FIFG 2000–2006 Shadow Evaluation

FINAL REPORT

For

Pew Environment Group

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Acronyms (for country and gear codes, see overleaf)

ARF	Association des Régions Française (French Regions Association)
B	Biomass
CFP	Common Fisheries Policy
DPMA	Direction des Pêches Maritimes de l'Aquaculture (Department of Maritime Fisheries and Aquaculture)
EC	European Commission
EFF	European Fisheries Fund
EIA	Environmental impact assessment
EIAA	Economic Interpretation of the ACFM Advice (model)
ERDF	European Regional Development Fund
ESF	European Social Fund
EU	European Union
F	Fishing mortality
FAD	Fish aggregating device
FAO	Food and Agriculture Organization of the United Nations
FIFG	Financial Instrument for Fisheries Guidance
GFCM	General Fisheries Commission for the Mediterranean
GSA	Geographical sub-areas
GT	Gross tonnage
GVA	(on page 37 – assume gross value added)
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Seas
IUU	Illegal, unreported and unregulated (fishing)
kW	kilowatt
LPUE	Landings per unit effort
MAGP	Multi-Annual Guidance Programme
MCS	Marine Conservation Society
MDAs	Marine protected areas
MS	Member State
MSY	Maximum sustainable yield
MRAG	Marine Resources Assessment Group
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Co-operation and Development
OP	Operational Programme
SEA	Strategic environmental assessment
SSB	Spawning stock biomass
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total allowable catch
TSB	Total stock biomass
UK	United Kingdom
WTO	World Trade Organisation

Country and gear codes

Country codes

DE	Germany
DK	Denmark
ES	Spain
FR	France
GR	Greece
IT	Italy
PL	Poland
PT	Italy
PT	Portugal
SE	Sweden
UK	United Kingdom

Gear codes

OTB	Bottom otter trawl
GNS	Anchored set gillnets
PS	Purse seine
LLD	Drifting longlines
LLS`	Set longlines
OTM	Mid-water otter trawl

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EXECUTIVE SUMMARY

This report assesses the environmental and social impacts of the Financial Instrument for Fisheries Guidance (FIFG), running from 2000 to 2006, using a range of quantitative and qualitative information. EU allocations for FIFG totalled €3.2 billion, of which Spain received nearly half. Member State contributions brought the total allocation of FIFG funding to €4.9 billion.

A key objective of structural policy in the fisheries sector was to bring the fishing capacity of the European fleet into line with available biological resources. We identify that FIFG funding has not achieved the intended net fishing capacity reduction and, in some fleet segments, has led to fleet capacity increases. This has contributed to the worsening status of some stocks and has hindered the recovery of other stocks, as well as having had associated negative impacts on marine environment.

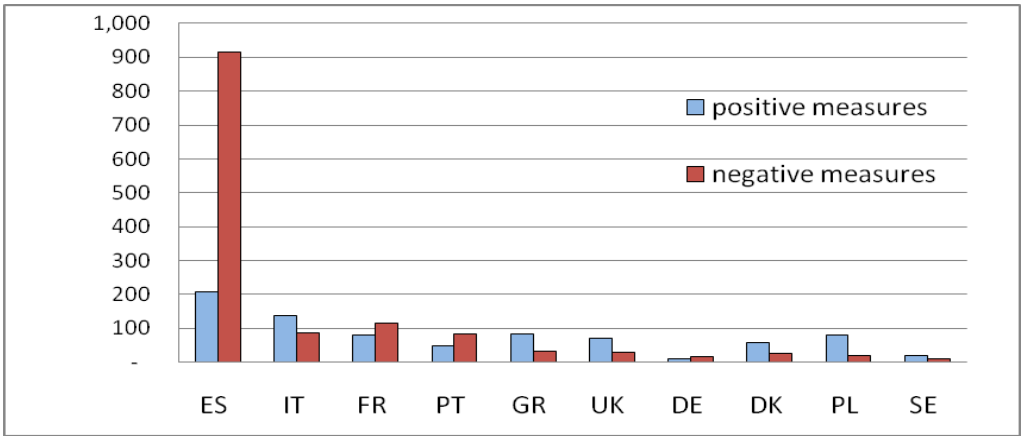
The impact of FIFG funding on fishing capacity

Fishing capacity in the EU fleet was reduced by 3 percent in terms of gross tonnage and 7 percent in terms of engine power (kW) over the seven years of the programme. These reductions are insufficient to make any significant impact on the imbalance between fishing opportunities and fishing capacity, particularly with estimated 2–3 percent annual efficiency gains through technological improvements.

FIFG support for the construction of around 3,000 vessels and the modernisation of nearly 8,000 vessels, compared to the scrapping of 6,000 vessels (a large proportion of which were small inshore vessels from Greece and Spain), is expected to have resulted in a net increase in fishing capacity.

Overall, around 54 percent of total FIFG funding was under measures that are identified as having a neutral or unclear impact on fishing capacity, with 29 percent under negative measures (vessel construction and modernisation) and just 17 percent under positive measures (scrapping and temporary cessation of fishing activities).

Figure 1: Total FIFG funding (EC and Member State allocations) in €million for positive (blue) and negative (red) measures



Source: Poseidon analysis of EC FIFG database[1].

[1] Poseidon has used the EC's database of projects funded under FIFG to identify those that could be seen as having a positive impact on the environment (i.e. scrapping of vessels and environmental protection measures) and those with a likely negative impact (e.g. vessel construction and modernisation). Those where the impact is deemed to be neutral or is unclear are not included.

The graph above shows that more FIFG funding was used by Spain, France, Portugal and Germany on potentially negative measures that could increase fishing capacity (such as construction of new vessels or vessel modernisation) than on positive measures (such as vessel scrapping). In the case of Spain, which accounted for 46 percent of all FIFG funding, four times as much funding has gone on measures identified as having potentially negative environmental impacts compared to those with the potential for positive impacts.

Impact of FIFG funding on the status of stocks

FIFG funding has contributed to the overfished status of several key European stocks, such as Southern hake and monkfish, through supporting the construction and modernisation of vessels targeting those stocks. FIFG has also hindered the recovery of overfished stocks such as megrim, elasmobranchs and Nephrops that are also targeted by fleets that received FIFG funding for construction and modernisation. On the other hand, the reduction in bottom trawl capacity in the North Sea has benefited the recovery of cod stocks. The consequences of vessel modernisation in the French trawl fleets for this fishery are more difficult to determine.

Other environmental impacts

With around 38 percent of new vessels built with FIFG assistance being bottom otter trawlers, there is likely to have been significant negative impacts to seabed habitats resulting from FIFG funding, especially off the Iberian peninsula given that much of this additional effort is from Spanish vessels targeting mixed demersal fisheries there.

Set gillnets represent the largest proportion of gears (40 percent by number) of all new builds funded by FIFG. These fisheries tend to be much more selective than trawl fisheries and thus generate fewer discards. In addition, as a passive gear their habitat impacts are relatively low. However, there are known issues over the bycatch of sea mammals and endangered animals in gillnet fisheries, as well as their capacity to continue 'ghost fishing' if the gillnet is lost.

A positive development for the environment is the large reduction in the Greek bottom longline fishery, which should reduce impacts on the turtle populations of the eastern Mediterranean as well as reducing the bycatch of vulnerable sharks, rays and turtles.

Consideration of environmental impacts under FIFG

The FIFG programme in many Member States did not adequately consider the potential environmental impacts on target stocks, bycatch species or the wider marine environment, either at the strategic level in the design of Member State Operational Programmes (OPs), or at the operational level in assessing applications for funding.

Consideration of social aspects under FIFG

There was a lack of consistency in the consideration of social criteria at a strategic and operational level between Member States. Spain, France and Italy used FIFG funding to directly support fishermen and communities identified as being negatively impacted by restructuring or a sudden loss of fishing opportunities. The United Kingdom and Denmark used FIFG funding for the restructuring itself, with support to affected individuals coming from national aid and other EU funds such as the European Regional Development Fund or the European Social Fund.

High levels of FIFG funding relative to overall sector value (at over 20 percent in the case of Spain and more than 10 percent for Portugal and Sweden) has contributed to the overall profitability of the sector in these Member States. At best this served to maintain the viability of enterprises through a phase of restructuring, but at worst it could have delayed inevitable and necessary reductions in capacity, which is not the objective of structural funding.

On average, 14 percent of the EU fleet received some form of FIFG funding. This varied between Member States from one-quarter of the Spanish and French fleets to only 5–6 percent of the United Kingdom's, Portuguese and German fleets. As the analysis presents average funding levels across the whole sector, the actual funding for vessel owners in receipt of that funding represents considerable amounts of additional income.

There is no indication from the Member State OPs that funding was targeted towards particular segments. The small proportion of the fleet receiving funding therefore suggests an inequitable allocation, with the majority being unwilling or unable to apply for funding. If unable to apply, Member States must look to address these barriers to applicants, which could be difficulties with the application process or resource limitations, e.g. access to credit for match-funding.

There is a stark contrast between the overall impact of FIFG funding on inshore and offshore fleet segments. Twice as much funding went to scrapping inshore (<12m long) vessels than to the construction or modernisation of these vessels. This disproportionate removal of inshore capacity is particularly evident for Italy and Greece. For vessels over 12m, more funding was allocated to construction and modernisation than to scrapping. In Spain, Germany and Portugal the funding of construction and modernisation exceeds funding for scrapping across all size categories.

Consideration of a 'social contract'

Those given the right to fish (both the individuals and the Member States concerned) have an obligation to adhere to the rules governing them. We term this a 'social contract' and find that with the exception of Italy and more recently Poland no attention is being paid to making the approval of FIFG support conditional on compliance with CFP regulations. No other Member State has in place systems to ensure that those vessels infringing regulations are not the beneficiaries of FIFG support.

Comparing relative expenditure in Member States on FIFG funding and monitoring, control and surveillance activities, Spain was found to have the lowest ratio of control expenditure to FIFG expenditure (6 percent). Denmark's and France's expenditure on control were also both less than FIFG expenditure (58 percent and 31 percent respectively). Italy and the United Kingdom both spent around the same amount of money on control as that provided under FIFG. Member States, particularly Spain and Portugal which have higher than average proportions of inspections resulting in infringements being identified, should re-balance their expenditure away from FIFG contributions and towards fisheries control activities.

1 INTRODUCTION

1.1 EVOLUTION OF THE FIFG STRUCTURAL FUND

Structural funds[2] are established to support the European Union's (EU) structural policies to adapt or develop an economic sector. Funding is intended to encourage change in a sector at a quicker rate than would occur otherwise and to provide support to communities in implementing the structural policy.

Structural policy in the fisheries sector combines two objectives: contributing to the aims of the Common Fisheries Policy (CFP), while also playing its part in strengthening economic and social cohesion. In other words, it must protect resources and the marine environment to guarantee sustainable fisheries, while ensuring the economic and social development of fisheries-dependent areas. For the period 2007–2013 the financial instrument for this policy is the European Fisheries Fund (EFF)[3], but for the 12 years before EFF, structural funding for the fishing sector was provided through the Financial Instrument for Fisheries Guidance (FIFG)[4].

The first FIFG programme ran from 1994 to 1999 and the second from 2000 to 2006. The general rules governing assistance from the FIFG were laid down at Community level, but the projects themselves were selected by the Member States concerned. Each Member State was required to produce an Operational Programme (OP)[5] laying out the strategic objectives for the fisheries sector to be approved by the European Commission (EC), with annual reporting submitted by Member State administrations to the Commission for review and approval.

A key objective of structural policy in the fisheries sector was to bring fishing capacity[6] into line with available biological resources. Multi-Annual Guidance Programmes (MAGP) were five to six-year programmes that aimed to reduce the EU's fishing fleet. The programmes fixed ceilings for fishing capacity in the main segments of the fleet (e.g., trawlers, netters). MAGP III, which ran from 1992 through to the end of 1996, aimed for an average 10 percent reduction in fleet capacity. MAGP IV, which ran from 1997 through to 2001, was designed to ensure better integration between resource conservation and the structural adjustment aspects of the CFP. A specific target was set for each fleet, backed up at the implementation stage by aid granted from the FIFG.

For vessels using active gears such as trawls or purse seines, the fishing effort[7] reductions under the MAGP IV could be achieved not only by fishing capacity reductions but also by a reduction in activity (i.e. number of days at sea), provided this could be adequately controlled. Germany, France, the Netherlands, Ireland and the United Kingdom (UK) made use of this provision in some fleet segments. All the other Member States concerned (eight at the time) intended to achieve the MAGP IV objectives purely by reducing fleet capacity.

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[2] The EU develops structural policies to adapt and manage the development of structures in the target sector. A *Structural Fund* is the financial instrument to implement a Structural Policy. For the fisheries sector this was the FIFG (1994 to 2006).

[3] More details are available in Council Regulation (EC) No. 1198/2006 of 27 July 2006 on the EFF.

[4] More details are available in Council Regulation (EC) No. 1263/1999 of 21 June 1999 on the Financial Instrument for Fisheries Guidance.

[5] A document approved by the Commission to implement a Community Support Framework, comprising a consistent set of priorities and multiannual measures, which may be implemented by one or more Structural Fund.

[6] Meaning the 'fishing power' of a vessel or fleet of vessels. This is often based on physical measures of the vessel (e.g. gross tonnage [GT] or engine power) as well as the operational or technical efficiency of a fishing vessel and its gear.

[7] Fishing effort is a measure of the amount of fishing. Frequently some surrogate is used relating to a given combination of inputs into the fishing activity, such as the number of hours or days spent fishing, numbers of hooks used (in longline fishing), kilometres of nets used, etc. The EU defines fishing effort as fleet capacity (tonnage and engine power) x days at sea (time; t); the formulas are GT x t and kW x t.

Despite the increased flexibility under MAGP IV, the programme proved to be ineffective at tackling the overcapacity of the EU fleet. The reform of the CFP that was adopted in 2002 introduced a simpler system for limiting the fishing capacity of the EU fleet, giving more responsibility to the Member States. The EC estimated that a withdrawal of some 8,600 vessels (*c.* 8.5 percent of the number and about 18 percent in tonnage of EU fishing vessels) was required to bring fishing capacity into line with fishing opportunities (EC, 2002a). Estimates of required capacity reductions by other organisations were significantly higher[8].

Key elements of structural measures of the post-2002 CFP reform during the FIFG programme period were that[9]:

- reference levels (expressed in GT [gross tonnage]and kW [kilowatt] for fishing capacity) at the end of 2002 are not to be exceeded;
- reference levels are automatically and permanently reduced whenever any capacity is withdrawn with public aid (if a vessel is withdrawn with public aid the reference levels are reduced by an equivalent capacity); and
- the total fishing capacity of new vessels entering the fleet must not exceed the capacity of those being permanently removed and fishing capacity must be adjusted to the fish resources available.

The FIFG co-financed measures[10] aimed at reducing capacity related to either the permanent or temporary cessation of fishing activities. The permanent cessation of fishing vessels' fishing activities could be achieved by the:

- scrapping of the vessel; or
- permanent reassignment of fishing vessels for non-profit purposes other than fishing.

Until 31 December 2004, it was also possible to reduce fishing effort through the permanent transfer of a vessel to a third country, including in the framework of a joint enterprise, but this measure was eliminated in the framework of the 2002 CFP reform.

The objectives of the FIFG programme went beyond just adjustment of fishing effort, however. For FIFG 2000–2006 the main objectives addressed economic, social and environmental aspects and were to:

- contribute to achieving a lasting balance between fisheries resources and their exploitation;
- strengthen competitiveness and the development of economically viable businesses in the fishing industry;
- improve market supply and increase the value that can be added to fish and aquaculture products through processing; and
- help revitalise areas dependent on fisheries and aquaculture.

[8] In 1998 the World Wildlife Fund (WWF) estimated that the capacity of the EU fleet needed to be reduced by two-thirds (WWF, 1998).

[9] http://ec.europa.eu/fisheries/cfp/structural_measures/archives/arrangements_2000_2006_en.htm

[10] The FIFG operated on a co-financing principle: the funding for each project had to include government input from the Member State concerned. Moreover, if the Community assistance related to revenue-generating investment, there was a requirement for a contribution from the recipient.

To support these objectives, aid under the FIFG 2000–2006 was available for a wide range of projects, including[11]:

- adjustment of the fishing effort (scrapping, transfer to third countries or reassignments, joint enterprises);
- fleet renewal and modernisation (construction of new vessels, modernisation of existing vessels);
- protection and development of aquatic resources, aquaculture, fishing port facilities, processing and marketing and inland fishing; and
- other measures, including small-scale coastal fishing, socioeconomic measures, promotions of fisheries products, temporary cessation of activities, and other financial compensation, innovative measures, etc.

The EC's total FIFG funding between 2000 and 2006 was €3.2 billion. The additional Member State contributions to FIFG funding varied depending on the type of measure being funded, the size of the recipient vessel or business and the region where it was based. Member State FIFG contributions amounted to €1.7 billion, giving a total of €4.9 billion of funding from the FIFG programme.

1.2 OBJECTIVES OF THIS REPORT

The EC is required to evaluate FIFG 2000–2006 expenditure, with a report due in the first half of 2010. The Commission's evaluation will focus on a number of evaluation questions (e.g. relevance and coherence, effectiveness, efficiency and impacts) and on management and implementation systems in Member States.

The Pew Environment Group commissioned Poseidon to undertake a shadow ex-post evaluation of FIFG 2000–2006, which expands on the EC's own evaluation by focusing on the extent to which FIFG has had positive environmental and social impacts, thereby contributing to long-term sustainable economic benefits for the sector and those who depend on it. Without sustainable, healthy fish stocks, the fleets are not viable in the long term and jobs will be lost.

This report provides the output of our evaluation. By identifying how previous structural funding under FIFG has impacted the sector and the resources on which it depends, it is hoped that this study will influence the remaining spending under the EFF[12], the discussions on the future role of fisheries aid within the framework of the reform of the CFP[13] and, potentially, discussions within the World Trade Organisation (WTO) on the use of fisheries subsidies.

Readers may also be interested in www.fishsubsidy.org which makes European fisheries subsidies data available to the public in a searchable website.

[11] Information on objectives, measures, co-financing rates, allocation among Member States and links to the regulations are online available at http://ec.europa.eu/fisheries/cfp/structural_measures/arrangements_2000_2006_en.htm.

[12] Member States are able to shift funding within a Priority Axis, spending for instance more funding on scrapping and less on modernisation, both under Priority Axis 1. In addition, the "Emergency Package" (Council regulation instituting a temporary specific action aiming to promote the restructuring of the EU fishing fleets affected by the economic crisis) allows Member States to shift more funds into Priority Axis 1 on fleet management.

[13] http://ec.europa.eu/fisheries/reform/index_en.htm.

1.3 REPORT STRUCTURE

The following sections of the report explain our approach to this evaluation (Section 2), including the scope and information sources used in our analysis, before going on to present the results of that analysis.

Section 3 explores the environmental consequences of FIFG funding, in particular the impact of FIFG on fishing capacity and the resulting consequences for target stocks and the wider marine environment.

Section 4 explores the extent to which social criteria were considered in the planning and distribution of FIFG funding, in relation to the scale of vessel and location of recipients. It also assesses the level of FIFG funding made to specific fisheries subsectors (catching, processing and aquaculture) in relation to the overall value and employment for these subsectors.

Section 5 explores issues that we have grouped under the term 'social contract', which include issues of compliance with CFP rules and also the relative spend on monitoring, control and surveillance compared to FIFG funding levels.

Appendix B presents a summary sheet for each of the ten individual Member States on which our analysis has focused. Together these Member States accounted for 93 percent of all funding under the 2000–2006 FIFG programme.

Appendix C provides a classification of all FIFG measures as positive, negative or neutral. It also indicates which measures are linked to the catching sector, the processing sector and the aquaculture sector, which is of importance for the analysis in Section 4.

Appendix D provides additional different gear types and the FIFG funding, while Appendix E presents additional information on stock trends and FIFG payments.

2 APPROACH TO THIS EVALUATION

2.1 OVERALL APPROACH

This report considers research questions using a range of quantitative and qualitative information relating to the environmental and social impacts of the FIFG. We also ask to what extent recipients of aid (at both individual and Member State level) respect CFP rules. We term these issues a 'social contract' because it is reasonable to expect that if rights to fish are allocated, then the recipients of those rights have an obligation to adhere to the rules governing them.

The study involved three distinct phases of work.

1. Developing a suite of questions and a range of relevant indicators.
2. Quantitative analysis of existing information and data sources for the 10 Member States with the highest levels of FIFG expenditure.
3. Corroboration and expansion of phase 2 analysis through case study work by Poseidon's in-country partners in a number of selected Member States[14].

2.2 SCOPE

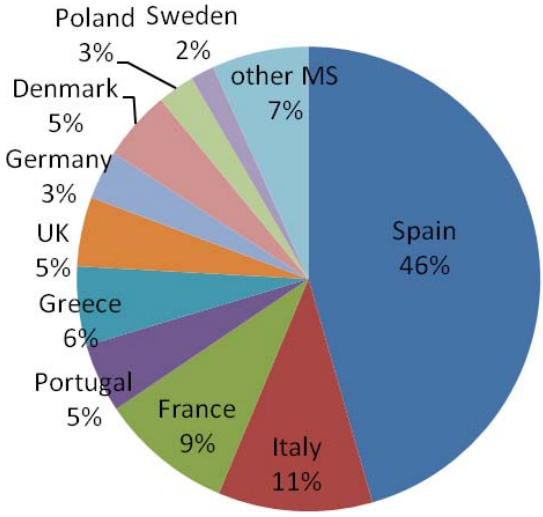
Our analysis considers funding provided by both the EC and Member States (we term this 'total FIFG funding'), but not generally private sector contributions. Total FIFG funding is used as this presents the total amount of public funding allocated to the fisheries sector under the FIFG programme[15]. We focus on the top 10 recipient Member States, which together accounted for 93 percent of total FIFG funding under the 2000 to 2006 programme (Table and Figure 1). Qualitative case studies were also conducted in six Member States: Spain, Italy, France, the UK, Denmark and Poland, which together accounted for 78 percent of total FIFG funding.

Table 1: Total FIFG funding 2000–2006

Member State (MS)	Total FIFG funding (€m)	% of EU total
Spain	2,231	46%
Italy	526	11%
France	452	9%
Greece	270	6%
UK	237	5%
Portugal	236	5%
Germany	168	3%
Denmark	240	5%
Poland	126	3%
Sweden	81	2%
other MS	330	7%
Top 10 MS	4,567	**95%**
Total EU	4,897	**100%**

Source: EC FIFG database[16].

Figure 2: Total FIFG funding 2000–2006



[14] This involved review of Member State OPs, application forms, and consultation with national fisheries administrations.

[15] This analysis only relates to funding under FIFG and does not include other subsidies such as payments by the EU for access to fisheries in third-country waters, fuel tax exemptions, and various other subsidies provided by Member State governments.

[16] See section 2.3 for further explanation of data sources.

2.3 INFORMATION SOURCES

Data and information sources used during the study are shown in Table 2 below, with an indication of the type of information, and the type of outputs that were possible from each source:

Table 2: Information sources and types

Information source	Information type & outputs
EC FIFG database: EC DG MARE supplied Pew Environment Group with a database containing details of all individual FIFG projects[17]. The data includes information on the measure, the recipient vessel, location by country and region, the amount of the award (EC, Member State and private sector contributions), and the date of the award. Poseidon then set up its own categorisation of positive and negative measures. The EC FIFG database also forms the basis of information presented on the fishsubsidy website: www.fishsubsidy.org.	Quantitative
EC fleet register[18], which contains information on fisheries vessels' length, tonnage, capacity, gear type, port, and age. Fishsubsidy.org linked this data with the EC FIFG database to determine awards by measure, gear types, port, vessel size, etc.	Quantitative
FIFG documentation from Member States, which included for Objective 1[19] and non-Objective 1 areas: a) OPs (the strategy); b) programme complements (outlining the detail of how the strategy will be implemented, financing rates, etc.); and c) application forms for all the different measures.	Primarily qualitative but some quantitative
Interviews with Member State administrators	Qualitative
ICES and other stock status information.	Quantitative and qualitative
European Parliament study on regional dependency on fisheries (Salz & Macfadyen, 2007). The study analyses and presents statistical data on the regional (NUTS-2 level)[20] role and importance of the fisheries sector and its four subsectors – fishing, fish processing, aquaculture and ancillary activities – in terms of creation of income and maintenance of employment, and dependency of the regional economies on the fisheries sector.	Quantitative
EC study (2008) (MRAG, *et al* 2008) undertaken by Poseidon and MRAG, in cooperation with IEEP, IFM and Oceanic, which evaluates the costs and benefits of proposed changes to the fisheries control regime. The work provides information on control expenditure, inspections and compliance levels by Member States.	Quantitative
Other national data/information available for Member States, and background reports on subsidies and the evolution of MAGP, FIFG and EFF.	Quantitative and qualitative

[17] The Commission has provided several iterations of the database, which address errors and anomalies identified by the Pew Environment Group. While this source of information on the FIFG 2000–2006 programme (with details of over 70,000 individual projects) is the most accurate available, some errors and anomalies are likely to remain.

[18] http://ec.europa.eu/fisheries/fleet/index.cfm

[19] Objective 1 regions are NUTS 2 regions most in need of structural policy. To qualify for Objective 1 status the GDP per capita for the region must be below 75 percent of the EU average; areas with very low populations such as much of Sweden and Finland also qualify for Objective 1 status.

[20] 'NUTS' is standard for referencing the subdivisions of countries for statistical purposes. The Nomenclature of Territorial Units for Statistics (NUTS) standard was developed and regulated by the EU. For each EU Member State, a hierarchy of three NUTS levels is established. The terms for these levels varies between Member States, but can be interpreted as NUTS 1 – large regions, NUTS 2 – regions, NUTS 3 – districts or provinces.

2.4 ASSUMPTIONS

In undertaking our analysis we have had to make a number of important assumptions.

2.4.1 Subsidies are one of many factors that contribute to overfishing

Overfishing[21] is a fleet-wide consequence of ineffective management that is made worse by the fleet being overcapacity. The link being made between overfishing and subsidies is that FIFG monies may have contributed to certain fleets maintaining or even increasing capacity, thereby contributing to overfishing. In many cases the fisheries management system in place may have a strong impact on the potential economic, environmental and social impacts of subsidies provided by the FIFG. This issue has been identified by the Organisation for Economic Co-operation and Development (OECD, 2006): "If [subsidies] are used to bring about [capacity] adjustment to achieve resource conservation objectives, then it is important to ensure that they are closely aligned with improvements in resource management policies. There is little evidence that revenue-enhancing or cost-reducing [subsidies] improve the performance or stability of the sector in the long run in the absence of accompanying changes in management... The primary motivation behind vessel modernisation and renewal… is to improve both the efficiency of the fleet and the productivity of capacity. Without effective management controls over effort or catch (or both), such transfers may have a negative effect on stocks and can offset the impact of capacity-reducing [subsidies]."

2.4.2 There is a time-lag between the investment, the funding and the status of stocks

In considering the critical issue of the impacts of FIFG awards on the status of fish stocks i.e. have subsidies directly contributed to overfishing of species, or have they helped to reduce pressure on fish stocks through capacity reductions, a potential time-lag exists between the issuing of a FIFG award and any change in fish stock status. As noted above, our evaluation has concerned itself with the FIFG period 2000–2006, but due to the time-lag of impacts, we have considered the most recent information on stock status (by species, by typically from 2008 ICES reports) as being relevant to awards made during the 2000–2006 period. It should also be noted that FIFG funding is retrospective, as proof of the action or expenditure is required. Therefore the funding comes after the action – there is an administrative time-lag, which for certain Member States can be substantial (e.g. analysis of the EC database shows that scrapping aid was paid by Greece several years after the scrapping took place).

2.4.3 Passive fishing gear, small-scale fisheries and fisheries-dependent areas should be favoured

Our research explored the level of funding to vessels of different sizes and using different fishing gears, and to areas of high fisheries dependency. There is a need for caution when making generalisations that some fleet types (in terms of size and gear type) have positive or negative environmental impacts compared to others. For example, while beam trawling is widely criticised, in appropriate sea-bed areas it may have little detrimental impact on benthic environments, while passive gears such as set gillnets can have significant negative impacts, as evidenced in the deepwater fixed gillnet fishery in the Northeast Atlantic on the shelf edge to the west and north of Great Britain, Ireland, around Rockall and Hatton Bank (Brown & Macfadyen, 2007).

Small-scale fisheries can still have negative environmental impacts and contribute to overfishing, especially where regulation is poor and large numbers of small-scale vessels operate within a relatively small area. Accepting this important caveat, in many instances 'passive' gears and small-

[21] Defined as fishing (a body of water or stock of fish) to such a degree as to upset the ecological balance or cause depletion of fish stocks.

scale fisheries do have comparatively lower environmental impact than 'active'/'mobile' gears and larger-scale fisheries. Further information on gear impacts is given in Section 3.

It is also debatable whether the provision of fisheries subsidies to areas of high fisheries dependency is desirable or not. The OECD notes that "transfer policies which are directed either implicitly or explicitly at social objectives need to be analysed to ensure that they do not hamper the effective management of stocks, the competitiveness of the industry or create transfer-dependent communities" (OECD, 2005).

In this report, because of the explicit role in both the ongoing CFP reform process and the EFF on inshore/small-scale fisheries and highly dependent areas, we consider it instructive to report in a subjective manner on subsidies to vessels of different sizes and fishing methods and to areas of different dependencies.

2.4.4 Subsidies under FIFG measures can be defined as having positive or negative impacts

Many economists would argue against any use of subsidies. Under the International Plan of Action for Managing Fishing Capacity, the Food and Agriculture Organisation of the United Nations (FAO) has called for the reduction and progressive elimination of subsidies and economic incentives that contribute directly or indirectly to the build-up of excessive capacity (FAO, 2001). In particular, they stress that firms will tend to invest in a fishery if there are profits to be made. If subsidies help to reduce the costs of exploitation, they can prolong a fisher's incentive to remain in a fishery even when it is being overfished. Even non-fleet measures, such as funding for port infrastructure, may still indirectly contribute to this through reducing downtime for the catching sector or increasing port capacity to encourage fleet investment.

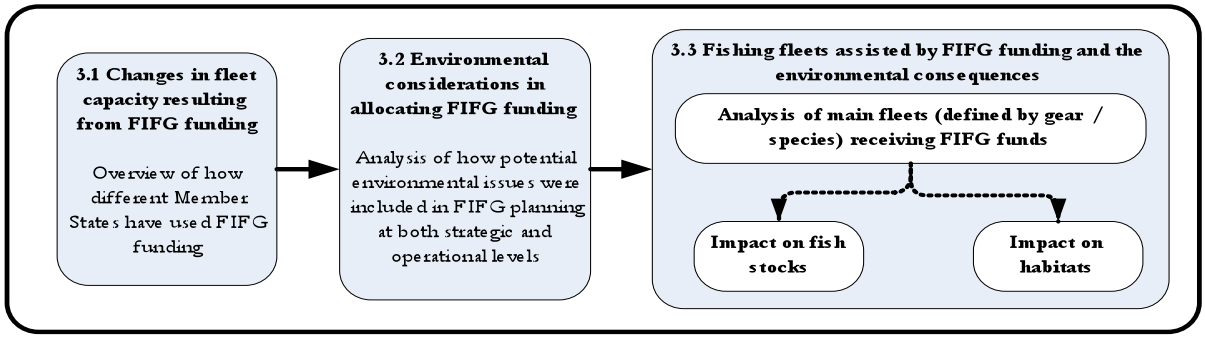
Our assessment of the extent to which FIFG subsidies may have affected fishing capacity have necessitated some assumptions as to whether FIFG measures have positive, negative, neutral or unclear impacts. Such a categorisation is always going to be open to question, alternative interpretation, and criticism. Our categorisation could be considered to be relatively conservative as we have only included the direct funding of vessels that increases, enhances or maintains fishing capacity in the 'negative' category, rather than also including the potentially indirect negative impacts of non-fleet measures described above.

Even scrapping, which we identify as a positive measure in terms of potential environmental impact, can be questioned. Munro (1998) specifies that there are at least two reasons for questioning the use of subsidies for vessel decommissioning: (1) state intervention reduces investment risk; and (2) vessel capital may simply relocate from one fishery to another fishery, with the benefits of capacity reduction in one fishery resulting in intensifying problems elsewhere. These and other potential pitfalls of decommissioning schemes are also recognised by OECD: "Unless complementary measures are taken to effectively manage the fishery, short term gains from the buyback are likely to be eroded as remaining fishers expand effort, previously inactive vessels and licences are activated, or as new entrants join the fishery. Moreover, the provision of continuous, on-going decommissioning funding is likely to result in rising vessel and licence prices… [and so] increase the cost of future decommissioning." (OECD, 2009)

For the purposes of this investigation we recognise that the permanent removal of vessels through targeted scrapping schemes can have a positive environmental impact and that public aid can be used effectively to increase or accelerate this. There are other classifications of subsidies; for example, the Fisheries Centre of the University of British Columbia (Sumaila & Pauly, 2006) proposes 'good, bad, and ugly' subsidies, which also used by www.fishsubsidy.org. We have developed a classification specifically relating to the various FIFG measures, with input provided by the Steering Committee. This classification, along with some justification, is presented in Appendix C.

3 ENVIRONMENTAL IMPACTS OF FIFG 2000–2006

This section examines how FIFG funding over 2000–2006 may have contributed to the way European fisheries affect the marine and coastal environment. This section is divided into the following sequential analyses.



We explore the extent to which FIFG funding has influenced overall fleet capacity (Section 3.1); whether the environment was given due consideration when Member States planned FIFG spend and awarded funding (Section 3.2); and finally how FIFG funding has contributed to fleet impacts on fish stocks and associated habitats (Section 3.3).

We find that FIFG funding has failed to support any significant reduction in overall fleet capacity. Instead it has contributed to maintaining overcapacity in the European fleet, with more funding going to the construction of new vessels and the modernisation of vessels rather than scrapping. As funding decisions were not linked to the status of stocks, FIFG has funded the expansion of capacity in a number of fleets targeting overfished stocks. This lack of environmental consideration also means that FIFG funding has not addressed the wider impacts that these fleets also have on habitats and bycatch species.

3.1 CHANGES IN FLEET CAPACITY RESULTING FROM FIFG FUNDING

3.1.1 The problem of overcapacity

When the capacity of a fishing fleet to catch fish exceeds the amount of fish that can be sustainably harvested, overfishing is likely. In fact, the UN FAO has underlined that overcapacity is a significant – if not the primary – reason for overfishing and related socioeconomic crises in domestic and global fisheries (FAO, 2005). The EC estimates that the European fishing fleets can in many cases exert a fishing pressure on the stocks that is two to three times the sustainable level (EC, 2009a). At the same time, it highlights that 88 percent of assessed EU fish stocks are overfished and more than 30 percent are outside safe biological limits (EC, 2009b).

Fishing capacity is the ability of a vessel or fleet of vessels to catch fish and is defined by the EC using a vessel's internal volume in gross tonnage (GT)[22] and its engine power in kilowatts (kW). For certain types of fishing activity, capacity may be defined as the amount and/or size of a vessel's fishing gear.[23] In the following analysis, we show how these indicators of fishing capacity have changed over the FIFG programme period.

[22] Gross tonnage (often abbreviated as GT, G.T. or gt) is a unitless index related to a ship's overall internal volume.

[23] EC Regulation 1438/2003.

3.1.2 Trends in EU fleet capacity and the role of FIFG

Below, we examine trends in EU fleet capacity since 2000 at both EU and Member State levels. We then examine the impact of FIFG funding in broad terms and whether this has supported either 'positive' or 'negative' measures in terms of changes to fleet capacity. FIFG funding had the potential to contribute towards achieving a balance between fishing capacity and available resources. However, given the state of most assessed EU fish stocks FIFG support could also have resulted in worsening overcapacity if funds were used on vessel measures that served to increase the fishing capacity of the fleet.

Table 3 provides information on fleet capacity across the EU. It demonstrates that between 2000 and 2006 fleet capacity was reduced by 3 percent in terms of GT and 7 percent in terms of kW[24]. In 2002 the EC estimated that a withdrawal of some 8,600 vessels (*c.* 8.5 percent of the number and about 18 percent in tonnage of EU fishing vessels) was required to bring fishing capacity into line with fishing opportunities (EC, 2002a). This target for reduction of the fishing fleet was clearly not achieved over the FIFG programming period.

Table 3: Evolution of the European Union Fleet Capacity (numbers, GT and kW)

Year	No. of vessels	Tonnage (GT)[25]	Engine power (kW)
2000	95,200	2,025,871	7,631,462
2001	92,107	2,016,909	7,508,050
2002	89,758	1,967,608	7,291,738
2003	88,040	1,909,216	7,110,417
2004	92,469	2,103,236	7,499,181
2005	88,729	2,018,033	7,246,459
2006	86,690	1,957,298	7,069,433
2007	88,188	1,920,487	7,011,029

Source: EC, 2009c.

Table 4, overleaf, shows that aggregated data at EU level also hides significant differences in changes in fishing capacity between Member States. France, Portugal and Germany reduced overall fleet capacity by less than 10 percent over the FIFG programming period, while reductions by Denmark and Poland were at or above 30 percent.

[24] The enlargement of the EU in 2004 resulted in a small increase in 2004, but little lasting impact as the largest fishing fleet (in GT terms) of the accession states, Poland, was cut dramatically over the remaining programming period.

[25] Since 2003 vessel tonnage has been recorded as gross tonnage (GT), versus the previously used gross register tonnage (GRT). This change in recording tonnage has taken place at varying rates in different Member States. As the GT of a vessel is greater than the GRT, care has to be taken in comparing the tonnages of the various fleets at different times. By the end of 2003 the recording of the tonnage by GT was largely completed.

Table 4: Fleet capacity for selected Member States 2000 and 2007

Member State	2000		2007		Change in %	
	GT	kW	GT	kW	GT	kW
Spain	520,034	1,333,751	468,122	1,059,940	-10.0%	-20.5%
Italy	233,099	1,393,263	198,581	1,161,781	-14.8%	-16.6%
France	223,965	1,108,405	209,313	1,063,956	-6.5%	-4.0%
Portugal	117,407	397,875	106,702	382,068	-9.1%	-4.0%
Greece	107,097	619,182	90,641	517,864	-15.4%	-16.4%
UK	265,118	975,652	212,879	859,853	-19.7%	-11.9%
Germany	71,312	167,739	69,081	160,886	-3.1%	-4.1%
Denmark	107,512	393,074	76,419	276,440	-28.9%	-29.7%
Poland*	45,559	147,084	29,963	9 6,692	-34.2%	-34.3%
Sweden	51,620	245,526	43,325	213,930	-16.1%	-12.9%

Source: EC, 2009c. *data only from 2004 to 2007

Member States are required to report to the EC on an annual basis on their progress in reducing overcapacity and their proposed actions. The EC's Scientific, Technical and Economic Committee for Fisheries (STECF) commented that Member States' reports simply emphasised the implementation of national fleet management measures rather than the efforts to balance fishing fleet capacity with available fishing opportunities[26] . Moreover, STECF stressed that the reported reductions were rather trivial compared to the existing imbalance between fishing opportunities and fleet capacity. The reported reductions in GT and kW represented "only *an attempt* [our emphasis] to move towards a balance between fishing capacity and available fishing opportunities" (SEC, 2007).

In the text below we investigate the potential environmental impact of FIFG expenditure in relation to fleet capacity in terms of positive (scrapping) and negative (construction and modernisation) measures.

3.1.3 Subsidising positive and negative impacts on fishing capacity

A summary of spend per measure for the FIFG programme and by the top 10 Member State recipients is presented in Figure 2 (page 5). Our analysis focuses on measures we have identified as likely to have positive or negative environmental impacts, particularly in relation to fishing capacity. All the FIFG measures and how these have been categorised (positive, negative or neutral)[27] are presented in Appendix C.

Positive measures include the scrapping of fishing vessels and the temporary cessation of fishing activities. Negative measures include the construction and modernisation of vessels. Neutral measures include targeted support for associated subsectors with the construction and modernisation of port, processing and marketing facilities as well as more general measures such as 'pilot/demonstration projects' and 'technical assistance'.

[26] See research by IEEP in 2009 "Overcapacity – What overcapacity?". View at: www.**ieep**.eu/publications/pdfs/2009/overcapacity.pdf.

[27] Our classification of FIFG measures as positive, negative or neutral was developed with the assistance of a steering group comprising representatives of UNEP, WWF and OECD. It differs from the classification developed by the Fisheries Centre of the University of British Columbia used in www.fishsubsidy.org, which divides subsidy schemes and measures into 'good, bad and ugly'.

As Figure 3 illustrates, around 54 percent of total FIFG funding is under measures that are classified as having a neutral or unclear impact on fishing capacity, with 29 percent under negative measures and 17 percent under positive measures.

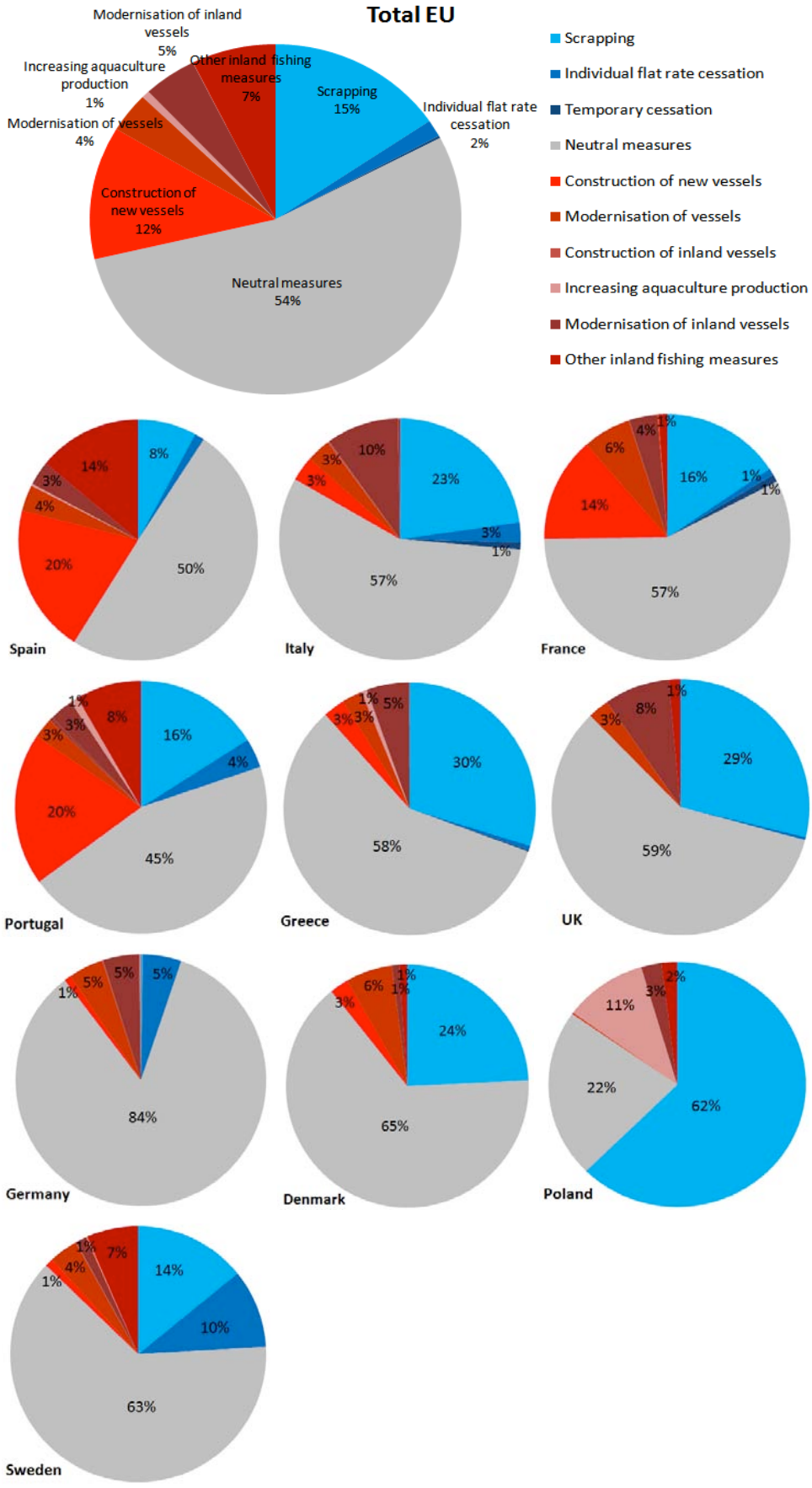
Overall the categorisation could be considered conservative in nature as it only identifies measures having a clear and direct impact on fishing capacity, rather than those likely to have indirect influence. For example, neutral measures include funding for the construction and modernisation of port, processing and marketing facilities (together these account for €1.4billion, nearly one-third of total FIFG funding). By expanding capacity in these sectors, these measures have the potential to facilitate or encourage the catching sector to increase fishing capacity, but this result is not certain and therefore their impact is classified as neutral/unclear. The classification also determines that the funding of tie-up schemes (temporary cessation) makes a positive contribution to a reduction in fishing capacity, even if only on a temporary basis.

In terms of fishing capacity, our classification of different FIFG measures assumes that scrapping is generally considered a positive measure[28] whilst construction of new fishing vessels is considered a negative one. Some measures, like vessel modernisation, can directly or indirectly result in increases in a vessel's fishing capacity, but this will depend upon the nature of the aid provided (see Box 1, page 14). In general, modernisation is considered a negative influence. The impact of many other measures is deemed to be neutral or 'unclear'[29].

[28] While scrapping vessels undoubtedly removes capacity, the usual practice of funding this removal through a decommissioning scheme can exacerbate problems. For more details see Reducing Fishing Capacity: Best Practices for Decommissioning Schemes (OECD, 2009).

[29] For a full list of measures and our assumptions about their environmental impacts in terms of fishing capacity, see Appendix C.

Figure 3: Total FIFG funding for positive, negative and neutral measures *



Source: EC FIFG database * see Appendix C for description of measures.

Box 1: Vessel modernisation – good or bad for the environment?

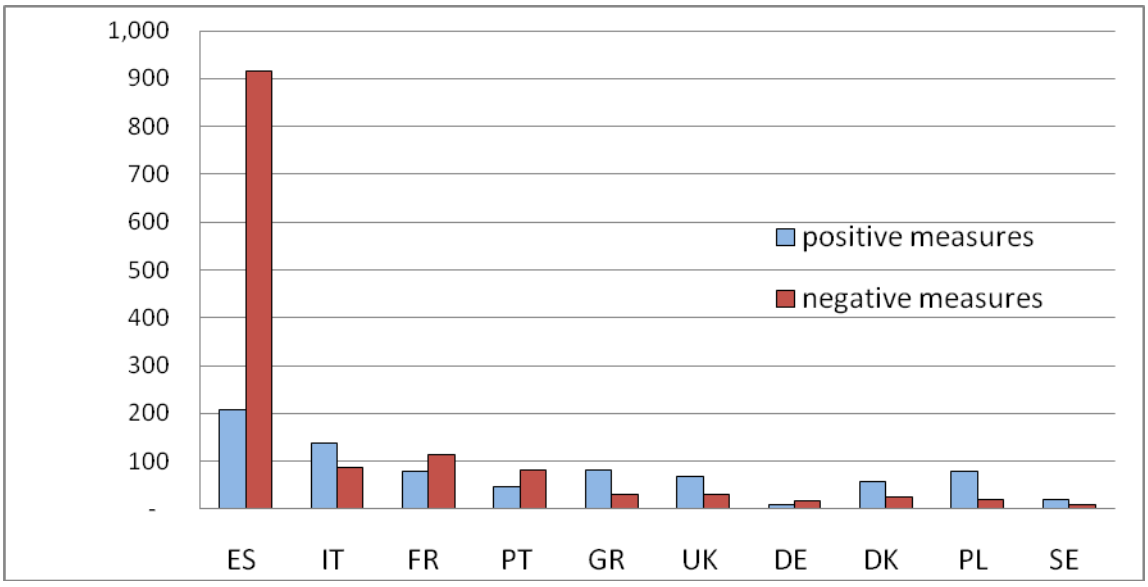
Council Regulation 2792/1999 allows aid for vessel modernisation, including the use of more selective fishing technologies and methods, the improvement of safety, navigation at sea, hygiene, product quality and working conditions. The Regulation states that vessel modernisation may not result in an increase in capacity either in tonnage or power. Vessel modernisation should therefore be neutral in relation to its impact on fishing pressure of vulnerable stocks or wider environmental impacts.

However, this is not the case, as FIFG funding under this measure included a range of modernisations that could increase effective capacity such as more efficient engine management systems, increased on-board storage and other means to extend the range and efficiency of a vessel. Modifications may therefore enable vessels to fish for long periods, further afield and/or in more inclement weather. By improving the effectiveness of the vessel in its ability to catch fish, modernisation has increased the fishing capacity of a vessel in real terms.

For all EU countries, the funds provided for positive measures (mainly scrapping vessels) was €848 million which represents just 17 percent of the total funding, while funds for negative measures (mainly vessel construction and modernisation, including inland vessels) accounted for 29 percent of total FIFG funding. The balance of funds (54 percent) was used for measures we deem as either neutral or less clear in their impacts (such as construction and modernisation of ports, processing and marketing units).

As Figure 4 illustrates, for the top 10 recipient Member States, more FIFG funding was used by Spain, France, Portugal and Germany on negative measures (such as construction of new vessels and vessel modernisation) than on positive measures (such as scrapping). In the case of Spain, which is by far the largest recipient of FIFG monies in the EU, four times as much funding has gone on measures identified as having negative environmental impacts compared to those with the potential for positive impacts.

Figure 4: Total FIFG funding for positive and negative measures by Member State (€million)



Source: Poseidon analysis of EC FIFG database.

In Italy, Greece, the UK, Denmark, Poland and Sweden, more subsidies in the form of FIFG awards and Member State co-financing were allocated for positive measures (mainly scrapping) than for negative ones.

3.1.4 Private sector contributions

While certain parameters were set by the Commission with regards to contributions by recipients, Member States were allowed some flexibility to set their own co-financing rates based on minimum levels. The levels chosen by Member States reflect differing views on how to incentivise uptake of different measures.

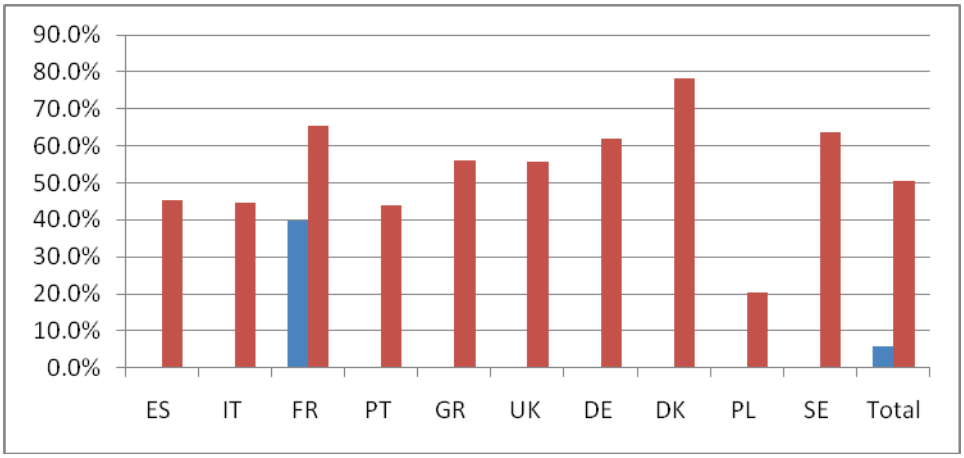
For scrapping, all Member States required zero private sector contributions. In effect the private sector was reimbursed for supplying the vessel to be scrapped. This use of FIFG funds reduces investment risk for the private sector, which encourages further over-capitalisation in the sector, which is contrary to OECD best practice guidelines (OECD, 2009).

Private sector contributions required by all Member States for other positive measures (measures to protect the marine environment, quality labelling or retraining) were also zero, with the exception of France. For France, private sector contributions represented 40 percent of positive subsidies (excluding scrapping). This is thought to be due to France's use of funding under the 'Protection and Development of Marine Resources' measure for the construction of fish aggregating devices (FADs)[30]. The use of FADs has the potential to exacerbate overfishing if there is insufficient control of fishing activities. The French authorities' interpretation of project eligibility is broader than many Member States', but it does nevertheless appear to conform to EC guidance on the measure, which states that: "The FIFG can contribute to financing fixed or mobile facilities to protect and develop aquatic resources, on condition that these facilities are of collective interest; are to be built/installed by public agencies or semi-public bodies or recognised trade organisations; and will not adversely affect the aquatic environment." (EC, 2003a)

For potentially negative measures, private sector contributions as a percentage of total costs of that measure (total FIFG plus private sector contributions) ranged from between 20 and 78 percent, as shown in Figure 5 overleaf, with an average across all Member States of 50 percent. The level of private sector contributions in Spain, Italy and Portugal are lower than in other top 10 recipient Member States. Poland required the lowest average contributions, which are only related to the modernisation of vessels as aid for the construction of vessels was withdrawn by the time of its accession in 2004.

[30] Fish aggregating devices (FADs) are floating objects that are specifically designed and located to attract tunas and other pelagic fish, and therefore allow fishers to find them more easily.

Figure 5: Private sector contributions for positive (blue) and negative (red) measures as a percentage of total FIFG funding



Source: Poseidon analysis of EC FIFG database.

3.1.5 Synopsis

Overall fishing capacity across the EU fleet was reduced by 3 percent in terms of GT and 7 percent in terms of kW. These reductions over the seven year period of the FIFG programme are insufficient to make any significant impact on the imbalance between fishing opportunities and fleet capacity. When considered against the estimated 2–3 percent gains in fishing capacity through technical creep, there may in fact have been no reduction but an increase in fishing capacity in real terms.

Aggregated data at an EU level hides significant differences in changes in capacity between Member States. France, Portugal and Germany reduced overall fleet capacity (in terms of GT and kW) by less than 10 percent over the FIFG programming period, while reductions by Denmark and Poland were at or above 30 percent.

The trivial reductions in overall fishing capacity are no surprise when the use of FIFG is analysed. For all EU countries, the funds provided for positive measures (mainly scrapping vessels) was €848 million, which represents just 17 percent of the total funding, while funds for negative measures (mainly vessel construction and modernisation) accounted for 29 percent of total FIFG funding.

Spain, France, Portugal and Germany all allocated more funding to negative measures that could increase fishing capacity, such as construction of new vessels or vessel modernisation, than on positive measures. In the case of Spain, which is by far the largest recipient of FIFG monies in the EU, four times as much funding has gone on measures identified as having negative impacts compared to those with the potential for positive impacts.

3.2 ENVIRONMENTAL CONSIDERATIONS IN ALLOCATING FIFG FUNDING

Below we examine how individual Member States specifically considered environmental issues when planning and administering the allocation of FIFG funding. This analysis was conducted largely though face-to-face interviews with FIFG administrators within six Member States (Spain, France, Italy, the UK, Denmark and Poland) as well as an extensive examination of their OPs, supporting documents and application forms, along with Member State and EC evaluation reports.

Through these reviews we have assessed the extent to which the FIFG (2000–2006) programme considered environmental impacts at:

(i) a strategic level in designing the programme through their original FIFG Operational Programme (OP); and

(ii) an operational level when screening, approving and monitoring funding applications.

We find that while some Member States improved their targeting of funding over the programming period, to a great extent the damage had been done in the early years with the availability of funding for vessel construction irrespective of stock status. Even after 2004 when vessel construction could no longer be funded, other negative measures such as modernisation (which can increase capacity) continued to be allocated irrespective of stock status. The funding of temporary cessation (tie-up schemes) was often directed towards fleets affected by stock recovery plans, but this helped to maintain fleet capacity irrespective of whether that fleet was over capacity. Throughout the programme there was very little consideration of the wider environmental impacts of vessel funding and non-fleet measures.

3.2.1 Consideration of fleet capacity and impacts on vulnerable stocks

The level to which stock status was linked to the planned reduction in the capacity of specific fleet segments was variable, and generally poor.

All the Member State OPs reviewed include some form of analysis of the status of key commercial stocks, but until 2004 France, Italy and Denmark made no link between this information and the proposed allocation of FIFG funding. Even with a greater recognition of stock status and no new construction being permitted from 2004 onwards, funding for other negative measures such as modernisation remained open to all vessels.

The OPs include fleet capacity reduction objectives which, due to the timing involved, considered the remaining MAGP capacity reduction objectives over the period 1997–2002, despite the FIFG period from 2000–2006 being intended to support the new capacity limits that replaced the MAGP.

Most of the construction of new capacity affecting vulnerable stocks such as hake and monkfish, e.g. Spanish gillnetters in the Bay of Biscay / Iberian Sea and Mediterranean as well as some of the bottom trawl capacity by both the Spanish and French fleets, was funded over the early part of the FIFG programme before the post-MAGP capacity limits became fully developed and operational.

The Spanish OP did prioritise the allocation of funding to fleet segments where fishing capacity was known to be excessive and/or temporary fishery closures were in place. Crucially, it appears that this excess capacity was often moved (through supporting investment in other vessels and gears) rather than removed and insufficient consideration was given to where this capacity went. The result was that a reduction in capacity in one fishery contributed to overcapacity in another European fishery or that capacity was 'exported' to distant water fisheries outside the EU.

According to the Direction des Pêches Maritimes de l'Aquaculture (DPMA), French planning did not expressly disaggregate fleets targeting vulnerable stocks, instead this was considered under an operational permits scheme to limit capacity in certain fleet segments.

In Denmark it was recognised at a general level that fishing effort on certain stocks under pressure needed to be reduced, but the FIFG strategy in the OP was generic, with a common goal across different segments. However, annual assessments were conducted to focus the decommissioning programme and inform funding decisions.

Poland, acceding to the EU in 2004, did introduce capacity-reduction targets in that they stated that fishing fleet reduction should be targeted at these three vessel segments, which have the highest share of cod in fish catches.

The UK addressed MAGP requirements to reduce capacity and effort to meet with specific segment targets in general as it funded scrapping and did not construct vessels with FIFG funding. It did not, however, specifically identify stocks and therefore specific fleet segments where capacity should be reduced.

The link between fishing capacity and status of target fisheries was often better addressed in the Annual Plans submitted by each Member State to the Commission, where fleet segment targeting was usually more specific. These reports provide an ex-post analysis of the progress of decommissioning in terms of net vessel entries and exits from different fleet segments.

The targeting of fleets considered over capacity in relation to their target stocks, was aided in the latter part of the FIFG programme period by the Economic Interpretation of the ACFM[31] Advice (EIAA) model, as it made the link between economic performance and biological resources. However, this model arrived too late to influence most FIFG funding allocations and, although developed jointly across the EU[32], was possibly better suited to northern European country fleet models, which is reflected in its subsequent uptake.

As new capacity limits subsequently replaced the MAGP, there was a greater focus on stocks in recovery plans, e.g. cod, hake, plaice and Nephrops. For instance, the 2004 scrapping round in Denmark focused solely on vessels larger than 10m targeting cod.

At an operational level, when assessing applications there was little or no attempt by Member State administrations to identify the specific stock targeted by individual applicants for, say, decommissioning or vessel modernisation. Equally, the forms did not ask for the gear type usually deployed, often a proxy indicator for both the stocks being targeted and the wider environmental impact of the fishing activity.

Research in France suggests that until 2003 neither the FIFG budget nor the operational mechanisms for fleet capacity reduction were linked to MAGP objectives (Guyader *et al.*, 2007). In Spain, although FIFG applications did not specify the need for information on target stocks from applicants, this information was already available from other sources and was integrated into funding allocations, although only to the extent that fleets affected by recovery plans were awarded funding for temporary cessation. Overall, the Spanish FIFG programme resulted in more funds for negative measures being made available, including construction and modernisation within fleets affected by recovery plans, which have exacerbated the problems of fleet overcapacity in these fisheries.

[31] Advisory Committee on Fishery Management, now superseded by ACOM (Advisory Committee).

[32] See http://ec.europa.eu/research/agriculture/projects/qlrt_2000_01502_en.htm

For several Member States, such as Italy, the non-specific definition of the sector contributed to the lack of targeted funding. Many vessels are simply described as 'multi-purpose', which makes it difficult to link vessels with particular stocks. Further investigation, e.g. through comparing landings records with the applications, would have enabled authorities to make this linkage. An easier way would clearly have been to request this type of information in the application forms.

In the UK some administrations required a link between vulnerable stocks and applicants. For example, the decommissioning form for Northern Ireland did specify that an eligibility requirement was that "at least three tonnes of cod was caught in total from the Irish Sea, North Sea and/or West of Scotland in each of the years 2001 and 2002".

Most Member State interviewees said that whilst the fleet segment might not be formally identified in an application to a decommissioning scheme, it could be easily identifiable through other sources, e.g. national and EC fleet registration databases, and this was usually taken into account during the screening and selection process where fleet segments targeting stocks in recovery would be given priority. However, it is evident that the same consideration was not given to the allocation of negative measures, as vessels targeting stocks in recovery were still eligible for, and were awarded, modernisation funds that effectively increased the fishing capacity of that vessel.

Regarding the construction of vessels with FIFG funds, in Denmark and Italy vessels could only be constructed if the vessel owners removed equivalent capacity, plus an additional 35 percent, with their own funds. However, once permission was given to go ahead, in Denmark there was no restriction on the type of vessel or fishing segment targeted by the new vessel.

In conclusion, whilst the Member State OPs and the Annual Reports to the Commission strongly echoed MAGP (up to 2002) and the subsequent capacity limits, the operational targeting of FIFG funding towards removing the capacity of fleets fishing vulnerable stocks was weakened by a lack of ability to tie applicants to specific stocks.

3.2.2 Consideration of fleet environmental impacts

There is no indication that Member State OPs showed any specific consideration of other environmental issues such as non-target discards and gear-related habitat damage. Unlike the subsequent EFF programme, there was no strategic environmental assessment (SEA) of the Member State OPs under FIFG[33].

In many OPs there were generic objective statements such as the need to improve gear selectivity. For instance, in the UK's OP for non-Objective 1 Areas, the environmental benefits were broadly categorised as follows.

- Reduced habitat impacts through increased use of passive gears (i.e. switch from trawling).
- Improved utilisation through (i) less discarding and (ii) improved processing yields.
- Lower energy costs through more efficient equipment and less ice use.

In Spain, fleet segments with higher selectivity (i.e. longliners) did receive support from FIFG, which increased the fishing capacity of this segment by 1 percent in European waters and 11 percent in international grounds, over the programme period. But in general there was little prescriptive guidance linking different fleet segments with specific impacts and thus allowing a means to target their reduction through selective funding. In Poland, although there was some research done on bycatch and discard rates from coastal cod fisheries, there were no direct measures for reducing discards and bycatch in the OP and Programme Complement.

[33] The EC SEA Directive was introduced in 2001.

The environmental impact of different fishing gears was not explicitly identified in grant application forms, and thus it was not possible to reflect this in the selection process. Some application forms, e.g. the UK's and Denmark's, did ask the applicant for details of any environmental impacts resulting from the project if funded, but did not request any baseline information (which would be particularly relevant for vessels applying for decommissioning). Furthermore, there was rarely any detailed guidance on which environmental impacts should be considered, nor how they should be quantified and assessed. Most others, e.g. France, Spain and Italy, did not include any specific requirements for applicants to identify the potential environmental impact of the proposed funded activity.

In conclusion, there was no meaningful attempt to either assess or monitor the environmental benefits or impacts resulting from FIFG funded activities.

3.2.3 Consideration of environmental impacts of non-fleet measures

This section considers the same environmental issues as above, but for *funding under non-fleet measures,* e.g. for FIFG measures supporting ports, processing, markets and aquaculture development. These non-fleet measures have the potential to indirectly encourage increased fishing capacity and pressure on stocks that may not be sustainable. For example, the expansion of a port will enable larger vessels to operate from it, increasing fishing capacity. Processing developments may increase demand for certain species irrespective of the stock status.

At a strategic level, none of the Member States' OPs specifically considered the upstream impacts of non-fleet measures on target stocks or other marine environmental effects, e.g. discarding rates or habitat impacts. The OPs of the UK and Denmark did acknowledge issues over certain pressured stocks such as cod and plaice and that the likely reduced landings of these species had implications for non-fleet measures. For instance, in Denmark, discussions about OP design were held with fishermen's organisations, using the species recovery plans as a focus, to develop strategies for diversification and better utilisation of non-pressure fishing and processing opportunities. This was similar for France.

At an operational level, none of the six Member States reviews carried out in this study found any evidence that applications for non-fleet measures specifically considered the implications on target stock status or other marine impacts. It was suggested by authorities that there may have been an indirect consideration if an applicant was clearly intending to utilise a damaging approach, but this would be dependant upon both the clarity of his proposal and the knowledge and diligence of the official considering the application. As a result, it is highly uncertain as to whether sufficient attention was paid to this crucial issue.

The consideration of the environment for non-vessel measures was limited to requirements under existing statutory development planning and environmental impact assessment (EIA) processes.

The one exception was Poland, where for potential projects funded under Measure 3.4 (Fish processing and fishery market), increased assistance (70 percent of eligible costs) was available to projects implementing techniques aimed at decreasing negative impact on the environment. In such cases, the applicants had to provide a formal opinion from the Sea Fisheries Institute or Inland Fisheries Institute quantifying the decreased negative impact on the environment.

3.2.4 Synopsis

Overall, the FIFG programme did not adequately consider the environmental impact of proposals on target stocks, bycatch species or the wider marine environment at the strategic level in designing their OPs, or at the operational level in assessing applications.

The lack of a targeted approach means that one environmental legacy of FIFG is its negative contribution to the status of certain stocks through the availability of funding for vessel construction irrespective of target stock status.

As new capacity limits subsequently replaced the MAGP, there was a greater focus on stocks in recovery plans, e.g. cod, hake, plaice and Nephrops. Some Member States such as Denmark and the UK improved the targeting of funding towards fleets associated with vulnerable stocks in the latter half of the FIFG programme.

Despite the improved linking of fleets and the status of the stocks they target, funding for measures recognised as having a negative environmental effect in terms of fleet capacity, namely modernisation and temporary cessation, continued throughout the programme.

Throughout the programme, there was very little consideration of the wider environmental consequences of vessel funding and non-fleet measures. There was no meaningful attempt to either assess or monitor the environmental benefits or impacts resulting from FIFG funding for vessel and non-fleet measures.

Poland was the only Member State reviewed that preferentially funded non-fleet measures that could show a reduced environmental impact.

3.3 FISHING FLEETS ASSISTED BY FIFG AND THE CONSEQUENCES FOR FISH STOCKS AND MARINE HABITATS

Below, we identify which particular fishing fleets received FIFG funding for different vessel measures (construction, modernisation and scrapping). We consider the status of the stocks targeted by the main fleet segments that received support (3.3.1) and then the wider environmental impacts of the gears used by the fleets (e.g. bycatch and habitat impacts) (3.3.2).

EC records of FIFG funding allocated to vessel measures identify the vessel associated with this spend and its home port. The Community Fishing Fleet Register[34] allows us to identify the main gear used by each vessel and therefore the fleet segment to which each vessel belongs. When this gear information is considered alongside the vessel's home port we are able to assume the likely fishing area and fish stock(s) targeted.

ICES (the International Council for the Exploration of the Seas) stock assessment reports were reviewed to determine the status of those stocks being targeted and the trend in stock status (i.e. stable, in recovery or in decline). This approach has enabled us to identify the link between FIFG funding and the status of stocks. We have further substantiated our analysis using EC reporting on EU fleets[35].

There are many factors that cause overfishing, but this analysis shows that FIFG funding has certainly contributed to it, which is at odds with the objective of FIFG to "contribute to achieving a lasting balance between fisheries resources and their exploitation".

In addition to assessing the contribution of FIFG funding to the status of target stocks, we explore other environmental impacts of FIFG-funded vessels. As key fishing fleets supported by FIFG are identified (along with the gear they use and the areas they fish), we can also identify the impact of these vessels on habitats and non-target species. We look at the five main gear types supported by FIFG, first describing the general nature of these gears, which Member State fleets operate them and their known environmental impacts. We then examine any specific interactions that FIFG supported fleets are known to have had, including bycatch issues.

3.3.1 Implications for vulnerable fish stocks targeted by FIFG assisted fleets

To understand whether FIFG-related changes in fleet capacity have had beneficial or harmful effects on European fish stocks, this section identifies those stocks that have been fished by FIFG-supported vessels and briefly reviews their status in terms of their reproductive capacity. It is not possible to specifically correlate FIFG support to these impacts, but we can identify the extent to which FIFG-funded vessels are involved in these fisheries.

Some key vessel segments receiving FIFG funding and the main stocks they target are summarised in Table 5, overleaf. These fleets account for 44 percent of funding for vessel construction and 36 percent of modernisation funding but only 15 percent of scrapping funding[36]. Table 5 shows that where funding for scrapping exceeded funding for construction and modernisation (e.g. the North Sea whitefish gillnet and trawl fisheries), stocks are still vulnerable but are showing signs of recovery. Where fleet funding for construction and modernisation exceeded scrapping (e.g. the western Mediterranean fisheries targeted by Spanish and French trawlers and gillnetters), stocks are overfished and continue to decline.

[34] http://ec.europa.eu/fisheries/fleet/index.cfm

[35] Including the 2005 Annual Report of the 'Economic Assessment of European Fisheries' (prepared for the EC under contract FISH/2005/12).

[36] A more detailed description of the funding by gear type is provided in Appendix D and further information on the status of these key target fisheries is provided in Appendix E.

Table 5: Summary of key fleets assisted by FIFG (2000–2006) and the stocks they target

(1) Total FIFG funding (in €million) of vessels with listed gear type in listed NUTS regions for: C, construction; M, modernisation; S, scrapping

Fleet/gear	Main Member States & NUTS 2 regions	FIFG funding €million (1)			Key target stocks	Status	Trend
		C	M	S			
Channel & North Sea mixed whitefish bottom trawl (OTB)	DK: DK00C, DK00F (Ringkjøbing & North Jutland)	2.3	5	15	Cod (Subarea IV North Sea & Divisions VIId (Eastern Channel) & IIIa (Skagerrak).	☹	
	FR: FR522, FR301, FR524 (Brittany & Normandy)	11.1	3.7	14.5			
North Sea mixed whitefish gillnet (GNS)	DK: DK00C, DK00F (Ringkjøbing & North Jutland)	0.6	1.8	11.8	Cod (Subarea IV North Sea & Division IIIa Skagerrak).	☹	
Biscay & Iberian bottom-set gillnet (GNS)	ES: ES61, ES11 (Andalucía & Galicia)	21	2.7	12.4	Hake (Southern VIIIc and IXa)	☹	
					Monkfish (VIIIc & IXa)	☹	
Biscay & Iberian mixed whitefish bottom trawl (OTB)	ES: ES61, ES11 (Andalucía & Galicia)	120	10.7	26.4	Hake (Southern VIIIc and IXa)	☹	
					Monkfish (VIIIc & IXa)	☹	
					Megrim (VIIIc & IXa)	☹	
					Demersal elasmobranchs (VIII & IXa)	☹	
					Nephrops (VIIIc & IXa)	☹	
Western Mediterranean hake gillnet (GNS)	ES: ES52, ES51 (Valencia & Catalonia)	4.2	1.5	1.5	Hake (GFCM GSA 06; FAO 37.1.1)	☹	
Western Mediterranean hake bottom trawl (OTB)	ES: ES52, ES51 (Valencia & Catalonia)	43	12.8	12.9	Hake (GFCM GSA 06, FAO 37.1.1)	☹	
	FR: FR8 (Languedoc-Rousillon)	2	0.5	0.8	Hake (GFCM GSA 07; FAO 37.1.1)	☹	
Western Mediterranean tuna gillnet (GNS)	ES: ES52, ES51 (Valencia & Catalonia)	4.2	1.5	1.5	Bluefin tuna (FAO 37.1 & ICES IXa)	☹	
	FR: FR8 (Languedoc-Rousillon)	1	0.7	0.2	Bluefin tuna (FAO 37.1)	☹	
Biscay & Iberian small pelagic purse seine (PS)	ES: ES21, ES61 (Basque & Andalucía)	51	23.3	8.6	Anchovy (VIIIbc; IXa)	😐	
Western Mediterranean small pelagic purse seine (PS)	ES: ES52, ES51 (Valencia & Catalonia)	8.1	1.7	10.1	Sardine (GFCM GSA 1 & 6, FAO 37.1.1)	☺	

Source: Poseidon partner Member State reports, ICES stock reports, GFCM stock reports

☺	**Stock in good condition**	😐	**Stock is at risk**	☹	**Stock is overfished**
	Stock in recovery		**Stock is stable**		**Stock in decline**

We investigated whether FIFG funding has resulted in increased fishing pressure on vulnerable fish stocks. As Table 5 illustrates, the answer appears to be an unequivocal 'yes', as summarised below.

Funding of new vessel construction: The construction of some 3,000 new vessels (an additional 488,708 kW) was funded with €601 million of FIFG funds between 2000 and 2004, with three-quarters being Spanish boats. Of these, 853 or 30 percent (by number) were relatively small Spanish gillnetters targeting hake and monkfish in the Bay of Biscay and the Iberian Atlantic coast. Both these stocks were considered to be overexploited, with the stocks in poor condition[37].

Although a smaller number of bottom otter trawlers (OTB) were constructed (655), these represent a greater proportion of the fishing power added through FIFG funds (38 percent of new power entering the fleet). Again, the majority (70 percent) of these were Spanish vessels, targeting the same Biscay and Iberian hake and monkfish stocks discussed above, together in a mixed fishery with Nephrops and megrim. Like hake and monkfish, Nephrops in these areas are in poor condition and have been subject to a recovery plan since 2006. Megrim is also assessed by ICES as overfished. Thus around two-thirds of the number and half the power of new builds were all targeting the same four stocks, all in poor condition.

Another fleet segment where construction was funded by FIFG was the purse seiners (Spanish, Portuguese and French), mostly fishing for small pelagic species in the Atlantic and Mediterranean. Around 36 purse seiners were constructed in Galicia between 2000 and 2004. In 2005 the Bay of Biscay anchovy fishery targeted by these fleets had to be closed due to low stock recruitment.

Funding of vessel modernisation: €181million was spent on the modernisation of vessels[38], with bottom trawlers (31 percent) and gillnetters (24 percent) accounting for more than one-half of all FIFG modernisation funding. Although the aim of modernisation was not to increase fleet capacity, this may have occurred, e.g. through an increased operation range or on-board storage capacity. The French and Danish OTB fisheries were recipients of FIFG modernisation funds, operating in the Channel and North Sea targeting mixed demersal whitefish such as haddock and cod. Cod in particular is overfished and subject to a recovery plan. For Denmark, twice as much FIFG funding went to the scrapping of vessels in this fleet segment than construction or modernisation. For the equivalent French trawl fleet, the funding of positive and negative measures was equal.

1,155 Spanish bottom otter trawlers received modernisation funding, with the majority of these targeting hake in the Mediterranean, which is overfished and is currently at a high risk of stock depletion/collapse. The other main segments modernised were the Spanish gillnetters targeting vulnerable hake and monkfish in the southern Biscay and Iberian coasts.

Funding of vessel scrapping: €760 million of FIFG funding went to the scrapping of 5,797 vessels with a total power of 742,732 kW. Of these, the most in number (29 percent) were longliners, mostly small Greek vessels targeting demersal species such as sea breams and red mullet. Around one-half of the power scrapped through FIFG funding was from the bottom trawl sector, including the Italian Adriatic fleet targeting hake, red mullet, sole and sea bream. The status of these latter Mediterranean stocks is uncertain and they are currently being investigated by the General Fisheries Commission for the Mediterranean (GCFM).

[37] Southern hake has been managed under a recovery plan since 2006.

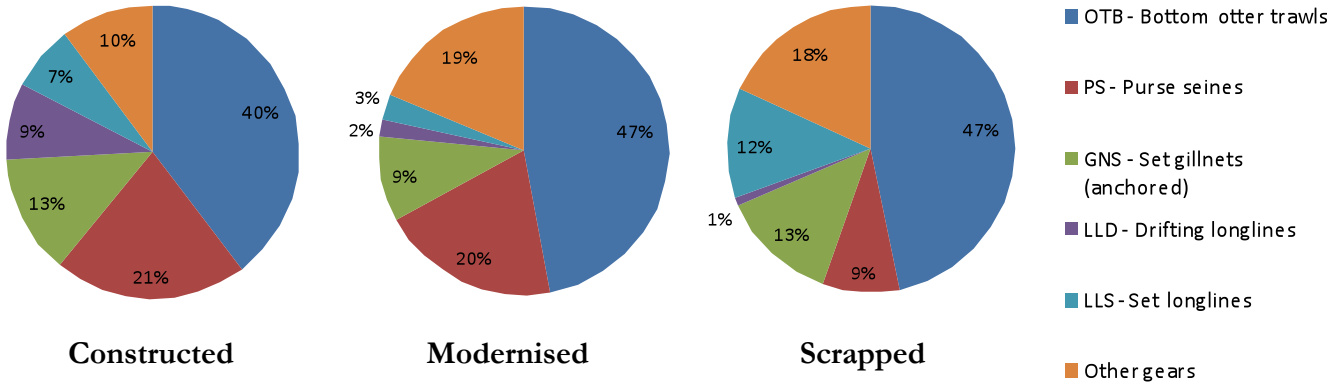
[38] A further €228 million of EU funding went to the modernisation of inland vessels across the EU.

3.3.2 Fishing gears assisted by FIFG funding

The environmental impacts from fisheries are largely a function of the gear type used, the way it is deployed, the scale of fishing intensity and the sensitivity of the receiving environment. Given these multiple variables, it is not possible to specifically quantify the impact of FIFG-funded fishing operations on the marine environment. It is, however, possible to provide a review of known issues with the main gears that are associated with the fleets in receipt of FIFG funding and then consider the likely impacts. We first consider the amount of funding given to vessels operating mobile gear (such as trawls) and passive gear (such as set nets and traps), before exploring the gear types funded in more detail.

The main gear types funded by FIFG are bottom otter trawls (EC gear code: OTB), purse seines (PS), anchored set gillnets (GNS), drifting longlines (LLD) and set longlines (LLS). Together these account for 84 percent of vessels constructed, 75 percent of vessels modernised and 84 percent of vessels scrapped with FIFG funding (Figure 6 and Table 6). Of these, trawls and purse seines are 'mobile', e.g. they use the vessel power to capture the fish. Gillnets and longlines are passive, e.g. the gears are static and enmesh or ensnare the fish. As a general rule, passive methods tend to be less damaging to the marine habitat than active gears, although they can have a major impact on non-target species.

Figure 6: Gear types of vessels constructed, modernised and scrapped with FIFG assistance (percentage of total vessels in kW)



Source: Poseidon analysis of EC FIFG database and Community Fleet Register.

Table 6: Proportion of gear types funded by FIFG (2000–2006) by number and power

Gear	Constructed		Modernised		Scrapped	
	Number	Power	Number	Power	Number	Power
OTB - Bottom otter trawls	22.8%	39.7%	34.3%	47.1%	22.2%	46.7%
PS - Purse seines	8.1%	21.3%	9.1%	19.8%	6.1%	8.6%
GNS - Set gillnets (anchored)	39.6%	13.2%	23.1%	9.6%	25.8%	13.3%
LLD - Drifting longlines	3.9%	8.6%	2.6%	1.8%	1.2%	0.8%
LLS - Set longlines	9.4%	7.1%	6.4%	7.4%	29.2%	12.5%
Other gears	16.2%	10.2%	24.5%	14.2%	15.5%	18.1%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

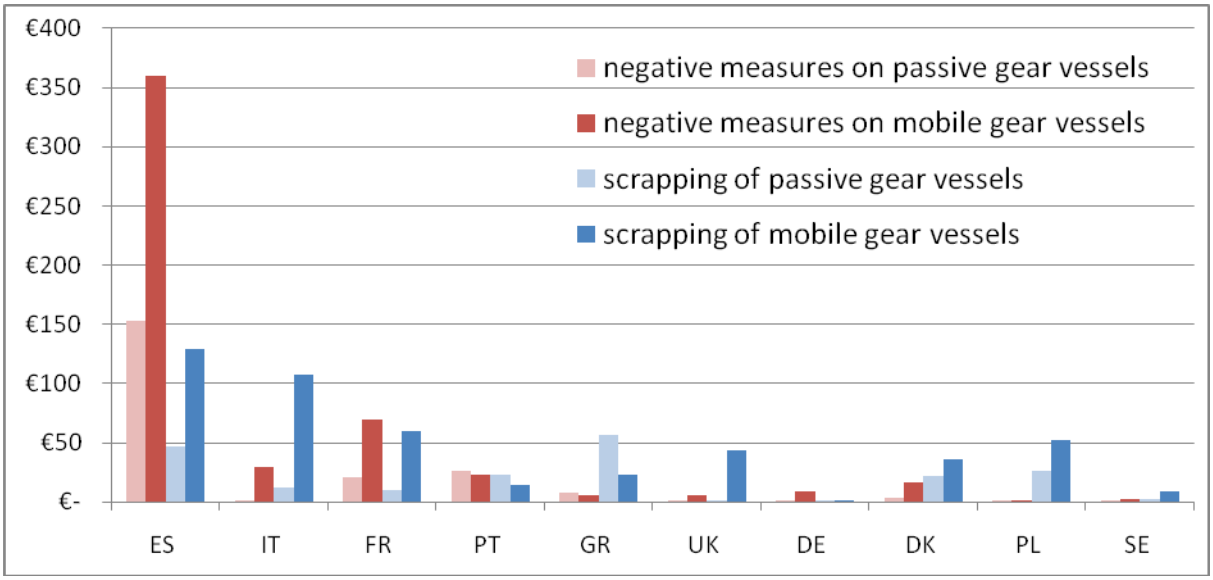
Source: Poseidon analysis of EC FIFG database and Community Fleet Register.

Appendix D presents more detailed analysis of which particular fishing fleets received FIFG funding for (i) construction, (ii) modernisation or (iii) scrapping.

Across the EU fleet, 79 percent of vessels by number operate passive gear (such as set nets or traps) and 21 percent of vessels operate towed or mobile gear (such as trawls and seines) (EC, 2009c). As vessels using mobile gear tend to be the larger vessels in the fleet, this ratio would be less if GT or engine power were considered[39].

Figure 7 presents the total FIFG funding for vessels using mobile gear such as trawls compared to that spent on vessels using passive gears such as fixed nets, longlines and traps. The data are broken down into funding for (a) negative measures (construction and modernisation) (red) and (b) a positive vessel measure (scrapping) (blue).

Figure 7: Total FIFG funding for positive and negative measures for vessels with passive and mobile gears (€ million)



Source: Poseidon analysis of EC FIFG database and Community Fleet Register.

Figure 7 shows that for Spain about three times as much funding was given to the construction and modernisation of vessels using mobile gear than to the scrapping of this type of vessel.

Only Portugal and Greece show a greater proportion of funding going to passive gear than mobile gear, with Portugal allocating marginally more funding for negative fleet measures than for scrapping and Greece far more funding allocated to scrapping than negative measures.

For the UK, funding of mobile gears greatly exceeded spend on passive gears, but only €5 million went to negative measures with €43 million going to the scrapping of vessels operating mobile gear. For Italy, Denmark, Poland and Sweden, more was spent on scrapping vessels using mobile gear than on constructing or modernising mobile gear vessels.

For Germany, €8.5 million of FIFG funding went on negative measures (mostly modernisation) for vessels using mobile gears, with less than €0.5 million being spent on scrapping vessels with mobile gear. Ten times more aid was allocated to vessels using mobile gears compared to passive gears, despite 77 percent of Germany's fleet by number using passive gear.

The above analysis illustrates the very different approaches taken by Member States to fleet management. Across the EU as a whole there was significantly more FIFG funding of mobile gears than for the less environmentally damaging passive gears, despite 82 percent of the EU fleet (by number) operating passive gear.

[39] Passive (or static) gears, e.g. traps or set gillnets, require no energy to catch fish. Mobile (or active) gears, e.g. trawls, require energy as they are dragged or pulled by the vessel.

3.3.3 The environmental impacts of FIFG-funded vessels on bycatch and habitat

This section considers the five main gear types of vessels supported by FIFG, examining their known environmental impact on the fishery in terms of (i) unwanted catch and subsequent discarding, and (ii) the physical impact of that gear on the sea bottom.

Table 7, overleaf, presents an overview of the five main fishing methods funded under FIFG in terms of the amount spent on them, their comparative impact on marine habitats and species and the effectiveness of their management based on a fisheries methods league table produced by the Marine Conservation Society (MCS).

The league table identifies the comparative impact of various fishing methods on these three areas of impact and suggests 'favoured fishing methods' (all passive), which include: handline or rod and line; pole and line or troll; potting or creeling; traps; diver-caught; hand-gathered, hand raked; and sustainable farming methods for shellfish, such as rope-grown.

Of the 24 fishing methods presented in the MCS league table, the five main methods funded under FIFG are assessed as having 'some impact' and it identifies that the management associated with these methods requires improvement to minimise those impacts.

Bottom trawlers received the highest proportion of FIFG funding of all the gear types, with more spent on construction and modernisation (€253 million) than for scrapping (€208 million). As the MCS league table recognises, the significance of any impact from bottom trawling is dependent upon the sensitivity of the habitat being fished. Unfortunately, the identification and protection of sensitive species and habitats in the marine environment has lagged behind the parallel process on land. A coherent network of European Marine Protected Areas (MPAs) is still under development, which means Member State authorities have not dictated where fishing can and cannot take place in the offshore area in relation to sensitive habitats[40]. The result is that trawlers, along with the rest of the fleet, are able to fish regardless of the relative sensitivity of the habitat being impacts.

The main recipient fleets using OTPs were the Spanish mixed hake, monkfish and megrim fisheries on the Bay of Biscay, the Mediterranean hake fishery and, to a less extent, the French Channel fleet. These fisheries have reported substantial discarding of undersized target species and bycatch. The use of bottom-trawled gears also results in impacts to the seabed. These can damage sensitive habitats such as reefs and seagrass beds, which are protected under the EC Habitats Directive (EC, 1992).

However, in terms of numbers, there has been a greater increase in the gillnetting fleet, especially in the Spanish Atlantic fleet. The most significant environmental impacts from this fishing gear are the bycatch of endangered species such as cetaceans, turtles and sharks and the entanglement of various marine animals in lost or discarded nets (termed 'ghost fishing').

The main vessels decommissioned were the set longliners of Greece, which will help to reduce impacts on vulnerable bycatch such as elasmobranchs, turtles and seabirds.

[40] For example, the December 2008 Natura 2000 Barometer identified 19 of 27 Member State Special Protected Area (SPA) networks as being 'incomplete': http://ec.europa.eu/environment/nature/natura2000/barometer/docs/spa.pdf

Table 7: Summary of key fleets assisted by FIFG (2000–2006) and their environmental impact

Gear type		Total FIFG assistance in € and the gear's proportion of total spend (%)			Impact rating[41]					Main fleets receiving FIFG funds
		Construction (total €601 million)	Modernise (total €181 million)	Scrapping (total €760 million)	Impact on habitat	Impact on target species	Impact on non-target species	Manage-ment	Overall rating	
Mobile gears	Bottom otter trawls (OTB)	€199 million (33%)	€54 million (30%)	€208 million (27%)						Channel & North Sea mixed whitefish bottom trawl; Biscay & Iberian mixed whitefish bottom trawl and prawn bottom trawl; western Mediterranean hake bottom trawl
	Purse seines (PS)	€64 million (11%)	€26 million (14%)	€38 million (5%)						Biscay & Iberian small pelagic purse seine; western Mediterranean small pelagic purse seine
Passive gears	Set gillnets (GNS)	€43 million (7%)	€10 million (6%)	€72 million (9%)						North Sea mixed whitefish gillnet; Biscay & Iberian bottom-set gillnet; western Mediterranean hake gillnet and tuna gillnet
	Drifting (pelagic) longlines (LLD)	€59 million (10%)	€6 million (3%)	€6 million (1%)						Spanish tuna and swordfish longline fisheries
	Set longlines (bottom) (LLS)	€38 million (6%)	€5 million (3%)	€56 million (7%)						Spanish Atlantic longline fleet targeting hake, monkfish and other demersal species; Greek set longlines for bottom-dwelling fish

Source: Poseidon analysis of EC FIFG database, Community Fleet Register and Marine Conservation Society.

Key:

 Low impact / Well managed

 Moderate impact / Poorly managed

 Some impact / Management requires attention

 High Impact / Unacceptable

[41] Rating by the Marine Conservation Society's Fishonline, retrieved 05/11/09 from: http://www.fishonline.org/caught_at_sea/methods/Fishing_Methods_League_Table.pdf

3.3.4 Synopsis

Five main gear types accounted for over 80 percent of vessels funded by FIFG: OTBs, purse seines, anchored set gillnets, drifting longlines and set longlines. Of these, the first two are 'mobile', e.g. use the vessel power to capture the fish. The latter three are passive, e.g. the gears are static and enmesh or ensnare the fish. Construction of vessels using mobile gear represents around 30 percent of construction and 50 percent of modernisation funding in terms of numbers of vessels. In capacity terms (power), the construction of vessels using mobile gear accounted for 58 percent of total funding and 72 percent of modernisation funding.

Spain dominated the use of FIFG funds for the construction of vessels (62 percent of the total funded power) across all gear types, especially small gillnetters, medium-sized otter trawlers and purse seiners, as well as large longliners targeting swordfish and tuna. France accounted for 18 percent (in power terms) of the additional fleet capacity constructed with FIFG funds, mainly in the Channel-based bottom trawl fleet as well as large tuna purse seiners.

The uptake of vessel modernisation funding was dominated by just three member States – Spain (28 percent of total vessel power modernised), France (22 percent) and Denmark (20 percent).

The scrapping of vessels is much more evenly spread through the EU Member States. Spain scrapped the most vessels (19 percent by total power), followed by Italy (17 percent), Greece (13 percent), France (11 percent), the UK (9 percent), Denmark (8 percent) and Poland (7 percent). Other Member States each scrapped less than 5 percent of the total amount.

Overall, the construction of around 3,000 vessels, combined with the modernisation of nearly 8,000 vessels and compared to the scrapping of 6,000 vessels (a large proportion of which were small inshore vessels from Greece and Spain), is expected to have resulted in a net increase in fishing capacity across the EU fleet.

This net increase is expected to have negative consequences for the pressure stocks being targeted by the fleets supported and also for the wider environment as the impact on habitats and bycatch species would also be increased.

FIFG funding is likely to have hindered the recovery of overfished stocks such as megrim, elasmobranchs and Nephrops that are targeted by fleets receiving FIFG funding for construction and modernisation. Of even more concern is the contribution of FIFG funding to the continued decline of southern Hake and monkfish stocks in areas VIIIc and IXa through the supporting of the construction of Spanish gillnetters and bottom trawlers.

The dire stock status of cod stocks is one instance where FIFG-funded vessel construction has not exacerbated the situation, but for this fishery the consequences of vessel modernisation in the Danish and French trawl fleets are more difficult to determine.

FIFG has sustained, rather than reduced, the overcapacity of the Spanish and French fleets targeting the highly vulnerable blue fin tuna stock through funding modernisations. But the perilous status of blue fin tuna is primarily the result of management failings exacerbated by FIFG funding.

With around 38 percent of new vessels built with FIFG assistance being bottom otter trawlers, the main impact (in addition to targeted fish stocks) is likely to be on seabed habitats, especially given that much of this additional effort is from Spanish vessels targeting mixed demersal fisheries off the Iberian peninsula.

It is suggested that bottom trawling as a fishing method should be avoided wherever sensitive seabed habitats exist. The avoidance of these habitats by fishing vessels, including the bottom trawlers built with FIFG funding, cannot currently be dictated and the damage to sensitive habitats caused by these gears continues. These trawl fisheries also have high discard rates.

Set gillnets represent the largest proportion of gears (40 percent and 14 percent by number and total power, respectively) of all new builds funded by FIFG (2000–2006), as well as one-quarter of all vessels modernised or scrapped (by number). These fisheries tend to be much more selective than trawl fisheries and thus generate fewer discards. In addition, as a passive gear their habitat impacts are relatively low. However, there are known issues over their bycatch of sea mammals and endangered animals, as well as their capacity to continue 'ghost fishing' if lost. Both of these impact areas can be substantially reduced through good management and responsible operational practices.

One positive development for the environment is the large reduction in certain fleet segments. By number the largest reduction in vessels occurred in the Greek bottom longline fishery. This should benefit the turtle populations of the eastern Mediterranean, as well as reducing the bycatch of vulnerable bottom-dwelling sharks and rays.

3.4 SUMMARY

During the FIFG programme, overall fishing capacity across the EU fleet was reduced by 3 percent in terms of GT and 7 percent in terms of kW. When this is considered against the estimated 2–3 percent gains in fishing capacity through technical creep, there may in fact have been no reduction in fishing capacity in real terms.

An analysis of FIFG funding by measure shows that despite one of the FIFG's key objectives being to help reduce fishing capacity and bring it into balance with available resources, funding under the programme has had the opposite effect.

The funds provided for positive measures (mainly scrapping vessels) was €848 million, which represents just 17.3 percent of the total funding, while funds for negative measures (mainly vessel construction and modernisation) accounted for almost 30 percent of total FIFG funding at €1.4 billion.

Spain, France, Portugal and Germany all allocated more funding to negative measures that could increase fishing capacity, such as construction of new vessels or vessel modernisation, than on positive measures. In the case of Spain, which is by far the largest recipient of FIFG monies in the EU, four times as much funding has gone on measures identified as having negative impacts compared to those with the potential for positive impacts.

Overall, the FIFG programme did not adequately consider the environmental impact of proposals on target stocks, bycatch species or the wider marine environment at the strategic level in Member States' OPs or at the operational level in their assessment of applications. This lack of a targeted approach means that funding was made available for vessel construction irrespective of the status of the stocks it would target or the impact of fishing methods on the wider marine environment.

Some Member States such as Denmark and the UK improved the targeting of funding towards fleets associated with vulnerable stocks in the latter half of the FIFG programme. But despite this improved linking of fleets and the status of the stocks they target, funding for negative measures, namely modernisation and temporary cessation, continued throughout the programme.

For the Member States reviewed (Spain, France, Italy, Denmark, Poland and the UK) there was no meaningful attempt to either assess or monitor the environmental benefits or impacts resulting from FIFG funding for vessel and non-fleet measures. As our analysis shows, however, it is possible and necessary to make this link between funding and impacts to ensure FIFG funding was helping to deliver the objective of balancing fishing capacity with fishing opportunities.

By linking the EC FIFG database with the Community fleet register, we have identified the specific vessels awarded FIFG funding and the stocks targeted by these vessels. Where funding for scrapping exceeded funding for construction and modernisation (e.g. the North Sea whitefish gillnet and trawl fisheries), stocks are still vulnerable but are at least showing signs of recovery. Where fleet funding for construction and modernisation exceeded scrapping (e.g. the western Mediterranean fisheries targeted by Spanish and French trawlers and gillnetters), stocks are overfished and continue to decline.

Whilst Spain, France and Portugal all showed some reduction in their fleet capacity overall, this was less focused on pressure stocks. For instance, whilst the Spanish scrapped 458 gillnetters, many in the Mediterranean, they constructed an additional 853 gillnetters, mainly operating in the Atlantic where their target species hake continues to be overfished and is the subject of a recovery plan.

Overall, it is evident that FIFG funding has contributed to the overfished status of several key European stocks through supporting the construction and modernisation of vessels targeting those stocks. The net capacity gain in some fleets supported by FIFG has exacerbated the problems of balancing fishing opportunities with fishing capacity.

4 SOCIAL ASPECTS OF FIFG 2000–2006

The following section identifies how much total FIFG funding was given in relation to the value of landings and fishing sector employment in the top 10 recipient Member States. We go on to show the amount of FIFG funding given under aquaculture and processing measures in relation to the value and employment in these sectors.

We also consider FIFG support in relation to small-scale fisheries and to areas of high fisheries dependency. As we discussed in Section 2.4.3, the comparative social benefits of small-scale fishing to larger-scale fishing are poorly understood. So too the comparative benefit of targeted support to fisheries-dependent communities over support in other locations. The presentation of these indicators is therefore intended to be 'judgement-free', reporting factually on the extent of support.

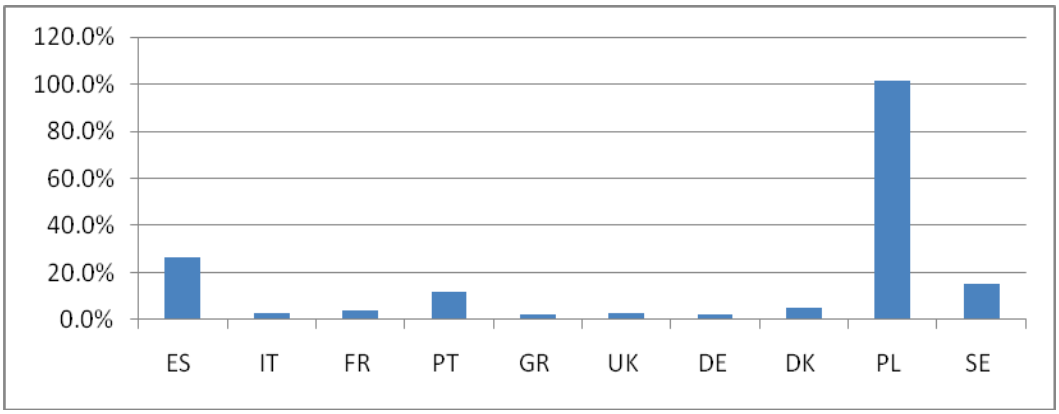
We identify that FIFG funding to various subsectors amounted to a significant proportion of the revenue generated by those subsectors and substantial levels of FIFG funding per employee. We also find that the social aspects of FIFG funding are rarely given adequate consideration, despite the opportunity to specifically address the social issues resulting from restructuring the sector. The synthesis of FIFG mid-term evaluations noted that the programme priority "social measures accompanying restructuring" is only very rarely included in the various national and regional FIFG-funded programmes (London Economics, 2004).

4.1 FUNDING IN RELATION TO EMPLOYMENT AND SECTOR INCOME

Below, we present the amount of FIFG funding allocated for fleet measures, aquaculture measures and processing measures compared to the value of these respective sectors per Member State. We also show what this equates to in terms of funding per employee in each of these sectors.

Funding under a number of other measures that are less attributable to a particular sector, such as port infrastructure or marketing are not included in these comparative assessments. Other measures that support the catching sector indirectly and are classified as 'social'[42], such as 'set-up aid to young fishermen' are not included in the funding totals for fleet measures despite these also having a potentially negative impact on fishing capacity. Together, these measures can represent significant additional support to these sectors, suggesting the following results present a conservative representation.

Figure 8: Average total FIFG funding for fleet measures per year as a proportion of landed value (2005)



Source: Poseidon analysis of EC FIFG database and Salz & Macfadyen, 2007.

[42] See Appendix C for full listing of measures and categories.

Figure 7 (page 26) illustrates the average annual total FIFG funding for fleet measures (namely the construction, modernisation, scrapping of vessels and temporary cessation of activities) compared to the landed value of the fleet for the top 10 recipient Member States[43]. For most of the top 10 recipient Member States, FIFG funding to the fleet represents less than 5 percent of the value of landings. FIFG funding to the Spanish fleet is more than 20 percent of the average annual value of landings by the fleet, which creates a very significant addition to the sector's finances.

For Portugal and Sweden, average annual FIFG funding for fleet measures represents over 10 percent of landed value. For Poland, average annual FIFG funding for fleet measures exceeds 100 percent of the sectors' landing value although Poland's accession part-way through the programme is a contributing factor, with attempts to 'catch up' in the latter half of the programme through extensive vessel scrapping.

In relation to the annual average FIFG funding on fleet measures per catching sector employee (Figure 8), Poland, Spain, Denmark and Sweden are above €10,000 per employee, with the other Member States at or below this level per employee.

For Spain, Denmark and Poland, however, average FIFG funding levels are more than €25,000 per employee per year. As most of the Danish fleet consists of large vessels, catching sector employment is low relative to the value of landings and average wages in 2003 were the highest of the top 10 recipient Member States at €46,500[44].

Although 'funding per employee' is a useful indicator of the comparative scale of funding, it should be remembered that funding for fleet measures goes to vessel owners rather than catching sector employees. It should also be remembered that this analysis presents average funding levels across the whole sector. When we consider that only a small proportion of the fleet received funding (Section 0 shows vessels funded averaged less than 15 percent of the fleet across the top 10 Member States), these amounts represent considerable additional income for the businesses concerned.

In Poland, over 80 percent of the FIFG funding on fleet measures was for scrapping of vessels. This level of funding to vessel owners is, however, highly significant when compared to the average wage levels in the catching sector. Average annual FIFG funding for the fleet per employee in the catching sector amounts to more than 10 times the average wage in 2003, which was €2,700.

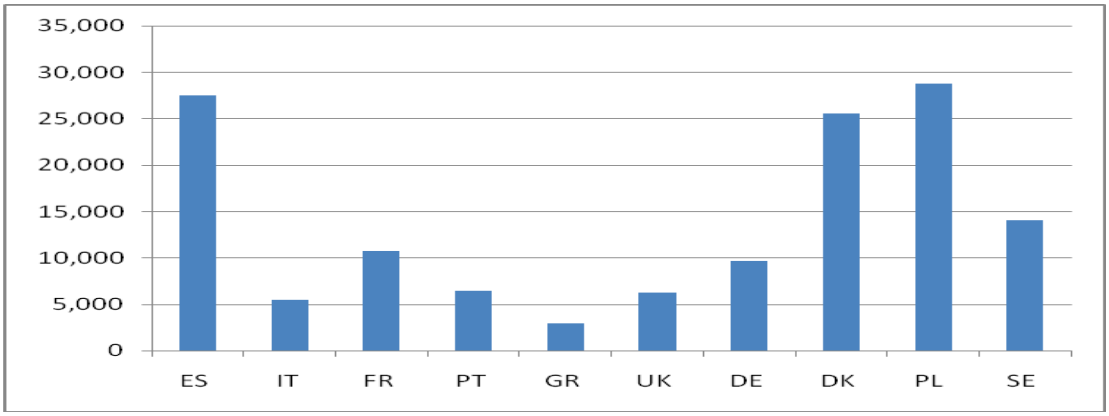
For Spain, even with 38,500 employed in the catching sector (the highest in the EU), average annual FIFG funding levels per employee are higher than all Member States other than Poland and are nearly twice as much as the average wage in the catching sector in 2003 (€14,600).

For Sweden, the total FIFG funding for fleet measures per employee exceeds the average wage for catching sector employees of €10,700, which is only one-third of the national average wage due to the majority of employment being in small-scale and seasonal fisheries.

[43] Other measures, such as port developments, quality schemes and marketing, which could be considered to also support the catching sector, are not included in this comparison.

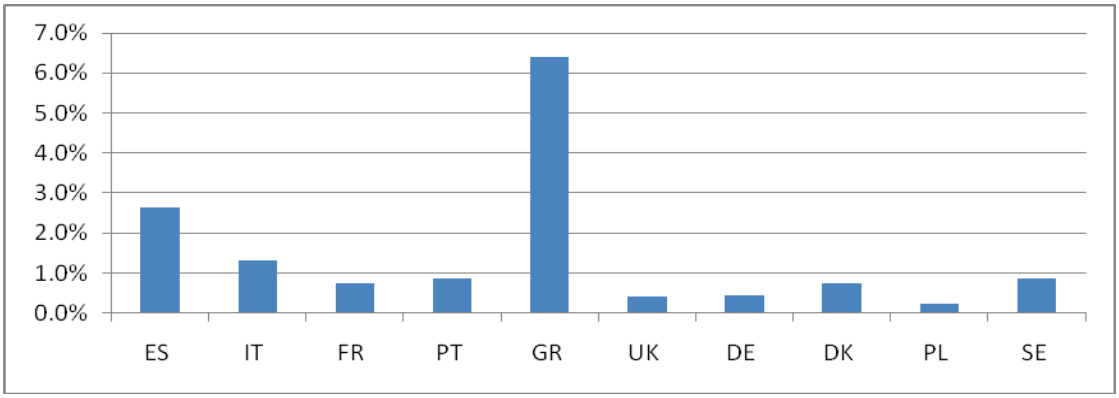
[44] Employment in the fisheries sector: current situation (FISH/2004/4) LEI BV & Framian BV, Final Report, April 2006. Available at: http://ec.europa.eu/fisheries/publications/studies/employment_study_2006.pdf

Figure 9: Average annual total FIFG for fleet measures per catching sector employee (€) in 2005



Source: Poseidon analysis of EC FIFG database and Salz & Macfadyen, 2007.

Figure 10: Average total FIFG funding per year for processing measures as a proportion of processing sector turnover in 2005.



Source: Poseidon analysis of EC FIFG database and Salz & Macfadyen, 2007.

Figure 10 shows that the contribution of FIFG funding for the processing sector[45] (averaging less than 1 percent of turnover) is less significant than for the catching sector (averaging over 5 percent of catching sector value). Greece is the exception, with subsidies representing more than 6 percent of the processing sector's value. Spain's FIFG funding on processing measures is also higher than most other Member States, at over 2.5 percent of the processing sector's turnover.

The amount of FIFG funding per employee in the processing sector tends to be greater than for catching sector measures (Figure 10). This is particularly true for Italy and Greece at around €25,000 and €35,000, respectively, illustrating the comparatively greater mechanisation in processing compared to fishing in these countries. For Italy, average annual FIFG funding per employee amounted to slightly more than the average annual wage for employees in the processing sector in 2003 (€23,346). For Greece, average annual FIFG funding per employee amounted to more than double the average annual wage for employees in the processing sector in 2003 (€16,329).

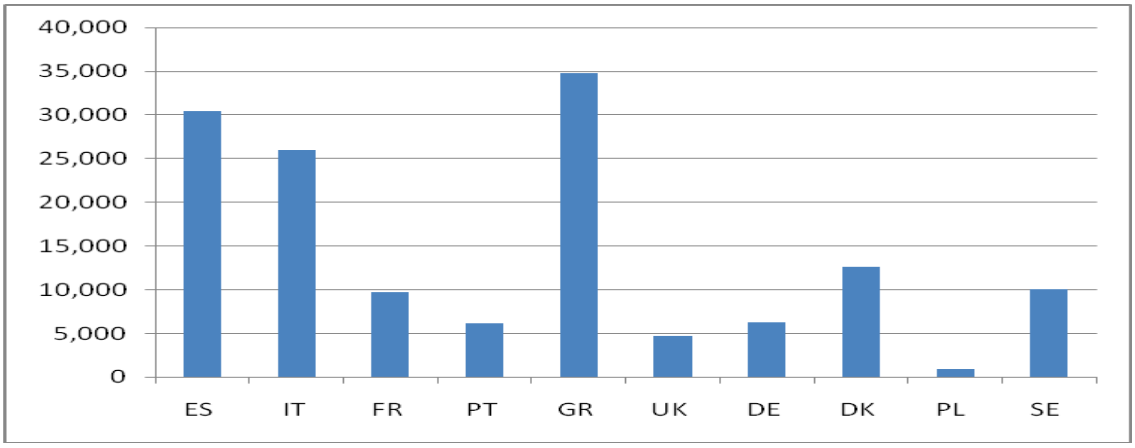
FIFG processing measures to the Spanish processing sector equated to around €30,000 per processing sector employee per year; this is even higher than the €27,000 allocated to fleet measures per catching sector employee and far more than the average wage for processing sector employees in 2003 (€18,490).

[45] Including 'increase in processing capacity' and 'the modernisation of existing processing establishments', see Appendix C.

In the aquaculture sector the levels of FIFG funding for aquaculture measures[46] in relation to turnover of the sector (Figure 11) average round 2 percent and tend to be between levels seen for the catching sector and the processing/marketing sector. Again, Spain and Greece show the highest aquaculture funding levels compared to sector turnover with 8 percent and 4 percent, respectively. For FIFG funding per aquaculture employee (Figure 12), Greece, Italy, Spain and the UK show the highest levels of funding per employee. For Italy and the UK, FIFG funding per employee represents less than the average wages levels in the aquaculture sector, which is an indication of the relative level of intensification in these sectors that are dominated by the intensive cage culture of sea bass/sea bream and salmon, respectively. For Greece and Spain, annual FIFG funding levels on aquaculture measures per employee were close to the average wage in the sector for 2003, which were €18,038 and €16,258, respectively.

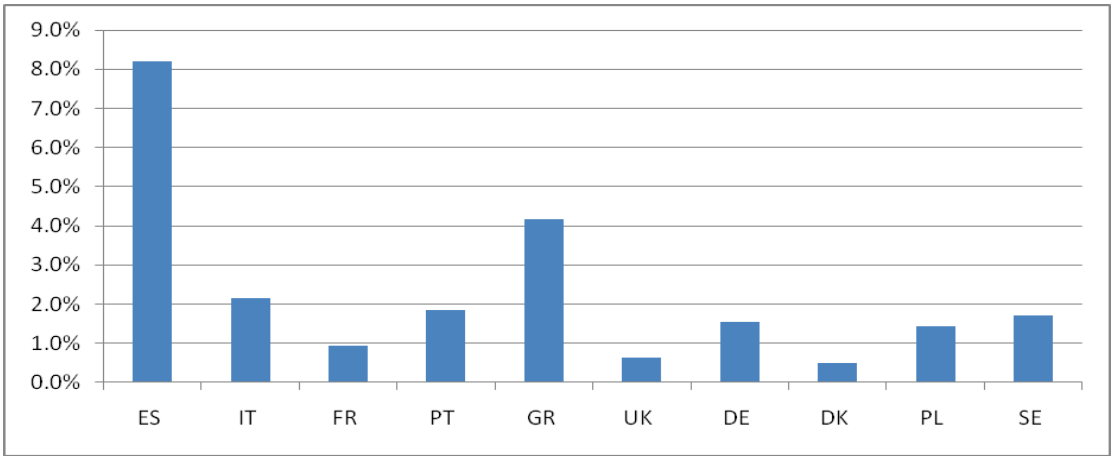
The levels of FIFG funding as a proportion of turnover highlight the large contribution that FIFG funding made to the fisheries sector from 2000 to 2006, particularly for the catching sector. The average annual FIFG funding per sector employee, which is allocated to the owners of vessels and processing and aquaculture enterprises, is found to exceed average annual wage levels in Spain (catching, processing), Italy (processing) and Greece (processing).

Figure 11: Average total FIFG funding per year for processing measures per employee (€) in processing sector in 2005



Source: Poseidon analysis of EC FIFG database and EC, 2009c

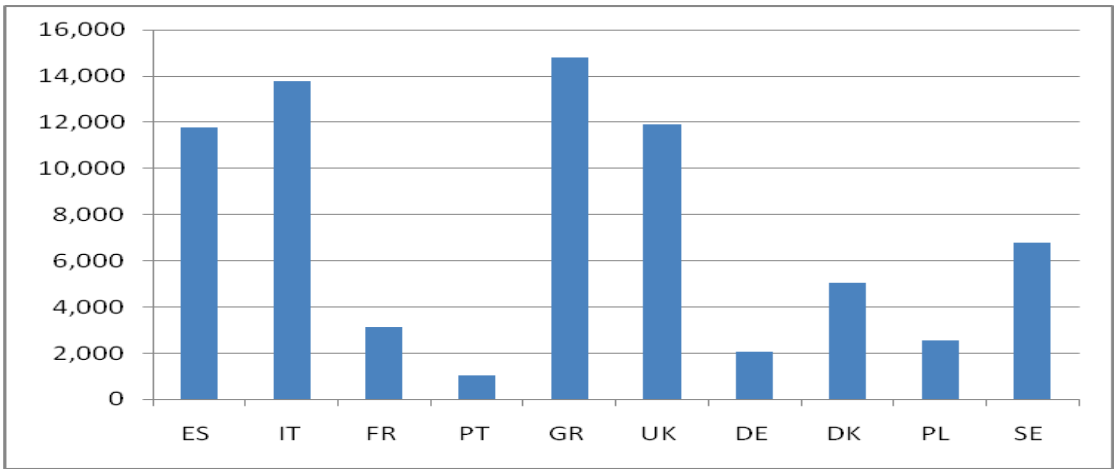
Figure 12: Average total FIFG funding per year for aquaculture measures as a proportion of aquaculture sector turnover in 2005



Source: Poseidon analysis of EC FIFG database and EC, 2009c

[46] Including measures to 'increase aquaculture production capacity', 'the modernisation of existing units' and 'aquaculture not further defined', see Appendix C.

Figure 13: Average total FIFG funding per year for aquaculture measures per aquaculture employee in 2005



Source: Poseidon analysis of EC FIFG database and EC, 2009c

4.2 DISTRIBUTION OF FUNDS BETWEEN THE MANY OR THE FEW

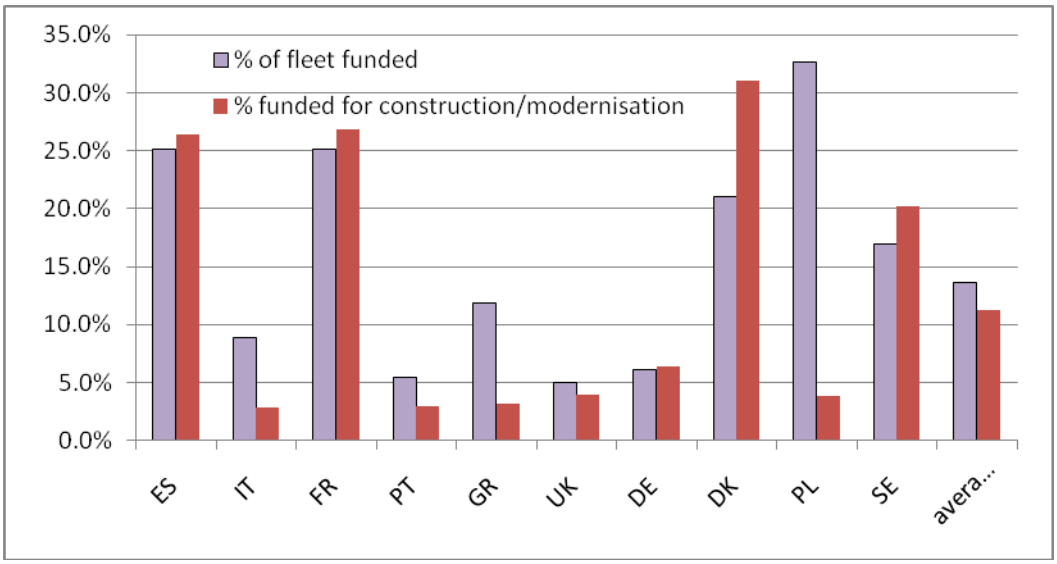
This section considers how extensively funds are distributed across the fleet, through identifying the proportion of the total fleet receiving funding. When we then consider the proportion of Member State fleets in receipt of construction/modernisation grants alone we see clear differences between Member States (Figure 14).

For the top 10 Member States, on average 14 percent of the fleet received some form of FIFG funding. The greatest proportion of the fleet funded through FIFG was in Poland with one-third of vessels funded, followed by Spain and France where each had one-quarter of the fishing fleet receiving FIFG funding. The Member States with the smallest proportion of the fleet receiving funding were the UK (5 percent), Portugal (5 percent) and Germany (6 percent).

For Germany and the UK, the proportion of the fleet in receipt of construction and modernisation funding was similar to the overall proportion receiving any form of funding. Denmark, Spain, France and Sweden show a higher proportion of the fleet supported for construction and modernisation as vessels received more than one funding award. Elsewhere, the scrapping of Italian, Greek, Portuguese and particularly Polish vessels mean that the fleet coverage for total funding is noticeably higher than for construction and modernisation measures alone.

Poland entered the programme late and received no funding for construction and spent 80 percent of its FIFG on scrapping. Therefore, the proportion of its fleet funded for all measures (including scrapping) is significant higher in relation to that funded under the modernisation measure. Greece also shows a large disparity as it spent 71 percent of funding on scrapping vessels.

Figure 14: Proportion of fleet receiving funding of any kind (purple) and for construction or modernisation (red)



Source: Poseidon analysis of EC FIFG database.

The difference between Member States in terms of the proportion of the fleet in receipt of funding could be as a result of a more targeted allocation of funding by Member State administrations, but review of the OPs of six of these Member States shows no specific targeting of fleet segments. Instead, therefore, this simply points to an inequitable allocation of funding (with some operators in receipt of more than one funding award). Assuming the majority of vessel owners were making some investment over the seven years of the programme, large sections of the fleet were unwilling or unable to apply for funding. If unable to apply, Member States must look to address these barriers to applicants, which could be difficulties with the application process or resource limitations, e.g. access to credit for match-funding.

4.3 FISHERIES DEPENDENCY

Below, we explore how FIFG funding was geographically distributed within Member States in relation to the relative dependency of a region on fisheries. The scale used is the EC NUTS 2 region, e.g. Galicia in Spain, Calabria in Italy, and Bretagne in France. The dependency of a region on fishing can be determined by considering the contribution of fishing businesses[47] to economic production (gross value added or GVA) or employment in a region[48]. The only two Member States in the sample that have NUTS 2 regions with 2 percent or more of the region's income dependent on fishing are Greece (Voreio Aigaio and Ionia Nisia) and the UK (Highlands and Islands).

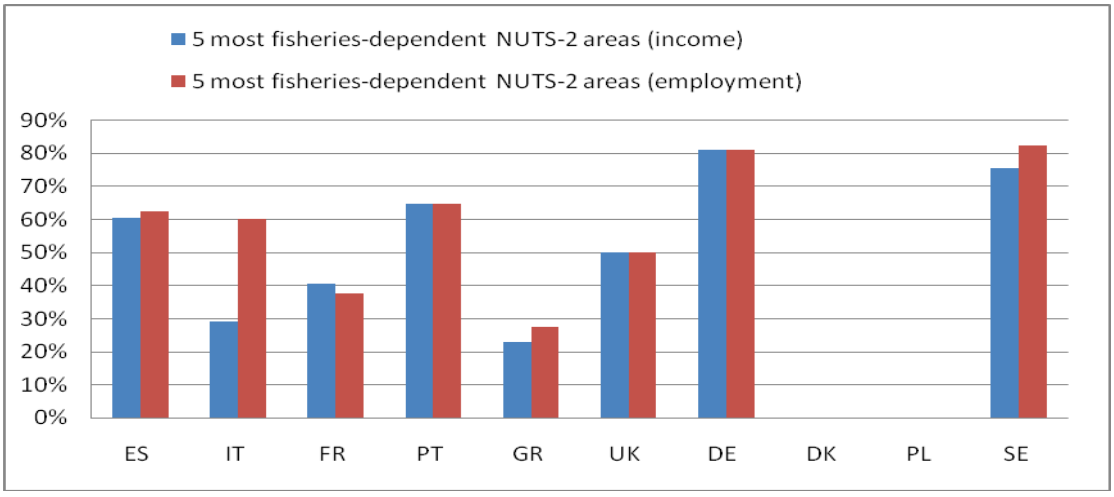
As stated earlier, the comparative benefits of spend in fisheries-dependent areas over spend elsewhere are not always clear. A comparison between spend by Member State in relation to fisheries dependency mainly reflects the differing structures of the fisheries sector and comparative importance of fishing as a whole.

For Denmark and Poland, no NUTS 2 area has 1 percent or more of income attributed to fisheries and therefore these Member States do not feature in Figure 15. However, the Danish authorities took socioeconomic characteristics of particular regions into account by adopting a temporary strategic focus on aiding low-growth municipalities in Jutland.

[47] This includes individual owner/operators and fishing companies.

[48] The number of NUTS 2 regions identified as having >0.1% employment dependent on fishing per Member State were: Spain, 10; Italy, 11; France, 13; Portugal 7; Greece, 11; UK, 10; Germany, 5; Poland, 3; Sweden, 4.

Figure 15: Proportion of total FIFG funding to Member States' five most fishing-dependent regions*



Source: Poseidon analysis of EC FIFG database and Salz & Macfadyen, 2007.

*Fisheries-dependent regions identified per MS: ES, 10; IT, 11; FR, 9; PT, 7; GR, 13; UK, 10; DE, 5; DK, 0; PL, 0; SE, 3.

Germany and Sweden show high levels of FIFG spend in regions that show an identifiable level of fisheries dependency (0.5 percent to 1 percent of employment), reflecting the structure of the sector in these Member States, which is concentrated in a few locations. In Portugal, Italy, Spain and the UK, one-half or more of FIFG funding is allocated to the five regions identified as being most fisheries dependent.

It is only when the prevalence of particular measures in certain regions is identified that some patterns emerge. For example, in France scrapping was mainly funded on the Atlantic coast compared to the Mediterranean. In Spain, where FIFG funding was administered under regional sub-programmes, the mid-term evaluation noted that the Asturias and Valencia regions made a significant reduction in regional fleet capacities through scrapping schemes. The other Spanish regions, particularly Galicia, focused on fleet construction and modernisation, which would result in fishing capacity increases for these regions.

4.4 SMALL-SCALE COASTAL FISHING

As described in Section 2.4.3, the comparative benefits of supporting small-scale operations over large-scale operations are not always clear cut. However, in establishing priority axes that explicitly recognise small-scale coastal fishing[49] under FIFG and EFF, it is clear that the EC concurs with the widespread belief that small-scale coastal fishing should receive preferential treatment. We explore the extent to which FIFG funding in Member States upheld this position by investigating whether administrators targeted funding towards small-scale operations and by analysing the proportional funding by vessel length.

Support to small-scale fisheries was not explicitly recognised in all Member States. Some, such as Spain, specifically allocated funding to measures that supported small-scale fisheries. Italy devolved these funding budgets to regional administrations to assist access by the small-scale sector. However, no priority was granted to small-scale fisheries companies within the other measures managed directly by the Italian ministry at a national level.

[49] The EC defines 'small-scale coastal fisheries' as those targeted by vessels below 12m not operating towed gear.

Initially, Polish small-scale fishermen were given no preferential access to funding. Later on, however, groups of small-scale fishermen were entitled to receive aid under an extended list of measures to improve support to this sector.

French authorities treated applications by all scales of fishing enterprise on an equal footing with larger vessels, determining that while, individually, small-scale fisheries were less environmentally damaging, they are far more numerous and therefore may also warrant reductions in capacity. However, the French Regions Association (ARF: Association des Régions Française) notes that the small-scale fisheries received only 0.4 percent of FIFG although it concerns 40 percent of fishermen and 80 percent of the fleet[50].

In Denmark a specific 'Small-scale Coastal Fisheries Scheme' was introduced under FIFG 2000–2006, with the aim of providing collective groups of fishermen with additional facilities. However, this had little uptake due to the limited levels of support and the narrow eligibility criteria. A further scheme was set up in 2004 for broader development projects in coastal fisheries, but again uptake was low.

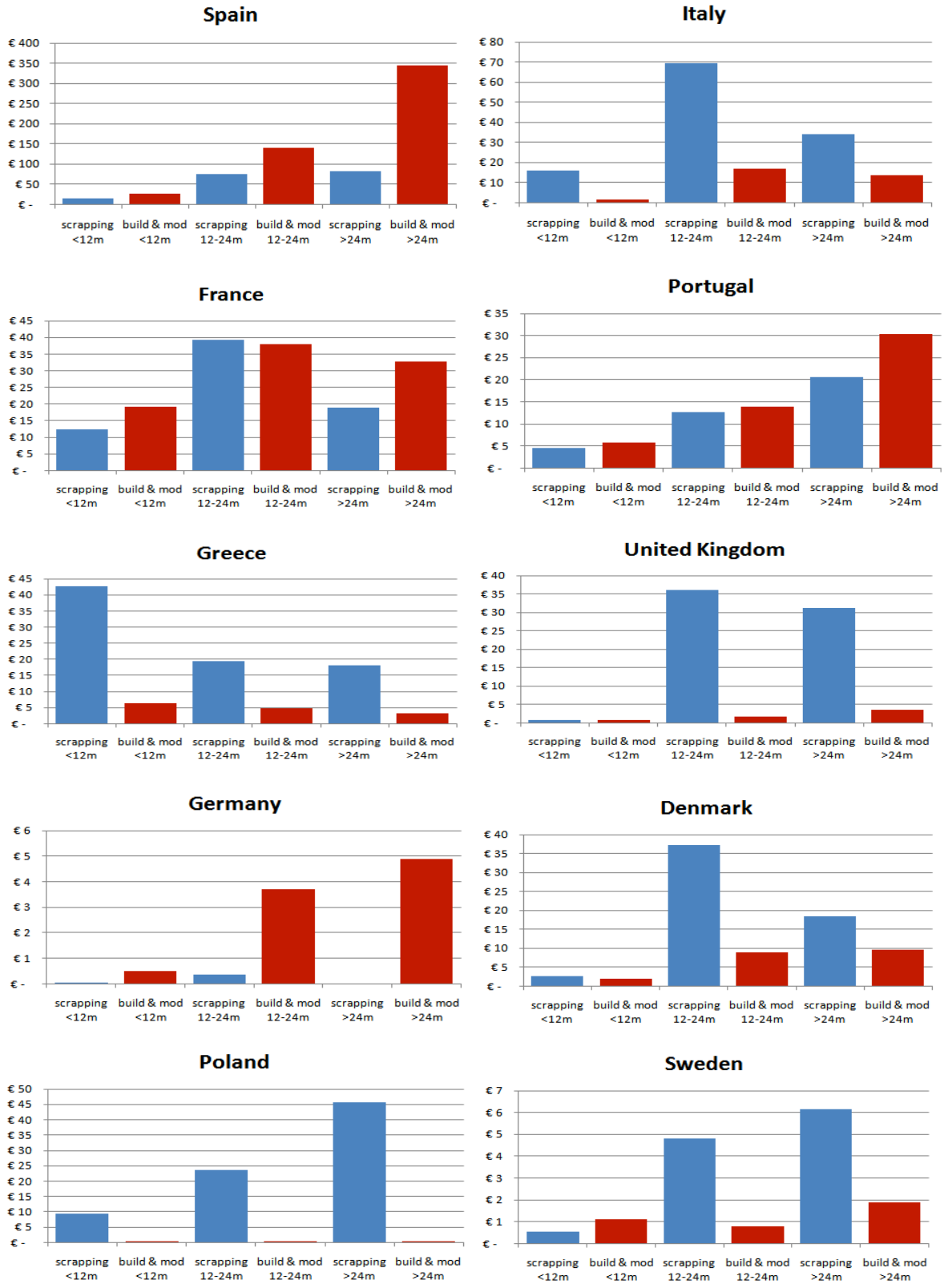
An analysis of the comparative spends on scrapping and construction and modernisation measures between vessel sizes (Figure 16) shows a clear distinction between those Member States where there has been significantly more funding for the scrapping of inshore (under 12m) vessels than their construction or modernisation (Greece, Italy and Poland); where funding of construction and modernisation of inshore vessels exceeds funding for scrapping (Spain, France, Portugal, Germany and Sweden); and those where inshore vessels received very little funding under these measures (the UK and Denmark).

Greece shows significantly more funding on scrapping overall compared to construction and modernisation. More funding went towards the scrapping of Greek under-12m vessels than over-12m vessels, which is understandable as under-12m vessels dominate the Greek national fleet in capacity terms as well as numbers.

[50] From "Le Marin", 26/01/2007.

Figure 16: Total FIFG funding for scrapping and construction and modernisation by vessel length per Member State (€million)*

*note that chart scales differ



Source: Poseidon analysis of EC FIFG database.

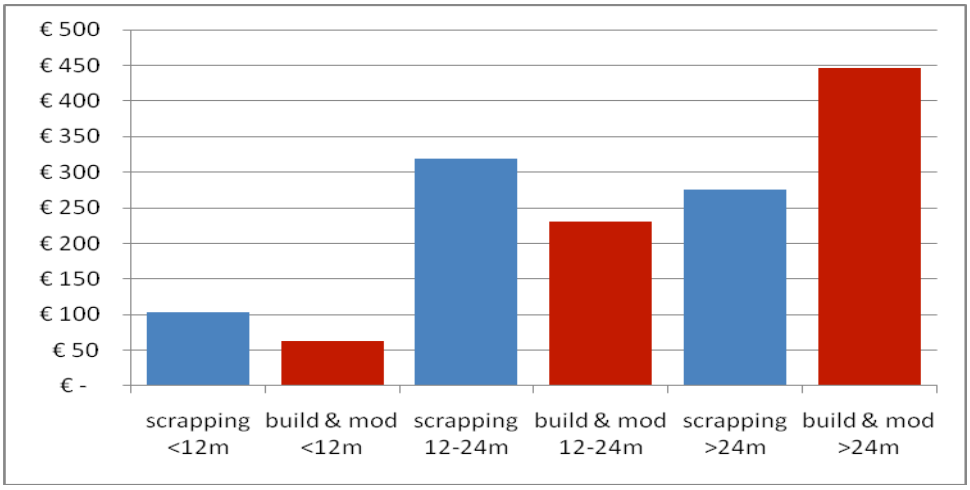
In Spain the high levels of funding towards construction and modernisation compared to funding for scrapping are clearly evident across all vessel sizes. This difference becomes most pronounced in the large vessel category (>24m) with four times as much funding going towards construction and modernisation than to scrapping. Levels of funding for construction and modernisation are only at a similar level to scrapping for the small-scale vessels.

For France and Portugal, the funding for scrapping is relatively similar to funding for construction and modernisation, although construction and modernisation funding is far higher than funding for scrapping in the largest vessel category (>24m).

The >24m vessel category dominates construction and modernisation funding for Spain, Portugal and Germany. In France, Italy, the UK and Denmark, the largest amounts of funding are found for the scrapping of medium-sized (12–24m) vessels. In contrast to Italy, the UK and Denmark, France spent almost as much on construction and modernisation of 12–24m vessels as it did on scrapping.

When construction and modernisation is considered, the largest vessel category does dominate spend, with Spain, Portugal, and Germany all allocating more than 60 percent of their total funding for construction and modernisation to vessels over 24m in length.

Figure 17: Total FIFG funding for scrapping and construction and modernisation in different vessel sizes for top 10 Member States (€ million)



Source: Poseidon analysis of EC FIFG database.

When comparing the type of funding across the various fleet sizes in all 10 Member States, more than twice as much funding went to scrapping small inshore vessels than on construction and modernisation (Figure 17). For vessels over 12m in length the reverse is true, with more spent on construction and modernisation than scrapping.

4.5 TAKING ACCOUNT OF SOCIAL CRITERIA

As determined by EC regulation, all Member States gave preferential allocations of FIFG funding to Objective 1 regions and a higher proportion of FIFG funding compared to private sector contributions in these areas. Objective 1 regions determine the geographical scope of the regions in greatest need of assistance but do not provide further guidance to select the individual companies or individuals in greatest need. We asked administrators in the six case study Member States whether further social criteria were taken into account in funding decisions.

In Italy certain groups were given preferential access to FIFG funding; ministerial decrees regulating the measures for the modernisation and the construction of vessels favoured enterprises run by women and fishermen less than 35 years old[51].

Italian authorities also directly linked fleet capacity reduction measures with support for employment diversification: workers of vessels applying for funding for scrapping were eligible for funding to set up companies in the aquaculture sector. Also, fishermen becoming unemployed as a consequence of scrapping received funding to retrain in a fishery-related job (e.g. a fishmonger's shop). Similarly, in Poland FIFG funding was used to counter-balance the unemployment resulting from their extensive vessel scrapping programme through supporting fish processing and aquaculture enterprises.

French authorities did not explicitly consider social criteria in the allocation of funding to individual applicants; instead the focus was on an appropriate regional distribution of funds to maintain coastal communities across mainland France, Corsica and France's outermost regions (Réunion, French Guyana, etc.).

Denmark's decommissioning scheme specifically targeted both older vessels and older fishermen. The age of both vessels and the applicants was used in the screening process to aid removal of older boats and improve the age structure of the industry.

In Spain, criteria such as the gender mix of jobs maintained or created were requested as part of the application process, but this was not used to favour any group in particular. The mid-term evaluation of the Spanish OP, FIFG 2000-2006[52], noted that "provision should be made for certain groups that have not benefited from socio-economic measures, such as shellfish gatherers, who are mainly women, and improvements should also be made to develop a business structure that would include women in positions of greater responsibility."

The social objectives of Spanish authorities in allocation of funds were mainly to mitigate negative impacts of temporary cessation of fishing. This mainly related to specific events, with the two main ones being temporary fishery closures under the EC-Morocco fishing agreement in 2000 and 2001, and the disruption to fishing caused by the Prestige oil spill; both closures were partly funded by the FIFG.

Social factors were not specifically considered in the UK's FIFG strategy. Some issues, such as aid for socioeconomic measures in the form of early retirement schemes, compensation for fishermen from decommissioned vessels and aid for diversification and for young vessel owners, were specifically excluded as it was the UK administrator's view that socioeconomic measures such as early retirement schemes should be dealt with by national social security measures not fisheries aid.

[51] Ministerial Decree implementing the measures "Construction of new vessel" and "Modernisation of existing vessel" (DM 15-03-2002).

[52] Indemar, 2003. Evaluación intermedia del Programa Operativo IFOP 2000–2006. Secretaría General de Pesca Marítima. Madrid.

4.6 SUMMARY

Our analysis of FIFG funding as a proportion of sector turnover identifies fisheries subsectors that have been in receipt of significant funding levels. These are highest for Spain in the catching sector and the aquaculture sector, while Greece shows the highest levels of FIFG funding per sector turnover for processing and aquaculture measures. These high levels of FIFG funding are evidently contributing to the overall profitability of the sectors in these Member States. At best, this is maintaining the viability of enterprises through a phase of restructuring, but at worst could simply be delaying inevitable reductions in capacity, which is not the objective of structural funding.

The consideration of funding levels per employee highlights that the amounts allocated are often substantially higher than average wages in the traditionally low-paid catching, processing and aquaculture subsectors of Spain, Greece and Italy. It should be remembered that these funding allocations go to the vessel owners and companies rather than the crew or employees. It can only be hoped that this significant funding in relation to their wages safeguards employment for these workers in the long term.

The analysis presents average funding levels across the whole sector. An average of 14 percent of the EU fleet received some form of FIFG funding; this ranged from one-quarter of the Spanish and French fleets to only 5–6 percent of the UK's, Portuguese and German fleets. These funding levels therefore represent considerable additional income for the businesses receiving that funding.

A review of the OPs of six of these Member States shows no specific targeting of fleet segments. The small percentage of fleet in receipt of funding therefore simply points to an inequitable allocation of funding (with some operators in receipt of more than one funding award). Assuming most vessel owners made some investment over the seven years of the programme, the majority were unwilling or unable to apply for funding. If unable to apply, Member States must look to address these barriers to applicants, which could be difficulties with the application process or resource limitations, e.g. access to credit for match-funding.

Analysis of FIFG funding on vessel measures in relation to the size of vessels identifies a stark contrast between the overall impact on inshore and offshore fleet segments. Twice as much funding went to scrapping inshore (<12m) vessels than to constructing or modernising inshore vessels. This is particularly evident in Italy and Greece where large numbers of inshore vessels were removed from the fleet, with very little funding going towards construction or modernisation of this fleet segment. For vessels over 12m, more funding was allocated to construction and modernisation than to scrapping.

Exceptions to this disproportionate level of scrapping funding for inshore vessels are Spain, Germany and Portugal, where the funding of construction and modernisation exceeds funding for scrapping across all size categories.

The variations described above highlight the lack of consistency in the application of FIFG funding across Member States and in their consideration of social criteria at a strategic and operational level. Member States such as Spain, France and Italy used FIFG funding to directly support fishermen and communities identified as being negatively impacted by restructuring or a sudden loss of fishing opportunities. Member States such as the UK and Denmark used FIFG funding for the restructuring itself, with support to affected individuals coming from national aid and other EU funds such as the European Regional Development Fund (ERDF) or the European Social fund (ESF).

5 ISSUES RELATING TO FIFG 2000–2006 AND A 'SOCIAL CONTRACT'

The management of fisheries in Europe is dependent on the inspection and control of fishing operations to ensure that both the catching and processing/marketing sectors comply with the rules and regulations governing the sector. Those given the right to fish (both the individuals and the Member States concerned) have an obligation to adhere to the rules governing them.

This section starts from the premise that it is not acceptable for those individual operators infringing the rules and regulations to be the recipient of FIFG provided by the EC and Member States, especially as infringing of regulations threatens the very objectives of the CFP, which the provision of FIFG is intended to support. In this section we therefore examine the extent to which Member States exclude those individuals infringing the rules from benefiting from FIFG or ask them to pay back funds they received prior to the infringement.

The Commission's assessment of Member State reports on serious infringements (EC, 2008) states: "What is particularly worrying is that the inadequate level of the sanctions imposed in most of the cases detected together with the low probability of being caught and pursued by the control authorities may convince the fisherman that the economic benefits that he can draw by breaching the rules outweigh the risk. This incongruity in the level of penalties allows the fishing industry to consider disbursements imposed for infringements to the CFP rules simply as an ordinary running cost of the enterprise and this removes any real incentive for them to comply."

The award of FIFG funding to vessels irrespective of whether they are found to infringe CFP rules or not is another incongruity. Removing access to funding for perpetrators would at least prevent this funding from aiding operators in servicing fines for infringements.

We also consider levels of FIFG provided in different Member States compared to Member States' expenditure on monitoring control and enforcement. This is especially important given the strong relationship between the fisheries management regime and the potential impacts of subsidies as highlighted in Section 2.4.1.

5.1 RECIPIENTS AND INFRINGEMENTS

In this section we examine which Member States exclude individuals found guilty of infringing the CFP rules and the vessels involved in that infringement from benefiting from FIFG.

Member States are only required to provide information on the number of infringements by type of offence to the Commission, not to submit vessel-specific data to the Commission (e.g. vessel registration numbers) that would enable the identity of those infringing regulations to be made known. This prevents any comprehensive analysis linking individual vessel subsidies to those vessels infringing regulations[53].

However, our case studies (France, Denmark, Spain, Italy, UK and Poland) have explored four specific questions with fisheries administrations that shed some light on the possibility that those infringing regulations could also have received FIFG subsidies. These questions and the resulting findings for the case study countries are provided in Table 8.

Table 8 shows that in most cases it is possible that vessels breaking regulations could also be receiving FIFG support. Only Poland and Italy have linked funding with compliance. In 2008, following the EC prohibition of cod fishing in the Baltic, the exclusion of FIFG applications by vessel owners who infringe CFP rules was introduced in Poland. Around 20 percent of Polish vessel owners receiving FIFG support were caught infringing the cod prohibition and were penalised by not receiving compensation at the end of the FIFG programme. The Italian

[53] However, fishsubsidy.org is compiling such a list, visit: http://www.fishsubsidy.org/infringements.

Ministry used an IT control system to cross-check funds received by each company with their performance in relation to CFP regulations, as compliance was a pre-requisite of funding.[54] The database has supposedly been proven to be very effective and is being used for the current EFF programme.

Table 8: Could vessels receiving FIFG support also be infringing regulations?

	Was information on infringements specifically requested in grant applications and used to inform funding?	Were applications (for vessels and/or processors) with prior convictions automatically excluded from receiving FIFG awards?	Did Member States have an integrated IT system for matching those with infringements against those applying for awards?	Were recipients of awards required to pay back monies provided if they were subsequently caught infringing regulations?
DK	No	No	No	No
ES	No	No	No	No
FR	No	No	No	No
PL	No	No (yes in 2007)	No	No (yes in 2007)
IT	No	Yes	Yes	No
UK	No	No	No	No

The conclusion from this analysis is that far too little attention is being paid to making the approval of FIFG support conditional on compliance with CFP regulations.

5.2 RELATIVE EXPENDITURE ON FIFG AND FISHERIES CONTROL ACTIVITIES

This section examines relative expenditure by Member States on a) fisheries monitoring, control and surveillance, and b) FIFG. It also takes into consideration the levels of compliance by vessels in different Member States and shows that far more money was allocated to the sector under FIFG funding than was used to police it.

Table 9: Annual control costs relative to annual FIFG funding, based on sector income

Member State	Column a) = Control costs as % of sector income	Column b) = Annual average funding/euro of income	**Column c) = column a/column b)**
Denmark	4.0%	7.0%	58.0%
Spain	1.4%	23.0%	6.0%
France	1.3%	4.0%	31.0%
Ireland	19.7%	4.0%	468.0%
Italy	6.4%	6.7%	96.0%
UK	2.3%	2.0%	105.0%

Source: MRAG *et al.*, 2008 (except Italy – Italian Ministry of Agriculture) and Poseidon analysis of EC FIFG database.

[54] Moreover, it was also possible to identify which companies had received FIFG funding without carrying out the measure for which they had been paid and if they have given back those funds.

Spain's high level of FIFG funding (25 percent of total annual sector income) is even more notable when compared to Spain's control expenditure, which is only 1.4 percent of total annual sector income (see Table 9). France and Denmark also spent less each year on control and enforcement than they provide in FIFG subsidies. Italy and the UK spent approximately the same amount on control and enforcement as they allocated through FIFG.

Comparatively low levels of funding for monitoring, control and surveillance in certain Member States would be acceptable if compliance were high, but we find that this is not the case for Spain and France. Non-compliance is relatively high in Spain, Finland, Portugal and France compared to other Member States (MRAG et al, 2008). At the same time, examination of control expenditure as a proportion of the landed value of catches, in conjunction with data on infringements, suggests a strong correlation between stronger control and greater compliance.

Both Portugal and Spain have a high percentage of inspections that result in infringements being identified when compared to other Member States. Portugal recorded 18.3 infringements per € million of fish landed and Spain 4.9 infringements. By contrast the Netherlands, Germany and the UK recorded 0.5, 0.3 and 0.3, respectively. Spain and Portugal should have re-balanced their expenditure away from FIFG support towards fisheries control activities.

5.3 SUMMARY

Our analysis shows that in most instances (some notable exceptions are Italy and more recently Poland) information on the compliance of vessels with fisheries regulations is not required in applications or taken into account when approving FIFG funding decisions. If fisheries regulations are broken, these are generally penalised separately, but do not result in exclusion from applying for, or receiving, FIFG funds. Linking FIFG with compliance could be supported by wider use of data/IT systems. Indeed, it is noteworthy that, while not compulsory, Article 45 of the new EU IUU (illegal, unreported and unregulated) fishing regulation (EC, 2009d) gives Member States the discretion to impose sanctions on those committing IUU fishing, including "the temporary or permanent ban on access to public assistance or subsidies". To what extent Members States will take advantage of this Article remains to be seen.

Of six case study countries examined (France, Denmark, Spain, Italy, Poland and the UK) to assess relative expenditure on fisheries control and FIFG, Spain has the lowest ratio of control expenditure to FIFG expenditure (6 percent). Denmark's and France's expenditure on control are also both less than FIFG expenditure (58 percent and 31 percent, respectively). Italy and the UK both spend around the same amount of money on control as is provided by FIFG. The overall conclusion from this analysis is that many Member States, and particularly Spain and Portugal, should have re-balanced their expenditure away from FIFG support towards fisheries control activities.

6 CONCLUSIONS

6.1 FLEET CAPACITY

FIFG funding between 2000 and 2006 amounted to nearly €4.9 billion and was intended to progress fleet capacity reductions and to help the sector to cope with this necessary restructuring. However, only 17 percent of funding went towards measures that would clearly result in a reduced fishing capacity (the scrapping of vessels) or positive environmental outcomes such as marine resource protection and eco-labelling schemes. Nearly 30 percent of funding went to measures that are likely to have a negative impact on overall fishing capacity and associated environmental impacts.

Over the 2000 to 2006 FIFG programme period, EU fleet capacity was reduced by 3 percent in terms of GT and 7 percent in terms of engine power (kW). The impact of such a small reduction is expected to be minimal as the fishing efficiency of vessels is expected to improve over time (technical creep). These aggregate EU figures hide significant differences in capacity reductions between Member States and between fleets within Member States.

Around 3,000 new vessels (totalling 488,708 additional kW) were *constructed* with FIFG funds over 2000–2006, of which three-quarters were Spanish. Around 8,000 vessels were *modernised* with FIFG funding. Although the aim was not to increase fleet capacity, this may have resulted through an increased operation range or larger on-board storage capacity.

With 6,000 vessels *scrapped*, many of which were small inshore vessels in Greece and Italy, the overall impact of FIFG funding is an increase in fishing capacity. This is at odds with the main objective of structural policy that FIFG is intended to support: to bring fishing capacity into line with biological resources.

For Spain, France, Portugal and Germany, more FIFG funding was allocated to measures that could result in increases to overall fishing capacity (construction of new vessels and modernisation of existing vessels) than to measures with positive effects on the environment. In the case of Spain, which accounted for 46 percent of all FIFG funding, four times as much funding has gone on measures identified as having negative environmental impacts compared to those with the potential for positive impacts. In Italy, Greece, the UK, Denmark, Poland and Sweden, more subsidies in the form of FIFG awards and Member State funding were allocated for positive measures (scrapping) than for negative ones.

A disproportionate amount of FIFG funding was allocated to vessels operating mobile gear (such as trawlers) over those operating passive gears. For the UK this was predominantly allocated to scrapping schemes and thus to reducing capacity in these fleet segments. For others, particularly Italy and Germany, far more funding was allocated to construction and modernisation of mobile gear fleets. Bottom otter trawls received the most amount of funding, with 40 percent of total FIFG for construction and 47 percent of the aid for scrapping, followed by purse seine fleets (21 percent of construction monies and 9 percent of scrapping) and vessels using set gillnets (13 percent of total monies for both construction and scrapping).

Certain fleet segments have increased in capacity over the programme period, with FIFG assistance. The Spanish Atlantic gillnet fleet and Spanish trawlers operating in the Atlantic mixed whitefish/Nephrops grounds and the Mediterranean hake fisheries have all expanded through the construction and modernisation of vessels.

The main removal of capacity supported under FIFG was from the set longliners of Greece and the trawlers of Italy, Greece, Denmark and Poland, which were all substantially reduced over the FIFG period, e.g. by over 15 percent in terms of both GT and kW. However, if technological creep of about 2–3 percent is taken into consideration, this will just about off-set the enhanced fishing efficiency due to technological progress.

6.2 STATUS OF TARGET STOCKS

At a strategic level, the level to which stock status was linked to the planned reduction in the capacity of specific fleet segments was variable, and generally poor.

At an operational level, there was no attempt to link funding applications with the specific stock targeted by those applicants. Equally, no evidence that the implications on target stock status were specifically considered was found in applications for non-fleet measures.

A large number of gillnetters were constructed with FIFG support. These target the hake and monkfish fisheries in the southern Bay of Biscay and the Iberian Atlantic coast. Both these species were and still are considered to be overexploited and the stocks in poor condition (with southern hake subject to a recovery plan since 2006).

Seventy percent of constructed bottom trawlers are Spanish vessels targeting overfished Bay of Biscay and Iberian Atlantic hake and monkfish stocks, together with Nephrops and megrim. Nephrops in these areas are also in poor condition and have been subject to a recovery plan since 2006. Megrim is assessed by ICES as overfished.

Around two-thirds of all new builds supported under FIFG (half the constructed fleet in power terms) were targeting these same four stocks, which are all in poor condition.

Other fleet segments constructed with FIFG funds included the Spanish, Portuguese and French purse seiners, mostly fishing for small pelagic species in both the Atlantic and Mediterranean. The status of these small pelagic stocks is mixed but overall appears to be healthier than groundfish stocks in the same areas.

One of the main fleets benefiting from modernisation was the bottom otter trawl fisheries in the Channel and North Sea targeting mixed demersal whitefish such as haddock and cod. Cod in particular is overfished and subject to a recovery plan. However, this must be seen in the context of a larger FIFG-funded scrapping of this fleet segment. The net result is therefore a clear reduction in capacity for North Sea whitefish fleets. This is also the case for the Italian Adriatic fleet targeting hake, red mullet, sole and sea bream, and the large number of Greek gillnetters targeting red mullet, sole and sea bream.

Where funding for scrapping exceeded funding for construction and modernisation (e.g. the North Sea whitefish gillnet and trawl fisheries), stocks are still vulnerable but are at least showing signs of recovery. Where fleet funding for construction and modernisation exceeded scrapping (e.g. the western Mediterranean fisheries targeted by Spanish and French trawlers and gillnetters), stocks are overfished and continue to decline.

6.3 WIDER ENVIRONMENTAL IMPACTS OF FUNDING

Across the EU as a whole there was significantly more FIFG funding of mobile gears than for the less environmentally damaging passive gears, despite 79 percent of the EU fleet (by number) operating passive gear.

The main gear types funded by FIFG are bottom otter trawls (OTB), anchored set gillnets (GNS), purse seines (PS), drifting longlines (LLD) and set longlines (LLS). The majority of fishing gears used by the main fleets receiving FIFG assistance have 'some impact' on the environment over and above impacts on fish stocks.

With around 38 percent of new vessels built with FIFG assistance being bottom otter trawlers, the main impact (in addition to targeted fish stocks) is likely to be on seabed habitats, especially given that much of this additional effort is from Spanish vessels targeting mixed demersal fisheries off the Iberian peninsula that are known to have high discard rates.

Set gillnets represent the largest proportion of gears (40 percent and 13 percent by number and total power, respectively) of all new builds funded by FIFG (2000–2006), as well as one-quarter of all vessels modernised (by number). These fisheries tend to be much more selective than trawl fisheries and thus generate fewer discards and, as a passive gear, their impacts on the seabed are also low. However, there are known issues over their bycatch of sea mammals and endangered animals, as well as their capacity to continue 'ghost fishing' if lost.

By number the largest reduction in vessels occurred in the Greek bottom longline fishery, which should benefit the turtle populations of the eastern Mediterranean, as well as reducing the bycatch of vulnerable bottom-dwelling sharks and rays.

6.4 SOCIAL ASPECTS

FIFG subsidies for the catching sector (averaging over 5 percent of the turnover) are far more significant than for the processing/marketing sector (averaging less than 1 percent of turnover).

In the aquaculture sector, the scale of subsidies compared to turnover of the subsector tends to be between catching sector and processing/marketing sector (averaging around 2 percent).

For about half of the top 10 recipient Member States, the average annual FIFG funding to the catching sector represent less than 5 percent of the landed value. For Portugal and Sweden it represents more than 10 percent of the landed value.

The average annual FIFG funding on vessel measures for Spain is over 20 percent of the average annual production by the catching sector in terms of landing value; a highly significant addition to the sector's finances.

For Poland, FIFG vessel funding exceeds 100 percent of the catching sector's value, although Poland's accession part-way through the programme is a contributing factor, with attempts to 'catch up' in the latter half of the programme through extensive vessel scrapping.

In relation to the annual average FIFG funding per catching sector employee (Figure 9, see page 34), most Member States are at or below €10,000 per employee. For Spain, Denmark and Poland, however, funding levels are over €25,000 per employee per year.

On average, 14 percent of the EU fleet received some form of FIFG funding. This varied between Member States, from one-quarter of the Spanish and French fleets to only 5-6 percent of the UK, Portuguese and German fleets. As the analysis presents average funding levels across the whole sector, the actual funding for vessel owners receiving that funding represents considerable additional amounts of income.

There is no indication from the Member State OPs that funding was targeted towards particular segments. The small proportion of the fleet receiving funding therefore suggests an inequitable allocation, with the majority of vessel owners being unwilling or unable to apply for funding. If unable to apply, Member States must look to address these barriers to applicants, which could be difficulties with the application process or resource limitations, e.g. access to credit for match-funding.

Disadvantaged groups were given preferential access to subsidies in Italy and Denmark, but social criteria were rarely explicit in other OPs, such those for France and the UK.

For small inshore vessels, twice as much funding was spent on scrapping than on construction and modernisation, while for vessels over 12m in length the reverse is true. Support for specific subsectors affected by fleet adjustments was only identified by Poland. In Spain, funding was preferentially allocated in response to particular events such as oil spills that resulted in temporary cessation of fishing activities.

There is a lack of consistency in the application of FIFG funding across Member States and in their consideration of social criteria at a strategic and operational level. Member States such as Spain, France and Italy used FIFG funding to directly support fishermen and communities identified as being negatively impacted by restructuring or a sudden loss of fishing opportunities. Member States such as the UK and Denmark used FIFG funding for the restructuring itself, with support to affected individuals coming from national aid and other EU funds such as ERDF or ESF.

6.5 SOCIAL CONTRACT

Other than in Italy (and more recently Poland) the compliance of individuals is not reported in applications or taken into account in funding decisions. There are no instances where infringements of CFP regulations have resulted in the removal or recovery of subsidies.

For the top 10 recipient Member States (other than the UK) the average annual FIFG funding exceeded the amount spent by Member States on control.

Spain's high level of funding provision relative to total annual sector income is also notable compared to other countries given that its control expenditure is only 1.4 percent of total sector income, compared to its average annual FIFG funding allocation representing 25 percent of sector income.

Portugal and Spain show far higher levels of infringements than other Member States. They also allocate far less funding on monitoring, control and enforcement than was allocated under FIFG (Spanish enforcement costs were only 6 percent of FIFG funding levels), suggesting there should be a rebalancing of funding priorities.

The withdrawal or reduction of FIFG funds has not been used by the Commission to address poor performance or compliance by Member States.

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Appendix B: Member State Annexes

The following appendix presents a summary sheet for each of the 10 individual Member States on which our analysis has focused. Together, these Member States accounted for 93 percent of all funding under the 2000–2006 FIFG programme. The following list is ordered in line with the amounts received by each Member State, with the highest first.

1. Spain
2. Italy
3. France
4. Portugal
5. Greece
6. UK
7. Germany
8. Denmark
9. Poland
10. Sweden

Colour key used

In the following summaries, colour coding is used in the stock status and trend analyses.

Stock condition	☺ Stock in good condition	😐 Stock is at risk	☹ Stock is overfished
Stock trend	□ Stock in recovery	□ Stock is stable	□ Stock in decline

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation

SPAIN

Total FIFG (EU + Member State Contributions)

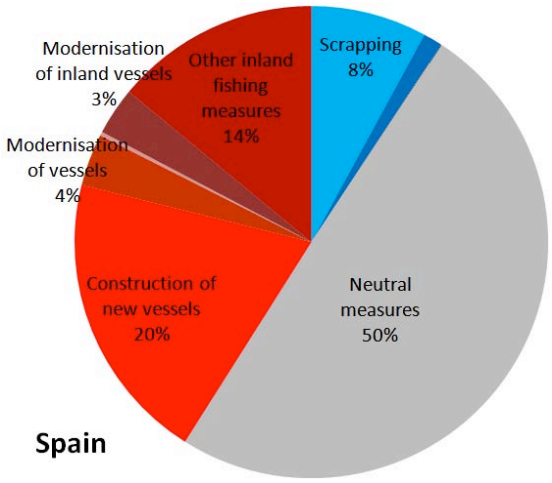
€2,231million **46%** of total FIFG in the EU Ranked **1** out of 24 MS

Summary of total FIFG

Spain awarded three times more in FIFG funding than all other Member States combined for the construction of new vessels.

€153 million was spent on the modernisation of (marine and inland) vessels including better power blocks for the purse seine fleet and stabilising tanks for the long line fleet; both measures increase the fishing capacity of a vessel.

Rather than reduce fishing capacity overall, the FIFG programme subsidised the increased capacity in certain fleets through vessel construction and modernisation.



Overcapacity and Overfishing

The fleet capacity for trawlers and set gillnets increased significantly over the period of FIFG assistance. This has contributed to the poor status of the stocks targeted by these fleets, such as hake and monkfish, which show an ongoing downward trend.

Environmental Impacts

9% of total FIFG funding on positive measures (vessel scrapping, resource protection, etc)

41% of total FIFG funding on negative measures (vessel construction, modernisation, etc)

Main Gear Types	Built(No.)	Scrapped(No.)	Net change	Stocks			Status 07			Trend		
Bottom trawlers	461	128	333	Hake	Melgrim	Monks	☹	☹	☹	⇩	⇨	⇩
Purse seiners	175	176	-1	Tuna	Sardine	Anchovy	😐	☺	😐	⇨	⇨	⇨
Set gillnets	853	458	395	Hake	Monks	BF Tuna	☹	☹	☹	⇩	⇩	⇩
Set longlines	103	106	-3	Hake			☹			⇩		
Drift longlines	79	12	67	Swordfish			☺			⇩		

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **25%**

Average annual total FIFG funding per catching sector employee **€ 27,528.00**

The average annual funding for fishing vessels under the FIFG programme represents one-quarter of the value of the catching sector in 2005 and amounts to over €27,000 per fisherman. The levels of FIFG funding direct to the aquaculture and processing subsectors as a proportion of their value are lower, but the funding still represents a significant contribution to turnover (processing 2%, aquaculture 8%).

Social Contract

Annual funding for control as % of sector value **1.4%**

Annual funding for control relative to average annual FIFG funding **6%**

In contrast to the high FIFG funding as a proportion of sector income, funding on fisheries control only amounted to 6% of the average annual allocation to the sector under FIFG, despite low levels of compliance in the Spanish sector compared to other Member States. There was no link made between awarding FIFG funds and compliance or recovery of funds from those infringing CFP rules.

For full evaluation and further information please visit www.pewenvironment.eu

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation

ITALY

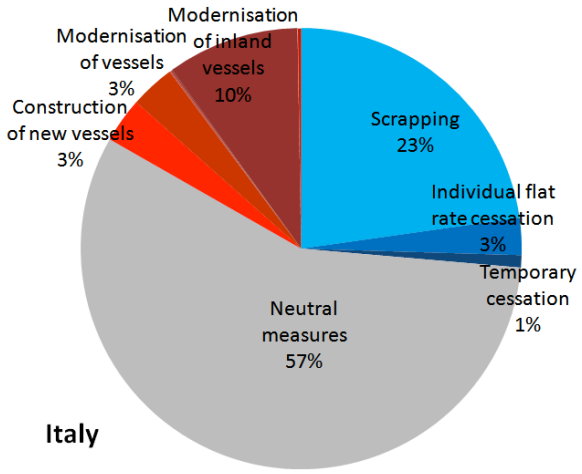
Total FIFG (EU + Member State Contributions)

€526million **11%** of total FIFG in the EU Ranked **2** out of 24 MS

Summary of total FIFG

In Italy, 23% of the total FIFG spending was allocated to scrapping, principally from the demersal trawler fleet. Modernisation of vessels was mostly related to improving gear selectivity and so quite possibly did not contribute to increased fishing capacity.

Overall, FIFG funding has succeeded in decreasing the fishing capacity of the Italian fleet, particularly in the small-scale coastal fleet. By contrast, the purse seine fleet increased capacity, receiving significant funding for construction, but no funding for scrapping.



Overcapacity and Overfishing

For every €1 million funding construction, €7.5 million went on decreasing capacity. Bottom otter trawlers accounted for over three-quarters of funding, with purse seiners receiving around 15% of the vessel funding. While the trawler fleet decreased in capacity, helping to reduce fishing effort in the overfished hake fishery, the seiner fleet increased in capacity. Seiners target anchovy, which is sustainably exploited, but also blue fin tuna. This Italian seiner fleet is known to be a significant contributor to over-quota catches of bluefin tuna.

Environmental Impacts

27% of total FIFG funding on positive measures (vessel scrapping, resource protection, etc)

16% of total FIFG funding on negative measures (vessel construction, modernisation, etc)

Main Gear Types	Built (No.)	Scrapped (No.)	Net change	Stocks		Status (2007)		Trend	
Bottom otter trawls	2,704	24,670	-21,966	Hake	Mullet	😐	☹	⇧	⇧
Purse seiners	887	0	887	Anchovy	BF Tuna	☺	☹	⇨	⇩
Set longlines	152	1,620	-1,468	Hake, Mackerel		😐		⇧	

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **2.9%**

Average annual total FIFG funding per catching sector employee **€5,463.00**

Average FIFG funding per employee is the lowest of the top 10 recipient Member States. Funding was used for diversification and retraining in other sectors to ease the contraction of the small-scale catching sector. Under-represented social categories, e.g. women and companies set up by young fishermen, were given preference in the selection process when applying for FIFG funds.

Social Contract

Annual funding for control as % of sector value **1.4%**

Annual funding for control relative to average annual FIFG funding **6%**

The Italian authorities used an IT control system to cross-check funds and activities by each company. The database has been proven to be very effective under the current EFF programme in ensuring all recipients are in compliance with the rules of the CFP. There was no attempt to recoup FIFG awards from those who infringed CFP rules.

For full evaluation and further information please visit www.pewenvironment.eu

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation FRANCE

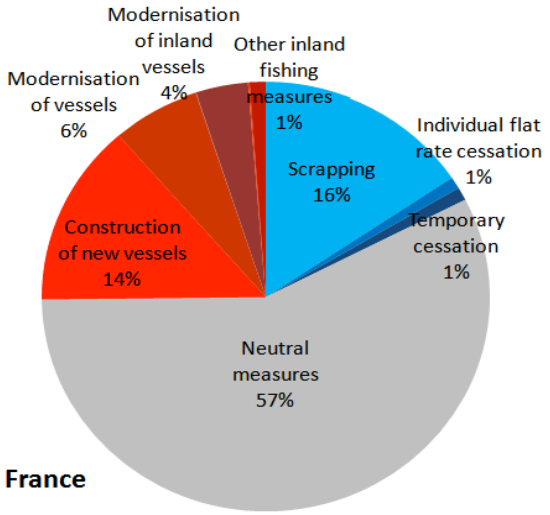
Total FIFG (EU + Member State Contributions)

€452million **9% of total FIFG in the EU** **Ranked 3 out of 24 MS**

Summary of total FIFG

In France, 24% of FIFG funding was used for the construction and modernisation of vessels, while 16% was used to scrap vessels. FIFG in France's outermost regions was mainly used to support the development of small-scale fisheries, to improve the quality of fish products and for marketing.

The funding of fish aggregating devices (FADs) under the 'protection and development of marine resources' measure is questionable. Without suitable management, FADs make it easier to overfish rather than protect marine resources.



Overcapacity and Overfishing

The French trawl fleet reduced in capacity with FIFG assistance, mainly in reaction to the very poor state of cod stocks. Most controversial was funding for the thonaille netting fleet targeting bluefin tuna. In April 2009 the European Court of Justice ruled that France had to prevent use of these nets.

Environmental Impacts

18% of total FIFG funding on positive measures (vessel scrapping, resource protection, etc)

25% of total FIFG funding on negative measures (vessel construction, modernisation, etc)

Main Gear Types	Built (No.)	Scrapped (No.)	Net change	Stocks		Status (07)		Trend	
Bottom otter trawls	94	193	-99	Cod		☹		⇧	
Purse seiners	46	41	5	BF Tuna		☹		⇩	
Set longlines	16	5	11	Anchovy	BF Tuna	☺	☹	⇨	⇩

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **3.8%**

Average annual total FIFG funding per catching sector employee **€10,771.00**

Average FIFG vessel funding in relation to the catching sector's value is below the average 5% for the top 10 recipient Member States. The funding under processing and aquaculture measures was less than 1% of the annual value of these subsectors. No specific social criteria were applied to funding applications.

Social Contract

Annual funding for control as % of sector value **1.3%**

Annual funding for control relative to average annual FIFG funding **31%**

France's funding for control is less than one-third of the amount received by the sector in funding under FIFG . No connection was made between infringements and the award of FIFG funding. Administrators claim that as measures such as modernisation could be for improved safety of crew, they did not wish to discriminate against any fishers in the award of funding. There was also no attempt to recoup FIFG awards from those who infringed CFP rules.

For full evaluation and further information please visit www.pewenvironment.eu

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation GREECE

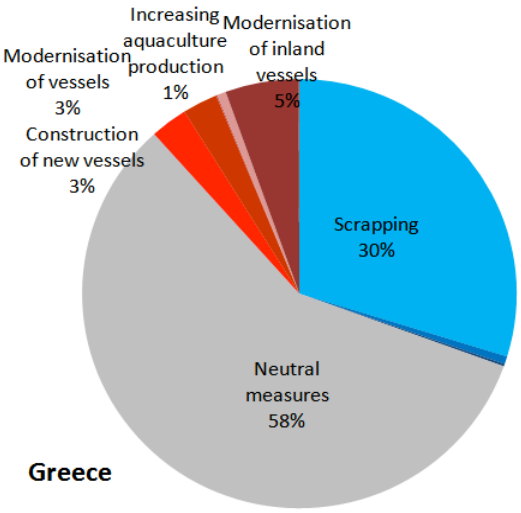
Total FIFG (EU + Member State Contributions)

€270million **5.5%** of total FIFG in the EU. Ranked **4** out of 24 MS

Summary of total FIFG

Greece allocated a substantial proportion of FIFG funding to scrapping (30%). This contributed to a fleet capacity reduction over the programme period of 15% in terms of GT and 16 of engine power.

Assuming a technological creep of 2–3 % per year over the financial period, this reduction can be assumed to have kept the fishing pressure on fish stocks more or less constant.



Overcapacity and Overfishing

The largest number of vessels decommissioned in Greece was from the set longline fleet. Set gillnets were also removed in large numbers. This was a necessary readjustment as many target demersal stocks in the Mediterranean that continue to be overexploited, with a continuing downward trend.

Environmental Impacts

31% of total FIFG funding on positive measures (vessel scrapping, resource protection, etc)

12% of total FIFG funding on negative measures (vessel construction, modernisation, etc)

Main gear types	Built(No.)	Scrapped(No.)	Net change	Stocks			Status(07)			Trend		
Set gillnets	58	422	-364	Mullet	Sole	Bream	😐	☹	😐	⇨	⇩	⇨
Set longlines	86	1,223	-1,137	Hake	Megrim	Monks	☹	☹	☹	⇩	⇨	⇩
Trammel nets	89	40	49	Hake	Megrim	Monks	☹	☹	☹	⇩	⇨	⇩

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **2.5%**

Average annual total FIFG funding per catching sector employee **€2,946.00**

The average annual FIFG vessel funding as a proportion of catching sector value and the amount per fisher is comparatively low for Greece. However, funding under processing and aquaculture measures in Greece was more significant compared with these subsectors' value, at 6% and 4%, respectively.

Social Contract

Annual funding for control as % of sector value **1.4%**

Annual funding for control relative to average annual FIFG funding **6%**

No connection was made between committing infringements of the CFP rules and being awarded FIFG support. There was also no attempt to recoup FIFG awards from those who infringed CFP rules.

For full evaluation and further information please visit www.pewenvironment.eu

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation

UK

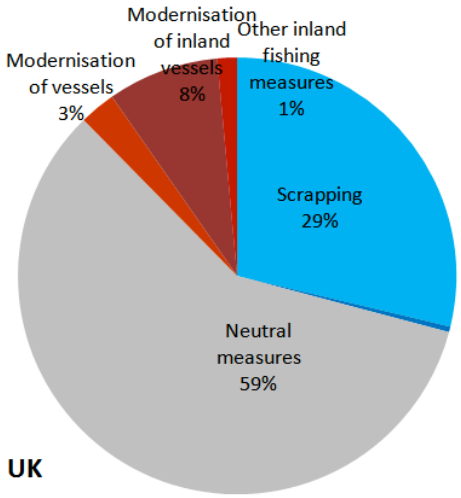
Total FIFG (EU + Member State Contributions)

€237million **5%** of total FIFG in the EU Ranked 5 out of 24 MS

Summary of total FIFG

The UK did not support any vessel construction with FIFG funding. One-third of vessels scrapped under FIFG were bottom trawlers targeting a mixed fishery including cod. Beam trawlers and mid-water trawlers were also decommisisoned.

Most vessel modernisation was aimed at improving catch quality (refrigeration, etc.) but some engine replacement was supported, which would result in an effective increase in fishing capacity.



Overcapacity and Overfishing

The removal of bottom and beam trawlers has reduced fishing capacity in these fleets and this reduced fishing pressure will have benefited the recovery plans for cod and plaice. Evaluations of the UK modernisation schemes appear to have identified the ability to use funds for increases to fishing efficiency, and these measures were subsequently removed or tightened.

Environmental Impacts

29% of total FIFG funding on positive measures (vessel scrapping, resource protection, etc)

12% of total FIFG funding on negative measures (vessel construction, modernisation, etc)

Main Gear Types	Built (No.)	Scrapped (No.)	Net change	Stocks		Status (2007)		Trend	
Bottom trawlers	0	83	-83	Hake	Mullet	☹	☺	⇧	⇧
Beam trawlers	0	15	-15	Plaice		☺		⇨	
Midwater trawlers	0	11	-11	Herring		☺		⇨	
'Other'	0	55	-55						

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **2.5%**

Average annual total FIFG funding per catching sector employee **€6,247.00**

Much of the FIFG funding was implemented though the Objective 1 programmes targeting fisheries dependent communities in SW England, and the Scottish Highlands and Islands. During the programme an additional €1 million was used to target support for small-scale coastal fisheries.

Social Contract

Annual funding for control as % of sector value **2.3%**

Annual funding for control relative to average annual FIFG funding **105%**

The UK spent more on control and enforcement than on FIFG subsidies, given the size of its fisheries sector. No connection was made between infringements of CFP rules and awarding FIFG funding. There was also no attempt to recoup FIFG awards from those who infringed CFP rules.

For full evaluation and further information please visit www.pewenvironment.eu

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation PORTUGAL

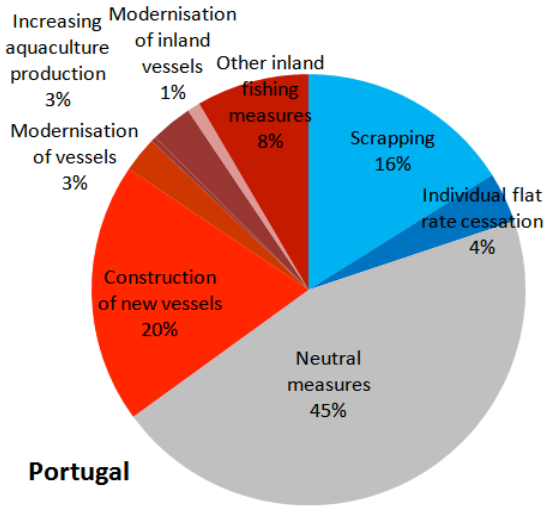
Total FIFG (EU + Member State Contributions)

€236million **5% of total FIFG in the EU** **Ranked 6 out of 24 MS**

Summary of total FIFG

Portugal spent more on the construction of new vessels (20% of total FIFG) than on scrapping (16%). It was second only to Spain in the proportion of FIFG allocated to vessel construction and in the proportion allocated to inland fishing.

Over the programme period the Portuguese fleet only reduced by 9% in terms of GT and 4% in terms of engine power. It is unlikely that this will have off-set the technological improvements of the fleet.



Overcapacity and Overfishing

The impact of FIFG funding on the Portuguese fleets is mixed, as significant reductions in set gillnet and longline fleet capacity have been funded, but there was a net capacity increase in the purse seine fleet with FIFG funding. These fleets target fisheries that continue to show acute signs of overfishing.

Environmental Impacts

20% of total FIFG funding on positive measures (vessel scrapping, resource protection, etc)

35% of total FIFG funding on negative measures (vessel construction, modernisation, etc)

Main Gear Types	Built(No.)	Scrapped(No.)	Net change	Stocks	Status(07)	Trend
Set gillnets	63	88	-25	BF Tuna	☹	⇩
Bottom otter trawls	18	17	1	Hake, Megrim, Monks	☹ ☹ ☹	⇩ ⇨ ⇩
Purse seiners	15	63	-48	Hake, Megrim, Monks	☹ ☹ ☹	⇩ ⇨ ⇩
Set longlines	23	12	11	Anchovy, BF Tuna	☺ ☹	⇨ ⇩

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **12%**

Average annual total FIFG funding per catching sector employee **€6,438.00**

Portugal shows relatively low FIFG funding levels per fishing sector employee compared to the main other recipient Member States, but a high proportion of funding (12%) as a percentage of the catching sector value compared to the average (5%). The average amount of FIFG funding to processing and aquaculture measures represents a much smaller proportion of the annual value of these sectors (1% and 2%, respectively.)

Social Contract

The Portuguese administration did not make a connection between infringement of the CFP rules and the award of FIFG funding, despite the Portuguese sector being identified as showing low levels of compliance. There was also no attempt to recoup FIFG awards from those who infringed CFP rules.

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation GERMANY

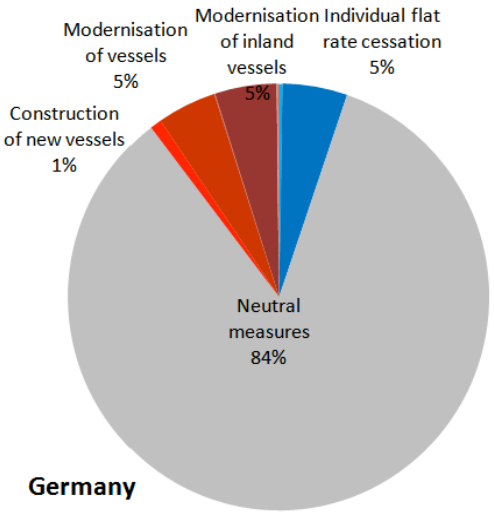
Total FIFG (EU + Member State Contributions)

€168million **3% of total FIFG in the EU** **Ranked 7 out of 24 MS**

Summary of total FIFG (EU plus MS co-financing)

The German FIFG programme focused on the modernisation of vessels, with 10% of total funds, rather than construction (1%).

Temporary cessation was funded more than scrapping, resulting in only minor capacity reductions, with a 3% reduction in GT and a 4% reduction in power over the programme period. The modernisation is expected to result in a fishing capacity increase in real terms.



Overcapacity and Overfishing

The fleet capacity for trawlers and set gillnets increased significantly over the period of FIFG assistance. This has contributed to the poor status of the stocks targeted by these fleets, such as hake and monkfish, which show an ongoing downward trend.

Environmental Impacts

9% of total FIFG funding on positive measures (vessel scrapping, resource protection, etc)

41% of total FIFG funding on negative measures (vessel construction, modernisation, etc)

Main Gear Types	Built (No.)	Scrapped (No.)	Net change	Stocks		Status (2007)		Trend	
Set gillnets	6	3	3	Dab	Sole	😐	☹	⇨	⇨
Purse seiners	5	0	5	Dab	Sole	😐	☹	⇨	⇨
Set longlines	0	2	-2	Cod	Saithe	☹	☺	⇧	⇧

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **2.3%**

Average annual total FIFG funding per catching sector employee **€ 9,694.00**

FIFG support to vessels as a proportion of Germany's catching sector value was low (2.3% compared to the EU average of 5%). The proportion of funding under processing and aquaculture measures was low compared to the value of these subsectors (around 0.5% and 1.5%, respectively).

Social Contract

No connection was made between infringements of CFP rules and awarding FIFG funding. There was also no attempt to recoup FIFG awards from those who infringed CFP rules.

For full evaluation and further information please visit www.pewenvironment.eu

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation DENMARK

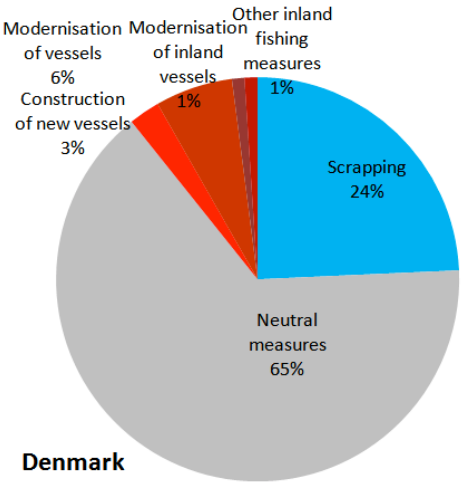
Total FIFG (EU + Member State Contributions)

€240million **5% of total FIFG in the EU** **Ranked 8 out of 24 MS**

Summary of total FIFG

Between 2000 and 2006 the Danish fleet was reduced by nearly one-third, including a large number of small gillnetters.

Decommissioning and modernisation looked to reduce the age of vessels (the Danish fleet is one of the oldest in the EU) and crew. With the introduction of rights-based management, the sector is now regarded as being more self-regulating and less dependent upon public aid.



Overcapacity and Overfishing

Around one-third of the total Danish gillnetter fleet was scrapped, reducing fishing mortality of key stocks, e.g. North Sea and Skagerrak/Kattegat cod. Six times more capacity (in power terms) was scrapped than built with FIFG assistance, with most construction being focused on dredgers, which harvest mussel.

Environmental Impacts

24% of total FIFG funding on negative measures (vessel scrapping, resource protection, etc)

11% of total FIFG funding on positive measures (vessel construction, modernisation, etc)

Main Gear Types	Built(No.)	Scrapped(No.)	Net change	Stocks			Status (07)		Trend	
Set gillnets	14	138	-124	Cod	Sole		☹	☺	⇧	⇧
Bottom Trawls	24	101	-77	Prawn	Cod	Plaice	☺	☹	☺	⇨	⇧	⇨
Danish seines	0	30	-30	Plaice	Cod		☺	☹	⇨	⇧
Boat dredges	12	0	12	Blue mussel						

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **5.2%**

Average annual total FIFG funding per catching sector employee **€ 25,529.00**

Danish funding favoured low-growth municipalities in Jutland. Decommissioning was targeted at removing older vessels and fishers from the sector, while modernisation was aimed at improving safety and comfort at sea, therefore promoting the sector to new, younger entrants.

Social Contract

Annual funding for control as % of sector value **4%**

Annual funding for control relative to average annual FIFG funding **58%**

Denmark's annual expenditure on control was less than its annual FIFG funding, but reports of infringements are comparatively low. There was no link made by Danish authorities between fisheries infringements and the award of FIFG funding. There was also no attempt to recoup FIFG awards from those who infringed CFP rules.

For full evaluation and further information please visit www.pewenvironment.eu

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation POLAND

Total FIFG (EU + Member State Contributions)

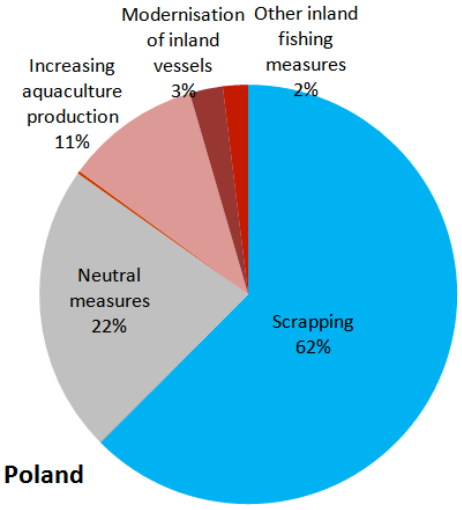
€126million **3% of total FIFG in the EU** **Ranked 9 out of 24 MS**

Summary of total FIFG

Poland's fishing sector only received FIFG funds from late-2004. The option of vessel construction was therefore no longer available to the Polish fishing sector.

The result is the largest proportional spend on scrapping (62% of all funding), resulting in a 40% decrease in fleet capacity.

Other significant measures included supporting the development of aquaculture and inland fisheries.



Overcapacity and Overfishing

Poland spent more funding on scrapping (62%) than any other Member State.
This scrapping removed excess capacity in the Baltic cod fleet and has contributed to signs of stock recovery under the Baltic cod recovery plan.

Environmental Impacts

62% of total FIFG funding on positive measures (vessel scrapping, resource protection, etc)

16% of total FIFG funding on negative measures (vessel construction, modernisation, etc)

Main Gear Types	Built (No.)	Scrapped (No.)	Net change	Stocks	Status (07)	Trend
Bottom otter trawls	0	120	-120	Baltic Cod	😐	⇧
Set gillnets (anchored)	0	140	-140	Salmon / Cod	☹ / 😐	⇨ / ⇧
Midwater otter trawls	0	10	-10	Hake, Mackerel	☹	⇨

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **101%**

Average annual total FIFG funding per catching sector employee **€28,804.00**

Poland spent more funding on scrapping (62%) than any other Member State. This scrapping removed excess capacity in the Baltic cod fleet and has contributed to signs of stock recovery under the Baltic cod recovery plan.

Social Contract

In 2008, following the imposition of tight restrictions on cod fishing in the Baltic, Polish authorities decided not to allow vessel owners who infringed CFP rules to receive FIFG funding. Around 20% of Polish vessel owners receiving FIFG support did not adhere to the cod restrictions and so were not allowed to apply for FIFG funding.

For full evaluation and further information please visit www.pewenvironment.eu

Poseidon (2010) FIFG 2000-2006 Shadow Evaluation SWEDEN

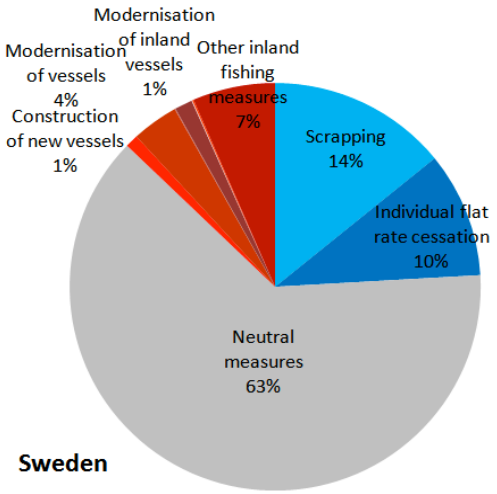
Total FIFG (EU + Member State Contributions)

€81million **2%** of total FIFG in the EU Ranked **10** out of 24 MS

Summary of total FIFG

More FIFG funding went to positive measures, such as scrapping, than negative measures, such as construction and modernisation.

This resulted in a 16% decrease in fleet capacity in GT and 12% in terms of engine power over the programme period. Sweden was second only to Germany in the amount used to fund the temporary cessation of fishing activities relating to the Baltic cod recovery plan, which maintains rather than removes excess capacity in a fleet.



Overcapacity and Overfishing

Over the programme period modest numbers of vessels were permanently withdrawn from the fleet, with more receiving funds for temporary cessation of fishing when the Baltic cod recovery plan was introduced. The construction of a small number of vessels using pots and traps, which are highly selective, was supported, but the status of target shellfish stocks has yet to be fully assessed.

Environmental Impacts

24% of total FIFG funding on positive measures (vessel scrapping, resource protection, etc)

13% of total FIFG funding on negative measures (vessel construction, modernisation, etc)

Main Gear Types	Built (No.)	Scrapped (No.)	Net change	Stocks		Status (2007)	Trend
Set gillnets	12	23	-11	Baltic Cod		😐	⇧
Bottom otter trawls	2	35	-33	Salmon	Cod	☹ 😐	⇨ ⇧
Pots and traps	152	1,620	13	Shellfish		?	?

Social Impacts

Average annual total FIFG funding as a % of catching sector value (in 2005) **25%**

Average annual total FIFG funding per catching sector employee **€27,528.00**

The average annual funding for fishing vessels under the FIFG programme represents one-quarter of the value of the catching sector in 2005 and amounts to over €27,000 per fisherman. The levels of FIFG funding direct to the aquaculture and processing subsectors as a proportion of their value are lower, but the funding still represents a significant contribution to turnover (processing 2%, aquaculture 8%).

Social Contract

In contrast to the high FIFG funding as a proportion of sector income, funding on fisheries control only amounted to 6% of the average annual allocation to the sector under FIFG, despite low levels of compliance in the Spanish sector compared to other Member States. There was no link made between awarding FIFG funds and compliance or recovery of funds from those infringing CFP rules.

For full evaluation and further information please visit www.pewenvironment.eu

Appendix C: Categorisation of FIFG measures in relation to their impacts on fishing capacity

Note, this table only describes the expected impact of funding on fishing capacity not the impacts of subsidies on wider environmental, economic or social impacts.

'Sector supported' identifies the fisheries subsector that receives direct support; this informs the analysis in Section 4.1 by defining 'vessel', 'aquaculture' and 'processing' measures.

Measure #	Description	Sector supported	Environmental impacts	Justification
1	Scrapping	catching	positive	Capacity removed from fleet.
2	Exportation/reassignment/transfer to third country	catching	neutral	Capacity removed from EC fleet (positive), but given that most stocks globally are overexploited, transfer to third country likely to increase capacity there, so therefore unsustainable exploitation (negative).
3	Joint enterprises	catching	unclear	No clear positive benefits.
4	Temporary joint ventures	catching	neutral	No clear positive benefits.
5	Construction of new vessel	catching	negative	Increase in fleet capacity.
6	Modernisation of vessel	catching	negative	Potential to be positive if for example funds used to upgrade engines or gear so as to reduce emissions or improve selectivity, but more likely to be used to increase capacity.
7	Withdrawal of vessel (without public aid) in association with fleet renewal with public aid	catching	negative	Increase in fleet capacity through improved efficiency of new vessels.
11	Construction of inland vessels	catching	negative	Increase in fleet capacity inland, with high likelihood of no impacts on marine fleet capacity.
12	Construction of new port facilities/extension of existing port facilities	port	neutral	Unlikely to increase capacity directly, but could be used to improve shore-side environmental conditions and quality of landings; potential for increasing vessel berthing capacity.
13	Early retirement	social	neutral	Fishermen leaving industry unlikely to affect capacity with vessels/licences being sold to others.
14	Flat-rate individual cessation premium	catching	positive	Reduced effort, although only in short term so may not be very cost effective.
15	Increase in aquaculture production capacity	aquaculture	negative	Unlike to result from or cause a decrease in capacity/effort on capture fisheries, and aquaculture operations may also have negative environmental impacts in terms of capture fish used in feed inputs.
16	Pilot/demonstration projects	catching	neutral/ unclear	Unclear impacts – could be positive if demonstrating environmental sustainability, but could also be used to demonstrate improvements in quality and catching efficiency.

Measure #	Description	Sector supported	Environmental impacts	Justification
17	Modernisation of existing aquaculture units	aquaculture	neutral/ unclear	Impacts would depend on whether modernisation reduces environmental impacts or increases them through increased production.
18	Modernisation of existing inland vessels	catching	negative	Could be positive if for example funds used to upgrade engines or gear so as to reduce emissions or improve selectivity, but more likely to be used to increase capacity.
19	Modernisation of existing port facilities	port	neutral	Unlikely *per se* to increase capacity and port modernisation; more likely to be used to improve shore-side environmental conditions and quality of landings.
20	Operations by members of the trade	organisational	neutral	This relates to setting up producer organisations and aid to assist their drive to improve quality, etc. and is unlikely to impact on catches or capacity *per se*. Could reduce environmental impacts if Producer Organisations established support environmental improvements.
21	Operations financed by the ERDF	social	neutral	Not possible to determine whether positive or negative.
22	Aquaculture – not further defined	aquaculture	negative	Unlike to result from or cause a decrease in capacity/effort on capture fisheries, and aquaculture operations may also have negative environmental impacts in terms of waste and capture fish used in feed inputs.
23	Setting-up aid for young fishermen	social	negative	Likely to increase effort/capacity.
24	Temporary cessation of activities and other financial compensation	catching	positive	Reduced effort, although only in short term so may not be very cost effective.
25	Other measures to assist inland fishing	catching	negative	Increase in pressure on inland fisheries, with high likelihood of no positive impacts on marine fisheries.
26	Processing and marketing – not further defined	processing	neutral/ unclear	Could increase incentive to catch more if unit values of fish increase, but improvements i quality and value-added. Onshore, probably no significant impact on capture fisheries an may improve onshore environmental conditions.
27	Promotion (campaigns, trade fairs, surveys, etc.)	marketing	neutral/ unclear	Could increase incentive to catch more if unit values of fish increase, but improvements i quality and value-added. Probably no significant impact on catching sector.
28	Protection and development of aquatic resources	environmental	neutral/ unclear	Unclear which activities are to be funded by this measure and therefore the extent of positive and negative environmental impacts also unclear.
29	Small-scale coastal fishing	catching	neutral/ unclear	Small-scale fishing tends to have high use of passive gears compared to larger-scale operations and therefore fewer negative environmental impacts. But support could increa overall effort/capacity on non-quota species, and small-scale operations are not immune t negative impacts.

Measure #	Description	Sector supported	Environmental impacts	Justification
30	Technical assistance	research	neutral/ unclear	This relates to for example studies, exchange of experiences, management and implementation of programmes. Impacts will be dependent on types of assistance supported.
31	Quality certification and product labelling operations	marketing	neutral/ unclear	Could increase incentive to catch more if unit values of fish increase, but improvements i quality and value-added. Probably no significant impact on catching sector and may improve onshore environmental conditions.
32	Modernisation of existing marketing establishments	marketing	neutral/ unclear	Could increase incentive to catch more if unit values of fish increase, but improvements i quality and value-added. Probably no significant impact on catching sector and may improve onshore environmental conditions.
33	Modernisation of existing processing units	processing	neutral/ unclear	Could increase incentive to catch more if unit values of fish increase, but improvements i quality and value-added onshore. Probably no significant impact on capture fisheries and may improve onshore environmental conditions.
34	Increase in processing capacity	processing	neutral/ unclear	Could increase incentive to catch more if unit values of fish increase, but probably no significant impact on catching sector unless onshore capacity was previously constrainin catches.
35	Construction of new marketing establishments	marketing	neutral/ unclear	Could increase incentive to catch more if unit values of fish increase, but improvements i quality and value-added. Probably no significant impact on catching sector.
36	Socioeconomic measures – not further defined	social	neutral/ unclear	Would depend on nature of award.
37	Re-training premium (job diversification)	social	neutral	Fishermen leaving industry likely not to affect capacity with vessels/licences being sold t others.
99	Not defined	other	unclear	Would depend on nature of award

Appendix D: Additional information on fishing gear types

D.1 GEAR TYPES FUNDED AND THEIR ENVIRONMENTAL IMPACTS

Below is a brief description of the five main gear types funded by FIFG and the key impacts associated with them.

Bottom otter trawls (OTB)

A bottom otter trawl tows a net at or just above the seabed using two rectangular 'otter doors' to spread the mouth of the net. These are used to target demersal fisheries such as cod, hake, haddock, Nephrops and monkfish. Seabed impacts from these trawls can occur from the ropes and net itself or the furrowing action of the otter boards. Bottom trawls also have the potential for high bycatch levels if used on biologically diverse and productive grounds. Designs can incorporate a mixture of separator panels, grids and square mesh panels that can be tuned to reduce both the size and variety of bycatch.

Reported effects of these bottom trawl fisheries include the following.

Habitat impacts In the past, Mediterranean trawl fisheries have damaged seagrass (mainly *Posidonia* spp.) through direct damage to the vegetal mass as well as elevating suspended solids (Tudela, 2004). It is not possible to attribute the contribution of FIFG funding to this damage and since the mid-1990s, many of these seagrass areas have been protected by the EC Habitats Directive, although the degree of enforcement is variable.

Discarding A regional study addressing the magnitude of discards in the western Mediterranean monitored fishing fleets in seven ports (six Spanish and one Italian). Combined data gave discard estimations ranging from 23–67 percent of total catch in bottoms less than 150m deep; 13–62 percent in bottoms 150–350m deep; and 14–43 percent in slope bottoms deeper than 350m (Carbonell, 1997; Carbonell, Martin & de Ranieri, 1998). Around 60 percent (by power) of the bottom trawl vessels constructed with FIFG funding in Spain operate from this part of the Mediterranean.

Discards by the trawling fleet operating on the upper slope (230–611m) off Alacant (southeast Spain) have been estimated at 34.6 percent of the total catch (Soriano & Sánchez-Lizaso, 2000). This Valencian fleet (NUTS Area ES52) represented around 18 percent of the Spanish OTB construction funded by FIFG.

Discards of Nephrops fisheries at 280–720 m in the Balearic Islands were estimated at an average of 42 percent of the total catch. Longer tows, to compensate for the reduced biomass, seem to result in lower selectivity by the mesh and higher discard rates. However, the Spanish Balearic fleet was only a very minor recipient of FIFG vessel construction funds.

Size selectivity. Trawling for hake in the Gulf of Lions (GFCM GSA 1.2) tends to exploit the juvenile fraction of the population, since the mean size of catches was only 17.9cm, which strongly contrasted with the 48.2cm corresponding to longline catches (Lleonart, 1990). The French trawl fleet in this region was only a minor recipient of FIFG assistance.

Purse seines (PS)

A purse seine is made of a long wall of netting framed with floatline and leadline, with purse rings hanging from the lower edge of the gear, through which runs a purse line made from steel wire or rope, which allows the pursing of the net. They tend to be used in the upper part of the water column and therefore rarely have any direct interaction with the seabed. Since they usually target pelagic shoals consisting of a single species (e.g. tuna, sardine, herring, mackerel) their catch tends to have limited bycatch of other commercial species. The main potential issues with purse seines is the incidental catch of cetaceans, such as dolphins.

Purse seines represent a small but significant proportion of gears (8 and 21 percent by number and total power, respectively, of all new builds) funded by FIFG (2000–2006). The main recipient fleet was the Spanish (over three-quarters by both number and power of all PS vessels constructed) of Andalucía (31 percent by number of Spanish vessels), Basque (20 percent) and Galicia (11 percent), mainly targeting small pelagics, such as anchovy and sardine, as well as tuna. Other purse seine fleets assisted included France (12 percent by power) and Portugal (5 percent by power).

Whilst the Spanish bluefin tuna fishery does not have the bycatch of dolphins found in some other tuna fisheries, the use of purse seines to target small pelagics such as anchovy and sardine may be more problematic. The fleet targeting these species in the Alboran Sea may catch as many as 5,700 cetaceans annually, though the majority of them are released alive. However, a field study conducted under an EU-funded project yielded a related estimated mortality of about 300 dolphins annually, the majority of them common dolphins (University of Barcelona, 1995).

Set gillnets (anchored) (GNS)

A set gillnet consists of a single net wall kept more or less vertical by a floatline and a weighted groundline (FAO, 2001–2009). The net is set on the bottom, or at a certain distance above it, and kept stationary by anchors or weights at both ends. These gears are mainly used to target hake and monkfish around the Bay of Biscay and Iberian Atlantic coast. They tend to have little direct interaction with the seabed, mostly through the use of anchors and, in the case of bottom-set nets, the weighted groundline. If used in sensitive areas, e.g. with fragile emergent epifauna such as sea pens or coral, poorly set gear can cause localised damage, especially in areas with strong currents. Greater concern over set gillnets has been raised over two other issues: (a) sea mammal and endangered species bycatch; and (b) their continued entanglement when gear is lost (termed 'ghost fishing').

Set gillnets represent the largest proportion of gears (40 and 13 percent by number and total power, respectively) of all new builds funded by FIFG (2000–2006), as well as one-quarter of all vessels modernised or scrapped (by number). The main recipient fleet was the Spanish fleet (more than three-quarters by number of all GNS vessels constructed) of Andalucía and Galicia targeting hake and monkfish in ICES Areas VIIIc and IXa (e.g. the southern Bay of Biscay and the Iberian Atlantic coast). The other country with a significant proportion of new gillnetter builds was Portugal (5 percent by number and 16 percent by power) targeting the same fisheries. The following specific interactions are noted with this gear.

Sea mammal and endangered species bycatch The use of set gillnets for catching bluefin tuna in the western Mediterranean has an incidental catch of large pelagic species such as blue sharks (*Prionace glauca*), Atlantic pomfrets (*Brama brama*), and Mediterranean spearfish (*Tetrapturus belone*). In addition, species such as the striped dolphin (*Stenella coeruleoalba*), ocean sunfish (*Mola mola*), loggerhead turtle (*Caretta caretta*) and pelagic stingray (*Pteroplatytrygon violacea*) are caught and subsequently discarded, with variable levels of mortality. Of these, the blue shark and the loggerhead turtle are considered by IUCN to be low risk/threatened and endangered, respectively. Incidental catches of the thonaille fleet in French Mediterranean waters, a noted recipient of FIFG funding, account for around 4.4 percent of the total catch weight (Cornax *et al*, 2007). In the North Sea set gillnet fisheries historically have a substantive bycatch of harbour porpoise, with a total bycatch in the 2001 cod fishery of around 2,000 porpoises. Since then effort reductions in this fishery have likely led to decreased bycatches of these animals, and it is likely that FIFG funded scrapping will have accelerated this.

Ghost fishing The EC-funded FANTARED 2 study estimated gillnet losses of 2,065 nets per year in the Cantabrian rasco/monkfish metier in ICES VIIIc (EC, 2003b). This fishery received about 7 percent of FIFG funds spent on construction in Spain. The same study found that the French flatfish and monkfish metier in Brittany, which received around 20 percent of FIFG funds spent on vessel construction in France, lost around 5km of nets per vessel per year. The French offshore hake-directed gillnet fishery in the Mediterranean loses around 0.2 percent of its nets annually (between 36 and 73 nets). The 32-strong coastal fleet has a similar rate of loss, but with a lower set rate, of about 9 to 17 nets per year. The resultant impact of these gear losses is more difficult to assess as they are unseen, but simulations of 'rasco' net loss in the Cantabrian Sea resulted in an estimated average value of 15,160kg of monkfish being captured per 50m of lost rasco netting. However, it was concluded that even though lost rasco tangle nets can maintain their fishing abilities intact for significant periods of time (up to four to seven months), their estimated accumulated catches are small, mainly because their catch rates are low (EC, 2003b).

Drifting longlines (LLD)

A drifting longline consists of a mainline kept with long lines holding baited hooks at or near the surface. Drifting longlines may be of considerable length. Some drifting longlines are set vertically, each line hanging from a float at the surface (FAO, 2001–2009).

This gear doesn't have any significant direct seabed interactions, although lost lines and hooks can become entangled in rocky substrates. Pelagic longlining has the potential to inflict considerable mortality on elasmobranchs, marine turtles and seabirds taken as bycatch (Tudela, 2006).

Over 2000–2006, 112 drifting longline vessels were constructed with FIFG assistance. Of these, 21 were French longliners based in Réunion (a French overseas territory in the Indian Ocean). The majority of FIFG-assisted construction was of Spanish longliners (80 vessels, representing 80 percent of the constructed LLD power), with the remaining 12 vessels being Greek and Portuguese. The main Spanish vessels involved target swordfish (*Xiphias gladius*), bluefin tuna (*Thunnus thynnus*) and, to a lesser extent, albacore (*Thunnus alalunga*). Bycatch, excluding turtles, accounts for 10 percent of total landings in weight (Camiñas & de la Serna, 1995). These are briefly explored below.

Elasmobranchs The blue shark (*Prionace glauca*) is perhaps the most impacted species, and can make up around one-quarter of total landings in the Spanish swordfish fishery (Raymakers & Lynham, 1999), although because of its relatively high fecundity it seems to rank high on the scale of shark species resilient to fishing. Much lower numbers of other less resilient elasmobranch species, such as the thresher shark (*Alopias vulpinus*), the shortfin mako (*Isurus oxyrinchus*) and the porbeagle (*Lamna nasus*), are also part of the commercial fraction of the longline bycatch.

Turtles A study of the Spanish longline fleet targeting swordfish in the southwestern Mediterranean (around 39 of the 79 Spanish longline vessels constructed with FIFG assistance) suggested that turtle bycatches in this region are as high as 6.5–9.8 turtles per day and boat, allowing for an estimated total catch ranging from 22,000 to 35,000 individuals per year (Aguilar, Mas & Pastor, 1992). Estimates of total catches by the Spanish longline fleet in the Mediterranean for the period 1988–1996 oscillate from 1,953 individuals in 1993 to 23,888 in 1990 (Camiñas, 1997).

Seabirds One study looked at Spanish longlining around the Columbretes Islands in the northwestern Mediterranean where incidental catches of seabirds mostly affected Cory's shearwater, accounting for 77 percent of the total bird bycatch, followed by the yellow-legged gull (14 percent) and the Atlantic gannet (9 percent). The incidence was found to be around 0.22 birds caught per 1,000 hooks (Martí, 1998).

Set longlines (LLS)

A set longline consists of a mainline and lines with baited (occasionally unbaited) hooks at regular intervals, and is generally set on or near the bottom. These gears are used to target demersal species such as hake and monkfish. Like pelagic drifting longlines (see LLD above), the bottom set longlines have relatively little seabed impact, although discarded or lost gear may be an issue in some fisheries and locations.

The main country utilising FIFG funding to construct vessels using this gear is Spain, which constructed 103 of the 269 LLS vessels (or 60 percent of the constructed power, especially around the Canary Islands, where 36 LLS vessels, averaging 23m in length, were constructed with FIFG assistance). Other important recipients included 86 smaller vessels (an average of 8m) spread throughout the Greek archipelago, but because they were smaller they only represented 10 percent of the constructed power. Similarly, France constructed 51 LLS vessels, mainly based in Réunion, with a similar power to the Greek new builds.

Elasmobranchs: Bottom longlines affect mainly demersal elasmobranchs species, such as *Mustelus* spp., *Carcharhinus* spp., *Squalus* spp., *Torpedo* spp. and *Raja* spp. In the Aegean Sea, for example, skates (*Raja radula, R. clavata* and *R. miraletus*) account for up to 6–19 percent of total catch weight (GFCM, 2008).

Turtles Studies concerning bottom longlines in the Mediterranean Sea are rare. It appears that this fishing gear has the potential to be more harmful than pelagic longlines, given the fact that the bycaught animals do not have any chance to reach the surface to breathe (GFCM, 2008). Bottom longlines catch smaller juveniles of loggerhead turtle due to the hook size.

Seabirds A study looking at Spanish longlining around the Columbretes Islands (discussed above) showed a higher incidence of catches for bottom longlines than surface set gear, at around 0.72 birds caught per 1,000 hooks (Martí, 1998).

D.2 FIFG VESSEL FUNDING BY GEAR TYPE

Following Sections 3.3.2, here we present more detail on the levels of funding under construction, modernisation and scrapping measures.

(i) Construction by gear type

The table below provides detail of the gear types of vessels constructed with FIFG assistance. It differentiates passive gears (GNS set gillnet [anchored]; LLS set longlines; and LLD drifting longlines), which are coloured in green, and mobile gears (OTB: bottom otter trawl; PS: purse seine and OTM mid-water otter trawls), which are coloured in red. The different impacts of passive and mobile gears are discussed in Section 3.3.2, with further detail provided in D1, above.

Table 10: Main gear types for vessels constructed using FIFG funding 2000–2006

Country codes: ES, Spain; PT, Portugal; FR, France; IT, Italy; and GR, Greece

Main gear	Total no. (% of all new builds)	Total power, kW (% of all new builds)	Av. power (kW)	Key Member States			
				MS	No. built (% of gear total)	Total power, kW (% gear total)	Av. power (kW)
GNS	1,137 (40%)	68,246 (14%)	59	ES	853 (75%)	39,424 (57%)	46
				PT	63 (5%)	10,769 (16%)	171
OTB	655 (23%)	187,561 (38%)	286	ES	461 (70%)	129,007 (69%)	280
				FR	94 (14%)	29,524 (16%)	314
				IT	52 (8%)	10,200 (5%)	196
PS	233 (8%)	99,830 (20%)	430	ES	175 (75%)	78,232 (78%)	447
				FR	16 (7%)	11,611 (12%)	726
				PT	23 (10%)	5,620 (5%)	244
LLS	269 (9%)	33,336 (7%)	124	ES	103 (38%)	19,743 (59%)	192
				GR	86 (32%)	3,408 (10%)	40
				PT	15 (6%)	4,674 (14%)	312
LLD	113 (4%)	40,142 (4%)	358	ES	79 (70%)	33,104 (82%)	419
Other gears	466 (16%)	59,593 (12%)					
Total	**2,873**	**488,708**					

Source: Poseidon analysis of EC FIFG database and Community Fleet Register.

Of approximately 3,000 vessels constructed with EC FIFG assistance from 2000 to 2006, the majority (40 percent by number, although only 14 percent in terms of power) use set gillnets (GNS) as their main gear. Of these, 853 (75 percent by number) were constructed by Spain, and are based mainly in Isla Cristina, Punta Umbria, Conil and Chipiona in southwestern Spain, and Noia and Santa Eugenia de Riveira in La Coruña in northwestern Spain.

Bottom otter trawlers (OTB) represented about one-quarter of all vessels constructed with FIFG assistance by number (38 percent by power). Again, these were mainly Spanish (70 percent by both number and kW of the new OTB builds), although these represented 38 percent of vessels in terms of power. Again, the majority of these are based in Isla Cristina, Sanlúcar de Barrameda) in southwestern Spain, Sant Carlos de la Ràpita in eastern Spain, Almería in southeastern Spain and Santa Eugenia de Riveira in northwestern Spain.

Other subsidised new builds included purse seiners (PS) (8 percent by number and 20 percent by power); set longliners (LLS) (9 percent by number and 7 percent by power) and drifting longliners (LLD) (4 percent by number and by power).

(ii) Modernisation by gear type

Under the FIFG, funding for vessel modernisation was targeted at fishing vessels of five years of age or more, where alterations to improve safety on-board, working conditions, hygiene and product quality may increase the GT of the vessel "provided that such modernisation does not increase the ability of the vessel to catch fish". Exceptions are identified, however. For example, in Spain an increase in GT over the FIFG programme is shown in the trawling and lining vessels (2 percent and 1 percent, respectively) due to the construction of new spaces on-board for increasing the safety.

A total of 10,938 FIFG payments for modernisation measures were made to 7,781 different vessels, with some vessels receiving more than one FIFG grant.

The main spend on modernisation was on bottom otter trawlers (31 percent and 26 percent of total number and power, respectively), largely in Spain, France and Denmark. In Spain the vessels are mainly based in Santa Pola, Villajoyosa, Tarragona, Peñíscola and Castellón on the southeastern Spanish coast, on the Mediterranean, and Vigo on the northeast Atlantic coast. French bottom trawler modernisation was all for vessels in Brittany (Guilvinec and Saint-Nazaire) and the Channel coast (Dieppe, Boulogne and Caen). Danish OTB fleet modernisation has mostly occurred in Hanstholm, Thyborøn, Esbjerg and Hirtshals, all in Jutland.

Around one-half of all gillnetters modernised were from Spain, although they only represent one-quarter by total power as they tend to be smaller boats (53 kW against the fleet average of 109 kW), based in a variety of locations in northern Spain (Luarca and Bermeo) and southwest Spain (Tarifa and Conil). In Denmark these vessels were larger boats of around 213 kW, mainly from Hanstholm, Hvide Sande and Thyborøn, all in northwestern Jutland. Modernised French gillnetters were mostly based in southeast France on the Mediterranean coast.

Table 11: Main gear types for vessels modernised using FIFG funding 2000–2006

Main gear	Total no. (% of all vessels)	Total power kW (% of all vessels)	Av. power (kW)	Key Member States			
				MS	No. modernised (% of gear total)	Total power kW (% gear total)	Av. power (kW)
OTB	2,407 (31%)	744,093 (26%)	338	ES	1,155 (23%)	315,365 (25%)	273
				FR	922 (25%)	282,474 (23%)	306
				DK	759 (21%)	355,296 (29%)	468
				IT	303 (8%)	77,049 (6%)	254
GNS	1,890 (24%)	172,885 (6%)	109	ES	1,168 (48%)	61,941 (23%)	53
				DK	457 (19%)	97,424 (37%)	213
				FR	337 (14%)	53,304 (20%)	158
PS	597 (8%)	296,020 (10%)	540	ES	711 (74%)	327,404 (63%)	460
				FR	92 (10%)	96,885 (19%)	1 053
OTM	314 (4%)	160,728 (6%)	652	FR	121 (23%)	44,741 (16%)	370
				DK	77 (15%)	66,443 (24%)	863
Others	2,573 (33%)	1,530,559 (52%)					
Total	**7,781**	**2,904,285**					

Source: Poseidon analysis of EC FIFG database and Community Fleet Register.

A number of purse seiners were also assisted, mostly moderately sized (average 460 kW) vessels from the northeast Spanish ports of Bermeo, Fuenterrabia and Guetaria, as well as Barbate in southwestern Spain and Castellón in southeastern Spain. The smaller number of assisted French purse seiners tended to be much larger in power (average 1,053 kW) in Concarneau and Guilvinec in northwest France, probably targeting tropical tunas, Séte in Bayonne in southwest France, and Marseille on the Mediterranean.

The other gear type which received modernisation aid was mid-water otter trawls (OTM), mainly from France and Denmark. In France, the majority were from Séte in the Mediterranean, whilst the Danish vessels were from Esbjerg in west Jutland and Skagen on the northern tip of Jutland.

(iii) Scrapping by gear type

In numbers, nearly twice as many vessels were scrapped than built with FIFG assistance. Most of these were set longliners (29 percent by number but only 11 percent by power), of which almost three-quarters were from Greece. The majority of these (806) were from the mainland fleet (mainly from Thessaloniki), although 376 are small-scale (<12 m) vessels from Volos, again in the Aegean.

The set gillnet fleet saw a decline in capacity spread evenly across the Spanish and Greek fleets (including Spain, which saw most of the new GNS builds, see previous section). In the case of Spain this was mainly based in Ceuta, an autonomous city of Spain located on the North African side of the Strait of Gibraltar on the Mediterranean. In Greece two-thirds of these vessels were from the mainland fleet and one-third from the small-scale (<12 m) coastal fleet, also in the Aegean Sea.

Table 12: Key characteristics for vessels scrapped with FIFG assistance over 2000 –2006

Passive gear codes: GNS set gillnet (anchored); LLS set longlines; and LLD drifting longlines

Mobile gear codes: OTB bottom otter trawl; PS purse seine; OTM mid-water otter trawls

Main gear	Total no. (% of all scrapped vessels)	Total power kW (% of all scrapped vessels)	Av. power (kW)	Key Member States			
				MS	No. scrapped (% of gear total)	Total power kW (% gear total)	Av. power (kW)
LLS	1,693 (29%)	84,816 (11%)	50	GR	1,223 (72%)	48,544 (57%)	40
GNS	1,498 (26%)	96,512 (13%)	62	ES	458 (31%)	20,371 (21%)	44
				GR	422 (28%)	14,494 (15%)	34
				DK	138 (9%)	23,539 (24%)	171
OTB	1,287 (22%)	323,043 (43%)	249	IT	551 (43%)	98,140 (30%)	178
				FR	193 (15%)	48,607 (15%)	252
PS	354 (6%)	58,259 (8%)	165	ES	176 (50%)	34,521 (59%)	196
				IT	129 (36%)	10,445 (18%)	81
OTM	90 (2%)	32,704 (8%)	305	FR	22 (24%)	5,953 (18%)	271
				UK	11 (12%)	6,176 (19%)	561
				PL	10 (11%)	7,297 (22%)	730
Other gears	875 (15%)	147,398 (20%)					
Total	**5, 797**	**742,732**					

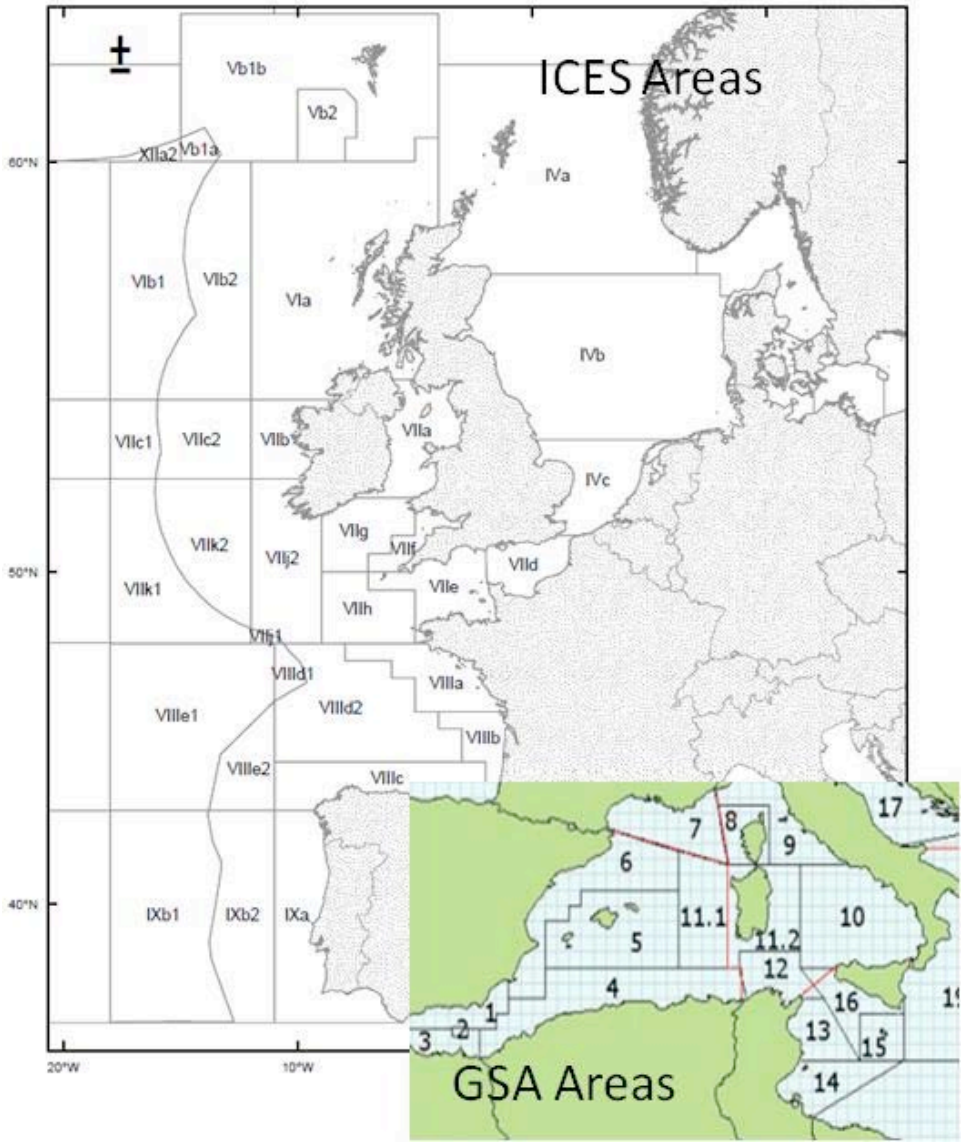
Source: Poseidon analysis of EC FIFG database and Community Fleet Register.

Most of the reductions in power (43 percent of total power capacity scrapped) were from the bottom trawl fleets of Italy and France. In Italy these were the mainland fleet from San Benedetto del Tronto in eastern Italy and Goro in northeastern Italy, both on the Adriatic. In France these were mainly mainland fleet vessels from Guilvinec in Brittany, as well as Caen and Boulogne on the Channel coast. Other reductions in capacity occurred though the scrapping of purse seine vessels (although new builds resulted in a net increase in total fleet power) and mid-water trawls by France and the UK.

Appendix E: Additional information on stock trend information and FIFG payments

The geographic limits of European fish stocks are identified by statistical areas. In the Atlantic and North Sea these have been established by the International Council for the Exploration of the Seas (ICES), which also coordinates fish stock assessments in this region. Likewise, the General Fisheries Commission for the Mediterranean (GFCM) Geographical Sub-Areas (GSAs) serve a similar purpose for the Mediterranean. These are shown in the figure below.

Figure 18: ICES and GFCM GSA Statistical Areas



European Hake (*Merluccius merluccius*)

Atlantic fisheries (ICES Divisions VIIIc and IXa) Based on the most recent estimates of spawning stock biomass (SSB)[55] in 2009, ICES classifies the southern hake stock as 'suffering reduced reproductive capacity' (ICES, 2009a), and based on the most recent estimate of fishing mortality (in 2008), the stock is at risk of being harvested unsustainably. Fishing mortality[56] has increased in recent years and is currently near the highest acceptable limit (F_{lim}) (where F is fishing mortality)[57]. The SSB and recruitment have increased in recent years, but recruitment in 2008 is lower than in previous years and estimated to be poor, the lowest in a 27-year time series (see Figure 19 on page 678). The implementation of the hake recovery plan has not been effective as fishing mortality has been increasing and the total allowable catch (TAC) has been greatly exceeded every year of the plan. Furthermore, discard rates are high. Hake is caught in mixed fisheries, together with megrim and anglerfish. Discards of juvenile hake are substantial in some areas and fleets.

Western Mediterranean fisheries (GFCM GSA 06 and 07) In the Mediterranean, hake is one of the most important target species for the Spanish and French trawl fisheries developed by around 647 vessels in GSA 06. Hake is sequentially exploited by bottom trawl, gillnet and longline in that order. Total biomass of the stock is decreasing slowly, being stabilised at around 8,000 tonnes (t). The stock is overexploited with no potential room for further expansion and a high risk of stock depletion/collapse (Martin, Recasens & Lleonart, 2008).

Hake is one of the most important demersal target species of the commercial fisheries in the Gulf of Lions (GSA 07). In this area, hake is exploited by French trawl, French gillnet, Spanish trawl and Spanish longline. Around 250 boats are involved in the fishery and, according to official statistics, total annual landings for the period 1998–2007 have oscillated around a mean value of 2,135 t. The fishery is overexploited, with a high fishing mortality and low stock abundance. There is growth overfishing, with risk of recruitment overexploitation, e.g. a decreasing trend in average SSB and recruitment. Fishing mortality has increased in recent years and is currently near the highest acceptable limit (F_{lim}). Based on the most recent estimates of SSB in 2009, ICES classifies the stock as 'suffering reduced reproductive capacity' (ICES, 2009a). The implementation of the hake recovery plan has not been effective – fishing mortality has been increasing and the TAC has been greatly exceeded every year of the plan.

FIFG support to this fishery Hake is targeted primarily by Spanish and French trawlers (OTB) and Spanish set gillnets (GNS). The 2000–2006 FIFG programme supported the construction of 853 Spanish set gillnetters and 461 Spanish trawlers. Over the same programme, 128 Spanish trawlers and 458 set gillnetters were scrapped. This represents a net increase in fishing capacity for the Spanish set gillnet fleet of 395 additional vessels and an additional 19,000 kW supported by FIFG funding – a near doubling of vessel numbers and overall fleet power in a fishery that is identified as being overexploited. The FIFG programme also supported the construction of 94

[55] Spawning stock biomass (SSB) is defined as the total weight of all sexually mature fish in the population. This quantity depends on year-class abundance, the exploitation pattern, the rate of growth, fishing and natural mortality rates, the onset of sexual maturity and environmental conditions.

[56] Defined as deaths in a fish stock caused by fishing.

[57] F_{lim} is the threshold for fishing mortality, anything below will drive the spawning stock to the biomass threshold.

F_{max} is the rate of fishing mortality for a given exploitation pattern rate of growth and natural mortality that results in the maximum level of yield per recruit. This is the point that defines growth overfishing.

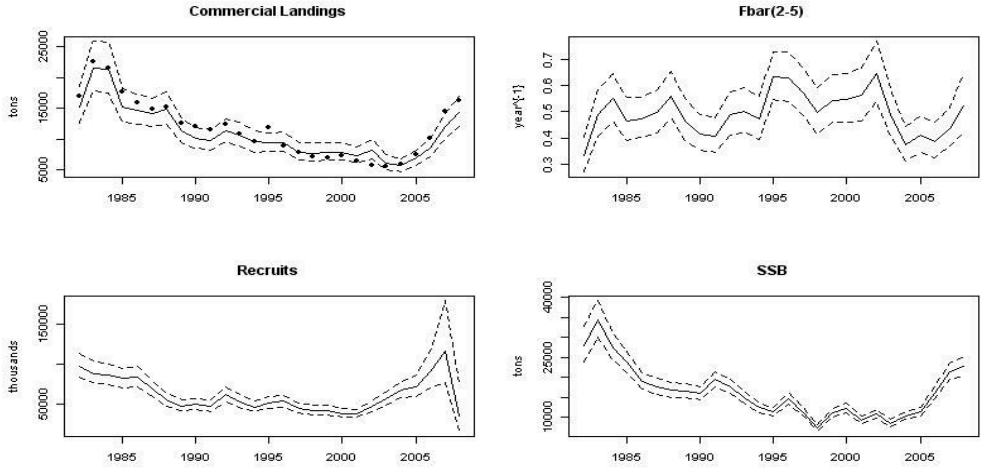
F_{MSY} is the rate of fishing mortality at maximum sustainable yield

F_{PA} is the precautionary fishing mortality rate

French trawlers that target this fishery, but 193 were scrapped, creating a net reduction in number and power (only 60 percent of the total power was replaced).

Figure 19: Hake in Divisions VIIIc and IXa (southern stock). Landings, fishing mortality, recruitment, and SSB

Observed landings are showed as dots, while estimated landings are given by line (median) and dashed lines (5 and 95 percent credibility intervals of the model).



Source: ICES, 2009a

Monkfish in the Bay of Biscay and Iberia Sea (VIIIc and IXa[58])

The stock of *L. piscatorius* in 2009 is estimated to be below a sustainable level (B_{MSY})[59] (where B is biomass) and, despite the decrease in fishing mortality since 2005, it was still estimated to be 1.6 times higher than sustainable levels in 2008. Hake, Nephrops, anglerfish and megrim are partly caught in the same mixed fisheries (ICES, 2009a). Since the implementation of the southern hake and Nephrops recovery plan in January 2006, fishing mortality of both anglerfish stocks has declined. Although combined landings have declined from 2006 onwards, the TAC has been exceeded every year since 2004 and is considered overfished[60].

FIFG support to this fishery Monkfish from this stock are mainly caught by Spanish and Portuguese trawl (OTB) and gillnet (GNS) fisheries. Around 60 (or 17 percent) of the Spanish bottom trawl new builds funded by FIFG are likely to be involved in this fishery, although some 28 such vessels were also scrapped with FIFG funding over the same period, suggesting that for this metier, FIFG has led to increased capacity in this fishery. In contrast, whilst around 85 (or 17 percent) Spanish gillnetters were constructed with FIFG assistance, some 286 gillnetters in this fishery were scrapped with FIFG assistance, contributing to the decline in fishing mortality noted in the paragraph above.

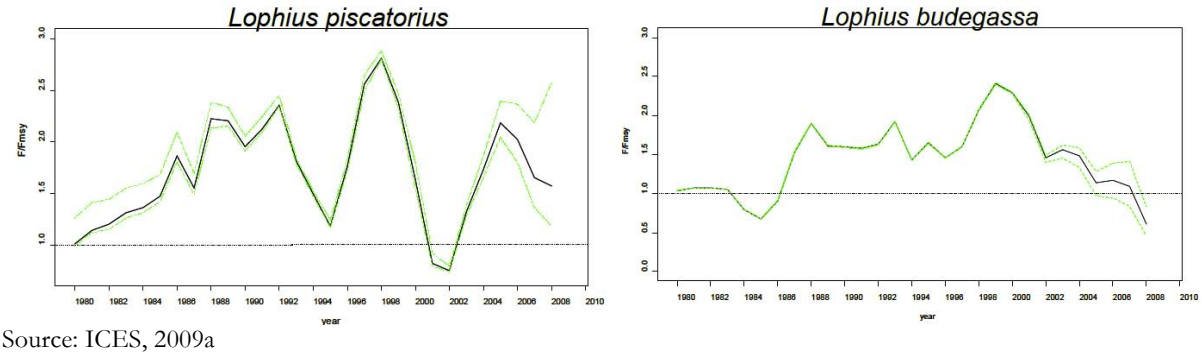
[58] Report of the Working Group on the Assessment of Southern Shelf Stocks of Hake, Monk, and Megrim. 5–11 May 2009 (ICES CM 2009/ACOM:08).

[59] Maximum Sustainable Yield (MSY) is defined as the largest average catch or yield that can continuously be taken from a stock under existing environmental conditions. (For species with fluctuating recruitment, the maximum might be obtained by taking fewer fish in some years than in others.) Also called: maximum equilibrium catch; maximum sustained yield; sustainable catch.

[60] COM(2009) 224, 12 May 2009

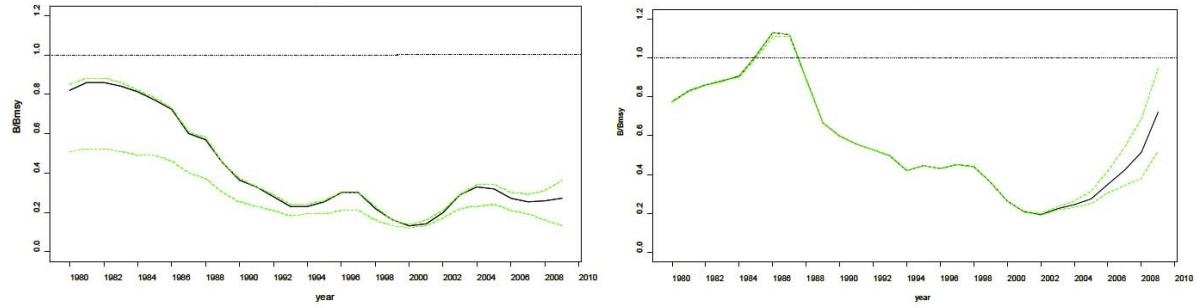
Figure 20: Fishing mortality (F/F_{MSY}) and biomass (B/B_{MSY}) ratios for anglerfish in the Bay of Biscay and Iberia Sea

A: Fishing Mortality (F/F_{MSY}) ratio



Source: ICES, 2009a

B: Biomass (B/B_{MSY}) ratio



Source: ICES, 2009a.

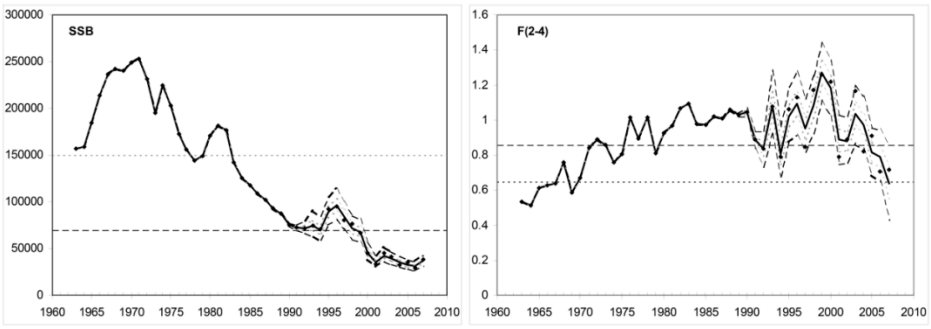
Atlantic cod in the North Sea, Eastern Channel and Skagerrak

Cod are taken by towed gears in mixed demersal fisheries, which include haddock, whiting, Nephrops, plaice and sole. Cod is targeted by a gillnet fishery primarily conducted by Denmark and the UK. Based on the most recent stock estimates, ICES classifies the stock as suffering reduced reproductive capacity (ICES, 2009b). The general perception of cod abundance remains unchanged, with a historical low in 2006. Spawning stock biomass has shown an increase since then but remains below safe limits (B_{lim}). Fishing mortality has shown a decline since 2000 and is currently estimated to be just below precautionary limits (F_{PA}). The 1997–2006 year-classes are all estimated to have been well below average. In the past years, emergency measures have been taken and an EU cod recovery plan implemented, resulting in a reduction in fishing mortality and a moderate increase in SSB.

FIFG support to this fishery The FIFG programme supported the construction of 94 French trawlers that would be targeting this fishery, but 193 were scrapped, creating a net reduction in number and power (only 60 percent of the total power was replaced). Similarly, over the programming period, FIFG supported the scrapping of 101 trawlers and 138 gillnetters from the Danish fleet, while supporting the construction of 24 trawlers and 14 set gillnetters. This appears to be one situation where the dire stock status of cod stocks has not been exacerbated by FIFG-funded vessel construction. The consequences of vessel modernisation for this fishery are, however, more difficult to determine.

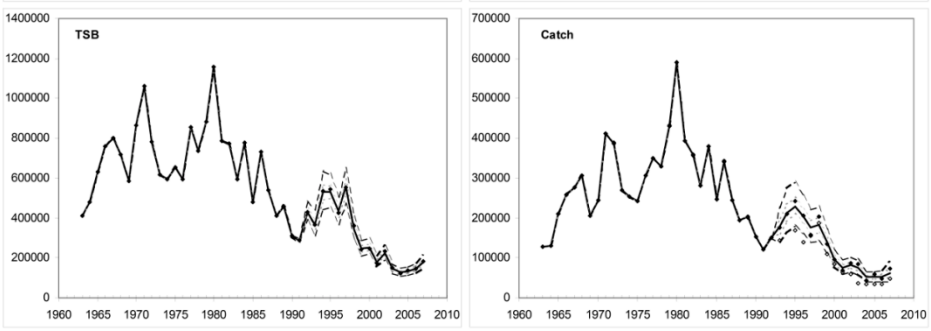
Figure 21: Cod (*Gadus morhua*) in Subarea IV (North Sea), Division VIId (Eastern Channel) and Division IIIa (Skagerrak)

A. Percentiles (5, 25, 50, 75, 95) of the estimated SSB (left) and mean fishing mortality for ages 2–4, F(2–4), (right) from the B-ADAPT base run. The heavy lines represent the bootstrap median, the light broken lines the 25th and 75th percentiles, and the heavy broken lines the 5th and 95th percentiles. The solid diamonds represent point estimates and the open diamonds given in the catch plot the recorded total catch. The horizontal broken lines in the SSB plot indicate B_{LIM} = 70,000t and B_{PA} = 150,000t, and those in the F(2–4) plot F_{PA} = 0.65 and F_{LIM} = 0.86.



Source: ICES (2009b)

B. Total stock biomass (TSB) (left) and catch (right) from the B-ADAPT base run.



Source: ICES (2009b)

Bluefin tuna *(Thunnus thynnus)* in ICES Division IXa and the western Mediterranean

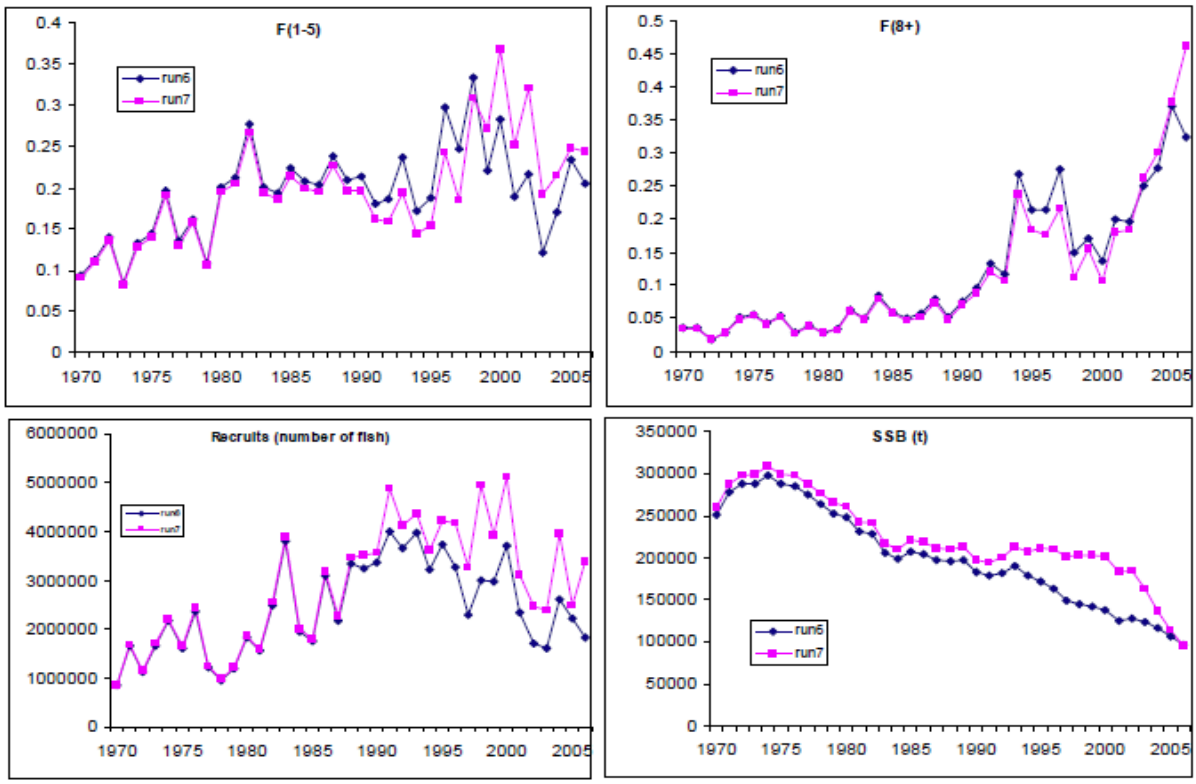
Atlantic bluefin tuna mainly live in the North Atlantic and its adjacent seas, primarily the Mediterranean Sea. The most recent assessment results from the International Commission for the Conservation of Atlantic Tunas (ICCAT) (ICCAT, 2008) indicate that the SSB has been declining rapidly for several years while fishing mortality has been increasing rapidly, especially for large bluefin. The increase in mortality for large bluefin tuna is likely due to a shift in targeting towards larger individuals destined for fattening and/or farming.

All the analyses indicate a general recent increase in fishing mortality for large fish and, consequently, a decline in SSB. Even in ICCAT's most optimistic evaluation, substantial overfishing is occurring and spawning biomass is well below levels needed to sustain the stock. The available information indicates that the current fishing mortality rate (under the current overall fishing pattern) is more than three times the level that would permit the stock to stabilise at the MSY level, and SSB is most likely to be about 36 percent or less than the level needed to support reaching B_{MSY}. Clearly, an overall reduction in fishing effort and mortality is needed to reverse current trends. Current fishing capacity largely exceeds the current TAC and has even increased over the last four years. Therefore, management actions are also needed to mitigate the impacts of overcapacity as well as to eliminate illegal fishing.

FIFG support to this fishery The 2000-2006 FIFG programme supported the construction of 853 Spanish set gillnetters, some of which would target bluefin tuna. Over the same programme, 458 set gillnetters were scrapped. This represents a net increase in fishing capacity for the Spanish set gillnet fleet of 395 additional vessels and an additional 19,000 kW supported by FIFG funding – a near doubling of vessel numbers and overall fleet power.

In southern France a number of vessels used to use thonaille nets to target bluefin tuna. Two were constructed with FIFG funds (*Prosper* 11m, 110 kW, constructed in 2000; *Orchidee II* 11.8m, 201 kW, constructed in 2004) and three (*Jean Emmanuel*; *Charcot; Tiki 2*) were modernised with FIFG funds (Cornax *et al.*, 2006). All these vessels were registered for set gillnets, trammel nets and surface longlines. FIFG funds were then subsequently applied for in order to scrap some of these vessels (MAP, 2006) following the repeal of the 2003 decree authorising the use of the thonaille by the French Conseil d'Etat in 2005. Furthermore, *de minimis* aid of up to €30,000 per vessel was granted over a three-year period (Oceana, 2008). The thonaille fleet received these subsidies in compensation for the loss of revenues derived from the cessation of the fleet's activities when the definition became effective in July 2007 (MAP, 2007a), with a total allocation of €2.5 million for the fleet. As a condition of receiving this aid, only the daily sales records or on-board diaries for 2006 and 2007 were necessary as proof of activity. A total of 90 vessels have proved prior use of the thonaille, and aid has been granted (MAP, 2007b).

Figure 22: Atlantic bluefin tuna fishing mortality (for ages 1 to 5 and 8+), SSBand recruitment estimates from VPA runs 6 (reported catch) and 7 (adjusted catch)



Source: ICCAT (2008).

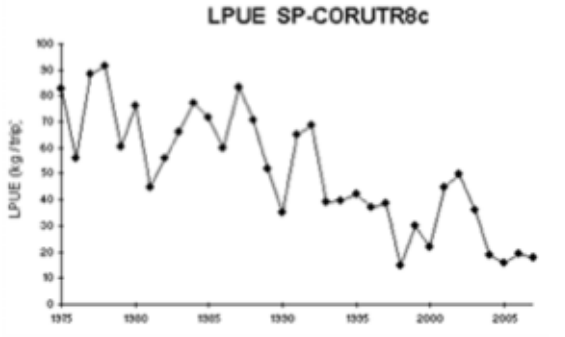
Nephrops in Division VIIIc (FU 25, 31) and IXa ((FU 26–30)

In Area VIIIc, landings per unit effort (LPUE) have fluctuated along a marked downward trend and are currently very low (ICES, 2009a). The fishing effort has been reduced in recent years, but increased slightly in 2007. This information indicates that the stock in north Galicia is at a very low abundance level and ICES currently advises a zero catch for the stock. The state of the stock in the Cantabrian Sea is also poor. A recovery plan for Iberian Nephrops stocks has been in force since the end of January 2006, with the aim of rebuilding stocks within 10 years, with a reduction of 10 percent in fishing mortality relative to the previous year.

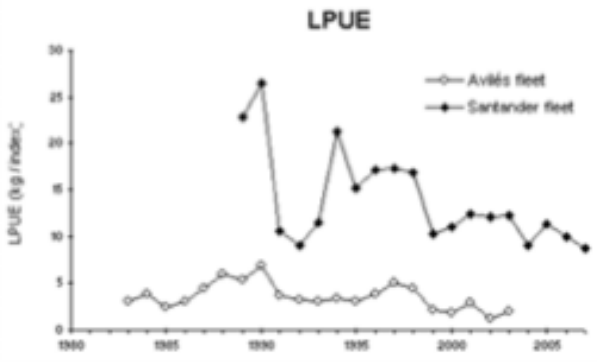
The situation for Area IXa stocks is mixed. In western Galicia and northern Portugal, landings have gradually declined since the 1980s and are now very low, and the stocks are at a very low level of abundance. Further south in Portugal, recruitment and SSB were sharply reduced in the early 1990s, although SSB has increased since 1996 and remained stable since 2001. Fishing mortality showed the same decline up to the mid-1990s.

FIFG support to this fishery Nephrops in these areas is targeted by the Spanish bottom trawl fleet as a minor part of a mixed fishery. During the 2000–2006 FIFG programme, 128 Spanish bottom trawlers were scrapped (totalling 48,641 kW), but nearly four times as many (461) were constructed (totalling 129,007 kW) an increase of 260 percent. Therefore, FIFG funding is likely to have hindered the recovery of these stocks.

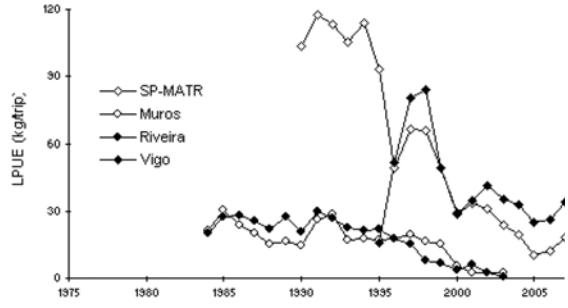
Figure 23: Nephrops in FUs 23–24 Bay of Biscay (Divisions VIIIa,b). Fishing mortality, recruitment and SSB



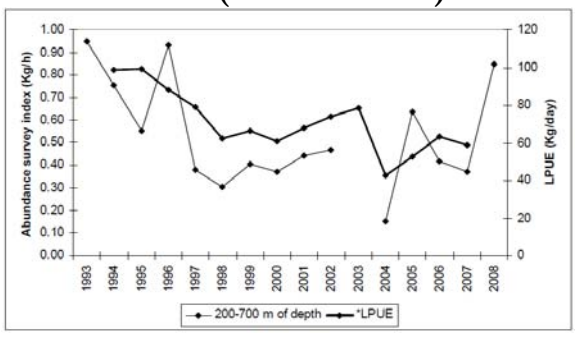
FU 25 (North Galicia)



FU 31 (Cantabrian Sea)



FUs 26+27 (W. Galicia and N. Portugal):



FU 30 (Gulf of Cadiz)

Source: ICES, 2009a.

Megrim (*Lepidorhombus boscii* and *L. whiffiagonis*) in Divisions VIIIc and IXa

Both megrim species are considered overfished in terms of fishing mortality and the long-term yield of the fishery. However, the TACs for combined megrim stocks have not been restrictive and the fishing mortality of both stock is above sustainable levels. Discards of megrim are substantial. For *L. whiffiagonis*, between 15 and 45 percent of the total catches in numbers are discarded. In the last two years discards of this stock have been very low, providing a further indication of low recruitment.

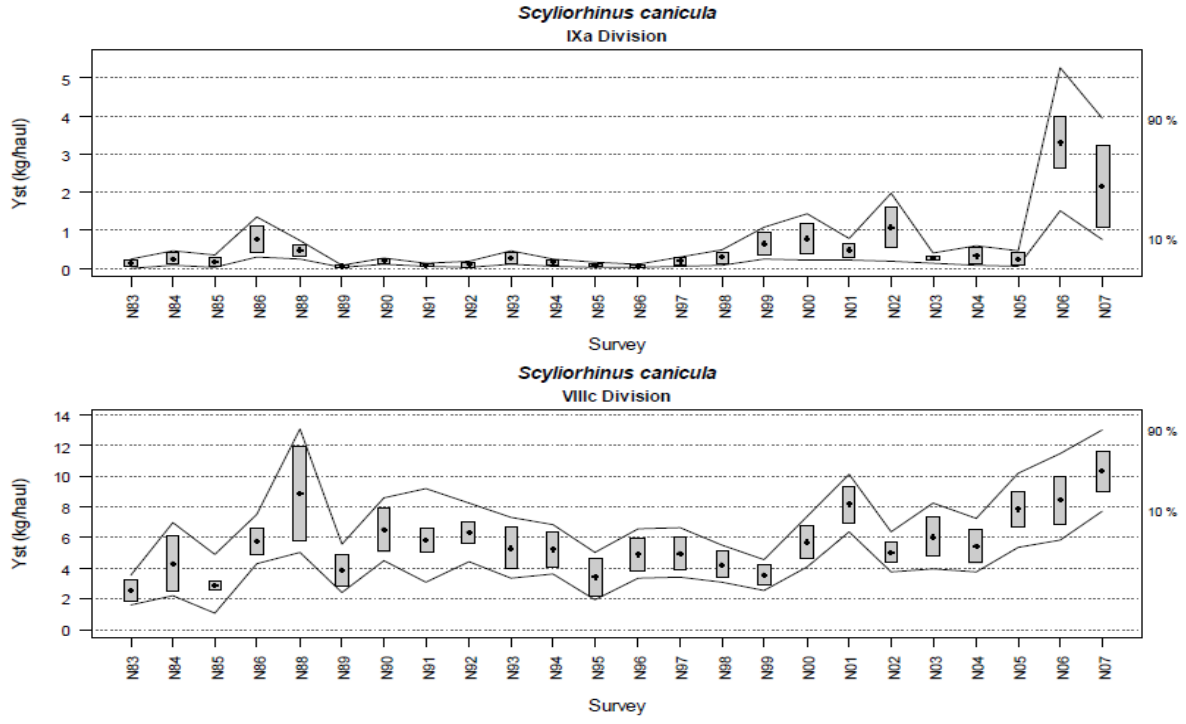
FIFG support to this fishery Megrim is targeted by the Spanish bottom trawl fleet. During the 2000–2006 FIFG programme, 128 Spanish trawlers were scrapped but nearly four times as many (461) were constructed. Over the last decade, the Spanish trawl fleet has changed its main target species, focusing more often on species such as horse mackerel, blue whiting or mackerel, where megrim is not taken in the catch, but the fleet still catches around 950 t of both species in the two management areas.

Sharks and rays (Elasmobranchs) in the Bay of Biscay and Iberian waters (ICES Subarea VIII and Division IXa)

Sharks and rays (Elasmobranchs) are landed as a bycatch in the Spanish bottom trawl fisheries of the Bay of Biscay and Iberian Sea. Elasmobranchs are typically slow growing, having a high age at maturity and a low reproductive capacity. These aspects of the biology, together with the limited information on stock status, indicate that a cautious approach to management is essential. Reported landings of skates (Rajidae) and lesser-spotted dogfish in the area seem stable or slightly declining in recent years (ICES, 2008a), which is partly a consequence of the Spanish trawl fleets' switch from demersal fisheries (megrim, hake, etc.) to small pelagics, as mentioned above.

Figure 24: Changes in lesser-spotted dogfish biomass indices in ICES Divisions IXa and VIIIc, from the Northern Spanish Coast Survey time-series, 1983–2007

Boxes mark parametric standard errors of the stratified abundance index. Lines mark bootstrap confidence intervals (□ = 0.80; bootstrap iterations = 1,000).



Source: ICES, 2008a.

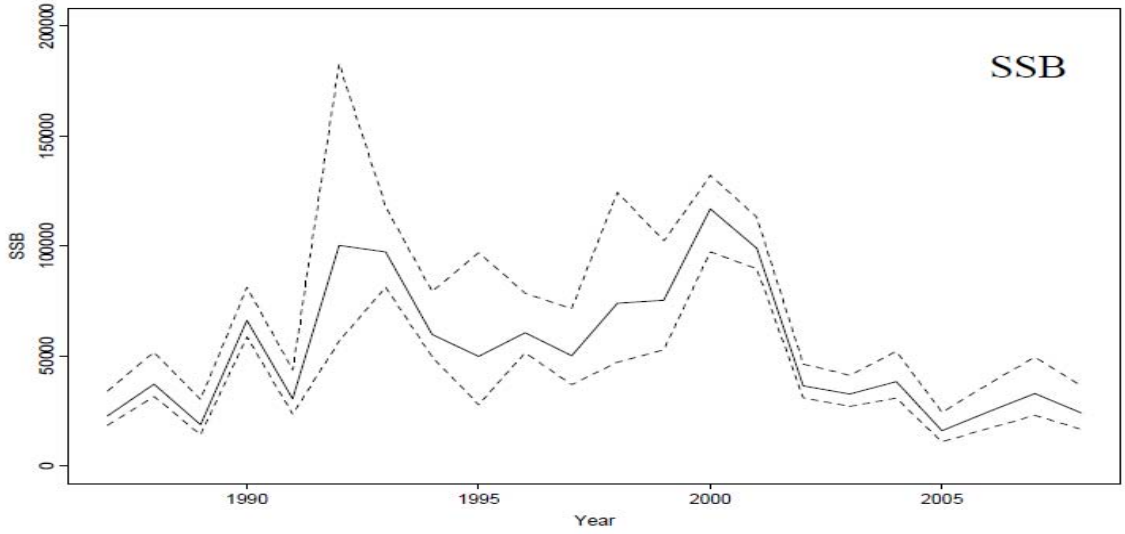
Anchovy (*Engrulis encrasicolus*) in ICES Division VIIIbc (Bay of Biscay) and ICES Division IXa (Gulf of Cadiz)

In June 2008 ICES advice stated that: "Based on the most recent estimates, ICES classifies the stock as being at risk of reduced reproductive capacity. The spawning stock in 2008 is estimated to have a 23% probability of being below precautionary limits. Low recruitment since 2002 and almost complete recruitment failure of the 2004 year class are the primary causes of the low stock size" (ICES, 2008b). In July 2005 the fishery was closed due to the low levels of biomass of the anchovy population and the failure of the fishery. Two fleets used to operate on anchovy in the Bay of Biscay: Spanish purse seiners (operating mainly during the spring) and the French fleet, which was comprised of purse seiners (operating mainly in spring and autumn) and pelagic trawlers (mainly during the second half of the year).

Much of the Spanish purse seine fleet fishing in the Gulf of Cadiz (ICES Div. IXa) targets the anchovy fishery. The ICES advice on this stock for the fishery in 2010 is maintained as: "Catches should be restricted to 4,800t (mean catches from the period 1988–2006 excluding 1995, 1998, 2001, and 2002, the years where catches were probably influenced by exceptionally high recruitment). This level should be maintained until the response of the stock to the fishery is known" (ICES, 2009c).

FIFG support to this fishery During the 2000–2006 FIFG programme, 175 Spanish purse seiners received FIFG assistance for construction, while 176 were scrapped. Although this represents one less vessel in the fleet by number, the overall power of the fleet more than doubled with 34,521 kW exiting the fleet and 78,232 kW entering the fleet. On a far smaller scale, 16 French purse seiners were assisted with construction, while only five received assistance for scrapping.

Figure 25: Anchovy in Ices Area VIII – spawning stock biomass trend



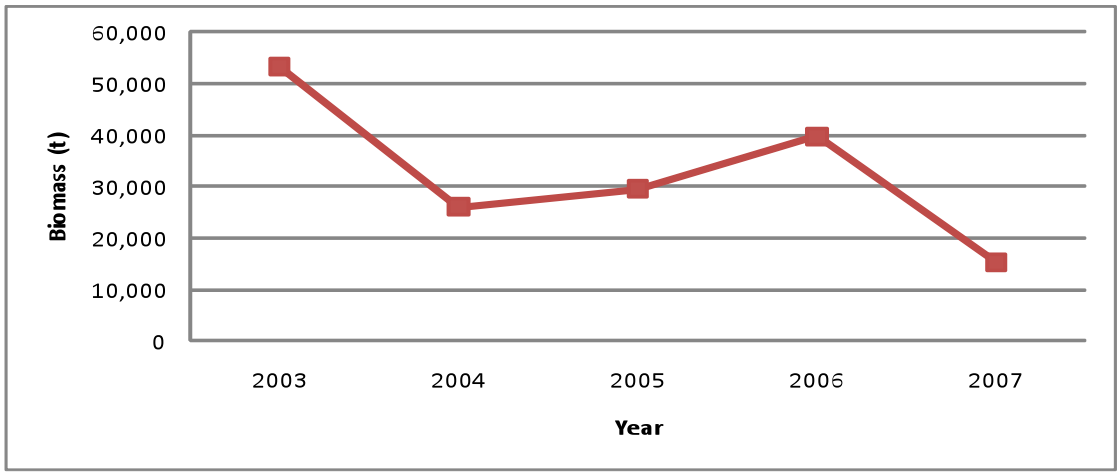
Source: ICES (2008b).

Sardine (GFCM GSA 01 (northern Alboran Sea) and 06 (northern Mediterranean Spain)

Sardine stocks are fully exploited. The fishery is operating at or close to an optimal yield level, with no expected room for further expansion. There is currently a high fishing mortality and intermediate abundance. There was a negative trend in biomass from 1992 as recruitment was very low from 1998 to 2000 and although the population appeared to recover in 2001 and 2003 it declined the four following years.

FIFG support to this fishery The sardine fishery is also mainly targeted by the Spanish purse seine fleet, which, with assistance from FIFG funding, increased in total power over the programme period.

Figure 26: Biomass of sardine in GSA 06 (2003–2007)



Source: Data derived from Giráldez *et al.*, 2008.