

2014



**ADVICE FOR A JOINT RECOMMENDATION
DISCARDS MANAGEMENT PLAN
(Art. 15 Reg. 1380/2013)**



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Executive summary

The reform of the Common Fisheries Policy, as defined in Regulation (EU) 1380/2013, includes the gradual introduction into the EC law of the ban on discards at sea and the consequent obligation to land some target species. The gradual nature of the introduction of the obligation is determined according to the gear used and the relevant target species: in a word, according to the fisheries.

In the Mediterranean, in contrast to the seas of Northern Europe, the landing obligation is applied according to a timetable set out in the Regulation for species that have a minimum landing size in the Mediterranean Sea, under Regulation (EC) 1967/06, Annex III, as well as for the only species subject to a quota (Bluefin tuna).

In certain circumstances, the obligation does not apply: for example, in the case of species whose capture is forbidden or species defined "high survival", or situations that fall under *de minimis* exemptions. The *de minimis* exemption, under certain conditions, allows fishermen to discard species that would otherwise be subject to the landing obligation: in order to obtain this exemption, however, a discards management plan is required which defines the percentage of discard and the reasons for it as accurately as possible.

The main aim of this management plan is, therefore, to make the application of the *de minimis* exemption possible in the conditions described herein.

Adaptive approach. Due to the significant difficulty in applying the *de minimis* exemption in the Mediterranean, the proposal is to request that the European Commission apply an adapted version of the exemption during the years of validity of this three-year plan: we would therefore like to apply the *de minimis* rule in the first two years at a fixed rate (the first year for the collection of real data and the second for data processing), and then apply the percentage of actual catches from the third year onwards.

In addition, pursuant to Article 18 of Reg. 1380/2013, this management plan has been drawn up as a Joint Recommendation, as different areas of the Mediterranean are shared by several Member States, thus achieving another objective of the reform to the CFP.

Since the introduction of the landing obligation represents not only a significant change in approach for fishermen - between December 31 2014 and January 1, 2015 they pass from the requirement to discard to a ban on discards - but also a different way of working in terms of compiling and recording data, as well as the use of the inevitable undesired part of the catch, MEDAC has prepared this management plan in two parts: a general and a specific part. In the general part, after a short chapter on the legislative framework, concerning both the reform and some aspects related to the introduction of compulsory landing, the reasons that led to the decision to prepare a single for the whole Mediterranean. This is followed by the analysis of the major biological aspects of the species involved, anchovy, sardine, mackerel and horse mackerel, with an overview of stock size and distribution where applicable. Statistical data are provided for each species, relative to biomass and other



parameters which are important for the plan itself. A special section recalls the species subject to a minimum landing size in the Mediterranean, since these species have to be landed if caught inadvertently (only, however, if the fishery in question is subject to this requirement).

The general section continues with a discussion of technical aspects of the gear involved, with particular reference to pelagic trawl (pair or single vessel) and purse seine, while also taking into consideration the specific EC regulations covering these fisheries.

The national supervisory authorities have been assigned a section of this document in which to detail monitoring and control activities with particular reference to the controls carried out on the application of the landing obligation, the *de minimis* exemption, as well as a monitoring system to verify the plan's effectiveness. There is no lack of possible areas for intervention in the framework of the EMFF, in support of the implementation of the landing obligation and to assist fishers, businesses and administrations in compliance with the new provisions, from measures to avoid unwanted catches to those for the optimization of the use of landed by-catch and/or to assist in data collection.

The final part of the recommendation enters into further detail on the application, where necessary, of *de minimis* exemption, pointing out that in the Mediterranean there are no studies on the survival rate of the species that are initially affected by the landing obligation, and in the case of *force majeure* in which it is not possible to comply with the requirement .

The specific part on the other hand, goes into greater detail on the single areas that are involved, divided according to the FAO GFCM GSA (geographical sub-areas), with specific annexes organized as Joint Recommendations. In particular this section classifies the possible uses of the undesired part of the catch that is inevitably subject to the landing obligation (for each Member State concerned), bearing in mind that this is an option to be considered only after every effort has been made to reduce by-catch, especially of undersized specimens.

In addition, the critical aspects of handling are highlighted (all operations that are a consequence of having to deal with undersized fisheries products on board and on land, such as the problems of separate stowage on board, refrigeration at sea and on land etc.). Lastly the requested *de minimis* percentage is defined, considering the conditions for access to this exemption and therefore the reasons for which increased gear selectivity is not possible (in this case a scientific study would be required) or the evidence of disproportionate handling costs compared to the very limited quantities that should be landed using the gear in question.

This draft recommendation for a discards management plan presents the opinion of MEDAC as expressed in the various meetings held so far, both at individual Member State level and in MEDAC WG1, as well as in



Brussels in meetings organized by the European Commission (25 October 2013). In all these circumstances, the EC has provided significant support, including assistance in understanding the texts and regulations.

The following WG1 meetings within MEDAC are highlighted as fundamental stages in the discussion of this topic:

- Barcelona (Spain) 4 to 5 March 2014

- Rovinj (Croatia) April 8, 2014

- Portoroz (Slovenia) 7-9 May 2014

In each of these meetings the constructive spirit shown by all parties representing the social, economic and environmental aspects of this discussion permitted the achievement of the objective of drafting this document.



GENERAL INFORMATION

1. Legal framework

1.1. The reform to the Common Fisheries Policy: Regulation (EU) 1380/2013

Article 15 of Regulation (EU) 1380/2013, in force since 1st January 2014, dictates that all catches of species subject to catch limits [1] and, in the Mediterranean, catches of species subject to minimum sizes as defined in Annex III of Regulation (EC) No. 1967/2006, must be brought and retained on board fishing vessels, registered, landed and counted against the quotas, if applicable, unless they are used as live bait.

Therefore, for the Mediterranean EU countries, the obligation will begin:

a) at the latest from 1 January 2015 to:

- Small pelagics: Anchovy (*Engraulis encrasicolus*), sardine (*Sardina pilchardus*), Mackerel (*Scomber spp.*), Horse mackerel (*Trachurus spp.*) [*as they have a minimum landing size in Reg.1967/06*];

• large pelagic species: Bluefin tuna (*Thunnus thynnus*) [*as they are subject to a catch limit – quota*]

b) from 1st January 2017 for the species that define the fishery

c) no later than 1st January 2019 for all other species in the fishery that are not subject to letter a) [*which have a minimum size in Reg.1967/06*], namely:

• Demersals: European seabass (*Dicentrarchus labrax*), Annular seabream (*Diplodus annularis*), Sharpsnout bream (*Diplodus puntazzo*), White seabream (*Diplodus sargus*), Common seabream (*Diplodus vulgaris*), White grouper (*Epinephelus spp.*), Sand steenbras (*Lithognathus mormyrus*) hake (*Merluccius merluccius*), Mullet (*Mullus spp.*), Axillary seabream (*Pagellus acarne*), Blackspot seabream (*Pagellus bogaraveo*), Wreckfish (*Polyprion americanus*), Common sole (*Solea vulgaris*), Gilthead seabream (*Sparus aurata*), unless scientific evidence demonstrates high survival rates, "taking into account the characteristics of the gear, fishing practices and the ecosystem" (Art. 15 , paragraph 4 , letter b);

• Crustaceans: Norway lobster (*Nephrops norvegicus*), Common lobster (*Homarus gammarus*), Spiny lobster (*Palinuridae*), Mediterranean Rose Shrimp (*Parapenaeus longirostris*), unless scientific evidence



demonstrates high survival rates, "taking into account the characteristics of fishing gear, practices and the ecosystem" (Article 15 , paragraph 4 , letter b);

- Bivalve molluscs: Great scallop (*Pecten jacobaeus*), Carpet shell clam (*Venerupis* spp.), Clam (*Venus* spp.). Unless scientific evidence demonstrates high survival rates, " taking into account the characteristics of the gear, fishing practices and ecosystem" (article 15, paragraph 4, letter b);

In this regard it should be noted that, while the shellfish and the sole will require a specific written certification of scientific research that confirms the high rate of survival after discard at sea, for bivalve molluscs it appears to be undisputed that they are alive at the time of discarding (see Reg.853/2004) as this product must be alive when marketed. It does not therefore seem necessary to provide written evidence of research. In this case the landing obligation shall not apply to the bivalve molluscs in question.

In practice, as the 4 points of paragraph 15.1.a) all begin, in the English version , with "fisheries for [list of species]," as also pointed out by the STECF the term "fishery" seems to refer to the activity of fishing aiming at the capture of the fish species mentioned. In this case, the fisheries affected from January 1, 2015 are those that use pelagic trawls (mid water trawl) and purse seine. This therefore means that all species subject to catch limits or having a minimum landing size for the Mediterranean, when captured by the fisheries concerned, must be recorded in the logbook, landed and counted in the quota (when there is a quota). So, if a vessel employing mid water trawl nets should inadvertently catch demersal species having a minimum size (for example one Sans steenbras and one Annular seabream etc.), these catches of demersal species would also be subject to the landing obligation because they are caught by a pelagic "fishery" for which the obligation enters into force in 2015. The STECF (cited above) confirms that paragraph 1.a) does not only refer to the species listed, but also to all species caught by fishing vessels that have mid water pelagic trawl nets or purse seine nets, which are the fisheries that target pelagic species.

Paragraph 4 of Article 15 defines the cases in which the landing obligation does not apply:

- a) species for which fishing is prohibited, provided that they are identified as such in a legal act of the Union adopted in the context of the CFP;
- b) species for which scientific evidence demonstrates high survival rates, taking into account the characteristics of the gear, fishing practices and the ecosystem;
- c) catch falling under the *de minimis* exemptions.



Paragraph 5 states that details of implementation of the landing obligation in each Member State must be indicated in specific multi-annual plans, with particular reference to the various fishing activities, the species covered by the landing obligation, including indications of any exemptions from the landing obligation for species recognized as having a high survival rate. The key issue is to lay down provisions for the application of the *de minimis* exemptions, calculated up to 5% "of the total annual catch of all species covered by the landing obligation". The *de minimis* exemption applies in the following cases:

i) where it is scientifically demonstrated that it would be extremely difficult to increase gear selectivity;

or

ii) to avoid disproportionate costs that may result from handling by-catch, that is, everything that results from the landing obligation, boxing on board, landing, creating a new supply chain for products not destined for human consumption, etc., in the case of fishing gear for which by-catch does not represent more than a certain percentage of the total annual catch by the gear in question. The percentage is established in the framework of the multi-annual plan however, for a transitional period of four years (Art. 15, par.5), the rate may be increased by two percentage points in the first two years of implementation of the landing obligation for fisheries, and one percentage point in the following two years.

For species subject to the landing obligation, catches of specimens that are below the minimum reference size for conservation (as listed in Annex III of Reg. (EC) 1967/2006), may only be used for purposes other than direct human consumption, such as fish meal, fish oil, animal feedstuffs, food additives, pharmaceuticals and cosmetics.

On the contrary, for species not subject to the landing obligation referred to in paragraph 1 (for example, those for which the obligation will come into force from January 1, 2019) specimens caught that are below the minimum reference size for conservation are not retained on board, but must be returned to the sea immediately. Lastly, in order to monitor compliance with the landing obligation, Member States shall provide a detailed and accurate documentation of all fishing operations as well as their capacity and adequate equipment on board, such as monitors and closed-circuit television systems (CCTV) etc.

1.2. Transitional regulations and control of the landing obligation

Concerning compliance with the obligation under Art. 15 of Regulation (EU) 1380/2013, and the management of information derived therefrom, Community legislation on the control of fishing activities set out in EC Regulation 1224/2009 and EU Regulation 404/2011 apply to technical measures and activities subsequent to



the moment of landing. This adjustment was subsequently regulated by each Member State, to the extent of their competence, by means of national legislative acts.

Although it only affects a few species, the landing obligation, represents a substantial change in direction in comparison with the previous requirement to return undersized specimens to the sea, as this was introduced after the entry into force of the EU regulation on the control of fisheries activities, this legislation therefore required revision, for the purpose of coordination, not only in a formal sense. In this respect it became necessary to abolish or modify a number of provisions within current regulations that are inconsistent with the landing obligation, relating to technical measures and management measures as well as control of fishing operations. The Regulations proposed was COM (2013) 889 amending Regulations (EC) No. 850/98, (EC) No. 2187/2005, (EC) No. 1967/2006, (EC) No. 1098/2007, (EC) No. 254/2002, (EC) No. 2347/2002 and (EC) No. 1224/2009 and repealing Council Regulation (EC) No. 1434/98 of the Council as regards the landing obligation.

This proposed regulation at present has just begun the Parliamentary co-decision process and it is hardly likely that it will be implemented during 2014.

In addition, for some species that are covered by the obligation described in art. 15 of EU Regulation 1380/2013, the European Commission adopted the executive Decision of 19 March 2014, establishing specific control and inspection of fisheries exploiting stocks of Bluefin tuna in the eastern Atlantic and the Mediterranean, swordfish in the Mediterranean as well as the fisheries exploiting stocks of sardine and anchovy in the northern Adriatic Sea, stocks of Bluefin tuna in the eastern Atlantic and swordfish in the Mediterranean Sea.

This Decision arose with the aim of ensuring that the control and inspection activities that are carried out under the specific control and inspection programme, enforce compliance with the obligation to land all catches of the stocks concerned and the areas affected by this decision, which are subject to the landing obligation under Regulation (EU) No. 1380/2013 of the European Parliament and of the Council (Article 3 p.to 2), letter. c).

2. The rationale behind a single plan for the Mediterranean

The idea to set up a single discards plan for the Mediterranean emerged during the first months of 2014 during the preparatory meetings at EC level, the single plan was conceived in order to implement the directives of Article 18, Regulation 1380/2013 on regionalization with immediate effect. The formal request that MEDAC undertake preparation of a regionally shared management plan officially came on May 5, 2014 in a letter to the President, Mr Buonfiglio, from the DGs of the national administrations of Croatia, Slovenia, Greece, Spain, France and Italy. This hypothesis was then analysed in-depth at the first trilateral MEDAC meeting held in



Rovinj (Croatia) on 8 April 2014 in the presence of representatives of the fishery sector from Italy, Croatia and Slovenia. At this meeting clear interest was expressed in the preparation of a common management plan for GSA 17 and the detailed index of the different components of the Management Plan was approved.

3. Biological aspects of the species involved

The species with a minimum landing size in the Mediterranean that are subject to the landing obligation from January 1, 2015, pursuant to art. 15 point 1a, are: anchovy, sardine, mackerel and horse mackerel, when these species are captured by small pelagic fishery operations using pelagic trawl and/or purse seine.

3.1. Anchovy (ANE-*Engraulis encrasicolus* Linnaeus 1758)

The anchovy is a small pelagic fish that lives in the neritic waters of the eastern Atlantic, the Mediterranean and the Black Sea. This actively-fished species has a complex population structure with several distinct population units (J. Vinas *et al.*, 2013). Some authors (Tortonese, 1970) consider the existence of more than one subspecies in the Mediterranean, with distinctive characteristics where size and body morphology are concerned as well as some meristic characteristics. The most recent genetic analyses (Vinas *et al.*, 2014) suggest that in the Mediterranean are identified nine genetically differentiated European anchovy populations and that each stock should be managed separately.

The anchovy is a gregarious species, it forms large schools which move for nutritional purposes. Spawning takes place from April to September-October and the anchovy reproduces from the first year of age. Spawning does not take place once only, the same specimen may spawn several times during the spawning season, laying thousands of eggs every time. The number of eggs depends on size and can reach several tens of thousands of eggs each year. Maximum size is 18 cm which is achieved at 4 years of age, but in some areas there is less growth (river estuaries, coastal lagoons, the Black Sea etc.).

The eggs are elliptical and develop rapidly, hatching in a day with water temperatures of 24°C. Speed of development both for the egg and the larva, depend on water temperature, hatching only after 4 days in low temperatures (16 ° C). The growth of the larvae is rapid and anchovies born from the first spawning in April-May reach 10 cm in length by December and reproduce in the next spawning season. Distinct population units exist, resource management is carried out separately for each area (GSA), as sub-divided by FAO-GFCM. For management purposes in Mediterranean EU countries the GSAs immediately off-shore are considered. The presence of anchovies and their abundance differs in each GSA, as does the intensity of fishery activities, therefore the management of each GSA must be dealt with separately.



3.1.1. Stock size and distribution

Detailed information on small pelagic fisheries are partially available for the Adriatic (GSA 17-18) and to a lesser extent for the Strait of Sicily (GSA 16). In GSA 10, as in the other GSAs in Italian waters (GSA 9, 11, 19) scientific analysis and statistical bases are not available; moreover biological knowledge such as the identity of stocks, their distribution, reproductive periods etc., are rather fragmentary, reflecting lower economic importance of small pelagic fish stocks in the latter GSAs. (taken from the management plan for small pelagics GSA10)

GSA 1-2-5-6: Spanish National Waters in the Mediterranean

Anchovy and sardine are the main target species in the Mediterranean as far as Spanish small pelagic fisheries are concerned, however, other species of a lower value can be captured according to the areas such as horse mackerel and mackerel. In all areas of the Spanish coast, most of the species are retained and therefore discards levels are low. This is supported by the study conducted by the "Sea Food Watch" in the United States.¹

In the following chapters, data obtained for GSA 1 and GSA 6 from the Spanish Institute of Oceanography, through the Secretary General of Fisheries, Ministry of Agriculture, Food and Environment, as well as data for GSA 5 from the PO Mallorcamar and DG Fisheries of the Balearic Government, will offer a detailed picture of the situation regarding discards.

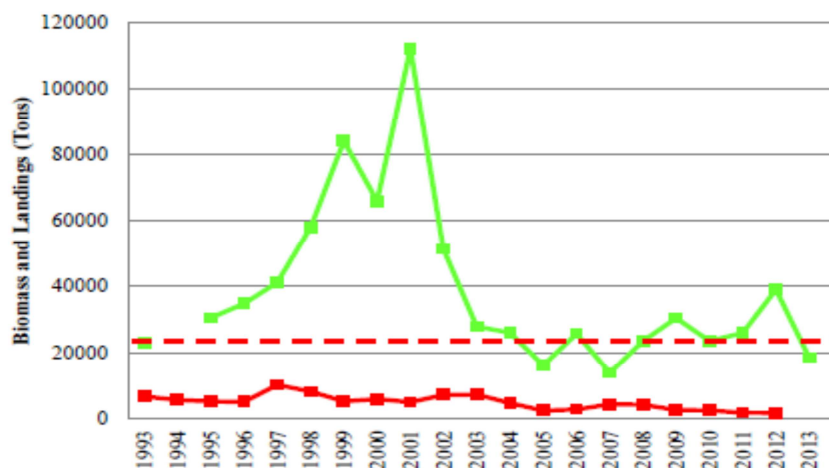
GSA 7 – Gulf of Lions

Total biomass declined sharply between 2001 and 2005. It has remained at a low level ever since. The demographic structure of the stock is highly unbalanced, with low abundance of anchovy commercial size (group 2 +) which are in an increasingly poor condition. The dynamics of this population appear to be distorted. Condition indices, growth rates and size at first maturity decreased significantly. Catches remain low. The stock is considered to have a low biomass and management advice advocated a reduction in fishing mortality and the continuation of the work on biological parameters.

¹ http://www.seafoodwatch.org/cr/cr_seafoodwatch/content/media/BOI_SeafoodWatch_AtlanticSardine_EUAnchovyReport.pdf



FIGURE 1: EVOLUTION OF THE BIOMASS AND LANDINGS OF ANCHOVY



GSA 8 CORSICA

There is no assessment for these stocks.

GSA 9² LIGURIAN SEA, NORTHERN AND CENTRAL TYRRENIAN SEA

The available evaluations of the exploitation of anchovy and sardine stocks in GSA 9 are inadequate. The information contained in this document is taken from the assessment of the exploitation of anchovy stocks in GSA 9 using data collected during the biological sampling in 2006.

Analyses indicate the current fishing mortality is 0.64 and the exploitation rate (F/Z) is 0.47, which assumes a reduction of about 15 % to approach the precautionary level of 0.4 indicated by Patterson (1992). A decline in stocks of anchovy and sardine is also indicated by the trend of abundance indices from the spring MEDITS trawl surveys. Where information on the biology and population dynamics (growth, reproductive biology) of anchovy and sardine are concerned, in GSA 9 data are still scarce, only data for the most recent years is available.

Information on the abundance and biological parameters of anchovy and sardine in GSA 9 are also very limited. No absolute estimates of biomass derived from acoustic campaigns are available. The indices of abundance and biomass derived from the MEDITS campaign 1994-2007, which proved to be reliable in sampling small pelagic

² Taken from the Management Plan for small pelagic fisheries with purse seine nets in GSA9 (Ligurian Sea, the north and central Tyrrhenian Sea) (ex art. 24 of Regulation (EC) n.1198/2006 and art.19 of Regulation (EC) n.1967/2006)

species, indicate that anchovy stocks have been declining since 2003, while the sardine shows a clear downward trend over the whole survey period.

FIGURE 2 : AVERAGE ABUNDANCE INDEX OF ANCHOVIES – GSA 09

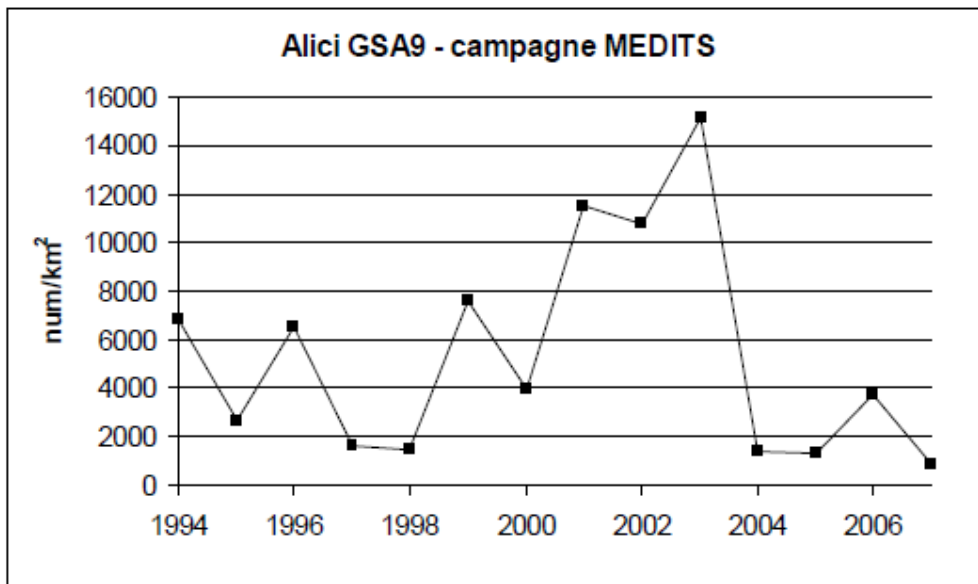
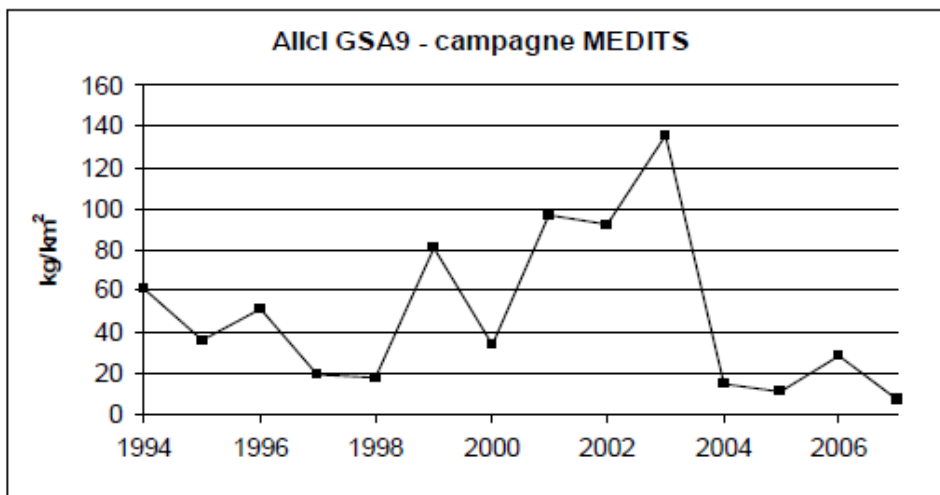


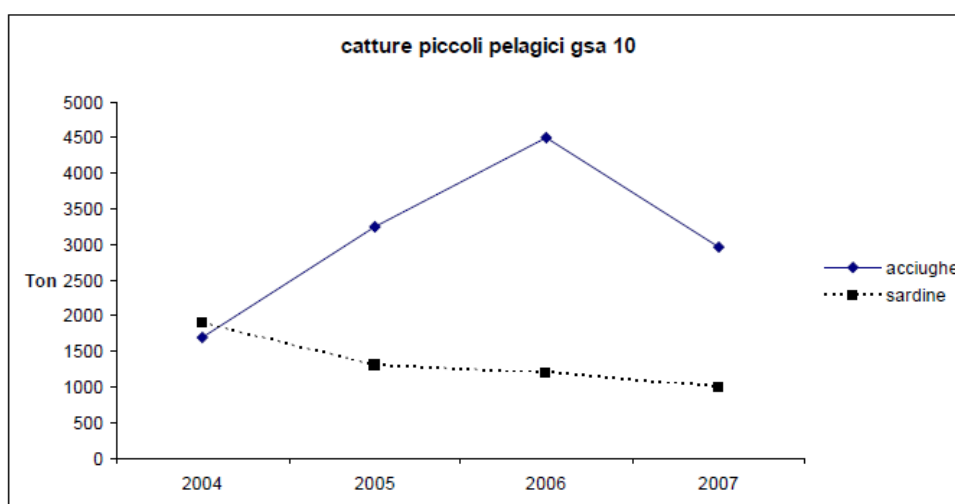
FIGURE 3: INDEXES OF AVERAGE BIOMASS FOR ANCHOVIES – GSA 09



GSA 10³ SOUTHERN TYRRHENIAN SEA

There are no up to date scientific studies relating to this area, nor has this area been the subject of specific studies in the past. Catches in the years 2004-2007 are to the order of a few thousand tonnes per year (Fig. 4) and are quite stable for the two species; in particular, the stability of sardine catches could be determined by market conditions (lack of demand). It should be noted that the catches reported are a fairly rough approximation of biomass at sea, as they do not take into account the possible variations in fishing effort, or the market situations that might limit them.

FIGURE 4: SMALL PELAGIC CATCHES IN GSA 10



GSA 16⁴ SOUTH OF SICILY

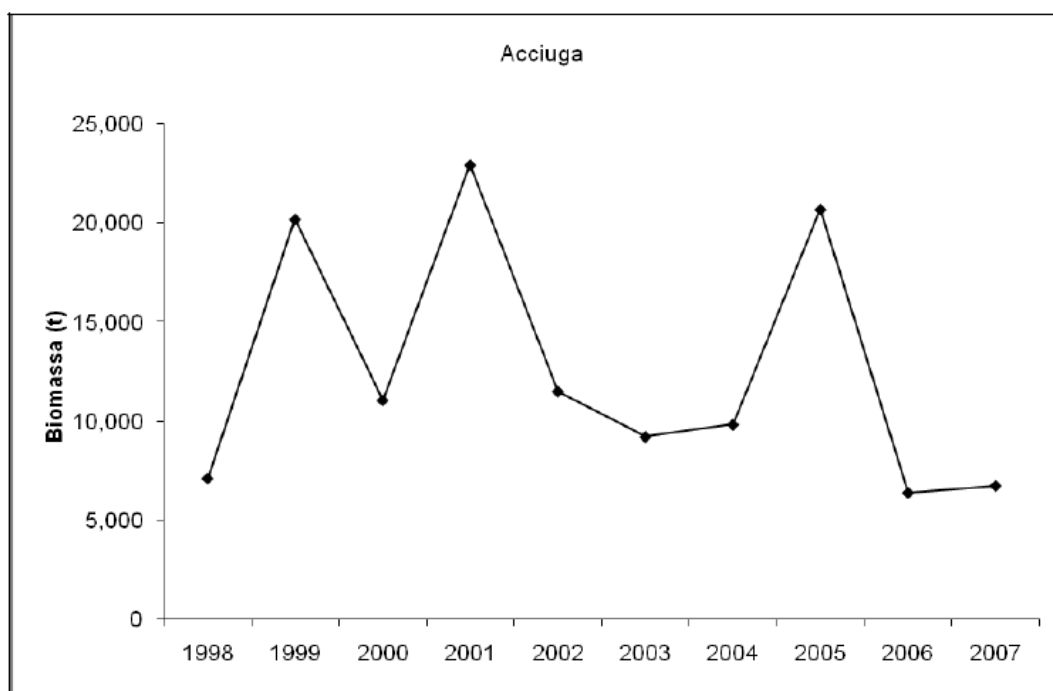
The biomass of the species (anchovy) estimated acoustically (echo surveys) fluctuated substantially over the period under consideration (Fig. 5). in particular over the last two years of the series, following the sharp decline in 2006, the biomass stood at around 6,000 tonnes. The decrease in recent years is confirmed by the time series of abundance indices measured independently from acoustic surveys during the MEDITS trawl surveys (Fig.6).

³ Taken from the Management Plan for small pelagic fisheries with purse seine nets in GSA 10 (southern Tyrrhenian Sea)

⁴ Taken from the management plan for small pelagic fisheries with purse seine and mid water trawl nets in GSA 16 (Strait of Sicily)



FIGURE 5: BIOMASS OF ANCHOVIES IN SOUTHERN SICILIAN COAST FROM 1998-2007



GSA 17 – North Adriatic

Italian, Croatian and Slovenian fishing vessels operate in GSA 17, targeting different species. The Italian fleet mainly employs pelagic trawl nets, while the Croatian and Slovenian fleet employ purse seiners. Although the catch of the Anchovy in the Eastern part is lower than that of the sardine, it has a significant importance in terms of income from commercial catch, since the price of the former is higher than the latter. This difference can be linked to the different distribution of the two species and to the transparency and productivity of the water, also considering the different morphology and bathymetry of the seabed. There is much research on the biology of anchovy, going back over 100 years, although only in recent decades has research that was previously specific to certain areas been extended to the entire GSA 17. Since 1976 in particular research has been carried out to determine the biomass of anchovy and sardine in the Adriatic using two direct methods: echo survey and eggs and larvae, as well as an indirect method: VPA. The results that referred to areas of different size showed good agreement on trends, with significant differences in biomass estimates; VPA was found to provide lower estimates of biomass in comparison with those obtained by echo survey, with the highest estimations coming from the eggs and larvae method, which was also carried out over a wider area.

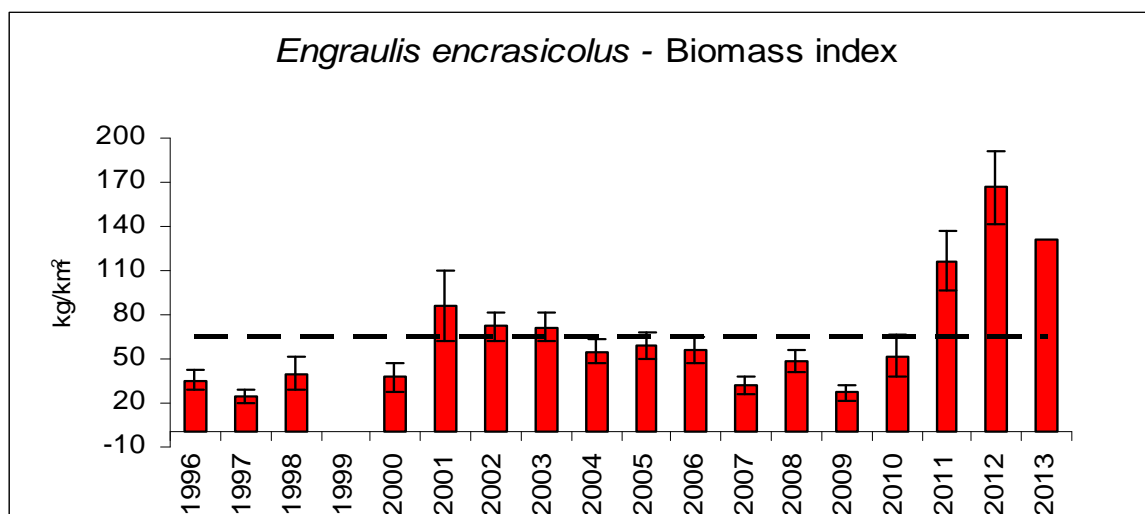
The research activities carried out have not considered Croatian and Slovenian waters regularly, so the data obtained were undermined by the uncertainty of not knowing what percentage of total biomass had been surveyed in the part of the area under investigation. More recently (1996) the MEDITS surveys began, covering the entire GSA 17, this started to provide indices of biomass for the entire area. The indices of biomass from



MEDITs campaigns were compared with indices from echo survey for the same area in the Strait of Sicily, good levels of correlation were achieved.

Biomass indices from MEDITs data are reported in the following table (Fig.6)

FIGURE 6 – TRENDS IN BIOMASS INDICES FROM MEDITs CAMPAIGNS



Over the years, echo surveys have also been carried out on the Croatian side and in recent years comparability has been achieved between the data obtained from the two sides of the Adriatic, and this has allowed us to obtain an estimate of biomass for the anchovy (Fig. 7).

VPA data were integrated gradually over time using catch data from the different countries and subsequently the data from biological sampling carried out two main countries, considering the different fishing techniques. The results that have been processed and developed in meetings organized by FAO AdriaMed were presented at the SCSA and the GFCM SAC in 2014. Certain aspects that are linked to the two models used, ICA and SAM, have provided rather different results, to the extent that the authors requested the possibility to carry out further checks before accepting these results (Fig. 8).

FIGURE 7 – TRENDS IN BIOMASS INDICES FROM ECHO SURVEY CAMPAIGNS

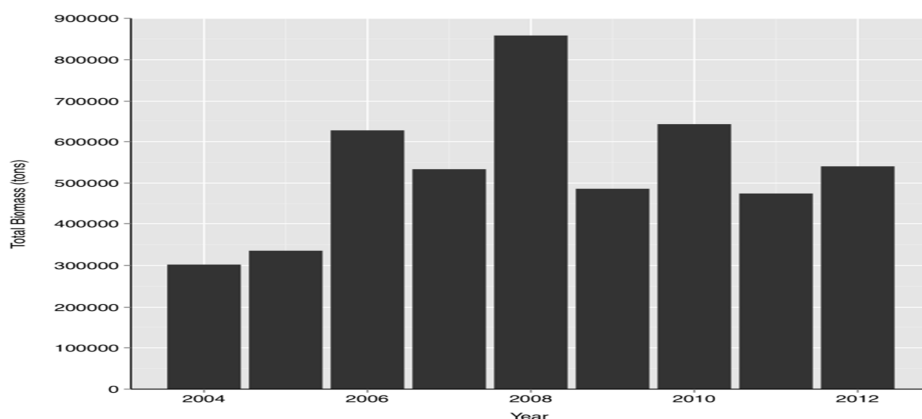
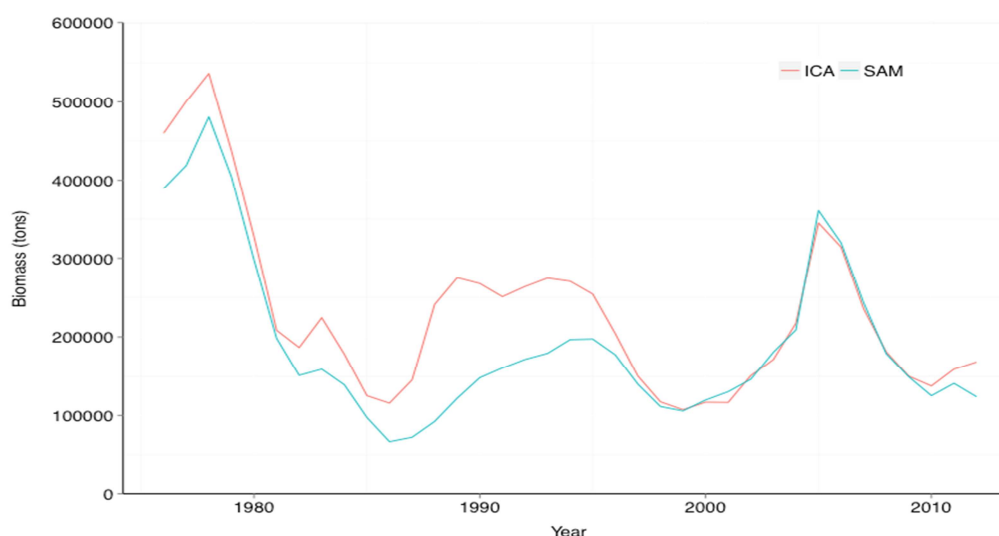


FIGURE 8 – TRENDS IN BIOMASS ESTIMATION



In view of the doubts expressed by the authors, the GFCM Scientific Advisory Committee has recommended a reduction in fishing effort as a precautionary measure, while waiting for a decision by the GFCM at its meeting in May 2014.

Resource management – GSA 17 and GSA 18

The management of small pelagic resources in the Adriatic has always had to consider both the characteristic periodic fluctuations of these species and also the market forces that influence trends their fishery.

Where the management of anchovy resources in GSA 17/18 is concerned, in 2013 GFCM recommendation 37/2013/1 came into force, confirming some of the measures already in place under previous laws as well as introducing new, specific management directives (as amended by the plenary session of the GFCM held in May this year GFCM 38/2014/1).

In summary, the measures indicated by the GFCM are as follows:

1. Confirmation of 9 cm as the minimum catch/landings size of anchovy
2. Ban on fishing of juvenile anchovy (whitebait)
3. Protection of aggregation and nursery areas
4. Special permit for fisheries issued to authorized vessels, updated on a yearly basis
5. Activity limited to 20 days/month and no more than 180 days/year
6. The implementation of a national monitoring program by the Member States

In addition to these, the following measures have also traditionally been applied according to Italian national legislation, or by the maritime districts in which these activities are carried out in the Adriatic:

1. The annual, temporary suspension of mid water pelagic trawl activities for 30/45 (15/30 days in Slovenia) continuous days in correspondence with the national closed season for trawl fisheries (summer).
2. A ban on mid water pelagic trawl fisheries within 4 miles of the coast in the 8 week period following the temporary closure. (Not applicable in Slovenia)
3. The voluntary reduction of fishing activities to 4 days/week for mid water trawl and 5 days/week for the purse seine fleets in some maritime districts
4. The suspension of purse seine fisheries for 4 days/month in correspondence with the full moon.

Overall, therefore, anchovy fisheries in the Adriatic are subject to precise, stringent measures; taking into account the fluctuation in the population of this species, the effects of such measures can only be perceived in the medium-long term.

3.1.2. Statistical data

GSA 1-2-5-6: Spanish National Waters in the Mediterranean

TABLE 1: CATCH IN TONNES OF THE ANCHOVY (ANCHOVY, ENGRAULIS ENCRASICOLUS) FOR GSA 1 AND GSA 6:

Year	Anchovy (in tons)
2002	17180
2003	8780
2004	8867
2005	6772
2006	3742
2007	2121
2008	3218
2009	12431
2010	10778
2011	10510
2012	11965
2013	19323

Source: IEO data through M^o Agriculture, Food and Environment

TABLE 2: AVERAGE ANCHOVY CATCHES (ENGRAULIS ENCRASICOLUS) BETWEEN 2004 - 2013 FOR GSA 5

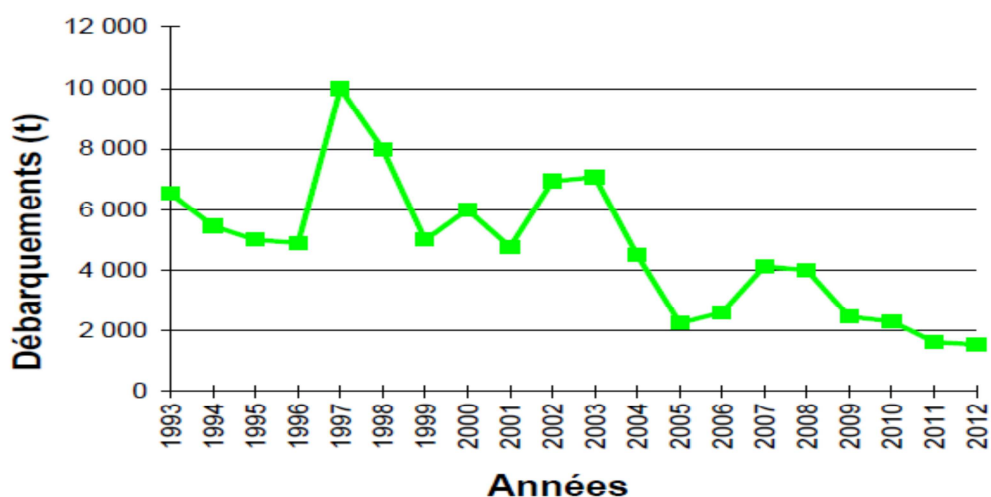
Year	Anchovy (in tons)
2004-2013	785,5

Source: Mallorcamar PO data



GSA 7- Gulf of Lions

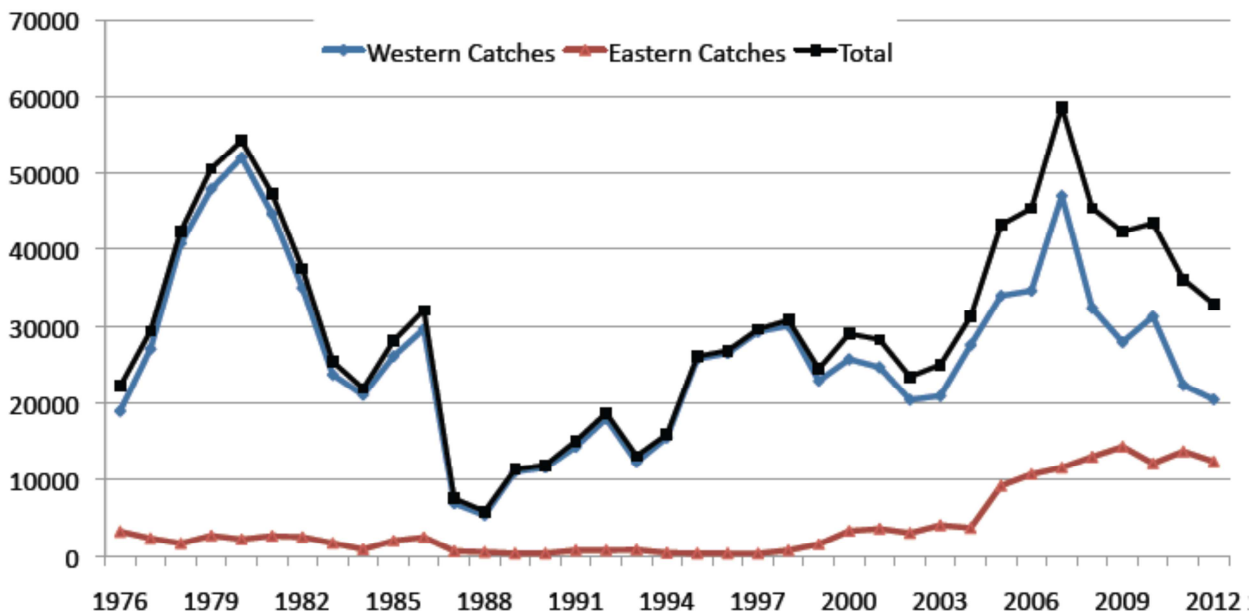
FIGURE 9: EVOLUTION OF ANCHOVY LANDINGS FROM 1993 TO 2012



GSA 17 – North Adriatic

Fig. 10 shows statistical data for anchovy fisheries in GSA 17.

FIGURE 10 – TRENDS IN CATCH QUANTITIES (IN TONS)



3.2. Sardine (PIL-Sardina pilchardus Walb.)

The sardine is a small pelagic fish that lives in shoals in the Mediterranean and the nearby Atlantic Ocean. Fishing is intense and has a long tradition. The sardine mainly reproduces in the winter period between November and March, but has been known to spawn in other months; reproduction is fragmentary: the same specimen can reproduce several times during the reproductive period. The number of eggs laid per season amounts to several tens of thousands, varying according to size.

The sardines reproduced from the second year of life and can live up to 7 years, reaching a size of about 20 cm. The demographic structure of the population is quite controversial, in the past various authors have recognized distinct subspecies of sardine, with slight differences even where the average number of vertebrae is concerned. The most recent genetic analyses (Ruggeri *et al.*, 2013) show some variability, but conclude that in the Adriatic and Ionian seas, for example, there one, identical sardine population unit.

The development of the eggs relates directly to the water temperature, and after 2-4 days a small larva is born, which begins to grow up until it develops pigment. There is a long culinary tradition in the Mediterranean concerning the consumption of young sardines that are still transparent and are called "whitebait". Currently capture of sardines less than 11 cm total length is banned. Sardines feed prevalently on copepods.

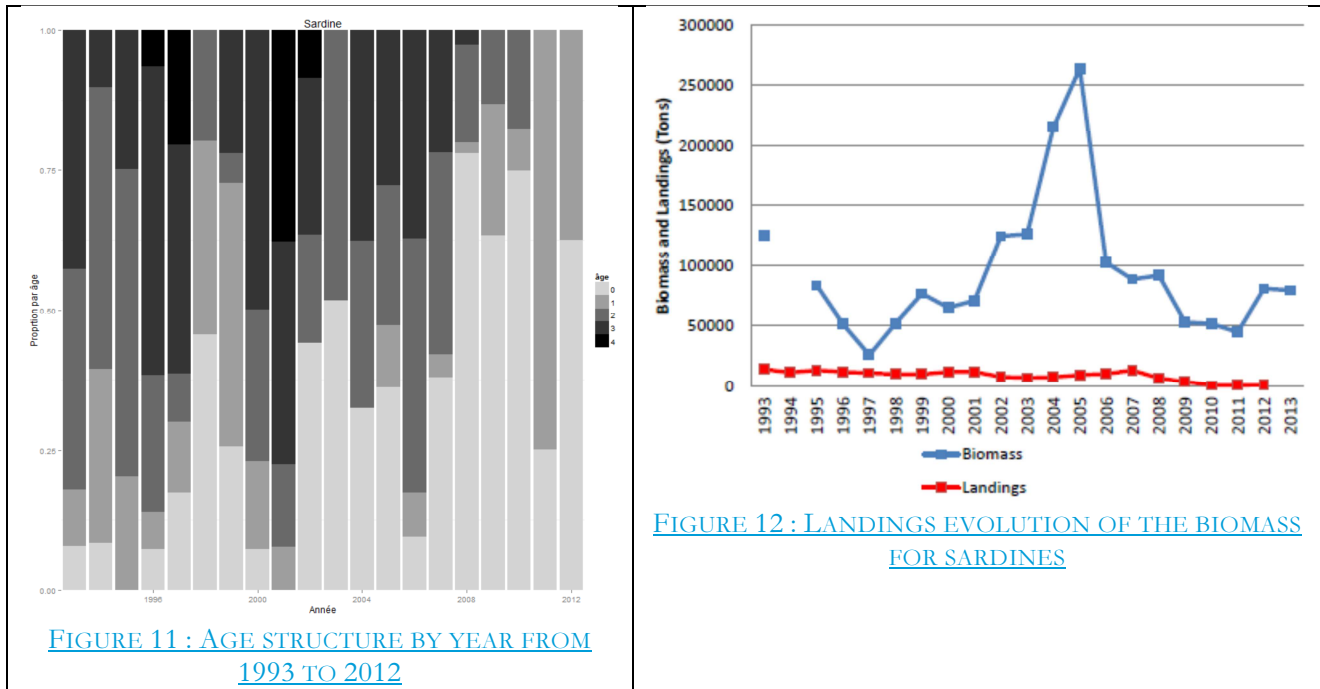
Due to aspects of environmental diversity, different productivity of the various seas and the different fishery traditions, the management of these fisheries and resource abundance are differentiated.

3.2.1. Stock size and distribution:

GSA 7 – Gulf of Lions

The total biomass of sardine in the Gulf of Lion reached its highest level within the period 1998-2013 in the year 2010. Over the past two years, the biomass has remained at an intermediate level. Recruitment is high but individuals remain small and in a poor condition. Disappearance of individuals older than 2 years has been observed. Catches remain low. The stock is considered as being ecologically imbalanced. It is recommended not to increase fishing mortality and improved tracking of changes in the fleet is also advised.





GSA 9 – Ligurian and Northern Tyrrhenian

FIGURE 13: AVERAGE ABUNDANCE INDEXES OF SARDINES – GSA 9

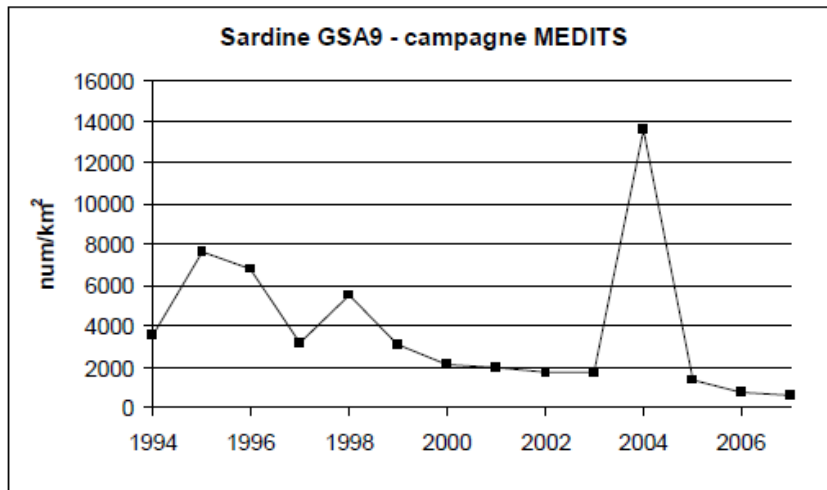
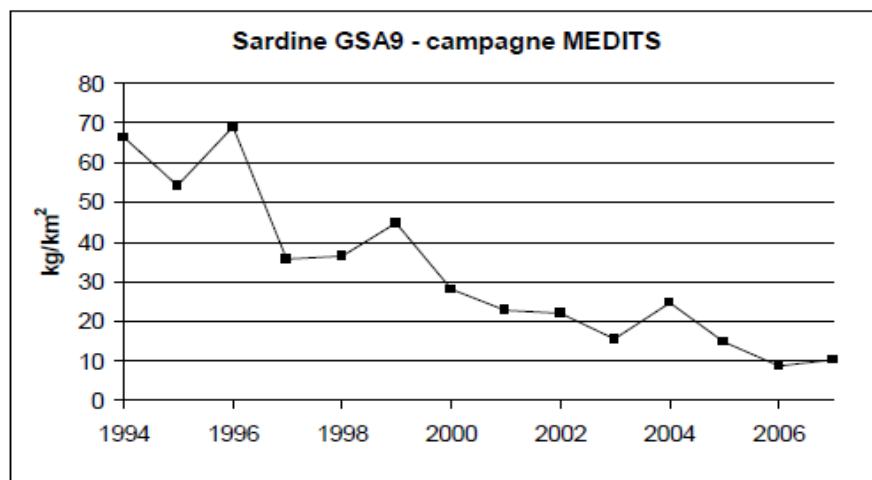


FIGURE 14: INDEXES OF AVERAGE BIOMASS FOR SARDINES – GSA 09



GSA 16 – South of Sicily

The time series of biomass estimated by acoustic surveys shows a cyclical trend, with a downward tendency from 1999 to 2002, increasing from 2003 to 2005, while in the last two years, after the sharp reduction in 2006, the biomass settled at around 11 000 tonnes, or about 30% of the maximum level recorded in 1999 (about 34000 tonnes) (Fig. 15).

These trends are confirmed by the time series of abundance indices recorded independently during the MEDITS trawl surveys. These indices show a significant decrease in sardine in GSA 16, in terms of biomass in kg per km² over the whole period considered (Fig. 16).

FIGURE 15: SARDINE BIOMASS ESTIMATES IN SOUTHERN SICILY 1998-2007

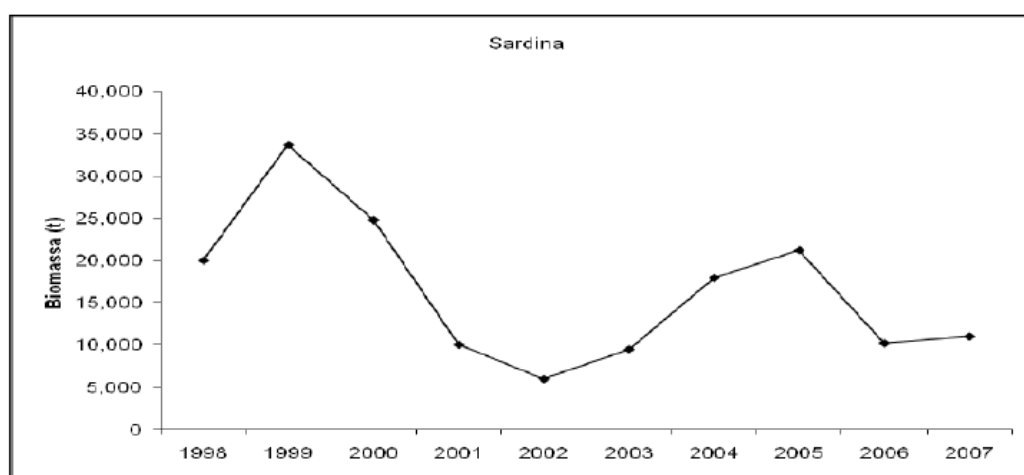
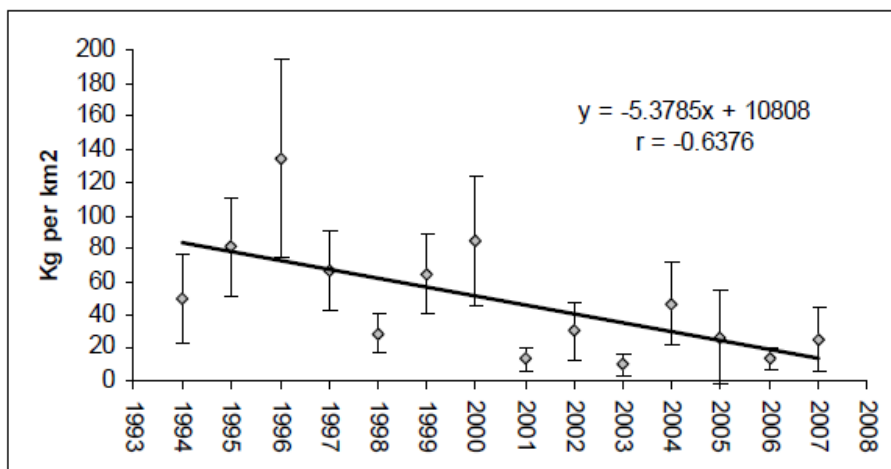
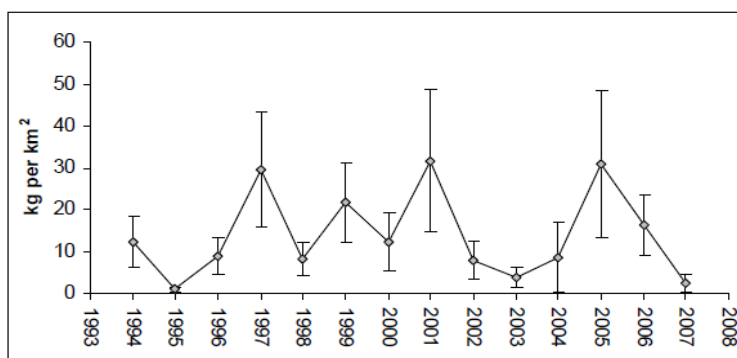


FIGURE 16: SARDINE AVERAGE BIOMASS INDICES IN GSA 16



Source: MEDITS survey 1994-2007

FIGURE 17: SARDINES AVERAGE BIOMASS INDICES IN GSA 16



Source: MEDITS TRAWL SURVEY (1994-2007)

GSA 17 – North Adriatic

The Italian fleet mainly employs pelagic trawl nets, while the Croatian and Slovenian fleet employ purse seiners. Although the catch of the Anchovy in the Eastern part is lower than that of the sardine, it has a significant importance in terms of income from commercial catch, since the price of the former is higher than the latter. This difference can be linked to the different distribution of the two species and to the transparency and productivity of the water, also considering the different morphology and bathymetry of the seabed.

Much research has been carried out the biology and fishery of sardines in the Adriatic and it has been demonstrated that, in the long term, there are alternations between anchovy and sardine in terms of cycles of

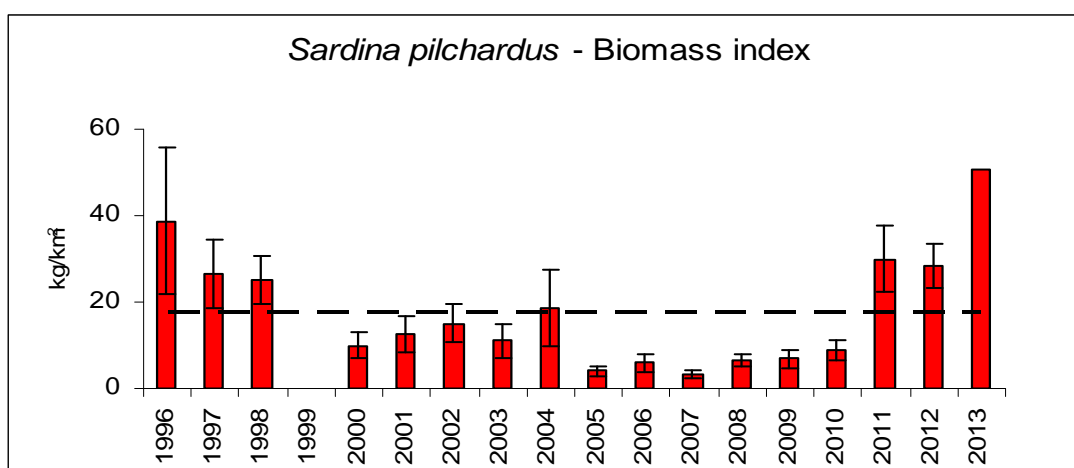


greater abundance of sardines alternating with cycles of several years in which there is greater abundance of anchovies.

The state of sardine resources is currently investigated using catch data in various VPA models as an index of abundance, combined with the catch age composition data. The results of the annual echo survey campaigns carried out over more or less extensive areas, with abundance indices and more recently MEDITS campaign data from the entire GSA 17, obtained jointly by researchers from the three coastal countries.

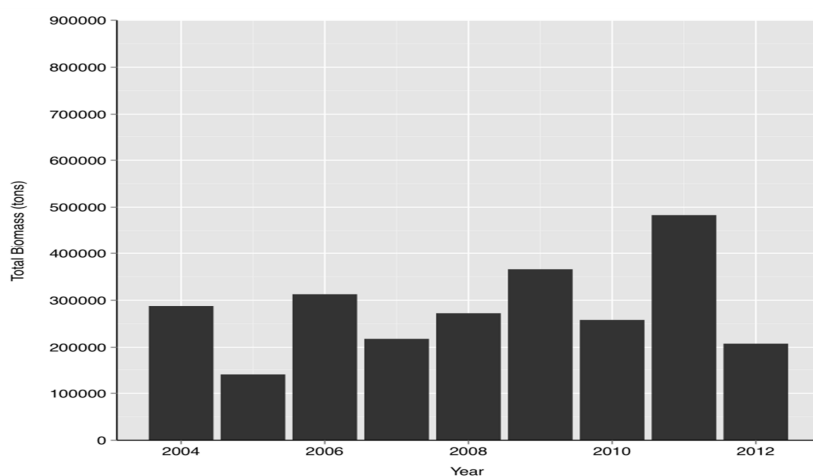
The information obtained for sardine is shown in Fig. 18, with indexes up to 2013 from the MEDITS campaign, showing an increase in biomass over the last three years that is higher than the mean value of the entire series since 1996.

FIGURE 18: TRENDS IN BIOMASS INDICES FROM MEDITS CAMPAIGNS



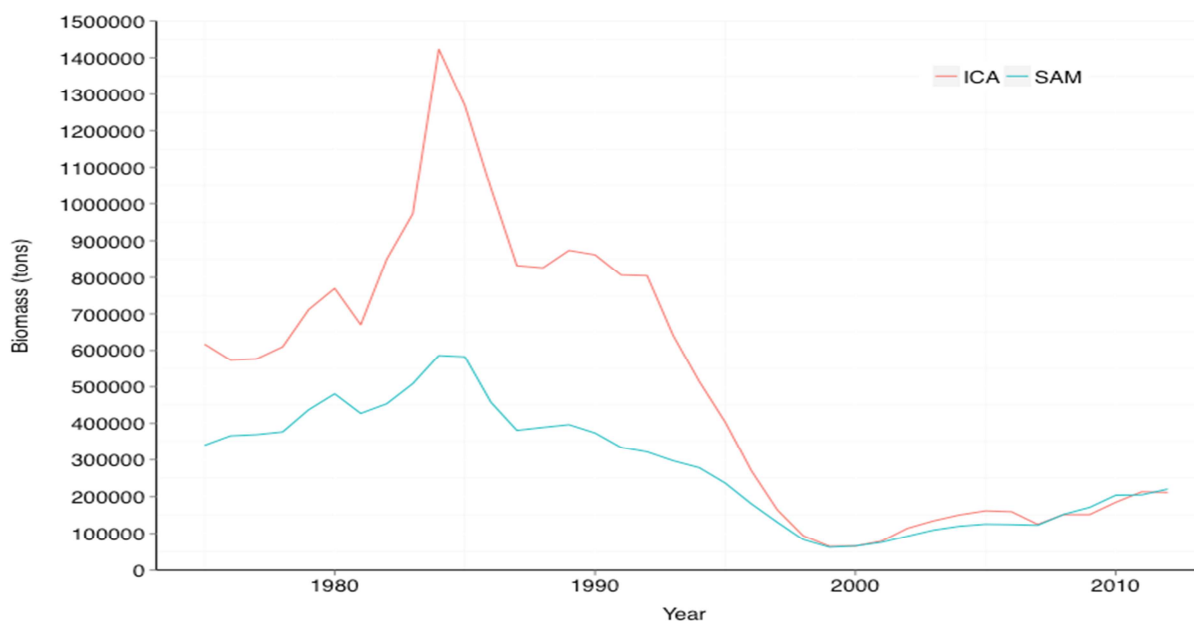
The biomass estimates obtained through acoustic campaigns are shown in Fig. 19, until 2012 there are fluctuations of biomass without a clear trend.

FIGURE 19: TRENDS IN BIOMASS INDICES FROM ECHO SURVEY CAMPAIGNS



The results of the use of VPA models, both ICA and SAM, up to 2012 are shown in Fig. 20. It can be noted how, after a low point reached in 2000, there has been a steady recovery of sardine stocks although they remain below the biomass recorded in the years up to 1995.

FIGURE 20: TRENDS IN BIOMASS ESTIMATION



As already noted for the anchovy, estimation of sardine biomass made with ICA and SAM models is noticeably affected by catch trends. In fact, one of the assumptions underlying VPA is that the catch consistency is an indicator of the abundance of the species. This often is not correct because market forces, that are increasingly open to international trade, directly influence fishing activities. If we consider Croatian and Italian catch data trends separately, we obtain divergent assessments of biomass, in particular for the period after 2000. The stock is shared and is the same, but catches in each country take into account unrelated factors thus providing conflicting indications. Overall catch data is affected by the capture trends in the country and this makes one type of fishery more intense than another, anchovy in Italy and sardine in Croatia.

Biomass data obtained from several different approaches allows for an integrated vision.

3.2.2. Statistical data

Fig. 21, below, shows the trend in the quantity of sardines captured in Italy, in Croatia and as a whole. These data are affected by various issues related to differences in statistical survey methodology in the two countries.



GSA 1-2-5-6: Spanish National Waters in the Mediterranean

TABLE 3: CATCH IN TONS OF THE SARDINE (SARDINA PILCHARDUS) IN GSA 1 AND GSA 6

Year	SARDINES
2002	25370
2003	30249
2004	26067
2005	27880
2006	38739
2007	28455
2008	20511
2009	15162
2010	16090
2011	18511
2012	15407
2013	14717

Source: Data from IEO through Ministry of Agriculture, Food and Environment

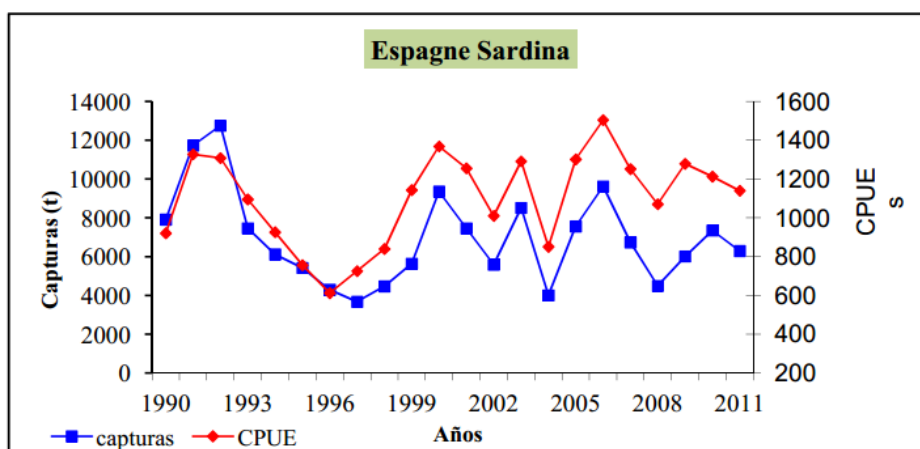
For GSA 5 average catches in tons for the sardine (*Sardina pilchardus*) between 2004 to 2013 were as follows:

TABLE 4: AVERAGE CATCHES OF THE SARDINE 2004-2013 (IN TONS)

Year	SARDINES
2004-2013	1578,3

Source: data from PO Mallorcamar

FIGURE 21: CATCHES (T) AND CATCH PER UNIT EFFORT (CPUE) OF THE SARDINE (SARDINA PILCHARDUS) FOR GSA 1 NORTH ALBORAN:

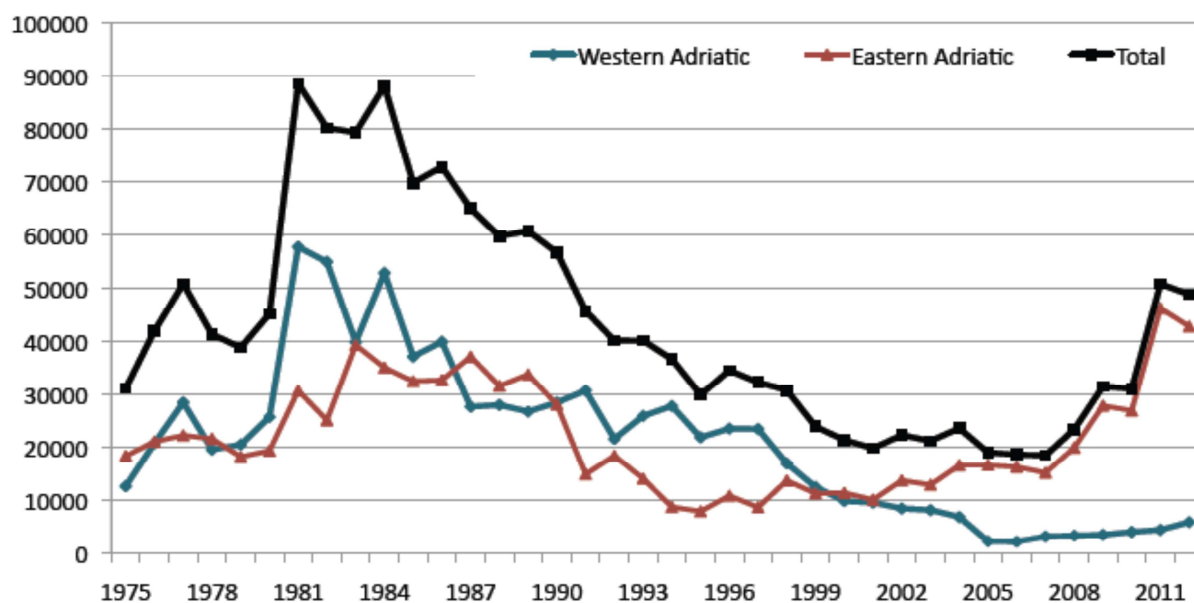


Source: GFCM-IEO data



GSA 17 – North Adriatic

FIGURE 22: TRENDS IN CATCH QUANTITIES

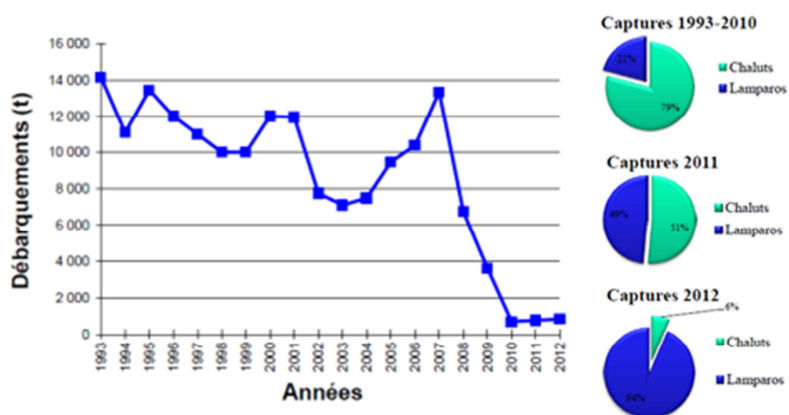


3.2.3. Resource Management

GSA 7 – Gulf of Lions

It should be noted that a research programme was launched in April 2014 for a period of one year, to analyse the causes of change in laboratory parameters, (ECOPELGO). The purpose of this project is to explore several hypotheses: diet change due to changes in plankton, diseases, predation and fishing.

FIGURE 23: EVOLUTION OF THE TOTAL LANDINGS OF SARDINE AND BY FISHERY IN GSA 7



GSA 17 – North Adriatic

The management of small pelagic resources in the Adriatic has always had to consider both the characteristic periodic fluctuations of and also the market forces that influence trends their fishery.

Where the management of sardine resources in GSA 17/18 is concerned, in 2013 GFCM recommendation 37/2013/1 came into force, confirming some of the measures already in place under previous laws as well as introducing new, specific management directives (as amended by the plenary session of the GFCM held in May this year GFCM 38/2014/1).

In summary, the measures indicated by the GFCM are as follows:

1. Confirmation of 11 cm as the minimum catch/landings size of sardine
2. Ban on fishing of juvenile sardines
3. Protection of aggregation and nursery areas
4. Special permit for fisheries issued to authorized vessels, updated on a yearly basis
5. Activity limited to 20 days/month and no more than 180 days/year
6. The implementation of a national monitoring program by the Member States

In addition to these, the following measures have also traditionally been applied according to Italian national legislation, or by the maritime districts in which these activities are carried out in the Adriatic:

1. The annual, temporary suspension of mid water pelagic trawl activities for 30/45 (15/30 days in Slovenia) continuous days in correspondence with the national closed season for trawl fisheries (summer).
2. A ban on mid water pelagic trawl fisheries within 4 miles of the coast in the 8 week period following the temporary closure (Not applicable in Slovenia).
3. The voluntary reduction of fishing activities to 4 days/week for mid water trawl and 5 days/week for the purse seine fleets in some maritime districts
4. The suspension of purse seine fisheries for 4 days/month in correspondence with the full moon.
5. Providing the precautionary measures for sardines stock in GSA 17 in Croatia in previous period of several years was applied the annual, temporary suspension of purse seine activities for 30 continuous days during the spawning period of sardines (winter).

Overall, therefore, sardine fisheries in the Adriatic are subject to precise, stringent measures; taking into account the fluctuation in the population of this species, the effects of such measures can only be perceived in the medium-long term.



OTHER GSAs

The management of small pelagic resourced in the GSAs other than 17 and 18 are far less stringent than in the Adriatic in view of the limited number of vessels dedicated to this activity and the limited areas in which they normally operate.

There are, however, some management measures resulting from EU regulations or national standards that regulate this fishery, and in particular:

1. Minimum catch/landing size of sardine: 11 cm
2. Ban on fishing of juvenile anchovy/sardine (whitebait)
3. Temporary suspension of mid water trawl fishery for 30 continuous days in correspondence with the national closure of trawl fisheries
4. Suspension of purse seine fisheries for 4 days/month in correspondence with the full moon

The results are evaluated by means of annual monitoring that is carried out as part of the national data collection programme (Reg. 199/2008).

3.3. Mackerel

In the Mediterranean, there are two species of the genus *Scomber*, *Scomber scombrus* L. which is the true mackerel and *Scomber japonicus colias* called chub mackerel.

Article. 15 of the new CFP describes the obligation to land mackerel, considering a single fish, but the reg. EC 1967 raises the issue of a minimum size of 18 cm for mackerel calling it *Scomber spp.*, indicating all the species within the genus *Scomber*, thus including Chub mackerel which consequently could be considered as a species subject to the landing obligation. The biology of the two species is different and they are treated separately.

A) MACKEREL (MAC-*Scomber scombrus* L.)

This species has a wide distribution area, and can be found throughout the Mediterranean and also in the Atlantic as far as the shores of Canada. It lives in very numerous shoals and migrates extensively, approaching the coast during the spawning season. Spawning takes place in the winter from December to April with a peak in February-March. Growth is rapid and length at two years exceeds 20 cm. It feeds on small pelagic fish (anchovies, sardines, sprats) and juveniles also consume zooplankton organisms. It is an active predator chasing schools of small fish to the surface of the sea.



Fishing is carried out with various gears, purse seiners with light attraction at night, pelagic trawl nets, gill nets and fishing lines, both towed and fixed. It is a species that has often shown large fluctuations in abundance; fisheries are almost absent in some GSAs and moderate in other areas. There are no indications that different population units exist in the Mediterranean.

B) CHUB MACKEREL (*MAS-Scomber japonicus colias Gmelin*)

This species is usually less abundant than in the Mediterranean than mackerel, despite being widespread and including various geographic sub species in the Atlantic Ocean and the Pacific Ocean too.

In the Mediterranean there are not many studies on chub mackerel that demonstrate fluctuations in presence, alternating with mackerel.

Spawning takes place in the summer and the growth is slightly faster than the mackerel. Chub mackerel were even caught at depths over 300 meters. Fishing is often random, since there is not a strong market demand and, like mackerel, it is targeted by sports fishers in some areas, such as the north Adriatic Sea. In several maritime districts during the summer there are boats equipped to carry tourists to fish mackerel and Chub mackerel.

For management purposes, due to the limited commercial interest in this species, there is no research into population units or stock assessment.

3.3.1. Mackerel Stock size and distribution

No research has been conducted in recent years on the situation of the mackerel populations in GSA 17, for the complexity of the situation both in terms of distribution and of the fishing techniques employed.

The area of distribution covers about 40% of the surface of the GSA 17 and, as this species covers large distances, in some areas and periods its presence is variable. Some fishing techniques, including sports fisheries, are carried out seasonally intercepting passing schools of mackerel. As well as the fishing techniques that target small pelagic species (mid water pelagic trawl and with light attraction) mackerel are caught by bottom trawl nets near the seabed, with nets and hooks, both trolling that longlines. According to the Italian statistics mackerel are caught mainly with bottom trawl nets, followed by the purse seine, pelagic trawl and small scale fisheries.

There is no data on the existence of separate population units in Italian waters.

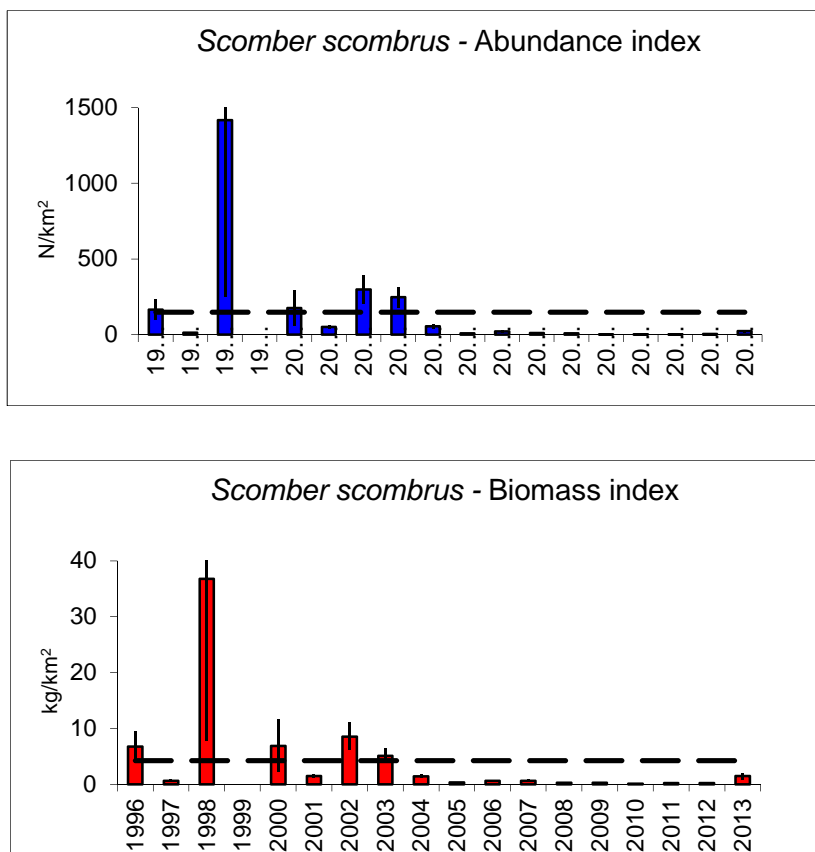
The total number of mackerel and chub mackerel caught in Italy has decreased considerably in recent years, from 4586 t in 2004 to 1930 t in 2011, with a steady decrease in production in all areas of Italy. For the GSA 17



abundance indices only exist for mackerel and have been obtained from hauls during the MEDITS campaign since 1996 (see Fig. 23)

For the entire GSA 17 there has been a sharp decline from 2004 onwards, while in previous years a high level of variability was noted. It is well known that there is alternation between the presence of the two species of Scomber gen. this cannot be verified as no data are available on the presence and abundance of *Scomber japonicus colias*.

FIGURE 24: TRENDS IN ABUNDANCE AND BIOMASS INDICES FROM MEDITS CAMPAIGNS.



Source: MEDITS campaign

3.3.2. Resource management

The management of mackerel fisheries is mainly linked to the management measures resulting from EU regulations or national standards that regulate the fishery of this species, and in particular:

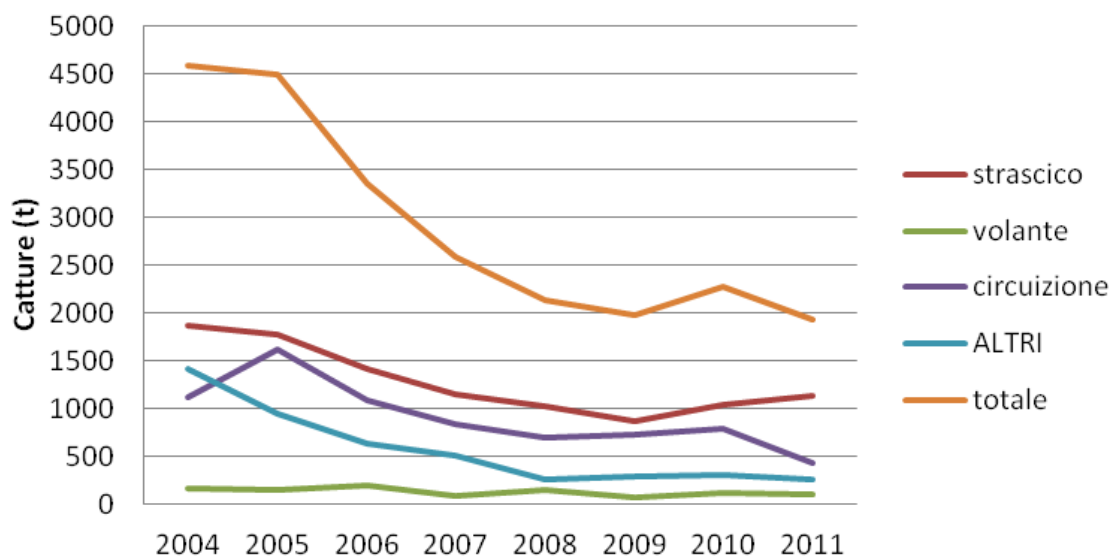
1. Minimum catch/landing size of mackerel: 18 cm
2. Annual temporary closure of bottom and mid water trawl fisheries for at least 30 continuous days.

The results are evaluated by means of annual monitoring that is carried out as part of the national data collection programme (Reg. 199/2008).



3.3.3. Statistical data

FIGURE 25: MACKERELS TOTAL CATCHES BY YEAR AND FISHERIES (T)



GSA 1-2-5-6 Spanish National Waters in the Mediterranean

TABLE 5: MACKEREL CATCHES IN GSAS 1 AND 6 (SCOMBER SP.: SCOMBER COLIAS Y S. SCOMBRUS)

Year	Mackerel (T)
2002	891
2003	4040
2004	4526
2005	7668
2006	5394
2007	4964
2008	4066
2009	4314
2010	2797
2011	3200
2012	4815
2013	4837

Source: Data from IEO through Ministry of Agriculture, Food and Environment

TABLE 6: AVERAGE MACKEREL CATCHES BETWEEN 2004-2013 IN GSA 5

Year	Mackerel(T)
2004-2013	80,06

Source: data from the PO Mallorcamar



GSA 7 – Gulf of Lions

No data available

3.4. Atlantic horse mackerel

As in the previous paragraph, for the purposes of the landing obligation there is more than one species to consider. In the Mediterranean there are three species of the genus *Trachurus*, *T. mediterraneus*, *T. trachurus* and *T. picturatus*. The first two have similar biology, while *T. picturatus* grows to larger sizes and lives at greater depths. Generally speaking, in commercial terms only larger specimens of these species are of any interest; they are not usually targeted by fishery operations and normally, if caught, only those of a larger size are kept on board. The obligation to land the undersized specimens is a new situation.

A) ATLANTIC HORSE MACKEREL (*HOM-Trachurus trachurus* L.)

This is the smallest horse mackerel, normally not exceeding 30 cm in length, it lives in groups that are usually quite small and can be found throughout the Mediterranean and Eastern Atlantic up to Norway. Reproduction occurs mainly in spring and summer and the juveniles remain in the surface layers near the coast, they are often associated with the presence of large jellyfish. There is no knowledge on the existence of differentiated populations in the Mediterranean. The species is captured by pelagic trawlers, purse seiners and bottom trawl nets. It feeds on small fish and macrozooplankton.

B) MEDITERRANEAN HORSE MACKEREL (*HMM-Trachurus mediterraneus* Stdr)

This species lives in the Mediterranean and in the Atlantic and is quite abundant. It lives in groups that usually move near the seabed, preferring shallower waters and it can exceed 40 cm in length. Sexual maturity is reached at the age of three, reproduction takes place in summer and eggs are planktonic. Juveniles concentrate in coastal waters no more than 100 meters deep. They feed on

zooplankton in the juvenile stages, and subsequently on planktonic crustaceans and small fish.

The size of the specimens caught is affected by the fishing technique: smaller fish are caught in trawl nets, medium sized ones by purse seiners and the larger ones by longlines at greater depths.

There is limited information on the existence of different populations and there is no fishery that directly targets on this species, it is part of the by-catch from other fishing activities.



C) BLUE JACK MACKEREL (*JAA Trachurus picturatus Bowdich*)

The distribution of this mackerel is more restricted than the others, although it is present in the Mediterranean and North Atlantic. It can grow longer than 50 cm and typically lives at depths over 100 meters and as far as 400 meters. Spawning takes place in the summer, eggs are pelagic. It is predator that lives in small groups, feeding on fish and cephalopods. The existence of differentiated populations is not known.

The capture of this species during fishery operations is occasional and quantities caught are modest.

3.4.1. Stock size and distribution

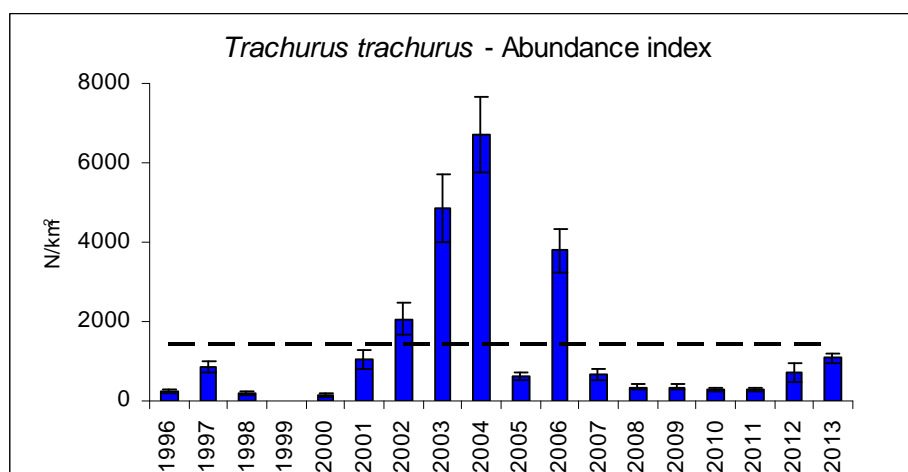
The three species of *Trachurus* have very different biomass indices in GSA 17, presence of Blue jack mackerel is very limited, only occurring in deeper waters.

The *Trachurus trachurus* mackerel is widely distributed in GSA 17 being present in over 75% of the sampling stations, the other mackerel - *Trachurus mediterraneus* - is present in less than 40% of the sampling stations. Average biomass is also different, *Trachurus trachurus* is present with a biomass index of 12 kg/km² while the index for *Trachurus mediterraneus* is about 3.5 kg/km².

Fig. 26 shows the abundance and biomass indices for *Trachurus trachurus* in the period 1996-2013 for the entire GSA 17. Fig. 27 shows the abundance indices for recruits and strong annual variability in recruitment can be noted. The abundance index for spawning stock has the lowest total variability over time and the size distribution of the sample collected in the framework of MEDITS in 2012. The sample tends to include smaller sizes because the sampling period (June-July) coincides with the recruitment period.

The second species, *Trachurus mediterraneus*, occurs less frequently in GSA 17 although it has a wide distribution area. Fig. 29 shows the trends in the abundance and biomass indices, both showing great variability, and from 2008 onwards, the biomass appears to be close to the average values for the entire period with high values in the last year.

FIGURE 26 – TRENDS IN ABUNDANCE AND BIOMASS INDICES FROM MEDITS CAMPAIGNS.



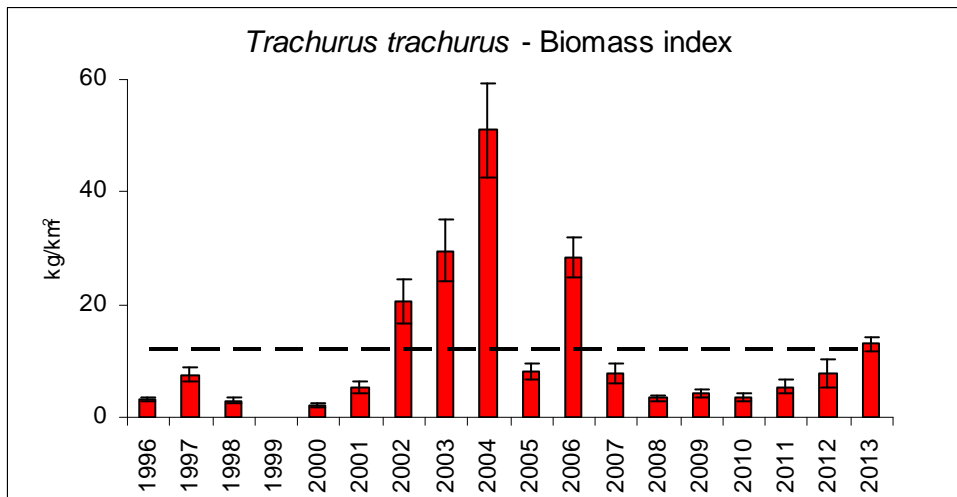


FIGURE 27 – TRENDS IN ABUNDANCE INDICES FOR RECRUITS AND FOR SPAWNING STOCK FROM MEDITS CAMPAIGNS.

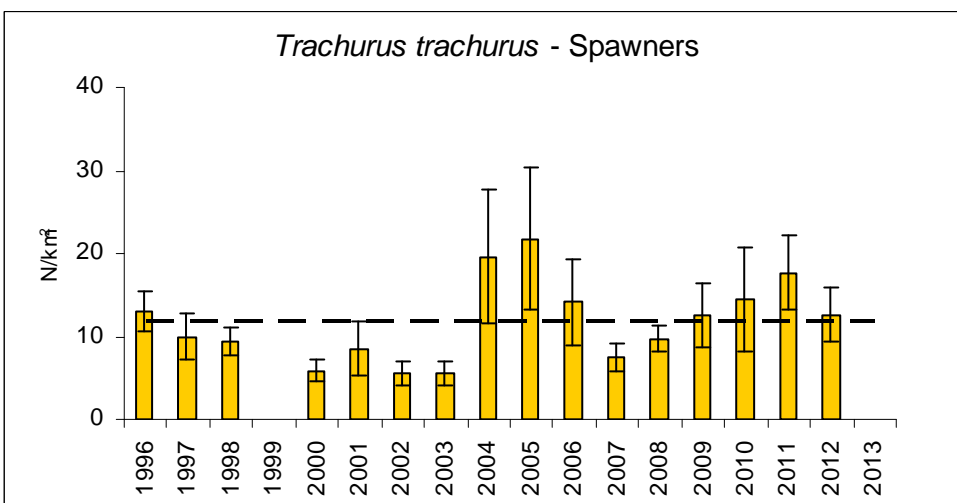
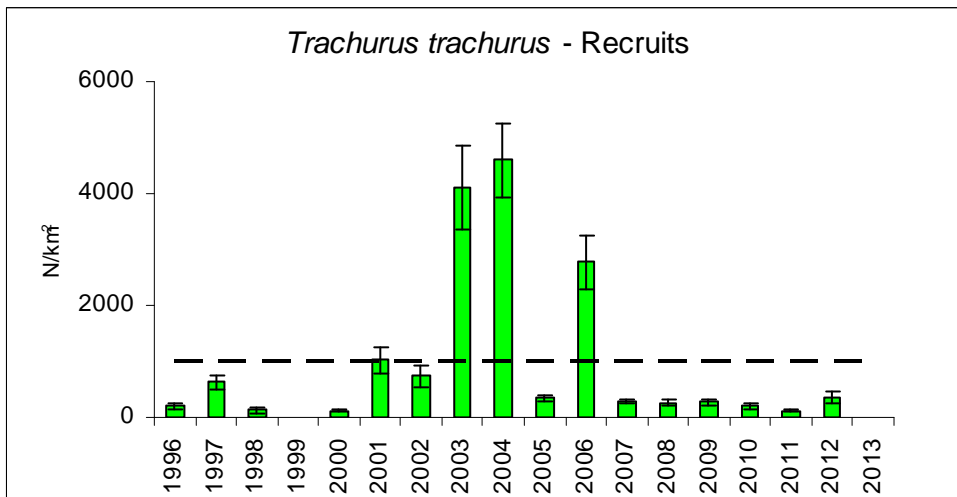


FIGURE 28: SIZE DISTRIBUTION FOR 2012 CATCHES

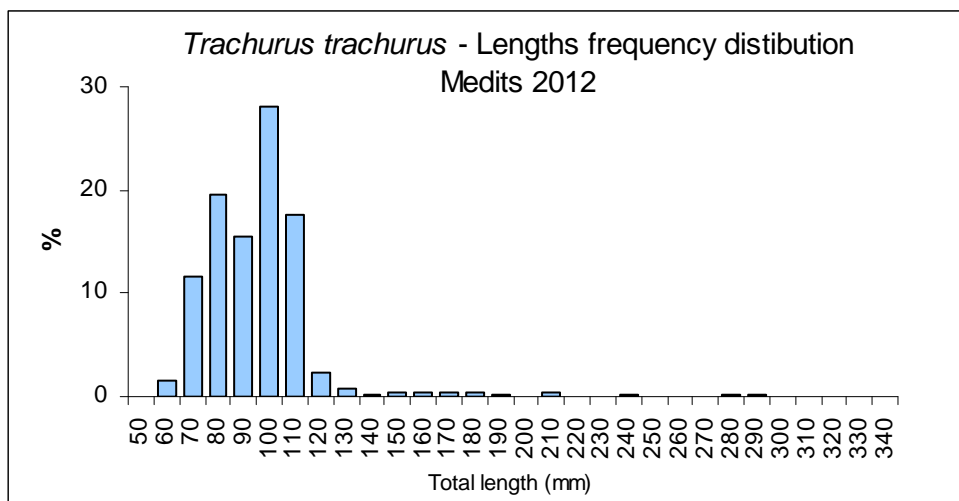


FIGURE 29: TRENDS IN ABUNDANCE AND BIOMASS INDICES FROM MEDITS CAMPAIGNS.

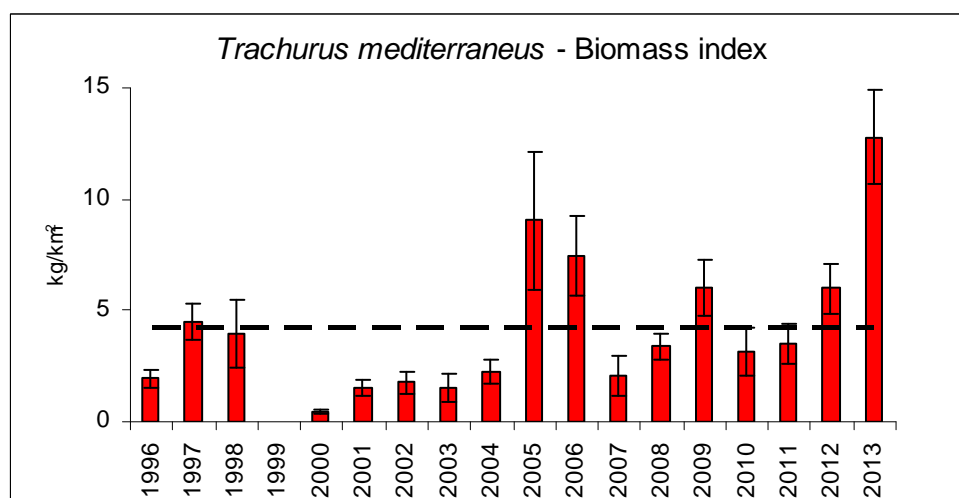
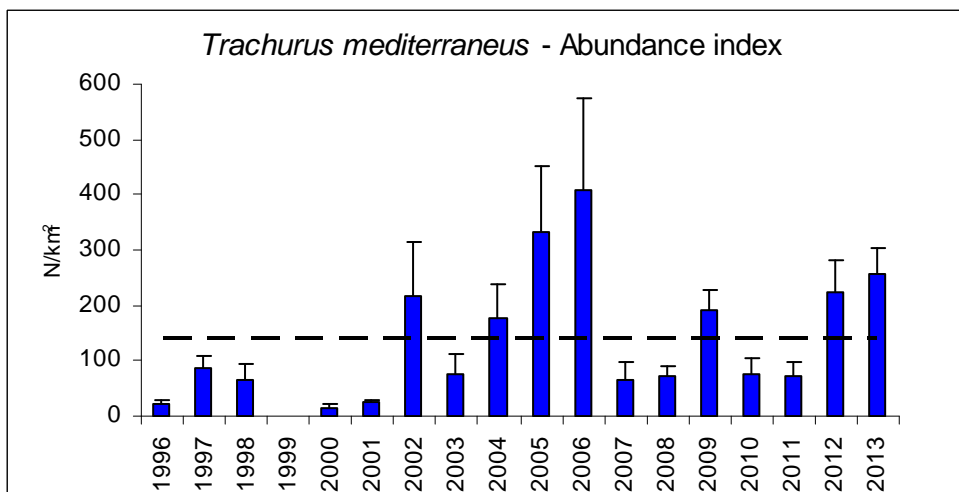


FIGURE 30 – TRENDS IN ABUNDANCE INDICES FOR RECRUITS AND FOR SPAWNING STOCK FROM MEDITS CAMPAIGNS.

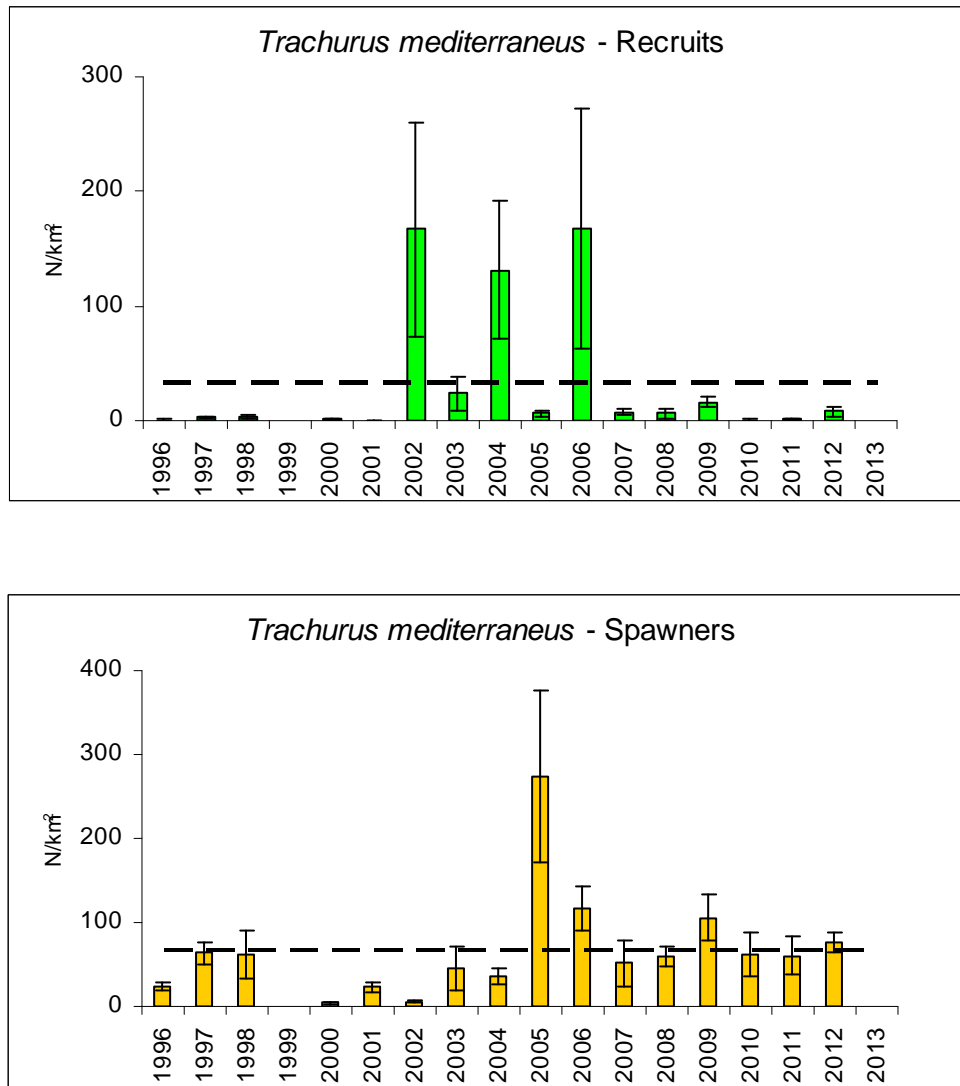
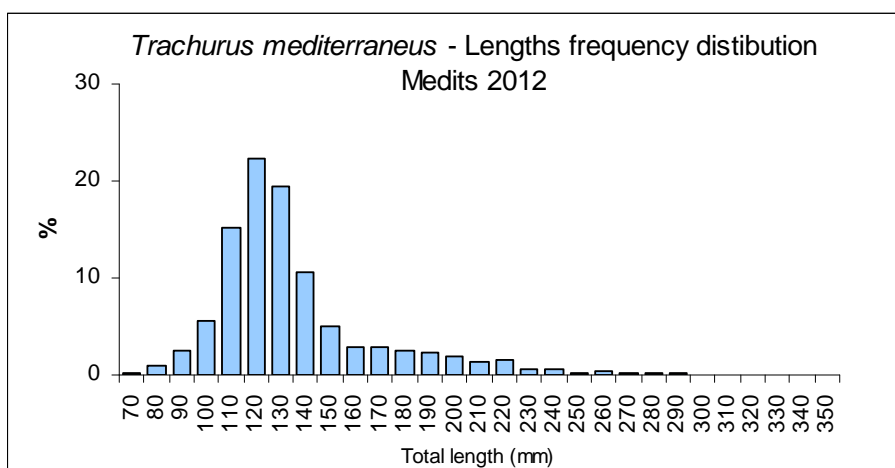


Fig. 30 shows the abundance index for recruits and indicates the high variability between years as well as the strong recruitment in 2002 and 2004 that occurred following low abundance index values for spawning stock in previous years.

The abundance index spawning stock has fluctuated widely; in particular the high index for the year 2005 indicates reduced recruitment mortality in 2004.



FIGURE 31: SIZE DISTRIBUTION FOR 2012 CATCHES



The size distribution of the catch in the 2012 campaign demonstrates greater frequency around the size of 120 mm and this reflects the state of recruitment in the autumn of the previous year.

Fishery statistics put data for all mackerel species together. Overall mackerel catches in Italy in 2011 amounted to 4373 t, and in the period from 2004 to 2011 total catches ranged from 4033 t to 5470 t with moderate annual variations.

In Italy nearly 50% of mackerel are caught by bottom trawl nets.

In GSA 17 mackerel fisheries yields between 800 and 1000 t per year.

3.4.2. Statistical data

GSA 1-6 – Spanish National Waters in the Mediterranean

TABLE 7: HORSE MACKEREL (TRACHURUS SP.: TRACHURUS MEDITERRANEUS, T. TRACHURUS Y T. PICTURATUS) CATCHES IN TONS FOR GSA 1 AND 6

Year	Horse Mackerel (t)
2002	706
2003	1060
2004	466
2005	3632
2006	6541
2007	7316
2008	5436
2009	3847
2010	3854
2011	3584
2012	4257
2013	2993

Source: Data from IEO through Ministry of Agriculture, Food and Environment



TABLE 8: AVERAGE MACKEREL CATCHES BETWEEN 2004-2013 IN GSA 5

Year	Horse Mackerel (t)
2004-2013	409,6

Source: data from the PO Mallorcamar

Recently in GSA 5 a study has been carried out to determine the percentage of discards in purse seine fisheries. As shown in the table below, this percentage is very low, with an average value of 1.09% for the 10-day study, and this corresponds to certain times of the year when some specimens of mackerel are below the minimum size. (Data from the Directorate General of Fisheries of the Balearic Government).

MUESTREO DESCARTES											
FECHA	22/04/2013	23/04/2013	27/04/2013	28/04/2013	29/04/2013	01/05/2013	05/05/2013	08/05/2013	09/05/2013	10/05/2013	Promedio
ESPECIE	....	Jurel	Jurel	....	Jurel	....	....	....	....	....	....
%	0	4,82	1,95	0	4,15	0	0	0	0	0	1,09

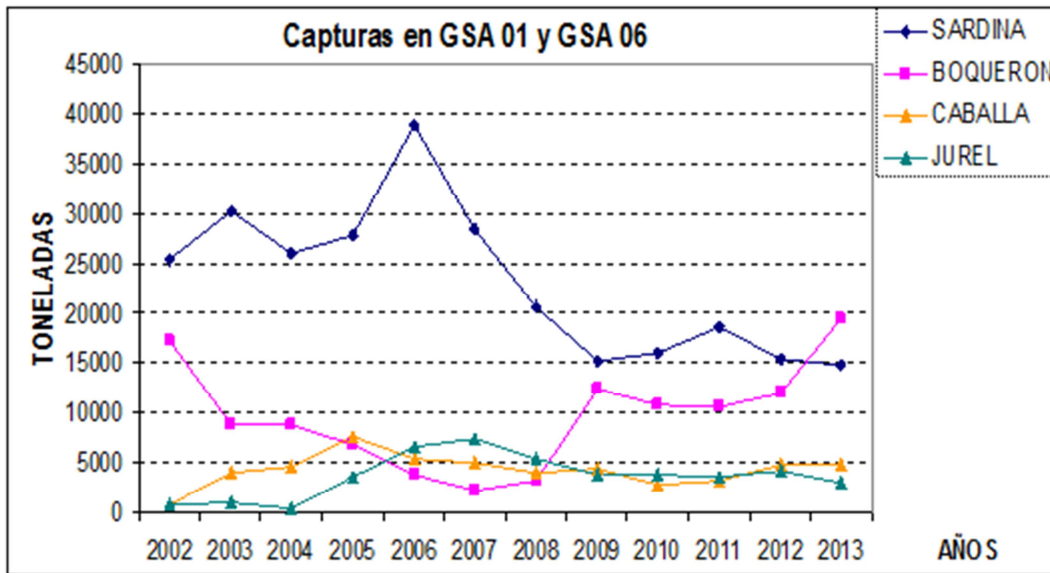
Integrating total catches data (tons) for GSA 1, 5 and 6 between 2004 and 2013, for the species mentioned above the results are the followings:

TABLE 9: TOTAL CATCHES DATA (TONS) FROM 2004-2013

2004-2013	Anchovy	Sardine	Mackerel	Horse Mackerel
GSA 01+GSA 06	8972,7	22153,9	4658,1	4192,6
GSA 05	785,5	1578,3	80,058	409,639
TOTAL GSA 1+GSA 5+GSA 6	9758,2	23732,2	4738,158	4602,239

From these statistics, we can make a graph of changes in the last 11 years with the 4 target species caught by purse seiners in the Mediterranean in GSA 1 and GSA 6





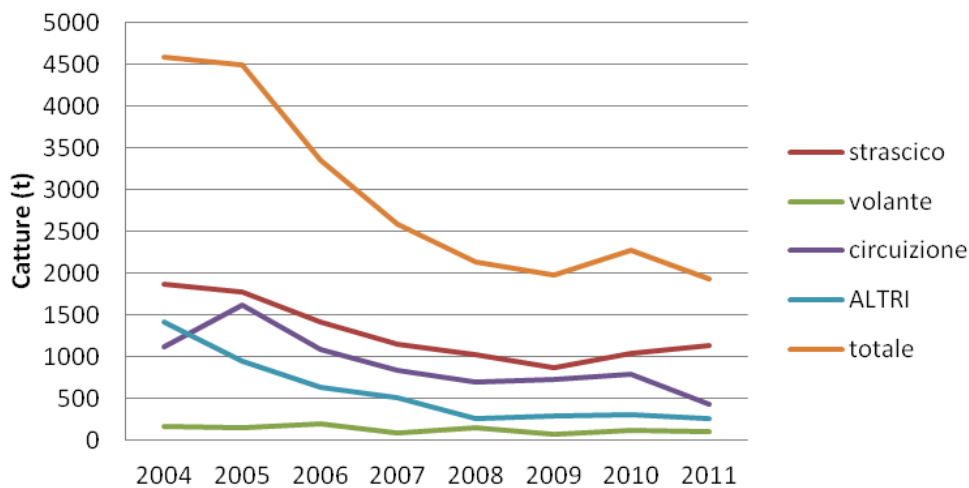
Source areas: IEO through General Secretariat M° Fisheries Agriculture, Food and Environment

GSA 7 – Gulf of Lions

No available data

GSA 17 – North Adriatic

FIGURE 32: HORSE MACKERELS TOTAL CATCHES BY YEAR AND FISHERIES (T)



Source: IREPA-Osservatorio pesca 2011

3.4.3. Resource management

The management of horse mackerel fisheries is mainly linked to the management measures resulting from EU regulations or national standards that regulate the fishery of this species, and in particular:

1. Minimum catch/landing size of mackerel: 15 cm



2. Annual temporary closure of bottom and mid water trawl fisheries for at least 30 continuous days.

The results are evaluated by means of annual monitoring that is carried out as part of the national data collection programme (Reg. 199/2008).

3.5. Other species in Annex III of Regulation 1967/06

All species listed in Annex III of Reg. 1967/06, in addition to anchovy, sardine, mackerel and horse mackerel, that are caught using purse seine or pelagic trawl are subject to the landing obligation too, and compliance with the provisions of Article 15 of Regulation 1380/2013 is mandatory.

The species in question are listed in the following table:

Scientific name	Common name	Minimum size
1. Fish		
Dicentrarchus labrax	European seabass	25 cm
Diplodus annularis	Annular seabream	12 cm
Diplodus puntazzo	Sharpsnout seabream	18 cm
Diplodus sargus	White seabream	23 cm
Diplodus vulgaris	Common seabream	18 cm
Engraulis encrasicolus (*)	Anchovy	9 cm
Epinephelus spp.	Grouper	45 cm
Lithognathus mormyrus	Sand steenbras	20 cm
Merluccius merluccius (***)	Hake	20 cm
Mullus spp.	Mullet	11 cm
Pagellus acarne	Axillary seabream	17 cm
Pagellus bogaraveo	Blackspot seabream	33 cm
Pagellus erythrinus	Common pandora	15 cm
Pagrus pagrus	Red porgy	18 cm
Polyprion americanus	Wreckfish	45 cm
Sardina pilchardus (**)	Sardine	11 cm
Scomber spp.	Mackerel	18 cm
Solea vulgaris	Common sole	20 cm
Sparus aurata	Gilthead seabream	20 cm
Trachurus spp.	Atlantic horse mackerel	15 cm
2. Crustaceans		
Homarus gammarus	European lobster	300 mm LT105 mm LC
Nephrops norvegicus	Norway lobster	20 mm LC70



		mm LT
Palinuridae	Spiny lobster	90 mm LC
Parapenaeus longirostris	Mediterranean rose shrimp	20 mm LC
3. Bivalve Molluscs		
Pecten jacobaeus	scallop	10 cm
Venerupis spp.	Clam	25 mm
Venus spp.	Clam	25 mm
<p>(*) Anchovy: Member States can convert the minimum size in 110 specimens per kg.</p> <p>(**) Sardine: Member States can convert the minimum size in 55 specimens per kg.</p> <p>(***) Hake: until 31 December 2008 a margin of tolerance of 15% by weight of specimens of hake between 15 and 20 cm is granted. This tolerance limit shall be complied with by both individual vessels, at sea or at the place of landing, and at the markets where first sale takes place after landing. This limit shall also be complied with in any subsequent commercial transaction at national and international level.</p> <p>TL = total length; CL= Carapace length .</p>		

GSA 1-6 – Spanish National Waters in the Mediterranean

Details of the proportion of commercial and discarded species caught by the purse seine fleet in GSA1 (period 2004-2011) are reported below.

Species	% Commercial	% Discards
Auxis rochei rochei	100.00	0.00
Caranx rhonchus	100.00	0.00
Coryphaena hippurus	100.00	0.00
Dicentrarchus labrax	100.00	0.00
Diplodus annularis	100.00	0.00
Diplodus cervinus cervinus	100.00	0.00
Diplodus puntazzo	100.00	0.00
Diplodus sargus sargus	100.00	0.00
Euthynnus alletteratus	100.00	0.00
Mugilidae	100.00	0.00
Oblada melanura	100.00	0.00
Sarda sarda	100.00	0.00
Seriola dumerili	100.00	0.00
Thunnus alalunga	100.00	0.00
Loligo vulgaris	99.50	0.50
Belone belone gracilis	99.49	0.51
Pagellus bogaraveo	98.40	1.60



Trachurus trachurus	98.14	1.86
Sardinella aurita	97.49	2.51
Sardina pilchardus	97.33	2.67
Trachurus mediterraneus	97.02	2.98
Engraulis encrasicolus	96.82	3.18
Scomber spp	94.02	5.98
Diplodus vulgaris	93.87	6.13
Mullus surmuletus	92.82	7.18
Mullus barbatus	86.79	13.21
Sphyræna sphyræna	84.84	15.16
Spicara spp	74.15	25.85
Pagellus erythrinus	72.78	27.22
Pagellus acarne	72.34	27.66
Lithognathus mormyrus	55.01	44.99
Trachurus picturatus	31.61	68.39
Spicara smaris	30.83	69.17
Boops boops	22.12	77.88
Spondyliosoma cantharus	20.39	79.61
Merluccius merluccius	11.18	88.82
Octopus vulgaris	9.38	90.62
Mugil cephalus	0.20	99.80
Argentina sphyraena	0.00	100.00
Blennius ocellaris	0.00	100.00
Cymbium olla	0.00	100.00
Lepidopus caudatus	0.00	100.00
Mola mola	0.00	100.00
Mugil spp	0.00	100.00
Sarpa salpa	0.00	100.00

Source: IEO a través de Secretaría General de Pesca del M^o Agricultura, Alimentación y Medio Ambiente.

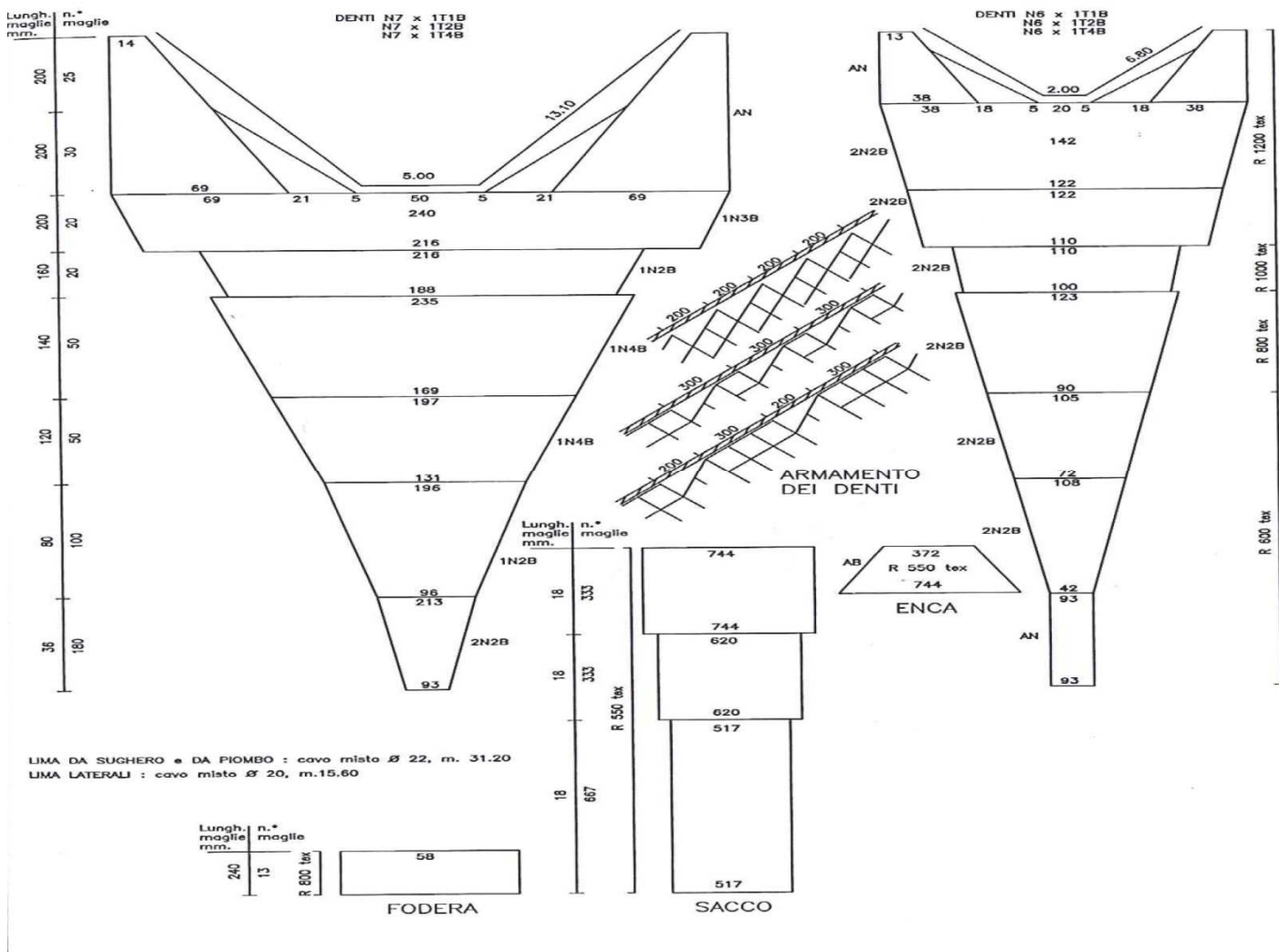
4. Technical aspects of the gears involved

4.1. Pelagic trawl (PTM)

Pelagic trawl nets or mid water trawl nets (Fig. 33), originally from the North Sea have become widespread in the Mediterranean sometimes replacing the purse seine nets for fisheries targeting white fish.



FIGURE 33: PELAGIC TRAWL



Midwater trawl nets can be towed in pairs (Fig. 34), by a single vessel or otter trawl (Fig. 35).

For midwater fishery operations on board electronic equipment is important, especially electroacoustic apparatus such as echo sounder, sonar or netsounder to detect the shoals.

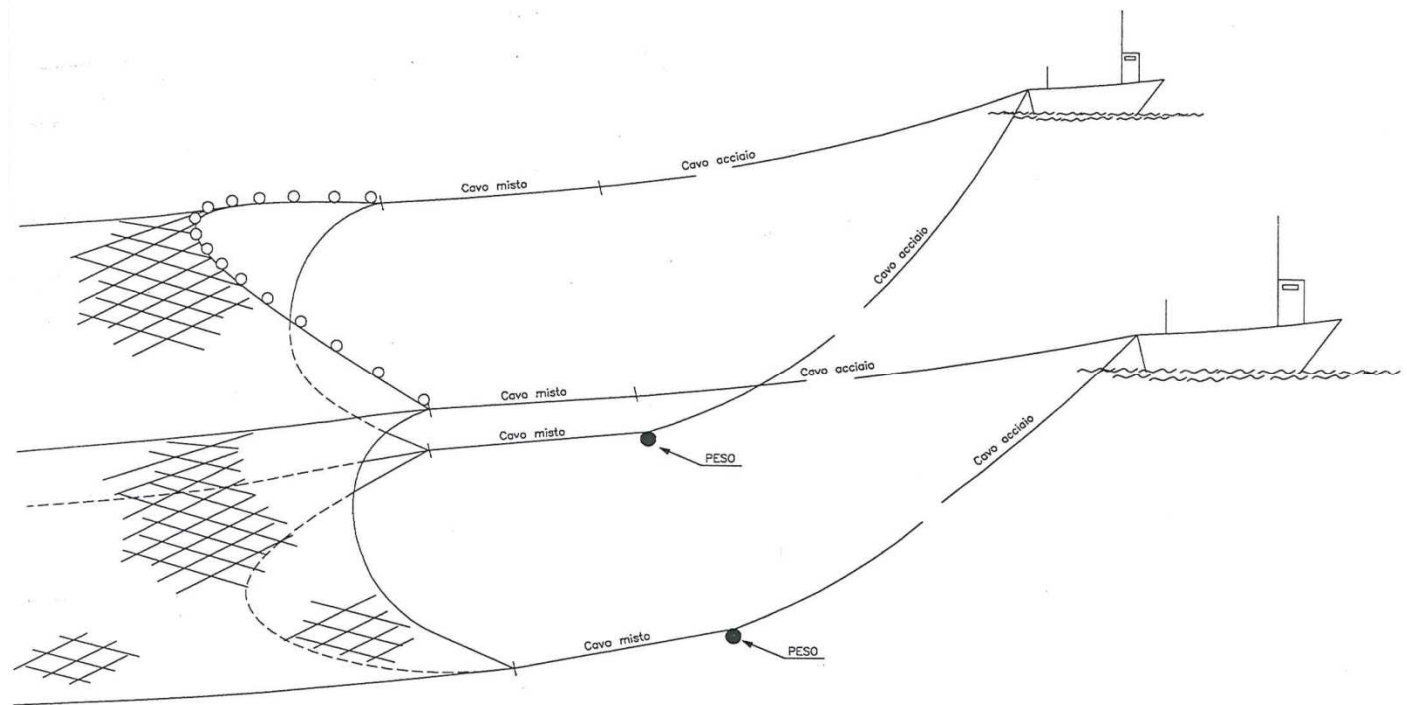
Mid Water Pair Trawl

In midwater pair trawl fisheries each vessel carries two bridle ropes, one goes to the floatline and one to the footrope. Unlike demersal trawl nets, the midwater pair trawl has four towing warps and four bridles: the floatline with floats, the weighted footrope and two lateral bridles (Ferretti, 1983). Depending on the length of the warps, the vessels can fish in midwater or near the bottom; the latter solution is used more frequently because white fish linger near the seabed during daytime, and also because when the footrope is in the proximity of the bottom it enables the vessels to work better and achieve greater success, as the pelagic species targeted



find it difficult to escape from under the net. The footrope, however, only brushes the seabed because the weighted groundgear is attached to a small rope that is laced to the footrope. The horizontal opening is assured by the fact that the net is towed by two vessels while the vertical opening is determined by the weights secured to the towing cables that go to lower bridles and also by floats and weights on the respective ropes. The floats are always present but they are not essential (Ferretti , 1983).

FIGURE 34. EQUIPMENT USED FOR PELAGIC TRAWL. EACH VESSEL OPERATES WITH TWO LINES



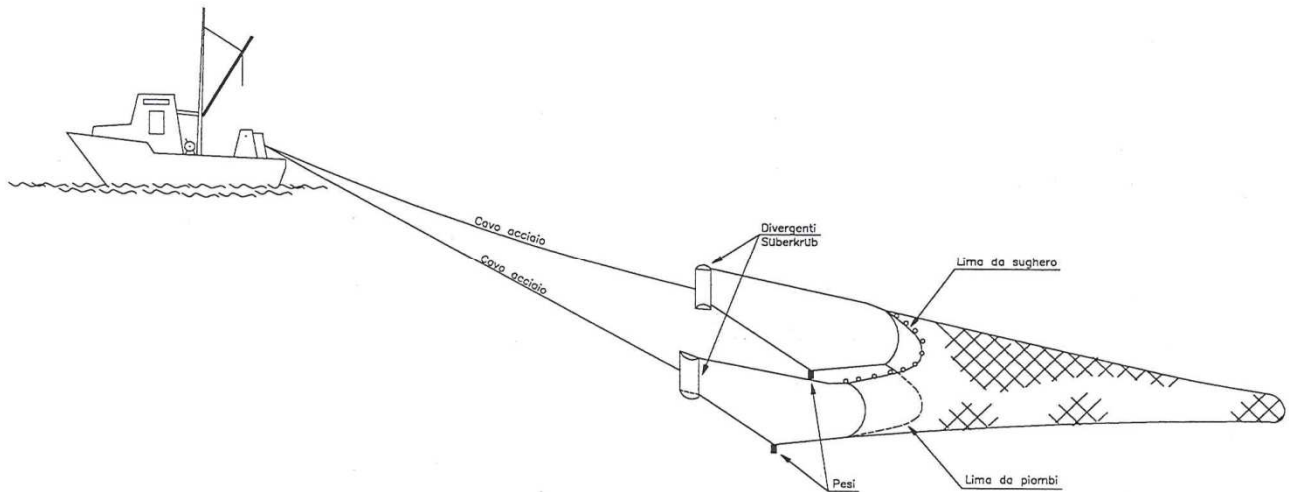
The body of a pair trawl net is made up of several panels that differ in mesh size and twine thickness. The body is generally made of knotted netting, it consists of four identical parts, the top and bottom panels and the two lateral panels. These are traditionally made up of approximately half the number of meshes of the top and bottom panels. The wings and the first panels of the net body have very large mesh (200-300 mm laterally or even larger) which gradually decrease towards the codend where they reach the appropriate size to catch small pelagics (minimum mesh size: 20 mm). This mesh size may seem quite small, this is not in order to catch undersized specimens, but to avoid catching the smaller pelagic species. This could impede the flow of water from the net and consequently rupture it, as the net is made of quite thin twine so as to expedite the filtering of the water from it.

The success of these nets is related to the behaviour of small pelagic species which, in the presence of large meshes at the opening, tend to converge at the centre of the net they are therefore funnelled into the net as it moves forward at a towing speed of about 4 knots. Once the fish reach the codend where the mesh is very small (20 mm) they can no longer escape or return due to the “flapper” or funnel shaped entrance.

Single vessel pelagic trawl

Midwater trawl nets towed by a single vessel (Fig. 35) are used in certain areas of the Mediterranean and with higher powered engines may be preferable pair trawling.

FIGURE 35: EQUIPMENT USED FOR PELAGIC TRAWL NET BY A SINGLE VESSEL



The net used by just one vessel is very similar to that used in midwater pair trawling. In general it is a Larsen type net, with four equal panels, two by two with the top and bottom part of the nets body, exactly the same, as are the two side parts. Schematically therefore the opening of the net, as for the pair trawl net, forms a rectangular shape with the central part of the floatline exactly above that of the footrope.

The horizontal opening of the net, in single-vessel midwater trawling is guaranteed by trawl boards, while the vertical opening is ensured by the weights that are attached near the footrope. These weights are large steel cylinders or steel shells filled with lead so as to have a weight of about 1 kg per horse power. The weights give stability to the net as well as ensuring the vertical opening. When the weights are mounted directly on the footrope this has a positive effect, however, to avoid the weights being in contact with the mesh and therefore breaking, it between the net and the footrope a chain is inserted to allow the slack to be regulated. The "slack" is the difference in length between the floatline and the footrope in midwater trawl fisheries and serves to balance the longer path that inevitably the lower cable must trace to allow the net to keep most of the towing on the floatline. Normally the slack is about one meter every four meters of vertical opening.



Legislation and selectivity of midwater trawl nets

The net is towed at a speed of about 4 knots, therefore in an hour of fishing it covers four miles, progressively catching the fish it encounters. To locate schools of fish, the operators rely on a sounder (and sonar if present) and they also try to identify the species that form the school that has been found. This is not always easy, but with experience it can be done. As it moves forward the net may also collect various schools of different species and sizes. This can create unwanted problems.

The ideal situation is that in which catches a single species and a single size; in this case boxing the catch is very easy and quick. However, when there are several species and different sizes, the difficulties increase and often the operators do not have enough time to sort the catch, forcing them to discard much of the haul. In the current situation, since returning fish to the sea is permitted, the undesired part of the catch is discarded. More generally discards from midwater trawl fisheries can come about when the haul is highly mixed, such as sardines, anchovies and sprats, in this case everything is rejected because it is impossible to sort the haul for technical reasons and due to time constraints.

Of course, the fishers try to avoid this happening as it is highly detrimental for them, however it can occur although it is rare. Another case of inevitable discarding, albeit in small quantities, is that of fish that is damaged during hauling operations.

Finally there is rejection due to capture of undersized specimens that are subject to minimum landing size regulations. It should be noted that catching undersized specimens is particularly undesirable, because on one hand, if they must be discarded or brought ashore according to art. 15 of Reg. 1380/2013 and they are destined for anything other than direct human consumption, their capture does not bring income, on the other hand can obstruct the net and cause it to break at the codend or make it necessary to spend a certain amount of time cleaning the net after it has been hauled on board.

For this reason, the areas where it is probable that undersized specimens will be caught are carefully avoided.

Where pelagic trawl net selectivity is concerned, not much is known for two reasons:

- there are no scientific studies on selectivity for small pelagics, partly due to the difficulty of applying traditional methods used for the determination of selectivity factors;
- the mesh used in the codend of the nets is regulated by law, it cannot be other than 20 mm for sardine and anchovy fisheries. It cannot be smaller than this due to article 9, paragraph 4 of reg. 1967/06, neither can a larger mesh not be used as it would hinder capture of the target species, even those over the minimum size, resulting in a loss of marketable product. It is therefore not possible to consider increasing selectivity by increasing mesh size.



The minimum mesh size allowed for pelagic trawls is, as already mentioned, 20mm if the catch is composed of at least 80% anchovies and sardines (art.9, paragraph 4 of Regulation 1967/06) and fishing within three miles of the coast where the depth is less than 50 meters is not permitted. Where the depth is greater it is possible to fish within 3 miles, but never less than a mile and a half (Article 13.1 and 13.2 of Regulation 1967/06).

FRANCE

Pelagic trawl

A trawler is a fishing vessel equipped for trawl fisheries with a pocket shaped net that is towed near the seabed or near the surface.

Trawling is a professional activity whose technical characteristics are defined by Regulation (EC) 1967/2006:

- 'trawl nets' means nets which are actively towed by the main boat engine and consisting of a cone- or pyramid-shaped body (as trawl body) closed at the back by a cod-end and which can extend at the opening by the wings or can be mounted on a rigid frame. Horizontal opening is either obtained by otter boards or provided by a beam or frame of variable shape and size.

- The technical specifications for fixing trawl gear and rigging these nets are set out in Annex I to Regulation 2006.

Such nets can be towed either on the bottom (bottom trawl gear FAO Code OTB) or midwater (pelagic trawl net - FAO Code device OTM).

Pelagic trawl fishing consists of towing the trawl net in the water mass. This gear consists of net panels and a float line at the upper part of the net mouth for maximum opening in the water, and a pocket for collecting the fish.

The trawl is launched and recovered using a winch, a technique that permits the capture of pelagic fish. The target species are sardines, anchovies, mackerel.

Catches by pelagic trawl represent 80% of the live weight after sorting anchovies, sardines and mackerel.

4.2. Purse seine (PS)

FRANCE

Purse seine fishery is a professional activity whose technical characteristics are defined by Regulation (EC) 1967/2006 :

"Surrounding nets" means nets which catch fish by surrounding them both from the sides and from below. They may or may not be equipped with a purse line. "Purse seines" means any surrounding net the bottom of which is drawn together by means of a purse line at the bottom of the net, which passes through a series of rings along the ground rope, enabling the net to be pursed and closed. Purse seines may be used to catch small pelagic species, large pelagic species or demersal species;



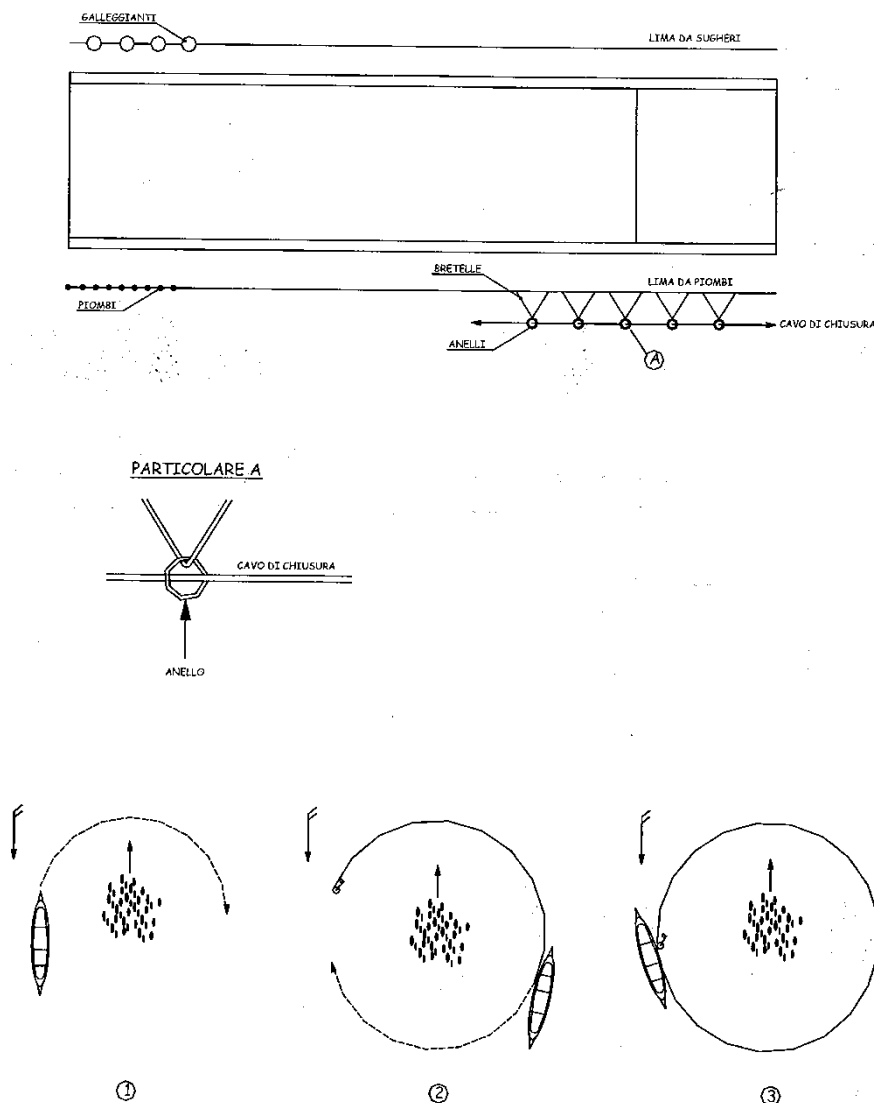
ITALY

Purse seine nets (called “ciancioli” in Italian) are made of very large rectangles made of a single piece of net or by several pieces that differ according to the mesh size or the kind of twine that the pieces are made of.

The nets are very high, with float line at the top that has numerous and large floats placed one after the other as this is a surface net; the bottom of the net has a lead line formed by a lead cable or chain (Ferretti, 1983). Both the ropes and the nets are made of synthetic fibres, which have now replaced natural fibres, this has enabled the development of this fishery.

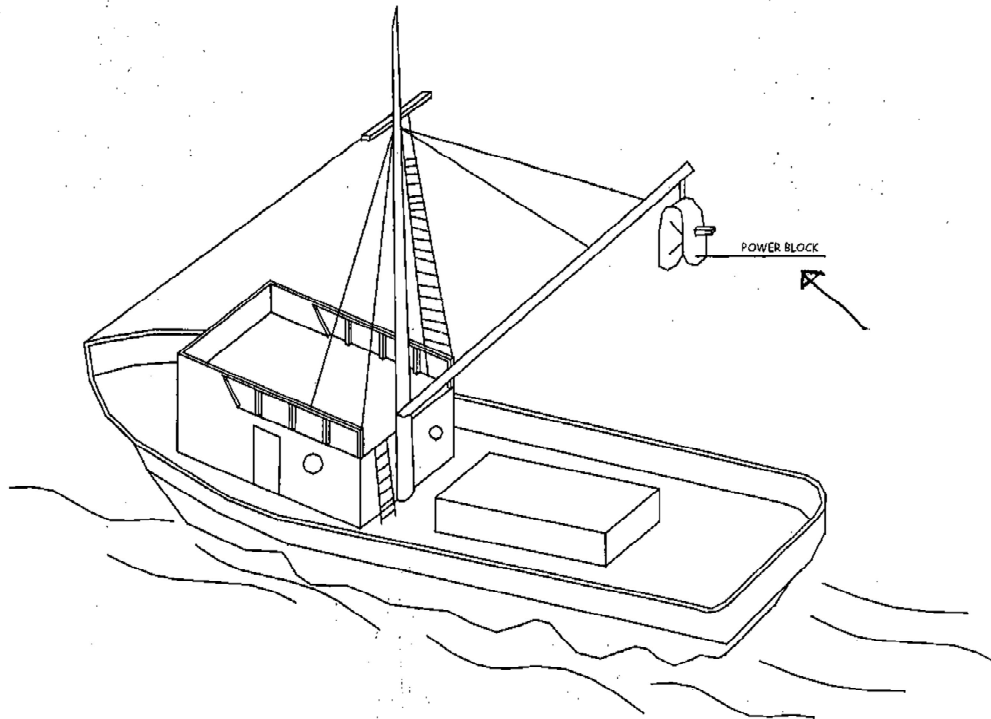
The purse seine net functions by encircling an area of sea in which a shoal of fish has been located or attracted with part of the net. The fish are then completely surrounded by a vessel which performs a full circle around the shoal (Fig.36), alternatively two smaller sized vessels each perform a semicircle (Ferretti, 1983).

FIGURE 36: PURSE SEINE



The aim is to drop the net completely encircling the shoal of fish, then to close the net by drawing in (“pursing”) the lead line to prevent the fish from escaping, after which the net is hauled on board manually or by means of a hydraulic power block (figure 37) on the derrick, so that the fish are further enclosed and brought to the surface.

FIGURE 37: PURSE SEINE VESSEL



Purse seine nets surround the school of fish identified visually or by means of sounder, or alternatively after having attracted them and formed a shoal by means of a light source. In the latter case, the gear consists of the main boat and the boat on which the light source is mounted, and is called "lampara" in Italian because the school of fish is attracted, on moonless nights, by very powerful lamps on board the vessel or sometimes even placed in water. This fishing system, which targets artificially formed shoals, is used catch sardines and anchovies (Bini, Memory MMM n. 5).

Purse seine nets for white fish are very large and their length can reach several hundred meters, the height is in proportion to the length. Net length is the length of the float line therefore the actual length of the net, while height or drop is the height of the stretched mesh of the pieces of net that make up the whole purse seine net. It is therefore not the actual height, just a theoretical one. During fishery operations this height can never be reached.

The choice of net height is determined by two considerations: on one hand the depth of the seabed on which fishery operations are to be carried out, and on the other the length of the net itself. In the latter case, given that



the net must be closed on the lead line, it is necessary to have a height that is proportional to the length of the net, if for example the circle formed is very large and the height of the cylinder formed as the vessels close in on the shoal is very small, it would be impossible to complete the closure of the net (Ferretti, 1983).

CROATIA

Purse seine “srdelara” is made of a long wall of netting framed with floatline and leadline (usually, of equal or longer length than the former) and having purse rings hanging from the lower edge of the gear, through which runs a purse line made from steel wire or rope which allow the pursing of the net. Generally speaking, it is the most efficient gear for catching small pelagic species that are shoaling.

In industrial purse seine fishery, the basic equipment include, in general: a hydraulic power block, a powerful purse seine winch, a number of derricks, including a brailer or a fish pump, and small winches and an auxiliary boat "skiff".

The purse seine can be used by a large range of vessel sizes, ranging from open boats up to large vessels. The purse seines can be operated by one or two boats. Most usual is a purse seine operated by a single boat, purse seiner, with or without an auxiliary skiff. Light attraction of fish school during the night, then checking (when possible) the fish species and evaluating school sizes and its catchability, prior to surrounding it is the major part of a purse seine operation. The purse seine is set around a detected school of fish. After that, the net is closed underneath the school by hauling the purse line running through the rings (pursing). Hydro acoustic instruments, like sonars are important tools to locate fish aggregations. Light attractions are used to concentrate the fish.

In general the purse seines are surface gears used in the marine coastal and high-sea waters. Aggregated resources in the upper levels are most common, but fish at depths up to 300 m can be targeted. The purse seines are also used in inland areas when there is enough room for the operation of a large net.

Selectivity and Environmental impacts of purse seine nets

The purse seine is considered a very selective net, both on one species and between species, this is especially true operations target and artificial shoal attracted by the light source.

The fisher who is on the skiff (support vessel) is equipped with a generator to light the water and monitors the fish that are attracted by the light and studies them carefully to see:

- 1) if the shoal consists of a single species (to avoid lengthy and costly sorting)
- 2) that the size of the fish is commercially viable and in any case higher than the minimum reference size for conservation



3) if the estimated aggregate amount of light is such as to justify lowering the net (it is well-known that setting and hauling the purse seine net is a complex operation that takes a long time).

If even one of these three conditions does not occur, the sailor removes the light source, moves to another area, and turns the light on again hoping for better luck.

By doing this, the fishers do not generally have a mixed haul neither do they catch undersized specimens, and when the net is set there is reasonable certainty of an abundant catch.

Furthermore, fishers employing purse seine nets are very careful to avoid catching undersized specimens because otherwise the fish could get trapped in the mesh and for purse seines this would be a near catastrophe.

From a scientific point of view there are no data on the selectivity of the purse seine, because it is not easy to apply traditional selectivity research methods because the net is selective because of the very manner in which it is used.

By-catch is also usually low. There is no history of protected marine species such as mammals or turtles, being caught with these nets in the Mediterranean. However, considering the characteristics of the nets, if proper precautions are taken, if protected species are accidentally caught they can be released from the mesh without damage.

Concerning the impact on the seabed, the nets do not even reach the bottom, due to the limitations imposed by law.

4.3. EC legislation

Purse seine fisheries are regulated in some detail, as described in Reg. 1967/06 art.9.5 and art.13.3.

The minimum mesh size allowed is 14 mm, but no fisher would dream of using smaller mesh, which while avoiding capture of undersized specimens make closure very slow due to the difficulty in filtering the water within the net (the smaller the mesh is small, the harder it is to drain the water away) thus giving the fish inside the net a greater chance of escaping rather than being surrounded and imprisoned.

In order to speed up closure, generally mesh larger than the minimum 14 mm is used. In practice, the most commonly used mesh to catch anchovy is the 16mm mesh size.

Where the distance from the coast is concerned, the purse seine can legally be used further than 300 m from the shore if the depth at this distance is not greater than 50 m.

Another limit is imposed by reg. 1967/06 and it forbids deployment of purse seine nets if the depth is not at least 70% of the net height. Lastly, in the Mediterranean, purse seine nets cannot be longer than 800 m nor higher than 120 m .(Reg.1967/06 all.II.2).



5. Monitoring and control

ITALY

The Italian national administration, with the help of the Harbour Authority Corps, carries out control and monitoring activities in relation to the landing obligation and any discards that come under *de minimis* exemption according to the following operative requirements:

Controls on the landing obligation: these will follow the same procedures as the controls on landings currently in place (in terms of quantity and correctness of the declarations) under Regulations 1224/09 and 404/2011. In particular the quantity of undersized specimens in the catch will be verified, together with the final destination of this part of the catch, which cannot enter the human food chain. For this purpose an appropriate control plan will be established, based on risk analysis, and this will determine the final destination of the undersized specimens landed.

De minimis monitoring: the use of the *de minimis* exemption will be monitored for vessels that operate with midwater trawl (PMT) and purse seine (PS) with an overall length equal to or greater than 10 m, by means of the analysis of the data reported to the Administrations in the on board log books (Reg. 1224/2009 and Reg.404/2011) both in paper and electronic formats. Regarding the vessels with an overall length less than 10m, (there are no more than ten) which deploy purse seine nets, the monitoring activities will be guaranteed through the national sampling plan (Article 16 of Reg. (EC) 1224/2009) amended according to the new legislation.

On the basis of data received on discards, the administration will, in real time, signal when the *de minimis* threshold for each fishery (mid water trawl and purse seine) is approaching, eg 80% - 85 %). Upon reaching the maximum threshold (total *de minimis* exemption for a fishery - such as mid water trawl) and before completely blocking discards for the fishery in question, the Administration reserves the right to use part of the share for another fishery (for example purse seine). Upon reaching final limit granted in *de minimis*, the possibility to discard species included in the obligation under Article 15 of reg.1380/2013 is blocked immediately, with the consequent requirement to land all catches.

Pilot project: before the end of September, the national administration intends to carry out a pilot project with reference to Article 14 of Reg. 1380/2013, in order to educate and inform stakeholders on the new requirements arising from the landing obligation.

Adaptation of the IT system. The national administration will ensure that by January 1st 2015 the software relating to the obligatory electronic declarations of catches and landings, as well as of discards and their monitoring, are updated in view of the new legislation and its implementation at national level.



Supervision and control are carried out by staff from the harbour authorities as well as other law enforcement agencies, coordinated by the National Fisheries Control Centre and the Coast Guard, based in Rome at the general command of the harbour authority corps.

SLOVENIA

Slovenia proposes the following measures for monitoring the exemption with respect to the Slovenian fishing fleet:

- in accordance with Slovenian national legislation (Regulation on the traceability of catches, Official Journal of the Republic of Slovenia, 2/13), all quantities of all species of fish caught and discarded have to be recorded in the fishing logbooks.
- in addition, in accordance with Slovenian national legislation (Regulation on the traceability of catches, Official Journal of the Republic of Slovenia, 2/13), all vessels below 10 meters in the Slovenian fishing fleet have to fill in fishing logbooks, including vessels with purse seines.
- VMS will be installed on active Slovenian vessels with purse seines.

CROATIA

Croatia has so far introduced the obligation of VMS installation on all vessels over 12 meters and by the end of 2014 it will be mandatory on all purse seiners.

GREECE

On the basis among others, of the National Management Plan, there is a provision for the annual monitoring of the reserves in order to find out their state as to the points of reference, on the basis of some specific indexes. In case we have an exceeding of the reference points, the fishing permits are revoked.

The monitoring plan of the reserves concerns the annual assessment of the necessary parameters with acoustic sampling and monthly monitoring of the discharges and the biological characteristics of the species discharged.

As to the fishing control, the overall number of the vessels with purse seines are equipped with a VMS satellite equipment while the process for the supply and establishment of ERS (Electronic logbooks equipment) is going through its final stage.

MALTA

Currently the following control measures are being implemented under the national management plan for purse seine fishing with light attraction:



- All vessels are requested to complete a catch logbook
- All vessels are equipped with a tracking system
- 20% reduction of fishing capacity within the 25 NM Fisheries Management Zone must be reached by 2015.

SPAIN

The proposed measures for monitoring the exemption would be:

- VMS installed on all active purse seine vessels (blue box) .
- All quantities of fish caught and discarded species must be recorded in logbooks .
- Vessels less than 10 meters LOA with purse seine nets also have to fill out the logbooks.
- Creation of working groups such as the one on control, on the study of scientific reports on fisheries , etc. in order to follow the development of the implementation of the discard policy of the new CFP.

6. Possible actions in the framework of the EMFF to support the implementation of the landing obligation.

The European Maritime and Fisheries Fund (EMFF), Reg. (UE) 508/2014, describes *ad hoc* measures to facilitate the entry into force of the legislation on the obligation of landing discards. In its initial considerations it was considered opportune that the EMFF support investments on board vessels in order to be able to "*make the best use of unwanted catches and give due value to the under used part of the fish caught*" it is further stressed that "*considering the scarcity of resources, in order to optimize the value of the fish caught, it should also support investments on board aimed at increasing the commercial value of the catch.*"

Moreover it is emphasised that "*in order to adapt to the new policy of a discards ban, the EMFF should support the transformation of the undesired part of catches*"

As an outline, possible interventions of the EMFF in the implementation of the landing obligation for discards can be summarized as follows:

- Measures to avoid unwanted catches

Development of partnerships between scientists and fishers, in order to promote the transfer of knowledge (art. 28), in which case the EMFF could finance the collection and management of data on discards, the initiation and execution of studies, pilot projects as well as the dissemination of knowledge, by means, *inter alia*, of special seminars.

In order to limit the impact of fishing on the marine environment and the adaptation of fishery activities to the protection of the species (art.37), the EMFF could finance (once only during the programming period for the same type of gear and on the same kind of EU fishing vessel) investments in equipment



that improve the selectivity of fishing gear with regard to size or species; investments on board or intended for equipment that eliminate discards avoiding and reducing unwanted catches of commercial stocks or concerning unwanted catches to be landed in accordance with Article 15 of Regulation 1380/2013.

Under the conditions specified in Article 38, the EMFF, with the aim of contributing to the gradual elimination of discards and by catch, can support measures to develop or introduce new technical or organizational knowledge that reduce the impact of fishery activities on the environment, including more effective capture techniques and more selective fishing gear, or that manage to achieve a more sustainable use of living marine biological resources.

- Measures to optimize the use of the unwanted part of the catch that is landed

On condition that use is made of selective gear to minimize unwanted catches (art.41), the EMFF may support investments for innovation on board to improve the quality of fishery products, as well as other investments to improve the infrastructure of fishing ports, facilities for sales by auction, including those the infrastructure to be used for the collection of waste (art.42.2).

- Measures to promote data collection

- Measures for monitoring and control

- Measures to support the Advisory Councils



7. Conclusions and general recommendations

1) Adaptive management plan, with an initial data base prepared on a historical basis

ITALY: data collection referred to in Regulation (EC) No 199/2008

Total annual average (time series of six years from 2007 to 2012) of the catches of species subject to landing obligation according to art. 15 of Reg. (EU) 1380/2013 for each GSA and fishery (mid water trawl and purse seine).

2) From 1 January 2015 begin collecting actual data on discards and landings of undersized specimens not destined for human consumption.

3) After the first year, in 2016, proceed with the analysis and processing of the data gathered, in terms of discards according to the *de minimis* rule, fishery products of a permitted size and undersized specimens landed;

4) from the third year, review of the *de minimis* percentage (increase or decrease depending on the results recorded in the first two years), which will be applied on the basis of actual data collected (total annual catch for each system and GSA).

5) Joint recommendation for the application of the *de minimis* exemption:

GSA	Pelagic Trawl	Purse seine
1-2-5-6 (SPAIN)	0	7%
7 and 8 (FRANCE)	5%	2% (slipping exempted) 7% (slipping not exempted)
9 -10-11 (ITALY)	0	3%
15-16 (MALTA-ITALY)	7%	3%
17 (SLOVENIA-CROATIA-ITALY)	7%	7%
18-19-20 (ITALY-GREECE)	7%	3%
22 (GREECE)	0	5%



TABLE 10: PURSE SEINE QUANTITATIVE PARAMETERS FOR THE APPLICATION OF THE DE MINIMIS BY GSA – ITALY

GSA 9									
Total Landings (kg)			SPECIES						
YEAR		Fishery	ANE	HMM	HOM	MAC	MAS	PIL	TOTAL PER YEAR
2007	Total	PS	2.192.805	14.120	18.751	4.600	100.676	5.111.886	7.442.839
2008	Total	PS	1.241.736	18.246	23.752	3.139	68.282	2.288.060	3.643.213
2009	Total	PS	2.381.522	32.610	52.566	6.697	70.450	5.673.942	8.217.787
2010	Total	PS	2.893.230	15.041	56.821	100.665	117.382	4.475.732	7.658.871
2011	Total	PS	4.356.761	12.370	42.860	72.190	32.708	2.543.436	7.060.326
2012	Total	PS	4.794.012	13.101	64.812	36.895	15.000	1.705.188	6.629.008
Mean	GSA 9	PS	2.976.678	17.581	43.260	37.364	67.416	3.633.041	6.775.341
De minimis	3%		89.300	527	1.298	1.121	2.022	108.991	203.260

GSA 10									
Total Landings (kg)			SPECIES						
YEAR	GSA	Fishery	ANE	HMM	HOM	MAC	MAS	PIL	TOTAL PER YEAR
2007	Total	PS	3.875.478	64.152	418.093	132.282	50.587	1.438.565	5.979.158
2008	Total	PS	3.548.014	61.206	323.677	167.022		1.126.302	5.226.221
2009	Total	PS	5.370.746	59.651	351.698	348.662	14.176	3.023.082	9.168.015
2010	Total	PS	6.092.294	17.307	353.018	291.130	7.367	2.407.566	9.168.681
2011	Total	PS	7.059.330		477.469	62.776	4.244	1.359.073	8.962.892
2012	Total	PS	5.653.171		211.120	34.580	616	419.804	6.319.291
Mean	GSA 10	PS	5.266.505	50.579	355.846	172.742	15.398	1.629.065	7.490.136
De minimis	3%		157.995	1.517	10.675	5.182	462	48.872	224.704

GSA 16									
Total Landings (kg)			SPECIES						
YEAR		Fishery	ANE	HMM	HOM	MAC	MAS	PIL	TOTAL PER YEAR
2007	Total	PS	2.021.803	2.996	151.663	278.675	28.434	1.559.275	4.042.847
2008	Total	PS	2.538.693	5.556	73.864	185.629	1.002	1.621.883	4.426.627
2009	Total	PS	4.387.769	2.385	19.365	87.023	2.720	1.300.844	5.800.105
2010	Total	PS	3.084.509	3.983	34.475	140.477		583.972	3.847.416
2011	Total	PS	3.065.908	9.053	36.455	115.132		1.454.665	4.681.213
2012	Total	PS	1.503.868	-	24.932	92.210		1.041.614	2.662.624
Mean	GSA 16	PS	2.767.092	3.995	56.792	149.858	5.359	1.260.376	4.243.472
De minimis	3%		83.013	120	1.704	4.496	161	37.811	127.304

Source: Mipaaf, Programma Nazionale raccolta Dati Alieutici ex Reg. CE n. 199/08



GSA 17									
Total Landings (kg)			SPECIES						
YEAR		Fishery	ANE	HMM	HOM	MAC	MAS	PIL	TOTAL PER YEAR
	Total	PS	8.752.297	993	25.328	13.446	2.307	506.014	9.300.385
	Total	PS	5.159.700	1.155	23.182	11.855	1.884	362.077	5.559.852
	Total	PS	5.153.372	-	14.774	14.355	539	358.603	5.541.643
	Total	PS	3.193.202	-	11.893	1.294	309	343.479	3.550.178
	Total	PS	3.185.063	-	22.997	3.803	5.325	609.464	3.826.653
	Total	PS	3.406.807	-	16.383	3.280	33.825	307.566	3.767.860
Mean	GSA 17	PS	4.808.407	358	19.093	8.006	7.365	414.534	5.257.762
De minimis	7%		336.588	1.337	560	516	29.017	368.043	368.043

GSA 18									
Total Landings (kg)			SPECIES						
YEAR		Fishery	ANE	HMM	HOM	MAC	MAS	PIL	TOTAL PER YEAR
2007	Total	PS	3.868.019	1.560	16.415	4.611	140.823	87.614	4.119.042
2008	Total	PS	2.622.932	4.640	33.090	936	179.601	69.990	2.911.189
2009	Total	PS	1.767.892	7	12.679	45	109.974	68.879	1.959.476
2010	Total	PS	1.845.221		26.236	1.419	65.744	59.330	1.997.950
2011	Total	PS	1.881.048		11.716	1.422	53.372	57.723	2.005.281
2012	Total	PS	1.437.622		11.163	2.009	126.708	31.641	1.609.142
Mean	GSA 18	PS	2.237.122	2.069	18.550	1.740	112.704	62.529	2.434.714
De minimis	3%		67.114	62	556	52	3.381	1.876	73.041

GSA 19									
Total Landings (kg)			SPECIES						
YEAR		Fishery	ANE	HOM	MAC	MAS	PIL	TOTAL PER YEAR	
2007	Total	PS	455.712	106.620	80.379	-	221.985	864.696	
2008	Total	PS	267.511	79.591	82.025	-	136.331	565.458	
2009	Total	PS	364.476	50.318	78.900	-	98.976	603.716	
2010	Total	PS	454.902	71.711	66.967	-	43.190	661.953	
2011	Total	PS	471.743	104.280	75.966	-	40.200	692.189	
2012	Total	PS	306.913	68.790	130.654	-	108.199	641.033	
Mean	GSA 19	PS	386.876	80.218	85.815	-	108.147	681.958	
De minimis	3%		11.606	2.407	2.574	-	3.244	20.459	

Source: Mipaaf, Programma Nazionale raccolta Dati Alieutici ex Reg. CE n. 199/08



TABLE 11: MID WATER PELAGIC TRAWL QUANTITATIVE PARAMETERS FOR THE APPLICATION OF THE DE MINIMIS BY GSA – ITALY

GSA 16								
Total Landings (kg)		SPECIES						
YEAR	Fishery	ANE	HMM	HOM	MAC	MAS	PIL	TOTAL PER YEAR
2007	TM	891.420			0,0		604.971	1.496.391
2008	TM	1.132.697			0,0		441.503	1.574.200
2009	TM	1.098.420			0,0		341.766	1.440.185
2010	TM	1.101.832			0,0		181.709	1.283.541
2011	TM	945.151			0,0		329.562	1.274.714
2012	TM	1.121.131			4.011		845.129	1.970.272
Mean		1.048.442			669		457.440	1.506.551
De minimis	7 %	73.391			47		32.021	105.459

GSA 17								
Total Landings (kg)		SPECIES						
YEAR	Fishery	ANE	HMM	HOM	MAC	MAS	PIL	TOTAL PER YEAR
2007	TM	29.477.791	36.010	358.192	70.048	17.623	3.359.608	33.319.271
2008	TM	20.920.053	1.300	293.993	73.039	9.808	4.138.754	25.436.947
2009	TM	25.975.329	0	275.435	30.946	9.885	3.713.698	30.005.293
2010	TM	27.174.147	0	238.539	21.399	5.742	6.345.505	33.785.332
2011	TM	16.549.594	0	265.052	22.542	24.766	6.644.533	23.506.488
2012	TM	17.746.036	0	205.508	30.930	10.922	13.822.385	31.815.782
Mean		22.973.825	6.218	272.787	41.484	13.124	6.337.414	29.644.852
De minimis	7 %	1.608.168	435	19.095	2.904	919	443.619	2.075.140

GSA 18								
Total Landings (kg)		SPECIES						
YEAR	Fishery	ANE	HMM	HOM	MAC	MAS	PIL	TOTAL PER YEAR
2007	TM	8.911.631	117	1.272	0	9.944	714.840	9.637.805
2008	TM	6.870.263	4.192	37.576	184	68.757	1.394.583	8.375.554
2009	TM	6.958.050	751	47.872	154	34.705	638.459	7.679.991
2010	TM	6.735.869	525	108.436	0	88.010	1.427.834	8.360.674
2011	TM	7.599.886	792	66.286	0	64.130	701.110	8.432.204
2012	TM	5.179.727	1.032	78.800	0	68.213	782.435	6.110.207
Mean		7.042.571	1.235	56.707	56	55.627	943.210	8.099.406
De minimis	7 %	492.980	86	3.969	4	3.894	66.025	566.958

Source: Mipaaf, Programma Nazionale raccolta Dati Alieutici ex Reg. CE n. 199/08



TABLE 12: SUMMARY FOR PURSE SEINE - ITALY

		ANE	HMM	HOM	MAC	MAS	PIL	Totale
Average catches	GSA 9	2.976.678	17.581	43.260	37.364	67.416	3.633.041	6.775.341
De minimis	3%	89.300	527	1.298	1.121	2.022	108.991	203.260
Average Catches	GSA 10	5.266.505	50.579	355.846	172.742	15.398	1.629.065	7.490.136
De minimis	3%	157.995	1.517	10.675	5.182	462	48.872	224.704
Average Catches	GSA 16	2.767.092	3.995	56.792	149.858	5.359	1.260.376	4.243.472
De minimis	3%	83.013	120	1.704	4.496	161	37.811	127.304
Average Catches	GSA 17	4.808.407	358	19.093	8.006	7.365	414.534	5.257.762
De minimis	7%	336.588	25	1.336	560	515	29.017	368.043
Average Catches	GSA 18	2.237.122	2.069	18.550	1.740	112.704	62.529	2.434.714
De minimis	3%	67.114	62	556	52	3.381	1.876	73.041
Average Catches	GSA 19	386.876	20.902	80.218	85.815	-	108.147	681.958
De minimis	3%	11.606	627	2.407	2.574	-	3.244	20.459
TOTAL AVERAGE CATCHES (KG)		18.442.681	95.484	573.759	455.525	208.242	7.107.692	26.883.383
TOTAL DE MINIMIS		745.617	2.879	17.976	13.896	6.542	229.812	1.016.812

Source: Mipaaf, Programma Nazionale raccolta Dati Alieutici ex Reg. CE n. 199/08

TABLE 13: SUMMARY FOR PELAGIC TRAWL – ITALY

		ANE	HMM	HOM	MAC	MAS	PIL	Totale
Catture medie	GSA 16	1.048.442			669		457.440	1.506.551
De minimis 7%		73.391			47		32.021	105.459
Catture medie	GSA 17	22.973.825	6.218	272.787	41.484	13.124	6.337.414	29.644.852
De minimis 7%		1.608.168	435	19.095	2.904	919	443.619	2.075.140
Catture medie	GSA 18	7.042.571	1.235	56.707	56	55.627	943.210	8.099.406
De minimis 7%		492.980	86	3.969	4	3.894	66.025	566.958
TOTALE CATTURE MEDIE		31.064.838	7.453	329.494	42.209	68.751	7.738.064	41.431.407
TOTALE DE MINIMIS		2.174.539	522	23.065	2.955	4.813	541.665	2.747.557

Source: Mipaaf, Programma Nazionale raccolta Dati Alieutici ex Reg. CE n. 199/08



SPANISH NATIONAL WATERS IN THE MEDITERRANEAN

La parte del Mediterráneo occidental afecta al litoral Mediterráneo español, y por tanto España es el país enmarcado en el GSA 1, 2, 5 y 6. En estas áreas las especies que se pescan son el boquerón, la sardina, la caballa y el jurel, y el único arte de pesca que se emplea es el arte de cerco. Por tanto, la parte de la recomendación que se refiere al arrastre pelágico no atañe a España.

1. Fishing activities

Lampara (purse seine): This is the way in which small pelagic species are fished in Spain, which will be affected by the new rules on discards that will come into force on January 1st 2015.

Fleet: in 2012, 249 active purse seine vessels were counted in the Mediterranean while in 2013 there was a reduction of 2%, resulting in a total of 244 active purse seine vessels that year.

TABLE 14: SPANISH FISHING FLEET IN THE MEDITERRANEAN

CENSO CERCO CALADERO MEDITERRANEO (31-12-2013)				
AUTONOMIA_PUERTO_BASE	ARQUEO_GT	ESLORA_TOTAL (PROMEDIO)	CV	NUMERO BUQUES
ANDALUCIA	1950,98	15,55	12303	78
MURCIA	1057,62	18,26	5848	25
C. VALENCIANA	2041,38	21,65	11332	37
CATALUÑA	3306,18	18,71	24613,46	88
BALEARE S	88,68	11,52	797,99	9
CEUTA	86,04	13,18	566	7
TOTAL	8530,88	16,48	55460,45	244

In terms of tonnage (GT), in 2012 the total was 9921 and in 2013 it was 9777, i.e. an annual change of -1.5%

TABLE 15: TOTAL NUMBER OF FISHING VESSELS

Year	N. Purse seine vessels	Tonnage (GT)
2012	249	9921
2013	244	9777

Source: "Fishery Statistics", April 2014, Ministry of Agriculture, Food and Environment



2. Geographical Distribution

Geographical Distribution: GSAs 1, 2, 5 and 6 of the Western Mediterranean, including the Autonomous Communities of Andalusia, Murcia, Valencia, Balearic Islands and Catalonia.

Based on Article 19 of EC Regulation 1967/2006, regulations have been implemented on purse seine fisheries in the Mediterranean area (ARM/2529/2011 Order of 21 September), and a National Management Plan (AAA/2808/2012 Order of 21 December) for the entire Spanish Mediterranean fishing zone which includes the purse seine fisheries. This legislation establishes that other specific management plans targeting small pelagic species such as anchovy, sardine, mackerel and horse mackerel are not necessary, since their capture is regulated when purse seine nets are used and are included in the Annex of this order.

Purse seine fisheries are regulated by national legislation, with the order mentioned above, and the following management measures are included:

- gear dimensions : maximum length 300mm , maximum height of 82m and opening mesh size 14-24 mm.
- fishing depth: in Spain purse seines can be used by vessels fishing at depths greater than 35m or 50m if the distance from the shore is less than 300m. In addition, the depth of fishing must be greater than 70% of the drop height of the net.
- at most, one auxiliary boat can accompany the main vessel with an established light capacity.
- Weekly quotas for anchovy and sardine that depend on the Autonomous Community and are based on internal agreements on effort limitation by the sector (box limitation, quotas, reduction of fishing days, etc.).
- Time constraints on purse seine fishing in specific areas.

3. Possible uses for by-catch that is inevitably subject to the landing obligation

Spain is a country with a long tradition where the consumption of fresh fish is concerned. Therefore, it is difficult to visualize an alternative use for the catches that fall under the landing obligation. In principle, purse seine fisheries are highly selective and the unwanted catches that must be landed will be very few, as long as the practice of "slipping" will still be allowed, considering that the fish will be returned to the sea alive and in perfect condition.

The species that would be affected by the landing obligation are anchovy, sardine, horse mackerel and mackerel that are below the minimum size, or other similar species that fall into the net and do not reach the minimum sales value, such as for example, sardinella, bogue, etc .



In order to use this part of the catch, logistics and specific infrastructure are needed in each port. In the Spanish part of the Mediterranean there are no fishmeal factories or industries that need fish-based raw material for their products. In order to make it possible to use the unwanted part of the catch, it will be necessary to create new infrastructures in many ports, resulting in high costs, and also find companies that might be interested in these products. It is therefore not possible at this stage to describe any real use for the unwanted portion of catches that are subject to the landing obligation in Spain .

The unwanted or irregular sized part of catches which must be landed, should be allowed to be considered as litter from other fisheries.

4. Critical aspects of handling undersized specimens on board and once landed in some maritime districts

In Spain there is very little fishery for industrial purposes: there are 15 companies distributed as follows : 6 in Galicia, 4 in the Bay of Biscay, 3 in the Canaries and 2 in Andalusia. Viewing them on a map it is possible to conclude that there is no fishmeal industry in the Spanish Mediterranean, because the two Andalusian enterprises are located in the Gulf of Cádiz , on the Atlantic coast. For specimens subject to the landing obligation in the ports of the Mediterranean coast, in order to reach one of the fishmeal factories it would be necessary to travel over 500 km by land, and in the case of the Balearic Islands (GSA 5) this part of the catch would to be flown to the mainland and from there to a place where there is suitable infrastructure, thus traveling over 1000 km, which is unfeasible. If discarded fish is not transported and it is not possible to create new industries, then it would be cremated with high economic and environmental costs.

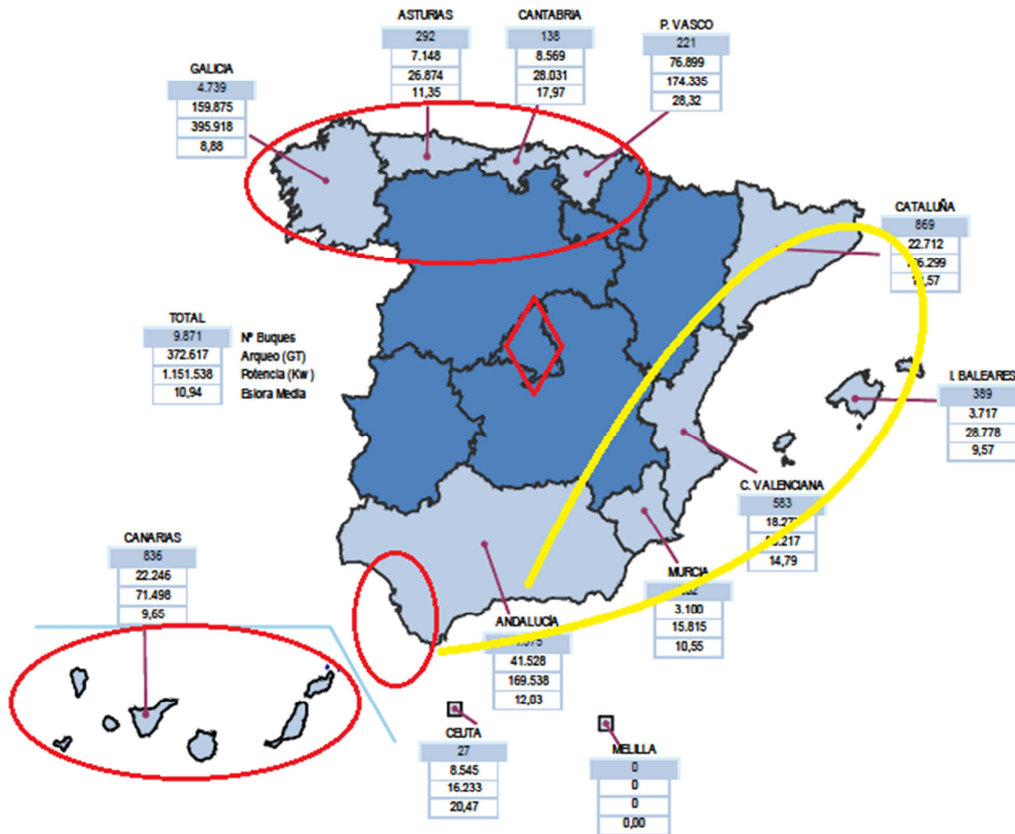
Regarding the handling on board, most of the Spanish purse seine vessels fishing in the Mediterranean are small boats with a limited crew, which fish near the coast and go back to the harbor daily. The space on board required to store discards would be very limited on these boats.

The handling of this part of the catch would have serious implications for both the economy and for the safety of the vessels' crew, not to mention the extra time and effort involved in this additional work that would detract the fishers from time spent fishing and thus limiting their revenue.

The figure here below shows the areas in which fishmeal exists in red and the fishing area in the Mediterranean where the Spanish purse seine fleet is operating in yellow. It should be noted that there are no processing industries in GSA 1 GSA 5 and GSA 6.



TABLE 16: MAP OF THE TOTAL FLEET BY AUTONOMOUS COMMUNITIES ,



Source: Fishery statistics modified from the Ministry of Agriculture, Food and Environment

5. Application of the *de minimis*

Taking the data from the JRC of the European Commission (<https://fishreg.jrc.ec.europa.eu/web>), which we detail below, it can be noted that the amount of discards (Discards ,-t -) of the species in question is low but at certain times it can exceed 2%, for this reason the following application of the *de minimis* exemption is recommended: 7% 2015, 6% 2016, 5% from 2017 .



TABLE 17: QUANTITIES OF DISCARDS BY SPECIE AND FISHING ACTIVITY

Country	Gear	Species	Year	Landings (t)	Discards (t)
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2003	216,81	
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2004	380,17	
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2005	120,31	4,88
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2006	105,87	
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2007	92,38	
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2008	139,42	,02
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2009	136,38	1,69
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2010	177,78	,26
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2011	542,52	287,19
Spain	Bottom trawls and demersal seine	Anchovy, Engraulis encrasicolus	2012	271,37	45,00
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2003	1.201,25	
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2004	1.059,64	
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2005	1.544,08	18,71
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2006	2.517,76	
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2007	3.730,17	
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2008	3.262,27	122,05
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2009	2.541,30	6,35
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2010	2.026,02	19,01
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2011	1.717,19	204,09
Spain	Bottom trawls and demersal seine	Horse mackerel, Trachurus trachurus	2012	1.295,18	164,33
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2003	925,55	
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2004	585,86	
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2005	687,63	
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2006	1.021,03	
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2007	1.623,64	
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2008	888,32	
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2009	442,38	12,72
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2010	240,81	,01
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2011	524,55	75,37
Spain	Bottom trawls and demersal seine	Mackerel, Scomber spp.	2012	499,70	63,28
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2003	450,36	
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2004	323,43	
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2005	84,27	56,54
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2006	73,55	
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2007	283,88	
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2008	240,32	9,23
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2009	134,74	27,15
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2010	145,27	18,48
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2011	411,93	228,06
Spain	Bottom trawls and demersal seine	Sardine, Sardina pilchardus	2012	197,66	1.514,27



5.1. Conditionality of access:

a) Reasons that prevent more selective fishing gears for the inability to increase the selectivity of gear and/or

The purse seine net is already very selective because during deployment, thanks to technological equipment that is currently available, it is possible to distinguish whether the species in question will be fished or not. In addition, in the event that juveniles are enclosed, by restocking as quickly as possible the survival of certain species would be ensured, making it an even more selective fishery.

b) Disproportionate handling costs

Because the target of purse seine fishery is generally large schools of small pelagic species on the surface of the sea, handling the catch takes up a large part of the fisher's efforts and time, occupying almost the entire working day for the vessel's crew and all the space on deck. The handling of a fraction that is subject to the landing obligation would not only subtract space from economically profitable fishing activity, but could also mean spending a whole working day with no income, generating high costs (fuel, labor, materials ...).

5.2. Application of the *de minimis* exemption in the reference area with the definition of the percentage according to art. 15 par.5, letter c) ii)

The proposal is: 7% of total annual catches of purse seines for 2015 and 2016, 6% of total annual catches of purse seines for 2017 and 2018; 5% in later years.

The proposed measures for monitoring the exemption would be:

- VMS installed on all active purse seine vessels (blue box).
- All quantities of fish caught and discarded species must be recorded in logbooks.
- Vessels less than 10 meters LOA with purse seine nets also have to fill out the logbooks.
- Creation of working groups such as the one on control, on the study of scientific reports on fisheries, etc. in order to follow the development of the implementation of the discard policy of the new CFP.



FRENCH NATIONAL WATERS IN THE MEDITERRANEAN

France GSA7 and 8 - Fishing activities :

1. Pelagic Trawl

In France, pelagic trawl is specifically regulated by the decree of 28 February 2013 which saw the adoption of a management plan for professional trawling in the Mediterranean by vessels flying the French flag. This activity is managed by the industrial tribunals for fishing activities, which retain the right to issue additional regulations for their territories or more stringent ones than those contained in the management plan.

This plan defines the characteristics of this fleet and the constraints.

Description of the fleet

- The practice of trawling excludes any other activity
- The practice of pair trawling is prohibited
- Vessel characteristics are :
 - Maximum LOA : 25m
 - Minimum LOA : 18 m or 16 m between perpendiculars in the continental Mediterranean. There is no minimum length in Corsica.
 - Maximum engine power 316 kW.
- The characteristics of the equipment mounted on board:
 - a winch to haul in the towing warps and nets.
 - A gate to raise the cod-end over the rear axle and lay out the catch.
 - Reels to store trawl nets.
 - Divergent panels for horizontal opening.
 - And equipment to position and track and detect fish acoustically, such as sonar and echo sounders
- Mesh size for pelagic species: 20 mm

Periods and fishing zones:

A – Periods

In the waters of the Mediterranean continent and Corsica, trawling takes place throughout the year.

Trawling is prohibited on Saturdays, Sundays and public holidays (Prefect Order 99-162 amended by Decree 221



of March 6, 2001)

It is forbidden for trawlers operating from a Mediterranean fishing port to leave the port before 4:00 am and to return later than 20:30 as part of its marine fishery activities. More stringent requirements may exist at regional or departmental level.

B – Fishing zones

The fishing areas cover national and international waters, from the Spanish border to the right of La Ciotat, as well as on the Corsica shelf. The main fishing area is located on the shelf of the Gulf of Lion.

Trawling is prohibited at depths over 1000m (GFCM/2005/1 recommendation, recommendation GFCM/2006/3, recommendation GFCM/33/2009/1 and service note DPMA/SDPM/N2006-9612).

Trawling is prohibited within 3 nautical miles of the coast, with the exception of two areas:

- Between Marseille and La Ciotat, trawling is permitted from the 100 metre isobath where that depth is reached within three miles from the coast.
- In the waters of the department of Bouches-du-Rhône trawling is permitted in the Gulf of Fos area from the right of the Piemanson buoy to the right of Cape Crown at a distance greater than 1.5 nautical miles of the coast when the depth is greater than 50 m.

On the eastern shelf of Corsica, the prefect of the region may allow trawling within the 3 nautical miles, beyond the 50m isobath.

Trawling is prohibited in protected habitats.

The maps below show the distribution of fishing effort.

Fishing effort

The practice of professional trawling is subject to the possession of a European fishing license and a European Fisheries Authorization (EFA) that allow bottom trawling for demersal species and/or trawl for pelagics species.

This authorisation is granted to a ship owner for a specified vessel. The quota is 71 .

Fishing effort is expressed in fishing days.

A fishing day is any continuous period of twenty four hours or less during which a vessel is present in the Mediterranean Sea and absent from the port or, where appropriate, deploying its fishing gear.

The allocation and calculation of fishing days is carried out for a management period that corresponds to a calendar year from January 1 to December 31.

The fishing effort allocated to the French fleet holding a European fishing authorization for professional trawling in the Mediterranean in 2014 is 14 726 (Decree of 13 February 2014 amending the decree of 28 January 2013 establishing fishing effort for professional trawling in the Mediterranean by vessels flying the French flag),



without specifying the gear used.

Currently, due to the state of anchovy and sardine stocks in the GSA7 area, a dozen ships are expected to target these species during the year.

In international waters, in the economic exclusive zone and in territorial waters, France implements GFCM management measures and European Community legislation in the Gulf of Lion area subject to fishery restrictions (zone FRA) (GFCM recommendation/2005/1, GFCM/2006/3 recommendation, recommendation GFCM/33/2009/1 and service note DPMA/SDPM/N2006-9612)

2. Purse seine

In France, the practice of purse seine fishery is overseen by a management plan for commercial fishing by purse seine vessels in the Mediterranean Sea for vessels flying the French flag. This activity is managed by the industrial tribunals for fishing activities, which retain the right to issue additional regulations for their territories or more stringent ones than those contained in the management plan.

This plan defines the characteristics of this fleet and the constraints.

Description of the fleet

The purse seine vessels targeting small pelagics are divided as follows:

- Purse seine vessels over 12 meters and less than 24 meters or without a light attraction device.
- The purse seine vessels less than 12 meters locally called "allatchare".

The total active purse seine fleet in the Mediterranean is estimated at 78 vessels, of which about half only target pelagic species and the rest carry out mixed activities, targeting pelagic and demersal species.

The purse seine net consists essentially of a long length of netting made of a series of panels of different mesh size with floats attached to the upper edge, and weights and rings fixed to the lower part. The panel made of the smallest mesh and thickest twine is generally located at the end of the net and forms a "pocket" in which the catch congregates. The "allatchare" is a small purse seine about 300 meters long and having a drop of 50-70 meters (ratio 1/5 or 1/6). Technical alterations have been made to the net has been adapted for fishing in shallow water. Some units have two types of seine net depending on the target species.

Other seines have a maximum length of 600 meters and the drop height may not exceed 120 meters. For vessels targeting small pelagics, the minimum mesh size is 14 mm for the net and cod-end.

Periods and fishing zones:



A – Periods

Purse seine fisheries targeting small pelagic species is a highly seasonal activity, focusing on the period from March to September.

B - Fishing Areas

In the coastal area this activity takes place from the St Cyprien to the La Ciotat territory, as well as in the territory of Bonifacio. Beyond 3000 nm, the most active areas are located in the western part of the Gulf of Lion and the north east of Corsica. This activity is permitted throughout the year in all waters.

Fishing effort

In order to practice professional purse seine fisheries it is necessary to possess a European fishing license and a European Fisheries Authorisation (EFA). This fishery is divided into two categories: one for purse seines targeting for pelagic species and the other for purse seines targeting demersal species. Vessels may carry both authorisations. The quota is 78 AEP .

Each category identifies vessels by vessel length, distinguishing them as being less than or equal to 12m or more than 12m but less than or equal to 24m.

3. Possible uses for by-catch that is inevitably subject to the landing obligation

4. Critical aspects of handling undersized specimens on board and once landed in some maritime districts

5. Application of the de minimis:

5.1. Conditions for access:

a) Reasons for the inability to increase the selectivity of gear and/or

French pelagic trawlers

Measures of selectivity are already voluntarily adopted to prevent the discards which cause additional and unpaid work. Pelagic trawlers conduct regular hauls tests before the fishing operations to ensure the catch composition of the area. If the catch is too small or too mixed, the area is avoided and the information is spread to the trawlers nearby. The flexibility of the Mediterranean trawlers also allow them to switch easily from pelagic trawl targeting pelagic species to bottom trawl targeting demersal species from one day to the next if the avoidance of the fishing area is too constraining. For the majority of the vessels, the daily



communication with wholesalers is also a key factor for minimizing the discards of unwanted species by adapting the fishing strategy according to the market expectations.

In view of the causes of discards and of the fishing strategies already in place to prevent them, it seems difficult to avoid a large part of the discards of Mediterranean pelagic trawlers by improving the already known high selectivity of the gear. If some efforts should be done to test and increase the selectivity of the used trawl to avoid the smallest sizes⁵, they will be insufficient to prevent all the discard of the fisheries. Moreover, it will not be possible to develop new selective devices by January 1st, 2015, without a dramatic impact on the economic viability of artisanal fisheries due the disproportionate costs (see below), and due to the need to develop new fishing strategy in a not yet known technical framework.

This difficulty to increase the selectivity should lead to *de minimis* exemptions for fisheries targeting the small pelagic species in Mediterranean Sea at least for the first years of the landing obligation, notably in order to ease its implementation.

French purse seiners

No regulation currently prohibits slipping in the Mediterranean Sea. If slipping is forbidden in the frame of the landing obligation, then the amount of unwanted catch to be retained on board will dramatically increase, leading to an increase of the cost of fishing due to the decrease of catch value without changing the costs of the labours. The reduction of revenue will then be consequent, with an important impact on the profitability of the fishing trip and of the boat.

The cessation of slipping will also deeply change the fishing strategy of purse seiners. If some tests will be organised to develop more spatio-temporal measures to avoid slipping, it is already known that this kind of measures will not be enough to avoid all the unwanted catch usually slipped. Moreover, it will not be possible to develop some of these few solutions by January 1st, 2015, without a dramatic impact on the economic viability of artisanal fisheries due the disproportionate costs (see below), and due to the need to develop new fishing strategy in a not yet known technical framework.

b) Disproportionate costs of handling

French pelagic trawlers

Disproportionate costs of handling unwanted catches are also a major argument for pelagic trawlers to benefit from *de minimis* exemption authorizing limited discards. In France, Mediterranean fishermen are

⁵ It is important to notice that scientific studies are ongoing or planned in France and Europe (REDRESSE, SIMBAD, EODE, EU fund call "H2020") to test new selective devices and new spatio-temporal approaches for small pelagic fisheries to avoid residual discards of species under quota, especially under new technical measures context. New results are expected in two to three years.



famous for their capacity to market the majority of their catches from various trade channels; discards occur when there is clearly no market available. French Mediterranean coast is also known for its multitude of landing place, making it difficult to implement any structure of transformation due to insufficient and irregular material flow. One such structure is currently present in the area (Bézier, Hérault), which is more than 50km away from the closest harbours with trawlers (60km from Sète, 132km from Port Vendres, 188km from Port de Bouc). It is extremely unlikely that the prices offered by this company will cover the cost of handling that these catches will generate (0.255€/kg at the minimum; see boxed text). Development of new market for unwanted catches will clearly not be possible before January 1st, 2015.

Example of the costs generate by handling catches onsite in the harbour of Sète, France. The following information has been provided by the SATHOAN.

- Handling and disposal of the products onsite = 75€ / tons
 - Conservation of the products onsite = 100€ / tons
 - Transport of the products = 30€ / tons
 - Indirect cost (business expenses) = 20€ / tons
- ➔ **Total = 255€ / tons**

This simple calculation shows that companies should pay 0.255 €/kg to balance the cost generated by handling unwanted catches onsite from Sète vessels, the closest harbour from Bézier.

This price does not take into account the cost of handling and conservation of the unwanted catches on board as well as the loss of income generated by their storage at the expense of commercial catches usually landed.

To support this exemption request, it is also important to emphasize the work done by a Commission working group in 2011⁶, which underlined all the economic impacts which will be caused by the landing obligation.

A study on costs generated by the landing obligation will be conducted shortly for French Mediterranean pelagic and demersal fisheries, with results expected not before the end of 2014.

French purse seiners

Disproportionate costs of handling unwanted catches are also a major argument for pelagic trawlers to benefit from *de minimis* exemption authorizing limited discards. In France, Mediterranean fishermen are

⁶ http://ec.europa.eu/fisheries/reform/sec_2011_891_en.pdf



famous for their capacity to market the majority of their catches from various trade channels; discards occur when there is clearly no market available. French Mediterranean coast is also known for its multitude of landing place, making it difficult to implement any structure of transformation due to insufficient and irregular material flow. One such structure is currently present in the area (Bézier, Hérault), which is more than 50km away from the closest harbours with trawlers (60km from Sète, 132km from Port Vendres, 188km from Port de Bouc, 298km from Toulon, 391km from Nice). It is extremely unlikely that the prices offered by this company will cover the cost of handling that these catches will generate (0.255€/kg at the minimum; see boxed text). Development of new market for unwanted catches will clearly not be possible before January 1st, 2015.

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- Handling and disposal of the products onsite = 75€ / tons
- Conservation of the products onsite = 100€ / tons
- Transport of the products = 30€ / tons
- Indirect cost (business expenses) = 20€ / tons

➔ **Total = 255€ / tons**

This simple calculation shows that companies should pay 0.255 €/kg to balance the cost generated by handling unwanted catches onsite from Sète vessels, the closest harbour from Bézier.

This price does not take into account the cost of handling and conservation of the unwanted catches on board as well as the loss of income generated by their storage at the expense of commercial catches usually landed.

To support this exemption request, it is also important to emphasize the work done by a Commission working group in 2011⁷, which underlined all the economic impacts which will be caused by the landing obligation.

A study on costs generated by the landing obligation will be conducted shortly for French Mediterranean pelagic and demersal fisheries, with results expected not before the end of 2014.

⁷ http://ec.europa.eu/fisheries/reform/sec_2011_891_en.pdf



5.2. Application of the de minimis exemption in the reference area with the definition of the percentage according to art. 15 par.5, letter c) ii)

French pelagic trawlers

French artisanal small pelagic fisheries have particularly low rates of discards due to their selective nature, including the fact that fishermen already adopt voluntarily measures to avoid unwanted catches. Nevertheless, they may be more important and diverse than for large scale pelagic fisheries of others maritime areas, notably because of the fishing areas close to the coast and / or at small depth, explaining for example the presence of demersal species in some catches and discards.

French artisanal trawlers targeting small pelagic species in Mediterranean Sea remains relatively small, with vessels size ranging from 18 to 25m, allowing them to catch a maximum of 2 to 4 tons per fishing operations. Discards are mainly due to the low market value of the species or the whole catch, the size or the quality of the individuals, as well as the minimal landing size as defined in Annex III to Regulation (EC) n°1967/2006. The storage capacity may also occur. Because annual catches are not constrained by catch limits, no discards are related to high grading or quota limitation.

Percentage of the *de minimis* requested

According to the difficulty to increase the selectivity and the disproportionate cost of handling unwanted catches, **a *de minimis* exemption of 5%** (3% + 2% allowed for the transitional first two years of the application of the landing obligation) **of their total annual catches of all species subject to the landing obligation⁸** is requested for the first two years (2015 - 2016) for the French artisanal pelagic trawlers targeting small pelagic species in Mediterranean Sea (Table 1). This 5% percentage should be revised after the two first years.

TABLE 18: DE MINIMIS REQUEST FOR FRENCH ARTISANAL PELAGIC TRAWLERS ACCORDING TO THE TARGET SPECIES IN MEDITERRANEAN SEA

	<i>De minimis</i> request for 2015 - 2016		Bonus for the transitional first two years	Total <i>de minimis</i> request for 2015 - 2016
French Pelagic trawlers in Mediterranean Sea	3%	+	2%	5%

⁸ "Species which are subject to minimum sizes as defined in Annex III to Regulation (EC) n°1967/2006"



*The percentage are expressed according to their **total annual catches of all species subject to the landing obligation** (Article 15.5.c of n°1380/2014)*

No data are available concerning the discards of the French small pelagic fisheries in the Mediterranean Sea. The data from national on board observer program (ObsMer) do not allow estimating them. The following are therefore based on qualitative surveys of the activity of French Mediterranean vessels involved in this activity made by their representatives.

French purse seiners

As for pelagic trawlers, French artisanal small pelagic purse seiners have particularly low rates of discards due to their selective nature, including the fact that fishermen already adopt voluntarily measures to avoid unwanted catches. The highly selective nature of artisanal purse seiners and low discard rates has led to the absence of their sampling by on-board observer program in France (ObsMer) since 2011. **No data are available concerning the eventual discards** for the French artisanal purse seiners in Mediterranean Sea, neither concerning the action of "slipping", which may be considered as discards by the new CFP.

French artisanal purse seiners in Mediterranean Sea are relatively small (< 25 m), with limited gear size and catches. If they have really low discards, slipping may occur. Causes of slipping from French fleets are multiple: **1) the target species is mixed with lower value species, 2) the proportion of low value commercial size for a same species is too high, 4) the species caught is not the species targeted and 5) the catch is more important than the vessel capacity of storage.** Occurrence of slipping is highly spatio-temporally variable, depending of the season, the fishing areas and the target species. Slipping can be seen as the results of not being able to correctly identify the species or the size of the individuals from the different electronic tools used by the fishers on board to detect fishing schools. Amounts of release, as well as the catch, are barely superior to 4 tons per fishing operations.

Total exemption request for French artisanal purse seiners in Mediterranean Sea related to high survival rate

A total exemption of landing obligation based on high survival rate after slipping is demanded for French artisanal purse seiners in Mediterranean Sea at least for the first years of the landing obligation (2015-2016).

The slipping is the action of releasing the seine after having partially retrieved it, allowing the catches to slip out of the net. In general, the survival of small pelagic species is variable and does differ between the fleets



and the species (e.g. Marcelo et al., 2008 & 2010; Huse and Vold, 2010; Tenningen and al., 2012, Arregi et al., 2014).

Experiments have shown that mortality after slipping highly depends of the size and the density of the catch as well as the duration of the period during which the fish experiences high crowding, especially regarding herring, mackerel and sardines (Misund and Beltestad, 2000; Stratoudakis and Marcalo, 2002; Huse and Vold, 2010; Marcalo et al., 2010; Tenningen et al. 2012; Marcalo et al., 2013).

The stress induces when these factors become too important is often lethal for most of the individuals. The body damages due to abrasion are also an important cause of death when duration and density are too high. Most of the existing studies apply to large scale fisheries, with a clear difference in terms of vessels and gear sizes, catch and certainly survivability, compared to the French artisanal (small scale) fleets.

Scientific evidences are unfortunately missing for French artisanal purse seiners, with no study having assessed the survival rate after slipping. French artisanal purse seiners are relatively small (< 25 m), with limited gear size and catches, and really low discards. Causes of slipping from French fleets are multiple: 1) the target species is mixed with lower value species, 2) the target species is mixed with species for which the vessel does not have quota, 3) the proportion of low value commercial size for a same species is too high, 4) the species caught is not the species targeted and 5) the catch is more important than the vessel capacity of storage. Occurrence of slipping is highly spatio-temporally variable, depending of the season, the fishing areas and the target species. Slipping can be seen as the results of not being able to correctly identify the species or the size of the individuals from the different electronic tools used by the fishers on board to detect fishing schools. Amounts of release, as well as the catch, are barely superior to 4 tons per fishing operations.

The moment when the slipping occurs during the fishing operation may vary according to the target species. For the fishing operation in Mediterranean Sea, the seine is retrieved until it is possible to sample the catch with a brailer or with hooks and line to analyse the composition of the catches. If the catch is too mixed, if the individuals are too small, or if it is different from the species targeted, the seine is immediately open to free the catch (maximum of 5 minutes between the beginning of the seine retrieving and its opening for slipping).

This proceeding, which show low compression of limited catch and a short duration during which the fish experiences high crowding, allows thinking that the survivability is high after slipping for the case of French artisanal purse seiners, as it has been noticed in several studies looking at purse seiners' activity (Duhamel et al., 2011; Arregi et al., 2014)



If no scientific can yet bring scientific evidence of this high survivability, two studies are planned in the near future in France on the subject: one in the Gulf of Lion in the Mediterranean Sea and one in the south of the Bay of Biscay. These studies could be labelled as Pilot Project by France and the CCR (in discussion). Results are expected between the end of 2015 and the beginning of 2016.

Pending these studies results and considering the proceeding of the slipping described above, a total exemption of landing obligation in the case of slipping is request for the French artisanal purse seiners, at least the first year of the implementation (2015-2016). This will lead to revise Article 19ter of the regulation n°850/98 in the frame of the Omnibus Regulation.

This delay will allow to get the results of studies set up, but also to generalize the best practices for maximum survival to the entire fleet. An official proceeding manual of slipping could be published and applied in order to benefit from the exemption. For example, it could recommend the best methods to determine the catch composition in the seine with minimum stress and damage for the fishes, but also the spatio-temporal measures which could be put in place or the electronic devices which could be used to reduce the occurrence of slipping.

It is important to notice that if slipping is forbidden in the frame of the landing obligation while he is still allowed in 2014, then the amount of unwanted catch to be retained on-board will dramatically increase for the purse seiners (especially for the ones targeting anchovy), and deeply impact their fishing strategy and their profitability. In short term, it will lead to an increase of the cost of fishing due to the decrease of the catch value without changing the costs of the labour on board. The reduction of revenue will then be substantial, with an important impact on the profitability of the fishing trip and of the boat.

If some studies are ongoing to develop more spatio-temporal measures to avoid slipping (REDRESSE) and some test should be done in Mediterranean Sea, it is already known that this kind of measures will not be enough to avoid all the unwanted catch usually slipped. Moreover, it seems uncertain that new market will be developed for these catches, especially in short (or even middle) term.

If the total exemption of landing obligation for slipping is refused, a *de minimis* exemption of 7% is requested for artisanal purse seiner for the first two years of the landing obligation (2015-2016). These 7% percentage should be revised after the two first years (see *de minimis* exemption request for more details)

Percentage of *de minimis* requested

A **total exemption of landing obligation due to high survival rate of the catch after the action of slipping** is requested for the French artisanal purse seiners fishing in the Mediterranean Sea (see corresponding exemption request).



If this exemption is validated, a *de minimis* exemption of 2% (0% + 2% allowed for the transitional first two years of the application of the landing obligation) of their total annual catches of all species subject to the landing obligation is requested for the French artisanal purse seiners the first two years (2015 - 2016; Table 3), notably in order to ease its implementation. This *de minimis* exemption will allow to take in account the residuals discards of these fisheries, which are really difficult to avoid in term of selectivity and in term of disproportionate cost cause by their handling. These 2% percentage should be revised after the two first years.

If this exemption is refused, a *de minimis* exemption of 7% (5% + 2% allowed for the transitional first two years of the application of the landing obligation) of their total annual catches of all species subject to the landing obligation is requested for the French artisanal purse seiners the first two years (2015 - 2016; Table 3), to take in account the dramatic increase of unwanted catches rate that the stop of slipping will lead. These 7% percentage should be revised after the two first years.

If no data is currently available, the deep impact of changing the fishing strategy to face the cessation of slipping should be convincing enough for the *de minimis* exemption request, especially the first years of the landing obligation in order to ease its implementation. It will also allow waiting for the results of the scientific studies planned to study the survival rate after slipping (one at least is planned in Mediterranean Sea by the Producer Organisation's SATHOAN, with results expected by the end of 2015).

TABLE 19: DE MINIMIS REQUEST FOR FRENCH ARTISANAL PURSE SEINERS ACCORDING TO THE TARGET SPECIES IN MEDITERRANEAN SEA

Purse seiners for small pelagic species in Mediterranean Sea	<i>De minimis</i> request for 2015 -2016		Bonus for the transitional first two years	Total <i>de minimis</i> request for 2015 - 2016
Slipping exempted of landing obligation	0%	+	2%	2%
Slipping not exempted of landing obligation	5%	+	2%	7%

The percentage are expressed according to their total annual catches of all species subject to the landing obligation (Article 15.5.c of n°1380/2014)



1. Fishing activities

The Maltese 'Lampara' fleet is made up of a total of 17 vessels having an overall tonnage of 653.99 GT. This represents less than 2% of the number of vessels registered in the commercial fishing register

2. Geographical Distribution

14 of the 17 vessels are authorised to fish within the 25 nautical mile fisheries management zone, while the remaining 3 vessels are only authorised to fish outside the 25 nm fisheries management zone.

3. Possible uses for by-catch that is inevitably subject to the landing obligation

Malta has always been opposed to discarding and disposing of such catch as waste. Having said this, any unwanted catch that is landed can be used to feed tuna at the registered tuna farms in Malta.

4. Critical aspects of handling undersized specimens on board and once landed in some maritime districts

Due to the small/insignificant amounts of unwanted catch, it would be extremely hard to separate this part from the rest of the catch onboard the fishing vessel. Fishers would need to dedicate part of their time onboard to going through the catch in order to divide it: commercial and unwanted. This would mean that either the fishers would need to spend more time at sea to organise the landing or there would need to be an increase in the number of workers onboard the fishing vessels.

Furthermore, none of the vessels are equipped, nor can they be equipped (due to their small size), with mechanised equipment to aid separation.

In addition, all designated landing points are local fishing ports which currently have no facilities to store, chill or process unwanted catch. In actual fact there is only one storage facility which can be used for this purpose and as a consequence an increase in storage space would be required.

5. Application of the *de minimis*

5.3. Conditions for access:

c) Reasons for the inability to increase the selectivity of gear and/or

d) Disproportionate costs of handling

In conjunction with the argument presented under point three, handling costs would be extremely high and would negatively affect income from commercial catch. In addition to the increase in salary costs, fishers would also need to prepare for additional storage on board, additional boxes and additional ice, all of which would significantly increase the operational costs. Handling the unwanted part of the catch would also increase the administrative burden, especially as the amount of unwanted catch is very low.

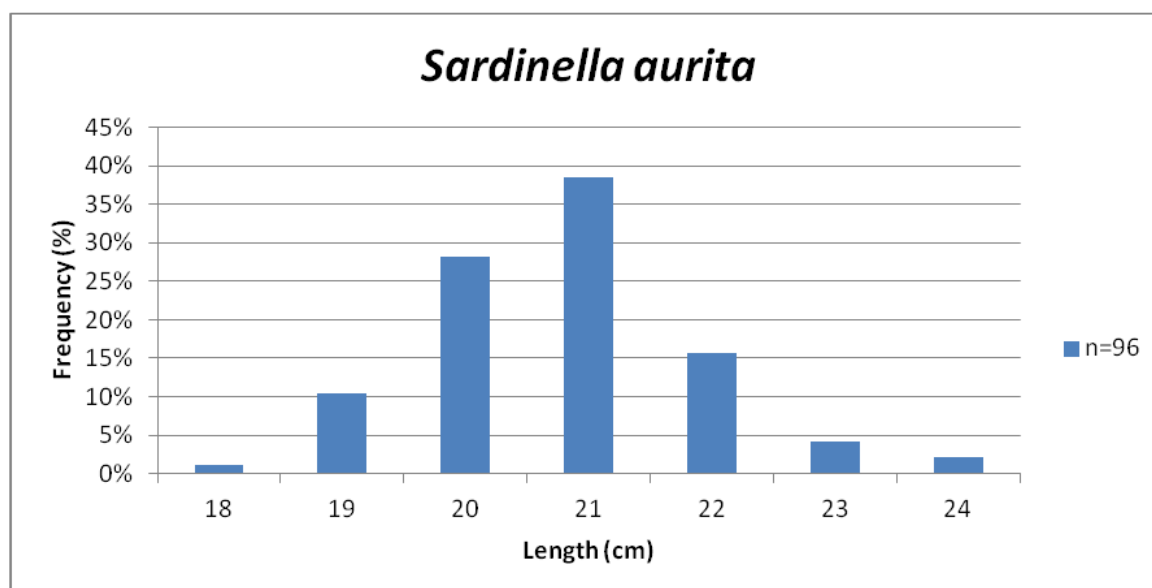
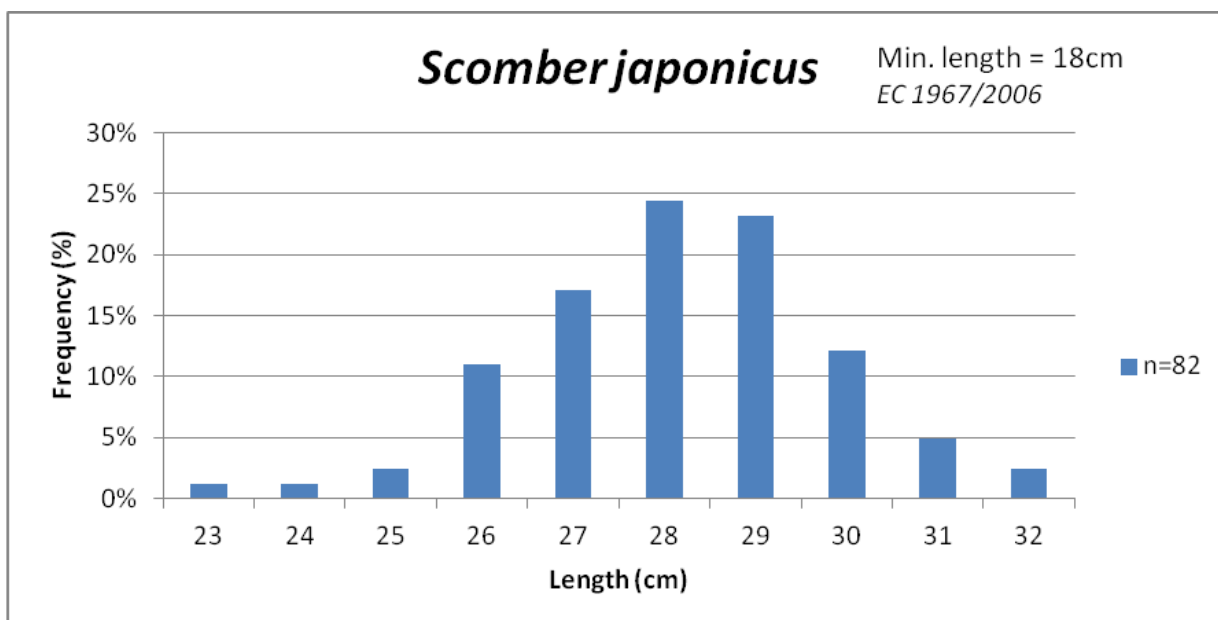
5.4. Application of the *de minimis* exemption in the reference area with the definition of the percentage according to art. 15 par.5, letter c) ii)

Available landings data for the Maltese “lampara” fishery contain records of at least 42 different taxa. The rise in total annual landings observed in 2012 is due to two species: Chub Mackerel (*Scomber japonicus*) and Round Sardinella (*Sardinella aurita*).

Landings of Chub Mackerel were low in 2006-2008 (12 tonnes on average), and increased dramatically to 223 tonnes in 2009 before dropping to lower values in 2010 and 2011 (81 tonnes on average) and then increasing to the highest levels recorded in the entire time series in 2012 (248 tonnes). Round Sardinella landings were low in 2006-2009 (4 tonnes on average) before increasing significantly in 2010-2011 (47 tonnes on average) and again in 2012 (193 tonnes). Landings of all other species combined only contributed 25% to total catches on average.

From one onboard observation carried out 11-12 April 2014 the follow results were obtained:





This shows that unwanted catches can be considered to be insignificant or even non-existent. It should be pointed out however, that since the spawning season for *S. japonicus* is between June and September when water temperatures are between 15°C and 20°C there is a higher possibility that during this period there may be some unwanted catches.

The following exemption is proposed by Malta: 3 % of total annual catches of purse seines.



NORTH ADRIATIC SEA

1) Fishing activities affected and geographical distribution:

Mid water pelagic trawl

ITALY

In Italy, small pelagic species are mainly caught using pelagic trawl nets (“volante”) or purse seine nets with mechanical closure and attraction of fish with light sources. The target species are sardine, anchovy and rarely mackerel (sizeable schools of these species are almost never found) and Chub mackerel (3 species) almost never due to their low economic value.

Features: mid water pelagic trawl takes place predominantly in the Adriatic, although examples of this method of capture can be found in other areas, such as the Ionian Sea (Sicily) or the Tyrrhenian Sea (Tuscany). To date, there are no clear data concerning discards of undersized specimens from this fishery, while it would be very useful to have such data in order to understand the amount that may be landed, although this part will not be destined for human consumption, according to art. 15 of Reg. 1380/2013. In actual fact, data on discards do exist in literature, but they are sporadic and limited observations, and concern all discards and not just those subject to a minimum conservation reference size as indicated in Regulation 1967/06.

In fact, nothing is said about the species that make up the discards, and nothing is said about cases such as the sprat in the northern and central Adriatic, which is present in sizable schools but which is not accepted by the market and therefore they are completely rejected.

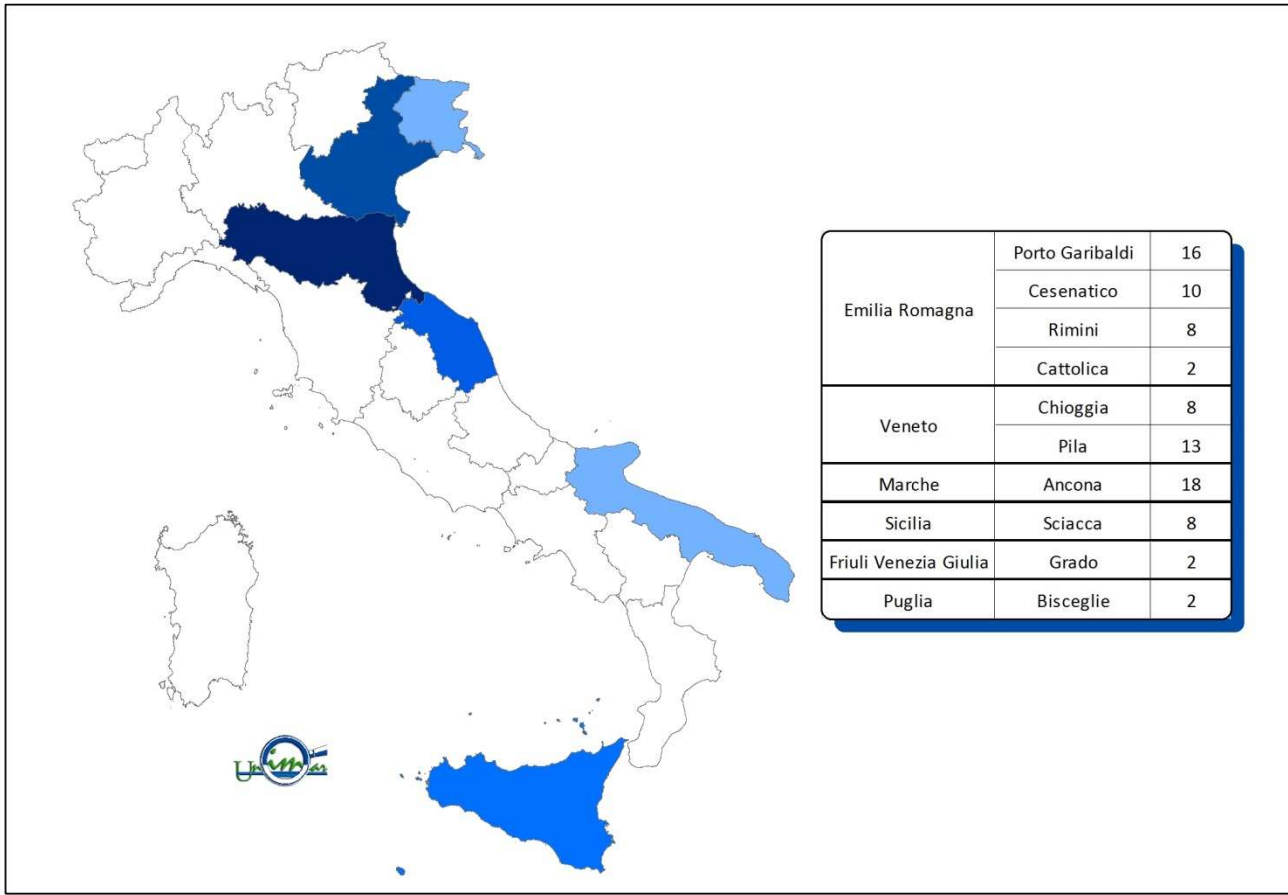
The data provided by Santojanni *et al.* (2005) indicate that mid water trawl fisheries produce a considerable amount of discards, and this amount almost certainly consists of species not subject to a minimum size, presumably sprats, that even after 2015 may continue to be rejected.

The data provided by the Italian national administrations in the framework of the data collection programmes, which also included the collection of data on discards, are affected by the same problem.

In the preparation of plans for the landing obligation, it is therefore necessary to proceed without any definite information (this is reason why the application of the *de minimis* rule is requested on a fixed basis, at least for the first two years). The plan itself will provide data to refine measures once it is under implementation .



FIGURE 38: PELAGIC TRAWL FLEET DISTRIBUTION BY FISHERIES/AREAS



Source: UNIMAR

SLOVENIA

There is no active pelagic trawl fleet.

Landings of small pelagic fish by the Slovenian fleet were reduced by 87 % in 2012 in comparison to previous years through the scrapping of vessels which targeted small pelagics. This scrapping included the only two remaining vessels that were actively using pelagic trawl.

Purse seine fisheries with light sources

ITALY - (“cianciolo”)

Features: The use of purse seine surrounding nets with mechanical closure is widely practiced in the Italian maritime districts, above all in the Tyrrhenian, Ionian and southern Adriatic. It is almost always associated

with the attraction of fish by means of light sources (in the case of small pelagics) in which the net is deployed around an artificially formed shoal (see Paragraph 5.2). The target species is mainly anchovy and fishery operations take place where there is a good chance of finding medium-large size fish. The fish caught is then placed in containers with water and ice, providing rapid cooling that stiffens the fish and improves conservation. Compared to the same fish caught with midwater trawl nets, the catch from purse seines achieves higher market prices and this sometimes makes up for the drawbacks of this type of fishing, such as night work, the need to have calm seas and the fact that it is impossible to work with a full moon.

As in the case of the mid water trawl, there is a lack of precise information on discards for purse seine fisheries too. It is clear, however, that discards are very limited if not nil. If you examine the data that Italy has sent to the European Commission (Data Collection), there are a some surprises

Year	GSA	Species	Discards (t)
2011	10	Anchovy	174,4
2011	9	Sardine	3,1
2011	10	Sardine	3367,0
2011	19	Sardine	0,2
2012	19	Sardine	88,9

Discards are extremely limited except in GSA 10 in 2011, when it would appear that, in fisheries targeting sardines, 3367 tonnes were discarded. It is quite strange to find vessels targeting sardines that are not appreciated in the regions of Campania and Calabria, and it is even more strange that such a large amount was discarded. This phenomenon can probably be explained by the fact that in 2011 tuna fattening cages were being used in the Gulf of Salerno and it is possible that this fishery was not carried out for human consumption, but to feed these fish. It was therefore probably not a case of discards but fish destined for aquaculture structures. In this case too, data on discards are not clear and reliable and do not permit the preparation of an adequate landings plan.

CROATIA

According to official data of the Republic of Croatia, there are 488 licenses issued for purse seine nets – “Srdelara”. Procedure of vessel authorization is in progress which will allow only active vessels to work. The majority of these licenses have been issued in the Zadarska, Splitsko-dalmatinska and Istarska districts. In addition, it is important to highlight that the total number of licenses for purse seines – “Srdelara” issued does not correspond to the number of vessels (the sum of all the licenses is higher than the number of



vessels) in respect of the fact that there is a large number of multi-purpose vessels (vessels with more than one license for different types of fishing gear). The Croatian purse seiner fishing fleet of is active from Umag in the north to Dubrovnik in the south. In spite of the indicated distribution of the fishing fleet, the majority of fishing activities takes place from Istria to Middle Dalmatian Islands.

SLOVENIA

In the Slovenian fishing fleet, 20 vessels have a license for purse seines, 4 of these vessels were active in 2013.

2) Possible uses for by-catch that is inevitably subject to the landing obligation:

Given that one of the main objectives of the reform of the Common Fisheries Policy is to reduce discards, and therefore at all levels (Directors, fishing enterprises, sector operators), every effort must be made to ensure that this is achieved, there may however be cases in which, despite all the precautions, unwanted but unavoidable catches are landed. Catches may occur, for example, of undersized specimens, of fish damaged by the action of the nets, or of mixture of species where making a selection carries no economic advantage, etc.. In all these cases, with reference to the species covered by the landing obligation (i.e. those described in Annex III of the Mediterranean Reg., captured with mid water trawl nets or purse seine), the product must be landed and in the case of specimens below the minimum size for their species (which is currently in Reg 1967/2006 –Mediterranean– as minimum landing sizes) they must not be destined for direct human consumption. Fishing companies and fishers are therefore free to choose the end use of this portion of the catch, for example processing into pet food, transformation into fish meal, use for biomass, for cosmetic or pharmaceutical use, as feed in tuna breeding farms etc.. If these options are not available, as a last resort fishers can opt for disposal as special waste, which would, however, be rather expensive.

CROATIA

On the islands and on the mainland, there are four factories for fishmeal production. All factories have low capacity and have been built solely for fishmeal production from their own raw materials (fish processing by product). In Croatia there is only one factory for the collection of category 3 by products and it is 200km from the coast. Unwanted catch can also be used also for tuna feeding.

SLOVENIA

No use can be made of unwanted catches of Slovenian purse seines of the species concerned (sardine, anchovy, mackerel and horse mackerel), because there are no fishmeal factories and no facilities for handling



animal waste near Slovenian coast – unwanted catches would have to be transported for about 150 km to be processed (into fishmeal) or incinerated as animal waste.

3) Critical aspects of handling undersized specimens on board and once landed in some maritime districts

ITALY

The obligation to land by-catch, with particular reference to small pelagic species in the Mediterranean that are smaller than the minimum size for sale, will in some cases cause "disproportionate costs of transformation", this is indicated in the EC regulation as a justification to obtain *de minimis* exemption.

The issues in question concern both the management of the undersized product on board and after landing, and can be divided as follows:

On board:

- sorting and boxing
- conservation (ice, cold storage)
- occupation of space on board

On land:

- transport and storage
- conservation (ice, cold storage)
- arrangements for sale/disposal

In the case of multi-specific catches, not uncommon in the Adriatic, or the presence of both commercial size individuals and undersized specimens in the same haul, the activities of sorting and boxing the catch separately for the commercial product and that destined for other purposes, will incur a cost in terms of time that as a result will impact on fishing times and yields, thus damaging the already limited company profits.

The requirement to retain on board and land the non-commercial product will create addition stowage costs (ice/cold storage), which will be borne by the fishery enterprise.

Lastly, the boxes of undersized fisheries products will occupy space on board, especially in the smaller vessels, potentially making the fishing vessels less viable and secure, as well as occupying space that could be used for commercial catches. The situation may be created whereby, due to the lack of space on board to store the products, fishery operations would have to be curtailed and the vessel return to land sooner than



planned, resulting in economic losses to the fishery. This problem would be exacerbated if the directive that requires separate stowage of the two kinds of product, commercial and not, is also passed.

Where operations after landing are concerned, it will be necessary to transport and store the boxes in the appropriate places, separating them from the product destined for human consumption. Such operations will generate costs which the fishery enterprises will not be able to bear.

In the warehouses on land it will also be necessary to guarantee the preservation of the product using ice or cold storage. In this case too it is not feasible to pass on all the costs to the fishers who are forced to adapt to the new regulations.

Lastly management activities after landing that aim to market and sell undersized fishery products for processing into animal feed, other products not destined for human consumption or, in the case of limited quantities, for disposal, as "special waste", costs will be incurred and these must be borne by structures to be identified in the various maritime districts.

In the rare cases in which the quantity of by-catch landed is sufficient, at least at certain times of the year, to attract the interest of the animal feed, pharmaceutical or cosmetic industries, resulting therefore in collection of the product by the industry concerned, it is yet to be demonstrated whether the purchase price will be sufficient to offset the costs incurred and the critical issues listed above.

In other cases where the limited amount of undersized product will mean that it will have to be destined for disposal, the costs borne by the operators as described above will be added to those for disposal as "special waste", which are around € 0.15/kg .

CROATIA

The Croatian coastline is 1777 km long; when including islands, coastline length amounts to 6000 km. Along the coastline, including islands, catch of small pelagic fish is allowed to be landed at 245 landing sites. Many landing sites are located on islands whose distance from coast can be up to 30 Nm. Most landing sites are small ports that do not have the necessary infrastructure for eventual storage of discarded catch.

Four tuna farms are concentrated near central Dalmatian islands that could potentially use juvenile fish for feeding tuna. However, given the long coastline and large number of landing sites, it would be extremely difficult to organize collection of discarded catch during landing because certain landing sites are located as far as 300 km from the coast.



Since the amount of unwanted catch is insignificant, it would be very hard to separate it on board from the rest of the catch. Employees on board should work on separation of the unwanted catch for 1/2 of their working time, instead of doing their regular job; this would result in needing two more employees on board. None of the purse seiner vessels in Croatia has a machine for separation of the fish on board, moreover the vessels are not designed to store it on board nor are most of the vessels big enough to have it on board.

There is only one approved facility in Croatia for the storage of category 3 by products. It is located on an island and uses its capacities exclusively for storage of fish for feeding tuna.

SLOVENIA

See above – in Slovenia, treatment of discards as waste is not an option. In addition, all three Slovenian fishing ports are very small local fishing ports and have no facilities to store, cool or process discards. Facilities for processing of incinerating animal waste are located about 150 km from the coast.

On the basis of the data from the Data Collection Framework (DCF) for 2010-2012, Slovenian purse seines have a very low share of discards: 2,2% for sardine, 1,3% for anchovy, 0,2% for mackerel. There are no data for the discards of horse mackerel for the Slovenian fishing fleet. In absolute values the average discard quantities per fishing trip were 2,7 kg for sardine, 1,8 kg for anchovy, and 0,004 kg for mackerel. The discard of all species listed in Annex III was 4,6 kg per fishing trip.

The main reason for the discards are not undersized specimens but the fact that some quantities of fish are damaged during the fishing operation.

These data imply that the quantities of discards per fishing trip of the Slovenian purse seines are too small to be used commercially i.e. collected by companies that treat animal waste (because these companies collect animal waste in barrels of minimum 50 litres).

All Slovenian vessels with purse seines are small, below 15 meters of length which means that they have no on-board facilities to handle (cool or process) unwanted catches.

There are two national fishing reserves (Strunjan and Portorož fishing reserve) in Slovenia where fishing except the winter fishing of mullets is prohibited.

On the level of the sub-region of North Adriatic Sea, more studies need to be performed regarding high survivability (possibility of exemption according to Article 15(4)(b) of the CFP Regulation – Regulation (EU) No 1380/2013) of the species concerned – the fishermen can open the purse seine if they see that intended catch is undersized, before the net is hauled on board



4) Application of the *de minimis*

ITALY

Although the conditions for the application the *de minimis* exemption were demonstrated in the chapters relating to the description of the gears, (see section 5), with particular reference to the high costs of handling, where Italy is concerned the *de minimis* threshold is applied on the basis of percentages: 3% on the total reported in the tables regarding the purse seine (tables 10-12) except for GSA 17 (which percentage is 7%) A), and 7% of the total reported for mid water pelagic trawl (table tables 11-13), for each GSA. If the Italian authorities decide to apply the *de minimis* exemption on the basis of the total per fishery, the percentages are given in the following table:

TABLE 20: ITALY TOTAL DE MINIMIS THRESHOLD

Mid water trawl (7%)		Purse seine (7%)	
Anchovy	2.174.539 kg	Anchovy	745.617kg
Sardine	541.665 kg	Sardine	229.812 kg
Scomber	23587 kg	Scomber	20.528 kg
Trachurus	7768 kg	Trachurus	20.855kg
% de minimis	7%		7%
TOTAL de minimis (kg)	2747.557	TOTAL de minimis (kg)	1.016.812

CROATIA

Separation on board of the unwanted catch in such insignificant amounts would make handling costs extremely high, equally importantly, it would negatively affect fish quality. As already stated all employees on board should work on separation of the unwanted catch for 1/2 of their working time, this would result in needing two more employees on board, this would negatively reflect on the cost structure of the fishers. Two more salaries per month, average fisherman salary with all taxes is 1.000,00 EUR, which makes 24.000,00 EUR of additional costs per year. Also fisherman should prepare additional boxes on board, ice, not to mention space on board for storing unwanted catch until reaching the port, which would incur further costs.

When the vessel arrives in a port, the by-catch stored should be transported to places (warehouses) for collection. The cost of transportation from the landing site to the warehouse, depending on distance, can



cost from 1000 to 5000 Kuna (Croatian currency). If the landing port is on an island, it is necessary to buy a ferry ticket for the transport vehicle (ticket price varies on island distance from 300 to 2000 Kuna for small vehicles; for trucks price amounts up to several thousand Kuna). Minimal expense for storage is 1kn/kg for freezing plus extra expenses for storage until further transport, which vary on the amount stored and the time spent in storage (until optimal amount for further processing is collected). Transport from the collection site to that of destruction or further processing costs 100-300 euro per tonne, depending on vehicle size.

Construction or conversion of existing cold stores – Croatia has only one cold store adapted for this kind of product which has low capacity and is located on an island. Using only the existing cold store would triple disposal costs.

TABLE 21: PURSE SEINE TOTAL LANDINGS FROM 2008 TO 2012 (IN KGS) IN GSA 17

Mesh size (mm)	Year	Amount (kg)
14	2008	39.530.137,430
14	2009	46.479.119,310
14	2010	43.480.259,930
14	2011	62.662.608,850
14	2012	55.896.022,440

During the period 2006-2013, the Institute of Oceanography and Fisheries analysed distribution of catch considering average total length. Results showed that in the period 2006-2013 average total length of sardines varied between 13,5 (13,73 ± 3,03 cm; 2010) and 15,5 cm (15,46 ± 1,39 cm; 2008), while average annual total length of anchovies varied between 12,0 cm (12,39 ± 2,76 cm; 2008) i 13,5 cm (13,83 ± 0,54 cm; 2011) .

Upon the recommendation of scientific institutions, depending on estimation of livestock, Croatia has the legal possibility for temporary suspension of fishing in certain fishing zones. Evaluation of juvenile fish would be determined on board based on sampling.

Recommendation for the de minimis per year:

7 % of total annual catches of purse seines for 2015 and 2016,

6 % of total annual catches of purse seines for 2017 and 2018;

5 % in all subsequent years.



SLOVENIA

In general, for the GSA-17 (North Adriatic), it would be beneficial to consider the possibility of exemption on the basis of Article 15(4)(b) of the new CFP Regulation (Regulation (EU) No 1380/2013) on the basis of high survivability of small pelagics caught by purse seines (fish can be released if the fishermen see they are undersized, by opening the net).

Conditions for access

On the basis of data and information presented above, it is concluded that a *de minimis* exemption on the basis of disproportionate handling costs is necessary for the Slovenian purse seines.

Average discards of the Slovenian purse seines with regard to the species concerned (sardine, anchovy and mackerel; there are no data for discards of horse mackerel) in the years 2010-2012, on the basis of data from the Data Collection Framework (DCF), have been 2,2% for sardine, 1,3% for anchovy and 0,2% for mackerel.

Discards per fishing trip are a few kilograms, and handling them would mean excessive costs and administrative burden, particularly considering that there were only 4 active vessels with purse seines in the Slovenian fishing fleet in 2013.

The following exemption is proposed:

7 % of total annual catches of purse seines for 2015 and 2016,

6 % of total annual catches of purse seines for 2017 and 2018;

5 % of total annual catches of purse seines in all subsequent years.



SOUTH-EASTERN MEDITERRANEAN

GREECE

The specific proposal concerns GSA 20, 22 and 23 and the only interested country is Greece since the species concerned by the tools are small pelagic species caught at a small distance from the coast while they do not constitute a common resource with any other member country.

1) Fishing activities

Pelagic trawl

The pelagic trawl for the fishing of pelagic species is not used in Greece.

Purse seine

Fishing fleet: On the whole, 358 fishing boats have the purse seiner tool (year of reference 2013)

Geographical distribution : GSA 20, 22, 23

Within the scope of article 19 of REG (EC) 1967/2006 of the Council , a National Management Plan is being implemented for the fishing of small pelagic species of anchovy (*Engraulis encrasicolus*) and sardines (*Sardina pilchardus*), carried out by professional fishing vessels with the purse seiner fishing tool at a depth beyond 300 meters from the coast or within a distance from the coast up to a depth of 50 meters in case this depth is identified at a smaller distance from the coast The fishing tool purse seiner is not placed at a depth smaller than 70% of their overall vertical height.

The management plan concerns the target species, to the vessels that are entitled to carry out this type of fishing and to the process of issuing fishing permits according to REG (EC) 1224/2009 of the Council. The management plan also concerns the usage of the tool in a way that it will not exert pressure on the ecosystem and includes specific control and monitoring indexes of the reserves of the target species and the methodology of the annual monitoring of the indexes.

Fishing with purse seiner is regulated by the national legislation in the framework of which the following additional management measures are being implemented :

- Fishing with purse seiners is prohibited for 2,5 months (from December 15 to February 28).



- Fishing is also prohibited 2 days before and two days after the full moon in many areas of the country
- There is a limit as to the intensity of the light used.
- Fishing with purse seiners is prohibited at a distance less than 100 m from the coast, regardless of the depth
- There are time limitations as to fishing with purse seiners in specific areas that have been identified with national provisions

2) Possible usage of the unavoidable undesired catches that fall under a landing obligation

The target species of fishing with purse seiners are *Engraulis encrasicolus* (anchovy) and *Sardina pilchardus* (sardine) that count for a part of the discharges concerning undersized catches of these species, while the remaining discharges concern the species *Scomber colias*, Spanish mackerel which is mainly caught as by catch.

Given that the quantities of undesired catches of small pelagic species with purse seiners are very small and the discharge points are particularly scattered because of the large number of islands and the extensive coast line of the Greek territory (16.000 km)- something that led to the definition of 238 discharge ports in the framework of article 22 of the Mediterranean regulation (1967/2006)-, the cost of collection and transfer for non-human consumption cannot be financially afforded.

More specifically, the usual transport cost of the catches from the islands to the fish auction point in Pireas, which is the main point of fish distribution, with the conventional vessels and only if this is allowed, amounts to 800 euros per lot while the price of purchase offered by the industry amounts to a mere 100 euros/t.

3) Critical aspects of handling undersized specimens on board and once landed in some maritime districts

On the basis of the existing data, the discharge quota for each of the species *Engraulis encrasicolus* (anchovy), *Sardina pilchardus* (sardine), *Scomber colias* (Spanish mackerel) for the period 2003-2008 was less than 1% both as to the number of units and as to the biomass.

Furthermore, the quota of all the small pelagic species that have been discharged was less than 5% (both as to the units and to the biomass) of the total annual catches of all the species that are subject to landing obligation ACCORDING TO article 15 of REG 1380/2003 (EU)



As a result, the quantities of the discharged catches per vessel per day, are limited only to some kilos. We should also mention that these small quantities are scattered along the multiple discharge points of the Greek coast line, as we already said, and this entails difficulties in their collection and a high cost.

Since these catches are not destined to human consumption, they are characterized, according to the national legislation, as animal by-products. As a result on the one hand, their transportation is not allowed with conventional vessels while the use of a special vessel for their transport would lead to an even higher cost of transportation from the islands, and on the other hand their management is particularly difficult since they cannot be discharged in the existing landfill sites because of the fact that their incineration is only allowed in special establishments.

4) Application of the de minimis:

4.1 Conditions for access :

a) Reasons for the inability to increase the selectivity of gear and/or

The structure of the purse seiner tool and particularly its operation through the use of a light source makes it particularly selective since on the one hand the size of the mesh is such that allows the release of undersized catches in the sea and on the other, there is the possibility to identify a large number of undersized catches before the completion of the caging so that it can be immediately interrupted and all the fish can be released in the sea.. The small quantity of discharged catches in combination with the selectivity of the tool, make unaffordable a further increase of selectivity.

b) Disproportionate handling cost

The scattered points of discharge in combination with a very small quantity of discharged catches of the specific species per vessel make disproportionate the cost of their handling and their management in general.

4.2 Application of the derogation de minimis in the field of reference with definition of the quota in virtue of article 15, par.5 letter c) point ii)

According to the National Management Plan, which is based on data of the National Collection Program of Fishing Data, the share of the overall discharges on the total annual catches of all the species that are under the landing obligation is less than the 7% envisaged in the specific provision and in fact is less than 5% (GSA 20). More specifically, according to the data analysis of the period 2003- 2008, the overall quota of the



discharged catches, taking into account all the species and not only those under the obligation of a minimum allowed size according to Annex III of REG (EC) 1967/2006, was 5% for the Aegean Sea (GSA 22) and 3 % for the Ionian Sea (GSA 20)

As to the species concerning purse seiners and which are under the minimum allowed size obligation (*Engraulis encrasicolus*, *Sardina pilchardus*, *Scomber colias*, *Trachurus spp.*), the discharge percentage was very small, that is smaller than 1%.



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