

Atlas of the Commercial Fisheries Around Ireland



2009 Review of the Fisheries
of Relevance to Ireland



Marine Institute
Foras na Mara

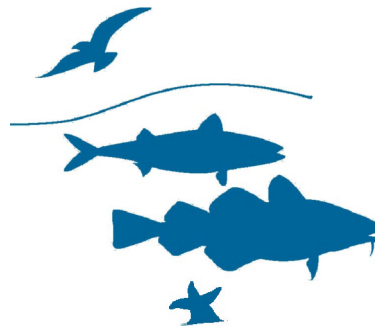
Fisheries Science Services

..to research, assess and advise



Fisheries Science Services,
Rinville, Oranmore,
Co Galway, Ireland

Atlas of the Commercial Fisheries Around Ireland



*Throughout 2009 the FSS Team were Involved in Data Collection, Data Management, Data Analysis, Conducting Assessments, Formulating and Providing Advice and Carrying out Scientific Research on Fish Stocks, both Nationally and Internationally.
The Results of this Work are Presented in this 2009 Atlas.*

December 2009

NOTE

This Atlas reviews the fishing activity on fish stocks of relevance to Ireland that come under the EU Common Fisheries Policy (CFP). The Atlas focuses on fishing opportunities (Total Allowable Catches – TACs), landings trends, fleet activity and the state of the resource in the waters around Ireland (principally ICES Sub-areas VI and VII). The Atlas also deals with fish stocks exploited by Ireland outside Sub-areas VI and VII. Every effort has been made to use the most up to date information available on fishing opportunities, landings, effort, and on the state of the resource base. The various ICES and STECF reports and databases together with various EU Regulations should be consulted for the definitive figures and regulatory articles.

The cover shows a twin rigger fishing for prawns off the Irish coast.

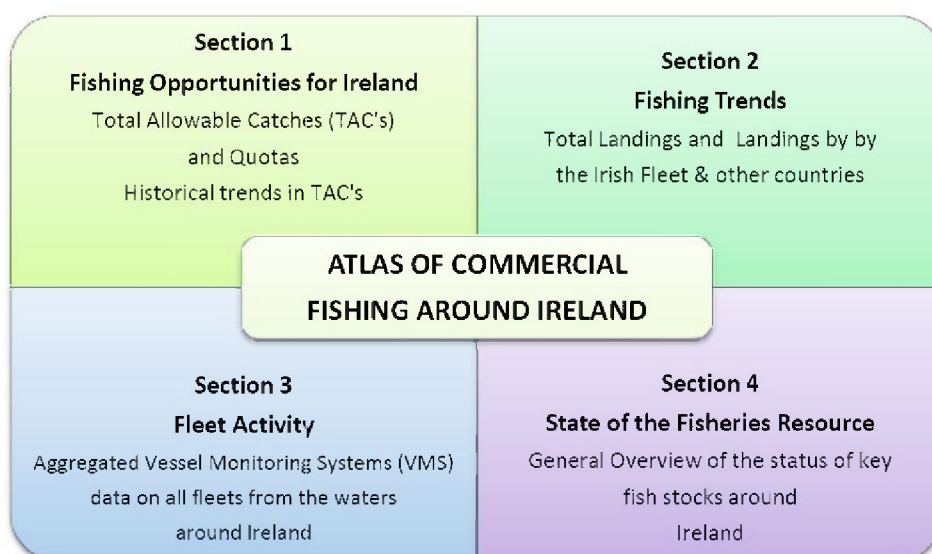
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Introduction

The purpose of the Atlas of Commercial Fisheries around Ireland, is to provide the most up to date information on the fishing activity on the fisheries resource in the waters around Ireland, that will inform the general public, policy makers, managers, scientists and stakeholders on these fisheries. The information is presented in a very visual format and the language used is as 'non technical' as possible. The focus is on stocks that are regulated by Total Allowable Catch (TAC) under the Common Fisheries Policy (CFP). The atlas will inform the debate on the upcoming review of the CFP.

The Atlas gives information, for the main fisheries, on Total Allowable Catches (TACs), landings trends and fishing activity (effort levels) in the waters around Ireland. In addition, the Atlas provides a brief overview on the state of the resource as indicated by the latest scientific assessments and advice. The most recent information and scientific advice on individual fish stocks is provided in the Stock Book, available at www.marine.ie. The atlas is divided into four sections:



Biology

The waters around Ireland contain a very productive and biologically diverse marine ecosystem. These waters include a large area of shallow continental shelf (<200 m), two important off-shore banks (Porcupine and Rockall) and a large area of continental slope (Figure 1). Over the last number of centuries fisheries have developed and expanded from coastal waters initially, throughout the shelf in the last century, to the deep sea and oceanic waters in the last few decades. In 2007, an estimated 1.9 million tonnes of fish were taken by the fishing fleets of EU member states from the waters around Ireland (defined below). Ireland landed 185,000 tonnes of these fish or 10% of the international landings.

Irish waters are critically important in the life-cycle of many species. For example the largest and most valuable migratory pelagic stocks in the Northeast Atlantic (mackerel, horse mackerel and blue whiting) all spawn off the west coast of Ireland. Large stocks of hake, anglerfish and megrim also spawn along the continental slope west and south of Ireland. There are important herring, cod, haddock, whiting, plaice and sole spawning areas in the Irish Sea and the Celtic Sea. The shelf area and coastal waters are important nursery areas for young fish. Shellfish stocks such as prawn, crab, lobster, shrimp, scallop, whelk and cockles are also abundant regionally or locally.

Boundaries

The waters around Ireland are separated by a number of geo-political boundaries. These define zones, which have a range of purposes including access to mineral wealth, scientific study, regulatory jurisdiction and living resources.

At the largest spatial scale, the waters of the Northeast Atlantic are divided into a series of Divisions and Sub-divisions by International Council for the Exploration of the Seas (ICES), these are used to geo-reference the boundaries of fish stocks and fisheries management areas and to coordinate scientific oceanographic and marine resource research (Figure 2). The principal ICES areas around Ireland are Sub-area VI (composed of ICES Divisions VIa, and VIb) and Sub-area VII (ICES Divisions VIIa, VIIb, VIIc, VIIf, VIIg, VIIh, VIIj, and VIIk) (Figures 2 & 3).

Exclusive Economic Zones (EEZ) are sea zones within which a country has special (exclusive) rights over the exploitation and use of marine resources. The boundary extends from the coast of an individual state seaward to 200 nautical miles. Where EEZ's overlap a boundary equidistant between the states is drawn (Figure 3). While individual member states of the EU still retain Exclusive Economic Zones for exploitation of mineral resources e.g. oil, and hold responsibility for all aspects of control and monitoring, with the advent of the Common Fisheries Policy in 1983, a single EC wide EEZ was formed, solely for the purpose of exploitation of commercial fisheries (other exclusive issues remained unchanged), so that fishing fleets from one country are free to fish within the EEZ of another (provided that they have a quota for the fish stock in that area). This open access for fishing within the EEZ extends from 12 nautical miles to the 200 mile limit. The Irish Exclusive Economic Zone (EEZ) is wholly contained within ICES Sub-areas VI and VII.

The open access to fisheries resources in the EEZ of members states EEZ is in some cases modified. One example is the Biologically Sensitive Area (BSA) (Figure 3), established in 2002 to protect nursery grounds to the west and south of Ireland. Access of non-Irish vessels to the BSA is restricted and effort regimes also apply to Irish vessels fishing in the BSA.

In waters within 12 nautical miles of their coast EU member states exercise exclusivity, in the area known as the territorial coastal waters. Ireland's territorial waters are approximately 41000km² in extent. Ireland retains exclusive access to fisheries in this zone with exception in the case of certain fisheries, in restricted locations, between 6-12nm where France, Netherlands, Germany, Belgium and U.K. have fishing rights. In waters within 6 nautical miles of the coast Irish vessels have sole access to fisheries with the exception of Northern Irish vessels who can also fish, under certain conditions, in this zone.

In the interest of making this Atlas as comprehensive as possible data has been provided from a number of different sources. Thus some data presented relate to ICES Sub-areas VI and VII, excluding VIId and VIle, which in this Atlas are defined as waters around Ireland. Other data relate to the Irish EEZ only. These data are not directly comparable as the Irish EEZ is a significantly smaller area than ICES Sub-areas VI and VII (Figure 3). Other data provided cover Irish fishing activity outside these areas.

Management and Regulation

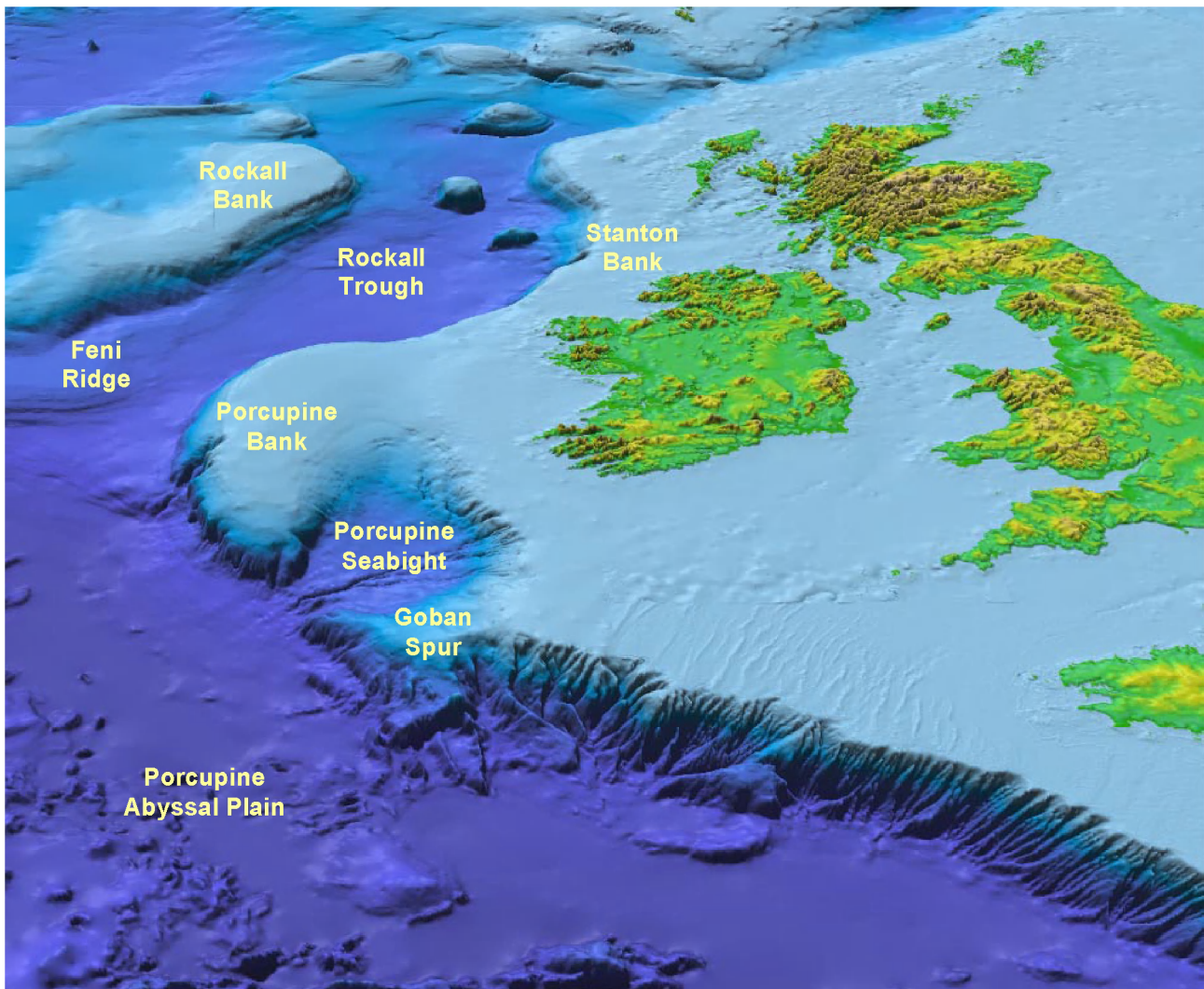
Within the European Union, fisheries are managed through the Common Fisheries Policy (CFP) using regulation of inputs (effort and gear regulation) and outputs (TACs and minimum landing sizes). TACs and effort controls are established by regulation each year for most stocks in the EU, including waters around Ireland. Other technical measures may be changed less frequently.

Other than *Nephrops*, the majority of shellfish species are not regulated by TAC.

The TACs are decided based on advice from the Advisory Committee (ACOM) of ICES and the Scientific, Technical and Economic Committee for Fisheries (STECF). ACOM provides management advice based on the current biological status of the stocks and their exploitation rates. The ACOM advice is based on precautionary considerations to ensure the long term sustainability of individual stocks. The STECF advice contains biological, technical and economic considerations. Most TACs are then negotiated at the Council of Ministers meeting each December in Brussels. Member States are allocated a proportion of TACs which become the national quota (Figure 4). This proportion is based on an agreed fixed share (i.e. does not change annually) and is known as "relative stability". For full details of the most recent Total Allowable Catches (TAC) and quotas please see the European Commission website www.europa.eu. It should be pointed out here that in practice the TACs are actually Total Allowable Landings (TALs) since discarding is legal in most EU waters. In many fisheries discarding is prevalent for a variety of reasons. This compromises the efficacy of TACs as a management tool.

For stocks straddling EU and other Coastal States, TACs are set according to annual quota negotiations. Stocks in international waters, beyond EEZs, are managed by the North Eastern Atlantic Fisheries Commission (NEAFC). TACs for tuna species are set by the International Commission for the Conservation of Atlantic Tuna (ICCAT).

Figure 1 Topography of the Seafloor in the Waters Around Ireland.



This map shows the administrative regions of Europe, with labels such as IIVa, IIVb, IIVc, etc., and numbers 24, 25, 26, 27, 28, 29, 30, 31, 32. The map is divided into several large regions, each with a unique label. The regions are: IIVa (Iceland), IIVb (Ireland), IIVc (United Kingdom), IIVd (France), IIVe (Spain), IIVf (Portugal), IIVg (Italy), IIVh (Greece), IIVi (Balkans), IIVj (Turkey), IIVk (Russia), IIVl (Central Asia), IIVm (South Asia), IIVn (Southeast Asia), IIVo (East Asia), IIVp (Oceania), IIVq (Antarctica), IIVr (North America), IIVs (South America), IIVt (Africa), IIVu (Middle East), IIVv (Cyprus), IIVw (Malta), IIVx (Andorra), IIVy (San Marino), IIVz (Vatican City). The numbers 24, 25, 26, 27, 28, 29, 30, 31, 32 are located in the IIVc region.

Figure 3 The Irish Exclusive Economic Zone (EEZ), the 12 nautical mile limit, the Biologically Sensitive Area (BSA) and the ICES Divisions around the Irish Coast.

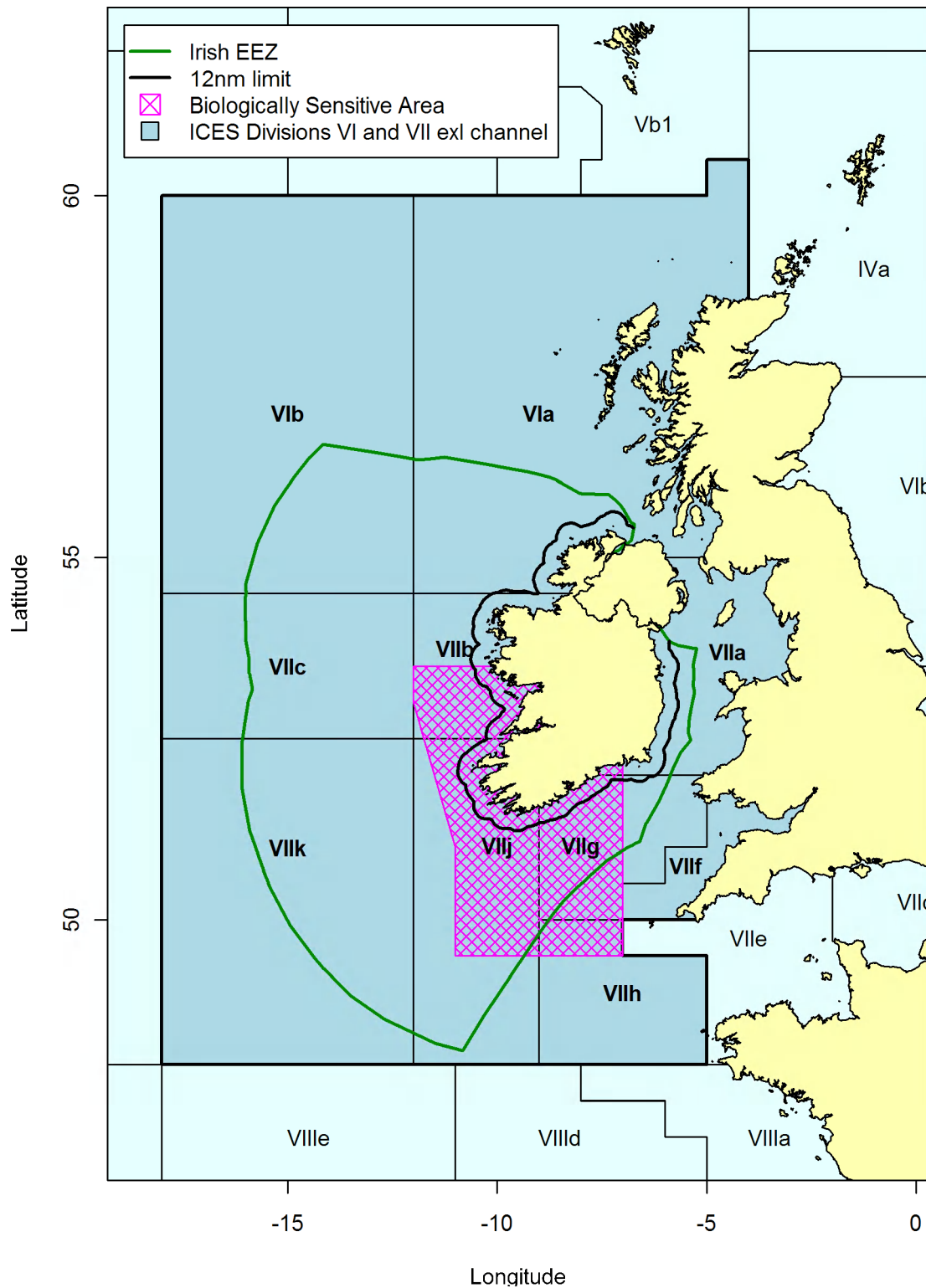
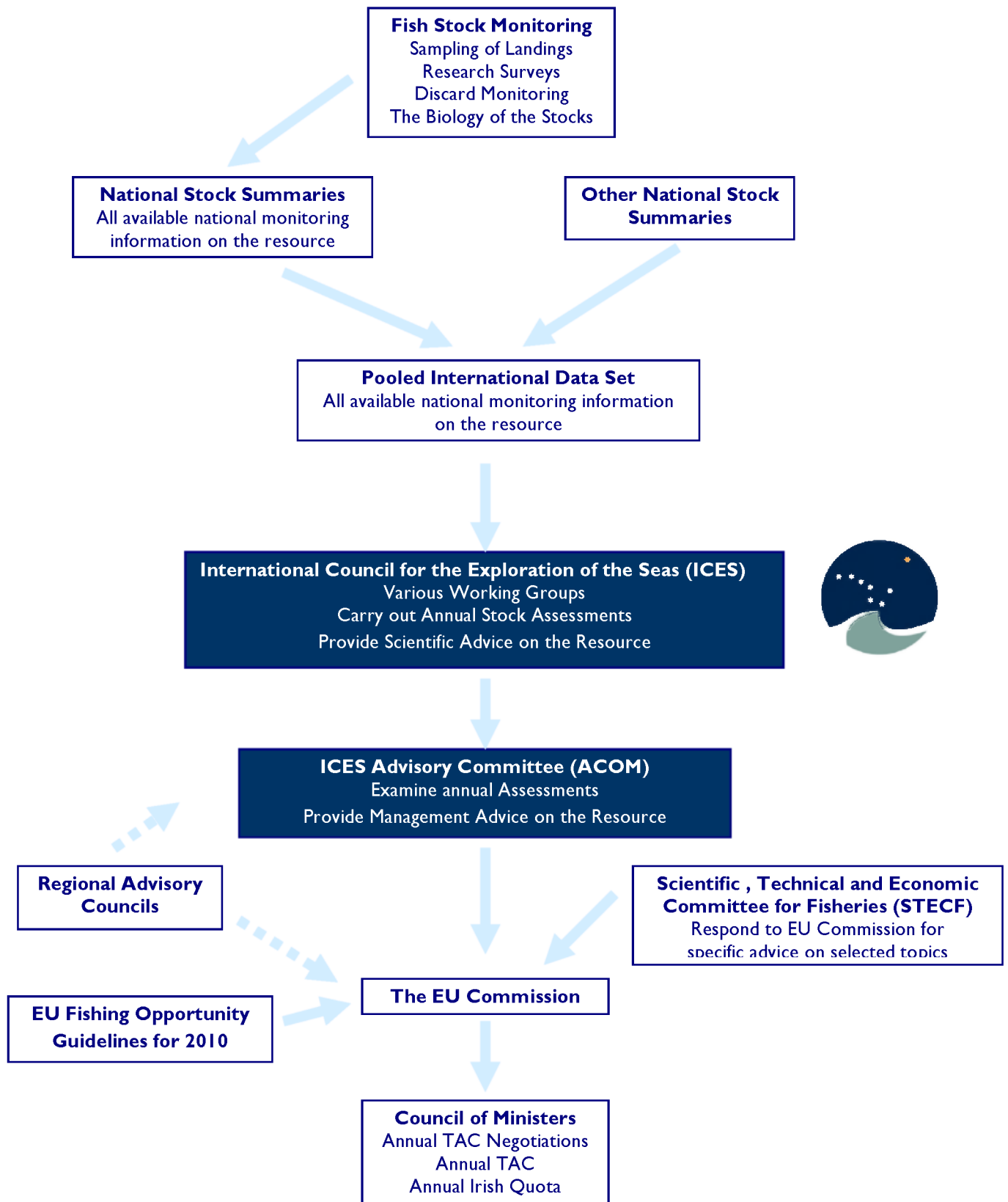


Figure 4 Outlines the process by which **Community Fisheries TACs** are determined.



Section I – Fishing Opportunities

In the case of TAC species, fishing opportunities for the Irish fleet depend on the total EU TAC for each stock and Ireland's allocation or share of these TACs (the quotas). In the case of effort regulated stocks, effort allocation is based on historic effort levels by the Irish fleet in that fishery, rather than a share of an effort pool *per se*. Effort may be limited in some fisheries if such fisheries interact with other TAC-controlled fisheries which are being re-built. Fishing opportunities for species that are neither catch nor effort-regulated, are controlled by national fleet segmentation, secondary licensing and other national policies. Table 1.1 lists the top twenty species (both TAC & non TAC regulated) in terms of value landed by the Irish fleet in 2008. The top three are mackerel, *nephrops* and horse mackerel.

Ireland Share of the TACs

The percentage of the TACs by Ireland, other EU countries and non-EU Members, together with the approximate value of the Irish quota are shown in Figures 1.1 and 1.2. The data in Figure 1.1 are presented in terms of descending tonnage of Irish quota while those in Figure 1.2 are presented in terms of descending economic value of the Irish quota.

Trends in TACs

A historical summary of TACs for cod, whiting, haddock, monkfish, hake, megrim, herring, mackerel and *nephrops* are presented in Figure 1.3.

There has been a dramatic decline in the TACs for cod and whiting stocks, reflecting the collapse of these stocks in ICES Divisions VIa (west of Scotland) and VIIa (Irish Sea).

Megrim and monkfish TACs have been relatively stable. The marked dip in the hake TAC in 2002 reflects the severe stock decline and subsequent recovery.

A feature of the biology of haddock is that spawning can produce large numbers of young fish in certain years which significantly increase the stock size. These haddock outbursts cause the stock to rise and fall and this can be seen in the TAC trends.

The *Nephrops* stocks have been relatively stable. Ireland's share of the Sub-area VI TAC is very small. Ireland's share of the VII TAC is large and this fishery is very important for the Irish fleet.

The herring TAC trends show a decline over time. There has been a marked decline in the ICES Division VIa TACs.

The mackerel TAC has shown a cyclical trend reflecting changes in stock abundance.

The horse mackerel TAC has been stable in recent years but the western horse mackerel TAC is only around half of what it was in the nineties.

It should be noted that a plot of the TAC history for blue whiting is not presented, as this TAC has only been agreed internationally since 2006. Although this species dominates the overall picture of the volume landed, the history of the international TAC is too short to plot. The EU set a TAC for its vessels since 1997, but this was not applicable to the international vessels participating in the fishery outside EC waters.

Trends in TAC Uptakes

The TAC trends can sometimes give misleading views of what is happening in a fishery and care is needed in interpreting these trends. For example, TACs are in practice Total Allowable Landings and do not include discards. In fisheries with high discard rates (e.g. haddock at Rockall), TAC trends may not reflect changing discarding practices. TACs can also be over or undershot. Individual member states may exceed or fail to utilise their full quota.

For example, in the case of megrim in Sub-area VI, only 53% of the overall TAC was used in 2008. The lack of uptake was largely driven by the failure of France to utilize its quota, while having the majority of the TAC. Therefore the uptake of an individual TAC may not necessarily reflect stock status, but simply highlight the failure to fully utilize fishing opportunities.

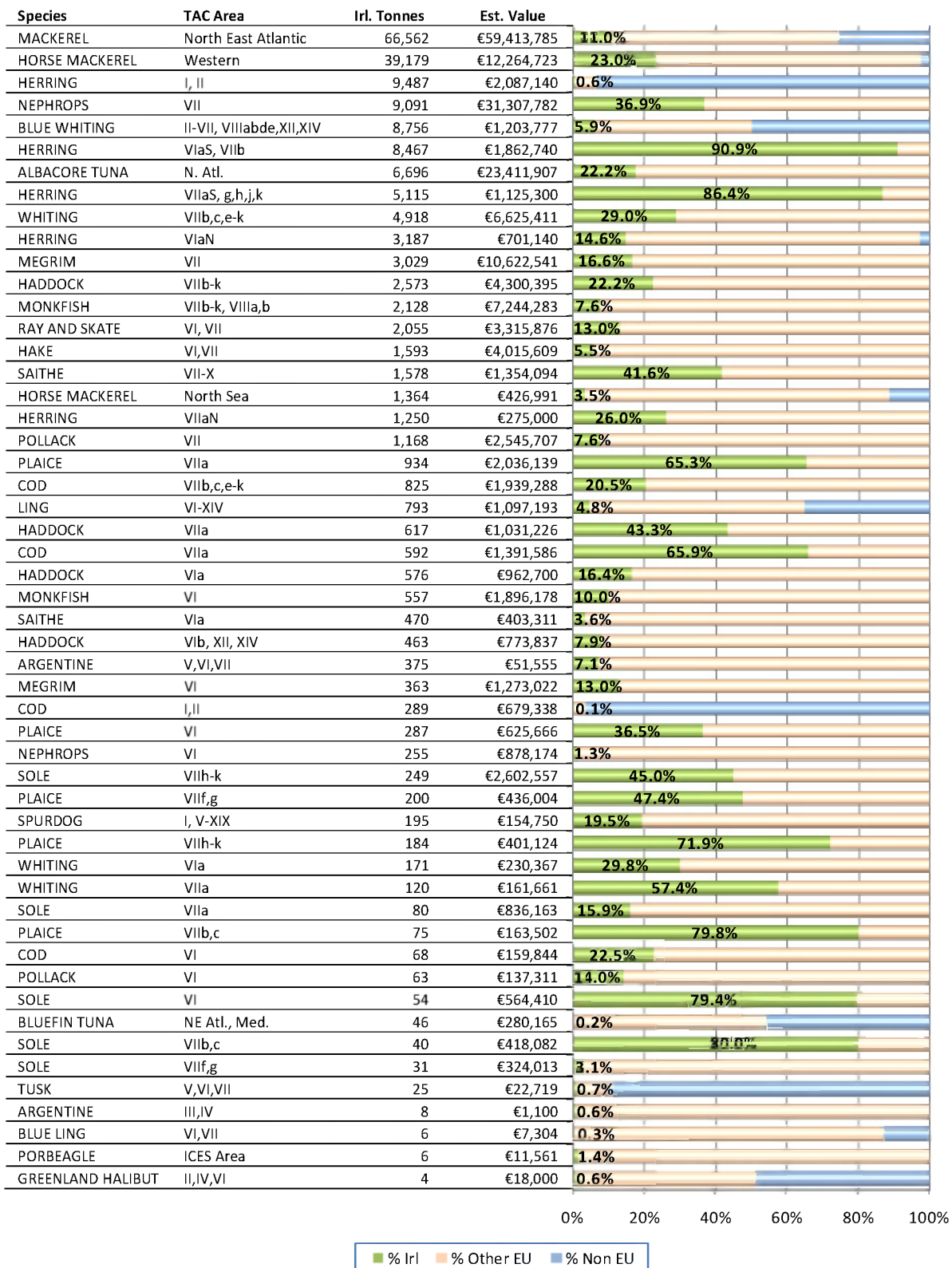
Table 1.1 Top 20 Most Economically Valuable Species Landed By Irish Vessels in 2008.

Species	Live Weight Tonnes	Landed Weight Tonnes	Value €
Mackerel	44,767	44,767	€39,959,734
<i>Nephrops</i>	9,179	5,685	€31,610,454
Horse Mackerel	36,631	36,631	€11,521,366
Monkfish	2,837	2,269	€9,658,905
Edible Crab	6,979	6,945	€8,324,799
Lobster	497	497	€6,918,843
Haddock	3,715	3,397	€6,208,644
Herring	27,975	27,975	€6,154,596
Megrim	1,745	1,662	€6,118,324
Albacore Tuna	1,522	1,522	€5,321,422
Cod	1,524	1,292	€3,582,421
Hake	1,392	1,244	€3,509,386
Whiting	2,564	2,451	€3,453,799
Blue Whiting	22,852	22,852	€3,141,641
Scallop	1,071	1,071	€2,744,116
Black Sole	212	202	€2,214,319
Whelk	1,816	1,816	€2,027,405
Shrimp	156	156	€1,950,000
Ray	1,237	1,083	€1,851,590
Pollack	702	617	€1,530,590

Note : all values are provisional for 2008.

Boarfish are not included in this table. In 2008 Ireland landed an estimated 21,584 tonnes in this industrial fishery.

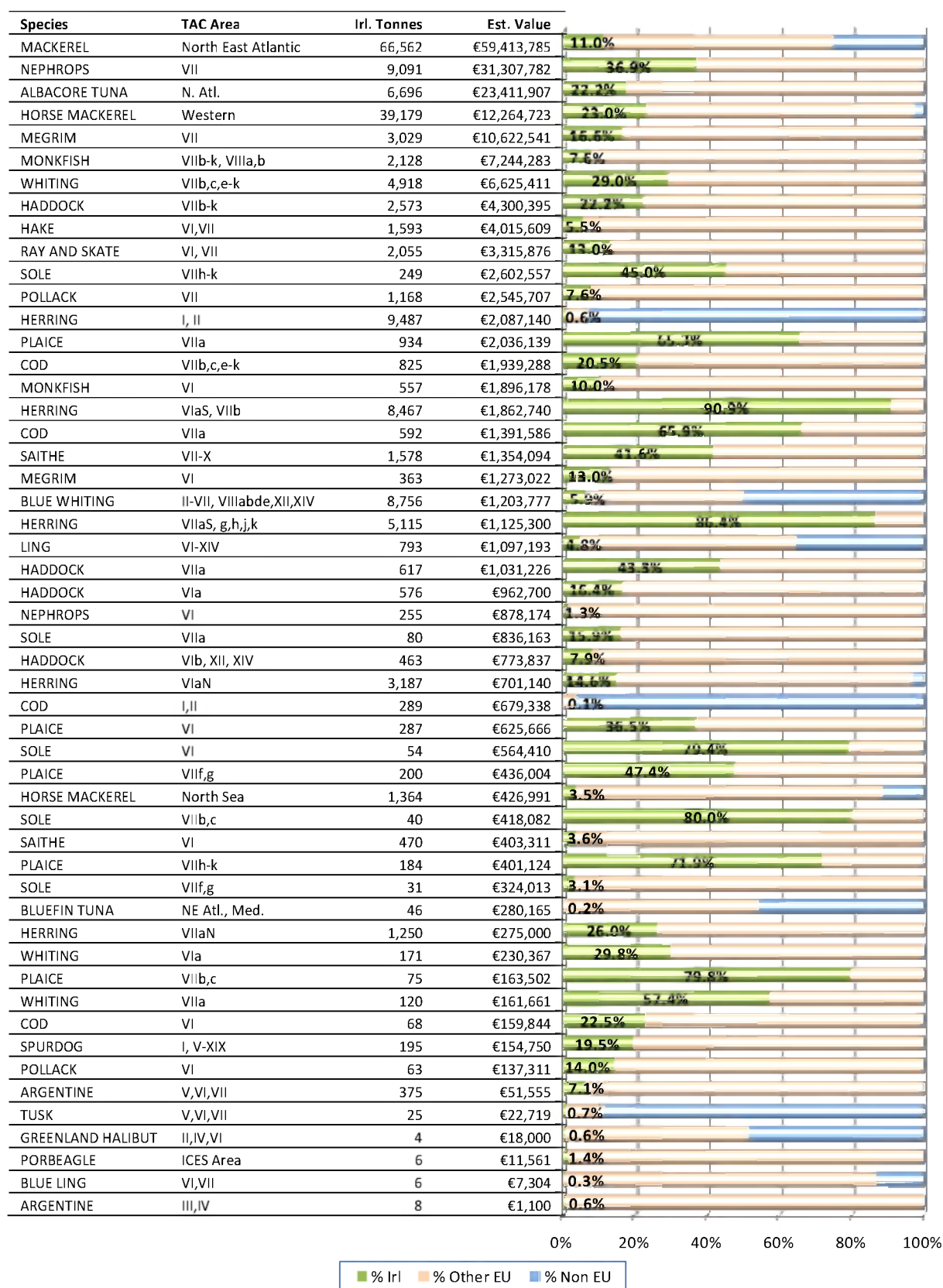
**% Share of 2009 TAC By Ireland, Other EU & Non EU Members
and approximate value of Irish Quota**



Values are based on 2008 average price per tonne

Figure I.1 Ireland's proportional share of TAC stocks of the main commercial species, in order of largest tonnage.

**% Share of 2009 TAC By Ireland, Other EU & Non EU Members
and approximate value of Irish Quota**



Values are based on 2008 average price per tonne.

Figure I.2 Ireland's proportional share of TAC stocks of the main commercial species, in order of most economically valuable species.

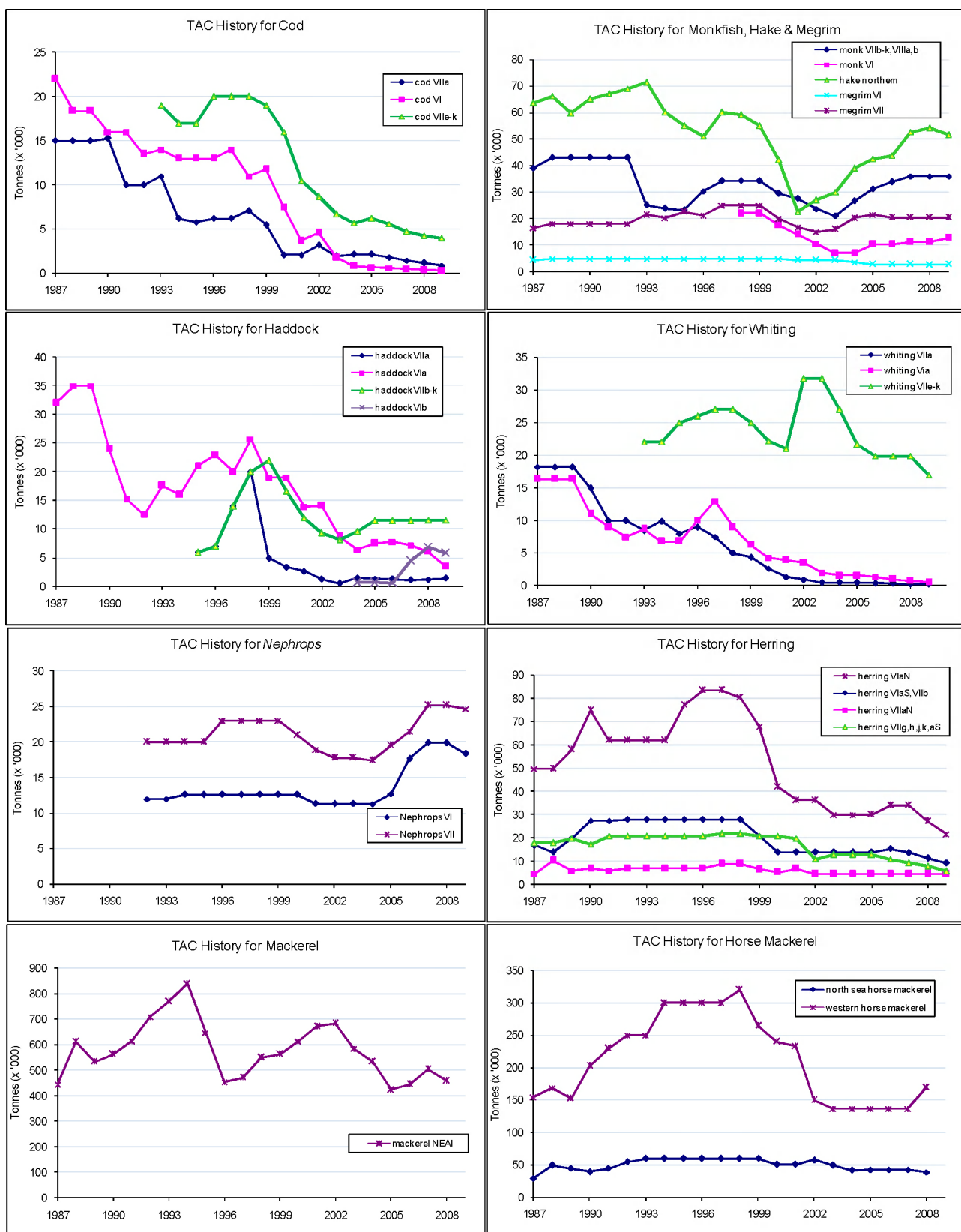


Figure I.3 A historical summary of TACs for Cod, Monkfish, Hake, Megrim, Haddock, Whiting, Nephrops, Herring, Mackerel and Horse Mackerel.

Section 2 – Fishing Trends

This section outlines the landings trends by both Ireland and other nations for the waters around Ireland and other international areas. It is presented in four parts:

- 2.1 Landings from all Areas by Irish & Foreign Vessels into Irish Ports.
- 2.2 Geographic Origin of Irish Landings for Key Species.
- 2.3 Landings Trends by Irish and International Fleets from the Waters Around Ireland (Sub-areas VI and VII, excluding VIId and VIIe).
- 2.4 Landings Trends by Irish and International Fleets excluding the Waters Around Ireland.

To examine these trends landings data have been grouped into species with similar life-histories and fisheries. These groupings are shown below with some of the most important species listed:

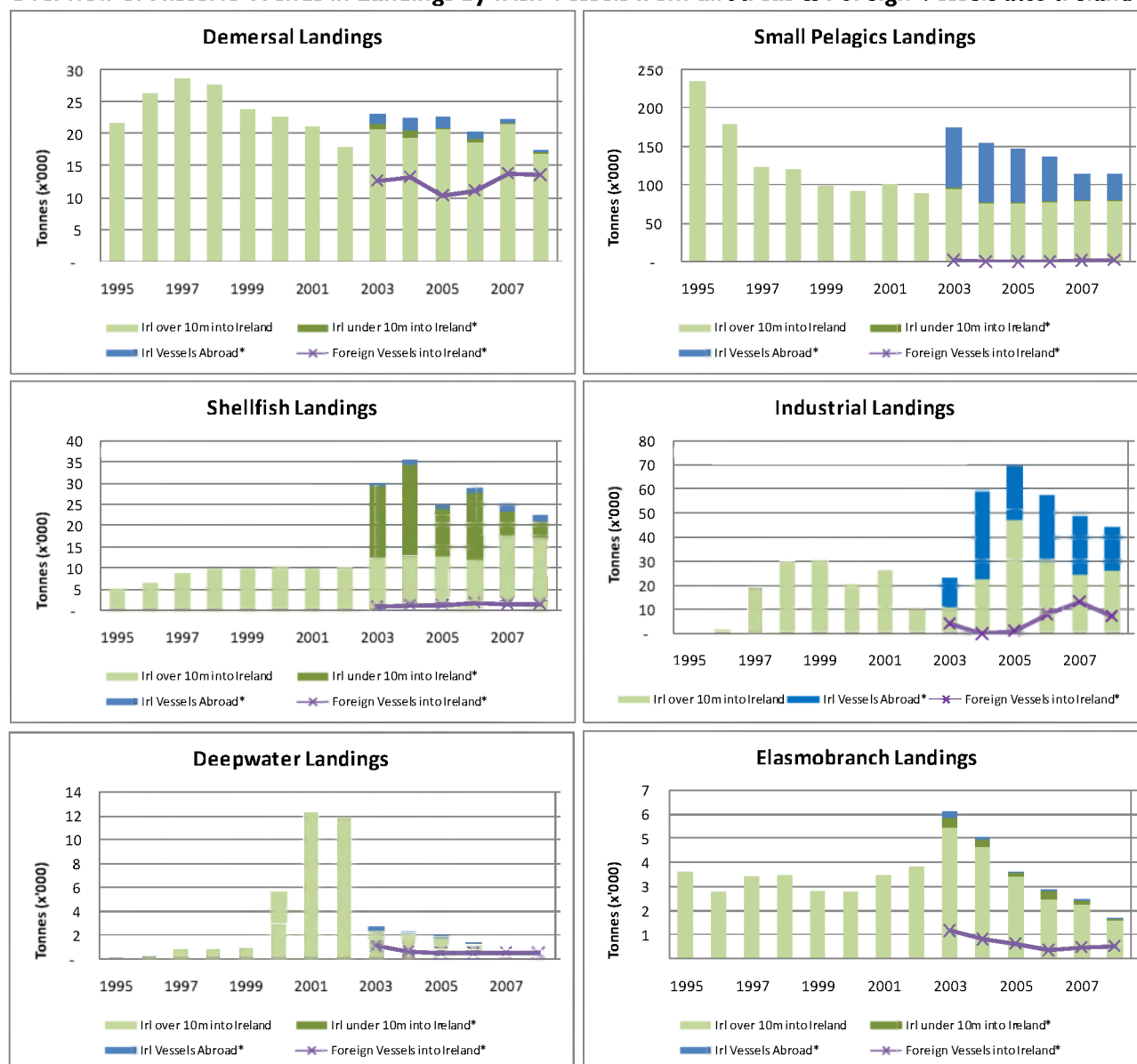
Species grouping	Description	Most important species contributing to landings
Small Pelagics	These are shoaling species normally caught in large volumes by trawls fishing off the bottom. Some species in this group are highly migratory only spending part of their life in Irish waters	Mackerel, Horse mackerel, Herring, Sprat, Sardines
Demersal	These species are mainly caught close to the bottom in mixed fisheries by trawls (otter and beam). Some demersal fisheries also use static nets long lines.	Cod, Saithe, Haddock, Whiting, Hake, Megrim, Monkfish, Ling, Plaice, Sole
Shellfish*	These species are also mainly caught in, on or close to the bottom. A variety of gears are used depending on species(e.g. <i>Nephrops</i> by trawl, Crab and Lobster by pots and scallops by dredges).	<i>Nephrops</i> , Scallops, Crabs, Lobsters, Squid, Cuttlefish
Deepwater	This group includes species mainly caught at depths >400m. Most species are caught close to the sea bed or associated with sea mounts or other features.	Argentines, Atlantic redfishes, Black scabbardfish, Blue ling, Greater forkbeard, Orange roughy, Roundnose grenadier, Tusk
Industrial	This group includes species that are mainly caught in very high volume fisheries where the catch is primarily used to produce fish meal and oils (hence industrial). It should be mentioned that increasing volumes of species like blue whiting are also now used for human consumption conversely in the past some of the small pelagic and demersal catches were used for industrial purposes.	Blue whiting, Boarfish, Norway pout and sandeel
Elasmobranchs	This is a very diverse group of species all with cartilaginous skeletons. They are generally larger bodied and longer lived than many on the bony fish species. Elasmobranchs are mainly caught in mixed fisheries with demersal and deep water species.	Various Dogfish, Spurdog, Various Rays and skates, Deepwater sharks, Pelagic sharks
Large Pelagics	These are large bodied species found in the upper water column	Tunas and Swordfish

* As the atlas focuses primarily on wild capture fisheries, mussels & oysters have been excluded from the shellfish groupings. See appendix II for full list of species in each grouping

2.1 Landings from all Areas by Irish & Foreign Vessels into Irish Ports

The landings are presented as species groups (eg. small pelagics) and the trends in the landings into Irish ports & by Irish vessels abroad are shown for 1995 to 2008. Landings by Irish vessels by port, and by foreign vessels into Irish ports are also given for 2007. The distribution of Irish landings are mapped by key species for 2006 to 2008 using aggregated VMS and EU Logbook data for vessels >15m.

Overview of Historic Trends in Landings by Irish Vessels from all Areas & Foreign Vessels into Ireland



*Data unavailable prior to 2003

Figure 2.1.1 Landings from all areas by 'Irish Vessels greater than 10 meters' and 'Irish Vessels under 10 meters' into Irish ports. Landings by 'all Irish Vessels landing abroad'; and landings by 'Foreign vessels into Ireland', by fishing category. Source Irish Logbook database.

The data in Figure 2.1.1 show only one category prior to 2003 - Irish vessels >10m landing into Ireland. This figure shows that shellfish landings, by vessels over 10m, have increased over time but that landings by under 10m vessels have declined since 2003. Deepwater landings rose sharply around the turn of the millennium and subsequently decreased rapidly, this was mainly driven by the boom and bust cycle of the orange roughy fishery. The rise in industrial landings around 2005 is related to the expansion of the blue whiting fishery. The decline since 2005 relates to decreased fishing opportunities for this stock; this species is now primarily landed for human consumption. Elasmobranch landings have also decreased in recent years reflecting restricted fishing opportunities for many of these species which can be vulnerable given their relatively low productivity. The decline in demersals and small pelagics is less pronounced reflecting the varying fortunes of the stocks in these categories. It can be clearly seen that proportionately more demersal fish than pelagic fish are landed by foreign vessels into Ireland. Landings by Irish vessels abroad are primarily in the Small Pelagics and Industrial groups, they are dominated by landings of mackerel to Norway & United Kingdom, blue whiting to the Netherlands & Denmark and boarfish to the Faeroe Islands.

Landings into Irish and Foreign Ports by Irish Vessels.

A summary of total landings by Irish vessels in 2007 is given in Table 2.1.1. Killybegs has the highest landings of all fish species which are dominated by small pelagics (41% horse mackerel & 34% mackerel). Dunmore East has the highest landings of demersal species dominated by whiting (approximately 50%). Irish vessels land a considerable volume of fish into foreign ports (approx. 28% of total landings) and these comprise mainly of small pelagics.

Table 2.1.2 outlines the landings by non Irish flag vessels into Ireland, nearly 70% of these landings into Killybegs were of blue whiting, while hake and monkfish accounted for approximately 36% and 22% respectively of the demersal landings into Castletownbere.

Table 2.1.1 Total Landings in Tonnes By Irish Vessels by Port by Species Category for all waters in 2007. *Source Irish logbook database.*

Port	Small						Large Pelagics & Tunas	Grand Total
	Pelagics	Industrial	Demersal	Shellfish	Deepwater	Elasmobranchs		
Killybegs	62,682	21,158	1,679	577	255	127	-	86,478
Foreign Ports	33,189	24,082	727	1,637	88	65	29	59,817
Castletownbere	7,000	3,280	3,077	740	40	194	403	14,734
Dunmore East	860	-	5,543	1,846	-	143	-	8,392
Dingle	3,598	220	739	286	109	120	72	5,143
Ringaskiddy	4,046	-	-	-	-	-	-	4,046
Howth	0	-	1,007	2,377	0	365	0	3,750
Ros A Mhil	1,385	5	806	1,382	1	127	32	3,739
Kilmore Quay	3	-	1,262	1,131	-	220	-	2,615
Union Hall	2	-	1,086	778	-	40	24	1,929
Greencastle	8	-	1,455	319	5	128	-	1,915
Baltimore	1,067	-	420	167	0	25	42	1,722
Arklow	2	-	43	1,272	-	42	-	1,359
Wicklow	3	-	3	1,340	-	4	-	1,350
Downings	-	-	-	1,271	-	-	-	1,271
Kinsale	3	-	951	230	-	16	-	1,200
Clogherhead	-	-	226	937	0	20	-	1,183
Rosslare	-	-	673	145	-	288	-	1,105
Skerries	0	-	73	848	-	3	-	924
Crosshaven	3	-	749	124	-	19	-	894
Glengad	-	-	1	869	-	-	-	870
Malin Head	-	-	-	808	-	-	-	808
Cobh	104	-	262	244	-	25	-	635
Schull	0	-	355	106	-	46	-	506
Porturlin/Portacloy	6	-	1	428	-	21	-	456
Fenit	-	-	124	33	183	69	-	409
Annagassan	-	-	-	381	-	-	-	381
Duncannon/St.Helens	-	-	101	260	-	7	-	369
Dundalk	-	-	-	354	-	-	-	354
REST OF IRELAND PORTS	437	0	807	3,875	2	366	-	5,487
	114,397	48,746	22,170	24,765	684	2,477	602	213,842

Table 2.1.2 Landings into Irish Ports by Non Irish Flag Vessels over 10 meters in 2007. *Source Irish logbook database*

Port	Small						Large Pelagics & Tunas	Grand Total
	Pelagics	Industrial	Demersal	Shellfish	Deepwater	Elasmobranchs		
Killybegs	1,644	13,527	3,561	184	190	135	-	19,241
Castletownbere	49	-	7,213	278	194	274	54	8,062
Dingle	112	-	2,954	131	156	68	16	3,437
Rathmullan	-	-	-	962	-	-	-	962
REST OF IRELAND PORTS	-	-	57	19	-	17	-	93
	1,805	13,527	13,784	1,575	541	494	70	31,796

2.2 Geographic Origin of Irish Landings for Key Species

This section gives an overview of where different fish and shellfish species of importance in Irish fisheries are caught in the waters around Ireland. Maps of the spatial distribution of the landings were created by linking data from the Vessel Monitoring Systems (VMS) to daily logbook records of the landings. This was done by selecting VMS positions which were likely to be associated to fishing activity using thresholds for vessel speed and changes in course. Next, the daily catch records were assigned equally to these VMS records of each vessel on each day. The maps clearly show patterns in the spatial distribution of the landings, however they should not be over-interpreted because inaccuracies can arise for the following reasons:

- Some VMS positions may have been wrongly identified as corresponding to fishing activity, only the vessel's position, speed and course are known.
- The exact location of the catches is unknown because the catch data are only available on a daily basis while the VMS positions are generally transmitted every 2 hours
- There is no requirement for vessels under 15m in total length have VMS
- Because of mis-matches between the VMS and logbook databases, not all landings (of >15m vessels) could be assigned to VMS records
- Discarded catches are not included, only the retained catch is reported in the logbooks

Figures 2.2.1 to 2.2.4 show where the landings of key species originate from:

- Blue whiting are mainly caught along the edge of the continental shelf, north of the Porcupine bank.
- Cod are caught in most areas around Ireland with highest concentrations of catches in the Celtic Sea.
- Haddock catches are widely distributed on the continental shelf around Ireland as well as around Rockall.
- Hake are mainly caught in medium to deep waters along the continental slope west of Ireland.
- Herring are mainly caught inshore along the Irish coasts.
- Horse mackerel are mainly caught towards the shelf break (200m) the north-west coast of Ireland.
- Ling are mainly caught in the Celtic Seas and along the shelf edge.
- Mackerel are mainly caught along the 200m depth contour.
- Megrim are mainly caught at medium depths on the shelf in most areas except the Irish Sea.
- Monkfish are mainly caught along the 200m depth contour and in the Celtic Sea.
- *Nephrops* are caught in localised areas on “muddy patches” in the Irish Sea, Celtic Sea, West of Aran and on the Porcupine bank.
- Plaice are mainly caught in shallow water in the Irish and Celtic Seas.
- Rays and skates in most areas around Ireland but the highest concentrations of catches are from the Irish Sea.
- Black sole are mainly caught in areas targeted by beam trawls in the Irish Sea and Celtic Sea.
- Tunas are mainly landed from offshore areas to the south-west of Ireland in the Porcupine Seabight.
- Whiting are mainly caught to the south of Ireland in the Celtic Sea.

Different species have different distributions for a variety of reason (habitat preference, food availability, preferred depth or temperature ranges to name a few) and these may also vary throughout the year or over their lives. In most cases, the distribution of the catches reflects the species distribution but fishing effort may be restricted by bottom type and/or confounded by multiple species targeting. A diverse range of Irish and international fisheries have evolved using different gears to exploit these resources in both single species and mixed fisheries throughout Irish waters. An overview of these is given in Section 3 Fleet Activity.

Average landings 2006-8 (kg/nm2)

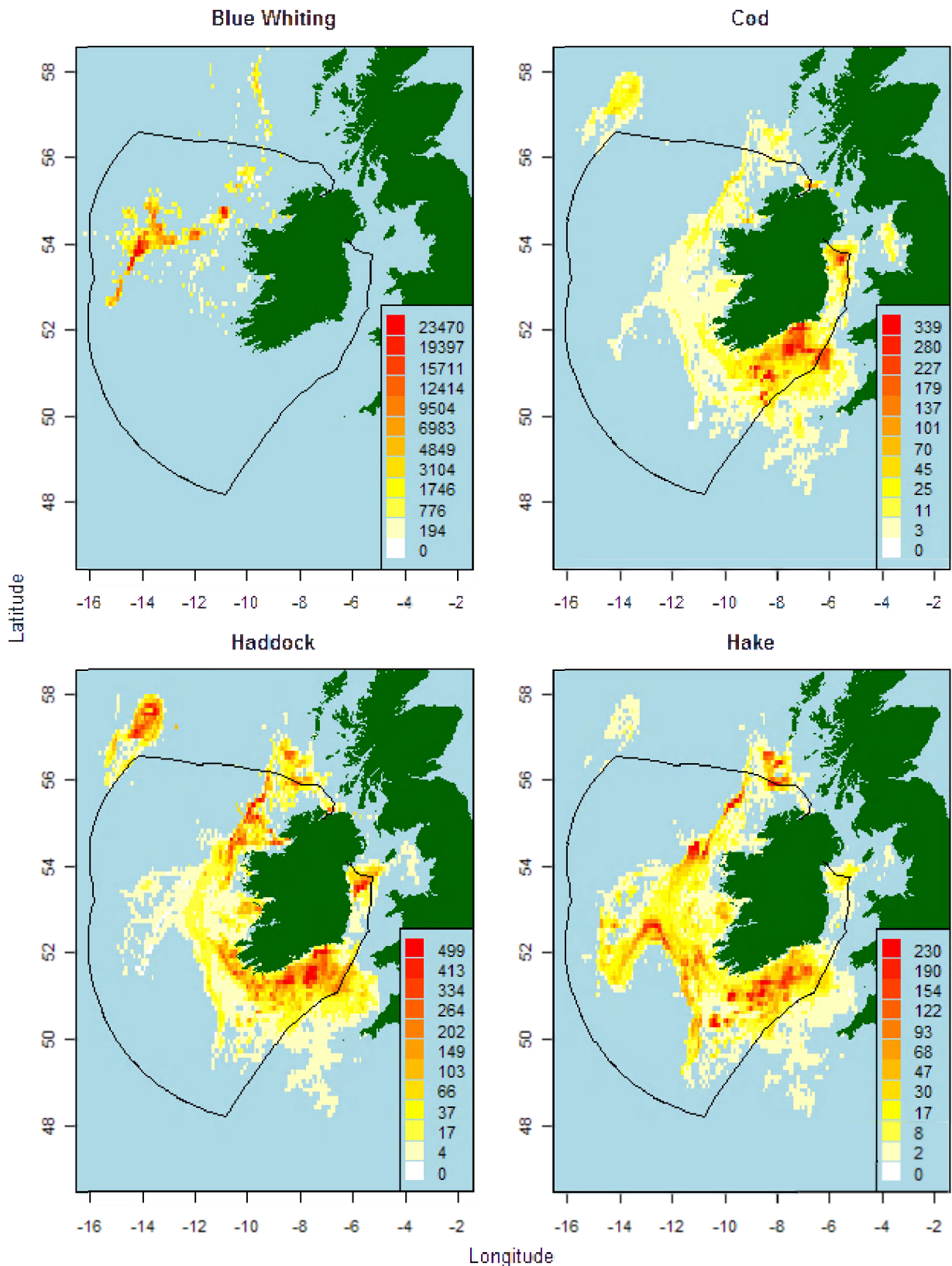


Figure 2.2.1 Approximate distribution of the landings of Irish vessels >15m over the period 2006-8. The landings are expressed as liveweight (kg) per square nautical mile. Source: VSM database and Irish Logbooks database.

Average landings 2006-8 (kg/nm2)

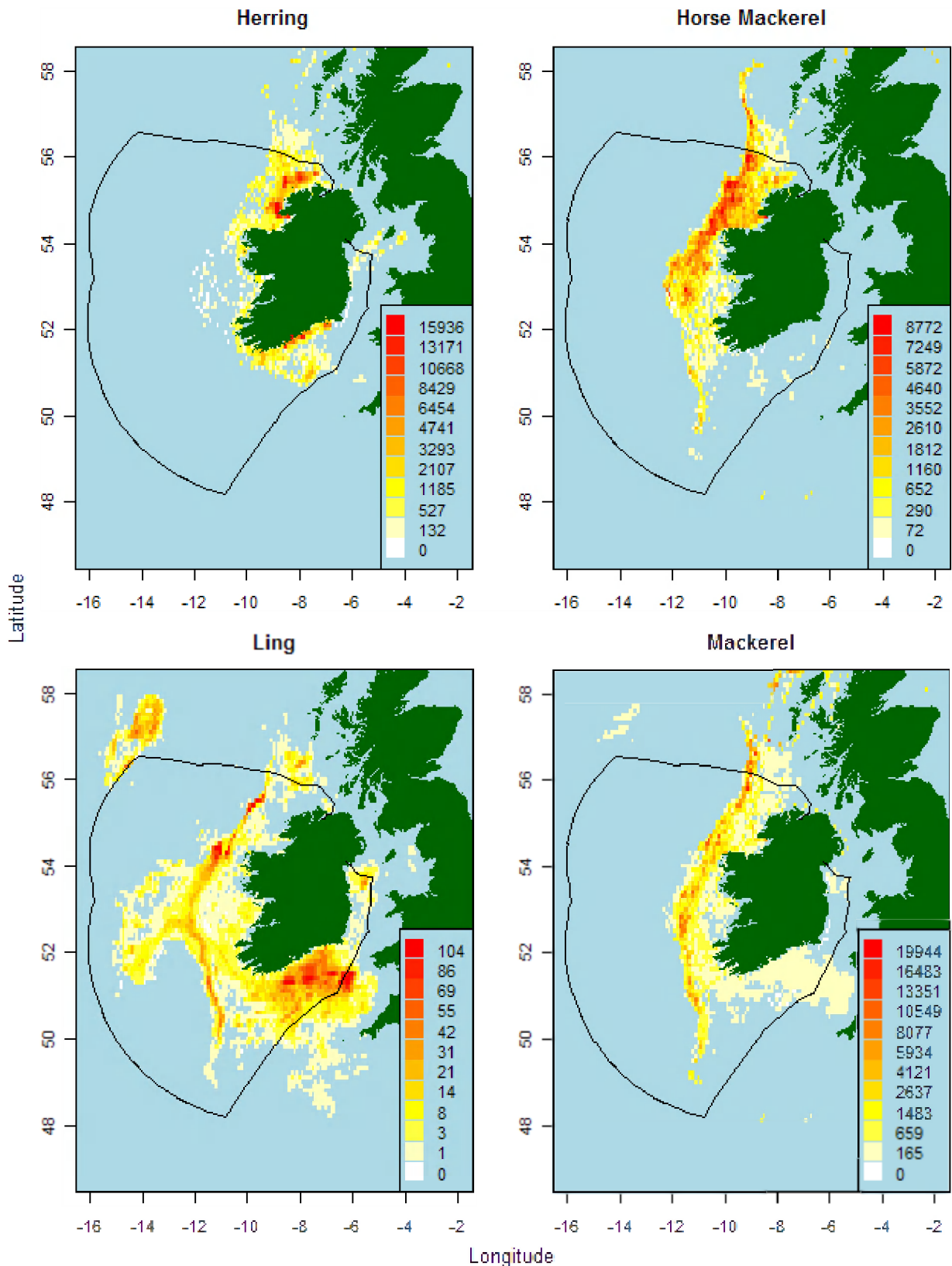


Figure 2.2.2 Approximate distribution of the landings of Irish vessels >15m over the period 2006-8. The landings are expressed as liveweight (kg) per square nautical mile. Source: VSM database and Irish Logbooks database.

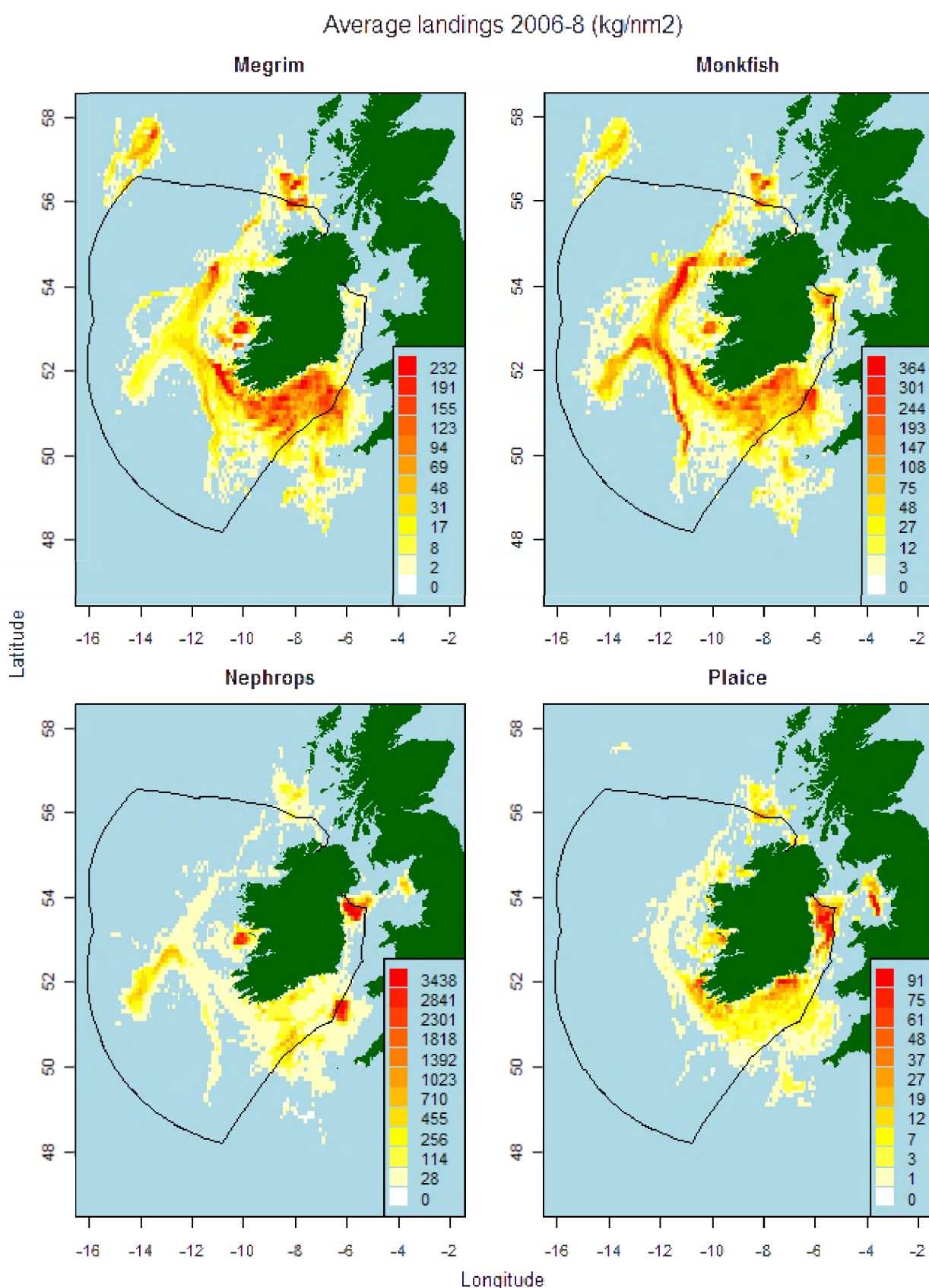


Figure 2.2.3 Approximate distribution of the landings of Irish vessels >15m over the period 2006-8. The landings are expressed as liveweight (kg) per square nautical mile. Source: VSM database and Irish Logbooks database.

Average landings 2006-8 (kg/nm2)

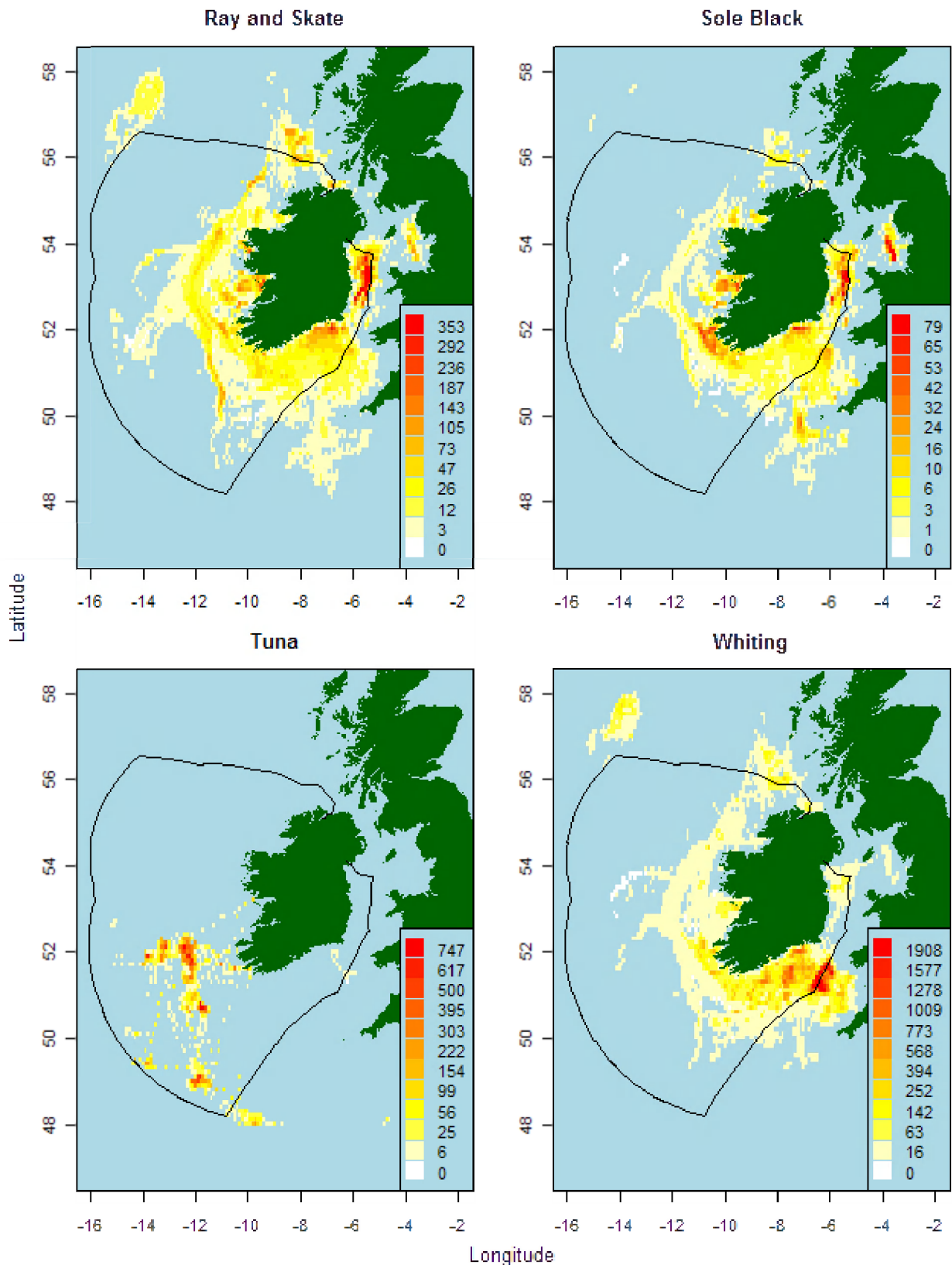


Figure 2.2.4 Approximate distribution of the landings of Irish vessels >15m over the period 2006-8. The landings are expressed as liveweight (kg) per square nautical mile. Source: VSM database and Irish Logbooks database.

2.3 Landings Trends by Irish and International Fleets from the Waters Around Ireland (Sub-areas VI and VII, excluding VIId and VIle)

Introduction

Official landings data are reported to ICES for all species, areas, years and countries in the North-eastern Atlantic between 1973-2007 (<http://www.ices.dk/fish/statlant.asp>). The official data may vary somewhat from the best estimates used in ICES stock assessments, where more accurate data is sometimes provided by national scientists.

2007 Landings

Irish vessels mainly operate in two areas; Sub-area VI (from north of Scotland to south Donegal) and Sub-area VII (south Donegal Bay to Brittany, excluding the English Channel (Division VIId and VIle)). Other international fleets, mainly from France, Spain, UK, Netherlands, Norway also operate in this area. Total international landings for 2007, by each country, for the top 5 to 10 species are presented in Table 2.3.1 & Table 2.3.2.

Sub-area VI (see Figure 3 page 5)

In Sub-area VI, a total of 814,430 tonnes of all fish species were landed in 2007. Overall, Ireland took 8.3% of these landings but the percentage varied considerably depending on the species (Horse Mackerel 83%; Crab 44%; Megrim 22%, Herring 34%, Cod 17%, Haddock 15%, Monkfish 12%, Mackerel 11%, Blue Whiting 1%). (Table 2.3.1)

Sub-area VII, excluding VIId and VIle (see Figure 3 page 5)

In Sub-area VIIa,b,c,f,g,h,j,k, a total of 740,260 tonnes of all fish species were landed in 2007. Overall, Ireland took 17.9% of these landings but the percentage varied considerably depending on the species (Prawns 48%, Mackerel 50%; Herring 59%; Whiting 66%; Haddock 35%; Cod 33%; Monkfish 16%, Hake 9%). (Table 2.3.2)

Ireland Percentage Of Landings

The Irish percentage of total landings from Sub-areas VI and VII (excluding the channel) from 1973-2007 are shown in Figure 2.3.1. Data prior to 1973 are not available for the Sub-areas. In 1973, Ireland had 9% of the landings in Sub-areas VI and VII (excluding VIId,e). This percentage shows an increasing trend up to 1995 where it reached a maximum of 25%. Thereafter there is a declining trend to about 13% in 2007. The reasons for these fluctuations are complex (e.g. changes in fishing patterns and quota allocations). These trends are also dominated by large volume fisheries. The decline in Irish landings percentage since 1995 is largely due to the expansion of the blue whiting fishery in VI and VII (from ~400kt in 1995 to ~1000kt in 2007) coupled with the relatively small TAC share (~3.5%) Ireland has for that stock.

Landings from the waters around Ireland since 1973

The landings from various ICES areas around Ireland for international fleets over time are given in Figure 2.3.2.

The West of Scotland (VIa) accounts for the highest volumes of landings by both international and Irish fleets over time. Total landings peaked in the mid 1980s and show a declining trend since then. This is primarily due to decreases in horse mackerel and herring stocks and a change in the fishing pattern for mackerel (with less of the overall catch coming from VIa).

Landings from VIb (Rockall) and VIIbc (West of Ireland) have increased markedly in the last decade. This is mainly due to the expansion of the fishery for blue whiting. This was initially an industrial fishery for meal and oil, but increasing proportions of the catch are now landed for human consumption. This stock is declining again due to a series of weak recruitments.

Landings from VIIf,g,h,j,k (The Celtic Sea) were high in the mid 1970s with a large (mainly Russian) fishery for mackerel and horse mackerel SW of Ireland. This fishery reduced in 1977. Landings after that in show an increasing trend up to the early 2000s, mainly caused by the expansion of deep water and shellfish fisheries in the late 1990s. Thereafter landings show a declining trend.

Landings from VIIa (The Irish Sea) have always been relatively low compared with other areas. These show a declining trend over time and in recent years are less than half those observed at the start of the time series.

Table 2.3.1 Landings by species and country in 2007 from ICES Sub-area VI
(Data from ICES Statlant 2007)

Top 4 small pelagic and industrial species by landings weight (tonnes).

County	Atlantic herring	Atlantic horse mackerel	Atlantic mackerel	Blue whiting
Belgium	0	0	0	0
Denmark	0	0	0	4,775
Estonia	0	0	0	0
Faeroe Islands	991	0	1,100	94,793
Finland	0	0	0	0
France	703	0	3,744	5,928
Germany	1,750	1,834	11,700	20,816
Iceland	0	0	0	0
Lithuania	0	80	0	540
Netherlands	8,037	1,790	9,837	45,015
Norway	0	2	8	255,024
Poland	0	0	276	6,426
Portugal	0	0	0	0
Russian Federation	0	0	0	71,886
Spain	0	0	0	567
Sweden	0	0	0	0
UK	18,238	370	73,347	24,516
Ireland	15,287	20,341	11,959	1,825
(Irish %)	(34%)	(83%)	(11%)	(0%)
Grand Total	45,006	24,417	111,971	532,111

Top 10 Demersal species by landings weight (tonnes)

County	Monkfish	Cod	Hake	Groundfish	Haddock	Ling	Megrim	Saithe	Whiting	Witch
Belgium	0	0	0	0	0	0	0	0	0	0
Denmark	0	0	0	0	0	0	0	0	0	0
Estonia	0	0	0	0	0	0	0	0	0	0
Faeroe Islands	2	12	0	0	4	92	0	32	0	0
Finland	0	0	0	0	0	0	0	0	0	0
France	2,090	92	1,823	0	211	659	104	4,327	6	47
Germany	222	2	4	0	0	32	0	580	1	0
Iceland	0	0	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	0
Netherlands	0	0	64	0	0	0	0	36	0	0
Norway	8	42	0	0	100	2,515	0	377	0	0
Poland	0	0	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0	0	0
Russian Federation	1	0	0	0	1,282	50	0	2	0	0
Spain	15	0	400	2,522	5	102	24	3	0	45
Sweden	0	0	0	0	0	0	0	0	0	0
UK	1,734	307	1,598	148	4,423	1,197	855	1,424	426	831
Ireland	540	94	209	0	1,097	110	278	321	72	60
(Irish %)	(12%)	(17%)	(5%)	(0%)	(15%)	(2%)	(22%)	(5%)	(14%)	(6%)
Grand Total	4,612	549	4,098	2,670	7,122	4,757	1,261	7,102	505	983

Top 10 other species by landings weight (tonnes)

County	Argentine	Black scabbardfish	Blue ling	Edible crab	Great Atlantic scallop	Greater argentine	Greater forkbeard	Norway lobster	Roundnose grenadier	Tusk
Belgium	0	0	0	0	0	0	0	0	0	0
Denmark	0	0	0	0	0	0	0	0	0	0
Estonia	0	0	0	0	0	0	0	0	0	0
Faeroe Islands	0	46	28	0	0	0	0	0	10	44
Finland	0	0	0	0	0	0	0	0	0	0
France	0	2,049	1,934	0	0	0	396	0	1,623	268
Germany	0	0	0	0	0	0	0	0	0	0
Iceland	0	0	0	0	0	0	0	0	0	0
Lithuania	0	0	1	0	0	0	0	0	31	0
Netherlands	3,103	0	0	0	0	3,866	0	0	0	0
Norway	0	0	35	0	0	3	186	0	0	934
Poland	0	0	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0	0	0
Russian Federation	0	0	1	0	0	0	2	0	0	25
Spain	0	33	58	0	0	0	55	2	118	2
Sweden	0	0	0	0	0	0	0	0	0	0
UK	0	57	172	10,691	3,027	0	221	16,211	4	126
Ireland	0	0	0	8,353	0	0	8	155	2	12
(Irish %)	(0%)	(0%)	(0%)	(44%)	(0%)	(0%)	(1%)	(1%)	(0%)	(1%)
Grand Total	3,103	2,185	2,229	19,044	3,027	3,869	868	16,368	1,788	1,411

Table 2.3.2 Total Landings in 2007 from ICES Sub-area VII (tonnes)
(Data from ICES Statlant 2007)

Top 5 small pelagic and industrial species by landings weight (tonnes).

County	Atlantic herring	Atlantic horse mackerel	Atlantic mackerel	Blue whiting	Boarfishes nei
Belgium	0	0	0	0	0
Denmark	0	3,986	0	36,737	0
Estonia	0	0	0	0	0
Faeroe Islands	4	0	0	69,169	0
Finland	0	0	0	0	0
France	670	6,576	1,022	9,514	0
Germany	248	3,893	1,502	13,065	0
Iceland	0	0	0	0	0
Lithuania	0	5,327	7	9,272	0
Netherlands	475	19,409	6,739	34,661	0
Norway	0	0	0	211,745	0
Poland	0	0	701	1,147	0
Portugal	0	0	0	0	0
Russian Federation	0	0	0	9,656	0
Spain	0	0	0	2,574	0
Sweden	0	0	0	0	0
UK	4,808	3,367	13,155	29,061	772
Ireland	8,942	7,383	23,365	29,232	17,510
(Irish %)	(59%)	(15%)	(50%)	(6%)	(96%)
Grand Total	15,147	49,941	46,491	455,833	18,282

Top 10 Demersal species by landings weight (tonnes)

County	Monkfish	Cod	Conger	Hake	Groundfishes	Haddock	Ling	Megrim	Whiting	Witch
Belgium	0	0	33	13	0	148	28	193	126	0
Denmark	0	0	0	0	0	0	0	0	0	0
Estonia	0	0	0	0	0	0	0	0	0	0
Faeroe Islands	0	0	0	0	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0	0	0	0
France	10,342	2,177	727	5,052	0	3,569	854	2,089	2,413	424
Germany	212	0	0	0	0	0	6	0	0	0
Iceland	0	0	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	0
Netherlands	6	0	0	0	0	0	0	0	0	0
Norway	0	1	0	0	0	3	27	0	0	0
Poland	0	0	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0	0	0
Russian Federation	0	0	0	0	0	0	0	0	0	0
Spain	1,353	0	1,257	5,097	4,550	49	422	3,858	22	2,443
Sweden	0	0	0	0	0	0	0	0	0	0
UK	3,426	662	289	1,920	44	745	405	1,576	73	208
Ireland	2,931	1,398	89	1,230	0	2,407	594	1,746	5,051	473
(Irish %)	(16%)	(33%)	(4%)	(9%)	(0%)	(35%)	(25%)	(18%)	(66%)	(13%)
Grand Total	18,270	4,238	2,395	13,312	4,594	6,921	2,336	9,462	7,685	3,548

Top 10 other species by landings weight (tonnes)

County	Albacore	Blackbelly rosefish	Cuckoo ray	Edible crab	Great Atlantic scallop	Norway lobster	Queen scallop	Raja rays nei	Tangle	Whelk
Belgium	0	0	0	33	127	7	0	1,439	0	10
Denmark	0	0	0	0	0	0	0	0	0	0
Estonia	0	0	0	0	0	0	0	0	0	0
Faeroe Islands	0	0	0	0	0	0	0	0	0	0
Finland	0	0	0	0	0	0	0	0	0	0
France	362	81	1,356	1,485	40	2,358	26	643	3,038	14
Germany	0	0	0	0	0	0	0	9	0	0
Iceland	0	0	0	0	0	0	0	0	0	0
Lithuania	0	0	0	0	0	0	0	0	0	0
Netherlands	0	0	0	0	273	0	0	0	0	0
Norway	0	0	0	0	0	0	0	4	0	0
Poland	0	0	0	0	0	0	0	0	0	0
Portugal	0	0	0	0	0	0	0	0	0	0
Russian Federation	0	0	0	0	0	0	0	0	0	0
Spain	1,597	1,839	0	2	0	345	0	331	0	0
Sweden	0	0	0	0	0	0	0	0	0	0
UK	13	37	0	3,470	3,863	7,083	5,585	1,404	0	5,008
Ireland	490	11	0	2,141	858	9,140	10	936	0	1,840
(Irish %)	(20%)	(1%)	(0%)	(30%)	(17%)	(48%)	(0%)	(20%)	(0%)	(27%)
Grand Total	2,462	1,968	1,356	7,131	5,161	18,933	5,621	4,766	3,038	6,872

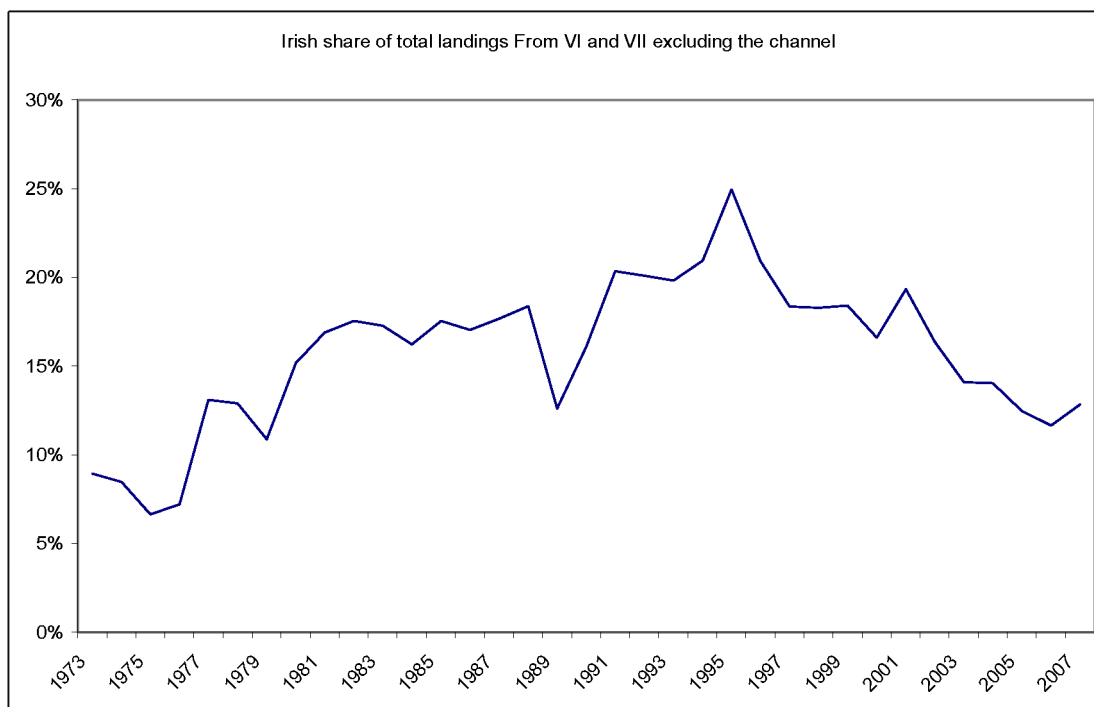


Figure 2.3.1 Irish percentage of total landings from Sub-areas VI and VII excluding the channel from 1973-2007. Data prior to 1973 are not available to the Sub-area level.

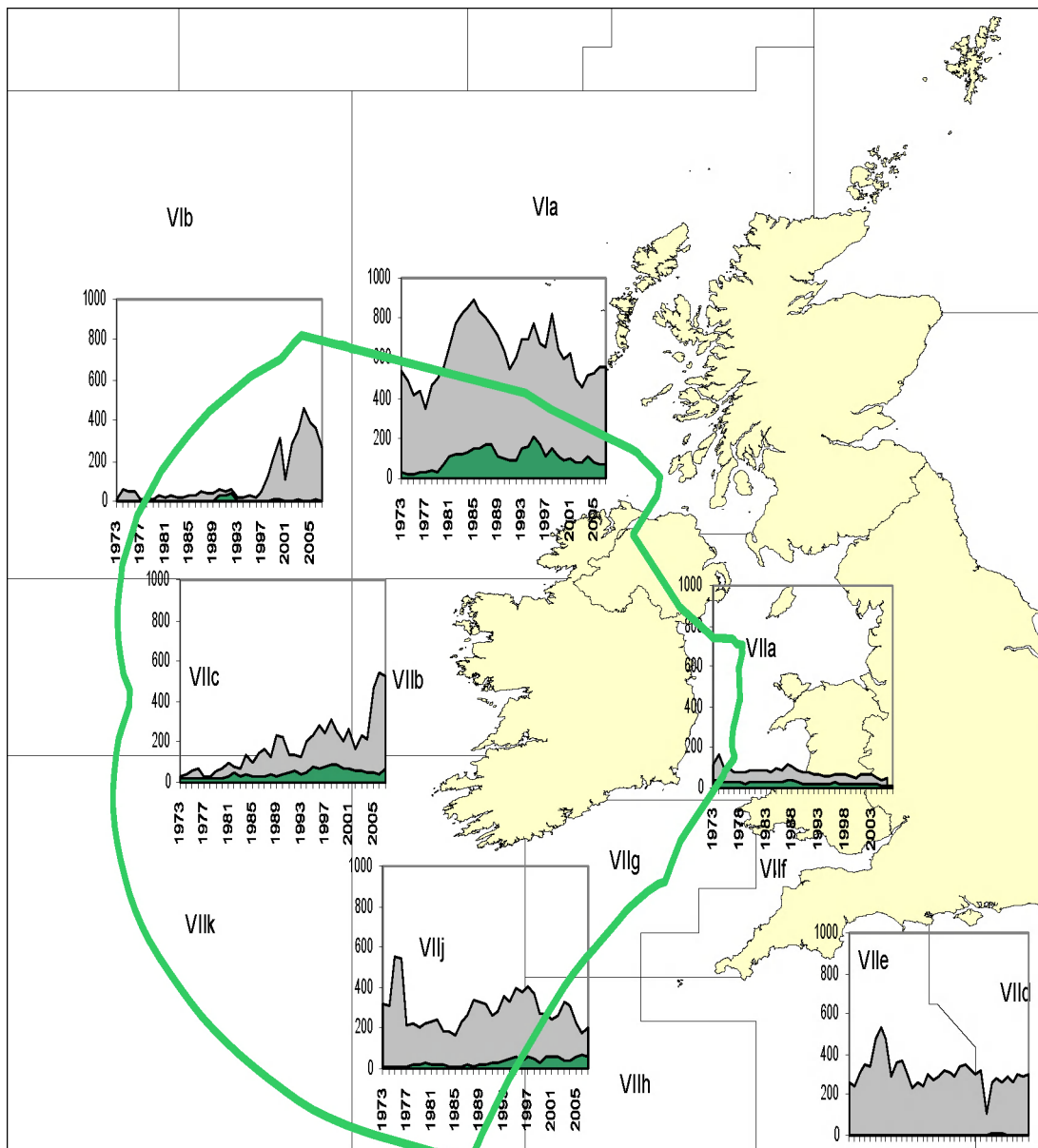


Figure 2.3.2 International (grey) and Irish (green) landings as reported to ICES since 1973 by ICES Division (Landings in tonnes. All species combined). (Note: Landings for France are not available for 1999 and 2007 and landings are grouped for VIIbc, VIIf,g,h,j,k and VIId,e).
Source: ICES Statlant.

Special note; because Ireland has a relatively small share of the blue whiting TAC, the proportion of total landings by Ireland looks small in ICES areas VI and VIIbc where the tonnages of fish taken are dominated by this species.

Trends in International Landings for Species Groups

Landings by country from Sub-areas VI and VII in 2007 by species category are given in Table 2.3.3, Ireland accounts for 17.9% of demersals, 26.5% of shellfish and 10.7% of small pelagic & industrial fisheries. The international landings for the species categories below in the ICES Divisions within Sub-area VI & VII are given in Figure 2.3.3.

Demersal Species

Landings of all demersal species show a substantial declining trend since the 1970s. This is primarily driven by substantial reductions in landings of cod, whiting, saithe and haddock which traditionally dominated shelf roundfish fisheries. Landings from VIa and VIIa show the largest declines reflecting the poor state of cod and whiting.

Highest landings are from the shelf area west and south of Ireland where landings from fisheries for hake, anglerfish and megrim have been stable or increasing slightly.

Shellfish Species

There has been an overall increase in shellfish landings. This reflects the expansion of fisheries for *Nephrops*, crabs, scallops and other bivalve molluscs in both inshore and offshore areas (reporting levels may also have improved). The Irish Sea is the most important area in total volume with substantial catches of *Nephrops*, crabs, scallops, razors and whelks. In Division VIa the catches are dominated by *Nephrops* and edible crab while off the south and west coast there are various shellfish fisheries.

Deepwater Species

Deepwater fisheries show an increasing trend in landings up to the late 1990s this was when French fisheries developed. The group also includes many species that are highly vulnerable to over-exploitation due to their extreme longevity, low fecundity, specialised niches or slow growth. In the early 2000s there was a rapid increase in landings when the Irish fleet got involved in the fishery. Since then landings have reduced substantially. This is partly due to a collapse in several deepwater stocks and also the introduction of TAC and quota restrictions.

Elasmobranchs

Sharks and rays are collectively known as elasmobranchs. This group include many species with divergent trends in importance to landings. The group also includes many species that are highly vulnerable to over-exploitation due to their longevity, low fecundity, specialised niches or slow growth. Landings show an increasing trend up to the mid 1980s and a decline since then. This was mainly driven by a large fishery for spurdogs which developed and collapsed during this time. This overall decline in landings was temporarily been halted in the mid 1990s due to the expansion of deepwater fisheries and an associated catch of deep-sea elasmobranchs.

Large Pelagics

There has been an increase in the volume of large pelagics landed since the early 1990s. This is predominantly due to the development of the albacore tuna fishery. Although now restricted from using gill nets, this fishery still provides a valuable source of income to vessels mainly from the south west coast. Some swordfish were taken as a bycatch in this fishery.

Small Pelagics

Landings of small pelagics generally increased during the 1970s and 1980s peaking at around 800,000 tonnes in the mid 1990s. This was due to the increasing importance of the horse mackerel and mackerel fisheries. Since then landings have been declining due to decreases in the horse mackerel and herring stocks. The area to the north of Ireland (VIa) remains the most important area with substantial catches also occurring off the west and southwest coasts. Catches in the Irish Sea (VIIa) have been reduced, since the 1980s, mainly due to the low abundance of Irish Sea herring stock, and the closing of the industrial fishery for juvenile herring. A plot showing the development of landings for small pelagic species (including industrial species) is shown in Figure 2.3.4.

Industrial Species

The industrial fishery which is dominated by blue whiting increased significantly since the mid 1990s. This reflected the increased abundance of the blue whiting stock and a significant expansion in international fisheries. The majority of the landings are from West of Scotland (VIa), Rockall (VIb) and the Porcupine Bank and West of Ireland (VIIb,c). This industrial fishery is likely to fall off in the short term due to an expected decline in the blue whiting stock. The trend in industrial species landings since 1973 is shown (along with other small pelagic species) in Figure. 2.3.4.

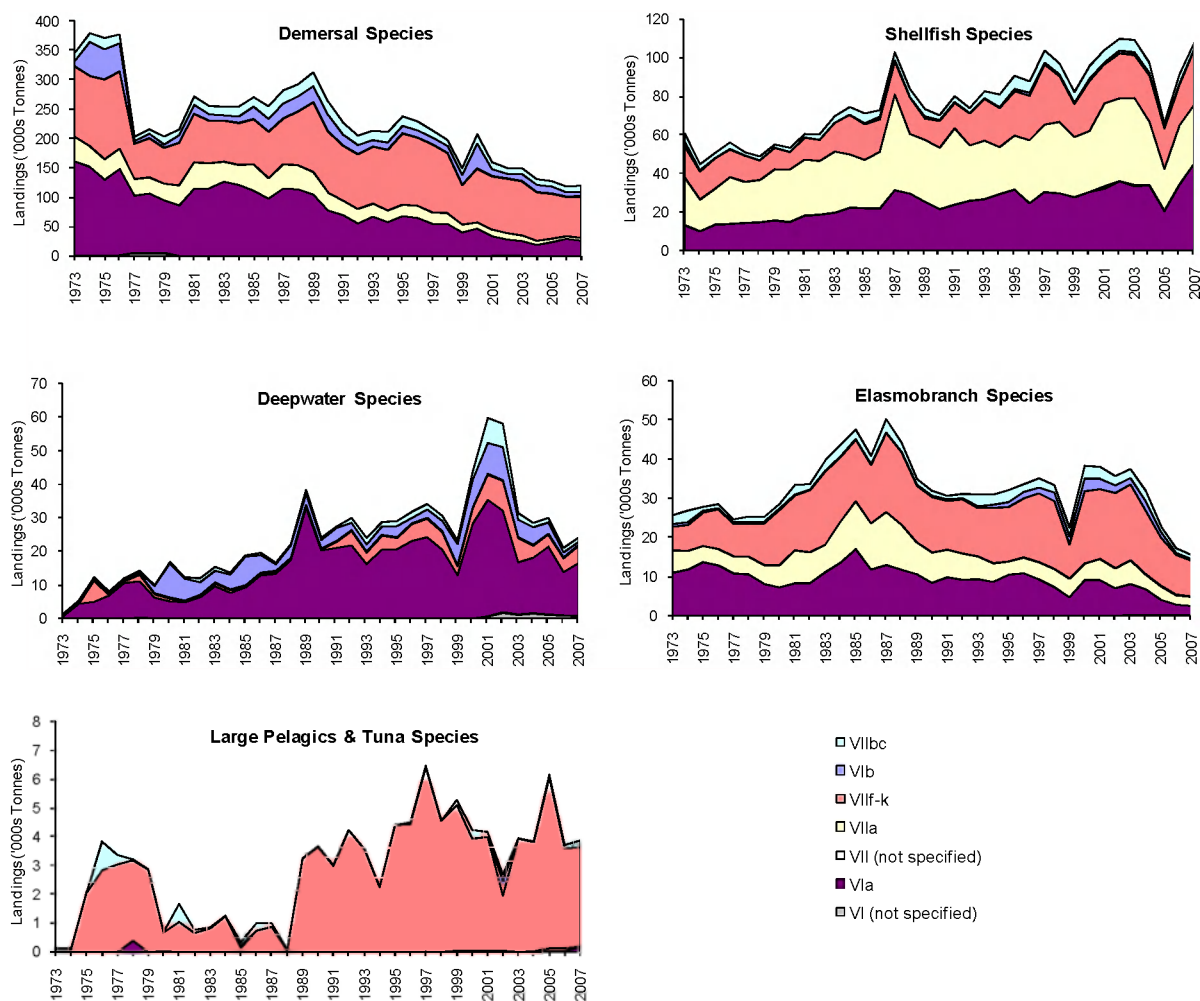


Figure 2.3.3 Official international landings in tonnes for Sub-areas VI & VII (excluding VIId,e) by area groupings as reported to ICES since 1973 by species category. Source: ICES Statlant.

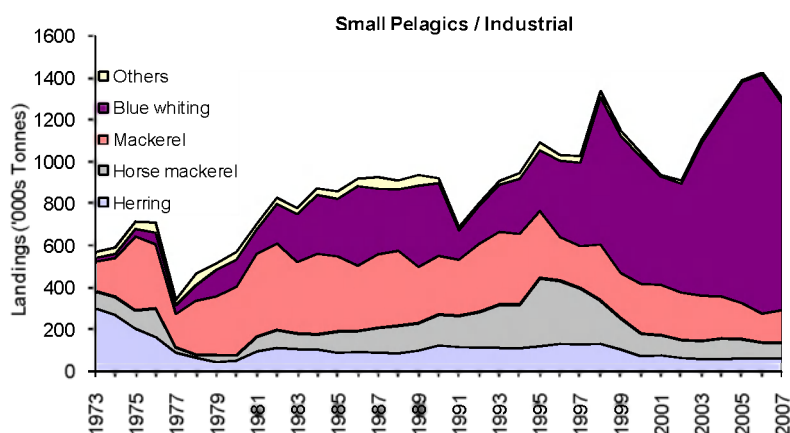


Figure 2.3.4 Official international landings in small pelagics and industrial species in tonnes for Sub-areas VI & VII (excluding VIId,e) by species category. Source: ICES Statlant.

Overall Trends

Trends in International landings since 1973, both as total weight and percentage, by country category are shown in Figure 2.3.5. These data show several features; a general decline in the landings of demersal species and a general increase in the landings of shellfish species since the 1970s, the landings of small pelagics have fluctuated and generally declined since the mid 1990's, the landings of deep water species increased and subsequently decreased rapidly around the turn of this century, the landings of industrial species have increased rapidly in the last 10 years, and the landings of elasmobranch species have decreased rapidly in the last 5 years. Ireland's proportion of the landings of all species groups (with the exception of industrial species) has increased since the 1970s.

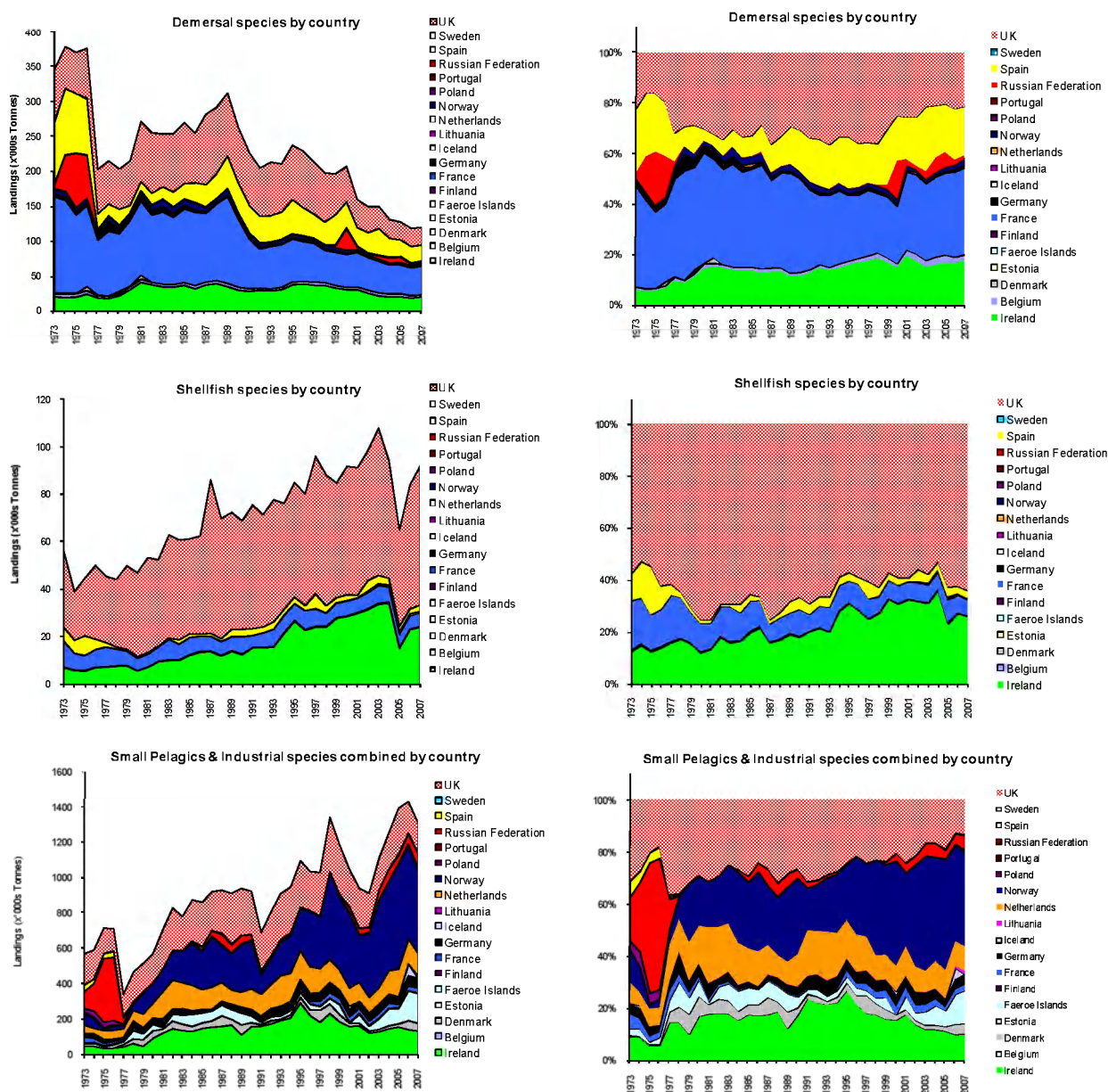


Figure 2.3.5 International landings trends in landings by country for Sub-areas VI & VII reported to ICES since 1973, both as total weight and percentage of total landings and category, note: Landings for France are not available for 1999 and 2005. Source: ICES Statlant.

Table 2.3.3 Landings by country from Sub-areas VI and VII (excluding VIId & VIIe) in 2007, by species category. Weights in tonnes. * excluding blue mussels and pacific oyster which are partly or entirely aquaculture production. Source: ICES Statlant.

Country	Demersal	Shellfish	Small Pelagics & Industrial
Belgium	2,746	225	-
Denmark	27	-	45,502
Estonia	-	-	-
Faeroe Islands	160	1	166,114
Finland	-	-	-
France	41,395	5,738	28,252
Germany	1,078	247	54,808
Iceland	-	-	-
Ireland	21,569	25,206*	139,868
Lithuania	1	-	15,226
Netherlands	106	274	125,973
Norway	3,098	-	466,779
Poland	-	-	8,550
Portugal	-	-	-
Russian Federation	1,336	-	81,542
Spain	23,403	2,764	3,415
Sweden	-	-	-
UK	25,348	60,537	168,852
Total	120,267	94,922	1,304,881

2.4 Landings Trends by Irish and International Fleets excluding the Waters Around Ireland

ICES Sub-areas VI and VII (excluding VIId and VIIe) are the two Sub-areas that surround the Irish coast, and are from where most Irish catches are taken. However, Irish vessels also fish outside these Sub-areas, either within the ICES area (e.g. in Sub-area IV for mackerel), and/or outside the NE Atlantic (e.g. for sardinella off the West African coast).

For the purpose of this atlas the ICES area and the rest of the Atlantic will be examined separately.

Irish landings from the NE Atlantic (excluding the waters around Ireland)

Landings data from these areas are available from 1973-2007. Irish vessels have fished in all ICES Sub-areas, but in many cases, such as Area III, the Baltic, these catches have been minimal or occasional.

Figure 2.4.1 shows the total landings by Irish vessels from outside Sub-areas VI and VIIa-c,f-j, while Table 2.4.1 details the weights of these fish each year and each Sub-area. Table 2.4.2 compares the Irish proportion of the catch with the total catch in each area, by species category. These tables show that the Irish catches of each fish category are a very small (normally <1%) proportion of the total catch in the NE Atlantic outside of local waters. Figure 2.4.2 and Table 2.4.3 show the catches by the main countries in these areas.

Table 2.4.4 shows the two most common species landed by Irish vessels from each of the ICES Sub-areas each year from 1973-2007. These are calculated by looking at the total weights from 1973-2007. The most common species may vary on an annual basis. Therefore Table 2.4.5 shows the proportion of species caught by Irish vessels in each of these Sub-areas in 2007, the most recent year for which data are available.

Irish landings from outside the NE Atlantic

The weights of Irish landings from outside of the NE Atlantic are recorded in various databases, mainly maintained by the Food and Agriculture Organisation (FAO) of the United Nations in Rome. Total catches by country from 1950 onwards are stored in the CAPROD database. However this only reports landings by oceanic area and does not give smaller-scale resolution.

The status of Ireland in each of the regional databases is outlined below:

Mediterranean and Black Seas: Ireland is listed as a catching country, but there are no records when searched.

Eastern Central Atlantic (CECAF): There are Irish data from 2001 – 2005. There are no records of Irish catches in 2006 or 2007.

NAFO area (NW Atlantic): There are no Irish catches recorded outside the already declared 1975-1979 period, but the total catch is approximately 200 t higher than CAPROD database.

SE Atlantic: Ireland is not listed as a catching country.

Western Central Atlantic: No regional database is available.

There have been two periods where Irish vessels landed significant quantities of fish outside of the NE Atlantic (Figure 2.4.3). The first was from 1975-1979 when an unknown number of vessels caught various demersal species, primarily squid, but also butterfish, cod and silvery hake in the NW Atlantic region. In 1979 2,600 t of redfish were declared in this area. Then, from 2001 to 2005 a small number of vessels fished for pelagic species such as sardinella and horse mackerel off Mauritania.

Irish logbook data show that Irish vessels have landed into 13 countries since 2002 (Table 2.4.6). These include ports in Europe, Africa and South America. Catches from the CECAF area, landed into Africa, the Canary Islands, or South America (Peru) are detailed in Table 2.4.7. VMS data (see Section 3- Figure 3.2) shows Irish vessel activity in this area in 2006 and 2007, but no landings have been reported. It is expected that Irish vessels will continue to target fisheries in these areas, and may expand to new areas, such as the Pacific.

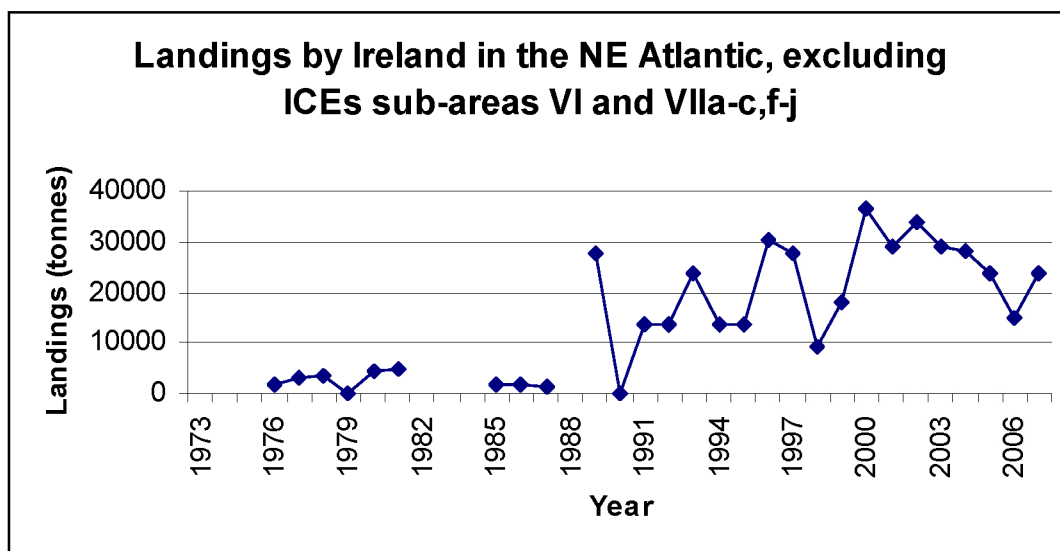


Figure 2.4.1 Total Irish landings (tonnes) of fish caught in the NE Atlantic, excluding Sub-areas VI and VIIa-c,f-j. Source: ICES Statlant. No data is available for certain years.

Table 2.4.1 Irish landings by Sub-area, NE Atlantic, excluding VI and VIIa-c,f-j. Landings in tonnes.
Source: ICES Statlant. Complete data are not available for 1988 and 1990.

Sub-area	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
I	-	-	-	-	-	-	-	-	-	-	-	-
II	-	-	-	-	-	-	-	1,731	812	-	-	-
III	-	-	-	-	-	-	-	-	-	-	-	-
IV	-	-	-	1,448	1,321	571	64	1,899	3,894	-	-	-
V	-	-	-	160	-	-	-	-	-	-	-	-
VII d,e	-	-	-	-	1,490	3,104	-	918	-	-	-	-
VIII	-	-	-	-	-	-	-	-	-	-	-	-
IX	-	-	-	-	-	-	-	-	-	-	-	-
X	-	-	-	-	-	-	-	-	-	-	-	-
XII	-	-	-	-	-	-	-	-	-	-	-	-
XIV	-	-	-	-	-	-	-	-	-	-	-	-
Unknown	-	-	-	-	206	-	-	-	-	-	-	-
	-	-	-	1,608	3,017	3,675	64	4,548	4,706	-	-	-

Sub-area	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
I	-	-	-	-	-	-	-	-	-	15	-	-
II	-	-	-	-	-	-	-	-	-	612	1,039	20,380
III	-	-	-	-	-	-	-	-	-	-	-	-
IV	-	-	-	-	2,482	-	13,700	13,136	17,654	10,079	5,827	6,327
V	-	-	-	-	-	-	-	-	-	-	-	-
VII d,e	-	-	-	-	-	29	52	42	1	17	26	1,888
VIII	-	-	-	-	5	-	-	251	1,923	-	-	375
IX	-	-	-	-	-	-	-	-	-	-	-	-
X	-	-	-	-	-	-	-	-	-	-	-	-
XII	-	-	-	-	-	-	-	-	-	-	-	-
XIV	-	-	-	-	-	-	-	-	-	-	-	-
Unknown	1,602	1,764	1,468	-	25,337	-	-	89	4,095	3,033	6,696	1,522
	1,602	1,764	1,468	-	27,824	-	13,752	13,518	23,673	13,756	13,588	30,492

Sub-area	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
I	-	-	-	-	-	-	248	150	126	-	46
II	12,941	3,415	3,049	9,288	4,725	2,080	1,493	99	190	5,148	6,826
III	-	-	-	-	-	-	-	-	-	-	-
IV	9,088	413	12,148	10,125	15,456	21,589	17,325	19,002	17,065	7,280	14,670
V	-	-	100	-	8	-	513	2,124	560	-	372
VII d,e	2,763	4,347	1,899	9,191	6,560	6,231	3,110	1,039	356	649	537
VIII	-	-	3	7,962	1,881	3,882	4,448	5,826	5,344	1,716	1,367
IX	-	-	-	-	-	-	2	-	-	-	-
X	-	-	-	-	-	-	-	34	-	-	-
XII	-	-	-	-	399	2	1,653	-	3	-	-
XIV	-	-	-	-	8	-	-	-	-	-	-
Unknown	2,683	874	771	-	-	22	-	-	-	1	-
	27,475	9,049	17,970	36,566	29,037	33,806	28,792	28,274	23,644	14,794	23,818

Table 2.4.2 Total landings within the ICES area, excluding Sub-areas VI and VIIa-c,f-j, by country and species category. Source: ICES Statlant.

	Demersal			Small Pelagics		
	Total Landings	Irish Landings	Irish Percentage	Total Landings	Irish Landings	Irish Percentage
1973	3708300	0	0.0%	4419076	0	0.0%
1974	3999372	0	0.0%	3913365	0	0.0%
1975	3617649	0	0.0%	4558688	0	0.0%
1976	3805168	273	0.0%	5523440	0	0.0%
1977	3346401	390	0.0%	5886935	1460	0.0%
1978	2984970	595	0.0%	5068454	3076	0.1%
1979	2844920	64	0.0%	4889040	0	0.0%
1980	2891193	66	0.0%	4413059	4477	0.1%
1981	3109867	5	0.0%	4410175	1957	0.0%
1982	2985221	0	0.0%	3502750	0	0.0%
1983	2708458	0	0.0%	4270310	0	0.0%
1984	2734771	0	0.0%	4321114	0	0.0%
1985	2648509	0	0.0%	4099473	0	0.0%
1986	2612178	0	0.0%	3298010	0	0.0%
1987	2745970	0	0.0%	3111675	0	0.0%
1988	2549163	0	0.0%	3311543	0	0.0%
1989	2213937	5	0.0%	3002433	27819	0.9%
1990	1983200	29	0.0%	2886791	0	0.0%
1991	2004896	52	0.0%	3255520	13700	0.4%
1992	2009308	42	0.0%	4439549	13136	0.3%
1993	2136389	1	0.0%	4356447	17654	0.4%
1994	2370963	614	0.0%	3930793	10079	0.3%
1995	2407517	1046	0.0%	4206935	5827	0.1%
1996	2397060	1762	0.1%	5116908	23008	0.4%
1997	2450475	844	0.0%	4781561	28122	0.6%
1998	2167810	951	0.0%	4404499	7163	0.2%
1999	2050386	620	0.0%	4363051	16108	0.4%
2000	1810576	366	0.0%	4865548	36112	0.7%
2001	1823501	316	0.0%	4626429	28049	0.6%
2002	1845696	321	0.0%	4880559	32371	0.7%
2003	1816383	353	0.0%	3983263	26067	0.7%
2004	1900975	279	0.0%	3668605	24902	0.7%
2005	1881144	309	0.0%	4049686	22154	0.5%
2006	1945878	410	0.0%	3348622	13396	0.4%
2007	1857177	428	0.0%	3680001	22200	0.6%

	Shellfish			Large Pelagics and Tunas		
	Total Landings	Irish Landings	Irish Percentage	Total Landings	Irish Landings	Irish Percentage
1973	634235	0	0.0%	42953	0	0.0%
1974	602944	0	0.0%	49064	0	0.0%
1975	627427	0	0.0%	54189	0	0.0%
1976	567899	0	0.0%	34246	0	0.0%
1977	589816	4	0.0%	46799	0	0.0%
1978	618594	2	0.0%	44184	0	0.0%
1979	597206	0	0.0%	22525	0	0.0%
1980	705552	3	0.0%	45123	0	0.0%
1981	693578	0	0.0%	35225	0	0.0%
1982	640824	0	0.0%	41135	0	0.0%
1983	572741	0	0.0%	47374	0	0.0%
1984	590057	0	0.0%	34114	0	0.0%
1985	601433	0	0.0%	42429	0	0.0%
1986	436106	0	0.0%	55454	0	0.0%
1987	485683	0	0.0%	56627	0	0.0%
1988	487772	0	0.0%	56042	0	0.0%
1989	461251	0	0.0%	47673	0	0.0%
1990	484738	0	0.0%	49406	0	0.0%
1991	500253	0	0.0%	40968	0	0.0%
1992	555792	89	0.0%	43072	251	0.6%
1993	416506	4095	1.0%	56009	1923	3.4%
1994	495958	3033	0.6%	46016	0	0.0%
1995	526961	4556	0.9%	48039	0	0.0%
1996	523372	1963	0.4%	33694	0	0.0%
1997	458585	1372	0.3%	41397	0	0.0%
1998	545463	0	0.0%	34105	0	0.0%
1999	540338	0	0.0%	35012	3	0.0%
2000	529417	11	0.0%	57609	0	0.0%
2001	483184	129	0.0%	39920	27	0.1%
2002	468624	71	0.0%	25075	802	3.2%
2003	443071	488	0.1%	24250	214	0.9%
2004	453814	521	0.1%	28112	54	0.2%
2005	411677	431	0.1%	47715	169	0.4%
2006	388378	581	0.1%	65742	358	0.5%
2007	406695	1041	0.3%	38160	66	0.2%

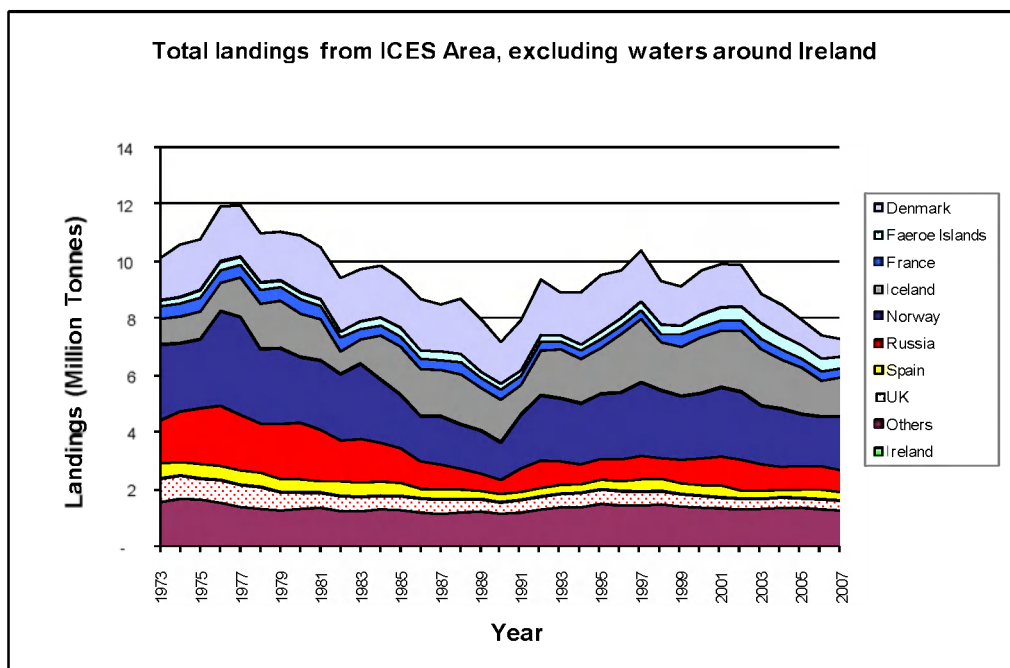


Figure 2.4.2 Total landings within the ICES area, excluding Sub-areas VI and VIIa-c,f-j, by country.
Source: ICES Statlant.

Table 2.4.3 Total landings within the ICES area, excluding Sub-areas VI and VII, by country. Source: ICES Statlant.

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984
UK	820,405	803,615	725,698	785,305	765,012	758,405	637,543	567,556	518,935	521,560	514,214	457,021
Spain	533,691	468,715	508,604	492,131	502,405	497,051	454,256	456,707	393,416	518,618	489,026	504,155
Russia	1,503,378	1,783,478	1,961,950	2,120,593	1,956,161	1,727,755	1,937,413	1,988,371	1,816,398	1,433,221	1,533,811	1,360,028
Norway	2,635,956	2,365,990	2,394,429	3,286,907	3,403,520	2,587,875	2,631,364	2,279,938	2,408,096	2,309,298	2,617,993	2,192,395
Ireland	-	-	-	1,608	3,017	3,675	64	4,548	4,706	-	-	-
Iceland	905,491	937,502	964,883	973,526	1,370,558	1,578,118	1,660,618	1,524,276	1,449,434	801,322	854,577	1,551,203
France	471,457	492,864	527,128	491,726	492,256	527,365	522,235	538,343	493,447	511,380	392,734	378,868
Faeroe Islands	205,454	207,915	256,051	295,522	264,597	250,635	213,656	224,980	223,415	200,333	269,262	273,625
Denmark	1,448,846	1,821,286	1,748,533	1,887,690	1,773,317	1,693,434	1,679,663	1,966,589	1,800,335	1,859,963	1,798,301	1,794,883
Others	1,612,704	1,733,225	1,706,164	1,592,494	1,444,084	1,375,673	1,317,227	1,371,186	1,411,345	1,292,867	1,281,970	1,364,625
	10,137,382	10,614,590	10,793,440	11,927,502	11,974,927	10,999,986	11,054,039	10,922,494	10,519,527	9,448,562	9,751,888	9,876,803

	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
UK	485,044	486,305	497,071	453,952	427,424	386,637	432,561	439,241	459,586	489,899	503,486	494,863
Spain	458,288	332,478	345,786	337,473	286,246	288,757	278,501	298,891	318,681	302,608	336,447	341,878
Russia	1,220,423	968,605	886,712	735,597	616,415	505,035	828,241	970,325	824,739	701,323	732,195	772,363
Norway	1,852,453	1,561,994	1,672,591	1,533,015	1,487,573	1,292,306	1,867,560	2,263,160	2,187,189	2,117,873	2,262,834	2,319,651
Ireland	1,602	1,764	1,468	-	27,824	29	13,752	13,518	23,673	13,756	13,588	30,492
Iceland	1,694,925	1,667,890	1,643,739	1,772,436	1,518,508	1,521,201	1,055,939	1,581,865	1,723,685	1,567,476	1,615,129	2,053,004
France	367,774	377,471	346,462	438,387	355,279	352,155	325,031	330,408	295,981	314,050	329,144	319,474
Faeroe Islands	311,895	287,599	317,876	291,485	223,958	223,879	204,538	221,720	212,945	203,195	252,050	263,335
Denmark	1,708,742	1,787,724	1,620,104	1,910,674	1,836,941	1,450,658	1,740,969	1,932,350	1,482,627	1,825,689	1,967,282	1,649,532
Others	1,331,858	1,244,154	1,193,033	1,251,338	1,253,226	1,206,924	1,233,544	1,344,334	1,409,831	1,422,938	1,537,969	1,465,060
	9,433,004	8,715,984	8,524,842	8,724,357	8,033,394	7,227,581	7,980,636	9,395,812	8,938,937	8,958,807	9,550,124	9,709,652

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
UK	487,527	460,283	428,491	404,444	373,427	367,028	337,088	358,145	326,582	340,066	338,769
Spain	423,323	427,540	383,598	366,761	417,233	278,299	283,362	262,724	292,098	336,750	287,519
Russia	829,554	728,604	826,520	941,771	1,025,592	1,089,322	935,119	817,825	843,692	829,444	774,895
Norway	2,559,573	2,354,366	2,207,718	2,266,525	2,402,848	2,363,204	2,033,299	2,010,124	1,796,781	1,717,535	1,862,780
Ireland	27,475	9,049	17,970	36,566	29,038	33,806	28,792	28,274	23,644	14,794	23,820
Iceland	2,216,857	1,692,684	1,734,633	1,968,842	1,995,846	2,137,583	1,987,949	1,737,020	1,649,496	1,276,083	1,399,027
France	334,487	303,947	465,379	372,848	377,005	389,012	382,627	367,121	322,904	334,062	323,536
Faeroe Islands	300,928	336,179	291,536	445,856	452,505	490,728	547,707	498,014	472,772	453,512	410,987
Denmark	1,758,059	1,503,368	1,364,454	1,514,847	1,495,985	1,429,754	1,016,149	1,069,570	887,833	812,721	604,052
Others	1,461,780	1,523,305	1,435,515	1,387,028	1,363,591	1,323,429	1,347,631	1,382,065	1,392,666	1,346,040	1,297,625
	10,399,543	9,339,325	9,155,814	9,705,488	9,933,070	9,902,165	8,899,723	8,530,882	8,008,468	7,461,007	7,323,010

Table 2.4.4 The two most common species landed from each of the ICES Sub-areas each year from 1973-2007.

	Sub-area I		Sub-area II		Sub-area IV		Sub-area V	
	Cod	Haddock	Cod	Herring	Horse Mackerel	Mackerel	Mackerel	Blue Whiting
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	160
1977	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	1161	738	0	0
1981	0	0	0	0	412	733	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	2482	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	2050	11650	0	0
1992	0	0	0	0	0	13136	0	0
1993	0	0	0	0	4469	13185	0	0
1994	12	0	579	0	1071	9008	0	0
1995	0	0	954	0	220	5607	0	0
1996	0	0	790	19543	1137	5190	0	0
1997	0	0	1595	11179	8807	281	0	0
1998	0	0	853	2437	0	396	0	0
1999	0	0	552	2414	404	11293	100	0
2000	0	0	323	8940	103	9956	0	0
2001	0	0	254	4413	555	14798	0	0
2002	0	0	278	1699	72	20715	0	0
2003	218	17	81	1401	93	17145	495	0
2004	116	31	94	0	379	18444	471	1653
2005	109	13	140	0	1191	14374	0	560
2006	0	0	323	4693	2077	4525	0	0
2007	40	0	257	6411	651	12763	0	0

	Divisions VIId,e		Sub-area VIII		Sub-area X		Sub-area XII	
	Horse Mackerel	Pilchard	Horse Mackerel	Mackerel	Cardinal fish	Orange Roughy	Blue Whiting	Orange Roughy
1973	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0
1977	1133	0	0	0	0	0	0	0
1978	2671	0	0	0	0	0	0	0
1979	0	0	0	0	0	0	0	0
1980	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0
1984	0	0	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	0	0
1987	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0
1990	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0
1993	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0
1996	625	0	375	0	0	0	0	0
1997	2741	0	0	0	0	0	0	0
1998	4197	0	0	0	0	0	0	0
1999	525	820	0	0	0	0	0	0
2000	5108	2238	6485	1314	0	0	0	0
2001	2951	2077	1515	319	0	0	231	0
2002	99	4055	684	2137	0	0	0	0
2003	149	1637	1314	961	0	0	1509	136
2004	0	128	1882	1657	15	19	0	0
2005	0	0	2000	2157	0	0	0	0
2006	0	639	158	1150	0	0	0	0
2007	516	0	695	601	0	0	0	0

Table 2.4.5 The main species landed by Irish vessels from ICES Sub-areas excluding VI and VIIa-c.f-j in 2007, by proportion of the landings in each area.

Area	Albacore	Cod	Edible crab	Haddock	Herring
I	0.0%	87.0%	0.0%	0.0%	0.0%
II	0.0%	3.8%	0.0%	1.3%	93.9%
IV	0.0%	0.0%	7.0%	0.0%	1.3%
V	0.0%	0.0%	0.0%	0.0%	0.0%
VII d,e	0.0%	0.4%	0.0%	0.0%	0.0%
VIII	4.8%	0.0%	0.0%	0.0%	0.0%

Area	Horse mackerel	Mackerel	Plaice	Others
I	0.0%	0.0%	13.0%	0.0%
II	0.0%	0.0%	0.1%	0.9%
IV	4.4%	87.0%	0.0%	0.3%
V	98.4%	0.0%	0.0%	1.6%
VII d,e	96.1%	0.0%	0.0%	3.5%
VIII	50.8%	44.0%	0.0%	0.4%

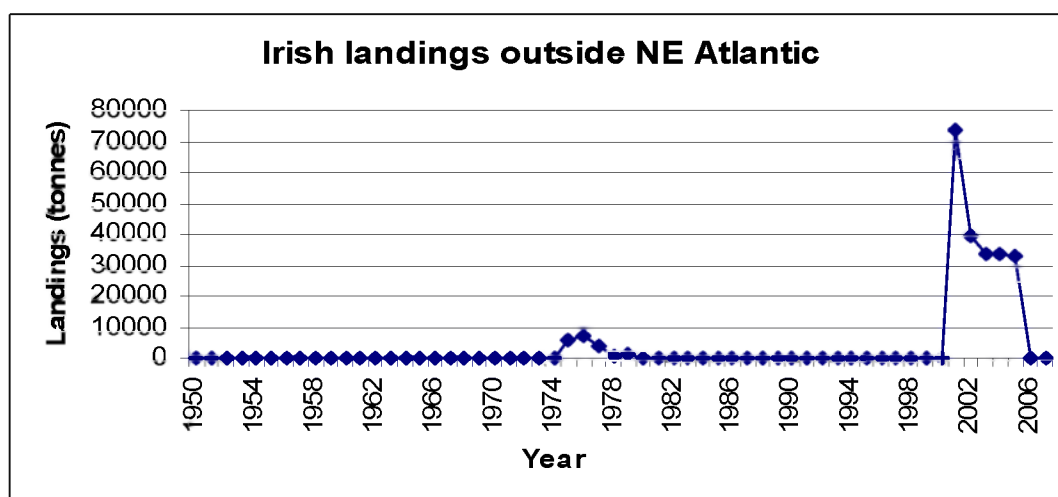


Figure 2.4.3 Total Irish landings (tonnes) of fish caught outside Area 27. Source FAO: Capture Production database.

Table 2.4.6 Irish landings into foreign ports. Source: Irish logbook database

Country	2003	2004	2005	2006	2007	2008*
Belgium	2	82	39	-	-	-
Denmark	-	4,007	7,296	6,122	6,413	2,530
Faeroe Islands	6,055	6,782	-	1,635	3,532	10,169
France	10,173	7,638	5,668	3,318	3,703	3,616
Iceland	-	4,108	2,034	1,161	1	-
Mauritania	1,561	4,025	5,391	-	-	-
Morocco	11,842	1,985	-	-	-	12
Netherlands	18,626	19,983	20,577	14,107	7,349	3,877
Norway	10,339	20,938	16,240	10,769	20,631	19,007
Peru	-	-	-	30,892	-	-
Portugal	-	-	0	-	-	-
Spain	21,129	30,676	22,601	372	357	2,173
United Kingdom	12,294	17,090	16,788	20,001	17,832	11,222
Total:	92,022	117,313	96,634	88,379	59,817	52,605

*Data from 2008 are provisional

Table 2.4.7 Irish catches and species in the CECAF area. Weights in tonnes. Data available 2001-2005 only. Source: FAO CECAF database.

Species	Area	2001	2002	2003	2004	2005
Atlantic bonito	Tunas (CECAF area)			188	48	
Black scabbardfish	Cape Verde coastal				27	13
Black scabbardfish	Sahara coastal				121	108
Chub mackerel	Cape Verde coastal	944	2,131	2,986	330	307
Chub mackerel	Sahara coastal	5,191	2,342	2,874	474	15
European pilchard(=Sardine)	Cape Verde coastal	3,425	6,082	400	2,266	5,552
European pilchard(=Sardine)	Sahara coastal	1,955	253	4,780	8,276	1,223
Jack and horse mackerels nei	Cape Verde coastal	1,033	2,236	755	1,043	1,293
Jack and horse mackerels nei	Sahara coastal	7,489	1,175	351	637	109
Largehead hairtail	Cape Verde coastal	253	40	55		
Largehead hairtail	Sahara coastal		35	29		
Little tunny(=Atl.black skipj)	Tunas (CECAF area)				14	3
Marine fishes nei	Cape Verde coastal	236	118	92	62	49
Marine fishes nei	Sahara coastal	189	387	164	788	153
Plain bonito	Tunas (CECAF area)					24
Sardinellas nei	Cape Verde coastal	33,470	8,020	7,089	6,318	8,273
Sardinellas nei	Sahara coastal	19,510	16,532	13,675	13,333	15,811
Skipjack tuna	Tunas (CECAF area)					10
Tuna-like fishes nei	Tunas (CECAF area)					122
Total:		73,695	39,351	33,438	33,737	33,065

Section 3 – Fleet Activity

Vessel Monitoring Systems (VMS) are used to monitor the activities of fishing vessels. Since January 2005, all EU fishing vessels over 15 meters in length are required to transmit their position via satellite at least every 2 hours. Ireland receives all VMS records from foreign fishing vessels within the Irish EEZ and all VMS data from Irish Vessels (inside and outside the EEZ). The daily catch records from Irish skipper's logbooks were linked to VMS data to obtain the approximate catch composition for each VMS position.

Data on vessel power were obtained from the EU fleet register (<http://ec.europa.eu/fisheries/fleet>)

Note that no VMS data are available for vessels under 15m. There are a significant number of small vessels operating around Ireland but the total landings of TAC regulated species, by these vessels, are relatively small.

It is also important to note that international VMS data are only available to Ireland inside the Irish EEZ. The figures below can therefore not be compared directly to figures relating to ICES Sub-areas VI and VII that are reported elsewhere in this document.

Irish Effort in the North-East Atlantic

Figure 3.1 shows that the vast majority of Irish fishing effort of vessels >15m takes place within the Irish EEZ, most of the effort outside the EEZ is still within ICES areas VI and VII. A small number of vessels have fished in ICES Sub-areas IV (North Sea), VIII (Biscay), I and II (Norwegian and Barents Seas), the CECAF area (west of Africa) and the Mediterranean. Figure 3.2 shows a map of the distribution of fishing effort in the North-East Atlantic.

Irish Effort around Ireland

The spatial distribution of effort (fishing days) for four groups of target species is shown in Figures 3.3 to 3.6. The majority of Irish fishing effort is directed towards *Nephrops* fisheries. *Nephrops* directed effort is concentrated on the main *Nephrops* grounds in the Western Irish Sea, the Smalls, the Aran grounds and the Porcupine bank. In the Celtic Sea, Stanton Bank, Donegal Bay and off the South coast there are also *Nephrops* trawl fisheries on smaller mud patches. Demersal effort is the second most important, with concentrations of effort on grounds in the Celtic Sea, Stanton Bank, along the western slope, Donegal Bay and in the Irish Sea. Pelagic effort is concentrated along the south coast in Donegal Bay and off the continental shelf to the west and Northwest of Ireland. Deepwater effort is concentrated west of Achill Island and around the margins of the Porcupine Bank.

The time series of Irish fishing effort by the main gear groups and ICES Sub-division is shown in Figure 3.7. Please note that the scale used (in kw.days) differs between areas. The trends vary by both area and gear type. There has been a sharp decline in effort in Divisions VIa and VIIde, while effort in VIIa has remained fairly stable over time. Otter trawl effort has either declined or remained stable with the exception of the Celtic Sea (VIIIf,g,h,j,k) which has seen a marked increase in effort and following a sharp decline in otter trawl effort in Rockall (VIb), otter trawl effort has increased since 2005.

International Effort inside the Irish EEZ

The distribution of effort within the Irish Exclusive Economic Zone (EEZ) was analysed based, on the number of vessel-days and KW-days by vessel nationality. Figures 3.8 and 3.9 show that distribution of effort is relatively constant over the three years examined. Irish vessels spend on average around 25,000 vessel-days at sea per year (34% of all effort in the EEZ). Spanish vessels spend a similar number of vessel-days in the area, followed by France (average of around 13,000 vessel days) and Britain (around 7500 vessel-days). Effort from other countries in the Irish EEZ is relatively minor. When effort is expressed as KWdays at sea (taking vessel power into account) the relative share of the Spanish vessels decreases, while that of the Netherlands increases. Data on engine power of Norwegian vessels were not available but if one assumes an average engine power of 6000KW (Similar to that of Dutch vessels operating in the Irish EEZ), the Norwegian effort would be in the order of 5 million KWdays per year. The average Irish effort is in the order of 12 million KW-Days (31% of the EU effort in the Irish EEZ).

Figure 3.10 shows that although the majority of Irish landings (by weight) consist of pelagic species, a relatively small proportion of effort takes place with pelagic gears. Data on Norwegian gear types were not available but most of the Norwegian effort in the Irish EZZ is pelagic. The Dutch effort in days-at-sea is minor but these are powerful vessels so when effort is expressed as KWdays, Dutch effort becomes substantial.

The number of vessels operating in the Irish EEZ is shown in Figure 3.11. In addition to around 250 Irish vessels of more than 15m length shown in the figure, there were around 200 Irish vessels of 10-15m that reported landings during 2006, 2007 and 2008. The number of active vessels under 10m is not recorded.

Figures 3.12 to 3.19 Show the distribution International effort inside the EEZ. Vessels were assumed to be fishing if their speed was between 0.1 and 5.0 knots.

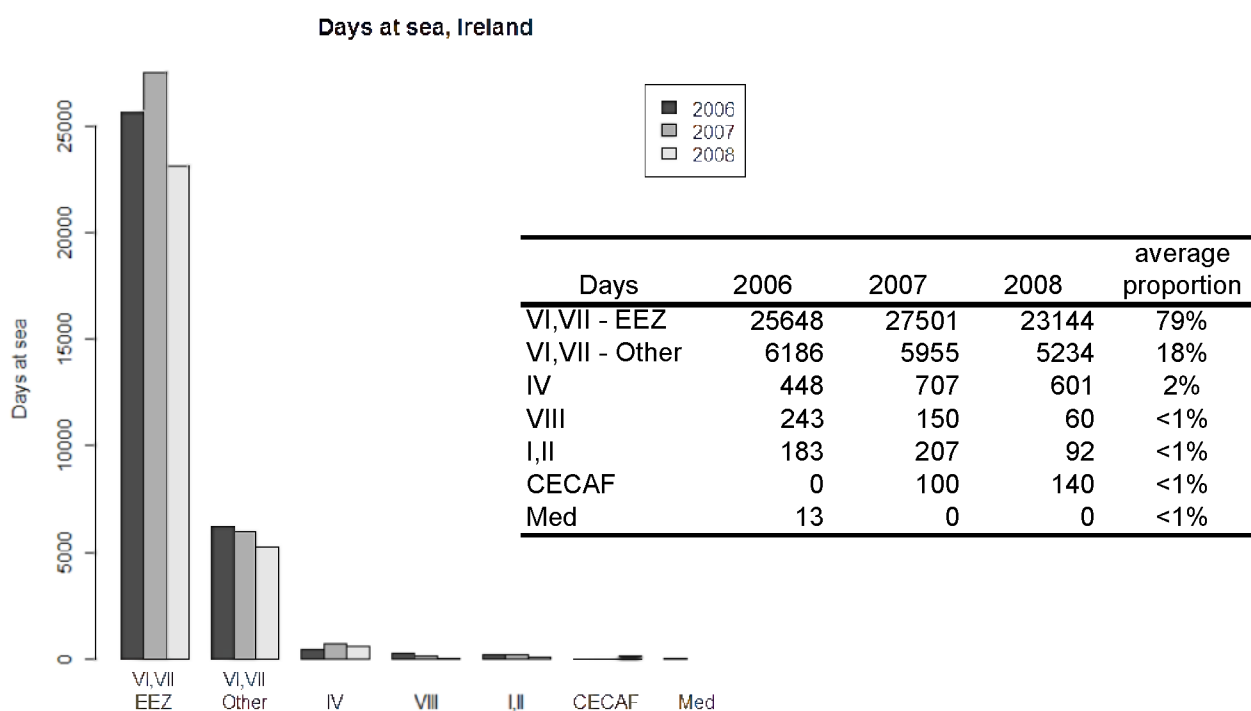


Figure 3.1 Distribution of Irish effort of vessels >15m. Source: VMS database.

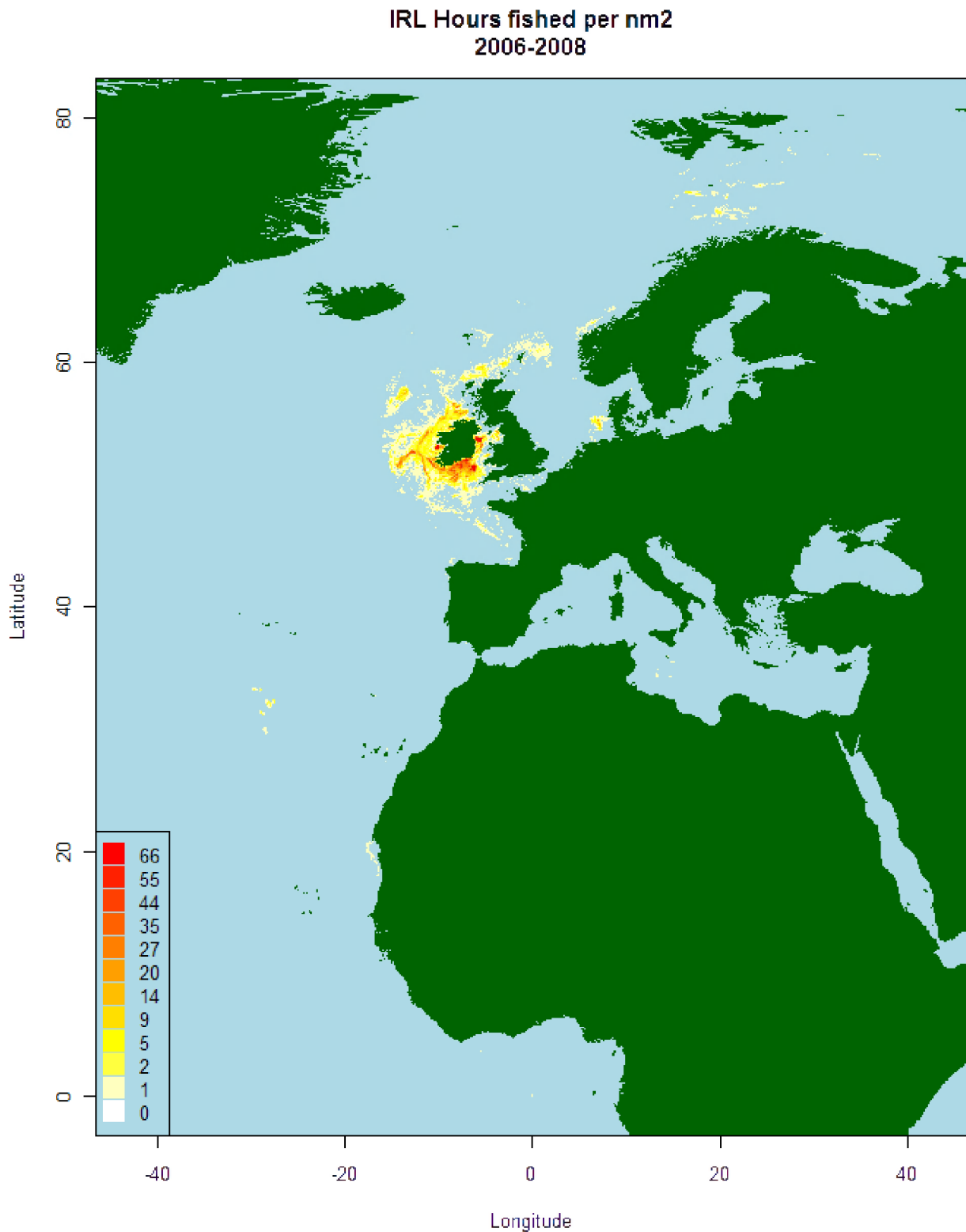


Figure 3.2 **Approximate distribution of fishing activity of Irish Vessels (>15m) in the North-East Atlantic. The activity near Rockall is targeted at haddock. To the north of Scotland and around the Shetland Islands Irish vessels mainly target mackerel. Herring are targeted in the southern Norwegian sea while the fishing activity in the Barents Sea is consists mainly of vessels targeting cod. Crab were targeted to the west of Denmark. Vessels fishing off West Africa mainly targeted small pelagics. Source: VMS database.**

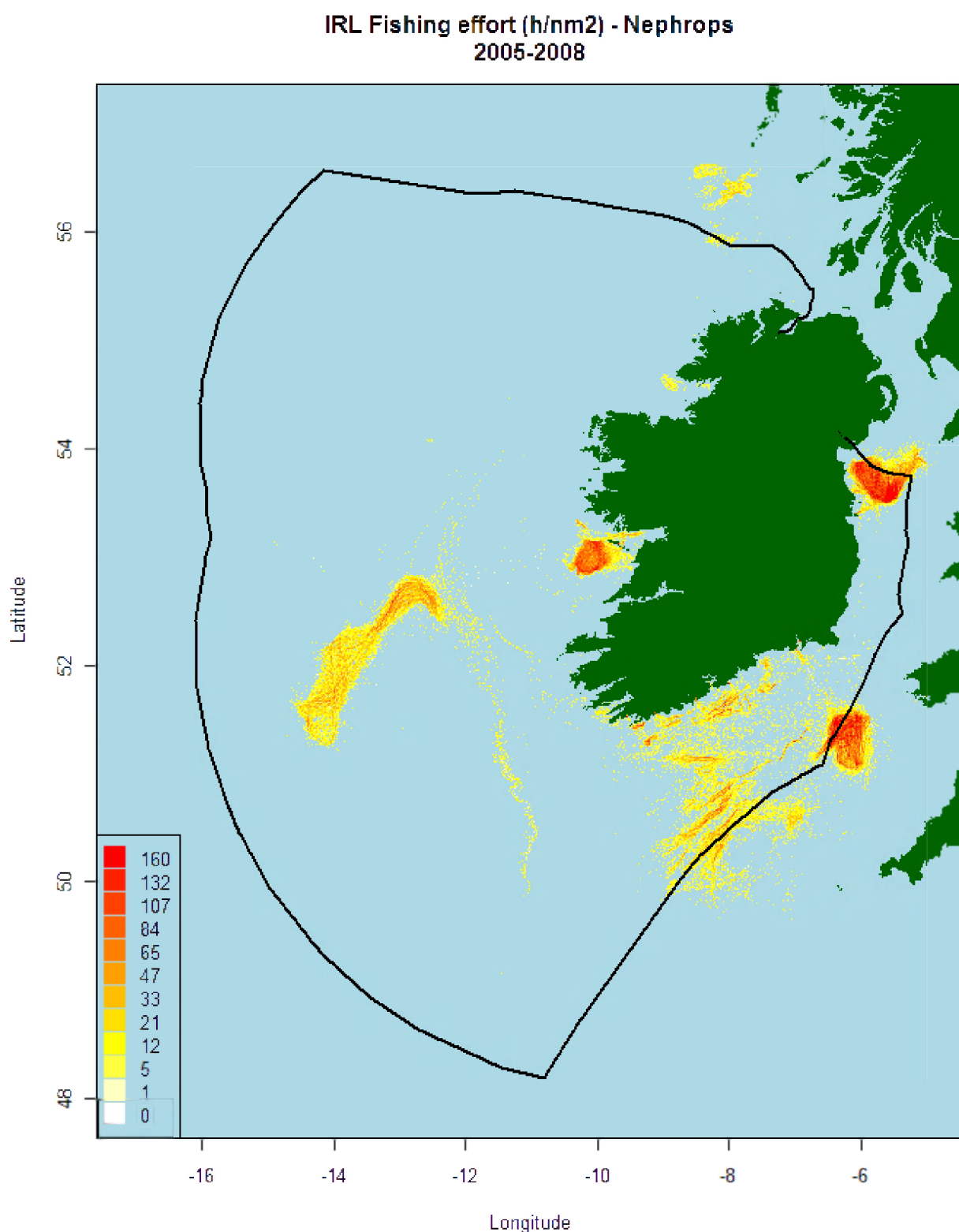


Figure 3.3 Distribution of effort (hours fished per square nautical mile) of vessels >15m. *Nephrops* targeted effort was classified as any day on which 30% or more of the catch (by weight) consisted of *Nephrops*. Source: VMS database and Irish Logbooks database.

IRL Fishing effort (h/nm2) - Demersal (non-Nephrops)
2005-2008

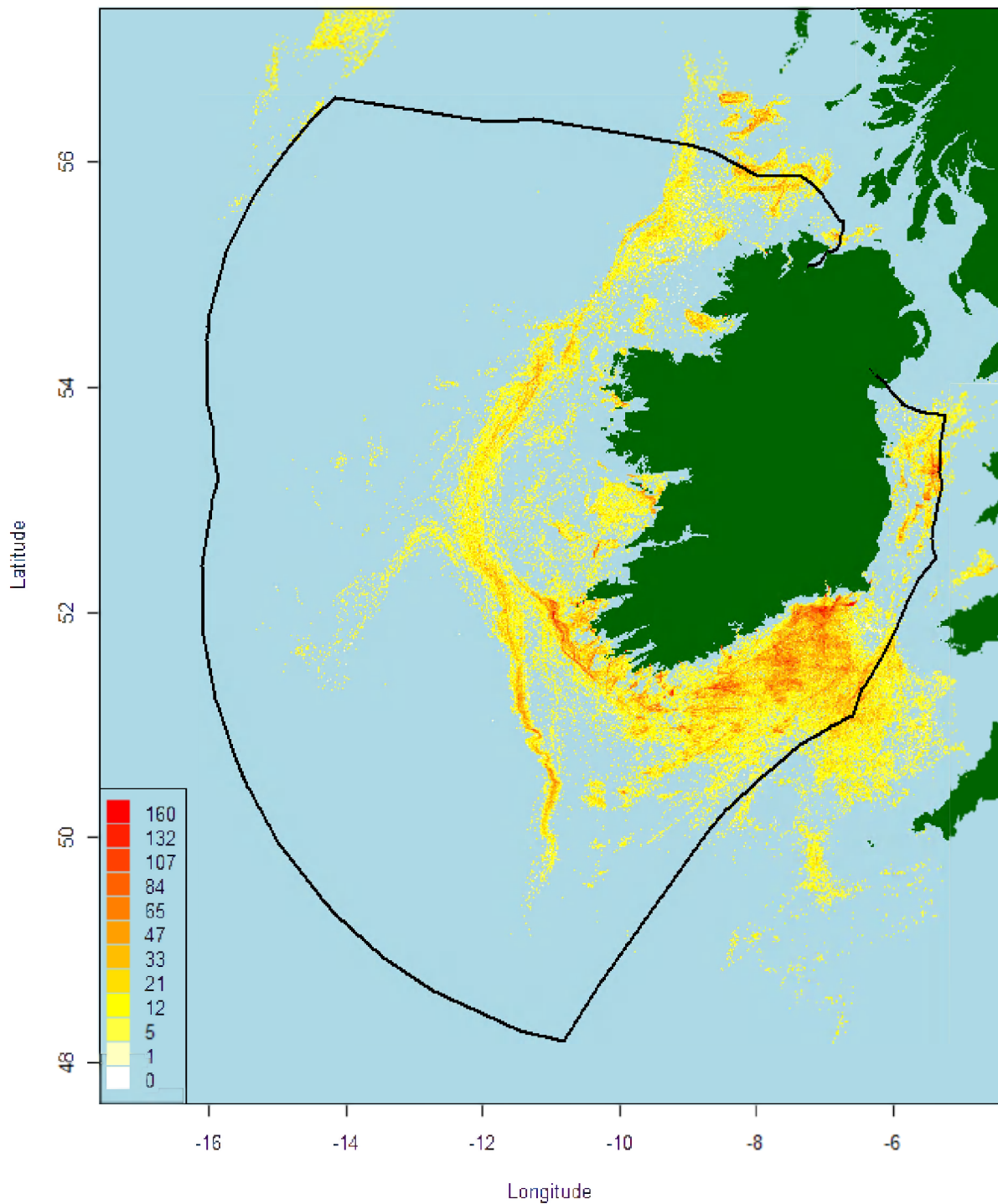


Figure 3.4 Distribution of effort (hours fished per square nautical mile) of vessels >15m. Demersal (non-Nephrops) targeted effort was classified as any day on which less than 30% of the catch (by weight) consisted of *Nephrops*. Source: VMS database and Irish Logbooks database.

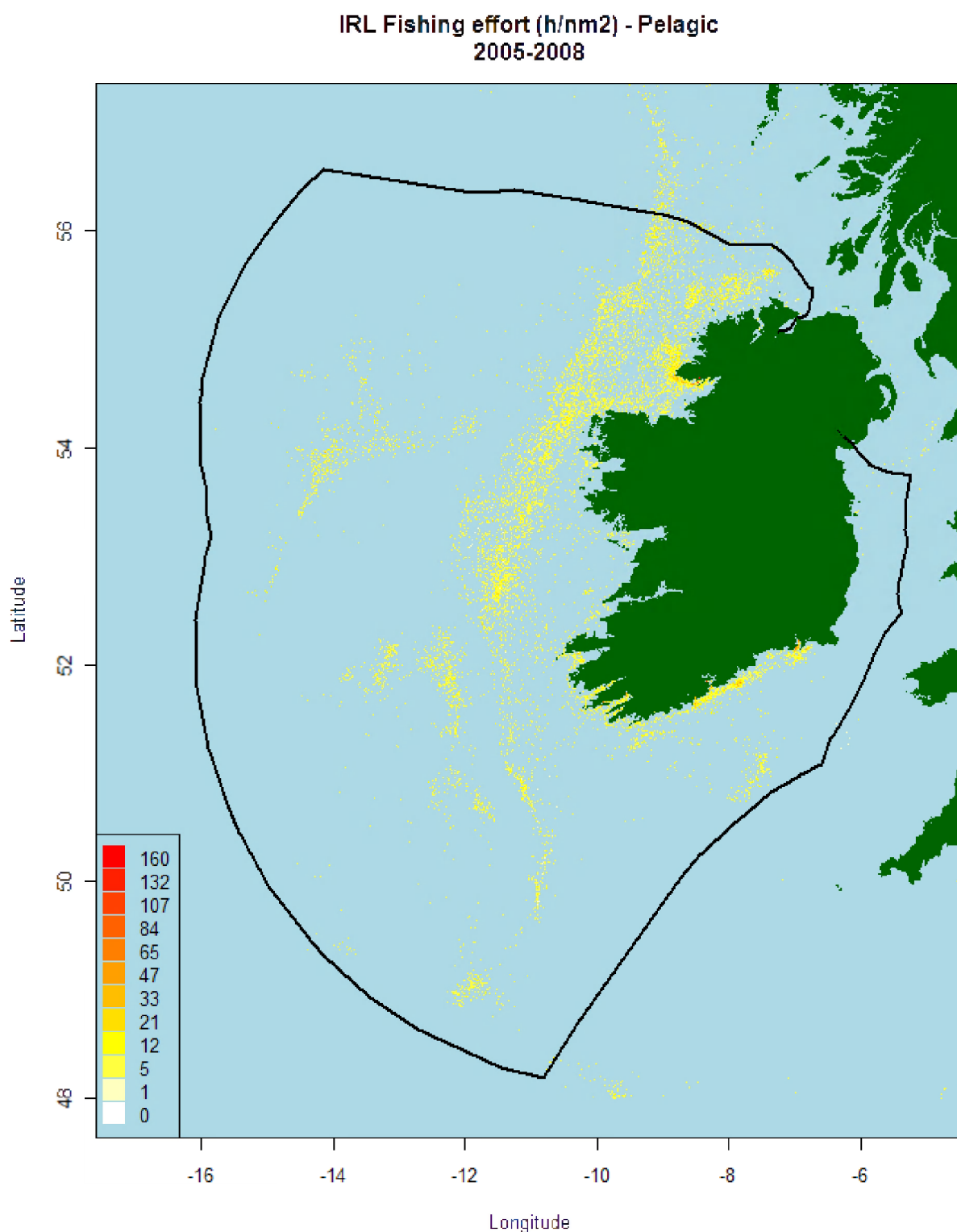


Figure 3.5 Distribution of effort (hours fished per square nautical mile) of vessels >15m. Pelagic targeted effort was classified as and trip on which more than 75% of the landings consist of pelagic species. Source: VMS database and Irish Logbooks database.

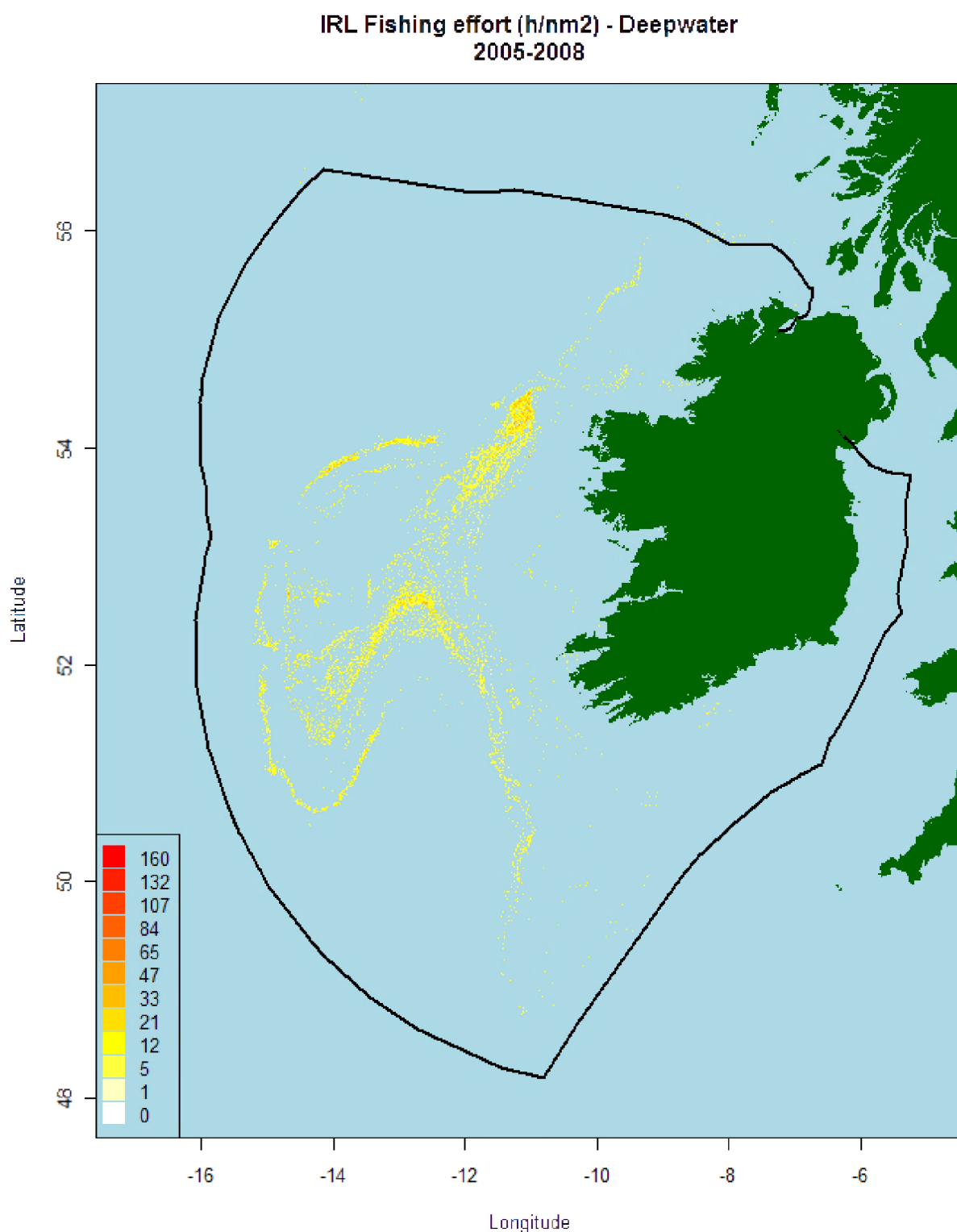
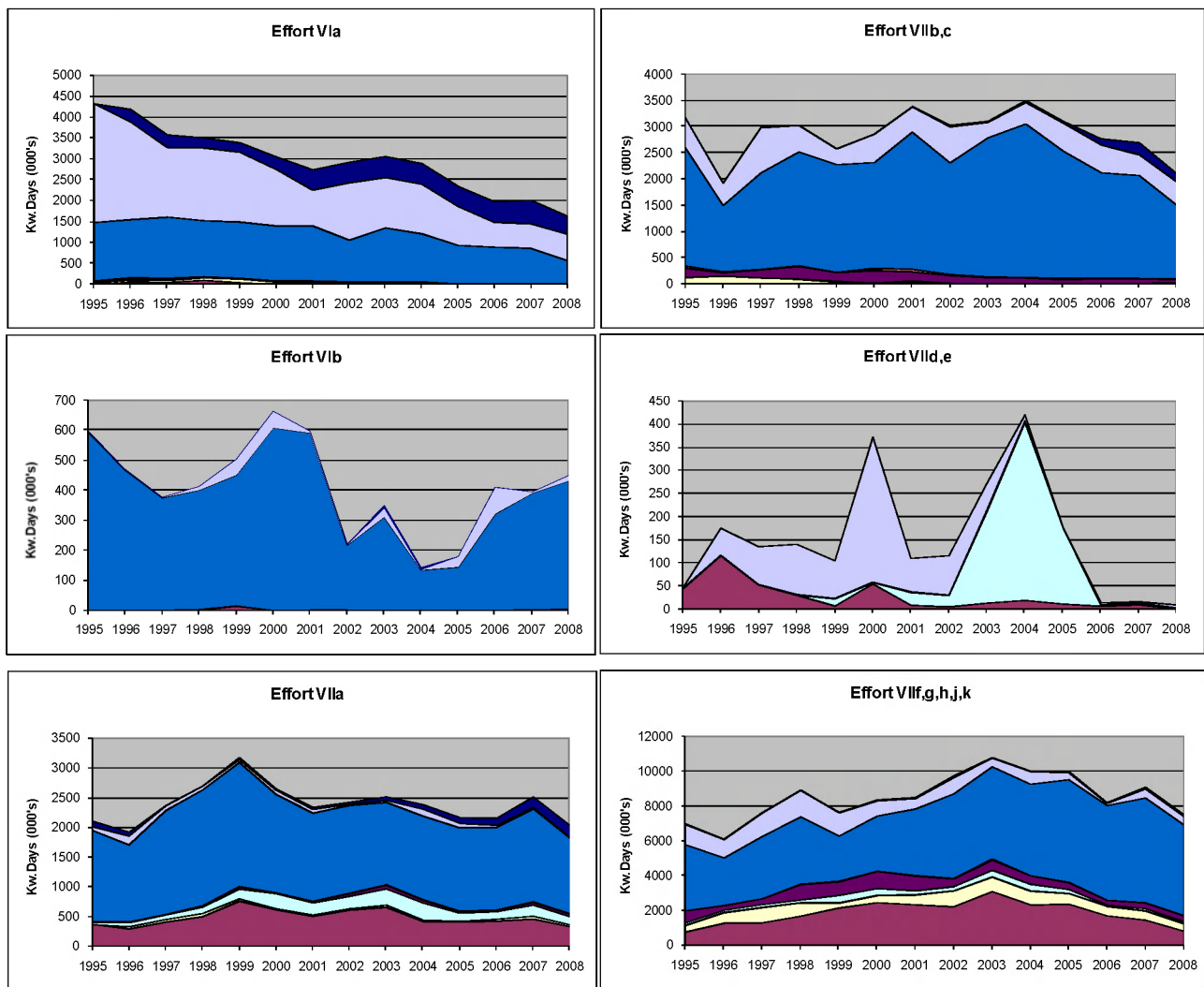


Figure 3.6 Distribution of effort (hours fished per square nautical mile) of vessels >15m. Deepwater targeted effort was classified as any trip on which 100kg or more of deepwater species were reported. The deepwater fisheries has mostly ceased due to a collapse in many of the deepwater stocks. Source: VMS database and Irish Logbooks database.



Note that ICES divisions VIIb and VIIc as well as VII f, g,h,j,k are grouped, and the scales across each group are different.

Figure 3.7 Irish effort from 1995 to 2008 by ICES division for the main gear types for vessels over 10m expressed as Kw.Days in the main ICES sub-divisions around Ireland.

In all areas with the exception of VIb (Rockall) effort has declined. By gear group, otter trawl effort has declined in the majority of areas but has increased in VIIe-k (Celtic Sea) and VIb (Rockall). Beam trawl activity is centred in VIIa (Irish Sea) and VIIe-k (Celtic Sea) and has shown a marked decline in recent years. The use of static gears (pots and nets) has remained fairly stable with slight increases in potting activity being observed in VIIa and VIIbc.

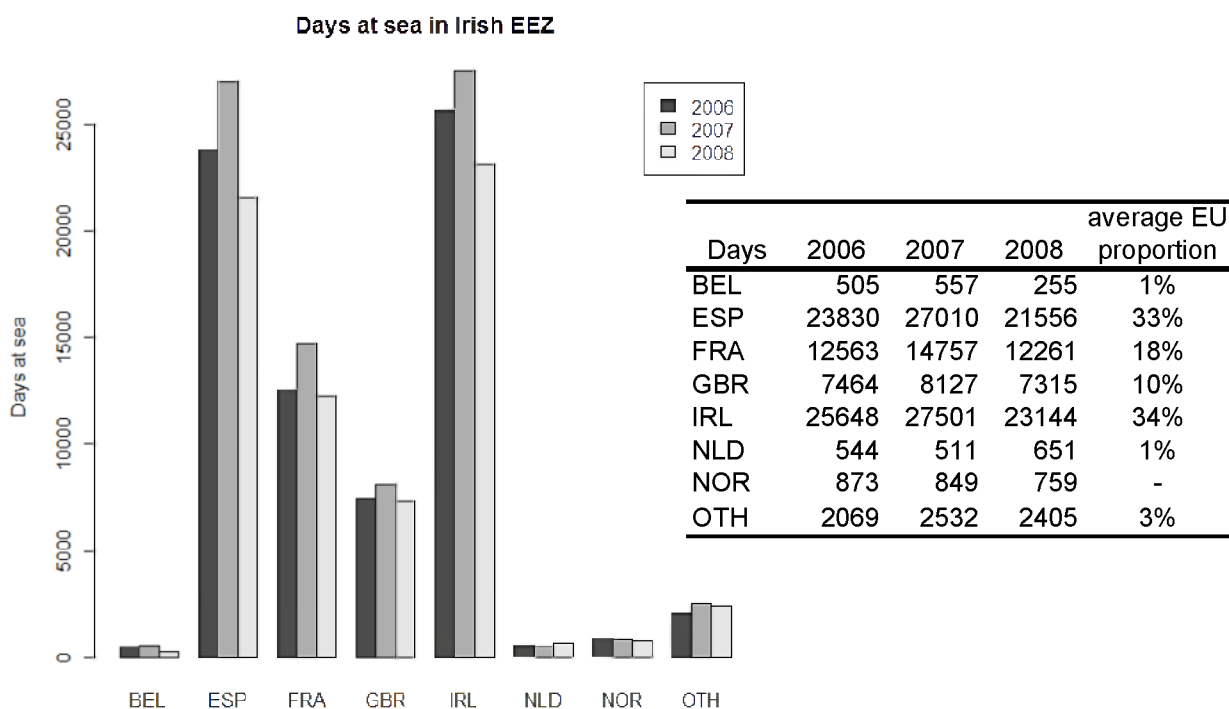


Figure 3.8 Distribution of fishing effort expressed as days-at-sea within the Irish EEZ. Source: VMS database

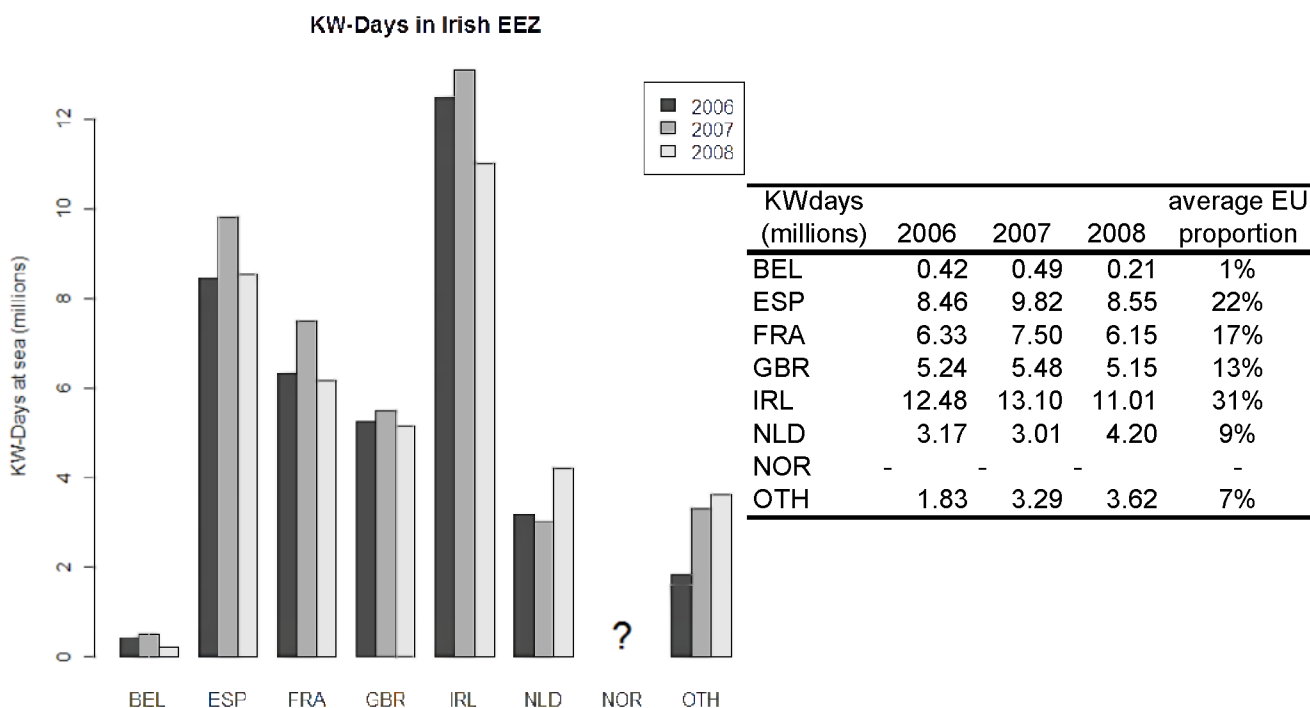


Figure 3.9 Distribution of fishing effort expressed as KWdays-at-sea within the Irish EEZ. Data on engine power of Norwegian vessels were not available but if one assumes an average engine power of 6000KW (Similar to that of Dutch vessels operating in the Irish EEZ), the Norwegian effort would be in the order of 5 million KWdays per year. Source: VMS database.

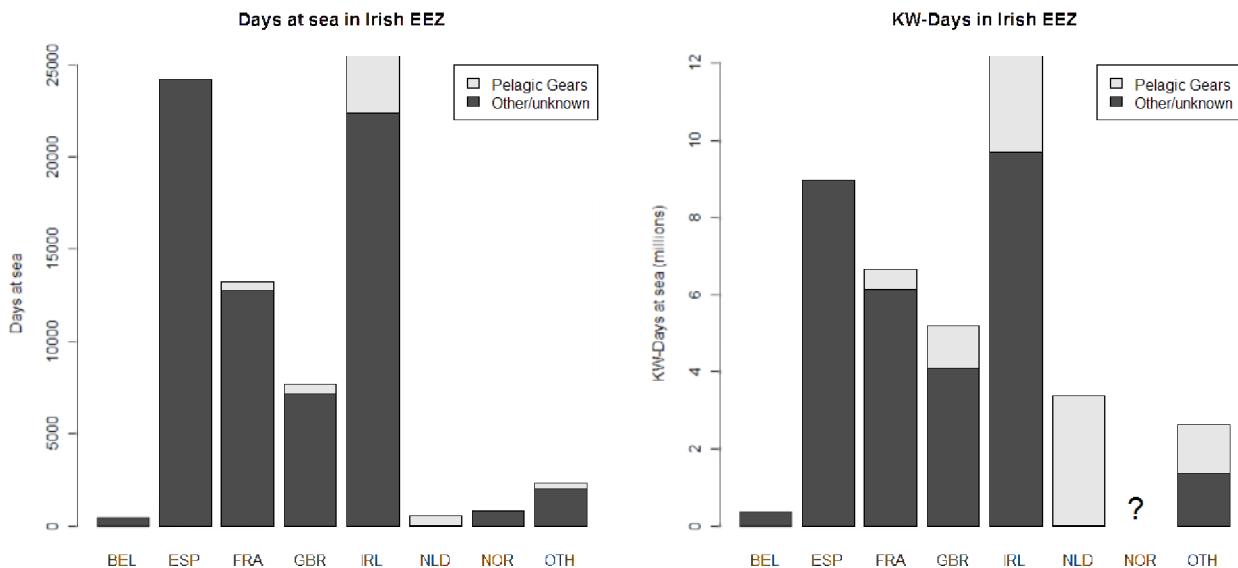


Figure 3.2 Effort of vessels >15 inside the Irish EEZ, showing the proportion of effort that can be attributed to pelagic gears. Source: VMS database

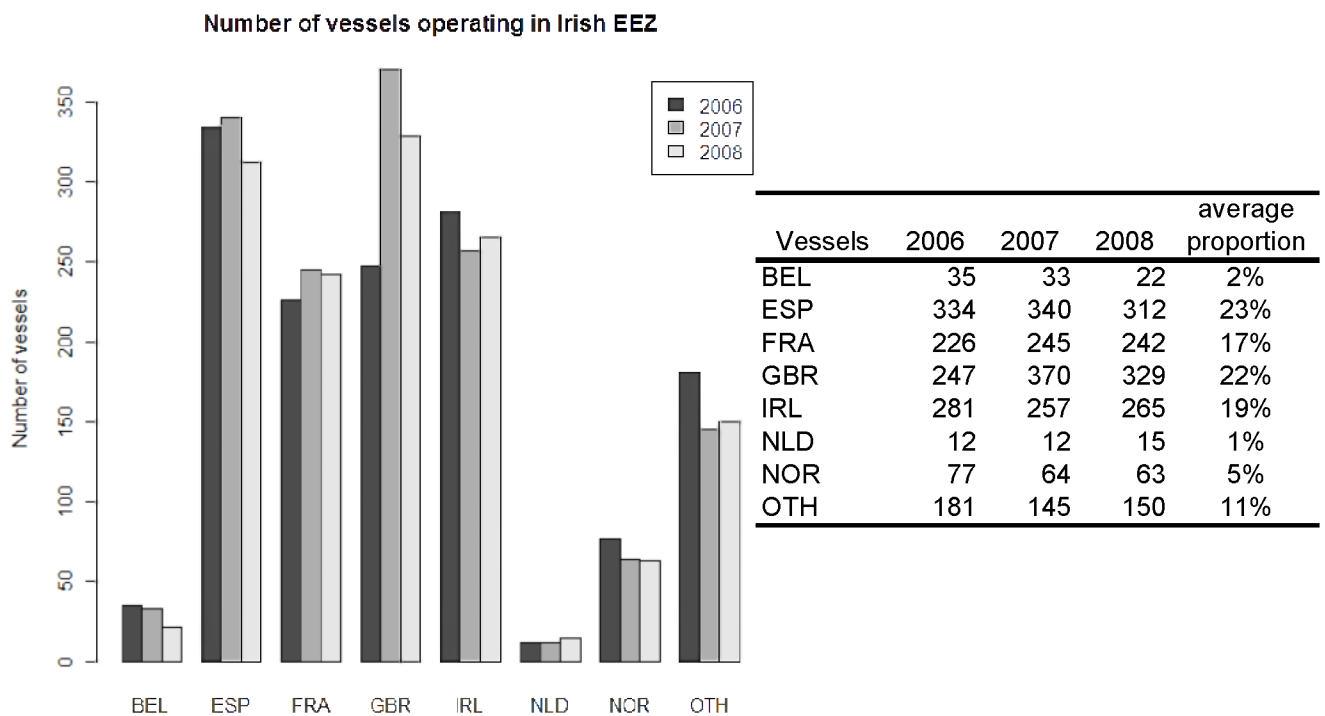


Figure 3.3 The number of vessels (larger than 15m) operating in the Irish EEZ. Source: VMS database.

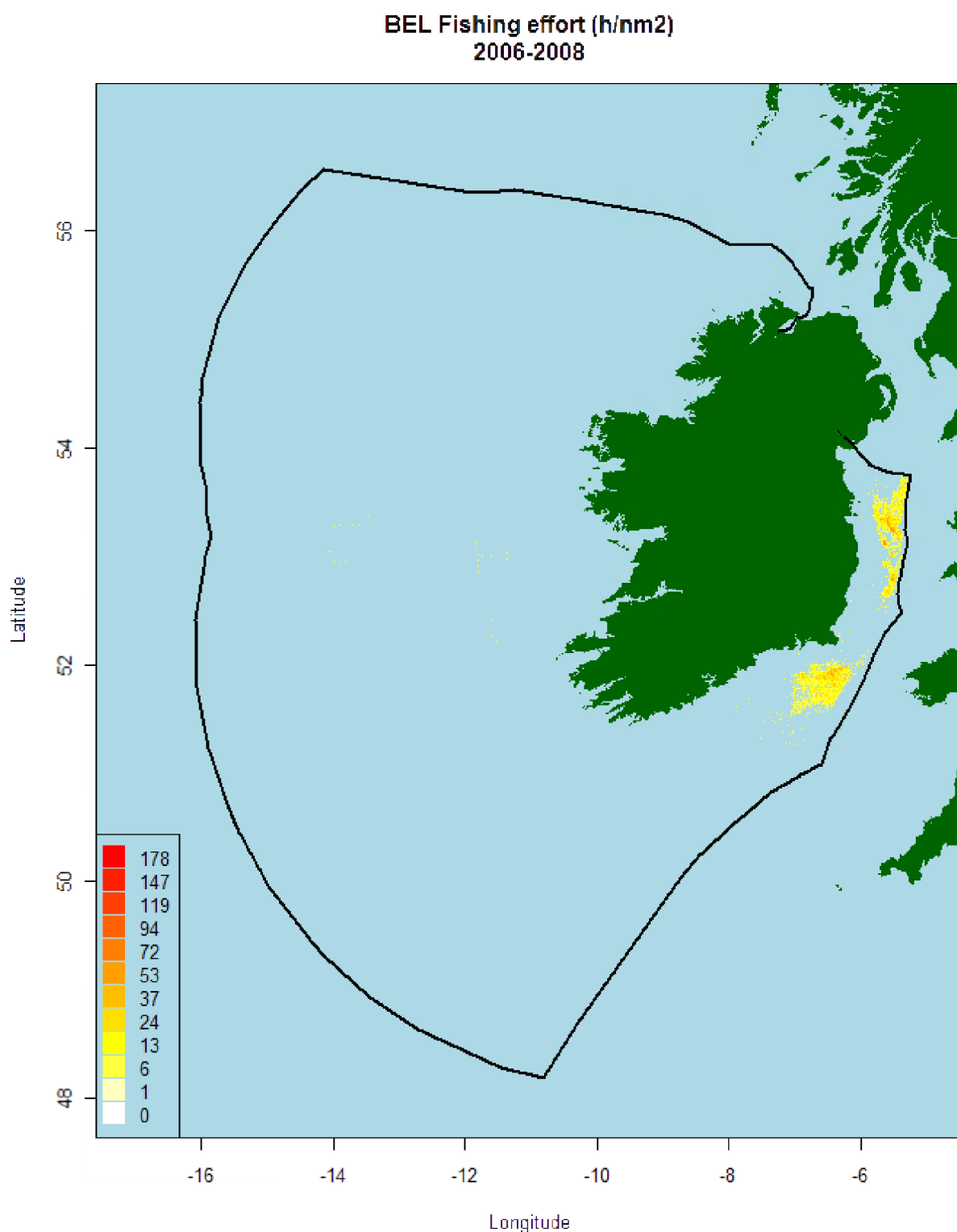


Figure 3.4 Belgian effort in the Irish EEZ is relatively small and limited to the area off the east and southeast of Ireland. The majority of these vessels use beam trawls and target black sole and other benthic species like monkfish and megrim. *Source: VMS database.*

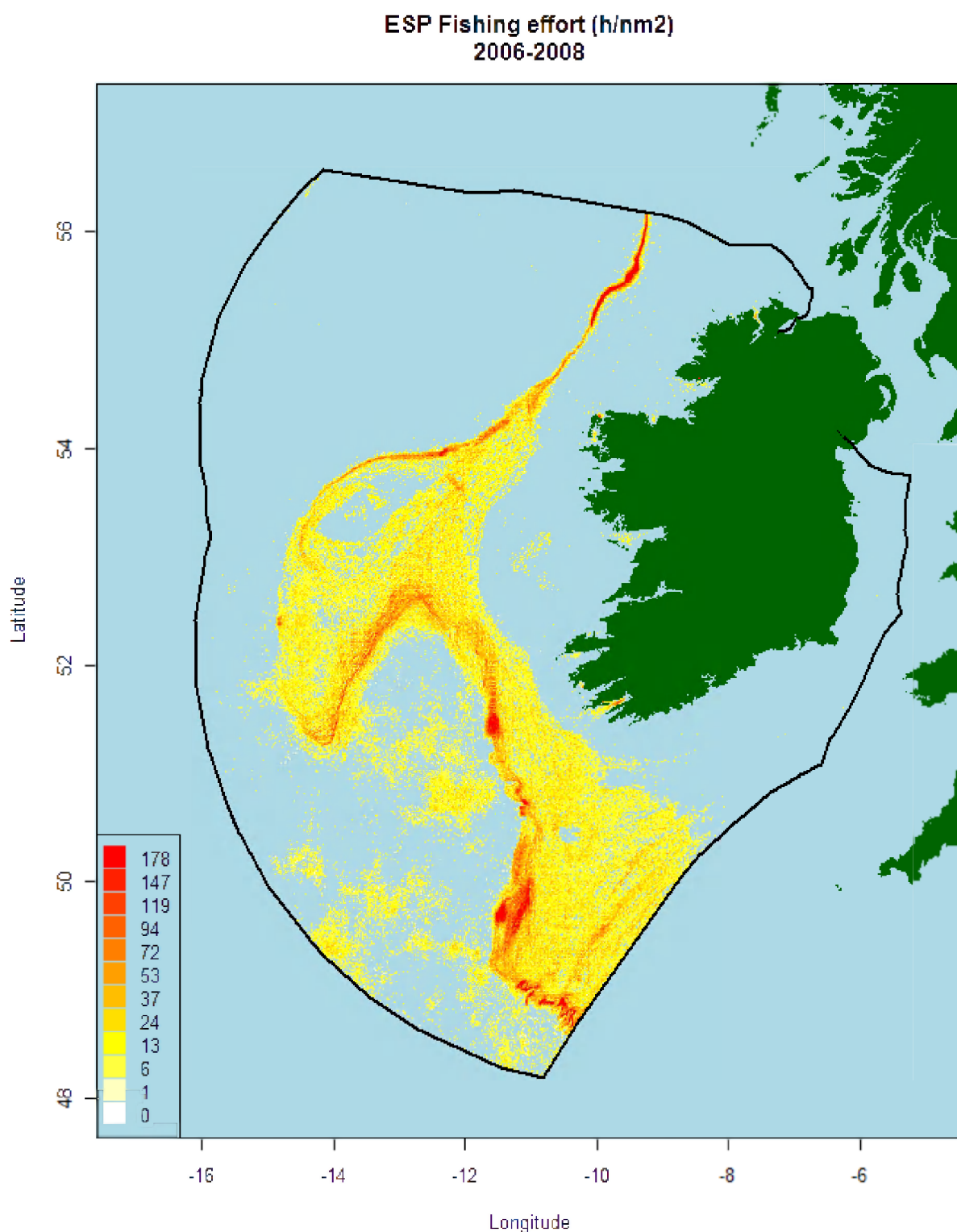


Figure 3.5 Spanish effort in the Irish EEZ is considerable. Spanish vessels use gillnets to target hake and monkfish along the continental shelf edge as well as gillnets targeting hake and trawls targeting monkfish, megrim and hake. *Source: VMS database.*

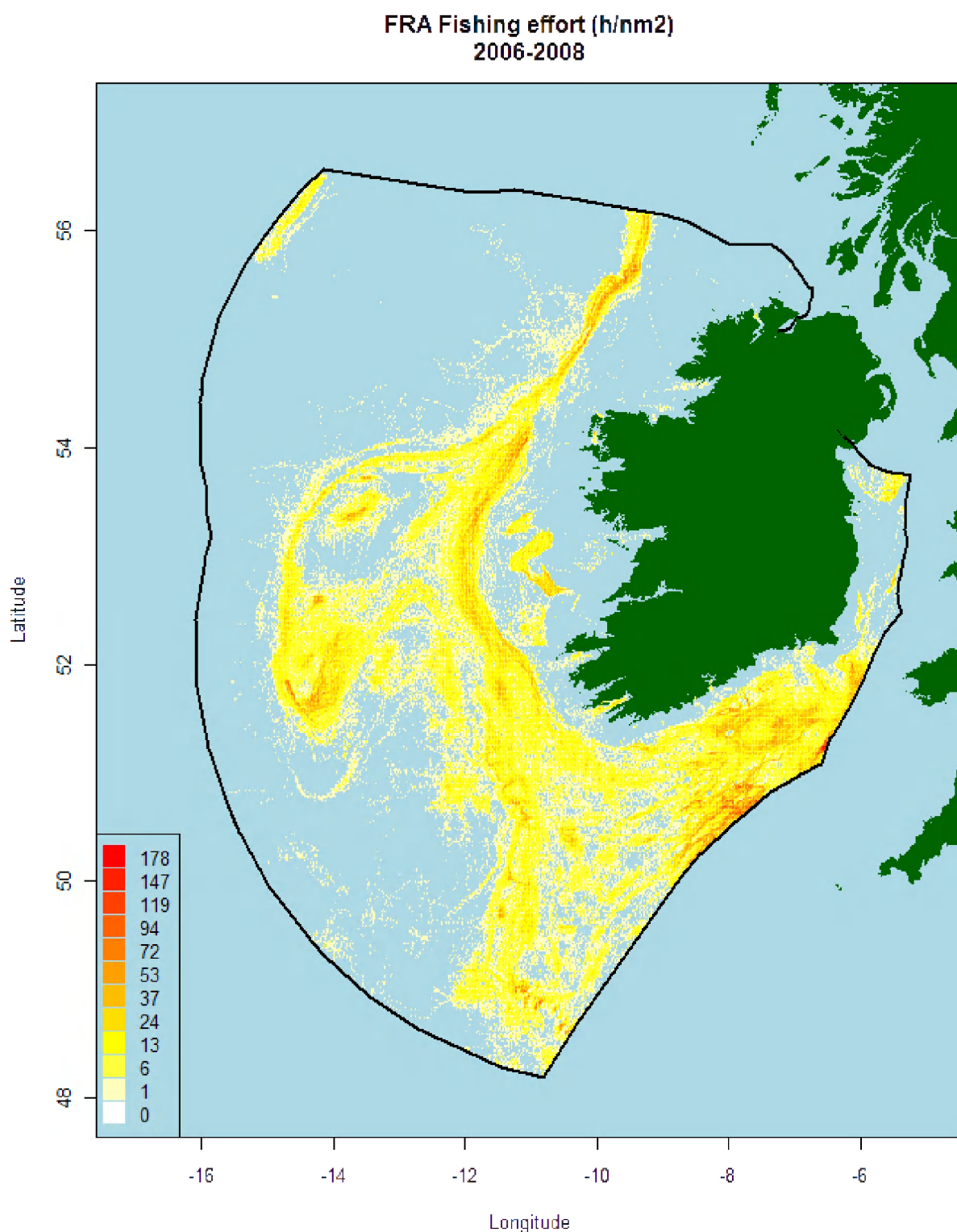


Figure 3.6 French effort in the Irish EEZ is also extensive and widely distributed throughout the area. In the Celtic Sea area there are three French fleets operating: in the eastern Celtic Sea there is a gadoid-directed trawl fleet, in the western Celtic Sea a benthic trawl fleet operates, targeting monkfish and megrim and there also is a *Nephrops* directed fleet which mainly operates in UK waters and along the edge of the Irish EEZ. Along the edge of the continental shelf French vessels target monkfish, megrim and hake. Finally there is a deepwater component along the Porcupine bank and west of Donegal. Source: VMS database.

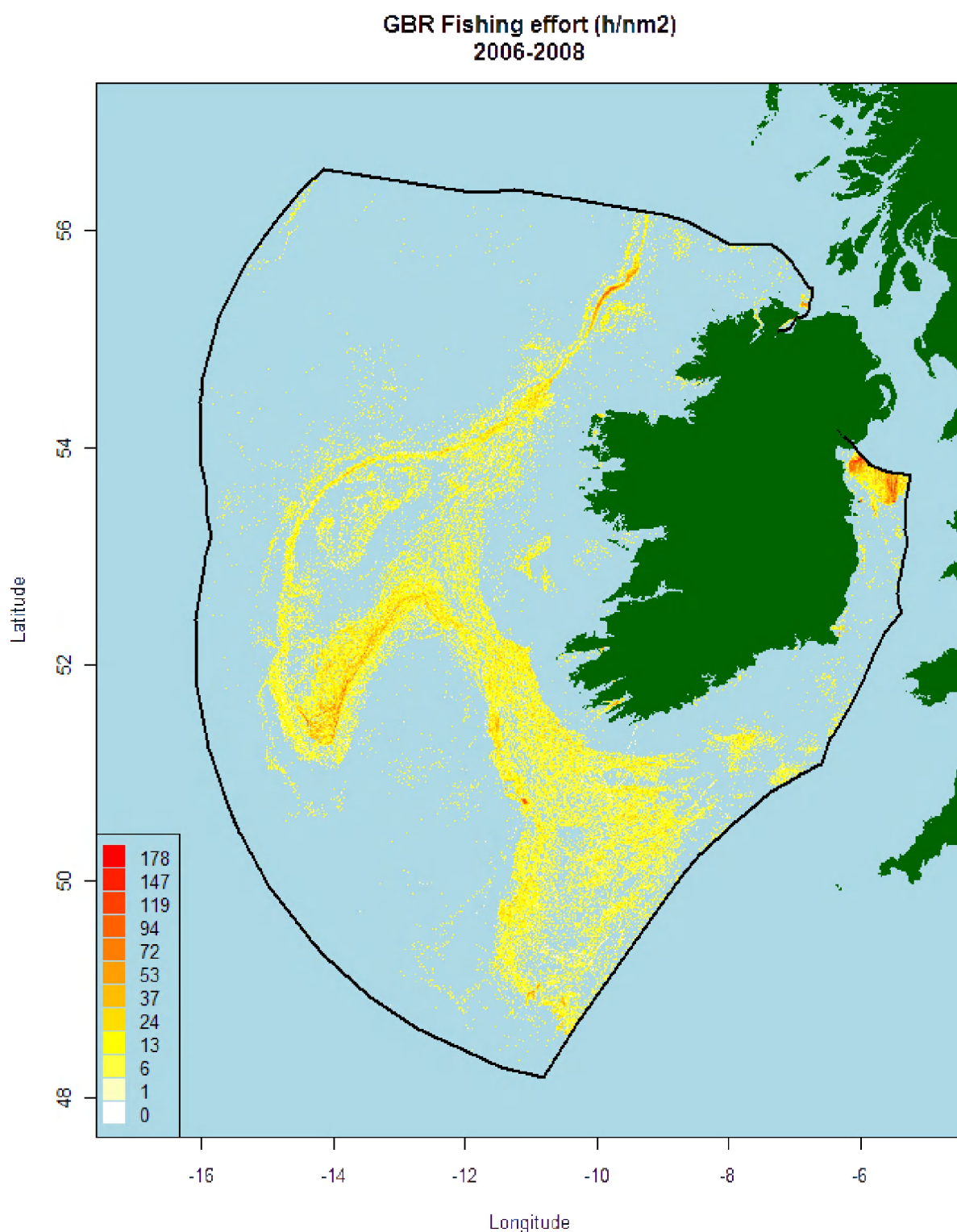


Figure 3.7 British effort in the Irish EEZ is mainly concentrated on the Irish Sea *Nephrops* grounds, but a relatively low effort is also distributed throughout the rest of the area. The vessels fishing on the *Nephrops* grounds are mainly Northern Irish trawlers. British gillnets also operate along the Porcupine bank, targeting monkfish. Source: VMS database.

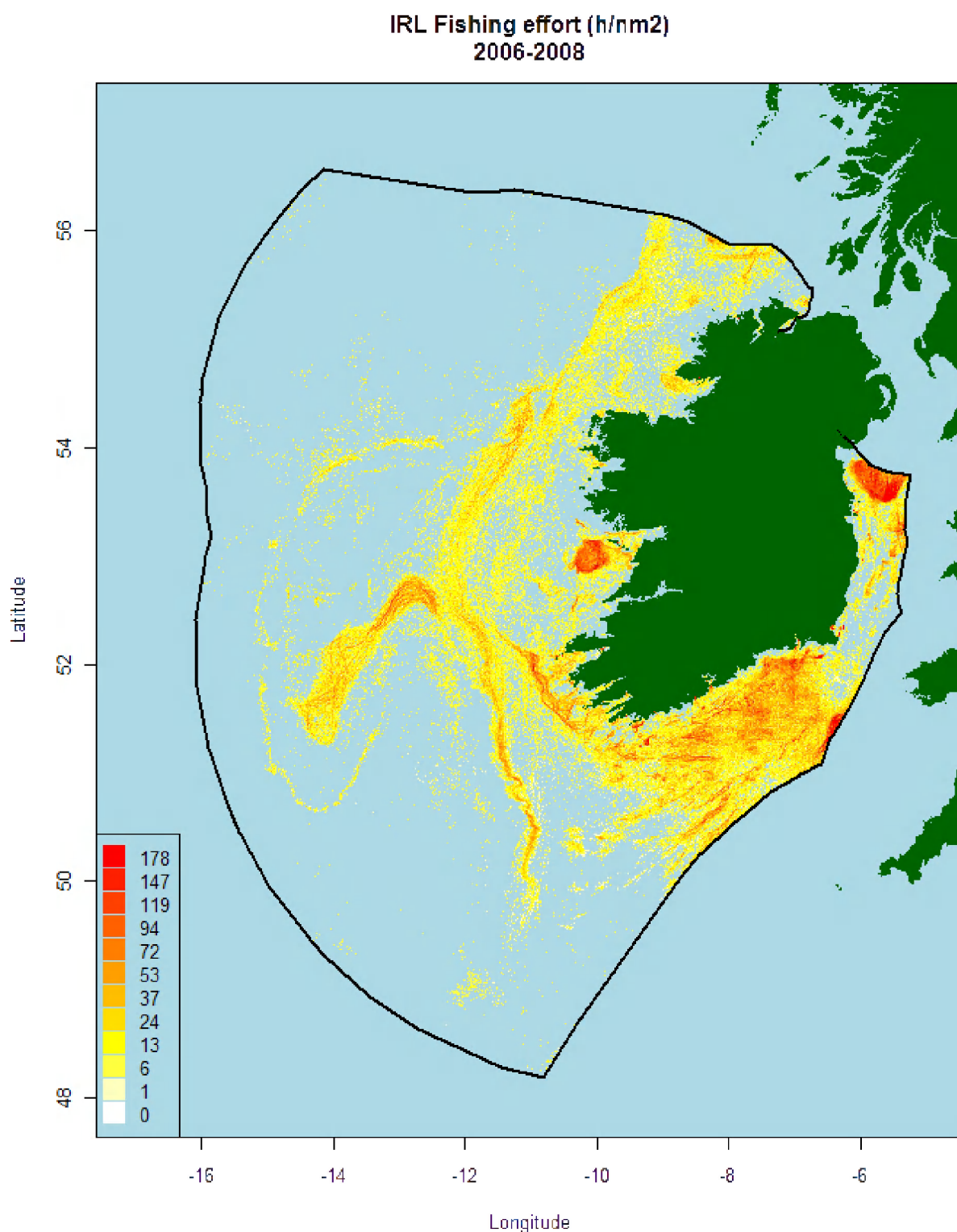


Figure 3.8 Irish effort in the Irish EEZ is concentrated on the *Nephrops* grounds in the Irish Sea and west of the Aran Islands and the Smalls grounds in the Celtic Sea (most of which is in UK waters). There is also considerable effort in the remainder of the Celtic Sea where a range of gear-types are used targeting demersal as well as pelagic species. The fishing effort along the edge of the continental shelf mainly consists of vessels targeting hake, monkfish and megrim. A relatively small number of large pelagic vessels also operate in the area and are responsible for the bulk of the catches by weight. Source: VMS database.

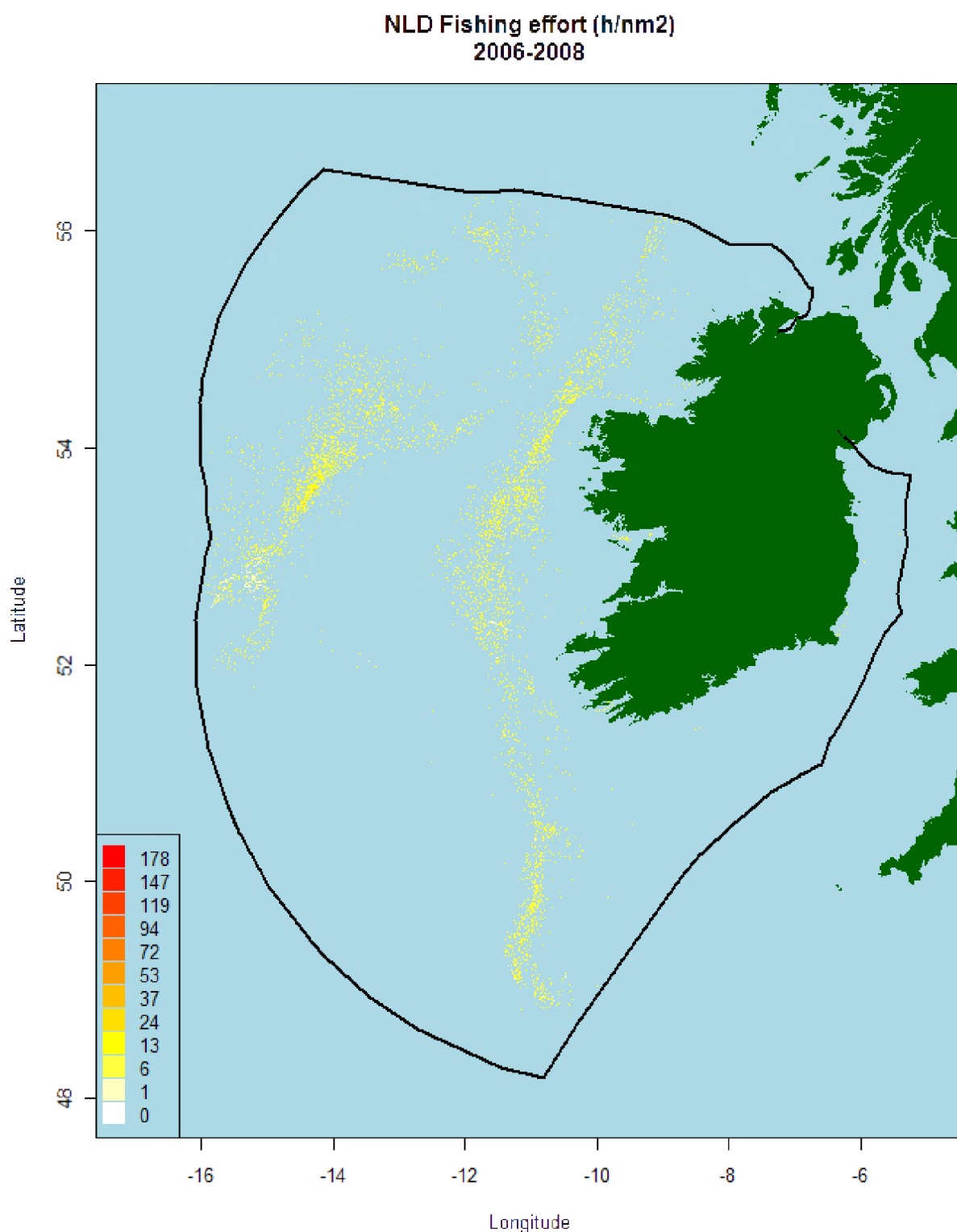


Figure 3.9 Dutch effort in the Irish EEZ is relatively minor and consists mainly of pelagic vessels targeting mackerel and horse mackerel. *Source: VMS database.*

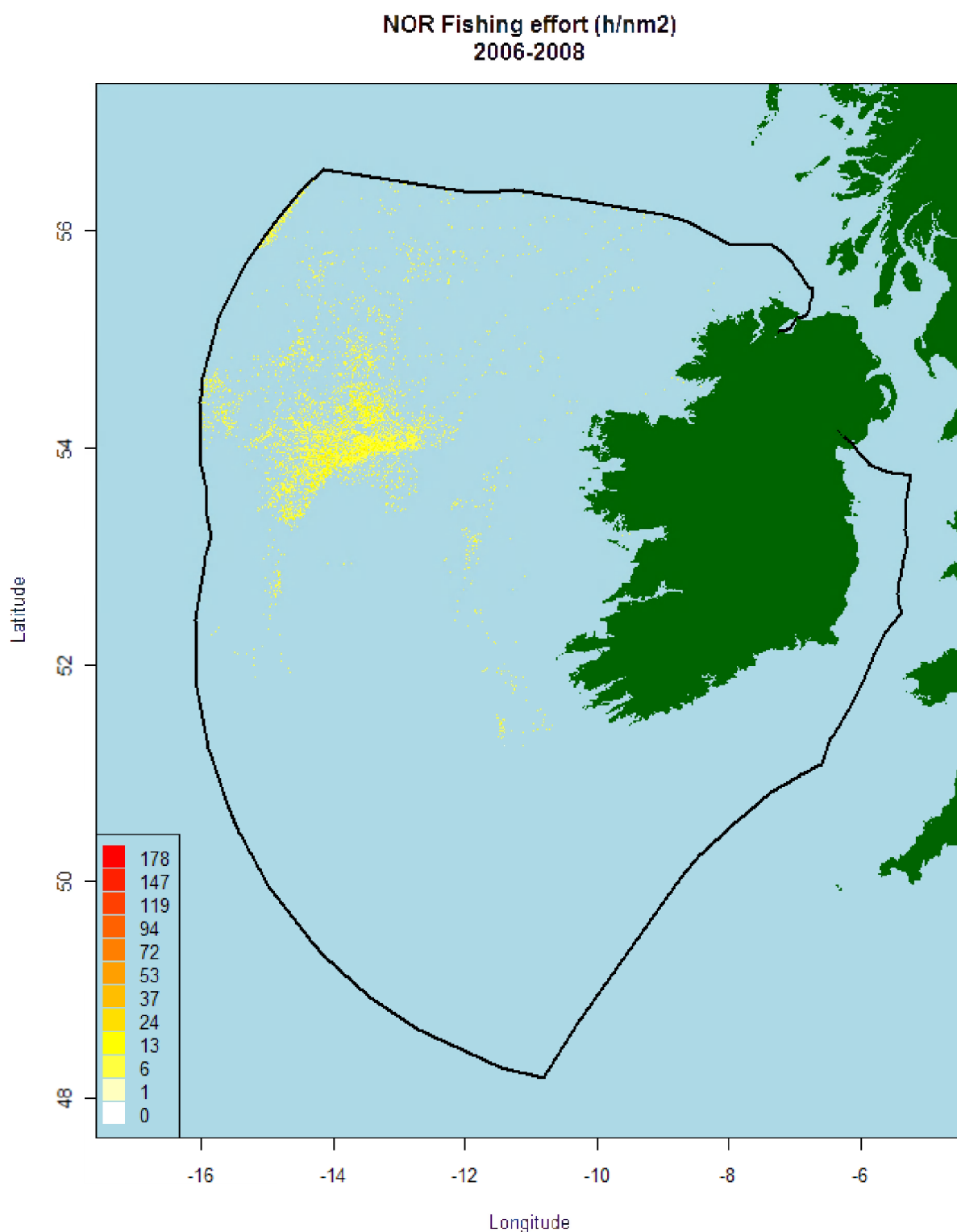


Figure 3.10 Norwegian effort in the Irish EEZ is relatively minor and consists mainly of pelagic vessels targeting blue whiting. *Source: VMS database.*

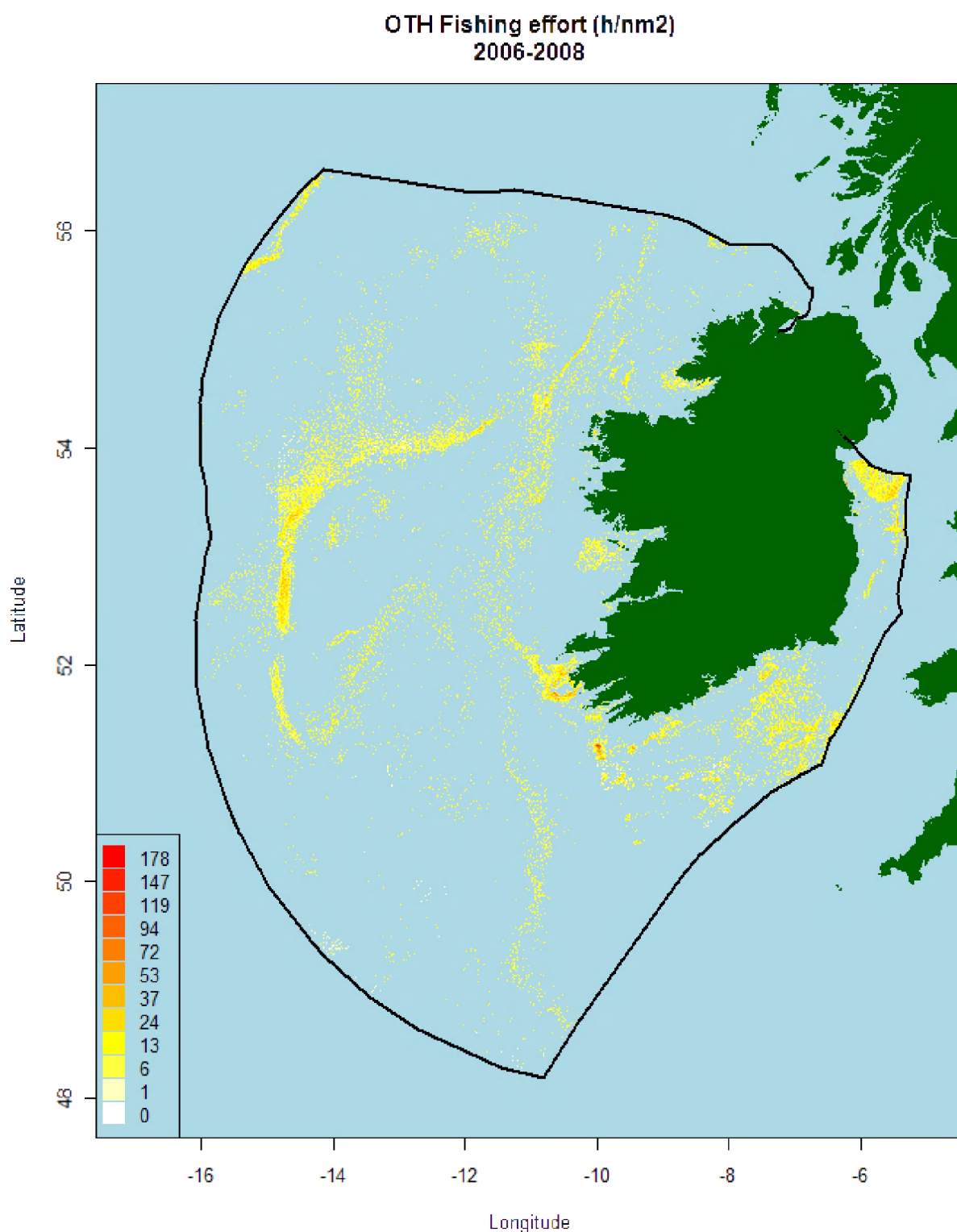


Figure 3.19 Effort from Other countries. This includes a large proportion of unknown vessels as well as vessels from Russia, Germany, Faeroe Islands, Portugal and others. *Source: VMS database.*

Section 4 – State of the Fisheries Resource

General overview of stocks around Ireland

The following section is intended to provide a general, non-technical overview of the status of the key stocks around Ireland. For detailed scientific evaluations on a stock by stock basis, readers are encouraged to refer to the Marine Institute Stock Book (<http://www.marine.ie/home/publicationsdata/publications/The+Stock+Book/>) or to contact the MI for other publications on shellfish stocks. It is not possible to categorise the status of all fish stocks around Ireland in broad generic terms without over-simplifying the situation. The health of the stocks and level of fishing pressure applied varies significantly between species and across areas. Many stocks lack any formal assessment, making any judgement on their status problematic. It is important to make the distinction between the state of the stock, generally a measure of its size against historic levels and the fishing pressure that is exerted on the stock. Management aims to control the fishing pressure so that the amount removed from a stock does not jeopardise its ability to reproduce. Therefore, when considering an individual stock it is important not only to think about how big it is but also how much of it is removed each year through fishing.

With a few exceptions, most stocks are fished to a point where their productivity (i.e. their capacity to increase biomass through growth and reproduction) is less than it could be. This does not imply that all are in imminent danger of collapse; some stocks have been fished at moderately high levels for decades yet maintain stable levels of catches, conversely, some stocks have been fished at unsustainable levels where the stock has collapsed, others are fished at low levels or intermittently but are unstable because of normal environmental effects on recruitment.

Demersal Stocks

The Northern hake stock has rebuilt following the application of a stock recovery plan, which has seen fishing pressure decline over the past decade. Anglerfish, megrim and Celtic Sea haddock stocks are also stable, although these should not be subjected to any increases in fishing pressure. There are a number of other demersal stocks that are severely depleted and give significant concern. In broad terms, almost all of the demersal roundfish stocks, in particular cod, haddock and whiting need to be rebuilt to some degree, although the extent of this is area-specific. For example, while Irish Sea and Rockall haddock are doing well, haddock stocks in the West of Scotland have fallen beyond desirable levels and almost all the cod stocks around Ireland are severely depleted and catches are well below historic levels. Both Irish Sea and cod Stocks in the West of Scotland have been the focus of recovery plans for the past decade. Despite the introduction of these, there have been little signs of improvement. Similarly, whiting stocks in the two areas are also severely depleted and suffer from high levels of discards. Most flatfish, with the exception of Irish Sea Plaice, are all below desirable levels and fishing pressure should be reduced in order to rebuild them.

Pelagic Stocks

Pelagic stocks such as herring, mackerel and horse mackerel show varying trends. While horse mackerel and mackerel stocks are in good shape, the recent catches of mackerel in excess of the agreed TAC are likely to increase fishing levels to undesirable levels. The picture of herring stocks around Ireland is varied. The Celtic Sea stock has rebuilt since the low levels seen in the early part of this decade, and is now subject to an industry-led rebuilding plan. Herring to the north west of Ireland is however, depleted and needs to be rebuilt. The blue whiting stock has been at a very high level for much of the last decade but is now declining.

Shellfish Stocks

Prawn (*Nephrops*) stocks around Ireland are stable with the exception to the Porcupine stock, which is in danger of collapse. Brown crab, lobster, shrimp, whelk, scallop, cockles and clams are important shellfisheries in waters around Ireland. Generally the size of these stocks or their potential yields are not estimated but other indicators are used to assess their status. Brown crab stocks are stable in Sub-area VI but catch rates may be declining in Division VIIj (south west coast) and biomass in all areas is lower than in the 1980s. Lobster stocks vary according to area; some stocks may be in decline while others have recently increased. The productivity of lobster stocks could be higher if spawning potential was increased through technical measures or control of fishing mortality. Whelk stocks have not been assessed recently. Scallop stocks, which occur mainly off the south east coast may be under-fished as effort has declined significantly in recent years. Shrimp stocks vary annually but there is no evidence of any long term trend. The biomass of cockle and clam stocks is assessed annually and their fisheries are subject to annual management plans which limits exploitation to a percentage of biomass.

Appendix I Definition of fisheries technical terms and acronyms

- ACOM** Advisory Committee is the sole competent body for ICES for scientific advice in support of the management of coastal and ocean resources and ecosystems. It is a merger of the former ACFM, ACE and ACME advice groups.
- CECAF** Fisheries Committee for the Eastern Central Atlantic – a committee of FAO (see below) and web page http://www.fao.org/fi/body/rfb/cecaf/cecaf_home.htm
- Cod Long Term Plan** (CLTP) Is a fisheries management regulation aimed at rebuilding cod stocks but also introducing effort controls for certain gear types linked to cod mortality (EC Reg 1342/2008)
- CFP / Common Fisheries Policy** The instrument of fisheries management within the European community (see http://ec.europa.eu/fisheries/cfp_en.htm)
- CPUE / Catch Per Unit of Effort** The catch of fish, in numbers or in weight, taken by a defined unit of fishing effort. Also called catch per effort, fishing success, or availability.
- DAFF** Department of Agriculture, Fisheries and Food. (see: <http://www.agriculture.gov.ie>)
- Demersal** Fish, such as cod, whiting, haddock, sole, plaice, megrim, hake, monkfish normally swim in mid-water at or close to the sea floor.
- Effective fishing effort** Fishing effort or intensity standardised in some way e.g. hours fished in an area.
- Elasmobranchs** Fish, such as skates, rays, sharks and dogfish, whose skeletons are cartilaginous rather than boney (as in the teleost species such as cod, whiting, plaice and herring).
- FAO** Fisheries and Agriculture Organization – Based in Rome, this organization is part of the United Nations (see <http://www.fao.org/fi/default.asp>).
- Fishing Effort** The total fishing gear in use for a specified period of time. When two or more kinds of gear are used, they must be adjusted to some standard type
- Hake Recovery Plan** Is a fisheries management regulation aimed at rebuilding hake stocks (EC reg No 811 /2004)
- ICES** International Council for the Exploration of the Seas –Ireland shares the Total Allowable Catches TACs for many stocks we exploit with our European Union partners. Because of this international dimension many stocks need to be assessed in an international fora such as ICES. (see: <http://www.ices.dk/>)
- ICCAT** International Commission for the Conservation of Atlantic Tuna – (see: <http://www.iccat.int/>)
- Industrial fisheries** Those fisheries which target fish primarily for fish meal and fish oil products, mainly blue whiting, boarfish, Norway pout and sandeel.
- Inshore fisheries** There are various definitions of inshore fisheries including those fisheries that are conducted within 12 miles of the shore, including demersal, pelagic, shellfish and sea angling fisheries.
- Marine Institute** The Marine Institute is Ireland's national agency with the following general functions : "to undertake, to co-ordinate, to promote and to assist in marine research and development and to provide such services related to marine research and development, that in the opinion of the Institute will promote economic development and create employment and protect the environment." Marine Institute Act, 1991 – (see: <http://www.marine.ie/>)
- NEAFC / North Eastern Atlantic Fisheries Commission** – A commission that manages fisheries off Scandinavia and north-eastern Europe - (see <http://www.neafc.org/>)
- Pelagic** Fish that spend most of their life swimming in the water column, as opposed to resting on the bottom, are known as pelagic species (e.g. Mackerel, Horse mackerel, Herring, Sprat and Sardines).
- Shellfish Fisheries** Those fisheries that target species that are either crustaceans (e.g. *Nephrops*, lobsters, crabs and crayfish) or molluscs (Cephalopods, scallops etc.).
- STATLANT** ICES database that contains the officially declared landings from each European country fishing in the NE Atlantic. It does not include catches from the Mediterranean.
- STECF** The Scientific Technical and Economic Committee on Fisheries. Established by the European Commission and comprises fisheries scientists and economists from the member states. The role of STECF is to advise the European Commission on scientific, technical and economic issues related to the management of fisheries resources that are exploited worldwide by members of the European Union. (see <http://fishnet.jrc.it/web/stecf>)
- Stock** A "stock" is a population of a species living in a defined geographical area with similar biological parameters (e.g. growth, size at maturity, fecundity etc.) and a shared mortality rate. A thorough understanding of the fisheries biology of any species is needed to define these biological parameters.
- TAC / Total Allowable Catch** is the total regulated catch from a stock in a given time period, usually a year.
- TCM / Technical Conservation Measures** These measures take the form of closed areas, increased mesh sizes and gear modifications (such as separator panels) and are aimed at protecting specific stocks, or age-classes within that stock, from overfishing (See also Recovery Plans).
- VMS** Vessel Monitoring Systems are used to monitor the activities of all EU fishing vessels over 15m in length by transmitting their position via satellite at least every 2 hours
- Whitefish** Term used to describe demersal species such as cod, plaice, ray etc., as opposed to pelagic or salmonid species.
- Wild Capture Fisheries** Fishing for wild fish. Excludes aquaculture and ranching.

Appendix II List of Species Groupings in the Atlas

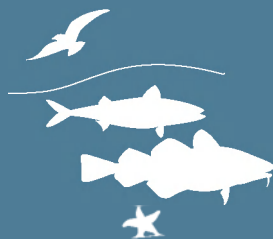
Species	Grouping
Alfonsino	Deepwater
Antimora blue	Deepwater
Argentine	Deepwater
Blue ling	Deepwater
Bluemouth	Deepwater
Cardinalfish	Deepwater
Cutlassfish	Deepwater
Eelpouts	Deepwater
Forkbeard	Deepwater
Grenadier	Deepwater
Hairtails, Scabbardfishes <i>nei</i> *	Deepwater
Hake	Deepwater
Mora	Deepwater
Norway Redfish	Deepwater
Orange roughy	Deepwater
Redfish	Deepwater
Roughy silver	Deepwater
Scabbardfish	Deepwater
Scorpioidfishes <i>nei</i>	Deepwater
Smoothhead	Deepwater
Tusk	Deepwater
Wolffish	Deepwater
Wreckfish	Deepwater
African Lookdown	Demersal
Atlantic Bumper	Demersal
Black Sole	Demersal
Blue Butterfish	Demersal
Bluefish	Demersal
Brill	Demersal
Catfish	Demersal
Cod	Demersal
Conger eel	Demersal
Dab	Demersal
Flathead Grey Mullet	Demersal
Flounder	Demersal
Greenland Halibut	Demersal
Gadiformes <i>nei</i>	Demersal
Gurnard	Demersal
Haddock	Demersal
Hake	Demersal
Halibut	Demersal
John dory	Demersal
Lemon Sole	Demersal
Ling	Demersal
Meagre	Demersal
Megrim	Demersal
Mix Boxes	Demersal
Monkfish	Demersal
Morocco Dentex	Demersal
Mullet	Demersal
Plaice	Demersal
Pollack	Demersal
Poor cod	Demersal
Pouting	Demersal
Rascasse Rose	Demersal
Red Mullet	Demersal
Rubber-lip Grunt	Demersal
Saithe	Demersal
Sand Sole	Demersal
Scorpioidfishes <i>nei</i>	Demersal
Sea Bream	Demersal
Seabass	Demersal
Turbot	Demersal
Vadigo	Demersal
Whiting	Demersal
Witch	Demersal

Species	Grouping
Deepwater Shark	Elasmobranchs
Dogfish	Elasmobranchs
Eagle Rays	Elasmobranchs
Pelagic Shark	Elasmobranchs
Rabbit Fish	Elasmobranchs
Ray	Elasmobranchs
<i>Selachimorpha nei</i>	Elasmobranchs
Shark	Elasmobranchs
Skate	Elasmobranchs
Skates and Rays <i>nei</i>	Elasmobranchs
Blue Whiting	Industrial
Boarfish	Industrial
Norway pout	Industrial
Bonito	Large Pelagics & Tunas
Frigate (Bullet) Tuna	Large Pelagics & Tunas
Opah	Large Pelagics & Tunas
Swordfish	Large Pelagics & Tunas
Tuna	Large Pelagics & Tunas
Clam	Shellfish
Cockle	Shellfish
Crab	Shellfish
Crab deepsea red	Shellfish
Cuttlefish	Shellfish
Lobster	Shellfish
<i>Nephrops</i>	Shellfish
Octopus	Shellfish
Razor Shell	Shellfish
Sand gaper	Shellfish
Scallop	Shellfish
Shrimp	Shellfish
Spiny Lobsters	Shellfish
Squid	Shellfish
Whelk	Shellfish
Atlantic Spanish mackerel	Small Pelagics
Chilean Jack Mackerel	Small Pelagics
European Pilchard	Small Pelagics
Garfish	Small Pelagics
Herring	Small Pelagics
Horse Mackerel	Small Pelagics
Mackerel	Small Pelagics
Pomfret	Small Pelagics
Sardinella	Small Pelagics
Saury	Small Pelagics
Sea Bream	Small Pelagics
Sprat	Small Pelagics

**Nei = not elsewhere indicated*

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HEADQUARTERS

MARINE INSTITUTE

Rinville,
Oranmore,
Co. Galway
Tel: +353 91 387200
Fax: +353 91 387201
Email: institute.mail@marine.ie

MARINE INSTITUTE REGIONAL OFFICES & LABORATORIES

MARINE INSTITUTE

80 Harcourt Street
Dublin 2
Tel: +353 1 4766500
Fax: +353 1 4784988

MARINE INSTITUTE

Furnace
Newport
Co. Mayo
Tel: +353 98 42300
Fax: +353 98 42340