTT, TBN, PTB) with mesh size $\geq$ 70 mm	Selective devices with maximum bar spacing of 35 mm	A combined quantity of common sole, haddock, whiting, cod, saithe and hake below the MCRS shall not exceed 4% of the total annual catches of Norway lobster, common sole, haddock, whiting and Northern prawn, cod, saithe and hake
Northern prawn fishery	Division 3a	Bottom trawl (OTB, OTT) with a mesh size $\geq$ 35 mm	Selective grid with a bar spacing of maximum 19 mm, and with unblocked fish outlet	A combined quantity of common sole, haddock, whiting, cod, plaice, saithe, herring, Norway pout, greater silver smelt and blue whiting below the MCRS shall not exceed 5% of the total annual catches of Norway lobster, common sole, haddock, whiting, cod, saithe, plaice, Northern prawn, hake, Norway pout, greater silver smelt, herring and blue whiting;
Demersal mixed fishery	Division 3a	Bottom trawl (OTB, OTT, TBN, PTB) with a mesh size of 90-119 mm, or bottom trawls (OTB, OTT, TBN, PTB) with a mesh size equal to or	Seltra panel with a top panel of 140 mm mesh size (square mesh) Seltra panel with a top panel of 270 mm mesh size (diamond mesh)	A quantity of whiting below the MCRS shall not exceed 2% of the total annual catches of Norway lobster, cod, haddock, whiting, saithe, common sole, plaice and hake

Species / Fishery	ICES area	Gear type	Required Condition(s)/ Selectivity Modification	Maximum % permitted to be discarded
		larger than 120 mm	Seltra panel with a top panel of 300 mm mesh size (square mesh)	
Norway lobster fishery	Subarea 4	Bottom trawls with a mesh size of 80-99 mm	SepNep	A quantity of plaice below the MCRS shall not exceed 3% of the total annual catches of saithe, plaice, haddock, whiting, cod, Northern prawn, common sole and Norway lobster
Brown shrimp fisheries	Divisions 4b and 4c	Beam trawls using a mesh size of at least 22 mm	Sorting grid, sieve net or any other device that is approved by the EU Commission in accordance with Article 15(2) of Regulation (EU) No 2019/1241	A quantity of all species subject to catch limits, which shall not exceed 5% of the total annual catches of all species subject to catch limits made in those fisheries
Demersal fisheries	Subarea 4	Bottom trawls (OTB, OTT, PTB) with a mesh size equal to or greater than 120 mm	N/A	A quantity of ling (<i>Molva molva</i>) below MCRS, shall not exceed 3% of the total annual catches of ling in that fishery
Mixed demersal fisheries	Subarea 4	Bottom trawls (OTB, OTT) or seines (SDN, SSC) with a mesh size of 70-99 mm (TR2)	N/A	A quantity of whiting below the MCRS, shall not exceed 4% of the total annual catches of whiting
Demersal mixed fishery	Subarea 4	Beam trawls with a mesh size of 80-119 mm	N/A	A quantity of whiting below the MCRS, shall not exceed 2% of the total annual catches of plaice and sole

Species / Fishery	ICES area	Gear type	Required Condition(s)/ Selectivity Modification	Maximum % permitted to be discarded
Demersal mixed fishery and Northern prawn fishery	Division 3a and subarea 4	Trawls (OTB, OTM, OTT, PTB, PTM, SDN, SPR, SSC, TB, TBN, TBS) with mesh sizes above 80 mm	fish retention device	0.1% of the total annual catches of sprat, sandeel, Norway pout and blue whiting
Pelagic fisheries (vessels over 25 m) targeting mackerel, horse mackerel and herring	Divisions 4b and 4c south of 54 degrees north	Mid-water trawls (OTM/PTM)	N/A	1% of their total annual catches of mackerel, horse mackerel, and whiting
Demersal longline fishery for hake	Subarea 4	Longlines (LLS)	N/A	3% of the total annual catches of ling made in that demersal fishery
Demersal mixed fishery	Divisions 4b and 4c	Bottom trawls (OTB, OTT, PTB) with a mesh size between 80 and 99 mm (TR2)	N/A	5% of the total annual catches of horse mackerel made in that fishery
				5% of the total annual catches of mackerel made in that fishery
Industrial pelagic trawler fishery targeting blue whiting	Subarea 4		N/A	5% of the total annual catches of blue whiting
Demersal trawl fishery	Division 3a and subarea 4	Trawls (OTB, OTM, OTT, PTB, PTM, SDN, SPR, SSC, TB, TBN) with a mesh size above 70 mm	N/A	0.01% of the total annual catches of Northern prawn made in that fishery

Western Waters (North and South Western Waters)

Regulation (EU) No 2019/472 establishes a MAP for stocks fished in the Western Waters and adjacent waters, and for fisheries exploiting those stocks (the “Western Waters MAP”). The Western Waters MAP encompasses both the North Western Waters (ICES subareas 5 (excluding division 5a and only Union waters of division 5b), 6 and 7) and South Western Waters (ICES subareas 8, 9 and 10 (waters around Azores)) sea basin, as well as adjacent waters around

Madeira and the Canary Islands. The list of demersal stocks, including deep-sea stocks, subject to catch limits and thereby included in this plan are detailed in Table 15.

Table 15 Fish stocks included in the Western Waters MAP

Common name	ICES Subareas and Divisions
Black Scabbardfish	1, 2, 4, 6-8, 10, 14 and 3a, 5a, 5b, 9a and 12b
Roundnose Grenadier	6, 7, 5b
Seabass	4b, 4c, 7a, 7d-h, 8a, 8b
Seabass	6a, 7b, 7j
Seabass	8c, 9a
Cod	7a
Cod	7e-k
Megrim	4a, 6a
Megrim	6b
Megrim	7b-k, 8a, 8b, 8d
Megrim	8c, 9a
Anglerfish	7b-k, 8a, 8b, 8d
Anglerfish	8c, 9a
Haddock	6b
Haddock	7a
Haddock	7b-k
Whiting	7b, 7c, 7e-k
Whiting	8, 9a
Hake	4, 6, 7, 3a, 8a, 8b, 8d
Hake	8c, 9a
Blue Ling	6, 7, 5b
Norway Lobster (FU 11)	Subarea 6, Div 5b
Norway Lobster (FU 12)	Subarea 6, Div 5b
Norway Lobster (FU 13)	Subarea 6, Div 5b
Norway Lobster (West of Scot.)	Div 6a
Norway Lobster (FU 14)	Subarea 7
Norway Lobster (FU 15)	Subarea 7
Norway Lobster (FU 16)	Subarea 7
Norway Lobster (FU 17)	Subarea 7
Norway Lobster (FU 19)	Subarea 7
Norway Lobster (FU 20-21)	Subarea 7
Norway Lobster (FU 22)	Subarea 7
Norway Lobster (Southern Celt.)	Outside FU, Div 8a, 8b, 8d
Norway Lobster (FU 23-24)	Div 8a, 8b, 8d, 8e
Norway Lobster (FU 26-27)	Subareas 9, 10, CECAF 34.1.1

Common name	ICES Subareas and Divisions
Norway Lobster (FU 28-29)	Subareas 9, 10, CECAF 34.1.1
Norway Lobster (FU 30)	Subareas 9, 10, CECAF 34.1.1
Red Seabream	Subarea 9
Plaice	7d
Plaice	7e
Pollack	6, 7
Common Sole	5, 12, 14, 6b
Common Sole	7d
Common Sole	7e
Common Sole	7f, 7g
Common Sole	7h, 7j, 7k
Common Sole	8a, 8b
Common Sole	8c, 9a

Following the submission of joint recommendations from the relevant Member States in the North- and South-Western Waters in 2023, the most recent delegated act (Regulation (EU) No 2023/2623) applies to demersal and pelagic fisheries in Western Waters for the period 2024-2027. The specific details of the delegated act have been divided for the distinct sea basins.

North Western Waters

The North Western Waters include the shelf area west of Scotland (ICES Division 6a), the Irish Sea (ICES Division 7a) and the Celtic Sea (ICES Divisions 7b-c and 7e-k). Within these ecoregions, the main EU fishing fleets are from Belgium, Spain, Denmark, France, Ireland and the Netherlands, as well as non-EU fleets from the UK and Norway. EU fisheries management is governed by the CFP Regulation (EU) No 1380/2013 which allows for Member States, as part of a Regional Fisheries Group, to submit proposals for additional conservation measures relevant to the specificities of the regional fisheries. In addition, as the UK is no longer part of the EU, UK legislation sets out the rules on technical measures for its own water. This will not be included in this section.

TACs are the main fishery management tool, distributed as national quotas. For all species subject to TACs, the landing obligation came into force for certain directed fisheries, including small pelagics, in 2015 and was phased in for demersal fisheries targeting cod, haddock, whiting, and saithe; Norway lobster; common sole and plaice; and hake since 2016 in the North Western Waters. Without a multiannual plan initially, Commission Delegated Regulation (EU) No 2015/2438 ⁽⁷¹⁾ established a discard plan for demersal species in North

⁽⁷¹⁾ OJ L 336, 23.12.2015, p. 29–35

Western Waters, including high survivability exemption for Norway lobster and various *de minimis* exemptions for common sole, whiting and Norway lobster. Based on Joint Recommendations submitted by the North Western Waters Regional Group, this discard plan has undergone various amendments under Regulation (EU) No 2016/2375 ⁽⁷²⁾ and Regulation (EU) No 2018/46 ⁽⁷³⁾.

In 2019, Regulation (EU) No 2019/472 established a multiannual plan for demersal stocks and their fisheries for both North Western and South Western Waters. It was deemed appropriate to establish a single multiannual plan for both regions to take into account the vast geographical distribution of stocks and consolidate the various regulations setting out the rules for exploitation of these stocks, typically taken in mixed fisheries.

Delegated acts

Under Article 13 of the Western Waters multiannual plan, the EU Commission is empowered to adopt delegated acts to specify provisions linked to the landing obligation for all stocks of species to which it applies. The first such act was adopted under Regulation (EU) No 2020/2015 ⁽⁷⁴⁾ which included exemptions for both demersal and pelagic species due to the potential increase in costs as a consequence of handling unwanted catches. In 2023, the NWW Regional Group submitted Joint Recommendations covering *de minimis* and high survivability exemptions, including a new high survivability exemption for haddock below MCRS in demersal fisheries. To date, the details of the current exemptions enforced are outlined in the Commission Delegated Regulation (EU) No 2023/2623 which will be operational for the period 2024 – 2027.

Furthermore, additional technical measures for certain demersal and pelagic fisheries in the Celtic Sea, the Irish Sea and the West of Scotland are detailed in Commission Delegated Regulation (EU) No 2021/2324. These technical measures are based on recommendations from Member States with a direct fisheries management interest (Belgium, Spain, France, Ireland and the Netherlands) to increase selectivity and thereby reduce potential discarding, particularly for decreasing bycatches of cod and whiting in the Celtic Sea and reducing gadoid bycatches in the Irish Sea and West of Scotland.

Technical measures

Annex VI of the Technical Measures Regulation (EU) No 2019/1241 establishes the specific provisions regarding technical measures established at regional

⁽⁷²⁾ OJ L 352, 23.12.2016, p. 39–47

⁽⁷³⁾ OJ L 7, 12.1.2018, p. 13–20

⁽⁷⁴⁾ OJ L 415, 10.12.2020, p. 22–38

level for the Union waters of North Western Waters. A summary of all the regional rules and conservation measures is given below.

Change in minimum conservation reference sizes (MCRS)

The MCRS for commercial species caught in specific geographical areas of the North Western Waters are listed in Part A of Annex VI. There has not been a request to change a MCRS for any species subject to the landing obligation.

Gear specifications

For vessels using towed gear, vessels must use a standard mesh size of at least 120 mm or at least 100 mm in ICES sub-area 7b-7k, unless the below selectivity modifications are used for specific directed fisheries and bycatches of cod, haddock and saithe do not exceed 20% of the total catch in live weight. Below is a summary of the baseline mesh sizes for towed gear in the North Western waters, providing the stated conditions are met.

Table 16: Gear specifications for mesh sizes in towed gear

Mesh Size	Geographical Areas	Gear Type	Target Species	Required Conditions/Modifications
At least 80 mm	ICES sub-area 7	Bottom Trawls	Hake, megrim, and anglerfish, as well as whiting, mackerel, and non-quota species not covered elsewhere in the table	A square mesh panel of at least 120 mm shall be fitted. This provision shall not apply when directed fishing for whiting, mackerel and species not subject to catch limits in ICES divisions 7d and 7e.
		Otter Trawls	Sole and non-quota species	A square mesh panel of at least 80 mm shall be fitted.
At least 80 mm	Whole Area	Trawl	Norway lobster	A square mesh panel of at least 120 mm or sorting grid with a maximum bar spacing of 35 mm or equivalent selectivity device shall be fitted. At least 70 mm mesh size shall apply for single rig vessels in ICES division 7a.
At least 80 mm	ICES divisions 7a, 7b, 7d-7j	Beam Trawl	Sole	A panel with a mesh size of at least 180 mm fitted in the upper half of the anterior part of the net shall be fitted, except for ICES division 7d.

Mesh Size	Geographical Areas	Gear Type	Target Species	Required Conditions/Modifications
At least 40 mm	Whole Area	All gear types where applicable	Squid (<i>Lolignidae</i> , <i>Ommastrephidae</i>)	
At least 16 mm	Whole Area	All gear types where applicable	Small pelagic species, common and Aesop shrimp	A separator trawl or sorting grid must be fitted in accordance with nationally established rules
Less than 16 mm	Whole Area	All gear types where applicable	Sandeel	

As stipulated in Commission Delegated Regulation (EU) No 2021/2324, the following derogations to the Technical Measures Regulation (EU) No 2019/1241 have recently been added under Part B of Annex VI.

Table 17: Derogations to the Technical Measures Regulation (EU) No 2019/1241

Fleet segment	Geographical Areas	Gear	Required Conditions/Modifications
Demersal trawl	ICES divisions 7f, 7g, 7h, 7j	Bottom trawl or seine	Vessels shall use gear with one of the following mesh sizes: i. 110 mm cod-end with 120 mm square-mesh panel; ii. 100 mm T90 cod-end; iii. 120 mm cod-end; iv. 100 mm with 160 mm square-mesh panel;
			Vessels fishing with bottom trawls whose catches weighed before any discards consist of at least 20% of haddock shall use: i. Gear with a minimum of 1 m spacing between fishing line and ground gear. ii. Any means proven to be selective for avoidance of cod.
			Member States have the option to exempt bottom trawling vessels if their catches, prior to discarding, contain less than 1.5% cod, contingent upon these vessels gradually increasing observer coverage to at least 20% of all fishing trips, with reporting obligations to the EU Commission by December 1st each year regarding the number and catch composition of vessels utilizing this exemption.

Fleet segment	Geographical Areas	Gear	Required Conditions/Modifications
			Vessels with catches comprising > 55% of whiting or >55% of anglerfish, hake or megrim combined, shall use one of the following gears: i. 100 mm cod-end with a 100 mm squared mesh panel; ii. 100 mm T90 cod-end and extension.
Nephrops trawl	ICES divisions 7f, 7g, 7h, 7j	Bottom trawl or seine	Vessels with catches comprising more than 30% of Norway lobster shall use one of the following: i. 300 mm squared mesh panel; vessels below 12 meters in length overall may use a 200 mm square mesh panel; ii. Seltra panel; iii. Sorting grid with a 35 mm bar spacing or a similar Netgrid selectivity device; iv. 100 mm cod-end with a 100 mm square mesh panel.
	ICES divisions 6a, 5b (West of Scotland)	Bottom trawl or seine	Vessels must use a 300 mm square mesh panel for cod-end mesh sizes under 100 mm. For vessels under 12 meters in length overall or with an engine power of 200 kW or less, the panel can be 2 meters long and 200 mm in size. Vessels with catches > 30% of Norway lobster shall use a square mesh panel (positioning retained) of at least 160 mm for vessels deploying a cod-end mesh size of 100-119 mm.
	ICES division 7a (Irish Sea)	Bottom trawl or seine	Vessels with a cod-end mesh size between 70 mm and 100 mm, and catches with >30% Norway lobster, must use one of these gear options: i. 300 mm square mesh panel; vessels under 12 meters may use a 200 mm squared mesh panel ii. Seltra panel iii. Sorting grid with 35 mm bar spacing iv. CEFAS Netgrid v. Flip-flap trawl Vessels equal to or greater than 12 with >10% haddock, cod, and skates and rays combined must use a 120 mm cod-end.

For vessels using static gear, vessels must use a mesh size of at least 120 mm unless fishing for the following target species detailed in Table 17, provided that certain conditions are met and bycatches of cod, haddock and saithe do not exceed 20% of the total catch in live weight.

In addition, all vessels with an overall length of 12 m or more must install active acoustic deterrent devices to reduce the incidental catches of sensitive species,

particularly vessels using any bottom-set gillnet or entangling net within ICES divisions 7d, 7e, 7f, 7g, 7h and 7j. No derogations are in place for static fisheries.

No derogations are in place for static fisheries.

Table 18: Gear specifications for mesh sizes in static gear

Mesh Size	Geographical Areas	Gear type	Target species	Required Modifications
At least 100 mm	Whole area	Static nets and driftnets	Whiting, dab, bass, flatfish or non-quota species	In division 7d, at least 90 mm shall apply.
At least 50 mm	Whole area	Static nets and driftnets	Red mullet and small pelagic species	

Closed or temporarily closed areas/temporary stop on fishing activities

Part A of Annex 2 and Part C of Annex 4 of Regulation (EU) No 2019/1241 sets out the closed or restricted areas for the conservation of particular species, as well as spatial restriction of the use of specific gears. Due to the vast number of measures, these restrictions have been summarized in the below tables.

Table 19: Closed areas in North Western Waters

Area	Type of restriction	Prohibited gear types	Specifications
Belgica Mound Province	Closed Area	Bottom trawlers or similar towed nets, bottom set gillnets, entangling nets or trammel nets and bottom set longlines	Whereby a pelagic vessel is fishing in these areas, the following specifications must be met: i. be on a list of authorised vessels and be issued with a fishing authorisation in accordance with Article 7 of Regulation (EC) No 1224/2009;
Hovland Mound Province	Closed Area		
North-West Porcupine Bank Area I	Closed Area		
North-West Porcupine Bank Area II	Closed Area		

Area	Type of restriction	Prohibited gear types	Specifications
South-West Porcupine Bank	Closed Area		ii. carry on board exclusively pelagic gear; iii. give four hours advance notification of their intention to enter an area for the protection of vulnerable deep-sea habitats to the Irish Fisheries Monitoring Centre (FMC) as defined in point 15 of Article 4 of Regulation (EC) No 1224/2009 and at the same time notify quantities of fish retained on board; iv. have an operational, fully functioning secure VMS which complies fully with the respective rules when present in any of the areas described in point 1; v. make VMS reports every hour; vi. inform the Irish FMC on departure from the area and at the same time notify quantities of fish retained on board; and vii. have on board trawls with a codend mesh size range from 16-79 mm.
Darwin Mounds	Closed Area	Bottom trawls or similar towed nets	

Figure 9 - Map of areas where it is prohibited to deploy bottom trawls or similar towed nets, bottom set gillnets, entangling nets or trammel nets and bottom set longlines

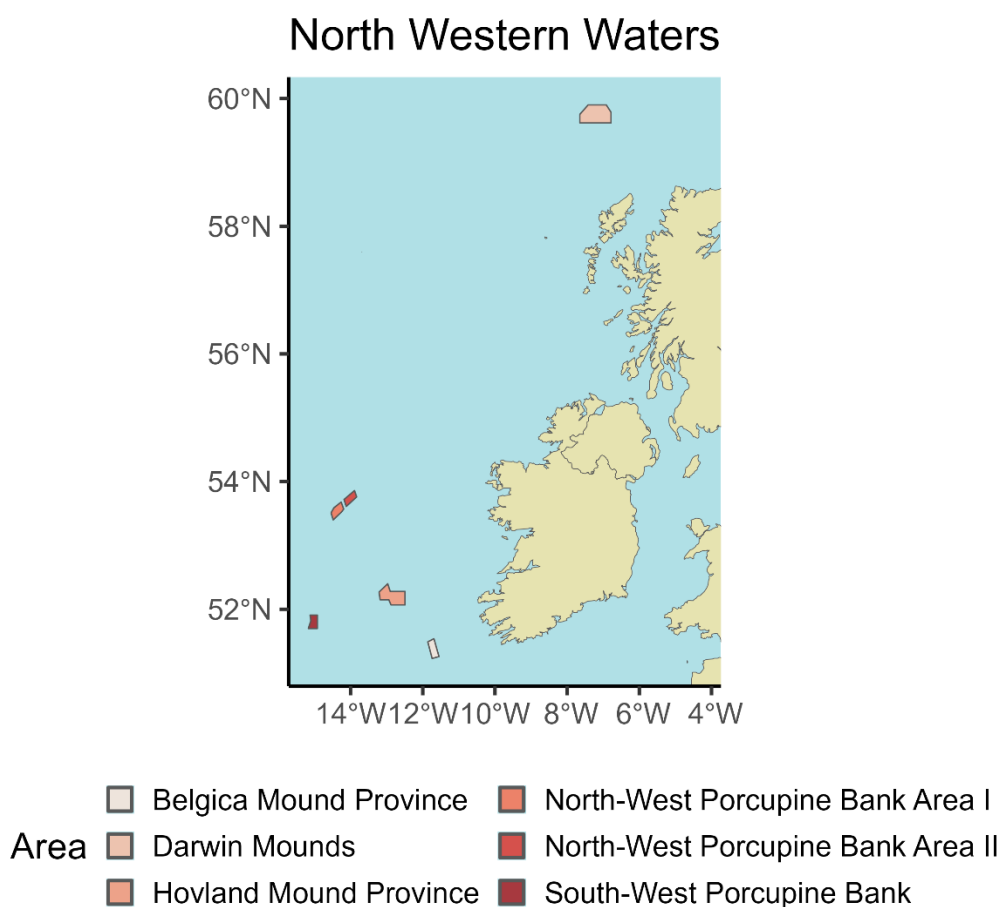


Table 20: Temporal or closed areas in North Western Waters

Area	Type of restriction	Prohibited gear types	Specifications
ICES divisions 7f and 7g, excluding within 6nm from the baseline.	Temporal closure	All gear types, except specified permitted fishing activities	Closed area for the conservation of cod. Dates of closure: 1 February to 31 March. Derogation: vessels using pots and creels or directed fishing for small pelagic species with towed gear with a mesh size less than 55 mm

Area	Type of restriction	Prohibited gear types	Specifications
ICES division 7a	Temporal closure	Demersal trawl, seine or similar towed net, any gillnet, entangling net or trammel net or any fishing gear incorporating hooks	Closed area for the conservation of cod. Dates of closure: 14 February to 30 April. Derogation: demersal trawls shall be permitted provided such trawls are fitted with selective devices that have been assessed by STECF.
Rockall haddock box in ICES sub-area 6	Closed Area	All fishing, except with longlines	
ICES divisions 7c and 7k	Temporal closure	All fishing gear	Closed area for the conservation of Norway lobster. Dates of closure: 1 May to 31 May. No directed fishing for Norway lobster (<i>Nephrops norvegicus</i>) and associated species (namely, cod, megrims, anglerfish, haddock, whiting, hake, plaice, pollack, saithe, skates and rays, common sole, tusk, blue ling, ling and spurdog)
ICES division 6a (as specified in 6.1)	Temporal closure and move-on rule	All fishing gear targeting blue ling.	Special rules for the protection of blue ling. Dates of closure: 1 May to 31 May. Derogation: A bycatch of blue ling up to a threshold of 6 tonnes may be retained on board and landed. Once this threshold is reached, the vessel must cease fishing and exit the area. The vessel may not re-enter either of the areas until its catch has been landed and may not discard any quantity of blue ling.
ICES division 6a (as specified in 6.3)	Temporal closure	Bottom trawls, longlines and static nets	Special rules for the protection of blue ling. Dates of closure: 15 February to 15 April.

Area	Type of restriction	Prohibited gear types	Specifications
ICES divisions 7e, 7f, 7g and 7h (as specified in 7.1)	Closed area	Towed gear with a codend mesh size of less than 80 mm or with purse seines targeting mackerel	Restrictions on fishing for mackerel. Derogation: weight of mackerel does not exceed 15% by live weight of the total catch of mackerel; permitted to fish with static nets and or handlines and demersal trawls, Danish seines or other similar towed nets, with a mesh size greater than 80 mm.
ICES division 5b and ICES sub-area 6 north of latitude 56°N	Closed area	Beam trawls	Restrictions on the use of any beam trawl of mesh size less than 100 mm. Derogation: The engine power of the vessels does not exceed 221 kW and their length does not exceed 24 m. The total beam length should not exceed 9 m, except when targeting common shrimp (<i>Crangon crangon</i>) with a codend mesh size less than 31 mm.
Within 12nm of UK and Ireland coastline	Closed area	Beam trawls	Derogation: The engine power of the vessels does not exceed 221 kW and their length does not exceed 24 m. The total beam length should not exceed 9 m, except when targeting common shrimp (<i>Crangon crangon</i>) with a codend mesh size less than 31 mm.
ICES divisions 5b, 6a, 6b, 7b, 7c, 7h, 7j and 7k	Closed area	Static nets	Prohibited to catch deepwater sharks in waters less than 600 m depth. Derogation: permitted to use the following gear in waters with a charted depth of less than 600 m Bottom set gillnets for hake with a mesh size of at least 100 mm and no more than 100 meshes deep, where the total length of all nets deployed does not exceed 25 km per vessel and the maximum soak time is 24 hours. Entangling nets for anglerfish with a mesh size of at least 250 mm and no more than 15 meshes deep, where the total length of all nets deployed does not exceed 100 km and the maximum soak time is 72 hours.

Area	Type of restriction	Prohibited gear types	Specifications
Celtic Sea (7b and 7c, 7f to 7k and West of 5° W longitude in ICES division 7e)	Closed area	Bottom trawls and seines	Derogation: shall not apply to vessels in case they use a cod-end mesh size of at least 100 mm, or their bycatches of cod do not exceed 1.5%.
ICES sub-areas 6 and 7	Temporal closure	All French-flagged vessels.	Closed areas for the conservation of red seabream Dates of closure: 1 January to 30 June 2023
ICES divisions 7d and 7e (as specified in 11.2)	Temporal closure	Scallop dredges	Conservation measures for the king scallop (<i>Pecten maximus</i>) Dates of closure: 15 May to 30 September

High survivability exemptions

Survivability exemptions in North Western Waters are detailed from Article 3 to Article 8 of Commission Delegated Regulation (EU) No 2023/2623. A summary of these exemptions is given in the table below.

Table 21: Survivability Exemptions for species in North-Western Waters

Common Name	Area	Gear Name	Gear Code(s)	Technical Measure	Condition(s)/ Selectivity Modification
Norway Lobster	ICES subareas 6, 7	Pots, Traps, Creels	FPO, FIX, FYK	NA	NA
	ICES subarea 6a within 12 nm of the coast	Otter Trawls	OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX	Caught with a mesh size of 80-110 mm	NA
	ICES subarea 7	Bottom Trawls	OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX	Caught with a mesh size of ≥100 mm	NA

Common Name	Area	Gear Name	Gear Code(s)	Technical Measure	Condition(s)/ Selectivity Modification
	ICES subarea 7 (Celtic Sea Protection Zone)	Bottom Trawls	OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX	Caught with a mesh size of 70-99 mm + selective gear options	One of the following selective gears must be used: – SMP of at least 300 mm (200 mm if vessel is under 12 m); – Seltra panel; – Sorting grid with max. bar spacing of 35 mm or equivalent Netgrid selectivity device; – 100 mm cod-end with SMP of at least 100 mm; – Dual cod-end with the uppermost cod-end constructed of T90 mesh of at least 90 mm with a separation panel with max mesh size of 300 mm.
	ICES subarea 7a	Bottom Trawls	OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX	Caught with a mesh size of 70-99 mm + selective gear options	One of the following selective gears must be used: – SMP of at least 300 mm (200 mm if vessel is under 12 m); – Seltra panel; – Sorting grid with max. bar spacing of 35 mm; – Cefas Netgrid; – Flip-flap trawl.
Common Sole	ICES subarea 7d	Otter Trawls	OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX	Caught by otter trawl gears with a codend mesh size of 80-99 mm	Vessel has a maximum length of 10 m and maximum engine power of 221 kW and fishing in waters with depths of 30 m or less with tow durations of no more than 90 minutes.
	ICES subarea 7e	Otter Trawls	OTB	Caught by otter trawl gears with a codend mesh size of 80-99 mm	for vessels under 12 metres
Skates and Rays	ICES subareas 6, 7	All gear types	N/A	N/A	N/A
Plaice	ICES subareas 7d-7g	Trammel Nets	GTR, GTN, GEN, GN	N/A	N/A

Common Name	Area	Gear Name	Gear Code(s)	Technical Measure	Condition(s)/ Selectivity Modification
	ICES subareas 7d-7g	Otter Trawls	OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX	N/A	N/A
	ICES subareas 7a – 7g	Beam Trawls	TBB	NA	Caught with beam trawls with a maximum engine greater than 221 kW and fitted with a flip-up rope or Benthos release panel Caught with beam trawls with a maximum engine greater than 221 kW or <24 m, which are constructed to fish within 12 nautical miles of the coast and with average tow durations of no more than 90 minutes
	ICES subarea 7d	Danish Seines	SDN	NA	NA
	ICES subareas 7d – 7k	Seines	SSC	NA	NA
Species caught in pots, traps and creels	ICES subareas 5b, 6 and 7	Pots, Traps, Creels	FPO, FIX, FYK	NA	NA
Mackerel and Herring	ICES subarea 6	Purse Seine	PS	N/A	All of the following conditions must be met: – Catch is released before the point of retrieval is reached. Point of retrieval shall be 80% closure for MAC fisheries and 90% for HER fisheries. If the surrounded

Common Name	Area	Gear Name	Gear Code(s)	Technical Measure	Condition(s)/ Selectivity Modification
	ICES subareas 7e and 7f	Ring net fishery	LA	N/A	school is a mix, it is 80%. – The purse seine is fitted with visible buoys marking the limit for the point of retrieval. – The vessel and gear are equipped with an electronic recording and documenting system recording when, where and extent to which gear has been hauled for all fishing operations. – Surrounded school is sampled before release to estimate species and size composition and quantity.

de minimis exemptions

Article 13 of Commission Delegated Regulation (EU) No 2023/2623 details the specific quantities of fish stocks which may be discarded for particular gear types. The table below provides an overview of these exemptions.

Table 22: *de minimis* exemptions in North-Western Waters

Species/ Fishery	Area	Gear Name	Gear Code(s)	Technical Measure	Maximum % permitted to be discarded
Whiting	ICES sub-area 7d and 7e	Bottom Trawls and Seines	OTB, OTT, OT, PTB, PT, SSC, SDN, SPR, SX, SV, TBN, TBS, TB, TX	Codend mesh size equal to or greater than 80 mm	3% of the total annual catches of that species
	ICES sub-area 7d and 7e	Pelagic Trawls and Beam Trawls	OTM, PTM, BT2	Codend mesh size of 80 to 119 mm	3% of the total annual catches of that species
Common Sole	ICES sub-area 7a	Beam Trawls	TBB	Codend mesh size of 80 to 119 mm (BT2) and equipped with a Flemish panel	3% of the total annual catches of that species.

Species/ Fishery	Area	Gear Name	Gear Code(s)	Technical Measure	Maximum % permitted to be discarded
	ICES sub- areas 7d – 7g	Trammel and Gillnets	GN, GNS, GND, GNC, GTN, GTR, GEN, GNF	NA	3% of the total annual catches of that species
	ICES sub- areas 7d to 7h, 7j to 7k	Beam Trawls	TBB	Codend mesh size of 80 to 119 mm and equipped with a Flemish panel	5% of the total annual catches of that species
Haddock	ICES sub- areas 7b, 7c and 7e to 7k	Bottom Trawls and Seines	OTB, OTT, OT, PTB, PT, SSC, SDN SPR, SX, SV, TBN, TBS, TB, TX	Codend mesh size greater than or equal to 100 mm	5% of the total annual catches of that species with catches comprising no more than 30% Norway lobster.
				Codend mesh size greater than or equal to 80 mm	5% of the total annual catches of that species with catches comprising more than 30% Norway lobster.
		Beam Trawls	TBB	Codend mesh size greater than or equal to 80 mm and equipped with a Flemish panel	5% of the total annual catches of that species
Boarfish	ICES sub- areas 7b, 7c and 7f to 7k	Bottom Trawls	OTT, OTB, TBS, TBN, TB, PTB	NA	0.5% of the total annual catches of that species
Megrim below MCRS	ICES sub- area 7	Beam Trawls	TBB	Codend mesh size of 80 to 119 mm	4% of the total annual catches of that species

Species/ Fishery	Area	Gear Name	Gear Code(s)	Technical Measure	Maximum % permitted to be discarded
	ICES sub-areas 7f, 7g and part of 7h north of latitude 49°30'N and part of 7j North of 49°30'N and East of 11°W	Bottom Trawls	OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX	Codend mesh size of 70 to 99 mm	4% of the total annual catches of that species by TR2 vessels with catches comprising more than 55% whiting or 55% anglerfish, hake or megrim combined.
	ICES sub-area 7, outside above areas				4% of the total annual catches of that species for TR2 vessels
Greater Silver Smelt	ICES sub-area 5b (EU waters) and 6	Bottom Trawls	OTT, OTB, TBS, TBN, TB, PTB, OT, PT, TX	Codend mesh size greater or equal to 100 mm (TR1)	0.6% of the total annual catches of that species
Horse Mackerel	ICES sub-areas 6 and 7b to 7k	bottom trawls, seines and beam trawls	OTB, OTT, OT, PTB, PT, SSC, SDN, SPR, SX, SV, TBB, TBN, TBS, TB, TX	NA	3% of the total annual bycatches of those species caught in demersal mixed fisheries
Mackerel	ICES sub-area 6 and 7b to 7k;	bottom trawls, seines and beam trawls	OTB, OTT, OT, PTB, PT, SSC, SDN, SPR, SX, SV, TBB, TBN, TBS, TB, TX	NA	3% of the total annual bycatches of those species caught in demersal mixed fisheries
Blue Whiting	ICES sub-area 5b, 6 and 7	pelagic trawl		NA	5% of the total annual catches of that species caught in the industrial pelagic trawler fishery targeting blue whiting and processing on board to obtain surimi base.
Mackerel, Horse Mackerel and whiting	ICES sub-area 7d	mid-water trawl	OTM and PTM	NA	1% of the total annual catches in the pelagic fishery with pelagic trawlers up to 25 m in length overall targeting mackerel, horse mackerel and herring.

South Western Waters

The South Western Waters include the areas in the Bay of Biscay and the Iberian Coast (ICES subareas 8 and 9), waters around the Azores (ICES subareas 10), and EU waters north of Africa around Madeira and the Canary Islands in CECAF zones 34.1.1, 34.1.2 and 34.2.0. Within these ecoregions, fisheries are managed according to the CFP, as well as Regional Fisheries Management Organisations including NEAFC and ICCAT.

In 2015, the landing obligation for pelagic species came into force, while for demersal stocks it has come into force incrementally since 2016. This included specific fisheries for common sole, hake and Norway lobster (only inside the stocks' distribution areas referred to as 'functional units') in ICES divisions 8a, b, d, e; Norway lobster in ICES divisions 8c and 9a (only inside functional units); common sole and plaice in ICES division 9a; and hake in ICES divisions 8c and 9. However, due to the lack of a multiannual plan, a discard plan was established under Commission Delegated Regulation (EU) No 2015/2439 ⁽⁷⁵⁾ for certain demersal fisheries in South-Western waters, namely high survivability exemptions for Norway lobster and *de minimis* exemptions for common sole. Based on Joint Recommendations for the South-Western waters submitted by the regional group of Member States (Belgium, Spain, France, Netherlands and Portugal), this has been updated several times by the following delegated acts: 2016/2374 ⁽⁷⁶⁾, 2017/2167 ⁽⁷⁷⁾ and 2018/44 ⁽⁷⁸⁾.

Delegated Acts

As previously mentioned, a multiannual plan, spanning both the North Western and South Western Waters, was established under Regulation (EU) No 2019/472 for demersal stocks and their fisheries. Under this management plan, the regional group of Member States, together with the South-Western Waters Advisory Council and the Pelagic Advisory Council, recently submitted an initial joint recommendation to the EU Commission in 2023, requesting for the continuation of *de minimis* and high survivability exemptions from 1 January 2014 onwards. The delegated act currently in force is Commission Delegated Regulation (EU) No 2023/2623.

Within this section, the fisheries management pertaining to three of the EU outermost regions is also included.

⁽⁷⁵⁾ OJ L 336, 23.12.2015, p. 36–41

⁽⁷⁶⁾ OJ L 352, 23.12.2016

⁽⁷⁷⁾ OJ L 306, 22.11.2017, p. 2–5

⁽⁷⁸⁾ OJ L 7, 12.1.2018, p. 1–5

Azores

Fisheries in the Azores are managed under the EU CFP, with some fisheries managed by the NEAFC, ICCAT and national Portugal and regional Azores governments. Under the CFP, fishing opportunities for blackspot seabream, black scabbardfish, and deep-water sharks are managed under a TAC and quota system. In addition, the regional government of Azores introduced TACs for Greater forkbeard, island grouper, blackbelly rosefish, offshore rockfish, conger eel, common mora, and wreckfish. Under EU law, these species are subject to the landing obligation.

Madeira

Fishing activities in the Madeiran region is largely regulated by fishing effort limitations and the application of quotas, defined in ICCAT for large migratory species (bigeye tuna, skipjack tuna), or by the EU for black scabbardfish and small pelagics (i.e., only blue jack mackerel). Furthermore, fishing effort limitations and minimum landing sizes are also enforced for tuna fisheries and black scabbardfish fisheries. Madeiran vessels targeting black scabbardfish operate in both national waters and offshore on the high seas and waters north of the Canary Islands in CECAF areas 34.1.2 and 34.2.0 under an existing CECAF fisheries agreement. In area 34.2.0, the EU is responsible for determining the TAC for the Madeiran CECAF are, whereas Portugal has been charged with setting the TAC for area 34.1.2 since 2018 (Council regulation (EU) No 2021/91 ⁽⁷⁹⁾ of 28 January 2021).

Canary Islands

The Canary Islands are an autonomous community of Spain and an outermost region of the European Union. Fisheries management at the EU level is governed by the CFP, although the TAC and quota system do not apply here except for tuna which is initially allocated to Spain and then allocated to the Canary Islands fleet. Other international measures which apply to large pelagic species are covered under ICCAT, in particular the Canary fisheries are highly impacted by ICCAT Recommendation 19-04 (ICCAT, 2020) regarding the management plan for Atlantic bluefin tuna, from which the Canary Islands artisanal fleet received 87.3 tonnes out of a 100 tonnes “sectorial quota” for the EU Outermost Regions. Some small pelagic species (anchovy, horse mackerel, jack mackerel and mackerel) have an exemption from the landing obligation in relation to high survival rates, considering the characteristics of the gear, the

⁽⁷⁹⁾ OJ L 31, 29.1.2021, p. 20–30

fishing practices, and the ecosystem (Commission Delegated Regulation (EU) No 2023/2623) in which they are fished within the Canary Islands.

Nationally, the Spanish Ministry of Agriculture, Food, and Environment, through its General Secretariat for Fisheries, is the central government administration responsible for marine fisheries and holds full authority to implement relevant legislation within the Spanish EEZ. Within the Canary Islands' inland waters, fisheries management falls under the jurisdiction of the Canarian Government's Viceconsejería de Pesca y Aguas, which claims exclusive rights overfishing policy within its territorial waters (EC, 2013).

Technical measures

Annex VII of the Technical Measures Regulation (EU) No 2019/1241 establishes the specific provisions regarding technical measures established at regional level for the South Western Waters. A summary of all the regional rules and conservation measures is given below.

Change in minimum conservation reference sizes (MCRS)

The MCRS for commercial species caught in specific geographical areas of the South Western Waters are listed in Part A of Annex VII. There has not been a request to change a MCRS for any species subject to the landing obligation.

Gear specifications

For towed gear, the standard mesh size is 70 mm or at least 55 mm in ICES division 9a east of longitude 7°23' 48" W. However, vessels may use smaller mesh sizes if hake bycatch does not exceed 20% of the total catch in live weight or other selectivity modifications are used that have been assessed by STECF and approved by the EU Commission to have the same or better selectivity than the standard mesh size. There are no specific conditions related to gear modifications, only that the fishery is directly targeting the species listed. Below is a summary of the baseline mesh sizes for towed gear in the South Western waters.

Table 23: Gear specifications for mesh sizes in towed gear

Mesh Size	Areas	Gear Type	Target Species	Condition(s)/ Selectivity Modification
At least 55 mm	Whole area excluding ICES division 9a east of longitude 7°23' 48" W	All applicable fishing gear	Species not subject to catch limits and which are not covered elsewhere in the table	None
		All applicable fishing gear	Red sea bream	None
		Bottom trawls	Mackerel, horse mackerel and blue whiting	None
At least 35 mm	Whole area	All applicable fishing gear	Wedge sole	None
At least 55 mm	ICES division 9a west of longitude 7°23' 48" W	All applicable fishing gear	Crustaceans	None
At least 16 mm	Whole area	All applicable fishing gear	Small pelagic species which are not covered elsewhere in the table	None
			Shrimps (<i>Palaemon serratus</i> , <i>Crangon crangon</i>), and crab (<i>Polydora henslowi</i>)	None
Less than 16 mm	Whole area	All applicable fishing gear	Sandeel	None

However, by way of derogation, it shall be permitted to conduct fishing activity using trawls, Danish seines and similar gear, with the exception of beam trawls, with a mesh size range of 70-99 mm in the area defined in point (b) of Article 5(1) of Regulation (EC) No 494/2002 ⁽⁸⁰⁾ if the gear is fitted with a 100 mm square mesh panel.

For static nets and driftnets, vessels must use a mesh size of at least 100 mm or at least 80 mm in ICES division 8c and ICES sub-area 9. Nevertheless, vessels may use smaller mesh sizes provided that fishing is targeting the following species and hake bycatch does not exceed 20% of the total catch in live weight per fishing trip. The below mesh sizes for specific fisheries are listed below:

- At least 80 mm for fisheries targeting sea bass, whiting, turbot, flounder and pollack, except in ICES division 8c and ICES sub-area 9;

⁽⁸⁰⁾ OJ L 77, 20.3.2002, p. 8–10

- At least 60 mm for fisheries targeting or species not subject to catch limits and which are not covered elsewhere in the list;
- At least 50 mm for fisheries targeting small pelagic species (a mesh size of less than 40mm may be used for sardines); and
- At least 40 mm for fisheries targeting red mullet, shrimps (*Penaeus* spp.), mantis shrimp, wedge sole and wrasse.

By way of a derogation, in accordance with point (a) of Article 9(7) and point 4 of Part C of Annex VII, the use of static nets in waters less than 600 m in ICES sub-areas 8, 9, 10, and 12 east of 27° W shall be permitted:

- Bottom set gillnets used for directed fishing for hake of a mesh size of at least 80 mm in ICES division 8c and ICES sub-area 9 and 100 mm in all remaining areas and no more than 100 meshes deep, where the total length of all nets deployed does not exceed 25 km per vessel and the maximum soak time is 24 hours.
- Entangling nets used for directed fishing for anglerfish of a mesh size of at least 250 mm and no more than 15 meshes deep, where the total length of all nets deployed does not exceed 100 km and the maximum soak time is 72 hours.
- Trammel nets in ICES sub-area 9 used for directed fishing for anglerfish of a mesh size of at least 220 mm and no more than 30 meshes deep, where the total length of nets deployed does not exceed 20 km per vessel and the maximum soak time is 72 hours.

Closed or temporarily closed areas/temporary stop on fishing activities

Under Annex 2 of Regulation (EU) No 2019/1241, Part B delineates the closed areas within the South Western Waters. Within this sea basin, it shall be prohibited to use the specified gear types within the following areas (Figure 10):

El Cachucho - It is prohibited to deploy bottom trawls, bottom set gillnets, entangling nets or trammel nets and bottom set longlines within the defined area. Vessels with historical fishing rights may continue to fish in the area south of 44°00.00' N provided they conducted directed fisheries with bottom set longlines in 2006, 2007 and 2008 for greater forkbeard (*Phycis blennoides*) and have a fishing authorisation.

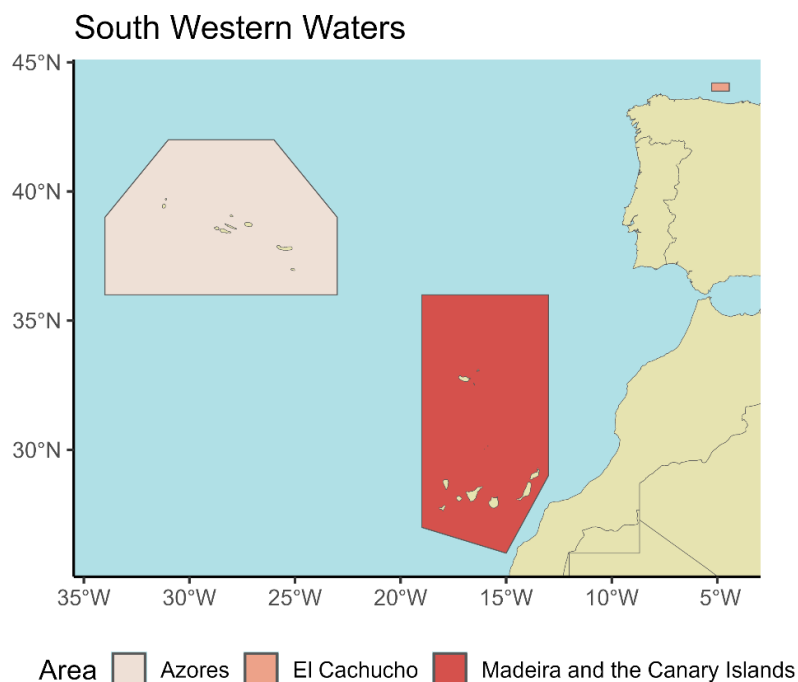
Azores, Madeira and the Canary Islands - Building on previous legislation, (1811/2004 ⁽⁸¹⁾ and 1568/2005 ⁽⁸²⁾), it is prohibited to deploy bottom set gillnets,

⁽⁸¹⁾ OJ L 319, 20.10.2004, p. 1–2

⁽⁸²⁾ OJ L 252, 28.9.2005, p. 2–3

entangling nets and trammel nets at depths greater than 200m or any bottom trawl or similar towed nets operating in contact with the bottom of the sea within the waters of the Azores, Madeira and the Canary Islands

Figure 10 - Map of areas it is prohibited to deploy bottom trawls, bottom set gillnets, entangling nets or trammel nets and bottom set longlines



Under Part C of Annex VII, the following closed or restricted areas are enforced.

Table 24: Closed or restricted areas in the South Western Waters

Protected species	Type of restriction	Area	Prohibited gear types	Specifications
Hake	Temporal closure	ICES division 9a	Any trawl, Danish seine, or similar towed net	Fishing is prohibited in two areas from: Area 1: October 1st to January 31st: Area 2: December 1st to last day of February:
Norway lobster.	Temporal closure	ICES division 9a	Any bottom trawl, Danish seine or similar towed net or with creels	Fishing is prohibited in two areas from: Area 1: 1 June to 31 August, with the exception of bottom trawls or similar towed nets or creels so long as all bycatches of Norway are landed and counted against quotas Area 2: 1 May to 31 August
Anchovy	Gear restriction	ICES division 8c	Pelagic trawls	The carrying on board of pelagic trawls and purse seines simultaneously within ICES division 8c shall be prohibited.

Protected species	Type of restriction	Area	Prohibited gear types	Specifications
Red seabream	Temporal closure	ICES sub-area 8 (western area of the Cantabrian Sea, opposite to Asturias and Galicia)	bottom set longlines (LLS) and bottom trawls (OTB)	Fishing is prohibited from 1 February to 30 September each year.
		ICES subarea 8	All gear types	Fishing is prohibited for all French-flagged vessels from 1 February to 30 September each year.

High survivability exemptions

Survivability exemptions in South Western Waters are detailed from Article 9 to Article 12 of Commission Delegated Regulation (EU) No 2023/2623. A summary of these exemptions is given in the Table below.

Table 25: Survivability Exemptions in South-Western Waters

Common Name	Area	Gear Name	Gear Codes	Technical Measure	Condition(s)/ Selectivity Modification
Norway Lobster	ICES subareas 8 and 9	Bottom trawls	OTB, OTT, PTB, TBN, TBS, TB, TBB, OT, PT, TX	NA	Vessel has a chute system installed on board. If caught, Norway lobster must be released immediately and in the area where it has been caught.
Skates and Rays	ICES subareas 8 and 9	All gear types	NA	NA	Applies to all skates and rays (Rajiformes), except cuckoo ray. If caught, skates and rays must be released immediately.
Red seabream	Division 9a	Artisanal gear <i>voracera</i> *	NA	NA	If caught, red seabream must be released immediately.
	ICES subareas 8 and 10 and division 9a	Hooks and Lines	LHP, LHM, LLS, LLD	NA	If caught, red seabream must be released immediately.

Common Name	Area	Gear Name	Gear Codes	Technical Measure	Condition(s)/ Selectivity Modification
Anchovy, Horse Mackerel and Mackerel	All areas	Purse seine	PS	NA	Unwanted catches of anchovy, horse mackerel and mackerel may be discarded, provided that the net is not fully taken on board

**'Voracera' means a locally designed and built mechanized hook and line, used by the artisanal fleet targeting red seabream in the South of Spain in ICES division 9a.*

de minimis exemptions

By way of derogation from Article 15(1) of the CFP Regulation (EU) No 1380/2013, the following *de minimis* exemptions are applicable for demersal and pelagic in South Western Waters, as detailed under Article 14 of the Commission Delegated Regulation (EU) No 2023/2623. Vessels may discard up to the maximum specified percentage of the total annual catches of that species caught by vessels in the fishery. No technical measures are listed. A summary of these exemptions is given in the Table below.

Table 26: *de minimis* exemptions in South-Western Waters

Common Name	Area	Gear Name	Gear Code(s)	Maximum % permitted to be discarded
Hake	ICES subareas 8 and 9	Trawls and seines	OTM, PTM, OTT, OTB, PTB, OT, PT, TBN, TBS, TX, SSC, SPR, TB, SDN, SX, SV	5% of the total annual catches of that species
Common Sole	ICES subareas 8a and 8b	Pelagic trawls, beam trawls and bottom trawls	OTM, PTM, OTB, OTT, PTB, TBN, TBS, TBB, OT, PT, TX	5% of the total annual catches of that species
		Trammel and gillnets	GNS, GN, GND, GNC, GTN, GTR, GEN	3% of the total annual catches of that species
Alfonsinos	ICES subarea 10	Hooks and lines	LHP, LHM, LLS, LLD	5% of the total annual catches of that species
Horse Mackerel	ICES subareas 8 and 9	Beam trawls, bottom trawls and seines	OTB, OTT, PTB, TBN, TBS, TBB, OT, PT, TX, SSC, SPR, SDN, SX, SV	5% of the total annual catches of that species

Common Name	Area	Gear Name	Gear Code(s)	Maximum % permitted to be discarded
	ICES subareas 8, 9 and 10 (and CECAF zones 34.1.1, 34.1.2 and 34.2.0)	Gillnets	GNS, GND, GNC, GTR, GTN	3% of the total annual catches of that species
Mackerel	ICES subareas 8 and 9	Beam trawls, bottom trawls and seines	OTB, OTT, PTB, TBN, TBS, TBB, OT, PT, TX, SSC, SPR, SDN, SX, SV	5% of the total annual catches of that species
	ICES subareas 8 and 9 (and CECAF zones 34.1.1, 34.1.2 and 34.2.0)	Gillnets	GNS, GND, GNC, GTR, GTN	3% of the total annual catches of that species
Megrin	ICES subareas 8 and 9	Beam trawls, bottom trawls and seines	OTB, OTT, PTB, TBN, TBS, TBB, OT, PT, TX, SSC, SPR, SDN, SX, SV	5% of the total annual catches of that species
		Gillnets	GNS, GND, GNC, GTR, GTN	4% of the total annual catches of that species
Anglerfish	ICES subareas 8 and 9	Beam trawls, bottom trawls and seines	OTB, OTT, PTB, TBN, TBS, TBB, OT, PT, TX, SSC, SPR, SDN, SX, SV	5% of the total annual catches of that species
		Gillnets	GNS, GND, GNC, GTR, GTN	4% of the total annual catches of that species
Whiting	ICES subarea 8	Gillnets	GNS, GND, GNC, GTR, GTN	4% of the total annual catches of that species
Anchovy	ICES subareas 8 and 9	Beam trawls, bottom trawls and seines	OTB, OTT, PTB, TBN, TBS, TBB, OT, PT, TX, SSC, SPR, SDN, SX, SV	5% of the total annual catches of that species
Red Seabream	ICES subarea 9a	Beam trawls, bottom trawls and seines	OTB, OTT, PTB, TBN, TBS, TBB, OT, PT, TX, SSC, SPR, SDN, SX, SV	5% of the total annual catches of that species caught by vessels in the Gulf of Cadiz part of ICES subarea 9a
Sole (<i>Solea</i> spp.)	ICES subareas 9a	Beam trawls, bottom trawls and seines	OTB, OTT, PTB, TBN, TBS, TBB, OT, PT, TX, SSC, SPR, SDN, SX, SV	1% of the total annual catches of that species caught by vessels in the Gulf of Cadiz part of ICES subarea 9a

Common Name	Area	Gear Name	Gear Code(s)	Maximum % permitted to be discarded
Blue Whiting	ICES subareas 8	Midwater trawls and midwater pair trawls	OTM and PTM	5% of the total annual catches of that species caught in the Industrial pelagic trawler fishery targeting blue whiting and processing on board to obtain surimi base.
Anchovy, Mackerel and Horse Mackerel	ICES subareas 8	Pelagic trawls		4% of the total annual catches of that species in the pelagic trawler fishery

Mediterranean Sea and Black Sea

In the Mediterranean and Black Sea, the fisheries management system is based on the individual management of each coastal state and the recommendations of the General Fisheries Commission for the Mediterranean (GFCM). The GFCM, is a Regional Fisheries Management Organisation (RFMO) responsible for the development, conservation and sustainable management of living marine resources of the Mediterranean, the Black Sea and its communicating water masses. One of the main functions of the GFCM is to formulate and recommend measures for the conservation and the rational management of the living marine resources, including the fishing gear regulations, the minimum fishing size, the application of closed fishing seasons and the catch regulation and distribution among its Member States.

Due to the differences in fisheries management systems in the Mediterranean and Black Sea, this section will describe the relevant management separately.

Mediterranean Sea

Under the CFP Regulation (EU) No 1380/2013, EU fisheries operating in Union waters are subject to the landing obligation, which prohibits the discarding of species managed under catch limits. However, it is important to note that while TAC and quota management tools are the predominant management strategy in the Atlantic and Baltic regions, there are no catch limits in place in the Mediterranean, except for bluefin tuna. Therefore, in the Mediterranean Sea, it also applies to catches of species subject to MCRS, as listed in Annex IX to Regulation (EU) No 2019/1241 of the European Parliament and of the Council.

From 1 January 2015, the landing obligation applied to all catches of species subject to minimum sizes in the small pelagic fisheries in the Mediterranean Sea. Prior to its implementation, Commission Delegated Regulation (EU) No

1392/2014 ⁽⁸³⁾ established a discard plan for certain small pelagic fisheries targeting anchovy, sardine, mackerel and horse mackerel using pelagic mid-water trawl and/or purse seines. In order to avoid disproportionate costs of handling unwanted catches, the discard plan allowed for a small percentage of catches to be discarded under a *de minimis* exemption. This discard plan (1392/2014) was later amended by Commission Delegated Regulation (EU) No 2018/161 ⁽⁸⁴⁾ and presently Regulation (EU) No 2023/2460 ⁽⁸⁵⁾ is in force, extending the *de minimis* exemptions from 1 January 2024 to 31 December 2027.

From the beginning of 2017, the landing obligation applied to demersal species that define the fisheries and at the latest from 1 January 2019 to all other species. Member States with a direct fisheries management interest in the Mediterranean Sea submitted three joint recommendations to the EU Commission concerning discard plans for demersal fisheries in the Adriatic Sea, the south-eastern Mediterranean Sea and the western Mediterranean Sea, respectively. As a result, Commission Delegated Regulation (EU) No 2017/86 was adopted, detailing high survivability and *de minimis* exemptions for certain species which define the fisheries as set out in the Annex to this Regulation until December 2019. This discard plan applied to three sub-regions, however, earlier in the year, the first multiannual plan was adopted for the western Mediterranean Sea. As no multiannual plan is in force for the Adriatic Sea and the south-eastern Mediterranean Sea, another temporary discard plan was established for certain demersal fisheries under Commission Delegated Regulation (EU) No 2020/4 ⁽⁸⁶⁾, which was subsequently amended by the following delegated acts: 2021/2064 ⁽⁸⁷⁾, 2022/2564 ⁽⁸⁸⁾ and presently in force under 2023/2918.

In 2019, the European Parliament and the Council adopted the first multiannual plan for fisheries exploiting demersal stocks in the western Mediterranean Sea, implemented under Regulation (EU) No 2019/1022. The western Mediterranean multiannual plan, henceforth referred to as the “western Mediterranean MAP”, covers the targeted species of hake, red mullet, Norway lobster, deep-water rose shrimp, blue and red shrimp, giant red shrimp, and bycatch species of demersal mixed fisheries (Table 27), accounting for around 20% of all catches in the western Mediterranean Sea (STECF 23-09). The plan came into effect from 2020, regulating trawling activities that target key demersal stocks and

⁽⁸³⁾ OJ L 370, 30.12.2014, p. 21–24

⁽⁸⁴⁾ OJ L 30, 2.2.2018, p. 1–5

⁽⁸⁵⁾ OJ L, 2023/2460, 6.11.2023

⁽⁸⁶⁾ OJ L 2, 6.1.2020, p. 5–10

⁽⁸⁷⁾ OJ L 421, 26.11.2021, p. 9–13

⁽⁸⁸⁾ OJ L 330, 23/12/2022, p. 126–129

their bycatches by setting a fishing effort regime and making additional management measures. Since 2022, the regulations also include an effort ceiling for longliners, maximum catch limits for two shrimp species and a mechanism rewarding sustainable practices. The scope of the plan covered waters in GFCM GSAs 1 (Northern Alboran Sea), 2 (Alboran Island), 5 (Balearic Islands), 6 (Northern Spain), 7 (Gulf of Lions), 8 (Corsica Island), 9 (Ligurian and North Tyrrhenian Sea), 10 (South Tyrrhenian Sea) and 11 (Sardinia Island).

Table 27: Fish stocks included in the Western Mediterranean Multiannual Plan

Species Common Name	Species Scientific Name	GFCM subarea(s)
Blue and red shrimp	<i>Aristeus antennatus</i>	1, 5, 6 and 7
Deep-water rose shrimp	<i>Parapenaeus longirostris</i>	1, 5, 6 and 9-10-11
Giant red shrimp	<i>Aristaeomorpha foliacea</i>	9-10-11
European hake	<i>Merluccius</i>	1-5-6-7 and 9-10-11
Norway lobster	<i>Nephrops norvegicus</i>	5, 6, 9 and 11
Red mullet	<i>Mullus barbatus</i>	1, 5, 6, 7, 9, 10 and 11

2025 marks the end of the initial five-year transition period that allowed the fleet to gradually adapt to the new measures. As a result, from January 2025, all provisions of the western Mediterranean MAP will apply to achieve and maintain fishing at sustainable levels for all stocks covered by the plan. During the five year transition period, western Mediterranean MAP has reportedly reduced fishing pressure (e.g. 40% reduction in trawling effort between 2020 and 2024) and enabled stocks such as red mullet in the Gulf of Lion to fully recover, with 28% of analytically assessed stocks fished at Fmsy and 57% are recovering rapidly towards Fmsy (EC, 2024b). Although this is still a long way to achieve Fmsy by 1 January 2025, the Commission is of the view that, “the imbalance between fishing opportunities and fleet capacity has undermined the positive impacts of the plan and delayed stocks’ recovery at a severe cost to fishers’ livelihood” (EC, 2024b). Nevertheless, it was noted that a unique mechanism has been implemented since 2022, rewarding trawlers with additional fishing days if they adopt efficient closure areas to protect juvenile fish or use more selective gear. Overall, the Commission concluded the plan provides a stable long-term instrument to implement the CFP in the western Mediterranean Sea (EC, 2024b).

Delegated Acts

Under Article 14 of the western Mediterranean MAP, the plan provides for additional technical conservation measures to be adopted by means of delegated acts (discard plans). This is also prescribed under Article 14(a) of

Council Regulation (EC) No 1967/2006 in which delegated acts may be adopted, with the aim of increasing gear selectivity or reducing or, as far as possible, eliminating unwanted catches, and may, where appropriate, derogate from the measures set out in its Regulation. The most recent delegated act for the western Mediterranean Sea is Commission Delegated Regulation (EU) No 2023/2462.

In addition to adopting delegated acts in accordance with Article 15(6) of Regulation (EU) No 1380/2013, the EU Commission is empowered to adopt delegated acts to amend, supplement, repeal or derogate from the technical measures set out under the Technical Measures Regulation (EU) No 2019/1241. Italy, as the single Member State with a direct management interest in the mollusc bivalve *Venus* spp. fisheries, in the Italian territorial waters, submitted a recommendation for the reduction of the MCRS from 25 mm to 22 mm. This derogation was granted under Commission Delegated Regulation (EU) No 2016/2376 ⁽⁸⁹⁾ and still applies under Commission Delegated Regulation (EU) No 2022/2587 ⁽⁹⁰⁾ until 31 December 2025.

To summarise, the only multiannual plan to be established in the Mediterranean region is for the western Mediterranean Sea. Outside of these waters, the list of delegated acts currently in force are listed in ANNEX 1.3.

Technical measures

Annex IX of the Technical Measures Regulation (EU) No 2019/1241 establishes the specific provisions regarding technical measures established at regional level for the Mediterranean Sea. A summary of all the regional rules and conservation measures is given below.

Change in minimum conservation reference sizes (MCRS)

The MCRS for commercial species caught in Mediterranean fisheries are listed in Part A of Annex IX. A change in MCRS is detailed for *Venus* shells (*Venus* spp.) in certain Italian territorial waters, decreasing from 25 mm to 22 mm in GFCM geographical sub-areas 9, 10, 17 and 18 (as defined in Annex I to Regulation (EU) No 1343/2011 ⁽⁹¹⁾).

⁽⁸⁹⁾ OJ L 352, 23/12/2016, p. 48–49

⁽⁹⁰⁾ OJ L 338, 30.12.2022, p. 40–43

⁽⁹¹⁾ OJ L 347, 30.12.2011, p. 44–61

Gear specifications and restrictions

As outlined in Annex IX of the Technical Measures Regulation (EU) No 2019/1241, Part B dictates the baseline mesh size for towed gears and static nets in the Mediterranean Sea, and Part C details the technical and spatial restriction on the use of fishing gear.

For **towed gear**, only one type of net is permitted to be kept on board vessels or deployed at any one time. The standard mesh size is a 40 mm square mesh codend, although a 50 mm diamond mesh codend may be used if duly justified by the vessel owner, in accordance with specific netting twine requirements. A mesh size of 20 mm is only allowed for fishing of sardine or anchovy. Further, dredges are limited to a maximum breadth of 3 meters, unless used for the targeted fishing of sponges.

In the case of **static nets**, the prescribed mesh size is set at 16 mm. Furthermore, trammel nets with a drop greater than 4 m, and bottom set gillnets (or combined trammel and gillnets) with a drop greater than 10 m, are both prohibited (exceptions detailed in Part C of aforementioned document). Restrictions on twine thickness and on total length of combined gillnets and trammel nets that vessels are also specified. Directed fishing for red sea bream is specifically restricted on gillnets, entangling nets and trammel nets with a mesh size less than 100 mm.

Longline vessels using **bottom-set longlines** are restricted to 5,000 hooks for trips under 3 days, up to 7,000 hooks for trips exceeding this. Hook limits for surface-set longlines are set at 2,500 hooks for vessels targeting swordfish and 5,000 hooks for albacore tuna, according to trip length, and hook length limits have been set for red sea bream fishing.

The mesh size of **surrounding nets**, purse seines and hook numbers for long lines are specified in Annex IX of the Technical Measures Regulation (EU) No 2019/1241. Regarding restrictions, purse seines and seines without purse lines are limited to 800 meters in length with a drop of 120 meters, except when specifically used for tuna fishing.

For **pots and creels**, vessels catching deepwater crustaceans are prohibited from having or setting more than 250 pots or creels per vessel.

The use of **spear guns** is prohibited between sunset and dawn, or when in conjunction with an underwater breathing apparatus.

Closed or temporarily closed areas/temporary stop on fishing activities

There are no closed or temporarily closed areas detailed in the Technical Measures Regulation (EU) No 2019/1241. However, under the fisheries

management of the GFCM, spatial and temporal restrictions are in place. This includes the establishment of ten FRAs, protecting 1,760,000 km² of marine habitat in the Mediterranean and Black Sea from destructive gears. This includes one large deep-water FRA (1,730,000 km²) where the use of towed dredges and trawls are banned in all waters deeper than 1,000 m. In addition, multiple pieces of legislation and multiannual management plans have been adopted for specific fish stocks and their fisheries. A list of spatial and or temporal restrictions is detailed in Table 28.

Table 28: Closed or restricted areas in the Mediterranean

Protected species	Type of restriction	Area	Prohibited gear types	Specifications	Legislation
Common dolphinfish	Closed season	All GFCM areas	Fisheries using FADs	a closed season for common dolphinfish (<i>Coryphaena hippurus</i>) fisheries using FADs shall be prohibited from 1 January to 14 August of each year.	Regulation (EU) No 2023/2124 (92)
European hake and deep-water rose shrimp	FRA	East of Adventure Bank; West of Gela Basin; and East of Malta Bank	Bottom trawlers	Permanent closure	GFCM/42/2018/5
	Temporal closure	GSA 14 (Gulf of Gabès)	Bottom trawlers	any fishing activity shall not be allowed between the coast and the 200 metres depth isobath in GSA 14 (Gulf of Gabès). This closure shall apply every year from 1 July until 30 September.	GFCM/42/2018/5

(92) OJ L, 2023/2124, 12.10.2023

Protected species	Type of restriction	Area	Prohibited gear types	Specifications	Legislation
Demersal species	FRA	GSAs 17 and 18 (Adriatic Sea)	Otter-trawling, beam-trawling, bottom pair trawling and otter twin trawling	Permanent closure	GFCM/43/2019/5
European eel	Annual fishing closure	Mediterranean Sea	All fishing activities	CPCs shall establish an annual fishing closure of three consecutive months where landing European eel shall be prohibited	GFCM/42/2018/1

High survivability exemptions

Survivability exemptions in the western Mediterranean Sea are detailed in Article 3 of Commission Delegated Regulation (EU) No 2023/2462. No technical measures are detailed alongside these exemptions. A summary of these exemptions is given in the table below.

Table 29: Survivability Exemptions for species in the Mediterranean.

Common Name	Area	Gear Name	Gear Code(s)	Technical Measure	Condition(s)/ Selectivity Modification
Scallop	Western Mediterranean Sea (GSAs 1, 2, 5, 6, 7, 8, 9, 10, 11.1, 11.2 and 12)	Mechanised dredges	HMD	NA	Released immediately where caught, and member states with direct management interest in the Mediterranean Sea are to commission additional data as specified in Commission Delegated Regulation (EU)
Carpet clams		Mechanised dredges	HMD	NA	
Red sea bream		Hooks and lines	LHP, LHM, LLS, LLD, LL, LTL, LX	NA	
Lobster		Nets, pots and traps	GNS, GN, GND, GNC, GTN, GTR, GEN, FPO, FIX	NA	

Common Name	Area	Gear Name	Gear Code(s)	Technical Measure	Condition(s)/ Selectivity Modification
Crawfish		Nets, pots and traps	GNS, GN, GND, GNC, GTN, GTR, GEN, FPO, FIX	NA	No 2023/2462, Article 3.

de minimis exemptions

de minimis exemptions to the landing obligation are listed for several commercial small pelagic fisheries in the Mediterranean Sea, and demersal fisheries south-eastern Mediterranean Sea, under Article 3 of the Commission Delegated Regulation (EU) No 2023/2460, and Article 3 of the Commission Delegated Regulation (EU) No 2023/2918, respectively. Due to the derogation against Article 15(1) of Regulation (EU) No 1380/2013, species in the below table may be discarded.

Table 30: *de minimis* exemptions for species in the Mediterranean Sea.

Species/ Fishery Name	Area	Gear Name	Gear Code(s)	Maximum % permitted to be discarded
Small pelagic fisheries	Western Mediterranean Sea (GSAs 1, 2, 5, 6, 7, 8, 9, 10, 11.1, 11.2 and 12)	Mid-water trawls and purse seines		up to 5% of the total annual catches of anchovy, sardine, mackerel and horse mackerel
	Adriatic Sea (GSAs 17 and 18)	Mid-water trawls		up to 5% of the total annual catches of anchovy, sardine, mackerel and horse mackerel
		Purse seines		up to 3% of the total annual catches of anchovy, sardine, mackerel and horse mackerel
	South – eastern Mediterranean (GSAs 15, 16, 19, 20, 22, 23 and 25)	Mid-water trawls		up to 1% of the total annual catches of anchovy, sardine, mackerel and horse mackerel
	South-eastern Mediterranean (GSAs 20, 22 and 23)	Purse seine		up to 3% of the total annual catches of anchovy, sardine, mackerel and horse mackerel
	South-eastern Mediterranean (GSAs 15, 16, 19 and 25)	Purse seine		up to 1% of the total annual catches of anchovy, sardine, mackerel and horse mackerel

Species/ Fishery Name	Area	Gear Name	Gear Code(s)	Maximum % permitted to be discarded
Hake and mullets (<i>Mullus</i> spp.)	Adriatic Sea GFCM Geographical Sub-Areas 17 and 18	Bottom trawls		up to 5% of the total annual catches
		Gillnets and trammel nets	GSN, GN, GND, GNC, GTN, GTR, GEN	up to 1% of the total annual catches
		Rapido	TBB	up to 1% of the total annual catches
	South-eastern Mediterranean Sea GFCM Geographical Sub-Areas 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26 and 27.	Bottom trawls		up to 5% of the total annual catches
		Gillnets and trammel nets	GNS, GN, GND, GNC, GTN, GTR, GEN	up to 1% of the total annual catches
	GFCM Geographical Sub-Areas 1, 2, 5, 6, 7, 8, 9, 10, 11.1, 11.2 and 12	Bottom trawls		up to 5% of the total annual catches
Common sole	Adriatic Sea GFCM Geographical Sub-Areas 17 and 18	Bottom trawls		up to 3% of the total annual catches
Deep-water rose shrimp	South-eastern Mediterranean Sea GFCM Geographical Sub-Areas 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26 and 27.	Bottom trawls		up to 5% of the total annual catches
Norway lobster	Adriatic Sea GFCM Geographical Sub-Areas 17 and 18	Pots and traps		up to 1% of the total annual catches
Bottom trawl fishery	Adriatic Sea GFCM Geographical Sub-Areas 17 and 18	Bottom trawls		up to 5% of the total annual bycatches of anchovy, sardine, mackerel, horse mackerel

Species/ Fishery Name	Area	Gear Name	Gear Code(s)	Maximum % permitted to be discarded
	South-eastern Mediterranean Sea GFCM Geographical Sub-Areas 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26 and 27.	Bottom trawls		up to 5% of the total annual bycatches of anchovy, sardine, mackerel, horse mackerel
Mixed demersal fishery	Adriatic Sea GFCM Geographical Sub-Areas 17 and 18	Bottom trawls		up to 5% of the total annual catches of European seabass, annular seabream, sharpnose seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, red seabream, common pandora, common seabream, wreckfish, gilthead seabream and deep-water rose shrimp
	South-eastern Mediterranean Sea GFCM Geographical Sub-Areas 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26 and 27.	Bottom trawls		up to 5% of the total annual catches of European seabass, annular seabream, sharpnose seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, blackspot seabream, common pandora, common seabream, wreckfish, gilthead seabream, Norway Lobster, and common sole
	GFCM Geographical Sub-Areas 1, 2, 5, 6, 7, 8, 9, 10, 11.1, 11.2 and 12	Bottom trawls		up to 5% of the total annual bycatches of European seabass, annular seabream, sharpnose seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, red seabream, common pandora, common seabream, wreckfish, common sole, gilthead seabream, and deep-water rose shrimp
				up to 5% of the total annual bycatches of European seabass, annular seabream, sharpnose seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, red seabream, common pandora, common seabream, wreckfish, common sole, and gilthead seabream
Mixed gillnet fishery	Adriatic Sea GFCM Geographical Sub-Areas 17 and 18	Gillnets and trammel nets	GNS, GN, GND, GNC, GTN, GTR, GEN	up to 2% of the total annual catches of European seabass, annular seabream, sharpnose seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, red seabream, common pandora, common seabream, wreckfish, common sole and gilthead seabream

Species/ Fishery Name	Area	Gear Name	Gear Code(s)	Maximum % permitted to be discarded
	South-eastern Mediterranean Sea GFCM Geographical Sub-Areas 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26 and 27.	Gillnets and trammel nets	GNS, GN, GND, GNC, GTN, GTR, GEN	up to 3% of the total annual catches of European seabass, annular seabream, sharpsnout seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, blackspot seabream, common pandora, common seabream, wreckfish, gilthead seabream, common sole, lobster, and crawfish may be discarded. In the case of total fishery landings being less than 25%, the discard quantities may increase to a maximum of 5% of the total annual catches of those species
Longline fishery	Adriatic Sea GFCM Geographical Sub-Areas 17 and 18	Hooks and lines	LHP, LHM, LLS, LLD, LL, LTL, LX	up to 1% of the total annual catches of European seabass, annular seabream, sharpsnout seabream, white seabream, two-banded seabream, groupers, striped seabream, Spanish seabream, common pandora, common seabream, wreckfish, common sole and gilthead seabream
	South-eastern Mediterranean Sea GFCM Geographical Sub-Areas 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26 and 27.	Hooks and lines	LHP, LHM, LLS, LLD, LL, LTL, LX	up to 1% of the total annual catches of European seabass, annular seabream, sharpsnout seabream, white seabream, two-banded seabream, groupers, striped seabream, blackspot seabream, Spanish seabream, common pandora, common seabream, wreckfish, gilthead seabream, hake may be discarded. In the case of total fishery landings being less than 25%, the discard quantities may increase to a maximum of 3% of the total annual catches of those species

Black Sea

In the Black Sea, according to Article 15(1)(d) of the CFP Regulation (EU) No 1380/2013, the landing obligation applies to species which define the fisheries at the latest from 1 January 2017. Turbot is one of those species and in 2016, Bulgaria and Romania submitted a joint recommendation to the EU Commission concerning a discard plan for turbot fisheries based on evidence of high survivability for turbot caught with bottom set gillnets. This discard plan was adopted under Commission Delegated Regulation (EU) No 2017/87 and later amended by Delegated Regulation (EU) No 2021/2065 and Delegated Regulation (EU) No 2022/2287.

There is no multiannual plan in place for the Black Sea.

Technical measures

Annex X of the Technical Measures Regulation (EU) No 2019/1241 establishes the specific provisions regarding technical measures established at regional level for the Black Sea. A summary of all the regional rules and conservation measures is given below.

Change in minimum conservation reference sizes (MCRS)

Turbot is the only species listed under Part A of Annex X of the Technical Measures Regulation (EU) No 2019/1241, with a MCRS limit of 45 cm.

Gear specifications

Annex X of the Technical Measure Regulation (EU) No 2019/1241, Part B, dictates the baseline mesh size for towed gear, static nets, trawls and dredges gears in the Black Sea. With regards to trawlers fishing for demersal stocks, only one type of net is allowed to be kept on board vessels or deployed at any one time. The requirement for this is a 40 mm square mesh codend, though a 50 mm diamond mesh codend can be used if duly justified by the vessel owner. The only restriction upon trawls and dredges is that their use is prohibited at depths greater than 1,000 m. For static nets, the prescribed mesh size is to be at least 400 mm. Bottom set gillnets can be used for direct turbot fishing.

Closed or temporarily closed areas/temporary stop on fishing activities

There are no closed areas detailed under the Technical Measures Regulation (EU) No 2019/1241.

High survivability exemptions

Survivability exemptions in the Black Sea are detailed in Article 3 of Commission Delegated Regulation (EU) No 2023/2462 and applies to turbot caught with bottom-set gillnets (GNS). Turbot caught in these circumstances shall be released immediately where caught. Member states with direct management interest in the Mediterranean Sea are to commission additional data as specified in Commission Delegated Regulation (EU) No 2023/2462 Article 3 (3). A summary of these exemptions is given in Table 31 below.

Table 31: Survivability Exemptions in the Black Sea.

Common Name	Area	Gear Name	Gear Codes	Technical Measure	Condition(s)/ Selectivity Modification
Turbot	GFCM Geographical Sub-Area 29	Bottom-set gillnets	GNS	NA	Release immediately where caught.

de minimis exemptions

There are no *de minimis* exemptions granted for EU fisheries in the Black Sea.

EU Outermost Regions

In total, there are nine EU outermost regions. Azores and Madeira (Portugal) and the Canary Islands (Spain) are located in the Atlantic, conforming the Macaronesia area; while the French Outermost Regions comprise of Guadeloupe, Martinique and Saint-Martin located in the Caribbean, French Guiana in South America and Mayotte and Réunion in the Indian Ocean. As the Azores, Madeira and Canary Islands have already been covered under the South Western Waters, this section shall focus on the French Outermost Regions.

Within the EU outermost regions, the responsibility of fishery management is divided at a national, regional and EU level. Under EU legislation, the CFP Regulation (EU) No 1380/2013 and the Technical Measures Regulation (EU) No 2019/1241 are applicable to all Union fishing vessels and Union waters in the Indian Ocean and the West Atlantic, including the waters around Guadeloupe, French Guiana, Martinique, Mayotte, Réunion and Saint Martin under the sovereignty or jurisdiction of a Member State. These EU regulations are subsequently integrated into national regulations. To account for the differences in fisheries in each Outermost Regions, local measures are also enforced, such as restrictions in fishing activities in areas protected under marine protected areas (MPAs), closed seasons or, as is the case for Guadeloupe, St Martin and Martinique, the presence of chlordecone. Further, within St Martin, restrictions on fish catches (to support the conservation of juvenile finfish, especially for yellowfin tuna) have been enacted.

As autonomous nations to France, all EU regulations apply to each French Outermost Region through their implementation in the French national regulations. Annex XI of the Technical Measures Regulation (EU) No 2019/1241 outlines the baseline technical measures for fishing activities in Union waters in the Indian Ocean and the West Atlantic. Part A under Annex XI

specifically sets a standard mesh size of at least 100 mm for towed gear in all waters off the coast of the French department of Guyana that come under the sovereignty or jurisdiction of France, as well as at least 45 mm for the targeted shrimp fishery (*Penaeus subtilis*, *Penaeus brasiliensis*, *Xiphopenaeus kroyeri*). For surrounding nets, a standard mesh size of at least 14mm should be used in all areas.

Under Part B, closed or restricted areas are established only in the surrounding waters of Mayotte. Restrictions on fishing activities are in place within a 24-mile zone around Mayotte, and vessels are prohibited from using purse-seine nets for tuna and tuna-like schools of fish within 24 nautical miles of the coast.

Regarding the landing obligation, under CFP Regulation (EU) No 1380/2013 Article 15(1)(d), all catches which are subject to catch limits must be landed in all Union waters and in non-Union waters not subject to third countries' sovereignty or jurisdiction. To this end, all fisheries in the French Outermost Regions targeting species subject to TACs and national quotas became subject to landing obligation from 1 January 2017 for species which defined the fishery through to full implementation in 2019.

There are no discard plans in place which set out exemptions from the landing obligation in these fleets.

Distant Water Fleet (DWF)

The EU DWF comprises fishing vessels over 24m in length that fly the flag of a Member State and fish primarily in non-EU waters. These vessels typically operate offshore in international waters, known as the high seas, or the EEZ of third countries. Table 32 provides a list of regions and sub-regions under RFMO management where the DWF conducts its fishing activities (according to the FDI data).

Table 32: Fishing areas of the DWF

RFMO	Sub region	Region
NAFO	21.1C	NA
NAFO	21.1D	NA
NAFO	21.1F	NA
CECAF / ICCAT	34.1.3	NA
CECAF / ICCAT	34.3.1	NA
IOTC	51.4	Eastern Arabian Sea, Laccadive and Sri Lanka
IOTC	51.6	Madagascar and Mozambique Channel
ICCAT	41.1	Northern

RFMO	Sub region	Region
IOTC	51.7	Oceanic
SEAFO	47.1	Orange river and Cape of Good Hope
SEAFO	47.A	SEAFO
IOTC	51.5	Somalia, Kenya and Tanzania
IOTC	51.3	Western Arabian Sea sub-area
CECAF / ICCAT	34.3.2	NA
CECAF / ICCAT	34.3.3	NA
CECAF / ICCAT	34.3.4	NA
CECAF / ICCAT	34.3.5	NA
CECAF / ICCAT	34.3.6	NA
CECAF / ICCAT	34.4.1	NA
CECAF / ICCAT	34.4.2	NA
CECAF / ICCAT	34.1.3	NA
CECAF / ICCAT	34.3.1	NA
NAFO	21.3L	NA
NAFO	21.3M	NA
NAFO	21.3N	NA
NAFO	21.3O	NA
IOTC	57.1	Bay of Bengal
IOTC	57.2	Northern
SEAFO	47.B	SEAFO
CECAF / ICCAT	34.3.1	NA
CECAF / ICCAT	34.1.3	NA
SEAFO	47.1	Orange river and Cape of Good Hope

EU vessels are permitted to fish within the EEZ of third countries under SFPAs, complying with local regulations. On the high seas, EU vessels predominately target highly migratory species, such as tuna and tuna-like species, managed by RFMOs. The EU is active in 5 tuna-RFMOs and 13 non-tuna RFMOs, which set rules such as catch limits, technical measures, and monitoring activities. In terms of numbers, the majority of EU vessels fish in areas managed under ICCAT and IOTC. EU compliance with RFMO rules is integrated into the EU legal framework, ensuring uniform fishing conditions. The management measures for EU vessels fishing in the Convention area of ICCAT are set out in Regulation (EU) No 2024/897 ⁽⁹³⁾, amending 2017/2107 and 2023/2053 ⁽⁹⁴⁾ (marine protected area for bluefin tuna in the eastern Atlantic and Mediterranean), whereas Regulation (EU) No 2022/2343 ⁽⁹⁵⁾ applies to the

⁽⁹³⁾ OJ L, 2024/897, 19.3.2024

⁽⁹⁴⁾ OJ L 238, 27.9.2023, p. 1–64

⁽⁹⁵⁾ OJ L 311, 2.12.2022, p. 1–53

IOTC Area of Competence. Information on discarding practices is set out in Article 6(a) of Regulation (EU) 2024/897 and Article 4 of Regulation (EU) No 2022/2343. While the requirements of the landing obligation still apply to Union fishing vessels outside Union waters, Union vessels must also adhere to RFMO conservation and management measures (CMMs) Where RFMOs set out CMMs that do not align with Article 15(1) of the CFP Regulation, the EU Commission is empowered to adopt delegated acts as referred to in Article 15(2). Currently, Commission Delegated Regulation (EU) No 2015/98 is in force, implementing a derogation to the landing obligation that allows EU vessels to fish under the same conditions as other ICCAT contracting parties. This includes the most recent amendments stipulated under Council Regulation (EU) No 2018/191 ⁽⁹⁶⁾ and Council Regulation (EU) No 2019/2200 ⁽⁹⁷⁾.

For example, under EU legislation (e.g. Council Regulation (EU) No 2024/257 ⁽⁹⁸⁾), tuna and tuna-like fisheries are subject to catch limits, allocated as individual quotas to vessels over 24m and therefore must be landed and counted against the vessel's quota. However, under ICCAT Recommendation 19-04, vessels must discard bluefin tuna that have been caught and are below the MCRS. To maintain compliance with ICCAT regulations, Article 4 of Commission Delegated Regulation (EU) No 2015/98, establishes a derogation in the eastern Atlantic and the Mediterranean, setting a *de minimis* exemption for:

- incidental catches of up to 5% of bluefin tuna between 8 kg or 75 cm and the minimum size set out in Article 9(1) of Regulation (EC) No 302/2009 ⁽⁹⁹⁾ by vessels and trap fisheries targeting bluefin tuna.
- up to 5% of bluefin tuna weighing between 8 and 30kg or with a fork length between 75 and 115 cm may be retained on board.
- up to 5% of bluefin tuna may be retained on board catching vessels not fishing actively for bluefin tuna.

Under Article 5, additional exemptions to the landing obligation exist for swordfish in the Atlantic Ocean, allowing a maximum retention of 15% of swordfish caught as bycatch which weigh less than 25 kg or 125 cm lower jaw fork length; and in the Mediterranean where vessels may retain up to 5% of incidental catches below the minimum size.

⁽⁹⁶⁾ OJ L 36, 9.2.2018, p. 13–14

⁽⁹⁷⁾ OJ L 332, 23/12/2019, p. 1–2

⁽⁹⁸⁾ OJ L, 2024/257, 11.1.2024

⁽⁹⁹⁾ OJ L 96, 15.4.2009, p. 1–30

Technical measures

Under EU legislation, the Technical Measures Regulation (EU) No 2019/1241 outlines the standard technical measures for vessels fishing outside the jurisdiction of the NEAFC RFMO referred to as the “NEAFC Regulatory Area” ⁽¹⁰⁰⁾. Technical measures applicable in the NEAFC Regulatory Area are set out in Annex XII.

Change in minimum conservation reference sizes

Under Part A, MCRS are set for five pelagic species (haddock, ling, blue line, mackerel and herring), similar to the MCRS for the same species in the North Sea (Annex V), North Western Waters (Annex VI) and South Western Waters (Annex VII), with the exception of mackerel having a larger MCRS of 30 cm compared to 20 cm in the North and South Western Waters.

Gear Specifications

For towed gear, all vessels should use a standard codend mesh size of at least 100 mm unless fishing for specific species in which a small mesh size can be used. Across the whole area, this applies to directed fishing for blue whiting, in which case the mesh size must be at least 35 mm and directed fishing for mackerel, capelin and Argentines where the mesh size must be at least 16 mm. For ICES sub-areas 1 and 2, vessels targeting Northern prawn (*Pandalus borealis*) must use a codend with a mesh size of at least 32 mm, as well as have a sorting grid fitted with a maximum bar spacing of 22.

For static nets, a mesh size of at least 220 mm must be used.

Closed or restricted areas

Part C outlines specific closed or restricted areas to fishing activities for the protection of particular fish stocks and fisheries. A summary of these measures is given in the table below.

⁽¹⁰⁰⁾ ‘NEAFC Regulatory Area’ means the waters of the NEAFC Convention Area which lie beyond the waters under the fisheries jurisdiction of the Contracting Parties as defined in Regulation (EU) No 1236/2010 of the European Parliament and of the Council

Table 33: Closed or restricted areas in the NEAFC Regulatory Area

Protected species	Type of restriction	Fishing Area	Prohibited gear types	Specifications	Legislation
Redfish	Spatio-temporal	ICES sub-area 5, and Union waters of ICES sub-area 12 and 14	Trawls with mesh size <100 mm.	Derogation in place to allow fishing between 11 May to 31 December in the 'Redfish Conservation Area' (coordinates given in Part C of Annex XII NEAFC Regulatory Area). Fishing outside this area may take place within the dates by authorised vessels, further details provided in Annex XII.	Part C of Annex XII NEAFC Regulatory Area Article 5 of Regulation (EU) No 1236/2010 (¹⁰¹)
Blue ling	Spatio-temporal, catch limit	ICES division 6a	Between 01 March to 31 May, once limit reached: All gear types Between 15 February to 15 April: Bottom trawls, longline and gillnets prohibited within specified coordinates	Between 01 March to 31 May, vessels are prohibited to retain > 6 tonnes. Once this limit has been reached, vessels must exit the area and may not return until catch has been landed. Outside of these dates, vessels are permitted to retain according to the landing obligation.	01 March – 31 May: Regulation (EU) No 2019/1241 31 May – 01 March: Article 15 of Regulation (EU) No 1380/2013
Redfish	Spatio-temporal, bycatch limit	ICES sub-areas 1 and 2	NA	Fishing permitted only between 01 July to 31 December, by vessels engaged in the redfish NEAFC Regulatory Area fishery, prior to the regulation set in 2019. Bycatch in other fisheries limited to 1% of total catch retained on vessel. Member states to prohibit vessel state targeted fishing once TAC reached	Regulation (EU) No 2019/1241 of the European Parliament and of the Council
Rockall haddock	Spatial gear restriction	ICES sub-area 6	All gear types except longlines	Fishing in specified area only permitted by longlines	

(¹⁰¹) OJ L 348, 31.12.2010, p. 17–33

ANNEX 8: STECF FDI discard rates across species

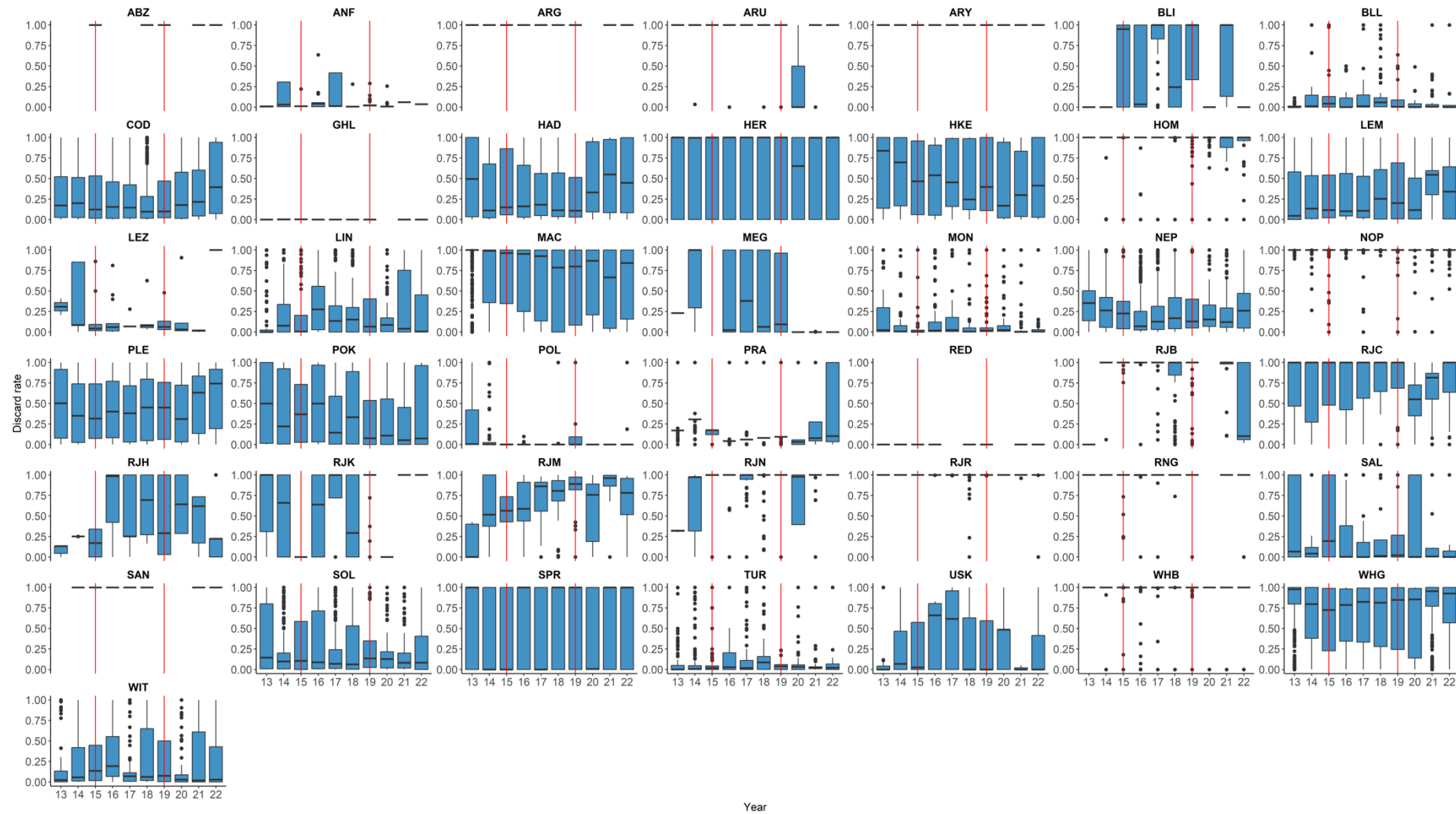
This Annex contains boxplot visualisations of the evolution of discard rates across the period 2013 to 2022 by species within the different sea basins. Each figure within a sea basin depicts the range of discard rates for a species subject to the landing obligation. Where the two red lines represent the start and end of the landing obligation phasing period.

Each discard rate data point within the figure represents the average discard rate for the following grouping of STECF FDI database Table A (catch) records. Only those records with reported both landing and discard values were used to establish a discard rate. Explanation of the data format is available FDI 2023 data call (EC, 2023b) using the Appendix reference given here.

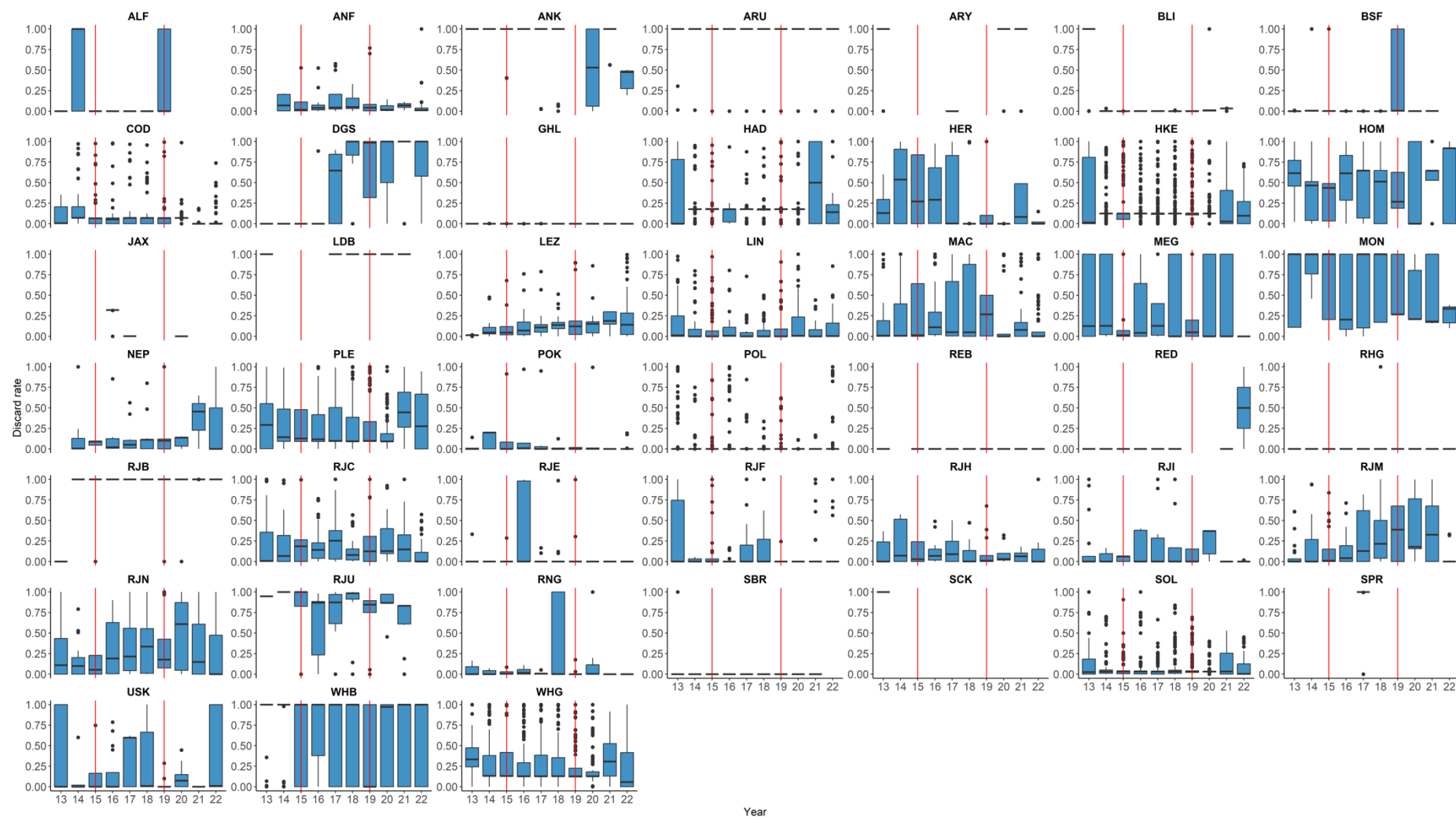
- Year.
- Country, as detailed within the Appendix 1.
- Fishing area, at the sub-region level including distinction between EU (separating out outermost regions), UK, coastal state or RFMO jurisdiction. As detailed within Appendix 9.
- Vessel length category, as detailed within Appendix 2.
- Gear type, as detailed within Appendix 4.
- Target species assemblage, as detailed within Appendix 5.
- Use of gear technical modifications, as detailed within Appendix 11.
- Species (denoted by FAO Alpha code).
- Discard sampling domain, this refers to the group of vessels used by a Member State to calculate discards estimates. The most detailed sampling domain was specified within Appendix 8 as being:
Country _ quarter _ region _ gear type _ target assemblage _ mesh size range _ selective device _ mesh size range of the selective device _ vessel length _ species _ commercial category
However, the level of detail varies on a case-by-case basis depending on the detail of the sampling strata used by a Member State sampling program, allowing use of aggregating responses “All” and “NK” within individual categories of the domain name to denote less specific sampling strata.

The boxes present the range of discard rates. The horizontal line represents the median, the lower and upper hinges of the boxes correspond to the 25th and 75th percentiles. The upper whisker extends from the hinge to the largest value no further than $1.5 \times$ inter-quartile range (IQR) from the hinge (where IQR is the inter-quartile range, or distance between the first and third quartiles). The lower whisker extends from the hinge to the smallest value at most $1.5 \times$ IQR of the hinge. Data beyond the end of the whiskers are called "outlying" points and are plotted individually.

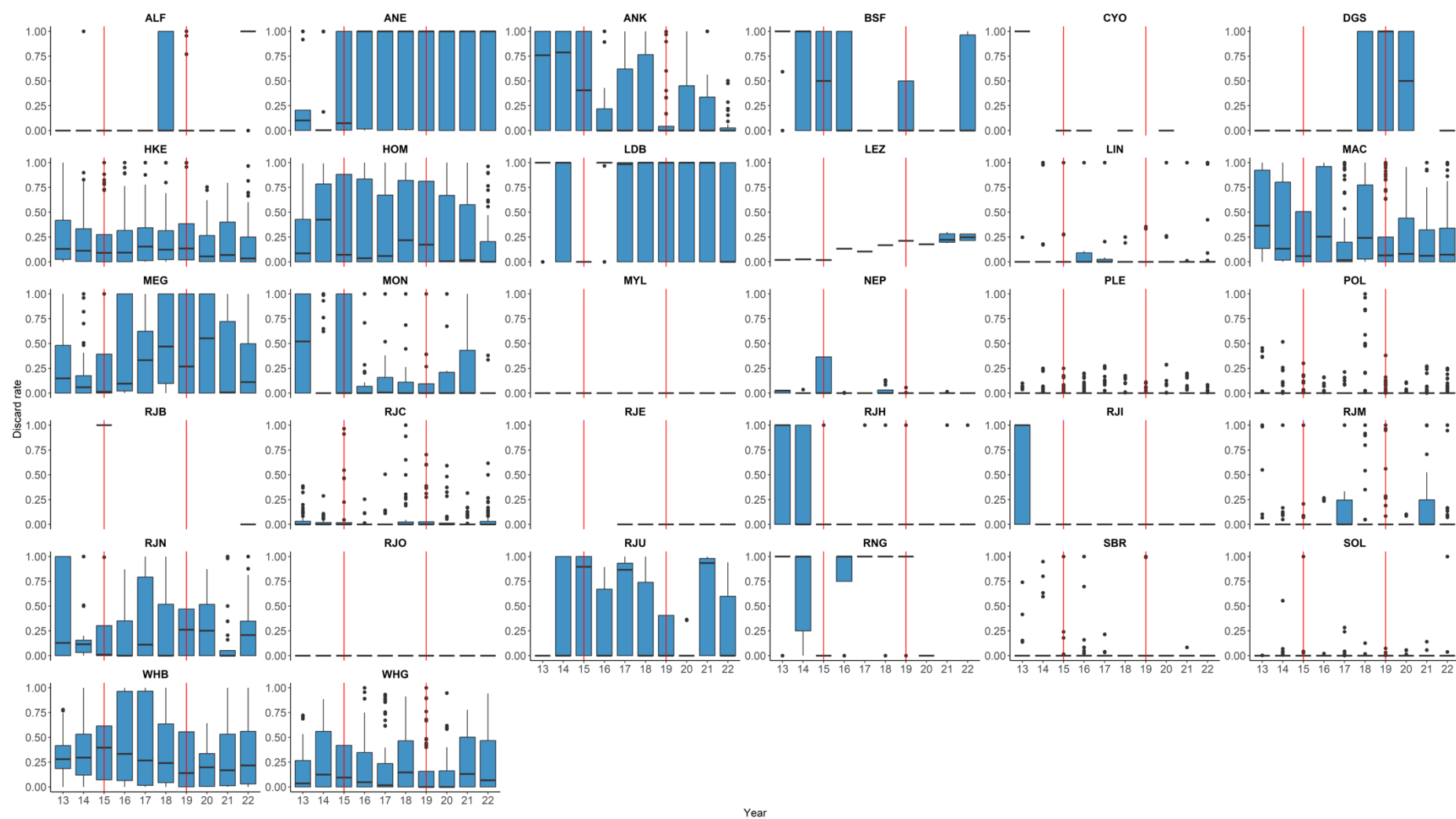
North Sea and Baltic Sea



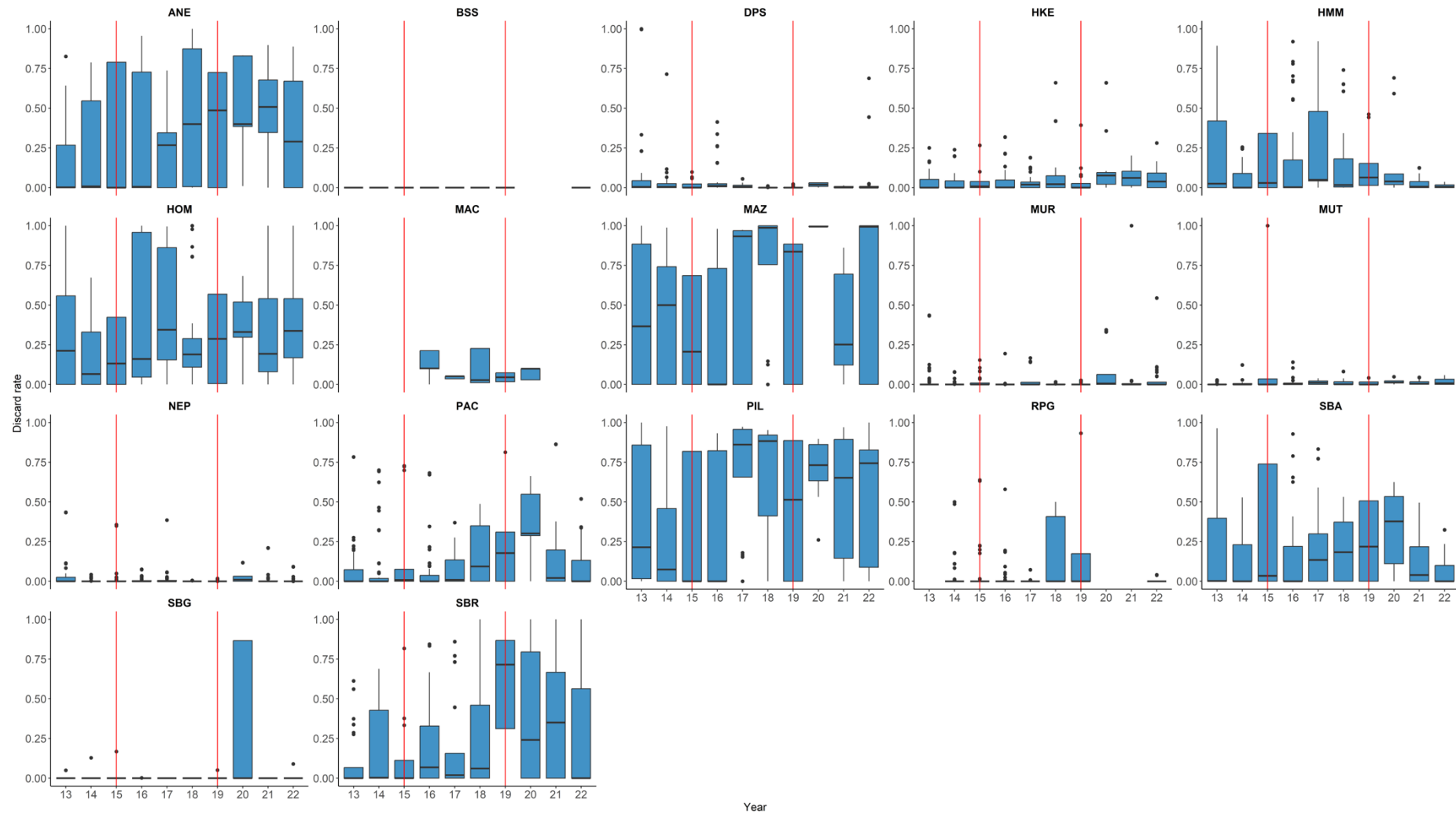
North Western Waters



South Western Waters



Mediterranean Sea and Black Sea



ANNEX 9: STECF FDI trends in average discard rates

For each fishery (row) within the sea basin, the number of species subject to the landing obligation for which there is an increasing, decreasing or stable trend in discard rate is presented. The discard rates are shown as increasing if the discard rate since implementation of the landing obligation is 5% or higher than before implementation, decreasing if 5% or lower than before the implementation and not trend otherwise.

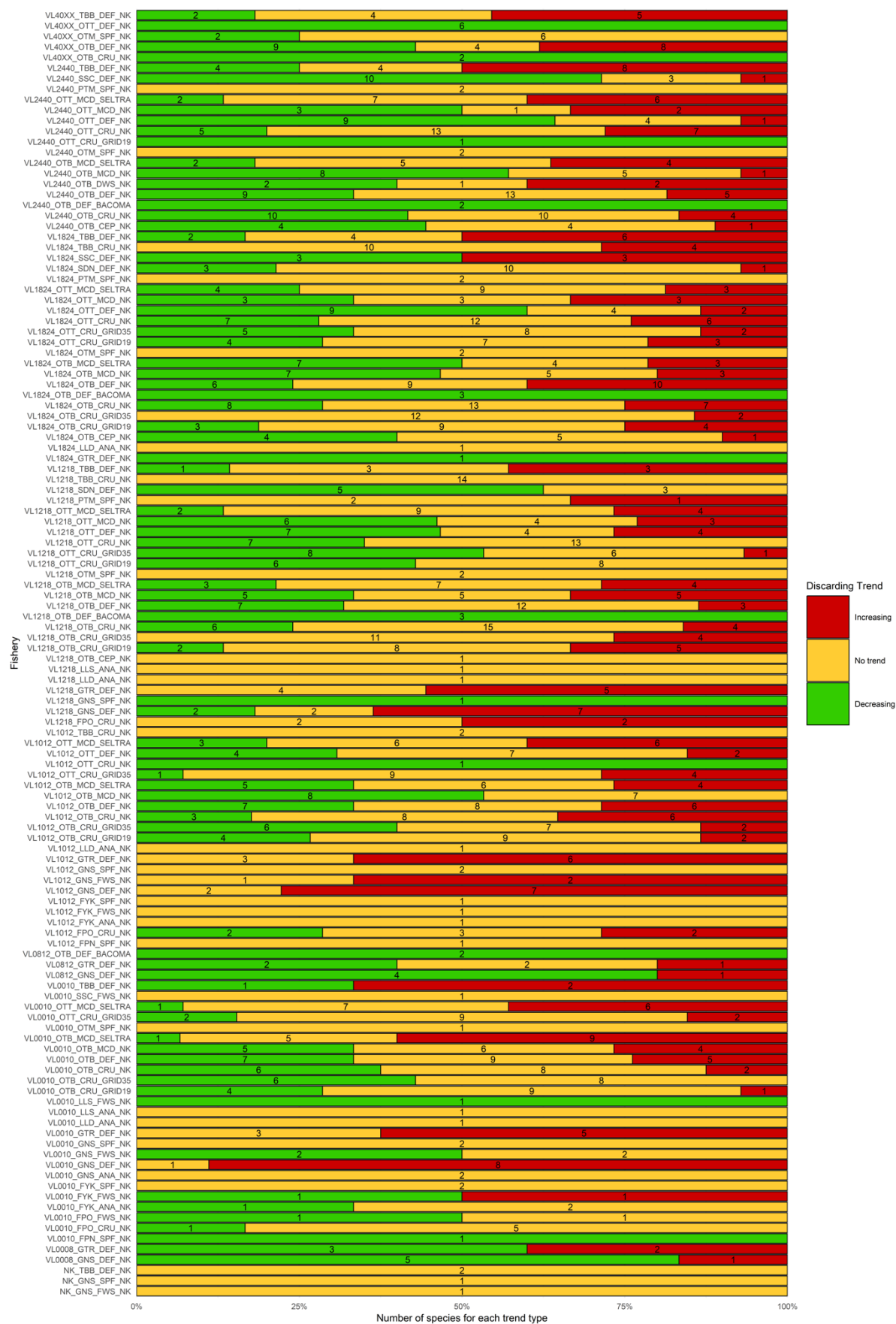
The trend is based on an average of discard rates available within the STECF FDI Table A (catch) between 2013-2014 to represent prior to the landing obligation and an average of discard rates available between 2021-2022 as the most recent data available to represent prior to the landing obligation. Only those records submitted with both landing and discard volumes have been used, no raising has been carried out. The method used to generate averages reflects that used by EC (2023a).

Averages are taken from all discard rates within the aggregation level of the following. Explanation of the data format is available FDI 2023 data call (EC, 2023b) using the Appendix reference given here.

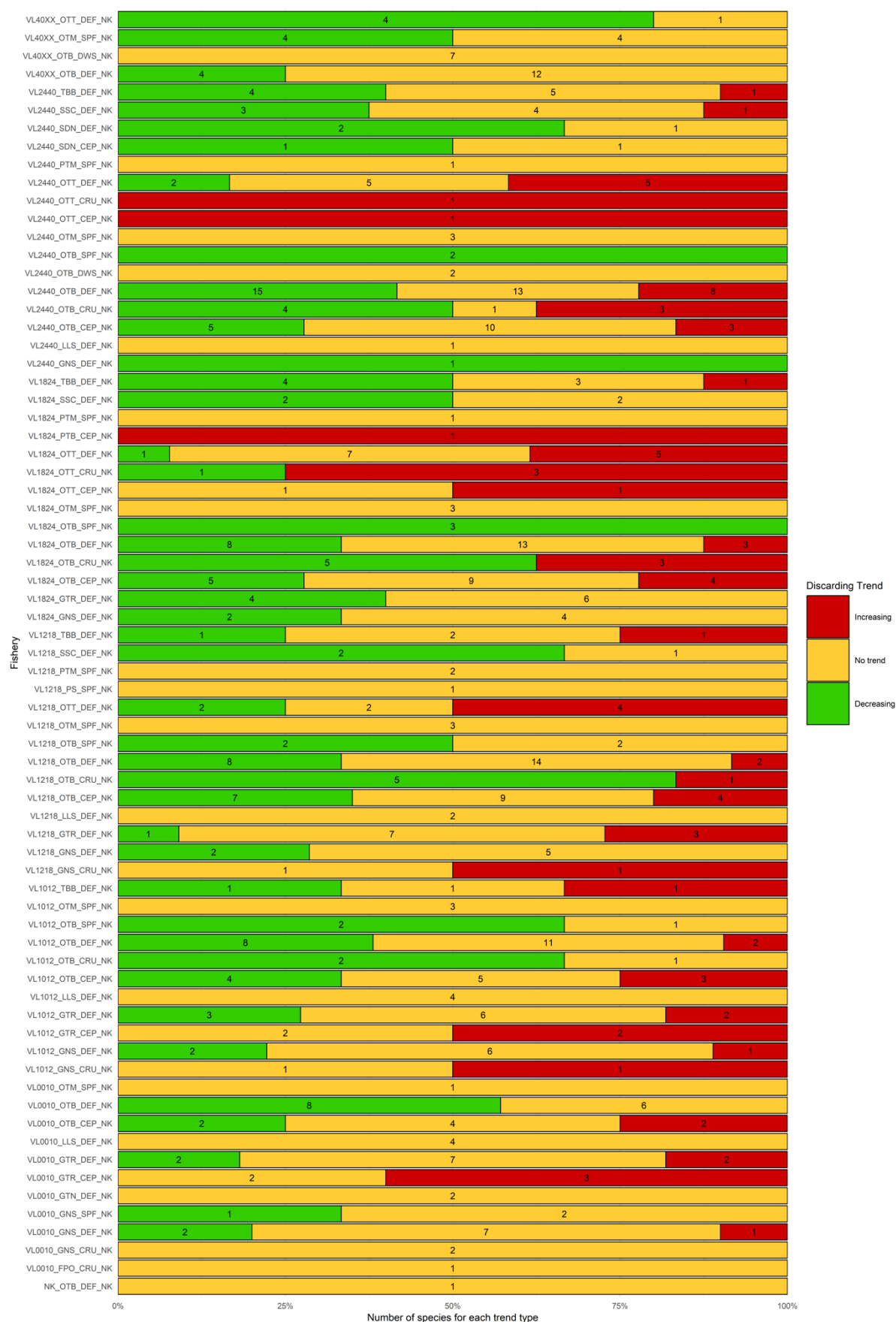
- Year.
- Country, as detailed within the Appendix 1.
- Fishing area, at the sub-region level including distinction between EU (separating out outermost regions), UK, coastal state or RFMO jurisdiction. As detailed within Appendix 9.
- Vessel length category, as detailed within Appendix 2.
- Gear type, as detailed within Appendix 4.
- Target species assemblage, as detailed within Appendix 5.
- Use of gear technical modifications, as detailed within Appendix 11.
- Species (denoted by FAO Alpha code).
- Discard sampling domain, this refers to the group of vessels used by a Member State to calculate discards estimates. The most detailed sampling domain was specified within Appendix 8 as being:
country_quarter_region_gear type_target assemblage_mesh size
range_selective device_mesh size range of the selective device_vessel
length_species_commercial category

However, the level of detail varies on a case-by-case basis depending on the detail of the sampling strata used by a Member State sampling program, allowing use of aggregating responses “All” and “NK” within individual categories of the domain name to denote less specific sampling strata.

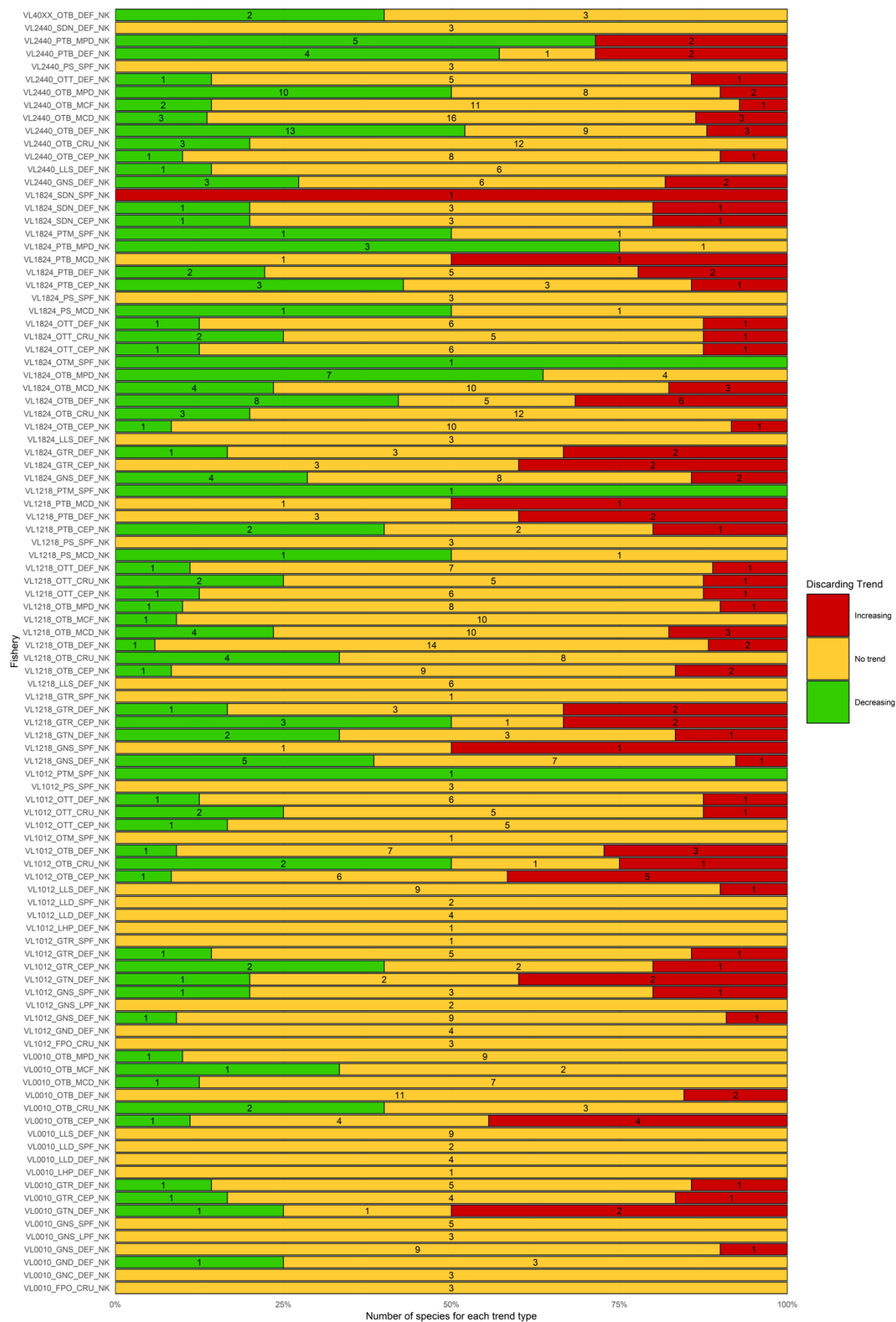
North Sea and Baltic Sea



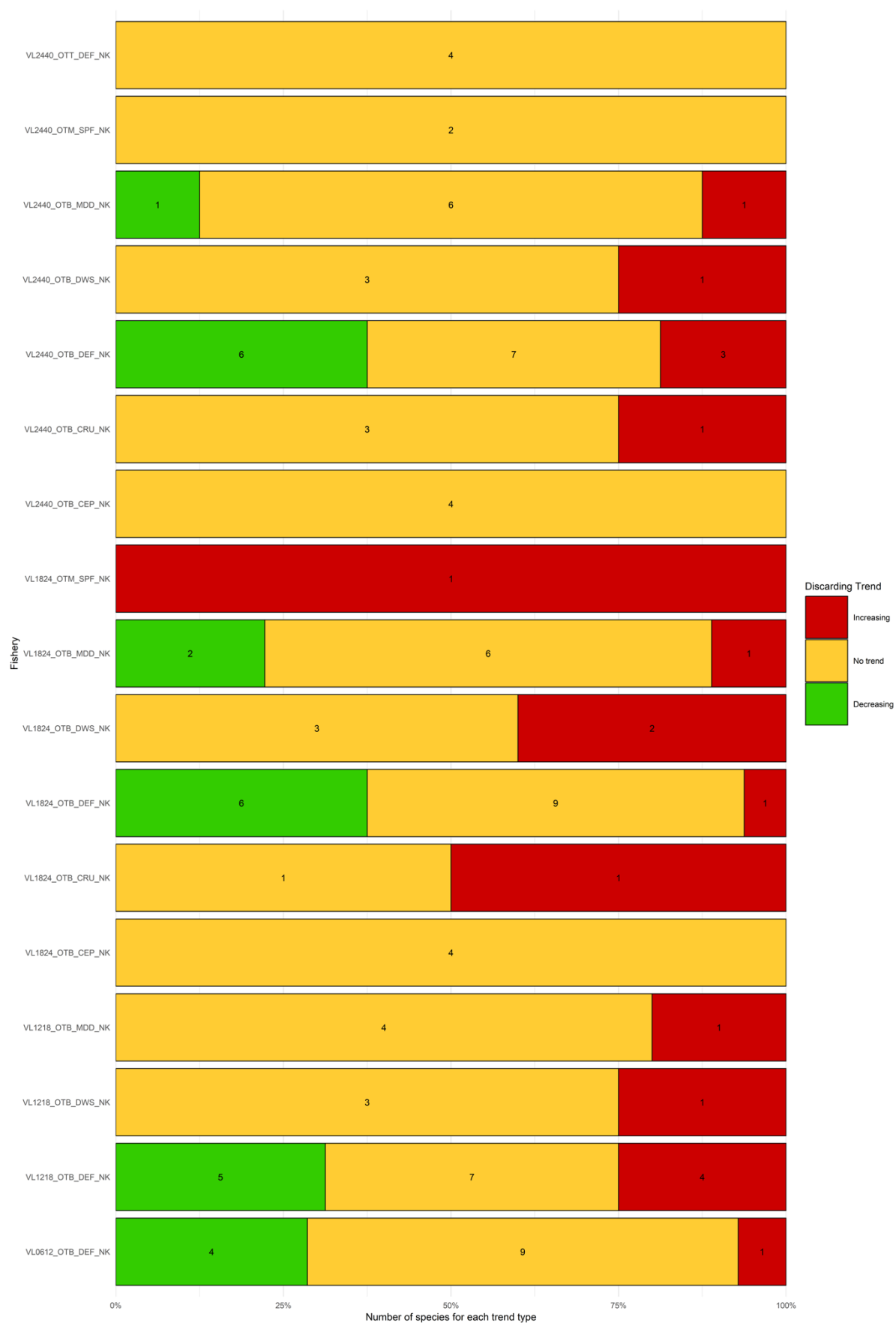
North Western Waters



South Western Waters



Mediterranean Sea and Black Sea



ANNEX 10: STECF FDI trends in average discard rates by species

The matrix shows for each fishery (rows) and species subject to the landing obligation (columns) by sea basin the overall trends in discards. The discard rates are shown as increasing if the discard rate since implementation of the landing obligation is 5% or higher than before implementation, decreasing if 5% or lower than before the implementation and no trend otherwise.

The trend is based on an average of discard rates available within the STECF FDI Table A (catch) between 2013-2014 to represent prior to the landing obligation and an average of discard rates available between 2021-2022 as the most recent data available to represent prior to the landing obligation. Only those records submitted with both landing and discard volumes have been used, no raising has been carried out. The method used to generate averages reflects that used by EC (2023a).

Averages are taken from all discard rates within the aggregation level of the following. Explanation of the data format is available FDI 2023 data call (EC, 2023b) using the Appendix reference given here.

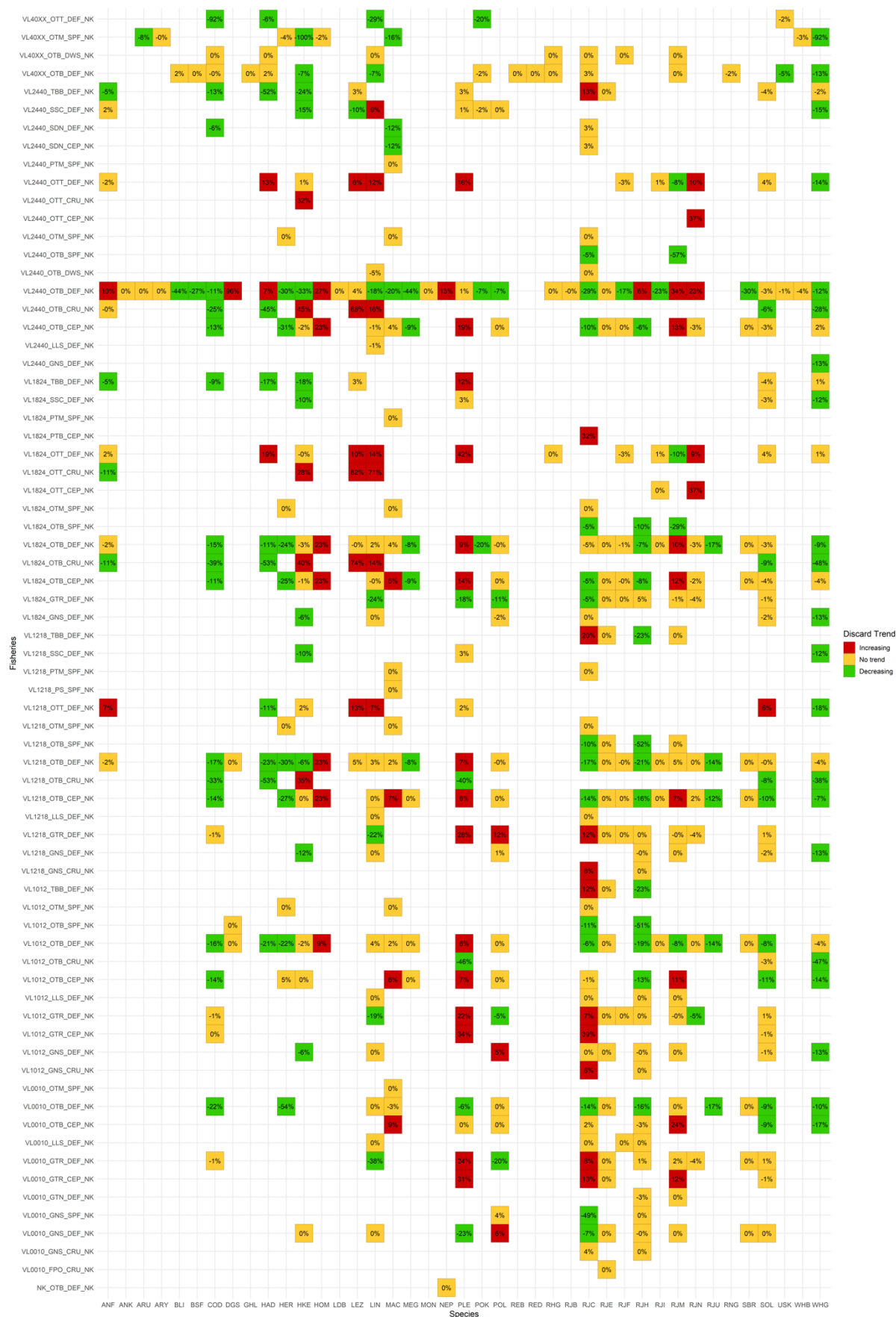
- Year.
- Country, as detailed within the Appendix 1.
- Fishing area, at the sub-region level including distinction between EU (separating out outermost regions), UK, coastal state or RFMO jurisdiction. As detailed within Appendix 9.
- Vessel length category, as detailed within Appendix 2.
- Gear type, as detailed within Appendix 4.
- Target species assemblage, as detailed within Appendix 5.
- Use of gear technical modifications, as detailed within Appendix 11.
- Species (denoted by FAO Alpha code).
- Discard sampling domain, this refers to the group of vessels used by a Member State to calculate discards estimates. The most detailed sampling domain was specified within Appendix 8 as being:

country_quarter_region_gear type_target assemblage_mesh size
 range_selective device_mesh size range of the selective device_vessel
 length_species_commercial category

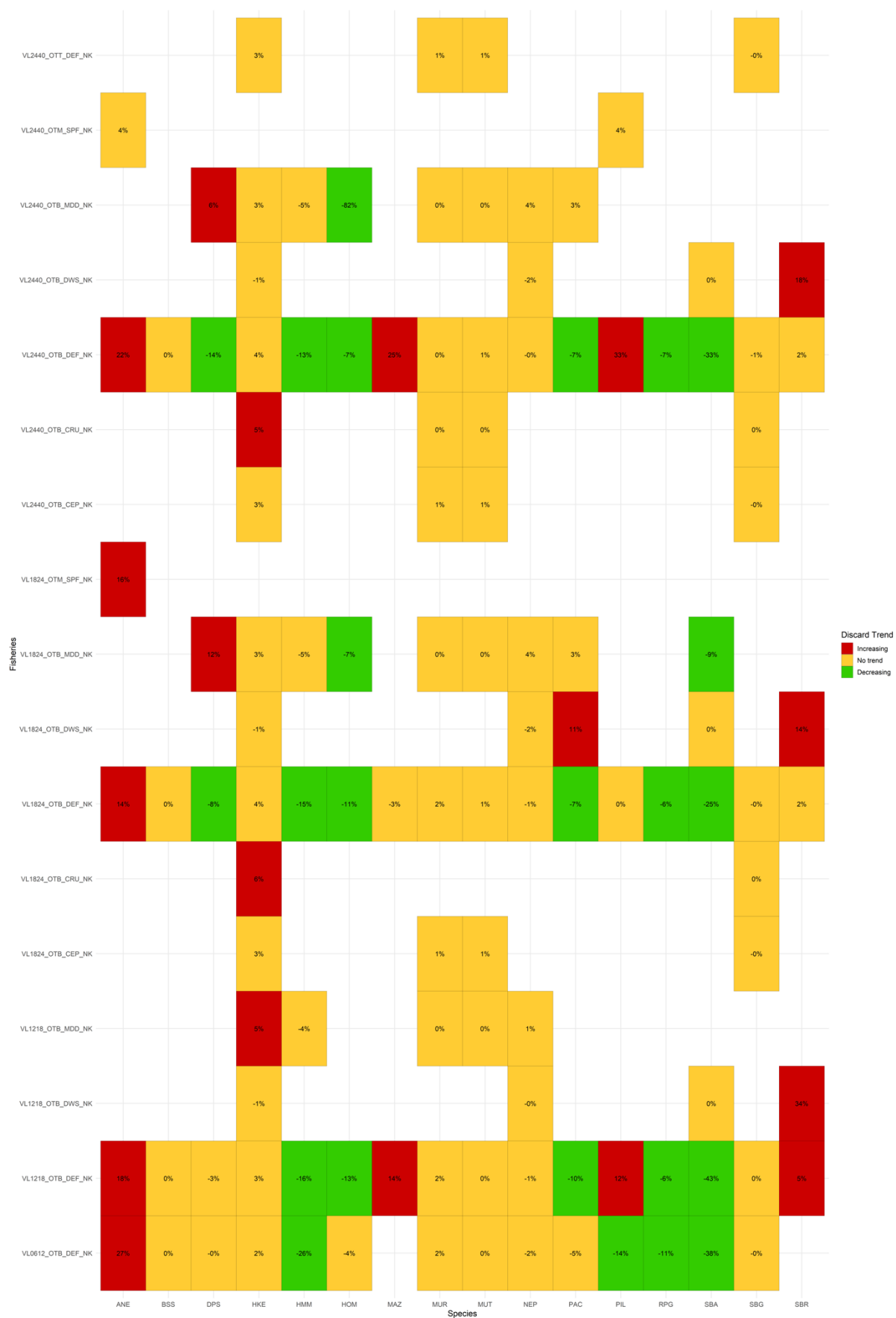
However, the level of detail varies on a case-by-case basis depending on the detail of the sampling strata used by a Member State sampling program, allowing use of aggregating responses “All” and “NK” within individual categories of the domain name to denote less specific sampling strata.



North Western Waters



Mediterranean Sea and Black Sea



ANNEX 11: Good practices towards reducing unwanted catches

Baltic Sea

Type of Fishery	Description of pilot project	Good practice(s)	Reference
Demersal Trawl			
	This pilot study conducted by the Thunen Institute of Baltic Sea Fisheries developed and tested several selectivity devices for demersal trawls to reduce unwanted catches of Baltic cod while maintaining high catch rates of the target group, flatfish. Both a CODEX guiding panel towards an escape opening in the trawl and a ROOFLESS trawl with the top panel of the trawl extension removed were tested in a standardised 4-panel extension of an experimental trawl. The ROOFLESS device was found to present an optimal compromise between sufficient catch reduction of cod (75%), no significant reduction in catches of flatfish, and simplicity of construction was found. This device was put forward as part of the BALTFISH Joint Recommendation in 2021.	This ROOFLESS device should be tested in other flatfish demersal trawl fisheries that see high rates of cod bycatch.	Stepputtis <i>et al.</i>, (2020). Technical approaches to avoid cod catches in Baltic Sea trawl fisheries.
	This study developed and tested a BRD to reduce cod bycatch rates of trawls in a mixed fishery targeting Norway lobster, flatfish, and other roundfish. The design exploits cod behaviour to help guide them into an escape window in the bottom of the trawl net. Data were collected using a paired gears approach, with the bottom escape window being tested alongside a 90 mm diamond mesh codend. The results showed a low total retention of cod (33%) along with high retentions of commercially targeted Norway lobster, haddock (76%), and plaice (100%).	This BRD may be implemented in the industrial mixed demersal fisheries of the Baltic Sea to reduce cod bycatch.	Palder <i>et al.</i>, (2023). Approaching single-species exclusion in mixed demersal trawl fisheries.
	Santos <i>et al.</i> (2015) assessed the performance of a flatfish reduction device called FRESWIND (Flatfish Rigid Escape Windows) in the Baltic cod-directed fishery, using a commercial twin trawler. The vessel was rigged with two trawls: one standard trawl and one incorporating the experimental FRESWIND. Comparison of the catches from both trawls showed a reduction of up to 68% in flatfish bycatches, a 30% reduction in undersized cod bycatches, and a relatively minor reduction in marketable cod catches (7%).	FRESWIND may provide a method to significantly reduce flatfish bycatch in cod fisheries in the Baltic Sea. Further simulations predicted that, in the commercial fishery, a reduction of more than 50% in flatfish bycatch could be achieved if FRESWIND were adopted.	Santos <i>et al.</i>, (2016). Reducing flatfish bycatch in roundfish fisheries.

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	This study tested two codends designed to improve species and size selectivity in the Baltic cod trawl fishery. Both codends were tested onboard a commercial trawler and compared to the conventional Bacoma codend, which was fished simultaneously in a twin trawl rig. One test codend had a bottom net panel made of larger diamond meshes (130 mm) to reduce flatfish bycatch rates – this showed a reduction of plaice, founder, and cod (below 45 cm) bycatch. The other codend was a full square mesh codend with 120 mm nominal mesh size, designed to reduce undersized cod bycatch in a cod-directed fishery with low flatfish bycatch. This showed a reduction in catch of cod below 50 cm, with no effect on plaice or flounder catches.	These codends could increase the selectivity of cod-directed trawl fisheries with both high and low rates of flatfish bycatch. However, some loss of commercially targeted cod losses is expected.	Madsen et al., (2021). Improving species and size selectivity in the Baltic cod trawl fishery with two simple codend designs.
	The Fast-Track project set out to develop and implement a framework pertaining to the development of new and modified fishing gears which was more inclusive of all stakeholders, namely the fishing industry (fishermen, net makers and fisheries representatives), scientists and managers. The objective was to take each stakeholder group's specific competences and use these to more efficiently develop technical solutions which could alleviate some of the issues arising under the Landing Obligation.	The project has implemented numerous gears for fisheries across the Kattegat and Skagerrak Nephrops fisheries. These include fish deterring mechanisms that guide fish away from the path of the trawl net; Fish separating devices in the aft end of the trawl net (grids and panels), exploiting size differences or differences in swimming ability of fish and Norway lobster; and an acoustic catch sensor which may help limit fishing to areas with high Norway lobster catches, thereby reducing bycatch and benthic impact. Many of these gears are still in testing. The project has also developed fish separating grids designed to reduce undersized cod bycatch, and to reduce catches of flounder and other flatfish – some of these were not taken further into scientific trials due to increasing prices of flounder.	Feeakings et al. (2019). FAST TRACK – Sustainable. Cost effective and responsive gear solutions under the landing obligation.
	Savina and colleagues developed a modified SELTRA codend consisting of a grid with scaring floats (GSF), designed to reduce fish bycatch in the Baltic Sea Nephrops fishery. When compared to a standard SELTRA codend in a twin-rig demersal setup, the GSF design led to significantly lower retention of unwanted fish, with 71% less cod, 94% less saithe, and 22% less plaice being retained. This was developed in collaboration with industry, demonstrating the value that fishers add to the development and design of these types of gear innovations	Implementation of the GSF sorting grid, and deep involvement of fishers and industry in the development of gear selectivity innovations.	Savina et al., (2022). Fishers can optimize gear design if the management system allows for enough flexibility: A modified SELTRA codend can reduce fish catch in the Danish trawl fishery for Norway lobster

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	This study tested diamond mesh codends made out of 2.5 mm flexible dyneema, with the main aim of investigating the effect the number of meshes in the codend circumference, the number of twines (single or double), and netting orientation (T0 or T90) on the size selection of cod, plaice, and flounder. The size selectivity for the codends made of dyneema netting were also compared to results for T90 codends made of standard 5 mm single twine polyethylene (PE) netting, and to previous results for other PE codends used in the fishery. The Dyneema netting codends were shown to have a very high selective performance compared to other codends of the same mesh size and number of meshes in the codends circumference. Reducing the number of meshes in the codend circumference for the Dyneema codends significantly increased the size selection of cod but did not affect the size selection of plaice and flounder; this is likely linked to differing fish morphologies.	Where possible, Dyneema netting codends should be implemented with a reduced number of meshes in the codend.	Herrmann et al., (2015). Size selection in codends made of thin-twined Dyneema netting compared to standard codends: A case study with cod, plaice and flounder.
Pot or Trap			
	This study evaluated the effect of emptying techniques in the pontoon trap fishery of Atlantic salmon along the Finnish coast of the northern Baltic Sea. This was done by tagging and releasing fish from commercial trap nets using both a traditional emptying chute and a lifting bag, with both methods being compared. Results showed a lower probability of salmon getting injured when released via a lifting bag (13%) compared to an emptying chute (24%).	The Finnish salmon trap fishery should, where it is safe to do so, release trapped salmon using a lifting bag.	Ruokonen et al., (2023). Effect of the trap net emptying method on release mortality of Atlantic salmon estimated by a Bayesian system model
	Catches of floating cod pots were compared to assess the potential effect of visual stimuli on catch numbers and biomass in the Baltic Sea. Pots equipped with a green lamp as a form of visual stimuli were compared with standard pots in two areas off the Swedish Baltic Sea coast. It was found that the presence of green lamps increased both the Catch Per Unit Effort (CPUE) and the Weight Per Unit Effort (WPUE) of cod above minimum landing size by 74% and 80% respectively (Bryhn et al., 2014).	The use of visual stimuli in the Baltic Sea cod potting fishery could increase catch efficiency, helping the commercial success of operations in the area.	Bryhn et al., (2014). Green lamps as visual stimuli affect the catch efficiency of floating cod (<i>Gadus morhua</i>) pots in the Baltic Sea.

North Sea

Type of Fishery	Description of pilot project	Good practice(s)	Reference
Demersal Trawl			
	This study tested 18 different selective gear configurations for bycatch reduction in the French demersal trawl fleet targeting a mix of demersal species. Since the implementation of the discard ban in 2016, driven by a desire from fishers to reduce unwanted catches of undersized individuals due to the discard ban implemented in January 2016.	The already mandatory 80 mm SMP was found to be efficient at letting undersized whiting escape from the trawl net. However, the trials identified further net configuration improvements such as moving the SMP further ahead of the cod-line, setting bar spacing of 23 mm in the flexigrid, and the use of an 80 mm SMC in combination with the SMP. The 2 m long SMC allowed the escape of whiting ≤25 cm long while retaining larger commercially valuable fish. These trials testing these net configurations were run in association with members of the fishing industry, who are seeking innovations that limit their impact of whitefish populations. It is expected that some of the tested net configurations, particularly those with integrating an SMC, would be popular with commercial fishers.	Vogel et al., (2017a). Improving gear selectivity of whiting (<i>Merlangius merlangus</i>) on board French demersal trawlers in the English Channel and North Sea.
	A Dutch pilot study of fully documented fisheries provided the opportunity to observe changes in fishing behaviour when operating under catch quota management (CQM). This study involved both small and large demersal fishing vessels. All of these vessels were given a quota for all cod catches including those of individuals below minimum landing size. Electronic Monitoring (EM) was used to verify catch data, recording video of all fishing and processing activities onboard. As an incentive, fishers were given a 30% boost to their cod quota and more flexible effort regulations. The results showed that CQM had no effect on the behaviour of small fishing vessels. However, large vessels significantly increased their cod landings (by 216%) and avoided undersized individuals.	This study demonstrates the need to account for fleet characteristics. Different fishing operations may more easily adapt their behaviour to new management regimes (Van Helmond et al., 2016).	Van Helmond et al., (2016). Changes in fishing behaviour of two fleets under fully documented CQM: Same rules, different outcomes
	This study tested the selectivity of two different codends in the nets of beam trawlers in the Belgian flatfish fishery. Two configurations were compared over fifteen hauls in the North Sea: one 80 mm diamond-shaped mesh coded (T0) and one 80 mm with mesh turned 90 degrees (T90). It was found that the T90 codend significantly increased the size selectivity for two roundfish species being investigated, whiting and pouting, and significantly decreased the selectivity for all flatfish species.	The conclusion from this study is that combining the T90 codend with a larger mesh size would improve selectivity for flatfish, while increasing the size selectivity for roundfish in the Belgian beam trawl fishery (Bayse et al., 2016).	Bayse et al., (2016). Could a T90 mesh codend improve selectivity in the Belgian beam trawl fishery?

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	This study introduces an automated catch description that leverages state-of-the-art region based convolutional neural network (Mask R-CNN) architecture and builds upon an in-trawl novel image acquisition system. The system is designed for applications in Nephrops fisheries and allows the classification and counting of catch in real time during the fishing operation.	This will be an important tool in helping to design future technical gear modifications that increase catch selectivity.	Sokolova et al., (2021). A Deep Learning Approach to Assist Sustainability of Demersal Trawling Operations.
	This study assessed differences from fishers self-reporting and video inspection using REM. REM was deployed on 14 fishing vessels across a six month trial period, inspecting 56% of 1523 hauls. Results showed an overall good agreement between video inspector discard estimates and those seen in self-reported discard estimates by fishers.	REM has the potential to streamline monitoring and scientific documentation in a medium-sized fishing fleet.	Mortensen et al., (2017b). Effectiveness of fully documented fisheries to estimate discards in a participatory research scheme
	Mortensen et al., (2017a) tested the capacity of fishers to reduce their unwanted bycatch and/or choke species, while maintaining profitable, in an 'unrestricted gear trial' in Denmark. 12 trawlers tested different options depending on their fishery and the type of issues they faced. Nine vessels reduced discard ratio in the test fishery, one showed no difference to the control fishery, and two vessels displayed an increase in discard ratio.	Relaxing technical regulations, when combined with proper incentives, has the potential to provide some flexibility to help fishers cope with the landing obligation.	Mortensen et al., (2017a). Reducing discards without reducing profit: free gear choice in a Danish result-based management trial.
	This study sought to reduce catches of undersized shrimp by improving the selectivity of trawl gear used to catch northern shrimp (<i>Panda borealis</i>). More specifically, the effect of trawl belly length on size selectivity was assessed onboard 15m and 27m double-rigged shrimp trawlers in November 2017 and June 2018. The standard trawls of the vessels were compared with an experimental net with a belly length 37% shorter than the standard net. Eleven hauls were completed in 2017 aboard the 15m vessel, and 14 hauls on the 27 m vessel in 2018. The results show decreased catch rates of shrimp below carapace length 15.5-16 mm in the shorter modified trawl net. Furthermore, both the standard and shortened trawls fished shrimp above 19 mm carapace length equally. These results were consistent across both vessels in the study. Incidentally, it was also found that bycatch of Norway pout was also slightly reduced in the shorter trawl net.	The implementation of trawl nets with shorter belly nets to reduce bycatch of undersized northern shrimp (and potentially Norway pout).	Ingólfsson et al., (2020). Shorter trawls improve size selection of northern shrimp

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	FLEXSELECT is a simple counter-herding device designed to reduce bycatch by scaring fish away from the path of the trawl net, while maintaining catch levels of target species. This technology was tested by Melli et al. in the Norway lobster trawl fishery which has roundfish and flatfish bycatch species. Length-based data were collected for four species of roundfish (cod, haddock, whiting, and hake) and two flatfish species (plaice and lemon sole), and length-based comparisons were performed. No significant effect of FLEXSELECT on target species, Norway lobster, was observed. However, a 39% reduction in the overall number of fish caught was seen. FLEXSELECT also has a fast attachment system and is adaptable to different fisheries and their respective catch goals.	Nephrops fisheries in the Skagerrak sea, and further afield, should look to implement the use of FLEXSELECT to reduce levels of flatfish and roundfish bycatch.	Melli et al., (2018). FLEXSELECT: counter-herding device to reduce bycatch in crustacean trawl fisheries.
	A trawl codend divided into an upper and lower codend was designed to separate Norway lobster from fish bycatch. This split codend encourages fish to swim into the upper compartment using a selective frame at the entrance of the lower codend. This segregation of small low-value fish from the target Norway lobster species allows faster catch sorting and a reduction in catch weight. This study assessed quality of catches in this test codend versus a standard codend. It was found that separating both fish and Norway lobster catches into separate codends reduces the catch-related damage to fish, thereby improving the quality and value of catch.	The introduction of this divided codend may help increase the value of fish bycatch in the European Nephrops trawl fishery.	Karlsen et al., (2015). From Fishing to Fish Processing: Separation of Fish from Crustaceans in the Norway Lobster-Directed Multispecies Trawl Fishery Improves Seafood Quality.
	This project sought to better understand discard data in the Functional Units (FUs) around the North Sea and Skagerrak for Nephrops trawl fisheries. A Fully Catch-Monitored system (FCM) was used to measure the total catch of a haul. In addition, a reference fleet of three vessels participated in fisher self-sampling with observer validation. The collected data provided valuable insights in catch composition, including in the length-frequency distribution, and fishing effort of the reference fleet in regard to the FUs.	Establishing reference fleets that are representative of the wider fleet around them is an important data collection tool, while also allowing the assessment of the potential impacts of fisheries management measures on the wider fleet.	Bleeker et al., (2021). Full catch monitoring in the Dutch Norway lobster fishery (2018-2020): Results of a science-industry partnership to improve information for Norway lobster stock assessments.

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	Vertical separation and length-based selectivity was quantified for a demersal trawl net with a dual compartment codend. The codend was separated into two compartments: the upper being a large mesh compartment intended for cod, and the lower being a small mesh compartment intended for Norway lobster. Cod and Norway lobster smaller than and just above the MCRS were efficiently released through the 120 mm square meshes in the upper and the 60 mm square meshes in the lower compartment, respectively. A compartment in the dual compartment codend may easily be changed at sea to adjust the selectivity according to the mix of species encountered, available quota portfolio, and management regime.	The use of a trawl net with such a codend provides flexibility with respect to selectivity, allowing reduction in bycatch of undersized species in a mixed fishery.	Karlsen et al., (2024). One mesh does not fit all: A dual compartment codend provides flexible selectivity opportunities to manage mixed fisheries
	The Fast-Track project set out to develop and implement a framework pertaining to the development of new and modified fishing gears which was more inclusive of all stakeholders, namely the fishing industry (fishermen, net makers and fisheries representatives), scientists and managers. The objective was to take each stakeholder group's specific competences and use these to more efficiently develop technical solutions which could alleviate some of the issues arising under the Landing Obligation.	In the North Sea, the project developed gears focused on reducing discards of both undersized shrimp and of non-target species. These gears are to undergo further scientific testing in the following project, Fast-Track II.	Feeckings et al. (2019). FAST TRACK – Sustainable. Cost effective and responsive gear solutions under the landing obligation.
Pelagic Trawl			
	Ovegård et al. (2021) developed a flexible sorting grid for bycatch reduction of saithe in the pelagic herring trawl fishery in the Skagerrak. The development of the grid was initiated by the industry and finalized through an industry-science collaboration project. The selectivity of the grid was assessed via an underwater camera system during trawls on a conventional industrial pelagic herring trawler. The results saw reductions in bycatch of more than 90%, from 5% to 0.5% of the total catch. Given the very large scale of this fishery in Skagerrak, this technical bycatch measure could reduce unwanted bycatch of saithe by up to 1,000 tonnes per year in the region (Ovegård et al., (2021)). Unfortunately, the subject of pelagic gear selectivity in Skagerrak was not discussed at the yearly working group meeting on technical measures in Skagerrak	This study provides strong evidence that the implementation of a flexible sorting grid in the pelagic herring trawl fishery in Skagerrak would reduce Saithe bycatch.	Ovegård et al., (2021). Much ado about nothing: An example of how failed incentives thwarted the implementation of the EU landing obligation.

North Western Waters

Type of Fishery	Description of pilot project	Good practice(s)	Reference
Demersal Trawl			
	This study attempted to separate demersal fish bycatch from Norway lobster in trawlers targeting Norway lobster. This employed inclined panels as a separator, guiding fish into an upper codend with 90 mm mesh, and Norway lobster into a lower codend with 80 mm diamond mesh. Proportional catch at length was compared for key species retained in test and control trawls. Analysis showed that Norway lobster were effectively separated into the lower codend, as well as size dependent separation of haddock and whiting into the upper codend.	The inclined panels used in this study performs well as a catch separating device, helping the segregation of target species and finfish bycatch. Further incentive may be required to help uptake in the industry. The Irish 'Nephrops Scheme' seeks to incentivise the implementation of selective fishing gears across the fleet by providing participants with an enhanced share of the national Norway lobster quota (20% increase in quota for up to 10 vessels).	Cosgrove et al., (2019). A game of two halves: Bycatch reduction in Norway lobster mixed fisheries.
	The principal objective of this study was to compare catches of legal and undersized Norway lobster in the Irish Sea trawl fishery using a range of diamond codend mesh sizes. Increasing codend mesh size from 70 mm to 80 mm reduced catch weight by 12% and catch value by 5% in Irish Sea trials. The 80 mm codend caught proportionally less small Norway lobster compared with the 70 mm codend. In the context of the landing obligation, projections for Norway lobster length compositions showed increases in profitability from 4% to 6% from using an 80mm codend over the course of a fishing season. This has the potential to increase the total annual of the Irish Nephrops fishery landings by roughly €1.53 to €3.14 million euros.	Further rolling out nets with increased codend mesh sizes to 80 mm in this fishery would help confirm the results of this study pointing to increased value of the fishery.	Cosgrove et al., (2015). Assessment of an increase in cod-end mesh size in the Irish Sea Nephrops fishery
	Gatti and colleagues tested the selectivity properties of a Celtic Sea demersal trawl net with an additional 100 mm SMC. Trials were conducted on board a French trawler using twin trawl rigging targeting whitefish. The position of the SMC was tested along with the insertion of a dispersive float. Results did not show any significant effect of the SMC's position in the net. However, the insertion of the float led to a decrease in selection ranges suggesting enhanced contact probabilities with the SMC. Catch comparisons showed the test gear to retain less fish across all size classes which could help alleviate the pressures of the landing obligation.	The SMC has the potential to be a useful tool in mitigating the impacts of the landing obligation on demersal whitefish operations in the Celtic Sea.	Gatti et al., (2020). Reducing discards of demersal species using a 100 mm square mesh cylinder: Size selectivity and catch comparison analysis
	This study assessed the survivability of Norway lobster after being discarded via a chute system, compared to standard to standard sorting practice. Norway lobster were monitored in onshore tanks over a 14-day period to allow for delayed mortality. The chute discarding system increased survival rate (51.2%) compared to the standard sorting practice (36.9%).	These chute sorting devices are already mandatory in the Bay of Biscay and could be applied to other Nephrops fisheries where discarding is permitted, to reduce discard mortality rates.	Mérillet et al., (2018). Survivability of discarded Norway lobster in the bottom trawl fishery of the Bay of Biscay

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	This study assessed the selectivity properties of an experimental fishing gear that combined a 100 mm T90 cylinder with 130 meshes in the extension and a 100 mm T90 codend of 33 meshes (experimental gear) compared to a 100 mm diamond mesh extension and codend (control gear) during commercial trips using twin trawls. Results showed significantly higher escapement of small fish for several target species and non-target species for the experimental trawl net when compared to the control trawl. This resulted in significant reductions in unwanted catches of Gadidae, Triglidae, and Caproidae. In contrast, non-negligible commercial losses of small grade target gadoid species were observed.	The implementation of this trawl net configuration would help reduce unwanted catch and alleviate the pressures of the landing obligation in mixed demersal fisheries in the Celtic Sea.	Robert et al., (2020). Toward elimination of unwanted catches using a 100 mm T90 extension and codend in demersal mixed fisheries
	Computer vision is used in this study to automatically compare escapement rates from two selective devices based on video data. The software's detection capabilities were compared with that of a human observer – good reliability was observed for the software. Net colour may be an important influence in the effectiveness of selective devices.	Software of this nature may be used to help achieve fully documented fisheries with limited need for observer deployment, particularly in smaller-scale trawl fisheries.	Simon et al., (2020). Using automated video analysis to study fish escapement through escape panels in active fishing gears: Application to the effect of net colour
	Fishers operating demersal trawlers targeting Norway lobster have reported occasional large catches of gurnard, making catch sorting challenging and reducing the quality of landings. This study assessed the effectiveness of a dual codend on catches of gurnard and other species in the Aran ground fishery. The use of the dual codend allowed effective separation of gurnard into the upper codend, potentially helping increase the market value of catch. This gear change also increased the quantity of market sized fish taken as bycatch in the fishery.	The use of a dual codend in this Galway fishery has potential to increase the catch value for trawl vessels targeting Norway lobster and fish species.	Oliver et al., (2021). Assessment of the dual codend of the Galway Aran fishing grounds

Type of Fishery	Description of pilot project	Good practice(s)	Reference
Pelagic trawl			
	The main purpose of this project was to develop and optimise effective sorting grids in pelagic trawls that limit the bycatch of large hake in pelagic trawl fisheries for blue whiting. The principal goal of the sorting grid was to separate larger specimens (e.g. large hake) from smaller individuals (e.g. blue whiting and small hake), allowing the release of larger fish through an exit hole. This reduces the amount of quota needed to cover the unprofitable catch of large hake (that becomes spoiled by the fish pump). Video footage taken from inside the trawl net shows this selective device can be an effective tool to avoid the bycatch of hake. Based on the field observations of the chief science officer the amount of hake bycatch reduced after the selective device was installed. In addition, video review of underwater footage confirmed that large hake did not pass the grid and individuals successfully escaped. However, video footage showed that the sorting grid, including the tunnel construction, needs to be optimized with regards to the escapability of hake and retainment of blue whiting.	The use of a sorting grid for large hake in the pelagic blue whiting trawl fishery will lead to reduced bycatch of larger hake, requiring less quota. However, further development of the grid is required to increase its efficiency in selecting out larger individuals.	Van Rijn et al., (2017). Pelagic blue whiting trawl innovation: hake grid
Gillnet / Trammel Net			
	This study tested a modified trammel net with reduced mesh size in the two outer walls. This design was intended to reduce thornback ray bycatch in England's common sole static fishery without reducing target species landings. Three nets were compared; a standard gill net (SG) with 90 mm mesh, 0.4 mm monofilament and hung at 0.5 ratio, a standard trammel net (ST) with 90 mm inner mesh and 650 mm outer mesh, 0.4 mm monofilament hung at a ratio of 0.5 and a modified experimental trammel net (ET) with 90 mm inner mesh and 325 mm outer mesh, 0.4 mm monofilament and hung at a ratio of 0.5. Testing occurred out of the port of Hastings over 10 days. No significant difference was observed in the number of thornback ray caught between the nets, however, the number of common sole was estimated at 87% higher by value for the modified experimental trammel net. This means considerably less fishing effort was required to catch the same quota of common sole, but with no increase in the rate of thornback ray catches (Ford et al., 2020).	The modified trammel net tested in this study has the potential to help increase catch value per unit effort for the common sole fishery in England.	Ford et al., (2020). Modifying selectivity to reduce unwanted catches in an English trammel net and gill net common sole fishery

South Western Waters

Type of Fishery	Description of pilot project	Good practice(s)	Reference
Demersal Trawl			
	This study assessed the effects of shortening lastridge ropes (LRs) that are attached to codend selvedges on escape opportunities for roundfish in demersal trawls. Doing so can increase the opening angle (OA) of meshes in and around the codend. The probability of escape for hake, horse mackerel, and blue whiting was estimated based on 21 hauls, 10 of which were with shortened LRs. The results demonstrate that higher OAs increase escape opportunities for all the species assessed in this study. However, shortened LRs only improved size selectivity significantly for horse mackerel and blue whiting. This difference between species may be related to behavioural differences. The mesh openness achieved with 20% shortened LR was below that necessary to obtain optimal escape opportunities for these species.	Shortening LRs of demersal trawl nets may be an effective way to increase the opening angle of meshes around the codend of trawl nets, thereby improving size selectivity of catch. Future studies should assess the impact of further shortening the LRs to produce optimal escape opportunities for target and non-target species.	Cuende et al., (2022b). Escape of hake (<i>Merluccius merluccius</i>), horse mackerel (<i>Trachurus trachurus</i>) and blue whiting (<i>Micromesistius poutassou</i>) in codends with shortened lastridge ropes.
	This study built on the previous study, attempting to better guide fish towards the SMP mandated in the Basque mixed demersal trawl fishery. This time, four configurations were used: LED lights in two different positions and altering panel size and panel position in the trawl net. The analyses focused on two species: hake and blue whiting. LED lights were shown to have no significant effect on the efficiency of the SMP. However, increasing the panel size had a significant positive effect on the release efficiency of blue whiting, and placing the SMP in the lower panel improved the release efficiency of hake.	These studies highlight the challenges of designing efficient selectivity devices for mixed demersal fisheries. Making the slight adjustments highlighted here might help increase selectivity across the mixed fishery, however further study is required.	Cuende et al., (2020). Release efficiency and selectivity of four different square mesh panel configurations in the Basque mixed bottom trawl fishery.
	A collaborative project involving both scientists and fishers in the Bay of Biscay evaluated the catch rates and length frequencies of species caught by two innovative trawl net configurations. One was a 90 mm square mesh bycatch reduction device (SMBRD) inserted in the tapered section, and the other a 70 mm T90 mesh codend and extension (T90). Both nets were tested separately in a twin trawl format, with the SMBRD net being applied to vessels targeting Norway lobster and the T90 on those targeting demersal fish species (hake, red mullet, common sole, and horse mackerel). Results showed both net configurations to allow hake and horse mackerel to escape, resulting in fewer unwanted catches without losses of commercial catches. More soles were retained with the SMBRD than with the standard gear. The T90 allowed greater escapement of red mullet another non-target species in the fishery.	Both the SMBRD and the T90 are tools that fisheries in the Bay of Biscay may use to reduce unwanted bycatch of hake and horse mackerel in the Nephrops fishery and of red mullet in the demersal trawl fishery in the region.	Méhault et al., (2020). Escapement patterns of red mullet, sole, horse mackerel and hake facing two trawl selective devices.

Type of Fishery	Description of pilot project	Good practice(s)	Reference
Purse Seine			
	Data was collected between 2016-2019 to investigate the selectivity and effect of purse-seine fishing activities on the pelagic community of the Bay of Biscay. The findings were: 1. Discards were scarce as a proportion of catch and of catch value (below 1%). 2. The purse-seine fishery in the Bay of Biscay is one of the most selective fisheries in the region. 3. The fleet typically avoided unwanted catches by practising slipping. 4. Interaction with ETP species was very rare, with only a single yellow-legged gul getting entangled before its live release. Furthermore, bird abundances were very high in the vicinity of the fishing grounds in the study (Ruiz et al., 2021).	Slipping is a powerful tool in ensuring unwanted catches are kept to a minimum in certain pelagic purse seine fisheries. This fishery should be used as a model for other pelagic purse seine fisheries looking to minimise unwanted catches.	Ruiz et al., (2021). The Spanish purse-seine fishery targeting small pelagic species in the Bay of Biscay: Landings, discards and interactions with protected species.
	Two slipping methods were compared in southern Portugal, comparing the survival, physical, and physiological response of sardines captured in a purse seine fishery. Sardines were held in holding tanks onboard commercial vessels after being released in either the standard slipping method, or a modified procedure. This modified procedure aggregated the fish at moderate densities and enabled them to escape through an opening created by adding weights to the floatline. Both slipping methods were compared with minimally harmed non-slipped sardines (sardines collected from the loose pocket of the purse seine). Survival rates were monitored in captivity over 28 days using three replicates for each treatment. Non-slipped survival rates were 43.6%, 44.7% for those released by the modified slipping technique, and 11.7% for the standard slipping treatments.	Marcalo et al. have identified a modified slipping technique that may help increase post-release survival rates of small pelagics akin to <i>Sardinella</i> species. Further pilot studies should be carried out on similar species and in similar purse seine fisheries.	Marçalo et al., (2018). Effects of different slipping methods on the mortality of sardine, <i>Sardina pilchardus</i> , after purse-seine capture off the Portuguese Southern coast (Algarve).

Mediterranean and Black Sea

Type of Fishery	Description of pilot project	Good practice(s)	Reference
Demersal Trawl			
	Two bottom trawl net selectivity trials were carried out in 2019 and 2020 on fishing grounds worked by the trawl fleet of Spanish Mediterranean, under normal commercial operating conditions with volunteer trawlers of the local fleet. The traditional otter bottom trawl in the mixed demersal fishery was modified with a 50 mm T90 panel on the extension piece under two different configurations (front of the extension piece and back of the extension piece). A selective grid was also inserted into the standard bottom trawl net. Improvements in trawl selectivity were observed for European hake and deepwater rose shrimp, particularly in the selective grid trial, where 95% and 100%, respectively, of undersize specimens escaped through the grid. The design that incorporated the T90 panel in the back of the extension piece produced a 35% reduction of sublegal-sized individuals of hake caught, but showed no difference for either red mullet or striped red mullet.	The adoption of these gear modifications may help reduce sublegal bycatch of European hake in Mediterranean mixed demersal fisheries.	Maynou et al., (2021a). Relative Catch Performance of Two Gear Modifications Used to Reduce Bycatch of Undersized Fish and Shrimp in Mediterranean Bottom Trawl Fisheries.
	This study assessed the relative catch performance of a modified trawl fitted with an extension piece using a 90° turned mesh (T90) in comparison with a standard trawl net employing a diamond mesh net. Both nets were tested in the northwest Mediterranean using a paired set up for experimental hauls. Catches of three target species in the fishery were compared, namely: European hake, red mullet, and striped mullet. Results showed the experimental net to significantly reduce catches of small-size hake and red mullet, reducing unwanted catches of regulated species under the Landings Obligation. The overall catches of hake, pooled over all sizes, also increased by an estimated 50%, while catch rates of red and striped mullet were significantly lower. It should be noted however that the experimental net produced losses of commercial catch and income of 17% and 18%, respectively. This loss of catches likely poses a barrier to adoption.	The T90 mesh configuration may be applied in fisheries with high catches of undersized hake and mullet, however, the expected reduction of undersized catches comes with reduced catches of target individuals of these species.	Sola & Maynou, (2018). Assessment of the relative catch performance of hake, red mullet and striped red mullet in a modified trawl extension with T90 netting.

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	Field studies tested two technological solutions to assess their potential contribution to help meet the European Multi-Annual Plan for demersal fisheries in the Western Mediterranean. The first of these was a panel of meshes turned 90° (T90) in the extension of the trawl net, and the other was an inserted selective grid built from 40 mm square mesh (SM40) netting in the extension of the trawl net. These pilot study results informed models to predict fishing mortality across European hake, red mullet, deep-water rose shrimp, Norway lobster and red shrimp. Results showed that the reduction in the values of fishing mortality achieved with these selectivity modifications would be insufficient to reach the target fishing mortality at maximum sustainable yield (Fmsy) prescribed in the WM MAP by 2025. However, model results project a substantial recovery of hake and red mullet stock biomass. Improving the health of both these important stocks would help generate higher income, profits, and salaries in the short and medium term (2025 to 2030).	The use of both the T90 and the SM40 would have helped drive recovery of both European hake and red mullet stocks in the northwest Mediterranean. However, other studies have shown variations of the T90 to be economically inviable due to loss of commercial catches. Further study may be required.	Maynou et al., (2021b). Bioeconomic impacts of two simple modifications to trawl nets in the NW Mediterranean
	The effect of changing from a diamond mesh codend (T0) to a 90° turned mesh codend (T90) on the size selectivity of seven commercially targeted species was tested in the Mediterranean bottom trawl fishery. In sea trials conducted in the north-western Adriatic, two experimental codends made of 54 mm nominal mesh size netting and differing only in mesh configuration were alternately mounted on the same trawl. The T90 mesh was found to significantly improve codend size selection for all species analysed, particularly for European hake, common squid, and mantis shrimp. Both codends demonstrated excessive size selectivity leading to commercial losses for red mullet, Mediterranean horse mackerel, and whiting (Petetta et al., 2020a).	The T90 configuration is efficient at increasing size selectivity for many target species and is inexpensive and practical in its application. However, there is potential for the T90 to reduce commercial catches of some species in mixed demersal trawl fisheries.	Petetta et al. (2020a). Estimating selectivity of experimental diamond (T0) and turned mesh (T90) codends in multi-species Mediterranean bottom trawl
	SMPs were applied to the lateral sides of the last tapered section of demersal trawl bellies, just ahead of the codend, with two guiding panels in the trawl belly to enhance fish-SMP contact. This experimental net was compared with the catch performance of a standard trawl with a 52 mm diamond-mesh codend using a twin trawl setup. The study focused on red mullet and gurnard. Results showed the lateral SMPs to induce a significant effect on catch performance for red mullet, demonstrating greater fish-SMP contact. However, significant numbers of red mullet were lost, possibly due to an excessively large mesh size (Bonanomi et al., 2020).	Potential use of lateral SMPs in the trawl belly paired with smaller mesh size to increase fish-SMP contact but minimise commercial fish losses.	Bonanomi et al. (2020). Effect of a lateral square-mesh panel on the catch pattern and catch efficiency in a Mediterranean bottom trawl fishery.
	This study combined results from a catch study of trawlers operating in the port of Blanes together with VMS data. Results showed specimens below Minimum Conservation Reference Size (MCRS) to often be captured in crinoid aggregation habitats (e.g. Maerl beds) that are identified as nursery habitats for commercially relevant species.	Implementing spatial or seasonal closures in habitats where species regulated by the MCRS are subject to catches could be a useful tool for preventing unwanted catches.	Garcia-de-Vinuesa et al., (2018). Linking trawl fleet dynamics and the spatial distribution of exploited species can help to avoid unwanted catches: the case of the NW Mediterranean fishing grounds.

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	In an effort to reduce discard mortality, this study assessed new discard methodologies for a Mediterranean mixed trawl fishery primarily targeting Norway lobster, a species associated with high discard rates of undersized individuals. Results showed a survival rate onboard vessels of over 0.8 (survival rates as low as 0.06 were observed during the summer). This was achieved by immersing individuals in cooled seawater onboard during the catch selection and discard time.	The implementation of this practice would help reduce discard mortality of undersized individuals caught in <i>Nephrops</i> fisheries, particularly those in warmer climates.	Garcia-de-Vinuesa et al., (2022). Enhancing onboard post-catch vitality of discard Norway lobster (<i>Nephrops norvegicus</i>) for more sustainable Mediterranean trawl fishery.
	Two bottom trawl net selectivity trials were carried out in 2019 and 2020 on fishing grounds used by the Spanish Mediterranean demersal trawl fleet. The traditional otter bottom trawl employed in the demersal mixed fishery was modified with a 50 mm T90 panel on the extension piece under two different configurations (front of the extension piece and back of the extension piece). A second modification consisted of inserting a selective grid in the extension piece of the standard bottom trawl net. Species investigated in the study included European hake, red mullet, striped red mullet, and the deepwater rose shrimp. Selectivity improvements were seen for both the European hake and the deepwater rose shrimp, particularly for the selective grid trial where 95% and 100%, respectively, of undersized individuals escaped through the grid. The net design with the T90 panel in the back of the extension piece allowed for a reduction of 35% of undersized hake, but no difference was gained in the sizes of both mullet species retained in the codend.	The implementation of both the selective grid and the T90 panel may contribute to the reduction of discards of undersized individuals in demersal mixed trawl fisheries in the Mediterranean.	Maynou et al., (2021a). Relative Catch Performance of Two Gear Modifications Used to Reduce Bycatch of Undersized Fish and Shrimp in Mediterranean Bottom Trawl Fisheries
	Two types of BRD are tested in this study: a sorting grid (T45 40 mm) and a T90 50 mm codend. Both of these BRDs were compared to a typical commercial bottom trawl net, assessing size structures and CPUE as measures of selectivity for crustaceans in the central Mediterranean Sea. These at-sea trials were completed on three randomly selected trawlers using paired hauls at the same time over the same fishing grounds. The target species for this fishery is deepwater rose shrimp with hake being the main commercial bycatch species. Results showed the discard per unit effort (DPUE) to be significantly higher for the control net than for both BRD configurations. The lowest DPUE was found for the T90 50 mm codend (significantly greater than that seen for the Grid-T45 40 mm net). The catch comparison of the size structures showed the Grid-T45 40 mm net to be more effective for catching adult deepwater rose shrimp, whereas the T90 50 mm codend was more selective for adult hake.	The use of both the Grid-T45 and the T90 may be useful additions to net configuration in fishing grounds associated with high abundances of undersized deepwater rose shrimp and hake, respectively.	Geraci et al., (2023). Exploring the feasibility of technological transfers of two bycatch reduction devices in the crustacean bottom trawling fishery of the central Mediterranean

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	Most studies address the catch performance of a specific trawl on a few commercially caught species. This study considers the multispecies impacts of Mediterranean bottom trawl fisheries, accounting for the full species community in catches. Two codends were compared for their catch performance, one made of 40 mm square mesh (SM40) and the other 50 mm diamond meshes (DM50). Results showed that 50% and 80% of the catch in weight and count numbers, respectively, consisted of species without commercial value. This demonstrates the large proportion of catches that are not considered in existing approaches to evaluating the ecological impacts of fishing activity. Significant differences were observed between the catch profiles of the two codends, particularly for two commercial flatfish species, <i>Arnoglossus laterna</i> and <i>Citharus linguatula</i>, with greater numbers in the SM40. The SM40 also had significantly higher retention rates compared to the DM50 codend for specific sizes of hake and mullet.	Taking a wider community-based approach to assessing the selectivity of trawl net configurations may be a more suitable method to understand the impacts of fishing activity.	Petetta et al., (2023). Every animal matters! Evaluating the selectivity of a Mediterranean bottom trawl fishery from a species community perspective
	The aim of this study was to reveal the results obtained after the use of selectivity technical measures on bottom trawler fishing gears in the GSA 6 of the Western Mediterranean Sea. The reference species of the Western Mediterranean Multiannual Plan were the objective of this study: <i>Mullus barbatus</i>, <i>Merluccius merluccius</i>, <i>Parapenaeus longirostris</i>, <i>Nephrops norvegicus</i> and <i>Aristeus antennatus</i>. During the summer of 2021, 98 experimental hauls were conducted in fishing grounds off the main fishing harbours of the GSA 6 region of the Mediterranean (the northern Spanish Mediterranean coastline). Two experimental codends of 45- and 50 mm square mesh size were used on selectivity trials for coastal and deep-sea fishery respectively. Percentages of individuals catch reduction were calculated, resulting in 19.9% for coastal fisheries and 11.4% for deep-sea fisheries. Reductions in undersized and unwanted catches are consistent with the relatively low economic impact on the total income of the GSA 6 fishing fleets. In contrast, a positive biological impact in terms of recruitment for the fishing stocks will be produced over time, being a positive measure in terms of recovery of the overexploited stocks.	The low economic impact of reducing undersized and unwanted catches in the GSA 6 Spanish fishery make the implementation of both these 45- and 50 mm square mesh codends a worthwhile addition to both the coastal and deep-sea fisheries in the region, respectively.	Company et al., (2021). Size selectivity trials and the economic impact in GSA 6 of increasing square mesh codend size from the actual 40 mm to 45 mm and 50 mm for coastal and deep-sea otter trawl fisheries, respectively.

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	This study tested sorting grids installed on bottom trawl nets, designed to minimise catches of undersized deepwater rose shrimp and European hake. Catches from a traditional trawl net were compared with those obtained from the same net equipped with ad hoc designed juveniles and trash excluder devices (JTEDs). Three different JTEDs were tested: one built with a net of 40 mm square mesh (G1-SM40); the second incorporating vertical steel bars spaced at 20 mm (G3-ST20); and the third with those bars spaced at 25 mm (G3-ST25). The probability of retaining deepwater rose shrimp and hake by length class in trawl nets with and without JTED was analysed. G1-SM40 was found to reduce undersized individuals of in the codend by around 60% for deepwater rose shrimp and 44% for hake. G2-ST20 showed a 34% catch decrease of hake individuals under 20 cm total length. Both G1-SM40 and G2-ST20 demonstrated a loss of marketable deepwater rose shrimp (25% and 30%, respectively). Finally, G3-ST25 was efficient at reducing catches of undersized hake and deepwater rose shrimp, but also showed the highest loss of marketable catch among the three JTEDs. Although sorting efficiencies of the grids in this study requires further refinement, the results of this study demonstrate that grids can reduce unwanted catches of undersize hake and deepwater rose shrimp in Mediterranean bottom trawl fisheries.	The use of sorting grids in bottom trawl fisheries could help reduce catches of undersized hake and deepwater rose shrimp in Mediterranean bottom trawl fisheries.	Vitale et al., (2018). Towards more selective Mediterranean trawl fisheries: are juveniles and trash excluder devices effective tools for reducing undersized catches?
	Pot or Trap This study provided some of the first information on creel size selection for Norway lobster species in the Mediterranean Sea. Pots used in the trial were made of 41 mm square mesh netting as is prescribed in the legislation. Size selection was assessed for Norway lobster and for two main bycatch species: mantis shrimp and blue-leg swimming crab. The effect of soak time on creel selectivity was also investigated, with no significant difference being detected between one- and two-day soak times. The average carapace length of a crustacean with 50% probability of being retained (L50) was 31.69 mm for Norway lobster, which is 59% larger than the MCRS set by the fishery regulation, therefore demonstrating a mismatch between MCRS and gear selectivity in this fishery. When compared to historical results from commercial bottom trawl selectivity studies for Norway lobster in the Mediterranean, the creel L50 was found to be significantly higher than in the trawl fishery, implying that the creel fishery is targeting larger Norway lobster individuals than the trawl fishery in the region.	Where it is economically viable to do so, the idea of reducing trawl effort and increasing potting effort in <i>Nephrops</i> fishery of the region could be explored.	Brčić et al., (2018). Size selection of <i>Nephrops norvegicus</i> (L.) in commercial creel fishery in the Mediterranean Sea

Type of Fishery	Description of pilot project	Good practice(s)	Reference
	Trammel nets are one of the preferred gears employed in small-scale fisheries of the Mediterranean, largely due to their ease of use and high capture efficiency for numerous species. However, they produce high discard rates (up to 44% of catches), producing high mortality rates as a result. This study tested a collapsible pot as an alternative to trammel nets at three coastal sites in the Adriatic Sea, to compare its catch efficiency with that of the local traditional trammel nets. Analysis showed pots to have a similar catch efficiency for commercial species, both among sites and as a whole. Furthermore, the trammel nets produced larger amounts of discards, in terms of species and CPUE. These pots could provide a valuable alternative to the trammel nets traditionally used in the region, with their main advantages being that they do not require different rigging and can be used without bait.	Pots may achieve the objectives of reducing discards in the small-scale fisheries of the Adriatic Sea without compromising catches of commercially valuable species.	Petetta et al., (2020b). Pots vs Trammel nets: a catch comparison study in a Mediterranean small-scale fishery
Gillnet / Trammel Nets			
	Various trammel-net gear modifications were assessed for their potential to reduce bycatch in small-scale Mediterranean trammel net fisheries. These modifications included: (i) the use of a guarding net attached to the footrope, (ii) increasing the length of the rigging twine between the footrope and the netting panel, and (iii) decreasing the mesh size of the outer panels. Both of the latter modifications were found to decrease captures of the marbled electric ray, a commonly discarded species in the study area (Northwest Aegean Sea). Furthermore, both modifications are simple with little added cost to implementation, and no negative effect on catches of target species	Increasing the length of rigging between the footrope and netting panel of trammel nets, as well as decreasing mesh sizes of outer panels, may present a means of reducing ray bycatch in trammel net fisheries.	Ganias et al., (2023). Mitigating bycatch in Mediterranean trammel net fisheries using species-specific gear modifications.
Pelagic Longline			
	This work assesses the potential for a novel device – SharkGuard – to decrease elasmobranch bycatch in pelagic longline fisheries. To test this, Standard fishing gear was deployed, where 1000 branchlines (reduced in latter sets due to loss during fishing operations) containing ‘baskets’ of eight branchlines were spaced between float lines — alternating between a control branchline (standard branchlines) and a branchline with SharkGuard devices fitted. All branchlines terminated in a circle hook baited with sardines. Sea trials were conducted in July and August 2021 in southern France. The results for hook treatment produced a non-significant result, however, data suggest a 41.9% reduction in elasmobranch catches on SharkGuard hooks compared with regular one.	Although further study is required, SharkGuard may present a valuable tool in reducing elasmobranch bycatch in pelagic longline fisheries.	Doherty et al., (2022). Efficacy of a novel shark bycatch mitigation device in a tuna longline fishery.

Distant Water Fleets

Type of Fishery	Description of pilot project	Good practice(s)	Reference
Purse Seine			
	This study sought to compare an EMS implemented in the French tropical tuna purse seine fishery with observer programmes in both the Indian and Atlantic Oceans. Mixed trips involving both EMS and onboard observers were conducted on CFTO (Compagnie Française du Thon Océanique) vessels between 2015-2016. Data collected compared non-target species and discard data from both observations. Good matches were found for tuna discards, however divergences were seen for non-target catches. For low commercial value species which are systematically discarded, EMS provided similar estimates as onboard observation. However, for sharks, billfishes or high commercial value species, EMS underestimated occurrence and volume compared to regular observers. These differences seen between onboard observers and EMS were largely down to species being handled at different places onboard the vessel. Where this was the case, the EMS usually failed to document their retrieval due to camera distance or dead angles.	EMS can be a useful tool for remotely monitoring discards and non-target catches onboard vessels, particularly with further improvement on camera installation.	Briand et al., (2018). Comparing EMS with Observer Data For Estimating Non-Target Species and Discards on French Tropical Tuna Purse Seine Vessels.
	This article reviews lesser entangling and non-entangling FAD designs and their adoption by key fleets through ISSF skipper workshops. Progress towards adoption of LER and NE FADs appears to be highest in the Indian and Atlantic Oceans, medium in the Eastern Pacific and lowest in the Western and Central Pacific (Murua et al., 2016). It should be noted that FAD design and the use of DFADs has progressed greatly over the past eight years since this article was published.	The use of lower entangling risk, non-entangling, and bio-FADs is crucial to reducing bycatch and incidental mortality of target, non-target, and ETP species in pelagic fisheries.	Murua et al., (2016). Advances in the Use of Entanglement-reducing Drifting Fish Aggregating Devices (DFADs) in Tuna Purse Seine Fleets

Outermost Regions

Type of Fishery	Description of pilot project	Good practice(s)	Reference
Longline			
	This study conducted fishing experiments to test how circle hooks affect the catchability, the hooking position, and the overall condition of deep-water sharks, in comparison to the commonly used J-hooks in the Azores bottom longline fishery. Results demonstrated that circle hooks did not significantly reduce deep hooking (throat or gut hooked), nor did they improve the overall condition of captured sharks, while the catchability of deep-water sharks on circle hooks was greater than on the J-hooks currently used in the local fishery. These results suggest that circle hooks are not a suitable measure to reduce deep-water shark bycatch and increase survival potential in deep-water longlining.	Circle hooks do not appear to be a suitable measure to reduce deep-water shark bycatch in longline fisheries, other potential measures should be explored.	Fauconnet et al., (2024). First assessment of circle hooks as bycatch mitigation measure for deep-water sharks on longline fisheries.

ANNEX 12: STECF FDI catches above and below MCRS

Figure 11 and Figure 12 contain boxplot visualisations of the evolution of unwanted (undersize) catch rates across the period 2013 to 2022 by specific conditions related to selectivity device technical measures as reported within the STECF FDI database Tables D and F associated with discard and landings length data respectively. Only those records with both landing and discard records are included. No raising has been carried out.

Each figure depicts the range of unwanted catch rates for a specific technical measure (as listed in Appendix 11 of the STECF FDI 2023 data call (EC, 2023b). Where the two red lines represent the start and end of the landing obligation phasing period. The boxes present the range of catch rates. The horizontal line represents the median, the lower and upper hinges of the boxes correspond to the 25th and 75th percentiles. The upper whisker extends from the hinge to the largest value no further than $1.5 \times$ inter-quartile range (IQR) from the hinge (where IQR is the inter-quartile range, or distance between the first and third quartiles). The lower whisker extends from the hinge to the smallest value at most $1.5 \times$ IQR of the hinge. Data beyond the end of the whiskers are called "outlying" points and are plotted individually.

Figure 11 - North Sea and Baltic Sea unwanted catch rate associated with Technical Measures gear selectivity devices

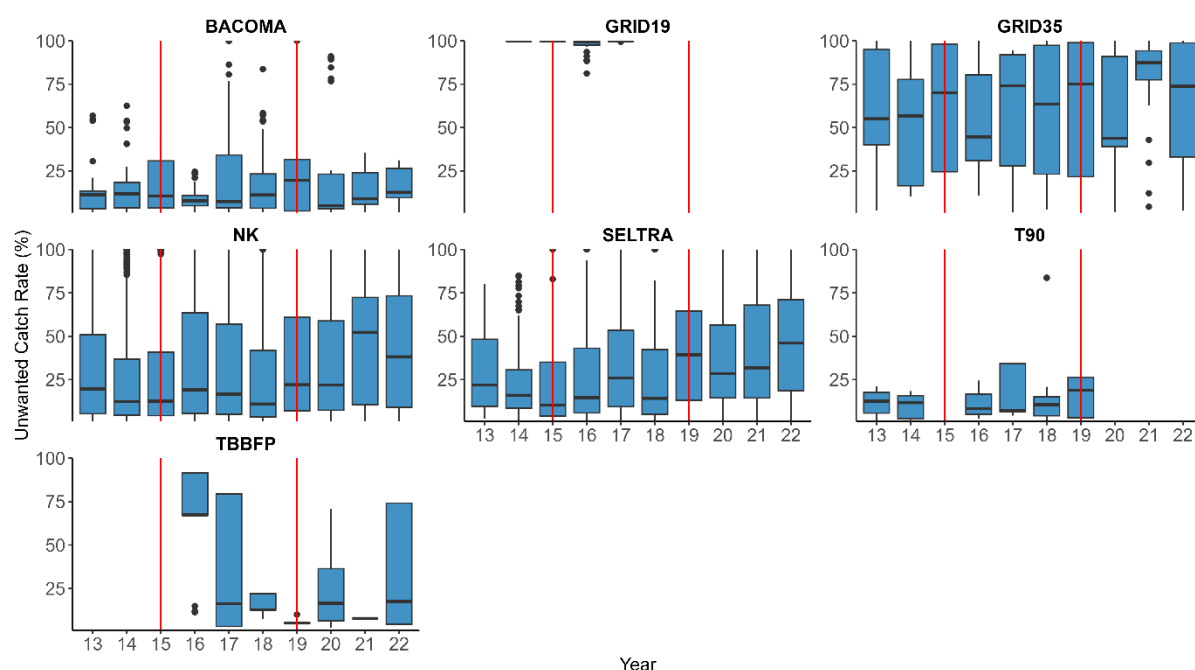


Figure 12 - North Western Waters unwanted catch rate associated with Technical Measures gear selectivity devices

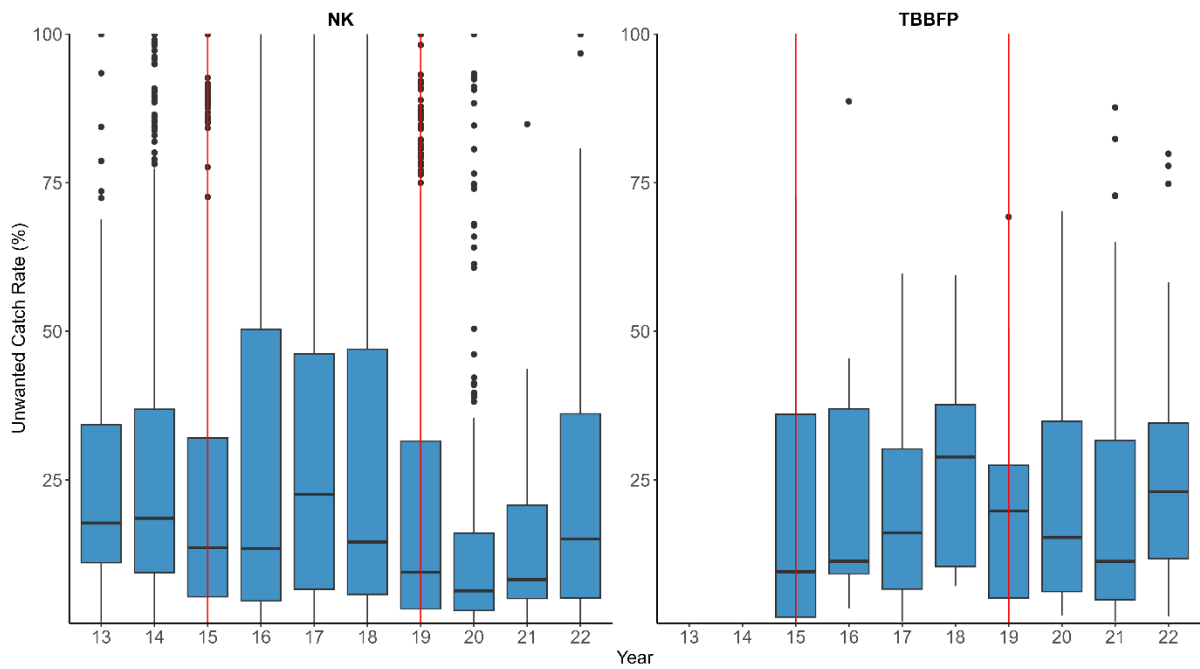


Figure 13 - South Western Waters unwanted catch rate associated with Technical Measures gear selectivity devices

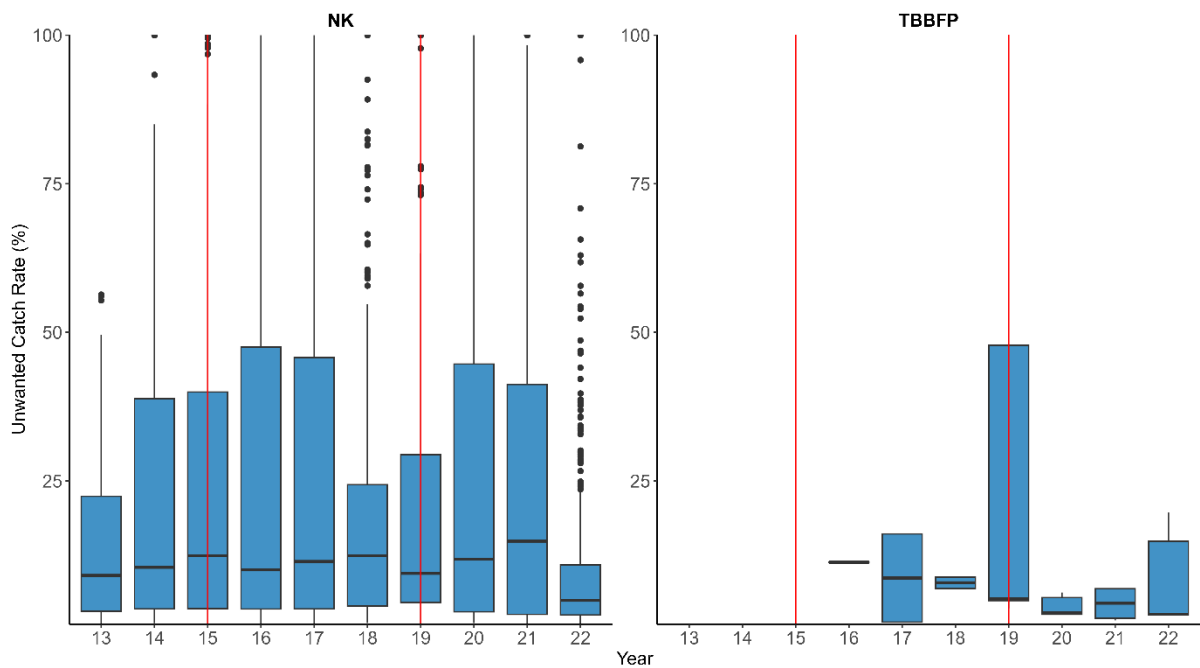


Figure 14 to Figure 17 show the overall trends in proportion of unwanted (undersize) catches. The matrix depicts for each fishery (rows) and species subject to the landing obligation (columns) by region, split by selectivity device. The proportion of undersize catches are shown as increasing if the proportion is 5% or higher than before implementation (average of 2013-2014 vs average of 2021-2022), decreasing if 5% or lower than before the implementation and no trend otherwise.

Average unwanted catch (undersize) proportions are taken from records within the STECF FDI database Tables D and F, associated with discard and landings length data respectively aggregated to the level below. Only those records with both landing and discard records are included. No raising has been carried out. An explanation of the data format is available from the FDI 2023 data call (EC, 2023b) using the Appendix reference given here.

- Year.
- Country, as detailed within the Appendix 1.
- Fishing area, at the sub-region level including distinction between EU (separating out outermost regions), UK, coastal state or RFMO jurisdiction, as detailed within Appendix 9.
- Vessel length category, as detailed within Appendix 2.
- Gear type, as detailed within Appendix 4.
- Target species assemblage, as detailed within Appendix 5.
- Use of gear technical modifications, as detailed within Appendix 11.
- Species (denoted by FAO Alpha code).

Figure 14 - Baltic Sea gear selectivity measures change in unwanted catch rate pre- and post- phasing of the landing obligation

NK = Not Specified.



Figure 15 - North Sea gear selectivity measures change in unwanted catch rate pre- and post- phasing of the landing obligation

NK = Not Specified

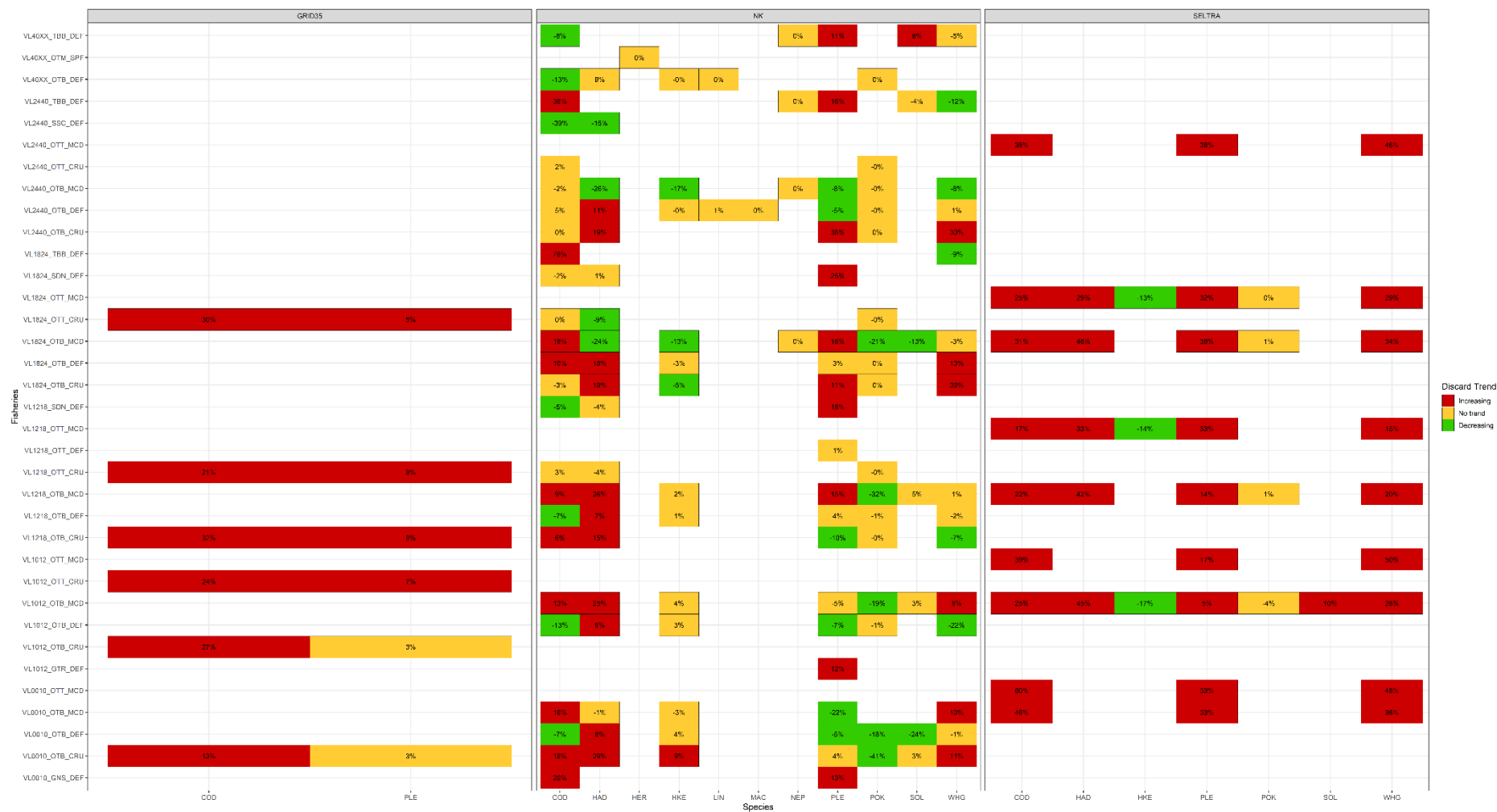


Figure 16 - North Western Waters gear selectivity measures change in unwanted catch rate pre- and post- phasing of the landing obligation

NK = Not Specified

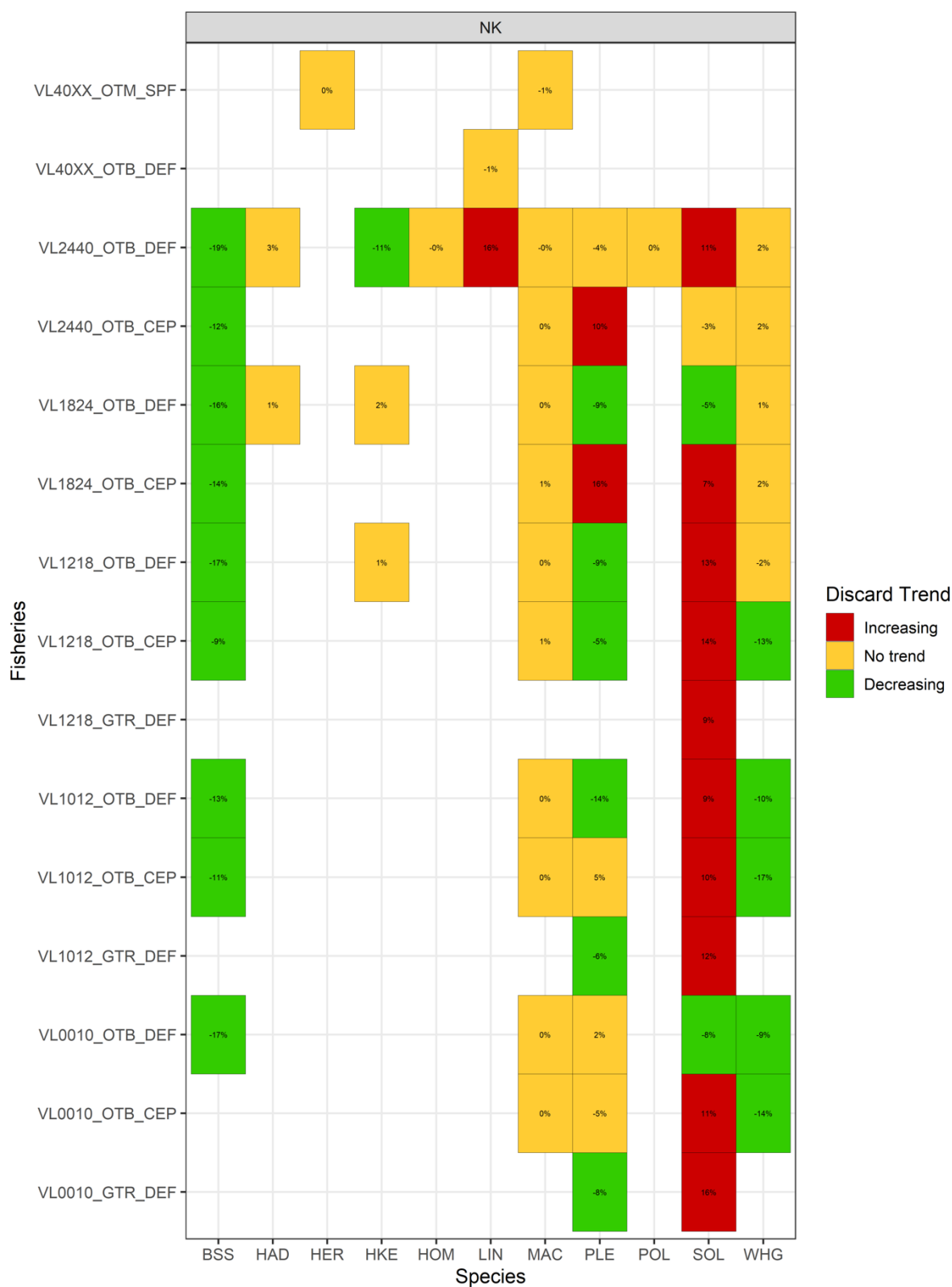
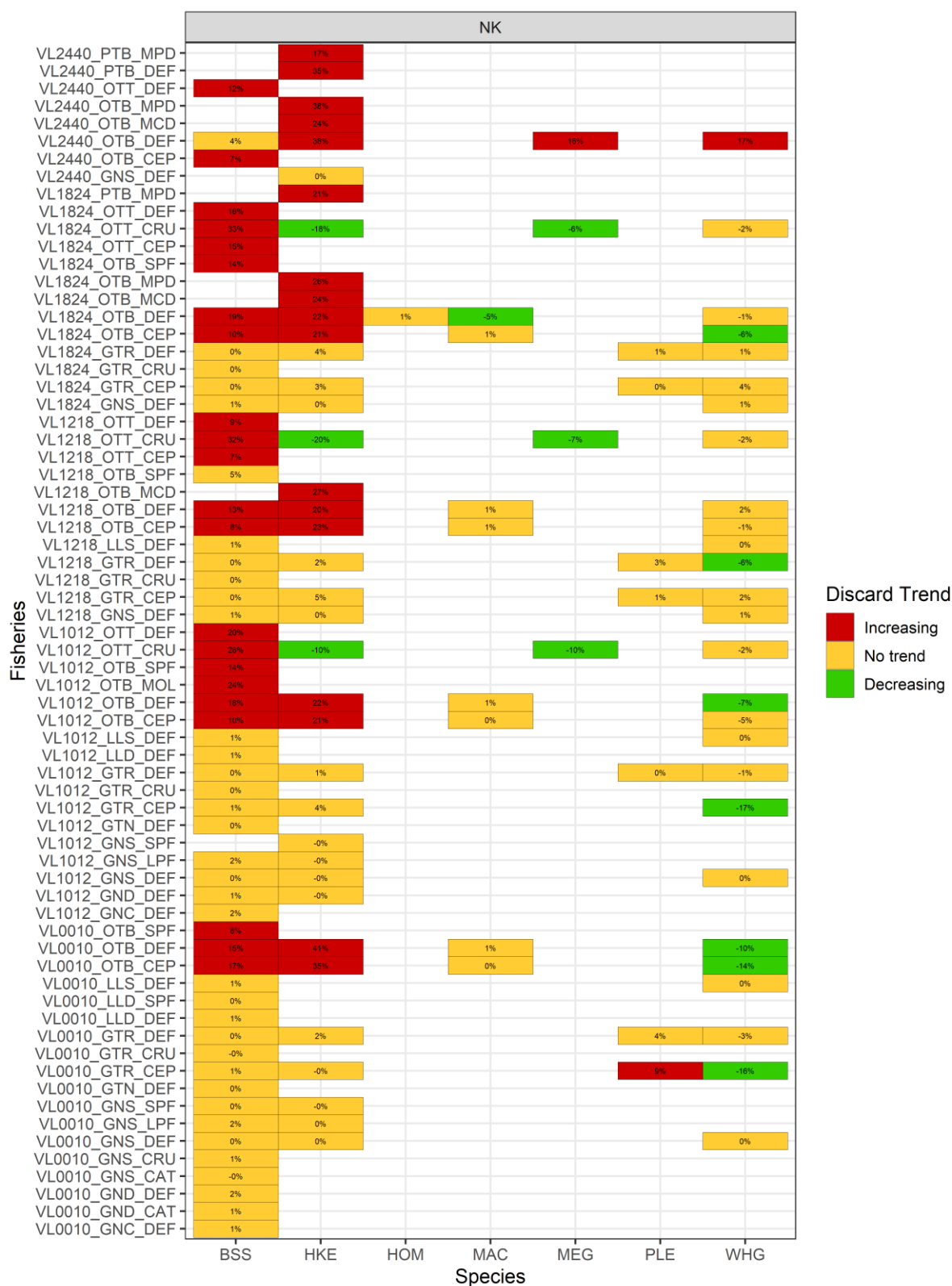


Figure 17 - South Western Waters gear selectivity measures change in unwanted catch rate pre- and post- phasing of the landing obligation

NK = Not Specified



ANNEX 13: Summary of barriers to implementation of the landing obligation

Group	Barrier	Description
Ecological	Mixed fisheries	Fisheries that catch a wide range of species have increased burdens to identify and separate catch and bycatch for landing. Wide range of non-commercial species may be landed and will need to be disposed of on land. NB: Increased for small-scale fisheries.
	Quota swapping	Quota swapping has been historically used to reduce the impact of choke species. It has been noted that since Brexit, Spain has not been able to swap quota with the UK as previously occurred, reducing their ability to fish.
	Alien species	The potential for increasing climate change impacts on species composition and new species appearing as undesirable catch species.
Economic	Lower revenue from catch	Probably the most commonly noted barrier to implementation is the loss of commercial revenue of target and commercially viable bycatch species replaced by fish that have little or no market value.
	High costs of implementation (for fishers)	High cost to implement requirements for alternative gears (capital costs and potential maintenance) during testing and commercial fishing, catch retention onboard, control mechanisms e.g. REM, loss of time fishing etc. make fishers reluctant to implement the LO.
	High cost of implementation (port based)	High cost to implement requirements with increased storage and refrigeration facilities required in all ports. Transport and disposal costs for unwanted catch. Costs / benefit of using catch for alternative uses e.g. fish meal as fish food not cost-effective.
Institutional	Absence of quotas in Mediterranean	Specific to the Mediterranean is the issue of effort-based fisheries management compared to the more quota-based fisheries of other regions. Here more species are included in the landing obligation due to the use of minimum landing sizes as a management tool, and this may have a negative impact on fishers.
	Capacity to implement	Lack of a proper control mechanism reported in EU (2021) i.e. combination of trained at sea inspection staff, port-based inspectors to implement required checks. This may also with the increase in REM include a lack of staff to implement and manage REM systems required.
	Increased costs of management (for management authorities)	Increased costs to fisheries management authorities in implementing LO, increased disposal and infrastructure required. High costs for REM implementation. This would include for instance small-scale fisheries in the Mediterranean that have large numbers of small boats. In this case, as highlighted by Villasante et al. (2019), the inherent costs of schemes such as REM or extensive observer or even port inspections are higher per tonne of catch due to the number of fishing vessels.

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Group	Barrier	Description
	Low acceptance and comprehension levels amongst stakeholders	Stakeholders reluctant to change their behaviour and engage in landing obligation in full or in part (e.g. reluctance to carry REM systems). This may be due to a lack of prior stakeholder engagement and reluctance to adopt enforced top-down fisheries management approaches. There are clear cultural issues in some Member States (e.g. Ireland) regarding the non-recording of discards along with lack of differentiation of reasons for discards and reluctance to carry REM systems or observers. There is also a lack of recognition that fish not used for human consumption have any value and may cost more to dispose of than their value.
	Low data quality	Data of sufficient quality to justify any implementation of the landing obligation are not available leading to legal objections and exemptions to be put in place. The UK, which although no longer an EU Member State still enforces the landing obligation has noted issues regarding the reliability of data and the recording of fish discarded under exemptions.
	Level playing field	Perception by stakeholders is that there is a non-level playing field. Where regulations are imposed unequally upon differing fleets (with regards to number and type of exemptions for example), or differing levels of control. EU (2021) for instance noted that 64% of respondents from the Baltic and North Sea regions did not believe that landing obligation regulation was being complied with. Similar to the increase in management costs above the fleets with smaller vessels will always consider that they would have a higher administrative burden and higher rates of inspection compared to the industrial fleets, who would equally consider that they are disproportionately burdened with the costs of installing and maintaining expensive REM systems or higher levels of observer coverage. Many Member States would also consider that they only have a low level of enforcement and potential sanction focussed on the implementation of the LO. This would hold no incentive or deterrent, even if the actual level of inspection (and potential sanction) is equal across all fisheries, it is the perception of fishers that the level of enforcement is low, leading to a lack of deterrent.
	Exemptions	The high number of exemptions in some basins provide a challenge to effective control and enforcement of the landing obligation and other regulations. Inspectors find managing these difficult and it is not simple to enforce everything while conducting inspections at sea where offences may be detected.
Operational	Onboard implementation (SSF)	Operational considerations onboard fishing vessels, difficulties in the implementation of technical measure requirements particularly small-scale fishing vessels.
	Auxiliary support infrastructure	Operational, at the level of the fishing industry and fisher, in terms of the practical implementation on board and the auxiliary support infrastructure, Cyprus for example has noted that processing of unwanted catches is not presently feasible.
	Fate of unwanted catch / landings	MS Authorities struggling to find use for landed unwanted catch so may do to landfill with onwards consequences and bad publicity

ANNEX 14: Overview of benefits and costs

This overview is mainly based on the results from the ‘efficiency’ indicator as described in the main body of the report. There is almost no quantitative information available, hence the table below focuses on the qualitative findings.

Overview of costs and benefits identified ²¹							
		Citizens/Consumers		Businesses		Administrations (Authorities)	
		Quantitative	Comment	Quantitative	Comment	Quantitative	Comment
Description:							
Mark the type of cost/benefit, each on a separate line: Costs: Direct compliance costs (adjustment costs, administrative costs, regulatory charges) Enforcement costs: (costs associated with activities linked to the implementation of an initiative such as monitoring, inspections and adjudication/litigation) Indirect costs (indirect compliance costs or other indirect costs such as transaction costs) Benefits: Direct benefits (such as improved well being: changes in pollution levels, safety, health, employment; market efficiency) Indirect benefits (such as wider economic benefits, macroeconomic benefits, social impacts, environmental impacts)	Type: Choose one-off or recurrent	Indirect cost	Landing obligation is aimed at businesses and authorities, therefore no direct costs and benefits identified for citizens / consumers. As an indirect cost, the price increase of fish as a result of the landing obligation are identified for consumers. As all fish needs to be landed by fishers, increased operational costs for fishers which are transferred along the supply chain to consumers.	Direct compliance costs (adjustment costs): Increase storage capacity on a vessel and investment in more selective fishing gear Enforcement costs (monitoring costs): Time needed onboard of a vessel to sort the fish / handling time Enforcement costs (monitoring costs): Monitoring on board of vessels such as CCTV Direct compliance costs (administrative costs): Administrative reporting	To land all bycatch, additional storage capacity is needed on fishing vessels or storage capacity needs to be used for bycatch An obligation is to sort the bycatch and land this onshore. (Electronic) monitoring on board of fishing vessels to check if landing obligation is implemented correctly Administrative reporting on the bycatch by fishing vessels crew	Enforcement costs (monitoring costs): Monitoring and inspections of landing of bycatch Indirect costs (other): costs of pilots with selective fishing gear	Managing authorities are responsible for the enforcement of the landing obligation, taking inspection capacity and reporting obligations Costs associated with (scientific) research and pilots to demonstrate the benefits of (more) selective fishing gear to fishers

SIMPLIFICATION AND BURDEN REDUCTION

Part I. Simplification and burden reduction (savings already **achieved**)

Report any simplification, burden reduction and cost savings **achieved already** by the intervention evaluated, including the points of comparison/ where available (e.g. REFIT savings predicted in the IA or other sources).

This is not applicable, as the landing obligation is an additional obligation for fishers and authorities.

PART II: **Potential** simplification and burden reduction (savings)

Identify further potential simplification and savings **that could be achieved** with a view to make the initiative more effective and efficient without prejudice to its policy objectives²³.

	Citizens/Consumers/Workers		Businesses		Administrations	
	Quantitative	Comment	Quantitative	Comment	Quantitative	Comment
Description:...						
Type: One-off / recurrent (select)	N/A	Landing obligation is aimed at businesses and authorities, therefore no identified costs and benefits found for citizens / consumers. There is a potential indirect price effect for consumer, but no simplification or burden reduction identified.	Recurring measure: <i>De minimis</i> exemption Recurring measure: Reduce bycatch Recurring measure: Cost saving opportunities Recurring measure: Fully Documented Fisheries (FDF) technologies	<i>De minimis</i> exemption helps to minimize the administrative costs of the landing obligation, though the administration of <i>de minimis</i> brings an administrative cost. If Bycatch reduces this has economic benefits for fishers as bycatch have in general a low(er) market value. Due to innovations and technological advancements (in mainly fishing gear), potential cost savings for fishers occur. In some occasional, small scale improvements in fishing gear have been reported. This is reported as a potential improvement measure, as FDF using AI technology offers potential improvements in catch sampling to reduce unwanted bycatch. However, implementation is constrained by current infrastructure and regulatory frameworks.	Recurring measure: Increase regional and Member State collaboration	Increase collaboration is reported among administrations, mainly to standardise data and processes, to minimising costs of enforcement (and strategic use of exemptions) and supporting sustainable fishing practices in regions.

ANNEX 15: E-Survey Questions

Questionnaire: Study supporting the evaluation of the landing obligation – Common Fisheries Policy

Introduction

Dear Stakeholder,

You are kindly requested to respond to the questionnaire below. Responses will be anonymous. The survey should take approximately 20 minutes of your time. Please respond before June 30, 2024.

This questionnaire forms part of the “Study supporting the evaluation of the landing obligation – Common Fisheries Policy” under the framework contract CINEA/2021/OP/0011 – [Lot 1]. The study is being undertaken by a consortium of partners contracted by the EU Commission (CINEA), acting on behalf of the Directorate-General for Maritime Affairs and Fisheries (DG MARE).

The purpose of this questionnaire is to **gather evidence to support a future EU Commission evaluation of the landing obligation invention in terms of meeting the objectives of the 2013 reformed Common Fisheries Policy (CFP)**, outlined under Article (2)(5)(a):

“[the CFP shall] gradually eliminate discards, on a case-by-case basis, taking into account the best available scientific advice, by avoiding and reducing, as far as possible, unwanted catches, and by gradually ensuring that catches are landed.”

The EU landing obligation, introduced under Article 15 of the 2013 CFP reform, contributes to eliminating discards by providing a strong incentive for fishers to fish in a more selective manner and avoid and reduce, as far as possible, unwanted catches in the first place, by obliging them to land everything they catch. Implemented under a phased approach, the landing obligation has been fully operational since 1 January 2019 and applies to all stocks managed through TACs in European Union waters, and in the Mediterranean, all stocks subject to a Minimum Conservation Reference Size (MCRS).

Five years on from the full implementation of the landing obligation, the intention of this questionnaire is to aid in the collection and validation of existing data already gathered for an assessment on how the landing obligation has performed and is currently working, and why it is performing as it does.

The contract study results and findings will form the foundation for a Commission evidence-based evaluation of whether the landing obligation continues to be justified,

where lessons can be learned for improvement, and whether EU actions should be continued or changed.

Consortium: Deloitte, MRAG Europe and Wageningen Marine Research (WMR).

Information about the respondent

Question	Response
First name	
Last name	
Email	
Name of Organisation	
Scope of Organisation	☐ International ☐ Regional (e.g. SWW, NWW, Med&BS) ☐ National (country/Member State) ☐ Local

Select the field of your professional activity:

- ☐ Public Authority/Ministerial departments
- ☐ Producer Organisation (PO)
- ☐ Fisher Association/Industry
- ☐ Non-governmental organisation
- ☐ Scientific institution/research
- ☐ Consultancy
- ☐ Overarching EU bodies (e.g. Institution/Agency/Regulatory group)
- ☐ Other: please specify in the text box

Select the EU Member State where you work:

☐ Austria	☐ Lithuania
☐ Belgium	☐ Luxembourg
☐ Bulgaria	☐ Malta
☐ Croatia	☐ Poland
☐ Cyprus	☐ Portugal
☐ Czech Republic	☐ Romania
☐ Denmark	☐ Slovakia
☐ Estonia	☐ Slovenia
☐ Finland	☐ Spain
☐ France	☐ Sweden
☐ Germany	☐ The Netherlands
☐ Greece	
☐ Hungary	
☐ Ireland	
☐ Italy	
☐ Latvia	

Select the geographical area(s) where you are active (multiple boxes can be selected).

- ☐ North Sea
- ☐ Baltic Sea
- ☐ Northern Western Waters
- ☐ Southern Western Waters
- ☐ Western Mediterranean
- ☐ Central Mediterranean
- ☐ Eastern Mediterranean
- ☐ Black Sea
- ☐ Outermost Region
- ☐ Distant/long distance fleet
 - ☐ Other? Please specify region: please specify in the text box

In what fishing fleet (segment) do you work?

What is your targeted fishery?

Section 1: Current state of play

From these questions, we would like to understand more about the current fisheries management and conservation measures in place within your region or Member State regarding the implementation of the landing obligation, and how they have contributed to a) landing all catches in a respective fishery; b) increasing selectivity and reducing unwanted catches; and c) the handling of unwanted catches.

Furthermore, we aim to acquire updated information on the existing monitoring and control tools and the challenges faced within your region or Member State in ensuring compliance to the landing obligation, such as accurate reporting of all catches and documentation of discards at sea (i.e. fully documented fisheries) and conducting pilot projects to assess new fisheries control technologies.

1. How would you characterise the trend in discard rates within the fishing fleet(s) you oversee/are associated with from 2014 to the present?

Please specify if there have been substantial reductions and provide insights into the areas, such as sea basins, fleets, or fish stocks, where these reductions have been most pronounced.

- Decreasing [text box for comment]
- Stable [text box for comment]
- Increasing [text box for comment]

- If “Decreasing”, what progress has been made to reduce discards within your fishing fleet since 2014? Please elaborate on the key factors or initiatives that have played a role in this decrease.
- If “Stable”, what do you think are the primary reasons why discard rates have not seen reductions despite efforts over the past decade?
- If “Increasing”, in your opinion, why have discard rates not decreased?

2. In line with Article 7 of the CFP Regulation [(EU) 1380/2013], what conservation measures, including technical measures, have been implemented in your region/Member State to support the implementation of the landing obligation?

Please tick the relevant conservation measures which have been implemented by your Member State and or within your region. Tick “Other” to add any additional measure not already listed.

Conservation measure	Member State	North Sea	North Sea	Baltic Sea	Northern Western Waters	Southern Western Waters	Mediterranean and Baltic Sea	Outermost Region	Distant/long distance fleet
Implementation of MAPs	☐	☐	☐	☐	☐	☐	☐	☐	☐
Targets for the conservation and sustainable exploitation of stocks and related measures to minimise the impact of fishing on the marine environment	☐	☐	☐	☐	☐	☐	☐	☐	☐
Measures to adapt the fishing capacity of fishing vessels to available fishing opportunities	☐	☐	☐	☐	☐	☐	☐	☐	☐

Conservation measure	Member State	North Sea	North Sea	Baltic Sea	Northern Western Waters	Southern Western Waters	Mediterranean and Baltic Sea	Outermost Region	Distant/long distance fleet
Incentives, including those of an economic nature to promote more selective fishing	☐	☐	☐	☐	☐	☐	☐	☐	☐
Incentivised pilot projects or programmes on alternative types of fishing management techniques and on gears that increase selectivity;	☐	☐	☐	☐	☐	☐	☐	☐	☐
Measures on the fixing and allocation of fishing opportunities	☐	☐	☐	☐	☐	☐	☐	☐	☐
Change of minimum landing/conservation reference size (MCRS)	☐	☐	☐	☐	☐	☐	☐	☐	☐
Characteristics of fishing gears and rules concerning their use	☐	☐	☐	☐	☐	☐	☐	☐	☐
Specifications on the construction of fishing gear to improve selectivity, including modifications or additional devices to increase selectivity and or reduce unwanted catches	☐	☐	☐	☐	☐	☐	☐	☐	☐

Conservation measure	Member State	North Sea	North Sea	Baltic Sea	Northern Western Waters	Southern Western Waters	Mediterranean and Baltic Sea	Outermost Region	Distant/long distance fleet
Limitations or prohibitions on the use of certain fishing gears, and on fishing activities, in certain areas or periods;	☐	☐	☐	☐	☐	☐	☐	☐	☐
Requirements for fishing vessels to cease operating in a defined area for a defined minimum period in order to protect temporary aggregations of endangered species, spawning fish, fish below minimum conservation reference size, and other vulnerable marine resources (e.g. moving-on rules/(near) Real-Time closures)	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐	☐	☐	☐	☐

a. If “other”, please describe details of the conservation measures implemented.

3. Please describe the selected measures **(optional)**

4. Following the implementation of conservation measures mentioned above, have these measures had a positive or negative impact on any of the following:

	Positive	Negative	I don't know	Comment on which measure this applies to
Change in unwanted species (reduction in non-target species)	☐	☐	☐	
Change in species below minimum reference conservation size (MCRS)/juveniles	☐	☐	☐	
Change in handling of unwanted species/bycatch	☐	☐	☐	
Change in catch composition	☐	☐	☐	
Change in catch value	☐	☐	☐	
Change in processing cost/time	☐	☐	☐	
Other [text box]	☐	☐	☐	

a. If “other”, please describe details of the conservation measures implemented.

5. Are you aware of any of the following landing obligation exemptions associated with the following? Please tick all that apply.

- ☐ prohibited species;
- ☐ high survivability;
- ☐ *de minimis* exemptions
- ☐ fish which show damage caused by predators

6. **If you are responding on behalf of a non-governmental body**, have you been consulted or involved in the development of a submitted a joint recommendation?

Yes/No

a. If yes, please specify how you were involved.

7. Building on the findings of the Member States' annual reports on the implementation of the landing obligation in 2021, have there been any recent changes to the quota management system in your Member State?

Yes/No

- a. If yes, please specify the nature of these changes and the rationale behind their implementation.
8. For stocks managed through catch limits, the existence of choke species is often identified as one of the main impacts of the implementation of the landing obligation.
 - o Have you observed any choke issues?
Yes/No
 - i. If so, please specify the species and relevant fishing grounds.
 - ii. Have your fisheries been closed due to choke issues?
Yes/No
 - o If so, when and which fisheries?
 - o What conservation measures or actions are taken to mitigate such issues?
9. Quota swaps can be a useful management measure to provide flexibility and reduce the risk of choke situations. Have any of the following been initiated in your quota system:
 - o Swaps between Member States? Yes/No Please state which Member States.
 - o Swaps between vessels within Member State? Yes/No. Please state which fleet segments/fisheries.
 - o Swaps with (in) the producer organisation
10. Has the use of quota flexibility mechanisms changed since the introduction of the landing obligation?

Yes/No
 - o If yes, please provide details regarding the use of the following mechanisms and specify the species and fleet segments for which they have been applied.
 - i. Inter-species flexibility [comment box]
 - ii. Inter-annual flexibility [comment box]
11. What control and enforcement measures have been carried out to ensure compliance with the landing obligation, as well as accurate documentation of all catches?
 - o Port inspections
 - o At-sea inspections
 - o Last-haul inspections
 - o REM systems
 - o Aerial surveillance
 - o Increased observer coverage

- Monitoring/control at landing markets (e.g. detect illegal sales of fish below MCRS)
- Administrative controls (e.g. cross checks of data recorded in logbook against landing declarations)
- Other, please specify [text box]

12. What challenges have you experienced in the implementation and in the control and enforcement of the landing obligation?

Select all that apply

Operational challenges

- Increased selectivity is hard to attain in specific fisheries (name the fisheries)
- Difficult to adapt vessels for handling unwanted catches at sea
- Insufficient hold capacity to accommodate additional unwanted catches
- Insufficient port infrastructure to handle additional landings of unwanted catches
- Difficulties with handling, storage and processing of unwanted catches at port
- Lack of national funding to support fishers to increase selectivity of fishing gear and methods or adapt vessels or port infrastructure
- Inexistence of economic outlet for unwanted catches brought to land
- Lack of incentives for compliance

Challenges related to quota management

- Problems re-allocating quota to cover catches previously not landed
- Problems with the timing or availability of quota swaps
- Fisheries being forced to close early due to choke issues

Challenges related to control and enforcement

- Difficult to detect discards because of insufficient observers (on board?)
- Difficult to detect discards because of insufficient electronic monitoring tools
- Not possible to detect discards by small (under-12m) vessels
- Difficult to gather evidence for successful prosecution of discarding
- Appropriateness of fines to deter fishers from discarding
- Not enough resources (inspectors, ships or aircraft) to enforce this obligation of landing all catches
- Lack of fisher understanding of the details of implementation and where different rules or exemptions may apply Difficulties implementing and monitoring *de minimis* or high survivability exemptions;

- Inaccurate or lack of reporting on discards in logbooks
- Fish below MCRS are still being landed and marketed for purposes of direct human consumption

☐ Other – please specify in the text box below

*** Question to appear after every selected challenge:** Are there any tools, measures, and/or good practices in place to address this challenge?

Yes/No

- If yes, please specify.

13. Building on the findings of the Member States' annual reports on the implementation of the landing obligation in 2021, have any additional control and monitoring tools been used within your region or Member State?

Yes/No

- a. If yes, please provide information on the control tools used in the context of the landing obligation. Examples include REM, traditional systems (such as aerial surveillance and inspections at sea), reference fleets, etc.

14. Since ???, have any pilot studies or trials been conducted to test additional tools or operational solutions to support the control and enforcement of the landing obligation? (e.g. REM studies).

Yes/No

- If Yes, please describe these pilot studies.

Section 2: Evaluation of Landing obligation

1. For your fleet segments/fisheries, within your relevant sea basins, what to what extent would you estimate the landing obligation has contributed to the achievement of Article 2(5)(a)?

Article 2(5)(a) = The CFP shall, in particular

(a) *gradually eliminate discards, on a case-by-case basis,;*

	Not at all	Poorly	Moderately	Fully	I don't know
North Sea	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Baltic Sea	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]

	Not at all	Poorly	Moderately	Fully	I don't know
Northern Western Waters	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Southern Western Waters	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Western Mediterranean	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Central Mediterranean	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Eastern Mediterranean	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Black Sea	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Outermost Region	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]

(b) by avoiding and reducing, as far as possible, unwanted catches,

	Not at all	Poorly	Moderately	Fully	I don't know
North Sea	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Baltic Sea	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Northern Western Waters	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Southern Western Waters	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Western Mediterranean	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Central Mediterranean	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Eastern Mediterranean	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Black Sea	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]
Outermost Region	[textbox]	[textbox]	[textbox]	[textbox]	[textbox]

(c) gradually ensuring that all catches are landed;

	Not at all	Poorly	Moderately	Fully	I don't know
North Sea					
Baltic Sea					
Northern Western Waters					
Southern Western Waters					
Western Mediterranean					
Central Mediterranean					
Eastern Mediterranean					
Black Sea					
Outermost Region					

(a) [If you have ticked Poorly or “Not at all”] Please list the fisheries where you believe this to be the case.

(b) [If you have ticked Moderately or “Fully”] Please list the fisheries where you believe this to be the case.

2. Please indicate what you believe are the levels of compliance with the following requirements of the landing obligation.

	Not at all	Poorly	Moderately	Incompletely	Fully	I don't know
That catches are brought and retained on board fishing vessels	☐	☐	☐	☐	☐	☐
That catches are recorded	☐	☐	☐	☐	☐	☐
That catches are landed	☐	☐	☐	☐	☐	☐
That catches are counted against quota where applicable	☐	☐	☐	☐	☐	☐

	Not at all	Poorly	Moderately	Incompletely	Fully	I don't know
Are catches below the minimum conservation reference size restricted to purposes other than direct human consumption	☐	☐	☐	☐	☐	☐

3. Please indicate which multiannual plan applies to your fleet segments/fisheries. Please tick all that apply.

- a. Baltic multiannual plan;
- b. North Sea multiannual plan;
- c. Western Waters multiannual plan;
- d. Western Mediterranean multiannual plan.

4. To what extent do you consider the relevant multiannual plan for your fleet segments/fishery clearly sets out the details of the implementation of the landing obligation referred to in Article 15 (5), in accordance with Articles 9 and 10 of the CFP regulation [(EU) No 1380/2013]?

	Not at all	Poorly	Moderately	Incompletely	Fully	I don't know
Specific provisions regarding fisheries or species covered by the landing obligation aimed at increasing gear selectivity or reducing or, as far as possible, eliminating unwanted catches	☐	☐	☐	☐	☐	☐
The specification of exemptions to the landing obligation of species for which scientific evidence demonstrates high survival rates	☐	☐	☐	☐	☐	☐
Provisions for <i>de minimis</i> exemptions of up to 5% of total annual catches of all species subject to the landing obligation	☐	☐	☐	☐	☐	☐
Provisions on documentation of catches	☐	☐	☐	☐	☐	☐
Where appropriate, the fixing of minimum	☐	☐	☐	☐	☐	☐

	Not at all	Poorly	Moderately	Incompletely	Fully	I don't know
conservation reference sizes						

5. Please feel free to add additional comments here (for example, any tools or processes to improve the comprehensiveness of the MAPs in order to facilitate the implementation of the landing obligation).

6. To what extent is scientific advice to stakeholders from fishing sector available to

- i. eliminate discards,
- ii. increase selectivity and
- iii. avoid unwanted catches?

(b) Which type of scientific bodies are providing this advice?

(c) Which stakeholders are benefitting from this advice?

7. Since 2021, have you initiated, supported, participated in or implemented any measures and/or studies relating to the reduction and avoidance of unwanted catches (i.e. **below Minimum Conservation Reference Size (MCRS)**) through improving selectivity or spatial or temporal changes to fishing behaviour (for example, studies/pilots on gear innovation or on real-time closures)?

Yes/No

- a. If Yes, please specify the measures taken or studies carried out and the status of the initiative (i.e. implemented in a Regulation or voluntary uptake).

8. Which management measures or initiatives were successful and/or have been adopted by the fishing fleet?

- i. Closed/Temporary closed areas
- ii. Selective gears
- iii. High survivability exemptions
- iv. Total allowable catch removal
- v. Quota management
- vi. Other, please specify

(b) Do you have an estimate of number of vessels with the uptake?

(c) Have you observed any changes? E.g. reduction in unwanted catch or increase in selectivity .

9. Have you implemented any incentives or/been incentivised to enhance the uptake of selective gear technology or selective fishing methods?

With incentives we mean, including those of an economic nature such as fishing opportunities that promote fishing methods which contribute to more selective fishing, the avoidance and reduction (as far as possible) of unwanted catches and fishing with low impact on the marine ecosystem and fishery resources.

Yes/No

- a. If Yes, please specify the incentives implemented and the associated fleet segment/fishery to which they apply.
 - b. What percentage of the fleet has implemented it?
10. What do you perceive to be the barriers and challenges encountered regarding the handling of unwanted MCRS catches onboard vessels?
- (a) Difficulty in adapting vessels to manage the handling of unwanted catches at sea
 - (b) Additional time and increased costs associated with the handling and processing of unwanted MCRS catches
 - (c) Insufficient hold capacity to accommodate additional unwanted MCRS catches
 - (d) Other
 - i. Please provide details.
11. Since the implementation of the landing obligation, has there been an increase in port infrastructure to facilitate landings for the non-human consumption market (i.e., unwanted catches)?

Yes/No

- a. If Yes, please specify these changes.
- b. If No, what do you perceive to be the main barriers and challenges for updating/ reconstructing port infrastructure to accommodate the additional landings of unwanted MCRS catches?
 - i. Lack of funding to build or maintain additional infrastructure
 - ii. Limited space to build specific facilities for handling additional unwanted MCRS catches
 - iii. Lack of a market to sell unwanted MCRS catches for purposes other than direct human consumption
 - iv. Other
 - 1. Please provide details.

12. Have you been able to generate a market outlet for unwanted catches restricted to purposes other than direct human consumption?

Yes/No

- a. If Yes, please provide details.
- b. If no why not

13. Has your region / Member State implemented any additional initiatives associated with control and enforcement to prevent unwanted catches from reaching the human consumption market? (e.g. pre-notification of landings of under MCRS catches or monitoring of landings at fish markets/auctions etc.).

Yes/No

- a. If Yes, please provide details.

[can you add a text here on your preliminary analysis of what training programmes are in place since 2014, or give some examples?)

14. Are there training programmes related to discarding reduction and/or sustainable fishing practices that influenced increases in selectivity within your Member State?

Yes/No

- a. If so, what do they cover?
- b. Are they free?
- c. Are you aware of
 - a. Enrolment levels
 - b. Training programs
 - c. Number of students enrolled
 - d. Type of attendee (e.g., demersal fishers, pelagic fishers, non-fishing stakeholders)

15. To what extent have these training programs on discarding reduction been adopted and implemented across various fishing segments within your jurisdiction?

Please provide information on the participation rates in these programs among different sectors of the fishing industry.

16. In your assessment, how has the implementation of relevant training programs contributed to the reduction of discarding and unwanted catches in your Member State?

Please share insights into specific examples, highlighting the impact of these training initiatives on promoting sustainable fishing practices and reducing the discard rate in different fishing segments.

17. Have new tools/techniques been adopted by operators of fishing vessels since 2014?

Yes/No/I don't know

a. Please specify those new tools/techniques to:

- i. Reduce unwanted catches
- ii. Eliminate discards
- iii. Ensure catches are landed

18. Were there any additional costs associated with the adoption of such new tools/techniques?

Yes/No/I don't know

a. Please specify

b. Did the additional costs reduce the adoption of such new tools/techniques? (Yes/no/I don't Know)

19. Was there financial and/or legal support available towards the additional costs associated with the adoption of new tools/techniques?

Yes/No/I don't know

a. Please specify the supports?

20. Have any other policies at member state level been put in place to help in providing better cost-effectiveness of the implementation of the landing obligation?

Yes/No/I don't know

a. Please specify these policies.

Please insert pre analysis of the Advisory Council recommendations or statistics on how many recommendations received over the years (or an estimation from what you found) as introductory text

21. Could you provide examples where Member States jointly worked with the Advisory councils to provide recommendations on improving cost-effectiveness of:

- (a) Landing all catches
- (b) Handling unwanted catches
- (c) Implementation of the landing obligation in general
- (d) Increasing selectivity
- (e) Reducing administrative costs

- (f) Reducing administrative procedure
- (g) Reducing financial costs in general towards fishers

22. For the following statements indicate your opinion on one of the following responses (from **strongly disagree, disagree, agree, strongly agree and don't know**)

- a. the landing obligation is relevant to the needs of your respective group as identified in the impact assessment of 2011 accompanying the EU Commission proposal
- b. The landing obligation has improved the sustainable exploitation of marine resources
- c. The landing obligation has a positive impact on the financial viability of fisheries
- d. The landing obligation provides appropriate and proportionate exemptions in fishing quotas
- e. The landing obligation has reduced overall discard
- f. The landing obligation has increased the selectivity of fishing gear
- g. The landing obligation has incentivised fishers to land all the catches
- h. Discards should continue to be eliminated

23. For the following statements indicate your opinion on one of the following responses (from **strongly disagree, disagree, agree, strongly agree and don't know**)

- a. the objectives of the landing obligation help in protecting the marine environment (Marine Strategy Framework Directive),
- b. The objectives of the landing obligation help in recovery of Biodiversity in the oceans (Biodiversity Strategy),
- c. The objectives of the landing obligation help in maintaining and restoring the marine habitats to a favourable conservation status within the EU (Habitats Directive),
- d. The objectives of the landing obligation help support fishers and improve productivity (Common Agricultural Policy)
- e. The objectives of the landing obligation help tackle climate change and the sustainable management of natural resources (Common Agricultural Policy)

24. For the following statements indicate your opinion on one of the following responses (from **strongly disagree, disagree, agree, strongly agree and don't know**) [an EU intervention can be seen as any activities undertaken by the European Union (EU)],

- (a) the landing obligation resulted in additional value, compared to what could be achieved by Member States at national and regional levels?
 - (b) the landing obligation helped in the achieving results
 - (c) the landing obligation provided additional results compared to the national and regional output and results in Member States
 - (d) the landing obligation responded to cope with crises:
 - i. Climate emergencies,
 - ii. COVID-19,
 - iii. Russian aggression in Ukraine
25. Could you provide other policies and initiatives similar to the EU landing obligation that are relevant in your respective member state to
- (a) Gradually eliminating discards
 - (b) Reduce unwanted catches
 - (c) Gradually ensuring all the catches are landed
26. For the following statements indicate your opinion on one of the following responses (from **strongly disagree**, **disagree**, **agree**, **strongly agree** and **don't know**)
- (a) **The EU** landing obligation to gradually eliminate all discards supported the national policies and initiatives that you listed above
 - (b) The EU landing obligation to reduce unwanted catches supported the national policies and initiatives that you listed above
 - (c) The EU landing obligation to ensure all catches are landed supported the national policies and initiatives that you listed above:

ANNEX 16: References

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ANNEX 17: Legislation

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Commission Delegated Regulation (EU) 2022/2587 of 18 August 2022 amending Regulation (EU) 2019/1241 of the European Parliament and of the Council as regards the minimum conservation reference size of Venus shells (*Venus* spp.) in certain Italian territorial waters.

Resolución de 31 de marzo de 2022, de la Secretaría General de Pesca, por la que se publica la lista de especies para 2022 que disponen de una exención a

la obligación de desembarque por alta supervivencia.

www.boe.es/boe/dias/2024/04/05/pdfs/BOE-A-2024-6788.pdf

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Commission Delegated Regulation (EU) 2023/2459 of 22 August 2023 supplementing Regulation (EU) 2018/973 of the European Parliament and of the Council by specifying details of the landing obligation for certain fisheries in the North Sea for the period 2024-2027. C/2023/5524. OJ L, 2023/2459, 6.11.2023

Commission Delegated Regulation (EU) 2023/2460 of 22 August 2023 supplementing Regulation (EU) No 1380/2013 of the European Parliament and of the Council as regards the establishment of a *de minimis* exemption to the landing obligation for certain small pelagic fisheries in the Mediterranean Sea. OJ L, 2023/2460, 6.11.2023

Commission Delegated Regulation (EU) 2023/2462 of 22 August 2023 supplementing Regulation (EU) 2019/1022 of the European Parliament and of the Council by specifying details of the landing obligation for certain demersal stocks in the western Mediterranean Sea. C/2023/5540. OJ L, 2023/2462, 6.11.2023

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Regulation (EU) 2023/2842 of the European Parliament and of the Council of 22 November 2023 amending Council Regulation (EC) No 1224/2009, and amending Council Regulations (EC) No 1967/2006 and (EC) No 1005/2008 and Regulations (EU) 2016/1139, (EU) 2017/2403 and (EU) 2019/473 of the European Parliament and of the Council as regards fisheries control. OJ L, 2023/2842, 20.12.2023.

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Council Regulation (EU) 2024/257 of 10 January 2024 fixing for 2024, 2025 and 2026 the fishing opportunities for certain fish stocks, applicable in Union waters and, for Union fishing vessels, in certain non-Union waters, and amending Regulation (EU) 2023/194. ST/16570/2023/ADD/3/REV/1. OJ L, 2024/257, 11.1.2024.

Regulation (EU) 2024/897 of the European Parliament and of the Council of 13 March 2024 amending Regulation (EU) 2017/2107 laying down management, conservation and control measures applicable in the Convention area of the International Commission for the Conservation of Atlantic Tunas (ICCAT) and Regulation (EU) 2023/2053 establishing a multiannual management plan for bluefin tuna in the eastern Atlantic and the Mediterranean. OJ L, 2024/897, 19.3.2024

Commission Delegated Regulation (EU) 2024/1296 of 28 February 2024 supplementing Regulation (EU) 2016/1139 of the European Parliament and of the Council concerning an exemption from the application of the landing obligation as regards salmon in the Baltic Sea for the period 2024-2026. C/2024/1162. OJ L, 2024/1296, 7.5.2024

Resolución de 22 de marzo de 2024, de la Secretaría General de Pesca, por la que se establecen las posibilidades de pesca individuales, así como cuotas individuales de pesca para el año 2024, para los buques censados en la modalidad de arrastre de fondo autorizados a faenar en 2024 en el caladero Cantábrico y Noroeste. www.boe.es/diario_boe/txt.php?id=BOE-A-2024-6198

Resolución de 27 de marzo de 2024, de la Secretaría General de Pesca, por la que se publica la lista de especies y stocks elegibles que podrán ser objeto de flexibilidad interespecies durante el año 2024, así como las poblaciones que podrán ser objeto de deducción ese mismo año para cubrir las especies retenidas. www.boe.es/diario_boe/txt.php?id=BOE-A-2024-6790#:~:text=A%2D2024%2D67%2090-,Resoluci%C3%B3n%20de%2027%20de%20marzo%20de%202024%2C%20de%20la%20Secretar%C3%ADa,para%20cubrir%20las%20especies%20retenidas.

Commission Delegated Regulation (EU) 2024/3093 of 13 October 2022 amending Regulation (EU) 2019/1241 of the European Parliament and of the Council as regards specific technical measures to reduce by-catches of cod in the Baltic Sea. OJ L, 2024/3093, 10.12.2024

Commission Implementing Regulation (EU) 2024/3094 of 27 November 2024 laying down detailed rules on certain selective devices to reduce incidental catches of cod in the Baltic Sea provided for in Annex VIII to Regulation

(EU) 2019/1241 of the European Parliament and of the Council. OJ L, 2024/3094, 10.12.2024

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