European Parliament

Multi-annual plan for the fisheries exploiting demersal stocks in the western Mediterranean

Complementary Impact Assessment

STUDY

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EN

Complementary Impact Assessment of the European Commission's proposal for a multi-annual plan (MAP) for the fisheries exploiting demersal stocks in the western Mediterranean

In the light of the European Commission's initial impact assessment accompanying its proposal for a multi-annual plan (MAP) for the management of demersal fisheries in the western Mediterranean (COM(2018) 115 final), the European Parliament's Committee on Fisheries (rapporteur: Clara Aguilera García, S&D, Spain) requested the Ex-Ante Impact Assessment Unit of the European Parliamentary Research Service to produce a complementary analysis focusing on the socio-economic impacts in the countries affected by the MAP proposal (Spain, France and Italy), and on the coherence of the MAP with other applicable legislation.

Based on processing of economic data collected and on stakeholder interviews, this research paper thus aims to assess and quantify (when possible) the potential impacts on fishing companies (all SMEs) and ancillary activities (in the short, medium and long-term) of several of the specific MAP provisions.

According to the main findings, the fleet segments that would be impacted correspond to 6 713 vessels and 12 799 jobs. However, these fleet segments would not be impacted in the same manner by the MAP proposal as they do not have the same level of dependency upon demersal stocks (trawlers being the most dependent fleet segment). In addition, the impacts of the MAP proposal would vary depending on its specific provisions (i.e. management measures under the MAP) and between countries or regions. Beyond the impacts of individual measures, significant impacts could occur if several measures were to be enforced together. In particular, a significant reduction of fishing effort combined with other fishing closure measures could put a large number of companies (especially for trawlers) at financial risk, and locally weaken the economic balance of the whole supply chain. Moreover, in case of implementation of catch limitations measures (TAC and quota), compliance issues might arise regarding other common fisheries policy provisions, specifically the landing obligation.

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Executive summary

General framework

The European Commission proposal for a Multi Annual Plan (MAP) for fisheries exploiting demersal stocks in the western Mediterranean Sea (COM(2018) 115 final), adopted on 8 March, 2018, aims to rebuild stocks to Maximum Sustainable Yield (MSY) levels and implement an ecosystem-based approach to fishing management. This new proposal seeks to deal with the high levels of overfishing in the western Mediterranean Sea by tackling excessive fishing. The MAP proposal applies to the stocks of demersal species, by-catch stocks and other demersal stocks in the western Mediterranean, referring to three countries: Spain, France and Italy.

The Commission conducted an impact assessment (IA) (SWD(2018) 60 final) which outlines the main policy options and examines the potential impacts of these options from environmental, social and economic viewpoints. The European Parliamentary Research Service then provided an initial appraisal concluding that the Commission's IA provided quantitative data on the impacts of the options, but that it did not give enough details of the socio-economic impacts on the fishermen and the fleets, or the impacts on ancillary activities. As a consequence, Clara Aguilera García (S&D, Spain), the rapporteur of the PECH committee requested a complementary impact assessment in order to fill the identified gaps.

So, this research paper aims to review and complement the analysis conducted in the IA with regards to the following aspects:

- The socio-economic specificities of the fishing activities targeting demersal stocks in the areas concerned by the MAP proposal.
- The territorial and socio-economic impacts of the MAP proposal on the fishing activities targeting demersal stocks as well as ancillary activities in the areas concerned by the MAP proposal. A specific focus on SMEs was requested but as the large majority of fishing companies impacted by the MAP are microenterprises, impacts on the sector mean impacts on SMEs.
- The coherence of the proposed MAP with the existing legal framework managing fishing activities, especially the national management plans implemented in the framework of the MEDREG.

Methodology

To review and complement this IA (providing only a broad quantification of reduction of fishing effort measure and not focusing on specific provisions of the MAP), our methodology was based on a combined approach of:

- **Desk research and statistical data analysis**: based on data from the Data Collection Framework (DCF), the European Market Observatory for Fisheries and Aquaculture Products (EUMOFA) and other national sources. The objective of this phase was to conduct an in-depth analysis of the socio-economic situation of the fishing sector and the existing regulatory framework. The quantification of socio-economic impacts was also based on data gathered from alternative sources (especially in France with data provided by the GEPAC Med project) and from stakeholder interviews.
- **Stakeholder consultation**: In total eight interviews have been conducted with fisheries representative organisations (e.g. producer organisations, representative associations of fishermen, etc.): five interviews in France and three in Spain. Stakeholders in Italy did not agree to participate in this consultation, despite several attempts to reach out to them. The objective was to gather qualitative and where possible quantitative information on the

possible impacts of the MAP implementation. The information gathered has been triangulated with information collected during desk research and statistical data analysis. In the context of this research paper, there is no specific section dedicated to the SMEs test (even though mandatory in the context of the Better Regulation Guidelines) as 100% of the fishing companies involved in fishing stocks in the western Mediterranean are SM Es (if we consider the European definition of an SME[1]) and the great majority are even microenterprises (with less than 10 employees). Therefore, all the analysis presented in this research paper, is applicable to the SMEs of the fishing sector targeting demersal stocks in the western Mediterranean.

Main findings on the overall socio-economic impact of the MAP proposal provisions

According to this research paper, the fleet segments that would be impacted by the MAP proposal are the **French, Italian and Spanish trawlers** (FR DTS1824; FR DTS2440, IT DTS0612; IT DTS1218; IT DTS1824; IT DTS 2440, ESP DTS0612; ESP DTS 1218; ESP DTS 1824; ESP DTS2440); the **French fleet segment of netters** (FR DFN0612), the **Italian fleet segments of polyvalent passive gears** (ITA PGP0006; IT PGP0612; IT PGP1218), the **Spanish fleet segments of netters** (ESP DFN0612; ESP DFN1218) and the **Spanish fleet segments of vessels using hooks** (ESP HOK0612; ESP HOK1218). This corresponds to 6.713 vessels and 12.799 jobs. However, these fleet segments will not be impacted in the same manner by the MAP proposal as they do not have the same level of dependency upon demersal stocks. Overall, **the trawlers are the most dependant fleet segments**. In addition, the impacts of the MAP proposal vary depending on its specific provisions (i.e. management measures under MAP).

Substantial reduction of fishing effort

Short term impacts on fishing companies

The reduction of fishing effort will directly and negatively affect the gross added value of fishing companies. The immediate impact will be at two levels: crew wages and the capacity of the vessels' owners to reimburse loans and/or invest in modernisation of vessels, fishing gear, etc. Depending on the level of loans or the age of vessels, the effort reduction threshold above which one fishing company is not able to reimburse its loans may vary from one fishing company to another. So it is difficult to estimate precisely the number of companies at risk of bankruptcy, but there is a high probability that a substantial reduction of fishing effort would definitively affect the economic viability of a significant number of fishing companies.

Medium term impacts on fishing companies

In the medium term, the effort reduction is supposed to lead to the recovery of targeted demersal stocks. The consequence would be an increase of the biomass and, with an unchanged fishing effort, better yields and increasing catches (increased catches per unit of effort). This would lead to improved profitability for those fishing companies that survived the cut in fishing.

If the reduction of fishing effort does not result in fish stocks recovery and thus an overall increase of the economic performance, impacts on employment could occur (losses of companies and/or jobs).

[1] According to the EU recommendation 2003/361, SM Es are defined as enterprises having less than 250 persons employed.

Long-term impacts on fishing companies

With shared remuneration systems, once the overall economic performance increases (e.g. from recovering of fish stocks), salaries increase. However, this could be possible for fishing companies that could bear the transition phase and restoring lost companies or jobs is unlikely to happen.

Closure areas and periods (towed gear forbidden above the 100 m isobath and other closure areas)

The implementation of this measure could have significant negative impacts on the activity of vessels in certain areas where the 100 m isobath is particularly far from the coast considering the large continental shelf (which implies a long journey time to reach the authorised fishing area). These areas are the Gulf of Lion, the South of Catalonia and the North of Valencia.

Limitation of catches

A total allowable catch (TAC) management system (output control) relies on stock assessment. This may be a problem considering the instability of the stock assessments due to short time series and data limitations. This research paper considers the impacts of this measure uncertain and indicates that the establishment of TAC and quotas (if there is compliance) can impact both variable fishing costs and revenues. This is because, depending on the choke species, fishers will have to change fishing strategies to avoid unwanted catches. Most stakeholders interviewed (see Annex 1) contend that the implementation of TAC and quotas are not applicable in the Mediterranean context, as trawlers are multispecies.

Beyond the socio-economic impacts of the set of measures recommended in the MAP proposal, significant negative economic impacts (on fishing companies and ancillary activities) could arise from the enforcement of the different measures taken together: catch limitations and landing obligation, 12h fishing trips and 100 m isobath constraint, etc.

In terms of **coherence with the existing legal framework**, the analysis of the MAP proposal underlined the complexities of specific measures particularly implementing TAC in mixed fisheries. This will be particularly complex when the landing obligation is enforced. In addition, this analysis revealed that some issues have not been addressed in the MAP proposal, including the introduction of electronic monitoring systems for vessels subject to the MAP, the absence of provisions related to additional support from EMFF, the absence of specific management measures related to recreational fisheries. Given the shared nature of stocks, regionalisation is foreseen in the context of MAP proposal. However, expanding cooperation to third countries has not been considered by the MAP proposal. These gaps could hinder the fulfilment of the MAP objectives within its timeline.

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List of acronyms

CFP: Common Fisheries Policy

DCF: Data Collection Framework

DFN: Drift and/or fixed netters

DTS: Demersal trawlers and/or demersal seiners

EBIDTA: earnings before interest, taxes, depreciation, and amortization

EUMOFA: European Market Observatory for Fisheries and Aquaculture products

FTE: Full Time Equivalent

GFCM: General Fisheries Commission for the Mediterranean

GAV: Gross Added Value

GSA: Geographical sub-area

HOK: Vessels using hooks

IA: Impact Assessment

MAP: Multi Annual Plan

MEDREG: COUNCIL REGULATION (EC) No 1967/2006, concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea.

PGP: Vessels using polyvalent passive gears only

STECF: Scientific, Technical and Economic Committee for Fisheries

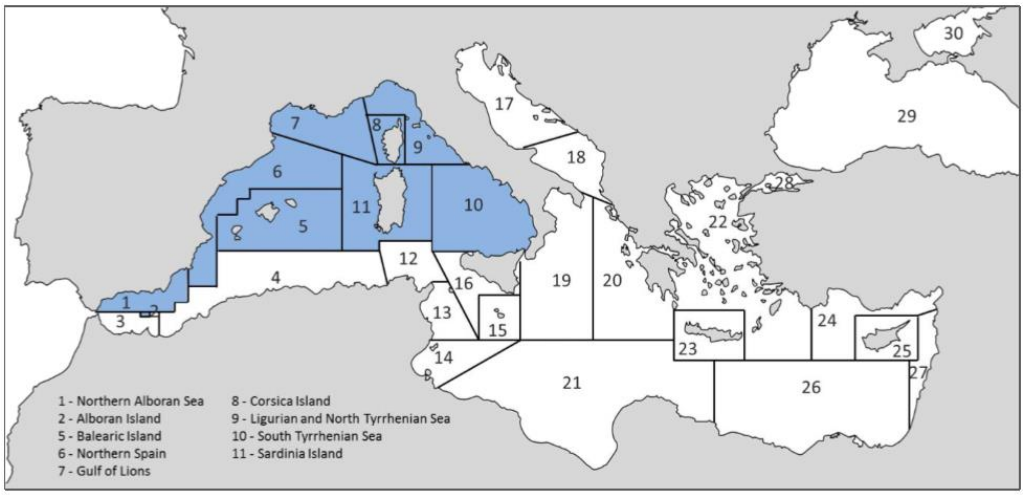
TAC: Total Allowable Catch

1. Introduction

The entry into force of the new Common Fisheries Policy (CFP) in 2014 was a historic benchmark as it defines the path towards European Union (EU) fish stock recovery, mainly through Multiannual Plans (MAP)[2]. The European Commission proposal for a MAP for the fisheries exploiting demersal stocks in the western Mediterranean Sea (COM (2018) 115 final), adopted on 8 March 2018, aims at rebuilding stocks to Maximum Sustainable Yield (MSY) levels and implementing an ecosystem-based approach to fishing management. The proposed multi-annual plan is one of five multi-annual plans launched under the current common fisheries policy (CFP, Regulation No 1380/2013, known as the Basic Regulation). This new proposal seeks to deal with the high levels of overfishing in the western Mediterranean Sea, by tackling excessive fishing effort[3].

The MAP proposal applies to the fish stocks of the demersal species, by-catch stocks and other demersal stocks in the western Mediterranean, particularly in France, Italy and Spain (the geographical scope of the MAP is the area highlighted in blue in the figure below).

Figure 1 - For the purpose of this initiative, the western Mediterranean Sea' covers the Geographical sub-areas (GSAs) 1, 2, 5, 6, 7, 8, 9, 10, and 11 (blue area)



Source: The Commission Impact Assessment accompanying the MAP proposal

In light of the Commission proposal for a regulation establishing a MAP for fisheries exploiting demersal stocks in the western Mediterranean, the Commission conducted an impact assessment (IA) which outlines the main policy options and examines the potential impacts of these options

[2] The Regulation 1380/2013 on the Common Fisheries Policy emphasises the role of multi-annual approach to achieve objectives of sustainable exploitation of marine biological resources, by establishing as a priority, multiannual plans reflecting the specificities of different fisheries. Articles 9 and 10 of this regulation provide specificities and contents of multi-annual plans. Overall, under the new CFP, multiannual plans shall include the target of fishing at maximum sustainable yield and a deadline for achieving this target. They also shall contain measures for the implementation of the landing obligation, safeguards for remedial action where needed and review clauses, etc. Multiannual plans may also include technical measures.

[3] In this research paper, fishing effort refers to the resources devoted to fishing, quantified in physical units (e.g. number of days at sea, number of vessels, etc.).

from an environmental, social and economic viewpoint[4]. The Ex-Ante Impact Assessment Unit (IMPA) of the Directorate-General for Parliamentary Research Services (DG EPRS) of the European Parliament prepared an initial appraisal of the Commission's IA in June 2018 analysing the IA's strengths and weaknesses. This initial appraisal concluded that the Commission's IA provides quantitative data on the impacts of the options, however, without giving enough details of the financial impacts on the fishermen and the fleets and does not include a quantification of costs and benefits for Small and medium-sized enterprises (SMEs). As a follow-up to this, the Committee on Fisheries (PECH) requested a complementary impact assessment to review and complement the Commission's IA. The purpose of this research paper is to support the Parliament's consideration of the proposal and to feed into the negotiations between the Parliament, the Council and the Commission.

Particularly, in line with the request of the PECH committee, this research paper aims to review and complement the analysis conducted in the IA with regards to the following aspects:

- The territorial and socio-economic impacts of the MAP proposal on fishing activities targeting demersal stocks as well as ancillary activities in the areas concerned by the MAP proposal;
- The coherence of the proposed MAP with the existing legal framework such as MEDREG as well as national legislation applicable in the western Mediterranean region including national management plans.

[4] Commission staff working document (SWD(2018)60 final): Impact Assessment accompanying the Proposal for a Regulation of the European Parliament and of the Council establishing a multiannual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea, 2018.

2. Methodology

The Commission's IA constituted the starting point of this research paper. It provides an overview of the legal framework of the MAP proposal and a first overview of its socio-economic impacts particularly by providing the number of fleet segments, the number of vessels and of jobs that would be impacted by the MAP proposal (see Annex 6). The Commission's IA analysed the economic dependency[5] of the French, Italian and Spanish fleet segments on the main demersal species. Based on the Commission's analysis, the proposed multi-annual plan would put eight fleet segments at financial risk by 2022. They are the French, Spanish and Italian bottom trawlers between 18 and 40 meters in overall length and some Spanish passive gears (e.g. longliners between 6 and 12 meters). Although the Commission's IA constitutes an important basis for assessing the possible impacts of the MAP implementation, several gaps have been noticed concerning the analysis of the socio-economic impacts. First, the IA does not explain what is meant by financial risk and does not provide the threshold of economic dependency used to consider a fleet segment at financial risk. Moreover, the Commission's IA used the Italian national data for the calculation of the fleet segments' dependency, although the geographical scope of the MAP proposal covers only the Western Mediterranean. Secondly, the economic impacts are assessed on the basis of two indicators: the number of fleet segments at financial risk and the number of vessels affected. These indicators are limited and do not permit an assessment of the impacts of the MAP on profitability of vessels as well as ancillary activities. Finally, the Commission's IA only considers the impacts of one measure of the MAP proposal – the effort reduction – without assessing the possible impacts of the other measures under the MAP proposal (e.g. closure period for trawlers at depths below 100 m, 12 hours limitation for trawlers fishing trips, etc.).

To review and complement this IA, our methodology was based on the two following approaches:

- **Desk research and statistical data analysis:** based on data from the Data Collection Framework (DCF)[6], the European Fleet Register[7], the European Market Observatory for Fisheries and Aquaculture Products (EUMOFA) and a statistical national source for Italy. The objective of this phase was to conduct an in-depth analysis of the socio-economic situation of the fishing sector and the existing regulatory framework. The quantification of socio-economic impacts was also based on data gathered from these statistical sources.
- **Stakeholder consultation:** interviews have been conducted with fisheries representative organisations (e.g. producer organisations, representative associations of fishermen, etc.). The objective was to gather qualitative and where possible quantitative information on the possible impacts of the MAP implementation. The gathered information has been triangulated with information collected during desk research and statistical data analysis.

[5] Economic dependency is calculated as the share of landings value coming from the demersal species compared to the overall value of landings for the fleet segments.

[6] Under the Data Collection Framework, the Member States collect, manage and make available a wide range of fisheries data needed for scientific advice.

[7] The Community Fishing Fleet Register, commonly called "Fleet Register", is an essential tool to implement and monitor the Common Fisheries Policy. It is a database where the fishing vessels flying the flag of a Member State have to be registered in accordance with Community legislation. The data base is accessible through the following link: http://ec.europa.eu/fisheries/fleet/index.cfm

Thus, **we complemented the Commission's IA by addressing the gaps mentioned above**. First, we calculated the economic dependency of all the fleet segments following the methodology used by the Commission's IA. We considered the minimum threshold of 5% dependency on selected stocks to identify the fleet segments that would be potentially impacted by the implementation of the proposed MAP. This minimum threshold was used in the Scientific, Technical and Economic Committee for Fisheries (STECF) on Multiannual plan for demersal fisheries in the Western Mediterranean. In addition, we used Italian statistical sources to take into account landings data only occurring in the Western Mediterranean (rather than the DCF data which are at national level). As a result, we expanded the list of fleet segments considered by the Commission's IA as impacted by the implementation of the MAP proposal to other fleet segments (including all bottom trawlers in the three countries not only bottom trawlers from 18 to 40 m). These fleet segments are presented in the table 1 below. Secondly, in addition to identifying the number of vessels and jobs that would be impacted once the MAP proposal is enforced, we studied the impacts on the profitability level of fishing companies and the impacts on ancillary activities. Finally, we studied the impacts of each MAP measure for each country and when possible for each fleet segment. In the context of this research paper, there is no specific section dedicated to the SMEs test as 100% of the fishing companies involved in fishing stocks in the Western Mediterranean are SMEs (if we consider the European definition of an SME[8]) and the great majority are even microenterprises (with less than 10 employees). Thus, all the analysis presented in the following sections concern the SMEs of the fishing sector targeting demersal stocks in the Western Mediterranean.

During the stakeholder consultation phase, all the fleet segments presented in the table below were taken into account and we asked stakeholders about the potential impacts of the MAP provisions on all these fleet segments.

[8] According to the EU recommendation 2003/361, SMEs are defined as enterprises having less than 250 persons employed.

***Table 1**- Number of vessels, volume and value of landings of the most important demersal species and the economic dependency of the fleet segments on demersal stocks landings[9] in 2015*

MS	FS	Number of vessels	Volume selected species (tonnes)	% volume	Value selected species (1000 euros)	% Value
FR	FR A37 DTS1824	31	572	**25%**	3 588	**35%**
	FR A37 DTS2440	32	1 151	**24%**	6 837	**42%**
	FR A37 DFN0612	539	93	**7%**	718	**7%**
IT	IT A37 DTS0612	10	46	**20%**	362	**18%**
	IT A37 DTS1218	367	1 640	**30%**	13 301	**32%**
	IT A37 DTS1824	233	2 104	**28%**	11 244	**29%**
	IT A37 DTS2440	31	317	**34%**	3 545	**39%**
	IT A37 PGP0006	1 219	143	**9%**	1 534	**11%**
	IT A37 PGP0612	3 201	897	**11%**	8 789	**14%**
	IT A37 PGP1218	286	233	**16%**	1 388	**14%**
ESP	ESP A37 DTS0612	21	39	**17%**	287	28%
	ESP A37 DTS1218	152	833	**21%**	7 603	**39%**
	ESP A37 DTS1824	307	4 974	**39%**	68 041	**69%**
	ESP A37 DTS2440	135	2 688	**45%**	33 919	**75%**
	ESP A37 DFN0612	45	28	**9%**	210	**11%**
	ESP A37 DFN1218	40	28	**7%**	208	**8%**
	ESP A37 HOK0612	42	22	**8%**	169	**10%**
	ESP A37 HOK1218	22	24	**11%**	194	**15%**

Source: DCF data

Limitations to the approach:

- **Different levels of involvement between stakeholders:** While all the organisations consulted in France agreed to participate to the consultation phase, except one organisation (five interviews have been conducted in France), only three stakeholders participated in Spain and no stakeholder participated in Italy, despite several reminders (by e-mails and phone). The full list of stakeholders consulted is provided in the Annex 1. To tackle this gap, we conducted our own desk research and press review.
- **Several limits concerning the DCF data** (main used statistical sources for our analysis):
  - DCF data includes different variables on vessels' features, on fishing activities outcomes (landings volume and value) and on the economic performance of fishing companies. We noted that the different variables concern different years (2015 or 2016) according to countries. As our analysis involves triangulating different variables, we decided to consider the year 2015 as a reference year to ensure homogeneity

[9] The selected demersal species are the ones concerned by the MAP: hake, red mullet, monkfish, blue whiting, Norway lobster, deep-water rose shrimp, blue and red shrimps.

throughout the report and comparability between the countries. The same year was used by the Commission in their Impact Assessment. In the context of this research paper, more recent data were used for some analysis from other statistical data (namely EUMOFA and the European Fleet Register).

- In Italy, data on economic performance of fishing companies is only available at the national level. Thus, they do not reflect specificities of the Western Mediterranean fisheries.

3. Overview of the fishing activities on demersal stocks in the Western Mediterranean

In the Western Mediterranean, demersal stocks are caught by the French, Italian and Spanish fleets. The main demersal species caught are hake (*Merluccius merluccius*), red mullet (*Mullus barbatus*), anglerfish (*Lophius spp.*), blue whiting (*Micromesistius poutassou*), giant red shrimp (*Aristaeomorpha foliacea*), deep-water rose shrimp (*Parapenaeus longirostris*), blue and red shrimp (*Aristeus antennatus*) and Norway lobster (*Nephrops norvegicus*). Article 1.2 of the proposal for a regulation establishing a multi-annual plan for the fisheries exploiting demersal stocks in the Western Mediterranean Sea provides the list of stocks to which the regulation applies which include **blue and red shrimp, deep-water rose shrimp, giant red shrimp, European hake and Norway lobster**. The same article in its third point indicates that the regulation applies also to **any other demersal stocks caught in the Western Mediterranean**. For this reason, this research paper takes into account, in addition to the species explicitly mentioned in the multi-annual plan, the anglerfish and the blue whiting (where data is available) as they constitute an important share of landings of vessels targeting demersal stocks.

Various fishing gears are used to exploit these species. Bottom trawl is the main gear and has the largest catch and fleet power. In France, 95% of demersal species landings are attributable to the trawlers. To a lesser extent, passive gears such as gillnets, traps and longlines are also important in the exploitation of demersal species. Most species distributed in the continental shelf, particularly those living close to the bottom, are targeted by trammel nets and gillnets. Longlines are used to catch mainly adult hake and other species located in deep waters.

Landings volume has decreased in the last years, by 8% in France, 12% in Italy and 16% in Spain between 2011 and 2015. The figures indicated in the table below represent the landings in the Western Mediterranean for France and Spain and for the whole Mediterranean for Italy. The landings value has decreased in France and Italy over the same period (2011-2015) but has increased in Spain (by 24%). The decrease in catch volume could be related to the implementation of national management plans for demersal species, developed under the framework of the Council Regulation (EC) No 1967/2006 of the 21 December 2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, known as MEDREG.

Table 2 *– Landings volume and value of demersal species[10] in the Western Mediterranean European by Member State (France, Italy and Spain) between 2011 and 2015*

Volume (tonnes)						
MS	**2011**	**2012**	**2013**	**2014**	**2015**	**Evol. 2011/15**
France	2 039	1 334	2 086	2 430	1 869	-8%
Italy*	35 425	32 046	31 854	30 287	31 127	-12%
Spain	10 707	8 860	8 659	6 762	9 023	-16%
Value (1000 EUR)						
MS	**2011**	**2012**	**2013**	**2014**	**2015**	**Evol. 2011/15**
France	12 439	7 807	9 558	11 836	11 616	-7%
Italy*	338 223	289 502	279 396	255 331	277 389	-18%
Spain	91 177	80 272	72 049	62 757	113 408	24%

(*) data for Italy concern the whole Mediterranean.

Source: DCF data

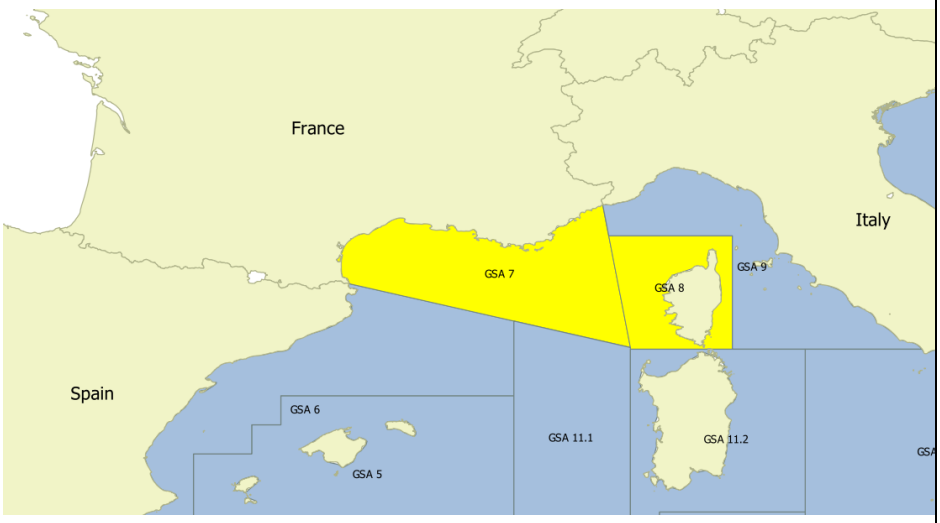
[10] Demersal species considered are: European hake, red mullet, anglerfish, blue whiting, giant red shrimp, deep-water rose shrimp, blue and red shrimp and Norway lobster.

3.1. Description of fishing activities targeting demersal stocks in France

3.1.1. Fishing fleets targeting demersal stocks in France

Geographical scope: In France, there are two geographical sub-areas (GSA) affected by the multi-annual plan for demersal stocks in the Western Mediterranean: GSA 7 (Gulf of Lion) and GSA 8 (Corsica Island) in a limited extent.

Figure 2 *– Map of geographical sub-areas in France concerned by the multi-annual plan for demersal stocks for the Western Mediterranean*



Source: Own elaboration

Fleet segments potentially impacted by the MAP for demersal stocks in the Western Mediterranean: Three fleet segments will be potentially impacted by the implementation of the MAP for demersal stocks: two fleet segments of demersal trawls (DTS1824 and DTS2440) and one fleet segment of drift netter (DFN0612).

The table below provides an overview of the number of vessels and their main features, the number of persons employed, the number of fishing days and the income from landings for the fleet segments that would be impacted by the implementation of the MAP proposal.

In 2015, the trawler fishing fleet in France was composed of 63 vessels. This accounts for 31 vessels from the fleet segment between 18 and 24 m of length (DTS 18-24) and 32 from the fleet segment between 24 and 40 m of length (DTS 24-40). In 2015, 233 persons were employed by these fleets. It is worth noting that fleet segment of trawlers between 24 and 40m (DTS 2440) has decreased by 46% between 2008 and 2015.

The fleet segment of netters between 6 and 12m is composed of 539 vessels that employed 699 persons.

Table 3 *– Main features and income of vessels targeting demersal stocks in France in 2015*

Fleet segment	Number of vessels	Number of persons employed	Average age of vessels (year)	Average length (m)	Fishing days	Income (1000 EUR)
FR A37 DTS1824	31	98	22	22	4 950	11 980
FR A37 DTS2440	32	135	18	28	6 120	19 574
FR A37 DFN0612	539	699	32	8	22 784	16 043
TOTAL	**602**	**933**	-	-	**33 854**	**47 597**

Source: DCF data

In total, **602 vessels and 933 persons will be potentially impacted by the implementation of the MAP for demersal stocks in France**.

According to the European fleet register, most vessels are registered in the GSA7, particularly the region of Occitanie. 42 vessels are registered at the port of Sète and 7 vessels in Port- Vendres. Although the majority of vessels are registered at the port of Sète, they land in different ports of the Mediterranean coast. In 2017, 41% of landings have occurred in the port of Sète, 30% in the port Le Grau-du-Roi, 15% in the port Agde and 13% in Port-la-Nouvelle, all of them in the region of Occitanie. According to stakeholders, the different fishing strategies are related to the vessels' age, with old wooden vessels operating closer to the coast and newer or modernised vessels operating in more remote fishing grounds.

Table 4 *– Number and main features of vessels in France by region and by ports, 2016*

	Region	PORT	Number	Average length	Max Length	Minimum Length
GSA7	**Occitanie**	SÉTE	42	23	26	18
		PORT VENDRES	7	24	25	19
	PACA*	MARSEILLE	5	22	25	19
GSA8	**Corsica**	BASTIA	5	15	18	12
		AJACCIO	3	18	25	14

(*) PACA: Provence-Alpes-Côte d'Azur

Source: European Fleet Register

According to stakeholders, all fishing enterprises of the trawler fleet segments are **micro-enterprises**, the large majority of companies corresponding to one vessel, one owner and a maximum of 5 employees on board and on shore (net repairer for instance).

3.1.2. Fishing production of demersal stocks in France

The table below provides an overview of landings of total catches and of selected species in 2015 by fleet segment.

Table 5 *- Landings of total catches and of selected stocks in volume and value and their share in France in 2015*

Fleet Segment	Volume (Tonnes)			Value (1000 EUR)		
	Total	Selected stocks	% selected stocks	Total	Selected stocks	% selected stocks
DTS1824	2 318	572	**25%**	10 212	3 588	**35%**
DTS2440	4 806	1 151	**24%**	16 397	6 837	**42%**
DFN0612	1 275	93	**7%**	10 369	718	**7%**

Source: DCF data

The table above indicates that the dependency of fleet segments upon demersal stocks (landings value of demersal stocks in comparison to the total landings value) vary according to the gear type, with the trawl segments more dependent than the netters. In 2015, demersal stocks landings represent respectively 35% and 42% of the total landings value of DTS1824 and DTS2440[11]. The fleet segment of netters between 6 and 12 m is less dependent (landings value of demersal stocks represents 7% of their total landings value).

Focus on bottom trawls: The trawl fishery is a mixed fishery, but hake is one of the most important demersal target species for the commercial fisheries. In 2016, 1.724 tonnes of demersal species were caught by the French trawlers, from which 65% correspond to European hake.

3.1.3. Assessment of the economic situation of fishing companies targeting demersal species in France

The table below provides an overview of the economic performance of a fishing company targeting demersal stocks for each fleet segment. The economic performance can be measured through the gross value added (GAV) calculated by the difference between total revenues and the sum of variable and fixed costs.

[11] In 2016, the landings value of demersal stocks represents respectively 30%, 37% and 7% of the total landings value of the fleet segment DTS1824, DTS2440 and DFN0612. For homogeneity purposes, we indicated the figures of 2015 (data of 2016 in Italy is not available, all the economic data is not available).

Table 6 - Assessment of the economic situation (in EUR) of a fishing company targeting demersal stocks in the Mediterranean in France, 2015

Economic indicator	Trawlers		Netters
	DTS1824	DTS2440	DFN0612
Income from landings	386 454	611 679	29 765
Repair and maintenance	34 434	52 575	1 458
Energy costs	127 944	194 722	2 442
Other non-variable costs	18 572	28 148	5 892
Other variable costs	63 520	102 824	1 473
Total expenses	244 469	378 269	11 265
Gross added value (*)	**141 985**	**233 410**	**18 500**
Direct income subsidies	12 033	17 956	-
Labour costs	118 023	165 972	14 787
Investment	17 644	42 424	8 377
Gross profit (**)	**18 350**	**42 970**	**4 664**

(*): Gross added value = value of landings - total expenses

(**) EBIDTA: earnings before interest, tax, depreciation and amortisation

Source: DCF data, 2015 (data on direct income subsidies were not available for 2015, data of 2014 were used).

The table above represents the average income and expenses of French fleet segments operating in Mediterranean areas GSA 7 and GSA8. The analysis of DCF underlines that the trawlers fleet segment 24-40 m generates the most important income from landings, as well as the higher gross added value in 2015 (€233.410), followed by the trawl fleet segment 18-24 m (€141.985). The netter vessels generate the lowest economic profitability (in terms of gross added value and in terms of gross profit). Incomes from langrossdings are also more important for the longer trawler vessels (DTS 24-40) than the other fleet segments. While the most important expenditures for trawlers are energy costs, labour costs represent the most important expenditure for the netters.

Figures in Annex 2 represent the breakdown of production costs for the different fleet segments. They indicate the differences between the fleet segments:

- For the trawler fleet segment: For both trawl segments operating in the Western Mediterranean, the main expenses are fuel and wages of crew, with respectively 35% and 33% of the company's expenses. These expenditures have significantly increased from 2008 to 2015, although a slight decrease of fuel costs has been noticed since 2013. In the light of the EU Commission proposal for the MAP in the Western Mediterranean, the Mediterranean Association of Producer Organisations (AMOP) has conducted an in-depth analysis of the socio-economic situation of the fishing activities targeting demersal stocks[12]. According to this analysis, DCF data do not consider the annual expenses made

[12] GEPAC MED diagnostic socio-économique de la flottille chalutière et impacts des mesures de réduction de l'effort de pêche Baranger L. and all., 2017.

by trawler companies to reimburse loans which have been estimated at €48.726 a year per vessel.

- For the netter fleet segment: Concerning netter vessels, the labor costs are significantly more important than in the trawler fleet segment, with more than half of the expenses dedicated to salaries. Furthermore, expenses linked to fuel are much less important (9% of the total expenses vs. 35% for trawlers).

3.1.4. Ancillary activities

Most ancillary activities in the Mediterranean region in France are related to services for vessels and/or for auctions. As demersal species landed in France are mostly dominated by whitefish (hake especially) which are sold whole and fresh, there is no processing industry dedicated to these species. There are only some companies involved in storage and packaging. According to stakeholders, these activities do not depend on demersal fisheries. Moreover, in these regions demersal trawling landings are strongly market-oriented. A significant share of added value demersal species, such as hake, monkfish or red mullet, are bought by Spanish and Italian traders in French fish auctions in order to be marketed in their national markets.

According to AMOP, the main ancillary activities depending on the trawling fleet are the suppliers of goods and services and the auctions. The GEPAC MED project (project dedicated to the management and sustainability of trawlers' activity in the Mediterranean) estimated that **the French trawling fleet (59 vessels in 2017) represented 250 fishermen's jobs, 171 to 195 jobs in fishing ports (including auctions) and 264 to 303 jobs in other ancillary activities** (indirect jobs: supply, logistics, distribution). Regarding fish auctions, looking at the landings data by auction (see Annex 3) in the Mediterranean region, it appears that most auctions in the region of Occitanie in France are highly dependent on demersal species, particularly hake. The auction of Sète is the most dependent auction depends the most on demersal species, which constitute 22% of the landings volume and 33% of landings value, followed by the auctions of Agde, Port-la-Nouvelle and Le Grau-du-Roi. Auctions in the region Provence-Alpes-Côte d'Azur (PACA) are less dependent on demersal species, as the fishing activities targeting these species are not significant (only 5 trawlers are registered in the ports of the PACA region). According to the interviewed French stakeholders, the strong dependency of fish auctions on the trawler fleet makes the whole economic balance of the local fishery sector at risk. Indeed, small scale fisheries benefit from auctions to sell their low volumes of landings and get good prices thanks to these dynamic market places with competition between numerous buyers.

3.2. Description of fishing activities targeting demersal stocks in Italy

Geographical scope: In Italy, there are three geographical sub-areas (GSA) concerned by the multi-annual plan for demersal stocks in the Western Mediterranean: GSA 9 (Ligurian and North Tyrrhenian Sea); GSA 10 (South Tyrrhenian Sea) and GSA 11 (Sardinia).

Figure 3 *– Map of geographical sub-areas concerned by the multi-annual plan for demersal stocks for the Western Mediterranean*

Source: Own elaboration

Fleet segment potentially impacted by the MAP for demersal stocks in the Western Mediterranean: Seven fleet segments will be potentially impacted by the implementation of the MAP for demersal stocks: four fleet segments of bottom trawlers (DTS0612; DTS1218; DTS1824 and DTS2440) and three fleet segments of polyvalent passive gears (PGP 0006; PGP0612 and PGP1218).

3.2.1. Fishing fleet targeting demersal stocks in Italy

The table below provides an overview of the number of vessels and of persons employed for the fleet segments potentially impacted by the implementation of the MAP for demersal stocks and the breakdown by GSA.

Table 7 – Number of vessels and employment in Italy by fleet segment in the GSA 9, 10 and 11 (concerned by the MAP proposal in Italy) and their breakdown, 2015

Fleet segment	Number of vessels	GSA 9	GSA 10	GSA 11	Number of persons employed	GSA 9	GSA 10	GSA 11
DTS 0612	10	0%	100%	0%	18	0%	100%	0%
DTS1218	367	38%	41%	20%	931	39%	39%	22%
DTS1824	233	54%	33%	14%	798	46%	38%	16%
DTS 2440	31	32%	0%	68%	135	24%	0%	76%
Sub-total DTS	**641**	**43%**	**37%**	**20%**	**1 882**	**40%**	**36%**	**23%**
PGP0006	1 219	25%	51%	24%	1 363	23%	55%	23%
PGP0612	3 201	30%	46%	24%	4 881	25%	47%	28%
PGP1218	286	22%	40%	38%	751	18%	41%	41%
Sub-total PGP	**4 706**	**28%**	**47%**	**25%**	**6 995**	**24%**	**48%**	**29%**
TOTAL	**5 347**	**30%**	**46%**	**24%**	**8 877**	**27%**	**45%**	**27%**

Source: Mipaaf - Direzione Generale Pesca Marittima e Acquacoltura, Management Plan for demersal species

According to the table above, **5.347 vessels and 8.877 persons will be potentially impacted by the implementation of the MAP for demersal stocks**. It is worth noting that the fleet segments will not be impacted in the same manner, as their dependency upon landings on demersal stocks is different. It also indicates that a higher number of vessels and of persons employed is found in GSA 10 (South Tyrrhenian Sea). The higher number of jobs is found for the fleet segment PGP0612 (4.881). Trawlers provide 21% of total jobs in the Italian regions concerned by the MAP, mainly in the middle range fleets (DTS1218 and DTS1824).

As already stated, all the fishing enterprises in Italy are SMEs.

3.2.2. Fishing production of demersal stocks in Italy

The table below provides an overview of landings of total catches and of demersal species' catches in Italy by fleet segment. These data concern the following species for which landings in the Western Mediterranean were available: deep-water rose shrimp; European hake; giant red shrimp and red mullet.

Table 8 *– Landings of total catches and of selected stocks in volume and value and their share in Italy in the* GSA 9, 10 and 11 (concerned by the MAP proposal in Italy), 2015

Fleet Segment	Volume (tonnes)			Value (1000 EUR)		
	Total	Selected stocks	% selected stocks	Total	Selected stocks	% selected stocks
ITA A37 DTS0612	228	46	**20%**	1 991	362	**18%**
ITA A37 DTS1218	5 397	1 640	**30%**	41 066	13 301	**32%**
ITA A37 DTS1824	7 441	2 104	**28%**	38 444	11 244	**29%**
ITA A37 DTS2440	941	317	**34%**	9 107	3 545	**39%**
ITA A37 PGP0006	1 600	143	**9%**	13 844	1 534	**11%**
ITA A37 PGP0612	8 140	897	**11%**	60 650	8 789	**14%**
ITA A37 PGP1218	1 466	233	**16%**	9 784	1 388	**14%**

Source: Multiannual plan for demersal fisheries in the Western Mediterranean (STECF-16-21)

The fleet segments' dependency upon landings of selected stocks in comparison to the overall value of landings varies significantly according to the gear type and vessel length, although in general the most dependent fleet segment is DTS (trawlers).

Overall, three fleet segments (DTS2440, DTS1824 and DTS1218) show a high dependency on the selected stocks (respectively 39%, 29% and 32% of total landings). The highest level of dependency is shown by the largest vessels which are usually operating on the fishing grounds off the continental slope, targeting giant red shrimp. The smallest vessels are less dependent on the selected stocks as they are operating close to the coast targeting other species (striped red mullet, common octopus, etc.). Also, the fleet segment PGP1218 shows some dependency on the selected stocks, especially in terms of landings live weight. This dependency is mainly driven by European hake that represents the target species of gill net fisheries that are carried out in the area.

According to the STECF report on Multiannual plan for demersal fisheries in the Western Mediterranean (STECF-16-21), it is worth noting that in GSA11 (Sardinia), only trawlers (DTS fleet segments) show dependency on the selected stocks.

3.2.3. Assessment of the economic situation of fishing companies targeting demersal stocks in Italy

The table below provides an overview of the economic situation of a fishing company targeting demersal stocks for each fleet segment. Income and expenditure are averaged. Data is at national level and should be considered with caution as they do not reflect the reality of the economic performance of fishing companies operating in the Western Mediterranean.

The economic performance of the fleet segment can be measured through the gross added value. This indicator is given by the difference between total revenues and the sum of variable and fixed costs.

Table 9 - Assessment of the economic situation (in EUR) of a fishing company targeting demersal stocks in the Mediterranean in Italy by fleet segment

Economic Indicator	Trawlers				Polyvalent passive gears		
	DTS0612	DTS1218	DTS1824	DTS2440	PGP 0006	PGP 0612	PGP 1218
Value of landings	**40 763**	**151 752**	**266 230**	**430 359**	**19 688**	**32 403**	**89 026**
Repair and maintenance	2 480	6 375	10 917	22 778	732	1 470	3 521
Energy costs	9 470	42 173	97 328	124 869	1 648	3 658	12 990
Other non-variable costs	1 889	4 775	8 171	13 599	1 141	1 670	2 138
Other variable costs	3 477	12 631	21 538	31 324	878	2 282	9 596
Total expenses	**17 316**	**65 954**	**137 954**	**192 570**	**4 399**	**9 079**	**28 244**
Gorss added value *	**23 448**	**85 798**	**128 276**	**237 789**	**15 289**	**23 325**	**60 782**
Direct income subsidies	1 933	4 683	8 847	10 740	2	17	216
Labour costs	5 021	38 044	61 450	128 736	2 314	5 960	31 971
Investment	254	2 788	2 743	9 177	709	1 456	3 537
EBIDTA**	**20 105**	**49 650**	**72 931**	**110 616**	**12 269**	**15 925**	**25 489**

(*): Gross value added = value of landings - total expenses

(**) EBIDTA: earnings before interest, tax, depreciation and amortisation

Source: DCF data, 2015 (data on direct income subsidies were not available for 2015, data of 2014 were used).

The analysis of the DCF data indicates that trawler fleet segments generated €440 million in Italy and the polyvalent passive gear segment generated €248 million in 2015.

At the fleet segment level, on average a company belonging to the largest trawl segment (DTS 2440) generated the most important gross added value in 2015 (€237.789) followed by the trawls between 18 and 24 m (€128.276) and the trawls between 12 and 18 m (€85.798).

The smallest profit (in terms of EBIDTA) is generated by the two smallest polyvalent passive gear segments with respectively €15.925 for vessels between 6 and 12 m and €12.269 for vessels below 6 m.

Although differences exist between fleet segments, energy and labour costs remain the largest expenditures for fishing companies. The figures in Annex 2 represent the breakdown of production costs by expenditure item for the different fleet segments. They show some differences between the different fleet segments:

- Energy costs constitute the most important expenses for the following trawler segments: DTS06-12, DTS 12-18 and DTS 18-24 with respectively 42%, 40% and 49% of total expenses. They constitute the second expenses for the largest trawl vessels (DTS 24-40) (labor costs are the most important costs).
- Labor costs constitute the most important expenses for all polyvalent passive gears vessels (mainly PGP 12-18 where they represent 53% of expenses).

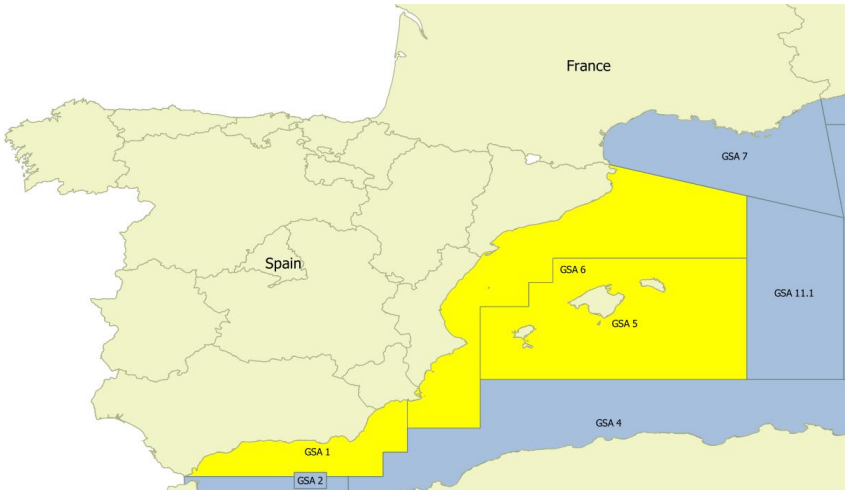
3.2.4. Ancillary activities

It is worth to note that several auctions are highly dependent[13] on demersal species landings in Italy. According to the first sale data from EUMOFA (see Annex 3), there are 72 Italian auctions out of 125 for which the first sale value of demersal species exceeds 20% of total first sale value (the list of auctions includes only auctions in the Western Mediterranean but is not comprehensive). The most affected auction is *Massa Lubrense* in Campania and *Palmi* in Calabria, where the demersal species landings represent almost 100% of the total landings value in 2017, the auction of *Cariati* in Calabria (94% of the auctions value are attributable to demersal landings) and the auction of *Decimomannu* in Sardinia (89% of the landing value is made by demersal stocks landings).

3.3. Description of fishing activities targeting demersal stocks in Spain

Geographical scope: in Spain, there are three geographical sub-areas (GSA) concerned by the multi-annual plan for demersal stocks in the Western Mediterranean: GSA 1 (Northern Alboran Sea); GSA 5 (Balearic Islands) and GSA 6 (Northern Spain).

***Figure 4** – Map of the geographical sub-areas concerned by the multi-annual plan for demersal stocks for the Western Mediterranean*



Source: Own elaboration

Fleet segments potentially impacted by the MAP for demersal stocks in the Western Mediterranean:

Eight fleet segments will be potentially impacted by the implementation of the MAP for demersal stocks in Spain: four fleet segments of trawlers (DTS0612; DTS1218; DTS1824 and DTS2440), two fleet segments of drifts or fixed netters (DFN 0612 and DFN 1218), and two fleet segments using hooks (HOK 0612 and HOK1218).

[13] To calculate this dependency the following species were taken into account: hake, red mullet, anglerfish, blue whiting, giant red shrimp, deep-water rose shrimp, Norway lobster and blue and red shrimp.

3.3.1. Fishing fleet targeting demersal stocks in Spain

The table below provides an overview of the main features of the fleet segments potentially impacted by the implementation of the MAP for demersal stocks.

***Table 10** - Main features of the Spanish vessels targeting demersal stocks in 2015*

Vessels type	Fleet segment	Number of vessels	Number of persons employed	Average age of vessels (year)	Average length (m)	Fishing days	Income (1000 EUR)
Trawls	ESP A37 DTS0612	21	63	-	10	3 600	1 931
	ESP A37 DTS1218	152	468	29	16	28 308	21 682
	ESP A37 DTS1824	307	1 301	18	21	63 124	74 398
	ESP A37 DTS2440	135	748	15	25	28 303	48 656
	Total	**615**	**2 580**	**-**	**-**	**123 335**	**146 667**
Netters	ESP A37 DFN0612	45	90	22	11	6 646	2 734
	ESP A37 DFN1218	40	120	19	13	6 544	1 603
	Total	**85**	**210**	**-**	**-**	**13 190**	**4 337**
Hooks	ESPA37 HOK0612	42	126	30	10	5 168	2 673
	ESPA37 HOK1218	22	73	19	16	5 166	1 977
	Total	**64**	**199**	**-**	**-**	**10 334**	**4 650**
Total		**764**	**2 989**	**-**	**-**	**146 859**	**155 654**

Source: DCF data

In 2015, the **Spanish fleet targeting demersal stocks in the western Mediterranean and potentially impacted by the implementation of the MAP was composed of 615 trawls, 85 vessels using netters and 64 vessels using hooks. In total, all these fleet segments employed 2.989 persons** and generated a total income of almost €156 million, with 95% coming from the trawler fleet segment. As already stated, all the enterprises targeting demersal stocks in Spain are SMEs.

The demersal fleet segments in Spain are composed of 3% of vessels between 6 and 12 m (DTS 06-12), 25% of vessels between 12 and 18 m (DTS 12-18), 50% of vessels between 18 and 24m and 22% of vessels between 24 and 40m. The fleet segment (DTS1824) employs the highest number of persons (1.301 persons) and generates the most important incomes from landings among all the fleet segments studied.

The analysis of data from the European fleet register indicates a high number of homeports for the trawler vessels that are distributed all along the southern Spanish coast. The most important number of vessels (224 vessels) is located in the ports of Catalonia, followed by Valencia with 217 vessels, Andalusia with 94 vessels, etc. Only 22 vessels are registered in the ports of Murcia. 2 vessels are registered in the port of Ceuta.

The analysis of landings data from EUMOFA[14] indicate that 50% of demersal species landings occurred in Murcia in 2017 (although only 22 vessels are registered in the ports of this region), 22% in Catalonia, 18% in Valencia, 6% in Andalusia and 3% in Balearic Islands.

[14] The data used correspond to the landings sold through the auctions in the Mediterranean Seaboard.

Table 11- Number and main features of trawlers in Spain by region and by ports, 2016

Region	Number of ports	Number of vessels	Average Length	Length Max	Length Min
Andalusia	10	94	22	29	9
Balearic Islands	12	38	24	25	15
Catalunia	18	224	23	28	9
Murcia	4	22	25	25	9
Valencia	18	217	24	28	13
Other	1	2	26	48	12
Total	**63**	**597**	**24**	**48**	**9**

Source : European Fleet Register

3.3.2. Fishing production of demersal stocks in Spain

Table 12 - Landings of total catches and of selected stocks in volume and value and their share in Spain, 2015

Fleet Segment	Volume			Value		
	Total	Selected stocks	% selected stocks	Total	Selected stocks	% selected stocks
DTS0612	228	39	**17%**	1 014	287	**28%**
DTS1218	3 926	833	**21%**	19 505	7 603	**39%**
DTS1824	12 880	4 974	**39%**	98 996	68 041	**69%**
DTS2440	5 987	2 688	**45%**	45 378	33 919	**75%**
DFN0612	319	28	**9%**	1 829	210	**11%**
DFN1218	387	28	**7%**	2 483	208	**8%**
HOK0612	274	22	**8%**	1 645	169	**10%**
HOK1218	225	24	**11%**	1 339	194	**15%**

Source : DCF data

The table above shows a wide range of dependency rates of these fleet segments upon landings of demersal species. It is clear that the most dependent fleet segments are trawlers, particularly those between 18 and 24 m (69%) and between 24 and 40 m (75%). They are responsible for the biggest share of the landings volume made by trawlers in the western Mediterranean, with respectively 39% and 45% of the landings volume. The smallest trawlers seem less dependent (in terms of value) with respectively 28% and 39% for trawlers between 6 and 12 m and trawlers between 12 and 18 m, although the dependency rate is still relatively high.

The fleet segments of vessels using hooks are less dependent with respectively 10% and 15% of the landings value for fleet segments HOK0612 and HOK1218. The fleet segments of netters are clearly the less dependent segments.

Focus on trawl landings: The analysis of landings data from 2011 to 2015 indicates that over this period, the demersal species landings have decreased by 14%. It also indicates that in Spain the main demersal species are caught in equivalent volumes, except the giant red shrimp for which the volumes are negligible in comparison to others. In 2015, landings of European hake are the most important and represent 22% of total demersal stocks landings, followed by red mullet (18%),

deep water rose shrimp (16%), angler and blue and red shrimp (14% each), blue whiting (9%), Norway lobster (6%) and giant red shrimp (less than 1%).

3.3.3. Assessment of the economic situation of fishing companies targeting demersal species

The following table provides an overview of the economic performance of a fishing company belonging to the eight fleet segments reported here. Income and expenditure are averaged for trawls and vessels using netters and hooks.

Table 13 - Assessment of the economic situation (in EUR) of a Spanish fishing company targeting demersal stocks in the Mediterranean, 2015

Economic Indicator	Trawlers				Netters		Hooks	
	DTS0612	DTS1218	DTS1824	DTS2440	DFN0612	DFN1218	HOK0612	HOK1218
Income from landings	91 935	142 646	242 337	360 417	60 752	40 087	63 639	89 874
Repair and maintenance	4 368	14 029	24 302	36 136	4 456	11 056	2 564	3 169
Energy costs	8 691	27 637	58 621	92 536	4 356	10 588	8 685	15 889
Other non-variable costs	5 351	6 666	11 944	21 311	506	2 071	3 455	8 812
Other variable costs	11 882	9 931	24 356	36 416	9 999	7 521	12 936	20 149
Total expenses	30 292	58 263	119 224	186 399	19 316	31 236	27 640	48 018
Gorss added value	**61 643**	**84 382**	**123 114**	**174 019**	**41 436**	**8 851**	**35 999**	**41 856**
Direct income subsidies	80	297	5 742	907	500	-	192	-
Labour costs	34 044	52 484	80 120	121 133	13 090	20 296	21 624	35 751
Investment	14 243	1 687	15 739	8 953	-	10 104	5 000	15 392
Gross profit	**13 436**	**30 507**	**32 997**	**44 839**	**28 846**	**-21 549**	**9 567**	**-9 287**
EBIDTA	**49 761**	**74 452**	**98 757**	**137 603**	**31 437**	**1 330**	**23 063**	**21 707**

(*): Gross added value = value of landings - total expenses

(**) EBIDTA: earnings before interest, tax, depreciation and amortisation

Source: DCF data, 2015 (data on direct income subsidies were not available for 2015, data of 2014 were used).

The analysis of DCF data indicates that in 2015 the trawler fleet segments generated €147 million of income from landings, the fleet of vessels using hooks €5 million and the fleet of vessels using netters generated €4 million (see table 10).

At fleet segment level, on average a company belonging to the largest trawl segment (DTS2440) generated the highest gross added value in 2015 (€174.019), followed by the other trawl fleet

segments. The smallest gross added value was generated by the vessels between 12 and 18 m using netters (€8.851).

The figures in Annex 2 represent the breakdown of production costs for the different fleet segments. They indicate that the most important expenses for trawlers are related to wages and salaries of the crew. These expenses are mainly important for the smallest trawlers and represent 53% of the total production costs. The fuel costs are correlated to the vessels' length and they constitute the second item of expenditure for trawlers beyond 12 m and the third item of expenditure for vessels using netters and hooks.

Overall, there are differences of the economic situation among the fleet segments. They are related to different fishing strategies (fishing zones, duration of fishing trips, number of crew on board, etc.). This has impacts on both expenditure and level of catches and thus on profitability of the company.

3.3.4. Ancillary activities

Overall, stakeholders consider that fishing activities targeting demersal species are important for the majority of coastal ancillary activities, mainly repair and maintenance, shipyards and hotels, restaurants and catering (HORECA). There is no significant processing activity for these species.

In addition, some auctions are highly dependent on demersal species landings. According to the first sale data from EUMOFA (see Annex 3), there are 45 Spanish auctions out of 70 for which the first sale value of demersal species exceeds 20% of total first sale value (the list of auctions is not comprehensive). The most concerned auction by this situation is El Port De La Selva in Catalonia, where the demersal species landings represent 68% of the total landings volume and 92% of total value in 2017. In the last three years, this economic dependency has increased by 5%.

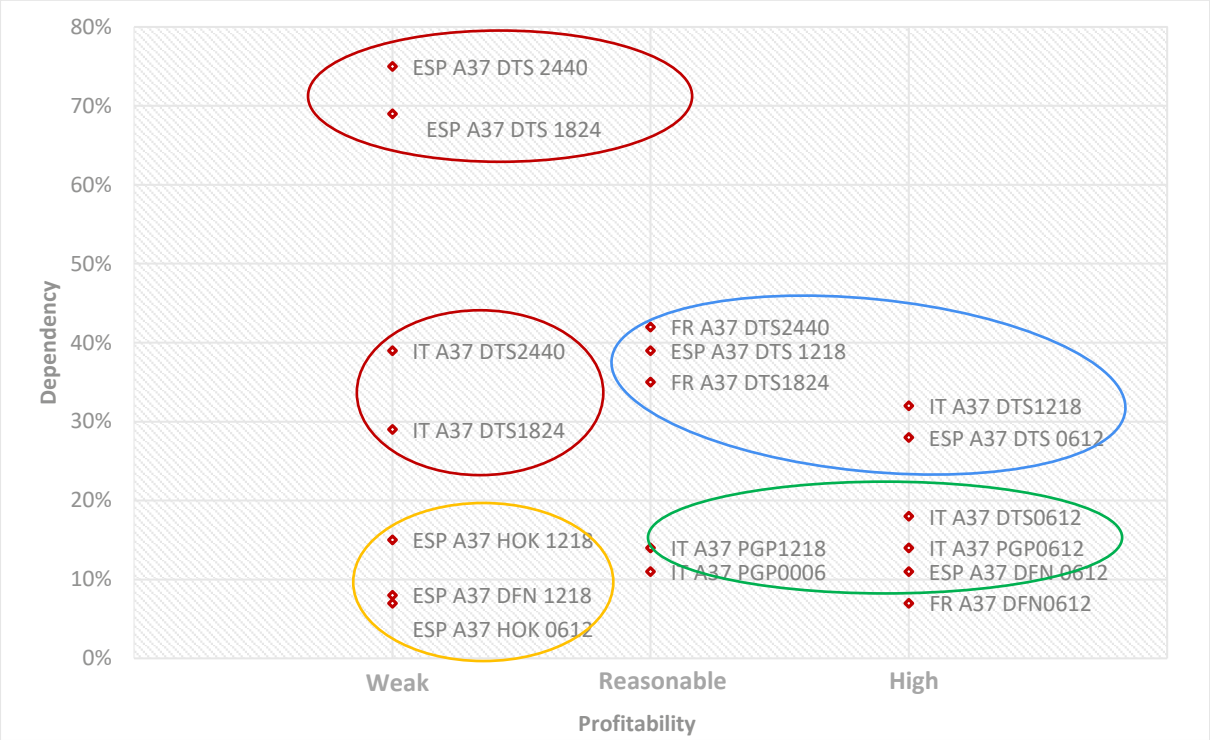
3.4. Typology of fleet segments potentially impacted by the MAP proposal

In this section, we developed a typology of fleet segments that are potentially impacted by the MAP proposal based on the two following indicators:

- Dependency upon landings of demersal stocks, calculated based on DCF data.
- Vessels profitability in 2015. This indicator was included in the 2017 Annual Economic Report on the EU Fishing feet[15].

[15] https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/2017-annual-economic-report-eu-fishing-fleet-stecf-17-12

Figure 5 – Typology of the fleet segments according to their dependency and economic profitability in 2015



Source: Own elaboration, based on fleet segments profitability and on their dependency upon demersal stocks

Based on this chart, we can distinguish four groups corresponding to four situations of profitability of vessels and their dependency:

- **Group 1** (yellow): this group is composed of the following Spanish fleet segments: ESPA37HOK0612; ESPA37HOK1218 and ESPA37DFN1218. These segments have a weak economic profitability in 2015 but they have medium or low dependency upon landings from demersal stocks. Particularly, the economic performance of the fleet segment DFN 1218 (netters) has deteriorated in the last few years[16].
- **Group 2** (green): this group is composed of the following fleet segments: ESPA37DFN0612 for Spain and ITA37PGP0006, ITA37PGP1218, ITA37DTS0612 and ITA37PGP0612 for Italy. These fleet segments have reasonable or high economic profitability in 2015 and a medium dependency upon demersal stocks. It is noteworthy that the Italian fleet segments have seen their profitability improved in the last few years[17].
- **Group 3** (blue): this group is composed of the following fleet segments: ITA37DTS1218 for Italy, FRA37DTS2440, FRA37DTS1824 for France and ESPA37DTS0612 and ESPA37DTS1218. These fleet segments have high and medium profitability, but they are highly dependent upon landings of demersal stocks.

[16] Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) - Multiannual plan for demersal fisheries in the western Mediterranean, 2016.

[17] Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) - Multiannual plan for demersal fisheries in the western Mediterranean, 2016.

- **Group 4** (red): this group is composed of the following Italian and Spanish fleet segments: ESPA37DTS2440, ESPA37DTS1824 for Spain and ITA37DTS2440 and ITA37DTS1824 for Italy. These fleet segments have weak profitability and they are highly dependent upon landings of demersal stocks (the Spanish trawls are particularly highly dependent upon demersal stocks).
- The fleet segment FRA37DFN0612 does not correspond to any of the above groups. Vessels belonging to this group are characterized by high profitability and low dependency.

4. Coherence of the proposed multi-annual plan with other pieces of legislation

The reformed CFP foresees the adoption of conservation measures in the context of multi-annual fisheries management plans, which ensure transparency, predictability and stability within the process. While MAPs were an option already in the previous CFP, after the 2013 reform they became a priority. In this section, we analyse the coherence of the proposed multi-annual plan for demersal stocks in the western Mediterranean with other pieces of legislation, particularly the MEDREG which was adopted in 2006 and entered into force in January 2007.

MEDREG introduces for the first time the concept of management plans for the Mediterranean fisheries and constitutes the basic existing regulation for fisheries management in the Mediterranean Sea. It also introduces a procedure to deal with new fishing protected areas. Implementation of this regulation has been enforced in France, Italy and Spain through the development of national management plans[18]. Italy has three management plans for trawlers (adopted in a single piece of legislation in 2011), France has one management plan for trawlers (adopted in 2013) and so does Spain (its plan entered into force in 2013). The plans are based on fishing effort management. This management approach typically involves measures such as restrictions on fishing gear and on the number of fishing authorisations and licences, setting a maximum number of fishing days, and permanent or temporary cessations of vessels.

To address the research tasks identified in the terms of reference for this research paper and identify possible synergies and overlaps between the MAP proposal and the existing management plans and legislation, we analysed both the proposed MAP regulation and the national management plans, developed under the framework of the MEDREG.

Overall, the management plans provide the fishing sector with management tools and directives for their implementation. In addition, quantified objectives with biological targets (i.e. fishing mortalities), were provided in the Spanish and Italian management plans. The Spanish one also provided a timeframe to reach the objectives and safeguard measures. Both Italian and Spanish management plans set out provisions on monitoring and evaluation of the impacts of the implementation of the recommended measures.

[18] The national management plans are:

- **France**: Arrêté du 28 janvier 2013 portant création d'un régime d'effort de pêche pour la pêche professionnelle au chalut en mer Méditerranée par les navires battant pavillon français.
- **Italy**: Decreto 20 maggio 2011 relativo all'adozione Piani di gestione della flotta a strascico in sostituzione del decreto direttoriale n. 44 del 17 giugno 2010.
- **Spain**: Orden AAA/2808/2012, de 21 de diciembre, por la que se establece un Plan de Gestión Integral para la conservación de los recursos pesqueros en el Mediterráneo afectados por las pesquerías realizadas con redes de cerco, redes de arrastre y artes fijos y menores, para el período 2013-2017.

To simplify, these regulations will be referred to in the text as national management plans.

4.1. National management plans for France, Italy and Spain

4.1.1. Reduction of the fishing effort

The three national management plans include provisions regarding the reduction of fishing effort of trawlers in the Mediterranean.

France	Italy	Spain
Establishment of quotas of maximum fishing effort. Fishing effort expressed in number of fishing days. Fishing authorisations: specific authorisations for trawling.	Permanent cessation: the overall objective is to reduce the fishing capacity by 5,5%. Fishing authorisations: for vessels authorised for trawling in the area covered by the plan.	Permanent cessation. Establishment of fishing licences. Fishing effort limitation through the limitation of number and technical characteristics of the vessels.

4.1.2. Technical measures

Temporal limitation

In **Italy**, a temporal closure of 30 days specific to each GSA has been established in the national management plan. In the eight weeks following the temporal closure, the units that have stopped, do not carry out fishing activities on Friday. It is also prohibited to fish with trawlers on Saturdays, Sundays and holidays. In addition, the recovery of any days of inactivity related to bad weather conditions is not permitted.

In **France and Spain**, trawling takes place throughout the year. Trawling is prohibited on Saturdays, Sundays and public holidays.

Spatial limitation

According to the article 13 of MEDREG, trawling is prohibited within 3 nautical miles off the coast or within 50 m isobath where that depth is reached at a shorter distance from the coast. The use of trawl nets is prohibited within 1.5 nautical miles off the coast. The regulation allows a derogation from these provisions, on a condition that such derogation is justified by particular geographical constraints. In France for instance, by derogation, trawling is permitted within three miles in two specific zones. In Italy, a derogation concerning the minimum distance from the coast for trawlers has been established, to allow trawlers to operate up to 0.7 miles from the coast in the GSA 9 limited to the Ligurian coasts. Article 4 of the same regulation indicates that it is prohibited to trawl above seagrass beds. Trawling is also prohibited beyond 1.000 m depth.

In addition to the provisions of the MEDREG, other measures have been taken to manage fishing activities targeting demersal species. In the following section, we provide a list of the most important measures by Member State.

In the Gulf of Lions, main demersal fisheries (hake and red mullet) are exploited by both French and Spanish fleets. Areas where trawling activity is regulated, partially or totally prohibited, were established through the General Fisheries Commission for the Mediterranean and France-Spain joint local regulations. GFCM established a fisheries restricted area in the Gulf of Lion intended to protect spawning aggregations and deep-sea sensitive habitats (GFCM/33/2009/1). Adopted in December 2008, the GFCM regulation provides a reference for the maximum fishing effort not to

be exceeded for towed nets, bottom and middle distance longlines, and bottom nets. In addition, two types of spatial limitation have been established by a local regulation[19] (see map in Annex 4):

- Three specific areas are totally prohibited for fishing activity targeting demersal species (bottom fishing gears).
- An area prohibited to fishing activities targeting demersal species for two months (between October 12 and December 12).

In Italy, in addition to the spatial closure recommended by MEDREG, two types of spatial closure were recommended in the Italian management plan:

- Areas partially or totally prohibited for fishing activity: different types of areas resulting in partial or total closure for fishing with trawl nets have been defined for each GSA. These areas are: biological protected areas (closed all the year or for a certain period of the year for fishing activity), fishing areas temporarily protected (trawling is prohibited within four nautical miles off the coast or in areas with a water depth of less than 60 meters from the beginning of the closure period until October).
- Area of nursery: specific to GSA10, specific protection measures may be adopted.

Other technical conservation measures

Management plans include provisions related to characteristics of fishing gears, particularly provisions to improve selectivity (mesh size in particular).

4.2. Measures recommended by the proposed MAP

The table below provides an overview of the provisions of the proposed MAP.

[19] Arrêté du 23 avril 2018 portant création de zones de pêche à accès réglementé dans le golfe du Lion (GSA 7) and Orden APM/422/2018, de 24 de abril, por la que se establecen determinadas zonas de veda para las modalidades de pesca dirigidas a la captura de especies demersales en el Golfo de León.

Table 14 – Overview of the provisions in the multiannual plan proposal for fisheries exploiting the demersal stocks in the western Mediterranean

General definition: The MAP contains the goal for fish stock management, expressed in terms of fishing mortality and/or targeted stock size. Under the new CFP, the MAP will include the target of fishing at maximum sustainable yield and a deadline for achieving this target. They will contain measures for the implementation of the landing obligation. They should also contain safeguards for remedial action where needed, and review clauses, among others. MAP may also include technical measures.		
Background	**Scope**	**Geographical scope**: geographical sub-areas 1, 2, 5, 6, 7, 8, 9, 10 and 11. **Stocks covered**: The proposal applies to **the stocks driving demersal fisheries** (i.e. hake, red mullet, deep-water rose shrimp, blue and red shrimp, giant red shrimp and Norway lobster), **by-catch stocks** and **other demersal stocks** for which sufficient data is not available. **Types of fishing**: In addition to professional fishing, the proposal also applies to **commercial and recreational fisheries exploiting those stocks in the Western Mediterranean.** **Gears:** trawls but also any gear for which the scientific advice shows significant catches of a particular stock.
	Objectives	The objectives of the proposal are to achieve the maximum sustainable yields, applying the precautionary approach and implementing the ecosystem-based approach. The proposal will also facilitate the implementation of the landing obligation.
	Quantifiable targets	The proposed fishing mortality targets are **FMSY** ranges, which should be achieved by 2020 at the latest. The ranges would allow for MSY-based management of the stocks concerned, while providing some flexibility in the context of mixed fisheries.
	Conservation reference points	For each stock, the proposal introduces a limit reference point (or biomass limit, **BLIM**) at which the stock would be in serious danger of collapse and a precautionary reference point (or biomass precautionary, **BPA**) as a safety margin.
	Safeguards and remedial measures	The proposal introduces safeguard measures to allow a stock to recover in the event of the precautionary reference point or limit reference point being exceeded. These measures could cover a variety of actions, including Member State or Commission emergency measures.
Fishing opportunities	**Fishing effort regime (art.7, §3):** establishment of a maximum allowable fishing effort	The proposal introduces a **fishing effort regime for all trawls**. Each year, on the basis of the scientific advice, the Council will decide the **maximum allowable fishing effort** (number of fishing days) **in the areas and vessels length categories by Member State**. A substantial reduction of effort in the first year of implementation, in line with the scientific advice is foreseen. Fishing effort levels could also be established for **other fishing gear other than trawls** when the scientific advice shows significant catches.
	Total Allowable Catches (art. 8, §3)	Where the best available the scientific advice shows that the fishing effort regime is not sufficient to meet the objectives or targets, the Council shall adopt complementary management measures based on **total allowable catches**.
	Obligations of the Member States (art. 9, §3)	Member States should ensure that fishing with trawls is limited to a **maximum of 12 hours per fishing day**, five fishing days per week or equivalent. Member State shall issue **fishing authorisations** for the areas referred to in the Regulation. Member State shall ensure that the **total capacity corresponding to the fishing authorisations not increased** during the period of application of the plan. Each Member State shall **establish and maintain a list of vessels issued with fishing authorisations**.

		Each Member State shall develop a method for distributing national quotas among fleet segments. Member States shall monitor their fishing effort and ensure that the maximum allowable fishing effort does not exceed the set limits.
Technical measures	**Closure areas (art. 11, §3)**	The proposal sets a **spatio-temporal closure** prohibiting trawls from operating **within the 100 m isobath from 1 May to 31 July each year**. Within two years of the adoption of this Regulation and on the basis of the scientific advice, the **Member States shall establish other closure areas** where there is evidence of a high concentration of juvenile fish and of spawning grounds of demersal stocks. When the closure areas affect fishing vessels of several Member States, the Commission shall be empowered to adopt delegated acts on the basis of the scientific advice. Given the socio-economic importance and the urgent **need to reduce the high fishing mortality for hake**, **additional closure areas for the protection of spawning individuals of hake are promoted**, **through regionalisation.**
	Other technical conservation measures (art. 12, §3)	The Commission is empowered to adopt delegated acts supplementing this regulation by establishing the following technical measures: a) specifying the characteristics of fishing, particular mesh size, hook size, number of hooks, construction of the gear, twine thickness, size of the gear or use of additional devices to improve selectivity; b) limiting the use of the fishing gear (e.g. immersion time, depth of the gear deployment); c) prohibiting or limiting fishing in specific areas or time periods to protect spawning and juvenile fish or non-target fish species; d) prohibiting or limiting fishing in specific areas or time periods to protect vulnerable ecosystems and species; e) setting minimum conservation reference sizes (MCRSs) for any of the stocks to which the Regulation applies; f) on recreational fisheries, and g) on other characteristics linked to selectivity.
Landing obligation	**Landing obligation**	For all stocks of species to which the landing obligation applies, the Commission is empowered to adopt delegated acts supplementing this regulation by adopting detailed measures for that obligation. In addition, the proposal introduces regionalisation provisions as required to extend and/or amend exemptions for species with demonstrated high survival rates and *de minimis* exemptions.
Regional cooperation	**Regional cooperation**	The proposal establishes regional cooperation among Member States with a view of adopting provisions (joint provisions) for the landing obligation and specific conservation measures, including technical measures, for certain stocks.
Monitoring and evaluation	**Monitoring and evaluation**	The proposal introduces scientific monitoring to assess progress towards maximum sustainable yield for the stocks driving demersal fisheries and, where possible, by-catch stocks. This is essential in the Mediterranean, as it will ensure regular evaluation of the stocks subject to the plan. The plan itself is to be evaluated after five years of implementation.

Source: own elaboration based on the analysis of the proposal for a regulation establishing a MAP for fisheries exploiting the demersal stocks in the western Mediterranean

4.3. Analysis of the possible synergies and overlaps between the existing management plans and the proposed MAP

The table in Annex 5 summarises the different provisions of the national management plans and provides the main differences and added value of the MAP proposal as regards these provisions. Overall, the MAP proposal brings a new notion to the fisheries management in the western Mediterranean in comparison to the existing management plans which is the establishment of a maximum sustainable yield (MSY)[20] target and the deadline for achieving this target. In particular, the proposed MAP includes clear and explicit objectives of recovering stocks to MSY levels, in line with the CFP obligations, supported by enforcement and monitoring (monitoring aspects were provided in the Italian and Spanish national management plans but not by the French one). Compared to the current national management plans, the proposed multi-annual plan would be **streamlined** (a single regulatory framework), **stable** (it considers the long-term perspective) and **transparent** (the three Member States concerned would jointly bring fishing mortalities to sustainable levels). Thus, the MAP proposal aims for a homogenous implementation between the concerned Member States (France, Italy and Spain) and encourages Member States to adopt joint provisions for landing obligation and specific conservation measures. It has to be highlighted that these management plans have been adopted before the revised CFP and therefore they are not coherent with the objective to reach MSY within 2020.

The issues arising from the implementation of the MAP proposal concern particularly three main topics: i) possible overlaps with measures already implemented in the western Mediterranean ii) complexities related to the implementation of specific measures and iii) issues that have not been tackled in the MAP proposal.

Possible overlaps between the measures recommended under the MAP proposal and the measures already implemented

It is worth noting that a set of measures are already implemented either through the national management plans under the MEDREG or through other national regulations. In addition, minimum conservation references sizes (MCRS) are provided by the Council Regulation (EC) No 1967/2006. The MAP proposal indicates that many of the technical conservation measures set in the MEDREG will be replaced if the Commission's proposal for Regulation on the conservation of fishery resources and the protection of marine ecosystems through technical measures[21] is adopted, without specifying which measures will be replaced. Thus, the possible overlaps will depend on the type of measures that will be replaced. The measures set under the MEDREG and national legislations have to be taken into account during the further development of the management process of demersal stocks fisheries in order to avoid overlaps and additional constraints on fishing companies. The French producer organisation (*Organisation de producteurs du SUD*) indicated that cumulating different spatial and temporal cessations and substantial reduction of fishing effort could not be financially viable for fishing companies.

Complexities related to the implementation of specific measures

DG MARE of the Commission launched an open public consultation (OPC) on the multiannual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea in order to gather

[20] Fishing at MSY levels means catching the maximum proportion of a fish stock that can safely be removed from the stock while maintaining its capacity to produce maximum sustainable returns in the long term.

[21] Proposal for a Regulation of the European Parliament and of the Council on the conservation of fishery resources and the protection of marine ecosystems through technical measures (COM (2016)134, 11.3.2016).

views from stakeholders at the initial design stage of the MAP (the OPC was open between 30 May and 30 September)[22]. From a total of 30 respondents, respondents from the fishermen's associations and public administrations spoke of the complexity of **implementing TAC in mixed fisheries**. All stakeholders consulted during the elaboration of this research paper pointed out the same issue (i.e. implementing TAC in mixed fisheries). **This will be particularly complex when the landing obligation is enforced**. Theoretically, once the landing obligation enters into force, over-quota catches must be landed but they cannot be put on the market for direct human consumption. A study on the landing obligation and its implications on the control of fisheries, conducted by the European Parliament in 2015[23], indicated that implementing the landing obligation could pose large challenges for fisheries with large volumes of by-catch, namely the mixed demersal trawl fisheries. Stakeholders consider that in practice, this could not be implemented in the context of multispecies fisheries and assume that illegal practices will take place (i.e. fishermen would not respect this obligation, as the economic consequences would be significant). Discards would be significant, which is contradictory to the CFP objectives.

Issues not addressed by the MAP proposal

The Mediterranean Advisory Council (MEDAC)[24] considered that the following elements allowing the fishermen to enforce the provisions provided by the MAP proposal have not been taken into account. The MEDAC opinions[25] were studied and completed with evidence from the analysis of the regulatory framework:

- The **introduction of electronic monitoring systems** for all vessels subject to the multi-annual plan was not addressed in the MAP proposal. On the contrary, the multi-annual plan for small pelagic stocks in the Adriatic Sea and the fisheries exploiting those stocks addressed the vessels monitoring system and the electronic completion and transmission of fishing logbooks in its articles 11 and 12.
- **No provisions on additional support from the EMFF** were provided in the MAP proposal: the MAP proposal maintains the same support already implemented in the context of the current EMFF (does not reinforce it) which allow for fishermen being compensated for temporary cessation of fishing activities. At the same time, it was foreseen in the EMFF strategy that compensation for the fishing fleet (e.g. extraordinary cessation of fishing activities) are strictly conditional upon their consistency with the conservation objectives of the CFP[26]. The French producer organisation (*Organisation de producteurs du SUD*) highlighted the difficulty fishermen experienced in claiming for EMFF funding during this current programming period (EMFF 2014-2020). The main reason concerns the access criteria considered very restrictive by fishermen (e.g. fishermen are

[22] https://ec.europa.eu/info/publications/contributions-consultation-multiannual-plan-western-mediterranean-sea-dg-mare_en

[23] The landing obligation and its implications on the control of fisheries, European Parliament, 2015. http://www.europarl.europa.eu/RegData/etudes/STUD/2015/563381/IPOL_STU(2015)563381_EN.pdf

[24] MEDAC is the most representative fisheries stakeholders' organisation for the Mediterranean region. It represents all the parties concerned by this initiative: the fisheries sector (including small-scale fisheries), trade unions and other interest groups such as environmental organisations, consumer groups and sports/recreational fishing associations that operate in the Mediterranean area under the CFP.

[25] MEDAC opinion on the Proposal for a Regulation of the EP and of the Council establishing a MAP for the fisheries exploiting demersal stocks in the western Mediterranean Sea, 2018. http://www.med-ac.eu/files/documentazione_pareri_lettere/2018/07/189_medac_opinion_draft_map_wmed_demersal_species.pdf

[26] https://ec.europa.eu/fisheries/questions-and-answers-new-european-maritime-and-fisheries-fund-emff-2021-2027_en

asked to reimburse the aid if any infringement is detected during 5 years following its attribution).

- The **shared nature of demersal stocks** has not been taken into account and there is no provision on cooperation with the third countries in the MAP proposal, even though the CFP regulation addressed the issue. In fact, in line with the article 18.4 of the CFP, the management of shared stocks in the western Mediterranean should be coordinated with the third parties, and its objectives shared within the context of the GFCM.
- The **absence of specific management measures related to recreational fisheries** although the MAP proposal scope covers this type of fisheries. The MAP only states that when the scientific advice shows that recreational fisheries have a significant impact on the fishing mortality of the stocks concerned, the Council may set fishing opportunities through the effort regime for commercial catches.

In addition, the analysis of the CFP regulation regarding the MAPs showed that although the article 15 of the CFP regulation (Regulation (EU) No 1380/2013) requires multi-annual plans to specify details as to how the **landing obligation** will be met, the MAP proposal does not provide mechanisms or specific measures to facilitate the implementation of the landing obligation including specific provisions for fisheries or species covered by the obligation; exemptions, including *de minimis* exemptions of up to 5 % of the total annual catches of all species subject to the obligation and provisions on the documentation of catches. The MAP proposal only states that the Commission is empowered to adopt delegated acts in accordance to the article 15 of the CFP regulation, without providing further details.

5. Analysis of the territorial and socio-economic impacts of the implementation of the multiannual plan for demersal fisheries in the western Mediterranean

The use of the different management options to regulate fisheries implies establishing limitations in the activity inputs (capacity, effort, technical measures) or outputs (TAC and quotas). Therefore, all these measures have impacts on the economic performance of the fleets. But the impacts of these management measures vary according to the fleet segments and to the Member States. In the following sections, we summarise the impacts by Member State. Where data is available, we monitor the number of vessels and persons that would be impacted by the measure.

5.1. France

5.1.1. Reduction of fishing effort

Three fleet segments will be potentially impacted by the implementation of the MAP for demersal stocks: two fleet segments of demersal trawls (DTS1824 and DTS2440) and one fleet segment of drift netter (DFN0612). In total, 602 vessels (including only 63 trawlers) and 933 persons will be potentially impacted by the implementation of the MAP for demersal stocks in France. The impacts vary according to the dependency level of each fleet segment upon demersal stocks and according to the MAP provisions, as follows:

5.1.1.1. Effort regime for trawlers and reduction of fishing effort

Reminder of the proposal (art.7, §3): *For the first year of implementation of the plan, the maximum allowable fishing effort shall be substantially reduced from the baseline provided for in paragraph 4, in accordance with the scientific advice.*

The impact of the fishing effort reduction could be perceived at two levels: at the level of fishing companies and at the level of all operators in the supply chain, (i.e. fishing companies' suppliers, repair and maintenance services providers, fish auctions, fish wholesalers and fishmongers).

Level 1: At the level of fishing companies

In France, the current annual average fishing effort for a demersal trawler is 196 days at sea, representing a -11% effort reduction compared to the 220 days limitation put in place three years ago (in the framework of the national management plan). This is notably the result of a compulsory measure of 5 consecutive days of cessation of activity each year for each French trawler. Each trawler owner decides when they want to stop their activity.

Method:

When processing the DCF dataset on economic performance of the French fleet in the Mediterranean seaboard, we are able to have an idea of the level of impact of reduction of fishing effort (in terms of days at sea) on the economic performance of each fleet segment.

To estimate the impact of a reduction of the fishing effort (i.e. days at sea), we built three scenarios with a reduction of 5%, 10% and 20% of the fishing effort corresponding to the envisaged range of reduction of effort in STECF report and in other research work (e.g. GEPAC Med in France, see below), as no figure has been provided in the MAP proposal. We used the DCF economic performance dataset to estimate the generated loss of the three scenarios in terms of gross added value. The gross added value is the difference between income from landings (fish sales) and operational costs (repair and maintenance, energy, other variable and non-variable costs; labor costs are excluded). The gross added value is the amount of money a fishing company is able to spend for paying labor costs (wages), reimbursing loans and for investments. Usually this amount is divided in two shares: 50% for crew wages and 50% for the vessel owner (loans, investments). So, the variation of gross added value will proportionately affect crew wages and the capacity of the vessel owner to reimburse his loans. In our scenarios we considered that a reduction of fishing effort will reduce proportionately income from landings as well as energy costs. We considered that other costs (repair and maintenance, other variable and non-variable costs) can be considered unchanged (or experience slight changes which are difficult to estimate). The resulting reduction of GAV is considered moderate when below 10%, significant when between 10% and 20% and high when above 20%.

Table 15 - *Estimated change in GAV in three effort reduction scenarios for three fleet segments in France*

Gears	Fleet segments	5%	10%	20%
Trawlers	DTS1824	-9%	-18%	-36%
	DTS2440	-9%	-18%	-36%
Netters	DFN0612	-7%	-15%	-30%

Source: own calculation based on DCF data.

In **scenario 1** (5% of reduction of fishing effort), the estimated reduction of gross added value is moderate and homogenous for all selected fleet segments: 9% for trawlers and 7% for netters.

In **scenario 2** (10% of reduction of fishing effort), the estimated reduction of gross added value is significant and homogenous for all selected fleet segments: 18% for trawlers and 15% for netters.

In **scenario 3** (20% of reduction of fishing effort), the estimated reduction of gross added value is high and homogenous for all selected fleet segments: 36% for trawlers and 30% for netters.

Short term impacts on fishing companies

The reduction of the fishing effort will directly negatively affect the gross added value of the fishing companies. The immediate impact will be perceived at two levels: crew wages and the capacity of the vessels' owners to reimburse loans and/or invest in modernisation of their vessels, fishing gear, etc. Depending on the level of loans or the age of vessels, the effort reduction threshold above which one fishing company is not able to reimburse its loans may vary from one fishing company to another. So it is difficult to estimate precisely the number of companies at risk of bankruptcy, but there is a high probability that a substantial reduction of the effort would definitely affect the economic viability of a significant number of fishing companies.

Medium term impacts on fishing companies

At medium term, the effort reduction is assumed to lead to a progressive recovery of the targeted demersal stocks by 2025 (according to the Commission's IA). The consequence would be an increase of the biomass and, with an unchanged fishing effort, better yields and increasing catches (increased catches per unit of effort). This would lead to improved profitability for the fishing companies having survived the reduction of the effort measures.

If the reduction of the fishing effort does not result in fish stocks recovery and thus an overall increase of the economic performance, impacts on employment could occur (losses of companies and/or jobs), though difficult to quantify as depending on other significant factors (level of loans, marine fuel price, other environmental factors, etc.), so it depends on the level of resilience of companies to the transition phase (short term level) related to the fishing effort reductions.

Long-term impacts on fishing companies

With shared remuneration systems, once the overall economic performance increases (e.g. from recovering of fish stocks), salaries increase.[27] However, restoring lost companies or jobs is not guaranteed.

Level 2: At the level of all operators in the supply chain

In case of a coordinated long fishing closure period, there is a risk to fish auctions' profitability, mainly for the auctions that are highly dependent on demersal species landings, as is the case in France. Interviewed French stakeholders consider that the auctions' activity is highly dependent on the trawlers' activity and if they stop fishing, even temporarily, the auctions have to close, which is considered as an important short-term impact. In the short and long term, the following impacts are also critical and could impact the whole supply chain:

- Loss in number of buyers: in the case of closure of auctions, buyers (mostly from Spain and Italy) would have to find alternative sources of supply. Thus, it will be difficult for the French fish auctions to rebuild customer relationship.
- Small-scale fleet would lose the access to the fish auction and would stop benefitting from the facilities and good prices (generated by high volumes attracting numerous buyers). In addition, if the auctions have to close, small scale fisheries will face difficulties to comply with the marketing standards in terms of freshness, quality, and hygiene (especially for ice-making machines). They would have to find alternative ways to sell their fish, which could have an impact on their profitability.

Focus on French trawler fleet

The GEPAC MED project[28], co-funded by AMOP (Association of Mediterranean Producer Organizations) and *France Filière Pêche*, has investigated the impacts of several management scenarios of reduction of fishing effort in terms of days at sea.

The analysis was based on DCF data, complementary data from their own survey and national statistics, based on years 2013-2015 (in order to smooth out interannual variations) on a population

[27] Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) - Multiannual plan for demersal fisheries in the western Mediterranean, 2016.

[28] GEPAC MED diagnostic socio-économique de la flottille chalutière et impacts des mesures de reduction de l'effort de pêche, Baranger L. and all., 2017.

of 59 French trawlers operating in the Gulf of Lion. The objective was to estimate the impact of three effort reduction scenarios: -3%, -6% and -9% in authorized days at sea, considering there is no difference of allocation of days at sea between all trawlers, and all companies are impacted in the same way. So, in the analysis, the turnover loss is proportional to the number of days at sea reduction.

The three scenarios resulted in a decrease of gross added value (-4% to -12%), of EBITDA[29] (-6% to -17%) and wages (-3% to -9%). The indirect impact on ancillary activities (suppliers and auctions in particular) was considered to be critical considering the high dependence of these activities on the trawling fleet activity.

Table 16 - Impacts of the reduction of the fishing effort in days at sea on the trawling sector in France

	Average 2013-2015	-3% days at sea	-6% days at sea	-9% days at sea
Number of days at sea	199	193	187	181
Annual turnover	548 230	-3%	-6%	-9%
Gross added value	203 346	-4%	-8%	-12%
EBITDA	73 421	-6%	-11%	-17%
Net average wage	26 567	-3%	-6%	-9%

Source: GEPAC MED project

However, a +20% increase of the marine fuel price would put the fishing companies at financial risk (EBIDTA slightly above average annual loan). In this case the average wage would experience a -12% drop. In addition, the annual average loan cost has been estimated in order to calculate the real financial situation of the concerned fishing companies, allowing to compare this average loan cost to the EBIDTA. It appeared that the ratio EBITDA/loan cost equals 1 (meaning a balanced financial situation but with no possibility of investment, i.e. the threshold above which the company is at financial risk) when the number of days at sea is 177 (compared to the current average of 196 days at sea)

Table 17 - Assessment of the profitability threshold depending on the number of days at sea for the French trawlers

Scenarios	Threshold indicator	Annual number of days at sea
Positive financial situation (above this threshold, the company can reimburse the loan and generate stocks)	EBITDA/Annual loan=1,5	199
Balanced financial situation (above this threshold, the company can reimburse the loan but does not generate stocks)	EBITDA/Annual loan=1	177
Risky financial situation (above this threshold, the company cannot reimburse the loan and have to use stocks, below this threshold the company is at risk of bankruptcy)	EBITDA/Annual loan=0,5	155

Source: GEPAC MED project

[29] Earnings Before Interest, Taxes, Depreciation, and Amortization.

The main conclusion of this study was the estimation of an average **profitability threshold, which corresponds to 177 days at sea.** Above this threshold, trawling activity in the Gulf of Lion in average terms is very unlikely to be profitable anymore (considering the fish prices and fuel prices as constant) and the risk in terms of number of companies and number of jobs losses is significant.

This provision on reduction of the fishing effort (art.7, §3) of the MAP proposal is a major worry in the French fisheries sector as the wording *"the maximum allowable fishing effort shall be substantially reduced"* may imply reduction of days at sea beyond the profitability threshold (in case of no reduction of number of vessels).

5.1.1.2. Duration of fishing trips

Reminder of the proposal (art.9, §3): *Where a Member State allows vessels flying its flag to fish with trawls, it shall ensure that such fishing is limited to a maximum of 12 hours per fishing day, five fishing days per week or equivalent.*

The MAP proposal includes a reduction of fishing trips to 12 hours. It is not specified whether this limitation included the time elapsed between the fishing port and the fishing grounds. This ambiguity is one of the main concerns for the trawlers. All interviewed stakeholders in France have expressed their concerns about this measure as most trawlers are located in Occitanie region and their fishing area is the large continental shelf of the Gulf of Lion. So, the duration of the trip to the fishing areas is relatively longer than for regions where there is a short continental shelf. At present, fishing trips are between 12h to 16h. This limitation would be unfair for vessels based in harbours where there is a large continental shelf (e.g. Sète).

5.1.2. Closure areas

5.1.2.1. Towed gear forbidden in less than 100 m depths for 3 months

Reminder of the proposal (art.11, §2): *In addition to what is provided for by Article 13 of Council Regulation (EC) No 1967/2006, the use of trawls in the western Mediterranean Sea shall be prohibited within the 100 m isobath from 1 May to 31 July each year.*

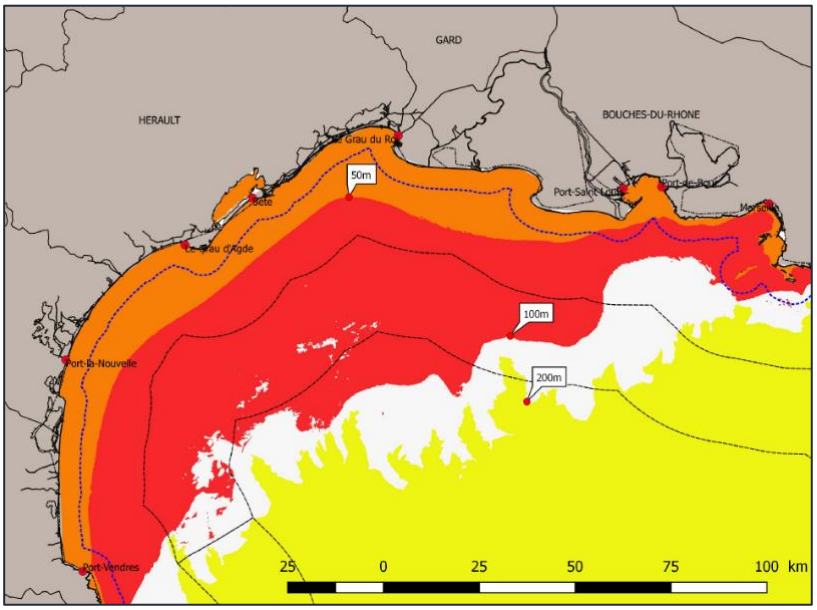
In the Gulf of Lion, the 100 m isobath is particularly far from the coast considering the large continental shelf. In France about one third of the trawlers have the authorisation to fish beyond the 20 nautical miles and two thirds cannot (mostly for the reasons of security standards). However, the situation of the Gulf of Lions in terms of bathymetry[30] is very specific with a large continental shelf with a 100 m isobath[31] very far from the coast. As a result, most of the trawling activities occur on the continental shelf. For the main ports for trawlers (Sète, Le Grau du Roi), the 100 m isobath is beyond 20 nm (figure 8). The analysis of DCF data suggests that the fuel costs constitute the main expenditure item (35% of the production costs) and stakeholders consider that the fuel prices will tend to increase. According to the interviewed stakeholders, this measure would considerably increase their fuel expenses without contributing to improve their catches, at least in a short and medium term, which would put the majority of trawlers at risk. The interviewed stakeholders consider that this measure would literally make fishing activity impossible for 2/3 of the French fishing fleet. Moreover, such limitation could generate changes in the fishing strategies and make trawlers concentrate in deeper areas close to the coast (especially in the eastern part of the French

[30] Bathymetry is ocean depth measurement.

[31] An isobath is a line on a chart joining places of equal depth of water.

coast) where other fishing fleets operate. This could lead to conflicts and possible local overexploitation of areas or impact on habitats where trawling activities had been limited so far.

Figure 6 - Bathymetry in the Gulf of Lion



Source: OP du Sud. In orange <50m depths, in red from 50 to 100 m, in yellow >200m. The first line corresponds to 3 nm, the second to 10 nm and the third to 20 nm.

5.1.2.2. Other closure areas

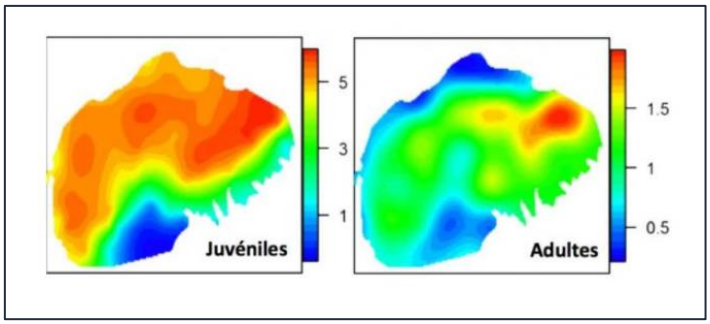
Reminder of the proposal (art.11, §2): *Within two years of the adoption of this Regulation and on the basis of the scientific advice, the Member States concerned shall establish other closure areas where there is evidence of a high concentration of juvenile fish and of spawning grounds of demersal stocks, in particular for the stocks concerned.*

Several management measures particularly, spatio-temporal restrictions, have been already implemented to protect juvenile or spawning aggregation areas and several closure areas have been defined and implemented jointly by French and Spanish authorities (c.f. section 4).

The interviewed stakeholders in France consider that defining other closure areas may not be effective in reaching conservation objectives, particularly for hake, but could have a negative impact on trawlers' activity and profitability. They consider that there is no aggregation areas for hake juveniles. This has been demonstrated by scientific work developed in the Gulf of Lion. In the context of this work, the analysis of adult and juvenile densities from 1994 to 2010 showed that there is no stable specific juvenile aggregation area over the years. However, there is a wide distribution of juveniles over all the continental shelf (figure 9).

In addition, the implementation of offshore windfarms project (which is in progress) may lead to the definition of new closure areas that could benefit the recovery of demersal stocks.

Figure 7 - Average densities of hake juveniles and adults in the Gulf of Lion from 1994 to 2010



Source: Morfin et al., 2012

5.1.3. Catch limitation

Reminder of the proposal: (art 8) *Where the best available scientific advice shows that the fishing effort regime is not sufficient to meet the objectives or targets set out in Articles 3 and 4, the Council shall adopt complementary management measures based on total allowable catches.*

Considering the number of species targeted by trawlers (c.f. section 3), and their low selectivity (bottom trawl), it seems very unrealistic to implement in the western Mediterranean a fisheries management system based on the TAC and quotas, especially considering the need to comply with the landing obligation. Interviewed French stakeholders consider that the implementation of this measure could have several levels of impacts:

- Short term impacts: it could incite illegal practices through discards, which is in contradiction to the CFP objectives.
- Medium-term impacts: setting catch/landing limitations according to the MSY objective would mean that several trawlers will stop their activity (in France, stakeholders consider that this would simply mean the closure of the trawling activity in the area) resulting in socio-economic impacts if the measure is effectively enforced (jobs, fish auctions, suppliers, impacts on small-scale fisheries, etc.). This will put at risk the activity of auctions and as consequences all the supply chain at the local levels.
- Long-term impacts: positive impact and stock recovery but the resettlement of demersal fishing companies, activities and market will be difficult.

5.2. Spain

Eight fleet segments will be potentially impacted by the implementation of the MAP for demersal stocks in Spain: four fleet segments of trawlers (DTS0612; DTS1218; DTS1824 and DTS2440), two fleet segments of drifts or fixed netters (DFN 0612 and DFN 1218), and two fleet segments using hooks (HOK 0612 and HOK1218). This corresponds to 615 trawls, 85 vessels using netters and 64 vessels using hooks. In total, all these fleet segments employed 2.989 persons. The impacts vary according to the dependency level of each fleet segment upon demersal stocks and according to the MAP provisions.

5.2.1. Reduction of fishing effort

5.2.1.1. Effort regime for trawlers and reduction of fishing effort

Reminder of the proposal (art.7, §3): *For the first year of implementation of the plan, the maximum allowable fishing effort shall be substantially reduced from the baseline provided for in paragraph 4, in accordance with the scientific advice.*

The impacts are perceived at two levels: at the level of fishing companies and at the level of the supply chain

Level 1: At the level of fishing companies

The same methodology described in the chapter 6.1.1.1. was used.

The impacts of the three scenarios of fishing efforts reduction (reduction of 5%, 10% and 20%) on the gross added value are presented in the table below. It is worth noting that the trawlers are particularly concerned by the establishment of these measures. The analysis in this section was expanded to other fleet vessels, as the article 7 stipulates that where the scientific advice shows significant catches of a particular stock with fishing gears other than trawls, fishing effort levels shall be set for such particular gear or gears.

***Table 18** - Impacts of the three scenarios of fishing effort reduction on the gross added value of the fishing companies by fleet segment in Spain*

Gears	Fleet segment	5%	10%	20%
Trawlers	DTS0612	-7%	-14%	-27%
	DTS1218	-7%	-14%	-27%
	DTS1824	-7%	-15%	-30%
	DTS2440	-8%	-15%	-31%
Netters	DFN0612	-7%	-14%	-27%
	DFN1218	-17%	-33%	-67%
Hooks	HOK0612	-8%	-15%	-31%
	HOK1218	-9%	-18%	-35%

Source: based on DCF data of 2015

In scenario 1 (5% of reduction of fishing effort), the estimated reduction of gross added value is significant and homogenous for almost all selected fleet segments: 7-8% for trawlers, 7% for netters between 6 and 12 m and 8-9% for hook segments, except the segment of netters between 12 and 18 m experiencing a significant decrease of 17%.

In scenario 2 (10% of reduction of fishing effort), the estimated reduction of gross added value is significant and homogenous for almost all selected fleet segments: 14-15% for trawlers, 14% for netters between 6 and 12 m and between 15% and 18% for hook segments, except the segment of netters between 12 and 18 m experiencing a significant decrease of 33%.

In scenario 3 (20% of reduction of fishing effort), the estimated reduction of gross added value is high and homogenous for all selected fleet segments: between 27 and 31% for trawlers, 27% for netters between 6 and 12 m and 35% for hook segments, except the segment of netters between 12 and 18 m experiencing a remarkable -67% decrease.

Short term impacts on fishing companies

The reduction of the fishing effort will directly negatively affect the gross added value of fishing companies. The immediate impact will be perceived at two levels: crew wages and the capacity of the vessels' owners to reimburse loans and/or invest in modernization of vessel, fishing gear, etc. Depending on the level of loans or the age of vessels, the effort reduction threshold above which one fishing company is not able to reimburse its loans may vary from one fishing company to another. So it is difficult to estimate precisely the number of companies at risk of bankruptcy, but there is a high probability that a substantial reduction of effort would definitely affect the economic viability of a significant number of fishing companies.

Medium term impacts on fishing companies

In the medium term, the effort reduction is supposed to lead to recovery of the targeted demersal stocks. The consequence would be an increase of the biomass and, with an unchanged fishing effort, better yields and increasing catches (increased catches per unit of effort). This would lead to improved profitability for the fishing companies having survived the reduction of effort measures.

If the reduction of fishing effort does not result in fish stocks recovery and thus an overall increase of the economic performance, impacts on employment could occur (losses of companies and/or jobs).

Long-term impacts on fishing companies

With shared remuneration systems, once the overall economic performance increases (e.g. from recovering of fish stocks), salaries increase.[32] However, restoring lost companies or jobs is not guaranteed.

Level 2: At level of all operators in the supply chain

According to all Spanish stakeholders consulted, all fleet segments will be impacted by the reduction of the fishing efforts, although trawlers remain the most dependent fleet segment upon landings from demersal stocks. Particularly in Catalonia, stakeholders underlined that vessels using hooks or gillnets would face the same issues as the trawlers.

There is a general consensus among the stakeholders that impacts of the fishing effort reduction will be perceived at both companies and sector level. At the company level, even though the reduction rate is not known, this measure would have important consequences on both employment and companies' income. The impacts at the sectoral level have been pointed out from two different points of view. The stakeholders in Andalusia indicated the importance of the trawler fleet segments for ports (i.e. services in the ports such as ice, repair and maintenance) and auctions. As indicated in section 3.3.4, the analysis of the first sale landings available in the website of the EUMOFA shows that more than half of the auctions in the Mediterranean region (45 out of 70 auctions)[33] rely on landings of demersal stocks (landings value of demersal stocks represent at least 20% of total landings value of the auction). The most affected auction is El Port De La Selva in Catalonia (demersal species landings represent 92% of the total landings value in 2017). The

[32] Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) - Multiannual plan for demersal fisheries in the western Mediterranean, 2016.

[33] This list of auctions is not comprehensive, but data cover the main important auctions.

stakeholders in Catalonia indicated the importance of demersal stocks to supply local hotels, restaurants and catering (HORECA).

In addition, the impacts of the MAP on the fish prices would likely be considerable. A study on the price structure in the supply chain for fresh hake in Spain indicated that the recovery plan for hake in the Bay of Biscay (Council Regulation (EC) No 811/2004 of 21 April 2004) has led to a significant increase in the first sale prices and a slight increase of the intra-EU imports[34]. This could offset the losses in terms of volume and allow fishermen to sell at better prices. But it is related to how the market will react to the decrease of volume resulting from the reduction of the effort regime.

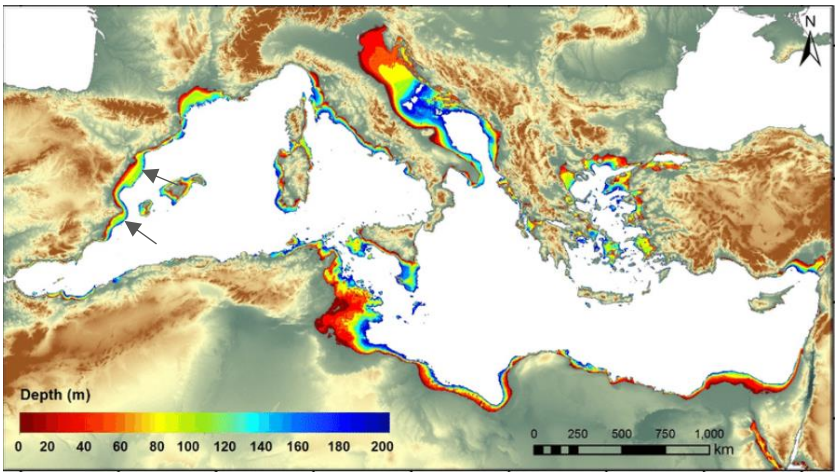
5.2.1.2. Duration of fishing trips

Reminder of the proposal (art.9, §3): *Where a Member State allows vessels flying its flag to fish with trawls, it shall ensure that such fishing is limited to a maximum of 12 hours per fishing day, five fishing days per week or equivalent.*

The impact of this measure depends on the fleet segments, on the time needed to reach the fishing area and on weather conditions[35].

According to the interviewed stakeholders in Spain, the impact of this measure could be significant when associated with the measure under the article 11 of the MAP proposal (towed gears in areas less than 100 m depths are prohibited for 3 months). The map below indicates that fisheries in the **South of Catalonia** and the **North of Valencia** could be particularly negatively impacted when both measures are implemented at the same time. The fishing areas in this case are further from the coast and establishing a maximum of 12 hours per fishing day may endanger the economic viability of the fishing companies.

Figure 8 – Bathymetric map of the Mediterranean Sea



Source : https://www.researchgate.net/figure/Bathymetric-map-of-the-Mediterranean-Sea-depth-range-0-200-m-Data-analyzed-by-the_fig1_320108161

Stakeholders in Andalusia indicated that a schedule of entry and exit to/from ports in the region are already regulated. Thus, this measure would not impact the fishing activity.

[34] https://www.eumofa.eu/documents/20178/65201/Case+Study+report+Hake_EN.pdf

[35] MEDAC opinion on the Proposal for a Regulation of the EP and of the Council establishing a MAP for the fisheries exploiting demersal stocks in the western Mediterranean Sea, 2018.

5.2.2. Closure areas

5.2.2.1. Towed gear forbidden in less than 100 m depths for 3 months

Reminder of the proposal (art.11, §2): *In addition to what is provided for by Article 13 of Council Regulation (EC) No 1967/2006, the use of trawls in the western Mediterranean Sea shall be prohibited within the 100 m isobath from 1 May to 31 July each year.*

The impacts of this measure depend on the geographical configuration of the continental shelf and will be disproportionate according to the location of homeports of vessels. In Spain, the 100 m isobath is far from the coast particularly in the **South of Catalonia** and the **North of Valencia** (figure 10). The analysis of data from the European fleet register[36] for the main important ports in these specific areas (Barcelona, Castellon, Tarragona, Saint Carles de la Rapita and Valencia), we estimate that **at least 115 trawls will be impacted by this measure[37]**. This measure will considerably increase the fuel consumption and thus costs without guaranteeing more important catches. The analysis of the production costs in the section 3.3.3 indicated that the energy consumption represents 14% of the production costs for the smallest trawlers (under 12 m) and 29% and 30% for the largest trawlers (DTS 18-24 and DTS 24-40).

All Spanish stakeholders consider that the impacts will be particularly important for the smallest vessels as the increase of energy consumption will not be compensated by more important catches (in terms of volume, as the storage capacity in boards is limited in comparison to larger vessels). The *Cofradia*[38] of the southern Catalonia considers that 90% of vessels would completely stop their activities, if this measure is implemented.

5.2.2.2. Other closure areas

Reminder of the proposal (art.11, §2): *Within two years of the adoption of this Regulation and on the basis of the scientific advice, the Member States concerned shall establish other closure areas where there is evidence of a high concentration of juvenile fish and of spawning grounds of demersal stocks, in particular for the stocks concerned.*

All interviewed stakeholders in Spain indicated that the protection of spawning and nursery grounds by establishing spatio-temporal closure is a key tool for the sustainable exploitation of the stocks. They also notice an increase of profitability (i.e. increase of catches) in the period following the temporary closure (areas closed to fishing activities are already established, see section 4.1).

5.2.3. Catch limitation

Reminder of the proposal: (art 8) *Where the best available scientific advice shows that the fishing effort regime is not sufficient to meet the objectives or targets set out in Articles 3 and 4, the Council shall adopt complementary management measures based on total allowable catches.*

[36] The European Feet Register is a database where the fishing vessels flying the flag of a Member State are registered in accordance with Community legislation.

[37] We note that the data from the fleet register does not provide information on the vessels activities, i.e. a vessel could be registered in a specific port but operate in another region.

[38] *Cofradias* are formal public organizations assigned exclusive territorial areas for their activities and represent the interests of the entire fisheries sector. They also act as formal consultative and collaborative bodies of the State administration.

According to the STECF report[39], a TAC management system (output control) relies on the stock assessment, which may be a problem considering the instability of the stock assessments due to data covering short time period (data are available for the last ten years at best) and data limitations. Indeed stock evaluation in the western Mediterranean focuses only on a few species: hake, red mullet, Norway lobster, deep-water rose shrimp, and spottail mantis shrimp and collected data are not always sufficient to calculate all parameters needed for robust stock evaluation (biomass, recruitment, etc.). The report considers the impacts of this measure uncertain and indicated that the establishment of the TAC and quotas (if there is compliance) can impact both variable fishing costs and revenues because depending on the choke species, fishers will have to change the fishing strategies to avoid unwanted catches. There is a large consensus among the stakeholders interviewed (Spanish fisheries representative organisations) that the implementation of the TAC and quotas are not applicable in the Mediterranean context for demersal species, as concerned fleet segments, and especially trawlers, are multispecies.

5.3. Italy

In Italy, seven fleet segments will be potentially impacted by the implementation of the MAP for demersal stocks: four fleet segments of bottom trawlers (DTS0612; DTS1218; DTS1824 and DTS2440) and three fleet segments of polyvalent passive gears (PGP 0006; PGP0612 and PGP1218). This corresponds to 5.347 vessels (including 641 trawlers, and 4.706 vessels using polyvalent passive gears) and 8.877 persons. The impacts vary according to the dependency level of each fleet segment upon demersal stocks and according to the MAP provisions, as follows:

5.3.1. Reduction of fishing effort

5.3.1.1. Effort regime for trawlers and reduction of fishing effort

Reminder of the proposal (art.7, §3): *For the first year of implementation of the plan, the maximum allowable fishing effort shall be substantially reduced from the baseline provided for in paragraph 4, in accordance with the scientific advice.*

The impacts are perceived at two levels: at the level of fishing companies and at the level of the supply chain.

Level 1: At the level of fishing companies

Using the same methodology as for France and Spain, the impacts of the three scenarios of fishing efforts reduction (reduction of 5%, 10% and 20%) on the gross added value are presented in the table below. It is worth noting that trawlers are particularly concerned by the establishment of these measures. The analysis in this section was expanded to other fleet vessels, as the article 7 stipulates that where the scientific advice shows significant catches of a particular stock with fishing gears other than trawls, fishing effort levels shall be set for such particular gear or gears.

[39] Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) - Multiannual plan for demersal fisheries in the Western Mediterranean, 2016.

Table 19 - *Impacts of three scenarios of fishing effort reduction on the gross added value of fishing companies by fleet segment*

Gears	Fleet segment	5%	10%	20%
Trawlers	DTS0612	-7%	-13%	-27%
	DTS1218	-6%	-13%	-26%
	DTS1824	-7%	-13%	-26%
	DTS2440	-6%	-13%	-26%
Polyvalent passive gears	PGP 0006	-6%	-12%	-24%
	PGP 0612	-6%	-12%	-25%
	PGP 1218	-6%	-13%	-25%

Source: based on DCF data of 2015

In **scenario 1** (5% reduction of fishing effort), the estimated reduction of gross added value is moderate and homogenous for all selected fleet segments: between 6 and 7% for trawlers and 6% for polyvalent passive gears.

In **scenario 2** (10% reduction of fishing effort), the estimated reduction of gross added value is significant and homogenous for all selected fleet segments: 13% for trawlers and between 12% and 13% for polyvalent passive gears.

In **scenario 3** (20% reduction of fishing effort), the estimated reduction of gross added value is high and homogenous for all selected fleet segments: between 26 and 27% for trawlers and between 24% and 25% for polyvalent passive gears.

No feedback has been received from the Italian stakeholders, but considering the characteristics of Italian demersal fisheries, the same conclusions can be drawn for Italy as for Spain and France about the impacts of substantial effort reduction measures, although the intensity of impacts is likely to be lower than in other countries.

Level 2: At level of all operators in the supply chain

No feedback has been received from the Italian stakeholders, so qualitative information on socio-economic impacts of the proposed MAP on Italian fishery sector is missing.

5.3.1.2. Duration of fishing trips

Reminder of the proposal (art.9, §3): *Where a Member State allows vessels flying its flag to fish with trawls, it shall ensure that such fishing is limited to a maximum of 12 hours per fishing day, five fishing days per week or equivalent.*

The impact of this measure depends on the fleet segments, on the time needed to reach the fishing area and on weather conditions[40]. However, data on current duration of fishing trips have not been provided by Italian stakeholders, as no feedback has been received from them.

[40] MEDAC communication (see references)

5.3.2. Closure areas

5.3.2.1. Towed gear forbidden in less than 100 m depths for 3 months

Reminder of the proposal (art.11, §2): *In addition to what is provided for by Article 13 of Council Regulation (EC) No 1967/2006, the use of trawls in the western Mediterranean Sea shall be prohibited within the 100 m isobath from 1 May to 31 July each year.*

Along the western Mediterranean Italian coast, the continental shelf zone is not as large as in France or Spain. The 100 m isobath is almost everywhere close to the coast (<20 nm). So, this measure would potentially have less effects on Italian trawlers (especially the ones targeting shrimp or Norway lobster at depths >120m) than on French and Spanish trawlers operating in the continental shelf. Of course, specific coastal trawling activity could be impacted at regional level, but the level of available information is not sufficient to investigate further as no feedback has been received from consulted Italian stakeholders.

5.3.2.2. Other closure areas

Reminder of the proposal (art.11, §2): *Within two years of the adoption of this Regulation and on the basis of the scientific advice, the Member States concerned shall establish other closure areas where there is evidence of a high concentration of juvenile fish and of spawning grounds of demersal stocks, in particular for the stocks concerned.*

No feedback has been received from the Italian stakeholders.

5.3.3. Catch limitation

Reminder of the proposal: (art 8) *Where the best available scientific advice shows that the fishing effort regime is not sufficient to meet the objectives or targets set out in Articles 3 and 4, the Council shall adopt complementary management measures based on total allowable catches.*

No feedback has been received from the Italian stakeholders, but considering the characteristics of Italian demersal fisheries, the same conclusions can be drawn for Italy as for Spain and France about the impacts of such measures of catch limitations.

5.4. Other impacts of the MAP proposal

Beyond the socio-economic impacts of each measure recommended in the MAP proposal, a serious issue could arise from **the enforcement of the different measures taken together in addition to the enforcement of other obligations in the context of the new CFP**. For instance, the implementation of the total allowable catches for demersal species will be in practice difficult to enforce together with the landing obligation. Under the landing obligation all catches have to be kept on board and landed. Demersal fisheries are multispecies and strategies to avoid certain species are difficult to operate by fishermen. These difficulties could lead to lack of enforcement (i.e. illegal practices of discards, which are contradictory to the CFP objectives). Another example could be the implementation of a prohibition of trawlers in the western Mediterranean Sea within the 100 m isobath from 1 May to 31 July each year together with the establishment of a 12 hours fishing trip duration. As indicated in the previous national sections, the implementation of both measures will be difficult in certain areas where the 100 m isobath is particularly far from the coast considering the large continental shelf (which implies long time needed to reach the authorised fishing area). These areas could include the Gulf of Lion, the South of Catalonia and the North of Valencia.

STECF notes that the stocks recovery period is longer than the period required to reach the fishing mortality target. Thus, **the positive impacts related to stocks recovery** (allowing enhanced

catches of demersal stocks in terms of in comparison to the first period following the MAP implementation) **will be perceived at long term level**[41]. The proposal for regulation establishing the MAP indicates that socio-economic performance is expected to improve across all fleets by 2025[42].

5.5. Alternative and mitigating measures

During the consultation phase, stakeholders indicated some **mitigating measures** that could be implemented to reduce the impacts of the MAP proposal on their activities. These measures reflect the willingness of the sector for more efficient fisheries management taking into account the possible socio-economic impacts. They include:

- The establishment of a **progressive reduction of fishing effort**. In France, the proposal of the fishermen's representative organisation is a progressive reduction of the fishing effort for trawlers within the limits of financial balance (not more than a 7% reduction of authorised fishing days at sea in the first year of implementation), allowing to maintain the number of companies, jobs and ancillary activities depending on the trawling fleet activity. The progressive decrease of the fishing effort would allow a progressive recovery of stocks during the planned period and maintaining the continuity of the local fishing sector (i.e. ideally, the first year of implementation, the slight effort reduction would cause a slight decrease of the fishing mortality, then the biomass would slightly increase. The second year the effort reduction would make fishing mortality decrease but catch per effort unit (CPEU) could increase (and so the profitability) and the biomass would still increase.
- Improve and facilitate **access to EMFF** to compensate the temporary cessation of activity of impacted vessels. The representative organisation in South Catalonia considers that this is the only mitigating measure that could allow to maintain the fishing sector and ancillary activities.
- **Amending the authorisation regime**: Fishing authorisation regime is a constraint to the polyvalence of trawlers. Amending this regime by allowing more flexibility (i.e. allowing diversification in fishing strategies: gears, species, etc.) could be an alternative to allow trawlers to maintain their activity while implementing the effort reduction measures.

[41] Reports of the Scientific, Technical and Economic Committee for Fisheries (STECF) - Multiannual plan for demersal fisheries in the Western Mediterranean, 2016.

[42] Proposal for a Regulation of the European Parliament and of the Council establishing a multi-annual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea {SWD (2018) 59 final} - {SWD (2018) 60 final}.

6. Summary of findings and conclusions

To carry out this study, our approach was based on both desk research and statistical data analysis as well as stakeholder consultation. The limits to our approach include:

1. different levels of involvement between stakeholders consulted (the Italian national and regional stakeholders were contacted and refused to contribute);

2. different temporal coverage of the data from the Data Collection Framework, which constitutes the main used statistical source for our analysis, according to: 2.1. variables, such as vessels' features, fishing activities outcomes (landings volume and value), and the economic performance of fishing companies, and 2.2. to the three countries: France, Italy and Spain.

According to this research paper, the fleet segments that would be impacted by the MAP proposal are the **French, Italian and Spanish trawlers** (FR DTS1824; FR DTS2440, IT DTS0612; IT DTS1218; IT DTS1824; IT DTS 2440, ESP DTS0612; ESP DTS 1218; ESP DTS 1824; ESP DTS2440); the **French fleet segment of netters** (FR DFN0612), the **Italian fleet segments of polyvalent passive gears** (ITA PGP0006; IT PGP0612; IT PGP1218), the **Spanish fleet segments of netters** (ESP DFN0612; ESP DFN1218) and the **Spanish fleet segments of vessels using hooks** (ESP HOK0612; ESP HOK1218). This corresponds to 6.713 vessels and 12.799 jobs. However, these fleet segments will not be impacted in the same manner by the MAP proposal as they do not have the same level of dependency upon demersal stocks. Overall, the trawlers are the most dependant fleet segments. In addition, the impacts of the MAP proposal vary depending on its specific provisions (i.e. management measures under MAP).

Table 20 below summarises the impacts in the three countries affected by the MAP. For each measure, we indicated in a qualitative way the potential impacts at short, medium- and long-term levels. We also indicated the number of vessels and of jobs that would be impacted, when available. The column on comments includes our own estimation of the socio-economic risk of MAP implementation for each fleet segment, taking into account besides other possible impacts, the economic situation of the fleet segment and its dependency upon demersal stocks landings. Thus, we draw a conclusion on the probability of each fleet segment to be able to bear the transition phase (i.e. the first years of the MAP implementation, where the loss of profitability would not be compensated by better fishing yields). The main findings for the fleet segments in four categories are the following:

- **Fleet segments moderately impacted but could bear the transition phase because of good level of profitability:** in Italy small trawlers between 6 and 12 m length and vessels using polyvalent passive gears, and French netters.
- **Fleet segments weakly impacted but weak profitability:** Spanish netters between 12 and 18 m, Spanish vessels using hooks.
- **Fleet segments highly impacted but could bear the transition phase as high profitability:** French trawlers, Italian trawlers between 12 and 18 m, Spanish trawlers below 18 m.
- **Fleet segments highly impacted with weak profitability that may constitute a barrier to bear the transition phase:** Italian and Spanish trawlers between 18 and 40 m.

In particular, the main socio-economic impacts identified are summarised below for each provision/MAP measure:

- **Substantial reduction of fishing effort**

Short term impacts on fishing companies

The reduction of the fishing effort will directly affect negatively the gross added value of fishing companies. The immediate impact will be perceived at two levels: crew wages and the capacity of the vessels' owners to reimburse loans and/or invest in modernising the vessels or purchasing fishing gears. Depending on the level of loans or the age of vessels, the effort reduction threshold above which fishing companies may not be able to reimburse its loans may vary from one fishing company to another. So it is difficult to estimate precisely the number of companies at risk of bankruptcy, but there is a high probability that a substantial reduction of effort would affect the economic viability of a significant number of fishing companies.

Medium term impacts on fishing companies

In the medium term, the effort reduction is supposed to lead to the recovery of the targeted demersal stocks. The consequence would be an increase of the biomass and, with an unchanged fishing effort, better yields and increasing catches (increased catches per unit of effort). This would lead to improved profitability for the fishing companies which would have survived the reduction of effort measures, as a certain number may have faced bankruptcy in short term.

If the reduction of fishing effort does not result in fish stocks recovery and thus an overall increase of the economic performance, impacts on employment could occur (losses of companies and/or jobs).

Long-term impacts on fishing companies

With shared remuneration systems, once the overall economic performance increases (e.g. from recovery of fish stocks), salaries increase. However, this could be possible for fishing companies that could bear the transition phase and restoring lost companies or jobs is unlikely to happen.

- **Closure areas and periods (towed gear forbidden above the 100 m isobath and other closure areas)**

The implementation of this measure could have significant negative impacts on the activity of vessels in certain areas where the 100 m isobath is particularly far from the coast considering the large continental shelf (which implies long time needed to reach the authorised fishing area). These areas are the Gulf of Lions, the South of Catalonia and the North of Valencia. This concerns 63 trawlers and 699 jobs in France and at least 115 vessels in Spain[43].

- **Limitation of catches**

A total allowable catch (TAC) management system (output control) relies on stock assessment, which may be a problem considering the instability of the stock assessments due to data limitations. This research paper considers the impacts of this measure uncertain and indicated that the establishment of TAC and quotas (if there is compliance) can impact both variable fishing costs and revenues because depending on the choke species, fishers will have to change fishing strategies to avoid unwanted catches. There is a large consensus among stakeholders interviewed that the

[43] This figure is underestimated as it is based only on the number of vessels registered in the main important ports in the two areas. In total, there are 441 vessels using trawls in Catalonia and Valencia.

implementation of TAC and quotas are not applicable in the Mediterranean context, as trawlers are multispecies.

Beyond the socio-economic impacts of the set of measures recommended in the MAP proposal, significant negative economic impacts (on fishing companies and ancillary activities such as fish auctions and other small-scale fleets) could arise from the enforcement of the different measures taken together: catch limitations and landing obligation, 12h fishing trips and 100 m isobath constraint.

During the consultation phase, stakeholders indicated some **mitigating measures** that could be implemented to reduce the impacts of the MAP proposal on their activities, including establishing a progressive reduction of fishing effort, improving and facilitating access to European Maritime and Fisheries Fund (EMFF) in cases of temporary cessation, and amending the authorisation regime for trawlers to allow diversification of fishing activities.

The analysis of the MAP proposal underlined the complexities of specific measures particularly implementing TAC in mixed fisheries. This will be particularly complex when the landing obligation is enforced. In addition, this analysis and the analysis of the Mediterranean Advisory Council (MEDAC) opinions revealed that some issues have not been addressed in the MAP proposal, including the introduction of electronic monitoring systems for vessels subject to the MAP, the absence of provisions related to additional support from EMFF, the absence of specific management measures related to recreational fisheries. Given the shared nature of stocks, regionalisation is foreseen in the context of MAP proposal. However, expanding cooperation to third countries has not been considered by the MAP proposal. Thus, the objectives of the MAP would not be achieved, and the impacts would be disproportionate among operators in the different geographical sub-areas (some GSAs are more concerned than others by the fishing activities from third countries). These gaps could hinder the fulfilment of the MAP objectives within its timeline.

Table 20 *– Summary of impacts of the MAP proposal implementation on the fleet segments targeting demersal stocks*

Fleet segment		MAP measures				
	Groups	Reduction of fishing effort	Duration of fishing trips	100 m isobath	Catch limitation	Comment[44]
Trawl fleet segments						
FR A37 DTS1824	Group 3: high and medium profitability and high dependency	**Short term impacts (-)**: decrease of the GVA of fishing companies and impacts on both crew wages and capacity of owners to reimburse loans and/or to invest. **Medium term impacts (-/+)**: these impacts are related to the capacity of stocks recovery which in principle could allow better yields and increasing catches. If not, negative impacts on employment could occur (losses in number of companies and jobs). **Long term impacts (+)**: stock recovery would benefit to the fishing companies (which could bear the reduction of	Potentially high (–) impacts, as at present, fishing trips duration averages between 12h to 16h.	**Number of vessels**: 63 **Number of jobs**: 699 **Impact intensity**: High (-) impact	Trawls are particularly concerned (multispecies activities) **Impact intensity**: **Short/medium term:** High (–) impacts, particularly complicated to implement with landing obligation. Medium/long-term: (+) impacts. **Number of vessels**: 1.319 **Number of jobs**: 5.161	Highly impacted but could bear the transition phase as the fleet segment has good profitability.
FR A37 DTS2440	Group 3: high and medium profitability and high dependency					Highly impacted but could bear the transition phase as the fleet segment has good profitability.
IT A37 DTS0612	Group 2: high profitability and medium dependency		Impacts depend on the fishing strategy of vessels, the time needed to reach the fishing area and on weather conditions.	In Italy, there is no specific area concerned (except South of the Liguria region) **Impact intensity**: medium		Moderately impacted but could bear the transition phase as the fleet segment has good profitability.
IT A37 DTS1218	Group 3: high and medium profitability and high dependency					Highly impacted but could bear the transition phase as the fleet segment has good profitability.
IT A37 DTS1824	Group 4: weak profitability and high dependency					Highly impacted. The weak profitability may constitute a barrier to bear the transition phase.
IT A37 DTS2440	Group 4: weak profitability and high dependency					Highly impacted. The weak profitability may constitute a barrier to bear the transition phase.
ESP A37 DTS0612	Group 3: high and medium profitability and high dependency					Highly impacted but could bear the transition phase as the fleet segment has good profitability.

[44] Comments on combined impacts of the MAP by fleet segments have to be considered with caution, provided that the induced reduction in fishing activity does not fall below the profitability thresholds (calculated around 7% for French trawlers for example), i.e. in particular the capacity for fishing companies to repay their loans.

ESP A37 DTS1218	Group 3: high and medium profitability and high dependency	effort enforced), reaching sustainable yields allowing increased economic performance **Number of vessels**: 1.319 **Number of jobs**: 5.161 **Impact intensity**: high		**Areas particularly concerned:** South Catalonia and North of Valencia **Number of vessels**: at least 115 vessels[45]. **Impact intensity**: High (–) impacts in these areas and medium impact in the other areas.		Highly impacted but could bear the transition phase as the fleet segment has good profitability.
ESP A37 DTS1824	Group 4: weak profitability and high dependency					Highly impacted. The weak profitability may constitute a barrier to bear the transition phase.
ESP A37 DTS2440	Group 4: weak profitability and high dependency					Highly impacted. The weak profitability may constitute a barrier to bear the transition phase.
Fleet segments using nets						
FR A37 DFN0612	High profitability and low dependency	This measure will be expanded to the other fleet segments only if necessary. If so, all vessels would be concerned. **Number of vessels**: 678 **Number of jobs**: 909	Impacts depend on the fishing strategy of vessels, the time needed to reach the fishing area and on weather conditions.	Not concerned	Netters are also multispecies **Impact intensity**: High (–) impacts, particularly complicated to implement with landing obligation. **Number of vessels**: 678 **Number of jobs**: 909	Weakly impacted.
ESP A37 DFN0612	Group 2: high profitability and medium dependency			Not concerned		Moderately impacted but could bear the transition phase as the fleet segment has good profitability.
ESP A37 DFN1218	Group 1: weak profitability and low dependency			Not concerned		Weakly impacted but the fleet segment has a weak profitability and a decrease of economic performance over the last few years.
Fleet segments using polyvalent passive gears						
IT A37 PGP0006	Group 2: high profitability and medium dependency	This measure will be expanded to the other fleet segments only if necessary.	Impacts depend on the fishing strategy of vessels, the time needed to reach the fishing area and on weather conditions.	Not concerned	These fleet segments are more selective than trawlers and vessels using nets. **Impact intensity**: medium (–) impacts.	Moderately impacted but could bear the transition phase as the fleet segment has good profitability.
IT A37 PGP0612	Group 2: high profitability and medium dependency			Not concerned		Moderately impacted but could bear the transition phase as the fleet segment has good profitability.

[45] This figure is underestimated as it is based only on the number of vessels registered in the main important ports in the two areas. In total, there are 441 vessels using trawls in Catalonia and Valencia.

IT A37 PGP1218	Group 2: high profitability and medium dependency	If so, all vessels would be concerned. **Number of vessels**: 4.706 **Number of jobs**: 6.995		Not concerned	**Number of vessels**: **Number of jobs**:	Moderately impacted but could bear the transition phase as the fleet segment has good profitability.
Fleet segments using hooks						
ESP A37 HOK0612	Group 1: weak profitability and low dependency	This measure will be expanded to the other fleet segments only if necessary.	Impacts depend on the fishing strategy of vessels, the time needed to reach the fishing area and on weather conditions.	Not concerned	These fleet segments are more selective than trawlers and vessels using nets. **Impact intensity**: medium (–) impacts. **Number of vessels**: 64 **Number of jobs**: 199	Weakly impacted but the fleet segment has a weak profitability.
ESP A37 HOK1218	Group 1: weak profitability and low dependency	If so, all vessels would be concerned. **Number of vessels**: 64 **Number of jobs**: 199		Not concerned		Weakly impacted but the fleet segment has a weak profitability.

7. Annexes

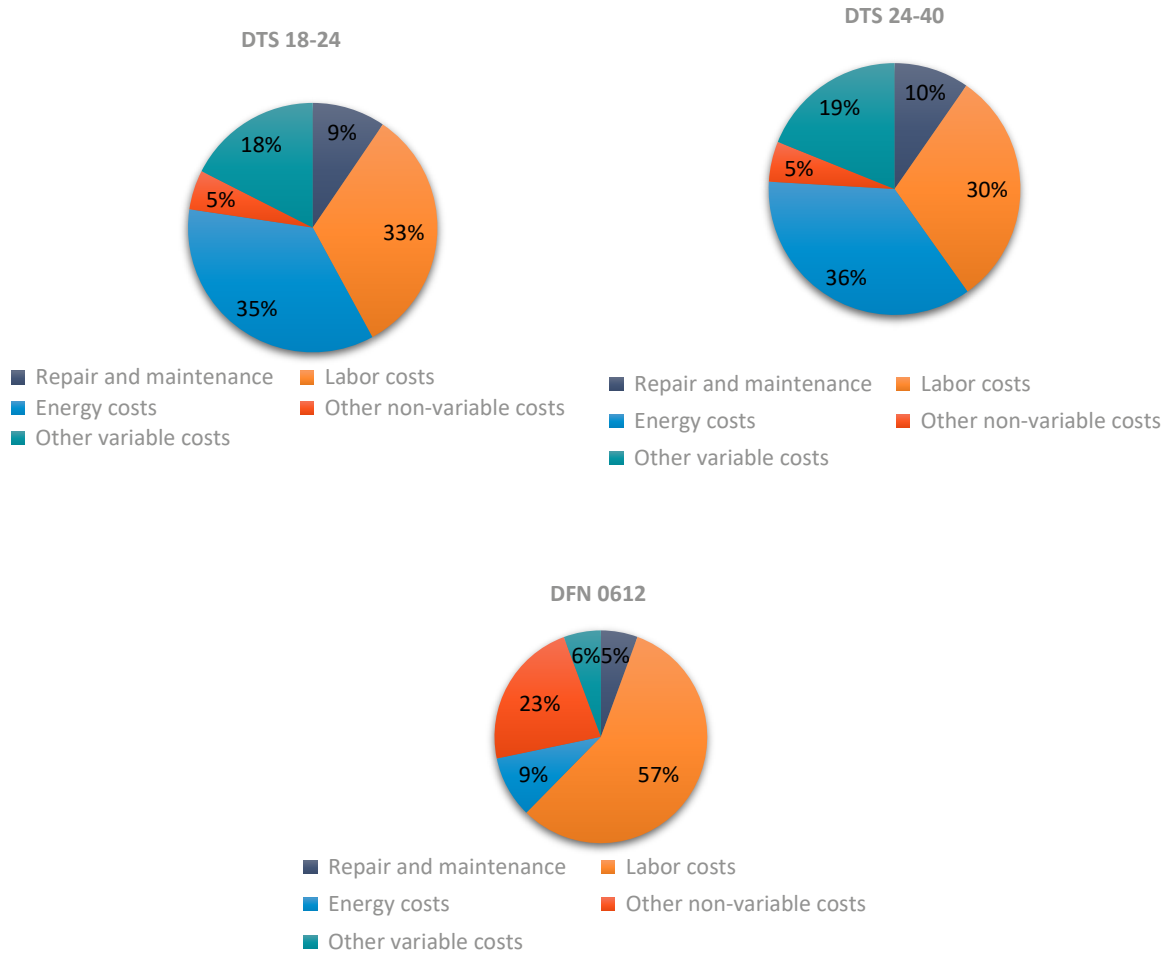
Annex 1 – List of interviewed stakeholders

MS	Region	Organisation
Spain	Catalonia	Federació Territorial de Confraries de Pescadors de Barcelona
	Andalusia	Federacion andaluza de cofradias de pescadores
	Catalonia	Organización de productores de sant carles de la rápita
France	Occitanie/PACA	Organisation de Producteurs du Sud
	Occitanie	Organisation de Producteurs SA.THO.AN
	Occitanie	Comité Régional des Pêches d'Occitanie
	National	Comité National des Pêches Maritimes et des Elevages Marins
	Mediterranean seaboard	CEPRALMAR

During the consultation phase, we contacted the Italian national and regional stakeholders. However, they did not agree to participate.

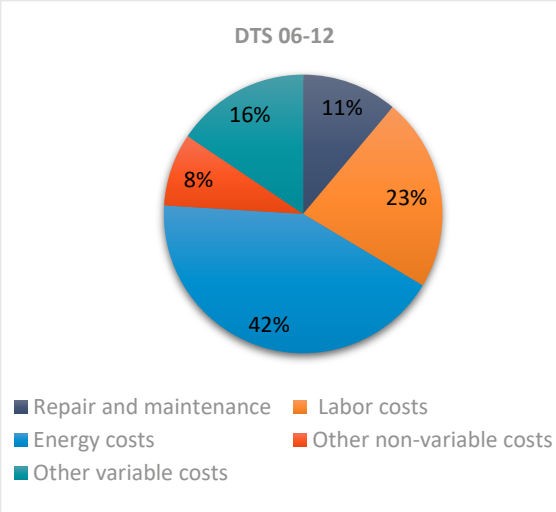
Annex 2 – Breakdown of production costs by type of expenditure, 2015

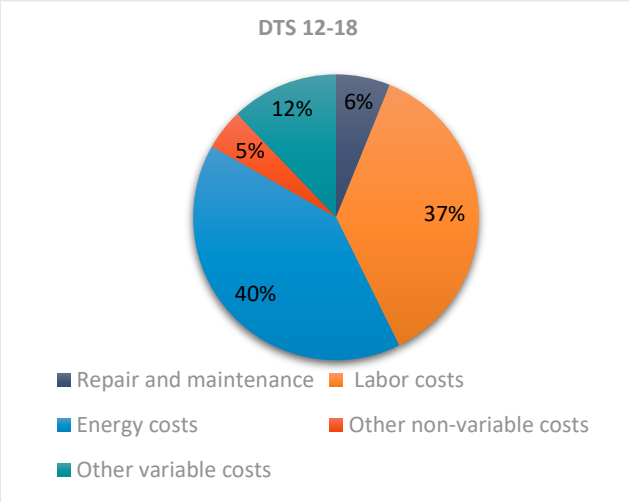
France

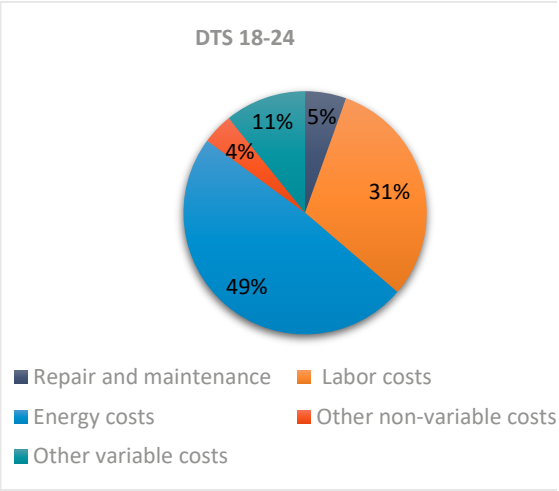


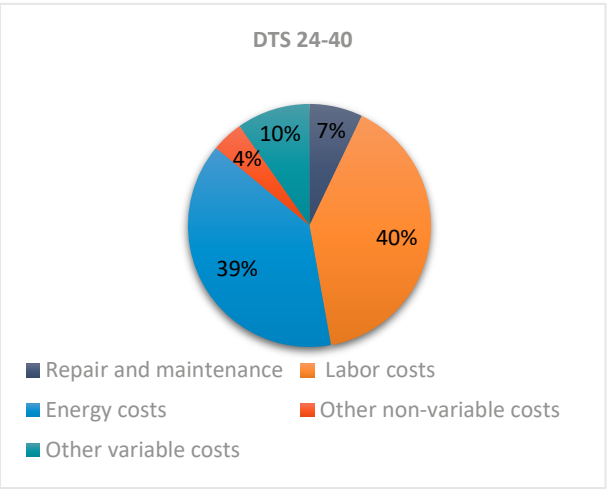
Source: DCF data

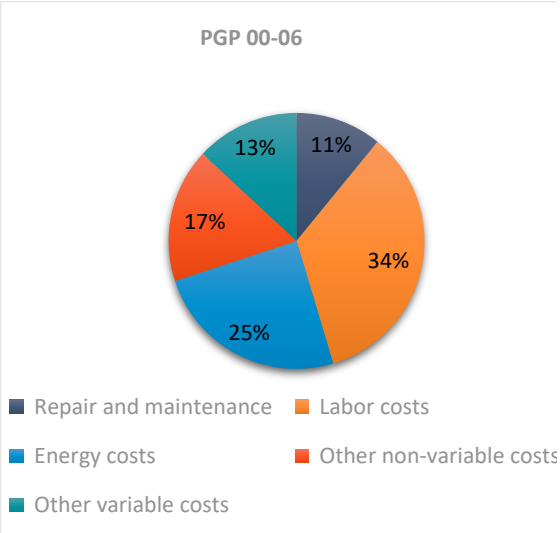
Italy

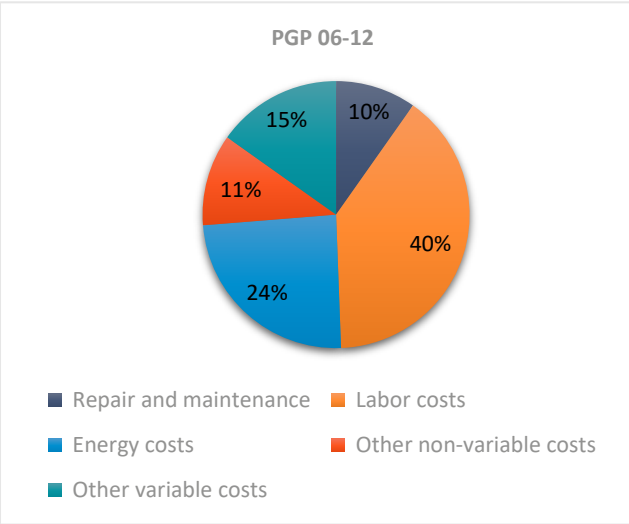

DTS 06-12
11%
23%
42%
8%
16%
Repair and maintenance
Labor costs
Energy costs
Other non-variable costs
Other variable costs

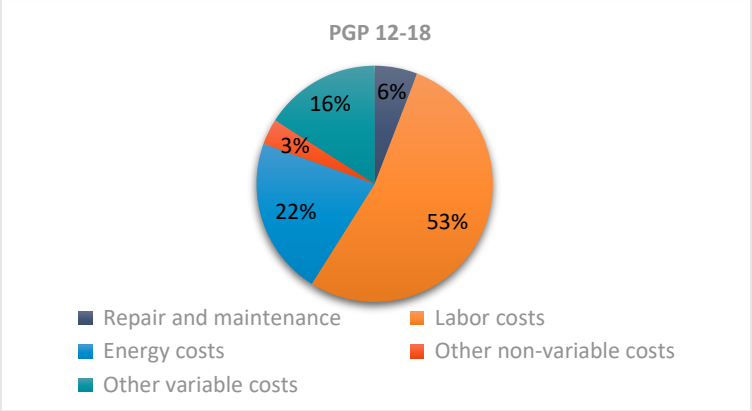

DTS 12-18
6%
37%
40%
5%
12%
Repair and maintenance
Labor costs
Energy costs
Other non-variable costs
Other variable costs


DTS 18-24
5%
31%
49%
4%
11%
Repair and maintenance
Labor costs
Energy costs
Other non-variable costs
Other variable costs


DTS 24-40
7%
40%
39%
4%
10%
Repair and maintenance
Labor costs
Energy costs
Other non-variable costs
Other variable costs

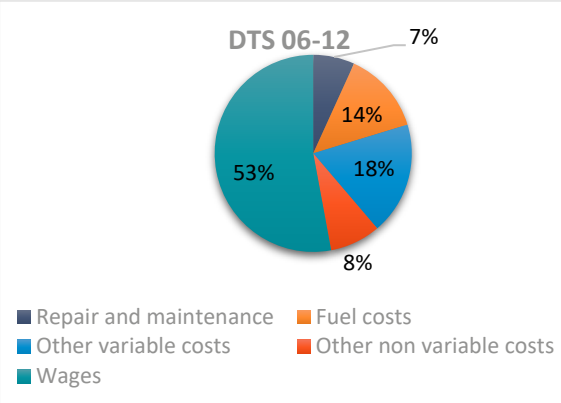

PGP 00-06
11%
34%
25%
17%
13%
Repair and maintenance
Labor costs
Energy costs
Other non-variable costs
Other variable costs

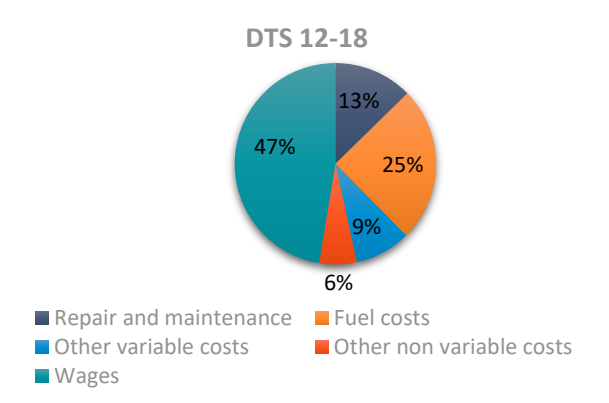

PGP 06-12
10%
40%
24%
11%
15%
Repair and maintenance
Labor costs
Energy costs
Other non-variable costs
Other variable costs

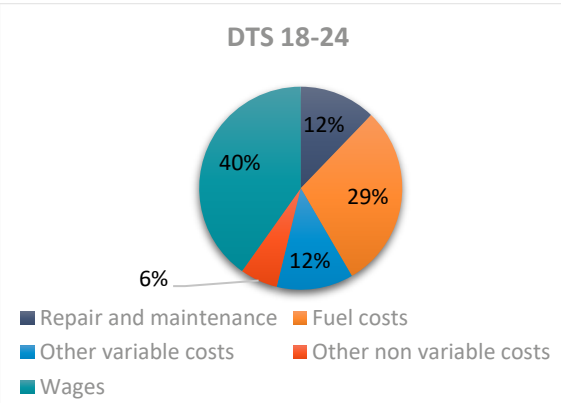


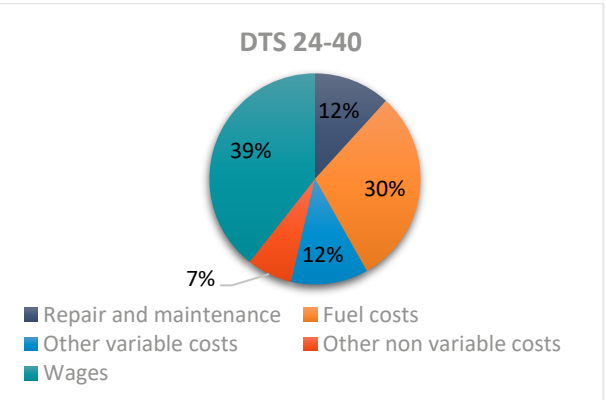
Source: DCF data

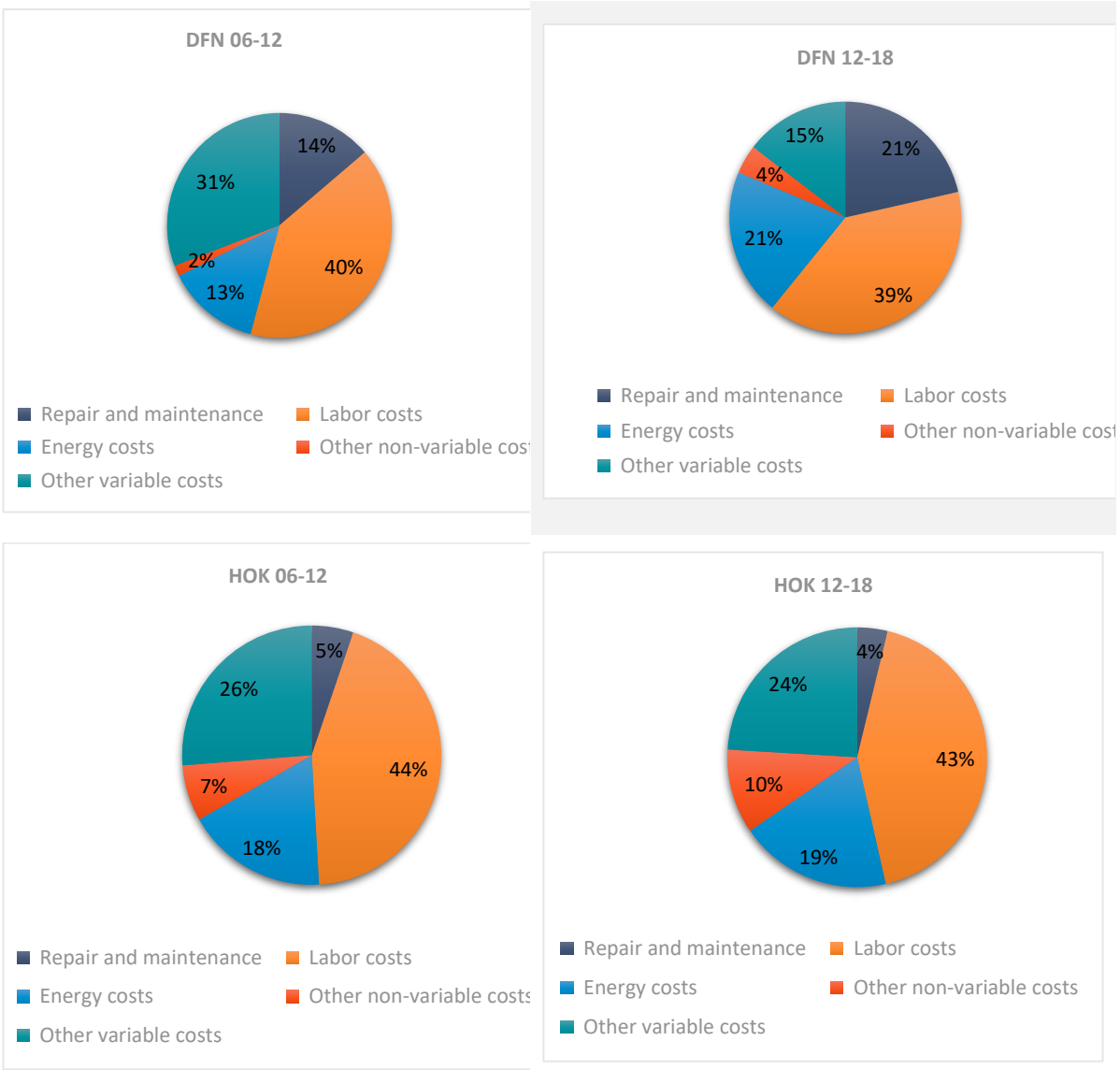
Spain











Source: DCF data

Annex 3: Dependency of auctions upon landings of demersal stocks

France

Region / Auction	2012	2013	2014	2015	2016	2017
Volume						
Occitanie	13%	18%	22%	20%	17%	15%
FR - Agde	14%	16%	20%	18%	15%	13%
FR - Le Grau-du-Roi	15%	20%	24%	20%	17%	13%
FR - Port-la-Nouvelle	12%	14%	15%	15%	11%	10%
FR - Port-Vendres	1%	0%	0%	0%	0%	0%
FR - Sète	15%	22%	25%	26%	24%	22%
PACA	1%	0%	1%	0%	0%	0%
FR - Port-de-Bouc	1%	0%	1%	0%	0%	0%
Value						
Occitanie	21%	25%	29%	29%	25%	24%
FR - Agde	24%	25%	27%	28%	24%	21%
FR - Le Grau-du-Roi	18%	22%	26%	24%	22%	17%
FR - Port-la-Nouvelle	19%	22%	24%	24%	20%	21%
FR - Port-Vendres	2%	0%	0%	0%	0%	0%
FR - Sète	27%	31%	35%	37%	33%	33%
PACA	4%	1%	3%	0%	0%	0%
FR - Port-de-Bouc	4%	1%	3%	0%	0%	0%

Source : EUMOFA

Spain

Region / Auction	Volume			Value		
	2015	2016	2017	2015	2016	2017
Andalusia	**6%**	**7%**	**6%**	**27%**	**31%**	**27%**
ES - Adra	5%	7%	4%	22%	28%	20%
ES - Algeciras	0%	1%	0%	2%	1%	2%
ES - Almería	8%	13%	8%	50%	52%	44%
ES - Carboneras	0%	0%	0%	0%	0%	0%
ES - Estepona	3%	4%	4%	19%	23%	20%
ES - Fuengirola	6%	7%	11%	24%	31%	28%
ES - Garrucha	27%	26%	23%	77%	82%	68%
ES - La Atunara	0%	1%	1%	3%	6%	4%
ES - Málaga	4%	4%	10%	16%	19%	26%
ES - Marbella	7%	6%	4%	18%	26%	16%
ES - Motril	12%	16%	7%	33%	35%	29%
ES - Roquetas de Mar	1%	3%	3%	2%	3%	5%
ES - Vélez-Málaga	-	4%	-	-	14%	-
Balearic island	**13%**	**13%**	**14%**	**30%**	**29%**	**30%**
ES - Alcudia	22%	19%	20%	42%	42%	50%
ES - Andraitx	84%	18%	28%	90%	26%	48%

ES - Cala-ratjada	10%	8%	10%	27%	28%	23%
ES - Ciudadela	30%	30%	32%	40%	44%	41%
ES - Formentera	8%	7%	8%	16%	15%	13%
ES - Fornells	5%	3%	4%	3%	2%	2%
ES - Ibiza	19%	16%	14%	24%	22%	20%
ES - Mahón, Menorca	18%	24%	26%	38%	57%	56%
ES - Palma de Mallorca	11%	11%	13%	31%	29%	30%
ES - Pollensa	4%	14%	3%	5%	5%	1%
ES - Porto Colom	34%	17%	22%	67%	38%	46%
ES - Porto Cristo	10%	6%	2%	9%	5%	2%
ES - San Antonio	26%	26%	27%	42%	38%	40%
ES - Santañy	16%	23%	16%	21%	27%	19%
Catalonia	**12%**	**13%**	**12%**	**38%**	**37%**	**40%**
ES - Arenys de Mar	8%	8%	7%	33%	31%	37%
ES - Badalona	34%	42%	40%	39%	45%	38%
ES - Barcelona	6%	7%	6%	37%	41%	39%
ES - Blanes	8%	8%	8%	41%	38%	46%
ES - Cambrils	19%	22%	21%	41%	41%	42%
ES - Deltebre	0%	0%	0%	0%	0%	0%
ES - La Ametlla de Mar	21%	21%	23%	32%	28%	35%
ES - La Ampolla	13%	13%	11%	17%	12%	14%
ES - Las Casas de Alcanar	10%	11%	16%	13%	11%	17%
ES - L'Escala	0%	0%	0%	1%	0%	0%
ES - Llanca	44%	37%	41%	57%	55%	59%
ES - Palamós	21%	20%	18%	60%	59%	64%
ES - Port De La Selva	65%	67%	68%	88%	93%	92%
ES - Rosas	25%	33%	29%	55%	62%	64%
ES - San Carlos de la Rápita	19%	19%	18%	24%	22%	22%
ES - San Feliu De Guixols	1%	1%	2%	2%	4%	7%
ES - Tarragona	8%	8%	7%	40%	33%	37%
ES - Torredembarra	15%	38%	13%	19%	40%	15%
ES - Vilanova i la Geltrú	7%	8%	6%	35%	33%	31%
Murcia	**7%**	**7%**	**22%**	**29%**	**25%**	**28%**
ES - Aguilas	20%	20%	26%	59%	61%	31%
ES - Cartagena	19%	19%	22%	37%	33%	35%
ES - Mazarrón	3%	3%	1%	27%	17%	10%
ES - S. Pedro Del Pinatar-lo Pagan	2%	2%	0%	2%	2%	1%
Valencia	**15%**	**13%**	**14%**	**35%**	**32%**	**35%**
ES - Alicante	-	-	0%	-	-	1%
ES - Altea	22%	7%	7%	50%	24%	27%
ES - Benicarló	32%	31%	33%	45%	41%	48%
ES - Burriana	8%	7%	7%	17%	14%	15%
ES - Calpe	31%	30%	30%	51%	51%	48%
ES - Castellón de la Plana	7%	7%	6%	16%	15%	16%
ES - Cullera	27%	31%	31%	38%	44%	44%

ES - Denia	30%	35%	34%	61%	66%	63%
ES - El Campello	21%	24%	18%	33%	32%	29%
ES - Gandía	6%	7%	10%	19%	18%	23%
ES - Guardamar del Segura	9%	5%	3%	6%	5%	3%
ES - Jávea	6%	4%	3%	26%	20%	20%
ES - Morayra	20%	3%	1%	29%	6%	2%
ES - Peñiscola	20%	21%	22%	27%	28%	30%
ES - Sagunto	20%	19%	17%	27%	24%	20%
ES - Santa Pola	32%	30%	31%	52%	49%	50%
ES - Torrevieja	0%	0%	0%	0%	0%	0%
ES - Valencia	26%	18%	23%	31%	27%	31%
ES - Villajoyosa	28%	29%	35%	51%	53%	56%
ES - Vinaroz	18%	23%	21%	28%	31%	30%

Source : EUMOFA

Italy

Region / Auction	Volume			Value		
	2015	**2016**	**2017**	**2015**	**2016**	**2017**
Basilicata	40%	4%	0%	61%	3%	0%
IT - Maratea	40%	4%	0%	61%	3%	0%
Calabria	64%	67%	68%	77%	80%	80%
IT - Amantea		83%			82%	
IT - Cariati	56%	84%	81%	76%	95%	94%
IT - Catanzaro	83%	66%	76%	82%	86%	83%
IT - Cetraro	0%	0%	3%	0%	0%	4%
IT - Cirò Marina	17%	6%	20%	24%	15%	28%
IT - Corigliano Calabro	21%	66%	34%	33%	78%	58%
IT - Crotone	80%	76%	74%	90%	85%	83%
IT - Gioia Tauro	42%	43%		46%	58%	
IT - Melito di Porto Salvo	100%			100%		
IT - Palmi	68%		100%	56%		100%
IT - Pizzo	39%	32%		53%	43%	
IT - Roccella Ionica	82%	100%	92%	94%	100%	86%
IT - Scalea	56%	56%		83%	71%	
IT - Scilla	16%	39%	32%	44%	53%	41%
IT - Sibari	60%			78%		
IT - Soverato	16%			8%		
IT - Trebisacce			63%			74%
IT - Vibo Valentia	3%	28%	23%	2%	45%	39%
Campania	19%	21%	18%	33%	35%	32%
IT - Acciaroli	43%	50%	53%	62%	62%	75%
IT - Agropoli	39%	36%	69%	37%	32%	66%
IT - Amalfi	20%	20%	15%	24%	31%	22%

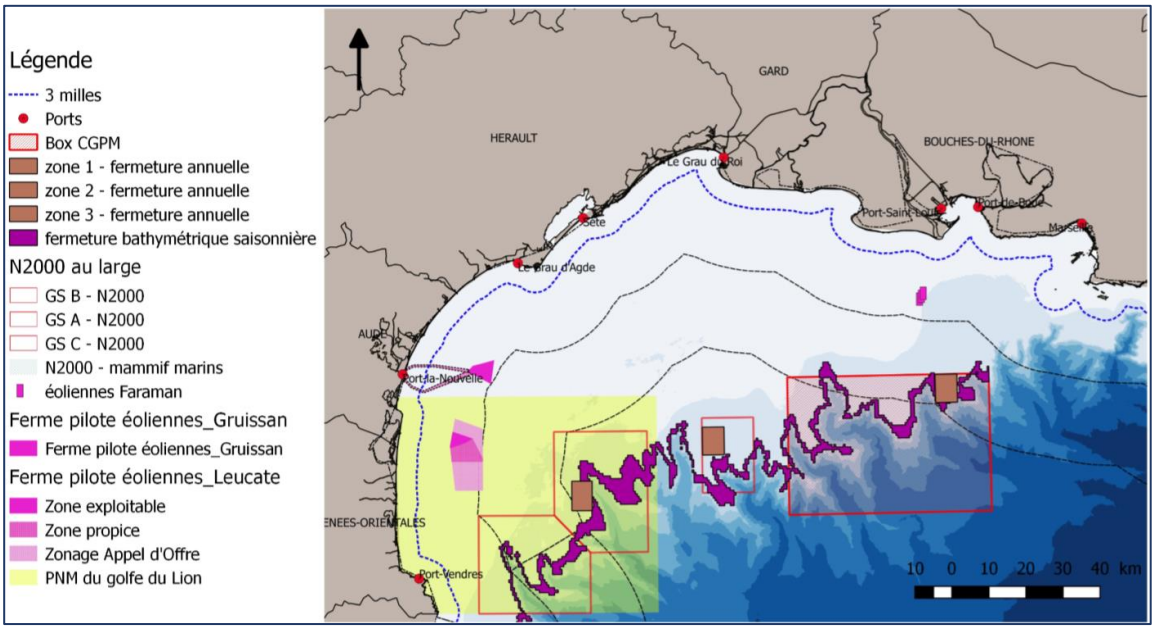
IT - Capraia	2%	1%	0%	2%	2%	0%
IT - Capri	5%	3%	0%	7%	3%	0%
IT - Cetara	5%	0%	2%	20%	2%	11%
IT - Forio	0%	0%	27%	0%	0%	21%
IT - Ischia	5%	6%	4%	5%	6%	7%
IT - Maiori	22%	30%	32%	23%	31%	32%
IT - Marina di Camerota	59%	72%	25%	56%	72%	36%
IT - Massa Lubrense	95%	100%	100%	92%	100%	100%
IT - Monfalcone		10%	0%		7%	0%
IT - Napoli	18%	20%	19%	40%	51%	50%
IT - Palinuro	85%	58%	33%	70%	54%	35%
IT - Piano di Sorrento	0%	0%	0%	0%	0%	0%
IT - Portici	53%	41%	10%	70%	54%	27%
IT - Positano	8%	7%	4%	12%	16%	10%
IT - Pozzuoli	15%	15%	14%	28%	27%	25%
IT - Procida	14%	4%	2%	17%	17%	4%
IT - Salerno	24%	29%	22%	38%	39%	34%
IT - Santa Maria di Castellabate	26%	15%	8%	36%	20%	6%
IT - Sapri	45%	43%	59%	63%	58%	70%
IT - Scario	30%	15%	25%	45%	31%	23%
IT - Sorrento	20%	6%	4%	45%	22%	15%
IT - Torre del Greco	2%	67%	51%	7%	76%	66%
Lazio	28%	30%	29%	35%	35%	34%
IT - Anzio	23%	25%	25%	32%	31%	31%
IT - Fiumicino	25%	31%	26%	31%	34%	32%
IT - Formia	33%	33%	31%	45%	40%	36%
IT - Fregene		81%			83%	
IT - Gaeta	38%	38%	40%	39%	39%	38%
IT - Ladispoli	3%		10%	2%		6%
IT - Montalto di Castro		100%	2%		100%	2%
IT - Ponza	25%	29%	17%	28%	33%	24%
IT - San Felice Circeo	1%	0%	0%	4%	0%	0%
IT - Santa Marinella	0%	24%	18%	0%	23%	23%
IT - Terracina	31%	32%	36%	40%	41%	43%
IT - Tor Vajanica	50%	0%	0%	76%	0%	0%
Liguria	12%	10%	9%	32%	33%	28%
IT - Alassio	0%	47%	4%	0%	63%	2%
IT - Albenga	4%	10%	23%	5%	13%	28%
IT - Camogli	24%	32%	0%	25%	31%	0%
IT - Chiavari	12%	32%	35%	21%	32%	31%
IT - Finale Ligure	11%	15%	22%	16%	18%	32%
IT - Genoa	3%	2%	1%	11%	9%	4%
IT - Imperia	22%	23%	20%	31%	30%	27%
IT - La Spezia	28%	18%	18%	40%	37%	37%

IT - Lavagna	95%	77%	65%	99%	92%	87%
IT - Lerici	75%		34%	40%		34%
IT - Levanto		12%	0%		5%	0%
IT - Loano	7%	19%	0%	16%	21%	2%
IT - San Remo	82%	83%	18%	95%	98%	29%
IT - Santa Margherita Ligure	66%	71%	69%	83%	88%	82%
IT - Savona	11%	14%	14%	28%	32%	34%
IT - Sestri Levante	1%	1%	1%	3%	3%	3%
IT - Varazze	0%		6%	0%		11%
Sardinia	21%	23%	21%	34%	35%	30%
IT - Alghero	34%	20%	17%	32%	24%	20%
IT - Arbatax	4%	5%	2%	5%	9%	4%
IT - Bosa	2%	17%	12%	2%	13%	9%
IT - Cagliari	42%	44%	44%	54%	57%	56%
IT - Calasetta	0%	1%	0%	0%	1%	0%
IT - Carloforte	1%	6%	4%	1%	8%	5%
IT - Castelsardo	5%	14%	13%	10%	20%	16%
IT - Decimomannu	44%		74%	49%		89%
IT - Golfo Aranci	29%	27%	30%	35%	29%	29%
IT - La Maddalena	25%	29%	17%	22%	47%	32%
IT - Marina di Torregrande	9%	9%	6%	12%	10%	7%
IT - Olbia	24%	22%	25%	35%	28%	28%
IT - Oristano	5%	7%	2%	13%	7%	1%
IT - Palau	44%		2%	48%		1%
IT - Porto Cervo	13%			17%		
IT - Porto Torres	7%	6%	6%	24%	21%	19%
IT - Portoscuso (Porto Vesme)	15%	0%		8%	0%	
IT - Sant' Antioco	17%	20%	8%	18%	22%	9%
IT - Santa Teresa di Gallura	8%	2%	5%	5%	2%	5%
IT - Sant'Antioco	30%	25%	30%	35%	32%	36%
IT - Siniscola	9%	12%	14%	9%	18%	14%
IT - Tortolì	36%			54%		
Sicily	13%	13%	10%	25%	26%	25%
IT - Balestrate	4%	25%	0%	5%	26%	0%
IT - Capo d'Orlando	2%	0%	2%	3%	1%	3%
IT - Castellammare del Golfo	76%	34%	7%	73%	72%	26%
IT - Castellammare di Stabia	23%	0%	1%	38%	0%	1%
IT - Cefalù	10%	17%	14%	25%	34%	39%
IT - Lipari	0%	0%	1%	1%	1%	1%
IT - Messina	2%	2%	3%	9%	6%	11%
IT - Milazzo	14%	14%	11%	33%	31%	31%
IT - Mondello, Palermo	74%	2%		83%	9%	
IT - Palermo	36%	44%	41%	42%	49%	50%
IT - Patti	4%	4%	3%	7%	11%	13%

IT - Porticello	15%	14%	13%	25%	23%	27%
IT - San Vito lo Capo	19%	28%	31%	37%	42%	50%
IT - Santa Marina di Salina	10%	17%	15%	17%	32%	25%
IT - Sant'Agata di Militello	6%	6%	7%	8%	9%	13%
IT - Santo Stefano di Camastra	86%		18%	86%		19%
IT - Stromboli	6%	0%	20%	8%	0%	16%
IT - Termini Imerese	2%	8%	2%	3%	12%	4%
IT - Terrasini	14%	11%	5%	38%	39%	23%
IT - Ustica	2%	2%	0%	4%	6%	0%
Tuscany	19%	17%	17%	34%	35%	34%
IT - Castiglioncello	59%	34%	52%	38%	22%	41%
IT - Castiglione della Pescaia	43%	46%	48%	40%	43%	44%
IT - Cavo		0%	0%		0%	0%
IT - Cecina	16%	14%	13%	15%	13%	11%
IT - Follonica	8%	7%	8%	11%	9%	9%
IT - Forte dei Marmi	6%	0%	4%	7%	0%	3%
IT - Isola d'Elba	17%			37%		
IT - Livorno	35%	35%	33%	34%	38%	35%
IT - Marciana Marina	21%	20%	17%	27%	28%	28%
IT - Marina di Campo	15%	15%	11%	16%	16%	11%
IT - Marina di Carrara	35%	0%	0%	41%	0%	0%
IT - Marina di Grosseto	0%	2%	4%	0%	3%	3%
IT - Marina di Pisa	0%	0%	7%	0%	0%	8%
IT - Orbetello	0%	0%	0%	0%	0%	0%
IT - Piombino	2%	2%	2%	9%	10%	9%
IT - Porto Azzurro	1%	1%	7%	6%	1%	24%
IT - Porto Ercole	47%	43%	41%	57%	50%	48%
IT - Porto Santo Stefano	40%	40%	42%	48%	45%	46%
IT - Portoferraio	1%	1%	1%	7%	6%	9%
IT - Rio Marina	8%	0%	1%	15%	1%	2%
IT - Vada	23%	0%	3%	9%	0%	9%
IT - Viareggio	21%	12%	20%	33%	32%	33%

Source: EUMOFA

Annex 4 - Map of spatial limitation of fishing activities in the Gulf of Lion in France



Source: Producer Organisation (Organisation des Producteurs du Sud)

Annex 5 - Main provisions of the national management plans developed within the MedReg in France, Italy and Spain vs provisions of the MAP proposal

Topics	France	Italy	Spain	MAP proposal
Management plans	Arrêté du 28 janvier 2013 portant création d'un régime d'effort de pêche pour la pêche professionnelle au chalut en mer Méditerranée par les navires battant pavillon français - 2016 repealed version	Adozione Piani di gestione della flotta a strascico in sostituzione del decreto direttoriale n. 44 del 17 giugno 2010.	Orden AAA/2808/2012, de 21 de diciembre, por la que se establece un Plan de Gestión Integral para la conservación de los recursos pesqueros en el Mediterráneo afectados por las pesquerías realizadas con redes de cerco, redes de arrastre y artes fijos y menores, para el período 2013-2017	REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a multi-annual plan for the fisheries exploiting demersal stocks in the western Mediterranean Sea
Link	https://www.legifrance.gouv.fr/eli/arrete/2013/1/28/TRAM1240482A/jo/texte	https://www.politicheagricole.it/flex/files/b/6/3/D.ee26d6aedd7db65e259e/piani_di_gestione_della_flotta_a_strascico.pdf	https://www.boe.es/boe/dias/2012/12/29/pdfs/BOE-A-2012-15740.pdf	https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52018PC0115&from=EN
Management tools	**Fishing effort** **Technical measures:** Pair trawling is prohibited.	**Fishing effort:** - Permanent cessation **Technical measures** - Temporal closure - Technical closure - Fishing authorisations - Minimum landing sizes - Selectivity of trawl nets - Areas prohibited for the use of towed nets - Request for a derogation concerning the minimum distance from the coast to the trawl nets - Areas prohibited for fishing activity	**Fishing effort:** **- Permanent cessation** **- Fishing effort limitation** through the limitation of number and technical characteristics of the vessels.	The MAP includes fishing effort restrictions and total allowable catches in addition to similar technical measures to those provided by the national management plans.
Scope of application	Trawls flying the French fleet operating in the GSAs 7 and 8	Trawls operating in the GSAs 9, 10 and 11	Trawls, longliners and small scale fisheries	The geographical scope of the MAP proposal is the same as the national management plans. The MAP proposal suggests to include in addition to trawls any gears for which the scientific advice shows significant catches of a particular stock.

Objectives	Not defined in the national management plan	The objectives of the Italian management plan are: - to bring fish stocks within the biological referent points; - to improve spawning stock biomass (SSB) of hake, red mullet and giant red shrimp; - to improve the economic condition of the fishing sector; - to maximise employment opportunities in the sector.	The objective of this plan is to facilitate the achievement of the biological and sustainable management of these fishing activities, in accordance with the safe biological limits specified in the Management plan.	The specific objective of the MAP proposal is to achieve and maintain fishing mortality at the maximum sustainable yield (FMSY) for all demersal stocks in the western Mediterranean Sea by 2020.
Quantified objectives	Not set in the national management plan	**Biological targets:** Target reference points : ESSB/USSB=0,35 Limit reference point : ESSB/USSB=0,2 **Economic targets:** Gross profit per vessel = from the baseline (+58% for GSA9, +86% for GSA10, +42% for GSA11) Added value per employee = from the baseline (+46% for GSA9, +61% for GSA10, +27% for GSA11) **Social targets:** Number of fishermen = from the baseline (-8% for GSA9, -23% for GSA10, -8% for GSA11) Labor cost per employee = from the baseline (+25% for GSA9, +39% for GSA10, +12% for GSA11)	For the demersal species, the **fishing mortality reference values** are: - Red mullet (*Mullus surmuletus*): GSA5: 0.38. - Hake (*Merlucius merlucius*): i. GSA5: 0.20. ii. GSA6: 0.15. - Red shrimp (*Aristeus antennatus*): i. GSA5: 0.33. ii. GSA6: 0.24. - White prawn (*Parapenaeus longirostris*): i. GSA5: 0.31. ii. GSA6: 0.30. - Norway lobster (*Nephrops norvegicus*): GSA5: 0.30.	Not yet set, but in all cases the target fishing mortality shall be achieved as soon as possible, and on a progressive, incremental basis by 2020 for the stocks concerned, and shall be maintained thereafter within the ranges of FMSY.
Timeframe to reach the objectives	Not defined in the national management plan	Not defined in the national management plan	No later than the year 2020	The target fishing mortality should be achieved by 2020

Safeguard measures	Not defined in the national management plan	Not defined in the national management plan	The Spanish Fisheries Administration may adopt the following safeguard measures: a) Extend the period of validity of the Plan. b) Review and, where appropriate, modify the fishing effort adjustment percentages both in terms of units and technical features. c) Review the current national legislation in order to adopt new technical measures related to the selectivity of gears, the minimum sizes of the species and the minimum distances allowed. d) Establish new zones or periods in which fishing activities are prohibited or restricted, with special attention to the spawning and nursery areas. e) Possibility of restricting temporary access to certain fisheries that directly affect the resources subject to the regulation. f) Promote the modification of the regulations that regulate the maximum period of activity, in order to reduce it.	The MAP proposal indicates that when the spawning biomass of any stocks concerned is below the precautionary reference point (BPA), remedial measures shall be adopted to ensure the rapid return of the stocks concerned to levels above those capable of producing MSY.
Monitoring	Not defined in the national management plan	Monitoring aspects are provided. Indicators for monitoring the variations of fishing capacity: gross tonnage and kW (reference document: the fleet register) Indicators for monitoring of the measure related to the temporal closure of fishing: number of fishing days. Monitoring of the impacts of the measures adopted: this will be evaluated by estimating biological, economic and social indicators necessary for monitoring the progress of the management plan.	Results of the national management plan will be analysed biannually. Cooperation with autonomous communities to evaluate the evaluation reports and study the possible adoption of new measures.	The MAP proposal indicates that quantifiable indicators shall include annual estimates of F/FMSY and SSB for the stocks concerned and where possible, for by-catch stocks. Five years after the date of entry into force of the Regulation establishing the MAP and every five years thereafter, the Commission shall report to the European Parliament and to the Council on the results and the impact of the plan on the stocks.

Annex 6 - Short and medium term socio-economic impacts of the 3 assessed management options, as indicated in the Commission IA

(A) Impacts in the short-term (i.e. to 2020/22)

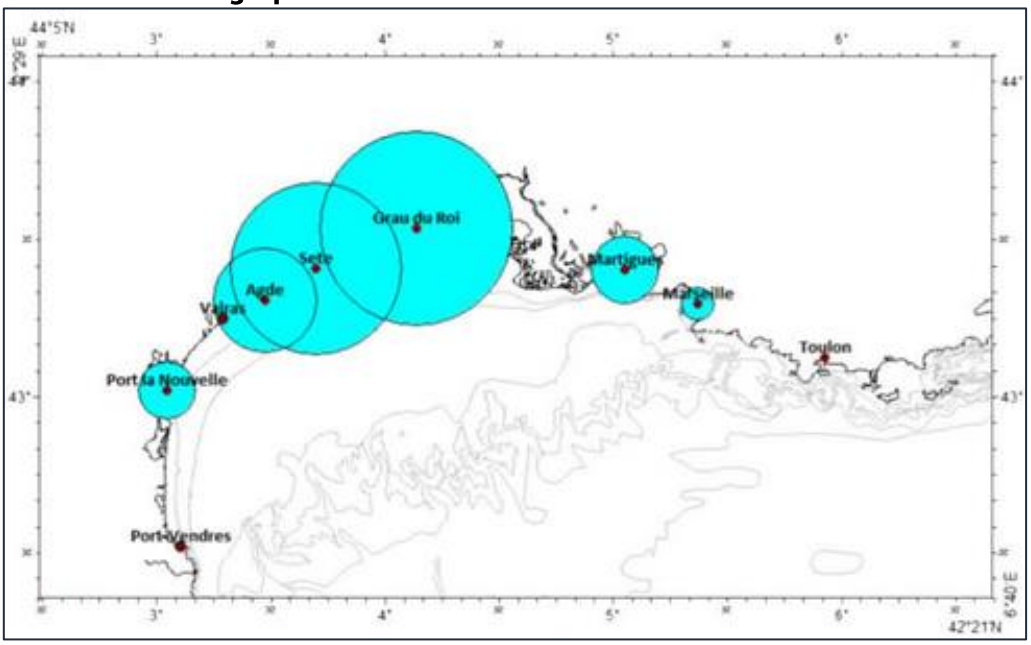
	No of fleets at financial risk	No of vessels affected	Jobs affected (FTEs)	Catch Hake GSA 1-5-6-7 (tonnes)	Catch Red mullet GSA 11 tonnes)	SSB Hake GSA 1-5-6-7 (tonnes)	SSB Red mullet GSA 11 (tonnes)	Percentage of stocks recovered	Probability of all stocks reaching FMSY
Current situation (2015)	4	386	1 617	3 834	262	6 739	133	11%	0%
Option 1: Baseline	5	628	2 861	4 897	286	6 662	161	16%	0%
Option 2: Amend current framework	6	538	1 880	3 615	156	10 999	527	33%	22%
Option 3: Adopt an EU multi-annual plan	8	1 415	6 193	3 537	157	11 725	579	36%	32%

(B) Impacts in the medium-term (i.e. to 2025)

	No of fleets at financial risk	No of vessels affected	Jobs affected (FTEs)	Catch Hake GSA 1-5-6-7 (tonnes)	Catch Red mullet GSA 11 tonnes)	SSB Hake GSA 1-5-6-7 (tonnes)	SSB Red mullet GSA 11 (tonnes)	Percentage of stocks recovered	Probability of all stocks reaching FMSY
Current situation (2015)	4	386	1 617	3 834	262	6 739	133	11%	0%
Option 1: Baseline	9	1 438	6 234	4 784	315	6 585	172	5%	0%
Option 2: Amend current framework	4	763	3 696	4 600	305	21 048	1 393	72%	28%
Option 3: Adopt an EU multi-annual plan	1	52	156	4 395	312	22 597	1 474	70%	36%

Source: Commission Impact Assessment

Annex 7 - Geographic distribution of French trawlers in the Gulf of Lions



Source: Mediterranean Association of Producer Organisation (AMOP)

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Below is the list of references used for the desk-based research (these references are quoted in footnote each time they are used).

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In the light of the European Commission's initial impact assessment accompanying its proposal for a multi-annual plan (MAP) for the management of demersal fisheries in the western Mediterranean (COM(2018) 115 final), the European Parliament's Committee on Fisheries requested the Ex-Ante Impact Assessment Unit of the European Parliamentary Research Service to provide a complementary analysis focusing on the socio-economic impacts in the countries affected by the MAP proposal (Spain, France and Italy), and on the coherence of the MAP with other applicable legislation.

Based on processing of economic data collected and on stakeholder interviews, this research paper thus aims to assess and quantify (when possible) the potential impacts on fishing companies (all SMEs) and ancillary activities (in the short, medium and long-term) of several of the specific MAP provisions.

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