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Subject: Proposal for a Regulation of the European Parliament and of the Council establishing specific conditions for deep-sea stocks in the North-East Atlantic and provisions for fishing in international waters of the North-East Atlantic and repealing Regulation (EC) No 2347/2002
- Complementary information to the Commission's Impact Assessment

Delegations will find attached the above-mentioned document.

Encl.

Report

Complementary information to the Commission's Impact Assessment (SWD(2012)203 final) accompanying its Proposal for a regulation of the European Parliament and of the Council establishing specific conditions to fishing for deep-sea stocks in the North-East Atlantic and provisions for fishing in international waters of the North-East Atlantic and repealing Regulation (EC) No 2347/2002 (proposal COM(2012)0371).

SUMMARY

In response to the request made by the Fisheries Committee of the European Parliament this report presents additional information to the one contained in the Commission's Impact Assessment report accompanying its Deep Sea proposal mentioned above (hereinafter "the proposal"). The proposal seeks the revision of the access regime in force for Deep Sea Fisheries. The proposal is, like the regime in force, to be seen as a framework regulation, providing principles that specific measures (e.g. the fixing of fishing opportunities for Deep Sea Stocks) will build on subsequently. However, there is a particular measure contained in the proposal that has raised concerns among, particularly, parts of the fishing industry: a proposed phase-out of fishing authorisation that allows the targeting of deep sea species using bottom trawls and bottom gillnets, scheduled two years after the entry into force of the proposal.

This report provides more detail to that assessment, based on an analysis of the fleet, catch and localisation of the deep sea fisheries, using a Geographical Information System (GIS) and data submitted by Member States under the Common Fisheries Policy Data Collection Framework (DCF). It also updates the information on scientific knowledge about deep sea stocks, and impacts on vulnerable marine ecosystems (VME) put at risk by bottom fishing activities.

The key findings of this analysis are as follows:

Deep sea fisheries in the EU are low in volume (1.5% of total EU catches in the North East Atlantic) and the majority of deep sea species is caught in mixed fisheries. Of a total of **37 579** EU vessels reported to be operating in the Atlantic (DCF data), **4 456** vessels have reported some catches of deep sea species during the year 2011. This group of vessels represents only about **12%** of the EU Atlantic fleets. The data reported by their logbooks and Vessel Monitoring systems is the base for the GIS analysis carried out for the purpose of this report.

The proposal seeks to distinguish between vessels that take deep sea species as a by-catch from those that actually target them. This study seeks to quantify how many vessels fall into each of these two categories and how the proposal could affect them.

1. A large majority of the vessels catching deep sea species (98% of vessels active in the Atlantic and 83% of vessels reporting some catches of deep sea species) would not at all be affected by the proposed phase-out of authorisations to target these species. This is because they either i) do not have more than 10% of their catch on at least one day per year made up of deep sea species (i.e. they are below the threshold set out in the proposal) or ii) use gears other than bottom trawls and bottom gillnets. It follows that all longliners, mid-water trawls and pots, whichever the amount of deep sea species they

take, and all bottom trawlers and bottom gillnetters with catches of less than 10% of deep sea species on any day are not affected by the proposed phase-out.

2) Only 2% of vessels active in the Atlantic and only 17% of the vessels reporting some catches of deep sea species are "targeters". Targeters are bottom trawlers and gillnetters that have more than 10% of their catch on at least one day per year made up of deep sea species (i.e. they are above the threshold set out in the proposal). However, even within this category almost all vessels have just one, two or maximum three days during the whole season when the 10% threshold is surpassed. This suggests that even within the category that could be affected by the proposal, there is only very limited activity targeted towards deep sea species. Similarly, a case study for the Spanish Atlantic fleet shows that for 97% of their fishing trips these vessels do not catch deep sea species above 10% on any day. These findings suggest that it should be easy for the majority of targeters to adapt their fishing technique and avoid catching more than 10% deep sea species on any given day. This in turn would allow them to continue all their activity, without needing to change the gear. Instead of being targeters, they become by-catchers.

It follows that the overall socio economic impact of the proposal is expected to be low and limited to certain specific areas. Only some ports have an important concentration of specialised deep sea fisheries with trawls targeting deep sea species. These are concentrated in the French Atlantic ports of Brittany, and to some extent in Normandy. There are ports in Galicia, the Basque Country and Scotland that are home to a number of vessels reporting catches of deep sea species, but the data suggests that these fleets are not specialised in catching these species.

Furthermore the data suggest that the key commercial species can be caught with a variety of gears. None among them is indispensable for the harvest of any stock. Accordingly, a phase-out of bottom trawls and gillnets does in no way entail closing the fishery for any of the stocks concerned. Fishermen targeting deep sea species will continue to have a choice on what gear to use or to stay under the 10% limit.

By-catch of deep sea sharks remain important, with 43.7 tonnes reported in logbooks for 2011. These sharks are under a TAC zero since 2006 and it is not allowed to land them or sell them. Most by-catches are taken by trawlers (81%), not by longliners (13%) or gillnetters (6%).

Deep sea species are caught as by catches by the immense majority of the fleet analysed. This is indicated by the low average share represented by these species in the total catch. Aggregated data for all fleet segments suggest that on average, deep sea species share in trawlers and gillnetters remains below 2% by weight and below 4.5% in value. There is therefore no economic dependency of these fleets on deep sea stocks. In the case of bottom longlines, mid-water trawls and pots the share in value is comparatively higher, between 5 and 7% on average. Longlines, mid-water trawls and pots make more money from deep sea species while having a much lower risk of detrimental impact on the environment than the other gears for which we propose to phase-out targeted fishing authorisations. Large trawlers and gillnetters register the highest share of deep sea species in their overall catches, but even here, the share remains modest, not reaching 10% value in the period 2008-2011.

The data suggests that the impact of the proposal on jobs would be limited. In most ports, the number of jobs related to vessels that catch some amount of deep sea species (among other species) ranges between 26 and 242 and for vessels that catch above the threshold, the range is instead 23 to 129 jobs. For the few main deep sea ports where vessels catch

above the thresholds (Galicia, Basque Country, Southwest Ireland and Scotland) the range is between 292 and 565. In Brittany, a few ports host vessels with catches above the proposed threshold, and each of these ports represent between 130 and 291 on board jobs. Quayside jobs related to jobs on board (i.e. jobs relating to the supply chain of fishery products and ancillary services) can be estimated to be between 2 to 4 quayside jobs for each job on board. However, since on average more than 90% of the catches of these vessels are made up of other species, it can be concluded that the number of jobs linked directly to deep sea catches is much lower.

Additionally, this report updates on the state of play of science about the deep sea species, the value and important geo-ecological role of deep sea habitats, their fragility and their exposure to damage or destruction as a result of fishing impacts. The latest ICES advice on deep sea stocks and available results from EU funded research under the 7th Framework programme are listed with links to publicly available articles, peer-reviewed and published in the context of these projects: DEEPFISHMAN, HERMIONE and CORALFISH.

DEEPFISHMAN has made an important contribution to the EU scientific advisory process regarding the assessment of deep sea stocks. Besides research on biology and species life cycles of key commercial species, the project has also succeeded in testing mechanisms to involve the fishing industry in the collection of data. This has permitted better scientific advice on the deep sea stocks.

The HERMIONE project found that large areas of seabed on the Catalan margin have been smoothed by bottom trawling and that sediments smother the seabed. Thus the area impacted by the fishery is much larger than the fished area. Furthermore an assessment of observed impacts in the North East Atlantic shows bottom trawling to have a much larger impact than all other human activities combined.

CORALFISH has shown that bottom fishing coexists in close vicinity with deep sea coral reefs in the margins of the continental shelf. Trawling "corridors" run among areas with corals or other vulnerable habitats. Here specific seabed features, benthic coral communities and fish aggregations are associated, and a more precautionary approach is needed, such as among others, prohibition of bottom-contact fishing.

Finally, the report provides an account of the consultation process carried out by the Commission in its preparation of the proposal.

OUTLINE

PART I – INTRODUCTION

PART II – OBJECTIVES OF THIS REPORT

PART III – METHODS

Part IV – FINDINGS - GIS

1. Location of activities – overall and by key species, by gear
2. Key catch species by gear and by flag
3. Proportion of DSS catches over total catches and value per segment, per flag (DCF data).
4. Specific case study : the DSS share in the total activity of the Spanish Atlantic fleet
5. Feasibility of switching from bottom trawling to bottom longlining
6. DSS as contributors to the economy of coastal regions

PART V – FINDINGS : RECENT SCIENCE AND RESEARCH

- Scientific advice on the state of the stocks
- DEEPFISHMAN – Working towards sustainable deep-water fisheries
- HERMIONE – Hotspot ecosystem research and Man's impact on European seas
- CORALFISH – Assessment of the interaction between corals, fish and fisheries, in order to develop monitoring and predictive modelling tools for ecosystem based management in the deep waters of Europe and beyond

PART VI – PROCESS AND CONSULTATION

1. Reminder of the proposal's genesis
2. The consultation process
3. The dialogue process on the revision of the deep-sea access regime (in particular from COM consultation (18/12/2009) to legal proposal (19/07/2012) and beyond)
4. Selected documentation used by the Commission

PART I – INTRODUCTION

- EP specific requests

The request made by the Fisheries Committee to the Commission¹ includes four specific concerns for which the Committee seeks feedback. These are the following:

- a) Can the Commission integrate data from the EU-funded "Deepfishman project"
- b) Could the Commission clarify whether the consultations with the Member States and the Regional Advisory Councils on the future access regime included the five specific options examined in the impact assessment and provide the response to the preferences expressed in this regard?
- c) Could the Commission provide quantitative data on the different options and their impacts, as well as a cost-benefit analysis (notably concerning the conversion of vessels from trawls to longlines), and could it provide additional and more recent information on the socio-economic dimension of deep-sea fisheries.
- d) Can the Commission provide data on the impact of the proposal on SMEs and specifically on micro-enterprises, and could it provide an assessment of the impact of the proposal at the local and regional level?

It is worth making at this point a general point on the constraints faced by the Commission and the Member States any assessment of impacts relating to Deep Sea fisheries (hereinafter "DSF"). The key problem lies in the identification of the DSF *themselves*. Whereas international instruments give guidance for their management (in particular the FAO Guidelines²), ultimately scoping choices need to be made when deciding how to regulate them. The EU regulation in force, Regulation 2347/2002, is built around a list of species and a threshold of catches thereof, above which the rules start to apply. The population of fishermen affected by these rules is identified by those vessels that carry a deep sea permit. Currently, large numbers of vessels do carry such permit. Fishermen seek this coverage in order to ensure that any landings of deep-sea species (hereinafter DSS) will be legal (within available quotas). However, there is no criterion in place to discriminate inside this population between those that have a significant economic dependency from deep sea catches and those for which these catches are not a vital part of their business. This has been identified by the Commission, clearly, as a key weakness of the current regulatory framework that needs addressing. Regulation cannot be effective if it is not properly targeted. But beyond that, inasmuch as they determine how data is collected, the present rules carry an intrinsic hindrance to obtaining economic data of sufficient resolution to allow an assessment of their own impact. If not resolved, this will in any case prevent an effective evaluation of the results of any revised regime when the time comes.

¹ Letter from Chairman Mato Aldrover to Commissioner Damanaki dated 10 April 2013. Reply by Ms Damanaki of 26 April 2013.

² International Guidelines for the management of deep-sea fisheries in the high seas, 2008; available for download at this link: <http://www.fao.org/docrep/011/i0816t/i0816t00.htm>

With this proviso, it is appropriate to deal with the four requests made by the Fisheries Committee, in order.

With regard to the first request (a), this report provides an update on the state of scientific knowledge about the deep sea stocks, the impact of fishing on the deep sea environment, and the state of knowledge about Vulnerable Marine Ecosystems in the waters covered by the proposal. The interest in a rapidly growing scientific knowledge in this area has been clear throughout the debate around the proposal since the evaluation of the current regime already, back in 2007. The EU has made indeed substantial investment in research and it is proper and useful that key outcomes should be noted at this point, when the relevant projects have been completed. This includes not just the DEEPFISHMAN project, referred to by the Fisheries Committee, but also the HERMIONE and CORALFISH projects, all of them funded under the umbrella of the 7th Framework Programme. These issues are discussed at length in Part V of this report.

With its second request (b), the Committee wishes to know whether the Commission's consultation on the future access regime included the five specific options examined in the impact assessment. The answer is that the options examined in the Impact Assessment Report stem from the impact assessment process as a whole. The initial consultation document is the starting point of that process. The Commission formulates its proposal in light of received feedback. In addition, it puts into the balance that feedback from stakeholders and interested parties with scientific findings and studies, scientific advice, and other sources that can inform the specific objectives that the proposal is to serve. Against this background, any consultation document issued by the Commission in the framework of an Impact Assessment process has to be seen as a starting point of a dialogue, not its end. In this particular case, the consultation has indeed taken place over a prolonged period (18 months) and in a dynamic and lively manner. In fact, this dialogue still continues even after the proposal has been tabled. It has been the intent of the Commission to foster an open debate and allow respondents ample margin to suggest approaches and specific measures that the Commission could consider. For details on the consultation process linked to this proposal, see Part VI of this report.

As to the third request under c), which deals with quantified analysis and a better grasp of the socio-economic issues at stake, the Commission has endeavoured to gather data that would allow it to deepen its assessment of any potential economic dependency on the deep sea stocks among the population (fleets) and coastal communities potentially affected by the proposal. A large part of the information provided in this report results from these efforts, the methodological details of which will be presented in Part III. The findings are presented in part IV.

Finally, the Committee makes a point about the lack of assessment of impacts of-f the proposal on SMEs and micro-enterprises in item d). This prompts the following response.

The Commission holds data on the economic structure of the fisheries sector. By reference to the latest Annual Economic Report, submitted this year (data: 2011), the overall picture looks as follows: there are close to 41,000 fishing firms in the EU (excluding Greece and Lithuania, for which there is no data on enterprises³), 90.74% of

³ The exclusion of the large Greek fleet (close to 18,000 vessels, €715 millions of income and 24,000FTE) underestimates the real importance of the SSCF in the calculations.

them operate just one vessel, 8.39% two to five vessels and just 0.86% more than six vessels⁴.

The Commission has proposed a definition of Small Scale fisheries as those using fishing vessels of an overall length of less than 12 meters and not using towed gears⁵. Under this definition, approximately **80%** of all EU vessels are considered *small-scale*, representing 26% of the value of landings and around 50% of total jobs in the sector.

On the other hand, the Commission issued in 2003 a Recommendation concerning the definition of micro, small and medium-sized enterprises.⁶ Based on the criteria in that Recommendation, by number of employees (10 or less) and annual turnover (up to €2 Mio), at least 38,803 of the fishing firms in the EU (95.09%) would be *micro enterprises*⁷, covering **66% of the vessels** (and similar percentages in terms of value of landings and FTE).

Table 1: Number of fishing firms in the EU (source AER 2011)

MS	vessels	Total income	income per vessels € million)	Total FTE	FTE per vessel	Total firms	Firms = 1 vessel	Firms 2-5 vessels	Firms >6
BE	92	77,3	0,840	335	3,641	83	77	6	
BU	2339	2,7	0,001	1430	0,611	77	62	1	14
CY	1768	9,6	0,005	1086	0,614	533	532	1	
DK	2786	293,3	0,105	1546	0,555	1655	1591	63	1
EE	935	38,8	0,041	2004	2,143	663	462	199	2
SF	3365	29,4	0,009	229	0,068	1496	1466	30	
F	6475	1036,5	0,160	12823	1,980	5771	5597	87	87
DE	1679	137,2	0,082	1142	0,680	1439	1205	230	4
IE	2144	245	0,114	2694	1,257	1929	1755	174	
IT	14969	1122,2	0,075	24397	1,630	8663	7710	745	208
LV	814	25	0,031	1633	2,006	582	450	128	4
MT	1112	26,08	0,023	287	0,258	1073	1036	37	
NL	725	349,2	0,482	1805	2,490	523	411	110	2
PL	823	62,7	0,076	1307	1,588	698	618	77	3
PT	8604	381	0,044	17613	2,047	4731	4236	492	3
RO	430	0,49	0,001	403	0,937	43	18	18	7
SL	186	1,7	0,009	90	0,484	138	83	53	2
ES	11986	1909,2	0,159	35844	2,990	8950	8409	537	4
SWE	1417	115,2	0,081	1019	0,719	1241	909	323	9
UK	6381	914,9	0,143	12212	1,914	517	401	114	2
Totals	69030	6777,47	0,098	119899	1,737	40805	37028	3425	352

⁴ This breakdown in categories by "number of vessels owned" marries the Data Collection current requirements for socio-economic data – see Annex VI of the Commission Decision of 18 December 2009 adopting a multiannual Community programme for the collection, management and use of data in the fisheries sector for the period 2011-2013 (2010/93/EU).

⁵ Article 3.2(18) of the EMFF Reform proposal. 0012m with active gears represent around 8% of the total 0012.

⁶ COM (2003) 321, OJ L124, 20.5.2003, p.36.

⁷ All those owning 1 vessel, plus at least half of those owning 2-5 vessels and a few of those owning more than 6.

Is it possible to identify, within the specific deep-sea fishing context, what is the balance between larger scale and small scale companies and how they might be differently affected? The answer is, not at this time. We can know whether a vessel carries a deep sea fishing authorisation, but there is no information in the databases compiled today as to the company each vessel belongs to. Data is available as to vessel owners, but since a single owner may have different companies in operation, or a single company may use vessels with different owners, the statistics of fishing companies and those of vessels with a deep sea fishing authorisation cannot be crossed.

PART II – OBJECTIVES OF THIS REPORT

Focusing on additional/updated information that can assist in the discussion of the proposal, this report seeks to achieve the following:

- a) A clearer picture of any eventual economic dependency of the various fleets concerned on deep sea stocks, by assessing what part of their overall business comes from the value of these catches/landings. This can be analysed for each gear and for the various Member State flags.
- b) Assess possible economic aspects of the proposal to phase out bottom trawls and bottom gillnets – how their business is affected if the vessels in question are no longer issued a permit, and how this could affect employment.
- c) Provide an update of the state of scientific research and advice on the state of stocks, fishing impacts on the deep sea environment, and their implications for the choice of management tools to use in order to regulate DSF.

PART III – METHODS

– GIS analysis

Specifically for this study, the Commission asked Member States to supply logbook and Vessel Monitoring System data for the years 2009 to 2011. Using a GIS (Geographic Information System) platform to process the data, it is possible to place the fishing activities on the map and identify the fleets involved. The data is complete only for one year, namely 2011. For this year, data have been made available by all Member States, unlike the others in the time series requested. This is the basis of the analysis carried out.

The data includes logbook and VMS positions for all fishing trips during which any DSS have been reported in the logbooks. The set of data analysed for the sole 2011 year is substantial, about 14 million records. It contains logbook data for **4 456** vessels and VMS data for **2 835** vessels⁸. Logbook data comprise catches of 1 116 different code species, using 39 different gear codes. The latter have been regrouped into 7: Trawlers, nets, longlines, pots, mid-water trawlers, purse seiners and "unknown". Within each of these

⁸ Until 2011, Article 9 of the Control Regulation imposed VMS on board for vessels of 15m length and more. The obligation to carry VMS has not entered into force for vessels between 12 and 15m length until the 1st of January 2012.

gears, the analysis breaks the data down by vessel size categories 10-12 m length; 12-18, 18-24; 24-40 and more than 40

The data processed corresponds to activity in the area covered by the proposal only (EU and international waters of ICES areas I to XII (includes NEAFC high seas waters)).

The GIS technology is a powerful analysis tool. It not only allows plotting fishing activity (catch/effort) data on the map, it also allows sorting and comparing among fleet segments, gears and flags as to volume and composition of catches, and therefore value by crossing the volumes with listed prices. In addition, by plotting vessel data against their home ports, it is possible to have a rough idea of the employment and Gross Added Value that comes from the catches of DSS could be impacted in each region by the proposal.

The analysis as to any economic dependency of fleet segments (by group of gears and sizes) on the DSS is based on data officially communicated by Member States under the Data Collection Framework. Total catches by weight and value are aggregated by segment and the percentage belonging to DSS is calculated. This analysis is done by grouping on one side the gears that are concerned by the proposed phaseout of targeted fishing (bottom trawlers and gillnetters) and on the other side those gears that are not (bottom longliners, mid-water trawls and pots).

There are some important caveats to note, however. Large numbers of vessels in the EU fleet are not required to carry a logbook (namely vessels under 10 m length) and still many others, in addition, were not required to operate VMS on board during the time series of data used here (vessels under 15 m length)⁹. The activities of vessels under these two thresholds cannot therefore be apprehended by the GIS analysis.

– Data Collection Framework (DCF)

The role of DCF data in this report is to provide, as much as possible, the total statistics of catches and activity for the fleets concerned. That allows calculation of a key finding: what share of total catches/fishing activity represents Deep Sea Fishing. DCF data also provides the basis for the calculation of several factors used in this report, for example: the number of jobs on board for a typical vessel in each fleet segment. That is then used for estimating job numbers represented by employment on board the vessels with DSS catches (among other species) and employment rates they represent for their home ports.

The caveats regarding the data are here quite significant, and have to do with the fact that despite every effort and even the application of the remedy mechanisms built into the Data Collection Framework, Member States continue to experience substantial difficulty to submit the annual data required by the Regulation. As for the data needed to compile this report, the following shortcomings must be noted. The datasets used here are for all Atlantic Member States with any known involvement in DSF. Of these:

- One major stakeholder Member State has not provided any data on landings by weight or value for any of the years used in this study 2008-2011.
- Data for 2011 from another major stakeholder Member State is not available.

⁹ See previous footnote

- A third Member State has submitted incomplete information for 2011.

Submission of data under the DCF is in any case aggregated by fleet segment. Whereas it is being obviously difficult for Member States to provide aggregated data (this requires processing work by their means), they have been able to provide raw datasets for the GIS analysis reported on here. This is unprocessed data, extracted from national data repositories. The difference is worth noting when assessing Member States response to the Commission's requests.

- Recently completed, EU-funded research

The Commission will only use in this report published results, thus benefitting from the assumption that the findings reported are peer reviewed. The three EU-funded studies that are relevant for these purposes are DEEPFISHMAN, HERMIONE and CORALFISH. An update on the latest ICES advice on the state of the deep sea stocks covered by the proposal is also included, all in Part V.

Part IV – FINDINGS - GIS

1. Location of activities – overall and by key species, by gear

Figure 1 – Overall location of activities of fishing vessels catching both DSS and other species

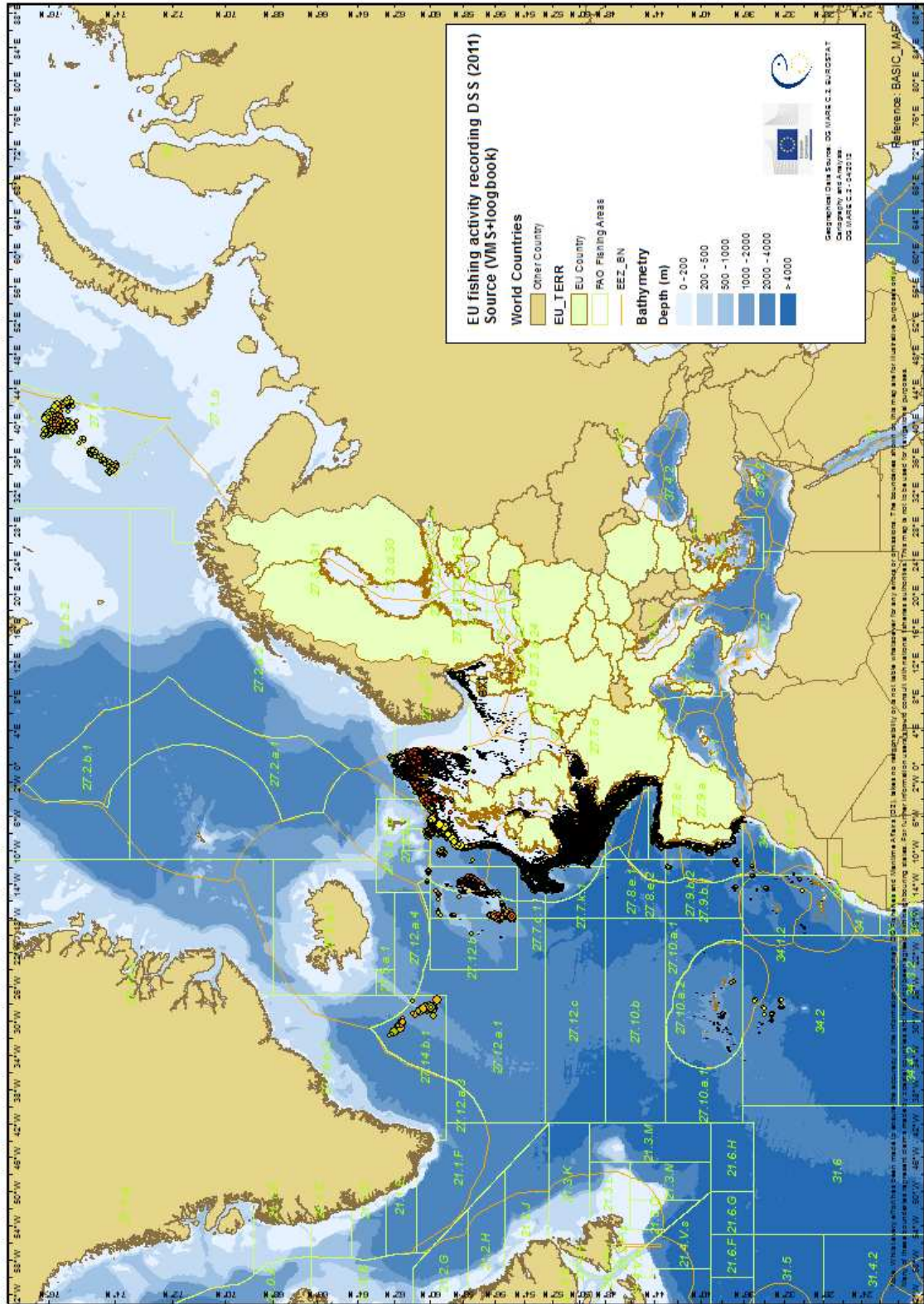


Figure 2: location of reported catches of Roundnose Grenadier (species code RNG)

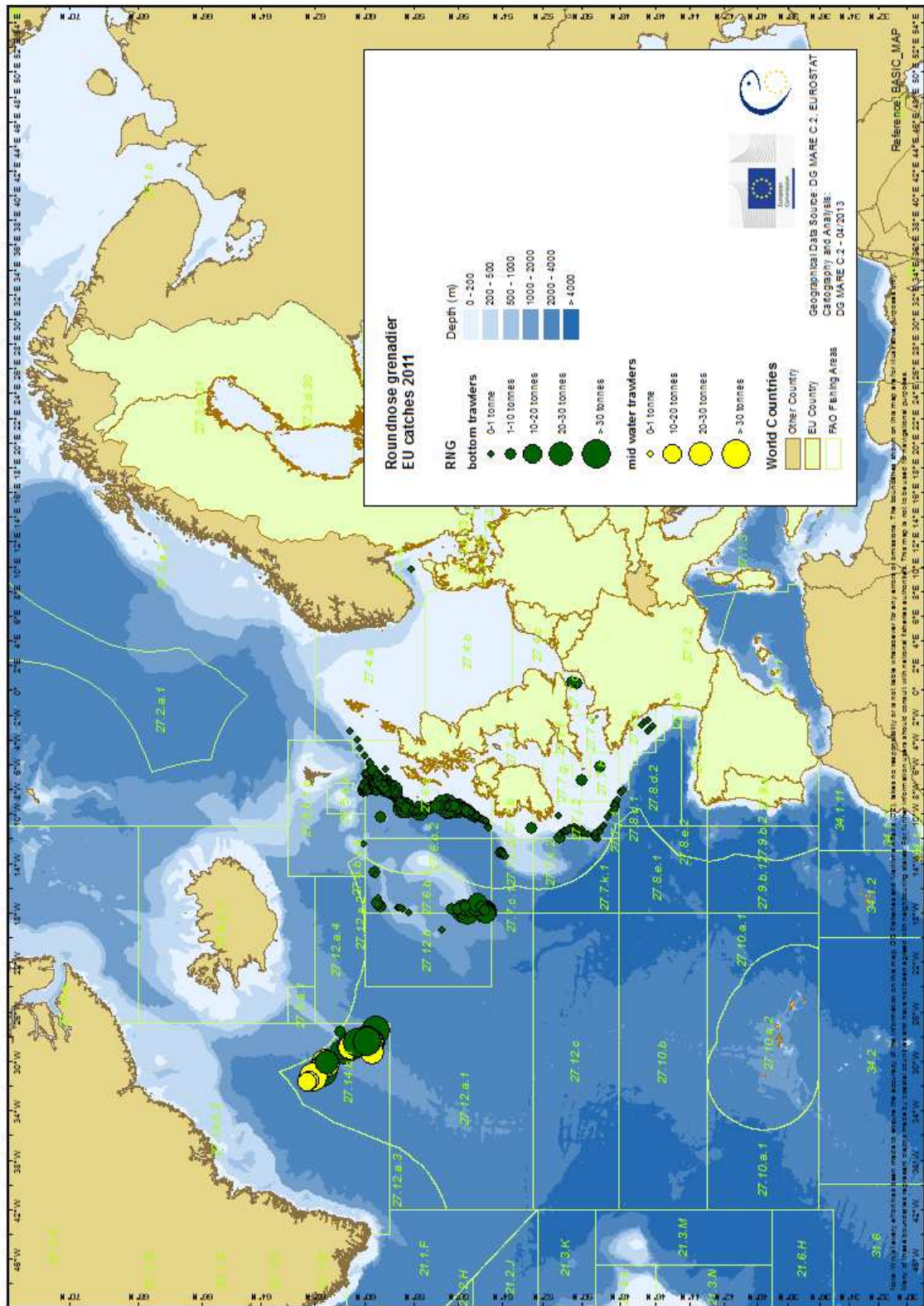


Figure 3: location of reported catches of Black Scabbardfish (species code BSF)

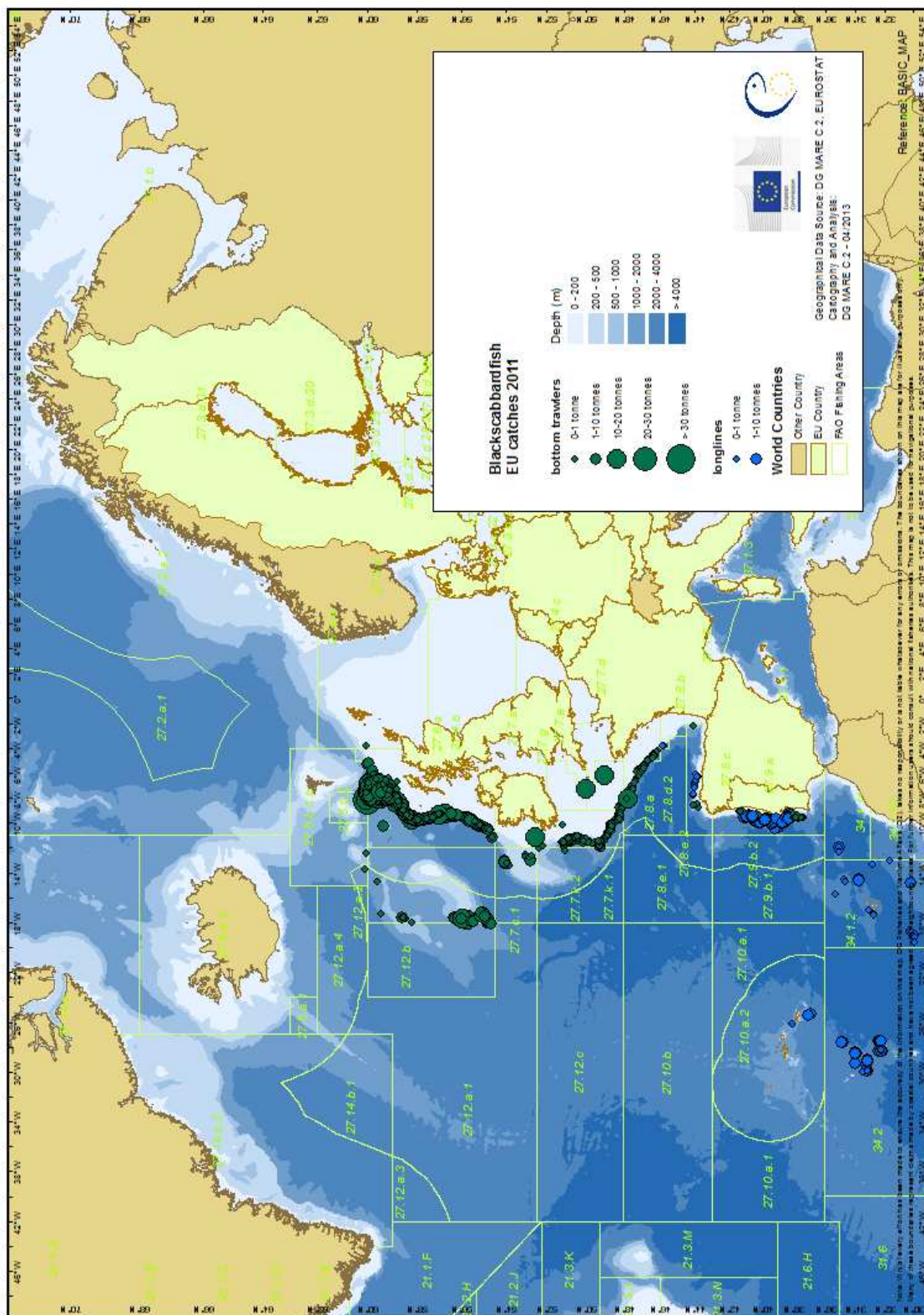


Figure 4: location of reported catches of Blue ling (species code BLI)

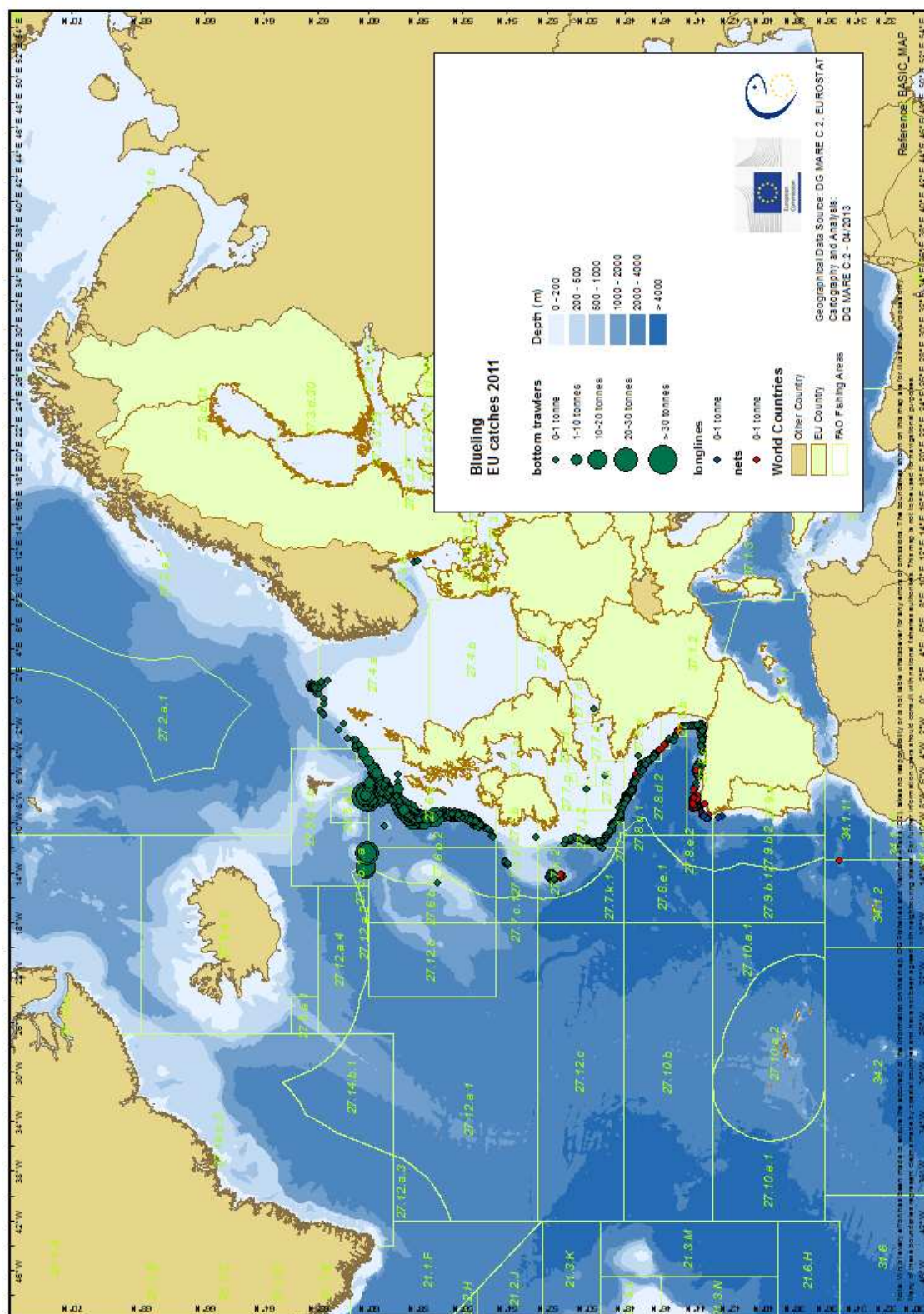


Figure 5: location of reported catches of Red Seabream (species code SBR)

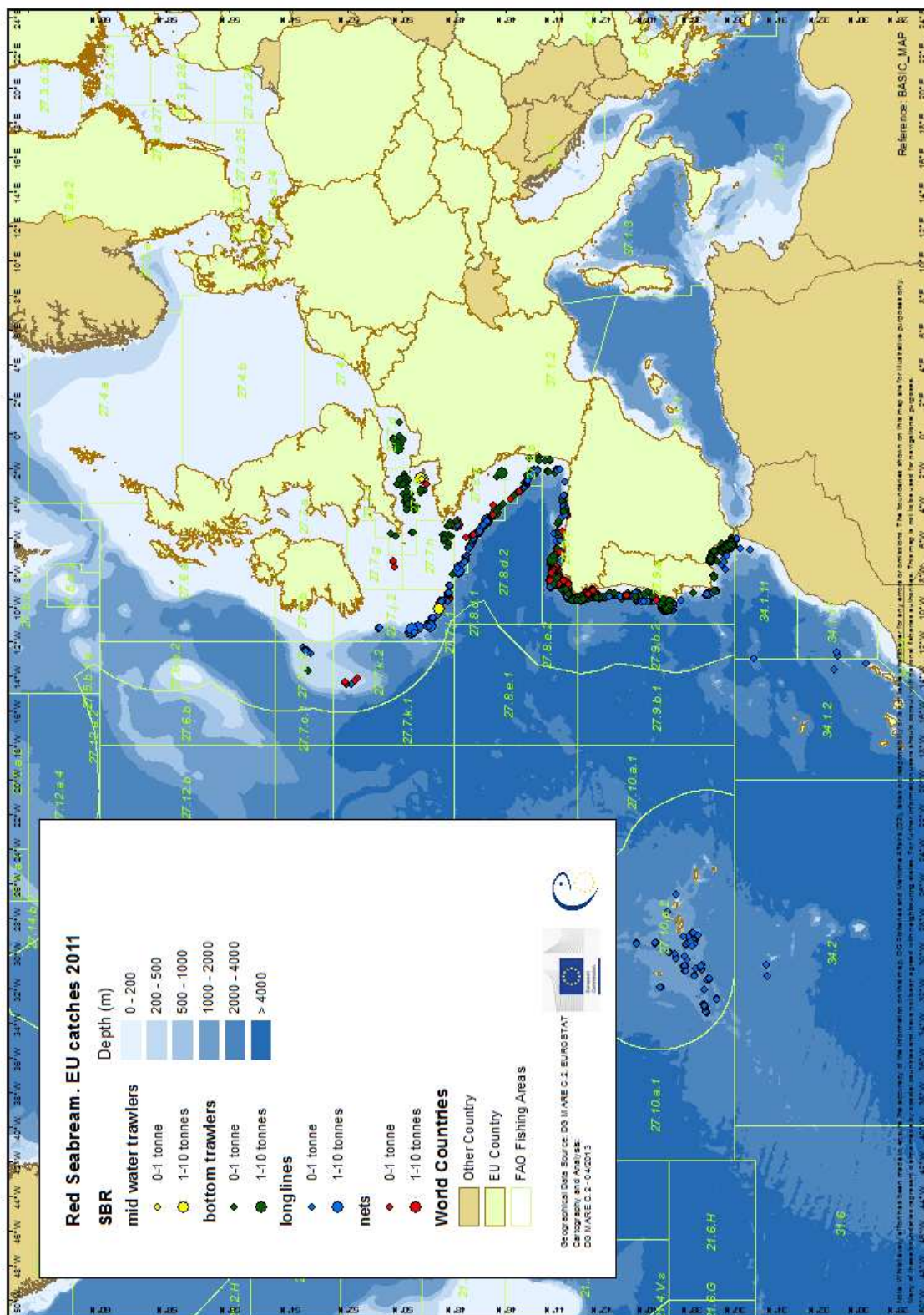


Figure 6: location of reported catches of Ling (species code LIN)

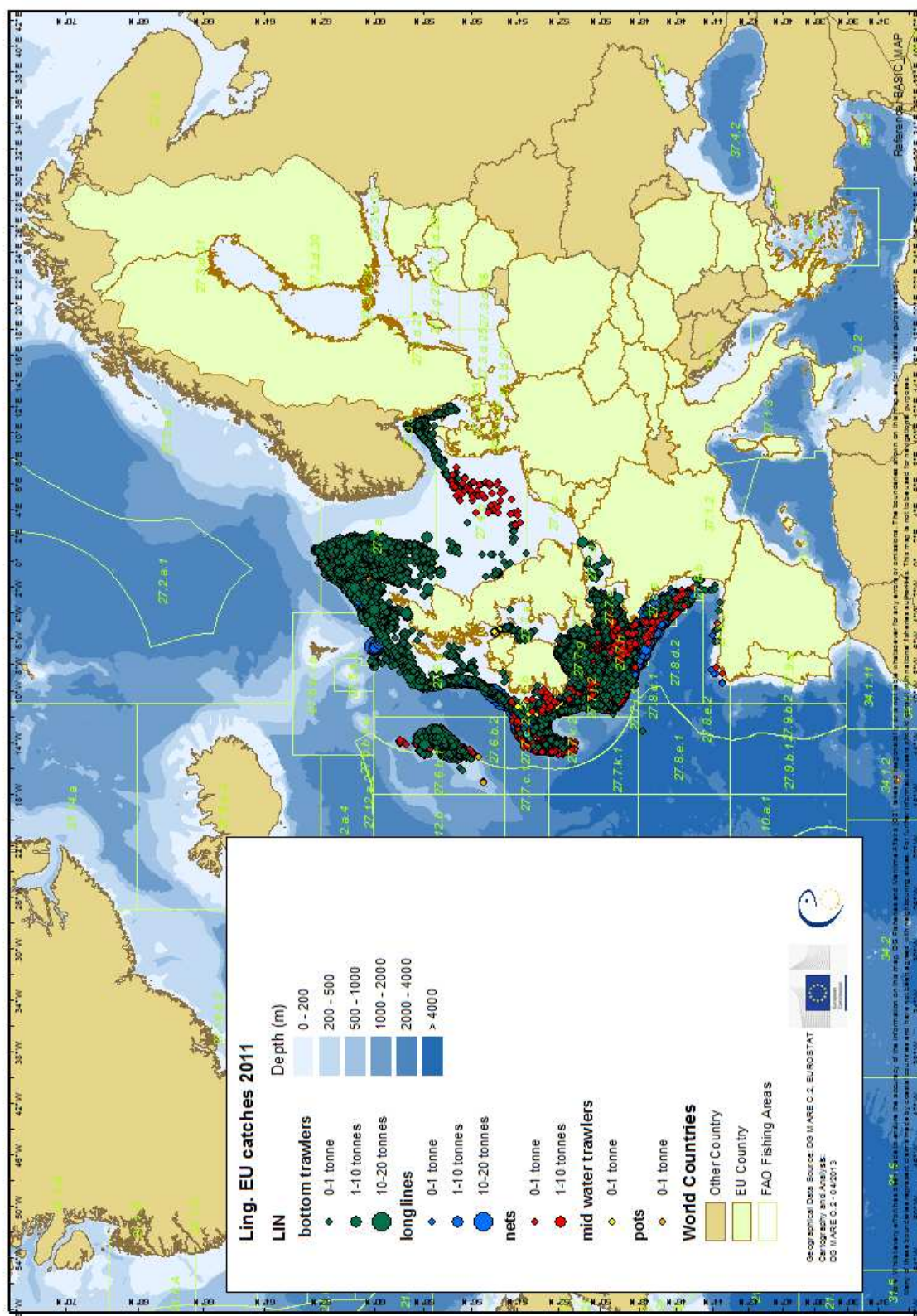
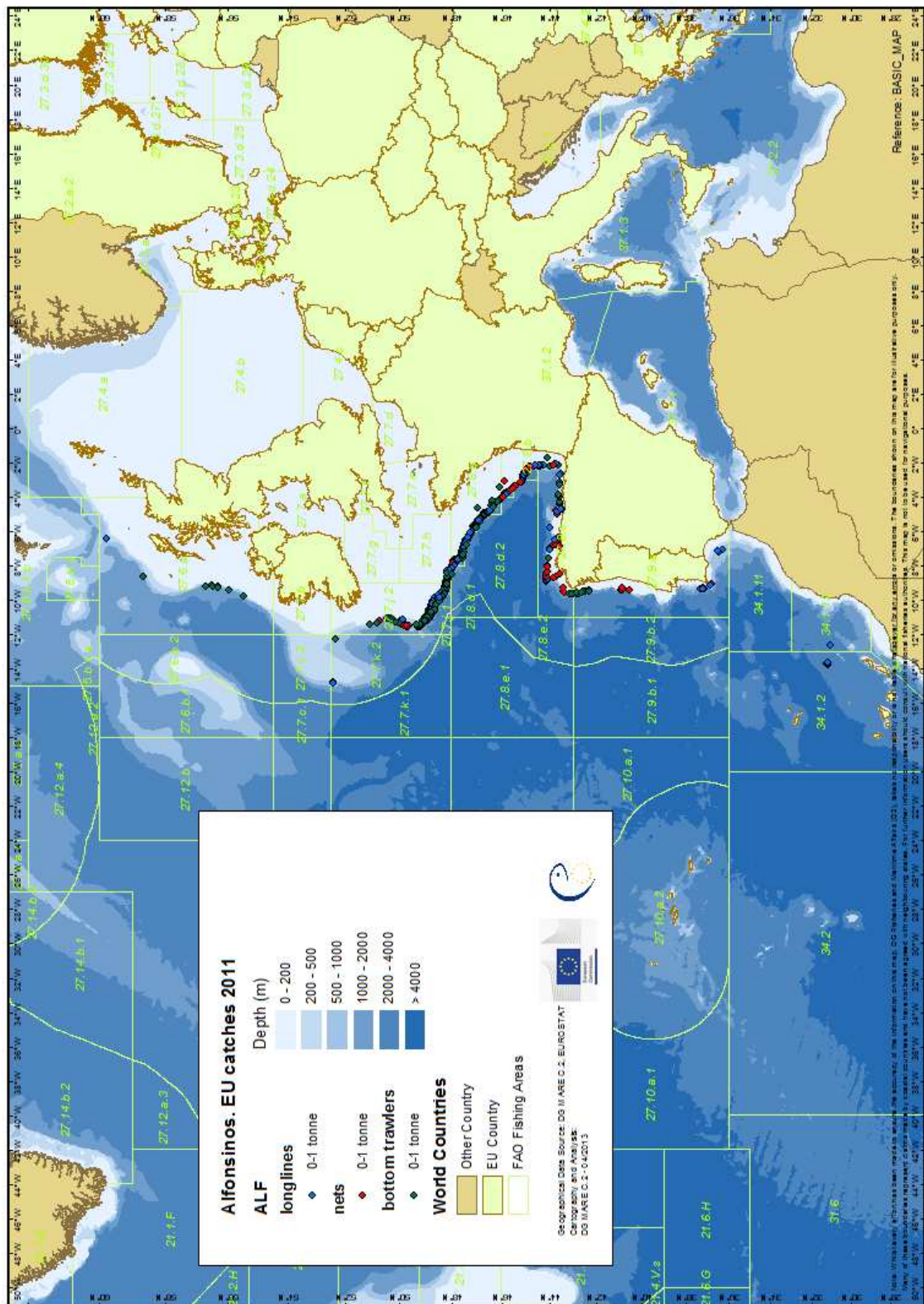


Figure 7: location of reported catches of *Alfonsinos* (species code ALF)



Every spot plotted in these maps represents a record of catches and its size represents the volume of catches taken. Colour codes have been used to identify the gears with which the catch was taken.

The first key finding arising from the data so plotted is that the only fishery for key commercial DSS that clearly spans deep and shallow waters is the fishery for Ling. In the other cases, the reported catches concentrate around the edge of the continental shelf, in deeper waters. However, the continental shelf is very narrow around the Iberian waters, and it is necessary to zoom in to appreciate the spatial distribution of the activity. In these waters, shallow, coastal fishing coexists in the proximity of deep water fishing, and therefore the activity is accessible to short-range fishing vessels of small size.

Figure 8: spatial distribution of Blue Ling catch in short-range fisheries around Iberian and South Bay of Biscay waters

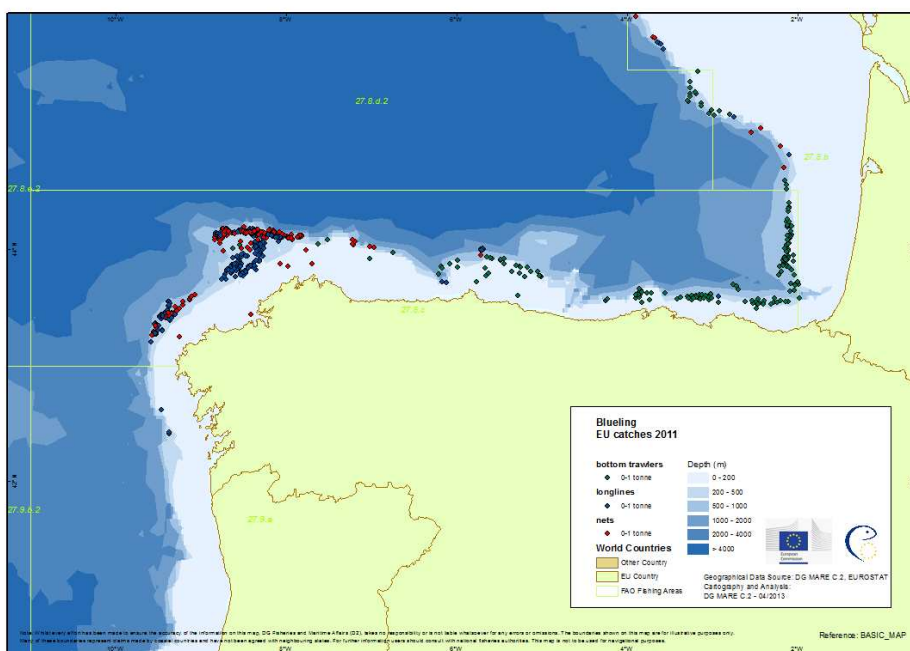
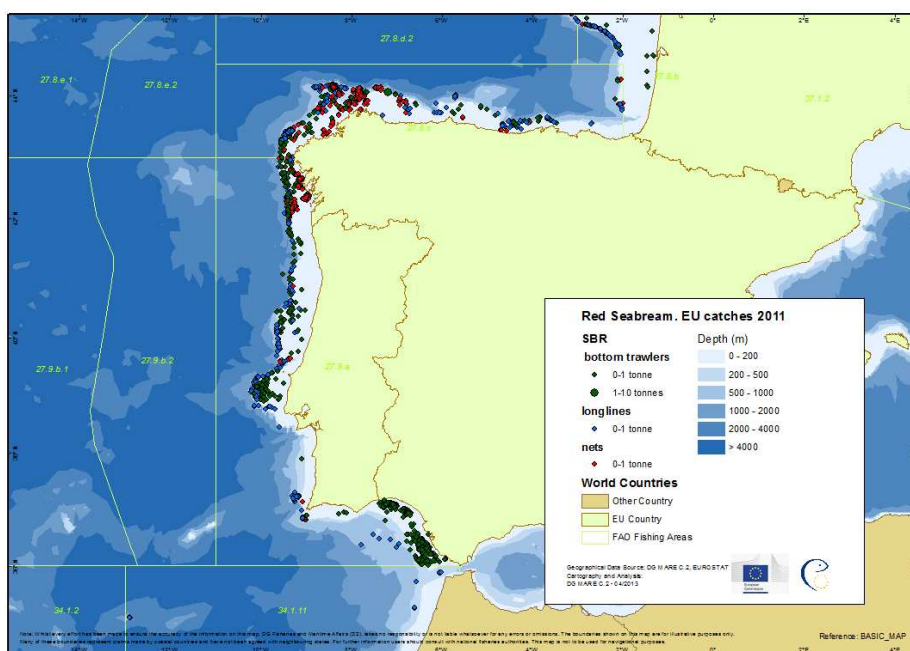


Figure 9: spatial distribution of Red Seabream catch around Iberian waters



The implications for the proposal are that, outside the ling fishery and the short-range fishery for Red Seabream in Iberian waters, trawling and netting in shallower waters of the continental shelf is affected by the proposal to a rather limited extent. In this shallower area, the analysis suggests that catches of DSS (other than ling) are for the most by-catch and of low volume in these waters. By-catch trawling and netting authorisation could cover these activities to a large extent.

The information on gear used in these maps already suggests that most fisheries are polyvalent and can be conducted with a choice of gears. This aspect is analysed more in detail in the following section.

2. Key catch species by gear and by flag

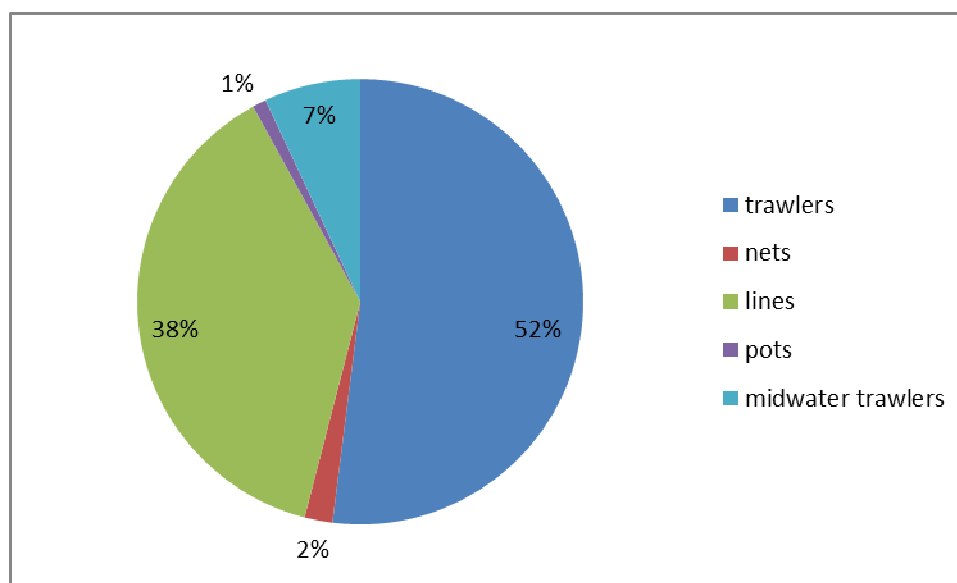
The Impact Assessment Report accompanying the proposal indicated (section 2.5) that deep sea landings represented only about 1% of the overall landings from the North East Atlantic. This data is based on 2008 statistics. We can at present detail this analysis based on 2011 data (so that it can be used in conjunction with the GIS results).

The total volume of landings for the North East Atlantic in 2011 is **3 344 353** tonnes (source EUROSTAT).

The GIS data used here report **47 000** tonnes of DSS catch.. These constitute therefore **1.4%** of the total NEA landings.

A further datum of interest is that within the GIS sample itself, the total catch in fishing trips during which DSS are reported total to **297 000** tonnes. Of this total, 86.44 % is made up of other species and only **13.56% are DSS.**

Figure 10: Share of catch by gear of total DSS in the GIS dataset



The majority of the catch is taken by trawlers. Gillnetters take only 2%, possibly due to the prohibition in force to deploy bottom gillnets below 200 m (below 600m certain conditions). Longliners take a significant part of the catch at 38%.

Figure 11: percentage represented by each DSS reported over total DSS catch

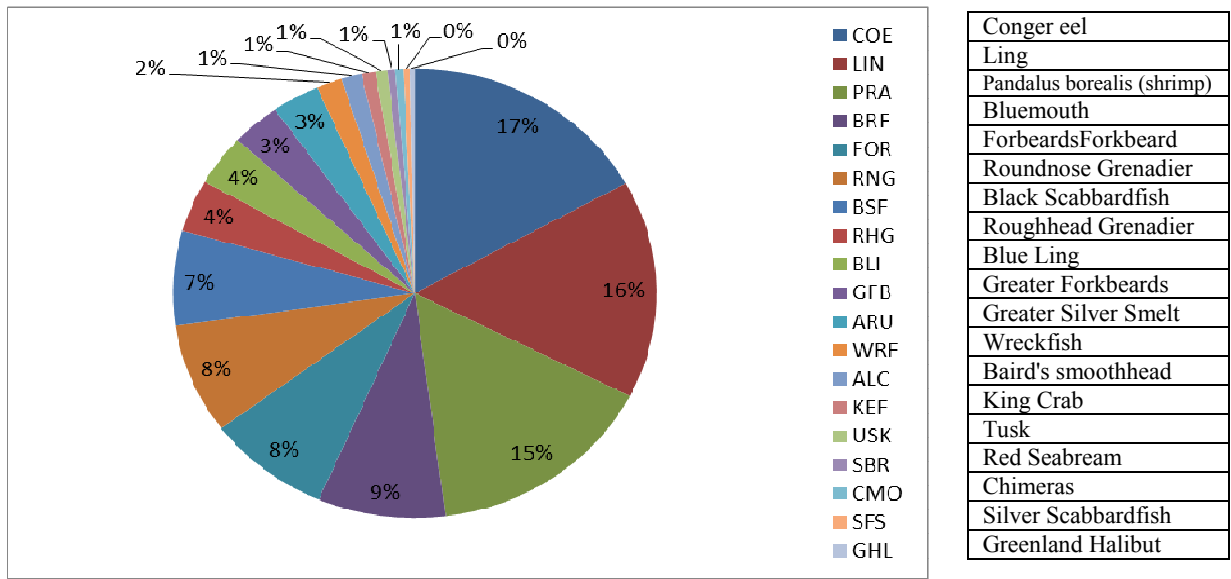
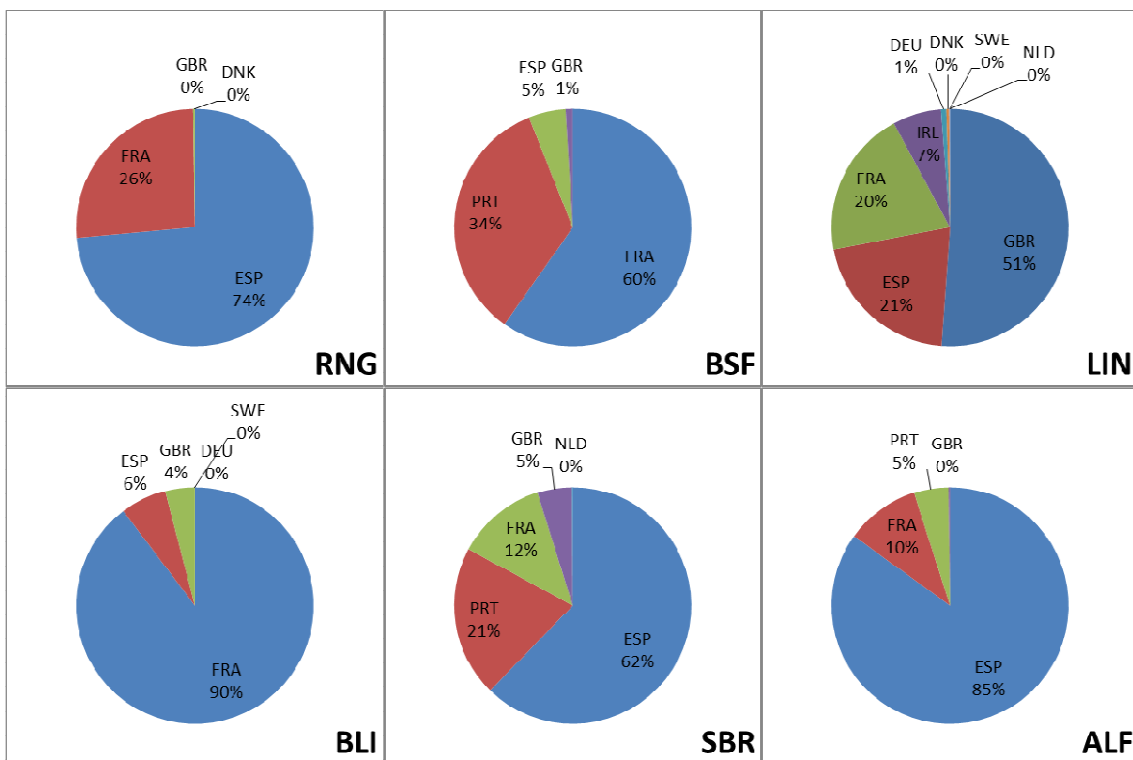
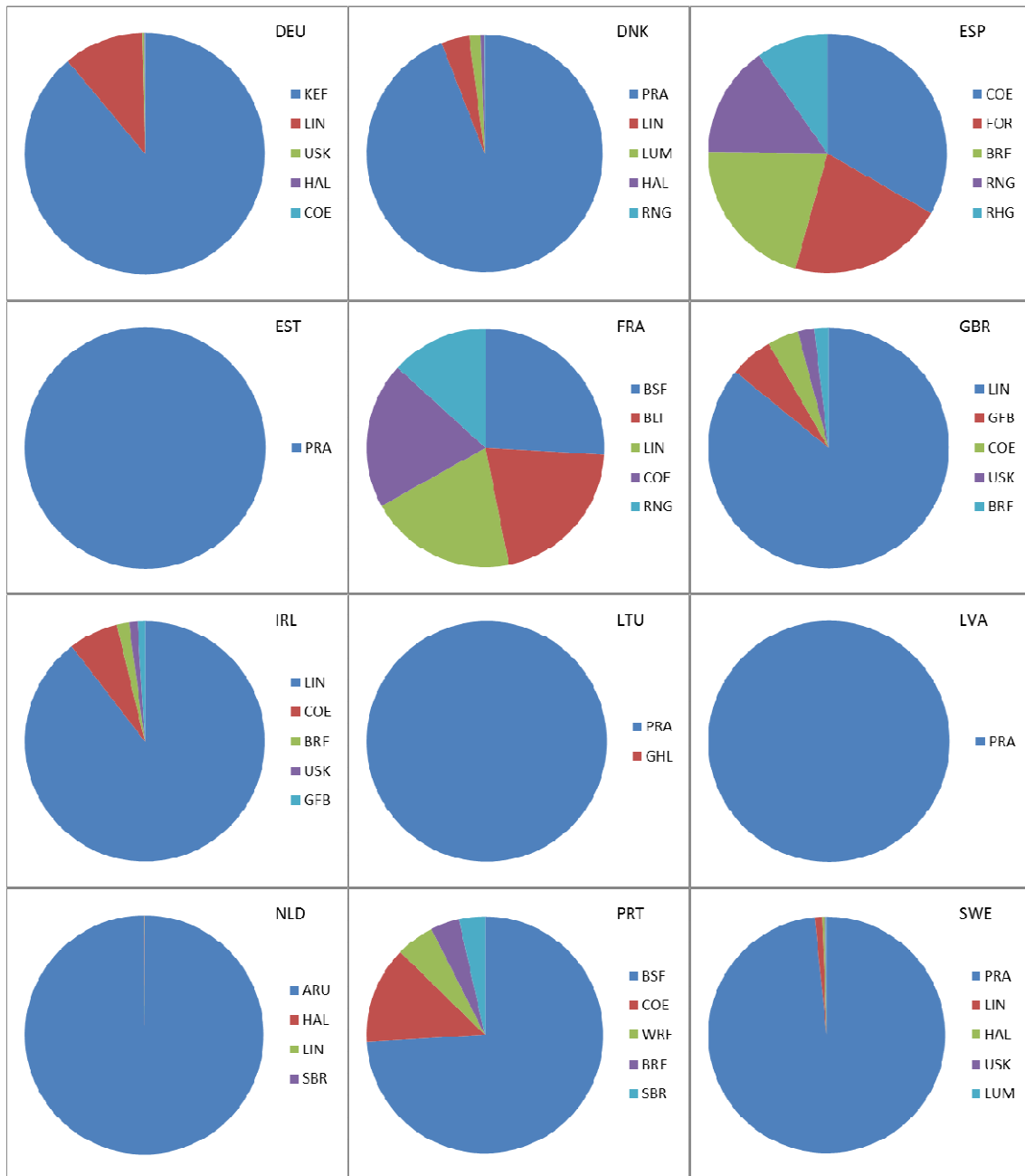


Figure 12: Member State share of catches for key commercial species



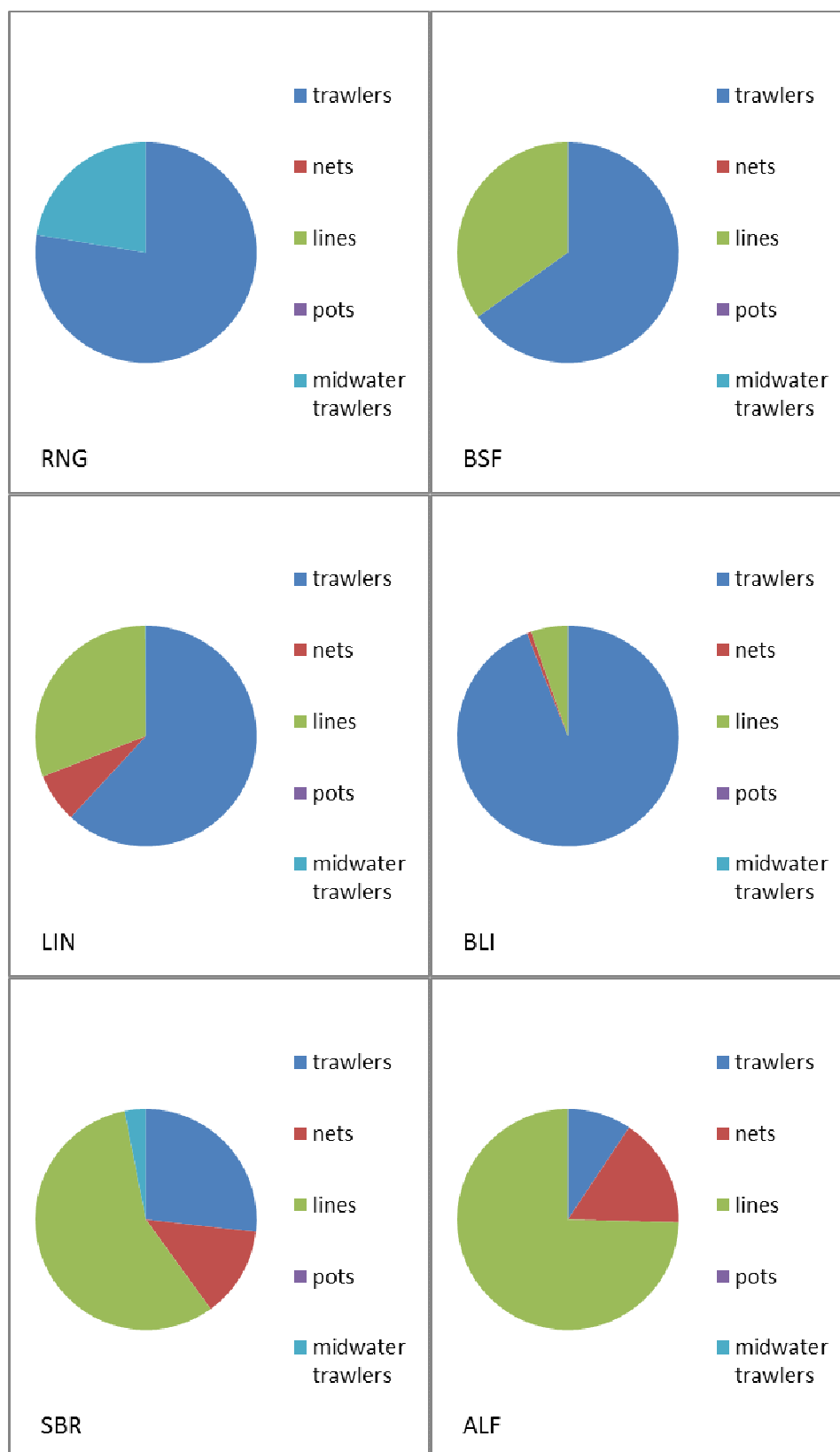
Ling is the species most shared among Member States. France and Spain show the highest degree of specialisation on DSS, the former on Blue Ling and Black Scabbardfish, the latter on Roundnose Grenadier, Alfonsinos And Red Seabream.

Figure 13: Member State main catch composition



The graphs above show the stakes of the various member States on the different DSS. In the Baltic region, the focus is on deep sea *Pandalus* shrimp (PRA). Ling is the predominant interest in the British Isles, whereas King crab and Greater Silver Smelts are important for, respectively, Germany and The Netherlands. For Spain, France and Portugal, the stakes are more distributed among a higher variety of species.

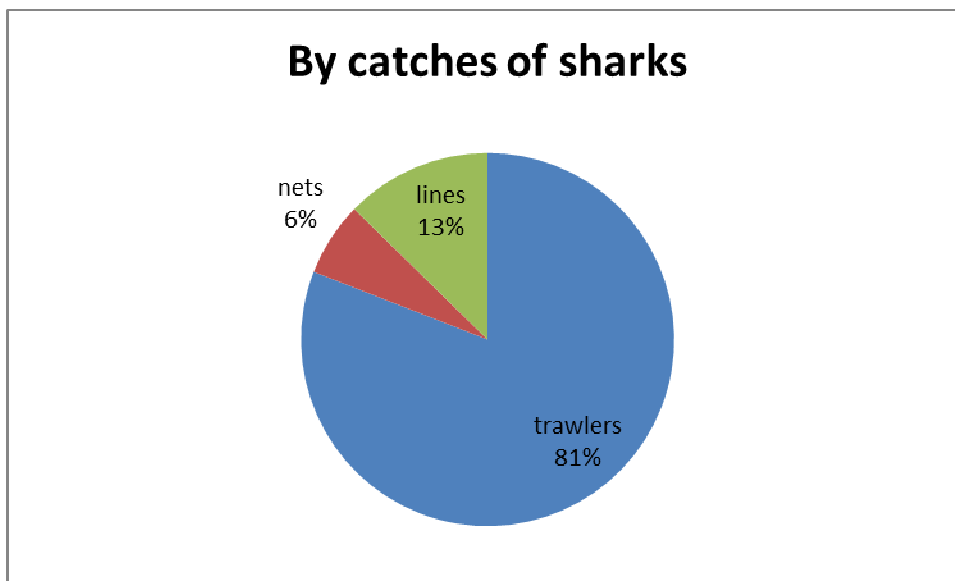
Figure 14: proportion of catches of key commercial species by gear



The data above suggests that any of the key commercial species in the set can be taken with almost any gear. There is only one case where longliners are excluded from the data, namely Roundnose Grenadier. To note, however, that there are significant catches of this species with mid-water trawls, a gear that does not touch the bottom and have thus

much lesser risk of causing damage to vulnerable marine ecosystems. Mid-water trawls are not concerned with the targeting phaseout in Article 9 of the proposal.

Figure 15: Deep sea shark bycatches



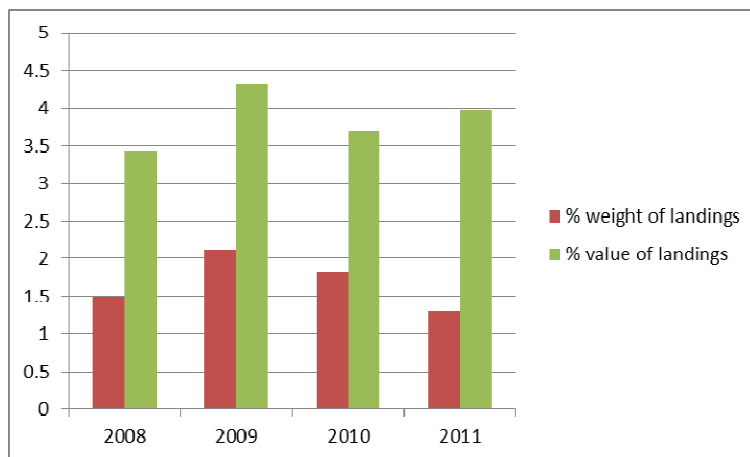
The argument has been made in the debate around the proposal that creating an incentive for deep sea trawling fisheries to switch to bottom longlines can have a negative consequence on the conservation of deep sea sharks, because the latter are an important by-catch in longlines. The data in the GIS set tends to dismiss this argument by showing the logbook data on deep sea shark by-catch weighing heavily on the side of the trawlers. Sharks catches in the set amounted 43.7 tonnes, equal to 0.09% of the total weight reported of DSS, and 0.01% of total catch weight. Since deep sea sharks have been under a TAC zero for 4 years already, the low percentage of reported catch with longlines suggests that shark selectivity is possible with this gear.

3. Proportion of DSS catches over total catches and value per segment, per flag (DCF data).

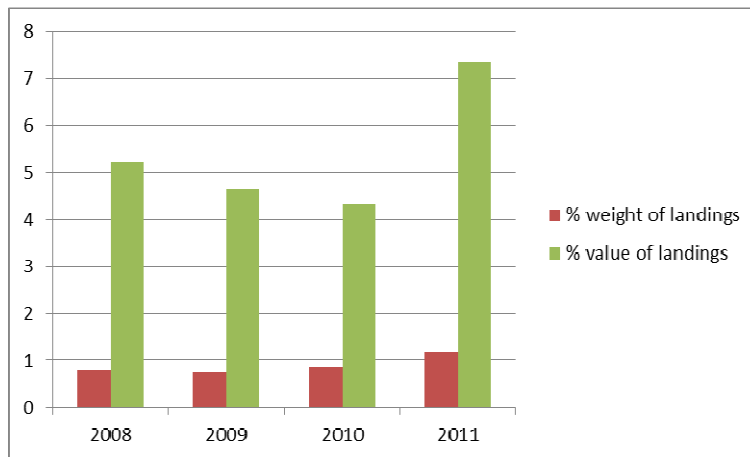
Taking the DCF data as a basis (and here it is necessary to recall the limitations noted in Part III) it is possible to calculate the percentage represented by DSS over the total catch of the different fleet segments, both by weight and by value. The results are presented with the gears divided in two groups: trawlers and nets, on one side, and the rest of the gears on the other. Only the former are concerned by Article 9 of the proposal.

The values presented here are averages by segment. It is not possible, with the data available under the DCF, to refine the analysis to calculate the percentages for vessels currently targeting vis-à-vis those that only land by-catches.

Figure 16: proportion of DSS catches over total catch, all segments included



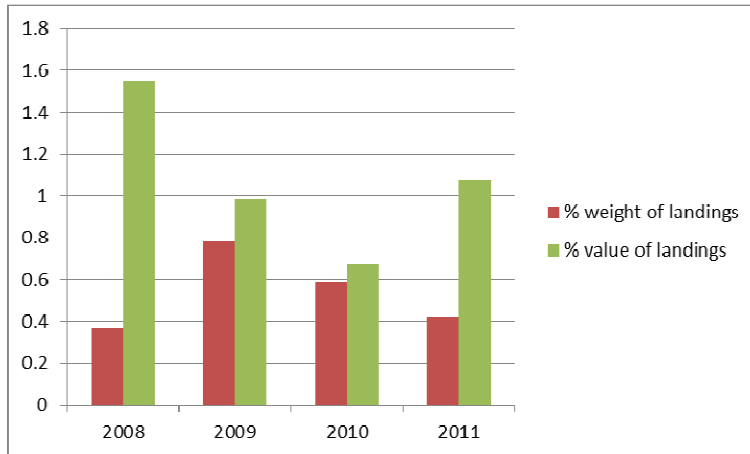
a) Trawlers and gillnetters



b) Longliners, mid water trawlers, pots

The above figures suggest that trawlers and netters are, as a whole, not dependent economically on DSS than compared to the rest of the gears. It is also important, in line of the difference between weight and value, that DSS are proportionally more valuable than other catches for longliners, mid-water trawls and pots. Even for the gears that show the highest % of DSS in their catches, ie longliners, mid-water trawls and pots, the share of DSS in the business is on average less than 8% (max. of 2011). Clearly, some segments are bound to be more or less dependent than these averages. That analysis is provided by the following data.

Figure 17: proportion of DSS catches over total catch, 10-12 m length segment



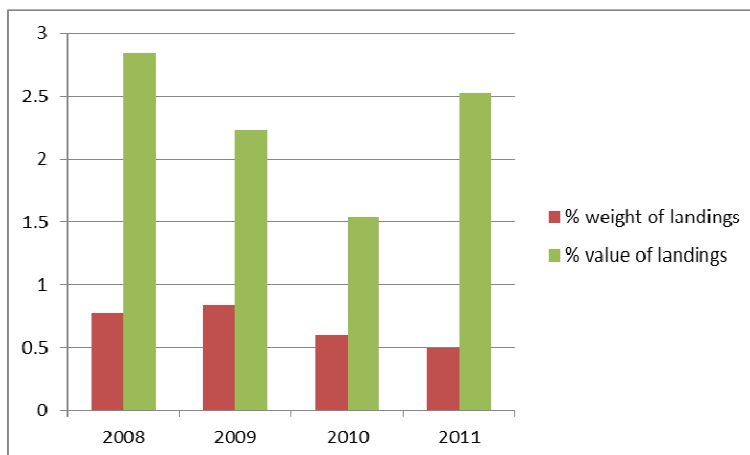
a) Trawlers and gillnetters



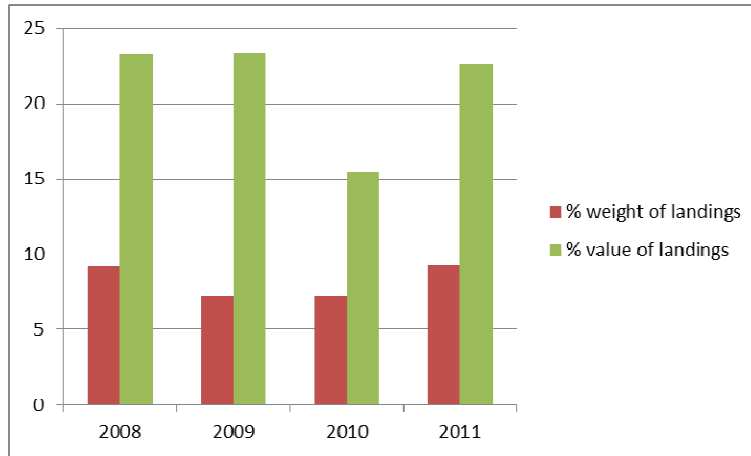
b) Longliners, mid water trawlers, pots

Small trawlers and netters show on average almost no dependency on DSS, with only around 1.5% max. in the time series.

Figure 18: proportion of DSS catches over total catch, 12-18 m length segment



a) Trawlers and gillnetters

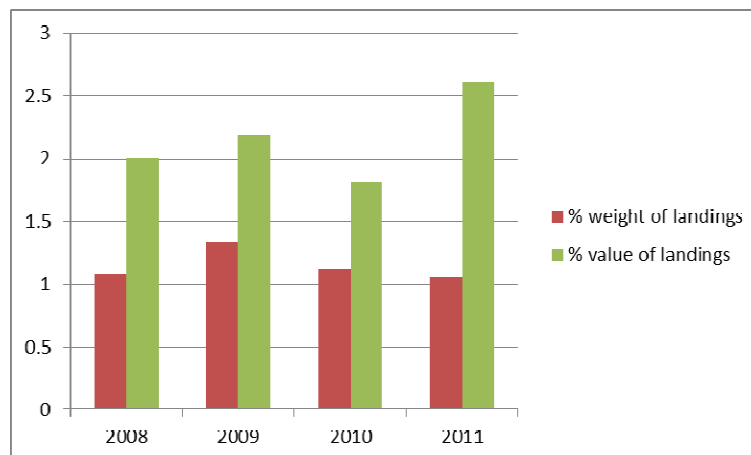


b) Longliners, mid water trawlers, pots

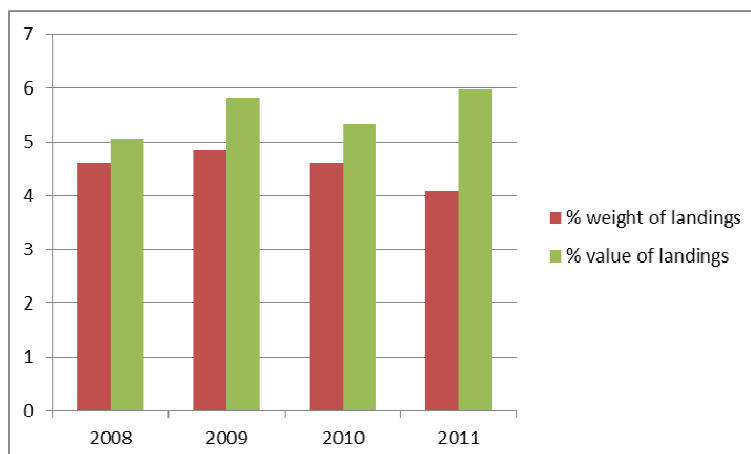
Longliners, mid-water trawls and pots in this segment are the vessels showing the greatest dependency from DSS of the whole set. With, on average, between 20 and 25% of their activity based on DSS catch value, these fisheries are a key component of the economic viability for vessels in this segment.

Figure 19: proportion of DSS catches over total catch, 18-24 m length segment

Trawlers and nets



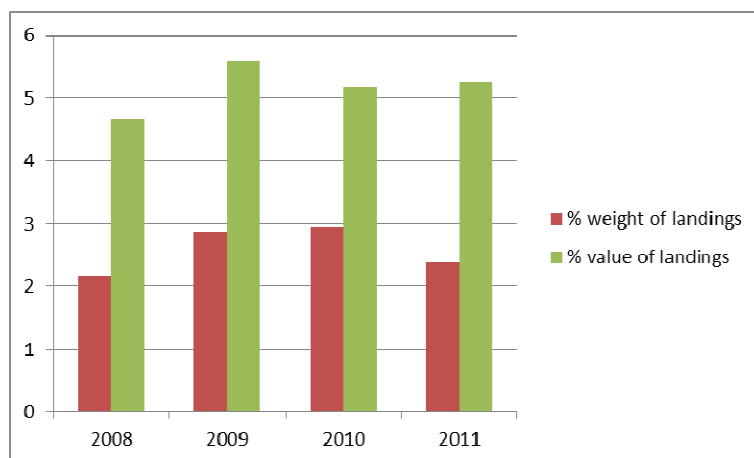
a) Trawlers and gillnetters



b) Longliners, mid water trawlers, pots

Medium-to-large trawlers with capacity to fish longer and further away are not showing any dependency on DSS (around 2.5% only in value max.), suggesting that by-catch fisheries prevail in this segment.

Figure 20: proportion of DSS catches over total catch, 24-40 m length segment



a) Trawlers and gillnetters



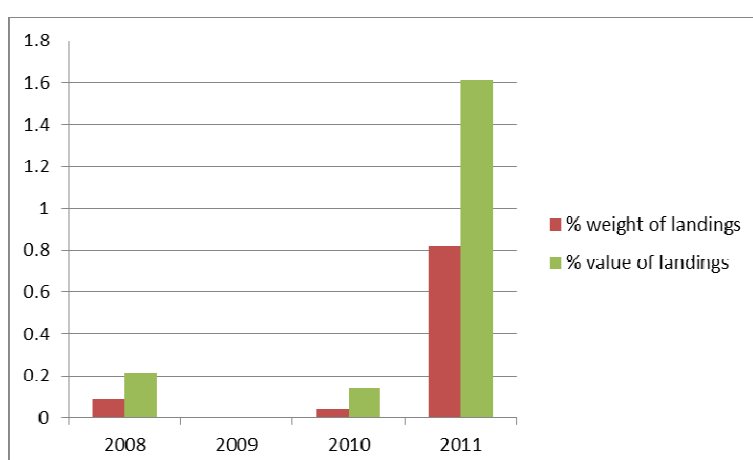
b) Longliners, mid water trawlers, pots

Larger vessels in the longliners etc group of gears show – for this segment – the most marked figures as to the high value (relative to volume) represented by DSS within their overall catch. It is hard to determine from the figures whether this is a targeted (at low volume) or by-catch scenario. The dependency of trawlers and netters in this size range is going above 5%, but the volume of catches remains low throughout the time series.

Figure 21: proportion of DSS catches over total catch, >40 m length segment



a) Trawlers and gillnetters



b) Longliners, mid water trawlers, pots

The data concerning segments of large vessels size yields interesting results. For trawlers and netters, the degree of dependency on DSS is the highest of all segments, but even here it remains well below 10% during the time series. There is a marked gap between volume of catch and value. This suggests that limited catches yield good economic result. This would be a driver for specialised, targeted fishing for certain DSS, by vessels that have full capacity to operate far afield (trawlers/freezers). A significant part of the French fleets specialised in DSF – discussed in the impact assessment – belongs in this range size, with the remainder of the vessels in the previous size range.

The data for longliners, mid-water trawlers and pots shows what could be an interesting evolution, from an almost nil involvement in DSF to limited, but not far from by-catch averages e.g. in trawlers and netters. Could this be a sign that industry is evolving to an increased use of these gears in long-distance fishing? The question cannot be answered due to – reminder – lack of key Member State data for 2011 under the DCF.

All in all, the data in this time series shows that longliners, mid-water trawls and pots are gears that are more dependent on DSS than trawlers, the sole exception being very large trawlers, but in that case, volume and value of DSS over total catch remain low, below 3 and 10%, respectively. This segment certainly contains specialised fleets with a higher percentage of DSS in their business, but the size of these fleets and the volume of their DSS catches is not sufficient to raise the average DSS share of this segment to significant levels. Vessels that take DSS as by-catch and not in a targeted way are still predominant

in this group. The possible impact of a phaseout of targeted fishing authorisation for trawlers and gillnetters is likely to affect, in light of the data, a minority of specialised fishing operations, possibly those based in Atlantic France and discussed already in the Impact Assessment Report of the proposal. The analysis here tends to support the points made in that discussion.

3. Quantification of targeted fishing for DSS

The current Access Regime does not distinguish between targeted fishing and by-catch. Under the proposal, targeted permits would be required in three cases: a) the vessels fishing calendar foresees a targeted activity; b) the gear carried on board is only used to catch DSS; or, the logbook registers a percentage of DSS equal or superior to 10% of the overall catch in any fishing day (Article 4(2)). In the absence of a targeted permit, if any of these conditions are fulfilled, the DSS catches cannot be legally landed nor sold.

In this section, we seek an estimate of the numbers of trawlers and gillnetters within the GIS set that would need such an authorisation under the revised proposal¹⁰. Two years after the entry into force of the proposed rules, targeted fishing authorisations would no longer be issued (Article 9 of the proposal). The vessels in question would be either required to keep their DSS catch below the threshold (they could land/sell such lower catches under a by-catch authorisation) or opt to continue targeting with gears other than bottom trawls and bottom gillnets. Bottom trawls could opt to change operations to mid-water trawls in fisheries such as the important one for Grenadiers. For species like Black Scabbardfish, trawlers would have the option of switching to longlines (or pots) to continue targeted fisheries. The costs and feasibility of switching to longlines are discussed in section 5.

The data does not provide an account of what percentage these vessels represent of the total fleet operating in the proposal's area. A specific case study for the Spanish fleet is presented in the next section. The percentages seen here are likely to be inferior if all vessels operating in the proposal's area could be counted.

¹⁰ This GIS analysis can only refer to the implementation of the 10% threshold, the other two criteria relate instead to the declared intention to target by the fisherman concerned, either by its fishing plan or by his choice of gear.

Table 2 – Trawlers and gillnetters data on fishing trips with reported catches of DSS and other species

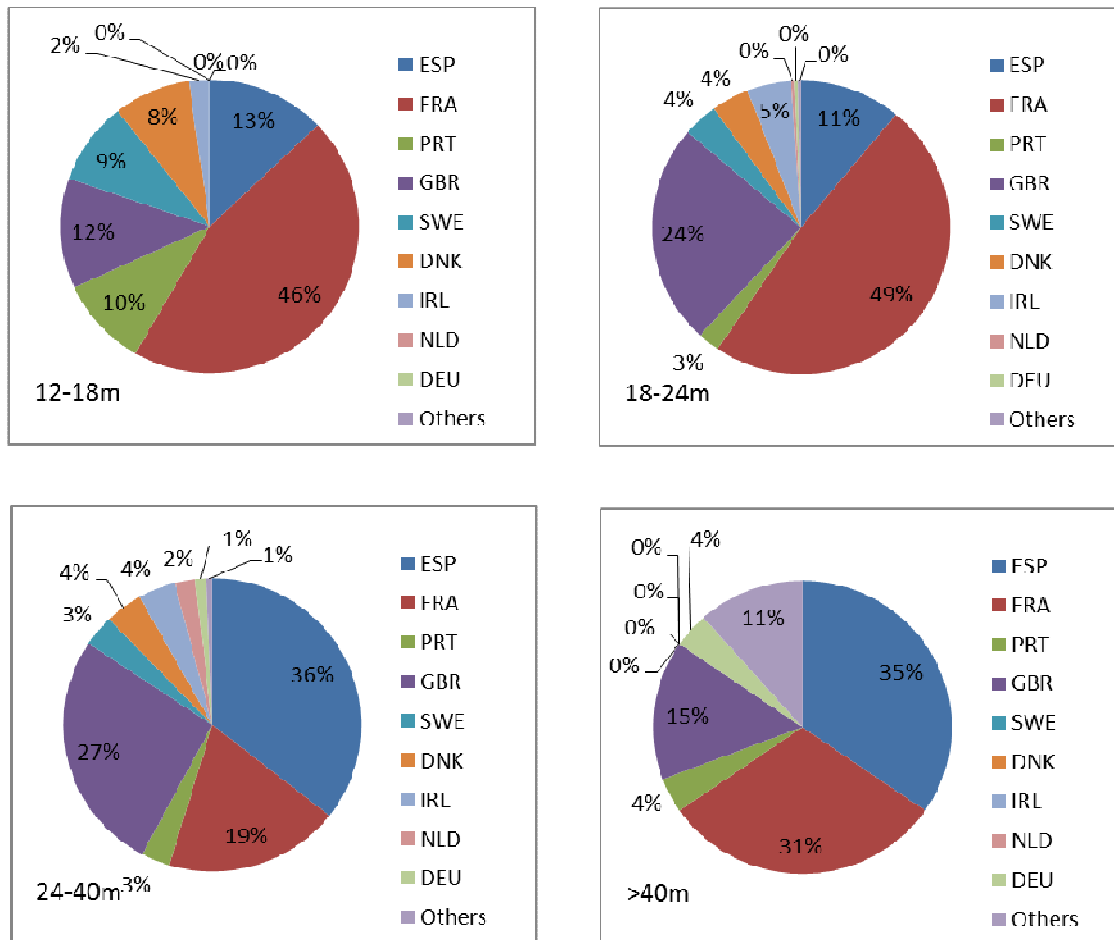
	Trawlers	Netters	T+N	T+N Share
Vessels logging any record of DSS and other species	1034	211	1245	100%
Idem, where DSS catch \geq 100 kg/trip	826 (79.9%)	139 (65.9%)	935	75%
Idem, where trips logged include any day with DSS catch \geq 10%	652 (63.1%)	120 (56.9%)	771	62%
Vessels with trips logged inc. up to 3 days catch \geq 10%	638 (61.7%)	122 (57.8%)	760	61%
Trips with any logbook record of DSS catch and other species 2011	16317	2454	18771	100%
Idem, where DSS catch \geq 100 kg/trip	9990 (61.2%)	1214 (49.5%)	11204	60%
Idem, where trips include any day with catch DSS \geq 10%	5438 (33.3%)	830 (33.8%)	6268	33%
Trips with up to 3 days DSS catch \geq 10%	4156 (25.5%)	665 (27.1%)	4821	26%

Table 3 – Breakdown of incidence of "targeted" activity (any one trip with DSS catch \geq 10%) in trawlers and gillnetters, by size and flag

Flag / Segment	<12m	12-18m	18-24m	24-40m	>40m	TOTAL
ES	0	17	32	114	9	172
FR	0	60	141	61	8	270
PT	0	13	7	10	1	31
UK	0	16	71	85	4	176
SE	0	12	11	11	0	34
DK	2	11	12	13	0	36
IE	0	3	14	13	0	30
NL	0	0	1	7	0	8
DE	0	0	1	4	1	6
FI	0	0	0	1	0	1
EE	0	0	0	0	2	2
LT	0	0	0	1	0	1
BE	0	0	1	0	0	1
LV	0	0	0	0	1	1
TOTAL	2	132	291	320	26	771

The stakes held by Member States can be seen from the share they have in targeting vessels for each segment, in the following graphs.

Figure 22: % of trawlers and netters fulfilling the targeting criteria in the GIS set, by flag



The data in the above tables and pies suggests that even within the narrowly defined category of "trawlers and gillnetters carrying out a targeted activity" almost all vessels have just one, two or maximum three days during the whole season when the 10% threshold is surpassed. This suggests that there is only very limited activity targeted (or with important levels of by-catch) for DSS in those fleets that could be affected by the proposal.

The data also demonstrates that the segment that could be most affected – in the absence of any change on the part of this segment – by the proposal is French trawlers and gillnetters of 12-18 and 18-24 m length targeting DSS (60 and 141 vessels, accounting for 46% and 49%, respectively of these segments) and Spanish trawlers and gillnetters of 24-40 and above 40 m length targeting DSS (114 and 9 vessels, accounting for 36% and 35%, respectively of these segments). As already indicated, the table compiles all the fishing activity where any record of DSS was registered in the logbook no matter how small the quantity. Therefore the relative impact in the fleets concerned (in percentage in the table) is expected to be much lower. This will be discussed in the next chapter with a case study.

4. Specific case study : the DSS share in the total activity of the Spanish Atlantic fleet

In order to investigate what actual share DSF represent of the activity of a fleet, it is necessary to quantify its total activity. We can carry out this analysis for Spain thanks to the data published by the Spanish authorities in an Atlas of the Spanish Atlantic Fleets for the period 2004 – 2006 and in the Official statistics in the Ministry web site. This Atlas provides useful statistics in terms of number of fishing trips for this fleet that can be contrasted with the data in the 2011 GIS set.

Table 4: Share of DSF in the activity of the Spanish Atlantic fleet

	Trawlers	Netters	T + N	Share
Total nr of vessels (*)	426	108	534	--
Total nr of vessels (2011) (**)	334 (-21.6%)	145(+34%)	479	--
Vessels logging any record of DSS and other species)	241	85	326	68%
Idem, where catch >= 100 kg/trip	176	45	221	46%
Idem, where trips logged include any day with catch DSS >= 10%	139	44	183	38%
Vessels with trips logged inc. up to 3 days catch >= 10%	84	36	120	25%
Total nr of fishing trips (*)	38799	6577	45376	--
Trips corrected 2011 (***)	30418 (-21.6%)	8813 (+34%)	39231	--
Trips with any logbook record of DSS catch 2011 and other species)	3153 (10.4%)	987 (11%)	4140	10.5%
Idem, where catch >= 100 kg/trip	1805 (6%)	466 (5.3%)	2271	5.8%
Idem, where trips include any day with catch DSS >= 10%	753 (2.5%)	340 (3.8%)	1093	2.8%
Trips with up to 3 days catch >= 10%	210 (0.7%)	190 (2.1%)	400	1.0%

(*)*Total*: source 'Atlas de las flotas de pesca españolas de aguas europeas atlánticas (2004-2006). IEO'

(**) *Total (2011)* source: Estadísticas Pesqueras. Octubre 2012 Ministerio de Agricultura, Alimentación y Medio Ambiente'

(***) Number of fishing trips that correspond to a level of activity reduced/increased proportionally to the changes in the fleet from 2008 to 2011 data.

Shaded rows present data from, or worked out on the basis of, Spanish published statistics. Clear rows present data from the GIS datasets used in this study.

In the period between the data reported in the Spanish Atlas and those stemming from the 2011 statistics published by the Spanish authorities, the Atlantic fleet of trawlers has decreased by 21.6% (334 vessels from 426 in the period reported by the Atlas). When it comes to gillnetters, the evolution goes the other way round, an increase by 34%. However, the Spanish 2011 statistics do not provide data on total number of fishing trips. Therefore, in order to make this analysis, we have applied the above percentages to the total fishing trips recorded in the Atlas. We assume a reduction/increase of the activity in proportion to the reduction/increase in vessel numbers.

Given the absence of Spanish data on weight/value of landings and effort under the DCF for the years covered in this study (2008-2011) this exercise completes the picture and provides some indication of any economic dependency on DSF in the Spanish Atlantic fleets, by looking at their activity. The data suggest that fishing trips during which DSS are reported in quantities superior to 100 kg could represent 6% for the Spanish trawlers and about 5% for the gillnetters. In all other trips, the quantities of DSS caught would be

below the threshold that requires having a DSS authorisation both under the rules in force and under the proposed rules.

When it comes to the threshold for a targeting authorisation that would be required in the proposal (i.e. any day during a fishing trip where DSS represent 10% or more of the catch), the data suggest an even lower incidence. Only about 3% of trawler trips and 4% of gillnetter trips would pass that threshold. Seeing as the proposed threshold is for just one day when the DSS catch is 10% or more of the total, we have looked at trips in the GIS set with up to three days of catches that go over the threshold. Only 0.7% of fishing trips for trawlers and 2.1% for gillnetters fall in that category. This suggests that an overwhelming majority of fishing trips in this fleet do not register a significant amount of DSS activity, and that DSS catches are in general quite low and mostly by-catches. A targeting phase-out would thus be expected to have a very limited effect in these fleets.

5. Feasibility of switching from bottom trawling to bottom longlining

The conversion costs from trawling to longlining are hard to estimate with any degree of accuracy as they are very much dependent on the specific vessel involved and in particular their deck layout, main engine and auxiliary engine setup as well as their existing deck machinery and hydraulics. However, based on current market prices, the cost for installing an automated longline system on a large 35m-40m vessel capable of fishing around 45000-50000 hooks which would be standard for a vessel of this size is estimated at **€215,000** (see the breakdown below). This would include the deck machinery (haulers, baiting machine storage racks etc.) as well as the lines and hooks. Installation of such a system, again highly dependent upon the particular vessel, would be an additional €85,000-100,000, given it would take a substantial amount of work in removing winches and net drums, installing shooting and hauling hatches and installing on board freezing facilities for bait storage. The total costs therefore are estimated at around **€300,000 to €320,000**.

Costs like these have to be considered, however, in light of the fuel savings that switching from trawling to long lining can bring. Studies of fuel efficiency (cf. the one carried out in Norway in 2010¹¹) have shown that for long-distance operations an autoline (longline) vessel uses 0.32 litres of diesel per kilo of fish delivered to the consumer. A normal trawler uses 0.58 litres and a factory trawler 0.72 litres. See also the review of fuel costs as a percentage of income in the 2011 Economic Survey of the UK Fishing Fleet¹² where 28 types of vessels are compared. Of these, for example, longliners of more than 10m register a fuel cost equal to 19% of their income, whereas North Sea nephrops trawls have costs, dependent on size, that range from 25% to 30% of their income.

¹¹ <http://www.nofima.no/en/nyhet/2010/04/long-line-fishing-smarter>

¹² http://www.seafish.org/media/publications/2011_Economic_Survey_of_the_UK_Fishing_Fleet.pdf, see in particular table 3 in page

The following figures are approx. and are based on fitting a 50,000 hook autoline system with deepwater hauler:

Hauler	€60,000,
Splitting machine	€12,000,
Baiter	€60,000,
Storage Magazines	€25,000 for 50,000 hooks,
Lines (11mm rope for deep water)	€20,000,
End lines/buoys etc,	€8,000,
Radio locators and transmitters	€30,000,
Installation costs.	€85,000
Total	€300,000-€320,000

6. Vessels catching DSS and other species as contributors to the economy of coastal communities linked to their home ports

The following maps allow plotting data to identify the ports from which the vessels in the GIS set operate. It is then possible to aggregate their employment data and the Gross Added Value (GVA) of their catch to get a glimpse of the magnitude of the economic contribution of these vessels (all their catches included, not just DSS) to the local/regional economy.

There are some necessary caveats as to the data and methods used in this analysis :

- Fishery employment is estimated as total number of persons from the number of vessels in 3 length classes (<12, 12-24, >24) with the following coefficients (1.1, 2.8, 16.1 persons per vessel) based on DCF data.
- The employment data represents potential jobs given certain fleet consistencies; it does not take into account activity levels.
- GVA for fisheries is calculated as labour productivity * estimated employment.
- For the general employment and GVA in the ports' surrounding areas, the data used is of population densities produced by JRC and EUROSTAT statistics at NUTS3 level.
- Ports which are not or could not be correctly geo-coded and for which the reference service area could not be calculated due to missing street network information are excluded. Of the 2,051 ports in the fleet register, geo coding was considered acceptable in 1,756 cases (86%).

Figure 23: How vessels reporting DSS and other catches in the GIS net distribute along the EU coasts

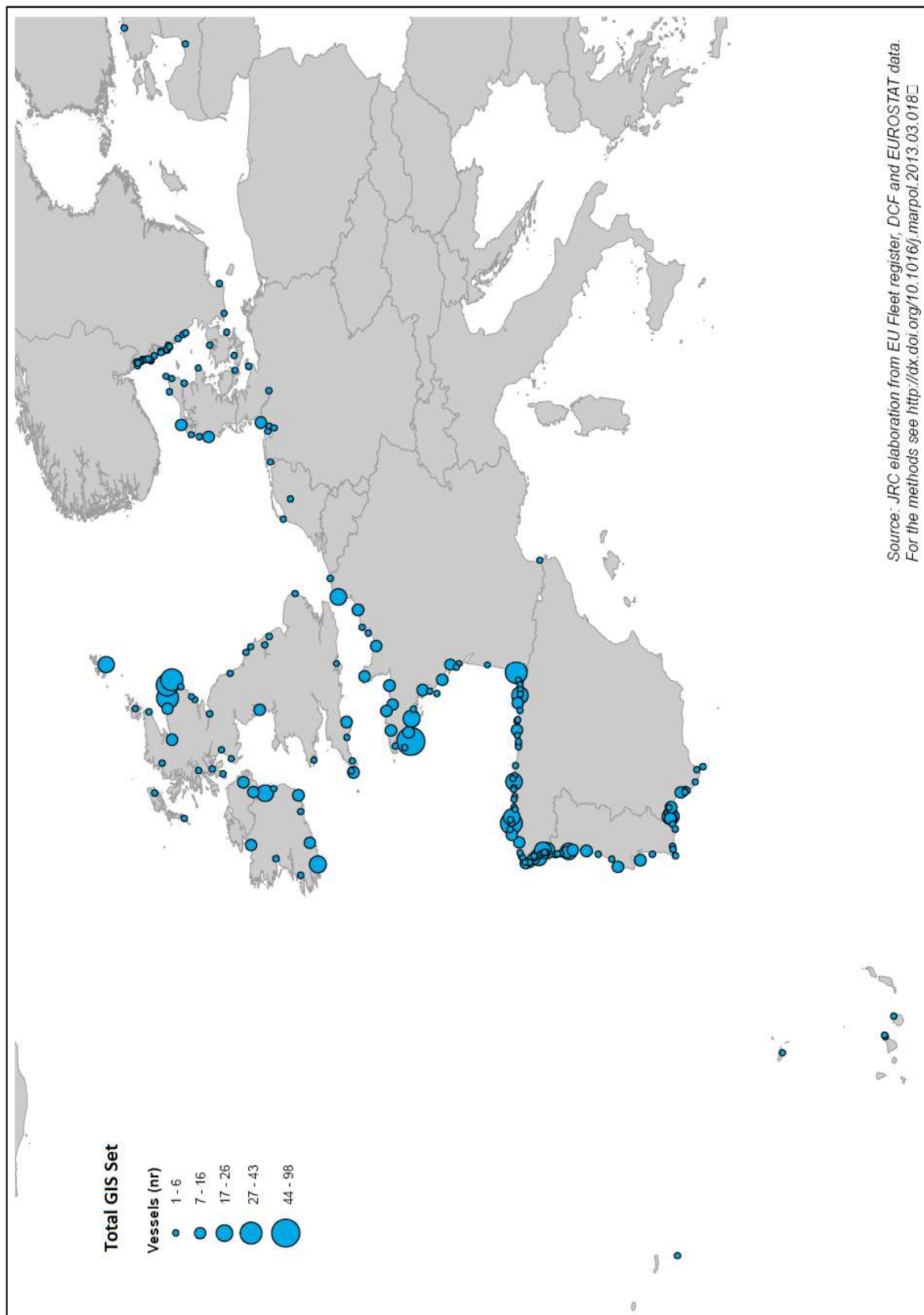


Figure 24: Ports of vessels in the GIS net whose DSS catches are above the proposed targeting threshold (DSS catch $\geq 10\%$ in any fishing trip and catches of other species up to 90%).

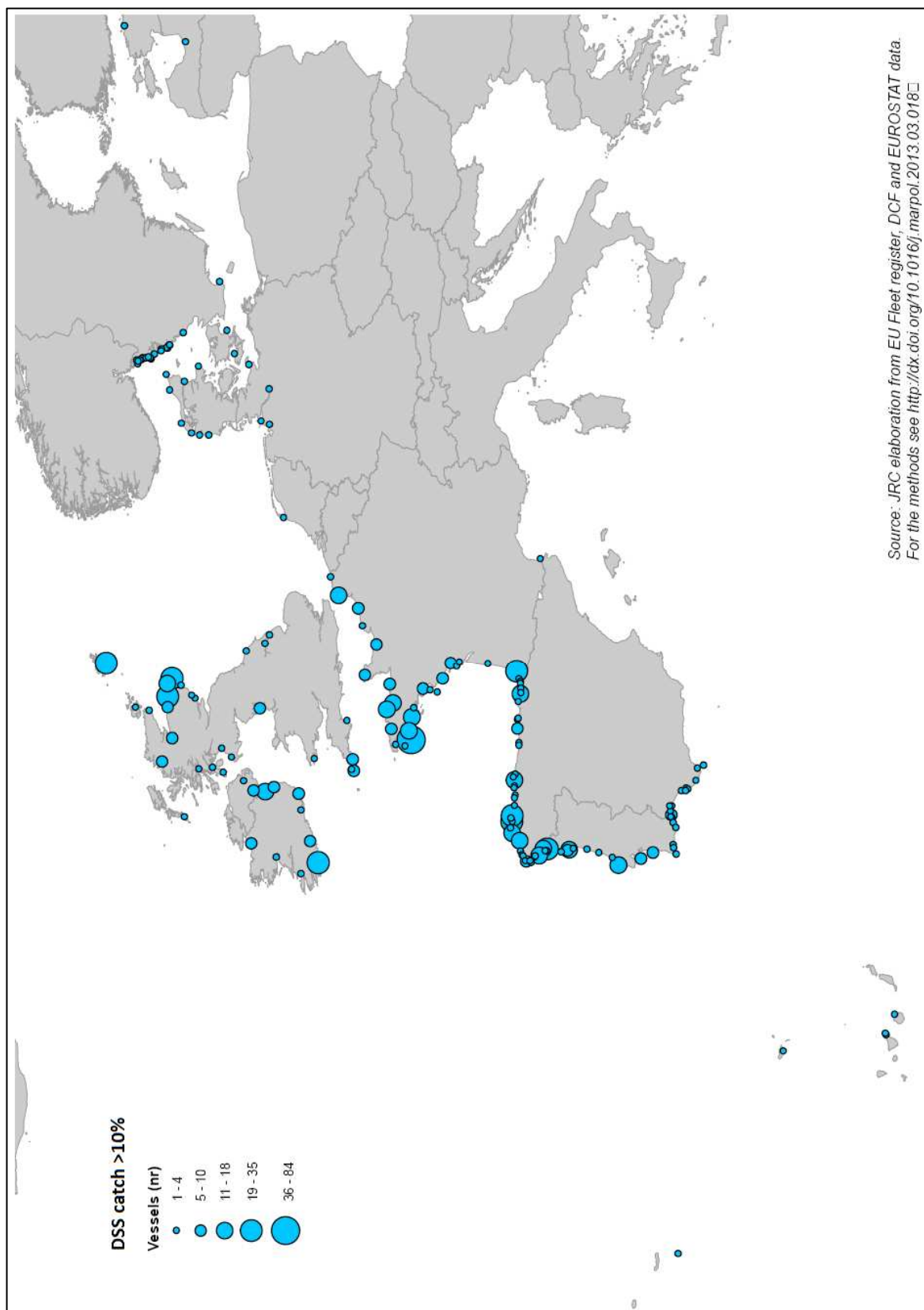


Figure 25: Total employment (jobs) linked to vessels declaring DSS and catches of other species

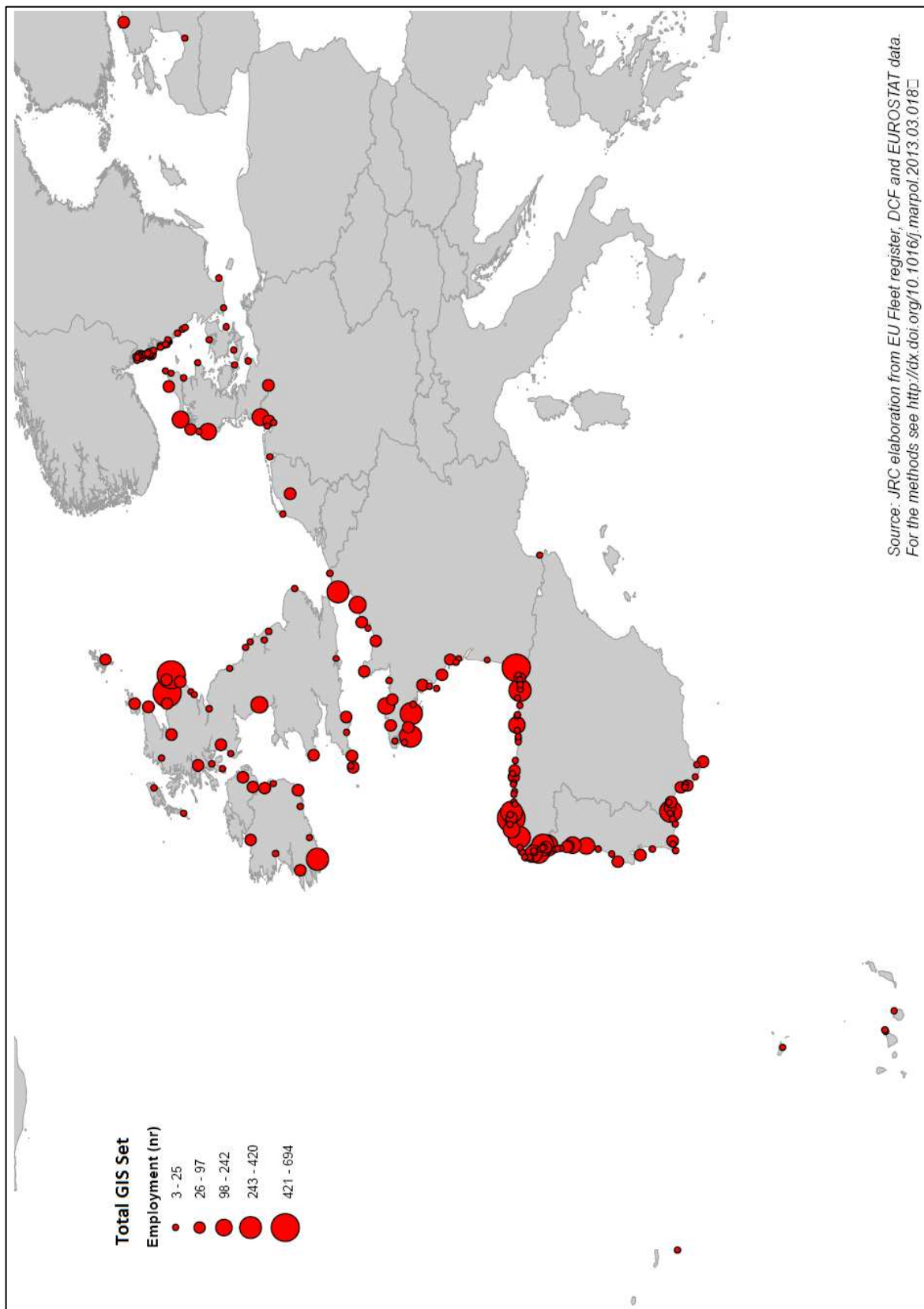


Figure 26: Employment (jobs) linked to vessels declaring DSS catches that have that have reported DSS catches $\geq 10\%$ in a given trip and up to 90% of other species

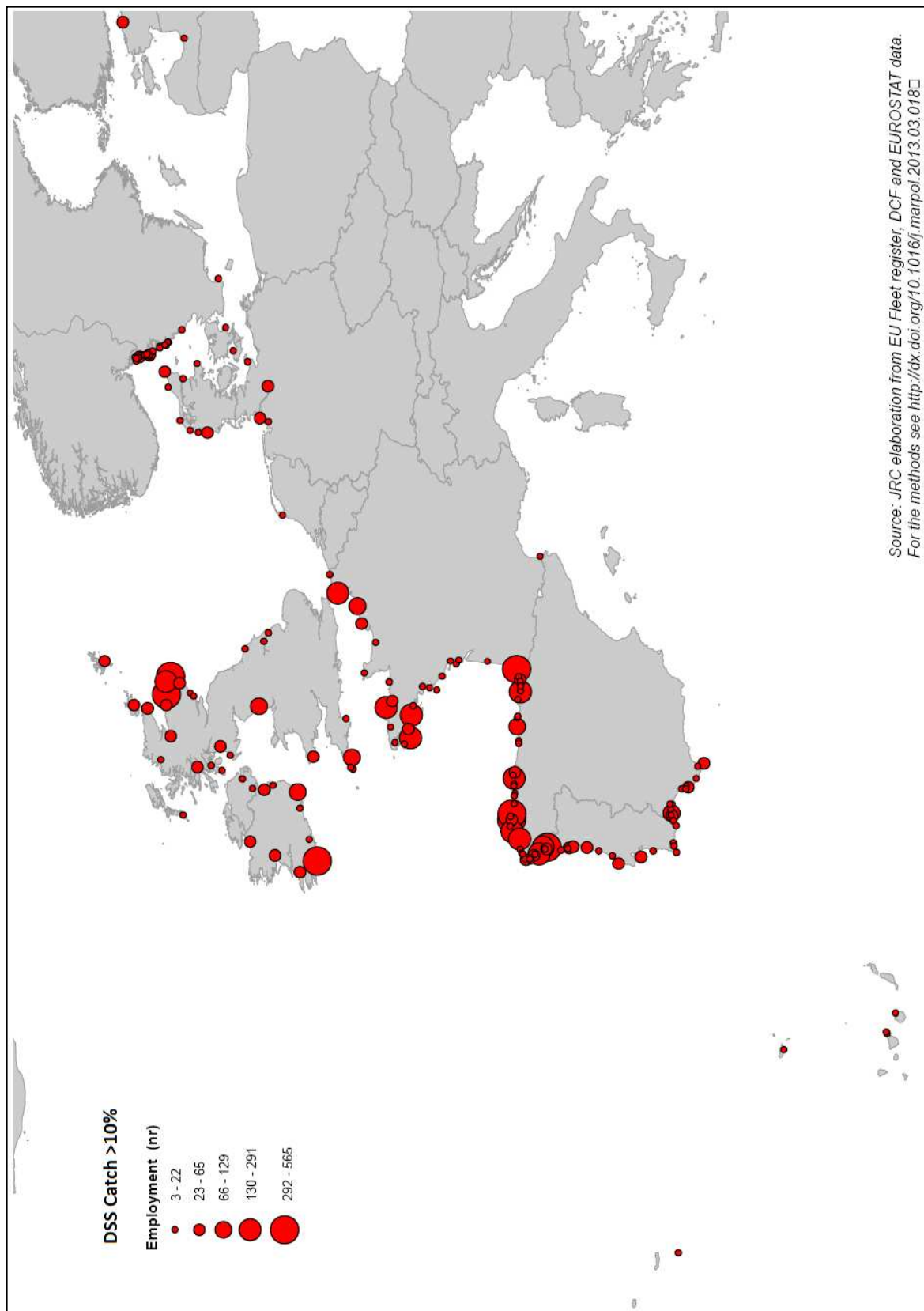


Figure 27: Employment ratios linked to vessels declaring catches of DSS and other species: percentage of jobs linked to all the vessels in the economy of the coastal regions where they are based

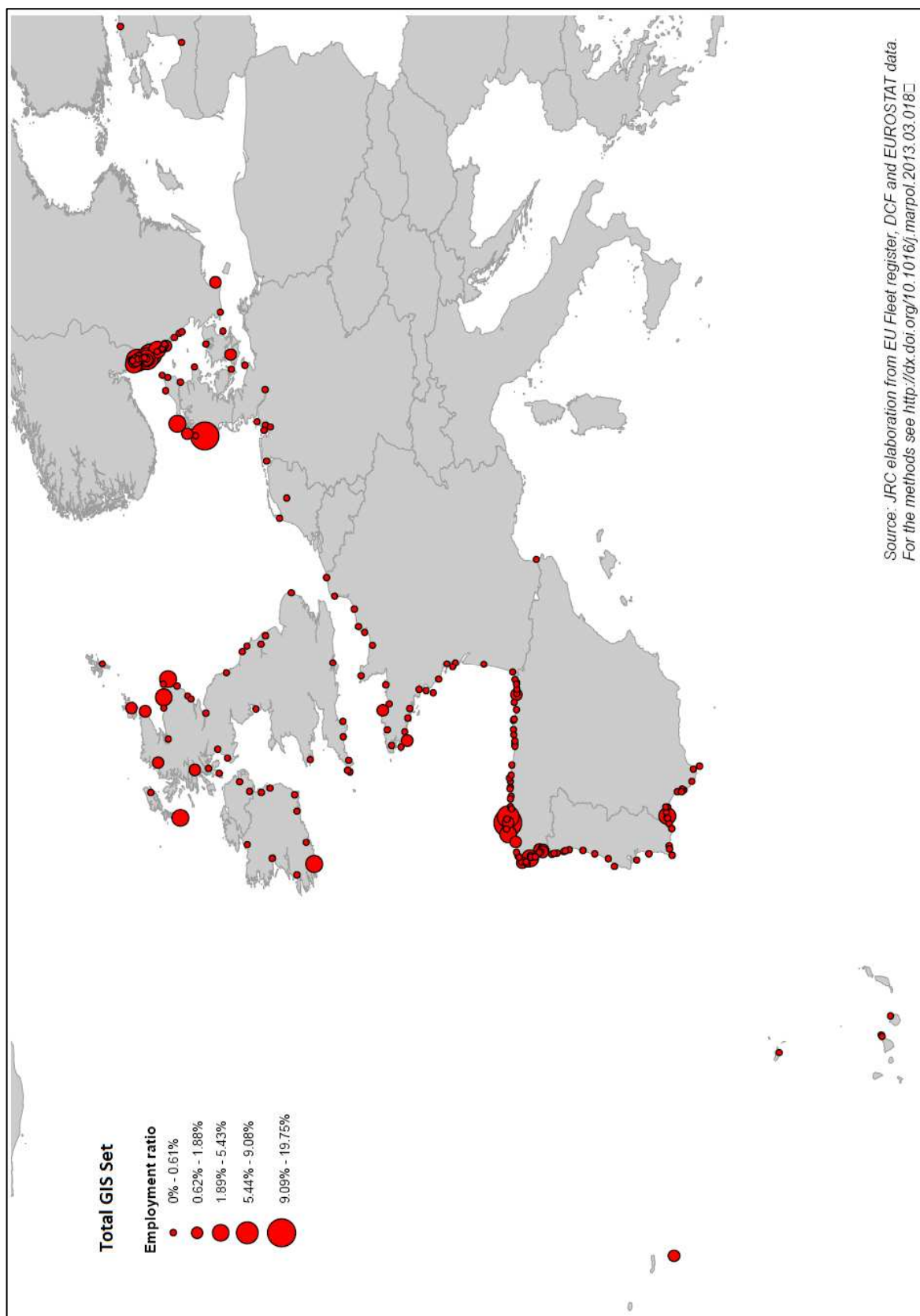


Figure 28: Employment ratios associated with vessels in the GIS set: percentage of jobs in the economy of the coastal regions with vessels that have reported DSS catches $\geq 10\%$ and up to 90% of other species in a given trip

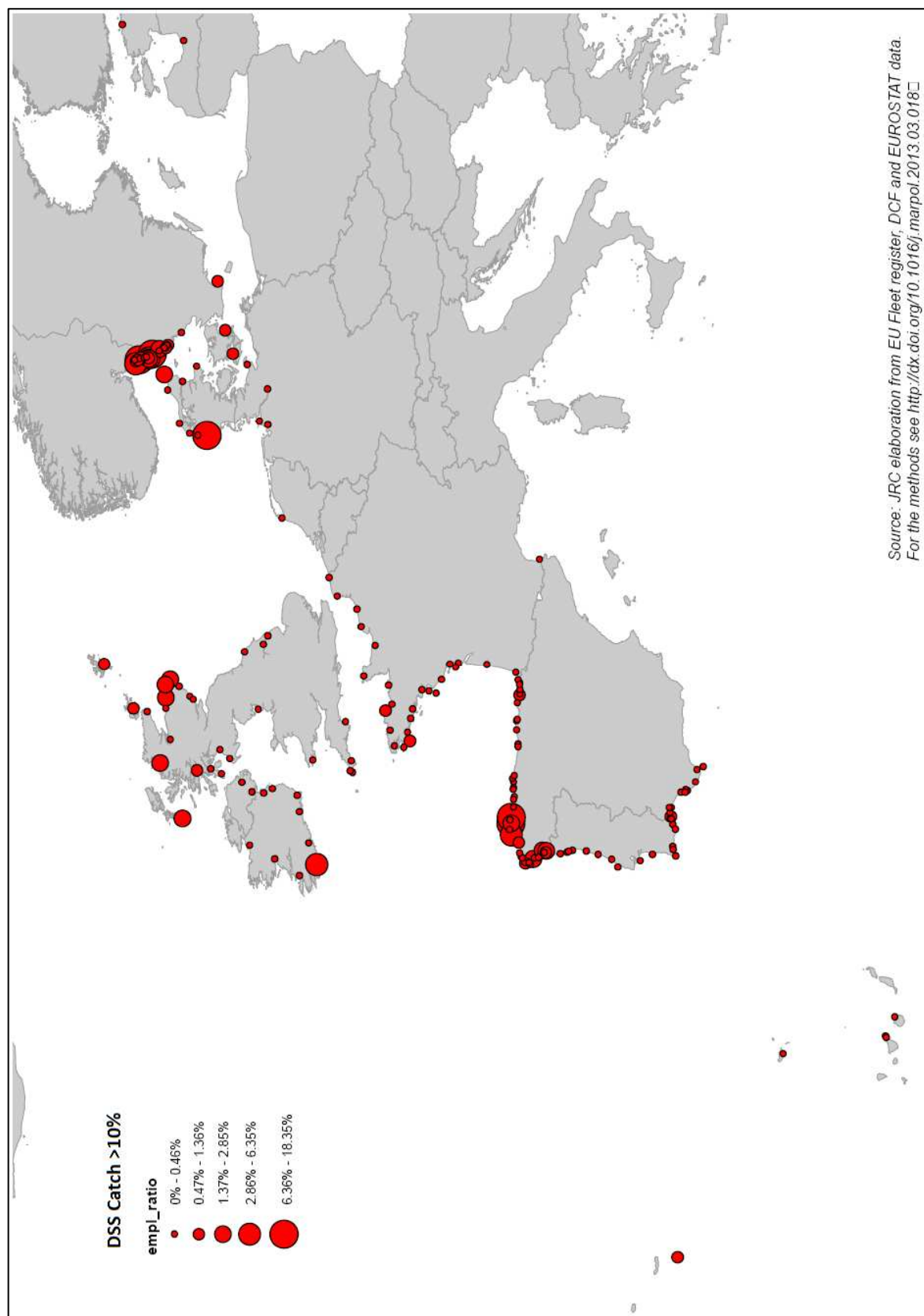


Figure 29: Gross Added Value represented by the overall catch brought to port by vessels in the GIS set (DSS + other species):

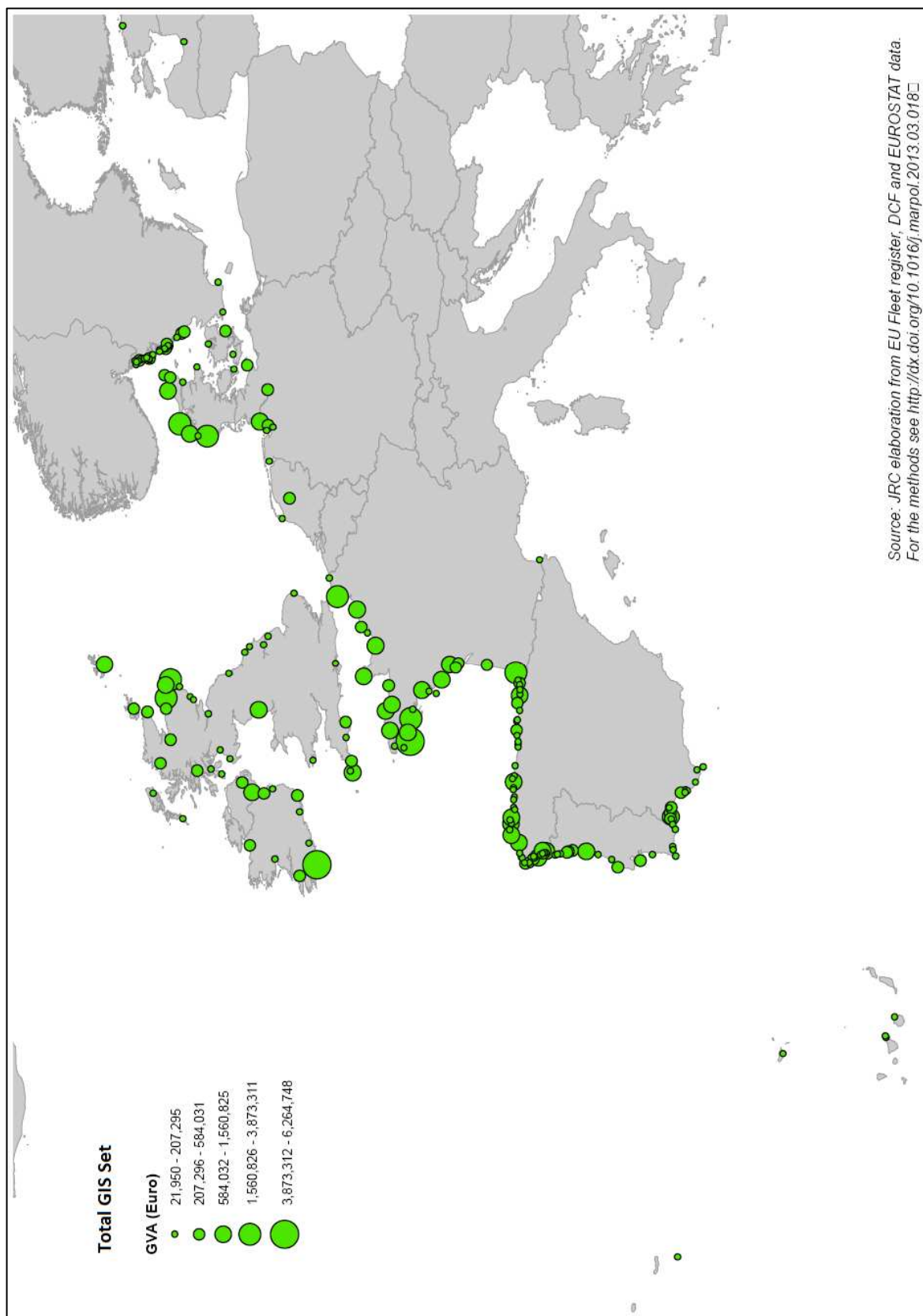


Figure 30: Gross Added Value represented by the overall catch brought to port by vessels that have reported DSS catches $\geq 10\%$ and up to 90% of other species in a given trip:

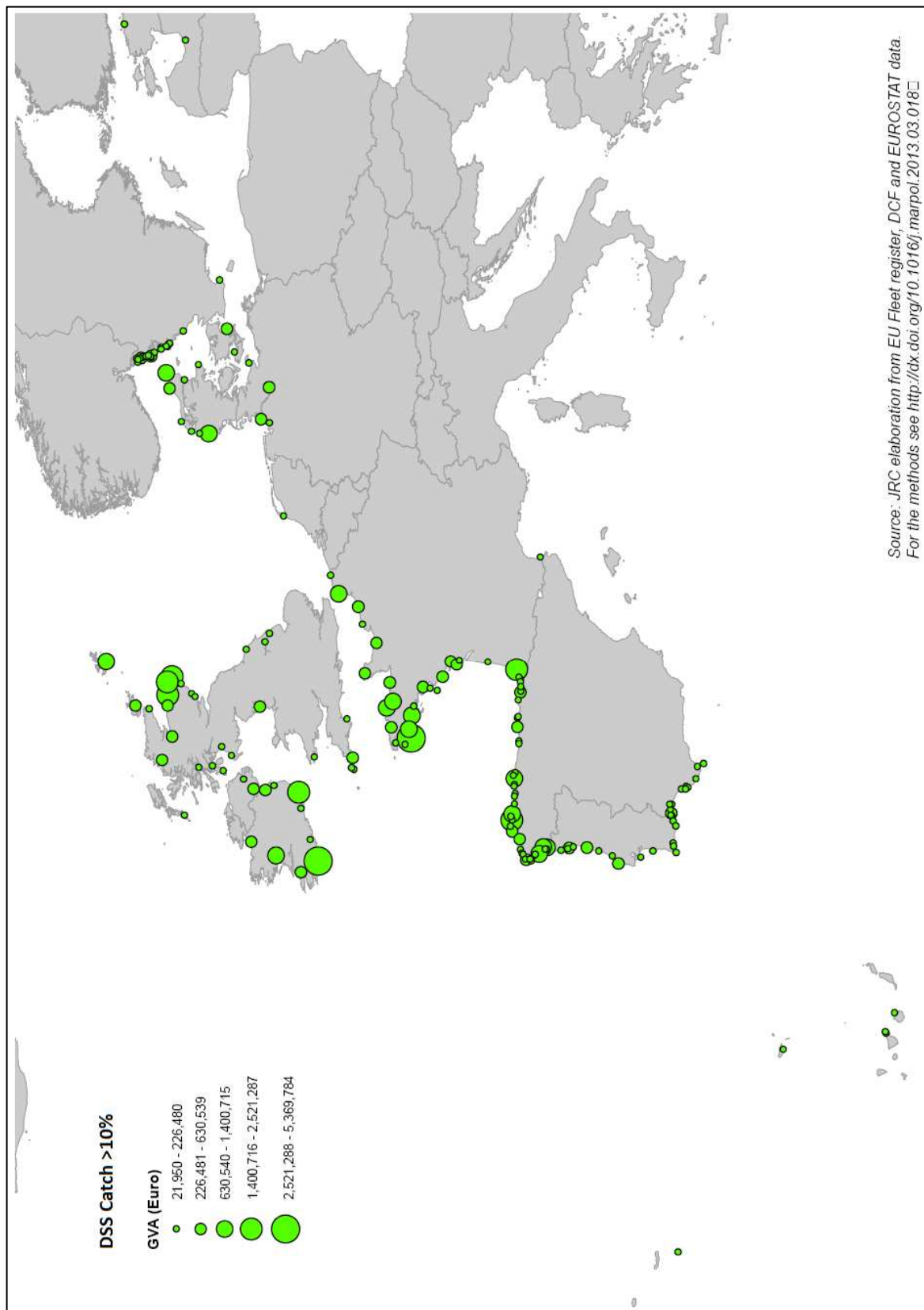


Figure 31: Ratio of Gross Added Value from DSS and other species in the economy of the coastal communities linked to the vessel's home ports

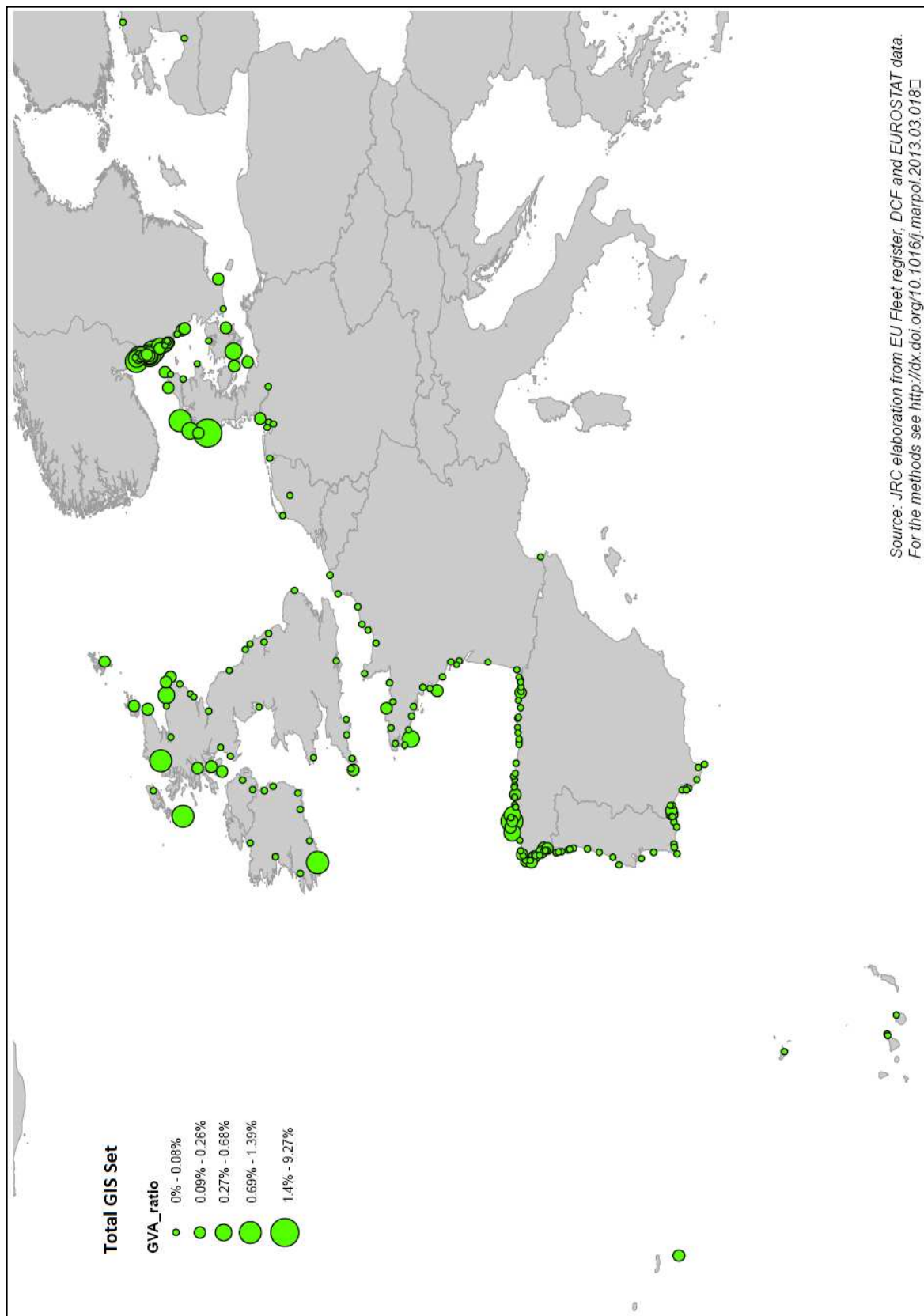
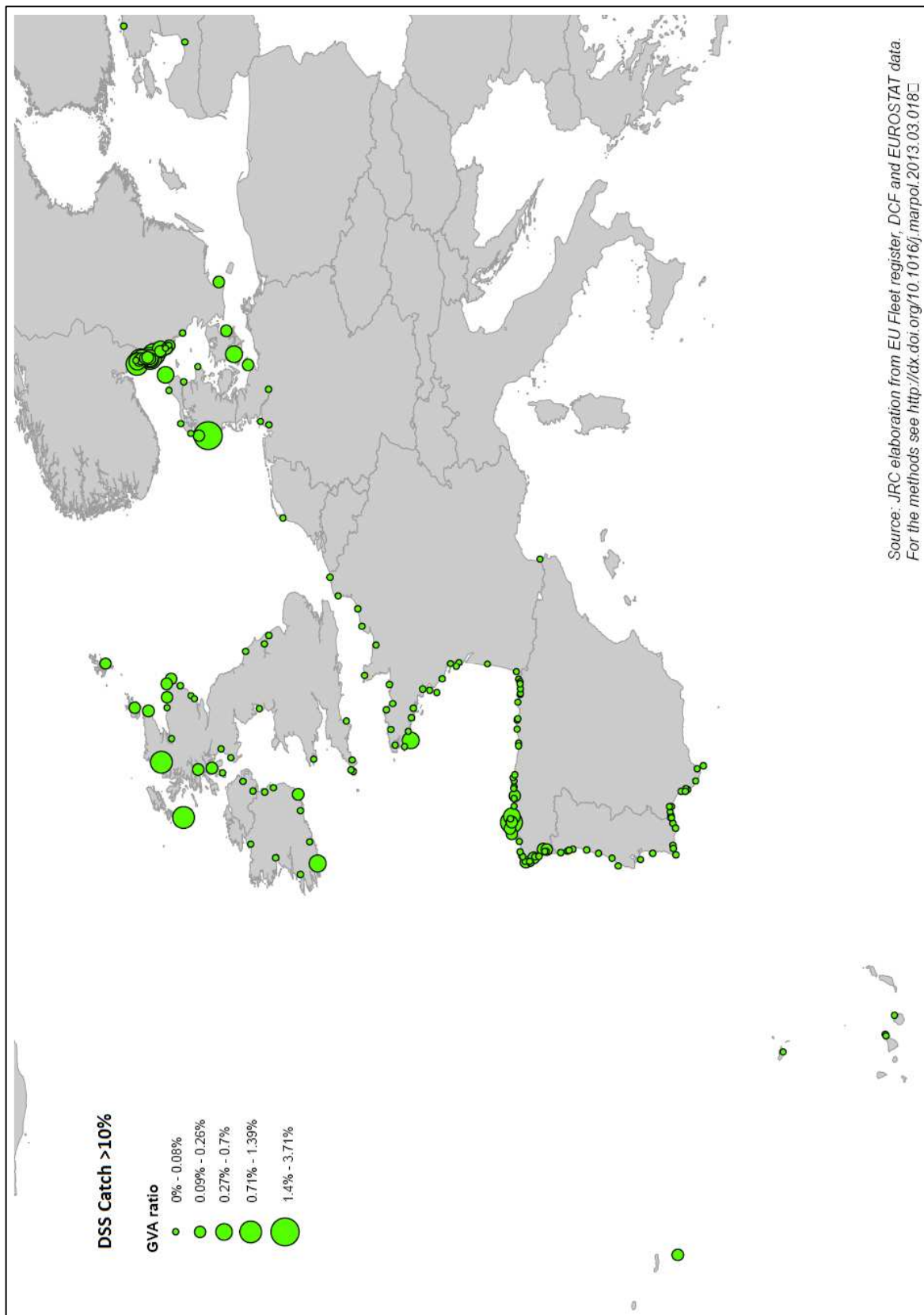


Figure 32: Ratio of Gross Added Value in the economy of the coastal communities linked to the vessel's home ports – from vessels that have reported DSS catches $\geq 10\%$ and other species of up to 90% in any given trip:



In this section, vessel data are plotted against home ports to see where the fleets concentrate, what are the ranges of employment linked to them and the Gross Value Added (GVA) they bring to the economy of the coastal communities linked to their ports. In each case, data for all the vessels comprised in the GIS set is compared to same measurement for vessels whose DSS catches go at least in one trip over the proposed threshold for targeted fishing, i.e. DSS >10% of total catch. Vessels not comprised in this "targeting group" are essentially taking DSS as by-catch, and the proposed phase-out for targeted fishing will not affect them, whichever the gear used.

The areas of significant concentration of vessels with DSS (and other) catches are clearly identified as Brittany, Galicia, and the North Sea façade of the Scottish coast. Secondary centres of activity can be seen in the Basque Country and the south-west of Ireland (figure 23). Vessels with catches over the proposed threshold for targeting reproduce the same pattern, concentrating in the same regions (figure 24).

To analyse possible effects of the proposed phase-out on employment, we have crossed DCF data on typical on board jobs for each segment with the GIS data. The results suggest that in most ports, the number of jobs related to vessels that catch some amount of DSS (among other species) ranges between 26 and 242 (figure 25). When the data for vessels that catch DSS above the proposed threshold is plotted, the range is instead 23 to 129 jobs (figure 26). In the ports where the activity is most concentrated, jobs linked to these vessels range between 421 and 694. . When the data for vessels that catch DSS above the proposed threshold is plotted, the range is instead 292 to 565 jobs. There are at least 3 ports in Galicia, one in the Basque Country, two in Scotland, where this employment profile can be seen. The range of jobs linked to DSS "targeting" vessels in Brittany is in the range 130 - 291 jobs, and this can be seen in the main three ports from which these vessels operate (figure 26).

Employment ratio maps provide an idea of what is the share of the jobs linked to the vessels analysed here over the employment (all economic activities) of the coastal communities linked to their home ports. For the total fleet declaring any catches of DSS among other species, most ports yield a surprisingly low range of 0 to 0.61% share, suggesting that small scale, low employment operations prevail in many areas. The exceptions are the already mentioned areas of concentration, where the jobs on these vessels can go up to 19% share of employment in the communities concerned. This datum is dependent on the actual population in the region. This is how the plot shows important shares for ports around the Skagerrak/Kattegat and in the Danish North Sea coastline (figure 27). The data reflect the targeted fishery for Greater Silver Smelts, whose vessels concentrate mainly in these low population density areas. When the data is plotted for the vessels with catches over the proposed targeting threshold, the employment rates in question are seen to lose about 3 percentage points (figure 28).

According to existing regional studies, the relationship between jobs on board and jobs quayside (relating to the supply chain of fishery products and ancillary services) would be in a range of 1 on board job to between 2 and 4 quayside (there are variations among regions)¹³.

¹³ Estimates on employment and multipliers at national and regional level for the fisheries sector are found in the "Study Regional Dependency on Fisheries" (Policy Department Structural and Cohesion Policies of the European Parliament, 2007) and "Studies in the Field of the Common Fisheries Policy and Maritime Affairs", Lot 4: Impact Assessment Studies related to the CFP

However, the job numbers and employment rates seen in these maps, and any figures that could result from them relating to quayside jobs, are not dependent on DSS catches, since the vessels concerned have on average a quite limited share of DSS in their total catch and a majority of other species (see section 3, above). The segment with the highest share is the longliners, mid-water trawls and pots of 18-24 m length. Here, DSS almost reach on average 25% of the value of the total catch. But these vessels will be able to continue targeting and therefore their contribution to employment in their regions would not be affected by the proposal's phase-out of targeted bottom trawling and gillnetting. With regard to the vessels that use those gears, the share of DSS catches and value never goes above 10% in any vessel size range (in about half of the segments analysed, it remains in fact below 3%). It stands to reason that the impact of the proposal in terms of job numbers and employment ratios affected by the phase-out would be quite limited. Only a relatively low part of the jobs plotted in these maps, or related quayside jobs, is likely to be affected.

The same rationale applies to GVA data. Vessels that catch DSS above the proposed threshold bring, at the maximum, about 5.4 Mio € to their home ports per year from both DSS and catches of other species (data 2011). This represents at maximum 3.71% of the GVA generated in the relevant coastal communities taking into account the whole economic activity (figure 30). The plotted data also offer interesting insight as to the role played by the value of the actual species caught. GVA is at lower levels in Galicia than it is in Brittany, where less vessels and less employment is linked to DSS. High value catch with less employment can therefore be possible.

If one takes into account that these figures regroup all vessels gears, the conclusion is that the proposed phase-out of targeting authorizations is unlikely to have major effects on employment and GVA. There are very localised cases (a conclusion already spelled out in the Commission's Impact Assessment) where large trawlers bring a higher share of DSS catch to their home ports and the value of the catch is higher, namely certain Brittany ports such as Lorient. Longliners and mid-water trawlers (as well as pots) will be able to continue operating much like at present under the proposed rules, so their contribution to local and regional economy would not be affected.

PART V – FINDINGS : RECENT SCIENCE AND RESEARCH

– Scientific advice on the state of the stocks

The latest advice from ICES on the state of the deep sea stocks covered by the proposal was issued on 29 June 2012. It guided – after review by STECF – the Commission proposal for a regulation on fishing opportunities for deep sea stocks for 2013 and 2014, now in force¹⁴ and for the general TAC regulations for 2013¹⁵. The biennial "deep sea". However, this regulation only covers six species – Black Scabbardfish, Alfonsinos, Roundnose Grenadier, Orange Roughy, Red Seabream and Greater Forkbeard, plus the 17-species group of deep sea sharks. The annual regulations fix annual TACs for five further DSS. These are: Blue ling, Greater Silver Smelt, Greenland Halibut, Ling and

¹⁴ Council Regulation (EU) No 1262/2012 of 20 December 2012 fixing for 2013 and 2014 the fishing opportunities for EU vessels for certain deep-sea fish stocks. OJ L 356, 22.12.2012, p. 22–33

¹⁵ Council Regulations (EU) 39 and 40/2013 of 21 January 2013. OJ L23, 25.01.2013, p.1.

Tusks. This leaves 25 species listed in the Access Regime proposal that are not subject to catch limits. They are only protected from the impacts of fishing through the effort ceilings in place for the deep sea metier and spatial measures (Atlantic closures in place to protect VMEs). There is no scientific advice for any of these 25 species not subject to a TAC.

When it comes to the species subject to TACs, the key aspects of ICES advice issued in 2012 are as follows:

- Stocks in poor condition
- Deep Sea Sharks – ICES has been consistently advising no fishing for the 17 species of deep-sea sharks. The TAC has been zero for the past 4 years and will continue at nil for 2013 and 2014. ICES has published a paper in response to a NEAFC request where the catch and stock status of these species is discussed¹⁶ ICES states that there is insufficient information to provide an assessment of the status of the stock for all species except three. These are Leafscale gulper shark (*Centrophorus squamosus*), Portuguese dogfish (*Centroscymnus coelolepis*) and Kitefin shark (*Dalatias licha*). For these three species, ICES advises consistently that abundance has declined to levels below any candidate reference point (ie the stock biomass below which the stock is deemed to be at risk of impaired reproduction).
- Orange Roughy – As for sharks, ICES continues to advise no directed fisheries and a reduction of by-catch for this species. The TAC has been zero since 2010 and will continue as such for 2013 and 2014¹⁷.
- Alfonsinos – Stock status is also unknown but the total catch recommended for the entirety of the EU waters is a mere 280 tonnes. The TACs have been set as 312 tonnes for 2013 and 296 tonnes for 2014¹⁸.
- Blue Ling – Stocks in EU waters are failing to show any positive signs (catches are consistently falling) and the recommendation remains to refrain from targeting this species and take measures to reduce by-catches¹⁹.
- Red Seabream Stocks are in dire state, with the northern one under advice for no directed fisheries and a reduction in by-catches, whereas for the two southern ones ICES has deemed necessary strong reductions in catches. There is yet no assessment for these stocks²⁰.
- Stocks showing signs of stable condition (or slightly negative)

¹⁶ <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/Special%20Requests/NEAFC%20deepwater%20sharks.pdf>

¹⁷ <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Orange%20roughy.pdf>

¹⁸ <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Alfonsinos.pdf>

¹⁹ <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Blue%20ling.pdf>

²⁰ <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Red%20blackspot%20seabream.pdf>

- Greater Forkbeard – there is no assessment for this stock, but ICES considers that the data suggest a stable biomass and the advice is for 1000 t for the whole of the EU waters. The TACs for the various management areas, however, amount in 2013 and 2014 for more than double that figure, to a bit less than 2 400 t. The stock could therefore be overexploited at this time²¹.
 - Greater Silver smelts – This is a species exploited mainly by other NEA countries; Of a total of more than 46 000 t landed in 2011, the share of the EU is only about 6 000t. The state of the stock is unknown and ICES has recommended that catches be reduced by at least 10% in all areas except Icelandic waters²².
 - Ling – there is no stock assessment, but ICES deems the biomass and fishing mortality for the stock in EU waters to be stable. It recommended catches of no more than 10 800t, but this total must be fished by both the EU and Norway. It represents a 20% reduction in catches and a 33% reduction in the total previously advised by ICES. The EU TACs for 2013 amount to about 10 600t, all areas added²³.
- Stocks in good condition
- Black Scabbardfish – ICES has advised increases are possible for two stocks of this species (there is no advice for the third stock located in the CECAF 34 area). In the southern waters, the TAC has gone from 3 300t in 2012 to 3 700 for the next two years²⁴. In the northern stock, the increase has been larger, allowing the TAC to rise from 2 200 t in 2012 to 3 051 t in 2013 and 3 966 t in 2014²⁵. For both stocks, ICES considers that the biomass is likely to be above possible reference points. There is yet no full stock assessment for this species.
 - Roundnose Grenadier – although ICES has no certainty about how many stocks there are in EU water, the main stock that spans the northern Western Waters and part of the southern ones. Advised catches for the other stocks are very low. For the main stock, the situation is in principle favourable, as there is an analytical assessment and it indicates that the resource is above safe biological levels. This, however, should not detract attention to the fact that around the mid 2000's (2003-2005) landings of this species were around 30 000t²⁶. ICES advises no more than 6 000t of catch and the TACs for 2013 and 2014 are following this advice²⁷.

²¹<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Greater%20forkbeard.pdf>

²² <http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Greater%20silver%20smelt.pdf>

²³<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Ling%20in%20IIIa%20IVa%20VI%20VII%20VIII%20IX%20XII%20XIV.pdf>

²⁴<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Black%20scabbardfish%20in%20VIII%20IX.pdf>

²⁵<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Black%20scabbardfish%20in%20VI%20VII%20Vb%20XIb.pdf>

²⁶<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Roundnose%20grenadier.pdf>

²⁷<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Roundnose%20grenadier%20in%20VI%20VII%20Vb%20XIb.pdf>

- Tusk – another stock that, despite its data-limited condition, shows good signs with ICES deeming its biomass to be above possible reference (dafa) levels. It therefore allowed an increase of catch by 20% for 201328.

– **Scientific advice on existing protection measures**

Here we discuss some of the findings of the research funded by the EU in relation to measures both in place and proposed in the debate around the proposa. Details about the projects and links to their published science are provided in the following sections.

- Area-based protection: HERMIONE and CORALFISH have enlarged the knowledge about the location, quantity, ecological value and fragility to human impacts of Deep-Sea habitats. The information generated would need to be taken up in a discussion on what areas to set aside to protect these habitats, including whether or not modelling techniques like those tested by CORALFISH, are used for this purpose. Clearly, the measures in place to protect Deep Sea Corals in EU waters are quite limited in light of the information now available. CORALFISH has also put in evidence through its modelling work that bottom fishing coexists in close vicinity with deep sea coral reefs in the margins of the continental shelf. Trawling "corridors" run among areas of rocky outcrops with corals or other vulnerable habitats. This makes area-based protection quite complex. Should there be a need to set aside some of these areas, bottom fishing taking place in them would have to move away. This might affect certain fleets (and flags) more than others, depending on the choice made on precisely what areas to protect. This choice also carries the trade-off that in areas not protected fishing effort will of necessity increase and therefore there will be even higher risks to corals and other habitats located therein. Yet, area based protection is a necessary component of the array of measures to make DSF more sustainable. What the research shows is that it is unlikely, on its own, to make DSF sustainable, and that in any case, decisions on areas to protect may not be easy, as they might not have an equal impact on all fleets.
- The move-on rule: fishermen must move away from the area where their gears bring up deep sea corals/sponges and signal the encounter so that the area can be protected. These rules were part of the set recommended by the UN General Assembly since 2006 and are now part of the conservation measures adopted by most Regional Fisheries Management Organisations, including NAFO and NEAFC, albeit each organisation applies varying criteria. They are also incorporated in EU regulation 734/2008 regarding deep sea fishing in non-RFMO areas.

The debate around the proposal has seen the argument made with some insistence that the move-on rule can be effective way to protect vulnerable marine ecosystems, and that its implementation makes trawling more sustainable in this respect. It seems relevant to oppose to such views a scientific paper produced in the framework of the CORALFISH project on this specific issue, published by the ICES Journal of Marine Science²⁹. The study data suggests there can be doubt on whether the move-on rule is

²⁸<http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2012/2012/Tusk%20in%20other%20areas.pdf>

²⁹ Auster, P. J., Gjerde, K., Heupel, E., Watling, L., Grehan, A., and Rogers, A. D. 2011. Definition and detection of vulnerable marine ecosystems on the high seas: problems with the "move-on" rule. – ICES Journal of Marine Science, 68: 254–264. See also the list of papers in the section dedicated to the CORALFISH projet, below.

actually beneficial or prejudicial to vulnerable marine ecosystems. The authors indicate for example that *"Where there is an association (whether dependent or coincidental) between specific seabed features and both benthic coral communities and fish aggregations (which is the case for seamount summits), triggering the move-on rule as currently implemented is unlikely to result in a simple distance move away from the area probably containing VMEs to an area that does not, but rather to another area probably containing both fish and VMEs. The accumulative impact of resulting fishing operations when carried out in accordance with the move-on rule as promulgated has the potential to be substantial, with vessels continually moving on to similarly vulnerable areas."* The authors conclude that *"A more precautionary approach is needed, given the uncertainties about the location of VMEs and their resilience, such as greatly reducing the threshold for an encounter, implementation of large-scale permanent closed areas, and prohibition of bottom-contact fishing."*

– **DEEPFISHMAN – Working towards sustainable deep-water fisheries**³⁰

Project details³¹:

- Participants: France (Coordinator), , Spain, Portugal, United Kingdom, Ireland, Iceland, Greece, Norway, Namibia
- Total costs: € 3 765 139
- EU contribution: € 2 924 156
- Duration: April 2009 - September 2012
- Publications: 7 peer-reviewed papers listed in Commission CORDIS system (information possibly in need of update)

List of publications relevant to this report:

All 7 articles listed as published under the Project are relevant to the management of DSF.

- [Standardizing blue ling landings per unit effort from industry haul-by-haul data using generalized additive models](#)
Lorance, Pascal - Pawlowski, Lionel - Trenkel, Verena
- [A random effects population dynamics model based on proportions-at-age and removal data for estimating total mortality](#)
Trenkel, Verena - Bravington, Mark V. - Lorance, Pascal
- [Modelling in-season pulses of recruitment and hyperstability-hyperdepletion in the Loligo gahi fishery around the Falkland Islands with generalized depletion models](#)
Ruben H. Roa-Ureta
- [Effect of discards on roundnose grenadier stock assessment in the Northeast Atlantic](#)
Pawlowski, Lionel - Lorance, Pascal

³⁰ Project website: <http://wwz.ifremer.fr/deepfishman>

³¹ http://cordis.europa.eu/projects/rcn/90982_en.html

- Using qualitative and quantitative stakeholder knowledge: examples from European deep-water fisheries
Lorance, Pascal - Agnarsson, Sveinn - Damalas, Dimitrios - Des Clers, Sophie - Figueiredo, Ivone - Gil, Juan - Trenkel, Verena
- History and dynamics of the overexploitation of the blackspot sea bream (*Pagellus bogaraveo*) in the Bay of Biscay
Lorance, Pascal
- Space-time modelling of blue ling for fisheries stock management
Augustin, Nicole H. - Trenkel, Verena - Wood, Simon - Lorance, Pascal

To the list above, which figures in the online Commission records for this project, the following article, just published (8 May 2013) can be added. The paper is not publicly available (only through subscription or individual purchase with the publishers).

- Large P.A., Agnew D.J., Cleote R., Damalas D., Dransfield L., Edwards C.T.T., Feist S., Figueiredo I., Barrio-Frojan C., Gonzalez F., Gil-Herrera J., Kenny A., Jakobsdóttir K., Longshore M., Lorance P., Marchal P., Mytilineou C., Perez A., Planque B. and Politou C.Y. (2012) *Strengths and weaknesses of the management and monitoring of deep-water stocks, fisheries and ecosystems in various areas of the world a roadmap towards sustainable deep-water fisheries in the Northeast Atlantic?* Reviews in Fisheries Science, Volume 21, Issue 2, Page 157-180, 2013.

Results of the project

At the time of writing the final Periodic Report or results summary for this project had not yet been made available online.

However, from the scientific papers published and submissions to the Commission in the context of this project, it is evident that important advances in stock management techniques and assessment of the state of the resources have been achieved. The project has successfully established methods that can address the concerns of the industry when collecting and sharing data from commercial fisheries (this has been one of the main causes in the way of in-depth, analytical stock assessment so far). Pure science on the biology and life-cycles of key commercial species have provided further input into the EU scientific advisory process on the basis of which fishing opportunities for DSS are decided. The project outputs when it comes to evaluating management regimes have just been published in the Article referenced above.

- **HERMIONE – Hotspot ecosystem research and Man's impact on European seas**³²

Project details³³:

- Participants: UK, Spain, Germany, France, Portugal, Ireland, Belgium, Italy, Greece, Netherlands, Sweden, Russian Federation, Norway, Kenya

³² <http://www.eu-hermione.net/>

³³ <http://cordis.europa.eu/projects/index.cfm?fuseaction=app.details&TXT=hermione&FRM=1&STP=10&SIC=&PGA=&CCY=&PCY=&SRC=&LNG=en&REF=92899>

- Total costs: € 10 982 142
- EU contribution: € 7 998 955
- Duration: April 2009 - September 2012
- Publications: 170 peer-reviewed papers

List of publications most relevant to this report:

The following is a selection of published science in the framework of this project that relates fishing its impact on the deep sea environment around Europe and the environmental services provided by deep sea vulnerable marine ecosystems put at risk by human impact.

- [Northeastern Atlantic cold-water coral reefs and climate](#)
N. Frank - A. Freiwald - M. L. Correa - C. Wienberg - M. Eisele - D. Hebbeln - D. Van Rooij - J.-P. Henriët - C. Colin - T. van Weering - H. de Haas - P. Buhl-Mortensen - J. M. Roberts - B. De Mol - E. Douville - D. Blamart - C. Hatte
- [Cold-water coral ecosystems and anthropogenic impact in two Biscay canyons](#)
Van Rooij, David - De Mol, Lies - Ingels, Jeroen - Henriët, Jean - Vanreusel, Ann
- [The ecological and economic value of cold-water coral ecosystems](#)
Naomi S. Foley - Tom M. van Rensburg - Claire W. Armstrong
- [Cold-water coral habitats in the Penmarc'h and Guilvinec Canyons \(Bay of Biscay\): deep-water versus shallow-water settings](#)
De Mol, Lies - Van Rooij, David - Pirlet, Hans - Greinert, Jens - Frank, Norbert - Quemmerais, Frédéric - Henriët, Jean
- [Cold-water coral habitats in the Penmarc'h and Guilvinec Canyons \(Bay of Biscay\): deep-water versus shallow-water settings](#)
De Mol, Lies - Van Rooij, David - Pirlet, Hans - Greinert, Jens - Frank, Norbert - Quemmerais, Frédéric - Henriët, Jean
- [An Ecosystem Evaluation Framework for Global Seamount Conservation and Management](#)
Gerald H. Taranto - Kristina O. Kvile - Tony J. Pitcher - Telmo Morato
- [The rise and fall of the Irish orange roughy fishery: An economic analysis](#)
Naomi S. Foley - Tom M. van Rensburg - Claire W. Armstrong
- [Multivariate Statistical Analysis of Distribution of Deep-Water Gorgonian Corals in Relation to Seabed Topography on the Norwegian Margin](#)
Ruiju Tong - Autun Purser - Vikram Unnithan - Janine Guinan
- [Human Activities on the Deep Seafloor in the North East Atlantic: An Assessment of Spatial Extent](#)
Angela R. Benn - Philip P. Weaver - David S. M. Billet - Sybille van den Hove - Andrew P. Murdock - Gemma B. Doneghan - Tim Le Bas
- [A review of the spatial extent of fishery effects and species vulnerability of the deep-sea demersal fish assemblage of the Porcupine Seabight, Northeast Atlantic Ocean \(ICES Subarea VII\)](#)
I. G. Priede - J. A. Godbold - T. Niedzielski - M. A. Collins - D. M. Bailey - J. D. M. Gordon - A. F. Zuur

- [Ploughing the deep sea floor](#)
Puig, Pere - Canals, Miquel - Company, Joan B. - Martín, Jacobo - Amblas, David - Lastras, G. - Palanques, Albert - Calafat, Antoni
- [Man and the Last Great Wilderness: Human Impact on the Deep Sea](#)
Eva Ramirez-Llodra - Paul A. Tyler - Maria C. Baker - Odd Aksel Bergstad - Malcolm R. Clark - Elva Escobar - Lisa A. Levin - Lenaick Menot - Ashley A. Rowden - Craig R. Smith - Cindy L. Van Dover
- [Deep-sea demersal fish species richness in the Porcupine Seabight, NE Atlantic Ocean: global and regional patterns](#)
Imants G. Priede - Jasmin A. Godbold - Nicola J. King - Martin A. Collins - David M. Bailey - John D. M. Gordon
- [Biological structures as a source of habitat heterogeneity and biodiversity on the deep ocean margins](#)
Lene Buhl-Mortensen - Ann Vanreusel - Andrew J. Gooday - Lisa A. Levin - Imants G. Priede - Pål Buhl-Mortensen - Hendrik Gheerardyn - Nicola J. King - Maarten Raes
- [Cold-water coral ecosystem \(Tisler Reef, Norwegian Shelf\) may be a hotspot for carbon cycling](#)
Martin White - George A. Wolff - Tomas Lundalv - Damien Guihen - Kostas Kiriakoulakis - Marc Lavaleye - Gerard Duineveld
- [Resuspensión diaria de sedimentos profundos por pesca de arrastre en el cañón submarino de La Fonera](#)
Martín, Jacobo - Puig, Pere - Palanques, Albert - Ribó, Marta
- [Deep-water scleractinian corals promote higher biodiversity in deep-sea meiofaunal assemblages along continental margins](#)
Bongiorni, Lucia - Mea, Marianna - Gambi, Cristina - Pusceddu, Antonio - Taviani, Marco - Danovaro, Roberto

Results of the project:

From the last (January 2013) periodic report submitted by Hermione to the Commission³⁴, here is a quote of the section that relates specifically to fishing impacts on deep sea ecosystems:

*"The impact of fishing industry activities on the biodiversity was investigated in images from the Korallen reef, which were compared between damaged and pristine areas within the reef. The diversity of species was on average about 70 % higher in intact parts of the reef than in trawled areas. However, the abundance of individual organisms was much higher in trawled areas of the reef than in intact areas. The high abundance was largely due to dense populations of single taxa such as brittlestars and the actinarian *Protanthea simplex*. The destruction of cold-water corals may have other implications because our results are showing that they are hotspots of carbon cycling, producing more carbonate than surrounding areas (4 to 12 times as much in one measured case)*

³⁴http://cordis.europa.eu/search/index.cfm?fuseaction=result.document&RS_LANG=EN&RS_RCN=13913220&q=

and having a much higher biodiversity. Areas of dead coral where a framework still exists also have high biodiversity."

From the final report published in the Hermione web site, it is worth quoting the full section relating to Potential impacts and use of the HERMIONE project results.

"The results of HERMIONE are very diverse and include 170 peer-reviewed papers published or in press, 181 articles published in the popular press and 761 presentations contributed at conferences. It is impossible to summarise all of this scientific work so here we concentrate on the socio-economic impact and wider societal implications of HERMIONE.

One of the aims of HERMIONE was to provide stakeholders and policy-makers with scientific knowledge to support deep-sea governance aimed at the sustainable management of resources and the conservation of ecosystems. Although our many scientific papers carry the information in peer reviewed form this is frequently inaccessible to policy makers and so we have made many efforts to close the science-policy gap by making direct links with policy makers. We have held a number of meetings in Brussels at both DG Mare and DG Environment where we have presented our results and engaged in a dialogue. We have also held dedicated Science Policy Panel meetings in both 2010 and 2012 where a small group of scientists from HERMIONE have engaged with representatives from DG Mare, DG Environment and DG Research for a whole day of discussions. These meetings have also involved senior representatives from the European Environment Agency, JPI Oceans, the European Platform for Biodiversity Research, The Mediterranean Science Commission CIESM, the International Union for the Conservation of Nature IUCN, the Marine Conservation Institute (Washington), the Deep Sea Conservation Coalition, the Marine Board-ESF and the European Bureau for Conservation and Development. In these discussions we presented the most recent and relevant findings of HERMIONE and discussed them in an open forum with potential users. These meetings that began during the HERMES project have been a great success and should form a model for other large EU projects.

The HERMIONE results have proved to be very timely and important to ongoing discussions within the EC (revision of the Common Fisheries Policy) and at the United Nations with regard to the impacts of bottom trawling. (...) The results of HERMIONE were also used in the joint OSPAR/NEAFC/CBD Scientific Workshop on the identification of Ecologically or Biologically Significant Marine Areas (EBSAs) in September 2011. At this meeting attended by 3 HERMIONE partners the whole of the Hatton Rockall Bank and Basin in the NE Atlantic was proposed as an EBSA.

Some key findings of HERMIONE that are being used in refining deep-sea fisheries policies are:

- 1. Work on the inventory of deep-water fish species in the Porcupine Seabight, where populations before and after heavy fishing effort have been compared and the total area where fish populations have been reduced has been calculated as 2.7 times the fished area.*
- 2. The mapping of large areas of seabed on the Catalan margin that have been sculpted and smoothed by bottom trawling, with each trawl setting off sediment flows that deposit downslope where they smother the seabed. Thus the area impacted by the fishery is much larger than the fished area.*

3. *An assessment of the human footprint in a large area of the NE Atlantic that shows bottom trawling to have a much larger impact than all other human activities combined."*

- **CORALFISH – Assessment of the interaction between corals, fish and fisheries, in order to develop monitoring and predictive modelling tools for ecosystem based management in the deep waters of Europe and beyond**³⁵

Project details³⁶:

- Participants: Germany, Portugal, UK, Greece, France, Iceland, Italy, Ireland, Netherlands
- Total costs: € 10 885 692
- EU contribution: € 6 499 905
- Duration: June 2008 - February 2013
- Publications: 28

List of publications most relevant to this report:

Among the 11 articles accessible online for this project at this time, the following present particular interest in relation to the topics discussed in this report. They bring new findings on biodiversity, human impacts, assessment of management and modelling distribution in order to protect deep sea coral reefs:

- [Definition and detection of vulnerable marine ecosystems on the high seas: problems with the "move-on" rule](#)
Peter J. Auster - Kristina Gjerde - Eric Heupel - Les Watling - Anthony Grehan - Alex David Rogers
- [Isozoanthus primnoidus, a new species of zoanthid \(Cnidaria: Zoantharia\) associated with the gorgonian Callogorgia verticillata \(Cnidaria: Alcyonacea\)](#)
M. Carreiro-Silva - A. Braga-Henriques - I. Sampaio - V. de Matos - F. M. Porteiro - O. Ocana
- [The global distribution of seamounts based on 30 arc seconds bathymetry data](#)
Chris Yesson - Malcolm R. Clark - Michelle L. Taylor - Alex D. Rogers
- [Zoobotryon verticillatum Della Chiaje, 1822 \(Bryozoa\), a new occurrence in the archipelago of the Azores \(North-Eastern Atlantic\)](#)
Jaen Nieto Amat - Fernando Tempera
- [An Ecosystem Evaluation Framework for Global Seamount Conservation and Management](#)
Gerald H. Taranto - Kristina O. Kvile - Tony J. Pitcher - Telmo Morato

³⁵ <http://www.eu-fp7-coralfish.net/>

³⁶ <http://cordis.europa.eu/projects/index.cfm?fuseaction=app.details&TXT=coralfish&FRM=1&STP=10&SIC=&PGA=&CCY=&PCY=&SRC=&LNG=en&REF=89331>

- [Global habitat suitability of cold-water octocorals](#)
Chris Yesson - Michelle L. Taylor - Derek P. Tittensor - Andrew J. Davies - John Guinotte - Amy Baco - Julie Black - Jason M. Hall-Spencer - Alex D. Rogers
- [Seamounts as refugia from ocean acidification for cold-water stony corals](#)
Derek P. Tittensor - Amy R. Baco - Jason M. Hall-Spencer - James C. Orr - Alex D. Rogers
- [Seamount fisheries: do they have a future?](#)
Pitcher, T.J., Clark, M.R., Morato, T., Watson, R.
- [Seamount Ecosystem Evaluation Framework \(SEEF\): a tool for global seamount research and data synthesis.](#)
Pitcher, T.J., Morato, T., Stocks, K.I., Clark, M.R..
- [Science dimensions of an Ecosystem Approach to Management of Biotic Ocean Resources \(SEAMBOR\)](#)
Rice, J., M. de Fátima Borges, A. Grehan, A. Kenny, H. Loeng, F. Maynou, R. Serrão Santos, H.R. Skjoldal, O. Thébaud, V. Vassilopoulou, F. Volckaert.
- [New occurrences of *Corallium* spp. \(Octocorallia, Coralliidae\) in the Central Northeast Atlantic.](#)
Sampaio, Í., Ocaña, O., Tempera, F., Braga-Henriques, A., Matos V., Porteiro, F.M..
- [Seamounts as refugia from ocean acidification for cold-water stony corals.](#)
Tittensor, DP, Baco, AR, Hall-Spencer, JM, Orr, JC and Rogers, AD.
- [Global habitat suitability of cold-water octocorals.](#)
Yesson, C, Taylor, ML, Tittensor, DP, Davies, AJ, Guinotte, J, Baco, A, Black, J, Hall-Spencer, JM & Rogers, AD

Results of the project:

The following is extracted from the periodic report submitted to the Commission in January this year³⁷. Extracts correspond to the sections most relevant for this report.

"Fisheries in the vicinity of corals:

A review on available knowledge of the distribution and ecology of commercial fish species of cold-water coral areas has been completed. A total of 101 commercial species including 270 bibliographic references have been reviewed for the 6 eco-regions of the CORALFISH project. This work has highlighted the lack of specific knowledge both about cold-water coral functioning and interactions between fish and the habitat. The collected biological data will help to parameterise the development of trophic models. (...)

³⁷http://cordis.europa.eu/search/index.cfm?fuseaction=result.document&RS_LANG=EN&RS_RCN=13285801&q=

Compilation of fisheries statistics (fishing effort logbooks and vessel monitoring system (VMS)) has proved a challenge due to issues with fishers intellectual property. Progress has now been made in establishing linkages with the appropriate authorities and through agreement to work at the permissible levels of aggregated data. The new data collection regulation that came into force in 2010 requiring the introduction of electronic logbooks has created the need to develop two separate approaches to deal with data mining of historical logbook data (reported at ICES sub-rectangle scale) and the newer high resolution electronic logbook data due to come on stream. CORALFISH is fortunate that our Scandinavian partners, IMR and MRI, already have data of this type which will facilitate the development of CORALFISH protocols that can be applied to EU electronic logbook data when available. Preliminary observations and mapping of fishing efforts against known coral areas confirm that there is potential high pressure particularly in shallow areas. For example, VMS data analysis has shown that every single Bay of Biscay canyon on the continental slope has been fished during the last five years. This high trawling pressure over the slope has been confirmed by the frequency of fishing impacts observed during ROV surveys.

Valuable data has been collected in the CORALFISH observer's programme that includes onboard fishing vessel observation and interviews with fishermen. The observations encompass location and status of coral grounds and associated species as well as fisheries effects through fishing effort, catch and by-catch. For example, observer's data in the Santa Maria de Leuca region in the Mediterranean showed that both longliner and trawl operations occurred close or even inside the limit of the coral protected area, providing evidence of a 'fishing the line' strategy.

Tools for ecosystem management – Habitat suitability modelling:

In areas where there is a paucity of environmental and seafloor habitat data, such as the offshore and High Seas, the application of robust habitat suitability modelling provides a means to increase objectivity in spatial planning for conservation and to zone economic activity such as fishing. The first stage of the habitat suitability modelling is to gather data for analysis, this includes both environmental and hydrographic data and species / habitat distribution data. Both of these activities are well under way in CORALFISH with a number of manuscripts describing this work having been prepared.

Bioeconomic modelling

(...) Results suggest Cold Water Corals to be an essential habitat, and its damage may be a significant contributor to the decline in redfish. There is an indication that a marginal (1 km²) decline in CWC area leads to a loss of between 68 and 110 tonnes of redfish harvest per annum for the range of estimated decline in CWC proposed by scientists (30-50 % affected CWC in Norwegian waters). In monetary terms, this equates to a loss of between NOK 445 770 (EUR 56 355) and NOK 718 282 (EUR 90 807) per annum for each square kilometre of CWC that is lost. On average the percentage loss in revenues and harvests is between 11 % and 29 % for the estimated 30-50 % decline in CWC. It is demonstrated that fisheries such as these may be negatively affected by the destruction cold water coral."

PART VI – PROCESS AND CONSULTATION

1. Reminder of the proposal's genesis

Article 10 of the current deep-sea access regime³⁸ required the Commission to submit to the European Parliament and the Council a report (in the form of a Commission's Communication) on the overall scheme for managing deep-water species by 30 June 2005. Due to difficulty in collecting the information and data needed for this exercise, the Commission's Communication³⁹ was only submitted in January 2007. This Communication identified a number of shortcomings in the current deep-sea access regime concluding that the measures in place are insufficient to manage DSS in a sustainable manner. The Communication lists a number of areas for improvement, namely the management of fishing effort, data collection and control. Furthermore it also drew attention to the urgent need to reduce levels of exploitation of deep-sea stocks. The Commission's Communication was followed by a resolution⁴⁰ from the European Parliament on the management of deep-sea stocks. In its resolution the European Parliament calls on the Commission to take action to address management shortcomings and points out that new measures should be supported by socio-economic and environmental assessments of deep-sea fisheries. It was on this basis that the Commission started its work on the revision of the access regime in 2009, which culminated in the current proposal, adopted in July 2012.

2. The consultation process

On 18 December 2009 the Commission consulted the fisheries administrations of 12⁴¹ Member States and 5⁴² RACs asking their views on the review of the deep-sea access regime by 19 February 2010. The consultation was targeted to the concerned Stakeholders. Attached to it was a consultation and reflection paper presenting 3 issues described below, followed by pros and cons and annexes containing data and information on deep-sea fisheries by eco-region:

- To limit regulatory changes to a minimum. Just align the current regime with the control regulation.
- Reduce regulatory obligations to the minimum required to fulfil the requirements under NEAFC agreements.
- Full improvement of the access regime addressing issues such as:
 - a) Discards – improve data.
 - b) By-catches – enlarge annex I on deep-sea species, set by-catch limits and move-on provisions and establish trawler-free areas and temporary closures.
 - c) Ghost fishing – to consider programmes to remove lost nets.
 - d) Define fleets allowed to land deep-sea species with fishing authorisations. This includes addressing the interaction with the western waters regime and reconsidering the landings threshold.

³⁸ Council Regulation (EC) No 2347/2002.

³⁹ Communication from the Commission to the Council and the European Parliament on the review of the management of deep-sea fish stocks (COM(2007) 30 final).

⁴⁰ European Parliament resolution 2007/2110(INI) of 8 May 2008.

⁴¹ BE, DK, DE, IE, EE, ES, FR, LT, NL, PT, SE, UK.

⁴² North Sea RAC, Pelagic RAC, North Western Waters RAC, South Western Waters RAC and Long-Distance RAC.

e) Control and monitoring – this is related to alignment with the control regulation.

By 9 April 2010 (extended consultation deadline) the Commission received written feedback from FR, ES, PT, UK, DE, NL, NWWRAC, SWWRAC, the NGO Alliance⁴³ and the NGO EBCD. The results of these consultations are described in detail in point 1.2 and Annex II of the impact assessment. Generally speaking stakeholders supported the need to improve the access regime and in particular to focus on fishery-specific management. Many concluded that some margin of manoeuvre was needed to introduce at a later stage relevant provisions following new scientific advice, namely that resulting from the DEEPFISHMAN project.

The 5 options presented in the impact assessment are:

1. No change/indispensable update.
 2. Ban deep-sea fisheries.
 3. Ban gears that are most harmful to the deep-sea ecosystem with 2 sub-options: (1) banning more harmful gears (trawls and nets) from targeting deep-sea species or (2) banning those gears (trawls and nets) from operating deeper than a certain depth.
 4. Access to deep-sea fishing conditional to international standards for the High Sea.
 5. Introduce requirements under NEAFC agreements where appropriate.
- 3. The dialogue process on the revision of the deep-sea access regime (in particular from COM consultation (18/12/2009) to legal proposal (19/07/2012) and beyond)**

The Commission has had the opportunity to discuss this proposal with Member States alongside the written consultation and feedback received, and during the subsequent period. These exchanges were part of the frequent contact between administrations and cannot be all reported here. On two occasions, however, the Commission organised specific presentations of its work on the preparation of the proposal, one in the UK in March 2010 and another in Ireland in May of the same year.

The Commission has also had a number of meetings with individual representatives from industry and with NGO groups. It followed closely, including attendance to various event, the proceedings of the "Grenelle de la Mer" in France in 2010, specifically its working group on the future of deep sea fishing (l'avenir des pêches profondes), reuniting administration, industry, NGO and scientific representatives.

The following table details the events in the dialogue between the Commission and the RACs on this proposal, all proceedings are reported and publicly available (opinions and reports of meetings available online in the various RAC web sites).

⁴³ PEW, Greenpeace, Seas at Risk, Deepdeep-sea Conservation Coalitionconservation coalition.

RAC	Topic	Date	Location
RACs			
South Western Waters RAC			
South Western Waters RAC – Working Group on Deep-sea fisheries	Discussion on the COM consultation on the revision of the deep-sea access regime	24/02/2010	Horta, Azores, PT
South Western Waters RAC – Working Group on Deep-sea fisheries	Discussion on the SWWRAC answer to COM's consultation on the revision of the deep-sea access regime	20/04/2010	Sesimbra, PT
South Western Waters RAC – Working Group on Deep-sea fisheries	Discussion on the SWWRAC answer (advice 32) to COM's consultation on the revision of the deep-sea access regime	20/10/2010	Paris, FR
South Western Waters RAC – Executive Committee	Discussion on the SWWRAC answer to COM's consultation on the revision of the deep-sea access regime	16/11/2010	Lisbon, PT
South Western Waters RAC – Working Group on Deep-sea fisheries	Discussion/information from COM on the revision of the deep-sea access regime	09/02/2011	Oporto, PT
North Western Waters RAC			
North Western Waters RAC – Executive Committee	Discussion on priority work for 2010: revision of the deep-sea access regime	29/01/2010	Paris, FR
North Western Waters RAC – Working Group 1 (West of Scotland and western approaches)	Preparation of NWWRAC advice following COM consultation on revision of deep-sea access regime	04/03/2010	Madrid, ES
North Western Waters RAC – Working Group 1 (West of Scotland and western approaches)	Discussion on COM's review on deep-sea access regime	06/07/2010	Paris, FR
North Sea RAC			
North Sea RAC – Executive Committee	COM update on deep-sea consultation	19/02/2010	Ostend, BE
InterRAC event			
Industry, NGOs, MEPs, Scientists, Member States representatives	Workshop on the management of Deep Sea Species (organised by the LD, NWW and SWWRACs)	15-16.05.2013	Edinburgh

4. Selected documentation used by the Commission

STECF

- 2009 STECF advice on certain aspects of the Access Regime: The report, together with the stock assessment on deep-sea species, was endorsed by the STECF Plenary of July 2010. The STECF updated the list of deep-sea species, advised on very low levels of exploitation closely monitored and stressed the discard problem in the trawl fishery.

- STECF annual evaluations of the deep-sea fishing effort regime. In January 2010 the COM launched a data call to MS involved in deep-sea fisheries in the NE-Atlantic. The data was processed by the JRC and linked to economic data concerning the fleet segments in which the métiers operate. ES and UK did not provide data.
- Scientific, Technical and Economic Committee for Fisheries (STECF) Report of the SGMOS-09-05 Working Group Fishing Effort Regime. Part 3 Deep Sea and Western Waters. 28 September – 2 October 2009, ISPRA, ITALY.
- STECF advice on deep-sea gillnet fisheries (STECF Plenary 6-10 November 2006).
- STECF advice on deep-water resources (14-16 June 2006 and SEC(2007)471).
- STECF (SGFEN) report on deep-sea fisheries (22-26 October 2001).

ICES

- ICES Report of the Planning Group on the North-east Atlantic Continental Slope Survey (PGNEACS). 9-11 June 2009.
- Report of the Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP) 3 -10 March 2008, ICES Headquarters.
- ICES advice 2008 on VMEs. NEAFC request on identification of vulnerable marine ecosystems, including definitions and assessment of fishing activities that may cause significant adverse impacts on such ecosystems.
- ICES: New information regarding the impact of fisheries on other components of the ecosystem. Special request, Advice June 2013.
http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2013/Special%20requests/EU_impact_of_fisheries.pdf

NEAFC

- NEAFC Scheme of control and enforcement (February 2009).
- NEAFC Recommendation closing certain areas on the Hatton Bank, Rockall Bank, Longachev Mounds and West Rockall Mounds in order to protect vulnerable marine ecosystems from significant adverse impacts in 2010.
- NEAFC Recommendation for the management of orange roughy in 2010 and 2011.
- NEAFC Recommendation to limit effort for 2009.
- NEAFC Recommendations XIII (2009) and XI (2010) on operational procedures for fishing in existing and new bottom fishing areas.
- NEAFC Recommendation on blue ling in ICES Division XIV.
- NEAFC Recommendation XVI (2008) on bottom fishing.
- Working Paper No. 29/08. Overview, Roles, and Performance of the North East Atlantic Fisheries Commission (NEAFC). 14th October 2008.

UN

- UNGA Resolution (6 March 2007): 61/105. Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations

Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments.

- UNGA Resolution (19 March 2010): 64/72. Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments.

FAO

- FAO international guidelines for the management of deep-sea fisheries in the high-seas (2009).
- Report of FAO workshop on vulnerable ecosystems and destructive fishing in deep-sea fisheries (26-29 June 2007).
- Deep Sea 2003: Conference on the Governance and Management of Deep-sea Fisheries (1-5 December 2003).

Science/projects

- Deep-water fisheries in the North-East Atlantic: II assessment and management approaches (Journal NAFO vol.31 151-163).
- Identification and segmentation of mixed-species fisheries operating the Iberian Peninsula (Ibermix project) (2006-2007).
- Marine conservation zone project – ecological network guidance (JNNC, Natural England (April 2010).
- BIM deep water programme (2001, IE).
- European Commission Studies and Pilot Projects for Carrying Out the Common Fisheries Policy No FISH/2006/17 - Lot 2 Analysis of the economic and social importance of Community fishing fleet using bottom gears in the high seas. Final Report: March 2008.