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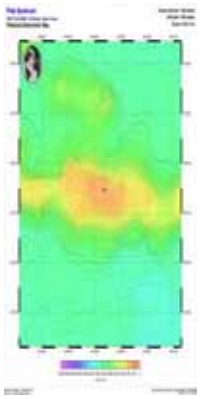
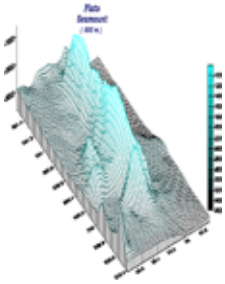
Analysis of the economic and social importance of Community fishing fleet using bottom gears in the high seas

Final Report





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Executive summary

This report presents a description of the Community fleet using bottom gears (fishing gears which are in contact with the seabed) on the high seas (waters located beyond national jurisdiction), together with an analysis of its economic and social importance. Where possible, the importance is disaggregated by fishing activities in Exclusive Economic Zones (EEZs), regulated high seas areas and unregulated high seas areas.

The need for this study arises from international moves to address the effects of fishing with bottom gears on vulnerable marine ecosystems and in view of a Communication on the EU policy in respect of this. Catches from deep sea fisheries increased by 440% between 1975 and 2005 (high seas and EEZs), compared to a 47% increase for global marine catches. There is growing concern over the impact of fishing using gears that come into contact with the seabed (bottom gears), in particular in deep-sea areas where vulnerable marine ecosystems including seamounts, hydrothermal vents and cold water corals are located.

The EU is an important stakeholder in high seas bottom gear (HSBG) fisheries: five of the eleven countries responsible for 95 % of the reported high seas bottom trawl catches in 2001 were EU Member States (Spain, Portugal, Latvia, Lithuania and Estonia). The key EU Member States considered in this report are Estonia, France, Ireland, Latvia, Lithuania, Poland, Portugal and Spain.

Although there is no commonly agreed definition for deep-sea species or fisheries, they occur at depths from 400 to over 2 000 metres, often on continental slopes or associated with seamounts, and the species are often slow-growing and vulnerable to over-exploitation. Deepwater species include orange roughy (*Hoplostethus atlanticus*), oreos (*Allocyttus* spp*., Pseudocyttus* spp.), alfonsinos (*Beryx* spp.), redfish (e.g. *Sebastes mentella, S. marinus*), roundnose and roughhead grenadiers (*Coryphaenoides rupestris* and *Macrourus berglax*), blue ling (*Molva dypterygia*), Greenland halibut (*Reinhardtius hippoglossoides*) and in the Southern Ocean, Patagonian toothfish (*Dissostichus eleginoides*).

In terms of fleet size, the level of fishing operations, gross value added and employment generation, the most significant EU HSBG fleets are those of Spain, Portugal and Estonia, followed by Lithuania and Latvia. The HSBG fleets of France, Ireland, and Poland are relatively small. Spain has by far the largest HSBG fishing fleet which is based in Vigo and the neighbouring ports of Cangas and Marin. While Vigo is the main landing port in the EU for HSBG-fished species, other significant landings by EU vessels are made outside the EU, notably in Canada, Iceland and Norway.

The main fishing areas for the EU HSBG fleets are the north Atlantic, mainly within the NAFO and NEAFC regulatory areas — areas 3L, 3M and 3N in NAFO and subdivisions VII and XII in NEAFC. Interactions with Vulnerable Marine Ecosystems (VMEs) in these areas are most likely around the Hatton and Rockall Banks area, where a large amount of EU fishing effort takes place and there are concentrations of cold water corals. These areas are, however, within regulated areas and several areas where bottom trawling is banned have already been established. Interactions with VMEs in other areas is likely to be limited, either due to their non-existence in the areas where fleets are fishing (e.g. SW Atlantic) or due to the relatively minor amount of EU effort in those areas (e.g. SE Atlantic).

The EU HSBG fishing fleet has historically directed most of its fishing effort in the north Atlantic (NEAFC and NAFO) in the period 1993–2005. There have also been significant catches by the EU HSBG fleet in the SW Atlantic, mostly by Spanish flagged vessels. Catches in the SW Atlantic peaked in 2001 and have subsequently declined. Fishing effort in NAFO has been fairly constant. EU HSBG catches in NEAFC peaked in 2001 and have subsequently declined. EU HSBG fishing effort in CCAMLR is limited to Spanish-flagged longliners targeting toothfish. Fishing effort in SEAFO has been more sporadic and accounts for only a minor proportion of the EU HSBG fleet's total catches.

The EU HSBG fleet is made up of 106 vessels (2006–2007), comprising 85 bottom trawlers and 21 longliners. They have a total gross tonnage (GT) of 98 870.8 and a total engine power of 129 891.1 kW. They represent 0.1 % of the European fleet by number, 5.1 % by tonnage and 1.8 % by power. Their average age is 23.8 years and average length is 51.9 m. Historical data on fleet size was not obtained from all countries in the study, so trends are difficult to establish. However, it appears that the number of vessels involved in HSBG fishing has increased over the last few decades, although increasing operating costs and decommissioning schemes is reducing these fleets in recent years.

Overall, EU HSBG fleets have been catching on average 70 000 tonnes of deep sea species in high seas areas (2004–2006), representing around 1.3 % of total EU catches. This has remained relatively steady over the last ten years, although catches peaked in 2001 with 146 468 tonnes. Spain and Portugal are responsible for the majority of EU HSBG catches (70 % by volume). However, in terms of relative importance to a states' total catches, Estonian and Portuguese HSBG catches are most important (8. %, over the period 1993–2005) followed by Spain (3.7 % over the period 1993–2005).

The main EU countries where deep sea species are landed are Spain, Portugal and the Netherlands, although Germany was important during the 1990s. On average, 392 600 tonnes per year of deep sea species were landed into EU ports over the period 2004–2006. This has declined from an average of 527 700 tonnes per year in 1993–1995, but increased from 177 300 tonnes per year in 1998–2000. The total value of these landings was € 562.9 million per year over the period 1993–2006, and they are currently worth € 824.9 million per year (2004–2006). For the EU as a whole, landings of deep sea species make up 1.5 % of landings of all species by volume and 0.25 % by value of the total of landings into EU ports (2004–2006).

Spain is the key EU player in HSBG fishing and these activities make a valuable contribution to the economy of the Galicia region in terms of value added, employment and food security. The gross value added from fishing activities generated by the Spanish HSBG fleet accounts for approximately 37 % of the total value added from all Galician based fishing activities in 2005/2006. Other players in HSBG fishing are Portugal, Estonia and Lithuania.

The EU HSBG fleet employed 5 053 people in 2007, representing 2.8 % of employment in the European catching sector. The majority of this employment is on bottom trawlers. 41 % is dependent on fishing activities in high seas with bottom gears (2 087 jobs), or 1.2 % of employment in the EU catching sector. The majority of employment on these fleets is of EU nationals (81.1 %), although this is declining.

Estimates of indirect employment generated from activities and catches of the EU HSBG fleets are difficult to obtain. However, the magnitude of processing

employment in the countries studied is probably of the order of 4 000–5 000, or 2.7–3.4 % of EU processing employment. Processing employment related to the HSBG fleets is largest in Spain, where it represents 10 % of employment in the processing sector. Indirect employment relating to port activities and vessel maintenance and repair is also important in Spain and Portugal, where vessels land their catches and come to port for repair and maintenance. The Baltic fleets rarely return to their home ports.

Economic and social benefits from EU HSBG fleets are also derived in non-EU countries, through direct employment, indirect employment, processing and other value-added activities. Direct employment on Baltic fleets benefits Russians, Ukrainians and Belarussians. Indirect benefits mainly accrue to the countries where catches are landed and processed, namely Canada, Iceland, Norway, and to a lesser extent, South Africa, Brazil and Uruguay.

Overall, the economic and social importance of Community HSBG fleets is relatively minor, compared to the EU fisheries sector as a whole. Nevertheless, in certain countries and regions, notably Spain and Portugal, it contributes significantly to catches, employment and value-added.

Sommaire

Ce rapport présente un descriptif de la flotte Communautaire utilisant des engins de fond (engins de pêche en contact avec le fond de mer) en haute mer (eaux situées hors juridiction nationale) ainsi qu'une analyse de son importance économique et sociale. Dans la mesure du possible, cette importance est désagrégée en activités de pêche dans les Zones Economiques Exclusives (ZEE), dans les zones de haute mer réglementées et dans les zones de haute mer non réglementées.

Le besoin de cette étude résulte de mouvements internationaux qui abordent les effets de la pêche à l'engin de fond sur les écosystèmes marins vulnérables (EMV) et en vue d'une Communication sur la politique de l'UE dans cette matière. Les prises en haute mer ont augmenté de 440% entre 1975 et 2005 (haute mer et ZEE) en comparaison avec une augmentation de 47% de la globalité des prises marines. Il y a un souci croissant sur l'impact de la pêche utilisant des engins qui entrent en contact avec le fond de mer (engin de fond), en particulier dans les zones de haute mer où se situent les écosystèmes marins vulnérables, y compris les montagnes sous-marines, les cheminées hydrothermales et les coraux d'eaux froides.

L'UE est un acteur important dans la pêche à l'engin de fond en haute mer (EFHM) : cinq des onze pays responsables de 95% des prises par chalutage en haute mer en 2001 étaient des Etats Membres de l'UE (l'Espagne, le Portugal, la Lettonie, la Lituanie et l'Estonie). Les principaux Etats Membres de l'UE considérés dans ce rapport sont : l'Estonie, la France, l'Irlande, la Lettonie, la Lituanie, la Pologne, le Portugal et l'Espagne.

Bien qu'il n'y ait pas de définition communément acceptée d'espèces ou de la pêche de haute mer, elles se présentent à des profondeurs de 400 à plus de 2000 mètres, souvent sur les pentes continentales ou en relation avec des montagnes sous-marines, et les espèces sont souvent à croissance lente et vulnérable à la surexploitation. Ces espèces d'eau profonde comprennent l'hoplostète orange (*Hoplostethus atlanticus*), les oréos (*Allocyttus* spp., *Pseudocyttus* spp.), le béryx (*Beryx* spp.), le sébaste (ex. *Sebastes mentella*, *S. marinus*), le grenadier de roche et le grenadier berglax (*Coryphaenoides rupestris* et *Macrourus berglax*), la lingue bleue (*Molva dypterygia*), le flétan noir (*Reinhardtius hippoglossoides*) et la légine australe (*Dissostichus eleginoides*) dans l'océan Antarctique.

Les flottes de l'UE les plus importantes en termes de taille de flotte, de niveau d'opérations de pêche, de valeur ajoutée brute et de création d'emploi sont celles de l'Espagne, du Portugal et de l'Estonie, suivies de la Lituanie et de la Lettonie. Les flottes EFHM de la France, de l'Irlande et de la Pologne sont relativement petites. L'Espagne a de loin la plus grande flotte de pêche EFHM, basée à Vigo et dans les ports voisins de Cangas et Marin. Tandis que Vigo est le port de déchargement principal de l'UE pour les espèces pêchées par EFHM, des déchargements substantiels par des navires de l'UE sont faits en dehors de l'UE, notamment au Canada, en Islande et en Norvège.

Les zones de pêche principales pour les flottes EFHM de l'UE sont l'Atlantique du Nord, principalement à l'intérieur des zones de réglementation de l'OPANO et de la CPANE, les zones 3L, 3M et 3N dans l'OPANO et les sous-divisions VII et XII dans la CPANE. Des interactions avec les EMV dans ces zones sont les plus probables dans les environs de Hatton Bank et de Rockall Bank, où une grande partie des efforts de pêche de l'UE a lieu et où se trouvent des concentrations de coraux d'eaux

froides. Ces zones sont cependant situées dans des zones réglementées et plusieurs zones d'interdiction de chalutage de fond ont déjà été établies. Les interactions avec EMV dans d'autres zones sont probablement limitées, soit par leur absence dans ces zones où les flottes pêchent (ex. l'Atlantique du Sud-ouest), soit puisque l'effort de pêche par la flotte UE est relativement mineure (ex. l'Atlantique du Sud-est).

La flotte de pêche EFHM de l'UE a dirigé la plupart de ses efforts de pêche dans l'Atlantique du Nord (OPANO et CPANE) sur la période 1993-2005. L'effort de pêche dans l'OPANO a été assez constant. L'effort de pêche dans l'Atlantique du Sud-ouest Est significant, la flotte espagnole représente la plupart des Espagnol. Les prises ont graduellement augmenté depuis 1993 jusqu'à un maximum en 2001, et ont depuis diminué. Les prises dans la CPANE ont aussi monté depuis de très bas niveau en 1993 jusqu'à une pointe en 200, mais ont plus tard en 2006. L'effort de pêche EFHM de l'UE dans la CCFFMA se limite aux palangres sous pavillon espagnol visant la légine australe. L'effort de pêche dans l'OPASE a été plus sporadique et compte pour seulement une proportion minime dans le total des prises de la flotte EFHM de l'UE.

La flotte EFHM de l'UE est composée de 106 navires (2006-2007), comprenant 85 chalutiers de fond et 21 palangriers. Ils ont un tonnage brut (TB) total de 98.870,8 et une puissance motrice totale de 129.891,1 kW. Ils représentent en nombre 0,1% de la flotte européenne, 5,1% en tonnage et 1,8% en puissance. Leur âge moyen est de 24,5 ans et la longueur moyenne est de 53,1 m. Des données historiques sur la taille de la flotte n'ont pas été obtenues pour tous les pays de cette étude donc les tendances sont assez difficiles à établir. Cependant il s'avère que le nombre de navires impliqués dans la pêche EFHM a augmenté pendant les dernières décennies, malgré la hausse des frais d'exploitation et les campagnes de déclassement qui autrement ont réduit les flottes de l'UE dans les dernières années.

Globalement, les flottes EFHM de l'UE ont pêché au moyen 70.000 tonnes d'espèces d'eau profonde dans la haute mer (2004-2006), ce qui représente environ 1,3% du total des prises de l'UE. Ceci a resté relativement constant au cours des dix dernières années, bien que les prises aient culminé en 2001 à 146.468 tonnes. L'Espagne et le Portugal sont responsables de la majorité des prises EFHM de l'UE (70% du volume). Cependant, en termes d'importance relative sur le total des prises par Etat, les prises EFHM sont les plus importantes pour l'Estonie et le Portugal (8%) suivi par l'Espagne (3,7%).

Les principaux pays de l'UE où les espèces d'eau profonde sont débarquées sont l'Espagne, le Portugal et les Pays-Bas, bien que l'Allemagne ait été importante pendant les années 1990. En moyenne, 392.000 tonnes par an d'espèces d'eau profonde ont été débarquées dans les ports de l'UE au cours de la période 2004-2006. Ceci a diminué par rapport à une moyenne de 527.700 tonnes annuelles en 1993-1995 mais a augmenté par rapport à 177.300 tonnes par an en 1998-2000. La valeur totale de ces débarquements était de 562,9 millions d'euros par an sur la période 1993-2006 et ont une valeur actuelle de 824,9 millions d'euros par an (2004-2006). Pour l'ensemble de l'UE, les débarquements d'espèces d'eau profonde constituent 1,5% du volume de débarquement de l'ensemble des espèces et 0,25% en valeur sur la totalité des débarquements dans les ports de l'UE (2004-2006).

L'Espagne est le pays le plus important dans l'UE pour les pêches EFHM et ces activités apportent une contribution précieuse à l'économie de la région de Galice en termes de valeur ajoutée, d'emploi et de sécurité alimentaire. La valeur ajoutée brute des activités de pêche générée par la flotte EFHM espagnole se monte

approximativement à 37% du total de la valeur ajoutée de toutes les activités de pêche de Galice en 2005/2006.

La flotte EFHM de l'UE employait 5.053 personnes en 2007, ce qui représente 2,8% de l'emploi dans le secteur européen des pêches. La majorité de ces emplois se retrouve sur les chalutiers de fond. 41% dépendent des activités de pêche de fond en haute mer (2.087 emplois) ou 1,2% de l'emploi dans le secteur des pêches de l'UE. La majorité d'employées de ces flottes sont des ressortissants de l'UE (81,1%), bien que ceci soit en déclin.

Il est difficile d'obtenir des estimations sur l'emploi indirect généré par les activités et les prises des flottes EFHM de l'UE. Cependant, l'emploi dans le secteur de la transformation dans les pays étudiés est probablement de l'ordre de 4.000-5.000 soit 2,7-3,4% de l'emploi dans ce secteur dans l'UE. L'emploi dans la transformation relatée aux flottes EFHM est le plus grand en Espagne où il représente 10% de l'emploi dans le secteur de la transformation. L'emploi indirect concernant les activités portuaires et le maintien et la réparation des navires est également importante en Espagne et au Portugal où les navires débarquent leurs prises et rentrent au port pour réparation et entretien. Les flottes de la Baltique reviennent rarement à leurs ports d'origine.

Des bénéfices économiques et sociaux des flottes EFHM de l'UE sont également générés dans des pays non-UE à travers l'emploi direct, l'emploi indirect, la transformation et autres activités à valeur ajoutée. L'emploi direct des flottes de la Baltique bénéficie aux Russes, aux Ukrainiens et aux Biélorusses. Les avantages indirects s'accroissent principalement dans les pays où les prises sont débarquées et transformées, à savoir le Canada, l'Islande, la Norvège et, dans une moindre mesure, l'Afrique du Sud, le Brésil et l'Uruguay.

De façon générale, l'importance économique et sociale des flottes EFHM de l'UE est relativement mineure comparée au secteur de la pêche de l'UE dans son ensemble. Néanmoins, dans certains pays et régions, elles contribuent de manière significative aux prises, à l'emploi et à la valeur ajoutée.

Resumen

Este informe presenta una descripción de la flota comunitaria que utiliza artes de fondo (artes de pesca que están en contacto con el fondo marino) en alta mar (aguas situadas más allá de las jurisdicciones nacionales), junto con un análisis de su importancia económica y social. En lo posible, la importancia se presenta desagregada por tipo de actividades pesqueras en zonas económicas exclusivas (ZEEs), en áreas de alta mar reguladas y en áreas de alta mar no reguladas .

La necesidad de este estudio surge de movimientos internacionales dirigidos a afrontar el problema de los efectos de la pesca con artes de fondo sobre ecosistemas marinos vulnerables y con vistas a una comunicación sobre la política de la UE al respecto. Las capturas de las pesquerías de aguas profundas aumentaron en un 440% entre 1975 y 2005 (en alta mar y ZEEs), comparadas con un incremento del 47% para las capturas marinas globales. Está creciendo la preocupación por el impacto de la pesca que utiliza artes que entran en contacto con el fondo marino (artes de fondo), en particular en áreas de aguas profundas en donde están localizados ecosistemas marinos vulnerables, incluyendo montañas submarinas, fuentes hidrotermales y corales de aguas frías.

La Unión Europea es un agente muy importante en las pesquerías de Alta Mar con Artes de Fondo (AMAF-HSBG): cinco de los once paises responsables del 95% de las capturas de la pesca de arrastre de fondo, declarada en 2001, eran miembros de la Unión Europea (España Portugal, Letonia, Lituania y Estonia). Los Estados Miembro significativos considerados en este informe son Estonia, Francia, Irlanda, Letonia, Lituania, Polonia, Portugal y España.

Aunque no hay una definición acordada conjuntamente acerca de lo que se consideran especies o pesquerías de profundidad, ambas suelen realizarse a profundidades comprendidas entre 400 y 2000 metros, a menudo en taludes continentales o asociadas con montañas submarinas, y las especies son normalmente de crecimiento lento y vulnerables a la sobreexplotación. Las especies de profundidad incluyen al Reloj Anaranjado (Hoplostethus atlanticus), Oreos (Allocyttus spp., Pseudocyttus spp.), Alfonsinos (Beryx spp.), Gallineta (e.g. Sebastes mentella, S. marinus), Granaderos (Coryphaenoides rupestris y Macrourus berglax), Maruca azul (Molva dypterygia), Fletan negro (Reinhardtius hippoglossoides) y Patagonian toothfish (Dissostichus eleginoides) en el Océano Antártico.

En términos de tamaño de flota, nivel de las actividades pesqueras, valor bruto añadido y creación de empleo, las flotas mas importantes de la UE son las de España, Portugal y Estonia, seguidas de Lituania y Letonia. Las flotas AMAF-HSBG de Francia, Irlanda y Polonia son relativamente pequeñas. España tiene con diferencia, la mayor flota AMAF-HSBG, con base en Vigo y los puertos vecinos de Cangas y Marin. Mientras Vigo es el mayor puerto de desembarco de la UE de especies capturadas por flotas AMAF-HSBG, también se hacen desembarcos significativos de buques de la UE fuera de la UE, principalmente en Canadá, Islandia y Noruega.

Las principales áreas de pesca de las flotas AMAF-HSBG de la UE son las del Atlántico Norte, principalmente en las áreas reguladas de NAFO y NEAFC; áreas 3L, 3M y 3N en NAFO y subdivisiones VII y XII en NEAFC. Las interacciones más probables con Ecosistemas Marinos Vulnerables (EMV) en estas áreas son en torno

a los bancos de Hatton y Rockall, donde tiene lugar una gran cantidad de esfuerzo pesquero y hay grandes concentraciones de corales de aguas frías. Estas áreas están sin embargo dentro de zonas reguladas y ya han sido establecidas varias zonas donde la pesca de fondo está prohibida. Es probable que las interacciones con EMV en otras áreas sean reducidas, ya sea por su inexistencia en las áreas donde faenan las flotas (ej. Atlántico SW) o debido a un esfuerzo pesquero relativamente menor en esas áreas (ej. Atlántico SE).

La flota AMAF-HSBG de la UE se compone de 106 buques (2006-2007), de entre los cuales 85 son de arrastre de fondo y 21 de palangre, con un tonelaje bruto (GT) de 98 870.8 y una potencia total de 129.891,1 KW. Así mismo representan el 0,1% de la flota Europea en número, el 5,1% en tonelaje y el 1,8 % en potencia. Su edad media es de 24,5 años y la eslora media es de 53,1 m. No se pudieron conseguir datos históricos del tamaño de la flota de todos los países objeto del estudio, por lo que es difícil fijar tendencias. No obstante, parece que el número de buques envueltos en pesca AMAF-HSBG ha aumentado en las últimas décadas, a pesar de que en los últimos años, el aumento de los costes operativos y de los programas de desguace están reduciendo estas flotas.

Globalmente, las flotas AMAF-HSBG de la UE han capturado un promedio de 70.000 toneladas de especies de profundidad en zonas de alta mar (2004–2006), representando alrededor del 1,3% del total de las capturas de la UE. Esta situación se ha mantenido relativamente estable en los últimos diez años, aunque las capturas alcanzaron su máximo en 2001 con 146.468 toneladas. España y Portugal son responsables de la mayor parte de las capturas AMAF-HSBG de la UE (70% del volumen). Sin embargo, en términos de importancia relativa al total de las capturas de cada Estado, las capturas AMAF-HSBG de Estonia y Portugal son las más importantes (8%) seguidas de las de España (3,7%).

Los principales países de la UE donde se descargan especies de fondo son España, Portugal y los Países Bajos, aunque Alemania fue importante en este aspecto durante los noventa. Durante el período 2004–2006 fueron desembarcadas un promedio de 392.600 toneladas de especies de profundidad por año en puertos de la UE, representando un descenso con respecto al promedio de 527.700 toneladas por año en 1993–1995, y un aumento en relación a las 177.300 toneladas por año en 1998–2000. El valor total de estos desembarques fue de 562,9 millones de euros por año durante el período 1993–2006, y actualmente es de 824,9 millones de euros por año (2004–2006). Para la UE en conjunto, los desembarcos de especies de profundidad suponen un total del 1,5% de los desembarcos de todas las especies en volumen y un 0,25% del valor del total de desembarcos en puertos de la UE (2004–2006)

España es el principal país de la UE en pesca AMAF-HSBG y estas actividades son una valiosa contribución a la economía de Galicia en términos de valor añadido, empleo y seguridad alimentaria. El valor bruto añadido generado por las actividades pesqueras de la flota española AMAF-HSBG representa aproximadamente el 37% del valor añadido total de todas las actividades de pesca gallegas en 2005/2006.

Las flotas AMAF-HSBG de la UE emplearon a 5.053 personas en 2007, lo que representa el 2,8% del empleo en el sector Europeo extractivo. La mayoría de este empleo es en buques arrastreros de fondo. El 41% depende de las actividades pesqueras AMAF-HSBG (2.087 empleos), o el 1,2% del empleo en el sector extractivo de la UE. La mayoría del empleo en esas flotas es de ciudadanos de la UE (81,1%), aunque esto está disminuyendo.

Es difícil hacer una estimación del empleo indirecto generado por las actividades y por las capturas de la flota AMAF-HSBG de la UE. Sin embargo, el volumen del empleo en las actividades de procesamiento en los países estudiados es probablemente del orden de 4.000-5.000, o el 2,7–3,4% del empleo de la UE en procesamiento. El empleo del procesado relacionado con flotas AMAF-HSBG es mayor en España, donde representa el 10% del empleo en el sector del procesado. El empleo indirecto relacionado con actividades portuarias y el mantenimiento y reparación de buques es también importante en España y Portugal, donde los buques desembarcan sus capturas y vienen a puerto para realizar reparaciones y mantenimiento. Las flotas del Báltico raramente vuelven a su puertos de origen.

Los beneficios económicos y sociales de la flota AMAF-HSBG de la UE también se derivan a terceros países, mediante empleo directo, empleo indirecto, transformación y otras actividades de valor añadido. El empleo directo en flotas bálticas beneficia a rusos, ucranianos y bielorrusos. Los beneficios indirectos principalmente se acumulan en los países de desembarco y procesado, principalmente Canadá, Islandia, Noruega, y en menor medida, Sudáfrica, Brasil y Uruguay.

En definitiva, la importancia económica y social de la flota AMAF-HSBG es relativamente minoritaria, comparada con el conjunto del sector pesquero de la UE. No obstante, en ciertos países y regiones, contribuye de forma significativa a las capturas, el empleo y generación de valor añadido.

Contents

Abbreviations and acronyms

Abbreviation/Acronym	Meaning
BG	Bottom gear
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CECAF	Central Eastern Atlantic Fisheries Commission
COFI	FAO Committee on Fisheries
DCR	Data Collection Regulation
EEZ	Exclusive Economic Zone
EU	European Union
FAO	Food and Agricultural Organisation of the United Nations
FICZ	Falkland Islands Inner Conservation Zone
FOCZ	Falkland Islands Outer Conservation Zone
FPA	Fisheries Partnership Agreement
FTE	Full time equivalent (employment)
GRT	Gross registered tonnage
GT	Gross tonnage
HS	High seas
HSBG	High seas bottom gear
ICES	International Council for the Exploration of the Sea
kW	Kilowatt
LLD	Deep-set longline
LLS	Surface longline
MGO	MG Otero
MRAG	Marine Resources Assessment Group
MS	Member state
NAFO	North West Atlantic Fisheries Organisation
NEAFC	North East Atlantic Fisheries Commission
NGO	Non governmental organisation
OTB	Bottom trawl
PTB	Paired trawl
PTP	Permiso Temporal de Pesca
RFMO	Regional Fishery Management Organisation
SEAFO	Southeast Atlantic Fisheries Organisation
SGPM	Secretaría General de Pesca Marítima
t	Tonnes
UNCLOS	United Nations Convention on the Law of the Sea
UNGA	United Nations General Assembly
VMEs	Vulnerable Marine Ecosystems
VMS	Vessel Monitoring System
WGDEEP	Working Group on the Biology and Assessment of Deep Seas Fisheries Resources

1 Introduction

Catches from deep sea fisheries increased by 440% between 1975 and 2005 (high seas and EEZs), compared to a 47% increase for global marine catches[1]. Large areas of these fisheries are in the high seas (HS) beyond national jurisdiction. There is growing international concern over the impact of fishing using gears that come into contact with the seabed (bottom gears, BG), in particular in deep-sea areas where vulnerable marine ecosystems including seamounts, hydrothermal vents and cold water corals are located.

Although there is no commonly agreed definition for deep-sea species or fisheries, they occur at depths from 400 to over 2 000 metres, often on continental slopes or associated with seamounts, and the species are often slow-growing and vulnerable to over-exploitation. Deepwater species include orange roughy (*Hoplostethus atlanticus*), oreos (*Allocyttus* spp., *Pseudocyttus* spp.), alfonsinos (*Beryx* spp.), redfish (e.g. *Sebastes mentella, S. marinus*), roundnose and roughhead grenadiers (*Coryphaenoides rupestris* and *Macrourus berglax*), blue ling (*Molva dypterygia*), Greenland halibut (*Reinhardtius hippoglossoides*) and in the Southern Ocean, Patagonian toothfish (*Dissostichus eleginoides*).

Five of the eleven countries responsible for 95 % of the reported high seas bottom trawl catches in 2001 were EU Member States: Spain, Portugal, Latvia, Lithuania and Estonia (Gianni, 2004). The other major countries were Russia, Iceland, Norway, Faroe Islands, New Zealand and Japan.

Deep-water fisheries started in the late 1970s, developing rapidly from the 1990s onwards, as a result of three factors (Maguire *et al.* 2006):

- reduction of fishing opportunities in shallower waters, due to depletion of species and stocks, and the extension of national jurisdictions under the United Nations Convention on the Law of the Sea (UNCLOS) in the 1970s;
- the high value of some deep-water species;
- advances in fishing technology that allow fishing at greater depths.

Often these fisheries occur on the high seas, beyond national jurisdiction, and in many cases management has not been able to keep up with their development. In its 61st session in December 2006, the United Nations General Assembly called upon states to 'take action immediately, individually and through regional fisheries management organizations and arrangements … [to] protect vulnerable marine ecosystems … from destructive fishing practices' (UNGA, 2007). It also reiterated the importance of its resolution 59/25 (UNGA, 2005) concerning the impacts of fishing on vulnerable marine ecosystems, including the consideration of an interim prohibition of bottom trawling on the high seas.

A number of states have proposed measures for consideration in the UN and in relevant RFMOs which would require a ban on all high seas deep water bottom trawling, or an immediate freeze on the footprint of high seas bottom trawling and a requirement for states and RFMOs to conduct environmental impact assessments for the future continuance of these fisheries or the development of new ones. There is considerable NGO pressure for this move (e.g. Deep Sea Conservation Coalition).

The UN Food and Agriculture Organization (FAO) is developing Draft International Guidelines on the Management of Deep-sea Fisheries in the High Seas. These were

[1] FAO data: source UN Food and Agriculture Organization, www.fao.org

prepared at an Expert Consultation in Bangkok in September 2007 and discussed at a Technical Consultation in February 2008. They will be submitted to the Committee on Fisheries (COFI) for discussion and endorsement in 2009.

In turn, the European Community has adopted measures to protect deep sea ecosystems in European waters, and has tabled proposals for measures in relevant regional fisheries management organisations RFMOs. The European Commission (EC) has proposed a regulation applying to EU vessels operating in the high seas in areas that are not subject to regulation by RFMOs (COM(2007) 605 final). Fishing would be restricted to a maximum of 1 000 metres depth and would require a permit, that would only be issued if an assessment determines that there is no risk of significant adverse impacts on vulnerable marine ecosystems.

This report aims to increase understanding of the spatial, temporal and depth distribution of EU fishing effort using bottom gears on the high seas, and to assess the economic and social importance of these high seas bottom gear (HSBG) fleets. This will facilitate in establishing the potential impact of any moratorium on high seas bottom gear fishing, or restrictions on fishing in unregulated high seas areas beyond certain depths.

This document reports on work carried out under contract FISH/2006/17 by a consortium led by MRAG Ltd and comprising MG Otero Consultores S.L. and Polish Environmental Management Sp. z o.o. (PolEM), between November 2007 and February 2008.

1.1 High seas fishing areas

High seas areas lie beyond national jurisdiction (EEZs) and fisheries in some of these areas fall under the competence of Regional Fisheries Management Organisations (RFMOs). RFMOs with the competence to regulate fisheries for highly migratory stocks such as tuna cover most of the world's ocean areas where those fisheries occur, but RFMOs do not always have the competence to regulate fisheries for demersal (bottom) species. Thus, HSBG fisheries may occur in both regulated areas (covered by an RFMO with competence for demersal stocks) and unregulated areas (no RFMO, or RFMO does not have competencies to regulate demersal species).

Figure 1 shows high seas regulated and high seas unregulated areas. It is those fishing activities that occur in high seas unregulated areas that may be subject to a moratorium on bottom trawling. High seas regulated areas already impose some restrictions on bottom trawling, such as areas closed to trawling to protect VMEs.

Detailed maps of NAFO and NEAFC RFMO areas, where the majority of EU high seas fishing effort takes place, are provided in Figure 2 and Figure 3.

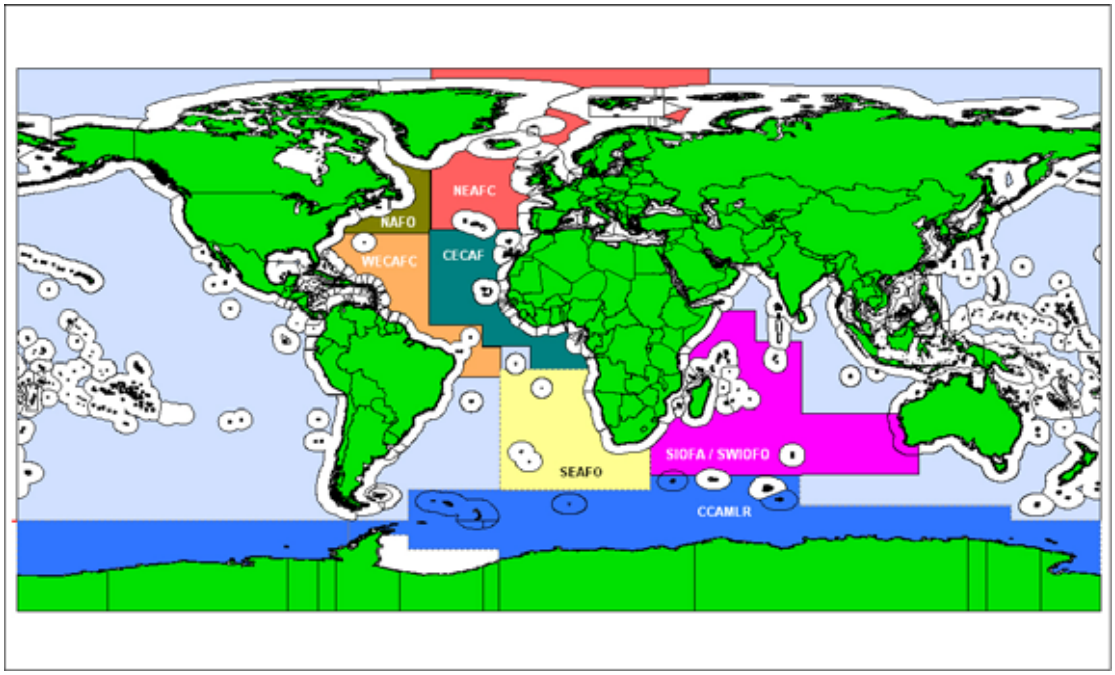


Figure 1 Map showing high seas regulated (various colours) and unregulated (light blue) areas for demersal fishing activities

Figure 2 Map of the North Atlantic Fisheries Organisation (NAFO) regulatory area, with sub-divisions and depth contours.

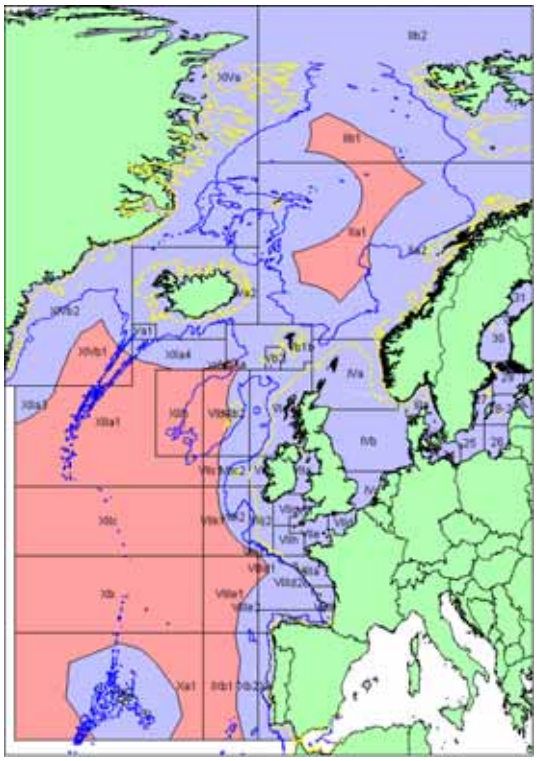


Figure 3 Map showing the Northeast Atlantic Fisheries Commission (NEAFC) regulatory area, with ICES subdivisions and depth contours. High seas areas are highlighted in pink.

2 Study approach and methodology

The aim of the study is to present a description of the Community fleet using bottom gears (fishing gears which are in contact with the seabed) on the high seas (waters located beyond national jurisdiction), together with an analysis of its economic and social importance. This is in response to international moves to address the effects of fishing with bottom gears on vulnerable marine ecosystems and in view of a Communication on the EU policy in respect of this.

The specific objectives were:

- To describe the Community fishing fleets using bottom gears in the high seas, including characteristics of the vessels, species targeted, location and types of fishing grounds, flag states and ports used;
- To quantify the economic importance of the Community fishing fleet using bottom gears in the high seas, including volume of catches, value, operating and fixed costs etc., by type of vessel, species targeted and flag state;
- To quantify the social importance of the Community fishing fleets using bottom gears in the high seas, including volume and characteristics of employment by type of vessel, species targeted and flag state, as well as indirect employment in the processing industry, inside and outside the European Union.

The above should also draw a distinction between areas subject to regional fishery management organisations (RFMOs) and unregulated areas.

A multi-disciplinary team was established to address: fleet descriptions and fisheries catches and landings, economic aspects, and social aspects, in accordance with the objectives above. The team comprised experts based in Spain, Portugal, the UK and the Baltic, to make the necessary contacts to obtain data on the high seas bottom gear fleets in each Member State.

The key Member States were identified through knowledge on the fisheries, Eurostat landings database, RFMO catch databases to identify flag states catching deep sea species in high seas areas, and discussions with industry. These Member States were confirmed with the Commission in the Inception Meeting. The focus Member States were Estonia, France, Ireland, Latvia, Lithuania, Poland, Portugal and Spain.

2.1 Data sources and analysis

2.1.1 Examination of fleet size and power

The latest version of the 'EU Register of Fishing Vessels' was obtained from Eurostat. The Register of Fishing Vessels provides a record of all EU vessels over time. Data on the total number, tonnage and power of the EU fleet by Member State were taken from the 'Geographical distribution of the fleet: European Union', part of the EU electronic publication 'Facts and Figures on the EU Fishing Fleet'[2] and data on the total EU fleet were taken from Eurostat (2007).

Estimates were derived of the total fleet size (in terms of numbers and power) from each EU Member State as well as those vessels that may have the potential to fish in deep water areas based on specific vessel characteristics. These were: for bottom trawlers, 400 GT or more and 30 m length or more; for bottom longliners and

[2] Available at http://ec.europa.eu/fisheries/fleetstatistics/index.cfm?lng=en (accessed February 2008). Last update: 19/12/2007.

gillnetters, 220 GT or more and 30 m length or more. These data, when combined with the actual number of active vessels from national and RFMO datasets of vessels, show the proportions of the fleet that are capable of and that are actively fishing for deep sea fish on the high seas.

2.1.2 Catch data

The key species targeted by HSBG fleets were identified through an analysis of the information about deep-sea species catches of EU Member States from official EU publications. FAO reports on deep-sea fisheries in the areas in which the EU HSBG fleets operate, along with the reports and databases of the RFMOs with competency for deep-sea fisheries, were also used to identify deep sea species that may be landed into the EU.

The latest scientific reports and databases for the relevant RFMOs (ICES (for NEAFC), NAFO, SEAFO and CCAMLR) were downloaded. These reports and databases were analysed to identify those EU Member States catching deep-sea species. Catches were also obtained from national fisheries authorities for other areas.

The NAFO Statlant 21 B database was the only catch database to record the gear type used to make catches, leading to direct identification of catches made by bottom gears. Consultation with industry and governmental institutions was used to identify target species for each Member States' HSBG fleet. Failing this, recorded catches of deep-sea species, often targeted by bottom gears, were assumed to have been caught with bottom gears. This was done under the constraint of an appropriate depth range for bottom gear fishing in the area of recorded catches.

The catch databases contain very few catches recorded for exclusively high seas areas; instead catches are reported for regions straddling high seas and EEZs. A variety of methods were used to split these catches into high seas and EEZ proportions, with the most appropriate method chosen on a case-by-case basis. Interviews with governmental institutions and industrial contacts often provided a method for this disaggregation in the absence of other information, for example VMS data. These data provided the basic framework of the identification of the fisheries units upon which more detailed examinations of the fisheries have been concentrated. Further detail of the method used for each Member State is provided in Section 7.

The importance of each Member State's HSBG fleet has been calculated as a percentage of the Member State's total catches per year that are accounted for by HSBG catches.

A breakdown of total catches by the HSBG fleet per Member State is included, giving total annual catches for EEZ and regulated and unregulated high seas areas. The split between high seas (regulated), high seas (unregulated) and EEZ catches was used to apportion relevant economic and social indicators for the fleets to the proportion dependent on high seas catches, for those fleets that split their effort between high seas and EEZ areas.

Data on total catches of each Member State were taken from the FAO Fishstat Capture production dataset 1950–2005 (release date March 2007). An indication of trends of demersal deep-sea catches of each Member State was obtained from the above FAO dataset, for the following species groups: cods, hakes, haddocks;

flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

2.1.3 Landings – landing weight and landing price data

The latest version of the EU landings database was obtained from Eurostat. This provides a record of all landings into the EU in terms of weight (tonnes), value (€) and value per tonne (€). Average landed prices per species per year were calculated from available data in the Eurostat landings database. These prices were used to estimate the landed value Member States' HSBG catches. The landings data were also used to determine the importance of deep sea fisheries to the ports and processing facilities in each EU Member State.

2.1.4 Trade data

A subset of the EU import and export dataset was obtained from Eurostat for all product codes relating to deep sea species (e.g. 3026931 for "FRESH OR CHILLED REDFISH "SEBASTES MARINUS" for the years 2001–2006. The Import / Export database provides a record of all imports and exports from the EU by product, year in terms of weight (t) and value (€).

2.1.5 Vulnerable marine ecosystems data

Global georeferenced datasets relating to the occurrence of deep water corals and the location of all seamounts were obtained from organisations such as the Zoological Society of London (UK), the University of Plymouth (UK) and the University of British Columbia (Canada).

These datasets along with data on those areas already indentified and protected, such as those protected under Council Regulation (EC) No 602/2004[3] have been georeferenced using mapping software. These datasets are combined with fishing effort plots (from VMS data or plots of fishing effort by area) to identify any areas of potential interaction between EU HSBG fleets and Vulnerable Marine Ecosystems (VMEs).

2.1.6 Country visits

Country visits were made by team members to the Baltic states of Estonia, Latvia and Lithuania, where meetings with fisheries authorities, fishing companies, processing companies and fisheries associations were held, to explain the objectives of the project and obtain relevant data and information. These visits took place from 14–18 January 2008. Similar meetings were undertaken throughout the duration of the project in Spain and Portugal by Consortium partners. Other countries (France, Ireland) were contacted by telephone, letters and email.

2.1.7 Economic and social data

The economics component of the study was concerned with data relating to the financial operating performance of the HSBG fleets of selected EU Member States. The key economic parameters were based on the economic indicators defined in the Data Collection Regulation (DCR) (1581/2004)[4]: the capital value of the vessels,

[3] Council Regulation (EC) No 602/2004 of 22 March 2004 amending Regulation (EC) No 850/98 as regards the protection of deepwater coral reefs from the effects of trawling in an area north west of Scotland

[4] Commission Regulation (EC) No 1581/2004 of 27 August 2004 amending Regulation (EC) No 1639/2001 establishing the minimum and extended Community programmes for the collection of data in the fisheries sector and laying down detailed rules for the application of Council Regulation (EC) No 1543/2000.

fixed and variable costs, gross value added and profitability. Within these costs, where available data on crew, fuel and vessel repair costs were obtained.

For Estonia, the HSBG fleet is a specific fleet segment for which the Ministry of the Environment collects data on the economic DCR indicators. These data were provided for the available years: 2005 and 2006.

For Latvia, the National Board of Fisheries does not collect data for the DCR indicators for its HSBG fleet, since it represents less than 5 % of total catches. However, some estimates of capital value and operating costs were obtained from interviews with fishing companies.

For Portugal and Spain, questionnaires were sent to the main vessel operating companies, and these were supplemented by telephone interviews in some cases. For Spain, 38 questionnaires were sent out and 16 replies received. 22 fishing and other companies were interviewed directly and 7 companies (vessel operating companies, processing plants and other operational companies) were contacted. Accounting and other economic data relating to a sample of Spanish vessels were also obtained. The information received on earnings, costs and profits of the 16 vessels, represented a 26 % sample rate of the 'commercially active' vessels using fishing gears in high seas. The data were processed and analysed using Statistical Package for the Social Sciences (SPSS), Microsoft Access and Microsoft Excel.

In the case of Portugal, partial economic and technical performance data were obtained for 20 HSBG vessels. These data gave some information on original capital value, vessel age, tonnage, power and crew size. Questionnaires were sent to three groups representing 23 companies. These were followed up by 21 phone calls and e-mail contact.

For France, the *Direction des Pêches maritimes et de l'Aquaculture* (*Ministère français de l'Agriculture et de la Pêche*) was contacted in the first instance, who indicated that the vessel operators union should be contacted. In turn, the *Union des Armateurs à la Pêche de France*, indicated that all data relevant to the study were collected by the Ministry and passed on to the Commission, who should be contacted for any queries.

The Bord Iascaigh Mhara (BIM) and Sea Fisheries Protection Authority (SFPA) in Ireland, were contacted about the study, and responded that they could provide some relevant data. However, despite numerous follow-up emails and telephone calls, no data were sent.

Contact was made with the Sea Fisheries Institute, Gdynia, in Poland, who indicated that Poland did not have any vessels that were relevant to the study and therefore was not able to provide any data.

Other economic and social data were obtained through country visits to Estonia, Latvia and Lithuania where meetings were held with the Ministries/Directorates responsible for fisheries management (Estonia, Latvia and Lithuania), fishing associations (Estonia and Latvia) and fishing companies (Estonia and Latvia). Other sources of economic and social data included *Instituto Galego of Estadistica* (Spain) *Anuario Economico de Galicia* (Fundacion CIEF, Spain), including the input–output tables for the fisheries sector and the Galician regional economy and the annual EU

reports relating to fleet operating performance[5], as well as national fisheries statistics bulletins and yearbooks.

It should be noted that the EU data relates to certain fleet segments some of which are thought to approximate to those of the HSBG fishing vessels (e.g. NAFO trawlers in Portugal, Lithuanian Atlantic trawlers, Polish demersal trawlers). However these data are not disaggregated to the level of high seas, bottom gear fishing vessels. Where possible estimates have been made of economic and social indicators relating to the HSBG portion of the fleet segment.

Data on direct employment on fleets were obtained from vessel owners, fishing companies and fisheries authorities. Where data could not be obtained on employment on board, estimates based on similar vessels were made, and applied to the HSBG fleet for that country. Some vessels fish partly in national/EEZ waters, and partly in high seas. An estimate of the catches from those fleets on the high seas as a proportion of their total catches (high seas plus EEZ catches) was made, based on catch data by area (Section 2.1.2). These proportions were then applied to the employment data to obtain an estimate of the employment dependent on high seas fishing operations.

Information on indirect employment in the processing, port and vessel maintenance sectors was obtained from fishing companies (regarding landing locations and vessel docking), processing companies and fisheries authorities.

Data on total employment in the catching and processing sectors in each Member State were obtained from LEI BV & Framian BV (2006) and publications from national fisheries authorities. The LEI BV & Framian BV (2006) report on employment provides estimates for 1996–1998 and 2003–2004. In order to obtain estimates for intervening years, and for more recent years, the rate of change was calculated and applied to the intervening years, and projected from 2004 to 2007, unless other data on employment were available from national authorities, in which case the latter were used in preference to the extrapolations.

2.2 Data availability

Data were made available by some Member States, although not all Member States cooperated in providing the necessary information, as described in 2.1. A summary of data availability is provided in Table 1 and further detail is given in the country descriptions in Section 7.

[5] Economic Performance of Selected EU Fishing Fleets (2006), Annual Report 2005 and Economic Performance of Selected EU Fishing Fleets (2007), Summary Document prepared by the Economics Unit of DG Fish.

Table 1 Summary of data availability for key countries

Country	Fleet data	Catches	Landings into the MS	Landings by the HSBG fleet	Economic	Social
Estonia	✓✓	✓✓	✓	✓✓	✓✓	✓✓
France	✓	✓	✓	×	×	×
Ireland	✓	✓✓	✓	×	×	×
Latvia	✓✓	✓	✓	✓	✓	✓✓
Lithuania	✓	✓✓	✓	✓	✓	✓
Poland	✓	✓	✓	×	×	✓
Portugal	✓✓	✓	✓	✓✓	✓	✓✓
Spain	✓✓	✓✓	✓	✓	✓✓	✓✓✓
Key	✓ estimate of HSBG vessel numbers ✓✓ HSBG vessel names and characteristics, recent years ✓✓✓ HSBG vessel names and characteristics, 10 years	✓ some catch data ✓✓ catches split by HS & EEZ ✓✓✓ catches by position	✓ landings of deep sea sp into MS from Eurostat	✓ qualitative indication of landing location ✓✓ landings by the fleet by country ✓✓✓ landings by the fleet by port	✓ some economic info ✓✓ DCR indicators for recent years ✓✓✓ DCR indicators for 10 years	✓ employment estimate, cannot distinguish fleet & processing ✓✓ employment on fleet & processing, recent ✓✓✓ employment on fleet & processing, 10 years

3 Description of the Community fishing fleet using bottom gears in the high seas

3.1 Fleet and vessel characteristics

The EU HSBG fleet is made up of 106 vessels (2006–2007), comprising 85 bottom trawlers and 21 longliners. They have a total gross tonnage of 98 870.8 GT and a total engine power of 129 891.1 kW (Table 2). They represent 0.1 % of the European fleet by number, 5.1 % by tonnage and 1.8 % by power. Their average age is 24.5 years and average length is 53.1 m. Detail on each Member State's fleet is provided in Section 7.

Table 2 Community HSBG fleet summary

Flag state	**Primary gear type**	**No vessels**	**Tonnage (GT)**	**Engine power (kW)**	**Age (years)**	**Length (m)**
Estonia	Trawl	8	10 501	16 143	28.6	61.8
Ireland	Trawl	2	1 904	2 964		
	Longline	1				
Spain	Trawl	41	44650.9	47656.6	16.5	57.5
	Longline	9	4151.3	5929.4	10.8	37.4
France	Trawl	8				
Latvia	Trawl	3	3 982	5 443	32.0	58.5
Lithuania	Trawl	4	3011	5387	36.8	44.9
Poland	Trawl	3	6 100	9 400	25.3	?
Portugal	Trawl	16	21 904	29 623	29.9	68.5
	Longline	11	2 667	7 345	10.9	34.5
Average	**Trawl**		13 150.4	16 659.5	28.2	58.2
	Longline		3 408.9	6 637.3	10.9	35.9
Overall Average			10985.6	14432.3	23.8	51.9
Sub-total	**Trawl**	85	92 052.9	116 616.5		
	Longline	21	6 819.7	13 274.6		
TOTAL		**106**	**98870.8**	**129891.1**		
EU total fleet		87 004	1 955 879	7 068 471		
HSBG as % of EU fleet		**0.1 %**	**5.1 %**	**1.8 %**		

Source: Industry interviews and national authorities; Vessel characteristics: EU Fleet Register; EU fleet totals: Eurostat, 2007.

3.2 Geographical fishing activity and catches

The largest EU HSBG fleets are from Spain and Portugal. The majority of vessels are bottom trawlers operating in NAFO, NEAFC, EU waters and SW Atlantic, targeting Greenland halibut, Atlantic cod and other bottom fish. Spain also has a bottom longline fleet that operates in NEAFC catching several demersal species and within the CCAMLR area targeting mainly toothfish (*Dissostichus eleginoides*) and other deep-sea species.

The estimation of the number of vessels using bottom gears on the high seas, as well as their catches in recent years, is a difficult task, for the following reasons: many of these are exploratory fisheries; catches vary enormously; stocks are often exploited in the space of a few years; boats frequently operate in different areas in the same year looking for new species; fisheries targeting aggregations of spawning fish may last only a few months each year (the spawning season); and many of the ships involved often fish on the high seas only part of the year.

By 2006, the Spanish long distance fleet comprised 41 large freezer trawlers based in Galician ports (mainly in Vigo), and 9 bottom longliners (Table 15). The freezer trawlers operate almost exclusively in the North Atlantic or in the Southwest Atlantic, though there are boats that alternate between both areas. Most of these vessels operate in the shallow high seas areas of the Flemish Cap and the 'nose and tail' in NAFO and the small area of shallow (<300m) bank on the High Seas adjacent to the Falklands Outer Conservation Zone and Argentine EEZ. A total of 36 vessels were fishing in the North Atlantic (although with the latest reductions in NAFO TACs, it seems that there has been a decline in the number of units in the area) and 19 vessels in the Southwest Atlantic. Bottom longliners fishing on the high seas operate in two different geographical areas: the fishing grounds in NEAFC where about 9 vessels operate sporadically and those within the CCAMLR area (2 vessels licensed for 2006/2007 and 1 vessel for 2007/2008).

The Portuguese fleet that operates bottom gears in the high seas is composed of 20 vessels licensed to operate in regulated areas: NEAFC (9 trawlers in the Irminger Sea, 10 trawlers in the Svalbard; NAFO (13 trawlers); SEAFO (7 vessels operating bottom longlines, traps and gillnets). The fleet operating static gear is in general (all but one) also licensed to operate drifting longlines. In 2006 this part of the external fleet was composed of 19 of the same vessels working in 2008, less one longliner (which was not yet built).

The Baltic states together make up a significant component of the HSBG fleet, with Estonia being the largest contributor to the Baltic fleet. From 1999 onwards catches made by Estonian trawlers in NAFO, mainly consisting of Northern prawn, have formed the majority of the oceanic Estonian fishing fleets catches. In 2006, 8 Estonian-flagged vessels were involved in HSBG fishing, all using bottom trawl gear. Latvia has a small high seas fleet that targets redfish and northern prawn in NAFO and NEAFC regulatory areas. This consists of three vessels, although in the current economic climate, only two are operating, one targeting northern prawn in NAFO (3L and 3M) using bottom trawl and the other redfish in NEAFC also using bottom trawl. The Lithuanian fleet targets both pelagic and demersal species in the Atlantic Ocean. They currently have 4 vessels engaged in high seas bottom gear fishing. The main target species are redfish, Greenland halibut, Northern prawn, ling, scabbard fish and grenadier. In the past Poland had a substantial distant-water fleet, but this has decreased significantly since the dissolution of the USSR. In 2004 it comprised only three vessels at the beginning of 2004 when Poland joined the European Union (DG Fish, 2004), and the Polish fisheries authorities have indicated during this study that

no vessels in their fleet are relevant to this study or have been during the past five years. However, in 2005 the Polish fleet made catches of demersal species in the NE and NW Atlantic as well as the SE Atlantic although catches in the latter area were very low and declining. NAFO and NEAFC data also indicate Polish catches for shrimp, redfish, grenadiers and Greenland halibut. In 2005, Poland had three deep-sea vessels (Sea Fisheries Institute, 2006), although there is no indication of where they were fishing. However, based on the reported location of their catches, these three vessels are taken as comprising the entire Polish HSBG fleet.

France's catches of demersal species are almost exclusively from the northeast Atlantic region and the vast majority is taken from inside EU Member States' EEZs. Catches in the CECAF area had finished by 2002, and there have been no recorded catches in the northwest and southeast Atlantic since 1991. Over the period 1994–2000 some catches of demersal species were taken in the SW Atlantic. Currently the French vessels fishing with bottom gears on the high seas are exclusively bottom trawlers belonging to three fishing companies with a total of 8 vessels targeting ling, blue ling, orange roughy, tusk and grenadier in NEAFC high seas area at depths ranging from 400 m to 1000 m. Their fishing zones range from the Irish Sea to South Iceland, the Faroe Islands and the west of Scotland.

Information received from the Irish fishing industry and the latest ICES reports show that Irish catches in NEAFC are taken from within the Irish EEZ rather than from high seas areas. The latest Irish reported catches from high seas areas are from 2003 and 2004 when a total of under 200 tonnes of catch was made from 120 days fishing by longliners and trawlers.

3.2.1 Ports used

The majority of HSBG vessels fishing in distant waters utilise ports close to the fishing grounds for landings and maintenance. For example, Baltic HSBG vessels mainly land Northern prawn catches in Canada and Iceland. Deep sea fish species caught by HSBG vessels are mainly landed in Spain (Vigo) if possible, though other ports, such as Montevideo, are sometimes used for landing or transhipment of catches for vessels fishing in the SW Atlantic. Spanish HSBG vessels land almost exclusively in Galician ports, either by freezing catches at sea and returning to port at the end of a fishing trip or transhipping catches to be landed directly in Vigo by reefer vessels in more distant fishing grounds.

Qualitative information on ports used was obtained from consultation with HSBG fishing operators where necessary in the absence of quantitative landings data. Figure 4 and Figure 5 display approximate landing locations for the main HSBG fishing areas and target species groups.

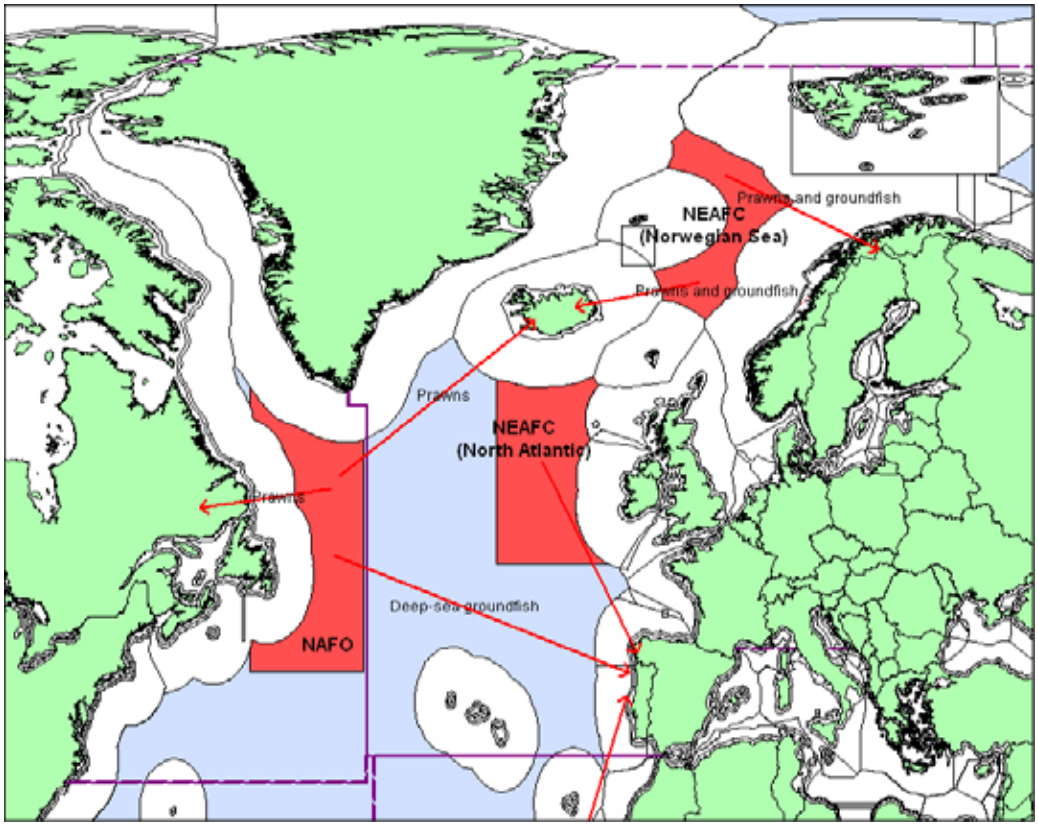


Figure 4: Flows of fish (red arrows) from areas of EU HSBG fishing activity (red areas) for the North Atlantic region.

Source: Fishing industry interviews.

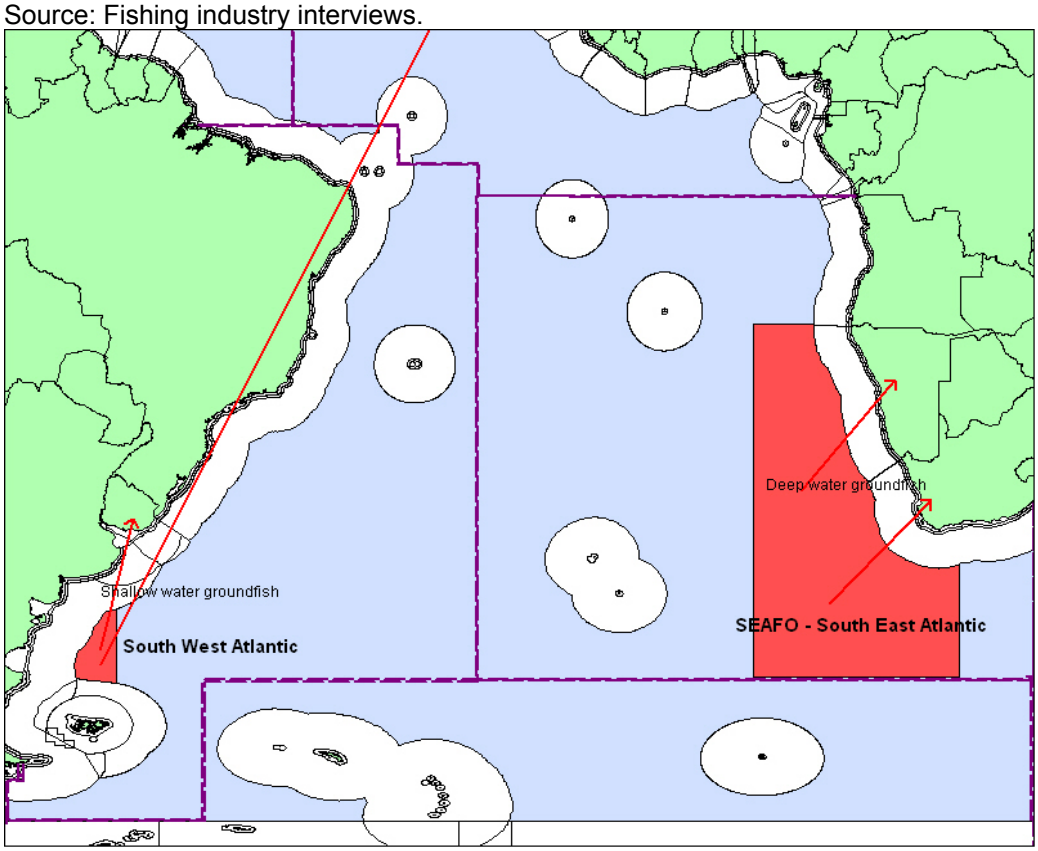


Figure 5: Flows of fish (red arrows) from areas of EU HSBG fishing activity (red areas) for the South Atlantic region.
Source: Fishing industry interviews.

3.2.2 Key species

The key target species identified include regulated species such as Greenland halibut (*Reinhardtius hippoglossoides*), orange roughy (*Hoplostethus atlanticus*), redfish (beaked (*Sebastes mentella*) and golden redfish (*Sebastes marinus*)), northern prawn (*Pandalus borealis*), ling (*Molva molva*), blue ling (*Molva dyptergia*) and toothfish (*Dissostichus elegnoides* and *Dissostichus mawsonii*). Species taken as bycatch by deep sea bottom gear fisheries such as the grenadiers (*Coryphenoides* spp.), deep-water sharks and scabbardfish are also included in the analysis.

A full list of the species is included in Section 11. Detailed descriptions of the key species are provided in the Species Description Sheets in Appendix 1.

3.2.3 Catch volumes and value

Spain and Portugal consistently catch more HSBG catches than the other EU Member States examined (Table 3). However, in terms of relative importance to a states' total catches, Estonian and Portuguese HSBG catches are most important at 8 % (Table 17) followed by Spain at 3.7 % (Table 32).

Overall, EU HSBG fleets have been catching on average 70 000 tonnes of deep sea species in high seas areas (2004–2006). Catch levels increased from 1997 onwards to a peak of 146 468 tonnes in 2001 but have subsequently decreased to 59 821 tonnes in 2006. These catches represent around 1.6 % of total EU catches by volume from 1997 to 2006.

The Baltic HSBG fleets are characterised by a dependence on Northern prawn catches in NAFO division 3 M. The Spanish and Portuguese HSBG fleets target deep sea finfishes including grenadiers, Greenland halibut and redfishes with more diversity in fishing grounds, including NEAFC, NAFO, SEAFO, CCAMLR and the SW Atlantic. The data available for Poland suggests that in recent years HSBG catches have been relatively small with little importance relative to Poland's total catches.

The Irish and French HSBG fleets catch small volumes each year, exclusively in NEAFC, in areas that straddle European waters and high saes. These catches provide a small proportion of the states' total catches.

High seas catches of the EU HSBG fleets were worth an average of €126 million per year between 2004 and 2006, up from € 92 million in 1997–1999. Catch values peaked in 2001 at € 186 million (Table 5).

Table 3: Total high seas catches (tonnes) by EU bottom gear vessels by country, 1997–2006

Country	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Estonia	3327	5617	10916	13285	12290	16555	14980	15555	14940	8893	**116357**
Ireland	0	0	0	0	156	0	144	34	0	0	**334**
Spain	50235	55251	67720	76821	114070	40817	63996	40395	27612	25992	**562910**
France	599	649	834	380	821	881	898	1291	681	587	**7620**
Latvia	997	1191	3080	3397	3330	3012	4946	3684	3254	3053	**29944**
Lithuania	0	3107	3370	3596	619	1921	1295	1814	5742	1132	**22596**
Poland	0	148	894	1732	311	0	145	1302	587	469	**5588**
Portugal	15581	21421	20540	17344	14872	19744	21618	17962	18283	19695	**187059**
Total	**70738**	**87383**	**107353**	**116556**	**146468**	**82930**	**108022**	**82037**	**71099**	**59821**	**932407**

Source: NAFO 21B database, ICES catch database, CCAMLR data, SEAFO data, Estonian Ministry of Agriculture and SGPM data

Table 4: Total high seas catch volume by EU bottom gear vessels as a percentage of total EU catch, by country, 1997–2006

Country	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Estonia	0.045	0.079	0.164	0.203	0.183	0.270	0.262	0.273	0.269	N/A	**0.203**
Ireland	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.001	0.000	N/A	**0.001**
Spain	0.685	0.779	1.017	1.173	1.699	0.665	1.121	0.709	0.498	N/A	**0.980**
France	0.008	0.009	0.013	0.006	0.012	0.014	0.016	0.023	0.012	N/A	**0.013**
Latvia	0.014	0.017	0.046	0.052	0.050	0.049	0.087	0.065	0.059	N/A	**0.052**
Lithuania	0.000	0.044	0.051	0.055	0.009	0.031	0.023	0.032	0.103	N/A	**0.039**
Poland	0.000	0.002	0.013	0.026	0.005	0.000	0.003	0.023	0.011	N/A	**0.010**
Portugal	0.212	0.302	0.309	0.265	0.222	0.322	0.379	0.315	0.329	N/A	**0.326**
Total	**0.965**	**1.231**	**1.613**	**1.780**	**2.182**	**1.350**	**1.892**	**1.440**	**1.281**	**N/A**	**1.623**

Source: Total EU Member State catches: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007); EU HSBG catches: source: NAFO 21B database, ICES catch database, CCAMLR data, SEAFO data, Estonian Ministry of Agriculture and SGPM data

Table 5: Total high seas catches (€m) by EU bottom gear vessels by country, 1997–2006

Country	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Estonia	6.84	12.09	23.98	31.13	21.82	29.49	25.80	33.23	38.34	22.27	**236.71**
Ireland	0.00	0.00	0.00	0.00	0.23	0.00	0.60	0.06	0.00	0.00	**0.90**
Spain	48.30	52.14	65.50	83.44	137.36	59.18	82.81	60.48	59.02	41.27	**939.76**
France	0.55	0.59	0.64	0.36	0.91	0.91	0.95	1.47	1.33	0.77	**9.46**
Latvia	2.05	2.56	6.77	8.20	6.11	5.37	8.37	7.65	8.11	6.72	**55.38**
Lithuania	0.00	6.69	7.40	8.66	1.49	1.55	1.62	2.54	15.01	1.76	**44.96**
Poland	0.00	0.32	1.96	4.17	0.52	0.00	0.24	2.82	1.51	1.24	**11.55**
Portugal	9.364	12.801	14.144	15.035	17.629	23.831	25.460	22.270	24.664	26.180	**228.13**
Total	**67.10**	**87.19**	**120.40**	**150.99**	**186.07**	**120.32**	**145.87**	**130.52**	**147.98**	**100.21**	**1526.84**

Source: Landed prices from EUROSTAT landings database; EU HSBG catches: source: NAFO 21B database, ICES catch database, CCAMLR data, SEAFO data, Estonian Ministry of Agriculture and SGPM data

3.3 Interactions with vulnerable marine ecosystems

Seamounts and other deep-sea ecosystems are highly vulnerable marine ecosystems (VME) typified by long-lived slow-growing species such as deep-water corals that have very slow recovery rates. Recently research has increasingly focussed on seamount ecology, demonstrating their high degree of endemic species, high biodiversity and the lack of a clear understanding of how these isolated ecosystems function. They often differ significantly from ecosystems in shallower but adjacent areas with assemblies of sedentary species.

Many deep-sea VMEs have already been heavily impacted by trawling (Koslow *et al.*, (2001); Rogers *et al.*, (2007), Hall-Spencer *et al.*, (2002); Clark and O'Driscol, (2003)). The north Atlantic, due to the early offshore expansion of the European and North American industrial fisheries has the longest and most extensive history of impacts and research on these deep-water habitats, but even now many seamounts have not been studied and large deep water coral reefs several kilometres in extent have only recently been discovered (Fosså *et al*., 2005).

Different types of large, deep-water coral reefs may be affected in different degrees by bottom trawling. Bottom fishing gear may be damaged by the more robust corals or in some cases lost when snagged on the corals and in many cases these areas have been subsequently noted and avoided by fishers. Other deep-water coral species that are more delicate such as the fan shaped corals are much more highly vulnerable to damage from bottom trawling or bottom set driftnets and longlines as their morphological structure allows for a greater likelihood of entanglement and breaking. Many of these more delicate corals do not leave clear evidence of damage when the fishing gear is recovered as they often break up on lifting of the fishing gear so it is not possible to determine their historical distribution and abundance based on post-fishing surveys. The effects of bottom gear on deep-water habitats cannot be accurately quantified but given the sensitivity of these habitats and species to damage and the slow recovery rates, a precautionary approach to their management would suggest protecting those areas where known VMEs exist and unknown areas where pristine habitats may still exist but have not been identified.

3.3.1 North Atlantic

The EU HSBG fleets operate predominantly in the north Atlantic within the NEAFC and NAFO regulatory areas. The high seas areas in the NW Atlantic where vessels tend to operate (the shallow and deep slopes of the nose and tale of the Grand Banks, as well as the Flemish Cap) are characterised by the absence of seamounts (Figure 6), although there remains a possibility that due to intensive fishing activities over many years, that the continued disruption of these habitats has led to a reduced density of VMEs in these areas. Aggregated VMS data from one EU Member State that supplied detailed VMS data shows that the typical fishing grounds in NAFO (3L, 3M and 3N) do not overlap with known VMEs (Figure 7).

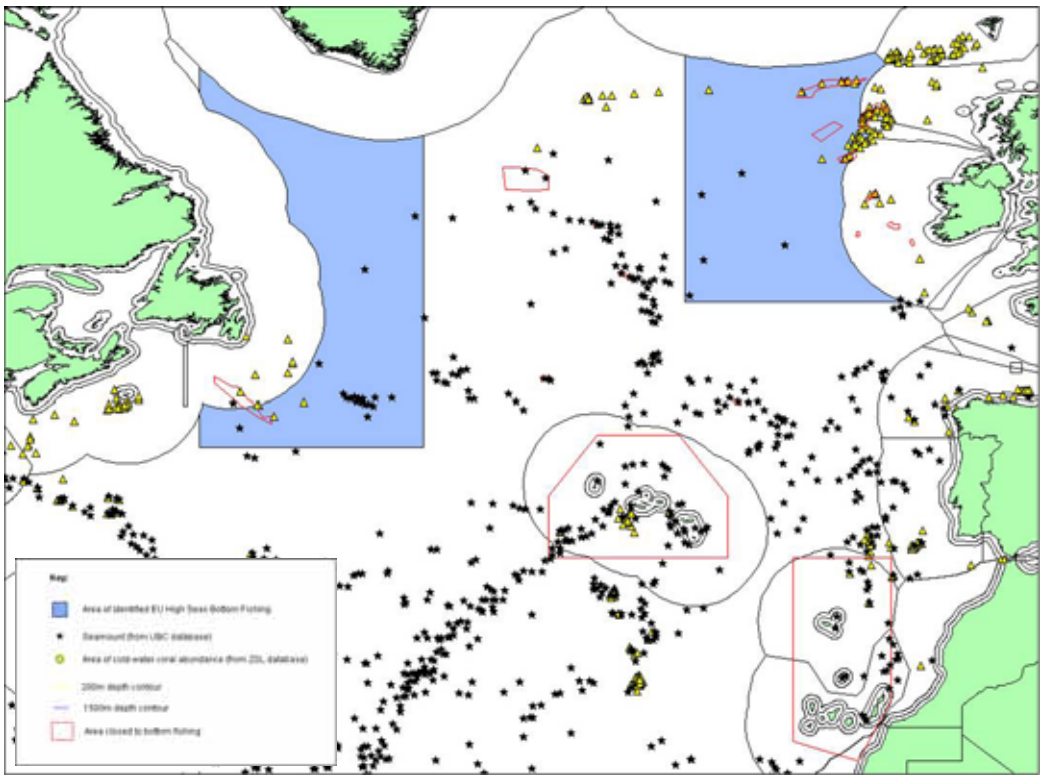


Figure 6 Map of potential vulnerable marine ecosystems (seamounts and areas of high cold water coral abundance) in the North Atlantic Ocean overlaid with areas of EU high seas bottom fishing effort
Source: Coral abundance: ZSL, 2007; Seamounts: UBC, 2007.

In NEAFC there is also limited occurrence of VMEs in the broad scale NEAFC high seas areas where the vessels fish (Figure 6). However, many vessels also operate close to the EEZs of EU Member States in the high seas waters around the Hatton Bank and Rockall Bank where the existence of VMEs, and cold water corals in particular, have been frequently reported (Figure 8). Vessels fishing in these areas have been reported to be fishing progressively deeper, from 800 m to 1600 m. As the fishing fleets move into deeper areas that have not been subjected to large amounts of bottom gear fishing effort before, there is often little or no information available on the habitats they may encounter and the combination of the susceptibility of these habitats to damage and slow recovery rates has led to a growing pressure from NGOs to increase protection to a wider area taking a precautionary approach to the management of the VMEs.

Several areas with high concentrations of cold water corals in the northeast Atlantic Ocean have already been afforded some protection from bottom trawling and are listed in Table 6.

Table 6 Protected areas that have been closed to bottom trawl fishing in the North Atlantic to protect deep and/or cold-water habitats.

Name of closed area	Region	Year Implemented
Oculina Bank	USA	1984
Sula Reef	Norway	1999
Iverryggen Reef	Norway	2000
Selligrunnen Reef	Norway	2000
Sacken reef	EU (Sweden)	2001
Spiran reef (degraded)	EU (Sweden)	2001
Vadero reef (degraded)	EU (Sweden)	2001
Northeast Channel	Canada	2002
Tisler Reef	Norway	2003
Fjellknausene Reef	Norway	2003
Røst Reef	Norway	2003
The Gully	Canada	2004
Stone Fence	Canada	2004
Darwin Mounds	EU (UK)	2004
Azores, Madeira, Canary Islands	EU (Spain/Portugal)	2004
Reykjanes Ridge (part of)	NEAFC	2005
Hekate Seamounts	NEAFC	2005
Faraday Seamounts	NEAFC	2005
Altair Seamounts	NEAFC	2005
Antialtair Seamounts	NEAFC	2005
Oceanographer Canyon	USA	2005
Lydonia Canyon	USA	2005
Hornafjarðardjúp	Iceland	2006
Skaftárdjúp	Iceland	2006
Reynisdjúp	Iceland	2006
Orphan Knoll	NAFO	2007
Newfoundland Seamounts	NAFO	2007
Corner Seamount	NAFO	2007
New England Seamounts	NAFO	2007
Hatton Bank	NEAFC	2007
NW Rockall Bank	NEAFC/ EU (UK)	2007
W Rockall Mounds	NEAFC	2007
Logachev Mounds	NEAFC/ EU (Eire)	2007

Source: adapted from ICES, 2007a.

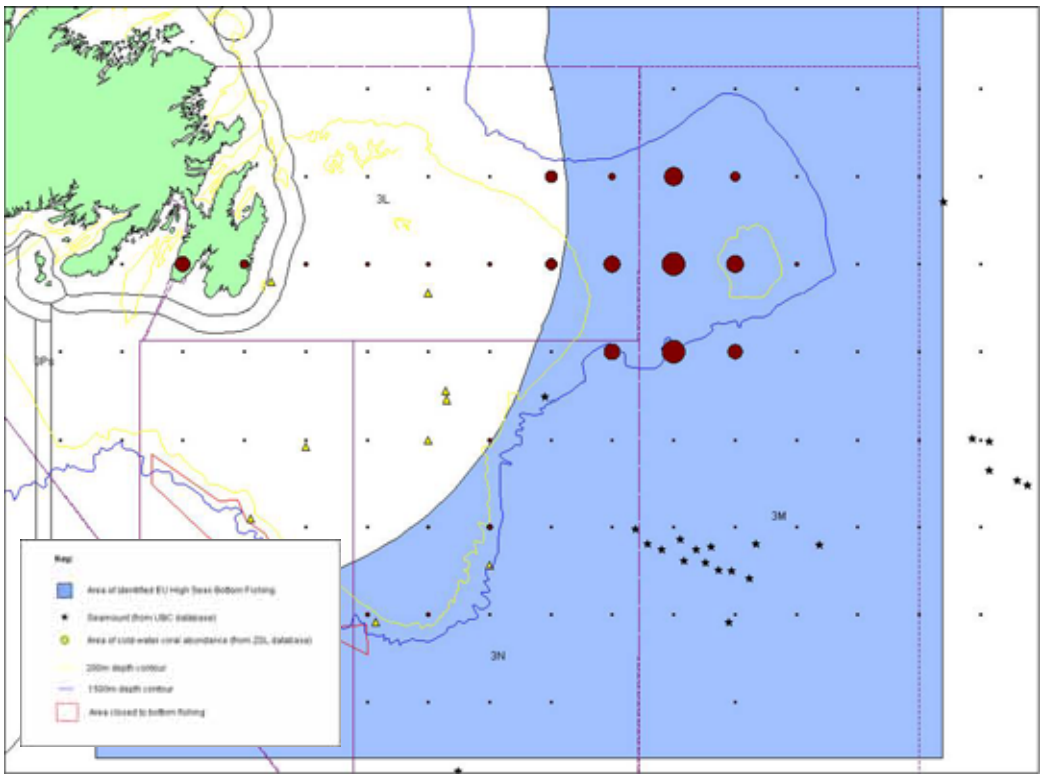


Figure 7 Map of potential vulnerable marine ecosystems (seamounts and areas of high cold water coral abundance) around the main fishing areas in NAFO (example from VMS data from an EU Member State, aggregated to 1° x 1° squares)
Source: Coral abundance: ZSL, 2007; Seamounts: UBC, 2007.

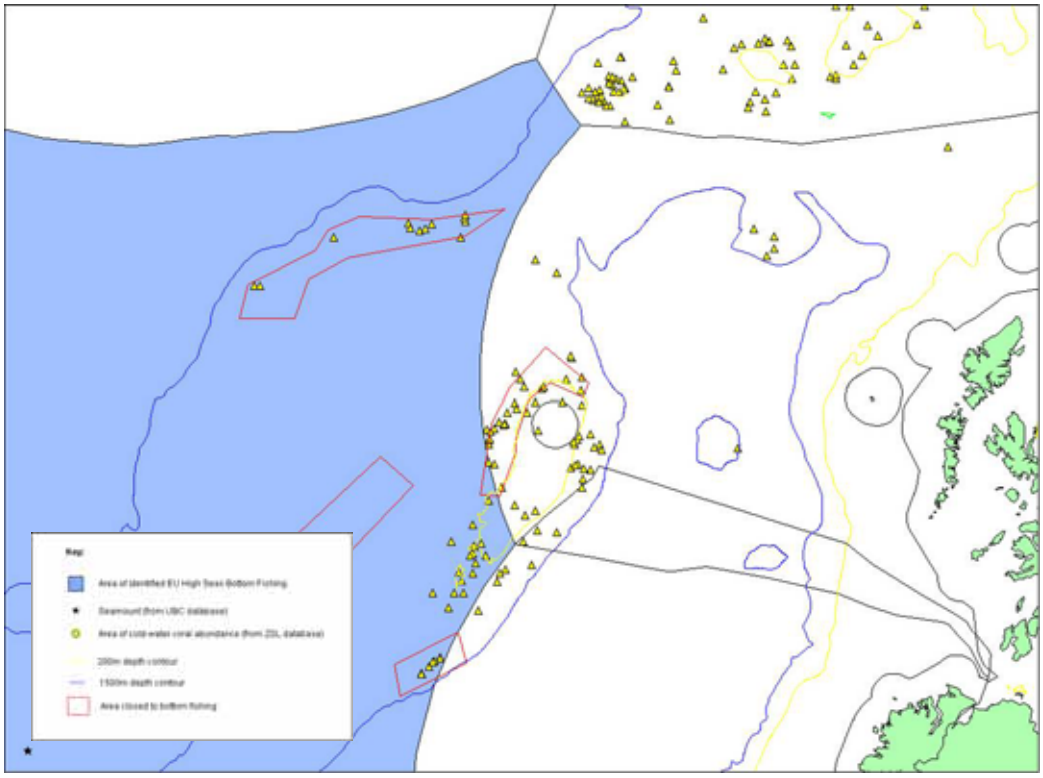


Figure 8 Map of potential vulnerable marine ecosystems (seamounts and areas of high cold water coral abundance) around the Hatton Bank / Rockall Bank area with closed areas highlighting the protection already established
Source: Coral abundance: ZSL, 2007; Seamounts: UBC, 2007.

3.3.2 South Atlantic

VMS data obtained has confirmed that fishing activities by the EU HSBG fleets in the SW Atlantic high seas areas (Spanish and UK vessels) are mainly carried out on area of the continental slope that extends onto the High Seas between the Argentinean EEZ, the Falkland Islands Outer Conservation Zone (FOCZ) and the 300 m depth contour, an area without evidence of seamounts or VMEs (Figure 9). This is possibly due to past fishing activities of distant water fleets from the USSR, German Democratic Republic, Spain, Poland, Japan, etc). Some VMEs have been reported at depths greater than 500 m. If fishing activities were to start to expand into deeper waters there would be an increased risk of interaction with VMEs.

During the course of this study it has not been possible to obtain detailed information on fishing locations prosecuted in the SE Atlantic, although a large number of seamounts exist in the area (Figure 9). However, overall EU fishing effort in this region is relatively small compared to fishing effort in the north Atlantic and the pressure on VMEs would be small.

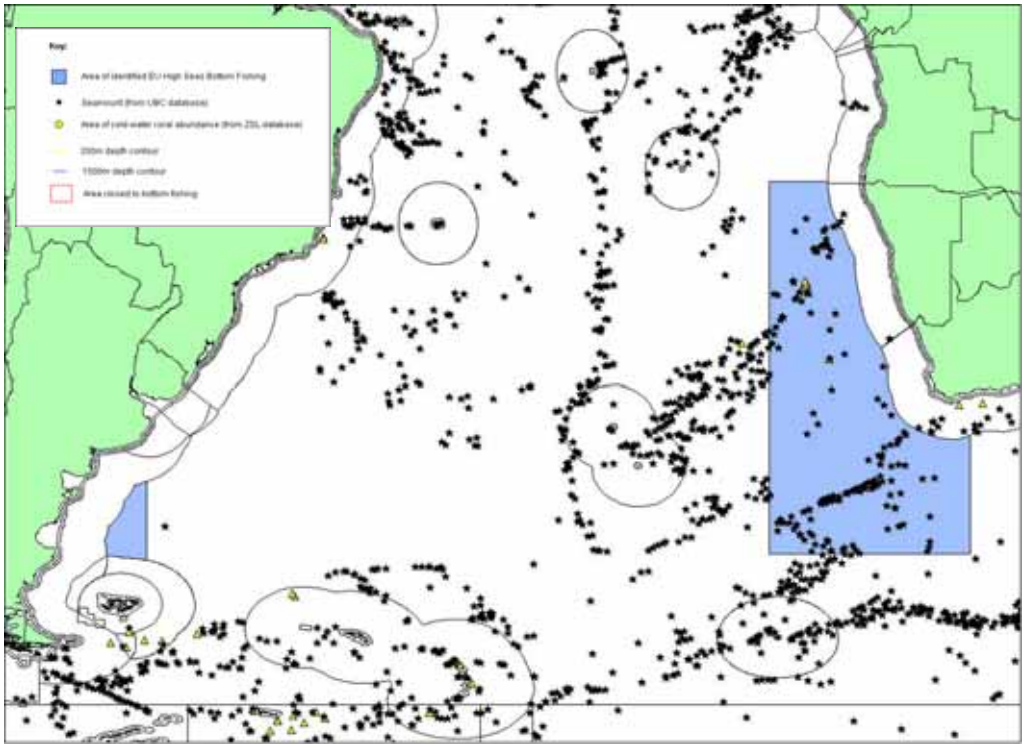


Figure 9 Map of potential vulnerable marine ecosystems (seamounts and areas of high cold water coral abundance) in the South Atlantic Ocean overlaid with areas of EU high seas bottom fishing effort
Source: Coral abundance: ZSL, 2007; Seamounts: UBC, 2007.

4 Economic importance

The economic importance of HSBG fisheries is most significant in Spain, in particular the region of Galicia situated in north-west Spain. Vigo and other nearby ports such as Cangas are one of the main hubs for EU HSBG fisheries globally. Other EU Member States in which HSBG fishing activities are relatively important are Portugal, Estonia and Lithuania. Other states, notably France, Ireland, Latvia and Poland have small fleets and limited activities in this fleet segment.

The economic importance of HSBG fisheries is linked to the directly activities of vessel operations and fishing as well as to the linked supply chain activities of vessel maintenance and repair, port activities, storage, processing and other activities linked to HSBG fishing. The direct and indirect economic importance of these fisheries is translated into operating revenues, value added and employment. It should also be noted that some of the economic activities linked to HSBG fishing have impacts outside the EU. This is the case where there are landings and or transhipments of HSBG species take place in non EU countries, notably Canada, Iceland, Norway and to a lesser extent other countries where landings and or transhipments are made (for example Brazil, Namibia and Senegal), In addition some catches of HSBG species by EU fishing fleets may end up being processed outside the EU – in Belarus, Canada, Iceland, Norway and Russia. The supply chain for HSBG-caught fish is therefore quite complicated and in common with other species has become globalised.

4.1 Financial operating performance and value added

Table 7 summarises the economic characteristics of HSBG fishing vessels where data are available or have been obtained through country visits. Where data were not available, secondary data from EU sources have been used, which give an approximation to the activities of HSBG vessels. These data are incomplete and care should be taken as in some cases, the data is for different years. The data for Spain are for 2006. The capital value of the vessels varies considerably, depending on the construction year, vessel tonnage, power and length. Fuel and crew costs are the main components of operational costs, with crew costs highest in Spain. This is linked to the relatively high labour costs and associated overheads in Spain when compared with the Baltic states (Estonia, Latvia and Lithuania) and Poland. The cost and operating revenue figures are the annual average per vessel.

Table 7 Summary of economic and financial operating characteristics of EU Community vessels fishing on the high seas using bottom gears (average or range where indicated are per vessel)

Country	Capital value (€)	Annual Operating costs (€)	Variable Cost (€)	Fixed Costs (€)	Crew costs (€)	Fuel costs (€)	Repair costs (€)	Operating Revenue (€)	Gross Value Added €)	Profit (€)
Estonia	1,641,934	2,565,167	738,297	229,823	322,618	776,515	330,779	3,083,177	906,555	259,169
Ireland	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Spain	€5 million (NEAFC fleet) 40–50m: €8 million 70m €12 million									
	NAFO + SW Atlantic fleet				991,598[4]	610,239[6]		2,772,850[4]	1,468,022[4]	210,770[4]
	vessels fishing between 400 and 1000m		437,459	300,014	82,520	277,330		2,504,728		
France	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Latvia	3,000,000	2,645,000	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Lithuania	3,762,960	2,565,167			372,222	1,133,333		2,565,167	577,611	63,167
Poland		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Portugal	Around 3,000,000 for larger vessel up to 15,000,000	1,607,857			564,286	421,429				

Sources: Questionnaire data; EU Fleet Performance; MRAG/MG Otero field trips; industry interviews; Calvo, 2005; Calvo, 2006.

[4] This is the average for NAFO and southwest Atlantic fleets
[6] This is the average for NAFO and southwest Atlantic fleets
[4] This is the average for NAFO and southwest Atlantic fleets for the annual value of landings
[4] This is the average for NAFO and southwest Atlantic fleets
[4] This is the average for NAFO and southwest Atlantic fleets

4.2 Importance relative to the Community fishing fleet

The economic importance of Community HSBG fleet activities in the context of the whole Community fishing fleet is considered in terms of its relative position with respect to:

- Fishing vessel numbers, power and tonnage;
- Catch volumes and value;
- Landings volume and value;
- Financial operating characteristics.

The position of the HSBG fishing sector in the overall context of the EU fleet is summarised in Table 8.

Table 8 Relative importance of EU HSBG fishing relative to the total Community fleet

Category	HSBG fleet	Total EU fleet	HSBG fleet as a % of total EU fleet
Total number of vessels	106	87 004	0.1 %
Total gross tonnage (GT)	98 870.8	1 955 879	5.1 %
Total vessel power (kW)	129 891.1	7 068 471	1.8 %
Total liveweight production (tonnes)	70 986 (av. '04-'06)	5 624 006 (EU-25, av. '04-'05)	1.3 %
Total value of catches (€ million)	126 (av. '04-'06)	-	N/A
Gross Value Added (€ million)		686 (2005)	15 % (estimate)
Spain GVA (NAFO and SW Atlantic HSBG fleets)	80		12 %

Sources:
Number of HSBG vessels: Member States (see Section 7) for individual data sources;
Power and tonnage of HSBG vessels: EU Register of Fishing Vessels;
Figures for total EU fleet (number of vessels, power, tonnage): Eurostat, 2007;
Total EU fleet catches: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007)
Gross value added: University of Vigo; Calvo, 2005; Calvo, 2006.

5 Social importance

5.1 Direct employment

The EU HSBG fleet employed 5 053 people in 2007 (Table 9), representing 2.8 % of employment in the European catching sector. The majority of this employment is on bottom trawlers. 41 % is dependent on high seas bottom gear activities (2 087 jobs) (Table 10), or 1.2 % of employment in the EU catching sector.

Whilst data are not available for all countries for all years, employment in the HSBG sector as a percentage of total employment in the EU catching sector appears to be increasing, up from (conservative estimates of) 0.55 % in 1997 and 0.8 % in 2003. This is likely to be a result of vessels needing to travel further and seek new fishing grounds as stocks in nearer and shallower waters become more and more heavily exploited. However, rising fuel costs (Section 8.1) are making this sector less profitable and employment may suffer as a result.

The majority of employment on these fleets is of EU nationals (81.1 %) (Table 11), although this is declining.

Table 9 Summary of employment on HSBG fleets in the EU

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Trawlers											
Estonia									232	170	170
Ireland					40	40	40	40	40	40	40
Spain	2,821	2,735	2,707	2,819	2,784	2,745	2,803	2,810	2,686	2,516	2,521
France										144	144
Latvia								68	68	50	50
Lithuania										64	64
Poland									48	48	48
Portugal										508	508
Sub-total trawlers	*2,821*	*2,735*	*2,707*	*2,819*	*2,824*	*2,785*	*2,843*	*2,918*	*3,074*	*3,540*	*3,545*
Longliners											
Ireland					15	15	15	15	15	15	15
Spain	1,817	1,735	1,468	1,680	1,497	1,412	1,239	1,364	1,321	1,310	1,298
Portugal										215	215
Sub-total longliners	*1,817*	*1,735*	*1,468*	*1,680*	*1,512*	*1,427*	*1,254*	*1,379*	*1,336*	*1,540*	*1,528*
TOTAL	**4,638**	**4,470**	**4,175**	**4,675**	**4,464**	**4,344**	**4,209**	**4,409**	**4,490**	**5,080**	**5,053**
Employment in EU catching sector	257,730						208,852	200,930	193,309	185,977	178,923
HSBG employment as % of EU fishing sector	***1.8***						***2.0***	***2.2***	***2.3***	**2.7**	**2.8**

NB Totals are incomplete for 1997–2005 (based on sum of a sub-section of countries).
Sources: Employment on fleets: industry interviews and questionnaires (see Section 9); EU catching sector employment: LEI BV & Framian BV (2006), extrapolated for 2004-2007 based on rate of change from 1997-2003.

Table 10 Employment on HSBG vessels that is dependent on high seas bottom fishing

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Estonia									221	160	163
Ireland					55	0	55	55	0	0	18
Spain	1417	1370	1356	1492	1507	1510	1582	1626	1520	1352	1335
France										3	4
Latvia								68	68	50	50
Lithuania				99	24	41	49	52	59	28	35
Poland									14	4	12
Portugal										470	470
Total	**1417**	**1370**	**1356**	**1591**	**1586**	**1551**	**1686**	**1801**	**1883**	**2067**	**2087**
EU total	257,730						208,852	200,930	193,309	185,977	178,923
HSBG as % of EU total	**0.55**						**0.81**	**0.90**	**0.97**	**1.11**	**1.17**

Source: Employment estimates on vessels: interviews and questionnaires with industry, Member State authorities for number of vessels; weighted by proportion of catch from HSBG fleet that is from high seas (see Section 7).

Table 11 Employment on EU HSBG vessels split by EU and non-EU nationals

Member State	EU vs non-EU	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Estonia	EU									174	128	128
	non-EU									58	43	43
Spain	EU	4174	4023	3758	4049	3853	3550	3452	3563	3420	3074	3053
	non-EU	464	447	418	450	428	627	609	629	604	769	763
Ireland	EU											
	non-EU											
France	EU											
	non-EU											
Latvia	EU								40	40	25	25
	non-EU								28	28	25	25
Lithuania	EU								101	72	58	58
	non-EU								11	8	6	6
Poland	EU											
	non-EU											
Portugal	EU										651	651
	non-EU										72	72
Total EU		4174	4023	3758	4049	3853	3550	3436	3689	3692	3922	3900
Total non-EU		464	447	418	450	428	627	606	665	695	911	906
Not specified		0	0	0	176	183	167	167	55	103	247	247
Percentage EU nationals		**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**85.0**	**85.0**	**84.7**	**84.2**	**81.1**	**81.1**

NB. The employment estimate for Lithuania for 2003 is the same as for 2004. It has been excluded from the table because of the distortion to the results it would produce, since all employment would have been of non-EU nationals at the time, because it was before Lithuania joined the EU.
Source: information from fishing companies.

5.2 Indirect employment

Estimates of indirect employment generated from activities and catches of the EU HSBG fleets are difficult to obtain. However, the magnitude of processing employment in the countries studied is probably of the order of 4 000–5 000, or 2.7–3.4 % of EU processing employment. Processing employment related to the HSBG fleets is largest in Spain, where it represents 10 % of employment in the processing sector. In Portugal it may represent up to 20 % of employment in the Portuguese processing sector (based on employment multiplier estimates).

Indirect employment relating to port activities and vessel maintenance and repair is also important in Spain and Portugal, where estimates are around 2 624 and 1 128 respectively. Indirect employment of this type in the Baltic states is limited as vessels do not return to their flag states for landing or port activities.

5.2.1 Landings

Landings of HSBG catches into EU Member States support on-shore (indirect) employment in processing and port activities. Over the period 1993–2006, 325 400 tonnes per year of deep sea species were landed into EU ports. Landings volume has shown a decline from an average of 527 700 tonnes per year in 1993–1995, to 177 300 tonnes per year in 1998–2000, and a subsequent increase to 392 600 tonnes per year over the period 2004–2006 (Table 12). The main EU countries where deep sea species are landed are Spain, Portugal and the Netherlands, although Germany was important in the 1990s.

The total value of these landings was € 562.9 million per year over the period 1993–2006. The value of landings reached a low in 2000 of € 142.0 million, and has subsequently recovered to € 824.9 million per year over the period 2004–2006.

For the EU as a whole, landings of deep sea species make up 1.5 % of landings of all species by volume (2004–2006) and 0.25 % by value (average per year, 2004–2006). The relative importance of landing volumes has increased, from 0.7 % in 1998–2000 and from 1.3 % from 1993–1995.

A comparison of Table 3 and Table 12 indicates that landings of deep sea species into EU Member States far exceed EU HSBG fleet catches. There are a number of reasons for this: landings data include landings of deep sea species from non-EU vessels landed in EU Member states; landings of deep sea species may include catches of deep sea species from within EEZs as well as on the high seas; and catches of deep sea species may be made with gears other than bottom gears (e.g. pelagic trawls operated close to the seabed).

Table 12 Landings of deep sea species into EU ports, volume and value, and as a % of total EU landings, 1997–2006

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Total volume (million tones)	270.3	265.7	127.0	139.2	211.5	302.4	210.0	493.2	289.3	395.4
Total value (€ million)	436.26	441.55	231.92	142.09	408.57	503.84	373.32	799.88	848.80	826.02
Volume as % of total EU landings	0.855	0.997	0.494	0.590	0.880	1.104	0.758	1.783	0.996	1.630
Value as % of total EU landings	0.121	0.159	0.070	0.045	0.121	0.148	0.114	0.245	0.262	0.233

Source: EUROSTAT landings database

5.3 Employment in non-EU countries

Employment generated in non-EU countries takes place both on EU HSBG vessels and in processing and port activities. Employment of non-EU nationals on EU vessels was 906 in 2007 (18.9 % of employment on the vessels). This includes Russians, Ukrainians and Belarussians on the Baltic fleets through crewing agents.

Estimates of employment generated in processing and port activities in non-EU countries could not be obtained. However the most important countries are: Canada (landings and storage of northern prawn), Iceland (processing of northern prawn, vessel maintenance and repairs), Norway, Uruguay, Brazil and South Africa.

5.4 Importance relative to overall Community employment in the fisheries sector

The social importance of Community HSBG fleets in the context of the whole EU fisheries sector is considered in terms of:

- Direct employment (on vessels);
- Indirect employment (in processing and port activities); as well as
- Generation of employment in non-EU countries.

See Table 13.

Table 13 Summary of social importance of the Community HSBG fleet compared to the whole Community fisheries sector

	HSBG activities	EU total	HSBG as % of EU total
Direct employment			
- relating to all fishing activities	5,053	178,923	2.8 %
- relating to HSBG fishing	2,087		1.2 %
Indirect employment			
- processing	4,000–5,000	146,139	3.1 %
- port activities	3,750	No estimates available	
Employment in non-EU countries			
- direct	906		
- indirect	No estimates available		

Source: HSBG activities: Direct employment estimates: industry interviews and Member State authorities; Indirect employment: industry interviews and questionnaires and Member State authorities; Employment in non-EU countries: industry interviews. EU total data: LEI BV & Framian BV (2006).

6 Conclusions

The economic and social importance of fishing activities by the EU HSBG fleet is relatively small when compared with the overall EU fleet activities. The predominant fleets in terms of catches, fishing effort and employment generation are, in order of priority, Spain, Portugal, Estonia, Lithuania and Latvia. In contrast the HSBG fishing activities of France, Ireland and Poland are relatively insignificant.

The main fishing areas for the EU HSBG fleets are the north Atlantic, mainly within the NAFO and NEAFC regulatory areas. Interactions with VMEs in these areas are most likely around the Hatton and Rockall Banks area, where a large amount of EU fishing effort takes place and there are concentrations of cold water corals. However, these areas are within regulated areas and several areas where bottom trawling is banned have already been established. Interactions with VMEs in other areas is likely to be limited, either due to their non-existence in the areas where fleets are fishing (e.g. SW Atlantic) or due to the relatively minor amount of EU effort in those areas (e.g. SE Atlantic).

The EU HSBG fleet represents 0.1 % of the European fleet by number, 5.1 % by tonnage and 1.8 % by power. Catches by the fleet in high seas areas (on average 70 000 tonnes), represent around 1.3 % of total EU catches. Employment on the fleet represents 2.8 % of employment in the European catching sector, mostly on bottom trawlers. 41 % of employment on the fleet is dependent on fishing activities in high seas with bottom gears (2 087 jobs or 1.2 % of employment in the EU catching sector).

Although the overall economic and social importance of these fleets is relatively small, in fisheries-dependent regions such as Galicia, the direct, indirect and induced rent and employment generation of the HSBG fishing fleet is of considerable importance. The economics of HSBG fishing have deteriorated over the past five years, principally because of the increase in fuel prices and declining catches, but also because of other factors such as the reductions of Greenland halibut EU quota in NAFO and the relative increase in fuel prices compared to the landed value of high seas bottom gear fished species.

7 Annex 1: Description of fleet activities and catches

7.1 Estonia

7.1.1 Distant water demersal activities

The majority of Estonian catches are made in the Baltic sea (DGFISH, 2004). The Estonian distant water fleet, though declining in importance, still provide 15% of total Estonian catches each year.

In the early 1990s the oceanic Estonian fishing fleet directed most of its effort in CECAF and NEAFC (see Figure 10). Estonian demersal distant water catches began to decline from 1995, except in NAFO. From 1999 onwards catches made in NAFO, mainly consisting of Northern prawn, have formed the majority of the Estonian oceanic fleet's catches.

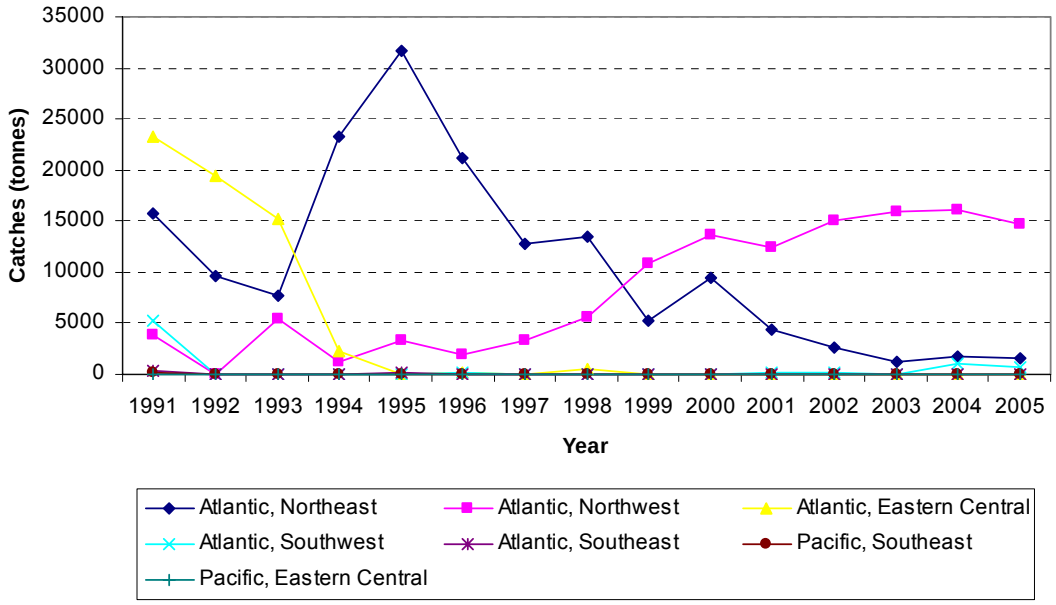


Figure 10: Estonian demersal catches by ocean area, 1991–2005.
Source: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007). Selected groups were: cods, hakes, haddocks; flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

7.1.2 HSBG fleet characteristics

In 2006 8 Estonian flagged vessels were involved in HSBG fishing, all using trawl gear (Estonian authorities, *pers. comm.*). These 8 vessels represent 0.8 %, 54.3 % and 32.8 % of Estonia's total fleet by number, tonnage and power, respectively (Table 14).

Table 14 Estonian HSBG fleet characteristics

	Vessel name	Gear type (1°/2°)	No vessels	Tonnage (GT)	Engine power (kW)	Age (years)	Length (m)
Estonia HSBG							
	Andvari	OTB/NO		888	1649	23	46.05
	Eldborg	OTB/PTB		1403	2808	34	71.43
	Lomur 2	OTM/OTB		1531	2208	38	66.6
	Lootus II	OTB/NO		555	904	33	45.72
	Madrus	OTB/NO		1602	1472	21	73.8
	Merike	OTM/NO		1332	1824	35	68.97
	Ontika	OTM/NO		1410	2803	23	63.83
	Taurus	OTB/NO		1780	2475	22	58
Total			**8**	**10 501**	**16 143**		
Average				1312.6	2017.9	28.6	61.8
Estonia total fleet			965	19335	49178		
% HSBG			0.83%	54.31%	32.83%		
EU total fleet			87 004	1 955 879	7 068 471		
% Estonia HSBG			0.009%	0.537%	0.228%		

Source: Vessel identification: National authorities; Vessel characteristics: EU Fleet Register; Estonia fleet total: DG Fish, 2007b; EU fleet total: Eurostat, 2007.

7.1.3 HSBG catches

VMS data for the Estonian HSBG fleet for 2002–2006 were used to identify the spatial locations of fishing effort, enabling high seas fishing activity and related catches to be identified from the available catch databases. Catches of northern prawn in the water surrounding Svalbard have historically been recorded for sub areas I and II (unspecified). In order to disaggregate these catches, a ratio of 5:95 for High seas:EEZ was assumed, based on information from the industry and in the absence of more concrete information.

The HSBG fleet of Estonia has historically provided a relatively large percentage of the catches of Estonia's total fleet, in high seas catches alone providing over 10% annually between 1999 and 2005 and averaging 8% from 1993 to 2006 (Table 17). Estonian bottom gear vessels that are involved in high seas fishing operations primarily expend effort in regulated high seas regions (Table 18). The majority of Estonia's annual HSBG catches are made in high seas regions regulated by NAFO (Appendix 2), around the Flemish cap and the Grand bank (subareas 3 L, M and to a lesser extent, N), primarily targeting northern prawn (accounting for 90% of total Estonian NAFO catches since 1994) with additional bycatches of redfish and Greenland halibut. Northern prawn catches in NAFO subarea 3M from 1993 to 2006 totalled 104 642 tonnes (see Appendix 2), out of the total Estonian HSBG high seas catch of 122 838 tonnes. Other species that are targeted in NAFO include Atlantic redfish and Greenland halibut, also in sub-areas 3 M, L and N.

In 2006, the majority of catches for all but two vessels in the fleet consisted of Northern prawn caught in the NAFO regulatory area. These other two vessels targeted finfish in NEAFC and the SW Atlantic. In NEAFC the majority of catches are made in the regions surrounding Hatton Bank and Rockall (subareas VIb1 and XIIb). The main species targeted in the high seas of NEAFC is Roundnose grenadier on the Hatton Bank.

The Estonian HSBG fleet fished began fishing operations in the SW Atlantic in 2002 , mainly targeting short fin squid, argentine hake and Patagonian grenadier. In 2006 this was one vessel, targeting demersal and pelagic species in the unregulated high seas bordering the Argentinean EEZ and the FICZ. Catch statistics for the SW Atlantic were supplied by the Estonian Ministry of Agriculture. VMS data indicated

that the high seas fishing effort was made in shallow waters, less than 200 metres deep. Thus the catches are relatively unimportant in the context of the proposed ban on high seas bottom fishing, which would only apply to much deeper waters. Estonian fishing effort in the SW Atlantic before 2002 was carried out by vessels with pelagic gear (Estonian Ministry of Agriculture, *pers. Comm*).

The Estonian HSBG vessels sometimes participate in Fishery Partnership Agreements, for example in the EEZs of Greenland and Svalbard, and participate in chartering agreements. However the catches associated with both activities are relatively small (Industry contact, *pers. comm*). Northern prawn is targeted in water surrounding Svalbard, although the majority of catches occur in the EEZ (Estonian Ministry of Agriculture, *pers. comm*).

VMS data were used to judge the proportion of fishing effort expended in various depth ranges for 2002 to 2006, for high seas catches only. Approximately 95 % of fishing effort in NAFO was expended in waters less than 1 000 metres in depth, with the remaining 5 % of effort spent in depths between 1 000 and 2 000 metres. In NEAFC all fishing effort was expended in waters deeper than 1 000 metres. All fishing effort in the SW Atlantic was expended in depths shallower than 1000 metres.

Table 15: Total Estonian HSBG catches (tonnes), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Argentine hake	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	188.0	0.0	557.7	678.9	684.7	**2109.3**
Atlantic redfish (ns)	0.0	135.0	863.0	13.0	0.0	0.0	0.0	846.0	207.0	26.0	65.0	126.0	1106.0	1261.0	**4648.0**
Baird's slickhead	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	154.0	259.0	43.0	22.0	0.0	0.0	**478.0**
Black scabbardfish	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	225.0	0.0	7.0	5.0	12.0	5.0	**254.0**
Blue ling	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	85.0	22.0	5.0	3.0	5.0	3.0	**123.0**
Greenland halibut	0.0	0.0	0.0	0.0	0.0	0.0	0.0	181.0	957.0	900.0	1697.0	789.0	365.0	374.0	**5263.0**
Northern prawn	0.0	1051.0	2380.0	2039.1	3326.6	5616.7	10915.7	12237.4	9971.9	13724.0	12968.0	13588.0	12291.0	6157.0	**106266.2**
Notothenids nei	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.5	21.2	**28.6**
Pink tusk eel	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	37.0	0.0	6.1	3.8	4.9	**51.8**
Roughhead grenadier	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	93.0	216.0	102.0	96.0	**508.0**
Roundnose grenadier	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	690.0	848.0	102.0	196.0	156.0	104.0	**2116.0**
Short-finned squid	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	533.0	0.0	37.4	199.1	171.4	**940.8**
Other species	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.0	0.0	8.7	13.4	11.2	**51.3**
Total	**0.0**	**1186.0**	**3243.0**	**2052.1**	**3326.6**	**5616.7**	**10915.7**	**13285.4**	**12289.9**	**16555.0**	**14980.0**	**15554.8**	**14939.7**	**8893.4**	**122838.1**

Source: NAFO 21B database, ICES catch database and data supplied by Estonian Ministry of Agriculture.

Table 16: Total Estonian HSBG catches (€m), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Argentine hake	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.512	0.000	1.198	2.423	1.677	**5.809**
Atlantic redfish (ns)	0.000	0.179	1.039	0.013	0.000	0.000	0.000	1.196	0.358	0.045	0.113	0.168	2.528	2.873	**8.512**
Baird's slickhead	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.456	0.767	0.127	0.047	0.000	0.000	**1.397**
Black scabbardfish	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.310	0.000	0.011	0.009	0.013	0.008	**0.351**
Blue ling	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.140	0.036	0.006	0.004	0.007	0.005	**0.199**
Greenland halibut	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.466	2.445	2.002	3.641	1.913	0.935	1.003	**12.406**
Northern prawn	0.000	2.113	5.826	4.826	6.836	12.089	23.984	29.457	17.614	24.745	21.757	29.405	31.686	16.287	**226.626**
Notothenids nei	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.028	**0.038**
Pink tusk eel	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.093	0.000	0.013	0.010	0.013	**0.130**
Roughhead grenadier	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.066	0.219	0.147	0.130	**0.562**
Roundnose grenadier	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.011	0.495	0.643	0.082	0.197	0.372	0.066	**1.868**
Short-finned squid	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.044	0.187	0.165	**1.020**
Other species	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.022	0.000	0.011	0.018	0.015	**0.065**
Total	**0.000**	**2.293**	**6.865**	**4.840**	**6.836**	**12.089**	**23.984**	**31.132**	**21.818**	**29.491**	**25.804**	**33.228**	**38.336**	**22.270**	**258.984**

Source: Landed prices taken from EUROSTAT landings database.

Table 17: Estonian HSBG catches (tonnes) as a percentage of total Estonian catches, by species, 1993–2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Argentine hake	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.65	0.70	N/A	**0.10**
Atlantic redfish (ns)	0.00	0.11	0.67	0.01	0.00	0.00	0.00	0.77	0.20	0.03	0.09	0.15	1.15	N/A	**0.24**
Baird's slickhead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	0.27	0.06	0.03	0.00	N/A	**0.03**
Black scabbardfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.01	0.01	0.01	N/A	**0.02**
Blue ling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.02	0.01	0.00	0.01	N/A	**0.01**
Greenland halibut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.93	0.93	2.25	0.92	0.38	N/A	**0.35**
Northern prawn	0.00	0.86	1.84	1.92	2.75	4.89	10.04	11.13	9.71	14.17	17.18	15.89	12.76	N/A	**7.08**
Notothenids nei	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	N/A	**0.00**
Pink tusk eel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.01	0.00	N/A	**0.00**
Roughhead grenadier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.25	0.11	N/A	**0.03**
Roundnose grenadier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.67	0.88	0.14	0.23	0.16	N/A	**0.14**
Short-finned squid	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.04	0.21	N/A	**0.05**
Other species	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.01	0.01	N/A	**0.00**
Total	**0.00**	**0.97**	**2.50**	**1.93**	**2.75**	**4.89**	**10.04**	**12.08**	**11.97**	**17.09**	**19.84**	**18.19**	**15.51**	N/A	**8.06**

Source: NAFO 21B database, ICES catch database, data supplied by Estonian Ministry of Agriculture and FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007) .

Table 18: Total annual catches (tonnes) of the Estonian bottom gear fleet involved in high seas fishing operations split between EEZ and unregulated and regulated high seas for 1993 – 2006

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
EEZ	631	0	0	1256	1663	1589	1533	577	1252	731	0	321	726	585	**10865**
High Seas (RFMO)	0	1186	3243	2052	3327	5617	10916	13285	12290	15779	14980	14945	14050	8007	**119676**
High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	776	0	610	890	886	**3162**
Total	**631**	**1186**	**3243**	**3308**	**4990**	**7206**	**12449**	**13862**	**13542**	**17286**	**14980**	**15876**	**15666**	**9478**	**133703**

Source: NAFO 21B database, ICES catch database, data supplied by Estonian Ministry of Agriculture.

7.1.4 Spatial trends in fishing effort

The Estonian fleet has a relatively consistent spatial effort trend, both between and within ocean regions.

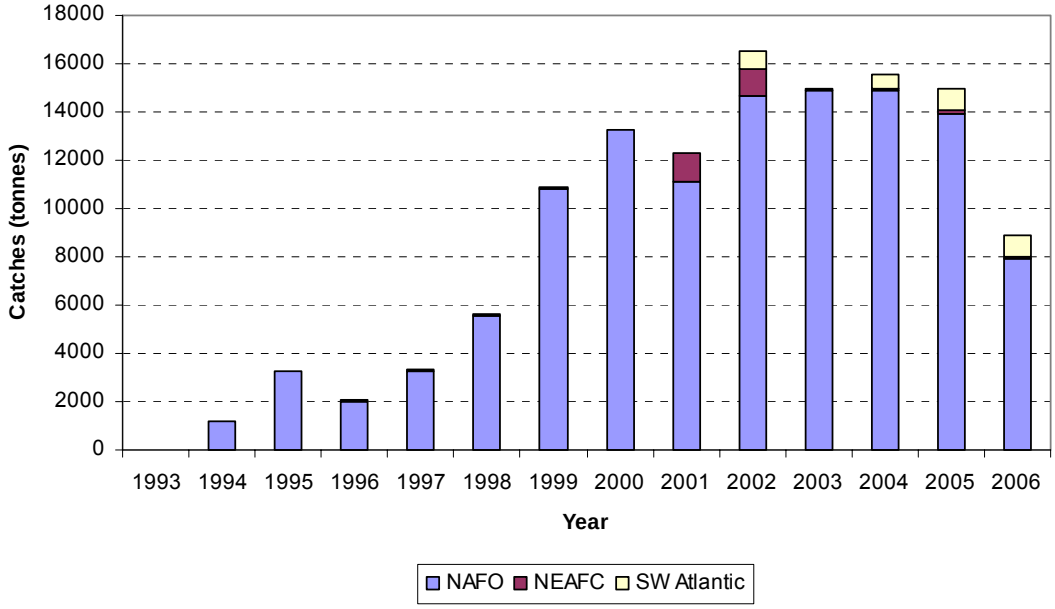


Figure 11: Annual high seas catches (tonnes) of the Estonian HSBG fleet per ocean region, 1993 – 2006.
Source: NAFO 21B database, ICES catch database and data supplied by Estonian Ministry of Agriculture

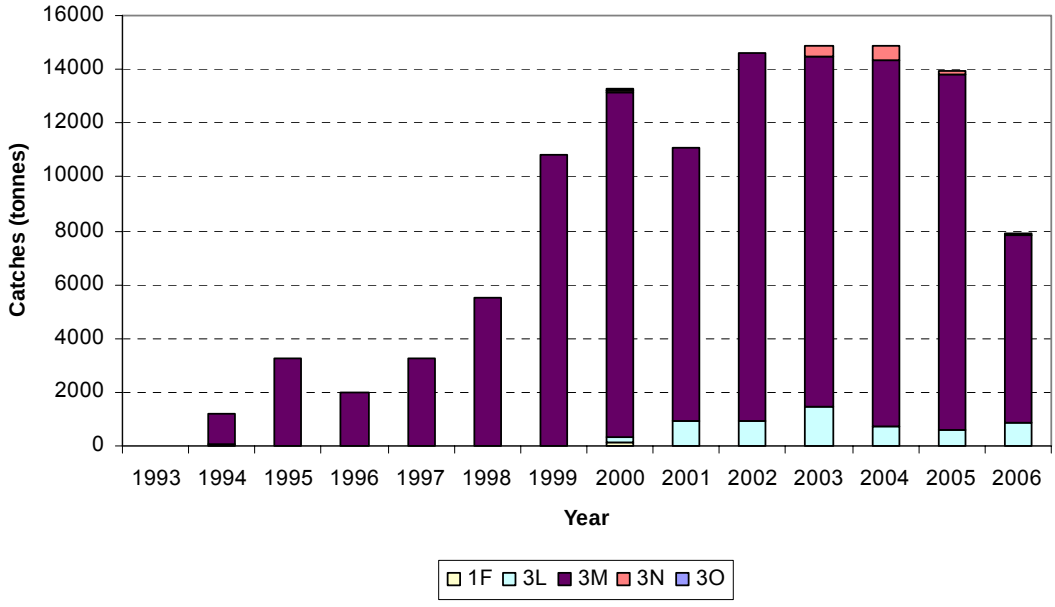


Figure 12: Annual high seas catches (tonnes) of the Estonian HSBG fleet in NAFO per division, 1993 – 2006.
Source: NAFO 21B database

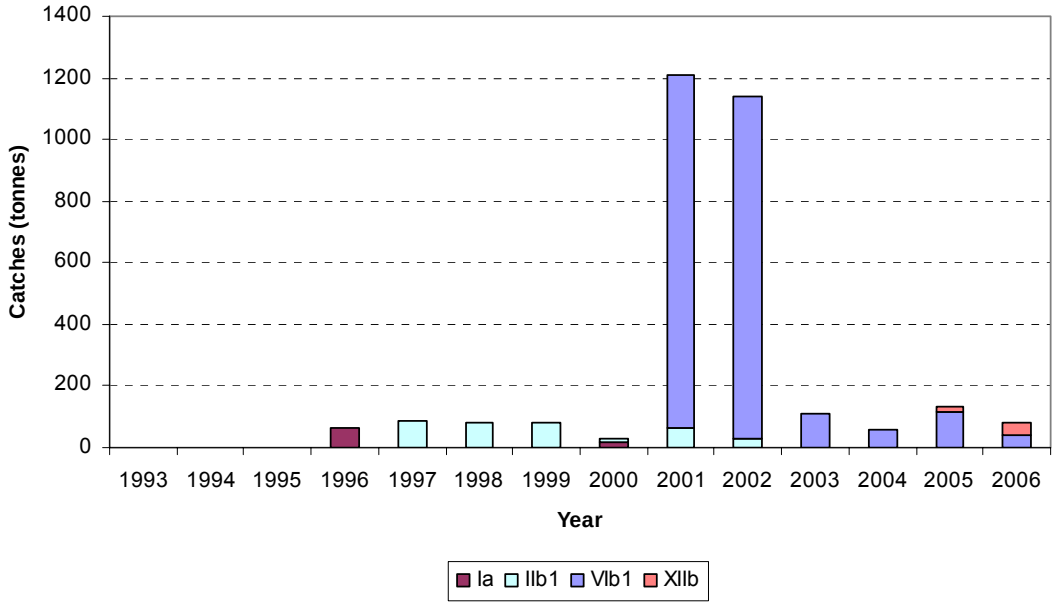


Figure 13: Annual high seas catches (tonnes) of the Estonian HSBG fleet in NEAFC per subdivision, 1993 – 2006.
Source: ICES catch database

NAFO accounts for the majority of high seas HSBG catches (Figure 11), the vast majority made in 3M (Figure 12). Fishing effort in NEAFC moved from subareas Ia and IIb1 from 1993 – 2000 into subareas VIb1 and XIIb from 2001 onwards (Figure 13). Estonian HSBG vessels first fished in the unregulated high seas waters of the SW Atlantic in 2002 and annual catches have remained fairly constant with the exception of 2003. HSBG fishing effort in the SW Atlantic is consistently expended in the FICZ and the region just outside the Argentine EEZ (see Figure 17b)) for EEZ and high seas catches respectively.

7.1.5 Ports, landing and processing

The Estonian HSBG fleet landed 61 896.8 tonnes over the period 2004–2007 (Table 19). In general the Estonian HSBG vessels never return to Estonia. Their main port of landing is dependent on the target species and the location of catches. The most important country for landings was Canada (in particular the ports of Bay Roberts and Harbour Grace) where northern prawn and redfish catches from NAFO are landed — close to the fishing grounds. Landings of northern prawn and small quantities of redfish are also landed directly to a number of Icelandic ports (e.g. Hafnarfjordur). The vessels also use these Canadian and Icelandic ports for maintenance (additionally, some vessels are owned in joint venture with Icelandic capital).

Deep-sea fish species from NEAFC such as Greenland halibut and redfish are landed in Portugal and Spain where landed prices are higher (Industry contact, *pers. comm*). This is mainly in Vigo, Spain, and also Horta, Portugal (Table 20). Small quantities are also landed in Norway. In 2006, one Estonian HSBG vessel operated in the SW Atlantic and landed catches in Montevideo in Uruguay.

The vessels targeting Northern prawn usually process catches on board, mainly peeling and cooking. The catch is kept in cold storage and sold mainly to Japan, Scandinavia and also Estonia. Fish caught in NEAFC are frozen and sold before arrival at the landing port.

Table 19: Landings (tonnes) per country by the Estonian HSBG fleet for 2004-2007

Country	2004	2005	2006	2007	Total
Canada	12516.0	9836.6	6132.6	10552.9	**39038.2**
Spain	1738.3	5584.9	3632.3	1929.4	**12884.9**
Portugal	0.0	0.0	637.6	0.0	**637.6**
Iceland	1265.5	1855.2	3273.1	1423.8	**7817.6**
Uruguay	0.0	0.0	1058.7	0.0	**1058.7**
Norway	206.9	0.0	0.0	253.0	**459.9**
Total	**15726.7**	**17276.7**	**14734.3**	**14159.1**	**61896.8**

Source: Estonian Ministry of Agriculture.

Table 20: Landings (tonnes) by country, port and species for the Estonian HSBG fleet, 2004-2007

Country	Port	Species code	2004	2005	2006	2007	Total
Spain	Vigo	GHL	710.4	1226.6	526.8	356.1	**2819.9**
Portugal	Horta	GHL	0.0	0.0	11.0	0.0	**11.0**
Canada	Bay Roberts	GHL	0.2	0.0	0.0	0.0	**0.2**
Canada	Bay Roberts	PRA	7759.8	5549.4	3565.6	6979.5	**23854.3**
Canada	Harbour Grace	PRA	4140.1	4287.2	2566.9	3573.5	**14567.7**
Iceland	Hafnarfjordur	PRA	749.2	499.0	1492.5	1297.4	**4038.1**
Iceland	Akureyri	PRA	0.0	952.3	1650.3	0.0	**2602.5**
Canada	Argentia	PRA	483.4	0.0	0.0	0.0	**483.4**
Norway	Tromso	PRA	206.9	0.0	0.0	253.0	**459.9**
Iceland	Olafsfjordur	PRA	0.0	403.9	0.0	0.0	**403.9**
Iceland	Siglufjord	PRA	289.2	0.0	0.0	0.0	**289.2**
Iceland	Saudakrok	PRA	227.0	0.0	0.0	0.0	**227.0**
Spain	Vigo	REB	0.0	4.5	0.0	428.1	**432.6**
Iceland	Hafnarfjordur	REB	0.0	0.0	3.8	126.4	**130.2**
Iceland	Eskifjördur	REB	0.0	0.0	126.6	0.0	**126.6**
Spain	Vigo	RED	102.9	1169.5	1219.3	766.9	**3258.6**
Portugal	Horta	RED	0.0	0.0	377.1	0.0	**377.1**
Canada	Harbour Grace	RED	132.5	0.0	0.0	0.0	**132.5**
Spain	Vigo	REG	0.0	0.0	172.5	0.0	**172.5**
-	-	Other	924.9	3184.4	3021.8	378.2	**7509.4**
Total			**15726.7**	**17276.7**	**14734.3**	**14159.1**	**61896.8**

Source: Estonian Ministry of Agriculture.

7.2 Ireland

7.2.1 Distant water demersal activities

Ireland's fisheries institutions did not provide any information on their high seas fleet or catches. However, catch data suggest that any activity on the high seas is very limited.

FAO catch data indicate that most Irish demersal catches are taken in the NE Atlantic; some catches of demersal species have also been taken in the CECAF region from 2001 onwards (Table 21). Ireland does not have authorisations for demersal fishing under any of the EU fisheries agreements in West Africa, although they have some allowance for pelagic trawling in the latest Fisheries Partnership Agreement (FPA) with Morocco from 2006. It is unclear from which area these CECAF catches have been taken.

Table 21 Ireland demersal catches in all ocean areas

Area	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Atlantic, E. Central	0	0	0	0	0	0	0	0	0	0	678	580	340	998	323	**2,919**
Atlantic, Northeast	31910	34532	32352	34452	42472	45187	70124	87543	74840	66106	78015	63591	52798	87140	95769	**896,831**
Total	**31910**	**34532**	**32352**	**34452**	**42472**	**45187**	**70124**	**87543**	**74840**	**66106**	**78693**	**64171**	**53138**	**88138**	**96092**	

Source: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007). Selected groups were: cods, hakes, haddocks; flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

7.2.2 HSBG fleet characteristics

The WGDEEP report from 2005 (ICES, 2005) indicates Ireland had one longliner and two trawlers operating in high seas areas in 2003, and one trawler in 2004. We therefore assume that Ireland's high seas fleet comprises one bottom longliner and two trawlers, at a maximum (Table 22), although these vessels probably spend most of their time fishing in national waters. An analysis of the characteristics of the EU vessel register indicates that Ireland's fleet includes 25 vessels that would have the potential to bottom trawl on the high seas (Table 66). The average tonnage and length of these 25 vessels have been used to estimate the characteristics of fleet in Table 22.

Table 22 Ireland HSBG fleet characteristics

	Vessel name	Gear type ($1^o/2^o$)	No vessels	Tonnage (GT)	Engine power (kW)	Age (years)	Length (m)
Ireland HSBG							
	Unknown	Longline	1	Unknown	Unknown		
	Unknown	Trawl	2	1 904	2 964		
Total			**3**	**1 904**	**2 964**		
Average							
Ireland total fleet			1 961	71 460	209 201		
% HSBG			0.15 %	2.66 %	1.41 %		
EU total fleet			87 004	1 955 879	7 068 471		
% Ireland HSBG			0.003 %	0.097 %	0.042 %		

Source: Number of HSBG vessels: ICES, 2007; Characteristics of HSBG vessels: estimated from EU Fleet Register; Ireland total fleet: DG Fish, 2007b. EU fleet total: Eurostat, 2007.

7.2.3 HSBG catches

The Irish HSBG fleet mostly fishes in the region of NEAFC surrounding the Irish EEZ, with high seas fishing operations occurring in waters surrounding Hatton bank and Rockall. However historically, little effort has been spent in high seas fishing operations by Irish vessels (Marine Institute, *pers. comm*). Thus high seas catches are relatively low (Table 26). This is consistent with information from the ICES Working Group on the Biology and Assessment of Deep-Sea Fisheries Resources (WGDEEP), which indicates that most Irish catches in NEAFC are taken from within the Irish EEZ rather than from high seas areas (ICES, 2005). The following high seas activity is identified for Ireland for 2003 and 2004, corresponding with the catch data:

- 2003: 1 longliner, 13 days at sea; 2 trawlers, 65 days at sea; Area XII. Total catch 145 t;
- 2004: 1 trawler, 38 days at sea; Area X. Total catch 34 t.

Ireland's catches from various sub-areas have been fairly constant from 1993 onwards, taking place in sub-areas VI and VII, which include the Irish EEZ. In 2001,

2003 and 2004 there were also catches in sub-areas X and XII (Azores and Hatton Bank, respectively) (ICES, 2005), which stand out from their normal reported catch locations.

Due to the low spatial resolution of catch data of the catch ICES database, available high seas catch data of the Irish fleet in 2003 and 2004 (ICES, 2007b) was relied on to estimate historic Irish high seas catches. The catch data recorded in the ICES database for subareas of waters straddling EEZ and the high seas fishing areas in 2003 and 2004 (ICES, 2007b) was equal to the total known high seas catches for 2003 and 2004. It was then assumed that Irish historic high seas fishing patterns were the same as in 2003 and 2004, implying that catches of deep sea species historically recorded for the straddling subareas were all made in the high seas.

The key species targeted by the Irish HSBG fleet in 2003 and 2004 was Orange roughy and the extrapolation of the 2003 and 2004 fishing patterns suggests that Orange roughy and Argentines provided the majority of Irish HSBG catches from 1993 to 2006 (see Table 23). However the total catches of the Irish HSBG are small, both in absolute terms and relative to total Irish catches, accounting for approximately 0.1 % of total Irish catches (Table 23 and Table 25).

Table 23: Total Irish HSBG catches (tonnes), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Argentines	0	0	0	0	0	0	0	0	72	0	0	0	0	0	**72**
Greenland halibut	0	0	0	0	0	0	0	0	49	0	0	0	0	0	**49**
Orange roughy	0	0	0	0	0	0	0	0	0	0	136	19	0	0	**155**
Portuguese dogfish	0	0	0	0	0	0	0	0	29	0	5	0	0	0	**34**
Other species	0	0	0	0	0	0	0	0	6	0	3	15	0	0	**24**
Totals	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**156**	**0**	**144**	**34**	**0**	**0**	**334**

Source: NAFO 21B database and ICES database on catch statistics.

Table 24: Total Irish HSBG catches (€m), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Argentines	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.000	**0.040**
Grenadiers nei	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.125	0.000	0.000	0.000	0.000	0.000	**0.125**
Orange roughy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.594	0.046	0.000	0.000	**0.640**
Portuguese dogfish	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.054	0.000	0.008	0.000	0.000	0.000	**0.061**
Other species	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.004	0.019	0.000	0.000	**0.029**
Total	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.227**	**0.000**	**0.605**	**0.065**	**0.000**	**0.000**	**0.896**

Source: Landed prices taken from EUROSTAT landings database.

Table 25: Irish HSBG catches (tonnes) as a percentage of total Irish catches, by species, 1993–2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Argentines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	N/A	**0.00**
Greenland halibut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	N/A	**0.00**
Orange roughy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.00	N/A	**0.00**
Portuguese dogfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	N/A	**0.00**
Other species	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	N/A	**0.00**
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.04**	**0.00**	**0.05**	**0.01**	**0.00**	**N/A**	**0.01**

Source: NAFO 21B database, ICES database on catch statistics and FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007) .

Table 26: Total annual catches (tonnes) of the Irish bottom gear fleet involved in high seas fishing operations split between EEZ and unregulated and regulated high seas for 1993 – 2006

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
High Seas (RFMO)	0	0	0	0	0	0	0	0	156	0	144	34	0	0	**334**
High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**156**	**0**	**144**	**34**	**0**	**0**	334

Source: NAFO 21B database and ICES database on catch statistics.

7.2.4 Spatial trends in fishing effort

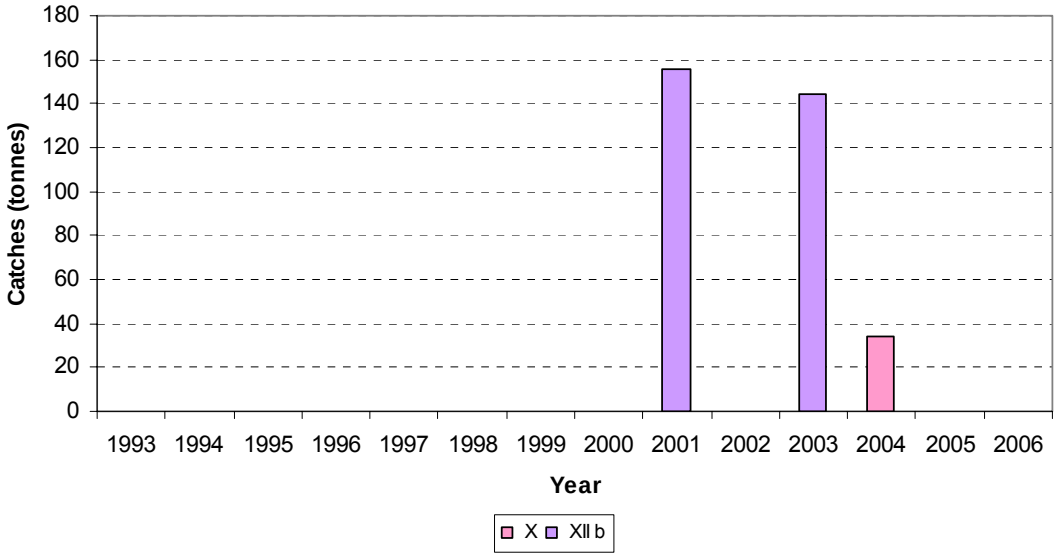


Figure 14: Annual high seas catches (tonnes) of the Irish HSBG fleet in NEAFC per subdivision, 1993 – 2006.
Source: ICES catch database and ICES (2007b)

Irish HSBG fishing occurs sporadically and the levels of fishing effort involved are very low (Figure 14). The effort is solely expended in NEAFC in high seas waters in XII and X.

7.3 Spain

7.3.1 Distant water demersal activities

The Spanish distant water fleet's greatest catches of demersal species come from the northeast Atlantic, southwest Atlantic, eastern central Atlantic (CECAF) and northwest Atlantic (Figure 15). Catches in the CECAF area are most likely to be from within the Spanish EEZ (around the Canary Islands) and from within West African EEZs from under EU bilateral fisheries agreements and fisheries partnership agreements.

Since 1999, Spain has recorded catches of demersal species in the southeast Pacific, and in 2004–2005 started to record catches of demersal species in the Pacific Antarctic, eastern central Pacific, northwest Pacific and southwest Pacific. This demonstrates a gradually expanding fishing grounds as the vessels seek new fishing opportunities. However these catches are relatively minor and probably represent exploratory fishing activities rather than established fishing grounds.

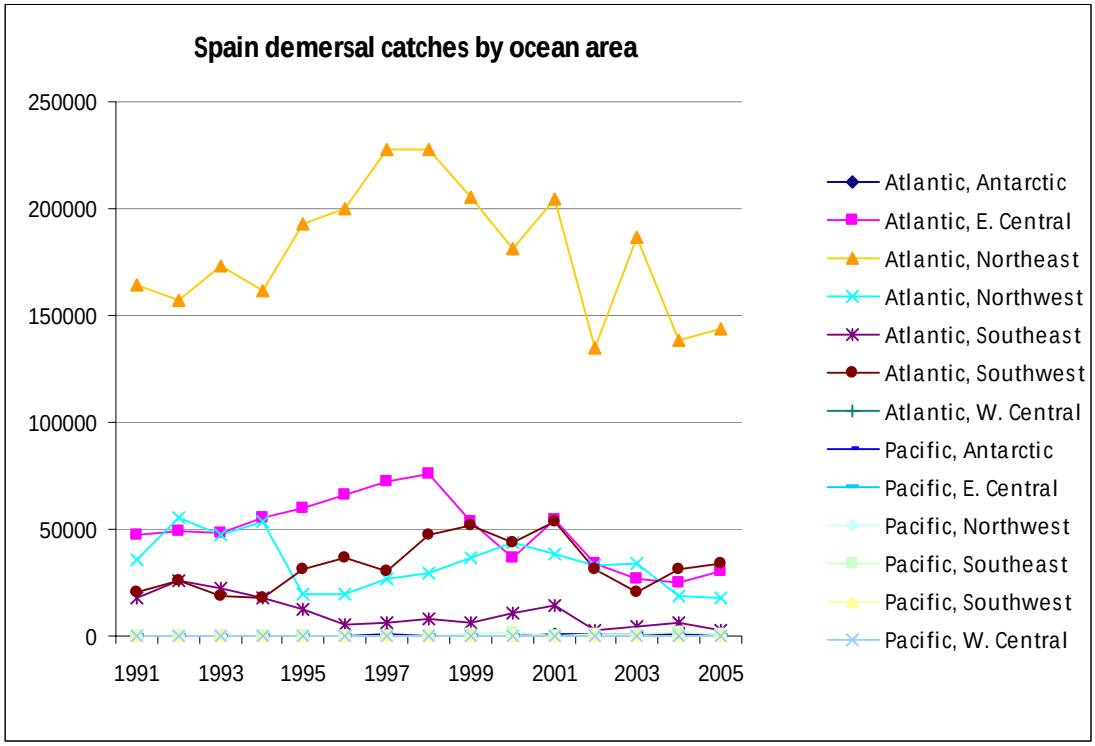


Figure 15 Spanish demersal catches for all ocean areas, 1991–2005
Source: FAO Fishstat Capture production dataset (1950-2005). Selected groups were: cods, hakes, haddocks; flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

7.3.2 HSBG fleet characteristics

Spanish vessels fishing with bottom gears on the high seas are part of the long distance fleet and can be divided into the following segments in relation to fishing gears and areas:

- Bottom trawlers operating in NW and SW Atlantic;
- Bottom trawlers and bottom longliners alternating activity in international waters of NEAFC fishing grounds and in EU waters;
- Bottom longliners fishing within the CCAMLR area.

Traditionally, the Spanish bottom trawl long distance fleet has fished in the waters of the north Atlantic (mainly in the Newfoundland's cod fishery), and more recently in waters of the southwest Atlantic (since 1983, after the Falklands' war). The fleet's activities in international waters include a small area of the northwest Atlantic (shelf and slope international waters of the Grand Bank and the Flemish Cap) and also the international waters of the northeast Atlantic (Hatton Bank). In the southwest Atlantic, this fleet operates on the high seas beyond Argentina's EEZ and outside the conservation areas around the Falkland Islands (FICZ and FOCZ).

The estimation of the number of vessels using bottom gears on the high seas, as well as their catches in recent years, is a difficult task, for several reasons: many of these are exploratory fisheries; catches vary enormously; stocks are often exploited in the space of a few years; boats frequently operate in different areas in the same year looking for new species; fisheries targeting aggregations of spawning fish may last only a few months each year (the spawning season); and many of the ships involved often fish on the high seas only for part of the year. Furthermore, vessels may

request a fishing permit from the Spanish authorities to fish in a certain area (*Permiso Temporal de Pesca – PTP*) but not actually fish there.

By 2006, the Spanish long distance fleet comprised 41 large freezer trawlers (although there may be up to 55) based in Galician ports (mainly in Vigo), and 9 bottom longliners (and possibly up to 11) (Table 27). The freezer trawlers operate almost exclusively in the North Atlantic or in the Southwest Atlantic, though there are boats that alternate between both areas. A total of 36 vessels were fishing in the North Atlantic (although with the latest reductions in NAFO TACs, it seems that there has been a decline in the number of units in the area) and 18 or 19 vessels in the Southwest Atlantic. The total annual mean catch of those freezer trawlers is around 67 000 tonnes (ANAMER-MGO, 2006). Bottom longliners fishing on the high seas operate in two different geographical areas: the fishing grounds in NEAFC where about 8 or 9 vessels operate sporadically and those within the CCAMLR area (2 vessels licensed for 2006/2007 and 1 vessel for 2007/2008).

The fleet that works in the North Atlantic consists of about 36 vessels, with an average age of about 12 years, tonnage ranging between 509 and 1 866 GT with an average of 1 028 GT. Such vessels are able to fish up to 1 700 m depth and they alternate fishing grounds on the high seas of the NW Atlantic and Hatton Bank, and to a lesser extent on the Irminger Sea and in the waters around Svalbard archipelago. Vessels operating on these fishing grounds, use a bottom otter trawl called 'Pedreira' (a kind of rockhopper gear) with an average length of the ground gear and float of about 60 and 52 m respectively, and a vertical mouth opening of about 3–4 m, apart from when fishing in the oceanic redfish fishery in the Irminger Sea, where they use a mid water (pelagic) trawl, a very large type of fishing gear commonly referred to as 'Gloria trawl' (ANAMER-MGO, 2006).

The technical characteristics of the NAFO Spanish fleet are shown in Table 28. According to licences and quota availability, the effort distribution of this fleet is roughly 60 % in the NAFO area and 40 % in Hatton Bank, Irminger Sea, Svalbard, Reykjanes Ridge and Greenland.

The technical characteristics of the Spanish fleet that operates in NEAFC (Hatton Bank) are shown in Table 29. Most were built in the mid '70's to late '80's, with autonomy for long voyages far from their base ports, with overall lengths from 46–84 m, power ratings of between 800 and 2 555 horsepower, and gross tonnages from 264–1 866 GT. In 2005 the Spanish General Secretariat for Maritime Fisheries (*Secretaría General de Pesca Marítima*, SGPM) awarded PTPs in NEAFC for oceanic redfish (7 bottom trawlers) and for deep-sea species (37 trawlers and 2 pair trawlers). It should be noted the granting of a PTP does not mean that fishing is necessarily carried out under it by the applicant vessel, due to the fishing strategy of each company.

Vessels belonging to the '300 Fleet' (those vessels authorised to fish in the Celtic Sea when Spain joined the EU in 1986, now numbering 188 vessels, of which 105 are equipped with bottom otter trawls) are allowed by the Spanish Law to operate in Hatton Bank, but very few of them (only the above mentioned 9 bottom longliners) are interested in this activity due to their characteristics (length) and the remoteness of those fishing grounds. Their catches in international waters represented 10 % of their total catch in Hatton Bank. Catches of bottom longliners belonging to OPP-Lugo were around 0.2 % of the total fleet of this organisation fishing in the Celtic Sea (*pers. comm.*).

A small group of 5 bottom trawlers target northern prawn and cod (*Gadus morhua*) in Svalbard (ICES Subareas I and II) as part of their annual activity. They are between 971 and 1 856 GT (average 1 363 GT).

The fleet operating in the SW Atlantic mainly works in FAO subareas 41.3.1 and 41.3.2. This fleet currently consists of about up to 19 vessels, ranging from 696 to 1 819 GT, and an average of about 1 190 GT. These bottom trawlers operate on the Patagonian Shelf, where they alternate fishing grounds within the Falklands Conservation Zones (FICZ, Falkland Islands Inner Conservation Zone and FOCZ, Falklands Outer Conservation Zone) with those on the high seas, outside the Argentinean EEZ. Fishing effort has been constant since 2000 at around 20 vessels. Most fishing operations take place in depths of up to 300 m.

Table 27 Spain HSBG fleet characteristics

	Vessel name	Gear type ($1^o/2^o$)	No vessels	Tonnage (GT)	Engine power (kW)	Age (years)	Length (m)
Spain HSBG NAFO fleet							
	ANA GANDON	OTB/PTB		963	899.93	7	58
	AREA COVA	OTB/PTB		558	588.67	36	43.6
	EIRADO DO COSTAL	OTB/PTB		1,167	890.36	4	56
	ESPERANZA MENDUIÃ‘A	OTB/PTB		1,866	1,467.99	21	76.9
	FAKIR	OTB/PTB		942.2	808.68	4	53.85
	FESTEIRO	OTB/PTB		1,387	1,342.9	7	64.7
	FOLIAS	OTB/PTB		942.2	1,246.5	3	53.85
	FREIREMAR UNO	OTB/PTB		1,120	1,456.95	20	57.48
	HERMANOS GANDON CUATRO	OTB/PTB		1,210	1,471.67	20	62.9
	PESCABERBES DOS	OTB/PTB		1,638	1,191.32	20	65.71
	MANUEL ANGEL NORES	OTB/PTB		1,513.58	1,618.84	6	72.2
	PATRICIA SOTELO	OTB/PTB		755	588.67	9	51
	PESCA VAQUEIRO	OTB/PTB		1,819	1,434.88	20	66.72
	PLAYA DE CATIVA	OTB/PTB		859	1,066.96	19	55.8
	PLAYA DE GALICIA	OTB/PTB		1,021	1361.3	27	53.75
	PLAYA DE RODAS	OTB/PTB		863	1,066.96	19	55.8
	PLAYA DE SARTAXENS	OTB/PTB		1,605	1,471.67	21	65.9
	PLAYA DE TAMBO	OTB/PTB		1,108	1,302.43	21	57.48
	PLAYA MENDUIÃ‘A DOS	OTB/PTB		836	699.78	7	51
	PUENTE SABARIS	OTB/PTB		1,393	1,044.89	22	63
	PUNTA ROBALEIRA	OTB/PTB		613	699.04	29	49
	RIO CAXIL	OTB/PTB		868.65	735.84	4	50.5
	RIO ORXAS	OTB/PTB		874	1,302.43	21	56.35
	SANTA MARIÃ‘A	OTB/PTB		777.76	1039	20	48.96
	VILLA DE PITANXO	OTB/PTB		825	878.59	5	50.3
	XINZO	OTB/PTB		1,191	1,434.88	21	58.3
Subtotal			26	28,715.4	29,111.1		
Average				1 104.4	1 119.7	15.9	57.7
SW Atlantic bottom trawlers							
	BEATRIZ NORES	OTB/PTB		1,024.00	1,361.30	30.00	65.63
	COSTA DO CABO	OTB/PTB		1,276.00	1,434.88	6.00	60.00
	DORNEDA	OTB/PTB		748.00	1,136.87	20.00	42.74
	FIGARO	OTB/PTB		741.00	901.40	18.00	43.60
	FORCADELA	OTB/PTB		806.00	1,177.34	33.00	53.10
	HERMANOS TOUZA	OTB/PTB		1,390.00	1,420.16	22.00	66.93
	JOSE ANTONIO NORES	OTB/PTB		1,576.00	1,342.90	19.00	67.20
	LOITADOR	OTB/PTB		1,267.00	1,449.60	21.00	61.20
	PATRICIA NORES	OTB/PTB		1,070.00	1,421.04	22.00	55.62
	PISCATOR	OTB/PTB		1,454.35	1,434.88	20.00	69.25
	PLAYA PESMAR DOS	OTB/PTB		1,485.20	1,791.02	4.00	71.00
	PLAYA PESMAR UNO	OTB/PTB		1,485.00	1,790.29	5.00	71.00
	TASARTE	OTB/PTB		696.00	1,177.34	32.00	49.56
	PLAYA DE CATIVA	*OTB/PTB*		*859.00*	*1,066.96*	*19.00*	*55.80*

	PLAYA DE GALICIA	*OTB/PTB*		*1,021.00*	*1,361.30*	*27.00*	*53.75*
	PLAYA DE RODAS	*OTB/PTB*		*863.00*	*1,066.96*	*19.00*	*55.80*
	PLAYA DE SARTAXENS	*OTB/PTB*		*1,605.00*	*1,471.67*	*21.00*	*65.90*
	PLAYA DE TAMBO	*OTB/PTB*		*1,108.00*	*1,302.43*	*21.00*	*57.48*
Subtotal (inc. 5 vessels also in NAFO section)			18	20,474.55	24,108.34		
Average (inc. 5 vessels also in NAFO section)				1,137.48	1,339.35	19.94	59.20
Subtotal (excl. 5 vessels also in NAFO section)			13	15,018.55	17,839.02		
Average (excl. 5 vessels also in NAFO section)				2,145.51	2,548.43	19.38	59.76
Northeast Atlantic vessels							
	ADVIENTO UNO	LLS / GNS		294.00	441.50	3	32.00
	MARIAVIDAL	LLS / GNS		233.57	206.03	11	29.00
	NUEVO EBENEZER	LLS / GNS		179.00	485.65	38	28.15
	NUEVO SAN JUAN	LLS / GNS		299.68	451.07	10	31.50
	REY DE OLAYA	LLS / GNS		336.00	220.75	4	32.60
	RAUL PRIMERO	LLS / GNS		260.00	316.41	17	33.50
	INTXORTAMENDI	OTB / PTB		441.00	353.20	7	40.00
	KALAMENDI	OTB / PTB		476.00	353.20	5	42.50
Subtotal			8	2,519.30	2,827.80		
Average				314.90	353.50	11.9	33.7
CCAMLR longliners							
	TRONIO	LLD		1,058.00	1,379.69	3.00	55.00
	GALAECIA	LLD		840.00	1,214.13	6.00	48.00
	ARNELA	LLD		651.00	1,214.13	5.00	46.45
Subtotal			3	2,549.00	3,807.95		
Average				849.67	1,269.32	4.67	49.82
Trawlers							
Subtotal			41	44,650.9	47,656.6		
Average				1,089.0	1,162.4	16.5	57.5
Longliners							
Subtotal			9	4,151.3	5,929.4		
Average				461.3	658.8	10.8	37.4
Total			**50**	**48,802**	**53,585.9**		
Average				**976.0**	**1,071.7**	**15.5**	**53.9**
Spain total fleet			13,022	470,973	1,064,152		
HSBG fleet as % of Spain's total			0.4 %	10.4 %	5.0 %		
EU total fleet			85,529	1,914,218	6,953,888		
Spain HSBG fleet as % of EU total			0.06 %	2.50 %	0.76 %		

Source: Vessel identification: Spanish Official Gazette; Spanish authorities; PTPs; Spanish fishing sector. Vessel characteristics: EU Fleet Register; Spanish fleet totals: DG Fish, 2007b; EU fleet totals: Eurostat, 2007.

Table 28 Mean technical characteristics of the Spanish deep-sea fleet in the NW and SW Atlantic

Characteristic	Average value
Average age (years)	17
Average capacity (GT/ship)	943
Average power rating (kW/ship)	1,133
Average o.a.l. (m/ship)	55

Source: DG Fish, 2007a.

Table 29 Mean technical characteristics of the Spanish deep-sea fleet that alternates between NEAFC and EU waters

Characteristic	Average value
Average age (years)	16
Average capacity (GT/ship)	285
Average power rating (kW/ship)	478
Average o.a.l. (m/ship)	33

Source: DG Fish, 2006.

7.3.3 HSBG catches

The Spanish HSBG fleet caught a total of 686 137 tonnes in the high seas between 1993 and 2006, though due to Spain's high total catch, this comprises about 3.7 % of their total catch (Table 32). This was made up mainly of Greenland halibut, roundnose grenadier and cephalopods.

NAFO

Spanish fishing effort in NAFO is mainly concentrated mainly on the continental slope of Divisions 3 L, M, N and O. The primary target species is Greenland halibut (*Reinhardtius hippoglossoides*), which is often associated with other bycatch species such as grenadiers (*Macrourus berglax* and *Coryphaenoides rupestris*) and forkbeards (*Urophycis* spp.). The Spanish fleet also target redfish (*Sebastes* spp) in the whole NAFO area and northern prawn (*Pandalus borealis*) in Divisions 3L and 3M, and during the second half of the year, the fleet also targets skate (*Amblyraja radiata*) in Divisions 3N and O. The Spanish NAFO bottom gear fleet involved in high seas fishing operates exclusively in the high seas (Appendix 2).

The majority of the fishing effort targeting Greenland halibut appears to be conducted on the shallower depths of the 'nose' and 'tail' and the Flemish Cap, although some fishing does appear on the deeper slopes particularly when targeting redfish and prawns. There is little evidence of interaction with VMEs in this area, as any previously-existent VMEs are probably no longer observed given the high level of historical effort conducted on these grounds.

NEAFC

The Spanish deep-sea fishery in NEAFC developed in international waters on the Hatton Bank since 1996 is a multi-species fishery carried out by stern bottom trawlers (Durán and Román, 2001), mainly between June and September at depths between 800 m and 1 600 m, though depths mostly exceed depths of 1000 m.

Catch statistics of deep-sea species in NEAFC for Spanish vessels were recorded for subareas that straddle both high seas and EEZ areas (referred to as 'straddling subareas'). Catches of demersal species recorded in straddling subareas, with high seas depths deep enough to remove the possibility of fishing with bottom gears, were considered to be catches made in EEZs. The main species targeted in the high seas regions of NEAFC include Atlantic redfish (*Sebastes* spp), Roundnose grenadier (*Coryphaenoides rupestris*) and Greenland halibut (*Reinhardtius hippoglossoides*) which are targeted around Rockall, Hatton bank and the Norwegian sea. Other species are Baird's smoothhead (*Alepocephalus bairdii*) and blue ling (*Molva dypterygia*). Sharks represent 2 % of total catch, the most abundant being Portuguese dogfish (*Centroscymnus coelolepis*).

The Spanish bottom trawl fleet fishing in Hatton Bank is not exclusive to this area and also works on a variety of grounds in the north Atlantic and operates further offshore

along the western slope of the Hatton Bank in ICES divisions VIb1 and XIIb. In ICES division XIIb, the majority of fishing effort is from Spanish trawlers. After a peak of more than 19 000 tonnes in 2003, the reported landings decreased to about 4 200 t in 2005.

The fishing strategy adopted by the vessels is highly variable, and fishing activity is often discontinuous since the majority of the vessels rotate operating on Hatton Bank and other North Atlantic grounds (NAFO, Reikjanes, Svalbard), according to fishing opportunities. Vessels typically conduct fishing trips of variable duration depending on the size of the vessel and their endurance, from 1 week to 4 months. Fishing effort by trawlers in the Hatton Bank increased since the start of the fishery in 1996 to a maximum of 1 850 fishing days in 2000, also showing a progressive displacement to deeper waters, the greatest effort is made at depths between 1000 and 1400 m. A progressive increase of fishing activities in Division VIb (Rockall) has also been observed in recent years. Several areas of cold water coral abundance indicating a vulnerable marine ecosystem have been highlighted across the Hatton Bank, Hatton Basin, Rockall Bank area and closed areas have been described around hotspots of coral abundance.

NEAFC longline (ICES VI and VII)

The longline fishery targeting deep-water species began in ICES Sub-areas VI and VII in 1991. The main target species were sharks, but some catches of *Phycis* spp., *Molva dypterigia*, *Molva molva*, *H. dactylopterus* and *Beryx* spp. were also landed (Piñeiro *et al*., 2001). This fleet had traditionally fished for hake in these areas, but because of problems of profitability and with the advent of the market for shark livers for the production of oils (Squalen), the vessels began fishing for shark at depths greater than 1000 m (Iglesias and Paz, 1995). The Spanish longliners operating in the vicinities of Hatton Bank targets *Merluccius merluccius* with deep-water sharks as a bycatch. Depending on market prices, sharks were often a target species group (Gordon, 2001).

Mid-Atlantic Ridge

The Northern Mid-Atlantic Ridge is a huge area located between Iceland and Azores. There are more then 40 seamounts with fisheries of commercial importance. The deepwater fishery on the MAR started in 1973, when dense concentrations of roundnose grenadier (*Coryphaenoides rupestris*) were discovered. Later aggregations of alfonsino (*Beryx splendens*), orange roughy (*Hoplostethus atlanticus*), cardinal fish (*Epigonus telescopus*), tusk (*Brosme brosme*) and blue ling (*Molva dypterigia*) were found.

Spain carried out five limited exploratory trawl surveys to seamounts on the Mid-Atlantic Ridge between 1997 and 2000 and a two-month experimental fishing survey with bottom longline in 2004 on the northern Mid-Atlantic Ridge. Some of the fishing effort was directed at the closed section of Reykjanes Ridge and in the vicinities of Antialtair Smt., Faraday Smt. and Hecate Smt., but there has been a decline in interest except for sporadic fisheries in the northern area (ICES Division XIVb).

Historically, trawl and longline fisheries were conducted in Subareas XII, X, XIV and V by Spanish, as well as Russian, Icelandic, Faroese, Polish and Latvian vessels. A small area of the Rekjanes ridge has been closed to protect the vulnerable corals and habitats that are found there.

Svalbard

The activity of the Spanish fleet targeting northern prawn and cod in Svalbard is discontinuous and mainly occurs in Division IIb, at depths between 200 and 500 m using bottom trawls with mesh sizes and grid separator to maximise prawn catches and minimise fish bycatch. The bottom characteristics in these areas are typically soft muddy bottoms where prawn abundance is higher.

SW Atlantic

Spanish HSBG effort has historically occurred in the SW Atlantic since 1983. The main target species are hakes (*Merluccius hubbsi* and *M. australis*), cephalopods (*Illex argentinus* and *Loligo gahi*) hoki (*Macruronus magellanicus*), red cod (*Salilota australis*), southern blue whiting (*Micromesistius australis*), kingclip (*Genypterus blacodes*), and skates (*Raja* spp). Some negligible quantities of toothfish (*Dissostichus eleginoides*) are also taken, representing less than 1% of the total catch. The majority of the species caught in this fishery (with the exception of toothfish and grenadier) are not considered 'deep-sea' species (i.e. long lived species, with low reproduction rate).

The area of high seas waters covers part of the Patagonian shelf and slope that extends beyond the EEZ and the Falkland Islands conservation areas (FICZ and FOCZ). In that area, the fishing activities of Spanish trawlers take place mainly between parallels 44º S and 48º S (Figure 16) and secondarily in the fishing grounds around parallel 42º S (Figure 16 and Figure 17). Fishing effort declined dramatically after 1992 when Argentina expanded its EEZ several nautical miles eastwards, with the subsequent reduction of the area available for fishing. Thus, the main fishery area for this fleet is located between 44º and 48º S, where the majority of fishing effort (99.85%) registered by scientific observers between 1989 and 2004 was made in waters of less than 300 m depth as shown in Figure 17.

High seas catches of the Spanish HSBG fleet peaked in 2001 at 42 110 tonnes but have since declined to 7 054 tonnes in 2006. These catches are made in unregulated high seas, though there is likely to be limited interaction with VMEs (Figure 9).

No changes in the fishing strategy have been reported during last few years, this fleet fishing in the same area and depths as in the 1990s and targeting the same species, with the exception of rockcod (*Patagonotothen* spp.), a species previously discarded at sea, that has seen an increase in profitability.

SE Atlantic

Fishing by EU vessels in the southeast Atlantic is limited to a small number of vessels. The most important commercial catches are of toothfish, made by Spanish longliners operating in SEAFO area D1 during 2003–2004. This area borders on the CCAMLR Regulatory Area and is one of a few non-CCAMLR managed toothfish stocks available. However catches here were limited to 100.5 tonnes in 2003 and just over 201.9 tonnes in 2004. These catches would typically represent less than one year of full-time vessel activity. These catches would have been made between 500m and 2000m deep over a variety of seabed types.

CCAMLR

Until recently Spanish bottom longlining in the Antarctic was restricted to waters under national jurisdiction in Subarea 48.3 (South Georgia). From 2003–2004, activities expanded to the exploratory fisheries for Patagonian and Antarctic toothfish in high seas waters controlled by CCAMLR. Three vessels have been involved in these fishing activities, the Galaecia (2004/05 and 2005/06), the Arnela (2004/05)

and the Tronio (2005/06 and 2006/07). Catches within CCAMLR areas by species by year are given in Appendix 2. Catches for 2006/07 are not yet published by CCAMLR, although it is known that the Tronio fished in Divisions 58.4.1, 58.4.3a and 58.4.3b (although notified for the Ross Sea (88.1) she did not fish there). Very occasionally Spanish vessels involved in these exploratory fisheries have also taken toothfish in high seas waters north of the Convention Area (in 2001 and 2003), such as the catches detailed for SEAFO area D1 (Appendix 2). Although Spanish-owned companies have been implicated in IUU fishing within CCAMLR waters no Spanish flagged vessel has been prosecuted.

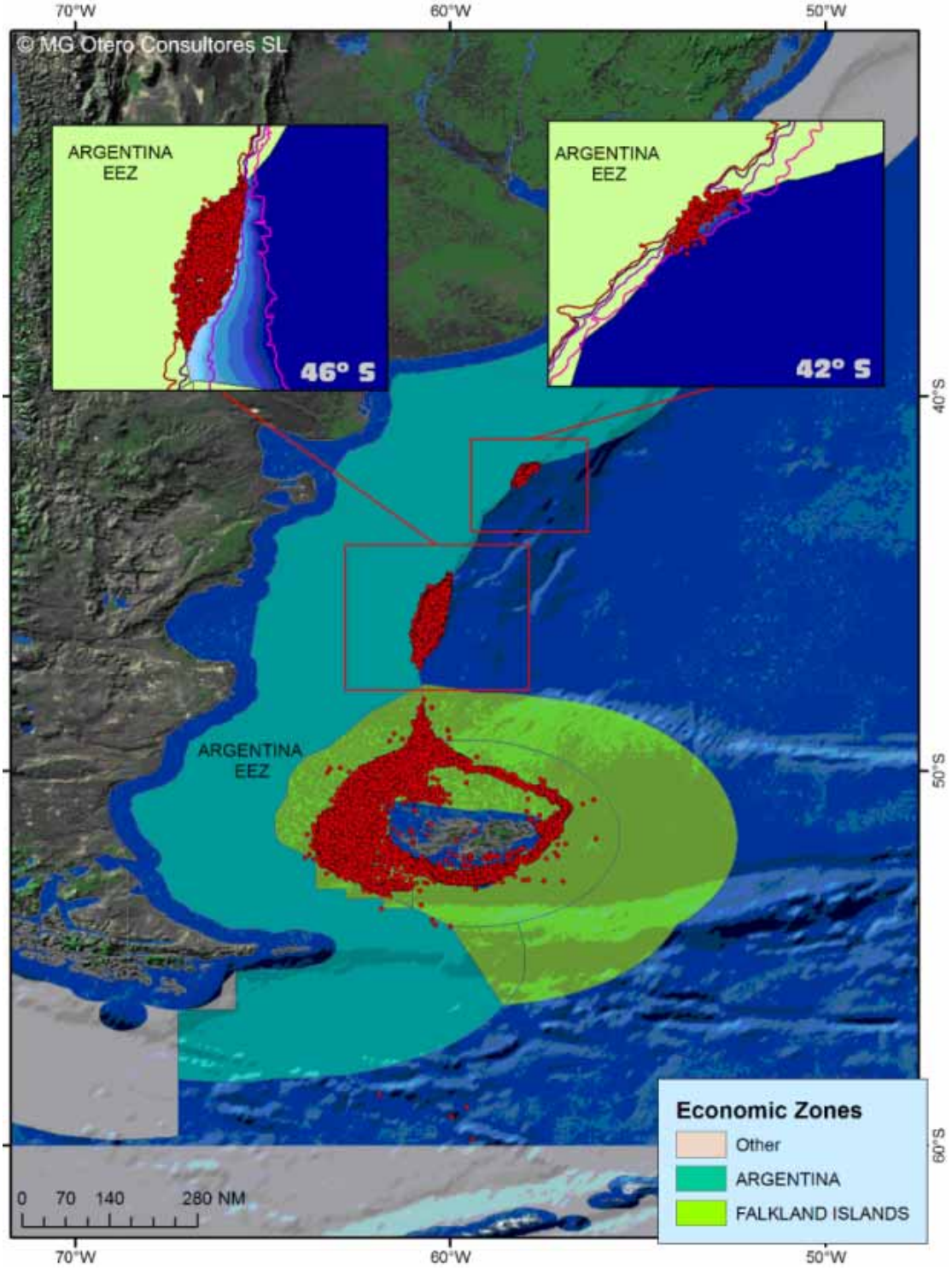


Figure 16 Locations of Spanish fishing effort in the SW Atlantic
Source: MG Otero.

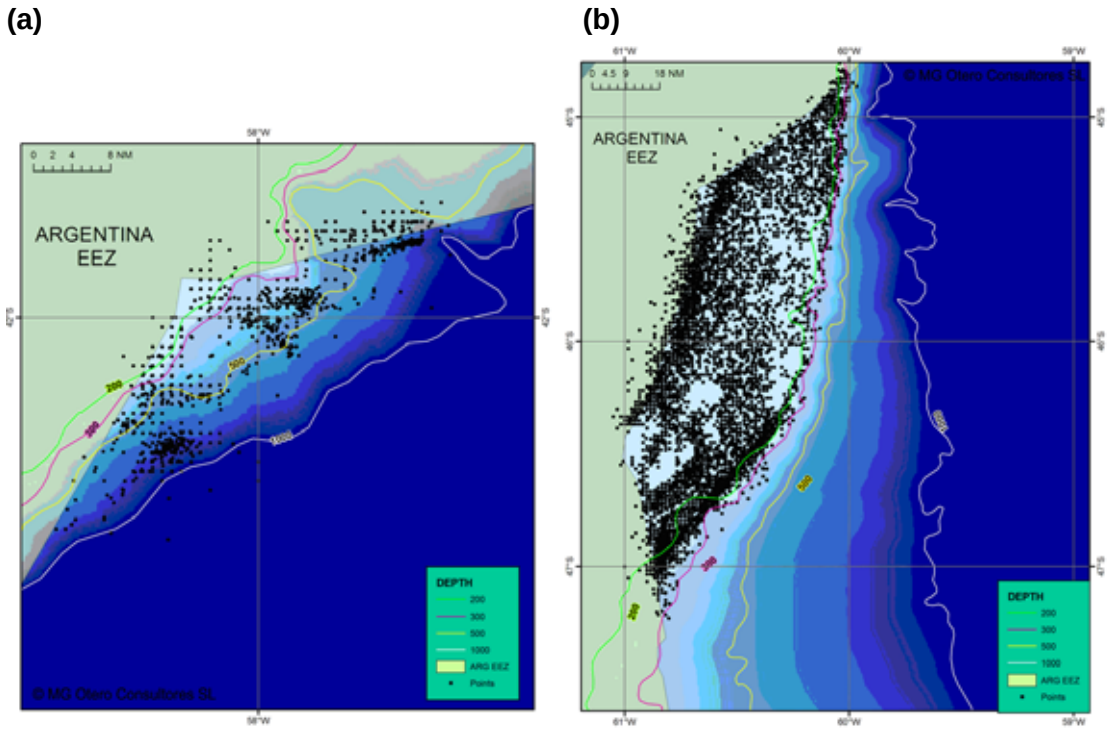


Figure 17 Fishing locations of the Spanish fleet in the SW Atlantic (a) around 42 °S and (b) 46°S, showing haul locations and depth contours, 1989–2004
Source: MG Otero.

Table 30: Total Spanish HSBG catches (tonnes), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	201	904	696	966	5965	5215	8188	5469	4523	4106	2512	6917	5607	3598	**54867**
Antarctic toothfish	0	0	0	0	0	0	0	0	0	0	114	405	544	0	**1063**
Beaked Redfish	0	0	4554	4307	4438	4587	3526	2530	5575	1634	1919	4337	822	1612	**39841**
European conger	109	116	0	92	115	106	0	2	2	1	0	4	2	0	**549**
Greater forkbeard	109	116	0	92	115	106	0	2	2	1	0	4	2	0	**549**
Greenland halibut	35640	40773	10323	7528	8200	7482	9616	10411	13338	12826	15431	9999	7040	5340	**193947**
Lings nei	104	267	995	0	0	151	96	190	153	44	124	16	21	15	**2176**
Patagonian toothfish	0	0	0	0	0	0	0	0	0	18	101	293	88	12	**511**
Roughhead grenadier	0	0	0	3097	3740	6052	5715	8071	1106	908	1516	558	982	312	**32057**
Roundnose grenadier	2054	1720	2681	1226	2476	3856	6187	15459	38217	10171	21733	2749	7746	6288	**122563**
Cephalopods nei	0	0	0	0	22508	24807	31378	27739	42110	8116	4420	3394	804	7054	**172330**
Other species	0	188	2537	1833	2678	2889	3014	6948	9044	2992	16126	11720	3954	1761	**65684**
Total	**38217**	**44084**	**21786**	**19141**	**50235**	**55251**	**67720**	**76821**	**114070**	**40817**	**63996**	**40395**	**27612**	**25992**	**686137**

Source: NAFO 21B database, SEAFO, CCAMLR, SGPM data and ICES database on catch statistics.

Table 31: Total Spanish HSBG catches (€m), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	0.23	1.20	0.84	0.99	7.51	7.21	10.96	7.73	7.81	7.16	4.36	9.22	12.82	8.20	**86.23**
Antarctic toothfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.29	0.61	0.00	**1.09**
Beaked Redfish	0.00	0.00	3.93	3.93	4.49	5.74	3.88	2.54	6.05	1.65	1.90	4.39	1.08	2.58	**42.14**
European conger	0.10	0.10	0.00	0.06	0.07	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.40**
Greater forkbeard	0.13	0.12	0.00	0.08	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	**0.52**
Greenland halibut	106.41	124.88	22.73	17.42	18.97	17.90	20.11	26.81	34.08	28.53	33.11	24.25	18.04	14.32	**507.54**
Lings nei	0.10	0.27	1.60	0.00	0.00	0.25	0.19	0.39	0.39	0.11	0.28	0.04	0.04	0.03	**3.67**
Patagonian toothfish	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.16	0.21	0.10	0.03	**0.52**
Roughhead grenadier	0.00	0.00	0.00	1.14	1.66	3.05	3.75	7.07	0.96	0.58	1.07	0.57	1.41	0.42	**21.68**
Roundnose grenadier	0.86	0.29	0.43	0.15	0.37	1.30	2.93	8.83	27.43	7.72	17.56	2.77	18.49	3.98	**93.12**
Cephalopods nei	0.00	0.00	0.00	0.00	13.53	14.82	21.61	24.05	49.92	9.80	5.21	4.21	1.08	9.38	**153.59**
Other species	0.00	0.16	2.20	1.19	1.61	1.73	2.08	6.02	10.72	3.61	18.99	14.53	5.33	2.34	**70.51**
Total	**107.84**	**127.01**	**31.72**	**24.96**	**48.30**	**52.14**	**65.50**	**83.44**	**137.36**	**59.18**	**82.81**	**60.48**	**59.02**	**41.27**	**981.02**

Source: Landed prices from EUROSTAT landings database

Table 32: Spanish HSBG catches (tonnes) as a percentage of total Spanish catches, by species, 1993–2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	0.019	0.083	0.059	0.083	0.499	0.430	0.727	0.542	0.423	0.476	0.291	0.889	0.682	N/A	**0.38**
Antarctic toothfish	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.013	0.052	0.066	N/A	**0.01**
Beaked Redfish	0.000	0.000	0.389	0.370	0.371	0.378	0.313	0.251	0.522	0.189	0.222	0.557	0.100	N/A	**0.28**
European conger	0.010	0.011	0.000	0.008	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.001	0.000	N/A	**0.00**
Greater forkbeard	0.010	0.011	0.000	0.008	0.010	0.009	0.000	0.000	0.000	0.000	0.000	0.001	0.000	N/A	**0.01**
Greenland halibut	3.312	3.747	0.881	0.647	0.686	0.617	0.854	1.031	1.248	1.486	1.786	1.285	0.856	N/A	**1.40**
Lings nei	0.010	0.025	0.085	0.000	0.000	0.012	0.009	0.019	0.014	0.005	0.014	0.002	0.003		
Patagonian toothfish	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.012	0.038	0.011	N/A	**0.02**
Roughhead grenadier	0.000	0.000	0.000	0.266	0.313	0.499	0.507	0.799	0.104	0.105	0.175	0.072	0.119	N/A	**0.00**
Roundnose grenadier	0.191	0.158	0.229	0.105	0.207	0.318	0.549	1.531	3.577	1.178	2.515	0.353	0.942	N/A	**0.24**
Cephalopods nei	0.000	0.000	0.000	0.000	1.884	2.046	2.785	2.748	3.941	0.940	0.512	0.436	0.098	N/A	**0.87**
Other species	0.000	0.017	0.217	0.157	0.224	0.238	0.268	0.688	0.846	0.347	1.866	1.506	0.481	N/A	**0.48**
Total	**3.552**	**4.052**	**1.860**	**1.644**	**4.205**	**4.558**	**6.011**	**7.609**	**10.677**	**4.728**	**7.407**	**5.192**	**3.357**	**N/A**	**3.69**

Source: NAFO 21B database, SEAFO, CCAMLR, SGPM data, ICES database on catch statistics and FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007) .

Table 33: Total annual catches (tonnes) of the Spanish bottom gear fleet involved in high seas fishing operations split between EEZ and unregulated and regulated high seas for 1993 – 2006

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
EEZ	0	0	0	0	19782	37972	32271	27910	27499	22729	18758	19718	18639	28814	**254092**
High Seas (RFMO)	38217	44084	21786	19141	27727	30444	36342	49082	71960	32701	59576	37002	26808	18938	**513807**
High Seas (Unregulated)	0	0	0	0	22508	24807	31378	27739	42110	8116	4420	3394	804	7054	**172330**
Catches of unknown origin	0	0	0	0	588	0	0	0	0	0	0	0	0	0	**588**
Total	**38217**	**44084**	**21786**	**19141**	**70605**	**93223**	**99991**	**104731**	**141569**	**63546**	**82754**	**60113**	**46251**	**54806**	**940817**

Source: NAFO 21B database, SEAFO, CCAMLR, SGPM data and ICES database on catch statistics.

7.3.4 Spatial trends in fishing effort

Spanish HSBG fishing effort has historically varied highly, mainly affected by changing levels in activity in the SW Atlantic (Figure 18). Fishing effort within NAFO has been relatively stable since 1995 (Figure 19).

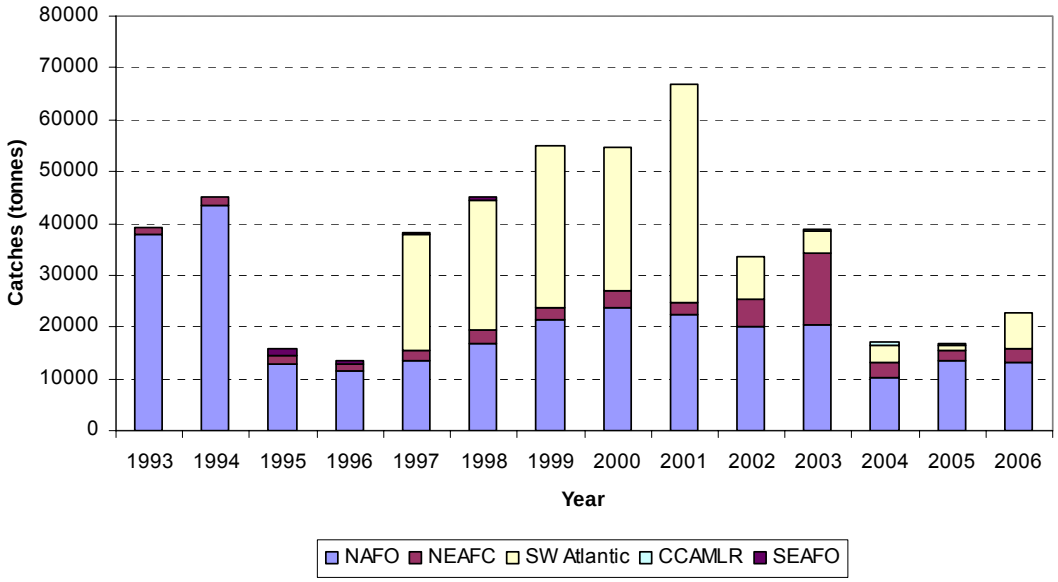


Figure 18: Annual high seas catches (tonnes) of the Spanish HSBG fleet per ocean region, 1993 – 2006.
Source: NAFO 21B database, SEAFO, CCAMLR, SGPM data, ICES database on catch statistics

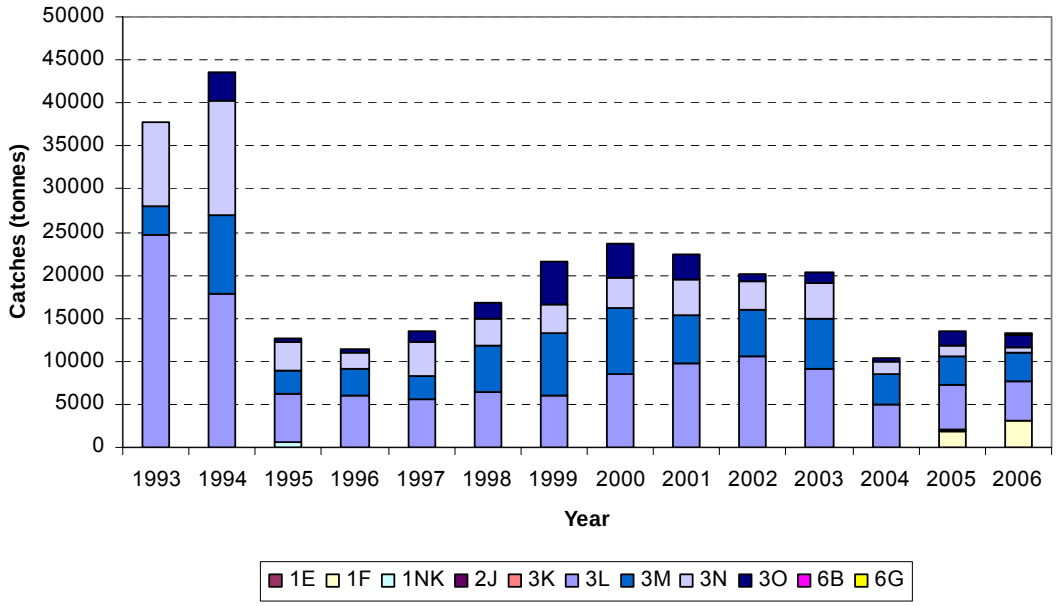


Figure 19: Annual high seas catches (tonnes) of the Spanish HSBG fleet in NAFO per division, 1993 – 2006.
Source: NAFO 21B database

HSBG fishing effort in NEAFC increased from almost nothing to a peak in 2001 (catches of 50 000 tonnes) before declining. This culminated in the lowest Spanish NEAFC HSBG catch levels since 1994 being recorded in 2005 (approximately 5 000

tonnes). The Spanish NEAFC fleet operating in Hatton Bank has increased its fishing possibilities, since the start of the fishery, by operating at deeper depths. Currently fishing operations there occur in depths of 1600-1700 m. The restricting factors are the technical possibilities and the operational costs (Personal communication Instituto Español Oceanografía). However there is very little spatial movement west (*pers. comm..*, Instituto Español Oceanografía) as shown by Figure 20.

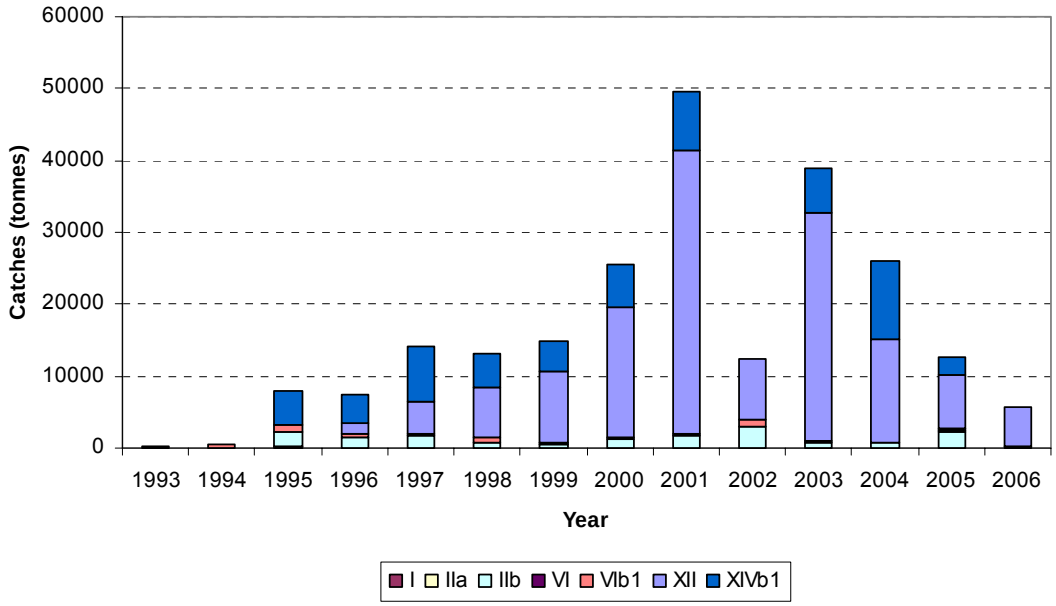


Figure 20: Annual high seas catches (tonnes) of the Spanish HSBG fleet in NEAFC per division, 1993 – 2006.
Source: ICES catch database

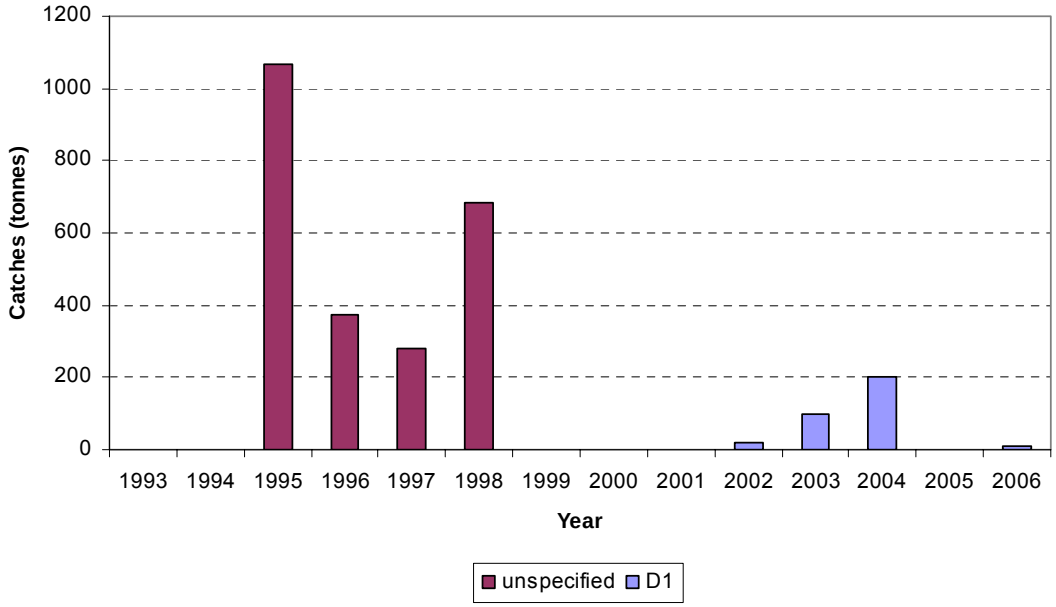


Figure 21: Annual high seas catches (tonnes) of the Spanish HSBG fleet in SEAFO per division, 1993 – 2006.
Source: SEAFO catch data

Figure 22: Annual high seas catches (tonnes) of the Spanish HSBG fleet in CCAMLR per division, 1993 – 2006.
Source: CCAMLR catch database

There appears to be little spatial movement in Spanish HSBG fishing effort in CCAMLR though the annual levels of fishing effort have shown an increasing trend (Figure 22).

7.3.5 Ports, landings and processing

Most of the catches from the north Atlantic trawler fleet are landed directly by fishing vessels in the Vigo area (including the port of Marin) after trips lasting up to 4 months. Fish is processed (H&G, filets, etc) and frozen on board.

Vessels fishing in the SW Atlantic generally make trips of about 5 to 6 months and tranship their catches to reefers in Berkeley Sound (a bay near Port Stanley in the Falklands) or Montevideo. Reefers go directly to Vigo (Spain) to land the frozen fish.

7.4 France

7.4.1 Distant water demersal activities

France's catches of demersal species are almost exclusively from the northeast Atlantic region (Table 34). Catches in the CECAF area had finished by 2002, and there have been no recorded catches in the northwest (NAFO) and southeast Atlantic since 1991. Over the period 1994–2000 some catches of demersal species were taken in the SW Atlantic, and in 2001 386 t of mackerel icefish were caught in the Antartic Atlantic. Thus the main fishing area to consider is the northeast Atlantic, from where the majority of catches may have been taken from EU waters rather than high seas areas.

Table 34 French demersal catches in all ocean areas, 1994–2005

	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Atlantic, Antarctic	0	0	0	0	0	0	0	386	0	0	0	0	386
Atlantic, E. Central	7211	12669	13319	13220	5389	591	0	1	0	0	0	0	75063
Atlantic, NE	216217	203188	202045	209063	187301	186565	218949	222953	218029	206566	194270	176155	3089312
Atlantic, NW	0	0	0	0	0	0	0	0	0	0	0	0	228
Atlantic, SE	0	0	0	0	0	0	0	0	0	0	0	0	1116
Atlantic, SW	184	59	149	30	32	14	29	0	0	0	0	0	497
Total	216401	203247	202194	209093	187333	186579	218978	222953	218029	206566	194270	176155	

Source: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007). Selected groups were: cods, hakes, haddocks; flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

7.4.2 HSBG fleet characteristics

French vessels fishing with bottom gears on the high seas are exclusively bottom trawlers belonging to three fishing companies with a total of 8 vessels (Table 35). Vessel length is 46–54 m and they target ling, blue ling, orange roughy, tusk and grenadier in NEAFC high seas area at depths ranging from 400 m to 1 000 m. Their fishing zones range from the Irish Sea to South Iceland, the Faroe Islands and the west of Scotland and their mean annual catch amounts to around 8 000 tonnes per year. The main bases for the French high seas fleets are Concarneau and Lorient in Britanny.

There is also one bottom longliner fishing for toothfish in Kerguelen (a French territory in the southern Indian Ocean) since 2002.

Table 35 France HSBG vessel characteristics

	Vessel name	Gear type ($1^o/2^o$)	No vessels	Tonnage (GT)	Engine power (kW)	Age (years)	Length (m)
France HSBG							
	Unknown						
Total			**8**				**46-54**
Average							
France total fleet			7 586	207 943	1 060 490		
% HSBG			%	%	%		
EU total fleet			87 004	1 955 879	7 068 471		
% France HSBG			0.009 %	%	%		

Source: France's fleet total: DG Fish, 20078b; EU fleet total: Eurostat, 2007.

7.4.3 HSBG catches

The absence of information provided by the French fishing industry or relevant governmental institutions increased the reliance on other methods to disaggregate ICES catch data into high seas and EEZ proportions.

Catches of demersal species were recorded for regions straddling high seas and EEZ areas in the ICES catch database. However for some regions the depths implied HSBG fishing could not be responsible. Catches in these areas were assumed to have been made in the EEZ. Total high seas catch and effort data in the NEAFC regulatory area for French flagged vessels in 2003 (ICES, 2007b) was used to identify the species targeted by the French HSBG fleet in 2003. It was assumed that between 1993 and 2006 the proportion of total effort expended in high seas areas was consistent with that of 2003. This proportion was applied to the sum of all catches of the 2003 target species recorded in appropriate regions straddling high

seas and EEZs, identified in the ICES catch database, to give an estimate of annual HSBG catches for each species. However, this assumption is not very robust, as the proportion of effort spent in EEZ and high seas is likely to change over time and target species in ocean areas can vary from year to year, for example due to over exploitation of specific stocks.

This approach removes the possibility of accurately examining spatial trends in fishing effort as it is not possible to determine which appropriate straddling divisions actually correspond to the high seas catch proportion.

Data indicate that the French HSBG fleet only provides a small amount of France's total annual catch; 0.12 % for the period 1993–2005 (see Table 38). The main species targeted are Roundnose grenadier and Blue ling in the regions surrounding Rockall and the Hatton bank. HSBG catches accounted for 9 554 tonnes between 1993 and 2006 (Table 36).

Table 36 Total French HSBG catches (tonnes), by species, 1993–2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	169	153	153	143	197	123	90	32	105	35	49	46	42	63	**1401**
Black scabbardfish	32	13	23	15	8	20	19	19	99	77	31	36	33	23	**447**
Blue ling	267	125	117	155	209	310	227	135	126	130	230	297	186	221	**2734**
Roundnose grenadier	77	47	140	119	118	166	285	143	413	519	469	751	355	217	**3819**
Other species	27	33	64	61	67	30	212	51	78	121	120	162	65	62	**1153**
Total	**572**	**372**	**497**	**493**	**599**	**649**	**834**	**380**	**821**	**881**	**898**	**1291**	**681**	**587**	**9554**

Source: NAFO 21B database and ICES database on catch statistics.

Table 37: Total French HSBG catches (€m), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	0.198	0.203	0.184	0.146	0.248	0.170	0.121	0.045	0.182	0.061	0.085	0.061	0.096	0.145	**1.944**
Black scabbardfish	0.032	0.017	0.025	0.021	0.011	0.027	0.027	0.037	0.136	0.091	0.048	0.062	0.035	0.035	**0.604**
Blue ling	0.257	0.146	0.134	0.169	0.235	0.317	0.208	0.148	0.207	0.215	0.295	0.394	0.267	0.371	**3.362**
Roundnose grenadier	0.033	0.008	0.023	0.014	0.018	0.056	0.135	0.082	0.297	0.394	0.379	0.757	0.847	0.137	**3.178**
Other species	0.024	0.028	0.056	0.040	0.040	0.018	0.146	0.044	0.092	0.146	0.141	0.201	0.088	0.083	**1.146**
Total	**0.543**	**0.402**	**0.422**	**0.390**	**0.552**	**0.588**	**0.637**	**0.356**	**0.913**	**0.906**	**0.948**	**1.474**	**1.334**	**0.771**	**10.235**

Source: Landed prices from EUROSTAT landings database.

Table 38: French HSBG catches (tonnes) as a percentage of total French catches, by species, 1993–2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	0.03	0.02	0.03	0.03	0.03	0.02	0.02	0.01	0.02	0.01	0.01	0.01	0.01	N/A	**0.02**
Black scabbardfish	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.01	0.01	N/A	**0.01**
Blue ling	0.00	0.01	0.01	0.01	0.01	0.01	0.04	0.01	0.01	0.02	0.02	0.03	0.01	N/A	**0.03**
Roundnose grenadier	0.01	0.01	0.02	0.02	0.02	0.03	0.05	0.02	0.07	0.08	0.07	0.13	0.06	N/A	**0.05**
Other species	0.00	0.01	0.01	0.01	0.01	0.01	0.04	0.01	0.01	0.02	0.02	0.03	0.01	N/A	**0.01**
Black scabbardfish	**0.09**	**0.06**	**0.08**	**0.09**	**0.11**	**0.12**	**0.14**	**0.06**	**0.13**	**0.14**	**0.14**	**0.22**	**0.12**	N/A	**0.12**

Source: NAFO 21B database, ICES database on catch statistics and FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007) .

Table 39: Total annual catches (tonnes) of the French bottom gear fleet involved in high seas fishing operations split between EEZ and unregulated and regulated high seas for 1993 – 2006

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
EEZ	19584	19487	19241	19377	19277	18363	16477	22863	21349	19574	16387	16531	12650	11077	**252238**
High Seas (RFMO)	572	372	497	493	599	649	834	380	821	881	898	1291	681	587	**9554**
High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**20156**	**19859**	**19738**	**19871**	**19876**	**19012**	**17311**	**23243**	**22170**	**20455**	**17285**	**17822**	**13331**	**11664**	**261792**

Source: NAFO 21B database and ICES database on catch statistics.

7.4.4 Spatial trends in fishing effort

French HSBG effort is solely expended in NEAFC. However it is impossible to identify locations of HSBG catches with sufficient certainty to analyse spatial trends in fishing effort due to the methods used to estimate French HSBG catches in NEAFC.

7.5 Latvia

7.5.1 Distant water demersal activity

Latvian fishing activities are mainly concentrated in the Baltic Sea and Gulf of Riga, which account for 95 % of total catches (DG Fish, 2004).

Latvia's distant water fleet was previously active throughout the Atlantic Ocean and into the southeast Pacific Ocean (Figure 23 and Table 40). However this activity tailed off from 1991 onwards, and currently catches are only taken in the north-east and north-west Atlantic and CECAF areas. Most CECAF catches are taken within EEZs and not on the high seas (Maguire *et al.,* 2006), and the Latvian fleet currently fishing in this area targets small pelagics with pelagic trawls in the Mauritanian EEZ under the Fisheries Partnership Agreement (FPA) between Mauritania and the EU.

Table 40 Latvian demersal catches in all ocean areas, 1991–2005

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	**Total**
Atlantic, E. Central	42,069	25,022	17,801	18,396	23,253	19,686	3,200	2,489	5,365	2,792	1,420	758	371	4,183	6,966	**173,771**
Atlantic, Northeast	22,767	17,073	22,678	20,077	12,500	10,300	6,680	8,223	7,509	6,737	6,943	6,573	5,711	6,243	6,308	**166,322**
Atlantic, Northwest	5,494	7,472	8,585	473	1,026	1,253	997	1,191	3,080	3,397	3,330	2,742	4,575	3,979	2,806	**50,400**
Atlantic, Southwest	5,054	594	360	413	108	85	0	0	0	0	0	0	0	0	0	**6,614**
Atlantic, Southeast	452	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**452**
Pacific, Southeast	1,670	721	0	0	0	0	0	0	0	0	0	0	0	0	0	**2,391**
	77,506	**50,882**	**49,424**	**39,359**	**36,887**	**31,324**	**10,877**	**11,903**	**15,954**	**12,926**	**11,693**	**10,073**	**10,657**	**14,405**	**16,080**	**399,950**
% change 1995–2005															–56 %	

Source: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007). Selected groups were: cods, hakes, haddocks; flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

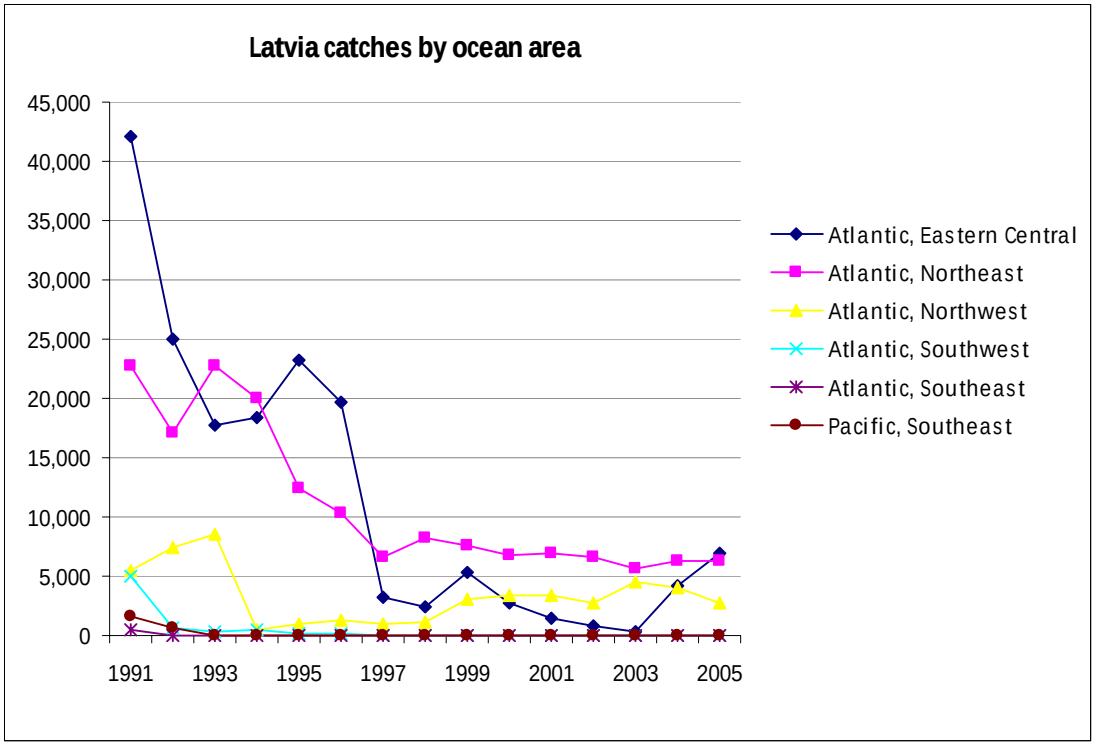


Figure 23 Latvian demersal catches by ocean area, 1991–2005
Source: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007). Selected groups were: cods, hakes, haddocks; flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

7.5.2 HSBG fleet characteristics

Currently, Latvia has a small high seas fleet that targets redfish and northern prawn in NAFO and NEAFC regulatory areas. This consists of three vessels, although due to economic conditions, only two are operating: one targets northern prawn in NAFO (3L and 3M) using bottom trawl (representing 87% of total Latvian NAFO catches since 1994) with additional bycatches of redfish and Greenland halibut; the other targets redfish in NEAFC also using bottom trawl. Together, they make up less than 1 % of Latvia's fishing fleet by number, but 11.8 % by tonnage and 9.6 % by power (Table 41).

Table 41 Latvia HSBG fleet characteristics

	Vessel name	Gear type ($1^o/2^o$)	No vessels	Tonnage (GT)	Engine power (kW)	Age (years)	Average length (m)
Latvia HSBG							
	Dorado	OTM/OTB		1 943	1 764	21	62.23
	Otto	OTB/OTM		1 211	2 207	40	61.17
	Arnarborg[a]	OTB/OTM		828	1 472	35	52
Total			**3**	**3 982**	**5 443**		
Average						**32.0**	**58.5**
Latvia total fleet			879	33 697	56 995		
% HSBG			0.34 %	11.82 %	9.55 %		
EU total fleet			87 004	1 955 879	7 068 471		
% Latvia HSBG			0.003 %	0.204 %	0.077 %		

a. Arnarborg is currently not active for economic reasons.
Source: Vessel identification: Industry interviews and national authorities; Vessel characteristics: EU Fleet Register; Latvia total fleet: DG Fish, 2007b; EU fleet total: Eurostat, 2007.

Latvia also receives quota for Greenland halibut, but the National Board of Fisheries informed that this is often swapped with other EU countries, such as Denmark, Germany and Poland.

7.5.3 HSBG catches

Large catches of deep sea species, including Black scabbardfish and Atlantic redfish, were made by Latvian vessels from 1993 to 1996 in subarea XII of NEAFC. It was not possible to determine whether these catches were made in high seas with bottom gears. These catches have been classified as 'catches of unknown origin'. These catches, whilst comparatively large, are unimportant in the context of current and recent Latvian HSBG fishing activity and do not affect the current importance of the Latvian HSBG fleet relative to the total Latvian fleet.

The Latvian HSBG fleet operates almost exclusively in high seas regions (Table 45) and has provided a minimum of 2 % of total Latvian catches since 1999, reaching a peak of 4.34 % in 2003 (Table 44). The majority of these catches are Northern prawn, caught in subarea 3 M of NAFO. Relatively large catches of redfish are also made in high seas areas of NAFO and NEAFC.

Catch data from ICES and NAFO were cross checked with Latvian data from the National Board of Fisheries (National Board of Fisheries, 2007) and provided identical, or near identical, catch statistics for 1997 onwards, though with large discrepancies in the catches of grenadiers before 1997. Again, the impacts on these discrepancies have no impact on estimates of current and recent Latvian HSBG catches and their importance.

Table 42: Total Latvian HSBG catches (tonnes), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfishes (ns)	0	149	0	0	0	0	0	13	11	1,061	1,269	412	967	250	**4,132**
Beaked redfish	0	0	0	0	0	0	0	0	0	0	0	0	0	1211	**1211**
Greenland halibut	0	0	0	0	0	0	0	215	291	0	0	68	0	18	**592**
Northern prawn	0	0	0	0	997	1191	3080	3169	3028	1951	3677	3202	2287	1574	**24156**
Other species	0	0	0	0	0	0	0	0	0	0	0	2	0	0	**2**
Total	**0**	**149**	**0**	**0**	**997**	**1191**	**3080**	**3397**	**3330**	**3012**	**4946**	**3684**	**3254**	**3053**	**30093**

Source: NAFO 21B database and ICES database on catch statistics.

Table 43: Total Latvian HSBG catches (€m), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfishes (ns)	0.000	0.198	0.000	0.000	0.000	0.000	0.000	0.018	0.019	1.849	2.202	0.549	2.210	0.570	**7.615**
Beaked redfish	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.934	**1.934**
Greenland halibut	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.554	0.743	0.000	0.000	0.165	0.000	0.048	**1.510**
Northern prawn	0.000	0.000	0.000	0.000	2.049	2.564	6.767	7.628	5.349	3.518	6.169	6.929	5.896	4.164	**51.032**
Other species	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	**0.002**
Total	**0.000**	**0.198**	**0.000**	**0.000**	**2.049**	**2.564**	**6.767**	**8.200**	**6.111**	**5.367**	**8.371**	**7.646**	**8.106**	**6.716**	**62.094**

Source:Landed prices taken from EUROSTAT landings database.

Table 44: Latvian HSBG catches (tonnes) as a percentage of total Latvian catches, by species, 1993–2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfishes (ns)	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.94	1.11	0.33	0.64	N/A	**0.23**
Greenland halibut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.23	0.00	0.00	0.05	0.00	N/A	**0.03**
Northern prawn	0.00	0.00	0.00	0.00	0.95	1.17	2.47	2.33	2.37	1.73	3.23	2.56	1.52	N/A	**1.35**
Other species	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	**0.00**
Total	**0.00**	**0.11**	**0.00**	**0.00**	**0.95**	**1.17**	**2.47**	**2.50**	**2.61**	**2.66**	**4.34**	**2.95**	**2.17**	**N/A**	**1.62**

Source: NAFO 21B database, ICES database on catch statistics and FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007) .

Table 45: Total annual catches (tonnes) of the Latvian bottom gear fleet involved in high seas fishing operations split between EEZ and unregulated and regulated high seas for 1993 – 2006

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
EEZ	83	0	0	0	0	0	0	0	0	0	0	0	0	0	**83**
High Seas (RFMO)	0	149	0	0	997	1191	3080	3397	3330	3012	4946	3684	3254	3053	**30093**
High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Catches of unknown origin	10437	13955	5011	1084	0	0	0	0	0	0	0	0	0	0	**30487**
Total	**10520**	**14104**	**5011**	**1084**	**997**	**1191**	**3080**	**3397**	**3330**	**3012**	**4946**	**3684**	**3254**	**3053**	**60663**

Source: NAFO 21B database and ICES database on catch statistics.

7.5.4 Spatial trends in fishing effort

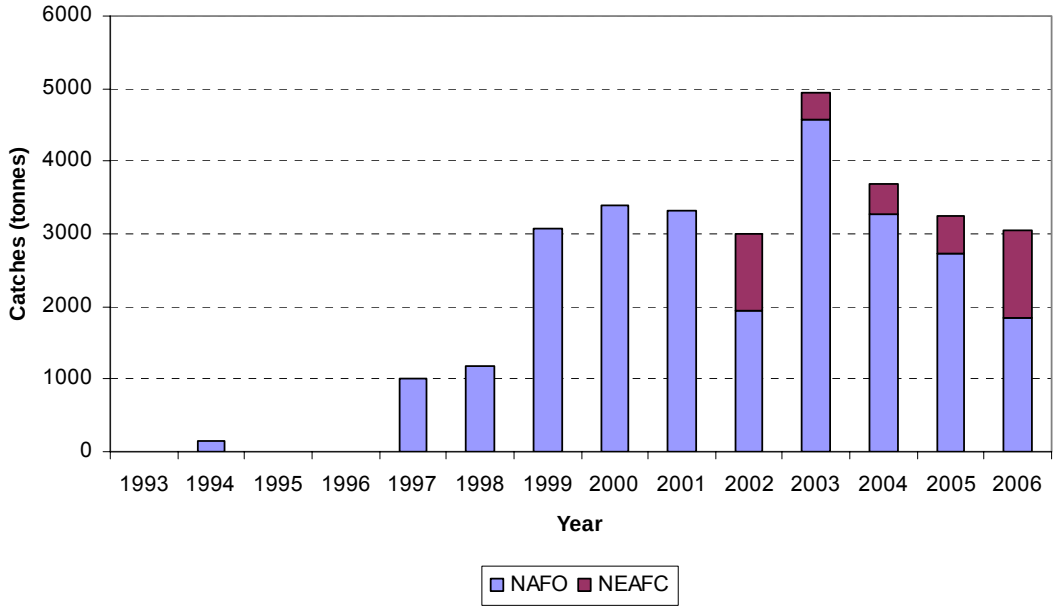


Figure 24: Annual high seas catches (tonnes) of the Latvian HSBG fleet per ocean region, 1993 – 2006.
Source: NAFO 21B database and ICES database on catch statistics.

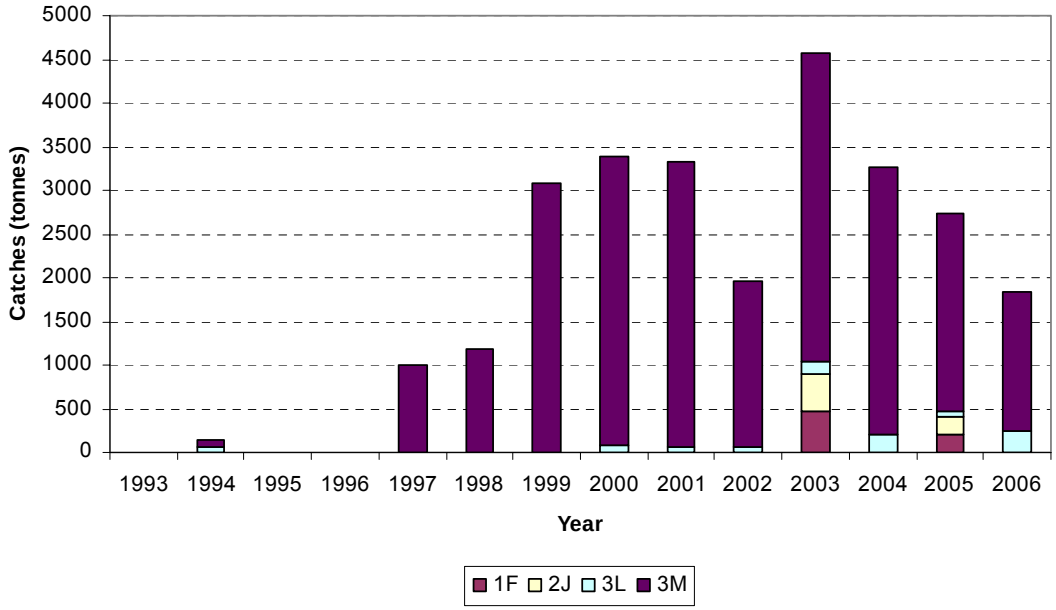


Figure 25: Annual high seas catches (tonnes) of the Latvian HSBG fleet in NAFO per division, 1993 – 2006.
Source: NAFO 21B database

The Latvian HSBG fleet has always operated exclusively within NEAFC and NAFO (Figure 24) with catches in NAFO subdivision 3M accounting for the majority of annual Latvian HSBG catches (Figure 24 and Figure 25). Latvian HSBG fishing effort within NEAFC first started in 2002 with the majority of effort expended in subdivision XIIb. In 2006 effort shifted from XIIb to sub divisions XIVb1 and IIa1 (Figure 26).

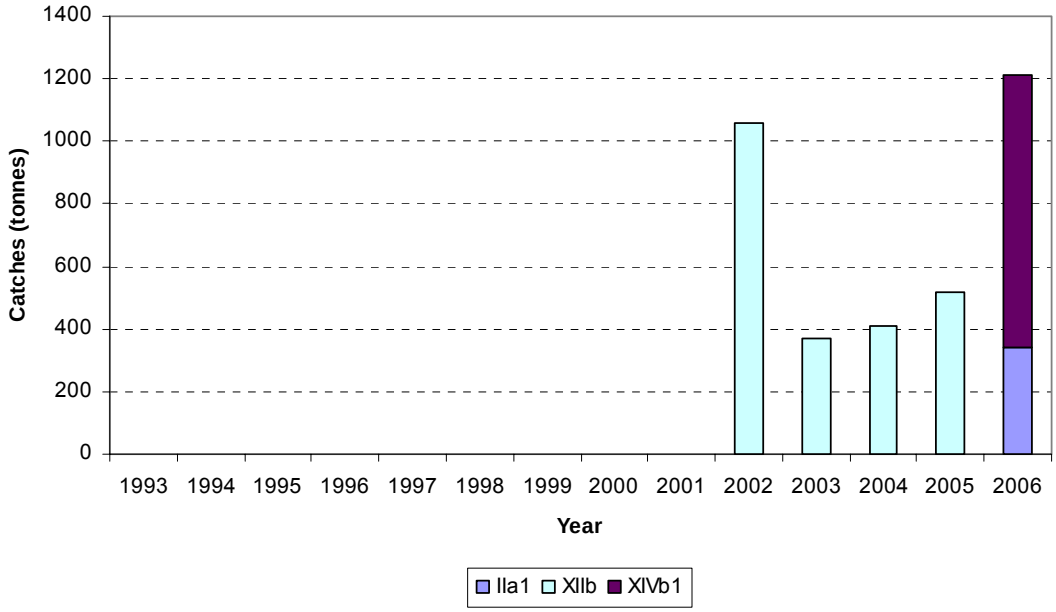


Figure 26: Annual high seas catches (tonnes) of the Latvian HSBG fleet in NEAFC per subdivision, 1993 – 2006.
Source: ICES catch database

7.5.5 Ports, landings and processing

The Latvian high seas bottom gear fleet rarely comes into port in Latvia.

The NAFO vessel lands in Canada (Harbour Grace, St Johns, Newfoundland) or Iceland (near Reykjavik). These ports are also used for vessel repairs and crew changes. Depending on the size of the prawns caught, they are either cooked and peeled (larger prawns), or go to a factory in Iceland for peeling (smaller prawns, 'industrial shrimp') (Industry interviews, *pers. comm.*).

Catches from the redfish vessel, which fishes in NAFO and NEAFC, are consumed mainly in Germany and France, although some landings are made in Holland and Iceland for storage (vessel captain, *pers. comm.*). All processing is carried out on-board (filleting).

7.6 Lithuania

7.6.1 Distant water demersal activities

The Lithuanian high seas fleet provides the majority of Lithuanian catches each year (DG Fish, 2004), targeting both pelagic and demersal species in the Atlantic Ocean. Catches made in the northeast Atlantic currently provide the majority of Lithuania's demersal catches (Figure 27), although HSBG vessels account for only a small proportion of Lithuania's total catches.

Up until the late 1990s Lithuania had substantial catches of demersal species in the CECAF area (Figure 27). However, these have been low from 1999 onwards. Furthermore, There are no Lithuanian HSBG vessels operating in CECAF (Lithuanian Fishery Department contact, *pers. comm*). Lithuanian pelagic trawlers that historically have fished in Mauritanian waters are beginning to move to a new pelagic fishery in Chile (Lithuanian Fishery Department contact, *pers. comm*).

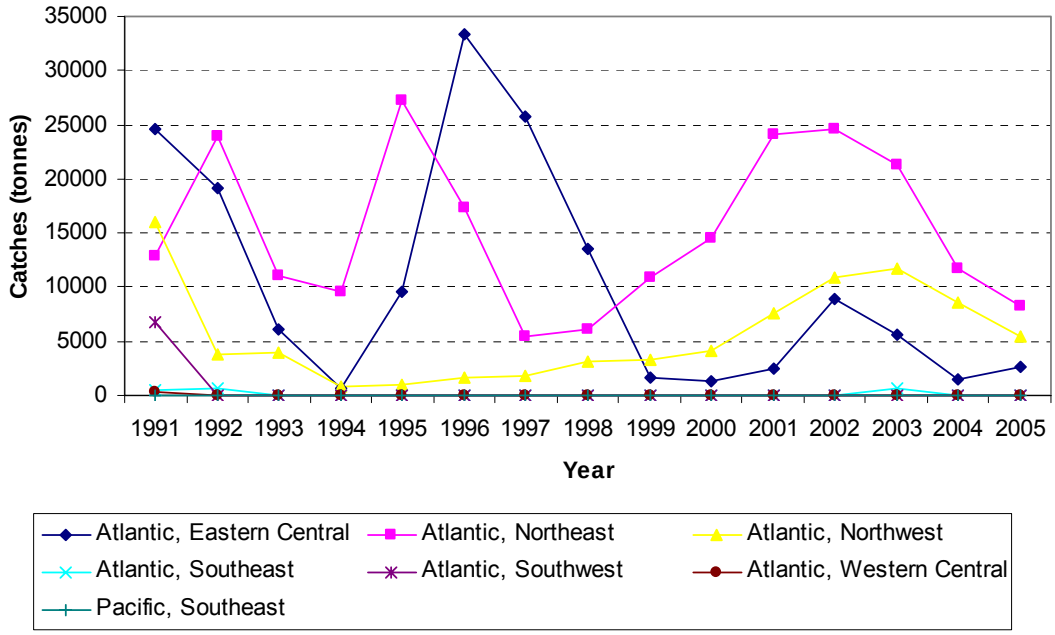


Figure 27: Lithuanian demersal catches by ocean area, 1991 – 2005.
Source: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007). Selected groups were: cods, hakes, haddocks; flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

7.6.2 HSBG fleet characteristics

They currently have 4 vessels engaged in HSBG fishing. There were previously more vessels but increased fuel prices have made these activities less profitable. The average vessel characteristics of the Lithuanian HSBG fleet are 752 GT, 1347 KW and 45 metres length. The Lithuanian HSBG provides 1.62 % by number of the total Lithuanian fleet and 4.94 % and 7.92 % of the total Lithuanian fleet by tonnage and power respectively (see Table 46). The main species caught are redfish, Greenland halibut, Northern prawn, ling, scabbard fish and grenadier.

Table 46 Lithuania HSBG fleet description

	Vessel name	Gear type (1o/2o)	No vessels	Tonnage (GT)	Engine power (kW)	Age (years)	Length (m)
Lithuanian HSBG							
	Anuva	OTB/NO		436	736	44	40.58
	Borgin	OTB/NO		1103	1495	23	46.61
	Polaris	OTB/NO		756	1578	40	46.28
	Pollux	OTB/OTM		716	1578	40	46.12
Total			**4**	**3011**	**5387**		
Average				**752.8**	**1346.8**	**36.8**	**44.9**
Lithuania total fleet			247	60960	68891		
% HSBG			1.62%	4.94%	7.82%		
EU total fleet			87 004	1 955 879	7 068 471		
% Lithuania HSBG			0.005%	0.154%	0.076%		

Source: Vessel identification: national authorities and industry interviews; Vessel characteristics: EU Fleet Register; Lithuania fleet total: DG Fish, 2007b; EU fleet total: Eurostat, 2007.

7.6.3 Lithuania catches

The Lithuanian HSBG catches are dominated by Northern prawn caught in subarea 3 M and some of 3L, similar to Estonia (96% of total Lithuanian NAFO catches since

1993) with additional catches of redfish and Greenland halibut in 2005. Substantial catches of Atlantic redfish are also made by pelagic trawlers. However, comparison of Table 15 and Table 47, and Table 17 and Table 49 show that Lithuanian catch levels are lower than Estonia's and the overall reliance of the HSBG fleet on catches of Northern prawn, and all HSBG catches, are less important at a national level.

The HSBG fishery for deep sea species in NEAFC started in 2000. Roundnose grenadier and Baird's slickhead catches from the Rockall and Hatton bank high seas regions of NEAFC (sub areas XIIb and VIb1 respectively) are also significant and are of importance to the Lithuanian HSBG fleet.

Table 47 Total Lithuanian HSBG catches (tonnes), by species, 1993–2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	0	0	0	0	0	0	0	0	0	0	0	0	526	0	**526**
Baird's slickhead	0	0	0	0	0	0	0	0	460	0	242	546	737	328	**2313**
Greenland halibut	0	0	0	0	0	0	0	0	3	48	26	42	3	2	**124**
Northern prawn	0	0	0	0	0	3107	3370	3596	0	0	0	0	3940	66	**14079**
Roundnose grenadier	0	0	0	0	0	0	0	0	137	1835	970	1081	105	118	**4246**
Roughsnout grenadier	0	0	0	0	0	0	0	0	0	0	0	0	272	573	**845**
Other species	0	0	0	0	0	0	0	0	19	38	57	145	159	45	**463**
Total	**0**	**0**	**0**	**0**	**0**	**3107**	**3370**	**3596**	**619**	**1921**	**1295**	**1814**	**5742**	**1132**	**22596**

Source: NAFO 21B database and ICES database on catch statistics.

Table 48: Total Lithuanian HSBG catches (€m), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.202	0.000	**1.202**
Baird's slickhead	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.362	0.000	0.717	1.173	2.524	1.086	**6.861**
Greenland halibut	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.008	0.107	0.056	0.102	0.008	0.005	**0.285**
Northern prawn	0.000	0.000	0.000	0.000	0.000	6.688	7.405	8.656	0.000	0.000	0.000	0.000	10.157	0.174	**33.079**
Roundnose grenadier	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.098	1.392	0.784	1.089	0.251	0.075	**3.689**
Roughsnout grenadier	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.649	0.362	**1.012**
Other species	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.023	0.046	0.067	0.180	0.214	0.060	**0.590**
Total	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**6.688**	**7.405**	**8.656**	**1.491**	**1.545**	**1.623**	**2.544**	**15.005**	**1.762**	**46.718**

Source: Landed prices taken from EUROSTAT landings database

Table 49: Lithuanian HSBG catches (tonnes) as a percentage of total Lithuanian catches, by species, 1993–2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.38	N/A	**0.04**
Baird's slickhead	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.31	0.00	0.16	0.34	0.53	N/A	**0.15**
Greenland halibut	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.02	0.03	0.00	N/A	**0.01**
Northern prawn	0.00	0.00	0.00	0.00	0.00	4.79	4.73	4.67	0.00	0.00	0.00	0.00	2.85	N/A	**1.07**
Roundnose grenadier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	1.23	0.62	0.67	0.08	N/A	**0.31**
Roughsnout grenadier	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.20	N/A	**0.02**
Other species	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03	0.04	0.09	0.12	N/A	**0.03**
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**4.79**	**4.73**	**4.67**	**0.42**	**1.29**	**0.83**	**1.13**	**4.15**	**N/A**	**1.63**

Source: NAFO 21B database, ICES database on catch statistics and FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007) .

Table 50: Total annual catches (tonnes) of the Lithuanian bottom gear fleet involved in high seas fishing operations split between EEZ and unregulated and regulated high seas for 1993 – 2006

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
EEZ	0	0	0	0	0	233	797	2781	2645	3319	1653	2111	1920	1482	**16941**
High Seas (RFMO)	0	0	0	0	0	3107	3370	3596	619	1921	1295	1814	5742	1132	**22596**
High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**0**	**0**	**0**	**0**	**0**	**3340**	**4167**	**6377**	**3264**	**5240**	**2948**	**3925**	**7662**	**2614**	**39537**

Source: NAFO 21B database and ICES database on catch statistics.

7.6.4 Spatial trends in fishing effort

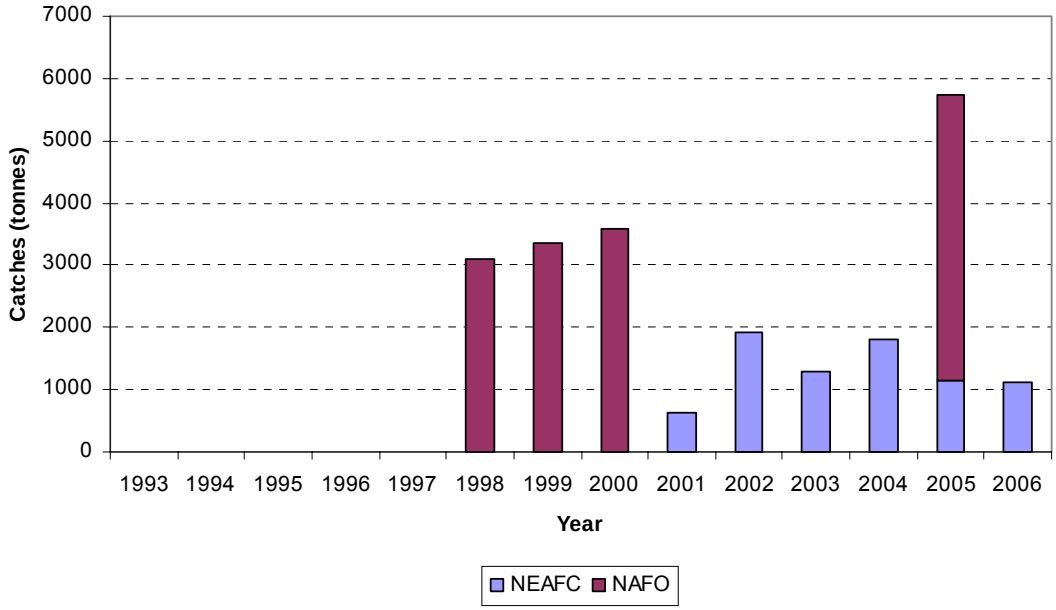


Figure 28: Annual high seas catches (tonnes) of the Lithuanian HSBG fleet per ocean region, 1993 – 2006.
Source: NAFO 21B database, ICES catch database

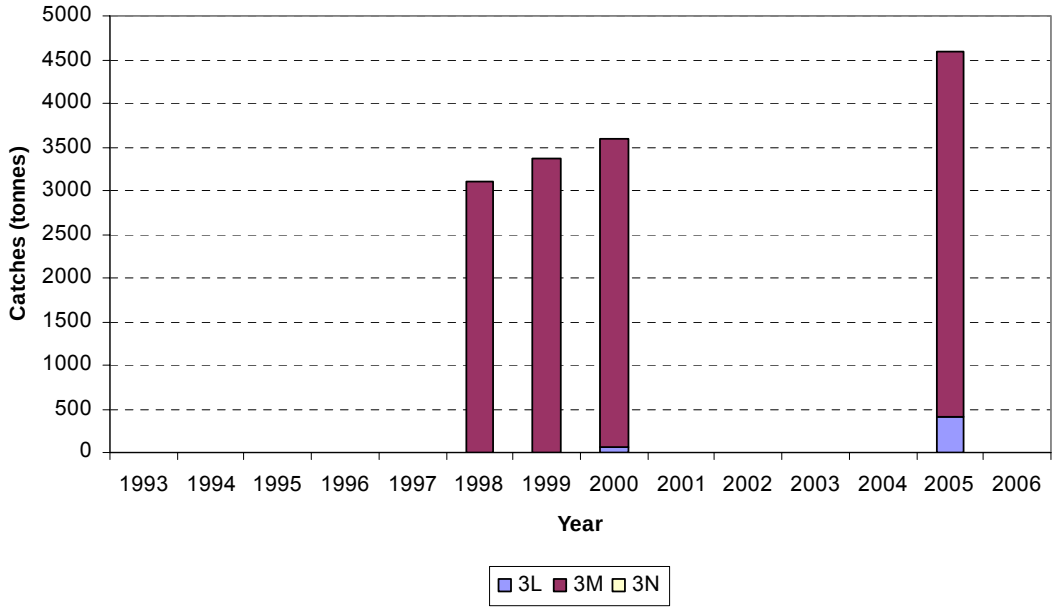


Figure 29: Annual high seas catches (tonnes) of the Lithuanian HSBG fleet in NAFO per division, 1993 – 2006.
Source: NAFO 21B database

The Lithuanian HSBG fleet operates exclusively within NEAFC and NAFO (Figure 28) with catches in NAFO subdivision 3M accounting for the majority of annual Latvian HSBG catches (Figure 28 and Figure 29). HSBG fishing effort in NAFO is sporadic however and between 1993 and 2006 only occurred in 1998 – 2000 and 2005. HSBG in NEAFC fishing effort occurred in the first instance in 2001, with relatively low annual catches but more consistent levels of effort between 2001 and

2006 (Figure 30). The majority of NEAFC effort is expended in VIb1, the area surrounding the Hatton bank, with relatively low but stable catches made in XIIb.

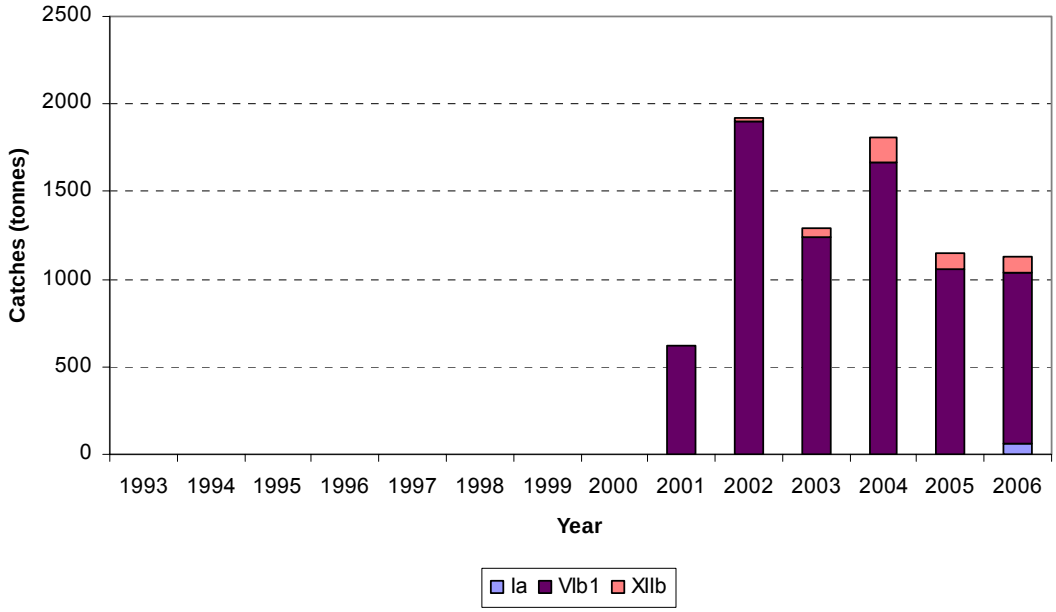


Figure 30: Annual high seas catches (tonnes) of the Lithuanian HSBG fleet in NEAFC per subdivision, 1993 – 2006.
Source: ICES catch database

7.6.5 Ports, landings and processing

Lithuanian vessels generally do not land in Lithuania but instead use ports elsewhere for the same reasons as for Estonia (see 7.1). Catches are landed in Canada, Iceland, the Faeroe Islands and Norway. Catches of Northern prawn made in NAFO are landed in Canada, catches of Northern prawn made in NEAFC are landed in Norway (Tromsø) and catches of deep sea fish species from NEAFC are landed in Spain (Vigo). The vessels are inspected and undergo maintenance in the countries that landings are made. The ports, and amounts landed by species by year are unavailable at present.

7.7 Poland

7.7.1 Distant water demersal activities

The total catch of the Polish fleet was 225 000 t in 2001. 70 % of this was from the Baltic Sea. In the past Poland had a substantial distant-water fleet, but this has decreased significantly since the dissolution of the USSR. In 2004 it comprised only three vessels at the beginning of 2004 when Poland joined the European Union (DG Fish, 2004). Catches in the Antartic, SW Atlantic, CECAF region and Pacific Ocean had all ceased by 2003 (Table 51).

The Polish fisheries authorities indicated that no vessels in their fleet were relevant to this study. However, in 2005 the Polish fleet made catches of demersal species in the NE and NW Atlantic as well as the SE Atlantic although catches in the latter area were very low and declining (Table 51). NAFO and NEAFC data also indicate Polish catches for shrimp, redfish, grenadiers and Greenland halibut.

Table 51 Poland demersal catches from all ocean areas, 1991–2005

Area	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	**Total**
Atlantic, Antarctic	41	0	0	0	0	0	0	0	0	0	3	306	0	0	0	**350**
Atlantic, E. Central	0	0	0	2220	0	2213	646	0	0	0	6086	1969	0	0	0	**13134**
Atlantic, Northeast	31141	18542	15039	19549	34775	45246	48068	41297	35287	29745	31389	28616	26875	28224	27798	**461591**
Atlantic, Northwest	0	0	0	0	0	0	824	148	894	1732	760	428	921	2199	1286	**9192**
Atlantic, Southeast	0	0	0	1	120	36	1964	543	0	0	2	86	310	57	7	**3126**
Atlantic, Southwest	26195	16278	8644	10658	8923	3548	0	0	349	0	73	0	0	0	0	**74668**
Pacific, Northeast	5896	0	0	0	0	0	0	0	0	998	4	0	0	0	0	**6898**
Pacific, Northwest	230590	297732	235208	269979	249365	116266	125414	81889	65508	33217	16590	0	0	0	0	**1721758**
Pacific, Southwest	0	959	0	0	0	0	0	0	0	0	0	0	0	0	0	**959**
Total	**293863**	**333511**	**258891**	**302407**	**293183**	**167309**	**176916**	**123877**	**102038**	**65692**	**54907**	**31405**	**28106**	**30480**	**29091**	**2291676**

Source: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007). Selected groups were: cods, hakes, haddocks; flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

7.7.2 HSBG fleet characteristics

In 2005, Poland had three deep-sea vessels (Sea Fisheries Institute, 2006), although there is no indication of where they were fishing. However, based on the reported location of their catches, these three vessels are taken as comprising the Polish high seas bottom gear fleet. The EU vessel register indicates that Poland has four trawlers with the characteristics that could allow fishing on the high seas with bottom gears (Table 66). The estimate of three trawlers is therefore realistic and average vessel characteristics are taken from Sea Fisheries Institute (2006).

Table 52 Poland HSBG fleet characteristics

	Vessel name	Gear type ($1^o/2^o$)	No vessels	Tonnage (GT)	Engine power (kW)	Age (years)	Length (m)
Poland HSBG							
	?	trawl	3				
Total			**3**	6 100	9 400		
Average						25.3	
Poland total fleet			871	31 243	99 403		
% HSBG			0.34 %	19.52 %	9.46 %		
EU total fleet			87 004	1 955 879	7 068 471		
% Poland HSBG			0.003 %	0.312 %	0.133 %		

Source: Sea Fisheries Institute, 2006. Poland fleet totals: DG Fish, 2007b; EU fleet total: Eurostat, 2007.

7.7.3 Poland catches

Catches of demersal species have been made in NAFO from 1993 to 2006, the vast majority accounted for by Northern prawn targeted in 3 M (see detailed tables in Appendix 2). Polish vessels have caught deep sea species in both NEAFC and NAFO since 1993, with catches of Alfonsino recorded in SEAFO in 1995. These catches are considered to be made with bottom gears in the context of this study, however it should be noted that the Polish Sea Fisheries Institute consider there to have been no Polish HSBG fishing activity in recent years. It was not possible to determine what proportion of reported NEAFC and SEAFO catches were made in high seas regions, these catches have been grouped as ‘catches of unknown origin’.

The catches of deep sea species from NEAFC and SEAFO account for 26 977 tonnes of the total Polish deep seas species catches of 32 565 tonnes (Table 56). The relative importance of Polish HSBG catches is assessed as low, but this could be inaccurate if a large portion of these catches were made in the high seas.

Poland is recorded as having caught 1 964 tonnes in the southeast Atlantic in 1995, dominated by alfonsinos, probably made around the various seamounts in the region. However, detailed position information relating to the locations of the catches was not available.

Table 53: Total Polish HSBG catches (tonnes), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Northern prawn	0	0	0	0	0	148	894	1732	263	0	145	1302	587	469	**5071**
Other species	0	0	0	0	0	0	0	0	48	0	0	0	0	0	**48**
Total	**0**	**0**	**0**	**0**	**0**	**148**	**894**	**1732**	**311**	**0**	**145**	**1302**	**587**	**469**	**5119**

Source: NAFO 21B database and ICES database on catch statistics.

Table 54: Total Polish HSBG catches (€m), by species, 1993 - 2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Northern prawn	0.00	0.00	0.00	0.00	0.00	0.32	1.96	4.17	0.46	0.00	0.24	2.82	1.51	1.24	**12.73**
Other species	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	**0.06**
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.32**	**1.96**	**4.17**	**0.52**	**0.00**	**0.24**	**2.82**	**1.51**	**1.24**	**12.79**

Source: Landed prices taken from EUROSTAT landings database.

Table 55: Polish HSBG catches (tonnes) as a percentage of total Polish catches, by species, 1993–2006

Species	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Northern prawn	0.00	0.00	0.00	0.00	0.00	0.06	0.40	0.87	0.13	0.00	0.09	0.76	0.43	N/A	**0.15**
Other species	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	N/A	**0.00**
Total	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.06**	**0.40**	**0.87**	**0.15**	**0.00**	**0.09**	**0.76**	**0.43**	**N/A**	**0.15**

Source: NAFO 21B database, ICES database on catch statistics and FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007) .

Table 56 Total annual catches of the Polish bottom gear fleet involved in high seas fishing operations split between EEZ and unregulated and regulated high seas for 1993 – 2006

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
High Seas (RFMO)	0	0	0	0	0	148	894	1732	311	0	145	1302	587	469	**5588**
High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Catches of unknown origin	0	0	1964	0	6656	6812	560	5	207	973	937	2298	1414	5154	**26980**
Total	**0**	**0**	**1964**	**0**	**6656**	**6960**	**1454**	**1737**	**518**	**973**	**1082**	**3600**	**2001**	**5623**	**32568**

Source: NAFO 21B database and ICES database on catch statistics.

7.7.4 Spatial trends in fishing effort

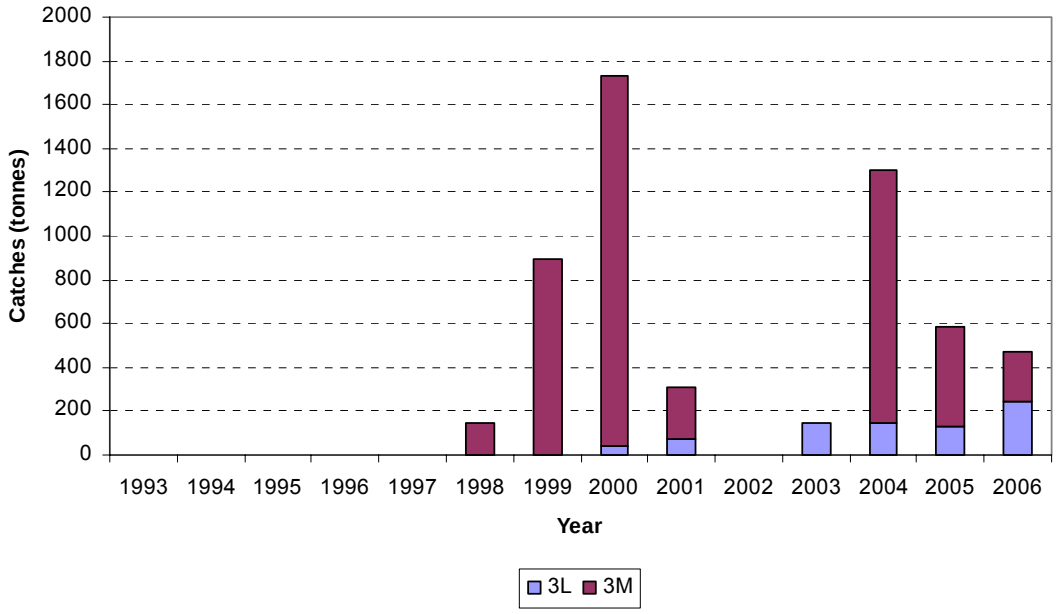


Figure 31: Annual high seas catches (tonnes) of the Polish HSBG fleet in NAFO per division, 1993 – 2006.
Source: NAFO 21B database.

The only high seas HSBG identified in this study were in subdivisions 3M and 3L of NAFO, the majority of these made in 3M (Figure 34). Significant catches of deep sea species, often targeted with bottom gears, have been recorded in NEAFC from 1997 through to 2006. These catches cannot be confirmed as high seas in origin, but fishing effort partially shifted from XII towards XIV from 2003 onwards. In 1995 over 1 900 tonnes of Alfonsino were caught by Polish vessels in SEAFO. It is not known whether these catches were made in high seas regions though it is likely to be a one off expenditure of effort by Polish vessels in SEAFO.

7.8 Portugal

7.8.1 Distant water demersal activities

Total Portuguese catches since 1993 show a marked and significant decline from a high of nearly 300 000 tonnes to a low of less than 200 000 tonnes. Portuguese EEZ-sourced catches traditionally represent the majority of total Portuguese catches (around mainland Portugal, Madeira and Azores), with HS catches currently amounting to around 10 % of the total. It is against a background of continuously decreasing 'domestic' catches that the importance of looking for external sources of catches seems ever-increasing, taking a high number of Portuguese vessels across the world's oceans, in search of HS pelagic and bottom-dwelling species.

The majority of Portugal's demersal catches are from the northeast Atlantic area, although significant catches are also made in the northwest Atlantic and CECAF areas (Figure 32). Catches in CECAF may be from within Portugal's (Madeira and Azores) EEZ, or from within West African Fisheries Partnership Agreements.

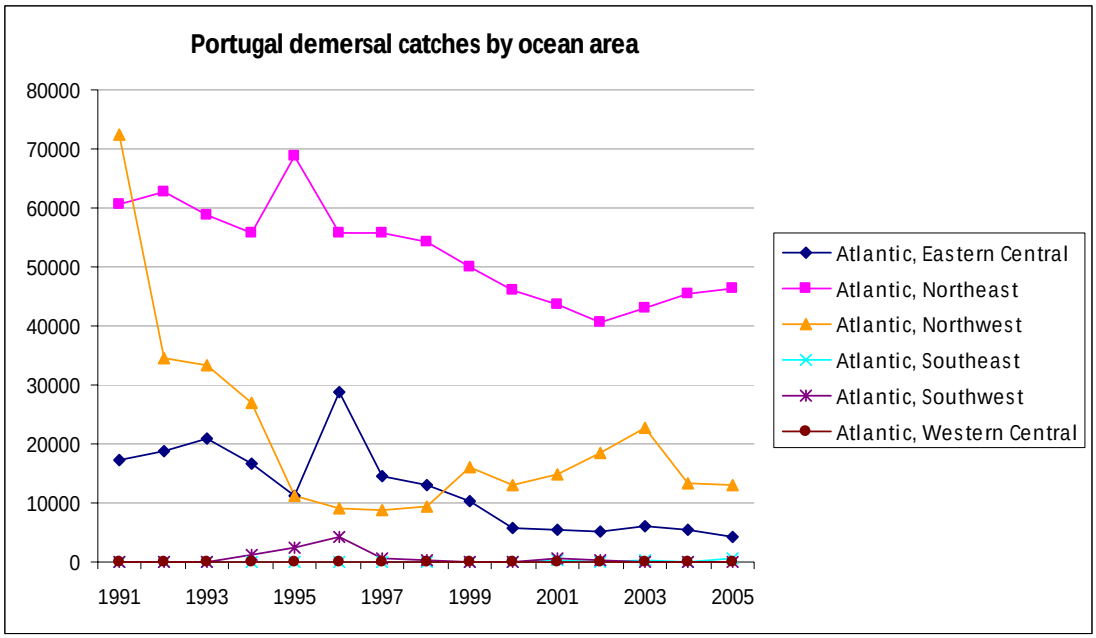


Figure 32 Portuguese demersal catches for all ocean areas, 1991–2005
Source: FAO Fishstat Capture production dataset (1950–2005). Selected groups were: cods, hakes, haddocks; flouders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

7.8.2 HSBG fleet characteristics

The Portuguese fleet that targets the high seas (Table 57) is usually part of what is referred to as the external fishing fleet or distant water fishing fleet. It is composed of a number of vessels licensed to operate in certain regulated areas and with a variety of gears, both pelagic and bottom gear. The vessels may be classed as trawlers and vessels operating static gear. There are no seiners in this fleet.

The consultants received partial data on the Portuguese fleet via the questionnaire. This gave very limited information on the Portuguese HSBG fleet. The Portuguese fleet is based in Aveiro in Central Portugal. The age of the fleet varies, however the sample that we received, which included 19 of the 27 vessels, indicated that 8 of the vessels were over 20 years old.

In 2008 the external fleet that operates bottom gears in the high seas (HSBG) is composed of 20 vessels licensed to operate in regulated areas: NEAFC (9 trawlers in the Irminger Sea, 10 trawlers in the Svalbard; NAFO (13 trawlers); SEAFO (7 vessels operating bottom long-lines, traps and gillnets). The fleet operating static gear is in general (all but one) also licensed to operate drifting longlines. In 2006 this part of the external fleet was composed of 19 of the same vessels working in 2008, less one longliner (which was not yet built).

The trawlers are generally quite old (average 30 years old in 2008). Among them only one recent vessel, constructed in 2005, is technically capable of operating beyond 1000 m depth. In 2008 this vessel is licensed to operate in the Irminger Sea of NEAFC and for NAFO, whereas in 2006 it held a license for the NAFO area alone. The vessels operating static gear are much more recent, on average 3.5 years old. This part of the external fleet has maintained a steady number of vessels in operation for a long time; in general newer vessels replace older vessels with the same licenses.

Table 57 Portugal HSBG vessels and characteristics, with licences for RFMOs and under bilateral agreements

	Vessel name	Gear type (1º/2º/3º)[a]	No vessels	Tonnage (GT)	Engine power (kW)	Age (years)	Length (m)
Portugal HSBG Trawlers							
	Aveirense	OTB2		1 995.35	2 648.00	34	80.20
	Brites	OTB2		1 513.19	2 207.00	37	80.35
	Calvão	OTB2		1 106.98	1 471.00	31	61.42
	Cidade De Amarante	OTB2		811.54	1 471.00	18	64.50
	Coimbra	OTB2		1 598.29	2 207.00	36	80.30
	Favaios	OTB2		150.19	543.53	32	34.08
	França Morte	OTB2		2 820.00	2 917.00	3	73.80
	Joana Princesa	OTB2		1 516.81	2 207.00	39	80.32
	Lutador	OTB2		1 576.94	1 750.00	41	80.35
	Pascoal Atlântico	OTB2		940.52	1 471.00	16	69.40
	Polo Sul	OTB2		223.88	956.00	26	37.74
	Praia De Santa Cruz	OTB2		2 381.98	2 686.00	34	84.87
	Santa Cristina	OTB2		1 673.10	1 853.00	42	80.30
	Santa Isabel	OTB2		1 865.39	2 686.00	36	84.94
	Santa Mafalda	OTB2		1 640.70	2 181.00	40	80.30
Subtotal			16	21 904.01	29 622.91		
Average				1 369.00	1 851.43	29.88	68.48
Longliners							
	Alma Lusa	BLL/TRP		595.00	927.00	1	44.90
	Astur	OTB2		89.15	368.38	13	22.98
	Avô Músico	BLL/TRP		268.79	900.23	3	41.00
	Avô Rato	BLL/TRP		268.79	912.74	4	41.00
	Jade	BLL/TRP		222.29	544.00		34.98
	Albimar	BLL/TRP		149.58	570.00	27	28.66
	Meireles Novo	BLL/TRP		72.42	323.62	10	23.00
	Novo Ruivo	BLL/TRP/ GLN		243.65	661.94	4	35.00
	Novos Horizontes	SLL/BLL/ TRP		348.69	900.60	33	43.00
	Paula Filipa	BLL/TRP		137.76	368.00	14	28.10
	Porto Dinheiro	BLL/TRP		55.20	267.71	8	19.20
	Vila De Ribamar	BLL/TRP		304.39	969.41	5	40.95
Subtotal			11	2 666.56	7 345.25		
Average				242.41	667.75	10.90	34.53
Total			**27**	**24 570.57**	**36 968.16**		
Average						**22.6**	**54.65**
Portugal total fleet			8 666	106 625.0	380 729		
% HSBG			0.31 %	23.04 %	9.54 %		
EU total fleet			87 004	1 955 879	7 068 471		
% Portugal HSBG			0.031 %	1.256 %	0.523 %		

Source: Identification of vessels: industry interviews; Vessel characteristics: EU Fleet Register. Portugal fleet totals: DG Fish, 2007b; EU fleet total: Eurostat, 2007.

Other than the vessels licensed to operate bottom gears in the high seas in regulated areas, there is an additional number of vessels that fish under bilateral agreements between the EU (or Portugal) and other countries. Some of these vessels also operate bottom gear beyond the EEZs of the countries with which the agreements are made, in unregulated areas. In 2006, 1 vessel was operating in the high seas of the southwest Atlantic (FAO area 41 2.4 and 41 2.1); and a further 6 vessels were operating in the eastern central Atlantic (FAO area 34 1.3, 34.2 and 34 3.1). A number of other vessels appear to deploy chiefly surface longlines, but it is sometimes difficult to know if, where and when some of these vessels may also deploy bottom longlines, as the catches often reflect the possibility of the use of both types of gear.

Overall in 2006, 79 Portuguese vessels worked in waters other than the Portuguese EEZ (Table 58). Of those 79, 27 were clearly using bottom gear (described above) whereas the remaining operated chiefly pelagic gear. Of the same 79, 15 fished in FAO area 21 (northwest Atlantic), both in the EEZs and the high seas; 15 fished in FAO area 27 (northeast Atlantic), 7 of which in the high seas; 1 fished in the high seas of FAO area 31 (western central Atlantic); 38 fished in FAO area 34 (eastern central Atlantic) of which 24 in the high seas; 6 fished in FAO area 37 (Mediterranean and Black Sea); 9 fished in the high seas of FAO area 41 (southwest Atlantic); 13 fished in the high seas of FAO area 47 (southeast Atlantic); 16 fished in the high seas of FAO area 51 (western Indian Ocean); and 2 fished in the high seas of FAO area 57 (eastern Indian).

Table 58 Total number of Portuguese fishing vessels operating outside the Portuguese EEZ, number operating in high seas and number operating bottom gear at the high seas in 2006, by fishing area

Fishing Area	Total number of vessels	Vessels working HS	Vessels operating HSBG (2006)
21	15	15	12
27	15	7	5
31	1	1	0
34	38	24	6
37	6	0	0
41	9	9	2
47	13	13	2
51	16	16	3
57	2	2	0

7.8.3 HSBG catches

The Portuguese HSBG fleet operates in a wide variety of fishing grounds, targeting a variety of species. In 2006 106 species or groups of species were caught by Portuguese HSBG vessels.

Catch data for the Portuguese HSBG fleet was obtained for 2005 to 2007, allowing identification of high seas and EEZ catches by year by species for all Portuguese HSBG vessels. For 1993 to 2006 catch data by species group was available for the Portuguese HSBG fleet. However this data also included catches made by pelagic gear. Proportions were calculated for 2005 and 2006 of the annual catches in the 1993 – 2006 dataset accounted for by the catches in the 2005 – 2007 data. This in effect calculated the proportion of demersal and pelagic catches provided by the

HSBG fleet. The average proportion for 2004 and 2005 was applied for 1993 to 2994 to give an estimate of annual HSBG catches. Then the high seas proportion of HSBG catches in 2004 and 2005 were calculated. This proportion was applied to the estimated HSBG fleet catches of 1993 to 2004 to estimate the annual high seas catches of the HSBG fleet. This process assumes that the comparative levels of pelagic and demersal fishing activities, and EEZ and high seas fishing effort within the HSBG fleet, in 2005 and 2006 are indicative of 1993 to 2004. These assumptions were probably violated. However this method was chosen as the best available given the absence of more reliable data.

For 1993 to 2004 it was impossible to identify the volumes of high seas catches of the HSBG fleet made in regulated or unregulated high seas due to the method used to disaggregate the catch data. These catches are grouped as High seas (unknown).

In the NAFO Regulatory Area (Figure 2), the Portugeuse fleet, like the Spanish, works mainly on the continental slope of Divisions 3 L, M, N and O. The primary target species are Greenland halibut (*Reinhardtius hippoglossoides*) and redfish. The majority of the fishing effort targeting Greenland halibut appears to be conducted on the shallower depths of the 'nose and tail' and the Flemish Cap, although some fishing does appear on the deeper slopes particularly when targeting redfish and prawns. There is little evidence of interaction with vulnerable marine ecosystems in this area, but any potential interactions would probably no longer be observed given the high level of historical effort conducted on these grounds.

The high seas catches of the HSBG fleet accounted for 8 % of Portugal's total catches between 1993 and 2006, 263 140 tonnes in total with a value of €254 million. In comparison with other EU countries, the catch volume is large (Table 67) and the importance of these catches are high (Table 69). However the value is relatively low compared to the volume (Table 68). This is due to large quantities of redfish catches, a relatively low price species.

Table 59: Total annual high seas catch (tonnes and €m) of the Portuguese HSBG fleet and their proportion of Portugal's total catch volume, 1993 – 2006.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
HS HSBG catch (tonnes)	31447	0	27899	16735	15581	21421	20540	17344	14872	19744	21618	17962	18283	19695	**263140**
HS HSBG catch (€m)	27.85	0.00	24.24	10.84	9.36	12.80	14.14	15.03	17.63	23.83	25.46	22.27	24.66	26.18	**254.31**
Relative Importance	0.107	0.000	0.105	0.063	0.069	0.094	0.098	0.091	0.077	0.097	0.102	0.081	0.086	N/A	**0.082**

Source: Portuguese high seas HSBG catches: Vessel data supplied by the Directorate General of Fisheries and Aquaculture, Portugal; Landed prices: EUROSTAT landings database; Total Portuguese catches: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007)

Table 60 Total annual catches (tonnes) of the Portuguese bottom gear fleet involved in high seas fishing operations split between EEZ and unregulated and regulated high seas for 1993 – 2006. Blank entries indicate the cell value is unknown..

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
EEZ													6688	8564	**15252**
High Seas (RFMO)													17546	19206	**36752**
High Seas (Unregulated)													737	489	**1226**
High seas (unknown)	31447	0	27899	16735	15581	21421	20540	17344	14872	19744	21618	17962	0	0	**225161**
Total	**31447**	**0**	**27899**	**16735**	**15581**	**21421**	**20540**	**17344**	**14872**	**19744**	**21618**	**17962**	**24971**	**28259**	**278391**

Source: Vessel data supplied by the Directorate General of Fisheries and Aquaculture, Portugal.

7.8.4 Spatial trends in fishing effort

The Portuguese distant fishing fleet is traditionally dedicated to the western border areas of the NEAFC regulation area (near the eastern coast of Greenland and western and northern Iceland), the NAFO regulation area, and the western coast of Africa. High-seas fisheries were most frequent in the NAFO and NEAFC fishing areas. The distant fishing fleet is also comprised of a large number of vessels fishing mainly with pelagic long-line gear but also equipped to use bottom long-lines. For a period of time in the past there were licenses issued for a few vessels in the Falkland ICZ but they have not been requested and/or granted in the recent past.

Portuguese HSBG trawling vessels are for the most part extremely aged and not able to operate at great depths (depths above 1000m), limiting their operation to the most intensely used areas. A single vessel is presently able to operate beyond 1000m and has been fishing at approximately 2000m depth.

The Portuguese HSBG fleet have recently have been researching areas all over the world, from the western coast of South America to the Indian Ocean and throughout the Atlantic Ocean, except in the Falklands ICZ, but including the Argentine coast to the north of the Falklands. Trawlers (which are a relatively small number as compared to the total High-Seas fleet) still operate almost exclusively in the NAFO and NEAFC regulated areas, but an increasing number of vessels are using bottom long-lines and traps over large depths of the mid-Atlantic, eastern south Pacific and eastern Indian oceans, with catches of a variety of species of which the most important are made up of a number of shark species. However the majority of high seas catches of the Portuguese HSBG fleet are made in NEAFC and NAFO (Figure 33).

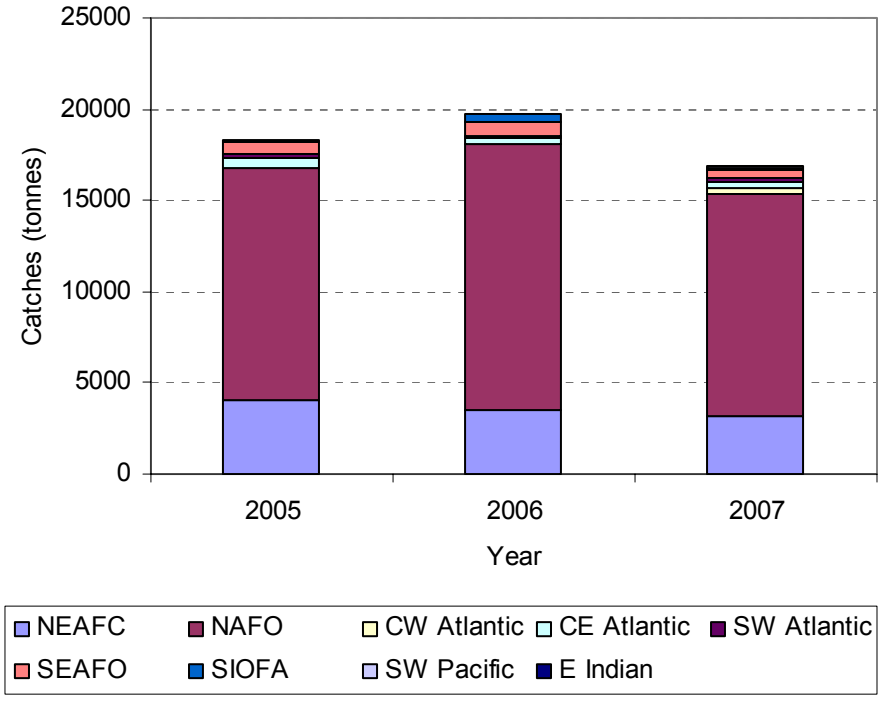


Figure 33: High seas catches (tonnes) of the Portuguese bottom gear fleet by ocean region or RFMO, 2005 – 2007.
Source: Vessel data supplied by the Directorate General of Fisheries and Aquaculture, Portugal.

7.8.5 Ports, landings and processing

Twelve ports were identified where landings of species caught in the high seas by Portuguese-flagged vessels took place in 2006 (Table 61 and
Table 62). The main ports were in Portugal (Aveiro and Peniche), Spain (Vigo, Cangas), South Africa (Cape Town, Durban), as well as in Uruguary (Montevideo) and Mauritius (Port Louis).

Landings appear to occur in the vicinity of the fishing area, except for most of the trawlers operating in the northern Atlantic (NAFO and NEAFC), which landed either in the Portuguese port of Aveiro or in the Spanish ports of Cangas and Vigo and never in other ports.

By volume, landings of bottom species made by the HSBG fleet (Table 63) are most significant in Portugal and Spain and particularly at the ports of Aveiro, Vigo and Cangas, as a result of the catches made by the trawlers licensed to operate in the NAFO and NEAFC areas. The most important country for landings into non-EU ports is South Africa, where the most important port is Cape Town.

Table 61 Number of Portuguese vessels landing catches from the high seas in 2006, under licence or bilateral agreement, by landing port

		No vessels landing	
Country	**Port**	**Licensed**	**Bilateral**
Brazil	Santos		1
Liberia	Monrovia		1
Mauritius	Port Louis	3	
Portugal	Aveiro	8	
	Peniche		3
Senegal	Dakar		2
South Africa	Cape Town	6	
	Durban	3	
Spain	Cangas	5	
	Las Palmas		1
	Vigo	8	2
Uruguay	Montevideo	1	

Source: Directorate General of Fisheries and Aquaculture, Portugal.

Table 62 Number of vessels landing catches made in high seas in 2006, split by gear (trawlers or static gear), by port of landing

		No vessels landing	
Country	**Port**	**Otter Trawl**	**Static**
Brazil	Santos	1	
Liberia	Monrovia		1
Mauritius	Port Louis		3
Portugal	Aveiro	8	
	Peniche		3
Senegal	Dakar	2	
South Africa	Cape Town		6
	Durban		3
Spain	Cangas	5	
	Las Palmas		1
	Vigo	8	2
Uruguay	Montevideo		1

Source: Directorate General of Fisheries and Aquaculture, Portugal.

Table 63 Total volume of landings of bottom species in 2006, by port of landing

Country	Port	HSBG Landings (tonnes)
Brazil	Santos	9.732
Liberia	Monrovia	2.207
Mauritius	Port Louis	56.003
Portugal	Aveiro	12 321.597
	Peniche	40.077
Senegal	Dakar	76.301
South Africa	Cape Town	787.747
	Durban	81.060
Spain	Cangas	3 046.830
	Las Palmas	3.685
	Vigo	7 804.361
Uruguay	Montevideo	22.406

Source: Directorate General of Fisheries and Aquaculture, Portugal.

7.9 Other Member States

FAO catch data for EU Member States for all ocean regions for demersal species were checked to ensure that no Member States and fishing areas were being overlooked. Summary data are provided in Table 65.

Much of the catches in the NE Atlantic can be assumed to be taken from EU waters. Catches by Italy, Cyprus and Greece in the CECAF area are likely to be taken from within EEZs under Fisheries Partnership Agreements with Mauritania, Morocco, Guinea-Bissau and previously Senegal. UK catches in the Antartic and SW Atlantic are likely to be from within UK overseas territories, although there was one UK-flagged vessel targeted hake and Illex on the high seas at 46°S (Falkland Islands Government, *pers. comm.*) (Table 64). Germany and Denmark appear to have some catches from the NW Atlantic. In the case of Denmark, these may come from within Greenland's EEZ.

Cyprus is recorded as having caught 436 tonnes in 2004 in the southeast Atlantic alfonsinos, probably made around the various seamounts in the region. However, detailed position information relating to the locations of the catches have not been provided.

Table 64 Characteristics of UK HSBG vessels

	Vessel name	Gear type (1°/2°)	No vessels	Tonnage (GT)	Engine power (kW)	Age (years)	Length (m)
UK HSBG							
SW Atlantic	Baffin Bay	OTB		1871	1454	19	60.82
Total							
Average				1871	1454	19	
UK total fleet			6840	212607	860951		
% HSBG			%	%	%		
EU total fleet			87 004	1 955 879	7 068 471		
% UK HSBG			%	%	%		

7.10 Potential HSBG vessels in the EU fleet

The EU Vessel Register was used to summarise the number of potential vessels for each Member State that have the potential to fish on the high seas using bottom gears, according to their gear, length, tonnage and power (Table 66).

There are 753 active vessels on the EU Vessel Register with the potential to fish on the high seas with bottom gears, the majority of which are trawlers (461). These represent 0.9 % of the total EU fleet by number, 34 % by tonnage and 15 % by power. Information obtained from the Member States indicates that only a small proportion of these potential HSBG vessels actually fish on the high seas.

Table 65 Summary catches of demersal species for other Member States

Country	Area	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
Belgium	Atlantic, Northeast	37392	34501	33466	31471	32925	28548	28234	28669	27700	27376	27823	26070	24079	23726	21875	433855
Bulgaria	Atlantic, Antarctic	0	145	193	250	0	0	0	0	0	0	0	0	0	0	0	588
	Atlantic, E. Central	731	0	0	0	0	0	0	1697	0	0	0	0	0	0	0	2428
	Atlantic, Northeast	1522	628	3163	-	-	-	-	-	-	-	-	-	-	-	-	5313
	Atlantic, Southwest	22648	9426	3138	0	0	0	0	0	0	0	0	0	0	0	0	35212
	Sub-total	24901	10199	6494	250	0	0	0	1697	0	0	0	0	0	0	0	43541
Cyprus	Atlantic, E. Central	0	0	0	0	0	2632	13640	5415	1065	1159	5016	0	0	0	0	28927
Denmark	Atlantic, Northeast	1251958	1423001	1016966	1170553	1301603	1044313	1178264	911003	797357	897653	906121	899901	493736	506110	294847	14093386
	Atlantic, Northwest	2016	3491	897	245	447	403	421	556	235	0	93	359	1006	2754	3696	16619
	Sub-total	1253974	1426492	1017863	1170798	1302050	1044716	1178685	911559	797592	897653	906214	900260	494742	508864	298543	
Finland	Atlantic, Northeast	2506	1561	1322	1093	2436	3854	2245	1592	2130	2279	2227	1280	1364	1010	391	27290
Germany	Atlantic, E. Central	3471	0	0	0	39	40	45	53	174	0	132	98	0	2	0	4054
	Atlantic, Northeast	94881	83694	103606	114230	108223	119270	108374	106243	91364	88769	92283	90757	95711	89325	99460	1486190
	Atlantic, Northwest	14692	5372	343	305	0	495	449	355	569	4920	1359	2861	3550	1587	1592	38449
	Sub-total	109573	89066	103949	114535	108223	119765	108823	106598	91933	93689	93642	93618	99261	90912	101052	
Greece	Atlantic, E. Central	9534	11312	11902	7631	7454	7076	4261	5223	4448	4856	5143	4476	3350	2614	1744	91024
Italy	Atlantic, E. Central	28274	40003	34306	34426	4615	1907	3722	3075	2314	1754	4417	4316	4964	3728	2269	174090
	Atlantic, Southwest	7068	5334	4573	4589	550	227	0	0	0	0	0	0	0	0	0	22341
	Atlantic, Southeast	0	0	0	0	62	26	0	0	0	0	0	0	0	0	0	88
	Sub-total	35342	45337	38879	39015	5227	2160	3722	3075	2314	1754	4417	4316	4964	3728	2269	
Malta	Atlantic, E. Central	-	-	-		1236	3465	8197	-	-	-	-	-	-	-	-	12898
Netherlands	Atlantic, E. Central	0	0	0	0	0	389	292	925	884	810	2478	1921	1476	1654	1031	11860
	Atlantic, Northeast	139711	134605	137551	146173	144448	115923	123594	128029	139011	133837	152454	115812	135622	159705	203682	2110157
	Sub-total	139711	134605	137551	146173	144448	116312	123886	128954	139895	134647	154932	117733	137098	161359	204713	2122017
Romania	Atlantic, E. Central	3110	4335	53	0	0	0	0	0	0	0	0	0	0	0	0	7498
	Atlantic, Northeast	0	0	0	125	76	13	0	0	0	0	0	0	0	0	0	214
	Sub-total	3110	4335	53	125	76	13	0	0	0	0	0	0	0	0	0	7712
Sweden	Atlantic, Northeast	75020	40394	68731	47761	68457	58316	52267	45524	69263	62658	86840	100449	111293	78599	31811	997383

United Kingdom	Atlantic, Antarctic	12	16	0	12	0	0	670	720	1059	1450	1140	2149	2150	2127	1802	13307
	Atlantic, E. Central	0	0	0	0	0	0	0	0	0	0	0	0	0	0	578	578
	Atlantic, Northeast	307332	312289	347777	363004	373662	389470	410816	444836	389197	291133	266568	236467	192723	222811	271590	4819675
	Atlantic, Northwest	92	169	0	49	0	129	23	290	0	0	0	0	547	0	0	1299
	Atlantic, Southwest	12	0	416	25	152	305	379	295	735	150	2303	1754	232	563	733	8054
	Pacific, Antarctic	0	0	0	0	0	0	0	0	0	0	0	0	0	32	308	340
	Sub-total	307448	312474	348193	363090	373814	389904	411888	446141	390991	292733	270011	240370	195652	225533	275011	4843253

Source: FAO Fishstat Capture production dataset 1950-2005 (Release date: March 2007). Selected groups were: cods, hakes, haddocks; flounders, halibuts, soles; marine fish nei; misc. demersal fish; sharks, rays, chimeras; and shrimps, prawns.

Table 66 Number, tonnage and power of vessels with characteristics that could operate on the high seas with bottom gears

Country	Potential bottom trawl			Potential bottom longline			Potential bottom gillnet			Total – potential HSBG			Total – whole fleet			HSBG potential fleet as % of country total			HSBG potential fleet as % of EU total fleet		
	No vessels	Tonnage (GT)	Power (kW)	No vessels	Tonnage (GT)	Power (kW)	No vessels	Tonnage (GT)	Power (kW)	No vessels	Tonnage (GT)	Power (kW)	No vessels	Tonnage (GT)	Power (kW)	No vessels	Tonnage (GT)	Power (kW)	No vessels	Tonnage (GT)	Power (kW)
Belgium										0	0	0	103	19578	60620	0.00	0.00	0.00	0.00	0.00	0.00
Cyprus										0	0	0	867	4994	38725	0.00	0.00	0.00	0.00	0.00	0.00
Denmark	36	30080	64686	1	398	1080	12	3997	9629	49	34475	75395	2979	78068	281030	1.64	44.16	26.83	0.06	1.80	1.08
Germany	14	40831	41624	1	265	441				15	41096	42065	1899	69342	162103	0.79	59.27	25.95	0.02	2.15	0.60
Spain	106	88635	107091	133	52582	71193	55	16593	25412	294	157810	203696	13022	470973	1064152	2.26	33.51	19.14	0.34	8.24	2.93
Estonia	10	12215	19923							10	12215	19923	965	19335	49178	1.04	63.18	40.51	0.01	0.64	0.29
France	19	24412	36617	10	5606	9192	10	3736	6987	39	33754	52796	7586	207943	1060490	0.51	16.23	4.98	0.05	1.76	0.76
Finland	2	995	2695							2	995	2695	3166	15994	167746	0.06	6.22	1.61	0.00	0.05	0.04
UK	57	70514	162417	13	4012	7938	11	3501	7520	81	78027	177875	6840	212607	860951	1.18	36.70	20.66	0.09	4.08	2.56
Greece	5	2477	4192	2	556	555				7	3033	4747	17657	90655	519937	0.04	3.35	0.91	0.01	0.16	0.07
Ireland	25	23799	37055				7	2711	6344	32	26510	43399	1961	71460	209201	1.63	37.10	20.75	0.04	1.38	0.62
Italy	14	7352	15983	6	1547	4485				20	8899	20468	13856	197465	1161130	0.14	4.51	1.76	0.02	0.46	0.29
Lithuania	17	55822	54744							17	55822	54744	247	60960	68891	6.88	91.57	79.46	0.02	2.92	0.79
Latvia	9	20833	20929							9	20833	20929	879	33697	56995	1.02	61.82	36.72	0.01	1.09	0.30
Malta	2	7569	8245	1	319	895				3	7888	9140	1394	15065	97710	0.22	52.36	9.35	0.00	0.41	0.13
Netherlands	96	109450	209959							96	109450	209959	840	163754	388951	11.43	66.84	53.98	0.11	5.72	3.02
Poland	4	9978	12606							4	9978	12606	871	31243	99403	0.46	31.94	12.68	0.00	0.52	0.18
Portugal	20	29995	33745	21	8419	15117	8	3667	6243	49	42081	55106	8666	106625	380729	0.57	39.47	14.47	0.06	2.20	0.79
Slovenia										0	0	0	170	963	10269	0.00	0.00	0.00	0.00	0.00	0.00
Sweden	25	13762	40961							25	13762	40961	1561	43497	215677	1.60	31.64	18.99	0.03	0.72	0.59
TOTAL	461	548718	873474	188	73705	110896	104	34451	62576	753	656874	1046947	85529	1914218	6953888						
% of EU total										0.88	34.32	15.06									

NB. Potential bottom trawl includes vessels equal or over 400 GT and 30 m length , potential bottom longline and gillnetters includes vessels equal or over 220 GT and 30 m length. Together these represent the vessels that have the potential to fish using bottom gears on the high seas from the EU fleet.
Source: EU Vessel registry

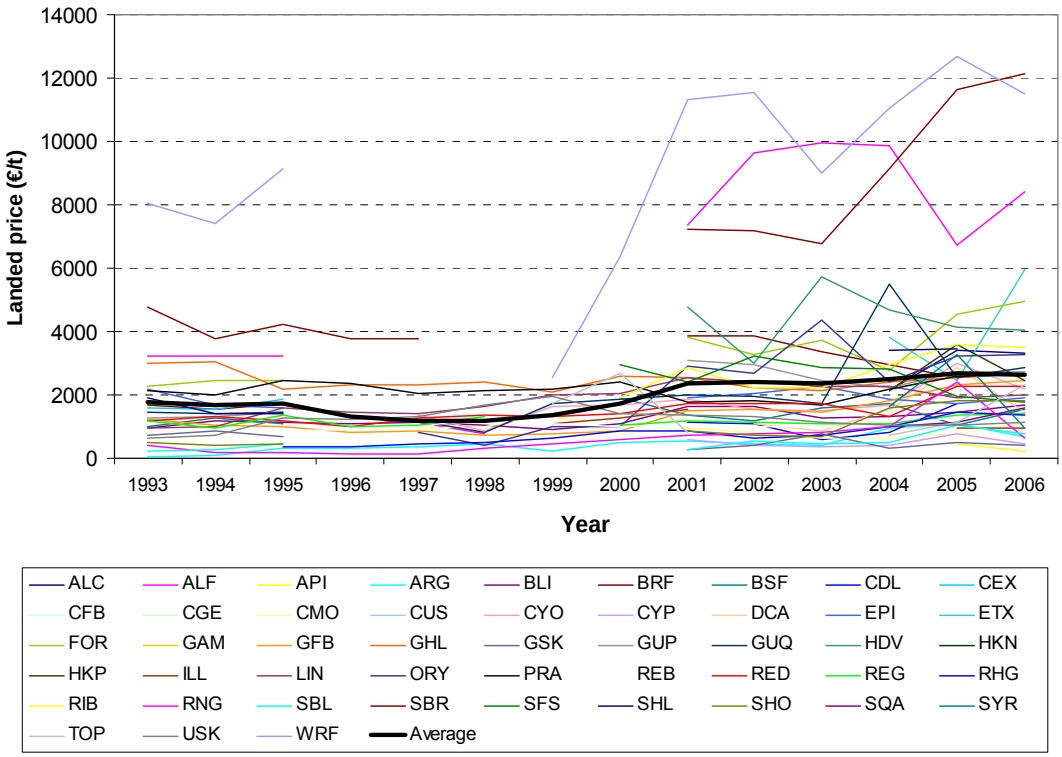
7.11 EU summary of catches

Spain and Portugal consistently catch more HSBG catches than the other EU Member States examined (Table 67 and Table 69). However, in terms of relative importance to a country's total catches, Portuguese and Estonian HSBG catches are most important (8 %), followed by Spain (3.7 %). Estonian, Lithuania and Latvia provide a high percentage of catches by value compared to volume, due to their high catches of Northern prawn and its comparatively high landed price (Figure 34).

The Baltic HSBG fleets are characterised by a dependence on Northern prawn catches in NAFO division 3 M. The Spanish and Portuguese HSBG fleets target deep-sea finfishes including grenadiers, Greenland halibut and redfishes with more diversity in fishing grounds, including NEAFC, NAFO, SEAFO, CCAMLR and the SW Atlantic.

The Irish and French HSBG fleets catch small volumes of catches each year, exclusively in NEAFC. These catches provide a small proportion of their total catches. The data available for Poland suggests that in recent years HSBG catches have been relatively small with little importance relative to Poland's total catches.

Figure 34: The average landed price (€ per tonne) of deep sea species, 1993–2006.



Note: Species codes are provided in Section 11 (Annex 5).
Source: Eurostat landings database.

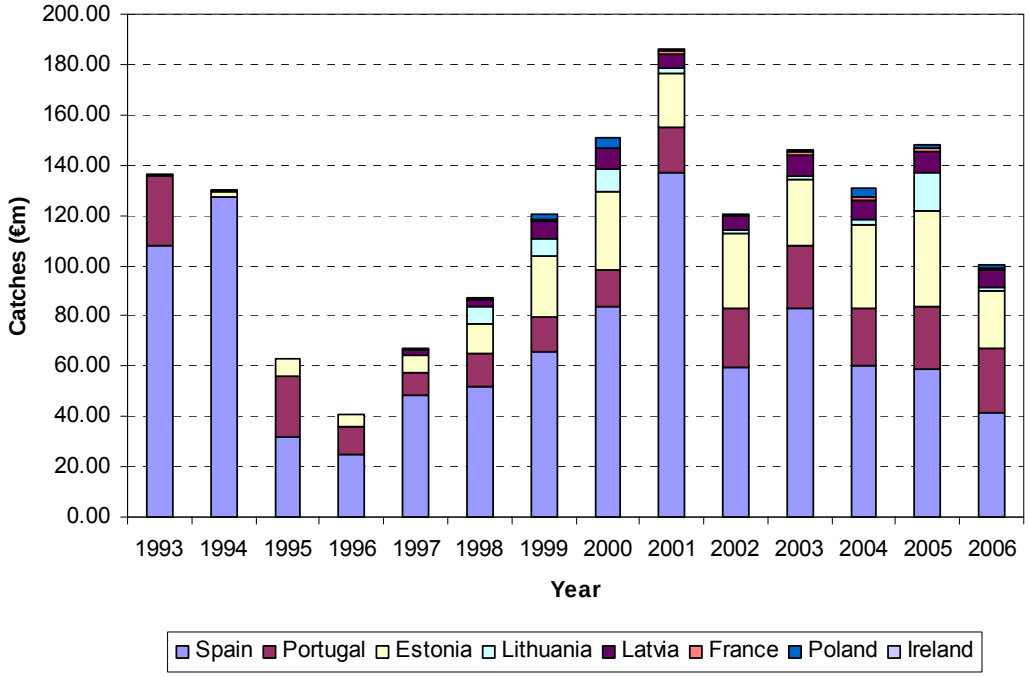


Figure 35: Annual high sea catches (tonnes) of the EU HSBG fleet by country, 1993-2006

Source: NAFO 21B database, ICES catch database, CCAMLR data, SEAFO data and data supplied by member states

Table 67: Total HSBG catches (tonnes), by country, 1993–2006

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Estonia	0	1186	3243	2052	3327	5617	10916	13285	12290	16555	14980	15555	14940	8893	**122838**
Ireland	0	0	0	0	0	0	0	0	156	0	144	34	0	0	**334**
Spain	38217	44084	21786	19141	50235	55251	67720	76821	114070	40817	63996	40395	27612	25992	**686137**
France	572	372	497	493	599	649	834	380	821	881	898	1291	681	587	**9554**
Latvia	0	149	0	0	997	1191	3080	3397	3330	3012	4946	3684	3254	3053	**30093**
Lithuania	0	0	0	0	0	3107	3370	3596	619	1921	1295	1814	5742	1132	**22596**
Poland	0	0	0	0	0	148	894	1732	311	0	145	1302	587	469	**5588**
Portugal	31447	0	27899	16735	15581	21421	20540	17344	14872	19744	21618	17962	18283	19695	**263140**
Total	**70236**	**45791**	**53425**	**38421**	**70738**	**87383**	**107353**	**116556**	**146468**	**82930**	**108022**	**82037**	**71099**	**59821**	**1140280**

Source: NAFO 21B database, ICES catch database, CCAMLR data, SEAFO data and data supplied by member states

Table 68: Total HSBG catches (€m), by country, 1993–2006

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Estonia	0.00	2.29	6.86	4.84	6.84	12.09	23.98	31.13	21.82	29.49	25.80	33.23	38.34	22.27	**258.98**
Ireland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.60	0.06	0.00	0.00	**0.90**
Spain	107.84	127.01	31.72	24.96	48.30	52.14	65.50	83.44	137.36	59.18	82.81	60.48	59.02	41.27	**981.02**
France	0.54	0.40	0.42	0.39	0.55	0.59	0.64	0.36	0.91	0.91	0.95	1.47	1.33	0.77	**10.24**
Latvia	0.00	0.20	0.00	0.00	2.05	2.56	6.77	8.20	6.11	5.37	8.37	7.65	8.11	6.72	**62.09**
Lithuania	0.00	0.00	0.00	0.00	0.00	6.69	7.40	8.66	1.49	1.55	1.62	2.54	15.01	1.76	**46.72**
Poland	0.00	0.00	0.00	0.00	0.00	0.32	1.96	4.17	0.52	0.00	0.24	2.82	1.51	1.24	**12.79**
Portugal	27.848	0.000	24.244	10.841	9.364	12.801	14.144	15.035	17.629	23.831	25.460	22.270	24.664	26.180	**254.31**
Total	**136.23**	**129.90**	**63.25**	**41.03**	**67.10**	**87.19**	**120.40**	**150.99**	**186.07**	**120.32**	**145.87**	**130.52**	**147.98**	**100.21**	**1627.05**

Source: Landed prices taken from the EUROSTAT landings database

Table 69: Total HSBG catches (tonnes) as a percentage of total EU catches, by country, 1993–2006

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Estonia	0.000	0.016	0.041	0.028	0.045	0.079	0.164	0.203	0.183	0.270	0.262	0.273	0.269	N/A	**0.131**
Ireland	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.003	0.001	0.000	N/A	**0.000**
Spain	0.527	0.588	0.277	0.265	0.685	0.779	1.017	1.173	1.699	0.665	1.121	0.709	0.498	N/A	**0.756**
France	0.008	0.005	0.006	0.007	0.008	0.009	0.013	0.006	0.012	0.014	0.016	0.023	0.012	N/A	**0.010**
Latvia	0.000	0.002	0.000	0.000	0.014	0.017	0.046	0.052	0.050	0.049	0.087	0.065	0.059	N/A	**0.031**
Lithuania	0.000	0.000	0.000	0.000	0.000	0.044	0.051	0.055	0.009	0.031	0.023	0.032	0.103	N/A	**0.025**
Poland	0.000	0.000	0.000	0.000	0.000	0.002	0.013	0.026	0.005	0.000	0.003	0.023	0.011	N/A	**0.006**
Portugal	0.433	0.000	0.354	0.232	0.212	0.302	0.309	0.265	0.222	0.322	0.379	0.315	0.329	N/A	**0.279**
Total	**0.968**	**0.611**	**0.678**	**0.532**	**0.965**	**1.231**	**1.613**	**1.780**	**2.182**	**1.350**	**1.892**	**1.440**	**1.281**	**N/A**	**1.238**

Source: FAO Fishstat Capture production dataset 1950–2005 (Release date: March 2007).

8 Annex 2: Economic importance

8.1 Evolution of financial operating performance

The evolution of operating performance for EU high seas fleets using bottom gears has been particularly affected by the increase in fuel prices linked to changes in world hydrocarbon prices. Several EU states have reported the importance of this phenomenon and the fact that catch values have not increased at the same rate as fuel prices. The financial operating performance of these vessels will also depend on whether they are able to purchase fuel more cheaply in non EU ports, more adjacent to the fishing grounds. In addition some EU fishing vessels may benefit from direct and indirect subsidies which will affect fuel prices.

The data that we have been able to collect comes from a number of different sources – questionnaires to fishing companies, existing EU reports on vessel operating performance as well as data that we were able to collect in EU member states (the team made visits to Estonia, Latvia, Lithuania, Portugal and Spain). It should be emphasised that we were not able to obtain new data from a number of countries which were unable and/or unwilling to complete the questionnaire which was sent out. These include France, Ireland and Latvia. The predominant type of vessel/gear association is that of trawlers using deep sea trawl nets. There are also a small number of long liner vessels which are targeting certain demersal species, notably Patagonian toothfish in the Southern Atlantic and Southern Indian Oceans.

8.1.1 Estonia

A typical capital value for an Estonian HSBG fishing vessel is €1,641,934 (2006 value). Operating revenues for a typical vessel are € 2,565,167. Data provided by the Estonian authorities gives the breakdown of annual operating and fixed costs in Table 70.

Table 70 Estonia – Annual operating and fixed costs (€) for HSBG vessels (active fleet of 7 vessels)

Cost Category	Annual Cost	Annual cost per vessel (€)
Crew	2 258 325	322 618
Fuel	5 435 608	776 515
Repairs	2 315 453	330 779
Variable costs	5 168 078	738 297
Fixed costs	1 608 763	229 823

Source: Estonian Ministry of Agriculture.

No information was obtained on vessel profitability and gross value added for Estonian HSBG fishing vessels.

8.1.2 Ireland

No data were received on the Irish high seas fleet and the capital value of its vessels nor on vessel operating costs, vessel revenue or profitability.

8.1.3 Spain

Capital expenditure, current value of assets and debt levels within these fishing fleet segments are notoriously difficult to estimate. Some specific economic information,

using direct questionnaires, on the value of vessels, licences and fixed quota allocation holdings, as well as the level of borrowings has been collected in this study

We estimate the total capital invested in the NAFO and SW Atlantic fleet vessels was approximately was € 450 000 million per vessel in 2006. While € 396 000 was invested in on-land structures. The average invested capital for NEAFC vessels surveyed was € 244 000 in 2006. This invested capital includes gear and equipment over and above the original capital cost of the vessel.

In the three fleet segments, and especially in the NEAFC fleet (Table 71), an increase in the capital value is observed, due to the modernisation of the vessels and incorporation of state-of-the-art fishing technologies. This is in response to the need to maintain productivity while fishing possibilities are reducing and fuel costs are increasing. In connection with this higher stock of invested capital, costs of interest have also been increasing.

Table 71 Invested capital in the NEAFC fleet, 1998–2004

NEAFC fleet	1998	1999	2000	2001	2002	2003	2004
Invested capital (€ million)	35.4	74.4	97.0	141.4	210.5	209.6	195

Sources: Calvo, C. (2004/2005). Anuario Economíco de Galicia, Capitulo Pesca y Sector Transformador;

From the sample of vessels for which we obtained data, the operating revenue varied considerably. Table 72 summarises the operating revenue for a sample of Spanish HSBG vessels.

Table 72 Spain, operating revenues for a sample of HSBG vessels

Vessel	Operating area	Number of fishing days	Annual Revenue (€)
01	Falklands, NAFO Svalbard, Hatton, Greenland	287	4,001,669
02	Svalbard, Hatton	280	3,394,310
03	Falklands	300	4,299,372
04	Falklands	300	2,679,954
05	Falklands	300	3,492,985

Source: MRAG, MG Otero questionnaires

The Spanish SW Atlantic fleet had an average operating revenue per vessel of € 2.8 million per year over the period 2005–2006. Over the period 1998–2004, the equivalent figure was € 2.9 million. For the Spanish NAFO fleet, the average annual operating revenue per vessel was € 2.1 million for 2005–2006 and € 2.9 million over the period 1998–2004. For the Spanish NEAFC fleet, average annual operating revenues were € 1 million per vessel per year over the period 1998–2004.

The Spanish NAFO fleet generated a trade volume of over € 133 million per annum and a Gross Added Value of over € 71 million annually over the period 1998–2006.

Gear and repair costs rose driven mainly by higher steel prices. The cost of iron ore, a key component in steel production, increased substantially over the last few years, due to significant increases in consumption of steel in China and other rapidly developing economies, notably in Asia.

Average fuel expenditure per vessel has continually increased since 1998, due to significant global increases in the price of crude oil during 2004 and 2005. As a result of this trend, expenditure on marine fuel was significantly higher in 2006 than previous years, double the average amount spent on fuel by this fleet in January 2003. The average price of fuel rose from a low of € 0.20 per litre in early 2003, to over € 0.40 per litre in 2005, as shown in Figure 36.

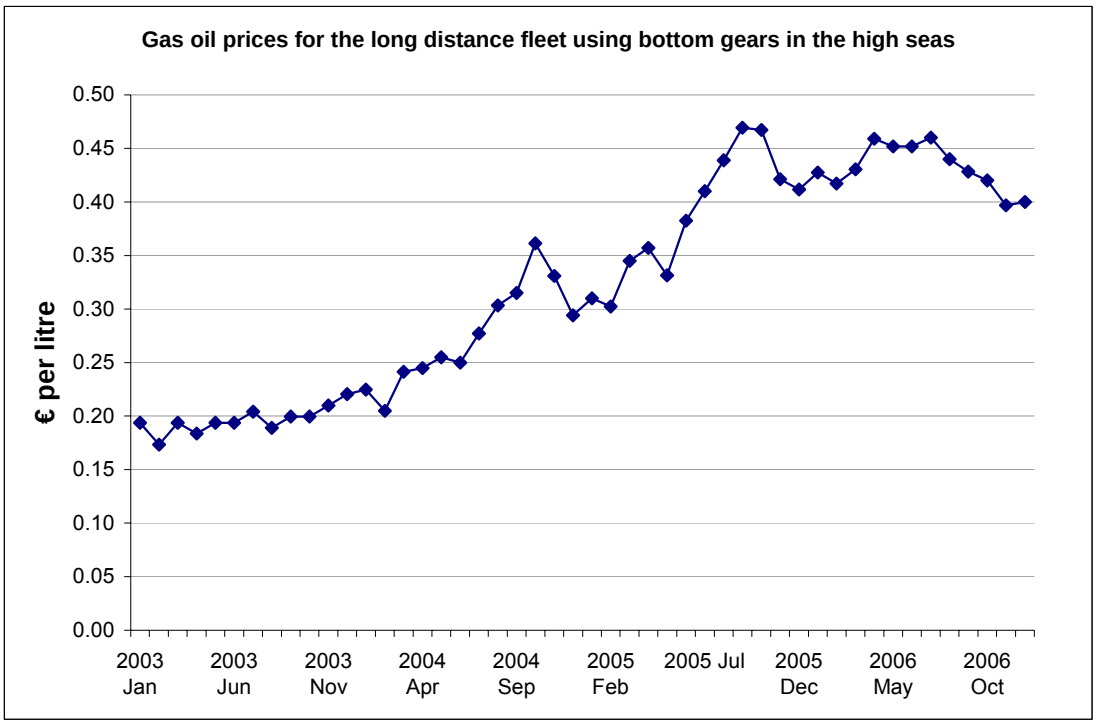


Figure 36 Fuel price for Spain's long distance fleet using bottom gears, 2003–2006

Overall vessel operating characteristics for the Spanish HSBG fishing fleet are summarised in Table 73.

Table 73 Spain – Average economic indicators per vessel (€)

	2005	2006
NAFO fleet		
Value of landings	2,059,577	2,508,032
Fuel costs	440,605	527,957
Variable costs	86,202	93,478
Fixed costs	475,707	473,130
Crew share	543,597	777,497
Gross cash flow	460,780	586,224
Capital costs	235,312	271,312
Operating margin	8 %	9 %
Net profit	157,828	220,438
Gross value added	1,004,378	1,363,721
SW Atlantic fleet		
Value of landings	2,933,644	3,037,667
Fuel costs	654,563	692,520
Variable costs	396,822	393,613
Fixed costs	267,266	287,180
Crew share	1,181,023	1,205,699
Gross cash flow	433,971	458,654
Capital costs	146,682	151,883
Operating margin	7 %	7 %
Net profit	201,102	214,740
Gross value added	1,528,807	1,572,322

Source: MG Otero Survey questionnaires.

Initial estimates of operating revenue and costs for bottom gear fishing at different depths are given in Table 74. These are for annual income and operational costs for Spanish HSBG fishing vessels fishing at 3 depth ranges in the RFMO areas of the Atlantic.

The economic survey of the Spanish fishing fleet covers the period from the most recent costs and earnings survey of the economic accounts available to 1998 data. It presents a comprehensive set of economic information for the fleets using bottom fishing gears in the high seas, i.e. the NAFO fleet, SW Atlantic fleet and NEAFC fleet. This economic data collection uses the indicators and methodology of the EU Data Collection Regulation.

In the NAFO fleet there are a total of 22 companies and 44 deep-sea freezer vessels, catching Greenland halibut and other accompanying species in Divisions 3KLMNO within the NAFO area. This fleet complements its activity in other North Atlantic areas, although NAFO is the main fishing ground. The turnover of this fleet is estimated at € 110 million and gross value added at € 50 million in 2006.

The SW Atlantic fleet is composed of 18 deep-sea freezer vessels, which generated gross revenues of € 58 million, and a gross value added of € 30 million in 2006. Most of the gross value added generated by both fleets is concentrated in the Spanish fisheries-dependent regions, notably Galicia, where most of the fleet and its associated industries are based.

The estimates given in Table 74 are for annual income and operational costs for Spanish HSBG fishing vessels fishing at 3 depth ranges in the RFMO areas of the Atlantic.

Table 74 Spain – Estimates of operating revenue and costs per vessel for HSBG at different depth ranges (PRELIMINARY RESULTS)

	RFMO area		
	>400m/>1000	**1,000-2,000m**	**>2,000m**
Income	€ 2,504,728	€ 563,564	€ 62,618
Capital value			
Variable costs			
- crew cost	€ 82,520	€ 18,567	€ 2,063
- fuel cost	€ 277,330	€ 62,399	€ 6,933
- operational costs			
Fixed costs	€300,014.40	€ 67,503.24	€ 7,500.36
Percentage of vessels fishing by depth band	80%	18%	2%

Source: Calvo, 2004; Calvo, 2005.

8.1.4 France

The French authorities were unable to provide up to data vessel operational data and an analysis of the capital value of their fleet. The consultants were referred back to DG Fish for this information. No data received for French fishing vessels for operating costs. No specific data was received from France on vessel profitability, vessel revenues and gross value added. The position of the French authorities was that the project team should request such data from the EU.

8.1.5 Latvia

There are two Latvian vessels engaged in bottom gear fishing on the high seas (NAFO and NEAFC zones). The original capital cost of the vessel is given as € 3 million. Annual vessel annual operating revenue is estimated at € 2,645,500. No data were obtained on the breakdown of fixed and variable costs. Annual fixed costs were reported to be over 50 % of total operating costs and crew costs accounted for around 36 % of variable costs. Estimates by the authorities indicate that the high seas, bottom gear vessels are operating at an annual loss of € 429,000. This situation has been aggravated by the relative increase in fuel costs in comparison with the revenues received for landings.

8.1.6 Lithuania

The average capital cost of the Atlantic demersal fishing fleet was estimated at €3,762,960. Lithuania EU fleet performance data for 2004 gives the cost breakdown per vessel shown in Table 75.

Table 75 Lithuania – Annual operating and fixed costs (€/vessel) for Atlantic trawlers

Cost Category	Annual Cost
Crew	372 222
Fuel	1 133 333
Vessel costs	388 889
Other running costs	594 444

Source: DG Fish, 2006.

EU data for Lithuania's Atlantic demersal fleet which targets prawn and redfish as well as other non deep sea species shows that for 2004, gross value added per vessel was €577,611 with a net profit of € 63,167

Secondary data from EU sources again do not differentiate between high seas and non high seas vessels nor do they indicate whether the vessels are using bottom gear. Income per vessel for 2004 was estimated at € 2,565,167.

8.1.7 Portugal

We were unable to obtain a large data set on capital values. For the 3 vessels for which we received information the capital value, gives the following picture. The average capital value of Portuguese HSBG fishing vessels is approximately € 3 million for the smaller vessels with a tonnage of 269 tonnes. The capital value of the larger vessels, for example a vessel with a GRT of 2,820 is €15 million.

No information was received directly on the Portuguese fleet economic and financial operating performance. The EU report on the operating performance of EU fleets gives indicates that the average value of landings pre vessel was € 1,607,857 in 2004. Operating revenues have decreased in recent years. Data on the value of landings in various ports by Portuguese HSBG fishing vessels are shown in Table 76. Landing values vary significantly from landing operation to landing operation, country to country and port to port. Landings by the HSBG fleet took place in a variety of different combinations of conditions and therefore it is difficult to exactly determine the income obtained from those sales. To estimate the income, an average annual price for each species was obtained from Portuguese ports (DGPA, 2007) for those species for which data are published, and the remaining were estimated from average prices for similar species. It is interesting to note that although the most important ports in total income generated continue to be the European ports, the most valuable species are landed in either Las Palmas or Dakar where the same vessels go to land their pelagic catches.

The difference between the income obtained from sales of bottom species and total income from all landings for each vessel (Table 77) reflects the fact that most longliners also carry licenses for pelagic gear. While all trawlers land exclusively bottom species, many vessels equipped with static gear make the majority of their income from pelagic species. In spite of the high value of many of the species caught in the central Atlantic and the Indian ocean, it is those vessels that work in the temperate and cold waters of the north Atlantic (NAFO and NEAFC) that obtain the highest returns. If we compare the income to the holding capacity of the vessels however, it becomes evident that the largest of the HSBG fleet are not those that generate the highest income. This does however include landings of pelagic species caught by longline gear, which appear to generate higher than average incomes.

Table 76 Total value of landings of bottom species in 2006 and average per kg for the HSBG fleet, by port of landing

Country	Port	HSBG Landings (Euro)	Average Euro/Kg
Brazil	Santos	80 767	8.30
Liberia	Monrovia	20 475	9.28
Mauritius	Port Louis	62 086	1.11
Portugal	Aveiro	28 398 578	2.30
	Peniche	364 006	9.08
Total Portugal		*28 762 584*	
Senegal	Dakar	1 248 467	16.36
South Africa	Cape Town	2 973 971	3.78
	Durban	231 405	2.85
Total S. Africa		*3 205 376*	
Spain	Cangas	7 888 425	2.59
	Las Palmas	119 173	32.34
	Vigo	20 154 128	2.58
Total Spain		*28 161 726*	
Uruguay	Montevideo	48 243	2.15

Source: Directorate General of Fisheries and Aquaculture

Table 77 Portugal - Total landings and landings of bottom species, in value, of the HSBG fleet, 2006

Vessel Name	Gear	Total income (Euro)	Income from bottom species (Euro)
ALMA LUSA	Static	0.00	0.00
AVEIRENSE	Otter Trawl	3 241 013.65	3 241 013.65
AVÔ MÚSICO	Static	2 097 928.01	171 084.94
AVÔ RATO	Static	1 419 063.96	17 312.25
BRITES	Otter Trawl	5 978 655.85	5 978 655.85
CALVÃO	Otter Trawl	1 405 232.32	1 405 232.32
CIDADE DE AMARANTE	Otter Trawl	2 669 928.46	2 669 928.46
COIMBRA	Otter Trawl	2 298 002.48	2 298 002.48
FRANÇA MORTE	Otter Trawl	5 452 129.04	5 452 129.04
JADE	Static	2 805 070.69	2 805 070.69
JOANA PRINCESA	Otter Trawl	6 681 258.64	6 681 258.64
LUTADOR	Otter Trawl	1 852 099.33	1 852 099.33
NOVO RUIVO	Static	679 911.82	104 459.31
NOVOS HORIZONTES	Static	1 008 354.43	120 352.23
PASCOAL ATLÂNTICO	Otter Trawl	3 683 322.68	3 683 322.68
PRAIA DE SANTA CRUZ	Otter Trawl	3 612 848.97	3 612 848.97
SANTA CRISTINA	Otter Trawl	3 472 671.94	3 472 671.94
SANTA ISABEL	Otter Trawl	1 399 151.26	1 399 151.26
SANTA MAFALDA	Otter Trawl	14 484 228.23	14 484 228.23
VILA DE RIBAMAR	Static	1 605 410.43	116 529.47
POLO SUL	Otter Trawl	1 097 131.29	1 097 131.29
ALBIMAR	Static	139 647.58	139 647.58
PAULA FILIPA	Static	192 022.98	147 556.21
ASTUR	Otter Trawl	151 410.98	151 336.00
MEIRELES NOVO	Static	13 810.10	12 958.90
PORTO DINHEIRO	Static	262 381.23	204 049.78
FAVAIOS	Otter Trawl	272 374.81	271 691.92

Source: Directorate General of Fisheries and Aquaculture

Secondary EU fleet performance data is available for the Portuguese NAFO trawler fleet for 2004. These figures, which have been averaged for 14 vessels, may approximate to the operating costs of the HSBG fishing fleet (Table 78).

Table 78 Portugal – Annual operating costs for NAFO trawlers (€ per vessel)

Cost Category	Annual Cost
Crew	564 286
Fuel	421 429
Vessel costs	226 316
Other running costs	178 571

Source: DG Fish, 2006.

Secondary EU fleet performance data is available for the Portuguese NAFO trawler fleet for 2004. These figures, which have been averaged for 14 vessels, may approximate to the operating costs of the HSBG fishing fleet (Table 79). Secondary data for Portuguese NAFO trawlers (EU, 2006) shows that average gross value added per vessel was € 704 286 with a gross cash flow of € 141 500. Net profit per vessel was reported to be € 1 357.

Table 79 Annual operating costs for Portuguese NAFO trawlers (€ per vessel)

Cost Category	Annual Cost
Crew	564 286
Fuel	421 429
Vessel costs	226 316
Other running costs	178 571

Source: DG Fish, 2006.

8.2 Summary of overall economic importance of the high seas bottom gear catching sector

The overall economic importance of the high seas bottom gear catching sector is summarised in Table 80. In terms of their overall importance in terms of catches, landings, vessel size and fishing effort, the most important fleets of the EU are those of Spain and Portugal, followed by Estonia. Spain is the key EU player in HSBG fishing and these activities make a valuable contribution to the economy of the Galicia region in terms of value added, employment and food security. The gross value added from fishing activities generated by the Spanish HSBG fleet accounts for approximately 37 % of the total value added from all Galician based fishing activities in 2005/2006.

France, Ireland, Lithuania and Latvia are relatively minor players, each having less than 5 fishing vessels engaged in deep seas, bottom gear fishing. Poland reports no current HSBG fishing activities. The sector is relatively important for the production of species such as deep water prawn, redfish, Greenland halibut. However it should be noted that the processing industries and associated supply chain activities are relatively limited within EU countries, with the exception of Spain, whose main hub for these activities is Vigo. Other catches are landed and or transhipped outside the EU in Canada, Iceland and Norway and other countries.

There is in addition intra and extra EU trade with quantities of deep seas species being exported for example from Spain to the Baltic states and Russia. In addition there are exports of species caught by EU fishing vessels but landed outside the EU and then re-exported to EU countries.

Table 80 Summary of the overall economic importance of the EU HSBG fishing sector

Category	HSBG fleet	Total EU fleet	HSBG fleet as a % of total EU fleet
Total number of vessels	106	87 004	0.1 %
Total gross tonnage (GT)	98 870.8	1 955 879	5.1 %
Total vessel power (kW)	129 891.1	7 068 471	1.8 %
Total liveweight production (tonnes)	70 986 (av. '04-'06)	5 624 006 (EU-25, av. '04-'05)	1.3 %
Total value of catches (€ million)	126 (av. '04-'06)	-	N/A
Gross Value Added (€ million)		686 (2005)	15 % (estimate)
Spain GVA (NAFO and SW Atlantic HSBG fleets)	80		12 %

Sources: Calvo, 2004; Calvo, 2005; DG Fish, 2007a; DG Fish, 2007b; EU Fleet Register; Eurostat, 2007.

9 Annex 3: Social importance

9.1 Direct employment

Direct employment in the fisheries sector is the employment generated on the fishing vessels themselves. For clarity, this is referred to as employment in the catching sector. However, most of the following employment estimates also include employment in processing on-board vessels.

9.1.1 Estonia

Employment on the Estonian HSBG fleet is presented in Table 81. This is based on estimates of employment in this fleet segment provided by the DCR contact in the Ministry of the Environment. Although Estonia's HSBG fleet is made up of only 8 vessels, together they employ around 8 % of the workforce in the catching sector. No historical employment data were available for Estonia.

Table 81 Direct employment in the Estonian HSBG fleet

Estonia	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Trawlers									232	170	*170*
HSBG fleet total employment (HS & EEZ fishing)									**232**	**170**	***170***
Estonia catching sector - total	6,070						2,500	2,353	2,215	2,084	1,962
HSBG employment as % of Estonian catching sector									10.5	8.7	8.7
HSBG employment											
dependent on EEZ									11	10	7
dependent on HS									221	160	163
HSBG employment dependent on HS fishing as % of Estonian catching sector									**10.0**	**7.7**	**8.3**

Sources: HSBG employment: DCR contact; Estonia catching sector employment: LEI BV & Framian BV (2006), extrapolated for 2004–2007, based on half the annual rate of change between 1998 and 2003 (half the annual rate of change taken, because the high rate of change between 1998 and 2003 was unlikely to be maintained); Proportion EEZ and HS catches based on disaggregation of NAFO and NEAFC catch data up to 2006, 2007 based on the average of the previous 3 years.

9.1.2 Ireland

No data on employment on the HSBG vessels was received from Ireland. However, taking the number of vessels operating in the high seas (Table 22), an estimate of employment on the fleet was made based on an average of 20 per trawler and 15 per longliner. In recent years Irish catches have been almost exclusively in waters under national jurisdiction rather than on the high seas. Ireland only had very small high seas catches in 2001, 2003 and 2004 (years for which no employment data were available), which were of the order of 0.01–0.03 % of the fleet's total catches. As a result, Ireland's dependence on employment on high seas bottom gear fishing is negligible (Table 82), between 0% and 1% of employment on the Irish fleet.

Table 82 Direct employment in the Irish HSBG fleet

Ireland	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Trawlers					*40*	*40*	*40*	*40*	*40*	*40*	40
Longliners					*15*	*15*	*15*	*15*	*15*	*15*	15
HSBG fleet total employment (HS & EEZ fishing)					**55**	**55**	**55**	**55**	**55**	**55**	**55**
Ireland catching sector – total	5,494				5,278	5,212	5,147	5,082	5,018	4,954	4,892
HSBG employment as % of Irish catching sector					1.0	1.1	1.1	1.1	1.1	1.1	1.1
HSBG employment											
dependent on EEZ					0	55	0	0	55	55	37
dependent on HS					55	0	55	55	0	0	18
HSBG employment dependent on HS fishing as % of Irish catching sector					**1.04**	**0.00**	**1.07**	**1.08**	**0.00**	**0.00**	**0.37**

Sources: HSBG employment: estimate based on number of vessels operating in 2003 (20 per trawler, 15 per longliner); Ireland catching sector employment: LEI BV & Framian BV (2006), extrapolated for 2004–2007, based on annual rate of change between 1998 and 2003; Proportion EEZ and HS catches based on disaggregation of catch data up to 2006, 2007 based on the average of the previous 3 years.

9.1.3 Spain

Spain's HSBG fleet employs a total of 3 799 people on board, of which 2 521 are on trawlers and 1 298 on longliners. However, some vessels only fish part of the time on the high seas — for example, the SW Atlantic fleet fishes both on the high seas areas outside the Argentine EEZ as well as in the Falkland Islands conservation zones and EU waters; and the NEAFC fleet fishes 90 % in national waters and only 10 % in high seas. Taking these proportions into account, 1 335 jobs are dependent on HSBG fishing activities (Table 83). This represents 2.4 % of employment in the Spanish catching sector. At its peak in 2003–2004, high seas activities of the HSBG fleet were responsible for 3 % of employment in the Spanish catching sector.

The Spanish NAFO fleet directly employed 1,100 workers on board per year on average from 1998 to 2006 (approximately 25 per vessel). The NEAFC fleet employs around 24 crew per vessel. The employment numbers for the NEAFC fleet in Table 83 refer to the whole of the NEAFC fleet fishing in the Celtic Sea. However, not all vessels fish on the high seas (mainly only those identified in Table 27 actually fish on the high seas), and then for short trips, mainly in Hatton Bank. Although only a small part of total catch, these high seas catches for the NEAFC fleet play an important role in the economic profitability of the entire fleet.

Table 83 Direct employment in the Spanish HSBG fleet

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
NAFO fleet											
Trawlers	810	810	840	958	997	1,014	1,092	1,112	976	810	792
Sub-total NAFO	*810*	*810*	*840*	*958*	*997*	*1,014*	*1,092*	*1,112*	*976*	*810*	*792*
NEAFC fleet											
Trawlers	1,533	1,515	1,482	1,481	1,404	1,371	1,359	1,379	1,359	1,357	1,356
Longliners	1,797	1,715	1,448	1,660	1,477	1,373	1,179	1,263	1,199	1,188	1,176
Sub-total NEAFC	*3,330*	*3,230*	*2,930*	*3,141*	*2,881*	*2,764*	*2,538*	*2,642*	*2,558*	*2,545*	*2,532*
SW Atlantic fleet											
Trawlers	478	410	385	380	383	360	352	319	351	349	373
Longliners	20	20	20	20	20	39	39	59	59	59	59
Sub-total SW Atlantic	*498*	*430*	*405*	*400*	*403*	*399*	*391*	*378*	*410*	*408*	*412*
CCAMLR											
Longliners							21	42	63	63	63
Sub-total CCAMLR							*21*	*42*	*63*	*63*	*63*
Total Trawlers	2,821	2,735	2,707	2,819	2,784	2,745	2,803	2,810	2,686	2,516	2,521
Total Longliners	1,817	1,735	1,468	1,680	1,497	1,412	1,239	1,364	1,321	1,310	1,298
HSBG fleet total employment (HS & EEZ fishing)	**4,638**	**4,470**	**4,175**	**4,499**	**4,281**	**4,177**	**4,042**	**4,174**	**4,007**	**3,826**	**3,799**
Spanish catching sector – total	68,275	66,302	64,386	62,356	59,520	56,814	53,849	53,849	56,340	54,790	54,790
HSBG employment as % of Spanish catching sector	6.8	6.7	6.5	7.2	7.2	7.4	7.5	7.8	7.1	7.0	6.9
HSBG employment											
dependent on EEZ	3,221	3,101	2,819	3,007	2,774	2,667	2,460	2,548	2,487	2,474	2,464
dependent on HS	1,417	1,370	1,356	1,492	1,507	1,510	1,582	1,626	1,520	1,352	1,335
HSBG employment, dependent on high seas fishing, as % of Spanish catching sector	**2.1**	**2.1**	**2.1**	**2.4**	**2.5**	**2.7**	**2.9**	**3.0**	**2.7**	**2.5**	**2.4**

Sources: HSBG employment: industry interviews and surveys; CCAMLR employment estimated based on 3 longline vessels currently operating, catches began in 2003 rising gradually between 2003 and 2005. Spain catching sector employment: LEI BV & Framian BV (2006) and Instituto Nacional de Estadistica, 2007. Proportion of employment dependent on high seas fishing: 100 % for NAFO fleet (based on industry sources and catch disaggregations); 10 % for NEAFC fleet (based on industry sources); 55 % for SW Atlantic fleet (based on industry sources (estimate of 70%) and catch disaggregations (estimate of 40%)).

9.1.4 France

No information was received from France relating to employment on the HSBG fleet. Based on an average of 18 crew per vessel, an estimate of 144 jobs on the HSBG vessels was obtained, or 0.6 % of employment in France's catching sector (Table 84).

France's catch data (Section 7.4.3) indicates that only a small proportion of catches (around 0.03 %) are from the high seas. This implies 3–4 jobs are dependent on HSBG activities, or 0.02 % of employment in France's catching sector.

Table 84 Direct employment in France's HSBG fleet

France	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Trawlers										144	144
Total Trawlers										***144***	***144***
HSBG fleet total employment (HS & EEZ fishing)										**144**	**144**
France catching sector – total	19,395						21,436	21,887	22,348	22,818	23,298
HSBG employment as % of French catching sector										0.6	0.6
HSBG employment											
dependent on EEZ										141	140
dependent on HS										3	4
HSBG employment dependent on HS fishing, as % of French catching sector										**0.02**	**0.02**

Sources: HSBG employment: estimate based on 18 crew per vessel; France's catching sector employment: LEI BV & Framian BV (2006), extrapolated for 2004–2007, based on annual rate of change between 1998 and 2003; Proportion of employment dependent on high seas fishing based on NEAFC catch data disaggregations, 1997–2006, 2007 based on the average of the previous 3 years.

9.1.5 Latvia

Latvia's HSBG fleet employs 50 people, exclusively in high seas fishing, representing 1.4 % of employment in Latvia's catching sector (Table 85). This has declined slightly since 2004–2005, when an extra NAFO shrimp trawler was in operation. This vessel is not currently operational because catches are poor and it is not economically viable for it to operate.

Table 85 Direct employment in the Latvian HSBG fleet

Latvia	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Redfish (Trawlers)								32	32	32	32
Northern prawn (Trawlers)								36	36	18	18
Total Trawlers								***68***	***68***	***50***	***50***
HSBG fleet total employment (HS & EEZ fishing)								**68**	**68**	**50**	**50**
Latvia catching sector – total							3,670	3,670	3,670	3,670	3,670
HSBG employment as % of Latvian catching sector								1.9	1.9	1.4	1.4
HSBG employment											
dependent on EEZ								0	0	0	0
dependent on HS								68	68	50	50
HSBG employment dependent on HS fishing, as % of Latvian catching sector								**1.85**	**1.85**	**1.36**	**1.36**

Sources: HSBG employment: estimate based on information from fishing companies; Latvia's catching sector employment: LEI BV & Framian BV (2006), assumed constant for 2004–2007 as there was no previous employment estimate to calculate a rate of change, although information from the sector indicates that it is decreasing; Proportion of employment dependent on high seas fishing based on NEAFC and NAFO catch data disaggregations, 1997–2006, 2007 based on the average of the previous 3 years.

9.1.6 Lithuania

Lithuania's HSBG fleet employs 64 people, representing 3.2 % of employment in Lithuania's catching sector (Table 86). However, these vessels fish both in EEZs and

in high seas (approximately 50 % in high seas), making the overall contribution to employment in Lithuania's catching sector 1.7 %.

Table 86 Direct employment in the Lithuanian HSBG fleet

Lithuania	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Redfish (Trawlers, NEAFC & NAFO)										*16*	16
Svalbard shrimp (Trawlers)										*32*	32
NAFO shrimp (Trawlers)										*16*	16
Total trawlers										***64***	***64***
HSBG fleet total employment (HS & EEZ fishing)				**176**	**128**	**112**	**112**	**112**	**80**	**64**	**64**
Lithuania catching sector – total							2,550	2,400	2,259	2,126	2,001
HSBG employment as % of Lithuanian catching sector							4.4	4.7	3.5	3.0	3.2
HSBG employment											
dependent on EEZ				77	104	71	63	60	21	36	29
dependent on HS				99	24	41	49	52	59	28	35
HSBG employment dependent on HS fishing as % of Lithuanian catching sector							**1.93**	**2.16**	**2.62**	**1.30**	**1.74**

Sources: HSBG employment: estimate based on information from fishing companies for 2006-2007, 2000-2005 based on number of vessels (average of 16 crew per vessel); Lithuania's catching sector employment: LEI BV & Framian BV (2006) for 2003, 2004 from DG Fish (2006), 2003-2004 rate of changed used to extrapolate for 2005-2007; Proportion of employment dependent on high seas fishing based on NEAFC and NAFO disaggregated catch data 1997–2006, 2007 based on the average of the previous 3 years.

9.1.7 Poland

No information was received from Poland on employment on the HSBG fleet. However, an estimate was made based on an average of 16 crew per vessel. This represents around 1.4 % of employment in Poland's catching sector (Table 87). Employment on the HSBG fleet relating to high seas fishing activity represents between 0.1 % and 0.4 % of employment in Poland's catching sector.

Table 87 Direct employment in the Polish HSBG fleet

Poland	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Trawlers									48	*48*	*48*
HSBG fleet total employment (HS & EEZ fishing)									**48**	***48***	***48***
Poland catching sector – total	9,400						4,800	4,500	3,700	3,420	3,160
HSBG employment as % of Polish catching sector									1.3	1.4	1.5
HSBG employment											
dependent on EEZ									34	44	36
dependent on HS									14	4	12
HSBG employment dependent on HS fishing as % of Polish catching sector									**0.38**	**0.12**	**0.37**

Sources: HSBG employment: estimate based on 16 crew per vessel; Poland's catching sector employment: LEI BV & Framian BV (2006) for 1997, Sea Fisheries Institute (2006) for 2003–2005, 2006-2007 estimates extrapolated, based on rate of change from 1997-2005; Proportion of employment dependent on high seas and unknown fishing based on NEAFC and NAFO catch data 1997–2006, 2007 based on the average of the previous 3 years.

9.1.8 Portugal

Table 88 details data on direct employment on the Portuguese HSBG fleet. Manpower deployed by the fleet is not solely dedicated to bottom gear operations, as the fixed gear vessels (licensed for bottom longlines, traps and gillnets) are also equipped with pelagic drift longlines, which make up a significant portion of the income of some of these vessels. These vessels work exclusively on the high seas, and on average 65 % of their catches come from bottom gear operations and 35 % from pelagic operations. These figures are used as the basis for estimating the employment dependent on high seas bottom gear operations. This also ties in with the catch data disaggregations, which indicate around 70 % of catches come from high seas areas.

Overall, high seas bottom gear fishing accounts for 3.2 % of employment in the Portuguese catching sector.

Table 88 Direct employment in the Portuguese HSBG fleet

Portugal	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Trawlers										508	508
Longliners										215	215
HSBG fleet total employment										**723**	**723**
Portuguese catching sector - total	32,178	29,419	26,660	25,021	23,580	22,019	20,457	18,967	17,585	16,304	15,116
HSBG as % of Portuguese fishing sector employment										4.4	4.8
HS employment											
dependent on EEZ											
dependent on HSBG										470	470
HS employment dependent on BG fishing as % of Portuguese catching sector										3.0	3.2

Sources: HSBG employment: based on a survey of HSBG vessels and average values applied to non-sampled vessels; Portugal's catching sector employment: from *Série Estatística* of the National Statistics Institute, Portugal (*Instituto Nacional de Estatística*); Proportion of employment dependent on HSBG fishing based on 65 % of total employment on the fleet to account for pelagic activities.

9.1.9 Summary

The EU high seas bottom gear fleet employed 5 053 people in 2007 (Table 89), representing 2.8 % of employment in the European catching sector. 41 % of this employment is dependent on high seas bottom gear activities (2 087 jobs) (Table 90), or 1.2 % of employment in the EU catching sector.

Whilst data are not available for all countries for all years, the proportion of employment dependent on HSBG fishing appears to be increasing over time, up from (conservative estimates of) 0.55 % in 1997 and 0.8 % in 2003. This is likely to be a result of vessels needing to travel further and seek new fishing grounds as stocks in nearer and shallower waters become more and more heavily exploited. However, rising fuel costs (Section 8.1) are making this sector less profitable and employment may suffer as a result.

The majority of employment on these fleets is for EU nationals (81.1 %) (Table 91), although this is declining. In addition to their nationals, the Baltic fleets tend to employ Russians, Ukrainians and Belarussians, through crewing agents.

Table 89 Summary of employment on HSBG fleets in the EU

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Trawlers											
Estonia									232	170	170
Ireland					40	40	40	40	40	40	40
Spain	2,821	2,735	2,707	2,819	2,784	2,745	2,803	2,810	2,686	2,516	2,521
France										144	144
Latvia								68	68	50	50
Lithuania										64	64
Poland									48	48	48
Portugal										508	508
Sub-total trawlers	*2,821*	*2,735*	*2,707*	*2,819*	*2,824*	*2,785*	*2,843*	*2,918*	*3,074*	*3,540*	*3,545*
Longliners											
Ireland					15	15	15	15	15	15	15
Spain	1,817	1,735	1,468	1,680	1,497	1,412	1,239	1,364	1,321	1,310	1,298
Portugal										215	215
Sub-total longliners	*1,817*	*1,735*	*1,468*	*1,680*	*1,512*	*1,427*	*1,254*	*1,379*	*1,336*	*1,540*	*1,528*
TOTAL	**4,638**	**4,470**	**4,175**	**4,675**	**4,464**	**4,344**	**4,209**	**4,409**	**4,490**	**5,080**	**5,053**
Employment in EU catching sector	257,730						208,852	200,930	193,309	185,977	178,923
HSBG employment as % of EU fishing sector	***1.8***						***2.0***	***2.2***	***2.3***	**2.7**	**2.8**

NB Totals are incomplete for 1997-2005 (based on sum of a sub-section of countries).
Source: Employment on fleets: industry interviews and questionnaires; EU catching sector employment: LEI BV & Framian BV (2006), extrapolated for 2004-2007 based on rate of change from 1997-2003.

Table 90 Employment on HSBG vessels that is dependent on high seas bottom fishing

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Estonia									221	160	163
Ireland					55	0	55	55	0	0	18
Spain	1417	1370	1356	1492	1507	1510	1582	1626	1520	1352	1335
France										3	4
Latvia								68	68	50	50
Lithuania				99	24	41	49	52	59	28	35
Poland									14	4	12
Portugal										470	470
Total	**1417**	**1370**	**1356**	**1591**	**1586**	**1551**	**1686**	**1801**	**1883**	**2067**	**2087**
EU total	257,730						208,852	200,930	193,309	185,977	178,923
HSBG as % of EU total	**0.55**						**0.81**	**0.90**	**0.97**	**1.11**	**1.17**

Source: Employment on HSBG vessels: industry interviews and questionnaires; multiplied by proportion of catches from high seas (Section 7).

Table 91 Employment on EU HSBG vessels split by EU and non-EU nationals

Member State	EU vs non-EU	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Estonia	EU									174	128	128
	non-EU									58	43	43
Spain	EU	4174	4023	3758	4049	3853	3550	3452	3563	3420	3074	3053
	non-EU	464	447	418	450	428	627	609	629	604	769	763
Ireland	EU											
	non-EU											
France	EU											
	non-EU											
Latvia	EU								40	40	25	25
	non-EU								28	28	25	25
Lithuania	EU								101	72	58	58
	non-EU								11	8	6	6
Poland	EU											
	non-EU											
Portugal	EU										651	651
	non-EU										72	72
Total EU		4174	4023	3758	4049	3853	3550	3436	3689	3692	3922	3900
Total non-EU		464	447	418	450	428	627	606	665	695	911	906
Not specified		0	0	0	176	183	167	167	55	103	247	247
Percentage EU nationals		**90.0**	**90.0**	**90.0**	**90.0**	**90.0**	**85.0**	**85.0**	**84.7**	**84.2**	**81.1**	**81.1**

NB. The employment estimate for Lithuania for 2003 is the same as for 2004. It has been excluded from the table because of the distortion to the results it would produce, since all employment would have been of non-EU nationals at the time, because it was before Lithuania joined the EU.
Source: information from fishing companies.

9.2 Indirect employment

Indirect employment in the fisheries sector includes employment in processing fish and fishery products, port activities and vessel maintenance and repair.

Information on indirect employment in the processing industry related to high seas bottom gear fisheries is difficult to obtain. Marketing chains are often complex, with several different companies involved; fish can be landed or transhipped, and then exported and re-exported several times, making it difficult to trace from vessel to processing plant, and making the subsequent employment-related benefits from European HSBG catches very difficult to identify and quantify. Furthermore, fish for processing may be imported from third countries, and processing operations in EU Member States may depend on catches from high seas bottom gear fleets from non-EU countries.

In this section the available information from fishing and processing companies are compiled, relating to where catches are landed and processed, and any quantitative estimates of employment based on the processing of catches from these fisheries. Trade data are also considered — imports of typical high seas deep sea species into EU Member States — to give an indication of the quantities of such species that may be processed within the EU. However, these data do not give any clue as to their origin, i.e. whether they were caught by an EU-flagged vessel or a non-EU vessel, whether they were caught in waters under national jurisdiction or in high seas, at what depth they were caught, or, in the case of shrimps and prawns, even whether they are from wild capture fisheries or from aquaculture. Import matrices showing the quantities of deep sea species imported and from which countries are presented in

Appendix 4. The species considered were: Redfish, Greenland halibut, Atlantic halibut, Pacific halibut, toothfish, ling, pollack, hake, flatfish, and shrimps and prawns[7]

The indirect social importance of these fisheries through port activities, vessel maintenance and repair is considered in light of where the vessels tend to come into port, land their catches and undergo repairs and maintenance. In most cases this is qualitative information.

9.2.1 Landings of deep sea species into EU ports

Landings data in Eurostat detail the volumes and values of different species landed into EU ports. There is no indication of the nationality or origin of the catches — whether they were caught by EU vessels, non-EU vessels, in waters under national jurisdiction or in high seas. In order to analyse landings therefore, the deep sea species were identified through expert knowledge of the fisheries and literature searches, and landings of these species into EU ports were assessed.

The Eurostat landings database does not contain all annual landings into each Member State. For example, pre-2004 landings data for Spain were only available for Atlantic redfish. Despite this, Spain still accounted for the highest proportion of recorded landings value between 1993 and 2006. The actual value of landings into Spain is likely to be substantially higher, assuming that trends in landings post-2004 are indicative of landings pre-2004.

Over the period 1993–2006, 325 400 tonnes of deep sea species were landed into EU ports annually on average. Landings volume has shown a decline from an average of 527 700 tonnes per year in 1993–1995, to 177 300 tonnes per year in 1998–2000, and a subsequent increase to 392 600 tonnes per year over the period 2004–2006 (Table 92). The total value of these landings was € 562.9 million per year over the period 1993–2006. The value of landings reached a low in 2000 of € 142.0 million, and has subsequently recovered to € 824.9 million per year over the period 2004–2006 (Table 94).

The main countries for landings of deep sea species over the period 1993–2006 were Portugal (1 291 500 tonnes), Germany (1 287 400 tonnes over the period) and Spain (912 200 tonnes). However, these total values hide changing trends in landings. Landings into Germany have declined, whilst landings into Spain and the Netherlands are increasing. Landings into Portugal have remained steady over the period.

The total value of landings of deep sea species over the period 1993–2006 was highest in Spain (€ 2 449.8 million, € 175 million per year), despite Spain not having the highest volume of landings. Ports in the Galicia region tend to attract the highest prices for fish, and fish landed there is understood within the industry to be of a

[7] 3061310: Frozen shrimps and prawns of the Pandalidae family, whether in shell or not, incl. shrimps and prawns in shall, cooked by steaming or by boiling in water; 3061380: Frozen shrimps and prawns, whether in shell or not, incl. shrimps and prawns in shell, cooked by steaming or by boiling in water (excl. "Pandalidae", "Crangon", Deepwater rose shrimps "Parapenaeus longirostris" and shrimps of the genus "Penaeus"); 3062310: Shrimps and prawns of the Pandalidae family, whether in shell or not, live, dried, salted or in brine, incl. shrimps and prawns in shell, cooked by steaming or by boiling in water; 16052010: Shrimps and prawns, prepared or preserved, in airtight containers; 16052091: Shrimps and prawns, prepared or preserved, in immediate packings of a net content of <= 2 kg (excl. shrimps and prawns in airtight containers); 16052099: Shrimps and prawns, prepared or preserved, in immediate packings of a net content of > 2 kg (excl. shrimps and prawns in airtight containers).

certain quality. Annual average value of landings into Spain has increased from € 12.2 million per year (1993–1995) to € 70.9 million per year (1998–2000) and € 621.7 million per year (2004–2006). At the same time, the value of landings into Germany has decreased from an average of € 391.9 million per year (1993–1995) to € 79.0 million per year (1998–2000) and € 15.6 million per year (2004–2006). The value of landings into Portugal has fluctuated over the period, in line with landing volumes, with an average of € 160.8 million per year over the whole period.

The importance of these landings for each country is considered as the proportion of total landings of all species into that country that they make up. Over the period 1993–2006, landings of deep sea species have made up the greatest proportion of Germany's total landings (1.3 %), followed by Portugal (0.9 %), Malta (0.2 %) and Spain (0.1 %). These trends follow the same trends as the landings volumes (decreasing in Germany, steady with fluctuations in Portugal and increasing in Spain) (Table 93).

For the EU as a whole, landings of deep sea species make up 1.5 % of landings of all species by volume (2004–2006). This has increased, from 0.7 % in 1998–2000 and 1.3 % from 1993–1995.

In terms of value, landings of deep sea species make up 0.25 % of the total value of landings into the EU (average per year, 2004–2006) (Table 95). This has declined from 0.3 % over the period 1993–1995, but increased from the low of 0.09 % over the period 1998–2000. The importance of landings of deep sea species into individual Member States, as a proportion of the total value of landings into that country that they make up, is highest in Germany (2.2 % over the period 1993–2006), followed by Portugal (1.2 %), Malta (0.43 %), Denmark (0.17 %). In Spain, they made up only 0.16 % of landings by value, a reflection of the high value of total landings into Spain. Trends over time show a decrease in the importance by value of landings of deep sea species into Germany, from 4.8 % in 1993 to 0.4 % in 2006, compared with an increase in importance in Spain, from 0 % in 1993, to 0.7 % over 2004–2006.

Comparison of landings of deep-sea species into EU Member States (395,400 tonnes in 2006) (Table 92) with EU HSBG catches (79,488 tonnes in 2006) (Table 67) indicates that annual landing quantities of deep sea species exceed HSBG fleet catches without exception. However this is to be expected as deep-sea species landed into EU countries are not necessarily caught by EU-flagged vessels, may be caught both in the high seas as well as within EEZs, and may be caught by vessels operating with other gear types in addition to bottom gears.

Table 92: Total landings ('000's tonnes) of deep sea species into EU Member States by year, 1993–2006

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Belgium	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.6**
Denmark	41.3	58.0	75.8	76.0	75.6	64.8	2.1	7.8	1.6	3.7	4.8	1.3	1.3	0.8	**415.0**
France	0.0	0.0	0.0	0.0	0.0	0.0	6.8	4.3	4.6	1.9	1.2	1.0	1.8	1.6	**23.2**
Germany	323.7	275.1	198.5	137.8	115.5	125.1	20.0	22.7	9.1	29.7	6.3	6.8	3.2	14.0	**1287.4**
Ireland	4.7	7.6	9.7	10.2	12.8	13.5	21.9	45.2	3.1	71.4	0.4	0.0	0.0	0.1	**200.6**
Italy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	**0.2**
Malta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.1	**0.7**
Netherlands	0.0	0.0	0.2	0.3	0.3	0.8	0.1	3.3	29.7	27.4	16.0	70.6	23.1	28.8	**200.8**
Portugal	189.9	183.3	165.5	16.9	9.9	24.0	25.5	14.5	108.3	115.4	100.1	128.3	51.9	157.9	**1291.5**
Spain	0.4	2.7	15.4	15.5	44.6	22.1	34.6	24.9	30.4	27.2	50.1	257.1	196.5	190.7	**912.2**
UK	12.6	8.5	9.5	11.7	11.6	15.2	15.9	16.5	24.7	25.7	31.0	27.9	11.3	1.4	**223.4**
Total	**573.1**	**535.3**	**474.6**	**268.5**	**270.3**	**265.7**	**127.0**	**139.2**	**211.5**	**302.4**	**210.0**	**493.2**	**289.3**	**395.4**	**4555.5**

Source: EUROSTAT landings database, 1992-2006.

Table 93: Total annual weight of deep sea species landed into each EU Member State as a percentage of that state's total landings, 1993–2006

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Belgium	0.042	0.004	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.004**
Denmark	0.034	0.042	0.057	0.069	0.061	0.062	0.003	0.011	0.003	0.006	0.006	0.002	0.002	0.001	**0.033**
France	0.000	0.000	0.000	0.000	0.000	0.000	0.035	0.022	0.023	0.010	0.006	0.006	0.011	0.010	**0.016**
Germany	2.967	3.068	2.338	1.834	1.721	1.982	0.369	0.459	0.199	0.694	0.115	0.094	0.043	0.181	**1.342**
Ireland	0.037	0.055	0.053	0.065	0.102	0.108	0.189	0.413	0.022	0.760	0.002	0.000	0.000	0.001	**0.109**
Italy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**
Malta	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.364	0.313	0.192	0.206	**0.261**
Netherlands	0.000	0.000	0.001	0.001	0.001	0.003	0.000	0.012	0.104	0.107	0.056	0.227	0.069	0.068	**0.048**
Portugal	1.326	1.418	1.301	0.143	0.092	0.213	0.257	0.164	1.196	1.228	1.278	1.441	0.908	1.798	**0.907**
Spain	0.001	0.004	0.026	0.027	0.081	0.037	0.059	0.047	0.058	0.055	0.106	0.683	0.507	0.447	**0.124**
UK	0.032	0.022	0.023	0.033	0.037	0.057	0.062	0.070	0.103	0.094	0.112	0.101	0.039	0.006	**0.030**
Total	**1.437**	**1.406**	**1.150**	**0.750**	**0.855**	**0.997**	**0.494**	**0.590**	**0.880**	**1.104**	**0.758**	**1.783**	**0.996**	**1.630**	**1.078**

Source: EUROSTAT landings database, 1992-2006.

Table 94: Total landings (€ million) of deep sea species into EU member states by year, 1993–2006

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Belgium	0.60	0.05	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.67**
Denmark	54.30	99.09	131.13	134.69	104.86	92.45	2.65	12.40	2.70	5.89	6.67	1.68	1.52	0.97	**650.99**
France	0.00	0.00	0.00	0.00	0.00	0.00	11.92	8.54	9.88	4.33	2.52	1.77	3.15	3.52	**45.64**
Germany	483.09	398.36	294.07	195.32	179.82	201.42	10.10	25.41	20.25	35.49	16.78	13.07	8.58	25.15	**1906.91**
Ireland	4.34	7.68	9.46	8.34	8.79	10.61	22.80	20.79	6.67	90.35	0.70	0.04	0.00	0.14	**190.72**
Italy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.03	0.08	0.00	0.00	**0.22**
Malta	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.30	1.23	1.04	1.06	**4.62**
Netherlands	0.00	0.00	0.00	0.00	0.98	0.50	0.31	4.95	8.62	0.94	14.71	0.09	0.00	0.00	**31.11**
Portugal	319.24	324.70	299.54	20.72	14.18	35.47	41.17	19.42	281.78	269.58	152.75	177.45	83.11	212.24	**2251.37**
Slovenia	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Spain	0.00	0.00	36.47	22.34	114.15	88.17	100.95	23.47	38.54	51.29	109.39	544.18	740.11	580.73	**2449.77**
UK	12.10	9.32	10.18	11.82	13.47	12.92	24.00	27.10	40.02	45.97	68.47	60.30	11.28	2.22	**349.18**
Total	**873.67**	**839.21**	**780.85**	**393.23**	**436.26**	**441.55**	**213.92**	**142.09**	**408.57**	**503.84**	**373.32**	**799.88**	**848.80**	**826.02**	**7881.22**

Source: EUROSTAT landings database, 1992-2006.

Table 95: Total annual value of deep sea species landed into each EU member state as a percentage of that state's total landings, 1993–2006

Country	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Belgium	0.020	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.001**
Denmark	0.215	0.320	0.441	0.464	0.328	0.282	0.010	0.049	0.009	0.021	0.027	0.007	0.006	0.004	**0.167**
France	0.000	0.000	0.000	0.000	0.000	0.000	0.028	0.019	0.022	0.009	0.006	0.004	0.008	0.009	**0.013**
Germany	4.813	4.329	3.773	2.818	2.769	3.172	0.217	0.568	0.402	0.797	0.430	0.270	0.146	0.447	**2.226**
Ireland	0.070	0.114	0.126	0.100	0.096	0.115	0.228	0.209	0.044	0.979	0.005	0.000	0.000	0.001	**0.136**
Italy	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	**0.000**
Malta	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.561	0.527	0.333	0.348	**0.428**
Netherlands	0.000	0.000	0.000	0.000	0.007	0.003	0.002	0.026	0.045	0.005	0.090	0.000	0.000	0.000	**0.013**
Portugal	1.988	2.230	1.985	0.138	0.097	0.233	0.271	0.132	1.791	1.632	1.367	1.461	1.213	1.843	**1.159**
Slovenia	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	**0.001**
Spain	0.000	0.000	0.036	0.017	0.064	0.080	0.107	0.025	0.039	0.048	0.108	0.551	0.890	0.632	**0.164**
UK	0.023	0.028	0.030	0.033	0.035	0.044	0.063	0.072	0.104	0.109	0.188	0.150	0.031	0.006	**0.066**
Total	**0.305**	**0.308**	**0.280**	**0.126**	**0.121**	**0.159**	**0.070**	**0.045**	**0.121**	**0.148**	**0.114**	**0.245**	**0.262**	**0.233**	**0.178**

Source: EUROSTAT landings database, 1992-2006.

9.2.2 Estonia

Processing sector

Some processing is carried out on-board the vessels, such as heading and gutting (H&G) and filleting for Greenland halibut and redfish. Employment related to this activity is included in Section 9.1 on 'Direct employment'.

The main companies involved in processing high seas species in Estonia are also fishing companies. They are:

- Reyktal
- Dagomar (parent company: Hiiu Kalur – Sapland and Kaluri brands)
- Esvar.

The Estonian Association of Fishery (mainly comprising fish processors) indicated that Estonia has 115 EU veterinary-approved processing plants. Most are small and medium enterprises, with 5-10 employees each, and a maximum of 100 employees. However, the majority do not process high seas deep sea species — most of the production is centred around canning (Baltic sprats, Baltic herring) and freezing (freshwater fish e.g. perch, pike, pike-perch). They are starting to expand into new products such as fresh salmon (imported from Norway) and rainbow trout (imported from Denmark). The import matrices (Appendix 4) confirm that very limited quantities of deep sea species are imported into Estonia.

Estonian vessels do not land directly into Estonia. It is therefore difficult to trace employment in processing back to EU HSBG catches. Vessels land in Canada or Spain. Landings in Canada may be stored in cold storage, sold or transhipped to Iceland for further processing.

Of the high seas deep sea species, northern prawn is the main species processed in Estonia. In many cases the raw material for processing is imported from other countries, rather than obtained directly from Estonian vessels, thus making it difficult to determine whether the processing employment is dependent on catches from EU Member States. The import matrices indicate that the main source countries for shrimps and prawns are Denmark (which in turn imports large quantities from Greenland), Canada and Iceland. The latter two are countries where Estonian-flagged vessels tend to land their catches and may carry out some processing there. Catches imported from Denmark and Greenland have been made either on the high seas or from within Greenland's EEZ.

In summary, there is some employment generated in Estonia for processing and packing or repacking northern prawn, of the order of 50–100 jobs[8]. The majority of employees are Estonian women.

Port activities

Estonian HSBG vessels do not come to port in Estonia therefore there is minimal employment generated through port activities. Estonian inspectors are sent out to carry out EU veterinary inspections, and Estonian engineers are sometimes sent out to carry out repairs and maintenance.

[8] This is based on 40 jobs in Hiiu Kalur's shrimp processing plant, plus an estimate from Reyktal and other processing plants.

It is possible that Estonian vessels did land in Estonia in the 1990s but no data are available in relation to this as only catch/production data were recorded at the time.

9.2.3 Ireland

Processing sector

No information on the processing sector in Ireland was obtained. Based on the proportion of Irish catches made in international waters (less than 0.5 % over 1993–2006) it is unlikely that much employment in the Irish processing sector is dependent on high seas bottom gear catches, particularly from the Irish fleet.

Port activities

No information on port activities was received from Ireland. However, since the high seas bottom gear fleet fishes almost exclusively within European waters (Section 2.2), it is likely that the vessels are locally based and use Irish ports and services.

Over the period 2002–2006, Ireland imported a small amount of redfish (845.6 tonnes), mainly from Denmark; some Greenland halibut (796.0 tonnes), mainly from the UK; 437.7 tonnes of Pollack (mainly from Denmark); 712.0 tonnes of flatfish (mainly from the UK and Iceland); and 6 547.9 tonnes of selected species of shrimps and prawns (mainly from the UK). The source countries of these species suggest it is unlikely that they are from high seas bottom gear catches.

9.2.4 Spain

Processing sector

Estimates of employment in the Spanish processing sector based on high seas deep sea catches is provided in Table 96. There were a total of 3 060 jobs in 2007, representing 10.4 % of employment in Spain's processing sector.

Spain's NAFO trawlers process and freeze catches onboard (H&G, fillets, fish meal etc.) and land directly in the Spanish ports of the Vigo area (Vigo, Cangas and Marín). Longliners and trawlers of the '300 fleet' also process and freeze catches onboard, landing in the north Galician port of Celeiro and in Ondárroa in the Basque Country. Catches from the SW Atlantic vessels are landed directly in Vigo from reefer (fish transport) vessels. In addition to substantial landings from the Spanish fleet, vessels from other countries (both EU and non-EU) also land catches of high seas deep sea species into Spanish ports, in particular Vigo, because of the high prices obtained in Vigo, extensive network of processing companies and high demand (both within Spain and for re-export). These catches support a substantial processing sector in the Galicia region.

Table 96 Employment in processing HSBG catches in Spain

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Employment processing HSBG species	3,446	3,282	3,230	3,511	3,545	3,548	3,647	3,684	3,448	3,092	3,060
Total employment in Spanish processing sector	23,945	23,945	24,496	25,059	25,635	26,225	27,000	27,611	28,236	28,875	29,528
HSBG processing employment as % of Spain's total processing employment	**14.4**	**13.7**	**13.2**	**14.0**	**13.8**	**13.5**	**13.5**	**13.3**	**12.2**	**10.7**	**10.4**

Source: Employment processing HSBG species: University of Vigo; industry contacts; total employment in processing sector: LEI BV & Framian BV (2006), extrapolated for 2004-2007 based on rate of change from 1997-2003.

Port activities

Spain's fleets are based in Spanish ports and tend to land there, and vessel maintenance and repairs are carried out in Spain. Table 97 provides estimates of the onshore employment generated by Spain's HSBG fleets in associated activities (shipbuilding, transport, technology etc).

Spain's NAFO trawlers have freezing capacity and land their catches after trips of about 3–4 months directly in the Spanish ports of the Vigo area (Vigo, Cangas and Marín). The fish is processed onboard (H&G, fillets, fish meal, etc) and then ultrafrozen and stored in the holds of the vessels. A portion of the catches by this fleet are caught in High Seas of the Hatton Bank.

Longliners and trawlers of the '300 fleet' also have freezing capacity and catches from their 2–3 month trips are processed and frozen onboard. They land their catches mainly in the north Galician port of Celeiro and in Ondárroa in the Basque Country (3 bottom longliners).

Bottom trawlers fishing in the SW Atlantic make trips of 5–6 months during which they transfer their catches to reefers in Berkeley Sound, near Port Stanley in the Falkland Islands, or in Montevideo, Uruguay. The reefers travel to Vigo were they land the fish to warehouses and processing plants.

Table 97 Employment in onshore activities related to the HSBG fleets

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
NAFO fleet	1458	1458	1512	1724	1795	1825	1966	2002	1757	1458	1426
SW Atlantic fleet	627	774	729	720	725	718	704	680	738	734	742
NEAFC fleet	599	581	527	565	519	498	457	476	460	458	456

NB. Based on estimates of total onshore employment generated by these fleets, scaled by 70 % for SW Atlantic fleet and 10 % for NEAFC fleet.

Maintenance of these vessels is carried out in the Vigo area where a large quantity of shipyards and suppliers depend on the activity of this fleet. Boats go to shipyards once a year for repairs, coating, etc. Once the boats are ready, they are supplied with food, oil (bunkering) and all kind of goods needed for their trip, including bait in the case of longliners. There are many shipyards and suppliers, including gear manufacturers, engine factories, electronics companies, etc. in the Vigo area providing these type of services, contributing to substantial indirect employment. It is estimated that every direct employment results in 5 indirect ones.

In the case of vessels operating in the SW Atlantic, some of them (perhaps half of the fleet) go for maintenance to Montevideo (Uruguay) and Punta Arenas (Chile), although bunkering and food supply also takes place in Berkeley Sound.

9.2.5 France

Processing sector

No information on the processing sector in France was obtained. Import data (Appendix 4) show France imported substantial quantities of deep sea species over the period 2002–2006 (Table 98). Those catches that come in particular from Spain may be from high seas bottom gear fleets. Further investigation into the French processing sector and trade in these species is therefore needed as imports of this quantity may support substantial value-added processing in France.

Table 98 Imports of deep sea species into France for 2002–2006 (in tonnes)

Species / species group	Quantity (tonnes) imported 2002–2006	Main source countries
Redfish	31 952.7	UK, Denmark, Germany, Iceland, Belgium
Greenland halibut	12 163.0	Denmark, UK, Spain
Atlantic halibut	3 395.0	UK, Denmark
Ling	19 221.3	UK, Denmark, Ireland
Pollack	141 040.1	China, Germany, UK, Denmark
Hake	1 673.1	Spain, Argentina, Chile, Germany, UK
Flatfish	24 336.0	UK, Belgium, Spain
Shrimps and prawns	57 251.5	Denmark, Belgium, Spain, India, UK, Indonesia
TOTAL	291 033.0	

Source: Eurostat Comext trade database.

Port activities

No information was received on port activities of the French HSBG fleet.

9.2.6 Latvia

Processing sector

Latvia's fishery statistics yearbook lists 112 processing companies in Latvia. Almost all fish processing is based on local production (DG Fish, 2004), from the Gulf of Riga and the Baltic Sea, such as 'Riga Sprats in Oil'. Approximately 155 700 tonnes of canned fish (53 %) and chilled and frozen products are produced.

The Latvian Processors Union informed us that only three or four companies were involved in processing deep sea species such as northern prawn, Greenland halibut, redfish etc. Despite a number of attempts we have not been able to contact all these processing establishments to obtain an indication of the turnover, number of employees, or the proportion of their products that depend on these deep sea species.

The processing companies, which mainly deal with shrimp, are:

- Danlat Seafood;
- Stema;
- P.K.Invest;
- Reaton Ltd.

The head of one company that was interviewed whilst in-country indicated that they hand-peel shrimps for the local market. Shrimps are bought from Estonian and Lithuanian trawlers. Approximately 1.5 tonnes of shell-on shrimp per week are processed, employing 6 or 7 Latvian workers. The markets for these shrimp are direct orders from local shops, restaurants and hotel chains.

The import matrices (Appendix 4) show that over the last five years (2002–2006), Latvia has imported 2 633.7 tonnes of redfish, 214 tonnes of Greenland halibut and negligible amounts of other deep sea species, apart from shrimps and prawns (1 757.0 tonnes). The data on shrimps and prawns should be treated with caution as there is no indication of whether they have been produced from a capture fishery or from aquaculture, although the species groups most likely to be deep water prawns were selected. The main source of shrimps and prawns was Denmark, and to a lesser extent Iceland, Norway and Canada. The main sources of redfish were Iceland and Germany.

Port activities

Latvia's HSBG vessels do not come to port in Latvia. They use Canadian and Icelandic ports for crew changes and vessel maintenance and repairs, although Latvian inspectors may be sent out to inspect the vessels in those ports.

9.2.7 Lithuania

Processing sector

Landings of high seas species do not take place in Lithuania. However, Lithuania is a net importer of high seas species. Although there is no analysis of whether these are caught using bottom gears, nor of whether they in RFMO or non-regulated waters or of the depth profiles of these catches, there are reportedly 288 400 tonnes of high seas species (both pelagics and demersal species) processed by 6 companies, employing 3 000 employees. The companies are:

- Baltijes Delikatsai
- Norvelita
- Viciunai Group
- Vici
- UAB Nowaco
- Lignesa.

To maintain its throughput of high seas species, Lithuania imports deep sea species (not necessarily all obtained through bottom gear fishing or from the high seas) from a range of countries, including Argentina, Belarus, Denmark, Estonia, Iceland, Latvia, Norway, Poland, and Russia.

Import data (Appendix 4) shows that over the period 2002–2006, Lithuania imported 6 837.6 tonnes of redfish, mainly from Iceland; 165.8 tonnes of Greenland halibut, mainly from Denmark and Norway; 6 996.3 tonnes of Pollack, mainly from China; and 2 029.1 tonnes of shrimps and prawns (of selected species), mainly from Denmark and Canada.

Port activities

Lithuanian HSBG vessels do not come to port in Lithuania, landing instead in Canada, Iceland and Norway.

9.2.8 Poland

Processing sector

Poland's fish processing industry reportedly employed 14 100 people in 2005 (Sea Fisheries Institute, 2006). The output of Polish fish processing plants is shown in Table 99. There is no indication of which species these products are based on, although the main fish consumed in Poland are herring, Alaska Pollock, hake, mackerel and sprat. Furthermore, the main export species are herring, sprat, salmon and cod (by weight) (Sea Fisheries Institute, 2006).

Table 99 Output of Polish fish processing plants by product type, 2001–2005 ('000 tonnes)

	2000	2001	2002	2003	2004	2005
Fresh & frozen fish	34	50	53	34	46	48
Fresh & frozen fillets	53	56	46	44	45	59
Salted fish	15	16	16	15	22	23
Smoked fish	23	21	17	24	34	52
Canned fish	56	60	58	55	60	57
Marinated fish	55	49	50	54	66	68
Others, nei	14	16	17	22	28	35
TOTAL	**250**	**268**	**257**	**248**	**301**	**342**

Source: Sea Fisheries Institute (2006)

The import matrices for deep sea species (Appendix 4) show that over the period 2002–2006, Poland imported 2 333.2 tonnes of redfish, mainly from Germany, the Netherlands, Denmark and Iceland; 5 138.2 tonnes of Greenland halibut, mainly from Norway and Denmark; 92 451.1 tonnes of Pollack, mainly from China and the US; 2 259.0 tonnes of flatfish, mainly from Denmark; and 4 793.7 tonnes of selected species of shrimps and prawns, mainly from Denmark.

Some processing in Poland may therefore be dependent on high seas bottom gear catches, but it is difficult to determine what proportion.

Port activities

No information was received from Poland regarding port activities related to their HSBG fleet.

9.2.9 Portugal

Processing sector

Generation of employment from the Portuguese HSBG fleet within Portugal takes place in particular in the towns of Peniche and Aveiro (and the suburbs of Gafanha da Nazaré and Ílhavo, in Aveiro).

Vessels carrying catches of the fleets fishing in the NAFO and NEAFC high seas areas bring the frozen fish directly to be offloaded to plants in Gafanha da Nazaré and Ílhavo, where processing and packaging operations take place. The jobs generated with the offloading and processing and packaging, as well as all the maintenance and repair works are all located within a very small geographical area around the town and suburbs of Aveiro. These activities are often concentrated within a few companies and owners, frequently connected to the same economic groups as those that own the fishing vessels.

In the port of Peniche, landings are made by longliners that carry both pelagic and bottom gear. Most of the landings consist of large pelagic fish, such as tuna, marlins and swordfish and most of the job generation is connected to those species. Nonetheless, all of the bottom catches made by the same vessels are offloaded and processed with the rest of the fish in the same areas. Maintenance and repair of these vessels takes place in Aveiro area.

The post-vessel economic activities of the HSBG fleet in Portugal are concentrated in the same geographical area of the country which is responsible for the vast majority of all the fish processing activities. A large and increasing proportion of the business volume of the processing activities, 51–59 % between 2002 and 2004, is located in the central region of Portugal (north of Lisbon and south of Porto), as compared to

18 % located north of Porto, some 12 % in the region of Lisbon, and 5 % in the Algarve (far south).

Portugal also imports substantial quantities of deep sea species including redfish, Greenland halibut and shrimps (Table 100), mostly from Spain.

Table 100 Imports of selected deep-sea demersal species to Portugal, 2002–2006

Species	Quantity imported 2002–2006 (tonnes)	Main source countries
Redfish	18 696.9	Spain, Denmark
Greenland halibut	5 580.7	Spain
Pollack	12 481.5	US, China, Spain
Hake	3 651.9	Spain, Namibia
Flatfish	11 134.0	Spain
Shrimps & prawns (selected species)	35 639.0	Spain, France, Netherlands, India

Based on the employment multiplier estimates related to Portuguese HSBG fleets (Section 9.2.11), employment in the processing sector relating to HSBG catches may be around 1 128 jobs, or 20 % of employment in the Portuguese processing sector.

Port activities

There are no specific data available about port activities in Portugal relating to the HSBG fleet. However, the HSBG vessels sometimes land in Portugal (Sections 1.1.1 and 1.1.1). Estimates of employer multipliers have been obtained from industry contacts: for every person employed on a HSBG vessel, a further 2.4 work in activities directly associated with the vessels on land (i.e. port activities, maintenance and repairs). From the estimate of 470–723 people employed on the vessels (Section 9.1.8: lower estimate based on activity on the high seas with bottom gears, upper estimate based on all vessel activity including pelagic gears), this implies 1 128–1 735 people employed in on-shore vessel-related activities.

9.2.10 Vessel maintenance and repair

Vessel maintenance and repair are another component in the operational costs of the HSBG fishing fleets. While the data collected includes some estimates of vessel expenditure on repairs, this cannot be translated into an estimate of employment generation linked to these activities. The employment generated is one of the components of indirect employment generation, for which employment multipliers are discussed in Section 9.2.11. The most significant employment generation for vessel maintenance and repair is in Vigo and neighbouring ports for Spain and Aveiro in Portugal. The other fleets undertake vessel repairs outside the EU and/or have relatively small fleets.

9.2.11 Evidence of employment multiplier impacts

The activities of the HSBG fleets have direct, indirect and induced employment impacts. These include the direct employment impacts (crew and transhipment personnel), port activities, vessel repairs, fish transport, crew transport, fish processing and ice making. The most important fleet — the Spanish fleet, according to estimates by the Instituto Galego de Estadistica — has an indirect and induced employment of multiplier of 2.4. Thus for every one direct full time equivalent employee on board the vessel another 2.4 persons are engaged in related activities. However, other estimates for Spain show that direct employment linked to these

fishing activities in 2007 amounted to 1 334 full-time equivalent workers, while other associated employment was estimated at 5 683, which is a direct to indirect employment multiplier of 4.3.

It is likely that the total employment multiplier including induced employment (employment generated by expenditure from the salaries and wages of direct and indirect employment) would be considerably higher than 4.3. It is evident that in terms of direct, indirect and induced employment generation the HSBG fishing fleet is of considerable importance to the Galician economy which has a gross domestic product considerably below that of the EU average.

The best employment multiplier estimates for Portugal can be obtained from the Portuguese fleet, since there are no specific studies known on the subject. The Portuguese national statistics institute (INE) publishes figures relating to the period 2002–2004 and then only for some specific post-vessel sectors (e.g. processing). Data on global multipliers is dispersed and does not apply to any fleet in particular but rather to the total fishing sector.

For Portugal, the estimate of the employment multiplier including all supply chain activities was 4.88 (França Morte, pers. comm.; Silva Vieira, pers. comm.). They indicate that for each vessel in operation on the HS, an average 4.88 persons work on-land for every person working on the vessels, 2.4 of these working in port-related activities, including maintenance and repair operations. This includes some reserve crew that are also used for other on-land activities when not needed on-board.

Not all the direct, indirect and induced employment impacts remain in the EU for the following reasons:

- Landings and transhipment in non EU ports have employment multiplier impacts in those countries e.g. Canada, Iceland, Norway, Uruguay. These include port, transport and handling and processing activities.
- Supply chain activities in the EU also have leakage out of the EU economy e.g. imports of vessel inputs (fuel, non-EU crew) and processing machinery from non-EU countries.

9.3 Employment in non-EU countries

9.3.1 Direct employment in fishing activities

The HSBG fleets studied tend to employ a majority of nationals on their vessels. Approximately 20 % of direct employment onboard the vessels overall is of non-EU nationals (Table 91). The Baltic fleets tend to employ Ukrainian, Russian and Belarussian crew. The proportion of non-EU crew is increasing, as national laws are relaxed (e.g. in Estonia, national laws previously required at least 75 % of the crew and certain positions to be Estonian nationals) and, in the case of the Baltic states, nationals aspire to different, office-based employment that does not require long periods away from home.

9.3.2 Indirect employment in processing and port activity

Fishing by EU HSBG vessels have economic and social impacts not only in the EU but also in the countries where they land their catches, carry out maintenance and repairs, and where their catches are processed. Due to the distant nature of fishing grounds in these fisheries, vessels may land at ports that are closer to the fishing

grounds. In particular, the Baltic fleets tend to land catches of prawn from NAFO in Canada, and of Greenland halibut and redfish in Canada, Iceland and Norway.

Landings may be made in non-EU ports for a number of reasons:

- The proximity of ports to the main fishing grounds of EU HSBG fishing fleets.
- Relatively attractive landed prices for deep seas species for fresh and frozen products including the raw materials for processing.
- The availability of competitive bunkering and ship repair facilities (particularly important for the Baltic states which rarely visit their home base ports).

Spanish vessels tend to land the majority of their catches in Spain, bringing limited indirect employment benefits to countries outside the EU. The exceptions are the SW Atlantic fleet, which sometimes tranships in the Falkland Islands or Uruguay, for catches to be landed directly in Spain. A limited amount of employment to supervise these transhipments therefore is generated in non-EU ports by the Spanish fleet.

Other vessels, such as those of the Portuguese fleet may land or tranship in other ports e.g. Montevideo in Uruguay and Santos in Brazil. A review of trade and landing statistics for Iceland and Norway indicates that it is not possible to assess the landings by EU vessels and the associated employment that is generated by the activities of EU vessels in these ports. Clearly there will be direct, indirect and induced employment multiplier impacts in these non-EU countries which are linked to the EU HSBG activities. We do not have employment multiplier estimates for these countries.

9.4 Summary of overall social importance of high seas bottom gear activities

The EU high seas bottom gear fleet employed 5 053 people in 2007 (Table 89), representing 2.8 % of employment in the European catching sector. 41 % of this employment is dependent on high seas bottom gear activities (2 087 jobs) (Table 90), or 1.2 % of employment in the EU catching sector.

Whilst data are not available for all countries for all years, the proportion of employment in the HSBG sector appears to be increasing over time, up from (conservative estimates of) 0.55 % in 1997 and 0.8 % in 2003. This is likely to be a result of vessels needing to travel further and seek new fishing grounds as stocks in nearer and shallower waters become more and more heavily exploited. However, rising fuel costs (Section 8.1) are making this sector less profitable and employment may suffer as a result.

The majority of employment on these fleets is for EU nationals (81.1 %) (Table 91), although this is declining.

Estimates of indirect employment generated from activities and catches of the EU HSBG fleets are difficult to obtain. However, the magnitude of processing employment in the countries studied is probably of the order of 4 000–5 000, or 2.7–3.4 % of EU processing employment. Processing employment related to the HSBG fleets is largest in Spain, where it may represents 10 % of employment in the processing sector. In Portugal it may represent up to 20 % of employment in the Portuguese processing sector (based on employment multiplier estimates).

Indirect employment relating to port activities and vessel maintenance and repair is also important in Spain and Portugal, where estimates are around 2 624 and 1 128

respectively. Indirect employment of this type in the Baltic states is limited as vessels do not return to port there.

Employment generated in non-EU countries takes place both on EU HSBG vessels and in processing and port activities. Employment of non-EU nationals on EU vessels was 906 in 2007 (18.9 % of employment on the vessels). This includes Russians, Ukrainians and Belarussians on the Baltic fleets through crewing agents.

Estimates of employment generated in processing and port activities in non-EU countries could not be obtained. However the most important countries are: Canada (landings and storage of northern prawn), Iceland (processing of northern prawn, vessel maintenance and repairs), Norway, Uruguay, Brazil and South Africa.

10 Annex 4: References

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11 Annex 5: List of key species

Common Name	Scientific Name	FAO Code
Alfonsinos	*Beryx spp.,*	ALF
Argentine hake	*Merluccius hubbsi*	HKP
Argentines	*Argentina spp.*	ARG
Baird's Smoothhead	*Alepocephalus bairdii*	ALC
Beaked redfish	*Sebastes mentella*	REB
Birdbeak dogfish	*Deania calceus,*	DCA
Black (deep-water) cardinal fish	*Epigonus telescopus*	EPI
Black dogfish	*Centroscyllium fabricii,*	CFB
Black oreo	*Allocyttus niger*	BOE
Black scabbardfish	*Aphanopus carbo*	BSF
Blackbelly rosefish	*Helicolenus dactylopterus*	BRF
Blackmouth dogfish	*Galeus melastomus,*	SHO
Blackspot bream / Red seabream	*Pagellus bogaraveo*	SBR
Blue ling	*Molva dypterygia*	BLI
Bluenose warehou	*Hyperoglyphe antarctica*	BWA
Cape bonnetmouth (redbait)	*Emmelichthys nitidus*	EMM
Cardinal fish	*Epigonus pandionus & Epigonus dendiculata*	CDL
Common mora	*Mora moro*	RIB
Deepwater cape hake	*Merluccius paradoxus*	HKO
European conger	*Conger conger*	COE
Forkbeards	*Phycis spp.*	FOR
Frilled shark	*Chlamydoselachus anguineus,*	HXC
Golden redfish	*Sebastes marinus*	REG
Greater forkbeard	*Phycis blennoides*	GFB
Greater lanternshark	*Etmopterus princeps,*	SHL
Greenland halibut	*Reinhardtius hippoglossoides*	GHL
Greenland shark .	*Somniosus microcephalus*	GSK
Gulper shark	*Centrophorus granulosus,*	GUP
Iceland catshark	*Apristuris spp.,*	API
Imperial blackfish	*Schedophilus ovalis*	HDV
Knifetooth dogfish ,	*Scymnodon ringens*	SYR
Leafscale gulper shark	*Centrophorus squamosus,*	GUQ
Ling	*Molva molva*	LIN
Longnose velvet dogfish	*Centroscymnus crepidater,*	CYP
Mouse catshark	*Galeus murinus,*	GAM
Northern prawn	*Pandalus borealis*	PRA
Orange roughy	*Hoplostethus atlanticus*	ORY
Patagonian toothfish	*Dissostichus eleginoides*	TOP
Portuguese dogfish ,	*Centroscymnus coelolepis*	CYO
Rabbit fish	*Chimaera monstrosa*	CMO
Redfish (unspecified)	*Sebastes spp.*	RED
Roughhead grenadier	*Odontomacrurus murrayi*	RHG
Roundnose grenadier	*Coryphaenoides rupestris*	RNG
Ruby fish	*Plagiogeneion rubiginosum*	RYG
Rudder fish (Blackfish)	*Centrolophus niger*	CEO
Sailfin roughshark (Sharpback shark / Kitefin shark)	*Oxynotus paradoxus*	OXN
Silver scabbardfish	*Lepidopus caudatus*	SFS
(Blunt nose) Six-gilled shark	*Hexanchus griseus,*	SBL
Skates (unspecified)		
Smooth oreo	*Pseudocyttus maculatus*	SSO

Common Name	Scientific Name	FAO Code
Southern hake	*Merluccius australis*	HKN
Spiky oreo	*Neocyttus rhomboidalis*	NOV
Tusk Cusk, Lump	*Brosme brosme*	USK
Velvet belly	*Etmopterus spinax,*	SHL
Violet warehou	*Schedophilus velaini*	SEI
Warty oreo	*Allocyttus verrucosus*	ALL
West African Geryon	*Chaceon maritae*	CGE
Wreckfish	*Polyprion americanus*	WRF

Appendix 1: Species description sheets

Species descriptions are included for the main target species.

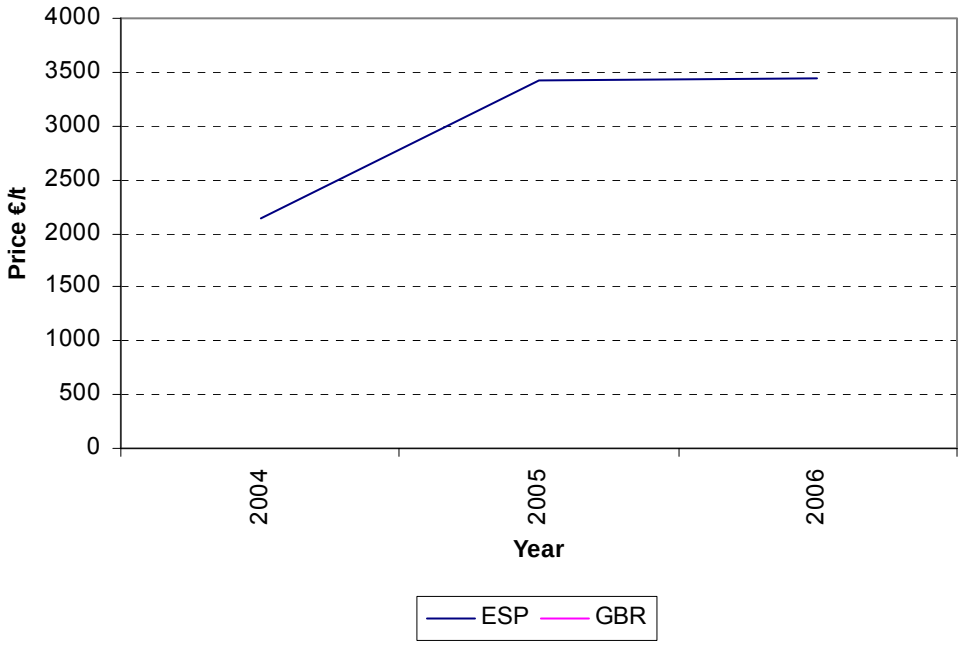
Appendix: 1 Species descriptions

Unless stated otherwise, information was taken from Fishbase (www.fishbase.org)

Binomial: *Alepocephalus bairdii*
Common name: Baird's Smoothhead
FAO species code: ALC

Family: Alepocephalidae
Sub-family:
Order: Osmeriformes

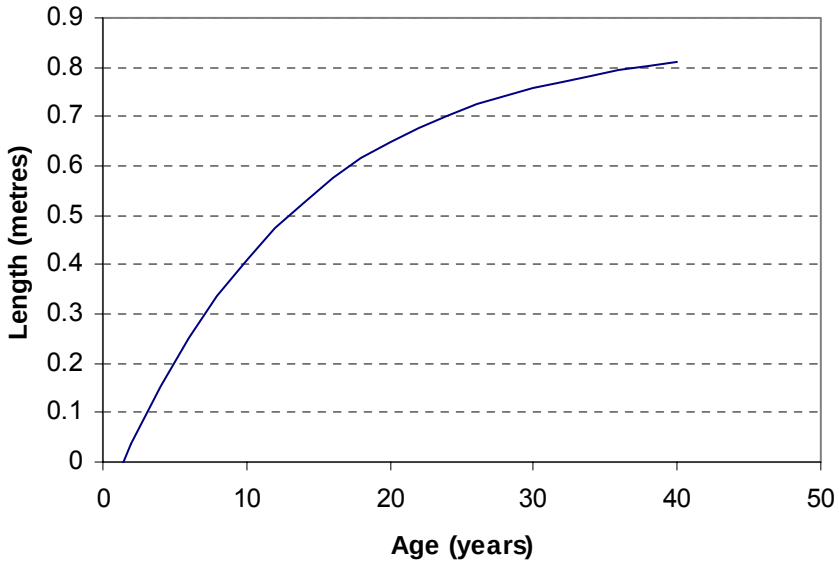
Price of Baird's Smoothhead by EU Member State 1993 – 2006. (Source: EU Landings Database)



Max size: 100 at age: 38 years

Von Bertalanffy growth parameters: $L(t) = L_\infty(1-\exp(-K(t - t_0)))$

$K = 0.077$, $L_\infty = 0.853$, $t_0 = 1.45$
Source:
http://www.fishbase.org/PopDyn/PopGrowthList.cfm?ID=230&GenusName=Alepocephalus&SpeciesName=bairdii&fc=86



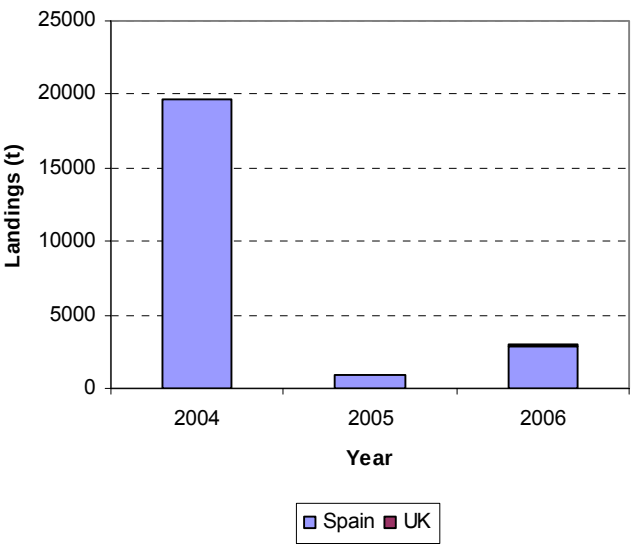
Reproduction:

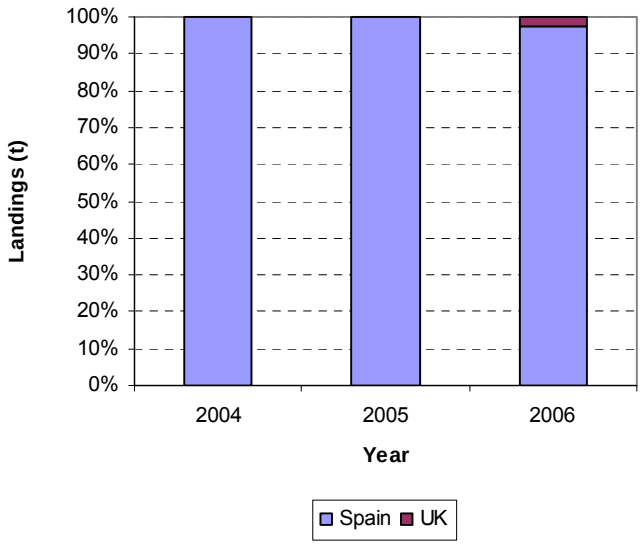
Depth range: 365 – 1700 m

General comments: Bathydemersal. Low resilience. 67°N - 17°N, 78°W - 4°E. Found over sand bottoms. Feeds mainly on coelenterates.

Landings by EU Member State by Year

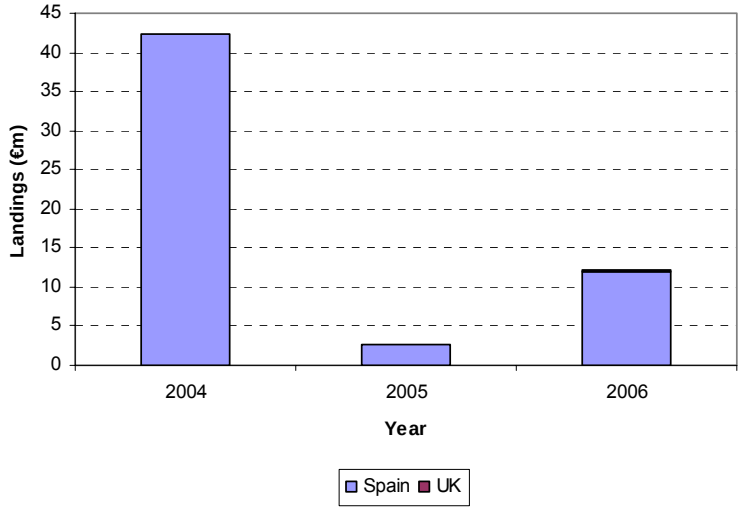
Source (EUROSTAT Landings database 1993 - 2007)





Economic Information

- Value of species (€)


45
40
35
30
25
20
15
10
5
0
Landings (€m)
2004
2005
2006
Year
Spain
UK

Scientific name: *Sebastes mentella*
Common name: Beaked redfish
FAO species code: REB

Family: Sebastidae
Sub-family: Sebastinae
Order: Scorpaeniformes

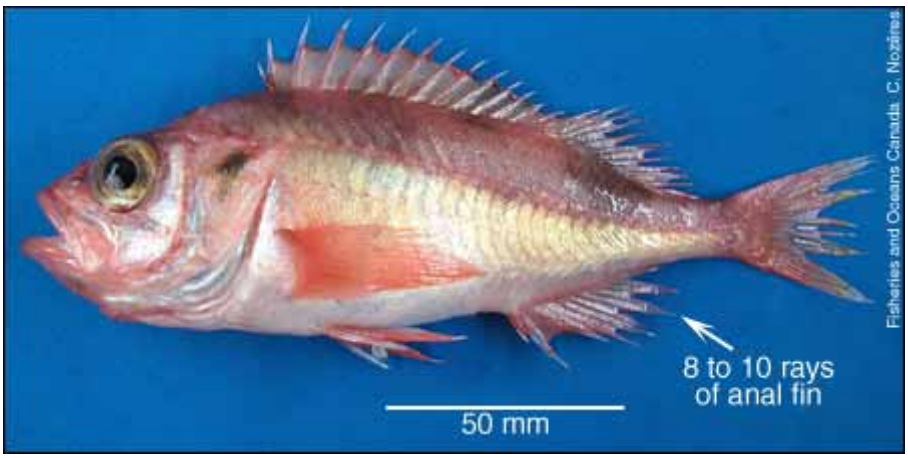
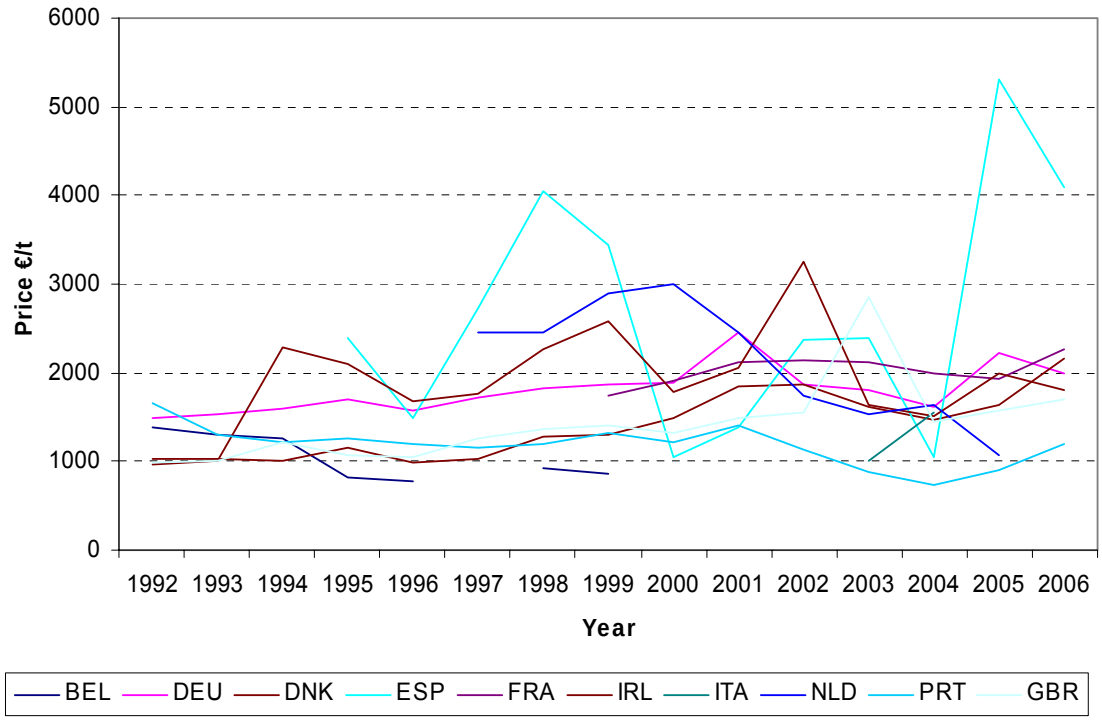


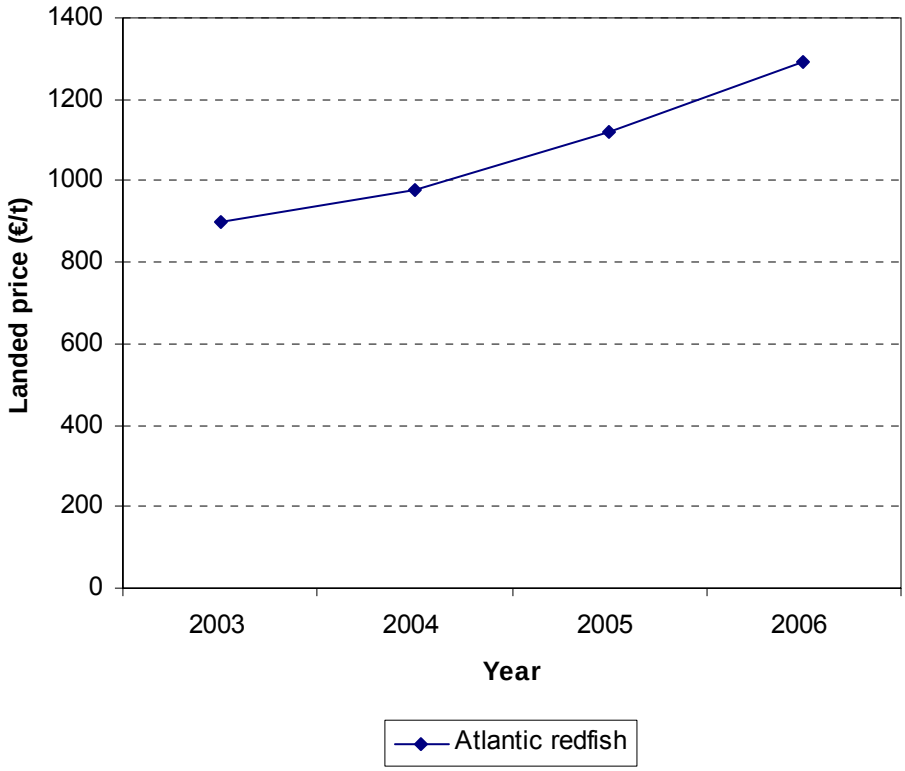
Photo taken from: http://www.osl.gc.ca/guide_sp/en/poiss/sp/s-mentella.html

Price:

Price of redfish (no species differentiation on landings price) by EU Member State 1993 – 2006. (Source: EU Landings Database)



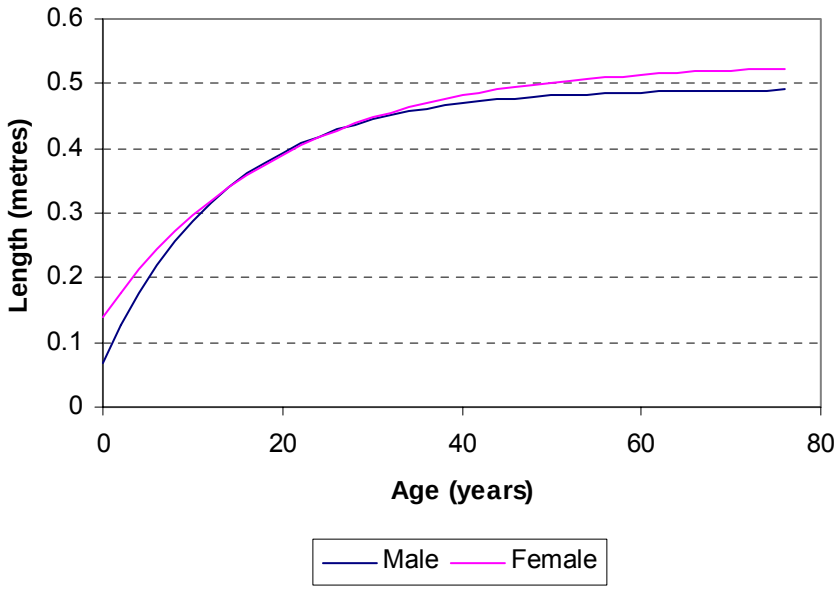
Price of redfish in Vigo 2003-2006. Source: MGOtero



Max size: 58 cm at >75 years

Von Bertalanffy growth parameters: $L(t) = L_\infty(1-\exp(-K(t - t_0)))$

Male: $K = 0.073$, $L_\infty = 0.492$, $t_0 = -2.08$ Female: $K = 0.051$, $L_\infty = 0.532$, $t_0 = -5.96$
Source:
http://www.fishbase.org/PopDyn/PopGrowthList.cfm?ID=505&GenusName=Sebastes&SpeciesName=mentella&fc=573



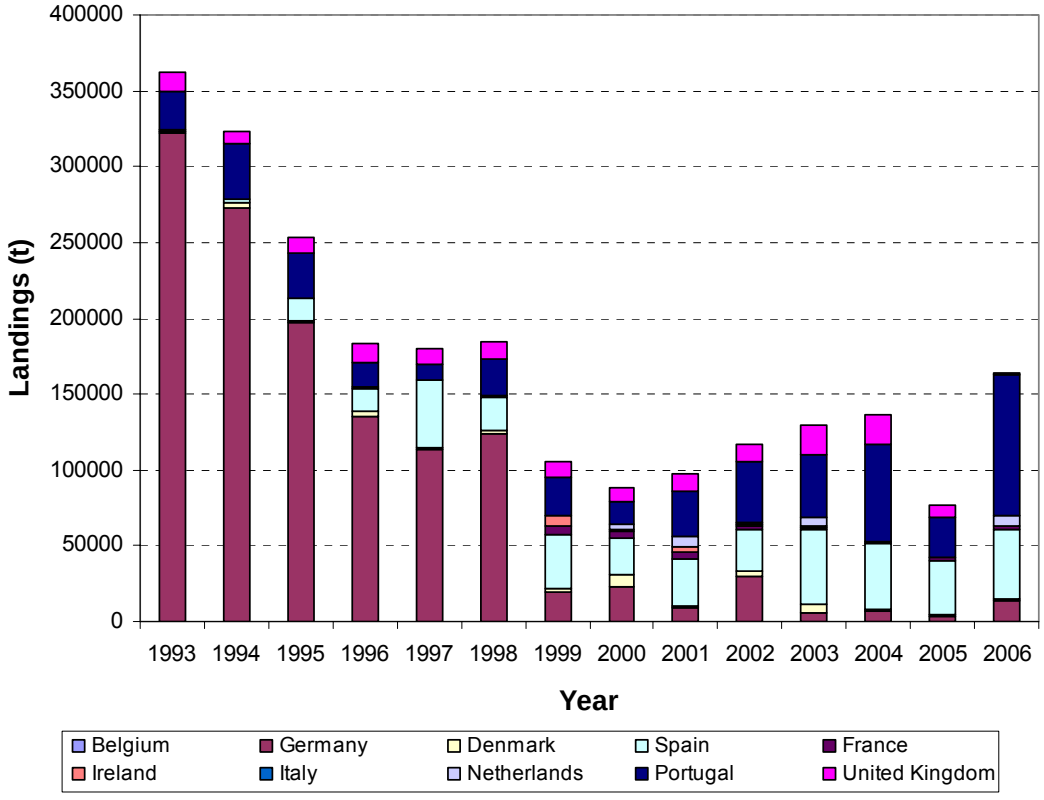
Reproduction: Ovoviviparous (gives birth to live young). Mate in early winter, hatch in April/May.

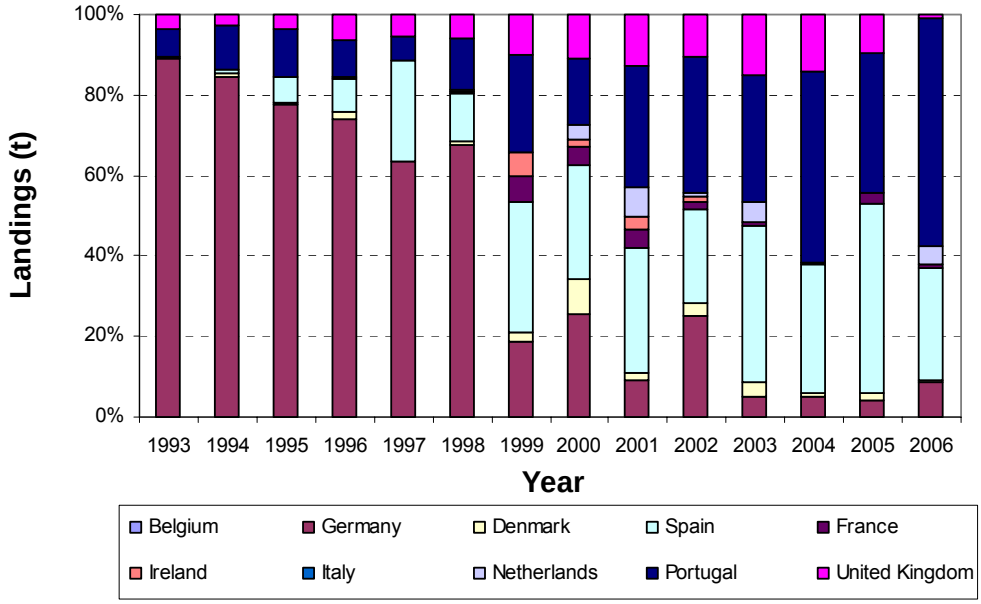
Depth range: 300 – 1441 metres

General comments: Epibenthic-pelagic. Suitable environment 79°N - 43°N, 66°W - 18°E. Slow growing. Low resilience and highly vulnerable. Targeted by pelagic and bottom trawling. Mature fish feed on krill and small fish (e.g. capelin and herring). *Sebastes mentella* can sometimes be considered as formed of two stocks: deepwater or demersal and oceanic or pelagic e.g. management of Redfish fishery around Iceland.

Landings by EU Member State by Year

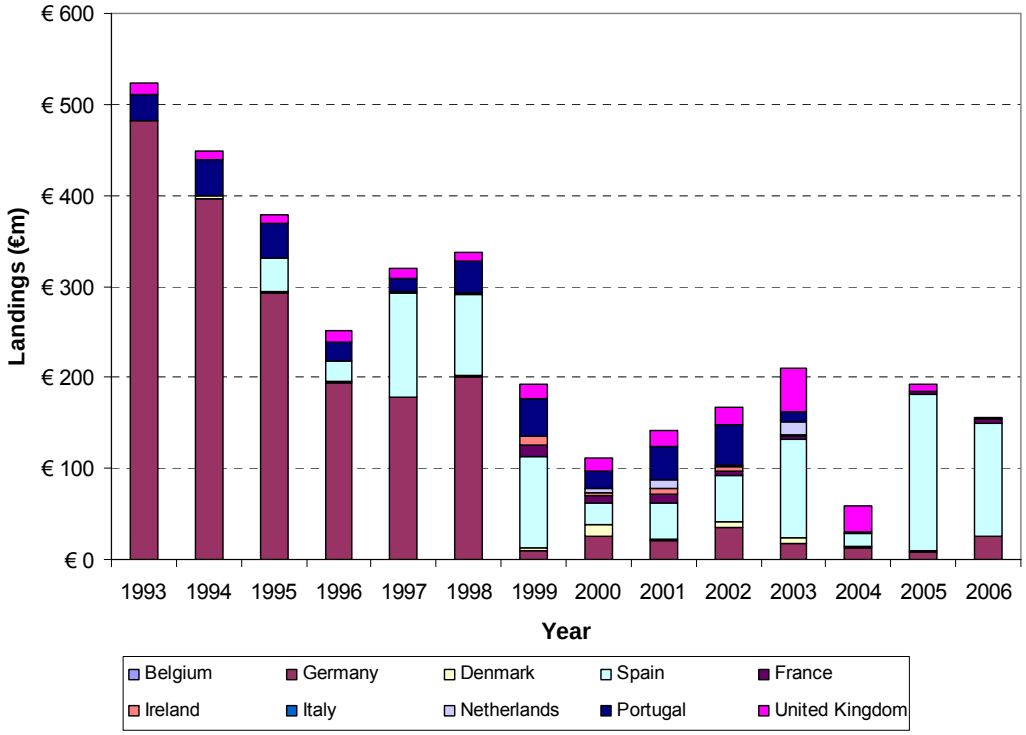
Source (EUROSTAT Landings database 1993 - 2007). Landings of redfish (no species differentiation).





Economic Information

- Value of redfish (no species differentiation)

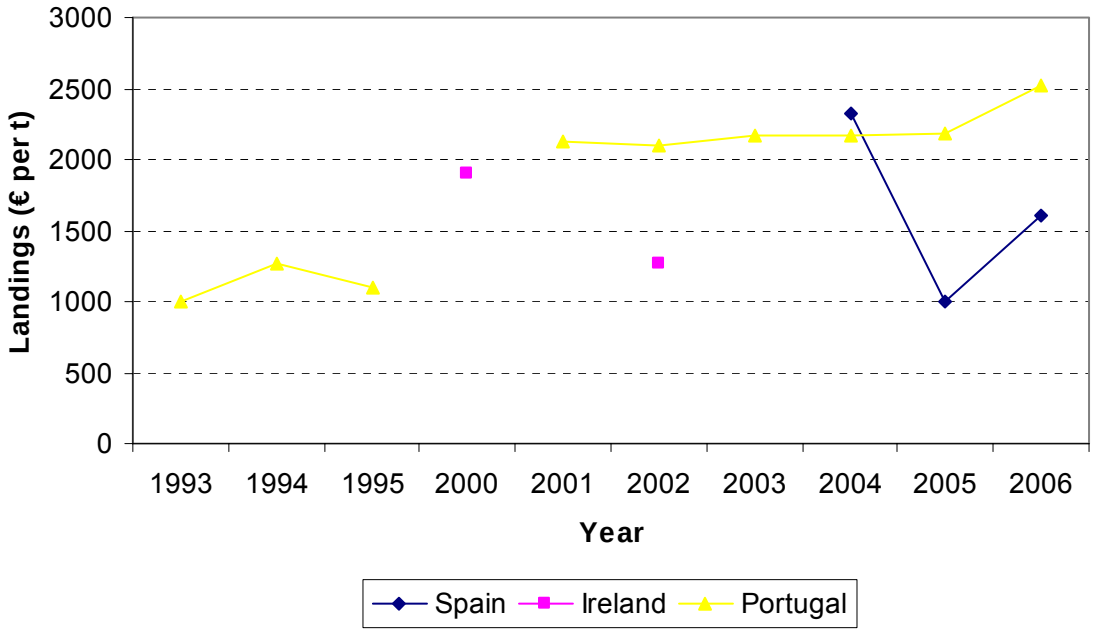


Scientific name: *Aphanopus carbo*
Common name: Black scabbardfish
FAO species code: BSF

Family: Trichiuridae
Sub-family:
Order: Perciformes

Photo taken from: http://www.sams.ac.uk/research/SAMS%20Honorary%20Fellows/dr-john-gordon/deepwaterfish/aphanopus

Price: Price of Black scabbardfish by EU Member State 1993 – 2006. (Source: EU Landings Database)

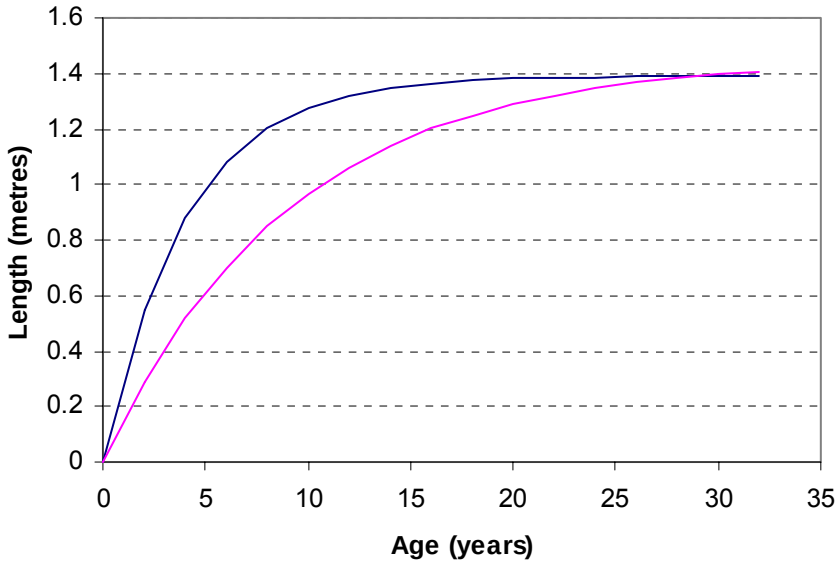


Max size: 129 cm

Von Bertalanffy growth parameters: $L(t) = L_\infty(1-\exp(-K(t - t_0)))$

$K = 0.251$, $L_\infty = 1.39$, $t_0 = 0$ $K = 0.110$, $L_\infty = 1.45$, $t_0 = 0$

Source: http://www.fishbase.org/PopDyn/PopGrowthList.cfm?ID=646&GenusName=Aphanopus&SpeciesName=carbo&fc=415



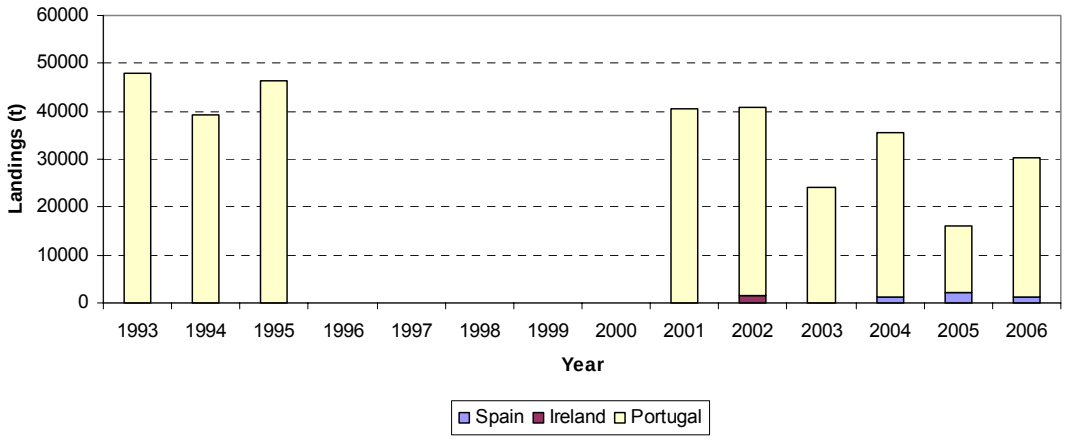
Reproduction:

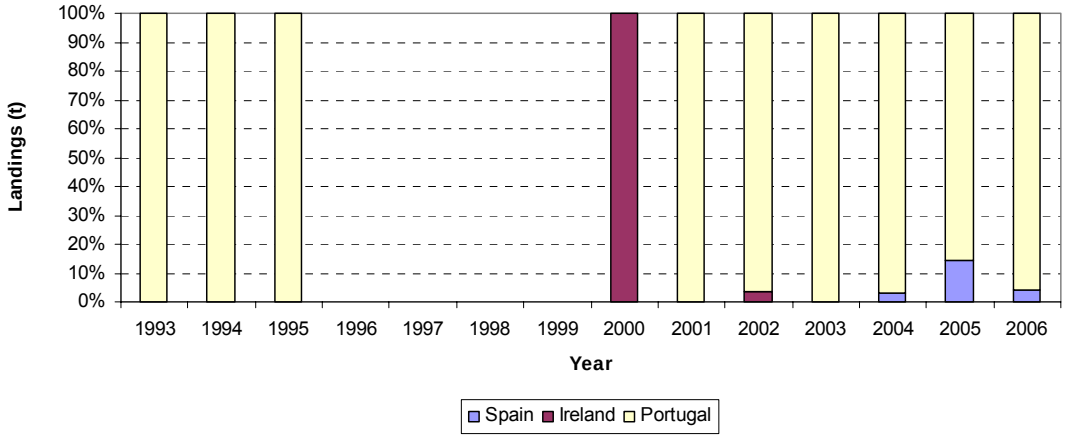
Depth range: 200 to 1700 m

General comments: Bathypelagic, juveniles are mesopelagic. Present in bycatch in trawl fisheries of the west of the British Isles, along the Middle-Atlantic Ridge and at Corner Rise. 69°N - 27°N, 79°W - 3°W. Migrates to midwater at night and feeds on crustaceans, cephalopods and fishes. Low resilience.

Landings by EU Member State by Year

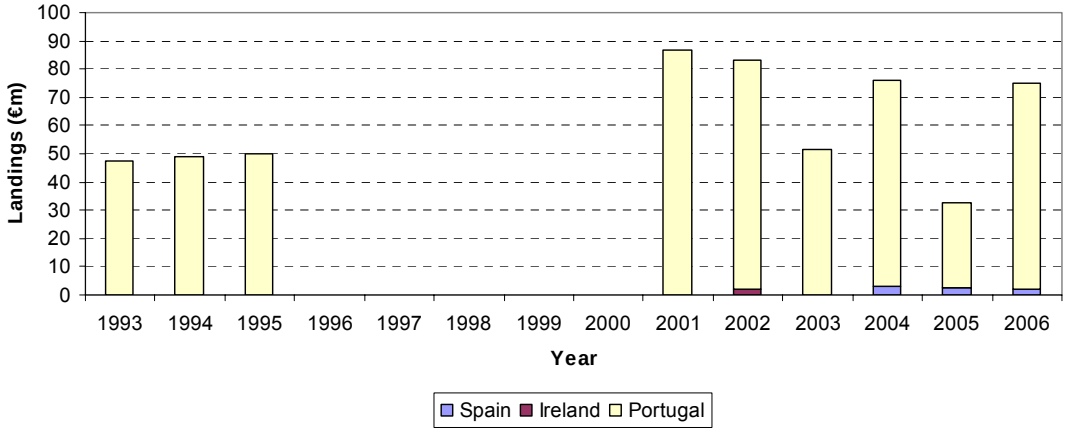
Source (EUROSTAT Landings database 1993 - 2007)





Economic Information

- Value of Species (€)

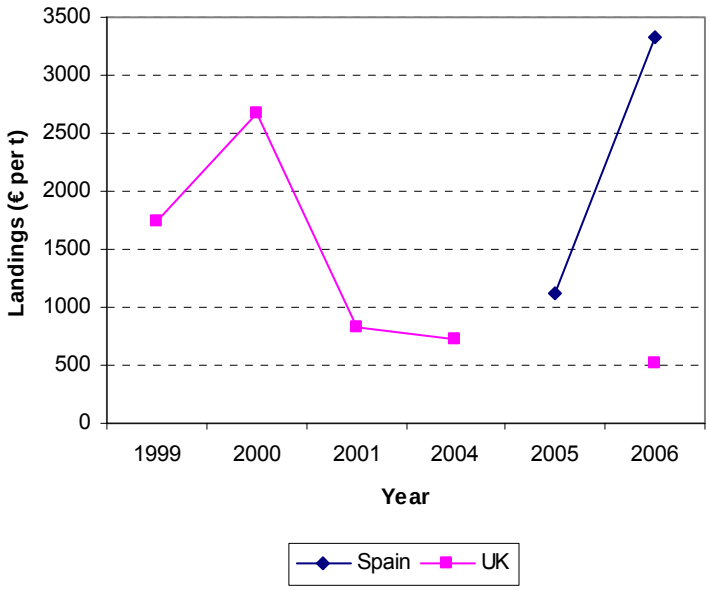


Binomial: *Dissostichus eleginoides*
Common name: Patagonian toothfish
FAO species code: TOP

Family: Nototheniidae
Sub-family:
Order: Perciformes

Photo: MRAG 2005.

Price by EU member state 1993 - 2006
Source: EUROSTAT landings database



Max size: 215 cm at age:

Von Bertalanffy growth parameters: $L(t) = L_\infty(1-\exp(-K(t - t_0)))$

$K =$, $L_\infty =$, $t_0 =$
Source:

Reproduction:

Depth range: 50 – 3850 metres

Distribution: 33°S - 66°S, 77°W - 180°E

General comments: Pelagic. Highly vulnerable. Juveniles are semi pelagic. Adults migrate to deeper depths.

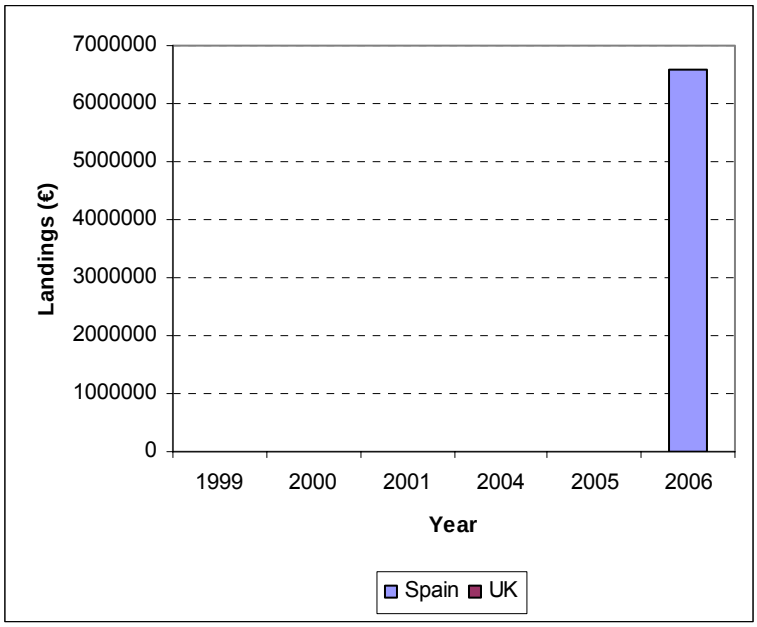
Landings by EU Member State by Year

Source (EUROSTAT Landings database 1993 - 2007)

In 2006, 1 494 tonnes were landed in Spain.

Value of Species

Source (EUROSTAT Landings database 1993 - 2007)

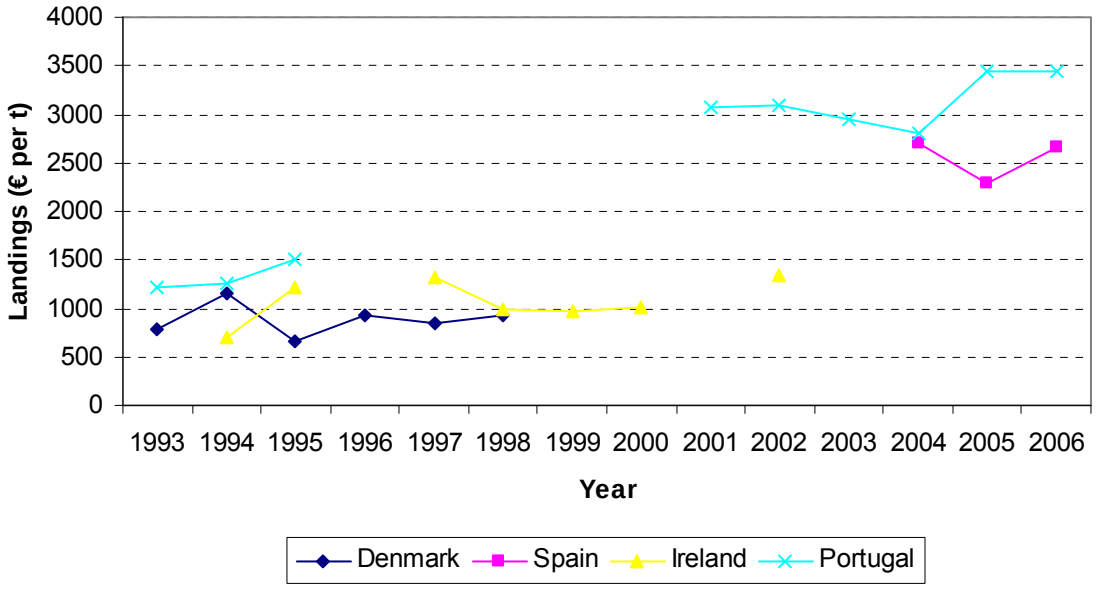


Binomial: *Molva dypterygia*
Common name: Blue Ling
FAO species code: BLI

Family: Lotidae
Sub-family:
Order: Gladiformes

Photo taken from: http://www.marlab.ac.uk/Delivery/standalone.aspx?contentid=588

Price: Price of Blue ling (no species differentiation on landings price) by EU Member State 1993 – 2006. (Source: EU Landings Database)



Max size: 155 cm at age: 20 years

Von Bertalanffy growth parameters: $L(t) = L_\infty(1-\exp(-K(t - t_0)))$

Male: $K = 0.157$, $L_\infty = 1.13$, $t_0 = 0$ Female: $K = 0.126$, $L_\infty = 1.55$, $t_0 = 0$
Source:
http://www.fishbase.org/PopDyn/PopGrowthList.cfm?ID=1383&GenusName=Molva&SpeciesName=dypterygia&fc=505

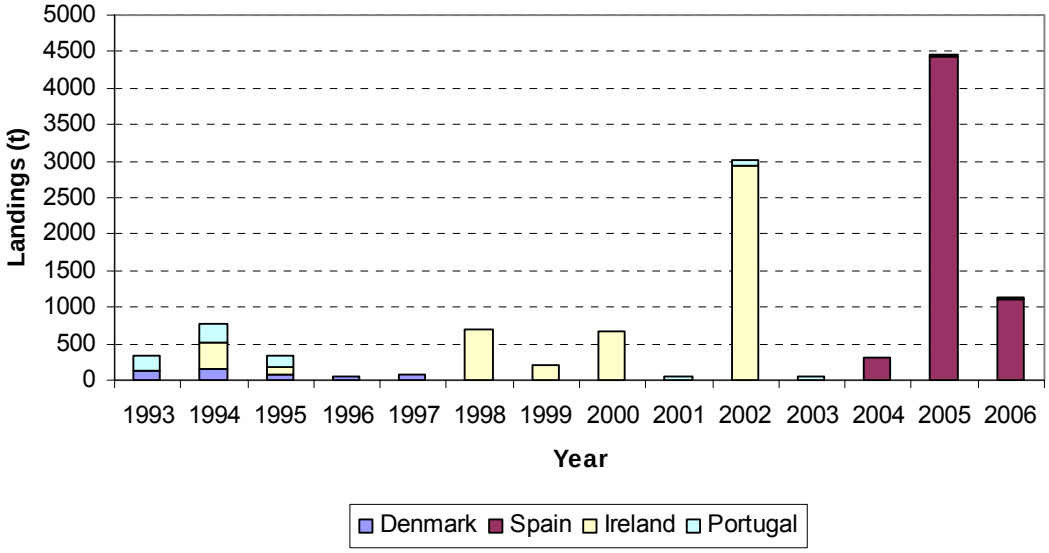
Reproduction:

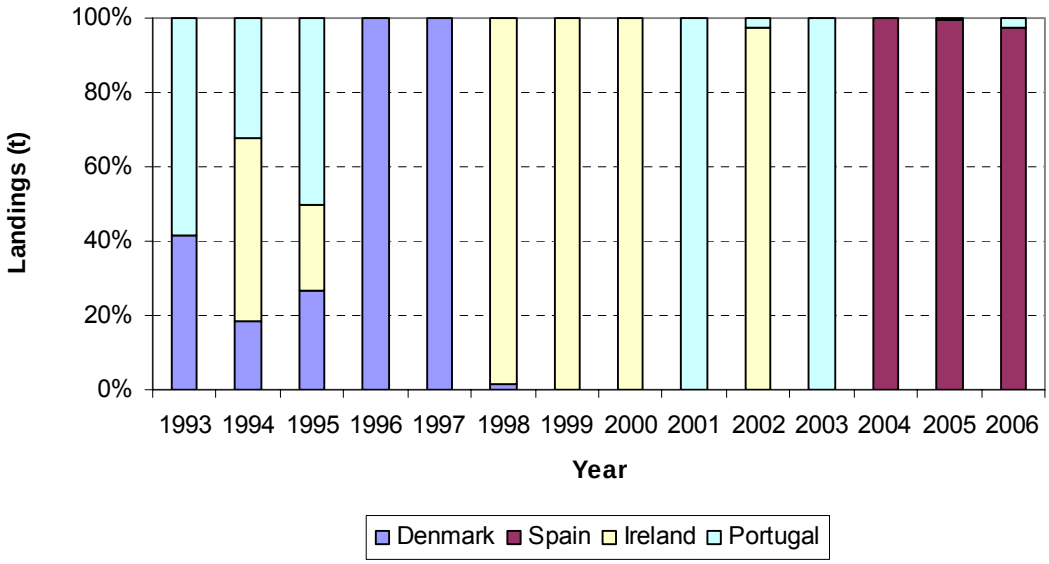
Depth range: 150 to 1000 m

General comments: Demersal. 79°N - 29°N, 65°W - 44°E. Feeds on crustaceans and fish. Found mostly on muddy sea floor

Landings by EU Member State by Year

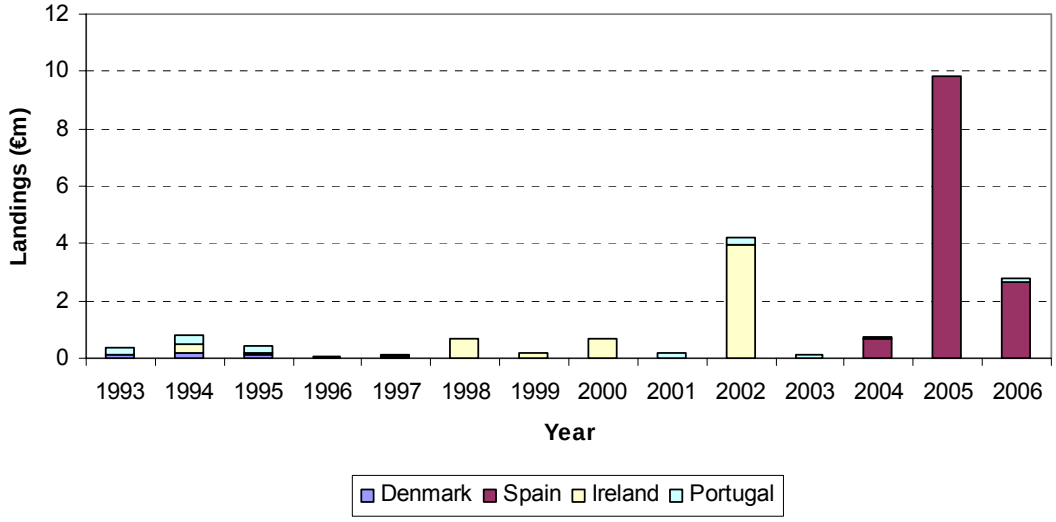
Source (EUROSTAT Landings database 1993 - 2007)





Economic Information

- Value of species (€)


12
10
8
6
4
2
0
Landings (€m)
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year
Denmark
Spain
Ireland
Portugal

Binomial: *Conger conger*
Common name: European conger eel
FAO species code: COE

Family: Congridae
Sub-family: Congrinae
Order: Anguilliformes

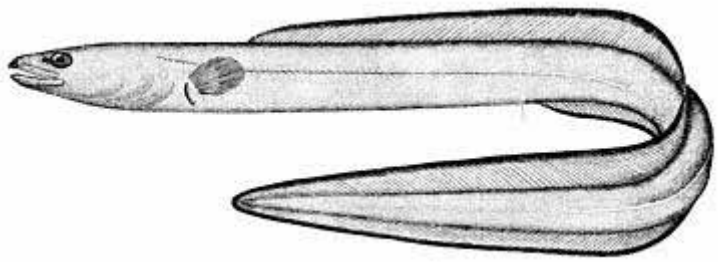
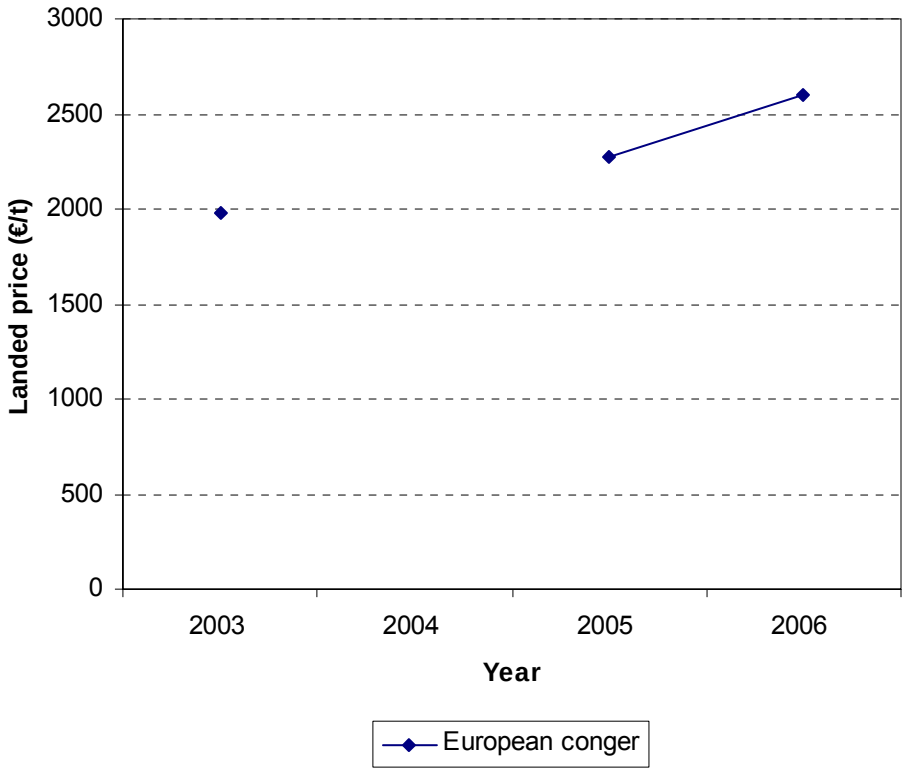


Photo taken from:
http://commons.wikimedia.org/wiki/Image:Conger_eel.jpg

Price of European conger in Vigo, 2003-2006. Source: MGOtero



Max size: 300 cm at age: -

Reproduction: Reproduces only once in its lifetime

Depth range: 0 – 1171 metres

Distribution: 68°N - 12°N, 32°W - 42°E

General comments: Moderate to high vulnerablility with high resilience. Demersal, present on rocky and sandy seabed.

Scientific name: *Sebastes marinus*
Common name: Golden redfish
FAO species code: REG

Family: Sebastidae
Sub-family: Sebastinae
Order: Scorpaeniformes

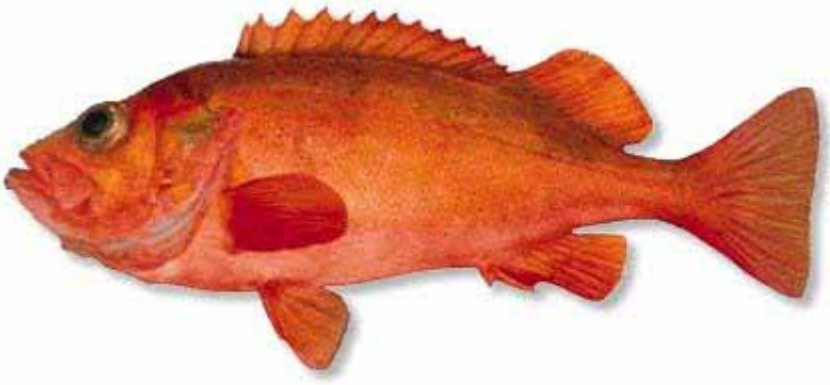
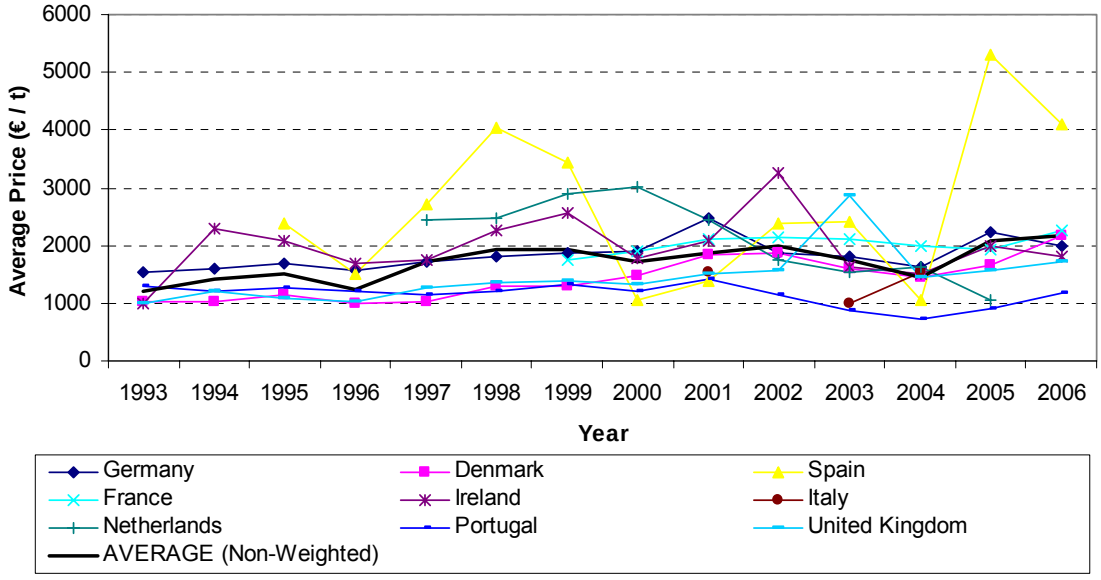


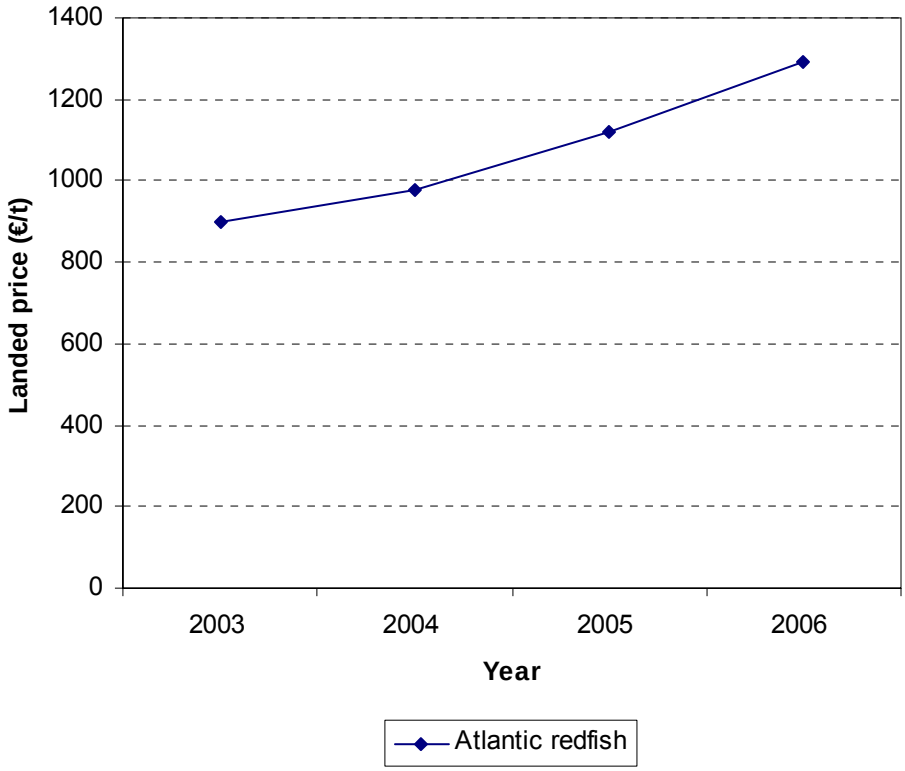
Photo taken from: **www.seafoodfromnorway.com/page?id=103&key=2506**

Price:

Price of redfish (no species differentiation on landings price) by EU Member State 1993 – 2006. (Source: EU Landings Database)



Price of redfish in Vigo 2003-2006. Source: MGOtero



Max size: 100 cm at 60 years

Von Bertalanffy growth parameters: $L(t) = L_\infty(1-\exp(-K(t - t_0)))$

$K = 0.064$, $L_\infty = 0.732$, $t_0 = -0.11$

Source:
http://www.fishbase.org/PopDyn/PopGrowthList.cfm?ID=501&GenusName=Sebastes&SpeciesName=marinus&fc=573

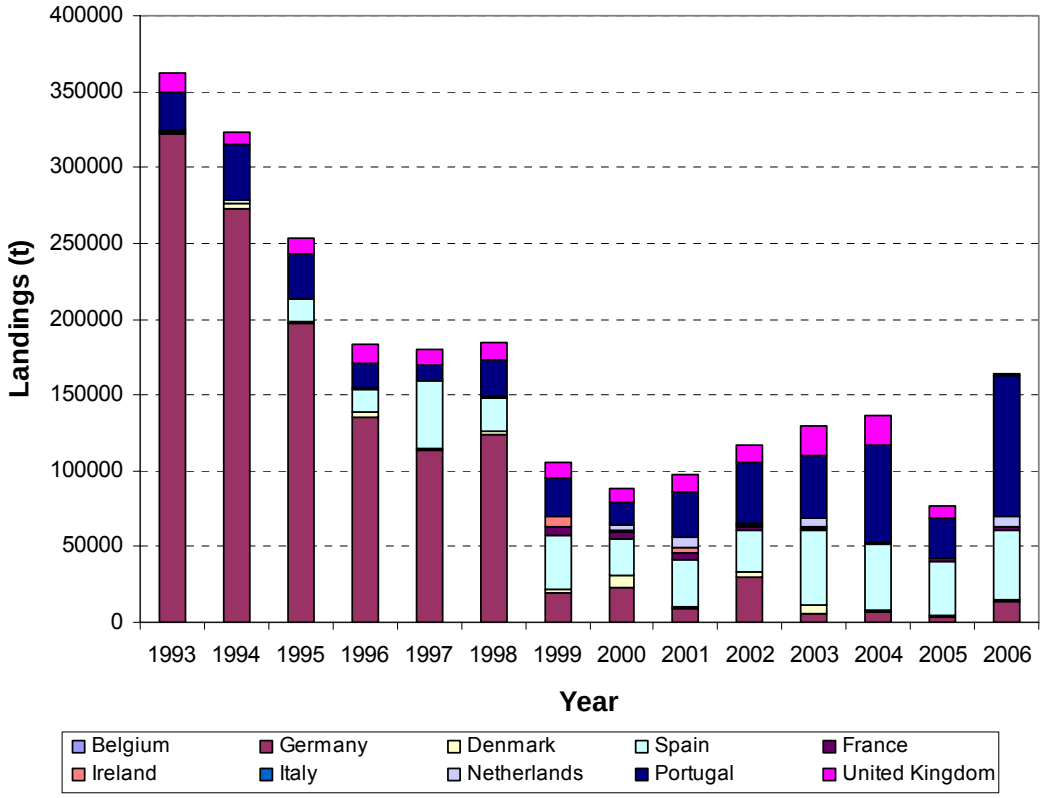
Reproduction: Viviparous. Mates in late summer or early autumn. Females spawn 50,000-350,000 pelagic larvae of 8 mm length in winter.

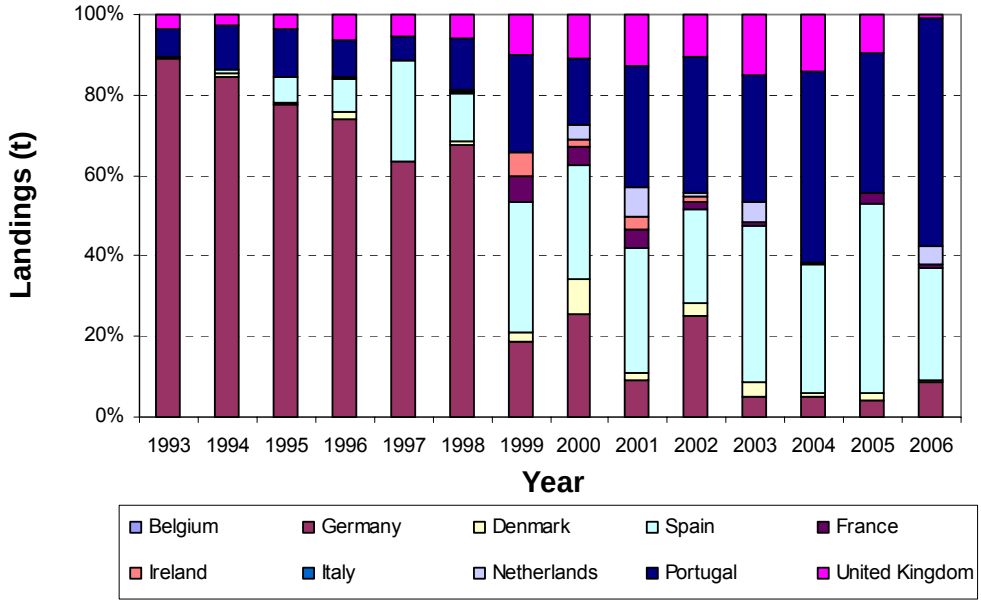
Depth range: 100 – 1000 metres

General comments: Pelagic. Suitable environment 79°n - 43°n, 94°W - 71°E. Slow growing. Low resilience and highly vulnerable. Targeted by pelagic and bottom trawls. Feeds on euphausiids in summer; herrings in autumn and winter; capelins, herrings, euphausiids and ctenophores in spring. Juveniles found in fjords and inshore 0waters.

Landings by EU Member State by Year

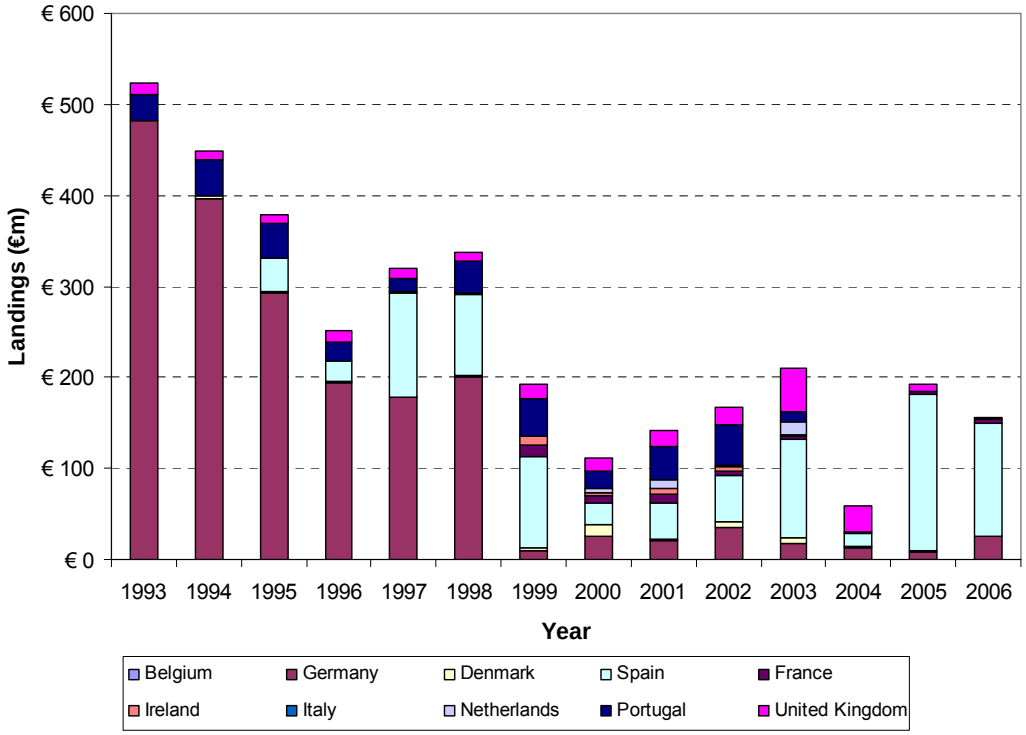
Source (EUROSTAT Landings database 1993 - 2007). Landings of redfish (no species differentiation).





Economic Information

- Value of redfish (no species differentiation)



Binomial: *Phycis blennoides*
Common name: Greater forkbeard
FAO species code: GFB

Family: Phycidae
Sub-family:
Order: Gadiformes

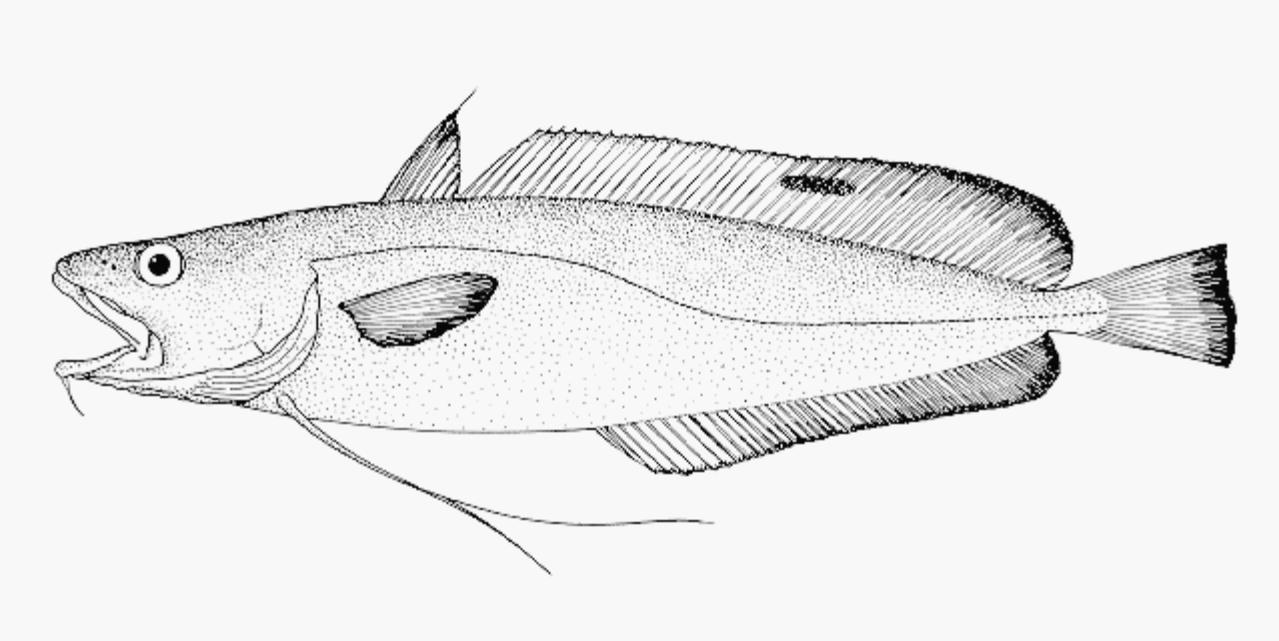
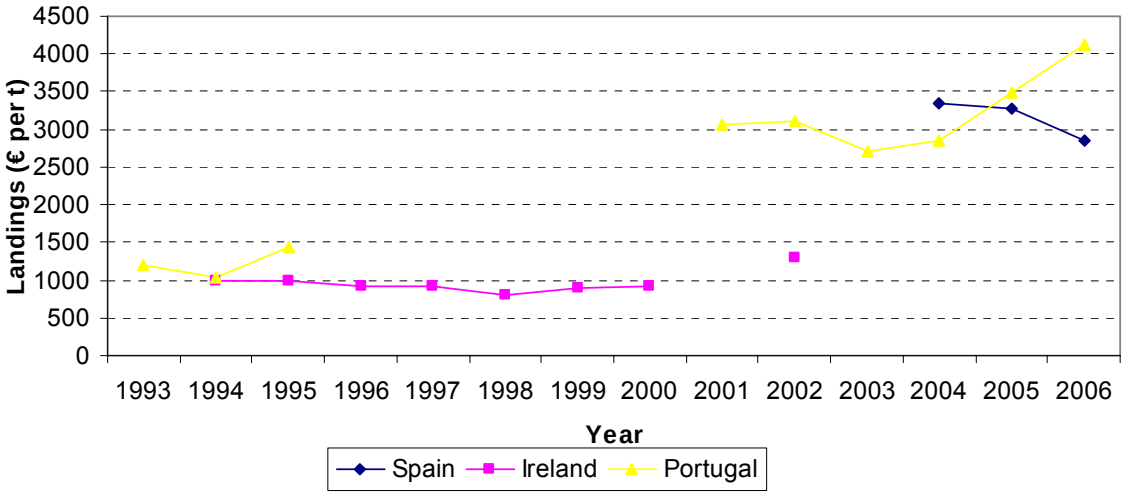
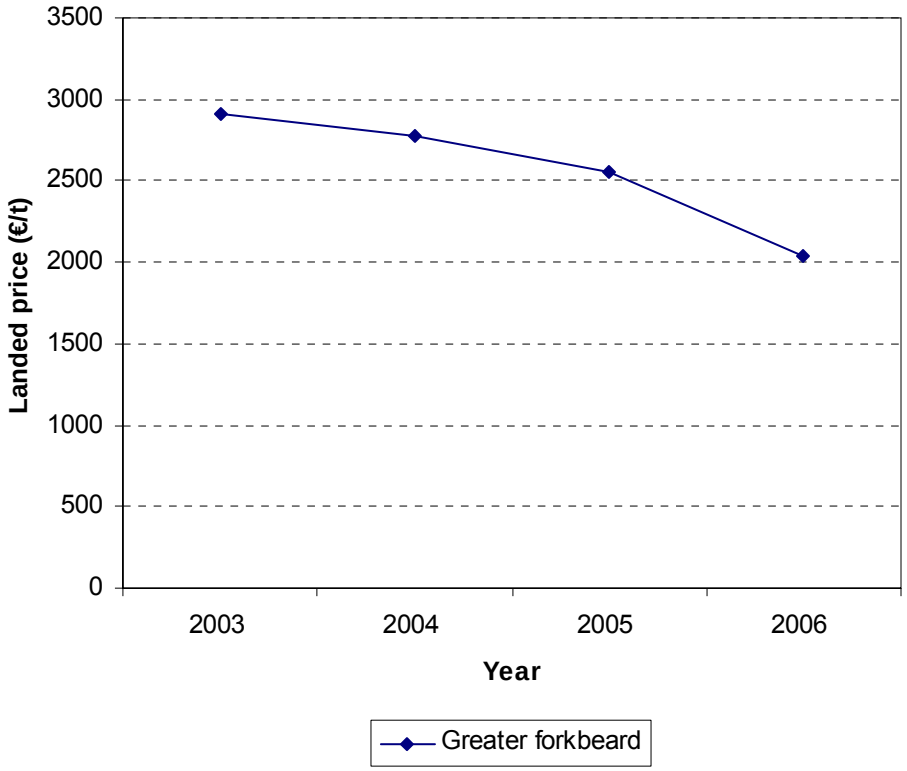


Photo taken from: http://www.fishbase.org/Photos/PicturesSummary.cfm?StartRow=2&ID=1340&what=species

Price: Landed price of Greater forkbeard by EU Member State 1993 – 2006. (Source: EU Landings Database)



Price of greater forkbeard in Vigo 2003-2006. Source: MGOtero



Max size: 110 cm at age: 20 years

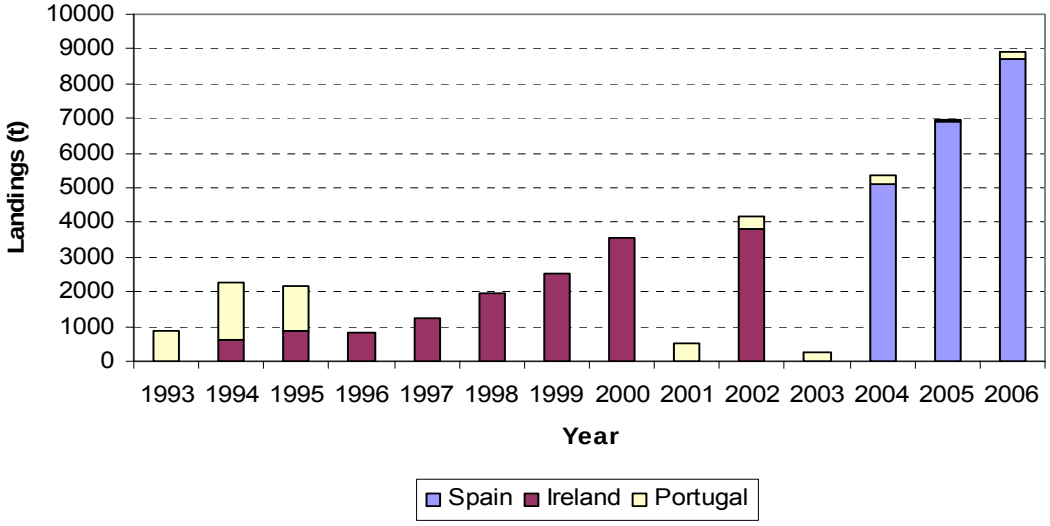
Reproduction:

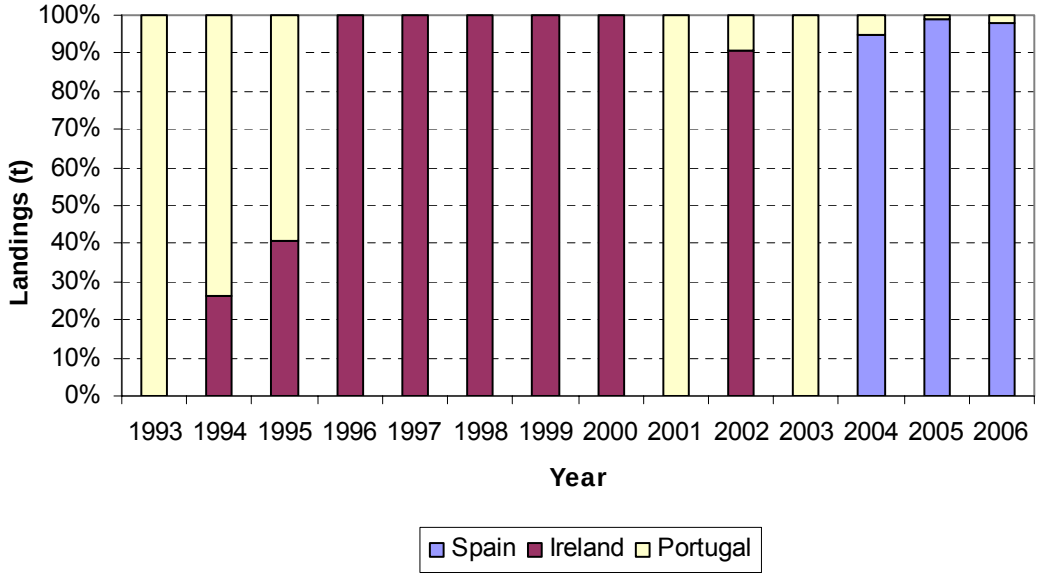
Depth range: 10 – 1050 m

General comments: Bentho-pelagic, found over sand and mud bottoms, 71°N - 20°N, 25°W - 36°E. Feeds on crustaceans and fish. Highly vulnerable, medium resilience. Young found on the continental shelf whilst adults migrate along the slope.

Landings by EU Member State by Year

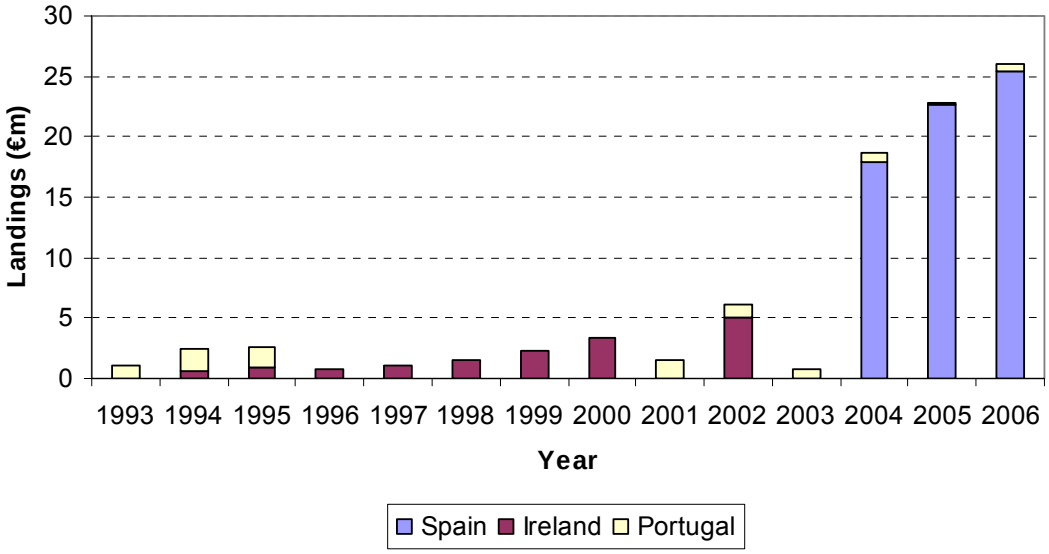
Source (EUROSTAT Landings database 1992 - 2007)





Economic Information

- Value of species (€)


30
25
20
15
10
5
0
Landings (€m)
1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006
Year
Spain
Ireland
Portugal

Binomial: *Reinhardtius hippoglossoides*
Common name: Greenland halibut
FAO species code: GHL

Family: Pleuronectidae
Sub-family: Pleuronectinae
Order: Pleuronectiformes

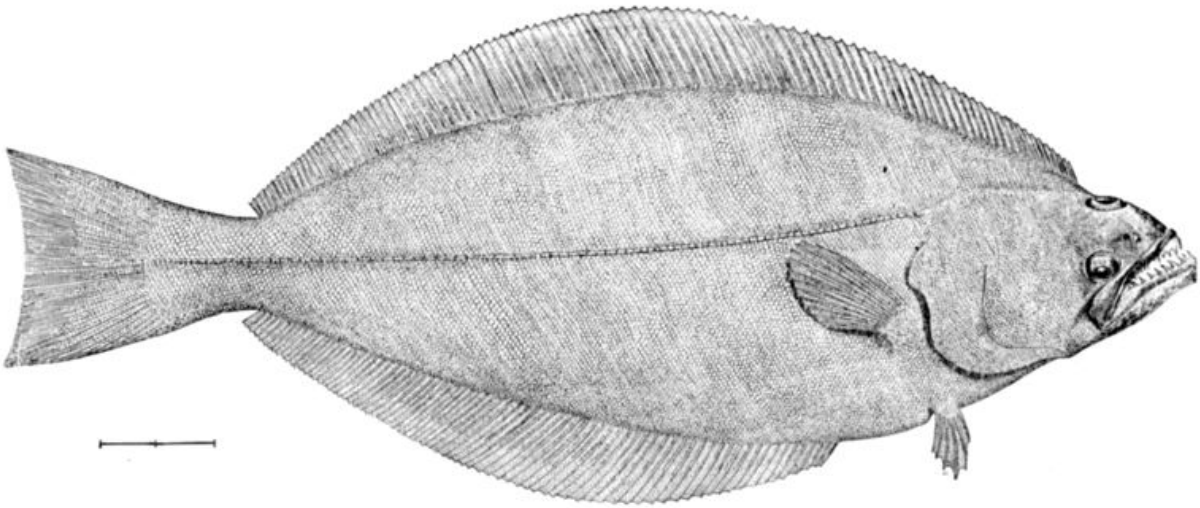
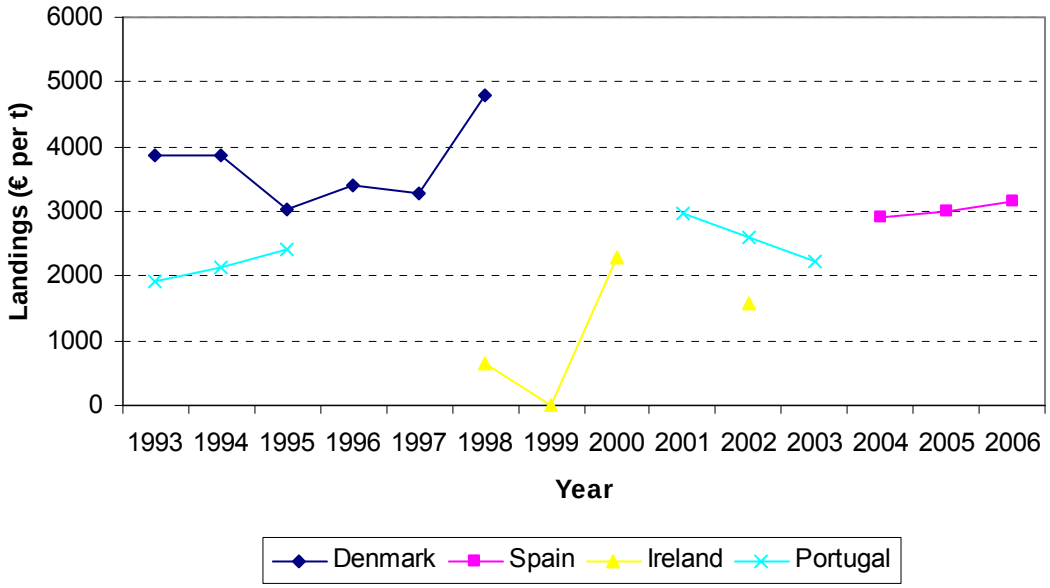
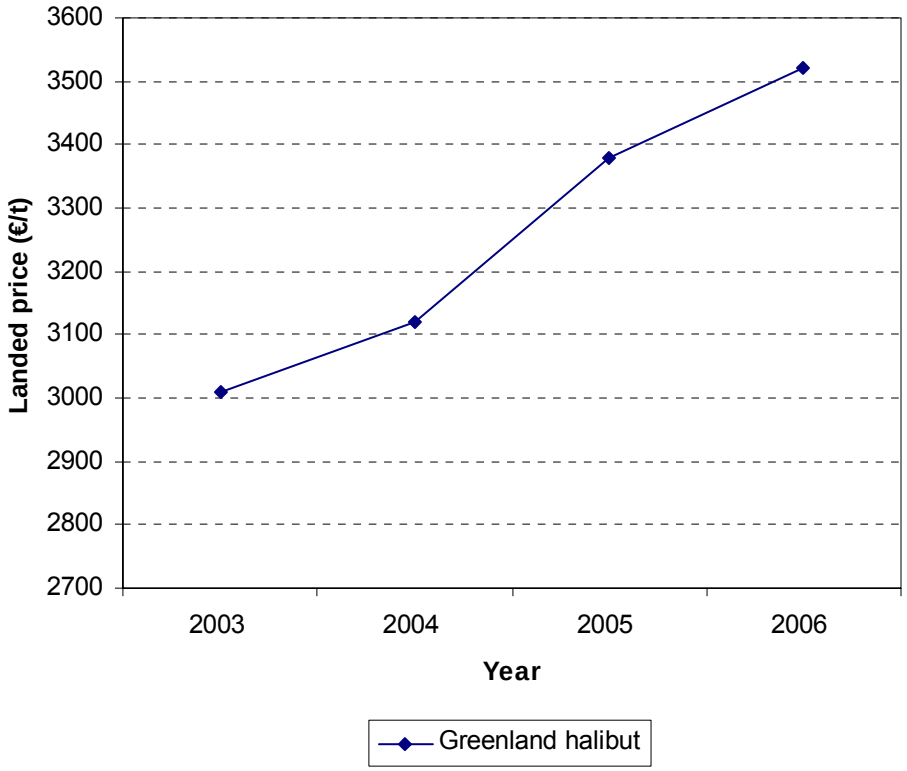


Photo taken from: http://en.wikipedia.org/wiki/Image:Reinhardtius_hippoglossoides.jpg

Price of Greenland Halibut by EU Member State 1992 – 2006. (Source: EU Landings Database)



Price of Greenland halibut in Vigo 2003-2006. Source: MGOtero

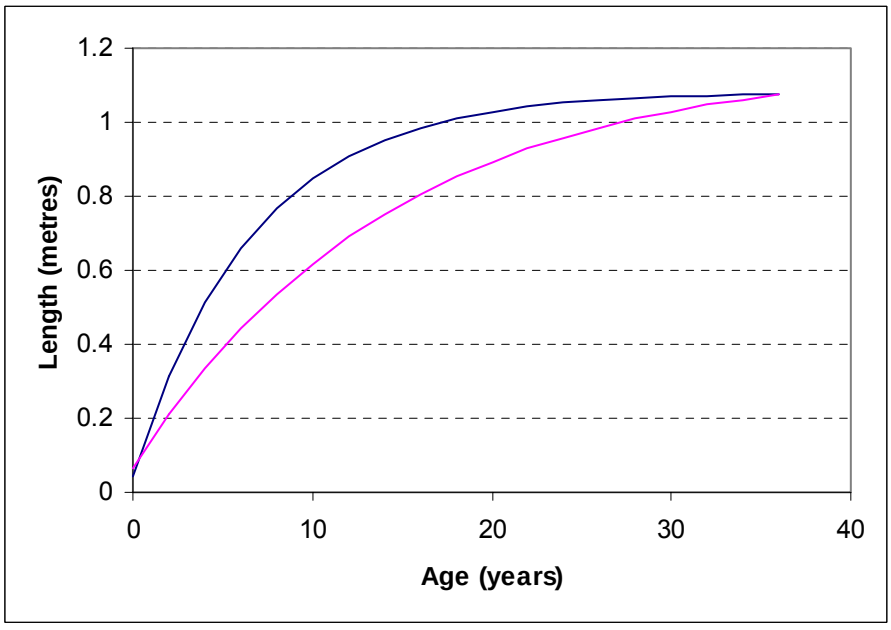


Max size: 120 cm female, 80 cm male at age: 30

Von Bertalanffy growth parameters: $L(t) = L_\infty(1-\exp(-K(t - t_0)))$

K = 0.15, L_∞= 1.08, t_0 = -0.28 K = 0.07, L_∞= 1.163, t_0 = -0.85

Source:
http://www.fishbase.org/PopDyn/PopGrowthList.cfm?ID=516&GenusName=Reinhardtius&SpeciesName=hippoglossoides&fc=440



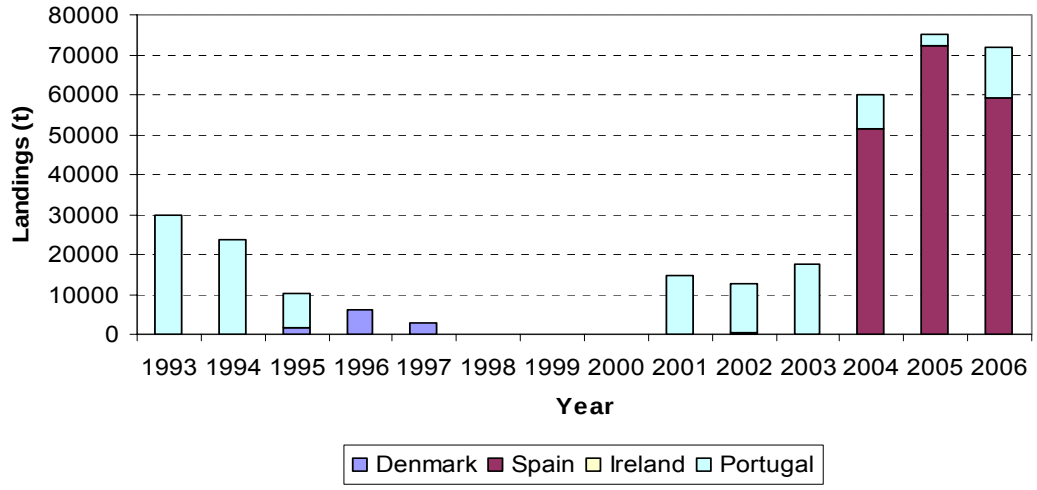
Reproduction: Batch spawner

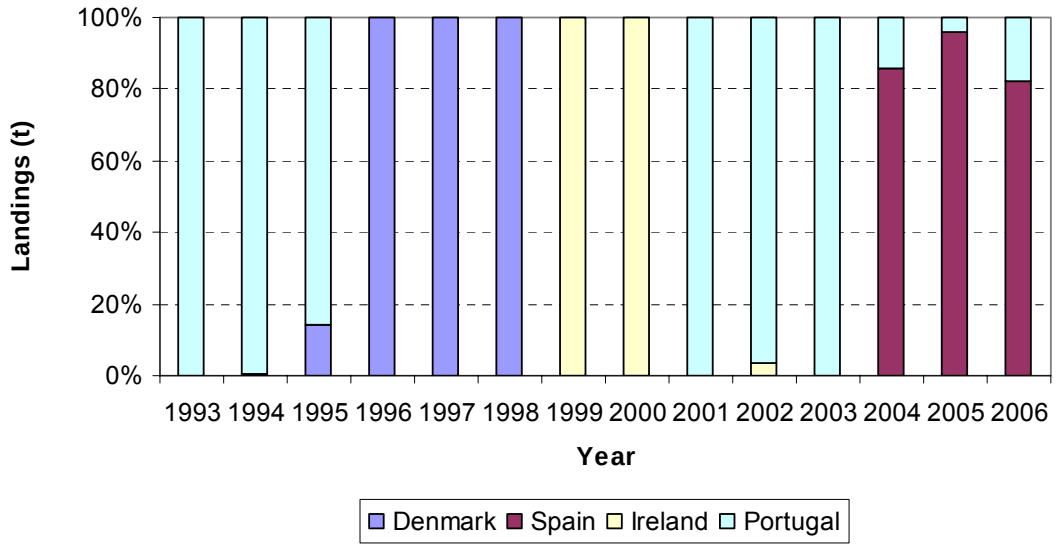
Depth range: 0 – 2000 metres

General comments: Present in pelagic catches. Epibenthic. Suitable climate exists from 79°N - 33°N. Feeds on crustaceans, redfish, capelin, eelpouts, deep sea prawns and other invertebrates.

Landings by EU Member State by Year

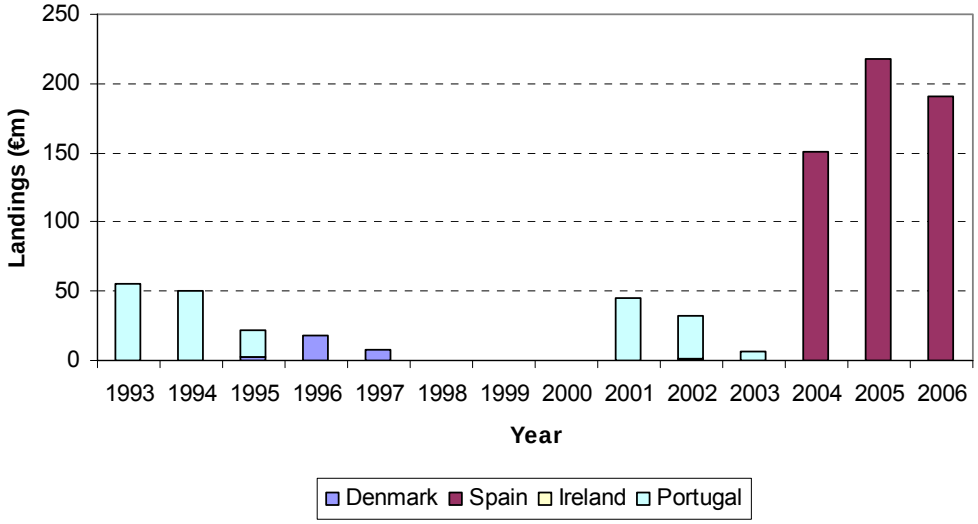
Source (EUROSTAT Landings database 1992 - 2007)





Economic Information

- Value of Fishery (€)


250
200
150
100
50
0
Landings (€m)
1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006
Year
Denmark Spain Ireland Portugal

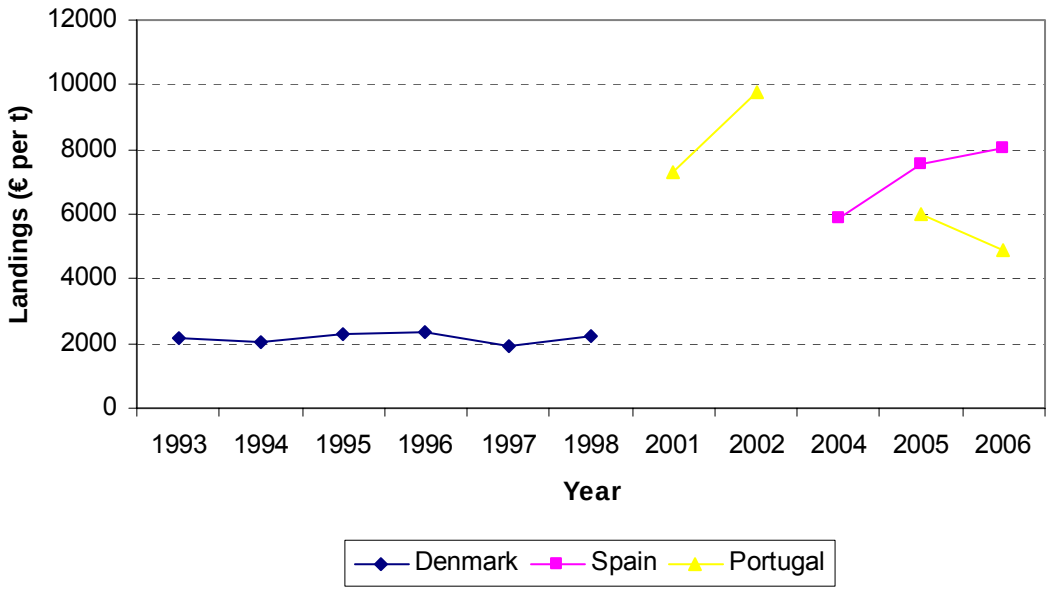
Scientific name: *Pandalus borealis*
Common name: Northern Prawn
FAO species code: PRA

Family: Pandalidae
Sub-family:
Order: Decapoda

Photo taken from: www.roaldnes.no/rekes.jpg

Price:

Price of Northern Prawn by EU Member State 1992 – 2006. (Source: EU Landings Database)



Max size: 120 mm male and 165 mm female

Von Bertalanffy growth parameters: $L(t) = L_{\infty}(1-\exp(-K(t - t_0)))$

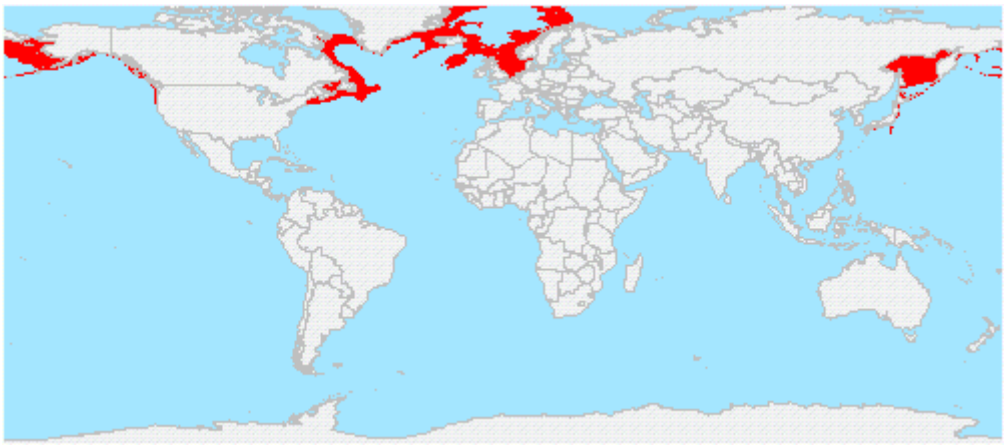
K = , L_∞= , t_0 =

Source:

Reproduction:

Depth range: 20 to 1330 metres

Distribution:



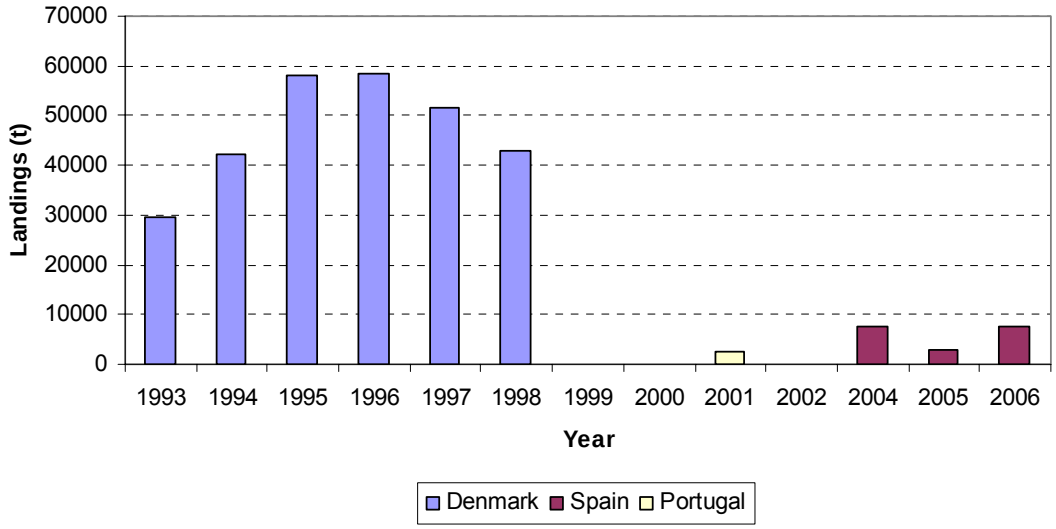
Taken from: http://www.fao.org/fishery/species/3425

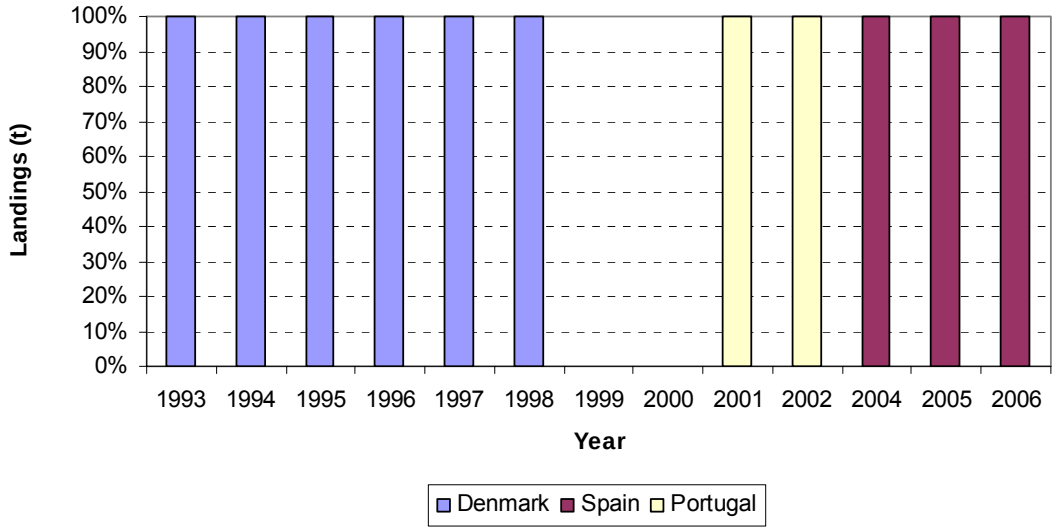
General comments: Commercially one of the most important carideans of the North Atlantic.

Source: http://www.fao.org/fishery/species/3425

Landings by EU Member State by Year

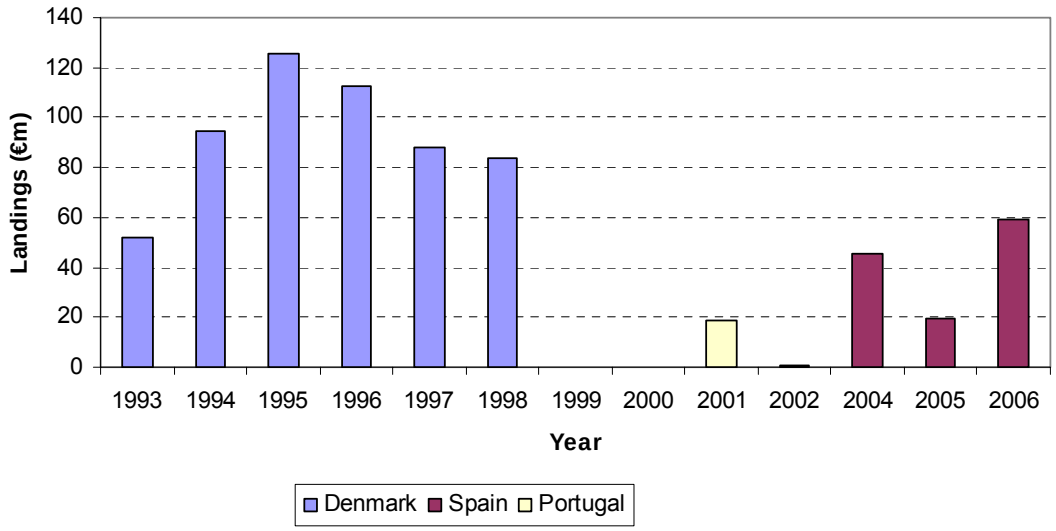
Source (EUROSTAT Landings database 1992 - 2007)





Economic Information

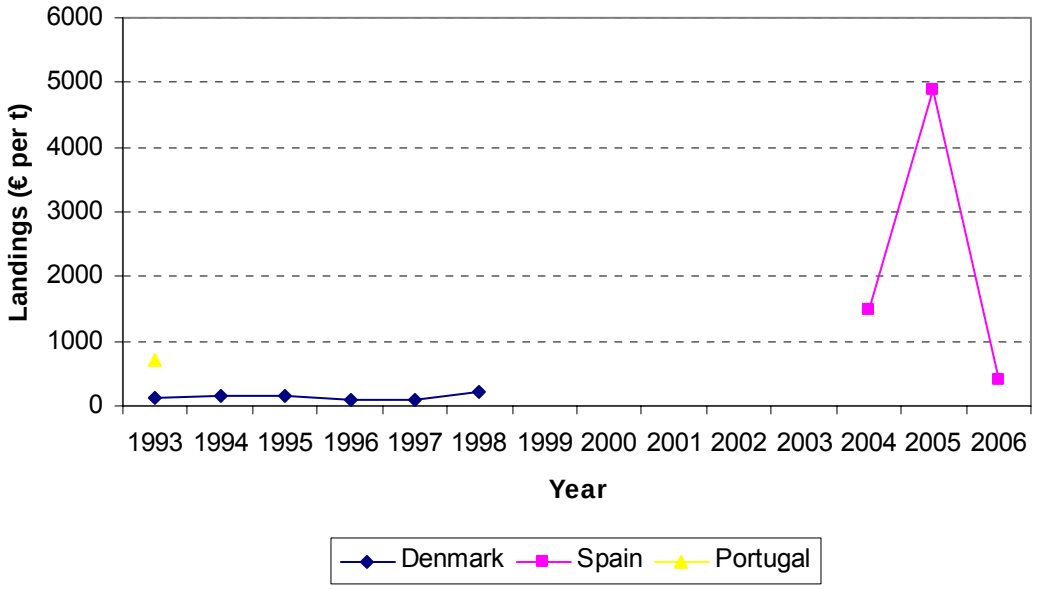
- Value of Species (€)



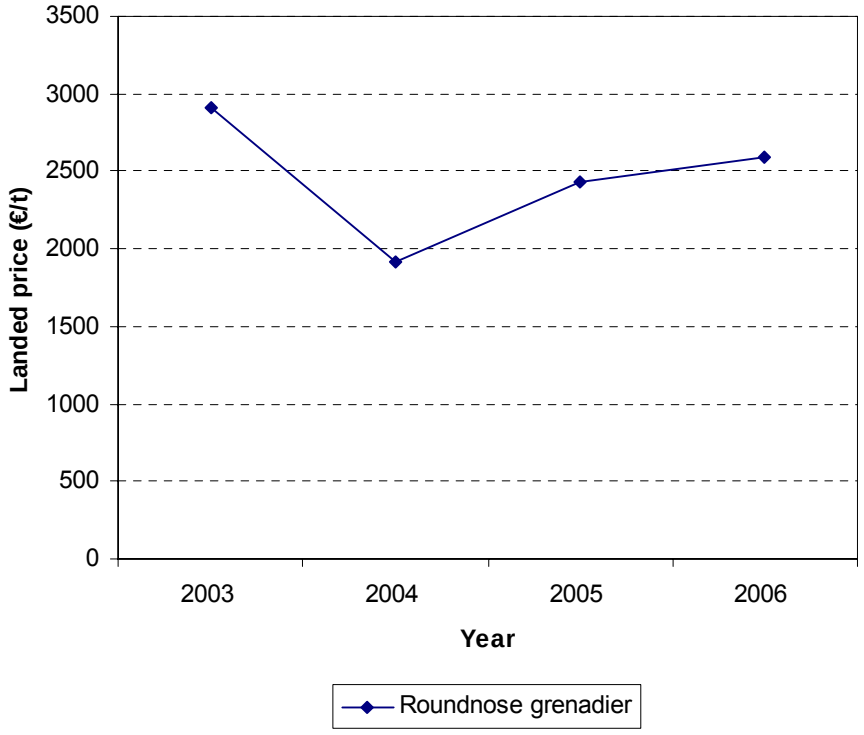
Binomial: *Coryphaenoides rupestris*
Common name: Roundnose grenadier
FAO species code: RNG

Family: Macrouridae
Sub-family: Macrourinae
Order: Gadiformes

Price of Roundnose grenadier by EU Member State 1992 – 2006. (Source: EU Landings Database)



Price of roundnose grenadier in Vigo 2003-2006. Source: MGOtero



Max size: 110 cm at age: 54 years

Von Bertalanffy growth parameters: $L(t) = L_\infty(1-\exp(-K(t - t_0)))$

Male K = 0.082, L_∞= 1.05, t_0 = 0 Female K = 0.099, L_∞= 1.1, t_0 = 0
Source:
http://www.fishbase.org/PopDyn/PopGrowthList.cfm?ID=332&GenusName=Coryphaenoides&SpeciesName=rupestris&fc=185

Reproduction: Batch spawner

Depth range: 180 – 2600 m

General comments: Benthopelagic to bathypelagic. 67°N - 20°N, 77°W - 12°E. Forms large schools at 600 – 900 metres. Feeds primarily on Pelagic crustaceans.

Appendix 2: Detailed catch data tables

Spain

Spanish bottom gear fleet catches (tonnes) in NEAFC by species split between EEZ and high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfishes nei	**High Seas**	65	34	67	408	4577	2532	2408	796	833	2827	76	5978	2649	4	**23254**
	EEZ															**0**
	Total	**65**	**34**	**67**	**408**	**4577**	**2532**	**2408**	**796**	**833**	**2827**	**76**	**5978**	**2649**	**4**	**23254**
Beaked redfish	**High Seas**	0	0	4554	4307	4438	4587	3526	2530	5575	1634	1919	4326	0	0	**37396**
	EEZ															**0**
	Total	**0**	**0**	**4554**	**4307**	**4438**	**4587**	**3526**	**2530**	**5575**	**1634**	**1919**	**4326**	**0**	**0**	**37396**
European conger	**High Seas**	109	116	0	92	115	106	0	2	2	1	0	4	2	0	**549**
	EEZ															**0**
	Total	**109**	**116**	**0**	**92**	**115**	**106**	**0**	**2**	**2**	**1**	**0**	**4**	**2**	**0**	**549**
Greater forkbeard	**High Seas**	109	116	0	92	115	106	0	2	2	1	0	4	2	0	**549**
	EEZ															**0**
	Total	**109**	**116**	**0**	**92**	**115**	**106**	**0**	**2**	**2**	**1**	**0**	**4**	**2**	**0**	**549**
Greenland halibut	**High Seas**	0	1	1188	214	255	246	589	864	1766	0	3091	4917	1549	39	**14719**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**1**	**1188**	**214**	**255**	**246**	**589**	**864**	**1766**	**0**	**3091**	**4917**	**1549**	**39**	**14719**
Lings nei	**High Seas**	104	267	995	0	0	151	96	190	153	44	124	16	21	15	**2176**
	EEZ															**0**
	Total	**104**	**267**	**995**	**0**	**0**	**151**	**96**	**190**	**153**	**44**	**124**	**16**	**21**	**15**	**2176**
Roughhead grenadier	**High Seas**	0	0	0	0	0	0	0	0	0	0	322	0	297	0	**619**
	EEZ															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**322**	**0**	**297**	**0**	**619**
Roundnose grenadier	**High Seas**	0	0	32	970	2476	3856	6187	15459	33094	5657	18332	352	5327	5251	**96993**
	EEZ															**0**
	Total	**0**	**0**	**32**	**970**	**2476**	**3856**	**6187**	**15459**	**33094**	**5657**	**18332**	**352**	**5327**	**5251**	**96993**
Other species	**High Seas**	0	1	1188	1258	1975	1295	1983	5561	8160	2318	15114	10435	2840	402	**52530**
	EEZ															**0**

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	Total	**0**	**1**	**1188**	**1258**	**1975**	**1295**	**1983**	**5561**	**8160**	**2318**	**15114**	**10435**	**2840**	**402**	**52530**
NEAFC Total	**High Seas**	387	535	8024	7341	13951	12879	14789	25404	49585	12482	38978	26032	12687	5711	**228785**
	EEZ															**0**
	Total	**387**	**535**	**8024**	**7341**	**13951**	**12879**	**14789**	**25404**	**49585**	**12482**	**38978**	**26032**	**12687**	**5711**	**228785**

Source: ICES catch database

Spanish bottom gear fleet catches (tonnes) in NAFO by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Atlantic redfish (ns)	**High Seas (RFMO)**	136	870	629	558	1388	2683	5780	4673	3690	1279	2436	939	2958	3594	**31613**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**136**	**870**	**629**	**558**	**1388**	**2683**	**5780**	**4673**	**3690**	**1279**	**2436**	**939**	**2958**	**3594**	**31613**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Beaked Redfish	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	0	0	0	11	822	1612	**2445**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**822**	**1612**	**2445**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Greenland halibut	**High Seas (RFMO)**	35640	40772	9135	7314	7945	7236	9027	9547	11572	12826	12340	5082	5491	5301	**179228**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**35640**	**40772**	**9135**	**7314**	**7945**	**7236**	**9027**	**9547**	**11572**	**12826**	**12340**	**5082**	**5491**	**5301**	**179228**
Roughhead grenadier	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	0	0	3097	3740	6052	5715	8071	1106	908	1194	558	685	312	**31438**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	Total	**0**	**0**	**0**	**3097**	**3740**	**6052**	**5715**	**8071**	**1106**	**908**	**1194**	**558**	**685**	**312**	**31438**
Roundnose grenadier	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	2054	1720	2649	256	0	0	0	0	5123	4514	3401	2397	2419	1037	**25570**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**2054**	**1720**	**2649**	**256**	**0**	**0**	**0**	**0**	**5123**	**4514**	**3401**	**2397**	**2419**	**1037**	**25570**
Other species	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	187	280	202	423	912	1031	1387	884	674	1012	1285	1114	1359	**10750**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**187**	**280**	**202**	**423**	**912**	**1031**	**1387**	**884**	**674**	**1012**	**1285**	**1114**	**1359**	**10750**
NAFO total	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	37830	43549	12693	11427	13496	16883	21553	23678	22375	20201	20383	10272	13489	13215	**281044**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**37830**	**43549**	**12693**	**11427**	**13496**	**16883**	**21553**	**23678**	**22375**	**20201**	**20383**	**10272**	**13489**	**13215**	**281044**

Spanish bottom gear fleet catches (tonnes) in SEAFO by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Alfonsino/ Orange roughy/Armourhead	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)		0	1069	372.8	280.1	682.3	0	0	0	0	0	0	0	0	**2404.2**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**1069**	**372.8**	**280.1**	**682.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2404.2**
Patagonian toothfish	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	0	18.28	100.54	201.88	0	11.51	**332.21**

	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18.28**	**100.54**	**201.88**	**0**	**11.51**	**332.21**
Catches of unknown origin	**Total**	**0**	**0**	**0**	**0**	**588**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**588**
SEAFO total	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	0	1069	372.8	280.1	682.3	0	0	0	18.28	100.54	201.88	0	11.51	**2736.41**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Catches of unknown origin	0	0	0	0	588	0	0	0	0	0	0	0	0	0	**588**
	Total	**0**	**0**	**1069**	**372.8**	**868.1**	**682.3**	**0**	**0**	**0**	**18.28**	**100.54**	**201.88**	**0**	**11.51**	**3324.41**

Source: SEAFO data

Spanish bottom gear fleet catches (tonnes) in CCAMLR by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**Total**
Antarctic toothfish	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	0	0	114	405	544		**1063**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**114**	**405**	**544**	**0**	**1063**
Patagonian toothfish	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	0	0	0	91	88	0	**179**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**91**	**88**	**0**	**179**
CCAMLR	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**

total	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	0	0	114	496	632	0	**1242**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**114**	**496**	**632**	**0**	**1242**

Source: CCAMLR data

Portugal

All Portuguese catch data provided by the Portuguese Directorate General of Fisheries and Aquaculture.

Portuguese bottom gear fleet catches (tonnes) in by RFMO (or ocean region if unregulated) split between EEZ, regulated high seas and unregulated high seas, 2005 - 2007

Oceanic region/RFMO		2005	2006	2007	Total
Total NEAFC	EEZ	4405	6186	5246	**15836**
	High Seas (RFMO)	4028	3559	3208	**10795**
	High Seas (Unregulated)	0	0	0	**0**
	Total	**8432**	**9744**	**8454**	**26631**
Total - NAFO	EEZ	623	558	0	**1182**
	High Seas (RFMO)	12777	14503	12150	**39431**
	High Seas (Unregulated)	0	0	0	**0**
	Total	**13401**	**15062**	**12150**	**40613**
CW Atlantic Total	EEZ	0	0	0	**0**
	High Seas (RFMO)	0	0	0	**0**
	High Seas (unregulated)	1	0	287	**289**
	Total	**1**	**0**	**287**	**289**
CE Atlantic Total	EEZ	694	1762	1600	**4056**
	High Seas (RFMO)	0	0	0	**0**
	High Seas (unregulated)	514	330	386	**1231**
	Total	**1208**	**2093**	**1986**	**5287**
SW Atlantic Total	EEZ	2	48	0	**50**
	High Seas (RFMO)	0	0	0	**0**
	High Seas (Unregulated)	191	151	226	**567**
	Total	**193**	**199**	**226**	**618**
SE Atlantic Total	EEZ	417	0	0	**417**
	High Seas (RFMO)	672	704	433	**1809**
	High Seas (Unregulated)	0	0	0	**0**
	Total	**1089**	**704**	**433**	**2226**
W Indian Total	EEZ	547	10	0	**557**
	High Seas (RFMO)	69	440	138	**647**

	High Seas (unregulated)	0	0	0	**0**
	Total	**616**	**450**	**139**	**1204**
E Indian Total	**EEZ**	0	0	0	**0**
	High Seas (RFMO)	0	0	0	**0**
	High Seas (unregulated)	31	8	58	**97**
	Total	**31**	**8**	**58**	**97**
SW Pacific Total	**EEZ**	0	0	0	**0**
	High Seas (RFMO)	0	0	46	**46**
	High Seas (unregulated)	0	0	0	**0**
	Total	**0**	**0**	**46**	**46**

Portuguese catches of HSBG fleet and pelagic gear catches by species group for 1993 – 2006.

Species	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**Total**
Atlantic Cod	5440		8993	8103	8975	6560	4211	3779	4259	3630	1424	1715	4316	5184	**66589**
Blue butterfish							0	0	0	0	0	0	0	230	**230**
Greenland halibut							0	0	0	4450	4611	1881	2438	2327	**15707**
Octopus	0		92	0	0	14	320	394	0	202	98	172	102	73	**1468**
Redfish	10869		7518	5053	5335	4866	9549	9795	5738	9705	11180	10537	11364	12792	**114301**
Shortfin mako							0	0	0	228	448	0	556	598	**1830**
Other species	46327		38966	20176	16723	31226	26831	20577	19624	21110	25297	21471	17443	18159	**323929**
Total	**62635**	**0**	**55569**	**33332**	**31033**	**42666**	**40911**	**34545**	**29621**	**39325**	**43058**	**35777**	**36218**	**39363**	**524053**

Estonia

Estonian bottom gear fleet catches (tonnes) in NAFO by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Atlantic redfish (ns)	High Seas (RFMO)	0	135	863	13	0	0	0	846	207	26	65	126	1106	1261	**4648**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**135**	**863**	**13**	**0**	**0**	**0**	**846**	**207**	**26**	**65**	**126**	**1106**	**1261**	**4648**
	EEZ	631	0	0	0	0	0	0	0	0	0	0	0	0	0	**631**
Greenland halibut	High Seas (RFMO)	0	0	0	0	0	0	0	181	957	892	1697	789	360	371	**5247**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**631**	**0**	**0**	**0**	**0**	**0**	**0**	**181**	**957**	**892**	**1697**	**789**	**360**	**371**	**5878**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Northern prawn	High Seas (RFMO)	0	1051	2380	1973	3239	5533	10835	12207	9906	13697	12968	13588	12291	6157	**10582**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**1051**	**2380**	**1973**	**3239**	**5533**	**10835**	**12207**	**9906**	**13697**	**12968**	**13588**	**12291**	**6157**	**10582**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Roughhead grenadier	High Seas (RFMO)	0	0	0	0	0	0	0	1	0	0	93	216	102	96	**508**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**93**	**216**	**102**	**96**	**508**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Roundnose grenadier	High Seas (RFMO)	0	0	0	0	0	0	0	20	10	24	49	170	56	43	**372**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**10**	**24**	**49**	**170**	**56**	**43**	**372**
	EEZ	631	0	0	0	0	0	0	0	0	0	0	0	0	0	**631**
NAFO total	High Seas (RFMO)	0	1186	3243	1986	3239	5533	10835	13255	11080	14639	14872	14889	13915	7928	**11660**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**631**	**1186**	**3243**	**1986**	**3239**	**5533**	**10835**	**13255**	**11080**	**14639**	**14872**	**14889**	**13915**	**7928**	**11723**

Source: NAFO 21B database.

Estonian bottom gear fleet catches (tonnes) in NEAFC by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Baird's slickhead	High Seas (RFMO)	0	0	0	0	0	0	0	0	154	259	43	22	0	0	**478**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**154**	**259**	**43**	**22**	**0**	**0**	**478**
	EEZ	0	0	0	0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Black scabbardfish	High Seas (RFMO)	0	0	0	0	0	0	0	0	225	0	7	5	12	5	**254**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**225**	**0**	**7**	**5**	**12**	**5**	**254**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Blue ling	High Seas (RFMO)	0	0	0	0	0	0	0	0	85	22	5	3	5	3	**123**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**85**	**22**	**5**	**3**	**5**	**3**	**123**
	EEZ	0	0	0	0	0	0	0	0	0	219	0	0	170	0	**389**
Greenland halibut	High Seas (RFMO)	0	0	0	0	0	0	0	0	0	8	0	0	5	3	**16**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**227**	**0**	**0**	**175**	**3**	**405**
	EEZ	0	0	0	1255.9	1663.5	1589.4	1533.3	576.65	1252.1	512.05	0	0	91	0	**8473.8**
Northern prawn	High Seas (RFMO)	0	0	0	66.1	87.55	83.65	80.7	30.35	65.9	26.95	0	0	0	0	**441.2**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**1322**	**1751**	**1673**	**1614**	**607**	**1318**	**539**	**0**	**0**	**91**	**0**	**8915**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Roundnose grenadier	High Seas (RFMO)	0	0	0	0	0	0	0	0	680	824	53	26	100	61	**1744**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**680**	**824**	**53**	**26**	**100**	**61**	**1744**

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas															
Other species	(RFMO)	0	0	0	0	0	0	0	0	0	0	0	0	13	7	**20**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**7**	**20**
	EEZ	0	0	0	1255.9	1663.5	1589.4	1533.3	576.65	1252.1	731.05	0	0	261	0	**8862.8**
	High Seas															
NEAFC Total	(RFMO)	0	0	0	66.1	87.55	83.65	80.7	30.35	1209.9	1140	108	56	135	79	**3076.2**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**1322**	**1751**	**1673**	**1614**	**607**	**2462**	**1871**	**108**	**56**	**396**	**79**	**11939**

Source: ICES database on catch statistics.

Estonian bottom gear fleet catches (tonnes) in SW Atlantic, 1993 – 2006.

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	EEZ	0	0	0	0	0	0	0	0	0	0	0	17	21	21	**60**
	High Seas															
Argentine hake	**(RFMO)**															**0**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	188	0	558	679	685	**2109**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**188**	**0**	**575**	**700**	**706**	**2169**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	49	138	**186**
	High Seas															
Notothenids nei	**(RFMO)**															**0**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	7	21	**29**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**56**	**159**	**215**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	189	0	73	**262**
	High Seas															
Patagonian grenadier	**(RFMO)**															**0**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**189**	**0**	**73**	**262**
Pink tusk eel	**EEZ**	0	0	0	0	0	0	0	0	0	0	0	21	13	17	**51**

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	High Seas (RFMO)															**0**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	37	0	6	4	5	**52**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**37**	**0**	**27**	**17**	**22**	**103**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	72	382	329	**782**
Short-finned squid	**High Seas (RFMO)**															**0**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	533	0	37	199	171	**941**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**533**	**0**	**109**	**581**	**500**	**1723**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	22	1	7	**30**
Other species	**High Seas (RFMO)**															**0**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	18	0	9	0	4	**31**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**31**	**1**	**11**	**61**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	321	465	585	**1371**
SW Atlantic Total	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (unregulated)	0	0	0	0	0	0	0	0	0	776	0	610	890	886	**3162**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**776**	**0**	**931**	**1355**	**1471**	**4533**

Source: Estonian ministry of Agriculture

France

French bottom gear fleet catches (tonnes) in NEAFC by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species			1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfishes nei	High (RFMO)	Seas	169	153	153	143	197	123	90	32	105	35	49	46	42	63	**1401**
	EEZ		2318	2174	2402	2133	2415	1509	1082	918	1016	557	486	386	434	469	**18299**
	Total		**2487.3**	**2327.7**	**2554.7**	**2276.5**	**2611.6**	**1631.8**	**1172.3**	**950.27**	**1121.9**	**591.36**	**535.16**	**431.32**	**475.52**	**532.38**	**19700**
Black scabbardfish	High (RFMO)	Seas	32	13	23	15	8	20	19	19	99	77	31	36	33	23	**447**
	EEZ		3389	2496	2430	2856	2112	1695	1582	3692	5022	4899	3396	3061	3027	2231	**41888**
	Total		**3420.1**	**2509**	**2453.2**	**2871.5**	**2119.8**	**1714.5**	**1601.2**	**3711.4**	**5120.4**	**4975.4**	**3426.9**	**3097.1**	**3060.5**	**2254.2**	**42335**
Blue ling	High (RFMO)	Seas	267	125	117	155	209	310	227	135	126	130	230	297	186	221	**2734**
	EEZ		4558	3171	3483	4007	4574	5706	4137	5467	3559	3242	3603	3745	2991	2961	**55204**
	Total		**4824.5**	**3296.4**	**3599.5**	**4162.1**	**4783.5**	**6016.3**	**4364**	**5601.6**	**3684.9**	**3371.4**	**3833**	**4041.3**	**3177.1**	**3182.2**	**57938**
Roundnose grenadier	High (RFMO)	Seas	77	47	140	119	118	166	285	143	413	519	469	751	355	217	**3819**
	EEZ		8747	8197	8306	7558	7298	6692	6775	9857	8567	8446	6578	6905	4337	2984	**101249**
	Total		**8825**	**8244**	**8446**	**7677**	**7416**	**6858**	**7061**	**10000**	**8981**	**8965**	**7047**	**7656**	**4692**	**3201**	**105068**
Other especies	High (RFMO)	Seas	27	33	64	61	67	30	212	51	78	121	120	162	65	62	**1153**
	EEZ		572	3449	2621	2822	2879	2761	2901	2929	3184	2431	2323	2435	1860	2432	**35598**
	Total		0	**3482**	**2685**	**2884**	**2945**	**2792**	**3113**	**2980**	**3262**	**2552**	**2442**	**2596**	**1925**	**2494**	**36152**
NEAFC Total	High (RFMO)	Seas	572	372	497	493	599	649	834	380	821	881	898	1291	681	587	**9554**
	EEZ		19584	19487	19241	19377	19277	18363	16477	22863	21349	19574	16387	16531	12650	11077	**252238**
	Total		**19557**	**19859**	**19738**	**19871**	**19876**	**19012**	**17311**	**23243**	**22170**	**20455**	**17285**	**17822**	**13331**	**11664**	**261193**

Source: ICES database on catch statistics

Ireland

Irish bottom gear fleet catches (tonnes) in NEAFC by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	EEZ															**0**
Argentines	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	72	0	0	0	0	0	**72**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**72**	**0**	**0**	**0**	**0**	**0**	**72**
	EEZ															**0**
Greenland halibut	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	49	0	0	0	0	0	**49**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**49**	**0**	**0**	**0**	**0**	**0**	**49**
	EEZ															**0**
Orange roughy	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	0	0	136	19	0	0	**155**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**136**	**19**	**0**	**0**	**155**
	EEZ															**0**
Portuguese dogfish	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	29	0	5	0	0	0	**34**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**29**	**0**	**5**	**0**	**0**	**0**	**34**
	EEZ															**0**
Other species	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	6	0	3	15	0	0	**24**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**3**	**15**	**0**	**0**	**24**
NEAFC Total	**EEZ**															**0**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	156	0	144	34	0	0	**334**

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	High Seas (Unregulated)															0
	Total	0	0	0	0	0	0	0	0	156	0	144	34	0	0	334

Source: ICES Catch database

Latvia

Latvian bottom gear fleet catches (tonnes) in NAFO by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	EEZ															**0**
	High Seas (RFMO)	0	149	0	0	0	0	0	13	11	0	898	2	450	250	**1773**
	High Seas (Unregulated)															**0**
	Total	**0**	**149**	**0**	**0**	**0**	**0**	**0**	**13**	**11**	**0**	**898**	**2**	**450**	**250**	**1773**
Greenland halibut	EEZ	83														**83**
	High Seas (RFMO)	0	0	0	0	0	0	0	215	291	0	0	68	0	18	**592**
	High Seas (Unregulated)															**0**
	Total	**83**	**0**	**0**	**0**	**0**	**0**	**0**	**215**	**291**	**0**	**0**	**68**	**0**	**18**	**675**
Northern prawn	EEZ															**0**
	High Seas (RFMO)	0	0	0	0	997	1191	3080	3169	3028	1951	3677	3202	2287	1574	**24156**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**997**	**1191**	**3080**	**3169**	**3028**	**1951**	**3677**	**3202**	**2287**	**1574**	**24156**
Other species	EEZ															**0**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	0	0	0	2	0	0	**2**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**
NAFO Total	EEZ	83	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	149	0	0	997	1191	3080	3397	3330	1951	4575	3274	2737	1842	**83**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**26523**
	Total	**83**	**149**	**0**	**0**	**997**	**1191**	**3080**	**3397**	**3330**	**1951**	**4575**	**3274**	**2737**	**1842**	**0**
																26606

Source: NAFO 21B catch database

Latvian bottom gear fleet catches (tonnes) in NEAFC by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	EEZ															**0**
Atlantic redfishes nei	High Seas (RFMO)	0	0	0	0						1,061	371	410	517		**2359**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1061**	**371**	**410**	**517**	**0**	**2359**
	EEZ															**0**
Beaked redfish	High Seas (RFMO)	0	0	0	0	0	0	0	0	0	0	0	0	0	1211	**1211**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1211**	**1211**
Catches of unknown origin	**Total**	**10,437**	**13,955**	**5,011**	**1,084**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30487**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	0	1,061	371	410	517	1,211	**3570**
NEAFC Total	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Catches of unknow origin	10,437	13,955	5,011	1,084	0	0	0	0	0	0	0	0	0	0	**30487**
	Total	**10437**	**13955**	**5011**	**1084**	**0**	**0**	**0**	**0**	**0**	**1061**	**371**	**410**	**517**	**1211**	**34057**

Source: ICES catch database

Lithuania

Lithuanian bottom gear fleet catches (tonnes) in NAFO by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Atlantic redfish (ns)	EEZ															**0**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	0	0	0	0	526	0	**526**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**526**	**0**	**526**
Northern prawn	EEZ															**0**
	High Seas (RFMO)	0	0	0	0	0	3107	3370	3596	0	0	0	0	3940	0	**14013**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**3107**	**3370**	**3596**	**0**	**0**	**0**	**0**	**3940**	**0**	**14013**
Other species	EEZ															**0**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	0	0	0	0	123	0	**123**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**123**	**0**	**123**
Total NAFO	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	0	0	0	0	3107	3370	3596	0	0	0	0	4589	0	**14662**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**3107**	**3370**	**3596**	**0**	**0**	**0**	**0**	**4589**	**0**	**14662**

Source: NAFO 21B database

Lithuanian bottom gear fleet catches (tonnes) in NEAFC by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Baird's Slickhead	EEZ															**0**
	High Seas	0	0	0	0	0	0	0	0	460	0	242	546	737	328	**2313**

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	(RFMO)															
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**460**	**0**	**242**	**546**	**737**	**328**	**2313**
	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	196	**196**
Greenland halibut	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	3	48	26	42	3	2	**124**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**48**	**26**	**42**	**3**	**198**	**320**
	EEZ	0	0	0	0	0	233	797	2781	2645	3319	1653	2111	1920	1286	**16745**
Northern prawn	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	0	0	0	0	0	65.7	**65.7**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**233**	**797**	**2781**	**2645**	**3319**	**1653**	**2111**	**1920**	**1352**	**16811**
	EEZ															**0**
Roundnose grenadier	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	137	1835	970	1081	105	118	**4246**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**137**	**1835**	**970**	**1081**	**105**	**118**	**4246**
	EEZ															**0**
Roughsnout grenadier	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	0	0	0	0	272	573	**845**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**272**	**573**	**845**
	EEZ															**0**
Other species	**High Seas (RFMO)**	0	0	0	0	0	0	0	0	19	38	57	145	36	45	**340**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**38**	**57**	**145**	**36**	**45**	**340**
Total NEAFC	**EEZ**	0	0	0	0	0	233	797	2781	2645	3319	1653	2111	1920	1482	**16941**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	619	1921	1295	1814	1153	1132	**7934**

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**233**	**797**	**2781**	**3264**	**5240**	**2948**	**3925**	**3073**	**2614**	**24875**

Source: ICES catch database

Poland

Polish bottom gear fleet catches (tonnes) in NAFO by species split between EEZ, regulated high seas and unregulated high seas, 1993 - 2006

Species		1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total
Northern prawn	EEZ															**0**
	High Seas (RFMO)	0	0	0	0	0	148	894	1732	263	0	145	1302	587	469	**5540**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**148**	**894**	**1732**	**263**	**0**	**145**	**1302**	**587**	**469**	**5540**
Other species	EEZ															**0**
	High Seas (RFMO)	0	0	0	0	0	0	0	0	48	0	0	0	0	0	**48**
	High Seas (Unregulated)															**0**
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**48**	**0**	**0**	**0**	**0**	**0**	**48**
NAFO Total	EEZ	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	High Seas (RFMO)	0	0	0	0	0	148	894	1732	311	0	145	1302	587	469	**5588**
	High Seas (Unregulated)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Total	**0**	**0**	**0**	**0**	**0**	**148**	**894**	**1732**	**311**	**0**	**145**	**1302**	**587**	**469**	**5588**

Source: NAFO 21B database

Polish bottom gear fleet catches (tonnes) in NEAFC, 1993 - 2006

Catches of unknown origin	**Total**	**0**	**0**	**0**	**0**	**6656**	**6812**	**560**	**5**	**207**	**973**	**937**	**2298**	**1414**	**5154**	**25016**

Source: ICES catch database

Polish bottom gear fleet catches (tonnes) in SEAFO, 1993 - 2006

Catches of unknown origin	**Total**	**0**	**0**	**1964**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1964**

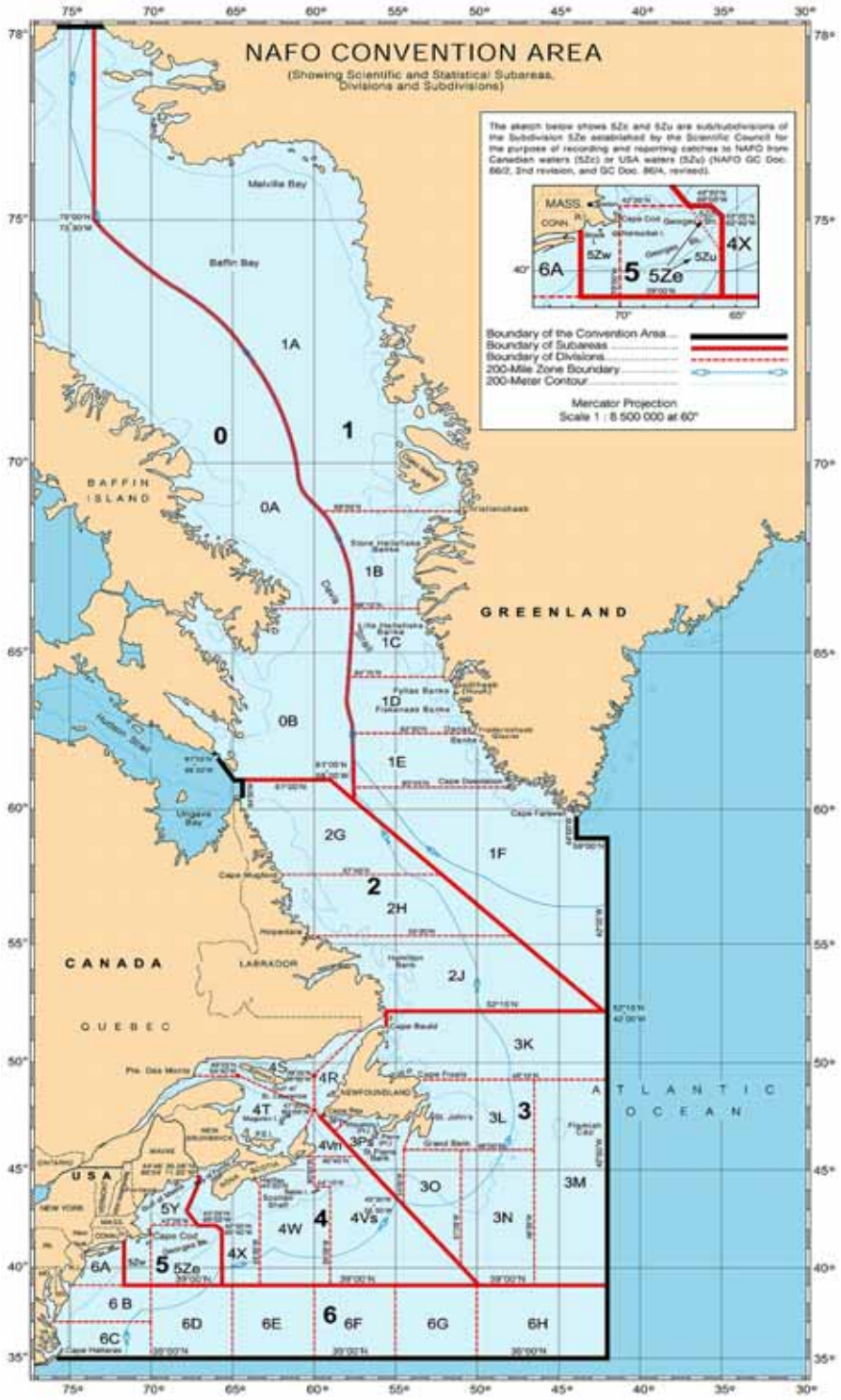
Source: SEAFO data

Appendix 3: Fishery unit descriptions

Fishery unity descriptions are included for the main fisheries in NEAFC and NAFO only, due to the high level of associated catches.

NAFO Fishery Unit Definitions

NAFO Regulatory Area



Basic Fishery Information

Fishery Unit Name:	NAFO Atlantic Redfish
Flag States:	DEU, ESP, EST, LTU, LVA, POL, PRT (EU-27)
	JPN, KOR, USA, SUN, RUS (Non EU-27)
Gear Types Used:	Bottom otter trawl (side or stern), Otter shrimp twin trawl, Bottom pair trawl (attach diagrams of typical gear)
Target Species:	Atlantic Redfish (RED) (attach species description [9])
Major bycatch species:	Wolffish, Greenland Halibut, Hake, Skates, Atlantic Cod (attach basic species details)
Geographical Area:	NAFO 1E, 1F, 2H, 2J, 3M, 3O (including if transboundary with EEZs, RFMO managed or high seas)

[9] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

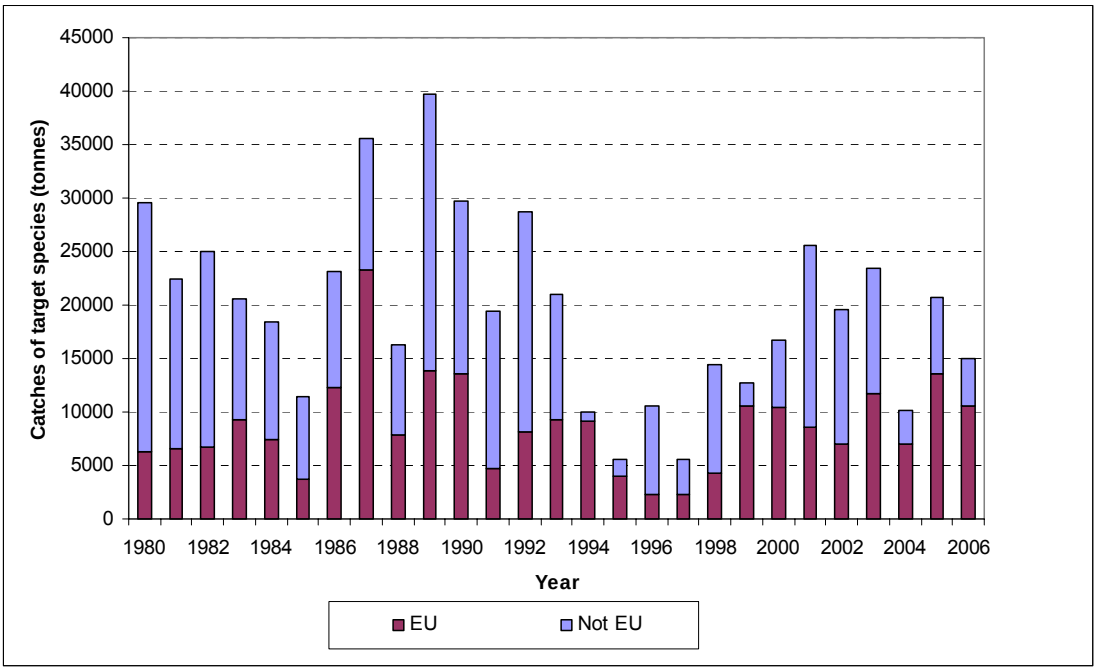
EU Quota Information

Zone	TAC	UE	BE	DK	DE	EE	ES	FI	FR	IE	LT	LV	NL	PL	PT	SE	UK	NR
NAFO 3M	5000	7813			513	1571	233				1571	1571			2354			
NAFO 3O	20000	7000					1771								5229			
NAFO sub 2, div IF et 3K	3383										3019	364						
TOTAL	**71000**	**35320**	**16**		**13606**	**1781**	**2848**		**653**	**1**	**4590**	**2011**	**2**	**384**	**8884**		**226**	

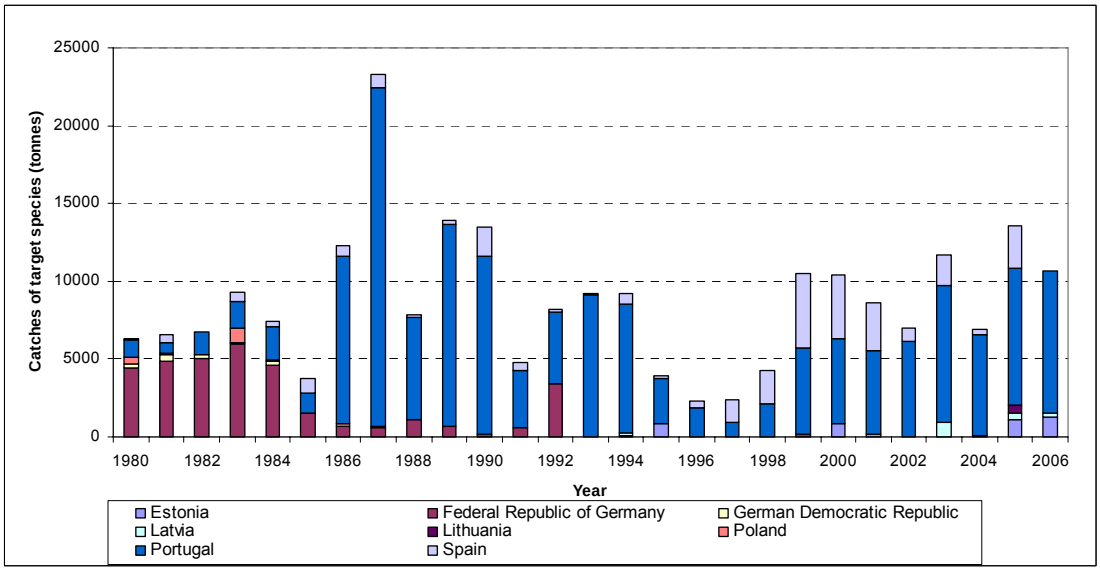
Catch Information

EU Catches / Non EU Catches

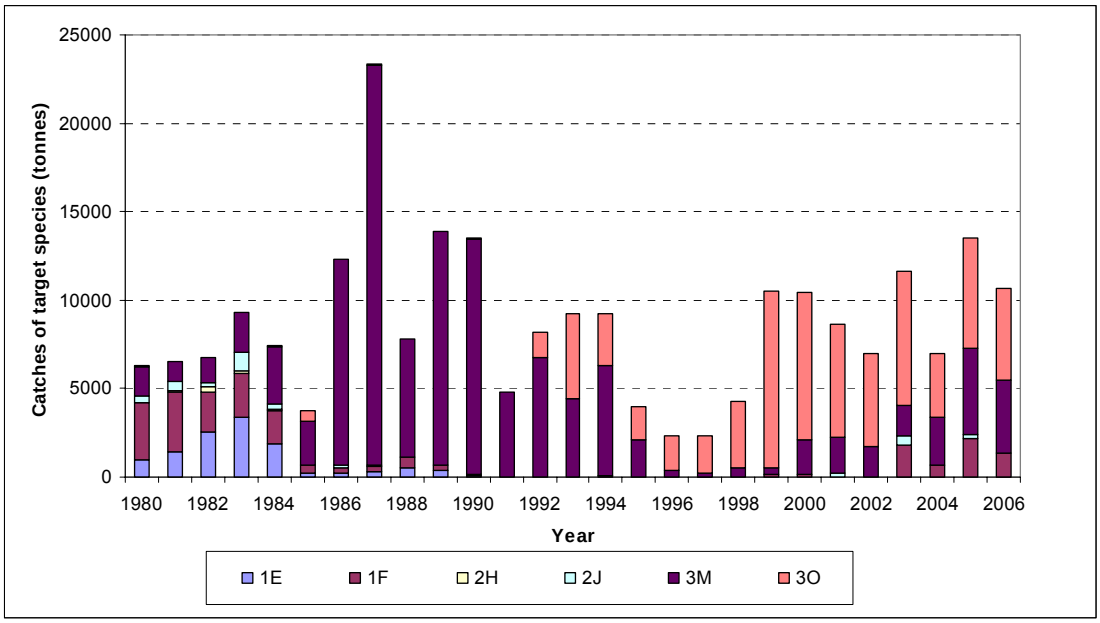
Source (NAFO Catch and Effort database 1980 - 2006)



Catches by flag state

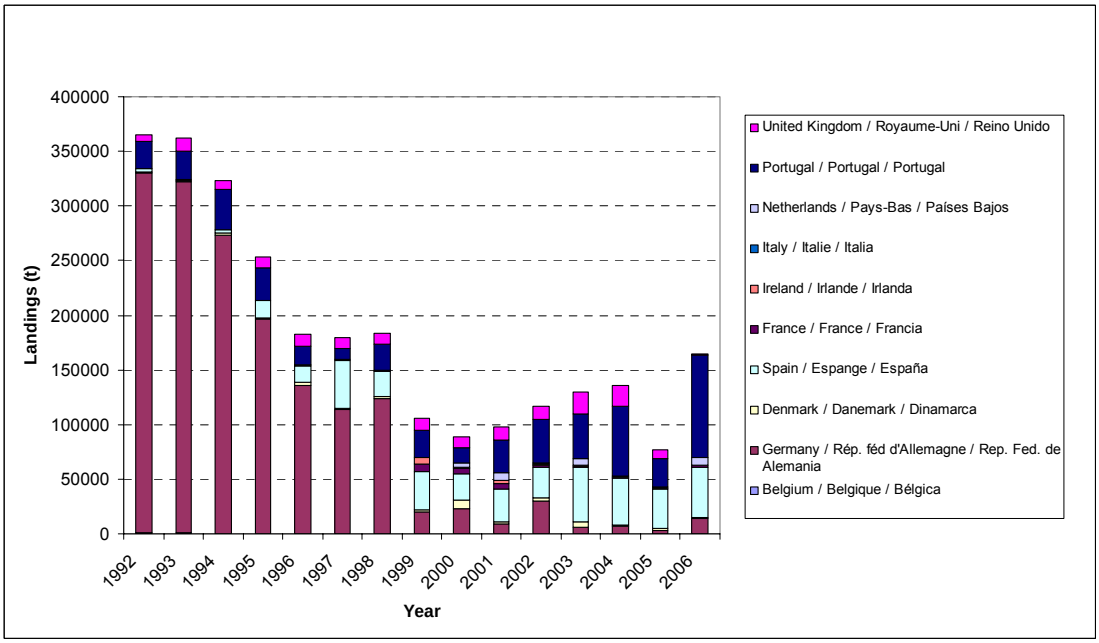


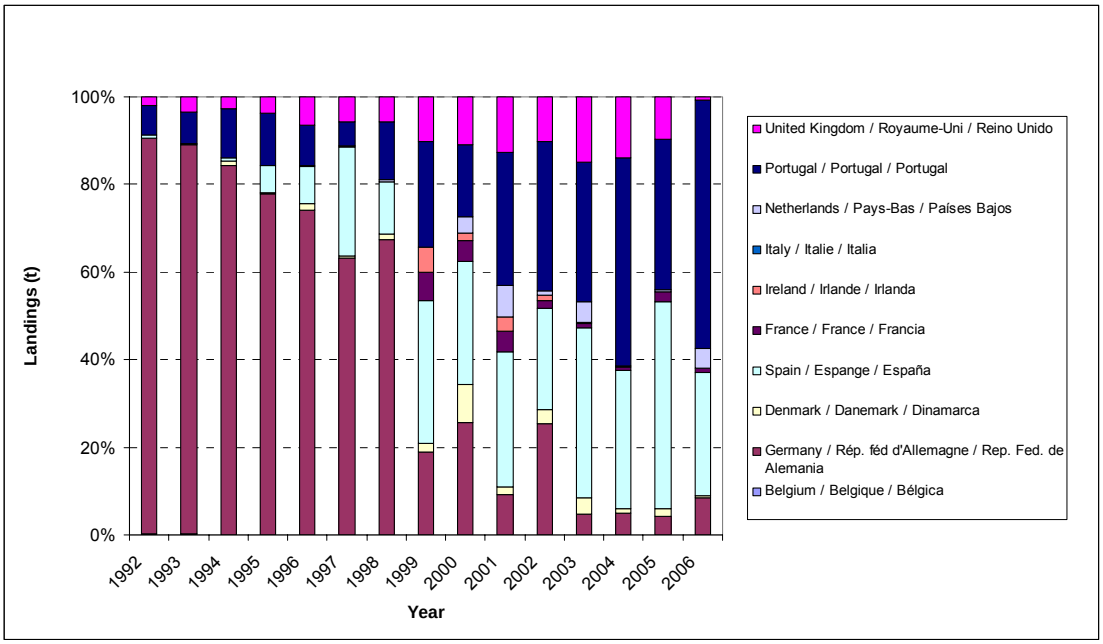
Catches by area



Landings by EU Member State by Year

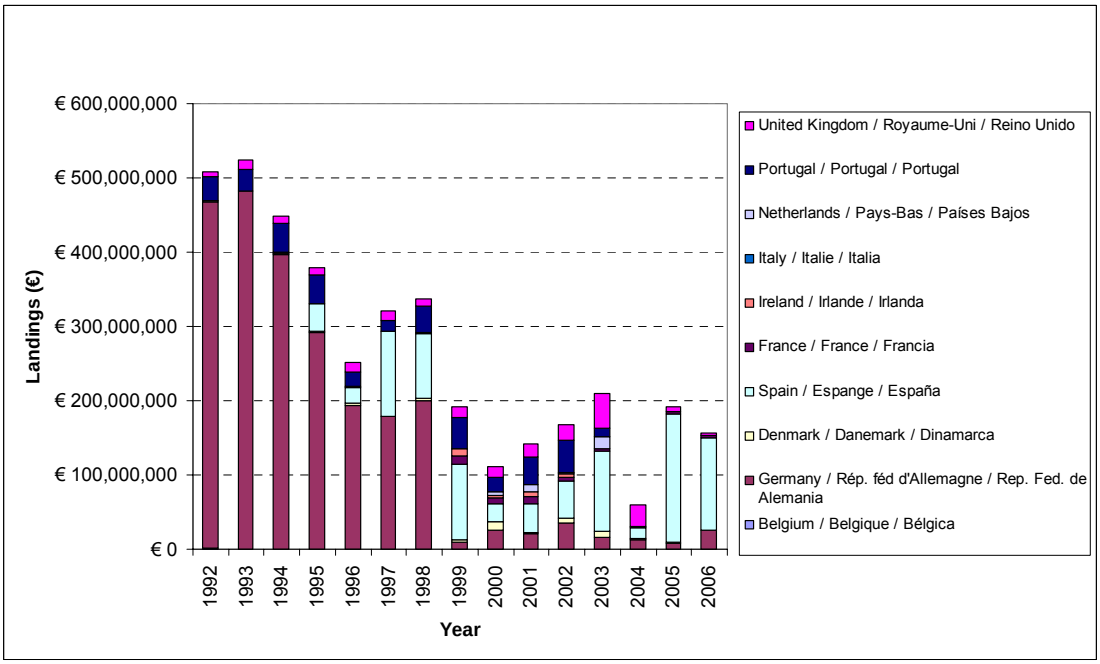
Source (EUROSTAT Landings database 1992 - 2007)





Economic Information

- Value of Fishery (€)



Basic Fishery Information

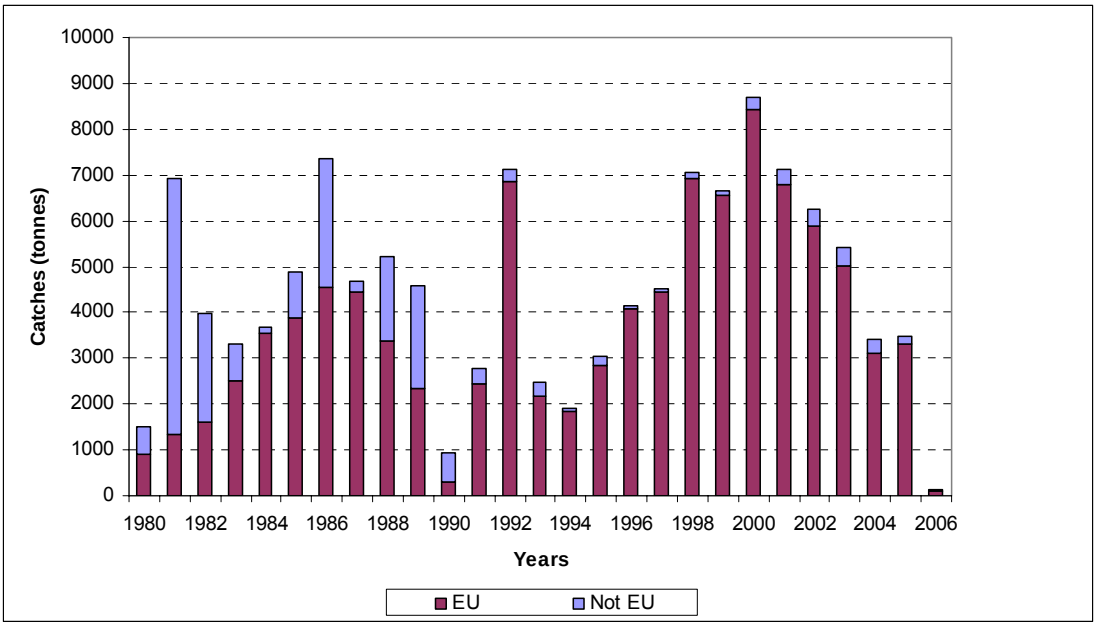
Fishery Unit Name:	NAFO Mixed grenadier fishery
Flag States:	DEU, ESP, PRT, EST (EU-27)
	CAN, SUN, RUS, JPN (Non EU-27)
Gear Types Used:	Bottom otter trawl (attach diagrams of typical gear)
Target Species:	Roundnose Grenadier (RNG), Roughhead Grenadier (RHG) (attach species description [10])
Major bycatch species:	Greenland halibut, Atlantic redfish (attach basic species details)
Geographical Area:	2G, 2H, 2J, 3K, 3L, 3M, 3N, 3O (including if transboundary with EEZs, RFMO managed or high seas)

[10] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

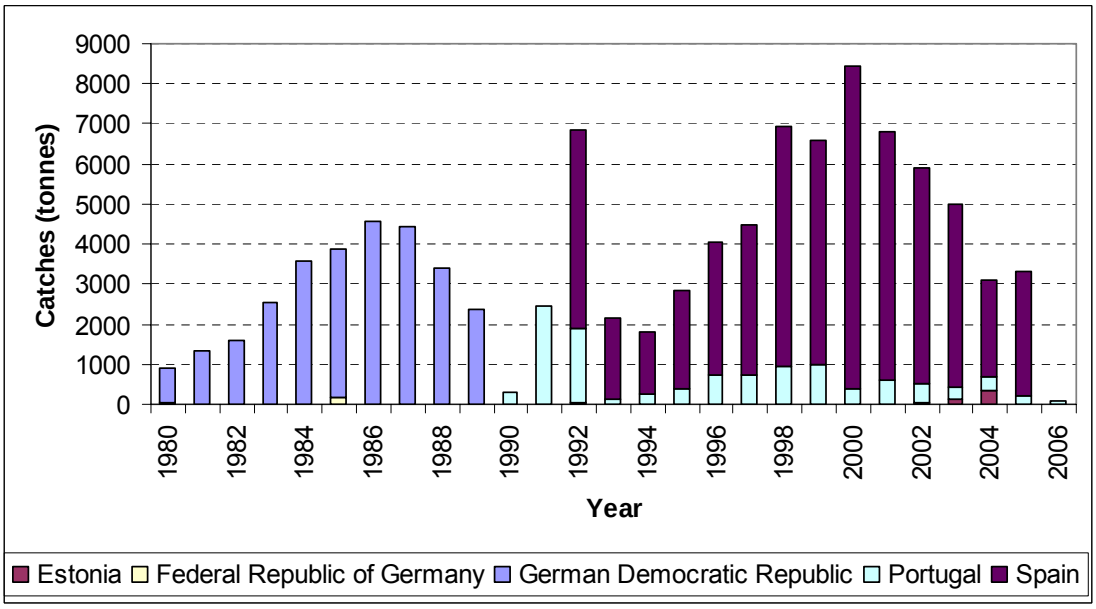
Catch Information

EU Catches / Non EU Catches

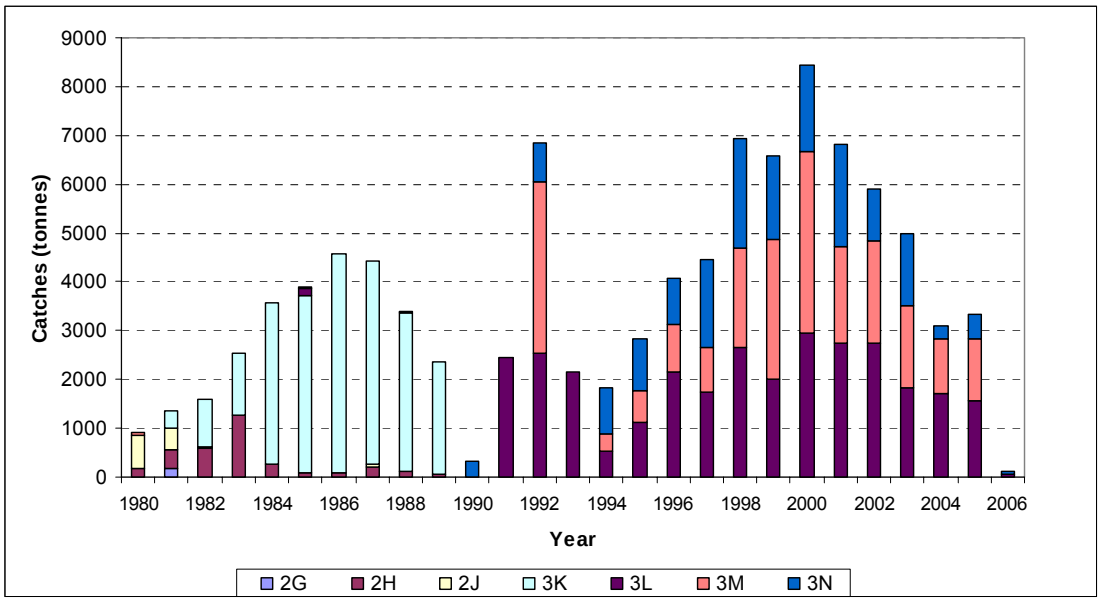
Source (NAFO Catch and Effort database 1980 - 2006)



Catches by flag state



Catches by area


9000
8000
7000
6000
5000
4000
3000
2000
1000
0
Catches (tonnes)
1980
1982
1984
1986
1988
1990
1992
1994
1996
1998
2000
2002
2004
2006
Year
2G
2H
2J
3K
3L
3M
3N

Basic Fishery Information

Fishery Unit Name:	NAFO Greenland Halibut
Flag States:	DEU, ESP, EST, LTU, LVA, POL, PRT (EU-27)
	CAN, FRO, JPN, RUS, SUN (Non EU-27)
Gear Types Used:	Bottom otter trawl (side or stern), Otter shrimp twin trawl, Bottom pair trawl, Set lines (attach diagrams of typical gear)
Target Species:	Greenland Halibut (GHL) (attach species description sheet [11])
Major bycatch species:	American plaice; Atlantic redfish, Red hake, Roundnose and Roughhead grenadiers, Skates (attach basic species details)
Geographical Area:	0B, 1D, 2G, 2H, 2J, 3K, 3L, 3M, 3N, 3O (including if transboundary with EEZs, RFMO managed or high seas) (See Map)

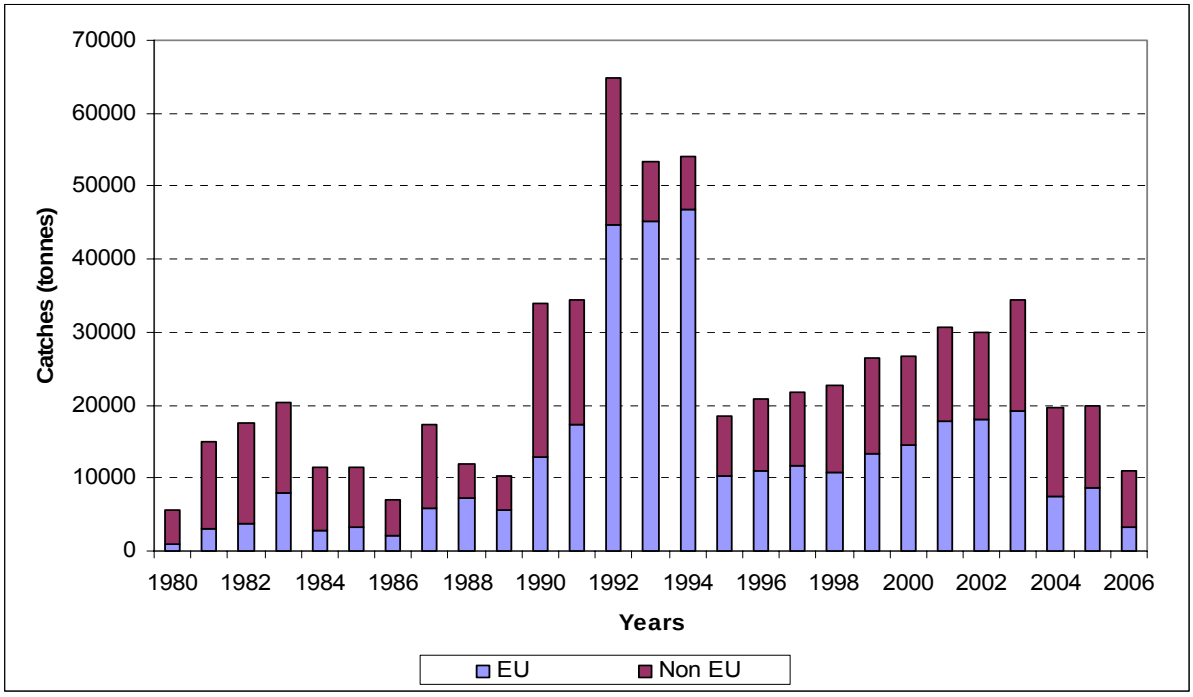
[11] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

Catch Information

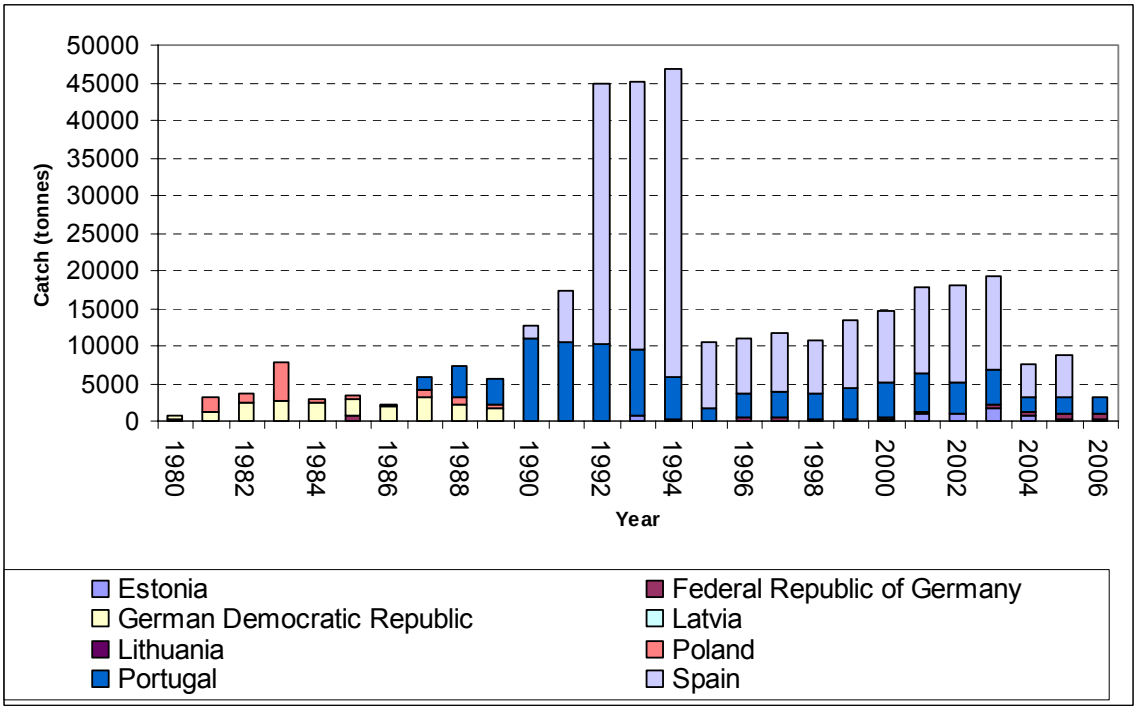
EU Catches / Non EU Catches

Source (NAFO Catch and Effort database 1980 - 2006)

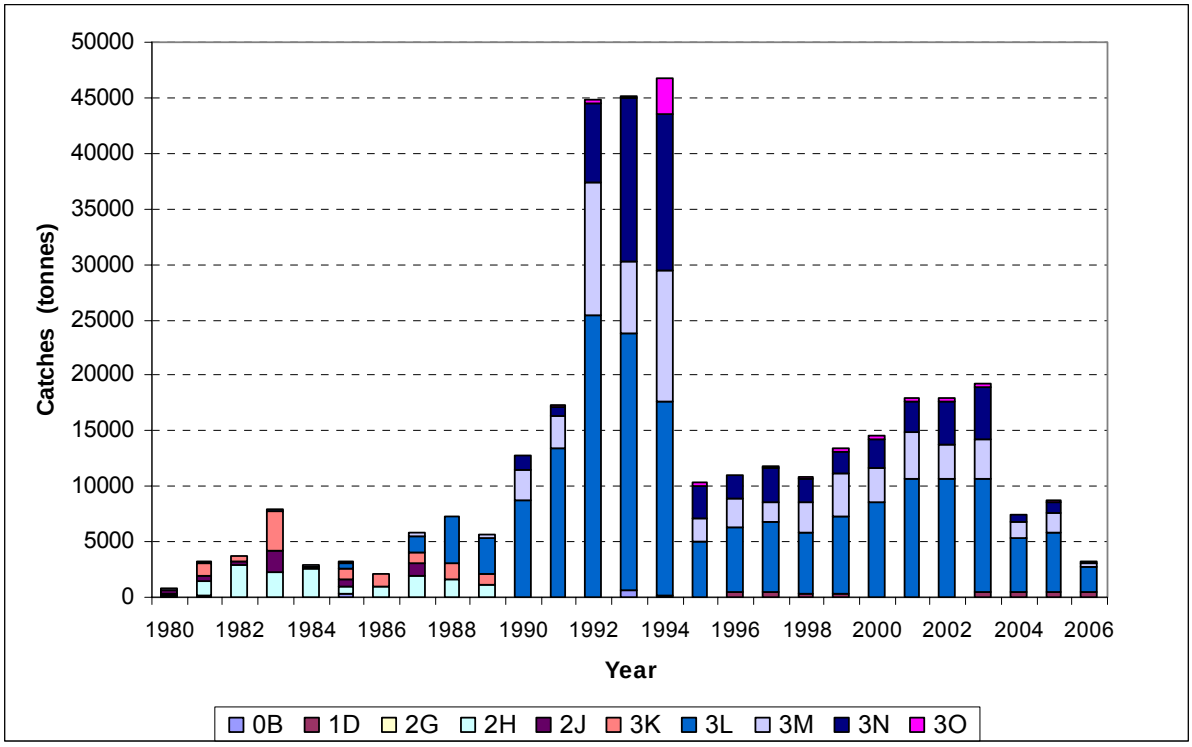
EU quota for 2007 – 6951t including 389t for Estonia, Latvia and Lithuania.



Catches by flag state



Catches by area



Basic Fishery Information

Fishery Unit Name:	NAFO Northern Prawn
Flag States:	ESP, EST, LTU, LVA, POL, PRT (EU-27)
	CAN, FRO, ISL, NOR, RUS (Non EU-27)
Gear Types Used:	Bottom otter trawl, Otter shrimp twin trawl, Bottom pair trawl (attach diagrams of typical gear)
Target Species:	Northern Prawn (PRA) (attach species description [12])
Major bycatch species:	Atlantic redfish, Pink shrimp (attach basic species details)
Geographical Area:	NAFO 3N, 3M, 3L (including if transboundary with EEZs, RFMO managed or high seas)

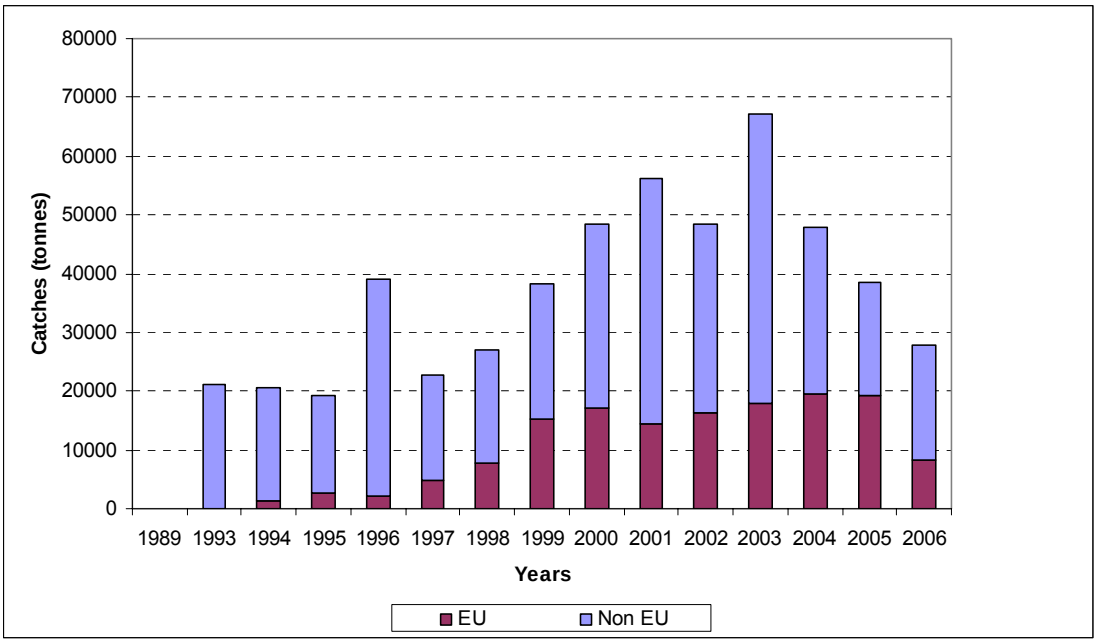
[12] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

Catch Information

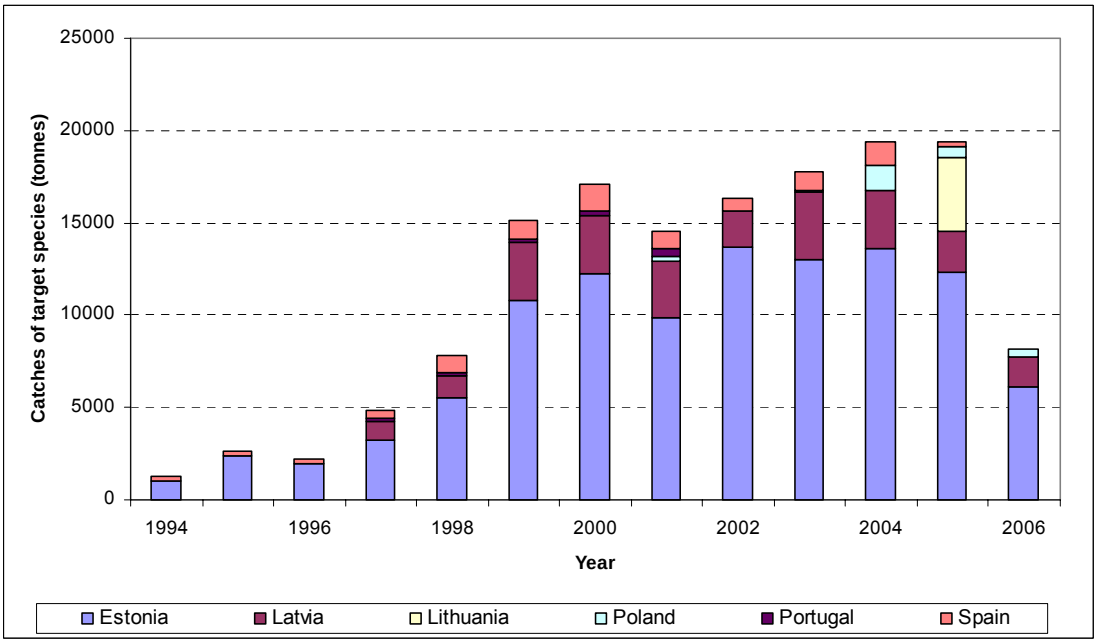
EU Catches / Non EU Catches

Source (NAFO Catch and Effort database 1980 - 2006)

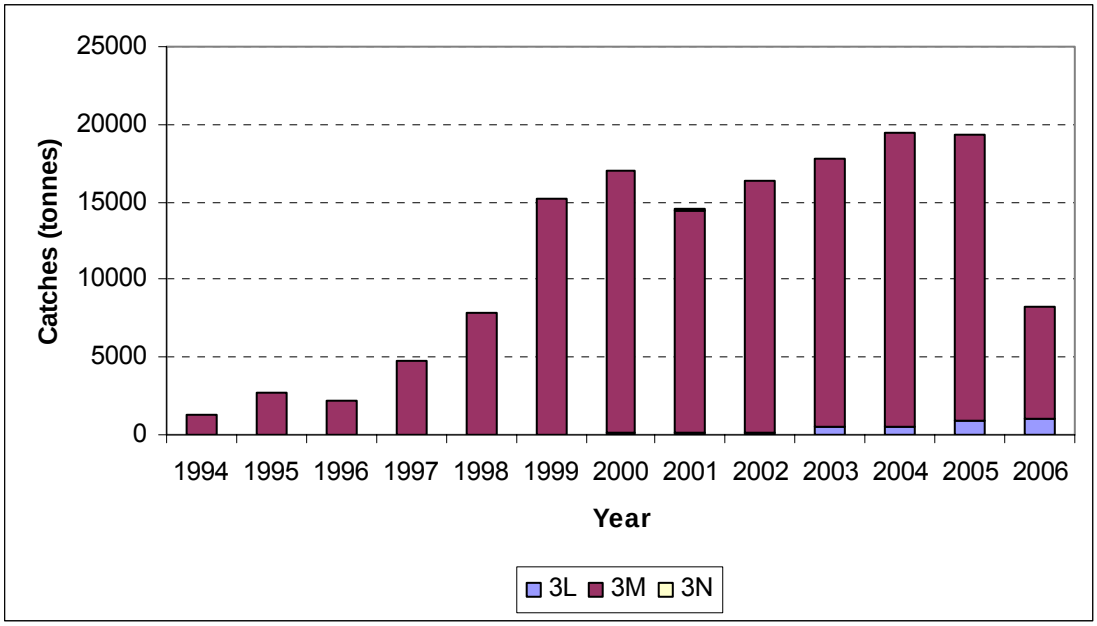
EU quota for 2007 – 1225 t including 245 t for Estonia, Latvia, Lithuania and Poland



Catches by flag state

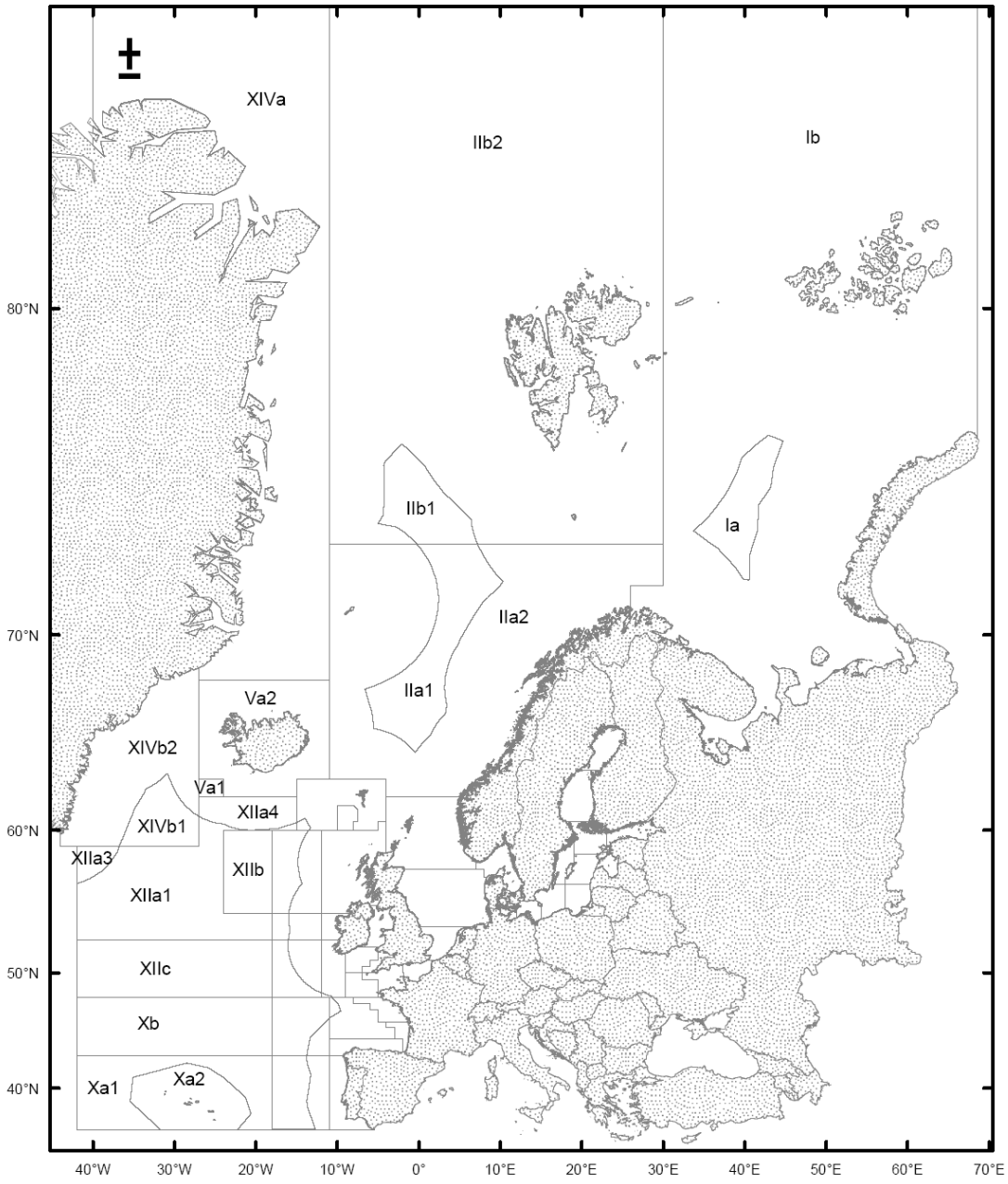


Catches by area



NEAFC Fishery Unit Definitions

NEAFC regulatory Area


XIVa
IIb2
Ib
IIb1
Ia
IIa2
IIa1
Va2
XIVb2
Va1
XIIa4
XIVb1
XIIa3
XIIb
XIIa1
XIIc
Xb
Xa1
Xa2
80°N
70°N
60°N
50°N
40°N
40°W
30°W
20°W
10°W
0°
10°E
20°E
30°E
40°E
50°E
60°E
70°E

Fishery Unit Definition

Basic Fishery Information

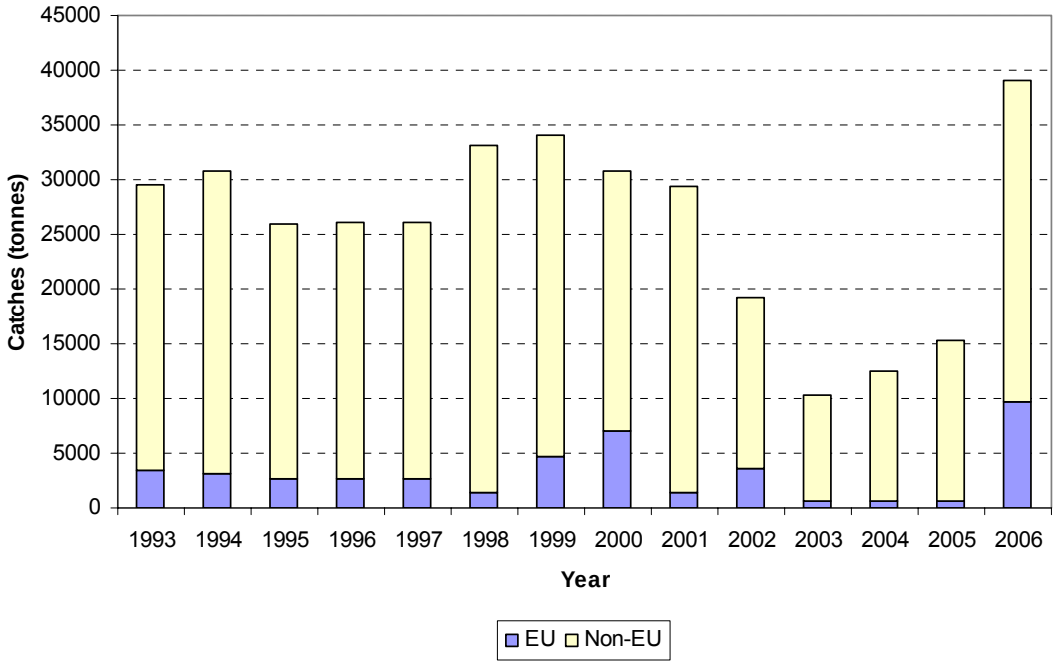
Fishery Unit Name:	Barents Sea Atlantic Redfish Fishery
Flag States:	EST, FRA, DEU, LVA, LTU, NLD, POL, PRT, ESP, GBR (EU-27)
	FRO, GRL, ISL, NOR, RUS (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Atlantic Redfish (RED) (attach species description [13])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC 1, IIa, IIb (including if transboundary with EEZs, RFMO managed or high seas)

[13] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

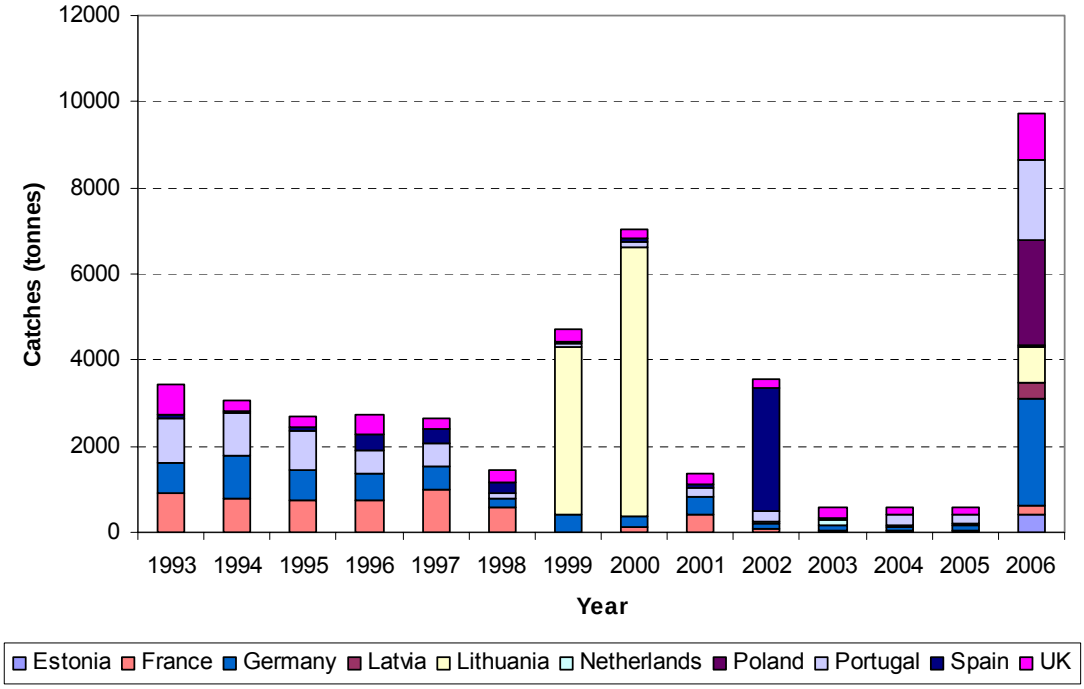
Catch Information

EU Catches / Non EU Catches

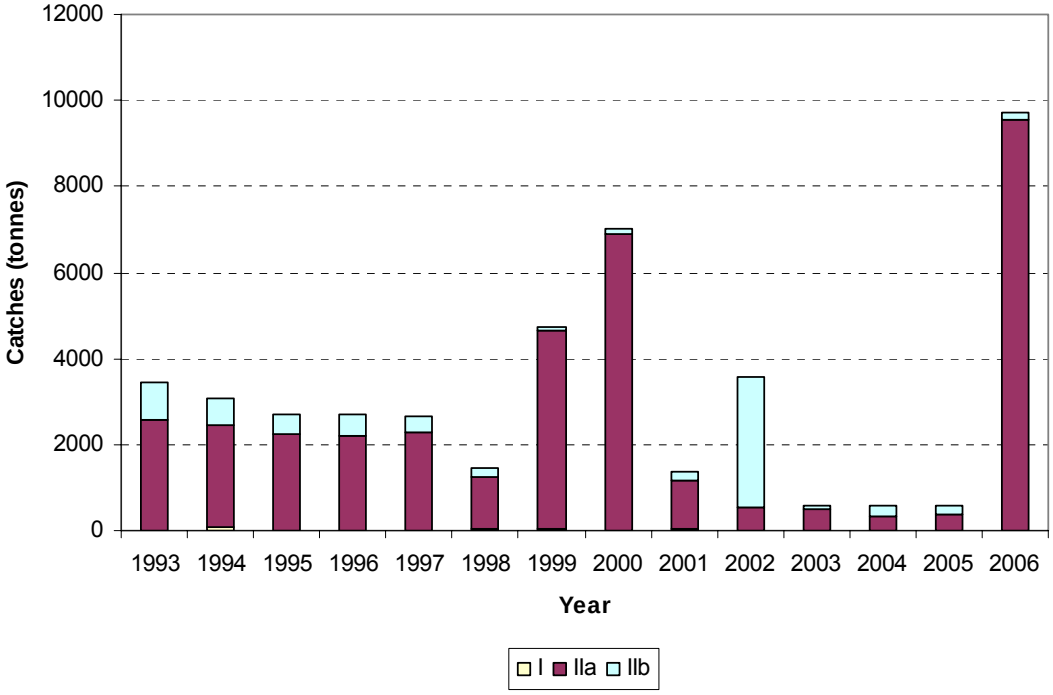
Source (ICES Catch database)



Catches by flag state



Catches by area


12000
10000
8000
6000
4000
2000
0
Catches (tonnes)
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year
I
IIa
IIb

Fishery Unit Definition

Basic Fishery Information

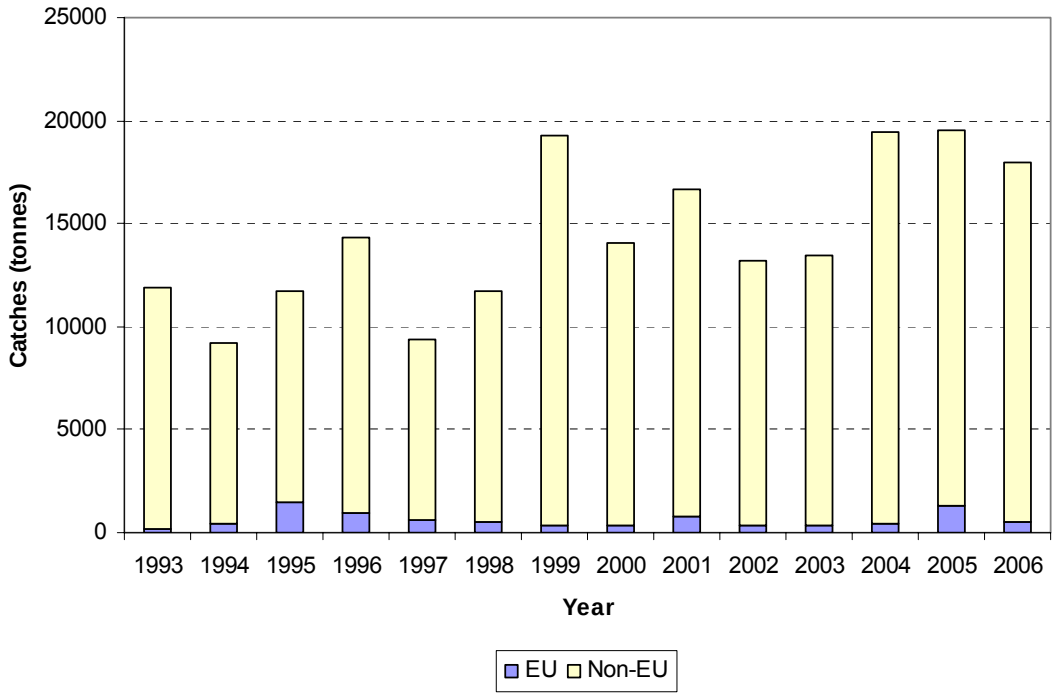
Fishery Unit Name:	Barents Sea Greenland halibut fishery
Flag States:	EST, FRA, DEU, LTU, POL, PRT, ESP, GBR (EU-27)
	NOR, GRL, RUS, ISL, FRO (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Greenland halibut (GHL) (attach species description [14])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC I, IIa, IIb (including if transboundary with EEZs, RFMO managed or high seas)

[14] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

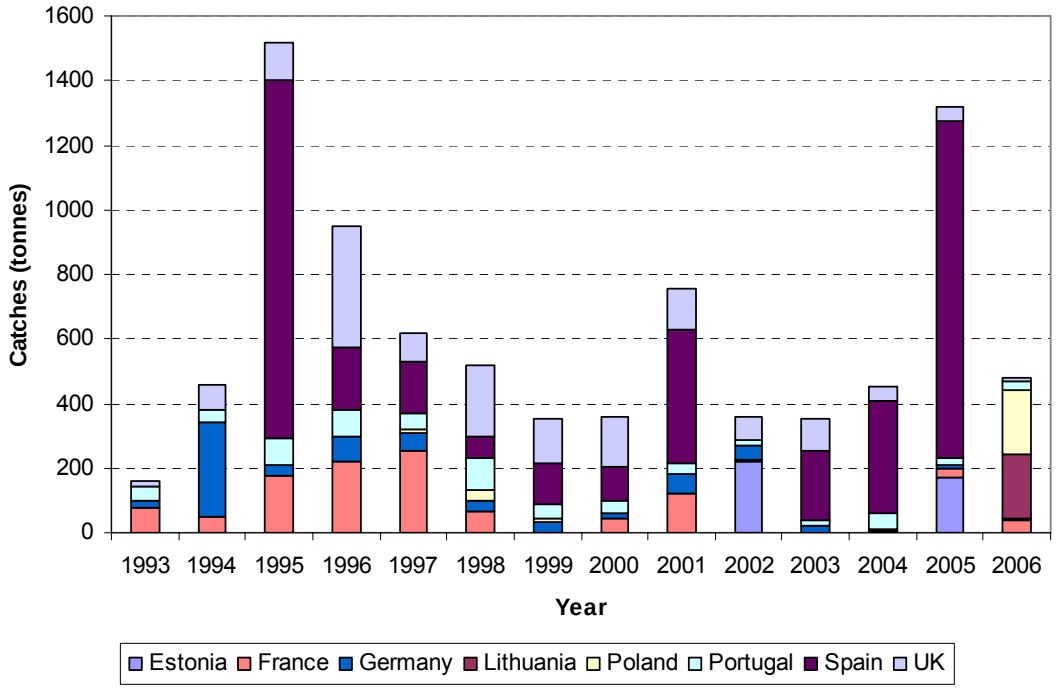
Catch Information

EU Catches / Non EU Catches

Source (ICES Catch database)



Catches by flag state



Catches by area

Fishery Unit Definition

Basic Fishery Information

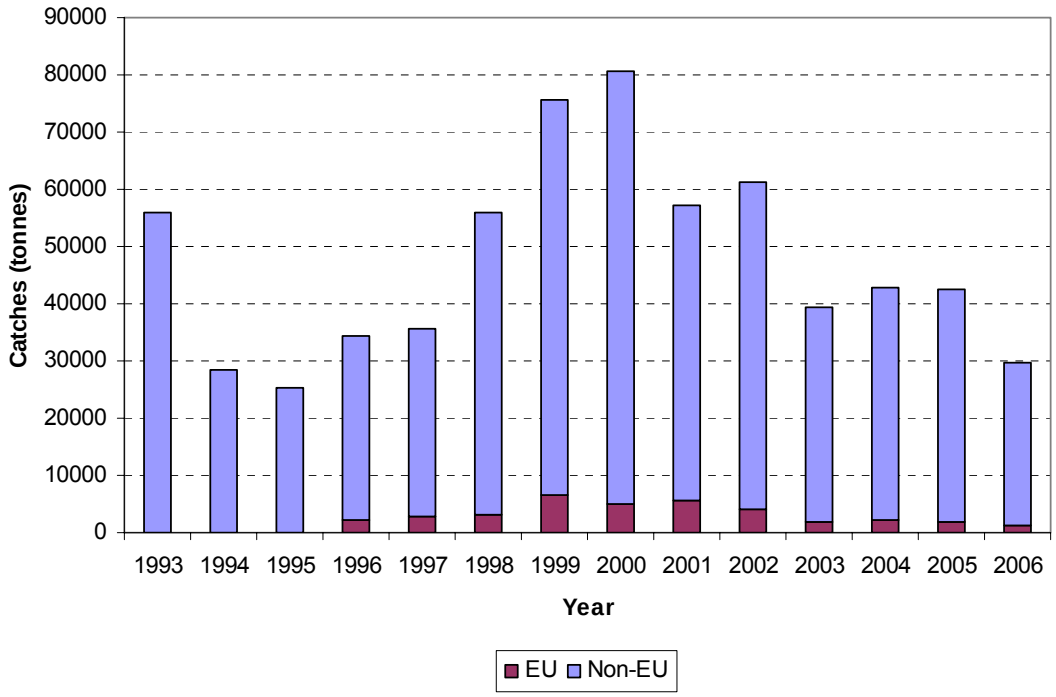
Fishery Unit Name:	Barents Sea Northern Prawn fishery
Flag States:	EST, DEU, LTU, PRT, ESP, GBR (EU-27)
	FRO, ISL, NOR, RUS (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Northern prawn (PRA) (attach species description [15])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC 1, IIa, IIb (including if transboundary with EEZs, RFMO managed or high seas)

[15] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

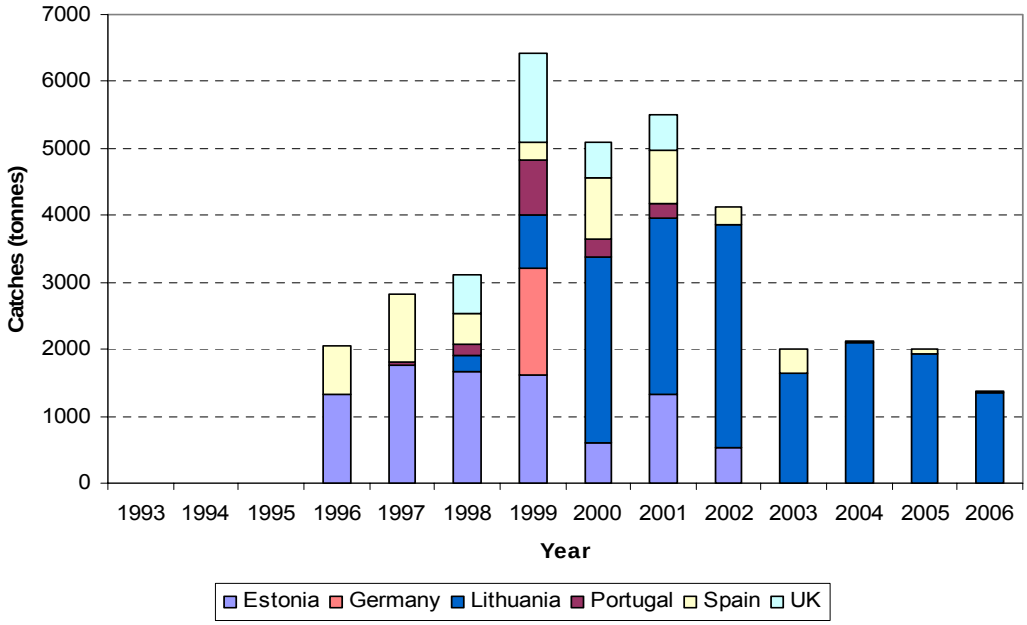
Catch Information

EU Catches / Non EU Catches

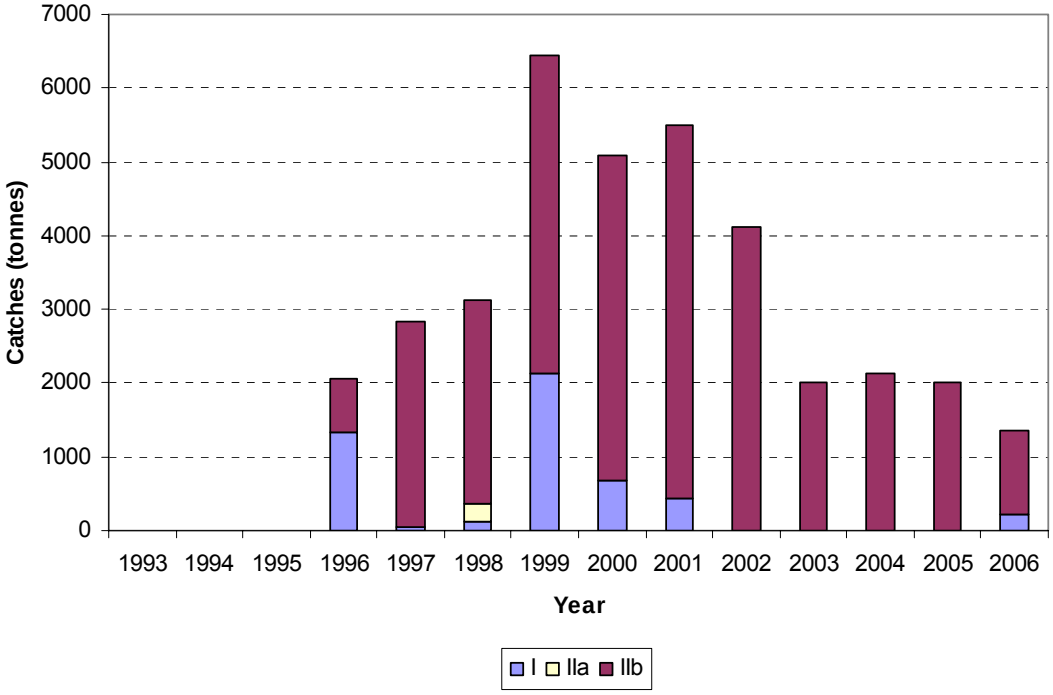
Source (ICES Catch database)



Catches by flag state



Catches by area


7000
6000
5000
4000
3000
2000
1000
0
Catches (tonnes)
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year
I
IIa
IIb

Fishery Unit Definition

Basic Fishery Information

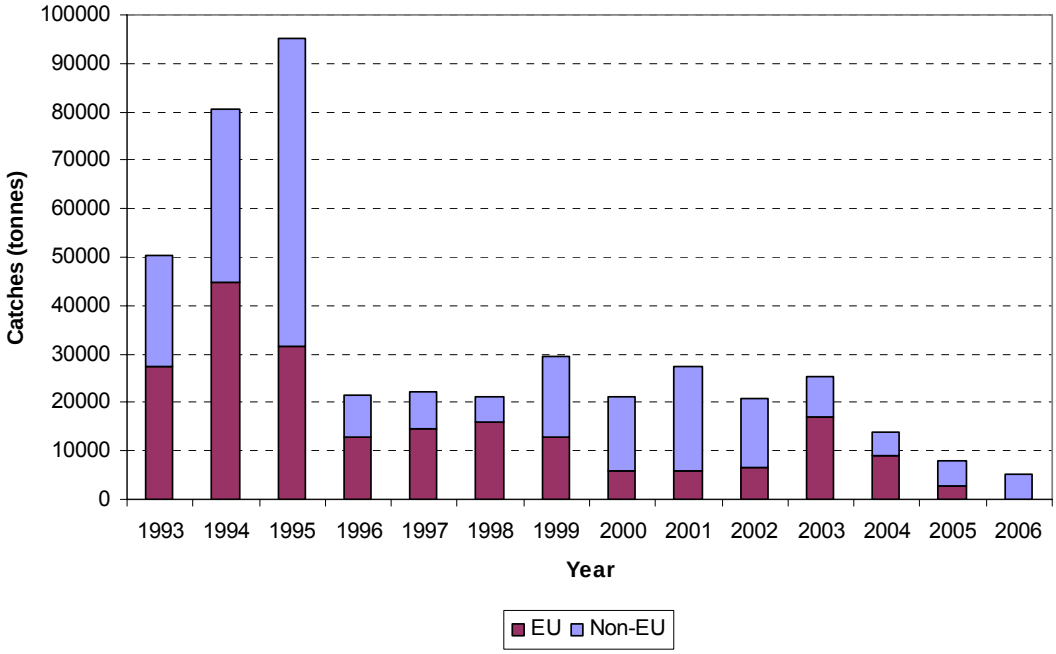
Fishery Unit Name:	Rockall and Hatton Bank Atlantic Redfish Fishery
Flag States:	EST, DEU, LVA, LTU, POL, PRT, ESP, GBR (EU-27)
	FRO, GRL, ISL, NOR, RUS (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Atlantic Redfish (RED) (attach species description [16])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC VIb, XII (including if transboundary with EEZs, RFMO managed or high seas)

[16] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

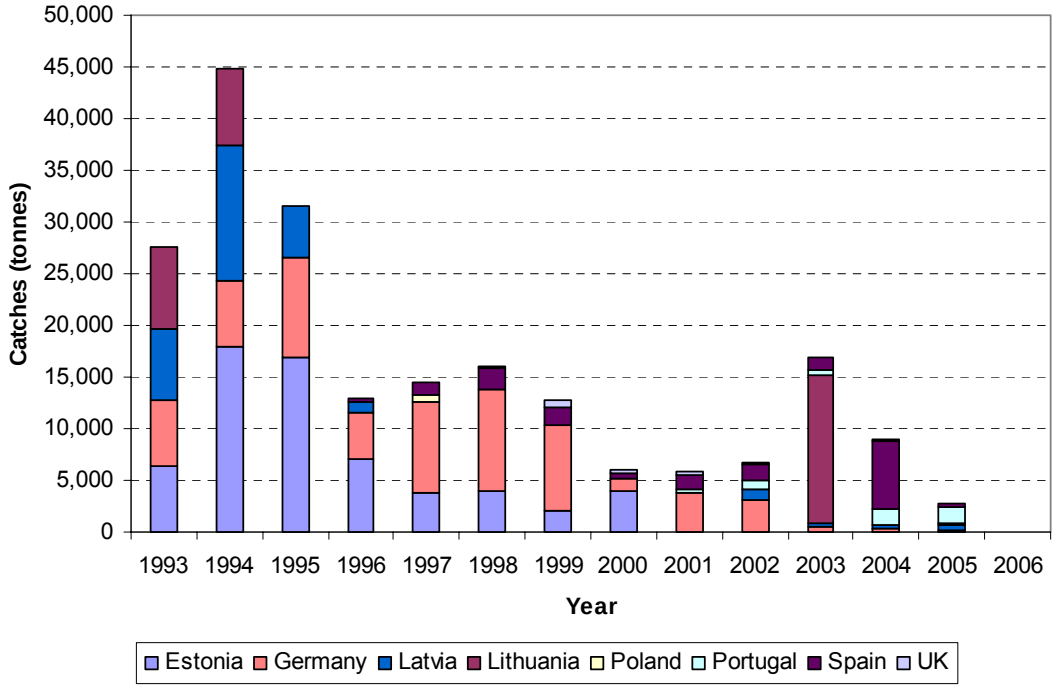
Catch Information

EU Catches / Non EU Catches

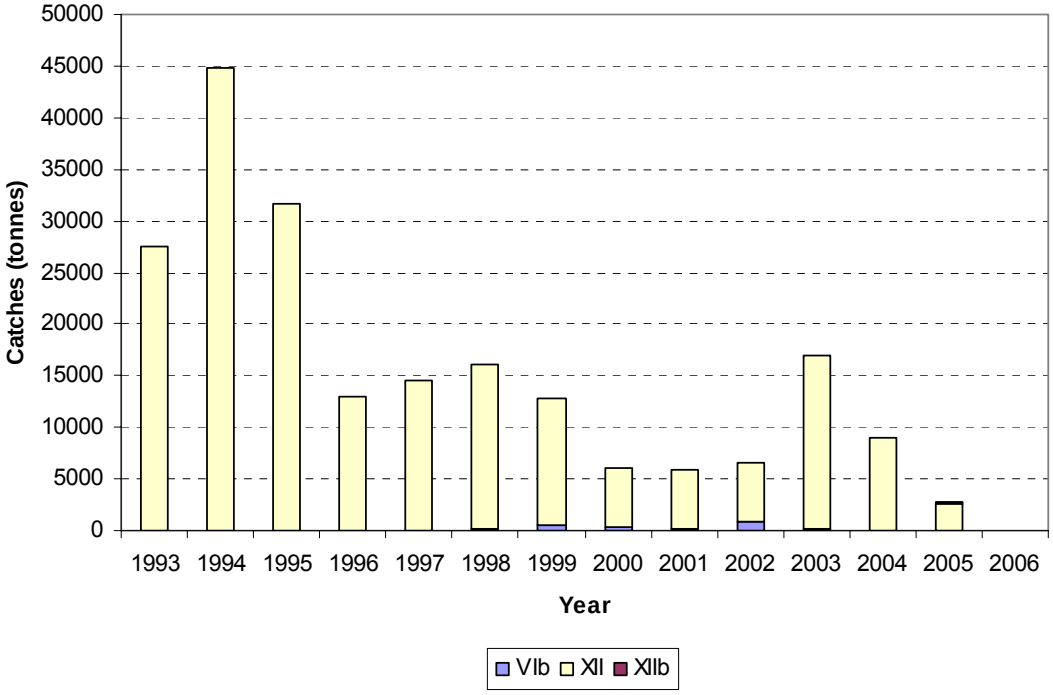
Source (ICES Catch database)



Catches by flag state



Catches by area


50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
Catches (tonnes)
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year
VIb
XI
XIIb

Fishery Unit Definition

Basic Fishery Information

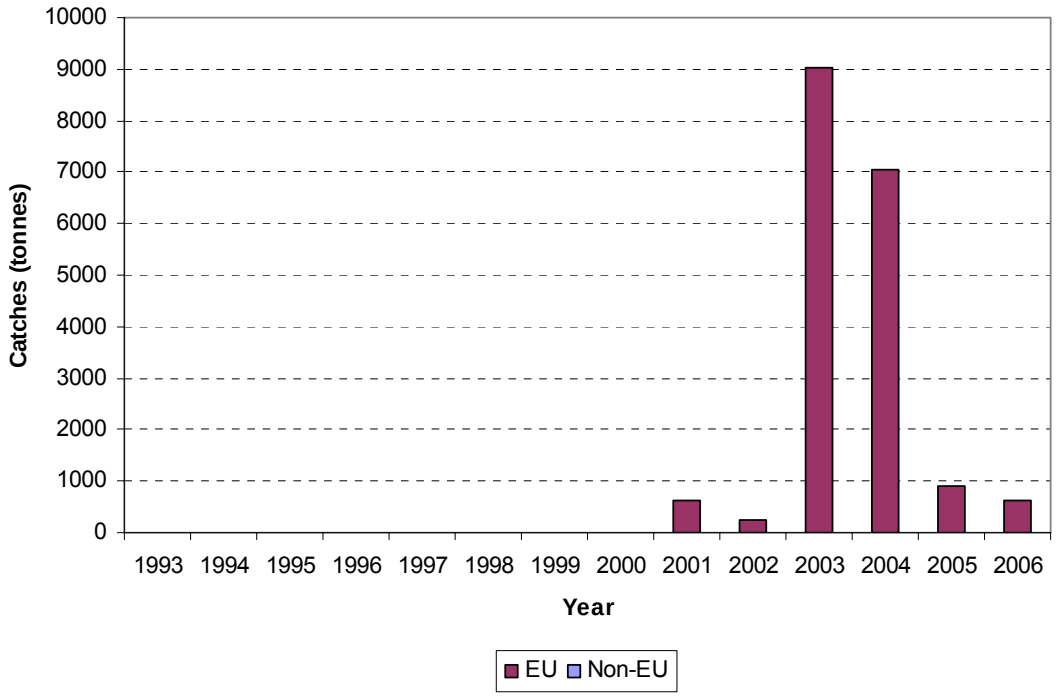
Fishery Unit Name:	Rockall and Hatton Bank Baird's Slickhead Fishery
Flag States:	EST, DEU, LVA, LTU, POL, PRT, ESP, GBR (EU-27)
	FRO, GRL, ISL, NOR, RUS (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Baird's Slickhead (ALC) (attach species description [17])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC VI, VIb, XII (including if transboundary with EEZs, RFMO managed or high seas)

[17] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

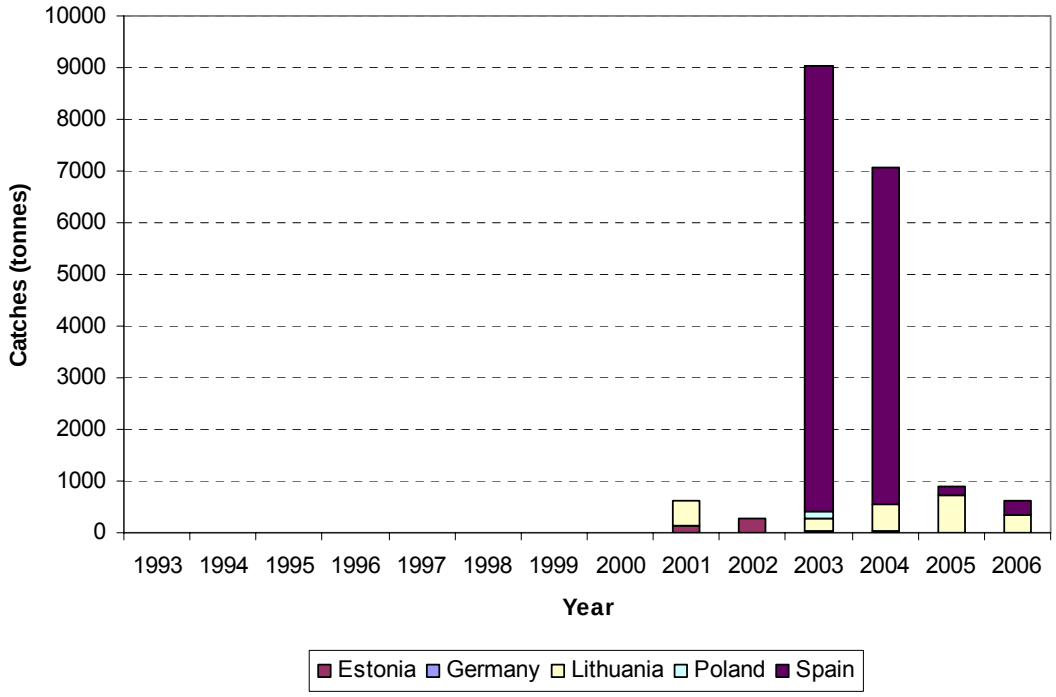
Catch Information

EU Catches / Non EU Catches

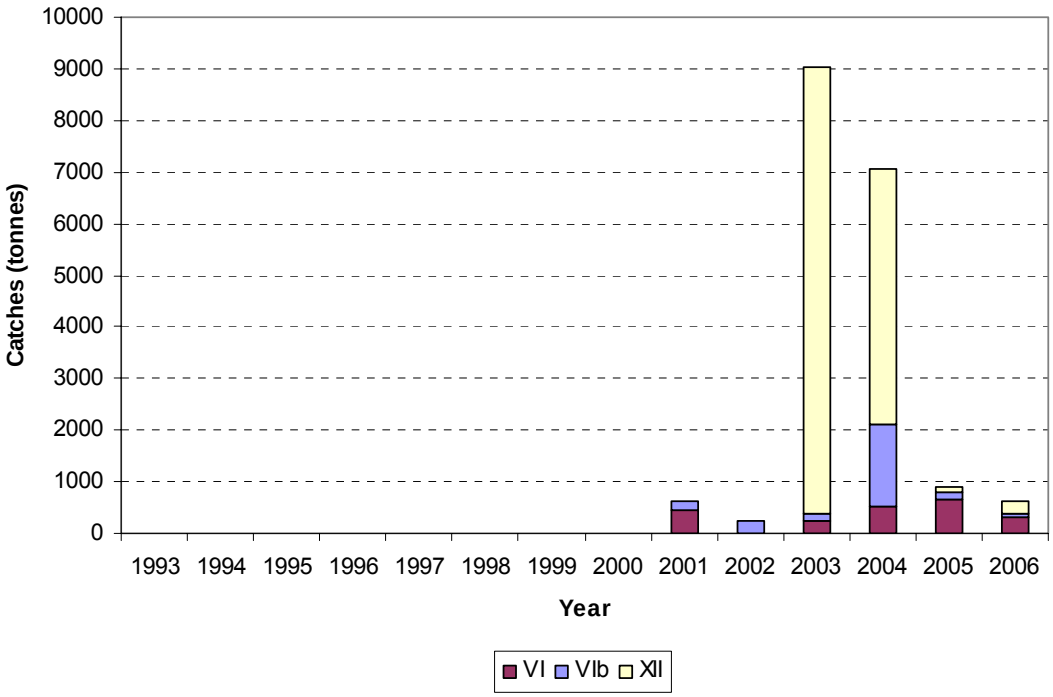
Source (ICES Catch database)



Catches by flag state



Catches by area



Fishery Unit Definition

Basic Fishery Information

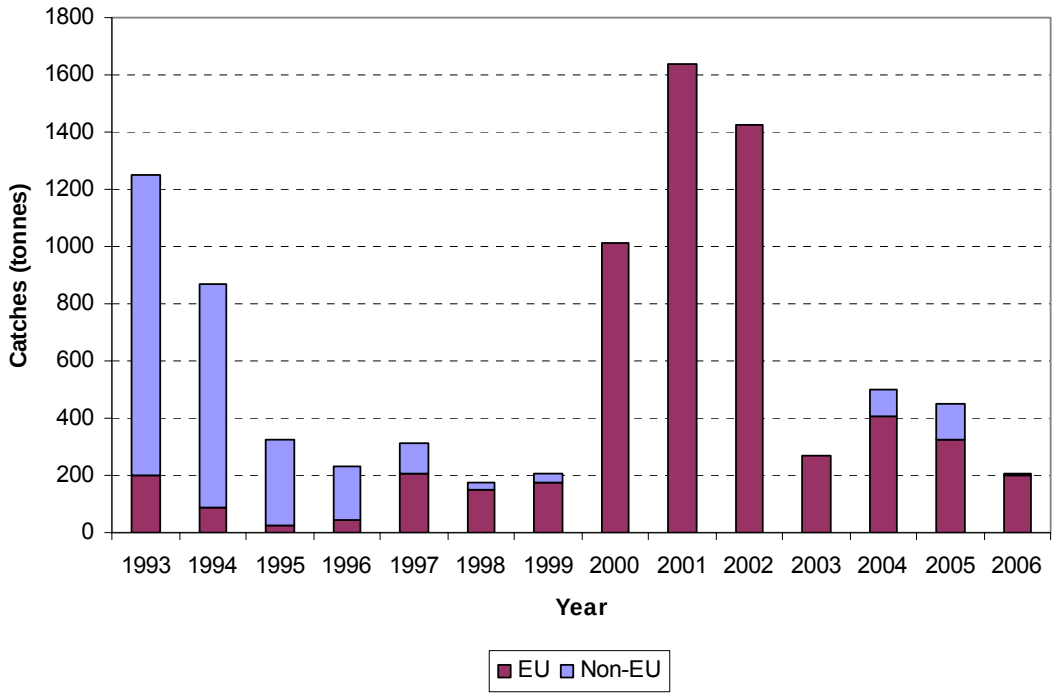
Fishery Unit Name:	Rockall and Hatton Bank Black scabbardfish fishery
Flag States:	EST, DEU, LTU, ESP, GBR (EU-27)
	FRO (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Black scabbardfish (BSF) (attach species description [18])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC VI, VIb, XII (including if transboundary with EEZs, RFMO managed or high seas)

[18] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

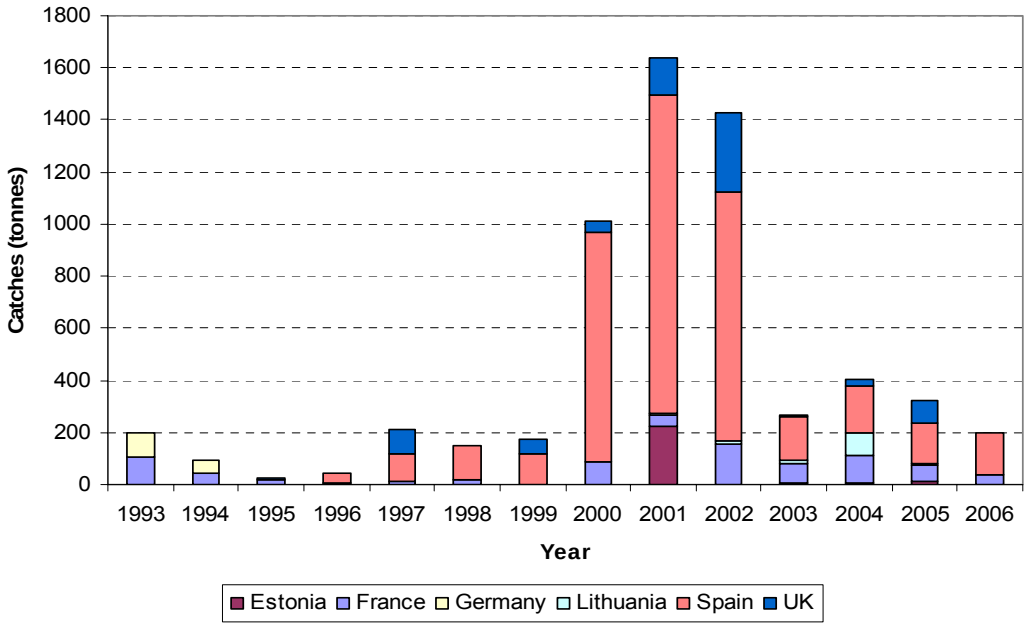
Catch Information

EU Catches / Non EU Catches

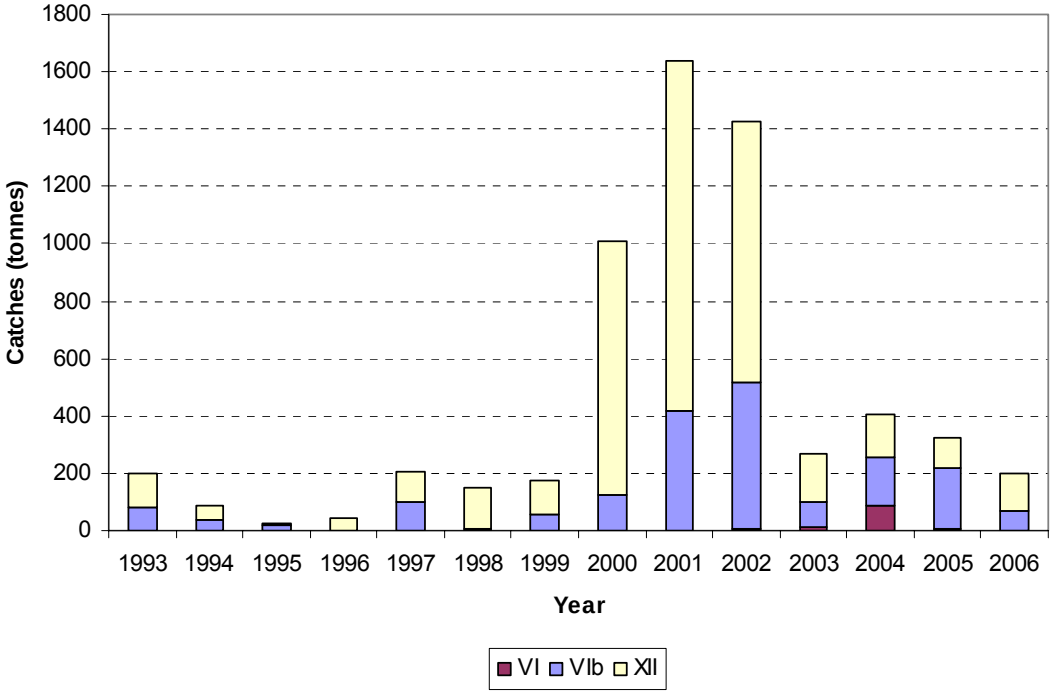
Source (ICES Catch database)



Catches by flag state



Catches by area


1800
1600
1400
1200
1000
800
600
400
200
0
Catches (tonnes)
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year
VI
VIb
XII

Fishery Unit Definition

Basic Fishery Information

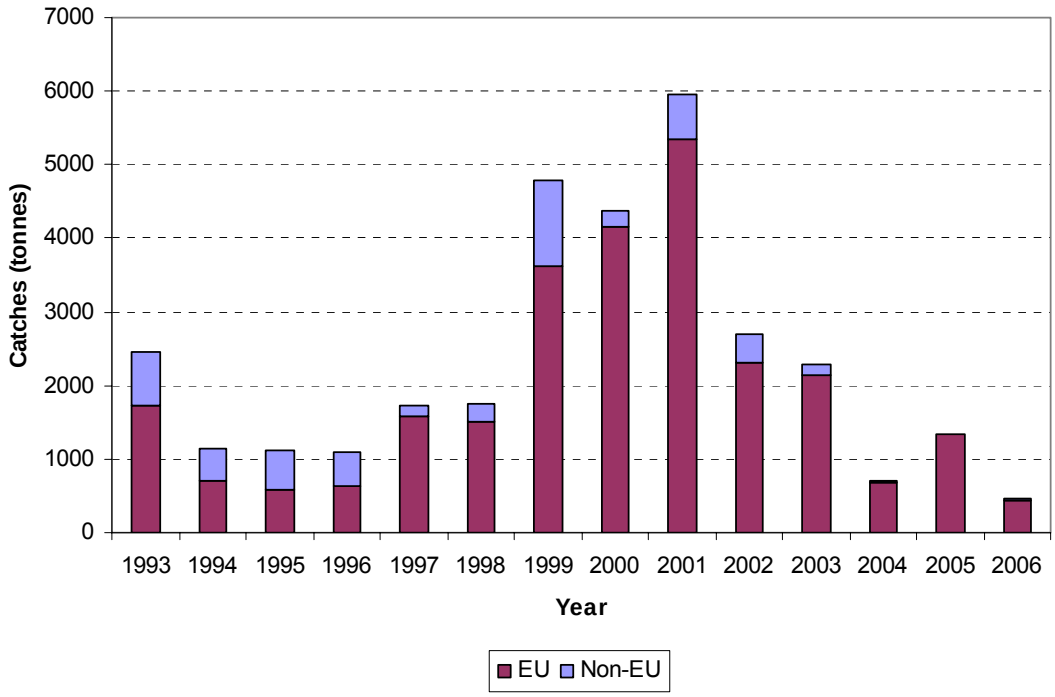
Fishery Unit Name:	Rockall and Hatton Bank Blue ling fishery
Flag States:	EST, FRA, DEU, LTU, POL, ESP, GBR (EU-27)
	FRO, ISL, NOR, RUS (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Blue ling (BLI) (attach species description [19])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC VIb, XII (including if transboundary with EEZs, RFMO managed or high seas)

[19] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

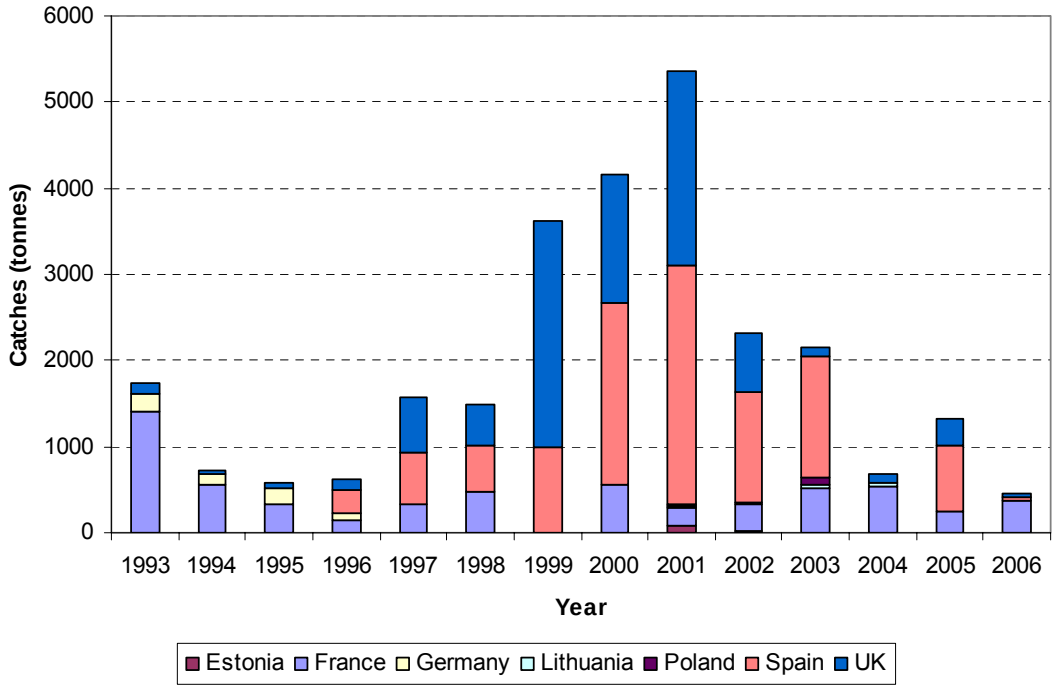
Catch Information

EU Catches / Non EU Catches

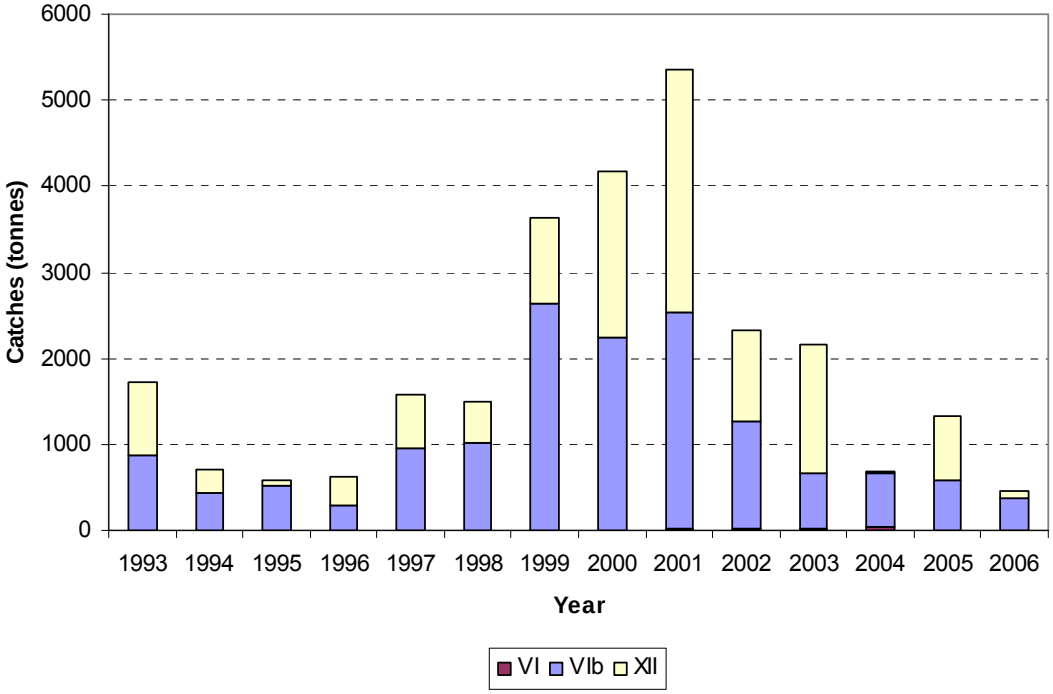
Source (ICES Catch database)



Catches by flag state



Catches by area



Fishery Unit Definition

Basic Fishery Information

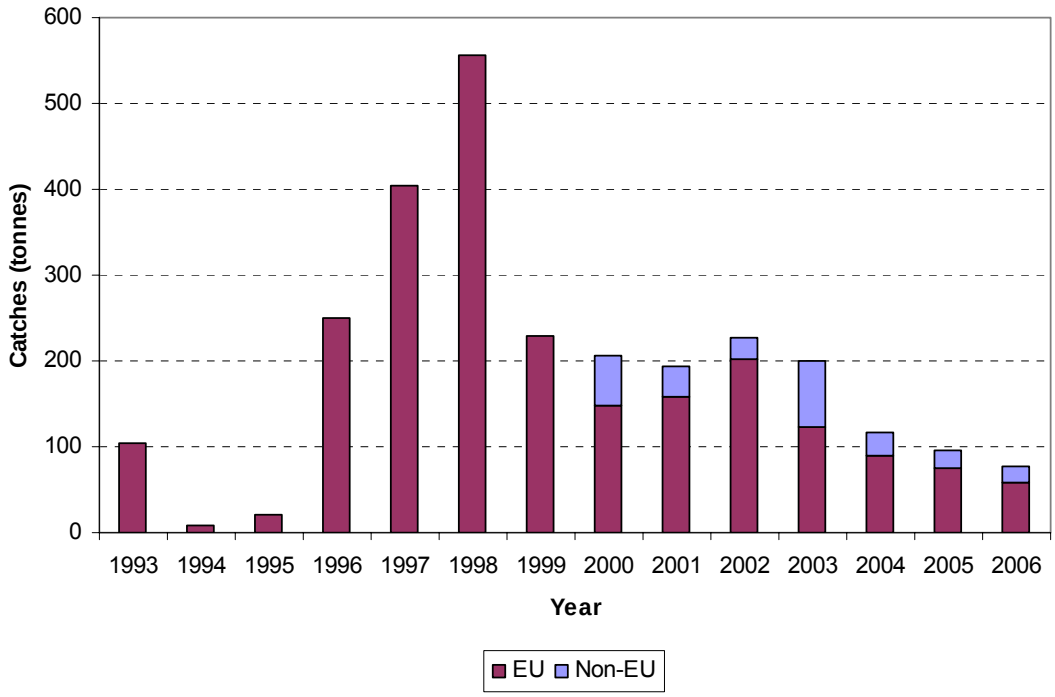
Fishery Unit Name:	Rockall and Hatton Bank Greater forkbeard fishery
Flag States:	FRA, ESP, GBR (EU-27)
	NOR (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Greater forkbeard (GFB) (attach species description [20])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC VIb, XII (including if transboundary with EEZs, RFMO managed or high seas)

[20] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

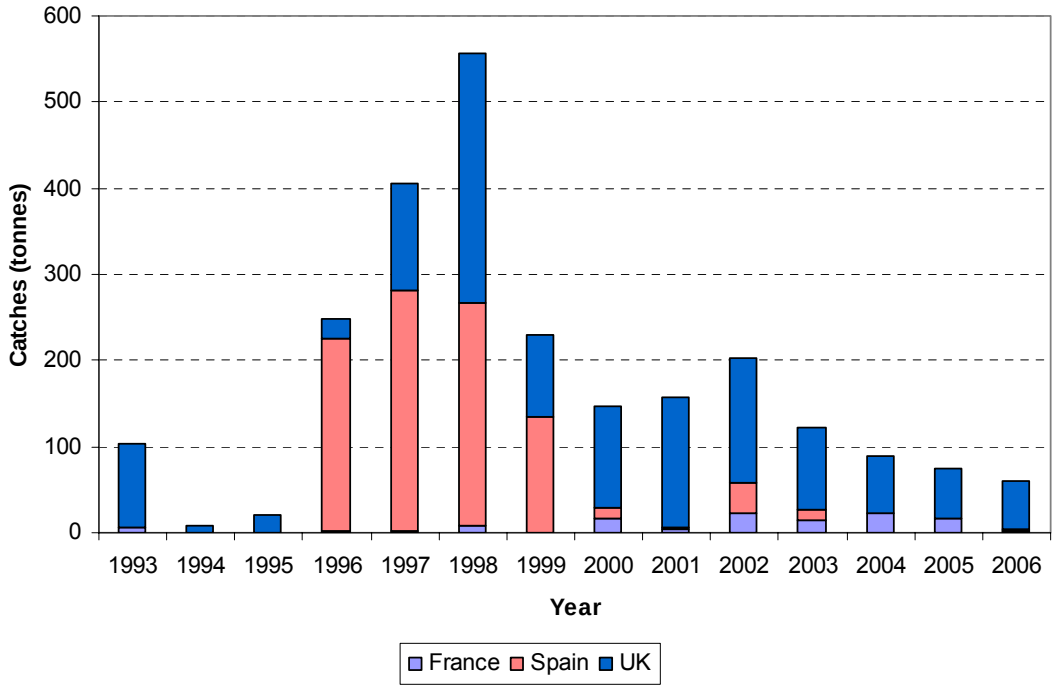
Catch Information

EU Catches / Non EU Catches

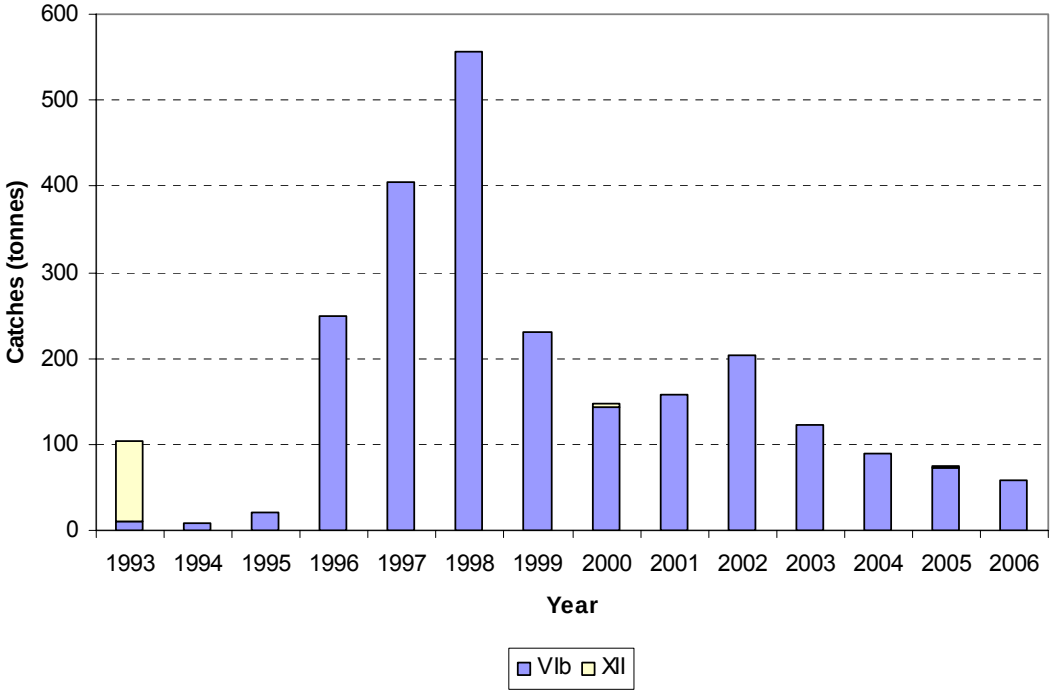
Source (ICES Catch database)



Catches by flag state



Catches by area



Fishery Unit Definition

Basic Fishery Information

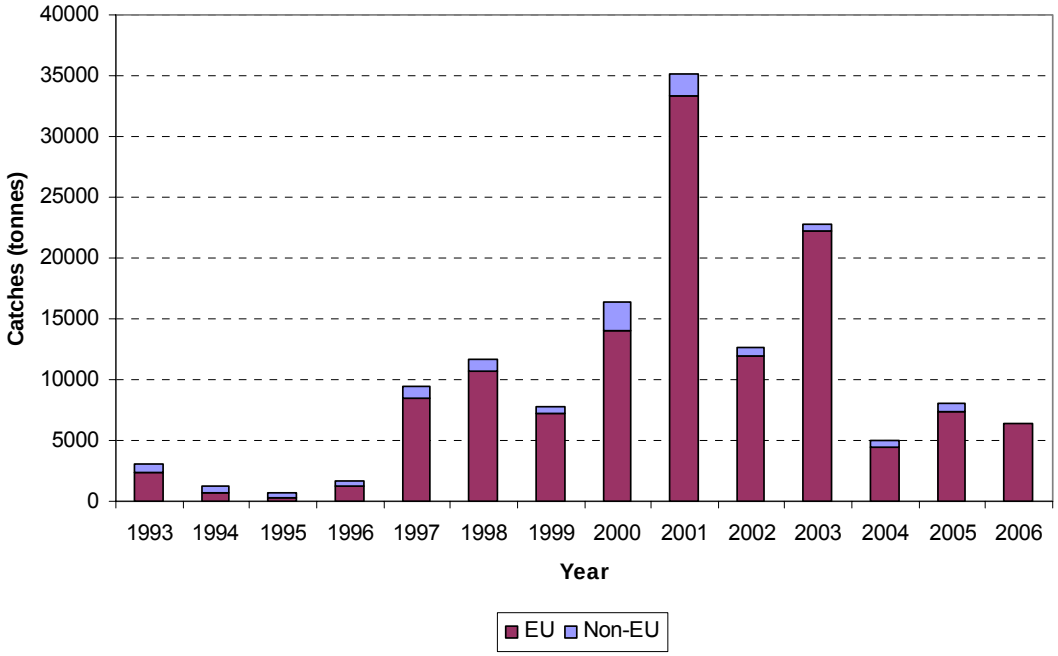
Fishery Unit Name:	Rockall and Hatton Bank Grenadier fishery
Flag States:	EST, FRA, DEU, LVA, LTU, POL, ESP, GBR (EU-27)
	NOR, FRO, RUS, FRO, ISL (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Roundnose grenadier (RNG) Roughhead grenadier (RHG) (attach species description [21])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC VI, VIb, XII (including if transboundary with EEZs, RFMO managed or high seas)

[21] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

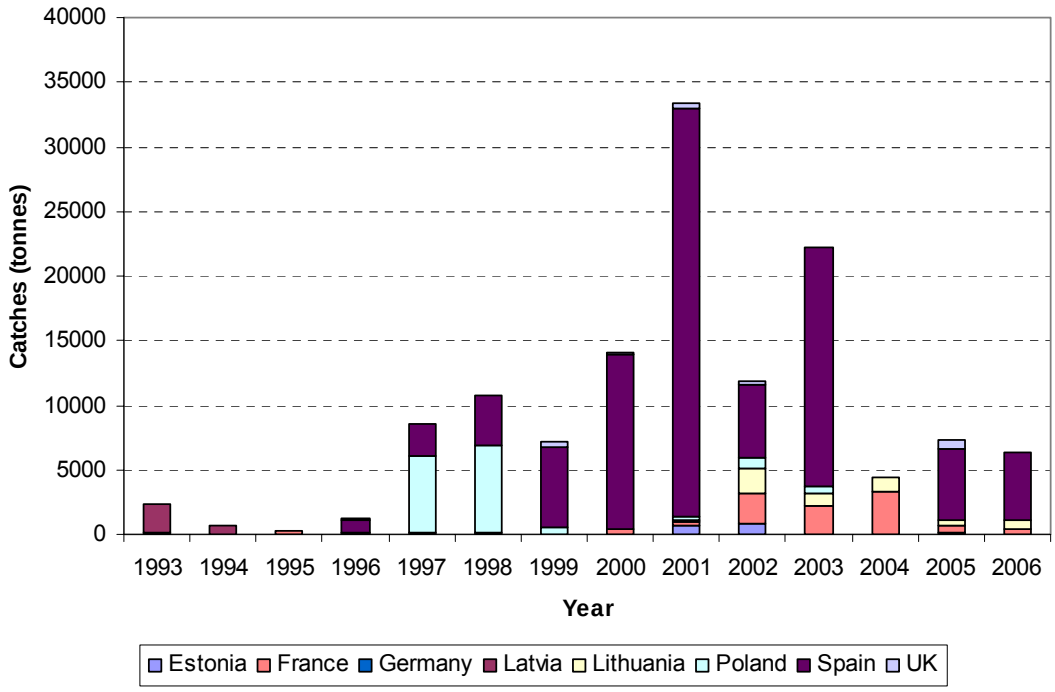
Catch Information

EU Catches / Non EU Catches

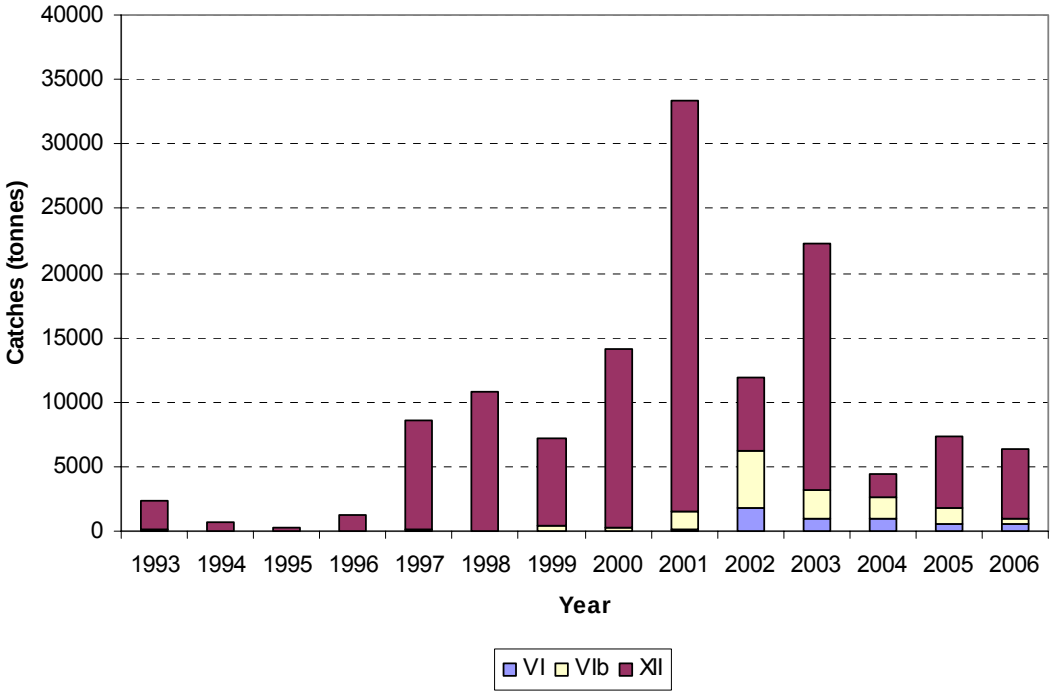
Source (ICES Catch database)



Catches by flag state



Catches by area



Fishery Unit Definition

Basic Fishery Information

Fishery Unit Name:	Hatton Bank Conger eel fishery
Flag States:	ESP (EU-27)
	- (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Conger eel (COE) (attach species description [22])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC VIb (including if transboundary with EEZs, RFMO managed or high seas)

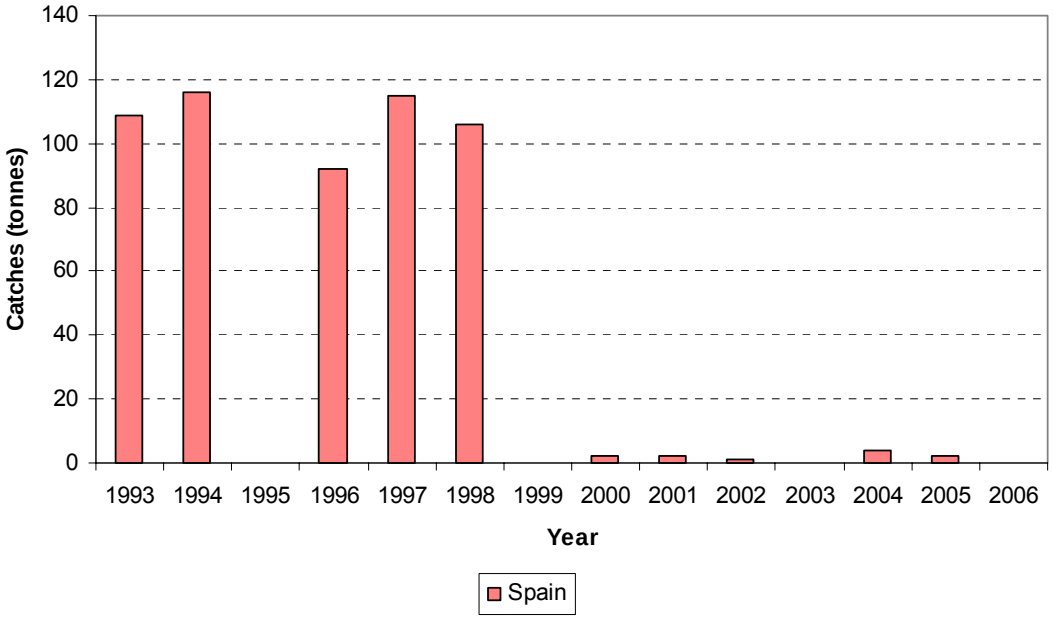
[22] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

Catch Information

Source (ICES Catch database)

Catches by flag state

Note: Spain is the only country participating in the high seas/straddling fishery of Conger eel and only operate in VIb. Thus figures of catches by area or for EU v Non-EU are unnecessary.



Landings data and economic data unavailable

Fishery Unit Definition

Basic Fishery Information

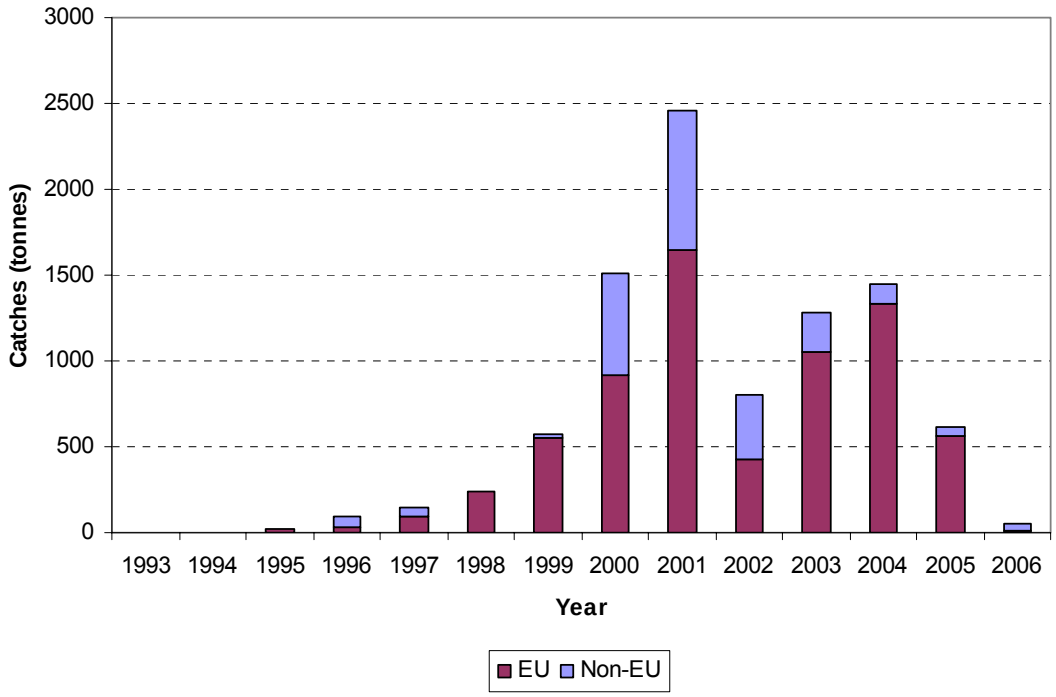
Fishery Unit Name:	Rockall and Hatton Bank Greenland halibut fishery
Flag States:	EST, FRA, DEU, LTU, POL, PRT, ESP, GBR (EU-27)
	NOR, GRL, RUS, ISL, FRO (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Greenland halibut (GHL) (attach species description [23])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC VI, VIb, XII (including if transboundary with EEZs, RFMO managed or high seas)

[23] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

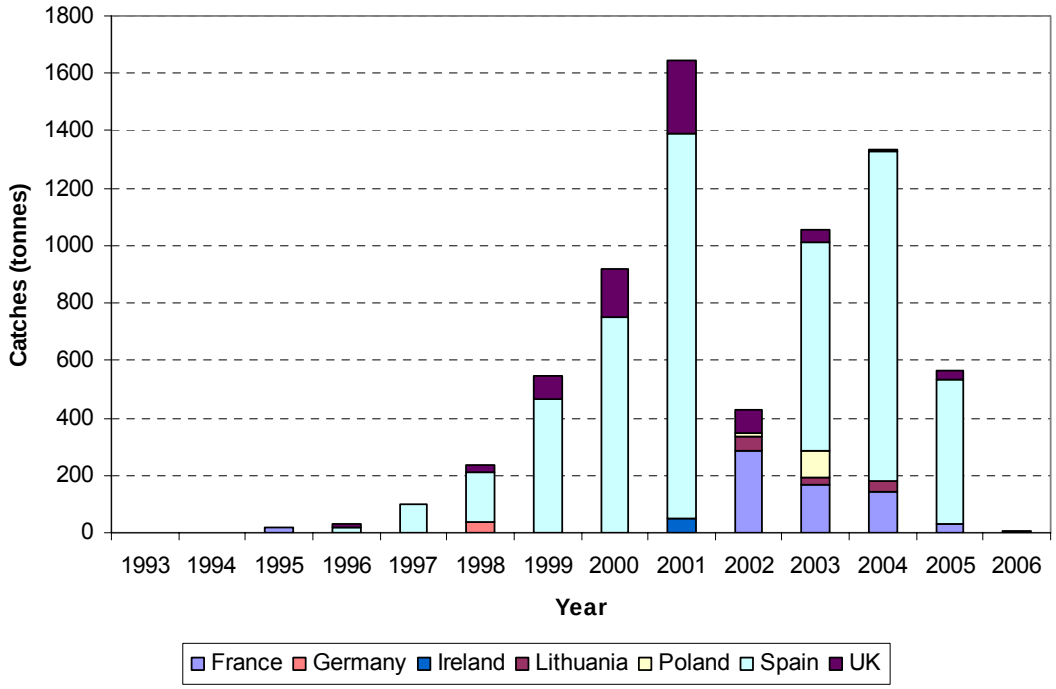
Catch Information

EU Catches / Non EU Catches

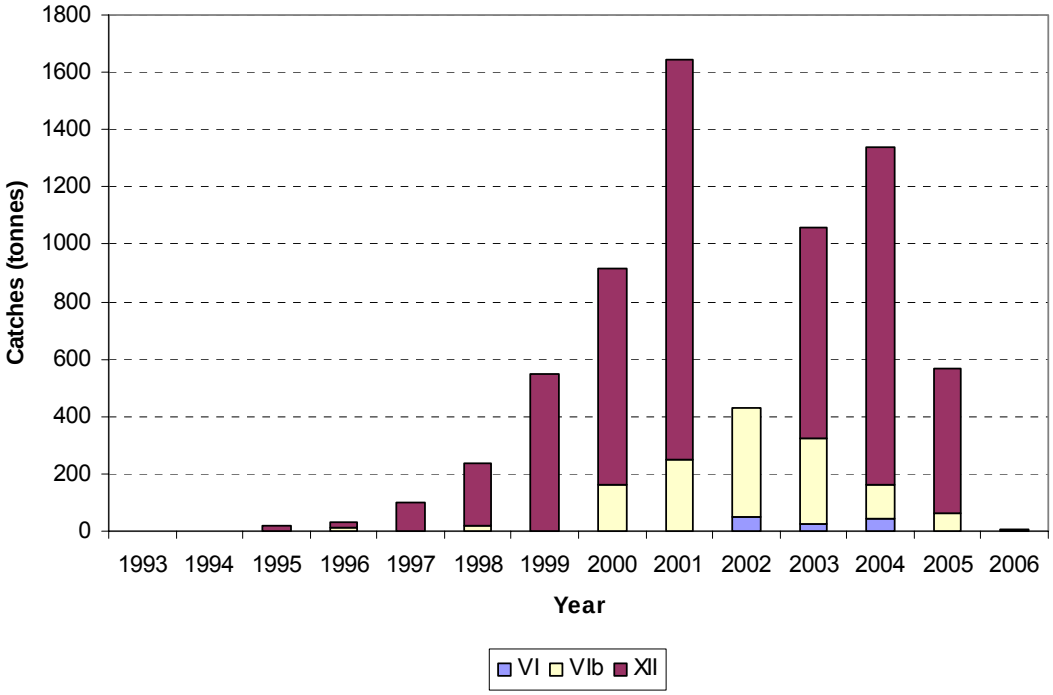
Source (ICES Catch database)



Catches by flag state



Catches by area



Fishery Unit Definition

Basic Fishery Information

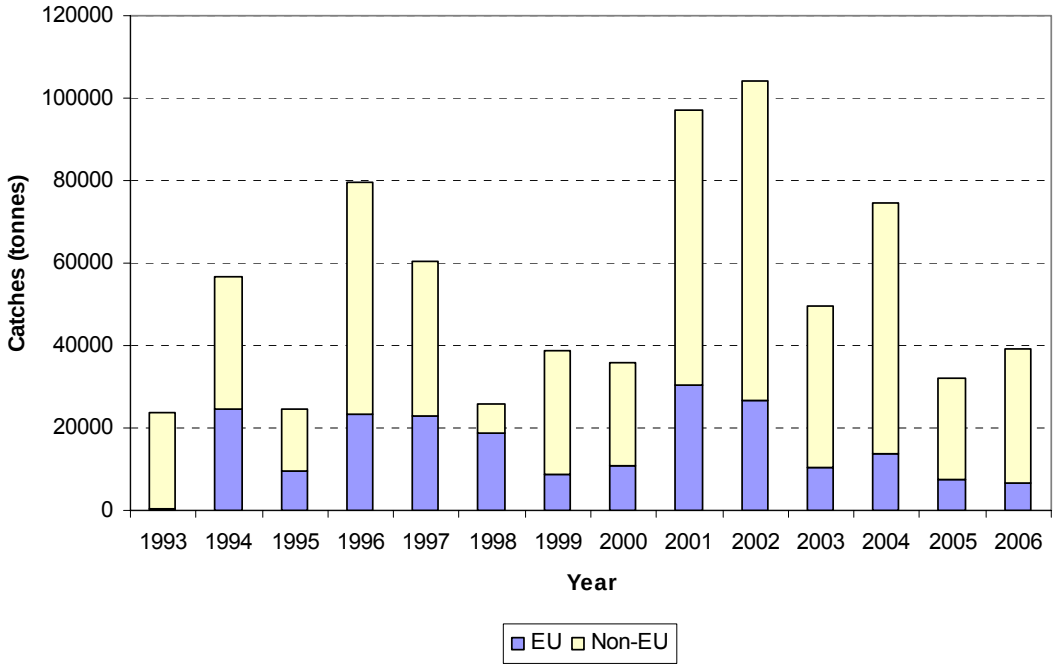
Fishery Unit Name:	Irminger Sea Atlantic Redfish Fishery
Flag States:	EST, DEU, LVA, LTU, POL, PRT, ESP, GBR (EU-27)
	FRO, GRL, ISL, NOR, RUS (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Atlantic Redfish (RED) (attach species description [24])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC XIV, XIVb (including if transboundary with EEZs, RFMO managed or high seas)

[24] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

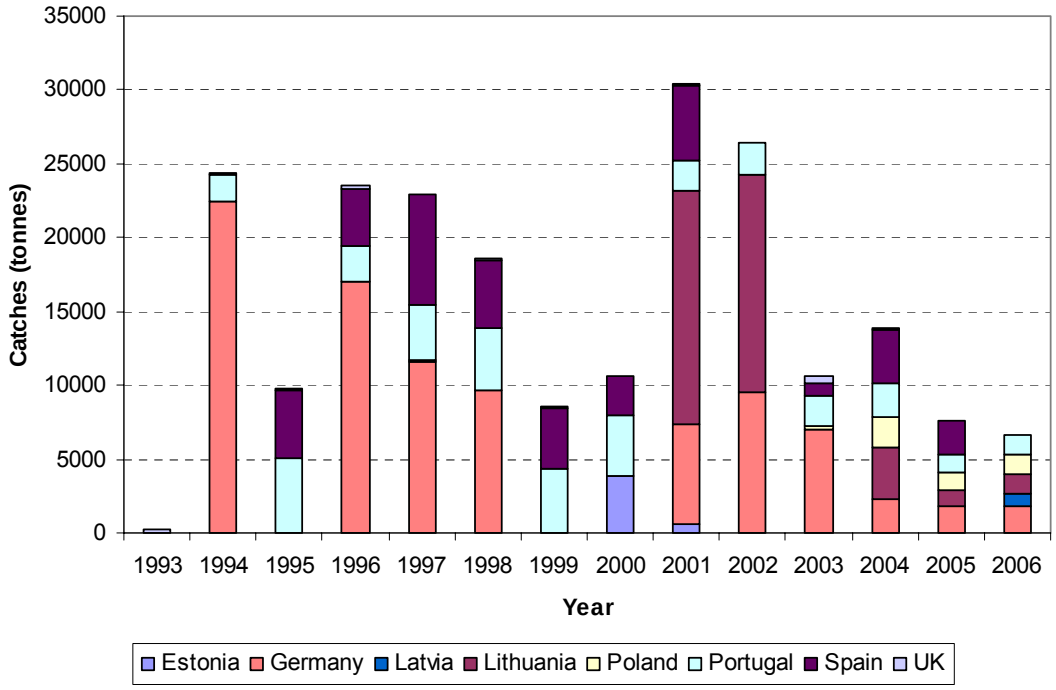
Catch Information

EU Catches / Non EU Catches

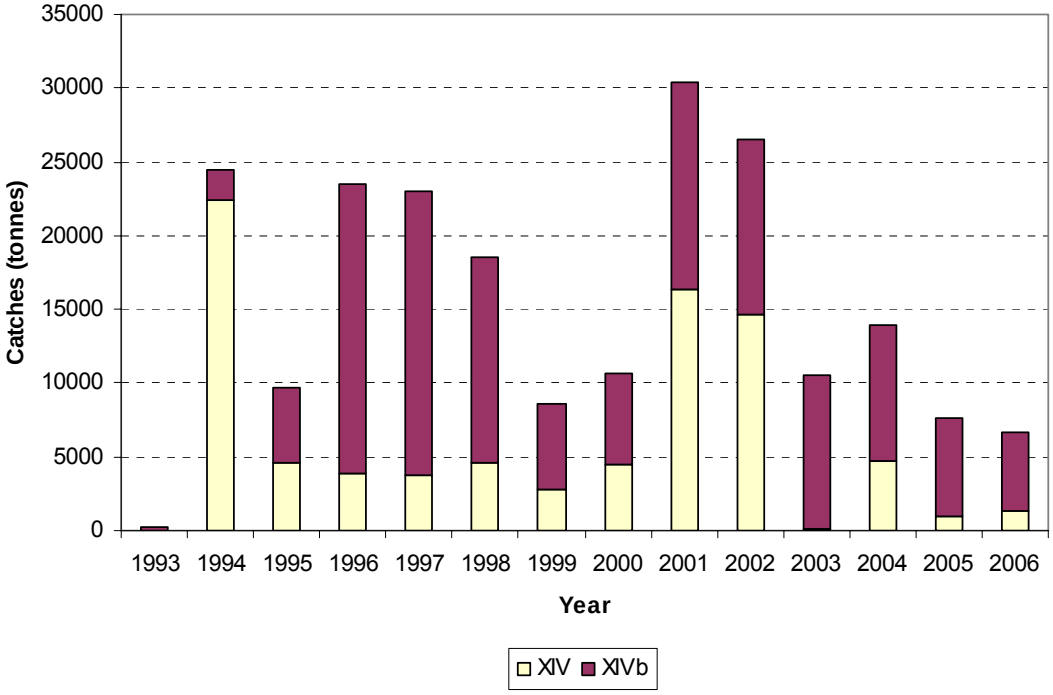
Source (ICES Catch database)



Catches by flag state



Catches by area


35000
30000
25000
20000
15000
10000
5000
0
Catches (tonnes)
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year
XIV
XIVb

Fishery Unit Definition

Basic Fishery Information

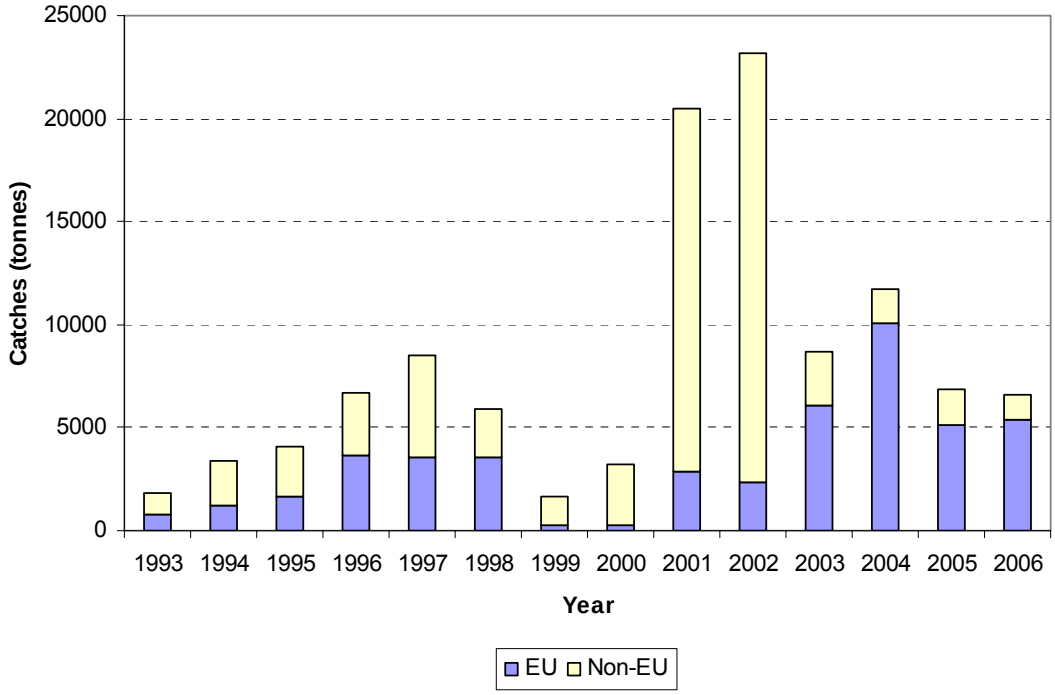
Fishery Unit Name:	Irminger Sea Greenland halibut fishery
Flag States:	DEU, POL, PRT, ESP, GBR (EU-27)
	NOR, GRL, RUS, ISL, FRO (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Greenland halibut (GHL) (attach species description [25])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC XIV, XIVb (including if transboundary with EEZs, RFMO managed or high seas)

[25] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;

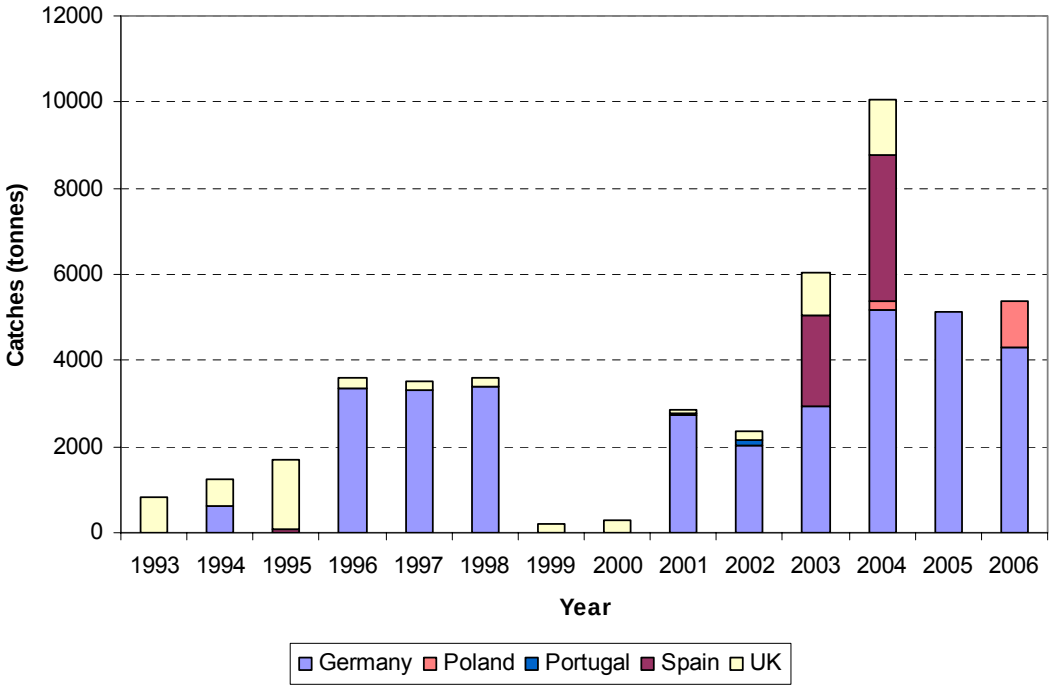
Catch Information

EU Catches / Non EU Catches

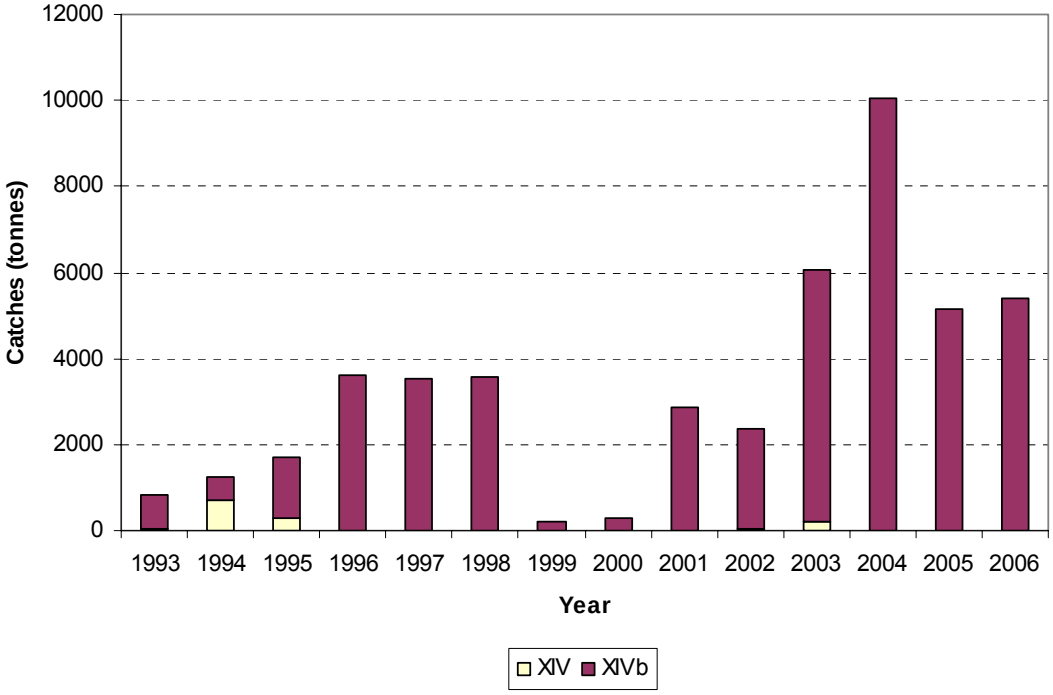
Source (ICES Catch database)



Catches by flag state



Catches by area


12000
10000
8000
6000
4000
2000
0
Catches (tonnes)
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year
XIV
XIVb

Fishery Unit Definition

Basic Fishery Information

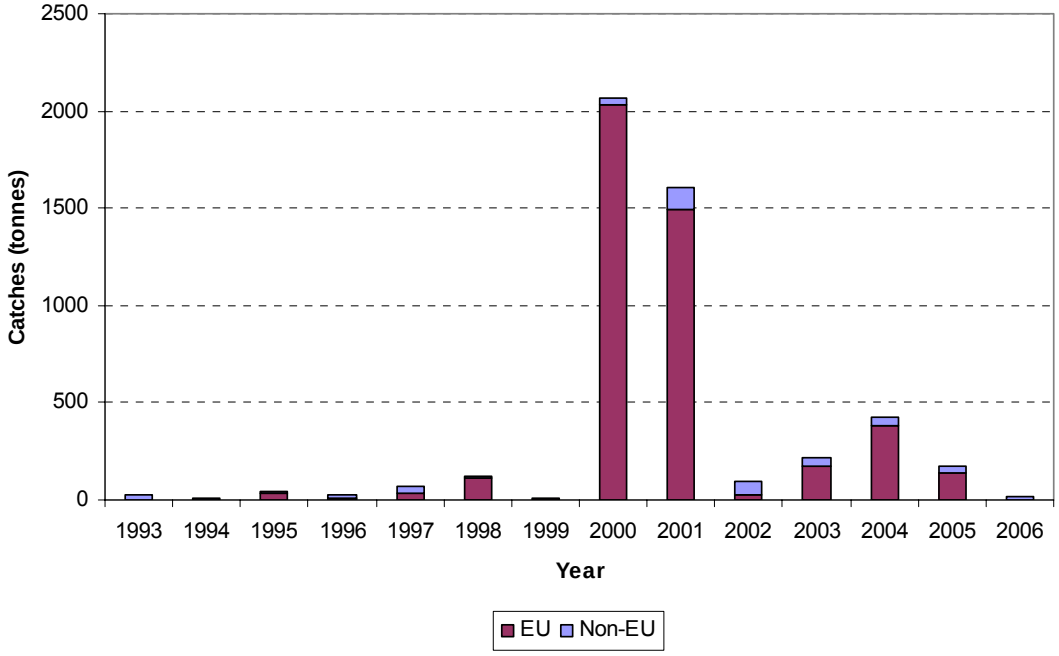
Fishery Unit Name:	Irminger Sea Grenadier fishery
Flag States:	DEU, ESP (EU-27)
	NOR, GRL, RUS, ISL (Non EU-27)
Gear Types Used:	 (attach diagrams of typical gear)
Target Species:	Roundnose grenadier (RNG) Roughhead grenadier (RHG) (attach species description [26])
Major bycatch species:	 (attach basic species details)
Geographical Area:	NEAFC XIV, XIVb (including if transboundary with EEZs, RFMO managed or high seas)

Catch Information

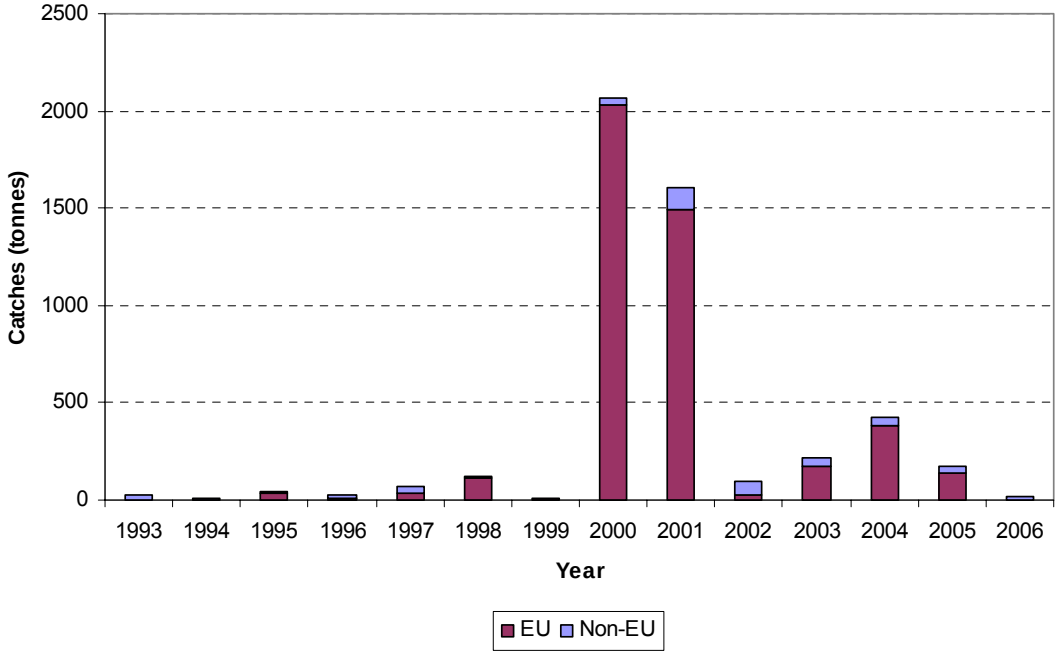
EU Catches / Non EU Catches

Source (ICES Catch database)

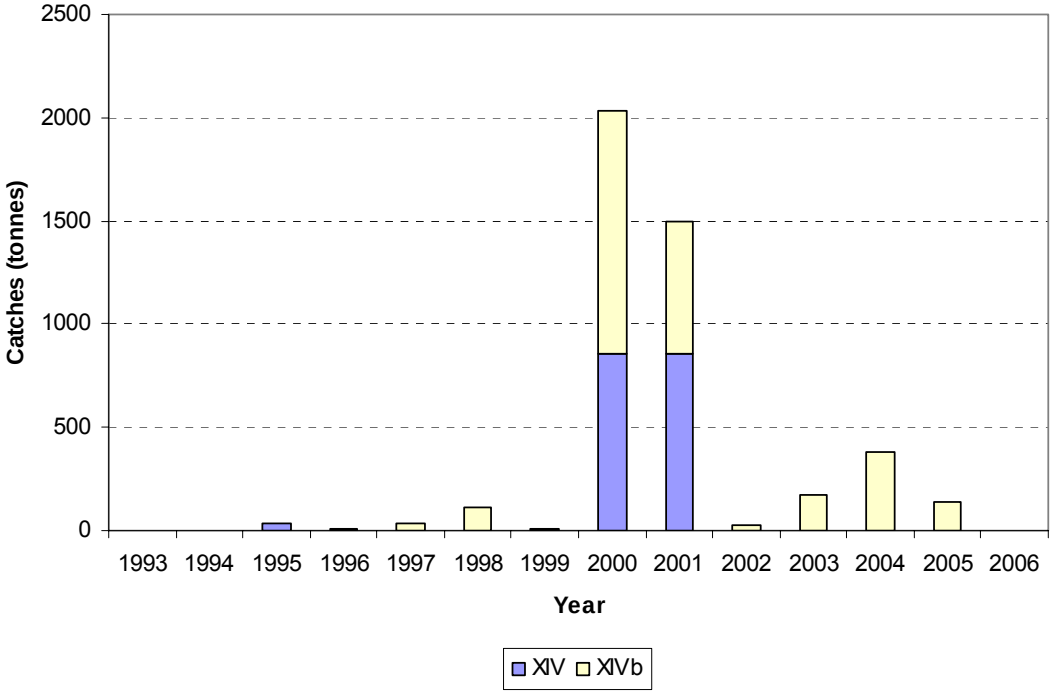
[26] Species descriptions of key target, bycatch and incidental mortality species should include pictures, scientific & common names, biometric and ecological characteristics;



Catches by flag state



Catches by area


2500
2000
1500
1000
500
0
Catches (tonnes)
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
Year
XIV
XIVb

Appendix 4: Import matrices

Sum of imports of deep sea species to EU countries in tonnes: Sum of imports from 2002–2006

Redfish

Member State (Importer)	ICELAND	CHINA	NORWAY	DENMARK	SPAIN	GERMANY	NETHERLANDS	PORTUGAL	UNITED KINGDOM	FAROE ISLANDS	RUSSIA	GREENLAND	BELGIUM	FRANCE	LATVIA	SWEDEN	POLAND	LITHUANIA	ITALY	GREECE	IRELAND	VIETNAM	OTHERS	TOTAL
Austria				57.2	0.0	838.8	64.2		5.8				0.6	9.5			11.9		224.5	10.9			3.2	1,226.6
Belgium	5,031.6	242.3		1,913.0	8.4	1,126.8	348.1	8.2	647.7		20.2			446.4		1,115.3			6.5		171.5		62.4	11,148.4
Bulgaria		0.7	0.5				5.1						1.5						0.0	1.1		0.1	54.3	63.3
Cyprus	117.6	15.0	16.2	32.9	164.4		154.8	399.6	3.4		15.1			0.2					1.3	206.2			94.9	1,221.6
Czech Rep.	0.2		1.7	30.1	4.2	21.7	32.9						0.2	8.8		0.0	44.8		1.2				0.0	145.8
Denmark	6,790.8	3,313.5	13,205.7		3,257.5	1,346.5	69.3		34.7	5,381.7	452.7	3,124.5	0.2	77.1	1.4	278.0	727.9	99.5	1.3	3.9			48.0	38,214.2
Estonia	83.2		92.9	6.6	9.1	19.4	8.0								8.3	52.6		32.9					56.2	369.2
Finland	19.2	127.1	2,916.0	121.6		278.2	59.0			87.5	72.7				14.0	74.7		0.1					8.9	3,779.0
France	5,916.4	511.0		6,658.5	489.9	6,612.8			9,319.7				1,893.0		0.8				159.6	48.4	342.6		0.0	31,952.7
Germany	69,205.4	34,151.6	2,419.2	8,902.1	71.9		5,857.0	22.0	3,523.5	828.0	3,448.5	21.8	1,025.2	1,977.6	2,853.0	1,729.3	1,261.5	1,371.5	635.7	124.0	0.9	9.7	710.5	140,149.9
Greece	5,838.0		21.0	1,299.2	1,864.9	1,255.1	659.0	0.2	22.7	45.6			6.5	0.0		0.0		24.9	63.0				106.7	11,206.8
Hungary	6.2		0.0	0.7	0.0	20.4	2.5	0.0						0.2					0.0	1.8			0.0	31.8
Ireland				623.6		2.2	21.0		194.4				0.7	3.6					0.1				0.0	845.6
Italy	0.6	283.2		1,302.2	2,615.6	1,855.2	1,585.7	32.3	99.0				300.4	402.7		1.2				33.8			13.1	8,525.0
Latvia	1,043.5		92.8	22.9		1,039.8	221.0				27.9			4.4		0.1		164.6					16.7	2,633.7
Lithuania	4,258.5	24.2	956.3	113.6	25.0	571.7	291.2	5.4		50.3	379.0	24.0		17.7	3.8	47.0	5.1			0.0	3.1		61.7	6,837.6
Luxembourg	5.5			17.8		15.2	1.1	59.0	4.4				35.0	36.9		2.4				1.1			0.0	178.4
Malta					1.0								0.0						5.9				0.0	6.9
Netherlands	28,947.9	3,120.4	188.2	1,149.1	12.5	957.7		0.0	29.1	492.7	3,347.1	2,268.4	1,119.2	417.2	609.9	95.3	1.5	244.0		194.4	8.8		133.3	43,336.7
Poland	309.1	12.3	164.4	312.0	28.7	1,025.7	325.5				7.0		0.1	38.1		1.2						17.7	91.4	2,333.2
Portugal	800.0		25.0	2,621.2	12,174.3	203.1	2,343.0		396.9	10.0	37.1			25.0					1.7				59.5	18,696.8
Romania	0.1		7.6	0.0	3.2	2.0	3.8		0.1					0.8					2.1	0.7			24.2	44.6
Slovakia						47.1								0.0						0.0			24.8	71.9
Slovenia	108.8		0.3	35.1	86.4	27.0	36.7		0.0		1.0			0.1	0.6				275.9	0.0			2.2	574.1
Spain	6,002.7	78.4	44.8	178.9		709.0	4,441.3	13,983.3	107.3	29.9	1,879.4		6.0	137.9		7.5	21.4		38.6	8.4	77.1		38.4	27,790.3
Sweden	430.5	32.4	8,603.0	226.3		199.5	151.9			10.3	0.6		0.5										5.9	9,660.9
UK	19,491.5	97.7	187.9	32.3	460.0	73.5	60.5	36.0		5,615.6	90.2		32.1	30.7	0.6		2.8		6.6	0.3	13.8	468.2	447.8	27,148.1
TOTAL	**154,407.3**	**42,009.8**	**28,943.5**	**25,656.9**	**21,277.0**	**18,248.4**	**16,742.6**	**14,546.0**	**14,388.7**	**12,551.6**	**9,778.5**	**5,438.7**	**4,421.2**	**3,634.9**	**3,492.4**	**3,404.6**	**2,076.9**	**1,937.5**	**1,424.0**	**635.0**	**617.8**	**495.7**	**2,064.1**	**388,193.1**
%	39.8	10.8	7.5	6.6	5.5	4.7	4.3	3.7	3.7	3.2	2.5	1.4	1.1	0.9	0.9	0.9	0.5	0.5	0.4	0.2	0.2	0.1	0.5	

Greenland halibut

Member State (Importer)	GREENLAND	DENMARK	NORWAY	FAROE ISLANDS	SPAIN	PORTUGAL	UNITED KINGDOM	ICELAND	RUSSIA	GERMANY	SWEDEN	CANADA	POLAND	NETHERLANDS	BELGIUM	IRELAND	FRANCE	Other	TOTAL IMPORTS
Austria		76.0			0.9		0.0			60.7				2.9				2.8	143.3
Belgium		3352.6			0.1		0.9			1258.5	112.4			86.1			53.2	0.8	4864.6
Bulgaria		1.1	1.2															7.4	9.7
Cyprus	0.0	0.9	5.0				2.1	3.8		9.6					0.1			0.0	21.5
Czech Rep.	0.1	7.5	9.6							25.2			7.0	2.1	0.0		8.3	0.0	59.8
Denmark	67594.4		8481.1	1360.4	723.3	296.1	18.4	142.4	829.4	219.1	102.3	1000.6	354.9	14.6	1.6		25.5	76.6	81240.7
Estonia			38.2		16.8				23.0	0.1				0.1				1.0	79.2
Finland		155.8	1.5								0.5			1.5				0.0	159.3
France		4985.9			1266.1		4709.5	791.3		77.6					160.5	164.4		7.7	12163.0
Germany		10463.2	6238.5	67.0	106.9		73.3	679.1	46.6		1105.8	58.9	633.6	103.4	57.3	16.8	24.1	10.1	19684.6
Greece		12.5					0.1			23.2				3.4			0.0	0.0	39.2
Hungary			0.0							0.1								0.0	0.1
Ireland							779.3			7.7				4.9			4.1	0.0	796.0
Italy		49.7	0.1		205.8		0.0			41.9	7.1		0.2	20.5	0.4		3.9	0.0	329.6
Latvia		22.3	110.3		16.1			59.5	0.5	0.0	0.0							5.6	214.3
Lithuania	0.0	73.3	51.0		2.9			17.6		16.6	0.6			0.7				3.1	165.8
Luxembourg						0.1	0.0			0.0	0.0				0.5		1.4	0.0	2.0
Malta		0.1																0.0	0.1
Netherlands	318.8	734.7	565.0	13.2	0.1	7.1	31.5	1570.9	619.2	217.3	14.6				34.9		11.1	0.2	4138.6
Poland		1635.0	2453.4		64.4		13.0	269.5	24.9	504.2	153.7	18.0		2.0			0.1	0.0	5138.2
Portugal		88.1			5422.7							0.5		43.7	25.7			0.0	5580.7
Romania		0.3	0.9		0.1								0.5	0.6			0.0	0.0	2.4
Slovakia		0.2								0.4			0.0					0.0	0.6
Slovenia		0.0	0.0		0.3									0.2			0.3	0.4	1.2
Spain	0.2	2552.1	67.6			6249.8	57.4		2209.1	134.8	0.0	300.7		166.1	43.8	0.1	5.3	196.7	11983.7
Sweden		159.9	2248.9	0.1				2.4	25.4	1.4		4.4	0.1	83.5				1.6	2527.7
UK	1.0	274.8	2346.7	6839.3	282.1	15.5		772.7	108.0	3.7	2.3	0.2	53.4	8.6		0.6	41.8	5.2	10755.9
TOTAL	**67914.5**	**24646.0**	**22619.0**	**8280.0**	**8108.6**	**6568.6**	**5685.5**	**4309.2**	**3886.1**	**2602.1**	**1499.3**	**1383.3**	**1049.7**	**544.9**	**324.8**	**181.9**	**179.1**	**319.2**	**160101.8**
%	42.4	15.4	14.1	5.2	5.1	4.1	3.6	2.7	2.4	1.6	0.9	0.9	0.7	0.3	0.2	0.1	0.1	0.2	

Atlantic halibut

Member State (Importer)	NORWAY	DENMARK	PORTUGAL	UNITED KINGDOM	FAROE ISLANDS	ICELAND	SPAIN	GERMANY	SWEDEN	FRANCE	NETHERLANDS	CANADA	GREENLAND	BELGIUM	RUSSIA	UNITED STATES	IRELAND	ITALY	OTHERS	TOTAL
Austria		43.2		0.3			0.0	20.3		0.0	1.4					0.3		0.3	0.0	65.8
Belgium		527.8		25.2		13.7		43.7	77.0	75.7	90.8						6.1		15.4	875.4
Bulgaria	0.4																		0.0	0.4
Cyprus		1.0		0.4						0.4				1.0					0.1	2.9
Czech Rep.	0.1	20.6						4.5	0.4	0.5	3.4			0.0					1.3	30.8
Denmark	2,275.0		51.5	5.0	245.0	54.7	883.4	183.1	108.3	0.7	2.7	6.8	100.9	0.0	14.4	8.2			2.3	3,942.0
Estonia	8.5	0.5				0.2	2.0	106.8		43.7									3.0	164.7
Finland	0.3	0.4							13.0	0.0	0.6								0.0	14.3
France		689.1		2,266.2			89.8	316.0						20.1			6.6	1.7	5.5	3,395.0
Germany	107.1	1,279.8	0.1	12.1	0.8	82.1	95.5		56.8	30.3	86.3	4.8		21.3		12.2		1.7	3.6	1,794.5
Greece		245.5		0.6		19.4	2.5	0.5	0.0		4.5			0.3				0.0	0.0	273.3
Hungary	0.0	0.3								0.0	1.5							1.1	9.4	12.3
Ireland	0.2			11.2		28.6								1.1					0.0	41.1
Italy		336.8		0.1			230.0	2.9	143.8	34.3	50.1			11.4					1.9	811.3
Latvia	7.4	3.5						0.4	0.3		0.2								0.0	11.8
Lithuania	13.3	0.1				0.0		0.0	1.7	0.0									0.5	15.6
Luxembourg	0.0	0.0		0.0		0.6				0.7	0.5			4.4					0.0	6.2
Malta	0.0																	1.4	0.0	1.4
Netherlands	12.1	179.6	0.1	9.4	86.0	38.0	3.6	28.3	5.4	0.3			43.4	6.7	1.1	21.1			19.0	454.1
Poland	52.0	49.0						22.5	0.4	0.0	0.1								0.0	124.0
Portugal	0.1	10.3					190.5	0.4	0.1		1.7				17.5			16.6	0.0	237.2
Romania	1.9	0.1									0.1					0.1			4.5	6.7
Slovakia										0.0									0.0	0.0
Slovenia							0.4			0.3	6.7							1.3	0.0	8.7
Spain		1,212.2	2,537.6	25.0				101.6	2.3	251.0	11.0			34.9	14.1		4.4	2.8	12.2	4,209.1
Sweden	2,228.7	298.3		0.3	9.7	116.7		0.1		15.8	1.0	108.6			1.9	36.0			0.0	2,817.1
UK	452.6	259.6	73.6		1,720.7	1,437.8	128.2	0.5	91.2	10.6	2.3	56.6	14.4	13.8	53.0	1.2	23.6	1.0	1.2	4,341.9
TOTAL	**5,159.7**	**5,157.7**	**2,662.9**	**2,355.8**	**2,062.2**	**1,791.8**	**1,625.9**	**831.6**	**500.7**	**464.3**	**264.9**	**176.8**	**158.7**	**115.0**	**102.0**	**79.1**	**40.7**	**27.9**	**79.9**	**23,657.6**
%	21.8	21.8	11.3	10.0	8.7	7.6	6.9	3.5	2.1	2.0	1.1	0.7	0.7	0.5	0.4	0.3	0.2	0.1	0.3	

Pacific halibut

Member State (Importer)	UNITED STATES	DENMARK	RUSSIA	SPAIN	GERMANY	NETHERLANDS	CANADA	SWEDEN	ICELAND	VIETNAM	THAILAND	UNITED KINGDOM	OTHERS	TOTAL
Austria		0.9			6.4	4.4								11.7
Belgium						2.1	0.4							2.5
Cyprus	0.5													0.5
Czech Rep.														0.0
Denmark	82.5		0.2		1.7	3.6	1.7	0.0						89.7
Estonia				1.5			0.4							1.9
France		24.4		2.7	0.3								0.8	28.2
Germany	47.1	8.9	0.3			0.3	5.8							62.4
Greece						3.8								3.8
Ireland												2.3		2.3
Italy	0.1			27.7	19.3	2.6				20.9			0.2	70.8
Lithuania									24.6					24.6
Netherlands	33.9	58.4		2.9	2.0						3.1		0.1	100.4
Poland	77.7	80.0		40.1	20.9	16.9		25.0		0.3				260.9
Portugal				20.8										20.8
Slovakia														0.0
Slovenia		0.1											0.1	0.2
Spain		194.1				9.8							0.1	204.0
Sweden	154.2	2.4	5.9	1.1		2.3	19.8						0.1	185.8
UK	300.9	0.1	118.9		0.0		7.0							426.9
Total	**696.9**	**369.3**	**125.3**	**96.8**	**50.6**	**45.8**	**35.1**	**25.0**	**24.6**	**21.2**	**3.1**	**2.3**	**1.4**	**1497.4**
%	46.5	24.7	8.4	6.5	3.4	3.1	2.3	1.7	1.6	1.4	0.2	0.2	0.1	

Toothfish

Member State (Importer)	PORTUGAL	NETHERLANDS	UNITED KINGDOM	FRANCE	ITALY	FALKLAND ISLANDS	DENMARK	GERMANY	SWEDEN	SPAIN	ARGENTINA	CHINA	CHILE	BELGIUM	INDIA	SINGAPORE	POLAND	HUNGARY	OTHERS	TOTAL
Austria		0.0			0.3			10.2											2.4	12.9
Belgium	404.0	248.4		34.4	3.6		12.7	21.9	7.3	11.7									5.7	749.7
Bulgaria										0.6									0.0	0.6
Czech Rep.							4.7						1.5						0.0	6.2
Denmark					1.2			3.0					4.5						1.8	10.5
Estonia							3.2	40.6											0.0	43.8
Finland		2.0																	0.0	2.0
France												29.5	21.2	3.6					0.0	54.3
Germany	2.5	10.1		10.9			41.5			0.3			2.3	0.2					0.2	68.0
Greece		3.4					3.1			18.7									0.0	25.2
Ireland			1.1																0.0	1.1
Italy		5.2								22.3	7.4	18.8		3.3					0.0	57.0
Latvia										30.4									0.9	31.3
Lithuania										4.0									0.0	4.0
Luxembourg				0.0										0.4					0.0	0.4
Netherlands				0.5										18.6					0.0	19.1
Poland		0.0								3.5	12.3			0.0					0.0	15.8
Portugal										23.7									0.0	23.7
Slovakia								0.0									10.4	9.2	0.4	20.0
Slovenia					0.4														0.0	0.4
Spain	5,482.0	36.9	269.9	29.0	224.8	208.5	90.6	72.0	133.1		89.8		7.4	2.0					5.3	6,651.3
Sweden		4.9																	0.9	5.8
UK		11.1		164.5			10.4					0.8	8.4		20.5	11.3			0.0	227.0
TOTAL	**5,888.5**	**322.0**	**271.0**	**239.3**	**230.3**	**208.5**	**166.2**	**147.7**	**140.4**	**115.2**	**109.5**	**49.1**	**45.3**	**28.1**	**20.5**	**11.3**	**10.4**	**9.2**	**17.6**	**8,030.1**
%	73.3	4.0	3.4	3.0	2.9	2.6	2.1	1.8	1.7	1.4	1.4	0.6	0.6	0.3	0.3	0.1	0.1	0.1	0.2	

Ling

Member State (Importer)	UNITED KINGDOM	FAROE ISLANDS	ICELAND	NORWAY (incl_SJ excl_1995,1996)	DENMARK	IRELAND	FRANCE	SPAIN	GERMANY (incl DD from 1991)	SWEDEN	BELGIUM (and LUXBG -> 1998)	PORTUGAL	NETHERLANDS	OTHERS	TOTAL
Austria					0.0				0.0						0.0
Belgium	111.8		265.2		126.8	92.5	210.1	1.8	0.5	45.1			18.9	2.7	875.4
Bulgaria				0.1										3.1	3.2
Cyprus														19.7	19.7
Czech Rep.					0.1		0.0		0.6						0.7
Denmark	50.0	865.7	79.6	1,749.8			18.1		142.9	73.9	0.9		0.0	34.1	3,015.0
Estonia			10.7					2.6	5.8						19.1
France	13,459.7		702.0		2,733.8	1,296.7		615.1	193.4		184.8			35.8	19,221.3
Germany	64.4	1.6	1,121.4	92.4	711.6		1.7	0.7		30.4	0.2	70.7	16.7	13.7	2,125.5
Greece							0.0	8.5						2.0	10.5
Ireland	6.2		0.0												6.2
Italy	3.1			134.6	48.2		47.3	72.1	1.8	6.3			2.4	1.7	317.5
Latvia			6.6	2.3			0.0							5.5	14.4
Lithuania			4.5	2.4				27.9		0.1				0.1	35.0
Luxembourg						0.0	8.2		18.9		17.2				44.3
Netherlands	5.1	10.9	1,361.3	12.9	33.2	4.8	0.8		4.5	0.2	10.1			1.6	1,445.4
Poland			99.6		23.1		4.1	1.1	40.7				0.7		169.3
Portugal	0.7			11.3	0.9			263.6	0.6	51.0					328.1
Romania				0.2			0.0								0.2
Slovakia								1.1						0.1	1.2
Spain	1,532.0		86.0		50.0	978.2	1,056.1		14.1	27.1		105.8	12.4	23.3	3,885.0
Sweden	191.9	30.6	149.6	2,200.2	92.3		0.2		0.0					4.9	2,669.7
UK		7,467.1	1,606.5	27.8	6.1	243.7	42.1		1.8		2.1		1.2	9.3	9,407.7
TOTAL	**15,424.9**	**8,375.9**	**5,493.0**	**4,234.0**	**3,826.1**	**2,615.9**	**1,388.7**	**994.5**	**425.6**	**234.1**	**215.3**	**176.5**	**52.3**	**157.6**	**43,614.4**
%	35.4	19.2	12.6	9.7	8.8	6.0	3.2	2.3	1.0	0.5	0.5	0.4	0.1	0.4	

Pollack

Member State (Importer)	CHINA	UNITED STATES	RUSSIA	GERMANY	DENMARK	UNITED KINGDOM	NETHERLANDS	NORWAY	FRANCE	POLAND	SPAIN	BELGIUM	CZECH REPUBLIC	IRELAND	SWEDEN	LITHUANIA	OTHERS	TOTAL
Austria	13.3			8,554.3	64.5		357.9		357.0			47.5	2.5	22.1			2.0	9,421.1
Belgium	4,683.6	3,730.9	2,012.7	11,263.1	5,458.9	827.7	1,610.5	0.9	1,344.8		24.3			104.7	188.1	4.1	363.7	31,618.0
Bulgaria	1,213.4		42.5	0.2							22.6						18.0	1,296.7
Cyprus	136.5	0.1		1.1		0.1	0.5		0.1		2.7						0.3	141.4
Czech Rep.	15,366.1	322.3	109.4	906.7	5.4		911.3	0.5	0.4	1,676.0		0.8			0.0	42.0	99.9	19,440.8
Denmark	2,978.4	10,512.8	1,356.8	3,202.9		243.8	66.5	2,996.6	24.1	96.8	7.8	15.1			476.6		46.2	22,024.4
Estonia	629.9	872.9	595.1	76.2	58.4		7.0	10.8		58.9						45.7	28.7	2,383.6
Finland	288.0			279.3	111.1		1.7	0.1							72.2		0.0	752.4
France	74,013.4			48,480.5	4,485.6	12,308.5					82.5	718.9		931.8			18.9	141,040.1
Germany	303,818.2	230,766.7	165,630.8		7,133.9	6,340.6	5,366.8	678.0	1,540.0	3,109.6	20.9	682.9	0.3		40.0	1,116.3	1,021.5	727,266.5
Greece	14.0			1,346.7			15.3										4.8	1,380.8
Hungary	478.4			108.4	98.7			0.0	0.0	275.7			6.2				396.7	1,364.1
Ireland		0.0		79.6	317.5	40.6											0.0	437.7
Italy	732.7	129.2		3,935.4	132.2	23.0	253.2		166.5		1,395.5	4.6					57.1	6,829.4
Latvia	137.4		204.3	1.1	0.2			77.3	0.0	0.7	9.6					8.2	1.0	439.8
Lithuania	5,418.6	97.6	163.7	763.3	324.8			4.8		10.3	132.5		66.0		1.0		13.7	6,996.3
Luxembourg				15.7					6.9			85.2					0.0	107.8
Malta				0.8			9.9					9.3					0.0	20.0
Netherlands	12,836.1	49,239.6	3,574.7	3,663.3	1,128.8	63.0		49.1	54.5	2.4	16.2	1,133.9			1.3	18.9	116.8	71,898.6
Poland	69,487.5	10,871.8	1,366.9	8,139.9	1,432.6	122.6	395.0	6.2			225.9	5.4	192.0		88.2	22.0	95.1	92,451.1
Portugal	1,187.9	9,742.3	83.9	25.0	2.0	97.9	6.0		1.3		1,140.5	0.0					194.7	12,481.5
Romania	1,312.4	328.7	0.6					54.0	0.0	31.5						5.7	43.0	1,775.9
Slovakia	2,238.3	2,111.0		812.7	10.1					395.1	13.6		2,321.2		0.0		11.2	7,913.2
Slovenia	58.0			16.2	0.0								1.7				4.6	80.5
Spain	6,482.3	8,312.9	178.5	337.5	1,401.2	314.7	599.9		1,281.6			71.1		697.6	207.7		726.2	20,611.2
Sweden	11,982.2	7,674.3	770.7	5,877.3	3,015.1		577.7	3,780.0	777.2							6.3	17.2	34,478.0
UK	16,909.9	50,344.0	1,827.8	23,810.4	3,410.6		51.6	0.4	262.1		65.3	66.6		310.6	282.0		989.7	98,331.0
TOTAL	**532,416.5**	**385,057.1**	**177,918.4**	**121,697.6**	**28,591.6**	**20,382.5**	**10,230.8**	**7,658.7**	**5,816.5**	**5,657.0**	**3,159.9**	**2,841.3**	**2,589.9**	**2,066.8**	**1,357.1**	**1,269.2**	**4,271.0**	1,312,981.9
%	40.6	29.3	13.6	9.3	2.2	1.6	0.8	0.6	0.4	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.3	

Hake

Member State (Importer)	NAMIBIA	GERMANY	ARGENTINA	CHILE	SPAIN	URUGUAY	UNITED KINGDOM	UNITED STATES	PERU	SWEDEN	CANADA	NETHERLANDS	FRANCE	BELGIUM	DENMARK	MALAYSIA	ITALY	PORTUGAL	NEW ZEALAND	POLAND	OTHERS	TOTAL
AUSTRIA		2,549.5			13.9							13.0			0.4						0.3	2,577.1
BELGIUM		15.3			2.3	59.6						5.3	7.6		0.1			0.2			0.7	91.1
BULGARIA			3.0											4.8							0.0	7.8
CYPRUS			0.2		0.7																0.0	0.9
CZECH REPUBLIC		64.2	112.3	20.5	34.8				12.9			10.0									0.0	254.7
DENMARK		416.7		22.8						76.2											0.0	515.7
ESTONIA			145.5	50.1	14.0				62.0		52.1	1.3	8.0								0.4	333.4
FINLAND										584.1		0.3			73.7						0.0	658.1
FRANCE		249.0	373.1	249.2	495.2		237.1							39.4	17.9		12.0				0.2	1,673.1
GERMANY	232.9		696.8	927.6	27.4	0.9		1,408.3	649.4	15.7	407.8	84.9	90.2	34.6	14.3	22.3	42.9	4.8		40.5	5.2	4,706.5
GREECE			530.3						128.9		25.0						10.7				0.0	694.9
HUNGARY		56.7																		1.3	0.0	58.0
IRELAND																					1.4	1.4
ITALY	943.2	3,970.3	397.6	1,007.5	1,867.8	3,568.0	121.3	10.0			203.9	276.4	189.7	203.5	0.6						22.0	12,781.8
LATVIA		19.3	5.0		20.0										3.1						0.3	47.7
LITHUANIA					1.6																1.8	3.4
LUXEMBOURG		0.0											3.9	0.2				5.2			0.0	9.3
MALTA			7.8		4.5		3.9								1.5						7.2	24.9
NETHERLANDS	1.0	1,479.6	13.8		72.9	6.8	7.1			92.8				13.6							0.0	1,687.6
POLAND		21.5			110.4		27.0								46.3						0.0	205.2
PORTUGAL	1,046.3	0.4	48.6		2,529.8		20.0				0.1		0.0								6.7	3,651.9
ROMANIA		0.3			11.3															0.0	0.0	11.6
SLOVAKIA																					7.9	7.9
SLOVENIA		30.0	20.3		155.1			5.0		0.0		104.0	0.0		114.8		44.7			71.2	9.7	554.8
SPAIN	14,132.3	2,115.3	3,959.2	1,484.2		438.6	1,958.9	170.0	384.8			38.2	119.8	122.9	0.0		15.7	241.3	242.2		22.2	25,445.6
SWEDEN			117.3	69.4							0.9	127.5			8.5						1.5	325.1
UNITED KINGDOM	110.3	24.5	1.0	2,205.4	10.3	7.3			20.3			9.8	1.3	0.6		236.4	128.5	1.8			2.4	2,759.9
TOTAL	**16,466.0**	**11,012.6**	**6,431.8**	**6,036.7**	**5,372.0**	**4,081.2**	**2,375.3**	**1,593.3**	**1,258.3**	**768.8**	**689.8**	**670.7**	**420.5**	**419.6**	**281.2**	**258.7**	**254.5**	**253.3**	**242.2**	**113.0**	**89.9**	**59,089.4**
%	27.9	18.6	10.9	10.2	9.1	6.9	4.0	2.7	2.1	1.3	1.2	1.1	0.7	0.7	0.5	0.4	0.4	0.4	0.4	0.2	0.2	

Flatfish

Member State (Importer)	NETHERLANDS	UNITED KINGDOM	FRANCE	DENMARK	BELGIUM	SPAIN	IRELAND	GERMANY	MAURITANIA	PORTUGAL	CHINA	FAROE ISLANDS	NORWAY	SOUTH	ITALY	ICELAND	GREECE	SWEDEN	UNITED STATES	NEW ZEALAND	VIETNAM	RUSSIA	POLAND	OTHERS	**TOTAL**
Austria	245.3	9.2	21.9	153.3	2.8	125.8	0.7	452.0							8.3		0.0						0.0	5.7	**1,025**
Belgium	9,045.4	1,630.5	2,371.5	712.8		292.9	699.0	77.6	3.6	0.0	3.5			0.3	450.2	57.8	1.4	45.4	109.0		13.8	3.1	1.4	45.3	**15,565**
Bulgaria	0.7			6.8	0.0	26.6					0.6		7.0		3.1		8.0		5.0	12.8				48.3	**119**
Cyprus	61.1	4.1	7.9	7.5		0.2		6.1	0.7								0.8			0.5				0.0	**89**
Czech Rep.	40.1		9.5	17.6	0.5			14.7					0.1		0.9								0.4	0.2	**84**
Denmark	300.5	383.3	30.3		185.8	50.7		2,503.3		80.0		131.3	747.3		82.7	57.6	0.0	1,303.9	0.0	4.0		21.5	77.2	96.2	**6,056**
Estonia	0.5			0.0	0.4								0.1									15.5		40.0	**57**
Finland	58.0		0.3	27.9	0.0	124.4		0.2					0.2					26.7						0.0	**238**
France		9,759.0		2,078.3	4,547.1	4,033.6	1,605.3	181.4	219.3		17.8				406.1	2.3	1,341.6							144.1	**24,336**
Germany	4,615.0	51.8	549.2	2,283.2	277.2	864.7	10.2		0.1	4.4	0.1		15.1		68.4	36.1	17.8	37.2	10.2	7.4	5.9	27.3	73.6	78.1	**9,033**
Greece	2,323.6	51.6	53.6	158.9	116.0	135.1		288.1	35.8	6.6	14.1				297.3	0.4		2.0			0.0	2.0		66.5	**3,552**
Hungary	1.2		4.2	3.2							0.0				4.0						0.2			0.9	**14**
Ireland	70.3	395.7	61.1		41.6	1.1							0.0		0.7	141.1								0.0	**712**
Italy	39,288.9	234.2	7,573.8	2,923.6	2,201.3	7,321.5	27.2	257.3	111.0	143.4	74.0			28.7			318.9	45.4	126.4	270.6	0.9		0.4	74.7	**61,022**
Latvia	0.7		3.4	4.0				23.4		0.0			0.2	0.1		4.0		1.8	0.0				69.4	56.1	**163**
Lithuania			0.1	0.1		0.2		0.1					0.0			2.8			0.0				11.0	44.9	**59**
Luxembourg	137.1	36.2	395.9	8.5	273.5	35.1	14.3	5.8		24.4						12.4		1.7						0.1	**945**
Malta	3.6	0.0				16.8		0.2	0.2				0.0	2.3	127.0					2.3				2.2	**155**
Netherlands		6,737.9	4,668.6	10,752.6	16,434.3	222.1	412.1	9,513.3		0.9	14.5	16.3	1,978.7		37.5	743.1	15.7	2.4	514.9	10.6	3.1	85.5	73.9	20.8	**52,259**
Poland	7.7		423.1	1,685.6	0.0	90.0		7.6					1.4		0.1			5.8	35.7			1.2		1.0	**2,259**
Portugal	331.5	0.0	75.8	144.5		10,050.9	21.8	110.4	207.3		33.9				65.6		46.4	0.8	0.0	32.7		0.1		12.7	**11,134**
Romania	1.0	0.1	0.3	1.6		41.2				0.1	0.3		31.6		5.0	1.0	1.8		0.0				37.1	2.2	**123**
Slovakia			0.1			0.7		0.8					11.7										1.4	16.5	**31**
Slovenia	85.1	0.2	4.2	10.2	11.5	33.0		0.1	1.1				0.0		103.9		0.3							0.0	**250**
Spain	21,993.8	28,587.2	21,165.1	4,415.4	990.6		17,580.1	177.2	10,119.2	8,712.3	6,211.5			3,393.6	1,654.5	765.6	1,148.9	225.6	226.2	274.7	563.1	220.9	4.0	1,340.1	**129,770**
Sweden	462.1		6.8	1,164.4	0.6	1.0		7.7	0.5				1,146.2			28.4	0.3						5.4	3.8	**2,827**
UK	869.3		312.2	1,245.4	828.8	138.0	1,061.6	11.6	0.5	0.4	5.0	3,956.8	9.9	0.0	5.9	1,308.3	57.5	97.0	18.5	6.5	8.8	8.2	11.1	30.5	**9,992**
TOTAL	**79,942.5**	**47,881.0**	**37,738.9**	**27,805.4**	**25,912.0**	**23,605.6**	**21,432.3**	**13,638.9**	**10,699.3**	**8,972.5**	**6,375.3**	**4,104.4**	**3,949.5**	**3,425.0**	**3,321.2**	**3,160.9**	**2,959.4**	**1,795.7**	**1,045.9**	**622.1**	**595.8**	**385.3**	**366.3**	**2,130.9**	**331,866**
%	24.1	14.4	11.4	8.4	7.8	7.1	6.5	4.1	3.2	2.7	1.9	1.2	1.2	1.0	1.0	1.0	0.9	0.5	0.3	0.2	0.2	0.1	0.1	0.6	

Shrimps & Prawns

Member State (Importer)	GREENLAND	DENMARK	INDIA	CANADA	ARGENTINA	CHINA	BANGLADESH	UNITED KINGDOM	SPAIN	BELGIUM	NETHERLANDS	INDONESIA	FRANCE	NORWAY	MALAYSIA	FAROE ISLANDS	ECUADOR	GERMANY	ICELAND	OTHERS	TOTAL
AUSTRIA		903.6	30.1				18.5	61.3	0.2	263.3	126.4		66.8					2,320.1		35.6	3,825.9
BELGIUM		617.2	22,390.2		20.2	5,567.9	12,579.0	7,493.3	272.8		10,779.5	4,204.1	2,171.0	0.6	2,752.5		447.0	1,579.5	45.0	7,251.7	78,171.5
BULGARIA	57.3	97.3	6.6	13.7	0.1	10.4	16.3	0.9	12.2	27.2	5.1	6.9		38.6	6.1	0.5		23.6	1.7	20.5	345.0
CYPRUS	8.6	218.9	49.9	10.2	2.2		3.9	275.7	8.3	22.7	30.8	13.0	34.8	39.2	54.6			28.3	8.3	399.9	1,209.3
CZECH REP.	2.8	141.0	4.7				3.8		3.2	29.5	5.8	2.2	15.0	0.7	4.4			29.9		58.6	301.6
DENMARK	286,987.1		257.2	81,744.3		114.2	530.1	670.7	400.9	108.6	222.0	132.0	615.6	9,640.3	284.8	18,256.0		1,265.3	3,160.7	2,442.9	406,832.7
ESTONIA	526.4	6,220.8		2,502.6	2.8	0.1	1.2		4.6	1.5	0.4	0.4		109.3	0.5	29.4		23.7	1,055.7	1,104.2	11,583.6
FINLAND		1,176.6							7.9	6.1	81.5		17.2	37.7				30.2	9.3	483.8	1,850.3
FRANCE		16,974.7	4,060.8	103.5	1,415.0	32.9	21.8	3,550.9	9,726.1	13,870.7		3,379.5					740.6	1,334.7	789.1	1,251.2	57,251.5
GERMANY		6,523.2	2,504.6	12.5	136.6	74.9	2,133.2	5,896.6	264.1	4,652.7	2,264.7	1,148.6	679.0	2.6	270.5		77.0		46.6	1,852.9	28,540.3
GREECE		337.3	355.7	0.0	744.9	103.5	8.0	2,532.7	1,265.4	214.5	275.7	22.9	552.0		136.3			96.8	3.1	976.2	7,625.0
HUNGARY		64.9	11.0	0.5		11.4	9.0	2.3	13.6	20.3	27.2	8.9	43.7	19.4	3.3		0.1	26.9	0.2	61.7	324.4
IRELAND		268.9	511.9	110.6			108.9	4,951.0	26.0	13.3	30.1	45.2	19.7		0.0			251.8	195.2	15.3	6,547.9
ITALY		12,383.4	13,552.0		27,983.3	4,957.4	95.4	12,801.2	17,711.4	1,760.7	2,604.7	2,421.0	5,288.5	0.1	6,202.3		6,061.4	200.5	26.2	6,031.2	120,080.7
LATVIA		928.8		62.9			7.1		10.0	0.1	0.2	3.6	3.9	68.2	0.7			9.0	78.7	583.9	1,757.1
LITHUANIA	8.0	1,655.8	0.2	294.0			0.4	4.6	6.5	0.4	0.3	0.1	1.4	18.4	0.0	0.3		3.8	31.1	3.8	2,029.1
LUXEMBOURG		44.1				5.0		123.3		805.4	80.6		399.7					23.7	0.1	0.2	1,482.1
MALTA		2.0	11.3		29.8	11.1		198.3	47.0	5.0	55.9	2.4	0.7	0.2	10.5		0.0	0.2		1,301.7	1,676.1
NETHERLANDS		1,932.0	24,087.8	39.5	280.6	2,769.1	4,928.9	825.8	315.4	4,324.3		7,234.8	980.1	20.8	1,195.2	3.1	333.9	1,064.4	1,845.1	6,290.1	58,470.9
POLAND	215.0	2,422.8	11.5	18.6	0.6		2.6	4.0	18.1	82.8	12.9	0.7	0.4	3.2	1.2			59.8	1.1	1,938.4	4,793.7
PORTUGAL		793.5	2,888.7	1.6	107.9	1,604.6	26.3	158.2	14,080.9	1,505.9	3,700.7	312.5	9,554.2	4.5	88.2		19.4	231.9		560.0	35,639.0
ROMANIA	10.2	22.9	24.4		1.0	46.5	32.8	10.2	68.5	1.1	6.9	27.7	5.6	36.9	23.1	0.1	3.8	9.1	0.6	89.8	421.2
SLOVAKIA		0.7					0.1		1.1	1.4			0.0	0.4				0.4	0.7	16.8	21.6
SLOVENIA	0.0	103.1	22.3		8.4	0.5	0.5	213.6	50.9	5.8	123.1	5.8	2.1		2.4		5.5	1.9	0.5	565.9	1,112.3
SPAIN		4,414.3	4,338.2	3.2	32,260.2	47,169.2	16.5	14,124.8		9,658.5	15,135.8	9,143.3	5,149.3	8.1	7,969.9		4,341.3	687.5	299.4	31,722.4	186,441.9
SWEDEN		47,277.5	35.4	398.1		56.7	20.6	17.9	73.0	250.2	201.6	606.3	21.4	11,410.8	0.0	67.6		892.1	128.3	463.6	61,921.1
UK	2,068.4	21,072.2	26,325.0	155.1	14.0	169.5	35,536.2		1,437.6	3,308.3	3,138.1	5,692.4	3,314.9	170.1	1,116.7	4.0	1,880.4	1,990.2	1,011.5	4,862.3	113,266.9
Total	**289,883.8**	**126,597.5**	**101,479.5**	**85,470.9**	**63,007.6**	**62,704.9**	**56,101.1**	**53,917.3**	**45,825.7**	**40,940.3**	**38,910.0**	**34,414.3**	**28,937.0**	**21,630.1**	**20,123.2**	**18,361.0**	**13,910.4**	**12,185.3**	**8,738.2**	**70,384.6**	**1,193,522.7**
%	24.3	10.6	8.5	7.2	5.3	5.3	4.7	4.5	3.8	3.4	3.3	2.9	2.4	1.8	1.7	1.5	1.2	1.0	0.7	5.9	