

ALCATEL SUBMARINE NETWORK

Havhingsten - Ireland

Appendix D - Fisheries Activities Report





**Havingsten Fibre Optic
Submarine Cable: Fisheries
Activity Study 2018**

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Havingstun Fibre Optic Submarine Cable: Fisheries Activity Study 2018

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Executive Summary

MarineSpace have been contracted by Intertek Energy & Water Consultancy Services (Intertek) to complete a Fisheries Activity Study (this report) of the proposed Havhingsten fibre optic submarine cable system. This study has been informed by the collation and review of official fisheries activity and landings data as well as information gathered by MarineSpace in their role as of providing Fisheries Liaison services to the marine survey elements of cable route in the Irish Sea. Data presented in this report will form the basis of subsequent commercial fisheries impact assessments within Environmental Reports produced to support the permitting process.

Intertek have been appointed by Alcatel Submarine Networks (ASN) to provide environmental consents and permitting services related to the installation of the marine elements of the Havhingsten cable.

Alcatel Submarine Networks (ASN) has been selected as the Supplier of the Havhingsten fibre optic submarine cable system linking Ireland, Isle of Man, UK and Denmark. The marine elements of the Havhingsten cable are proposed to cross the Irish Sea from north of Dublin in Ireland to south of Blackpool on the west coast of the UK, with a proposed section also linking into the Isle of Man, and from Seaton Sluice in Northumberland to Denmark. The proposed cable system is provisionally scheduled to be landed and installed starting in the second quarter of 2019 and is expected to be complete by the end of the fourth quarter of 2019.

Within the Irish Sea the majority of fishing activity in the UK fleet is undertaken by over 10 m vessels with a particular focus in ICES rectangles 37E5 and 36E5, around and to the south of the Isle of Man (IoM). The key species group targeted is shellfish, although demersal species are also targeted more commonly from deeper waters in the western Irish Sea. Key species targeted along the proposed cable route in terms of landed weight are nephrops, crabs, other shellfish, scallops and whelks and in terms of value, nephrops and lobster.

Within the North Sea the majority of fishing activity in the UK fleet is undertaken by over 10 m fleet with notable concentrations in the coastal rectangle 39E8. The key species group targeted is demersal in terms of landed weight and this trend extends with the cable route out into the North Sea. In terms of landed value shellfish are the key species group targeted. Key species landed from rectangles along the cable route show more variety within the North Sea than in the Irish Sea. Nephrops are the key species closer inshore and nearest to the UK and pelagic species become more common with increasing distance offshore.

Landings from the non-UK fleet along the cable route within the Irish Sea was dominated by Irish vessels, with some influence from the Belgian fleet closer to the UK coast. IoM fleet are included within the UK datasets analysed. The key species group landed from the Irish fleet were shellfish whereas the Belgian fleet landed weight was predominantly European plaice, common sole and ray species.

Landings from the non-UK fleet in the North Sea was dominated by Danish, Swedish, Dutch and German vessel, with the Danish fleet having a consistent presence over the years observed and along most of the cable route. Dutch vessels were more notable with distance offshore from the UK coast. Key species landed by the non-UK fleet were as follows, Danish – Sandeels and Norway

lobster, German – Atlantic herring and Sandeel, Dutch – Atlantic herring and Swedish – Atlantic herring and Sandeel.

Fishing activity in the Irish Sea shows clear seasonality with key periods during late summer and late winter/early spring. In the North Sea, clear seasonality is observed with key periods during spring/summer and during November.

Spatially along the cable route, fishing generally occurs along all section in both the Irish and North Sea. There is particular concentration within the UK nearest to the east coast within the North Sea. The non-UK fleet are focussed much further offshore. Within the Irish Sea there is a focus by both the UK (inclusive of IoM fleet) and non-UK in and around the IoM and within the central region of the Irish Sea.

Contact has been made with all the major commercial fishing organisations in UK, Irish and IoM jurisdictions. From consultation the data analysis and interpretation undertaken to date appears to reflect the key activity and trends in the commercial fishery in this region.

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1. Introduction

MarineSpace have been contracted by Intertek Energy & Water Consultancy Services (Intertek) to complete a Fisheries Activity Study (this report) of the proposed Havhingsten fibre optic submarine cable system. This study has been informed by the collation and review of official fisheries activity and landings data as well as information gathered by MarineSpace in their role as of providing Fisheries Liaison services to the marine survey elements of cable route in the Irish Sea. Data presented in this report will form the basis of subsequent commercial fisheries impact assessments within Environmental Reports produced to support the permitting process.

Intertek have been appointed by Alcatel Submarine Networks (ASN) to provide environmental consents and permitting services related to the installation of the marine elements of the Havhingsten cable.

1.1 Project Background

Alcatel Submarine Networks (ASN) has been selected as the Supplier of the Havhingsten fibre optic submarine cable system linking Ireland, Isle of Man, UK and Denmark. This Havhingsten open cable system (hereafter referred to as the Havhingsten cable) will span more than 940 km and deliver a boost to bandwidth between the respective countries (Figure 1.1 and Figure 1.2).

The marine elements of the Havhingsten cable are proposed to cross the Irish Sea from north of Dublin in Ireland to south of Blackpool on the west coast of the UK, with a proposed section also linking into the Isle of Man (IoM), and from Seaton Sluice in Northumberland to Denmark. The proposed cable system is provisionally scheduled to be landed and installed starting in the second quarter of 2019 and is expected to be complete by the end of the fourth quarter of 2019.

Geophysical and geotechnical surveys of the installation corridor were undertaken in Q3/Q4 2018. The marine element of the project within the Irish Sea has also been referred to as Celtic Connect II. Aquacomms are the landing party for the project and will be overseeing the onshore connection of the installation within all jurisdictions.

Figure 1.1: Location of the Havhingsten Fibre Optic Telecommunications Cable corridor (UK North Sea only) and International Council for the Exploration of the Sea (ICES) rectangles. Admiralty Charts reproduced under licence. Not to be used for navigation

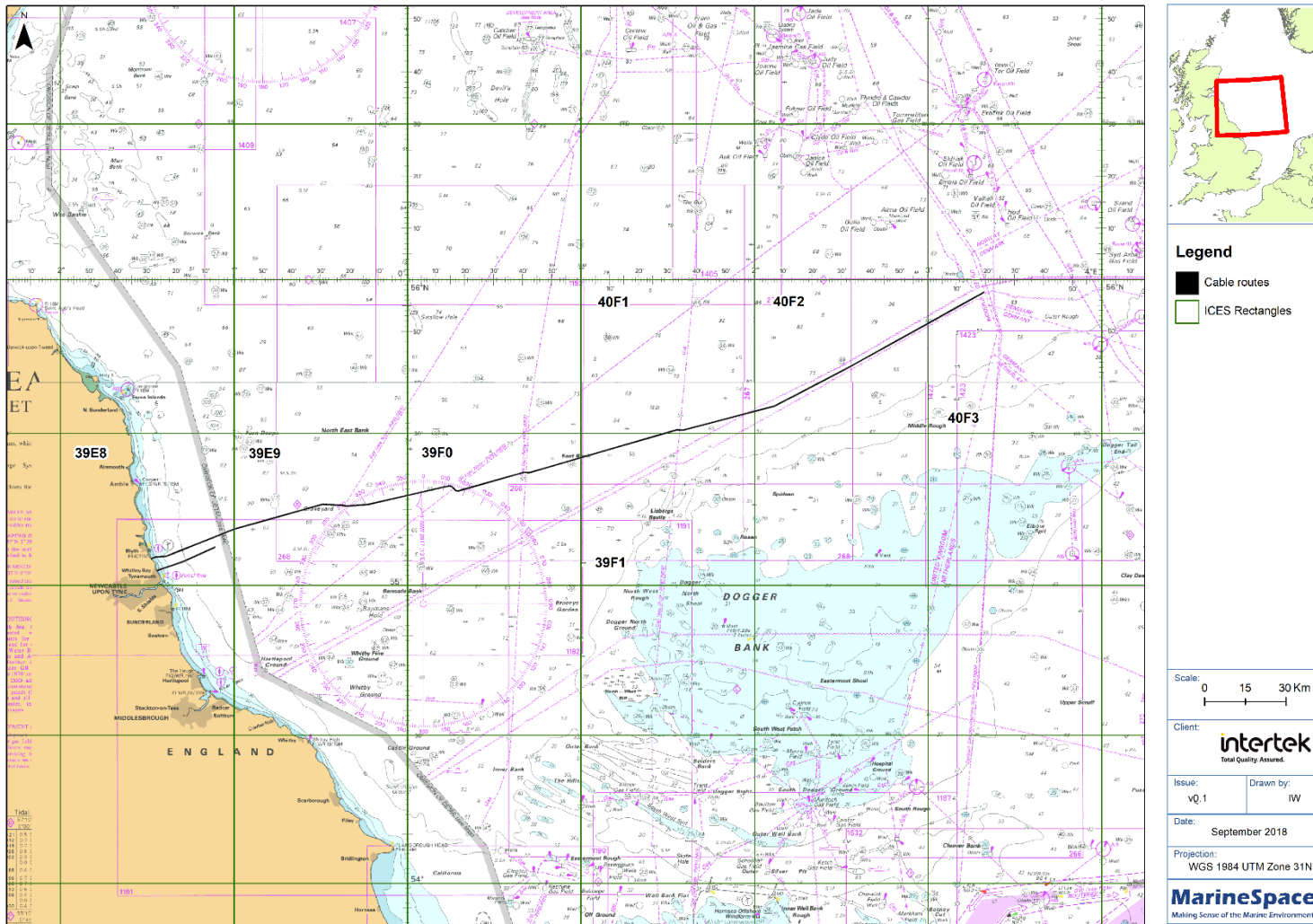
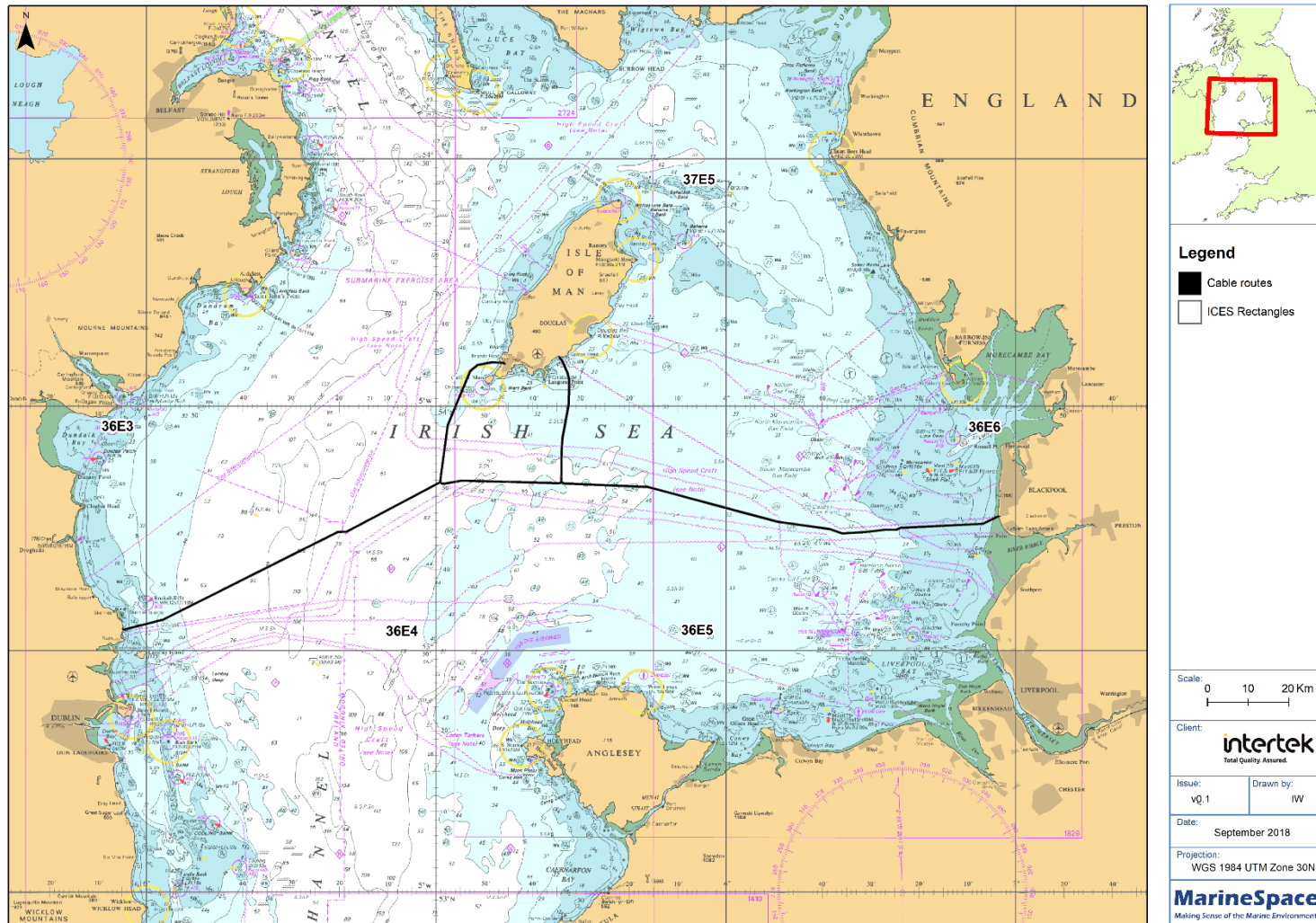


Figure 1.2: Location of the Havingstun Fibre Optic Telecommunications Cable corridor (Irish Sea) and International Council for the Exploration of the Sea (ICES) rectangles. Admiralty Charts reproduced under licence. Not to be used for navigation



1.2 Aims and Objectives

The overall aim of this report is to identify the extent of commercial and recreational fishing activity in and around the location of the proposed Havingstén cable within UK, loM and Irish waters. This information will be used to inform any future Environmental Assessment work undertaken to support the permitting of this project. To meet this overall aim, the following objectives have been defined:

- To undertake an assessment of commercial fishing activity in relation to the Havingstén cable corridor, covering both UK, loM and Irish waters using the International Council for the Exploration of the Sea (ICES) Statistical Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4 and 36E3 with particular attention to the following data:
 - weight and value of landed catch (by vessel size class and species groups);
 - weight and value of landed catch (by species);
 - weight and value of landed catch by regional ports;
 - fishing activity distribution and intensity; and
 - presence of indicative fishing grounds for fished species;
- To build upon the information from official data with additional information and knowledge obtained via direct consultation with representatives of local and regional fishing organisations undertaken as part of Fisheries Liaison work undertaken by MarineSpace during the marine surveys of Q3/Q4 2018; and
- To review and assess the level of recreational fishing (angling) that occurs in and around the proposed Havingstén cable route.

2. Commercial Fisheries Activity

UK North Sea

The North Sea, in the region of the proposed cable route, is subject to a diverse range of commercial fishing activities by vessels from the UK, Netherlands, Denmark, Germany, Belgium, Norway, France and Sweden. Several commercial species are targeted using numerous fishing techniques.

Fishing vessels operating from and offshore of the proposed cable landfall traditionally fish inshore in search of *Nephrops*, white fish, crustaceans, molluscs and pelagic fish. The local trawler fleet fish out to around 25 miles offshore, often in the 'Farn Deeps' and target *Nephrops* and white fish. Vessels using static nets target cod in the winter, but more commonly, pots are set during warmer months for lobster and brown crab (Walmsley & Pawson, 2007).

Irish Sea

Commercial fishing in the Irish Sea is widely distributed. Demersal and shellfish are the key target species for commercial fisheries in this region. The most important demersal target species include; cod, haddock, ling, monkfish, plaice, ray, skate and sole whilst key shellfish species include; lobster, *Nephrops*, crabs, scallops, razor clams and whelks. Pelagic fish landings from this area are mainly of herring and mackerel, and of relatively less economic importance compared to demersal and shellfish species.

2.1 Northeast UK Fisheries

Two of the major ports on the northeast coast of the UK in the vicinity of the proposed cable route are Blyth and North Shields, although vessels also fish out of other ports in this region including Sunderland, Amble, Filey, Redcar and Seahouses.

With respect to Blyth, based on recent vessel lists (MMO, November 2018), there are nine <10 m vessels fishing out of Blyth, laying pots (120-600 each) and nets throughout most of the year for brown crab and lobster and sometimes *Nephrops*. Some boats switch to cod netting in the autumn. As of November 2018, there are also two >10 m vessels registered at Blyth, both holding shellfish licences but likely to follow similar fishing patterns as for the <10 m vessels from this fleet, i.e. targeting both shellfish and whitefish, as well as *Nephrops*. These vessels target *Nephrops* in the Farn Deeps area for most of the year, with cod, haddock, whiting, plaice and lemon sole providing an important bycatch, particularly when *Nephrops* catch levels are low, for example during stormy weather or strong tides.

North Shields is home to around 44 <10 m vessels and 36 >10 m vessels, highlighting its position as the leading fishing port in the north-east region. As per Blyth, the <10 m fleet primarily target shellfish but also whitefish at certain times of year. The >10 m vessels regularly fish within 12 miles of the coast, particularly in winter, though some of these boats fish out to 30 miles offshore in calm weather. Scottish boats, particularly those from the Firth of Forth, frequently land their catches here. The inshore fleet targets *Nephrops* for most of the year, landing cod, haddock, whiting, plaice and, occasionally, *Pandalus* shrimp as a bycatch. 26 of the North Shields <10 m vessels hold Shellfish Licences indicating the fact that in addition to *Nephrops* they target lobster, velvet and brown crab.

2.2 Northwest UK Fisheries

The fishing sector supports a very small number of jobs in the northwest region (around 260 jobs, or 0.01% of all jobs) (DONG, 2013). Along the cable route near to the northwest UK coast, the highest concentration of vessels is located between the IoM and Northern Ireland, the majority of which are trawlers, but also potting vessels operating along the coastlines.

The main fishing activities undertaken in the vicinity of the proposed cable route in this region is:

- Otter trawling for *Nephrops* and mixed demersal species;
- Beam trawling for sole and shrimp;
- Dredging for king and queen scallops and mussels;
- Potting for crabs and lobsters;
- Gillnetting for bass and;
- Hand fishing for cockles (DONG, 2013).

The two main English fishing ports in this region are Fleetwood and Morecambe. The latest fishing vessel lists (MMO, November 2018) list 14 <10 m vessels registered at Fleetwood and a further eight >10 m vessels. At Morecambe, there are eight <10 m vessels and zero >10 m vessels. There are also a handful of registered vessels at Barrow, Maryport and Whitehaven. The active fishing fleet from Fleetwood harbour has declined significantly in recent years and continues to do so. However, remaining active vessels target white fish and *Nephrops* throughout much of the eastern Irish Sea. Larger, visiting beam trawlers often also fish these grounds, landing into Holyhead or Liverpool, which the local trawling fleet now find it difficult to compete with. Some fishermen with small craft and occasional part-timers take part in seasonal bass and lobster fisheries. Visiting whelk potters are sometime fish out of Fleetwood.

2.3 Northern Irish Fisheries

A key source of fishing activity in the Irish Sea region are Northern Irish vessels, operating out of ports such as Kilkeel, Portavogie, Belfast, Ardglass and Greencastle. These vessels target *Nephrops*, scallop and whitefish across the route of the Havhingsten cable route.

For the <10 m fleet, the latest vessel list (MMO, November, 2018) indicates the following vessel numbers per port; Ardglass (18); Kilkeel (30). In terms of the >10 m fleet, the latest vessel list (MMO, November, 2018) indicates the following vessel numbers per port; Ardglass (21); Kilkeel (59); Portvogie (23); (Belfast (6); and Greencastle (6). Many of these vessels hold scallop licences and will target waters in and around the IoM.

2.4 Irish Fisheries

The seas around Ireland are among the most productive and biologically sensitive areas in EU waters. The overall 2016 fishing opportunities for stocks to which the Irish fleet has access to, were 1.1 million tonnes of fish, with an estimated landed value of €1.26 billion. Ireland's total share of these Total Allowable Catches (TAC) in 2016 amounted to 216,261 tonnes with a value of € 201 million (Marine Institute, 2016).

This economic value is based on 2015 average prices and represent a conservative estimate. These values do not include the valuable inshore fisheries (e.g. lobster, whelk) which are not managed using internationally agreed TACs but do come within the remit of the EU Common Fisheries Policy (CFP). These inshore fisheries resource represents a very important resource base for the coastal communities around Ireland (Marine Institute, 2016).

On an average day, more than 1,000 fishing vessels are active in the waters around Ireland, clocking up more than 8 million fishing hours per year. Most of the seabed near Ireland is trawled at least once per year and some regions are trawled more than 10 times per year. Fishing is clearly one of the most significant ocean uses in the waters around Ireland.

East coast and offshore of the coast of Ireland is important commercially for lobster, crabs, whelk and scallops. According to Tully (2017), the following conclusions can be made about each fishery:

- Lobster - Baited traps, all year but mainly March to October. By-catch in set nets. Annual landings may be up to 800 tonnes (2004). Total activity estimated in 2013 was 765 vessels fishing 214,000 pots. Although the fishery for lobster is targeted there is a significant by-catch of brown and velvet crab in the fishery. Lobster becomes less abundant and brown crab are more abundant with increasing depth. Velvet crab are a common by-catch in the fishery close to shore;
- Crabs - Distribution of fishery similar to that of lobster but usually in shallow waters less than 20m depth. Landings mainly into ports on the south west coast including Howth. Annual landings up to 400 tonnes;
- Whelks - Baited traps. Brown crab is the main bait. Fishery all year. Landings historically up to 10,000 tonnes per annum. Between 2005-2015 landings 2,000-4,000 tonnes and;
- Scallops - Irish offshore vessels fish in Irish Sea. Landings up to 3,000 tonnes per year.

Howth harbour forms one of six major fishery harbour centres within Ireland. There are around 14 permanent fishing vessels that operate from here. In addition, as part of Fisheries Liaison work undertaken in parallel to this study, information was gathered on fishing activity in the nearshore region of the proposed route, from small ports such as Loughshinny and the Skerries, highlighting the presence of small, <10 m potting vessels active in this region.

2.5 Isle of Man Fisheries

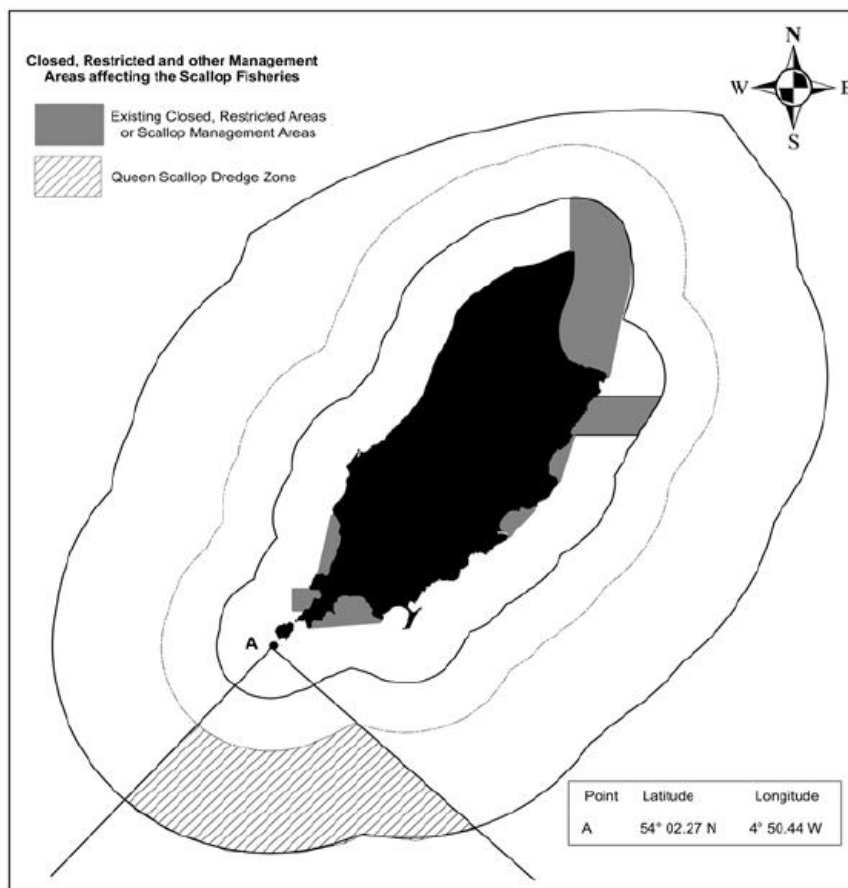
The IoM (Manx) fishing industry is a very important part of the Island's economy and currently supports approximately 400 jobs and generates an approximate direct turnover of £12 million per annum. The key commercial fishery is King scallop although in recent years the Queen scallop has also grown in local commercial importance due to favourable combination of increases in stock densities on the grounds and effective sustainable management of the fishery. King and Queen scallops have been fished around the Isle of Man since the 1950s and are currently the most valuable fisheries for Manx-registered vessels (Hanley *et al.*, 2013).

The King scallop fishery involves around 60 vessels (34 Manx-registered) and opens annually from November to May. Most activity is focussed to the south of the IoM, in and around the proposed Havhingsten cable route.

Manx vessels are limited to fish 6am-6pm and return to port at night. UK and other visiting vessels have to leave Manx waters after 6pm but generally visiting vessels continue to fish just outside of IoM jurisdiction. There are 26 Northern Irish vessels in total that have King Scallop licences and mostly fish to the south of IoM.

The Queen scallop fishery involves around 34 vessels and lies south of the IoM. The main fishery is open July - October has a quota of around 794 tonnes. There is also a Queen scallop dredge zone (Figure 2.1) which opens after the normal Queen scallop fishery has closed, usually during November. This is the only location where dredging for Queen scallops is permitted and as well as a number of Manx vessels with licences, there are also several visitor vessels who have permits under so-called "Grandfather rights". The Queen scallop fishery has a quota which is often taken very quickly and is therefore normally closed before the King scallop opens in November.

Figure 2.1: Chart showing IoM scallop management areas, closures and restrictions (DEFA, 2018)



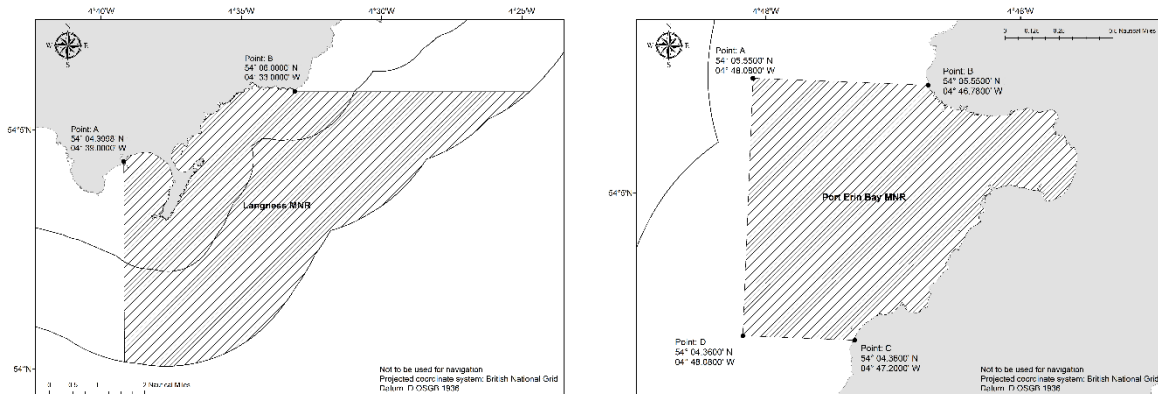
The Isle of Man fleet for the two different species of scallop is essentially the same but due to the very different behaviours of the two species, different gears are used. King scallops bury into the sediment and so Newhaven dredges are used. Queen scallops are active swimmers and thus fishing techniques differ and otter trawls are utilised (Hanley *et al.*, 2013).

The Isle of Man also has a long tradition of pot fishing, and currently has important fisheries for the brown crab and the European lobster. Although other species of commercial crustaceans are present in Manx waters, such as velvet swimming crab spider crab and common prawn, they are not primary target species due to apparently lower stocks, smaller body sizes or lower economic value.

Potting occurs all around the island within 3 nm and out to the 12 nm boundary off the central-west and south-west coasts. To some extent other fishing activities, notably the Queen scallop trawl and dredge and the king scallop dredge fisheries, limit offshore potting activity, due to the increased risk of gear loss, but also due to the reduction of suitable habitat types. Along the planned cable route into Port Grenaugh, the inshore area has a high density of potting due to this area being within a Marine Nature Reserve (MNR) (Figure 2.2) and subject to restrictions on towing or trawling gear. There are around seven Manx vessels that target crab off the southwest coast of the IoM.

The proposed cable route into Port Grenaugh is in the vicinity to the local whelk fishery. In 2011 reported landings from this fishery were 134.62 tonnes from seven Manx-registered vessels. Additionally, a small number of UK-registered vessels also fish whelks within the Territorial Sea, but land into UK ports, and so their catches are not recorded in the above figure (Hanley *et al.*, 2013).

Figure 2.2: Location of Marine Nature Reserves (MNR) along the cable routes into the proposed IoM landfalls (DEFA, 2018)



2.6 Data Sources & Methodology

To characterise current commercial and recreational fishing in the vicinity of the Havingsten cable, a variety of data sources were used:

- Marine Management Organisation (MMO) UK fleet landings by selected ICES Rectangle (2012-2016);
- MMO UK and foreign fleet landings into the UK by port (2011-2015);
- European Commission – STECF non-UK landings by ICES Rectangles (2012-2016);
- MMO GIS dataset for UK and Non-UK >15m vessel fishing activity (2007-2010);
- MMO Fishing activity data for UK Vessels >15m, using Vessel Monitoring Systems data (2013-2016); and
- MMO Marine Information System.

2.7 MMO Landings Data (UK Fleet)¹

The MMO publishes summaries of fishing activity for UK commercial fishing vessels landing into the UK and abroad, as well as foreign-registered commercial fishing vessels landing into the UK, that are deemed to have been fishing within a specified calendar year. These summaries have been aggregated by month of landing, the port of landing, and the length group of the vessel. For each aggregation level, the quantity (tonnes) of live weight fish landed, the actual landed weight (tonnes) and value (sterling) of live weight fish landed are given for specific species, with the remaining species combined into a composite group based on the species group to which they are classified.

The groups are demersal fish, pelagic fish and shellfish. Data compiled by the MMO were reviewed for the most recently available 5 years which covers a period of 2012-2016 and were filtered to show only landings into ICES Statistical Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4 and 36E3 – see Figure 1.1 and Figure 1.2. Data were filtered further to show data by vessel size class, species group and gear types.

2.7.1 Landed Weight by Vessel Size Class

Table 2.1 & Table 2.2 and Figure 2.3 & Figure 2.4 show the total weight of landings from ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3 between 2012-2016 (divided by vessel size classes).

In the Irish Sea the dominant fishing activity in terms of landed weight occurs within 37E5 (48,842.53 tonnes) and the >10 m vessels dominate landings by weight across the entire cable route. The maximum weight caught by under 10 m was 7,071.63 tonnes and occurred within 37E5. The majority of activity is focused to the south of the Isle of Man.

The >10 m fleet also dominate the catch in terms of landed weight in the North Sea with a maximum landed over the 5 years caught in 39E8 (6,221.19 tonnes). Within this rectangle there was a higher landed weight than in other rectangles from the <10 m fleet at 4,270.03 tonnes. There were no landings from the <10 m fleet from the offshore North Sea rectangles of 39F0, 39F1, 40F1, 40F2 and 40F3.

¹ Whilst the Isle of Man is not part of the UK fleet, data for Manx landings is included within the MMO datasets

Table 2.1: Total landings (tonnes) from ICES Statistical Rectangles 36E3, 36E4, 36E5 and 37E5 (Irish Sea) (2012-16) based on vessel size classes (Source: MMO, 2017)

ICES Statistical Rectangle	Vessel Size Class	2012	2013	2014	2015	2016	Total (tonnes)
36E3	<10m	51.27	35.1	47.8	68.39	56.18	258.74
	>10m	103.08	62.67	80.22	181.35	141.2	568.52
36E4	<10m	198.32	131.57	114.37	78.27	109.37	631.9
	>10m	1,535.38	1,316.61	1,378.13	1,624.16	1,667.29	7,521.57
36E5	<10m	16.06	16.97	2.83	0	1.62	37.48
	>10m	7,144.53	7,912.18	6,787.5	6,786.19	5,866.44	34,496.84
36E6	<10m	30.41	36.97	63.48	80.84	59.39	271.11
	>10m	3,696.64	2,388.09	2,936.59	4,287.40	4,022.38	17,331.12
37E5	<10m	1,216.36	1,230.67	1,325.56	1,674.96	1,624.08	7,071.63
	>10m	13,095.20	12,649.2	7,903.37	8241.3	6953.46	48,842.53

Table 2.2: Total landings (tonnes) from ICES Statistical Rectangle 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (North Sea) (2012-16) based on vessel size classes (Source: MMO, 2017)

ICES Statistical Rectangle	Vessel Size Class	2012	2013	2014	2015	2016	Total (tonnes)
39E8	<10m	732.01	822.8	1,117.9	771.28	826.04	4,270.03
	>10m	1,389.16	1,533.43	1,304.03	944.52	1,050.05	6,221.19
39E9	<10m	54.5	63.32	109.58	13.02	13.97	254.39
	>10m	1,047.82	822.27	775	291.61	317.93	3,254.63
39F0	<10m	0	0	0	0	0	0
	>10m	171.83	491.17	58.59	378.52	125.6	1,225.71
39F1	<10m	0	0	0	0	0	0
	>10m	352.31	702.12	51.16	26.58	20.02	1152.19
40F1	<10m	0	0	0	0	0	0
	>10m	4.01	163.12	10.99	15.9	9.4	203.42
40F2	<10m	0	0	0	0	0	0
	>10m	137.8	472.39	265.18	1,219.28	92.03	2,186.68

40F3	<10m	0	0	0	0	0	0
	>10m	953.87	1,038.51	620.79	770.33	569.1	3,952.6

Figure 2.3: Total landings weight (tonnes) from ICES Statistical Rectangle 36E3, 36E4, 36E5, 36E6 and 37E5 (Irish Sea) (2012-16) based on vessel size classes (Source: MMO, 2017)

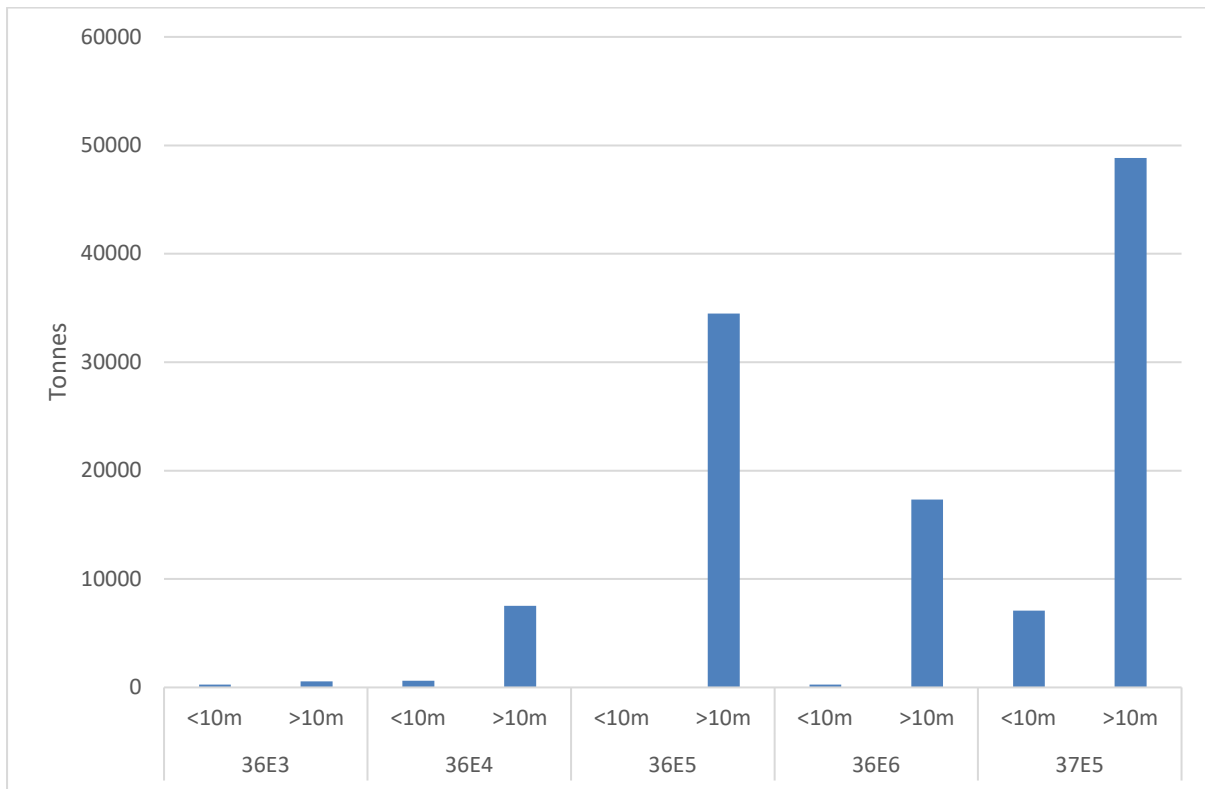
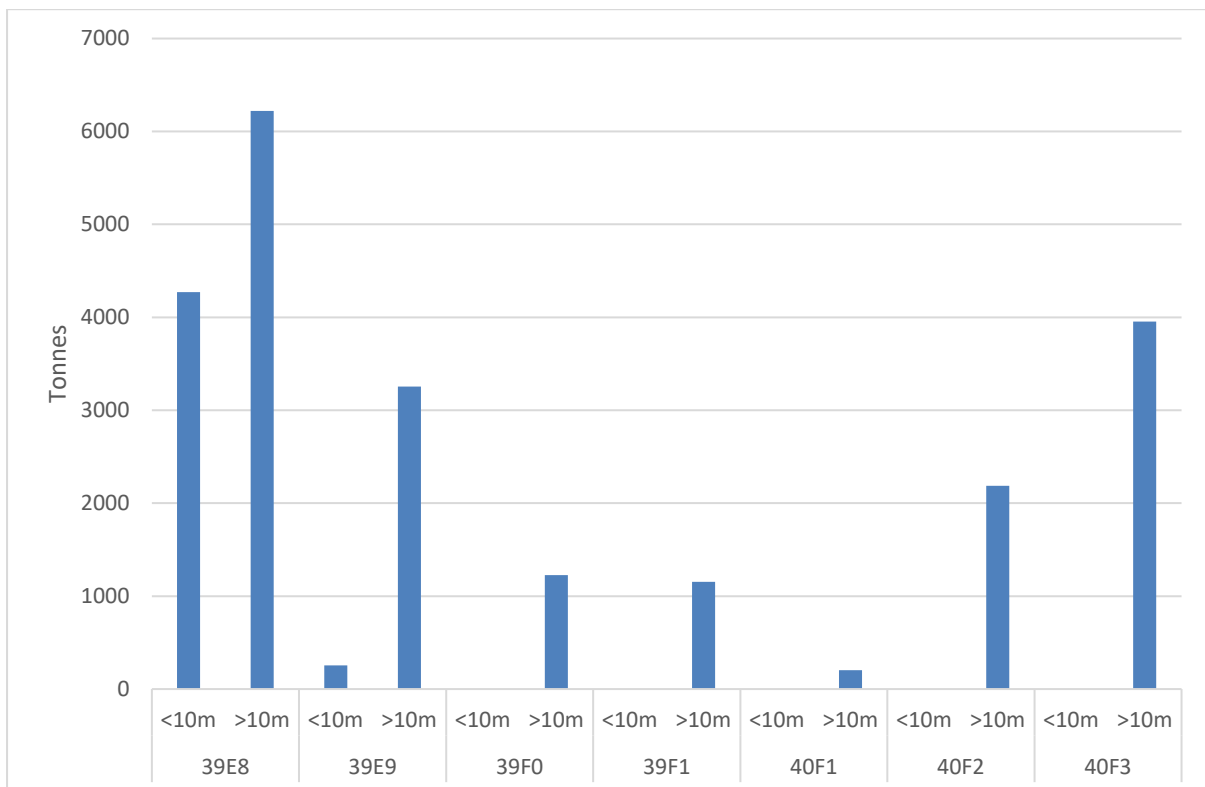


Figure 2.4: Total landings weight (tonnes) from ICES Statistical Rectangle 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (North Sea) (2012-16) based on vessel size classes (Source: MMO, 2017)



2.7.2 Landings Value by Size Class

Table 2.3 & Table 2.4 and Figure 2.5 & Figure 2.4 show the total value of landings from ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3 (2012-2016), divided by vessel size classes.

In the Irish Sea the >10 m fleet dominate in terms of landed value as well as weight, with the maximum value of £47,605,581.83 from 37E5. The maximum value landed in the <10 m fleet was also from 37E5 with a total over the 5 years of £10,049,712.

As above, there were no landings from the < 10 m fleet from the offshore North Sea rectangles of 39F0, 39F1, 40F1, 40F2 and 40F3. The dominant rectangle in terms of value landed was 39E8 with £19,766,245.90 in the >10 m fleet and £10,443,913.65 in the <10 m fleet.

Table 2.3: Total value (£) of landings from ICES Statistical Rectangle 36E3, 36E4, 36E5, 36E6 and 37E5 (Irish Sea) (2012-16) based on vessel size classes (Source: MMO, 2017)

ICES Statistical Rectangle	Vessel Size Class	2012	2013	2014	2015	2016	Total Value (£)
36E3	<10m	95,507.31	66,144.37	172,787.76	128,302.42	110,852.82	573,594.68
	>10m	228,686.52	128,912.76	313,558.91	638,744.92	502,326.15	1,812,229.26
36E4	<10m	462,602.59	300,790.62	329,896.01	256,640.31	366,053.44	1,715,982.97
	>10m	5,275,900.02	4,239,200.344	453,8816.72	5,144,569.55	5,336,172.69	24,534,659.32
36E5	<10m	80,486.52	27,794.98	5,566.3	0	3,798.43	117,646.23
	>10m	4,506,886.15	6,164,204.93	5,159,400.82	5,820,296.05	7,673,415.43	29,324,203.38
36E6	<10m	105,530.79	14,7753	1586,34.97	118,448.48	120,122.12	650,489.3671
	>10m	1,787,785.24	1,345,150.56	1,805,031.46	2,777,331.61	3,233,429.42	10,948,728.29
37E5	<10m	1,714,482.95	1,572,906.01	1,808,472.33	2,260,279.18	2693571.84	10,0497,12.31
	>10m	10,127,925.31	9,504,029.56	749,5117.83	8,829,759.87	11,648,749.26	47,605,581.83

Table 2.4: Total value (£) of landings from ICES Statistical Rectangle 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (North Sea) (2012-16) based on vessel size classes (Source: MMO, 2017)

ICES Statistical Rectangle	Vessel Size Class	2012	2013	2014	2015	2016	Total (tonnes)
39E8	<10m	1,819,242.98	1,833,101.72	2,571,893.69	1,782,368.15	2,437,307.11	10,443,913.65
	>10m	4,082,866.05	4,603,579.63	4,580,258.98	2,889,168.38	3,610,372.86	19,766,245.9
39E9	<10m	149,769.35	221,818.81	200,708.89	39,099.37	49,042.99	660,439.41
	>10m	2,673,804.62	1,424,792.3	1,524,724.68	753,133.38	1,036,488.97	7,412,943.95
39F0	<10m	0	0	0	0	0	0
	>10m	250,700.53	235,307.07	93,859.32	217,596.6	169,111.66	966,575.18
39F1	<10m	0	0	0	0	0	0
	>10m	45,8512.4	212,090.59	66,171.89	44,093.67	70,271.79	851,140.34
40F1	<10m	0	0	0	0	0	0
	>10m	10,070.19	83,764.72	74,293.79	46,710.34	34,660.04	249,499.08
40F2	<10m	0	0	0	0	0	0
	>10m	176,800.58	611,087.19	300,353.27	394,841.32	160,268.93	1,643,351.29

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40F3	<10m	0	0	0	0	0	0
	>10m	1,349,844.08	1,273,005.71	791,191.5	1,130,029.62	895,619.9	5,439,690.81

Figure 2.5: Total landings value (£) from ICES Statistical Rectangle 36E3, 36E4, 36E5, 36E6 and 37E5 (Irish Sea) (2012-16) based on vessel size classes (Source: MMO, 2017)

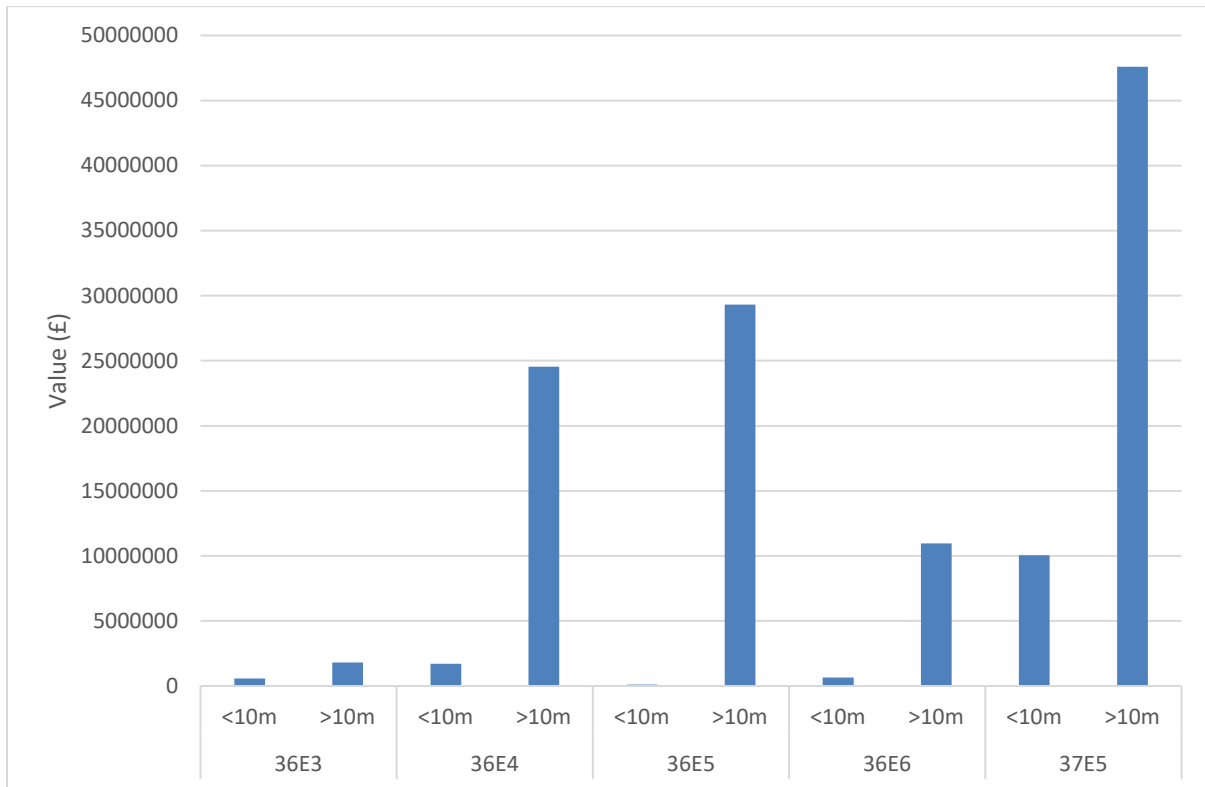
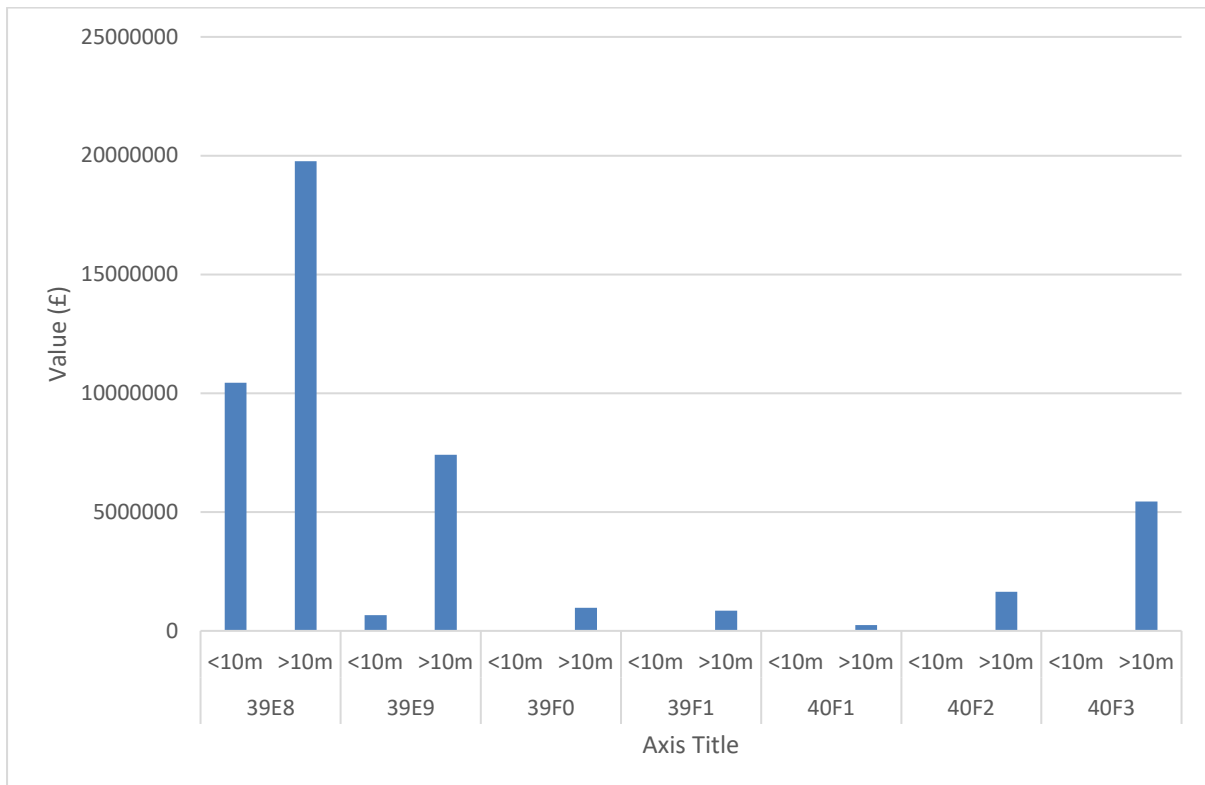


Figure 2.4: Total landings value (£) from ICES Statistical Rectangle 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (North Sea) (2012-16) based on vessel size classes (Source: MMO, 2017)



2.7.3 Landed Weight by Species Group

Table 2.5 & Table 2.6 presents the total weight of landings from ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3 (2012-2016 (2012-16) for each species group.

In the Irish Sea the dominant species group in terms of weight is shellfish. An overall weight from 2012-2016 of 40,110.87 tonnes was landed from 37E5. The maximum weight of demersal catch was landed from 36E4 at 2,561.91 tonnes and the maximum pelagic catch of 15,358.74 tonnes was landed in 37E5.

The North Sea shows more variety in species groups in terms of landed weight. Nearshore to the east coast of the UK shellfish is the dominant catch with a maximum of 7,085.87 tonnes from 39E8. With increasing distance offshore, shellfish becomes less dominant and demersal species increase in landed weight to a maximum of 3,913.44 tonnes from 40F3.

Table 2.5: Total landings weight (tonnes) from ICES Statistical Rectangle 36E3, 36E4, 36E5, 36E6 and 37E5 (Irish Sea) (2012-16) based on species group (Source: MMO, 2017)

ICES Statistical Rectangle	Species Group	2012	2013	2014	2015	2016	Total (tonnes)
36E3	Demersal	2.02	2.99	5.79	17.06	4.61	32.49
	Pelagic	0	0	0	29.6	0	29.6
	Shellfish	152.32	94.77	122.22	203.07	192.77	765.16
36E4	Demersal	376.33	387.15	437.43	633.89	727.10	2,561.91
	Pelagic	0.41	0.10	46.43	0	0.03	46.9915
	Shellfish	1,356.94	1,060.93	1,008.62	1,068.52	1,049.51	5,544.55
36E5	Demersal	4.72	7.94	19.30	13.22	11.98	57.18
	Pelagic	421.42	0	508.54	0	619.68	1549.64
	Shellfish	6,734.44	7,921.21	6,262.48	6772.95	5,236.39	32,927.48
36E6	Demersal	50.37	55.45	79.31	109.95	61.90	357.00
	Pelagic	0.02	0.01	0.01	0.08	0.01	0.07
	Shellfish	3,676.66	2,369.59	2,920.74	4,258.28	4,019.86	17,245.14

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37E5	Demersal	102.82	115.79	50.93	98.73	76.22	444.50
	Pelagic	4,276.27	3,755.53	2,936.09	2,612.56	1,778.26	15,358.74
	Shellfish	9,932.45	10,008.49	6,241.90	7,204.95	6,723.04	40,110.86

Table 2.6: Total landings weight (tonnes) from ICES Statistical Rectangle 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (North Sea) (2012-16) based on species group (Source: MMO, 2017)

ICES Statistical Rectangle	Species Group	2012	2013	2014	2015	2016	Total (tonnes)
39E8	Demersal	880.56	758.10	649.84	567.66	418.30	3274.48
	Pelagic	6.16	13.93	53.67	28.57	28.58	130.92
	Shellfish	1,234.43	1,584.19	1,718.41	1,119.56	1,429.20	7085.82
39E9	Demersal	663.19	239.06	191.77	159.46	148.61	1402.11
	Pelagic	2.39	329.17	320.94	8.90	0.44	661.85
	Shellfish	436.72	317.35	371.85	136.26	182.15	1444.36
39F0	Demersal	157.81	100.00	43.69	64.26	105.98	471.75
	Pelagic	0.05	376.70	0.27	302.64	0.41	680.10
	Shellfish	13.963	14.45	14.61	11.61	19.20	73.84
39F1	Demersal	349.24	632.5	48.87	26.49	9.90	1,067.01
	Pelagic	0.01	69.51	0	0.08	0.05	69.61
	Shellfish	3.05	0.09	2.88	0.08	10.11	16.23

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40F1	Demersal	2.67	32.37	6.60	8.19	3.88	53.74
	Pelagic	0	129.38	0.05	0.08	0	129.51
	Shellfish	1.33	1.35	4.33	7.62	5.51	20.16
40F2	Demersal	88.23	468.67	209.65	1219.12	91.63	2,077.33
	Pelagic	48.09	0	55.09	0	0.10	103.28
	Shellfish	1.47	3.71	0.42	0.15	0.28	6.0532
40F3	Demersal	936.32	1,026.57	615.92	767.35	567.25	3,913.43
	Pelagic	0.01	0.018	0.01	0.02	0.01	0.07
	Shellfish	17.52	11.91	4.85	2.95	1.83	39.09

2.7.4 Landings Value by Species Group

Table 2.7 and Table 2.8 present the total value of landings from ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3 (2012-2016) for each species group.

In the Irish Sea, following trends seen in landed weight, the dominant species group in terms of value is shellfish. An overall value from 2012-2016 of £51,346,797.15 was landed from 37E5. The maximum value of demersal catch was landed from 36E4 at £3,470,404.37 and the maximum pelagic value of £581,446.84 was landed in 37E5.

The North Sea shows more variety in species groups in terms of landed value, as seen above in landed weight. Nearshore to the east coast of the UK shellfish is the dominant catch with a maximum of £26,983,474.77 from 39E8. With increasing distance offshore, shellfish becomes less dominant and demersal species increase in landed weight to a maximum of £5,410,615.68 from 40F3.

Table 2.7: Total value (£) of landings from ICES Statistical Rectangle 36E3, 36E4, 36E5, 36E6 and 37E5 (2012-16) based on species group (Source: MMO, 2017)

ICES Statistical Rectangle	Species Group	2012	2013	2014	2015	2016	Total Value (£)
36E3	Demersal	3,237.43	2,898.41	8,595.33	16,002.06	6,760.97	37,494.2
	Pelagic	0	0	0	5,920	0	5,920
	Shellfish	320,956.4	192,158.72	47,7751.34	745,125.28	606,418.00	2,342,409.74
36E4	Demersal	529,222.73	489,862.7037	59,4987.57	768,687.21	1,087,644.16	3,470,404.374
	Pelagic	258.31	115.5	10,264.01	0	302.84	10,940.66
	Shellfish	5,209,021.57	4,050,012.76	426,3461.15	4,632,522.65	,4614,279.13	22,769,297.26
36E5	Demersal	7,677.44	4,759.14	16,947.15	2,944.14	6,513.34	38,841.21
	Pelagic	189,639.5	0	12,0814.8	0	322,227.8	632,682.1
	Shellfish	4,390,055.73	6,187,240.77	5,027,205.17	5,817,351.91	7,348,472.72	2,877,0326.3
36E6	Demersal	82,685.92	116,459.23	12,0238.17	105,443.58	69,216.9	494,043.8071
	Pelagic	47.85	35.88	33.94	13.62	30.89	162.18
	Shellfish	1,810,582.26	1,376,408.45	1,843,394.32	2,790,322.89	3,284,303.75	11,105,011.67
37E5	Demersal	167,316.28	145,529.6	46,783.75	67,032.2	67,388.32	494,050.15
	Pelagic	1,961,263.55	1,348,633.3	792,383.72	785,634.08	926,532.19	5,814,446.84

ICES Statistical Rectangle	Species Group	2012	2013	2014	2015	2016	Total Value (£)
	Shellfish	9,713,828.43	9,582,772.67	8,464,422.69	10,237,372.77	13,348,400.59	51,346,797.15

Table 2.8: Total landings value (£) from ICES Statistical Rectangle 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (2012-16) based on species group (Source: MMO, 2017)

ICES Statistical Rectangle	Species Group	2012	2013	2014	2015	2016	Total Value (£)
39E8	Demersal	894,905.73	622,899.16	586,616.57	534,700.32	440,019.95	3,079,141.73
	Pelagic	6,175.53	11,712.28	71,694.56	23,172.89	34,786.8	147,542.06
	Shellfish	5,001,026.776	5,802,069.91	6,493,841.54	4,113,663.32	5,572,873.22	26,983,474.77
39E9	Demersal	745,313.20	243,389.16	217,084.02	182,009.18	15,6137.6	1,543,933.162
	Pelagic	2,627.55	80,396.37	115,404.2	3,047.65	430.59	201,906.36
	Shellfish	2,075,633.22	1,322,825.58	1,392,945.35	607,175.92	927,570.51	6,326,150.58
39F0	Demersal	174,308.41	76,544.37	39,455.53	55,879.2	88,361.85	434,549.36
	Pelagic	100.66	92,052.59	1,053.22	104,950.29	1,203.34	199,360.1
	Shellfish	76,291.46	66,710.11	53,350.57	56,767.11	79,546.47	332,665.72
39F1	Demersal	451,405.32	192,715.84	61,647.35	43,720.63	12,996.18	762,485.32
	Pelagic	2.06	19,117.44	0	373.04	7.53	19,500.07
	Shellfish	7,105.02	257.31	4,524.54	373.04	57,268.08	69,527.99

40F1	Demersal	2,411.11	41,520.03	52,246.13	9,546.47	4,191.74	10,9915.48
	Pelagic	0	35,579.6	25.2	41.6	0	35,646.4
	Shellfish	7,659.08	6,665.09	22,022.46	371,22.27	30,468.3	103,937.2
40F2	Demersal	162,449.23	608,378.41	279,115.19	394,485.76	159,618.97	1,604,047.56
	Pelagic	13,226.73	0	19,282.9	0	113.37	32,623
	Shellfish	1,124.62	2,708.78	1,955.18	355.56	536.59	6,680.73
40F3	Demersal	1,338,861.97	1,265,051.08	786,843.51	1,126,364.92	893,494.2	5,410,615.68
	Pelagic	29.55	23.47	9.43	23.99	7.59	94.03
	Shellfish	10,952.56	7,931.16	4338.56	3640.71	2118.11	28981.1

2.7.5 Landings by Vessel Size Class and Species Group

Figure 2.6, Figure 2.7, Figure 2.8 & Figure 2.9 present a summary of the total landed weight and value from ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3 (2012-2016) plotted by vessel class sizes and species group.

In the Irish Sea the dominant species group both in terms of landed weight and value is shellfish caught by the over 10 m fleet, with maximum weight and value landed from 36E6.

The North Sea shows some variation between landed weight and value with demersal species making up the majority of landed weights along the cable route with a maximum landed from 39E8. Whilst landed values of demersal species from the over 10 m fleet are prominent across all rectangles along the cable route, the maximum values are from shellfish caught by the over 10 m fleet in 39E8. This disparity between maximum weight and values suggests the higher value of shellfish compared with demersal species.

Figure 2.6: Sum of landings weight from ICES Statistical Rectangle 36E3, 36E4, 36E5, 36E6 and 37E5 (2012-16) displayed by vessel size classes and species group (Source: MMO, 2017)

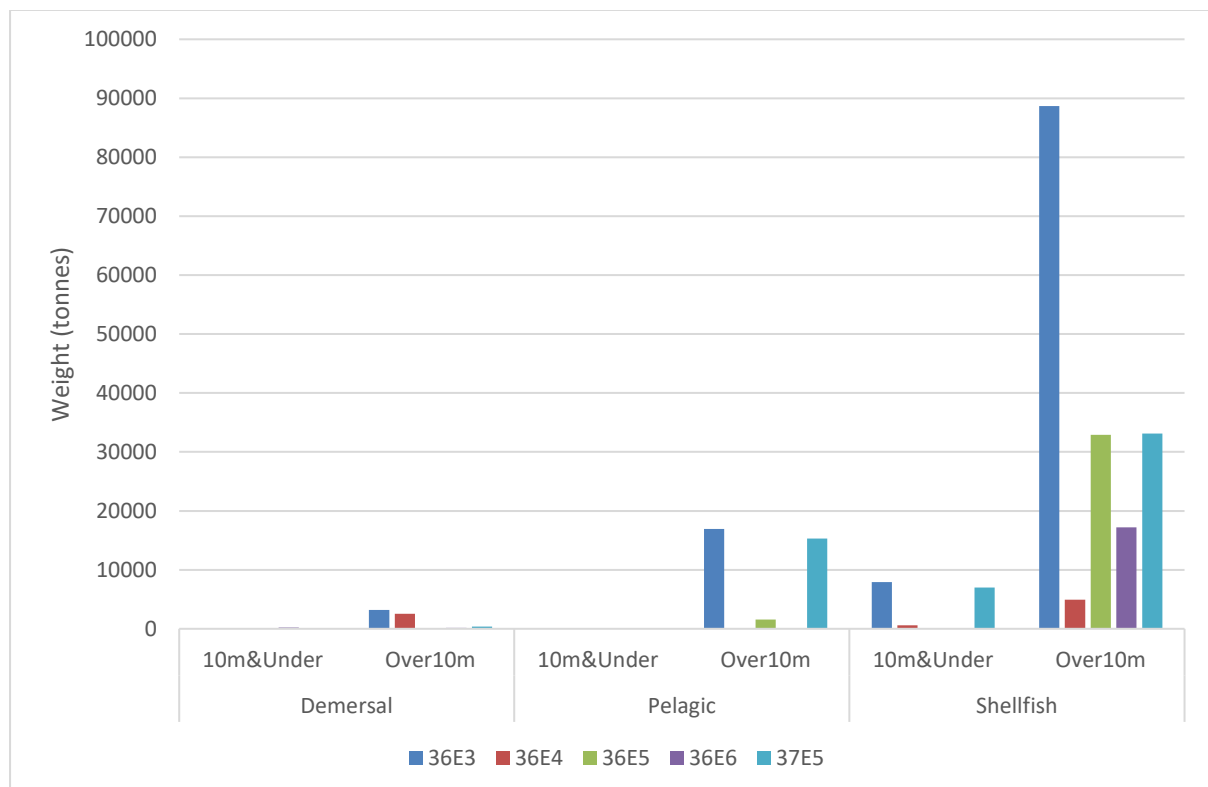


Figure 2.7: Sum of landings value from ICES Statistical Rectangle 36E3, 36E4, 36E5, 36E6 and 37E5 (2012-16), displayed by vessel size classes and species group (Source: MMO, 2017)

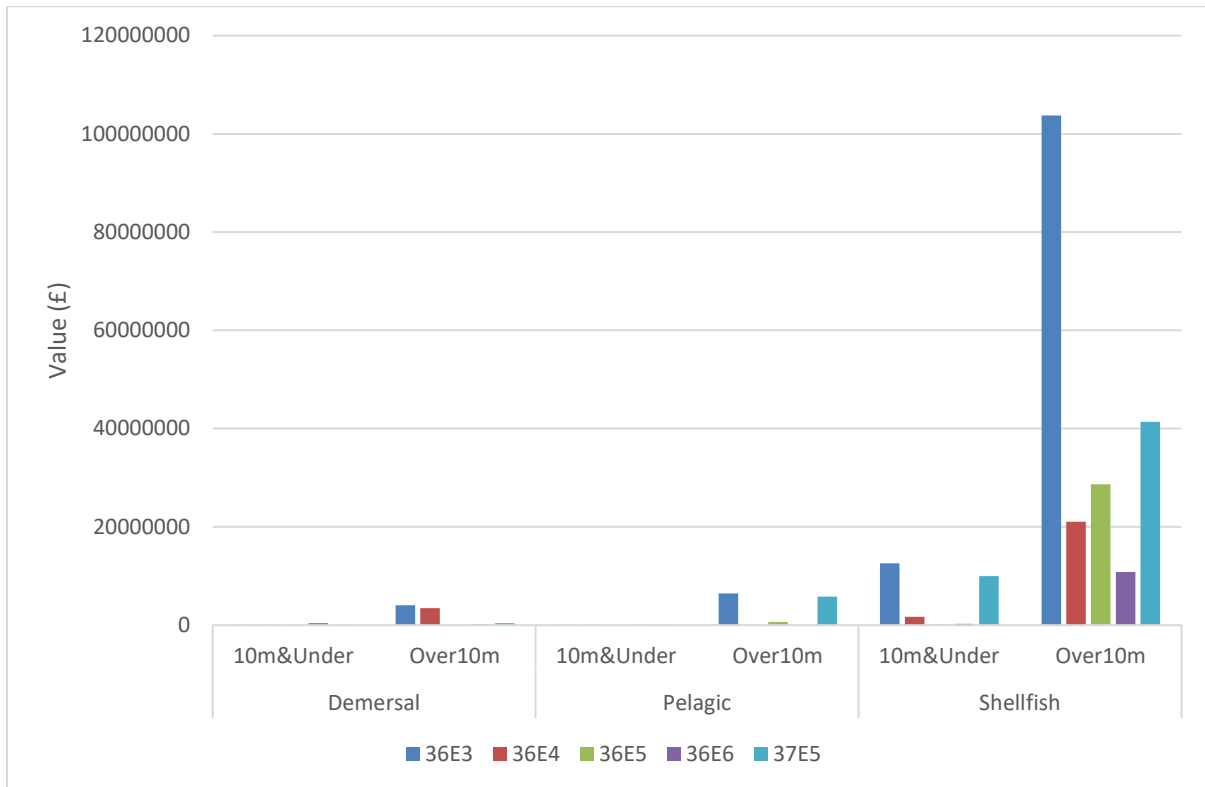


Figure 2.8: Sum of landings weight from ICES Statistical Rectangle 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (2012-16) displayed by vessel size classes and species group (Source: MMO, 2017)

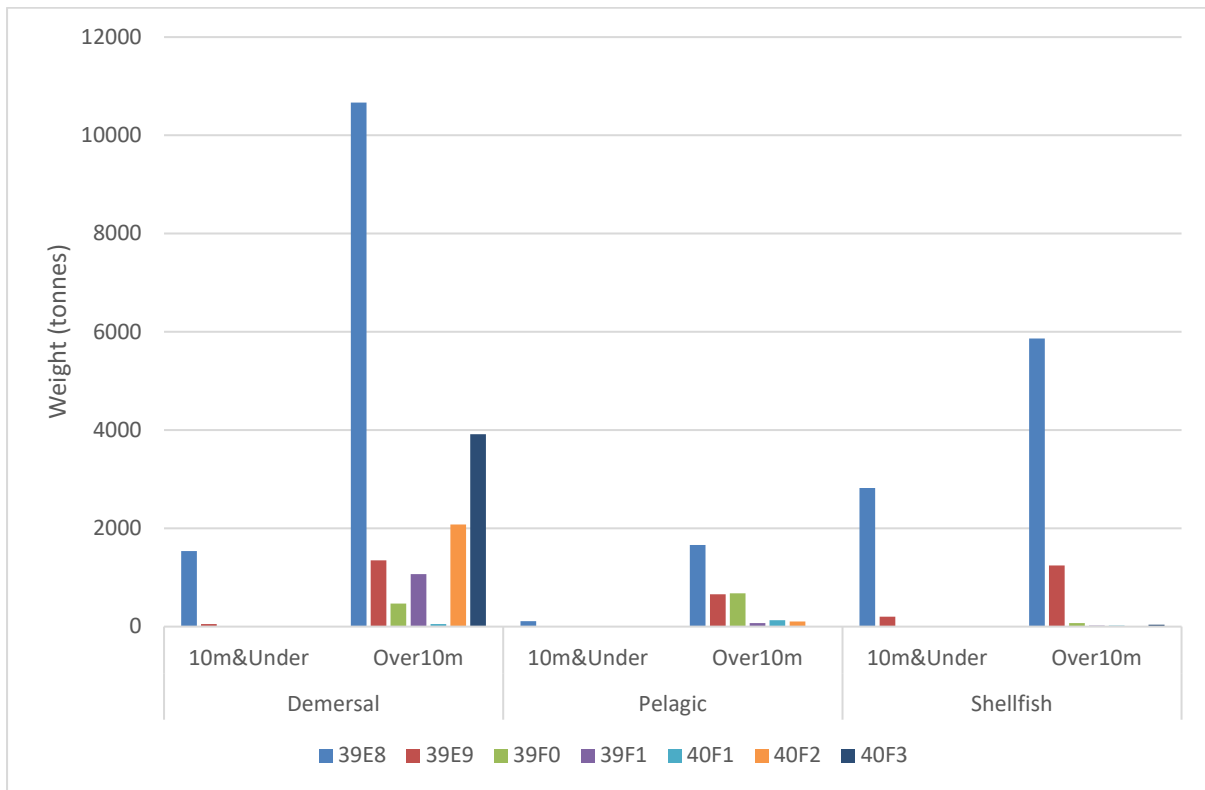
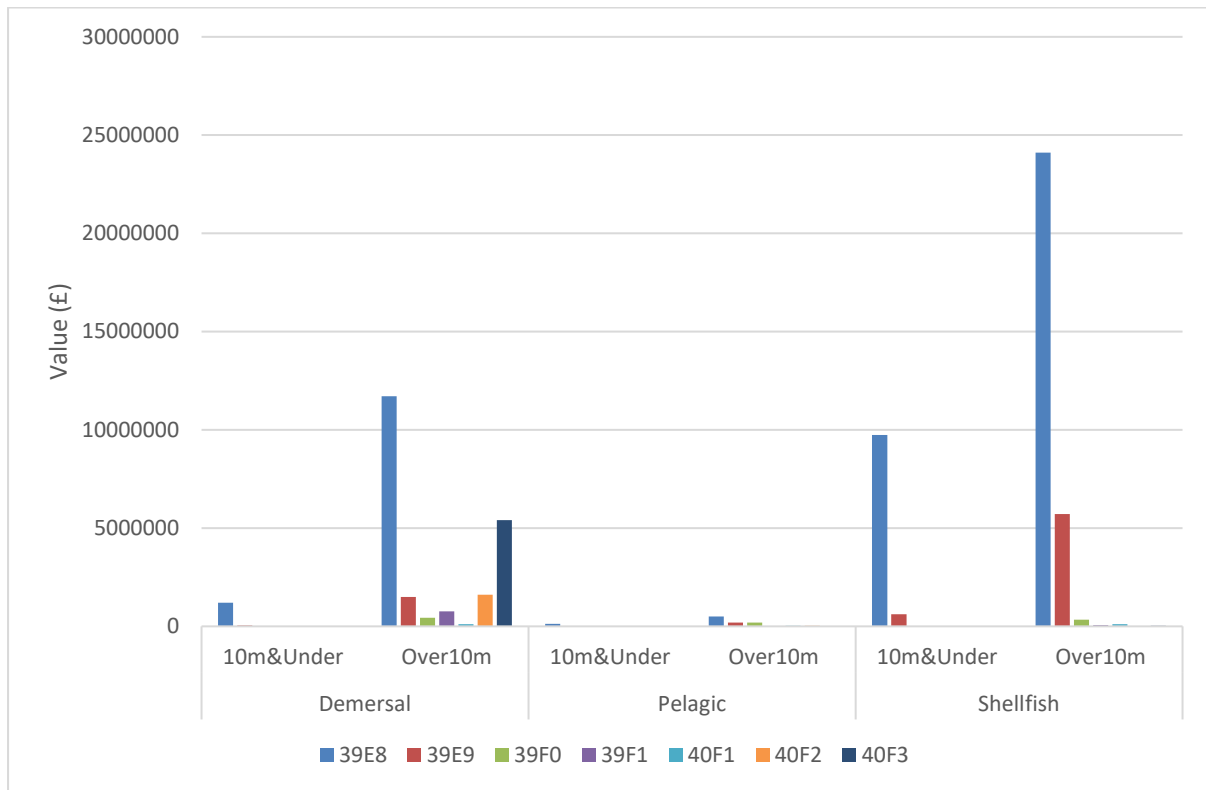


Figure 2.9: Sum of landings value from ICES Statistical Rectangle 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (2012-16), displayed by vessel size classes and species group (Source: MMO, 2017)



2.7.6 Landings Weight and Value by Species

In Figure 2.10 to Figure 2.21 MMO landings data for 2012-2016 were filtered to show the weight and value of individual species landed from each ICES Rectangle (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3.

Overall, across the rectangles along the cable route in the Irish Sea, landings of *Nephrops*, crabs and other shellfish were dominant, with highest values in 36E5, 36E6 and 37E5. Landed weight and values were lower from 36E3 and 36E4.

Figure 2.8 shows a dominance of *Nephrops* landings from 36E3, although compared with other areas of the cable route within the Irish Sea, these values are low (weight just over 250 tonnes and value just over £1,200,000). Within this rectangle landings of crabs and other shellfish are also high in terms of weight. The value of crab landed is comparably low considering the weight (around 200 tonnes) at around £2,000,000. Other disparities in species are evident in this rectangle, with lobster value exceeding its weight, and the opposite for herring which has a relatively high landed weight but low value.

Figure 2.9 shows *Nephrops* to be the dominant species landed from 36E4, but again with relatively low values (<4,500 tonnes) compared with other areas along the cable route. Haddock is the next key species in terms of weight but with a relatively low associated value. All other species landed are <500 tonnes.

Figure 2.10 shows scallops to be the key species in terms of weight (>30,000 tonnes) and value (>£25,000,000) landed from 36E5. Whelks are the next key species, although significantly lower in weight and value than scallops. All other species landed here have very low weight and value.

Figure 2.11 shows scallops again to be the key species in 36E6 with weight >14,000 tonnes and value of over £9,000,000. Whelks are the next key species but as above much lower in weight and value than scallops.

Figure 2.12 shows that scallop is the again the key species in 37E5 with a weight of >30,000 tonnes and value of >£35,000,000. Herring is the next key species in this area, although as seen in other pelagic species, the value (<£5,000,000) is relatively low given the weight (>15,000 tonnes) landed. *Nephrops* and lobster feature in this area although relatively low weight landed when compared with other sections of the cable route, but with high values.

Overall, across the North Sea along the cable route there is more variety in species caught than in the Irish Sea. Shellfish are dominant closer to the east coast, but pelagic species become more important with increasing distance from the coast.

Figure 2.13 shows the key species within 39E8 is *Nephrops*, both in terms of weight (>4,500 tonnes) and value (>£225,000,000). The next key species are whiting and crab in terms of weight at around 2,000 tonnes, but both have relatively low value at approximately £2,500,000. Lobsters were landed from this area with a total weight of 500 tonnes but had twice the value of whiting and crab at > £5,000,000.

Figure 2.14 shows that *Nephrops* is again the key species in 39E9, although lower in weight (>1,200 tonnes) and value (£5,300,000) than 39E8. The next key species are herring, haddock and whiting with landed weights 500-650 tonnes and values of < £1,000,000.

Figure 2.15 shows that herring is the key species, in terms of weight (approximately 650 tonnes) but that *Nephrops* is key in terms of value (>£300,000) within 39F0. The next key species are haddock, gurnard and whiting and all have relatively high weight and value for this rectangle.

Figure 2.16 shows plaice as the key species in 39F1 with a weight of just under 450 tonnes and value of around £550,000. All other species (dabs, lemon sole and *Nephrops*) landed from this rectangle had low weights and values.

Figure 2.17 shows the key species in terms of landed weight (>120 tonnes) in 40F1 was herring but that the associated value was relatively low (approximately £40,000). In terms of value the key species was *Nephrops* with a value of around £100,000, followed by plaice at approximately £70,000.

Figure 2.18 shows that plaice is the key species in terms of landed weight (around 850 tonnes) and value (£1,000,000) from 40F2. The next species in terms of weight are herring and lemon sole but these values are significantly lower.

Figure 2.19 shows plaice again to be the key species in terms of landed weight (around 3,500 tonnes) and value (approximately £4,500,000), this time landed from 40F3. Again, other species (lemon sole, dabs and turbot) landed from here are of significantly lower weight and value.

Figure 2.10: Species caught in ICES Rectangle 36E3 (Irish Sea) (2012-2016) based on highest landings weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

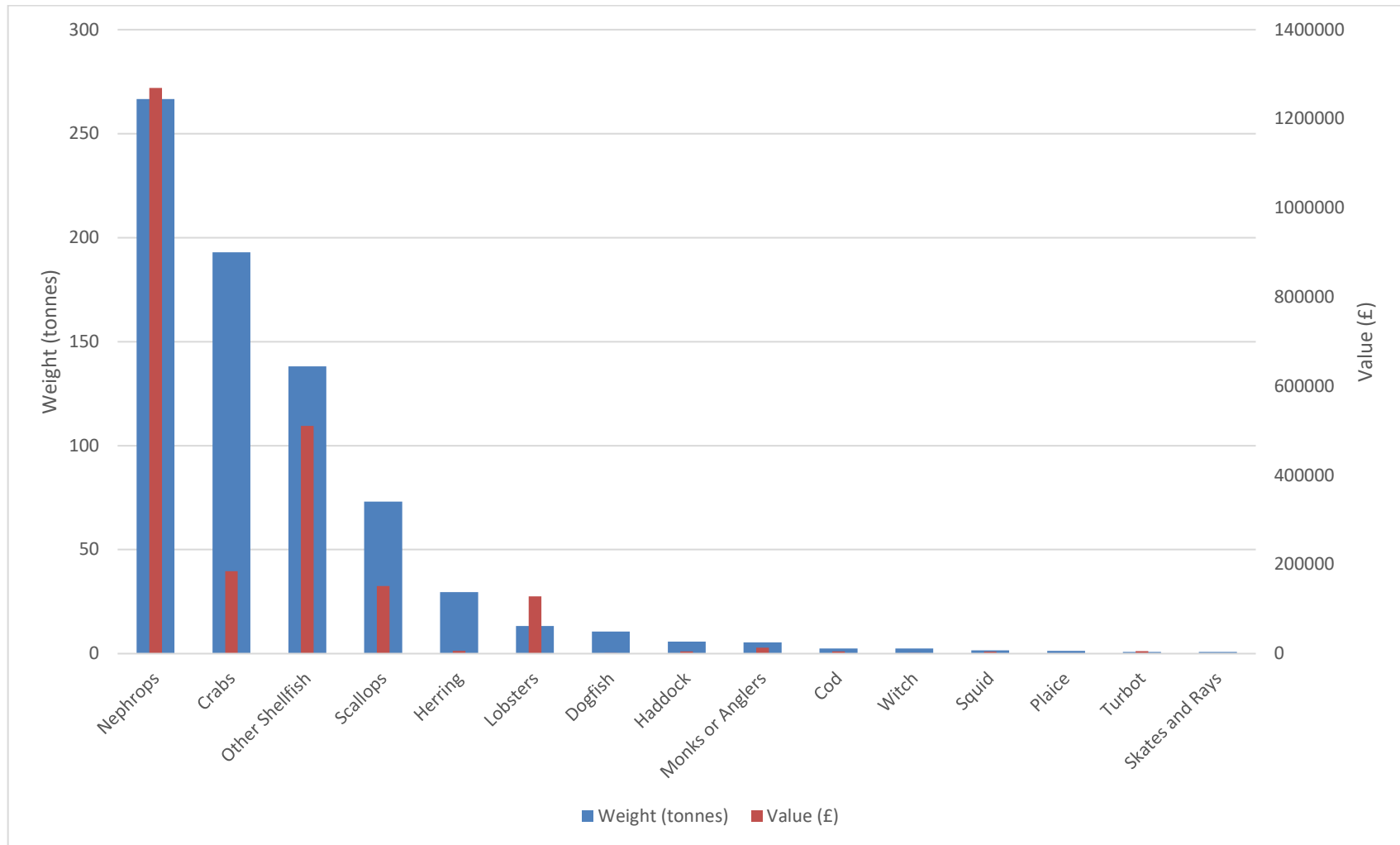


Figure 2.11: Species caught in ICES Rectangle 36E4 (Irish Sea) (2012-2016) based on highest landings weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

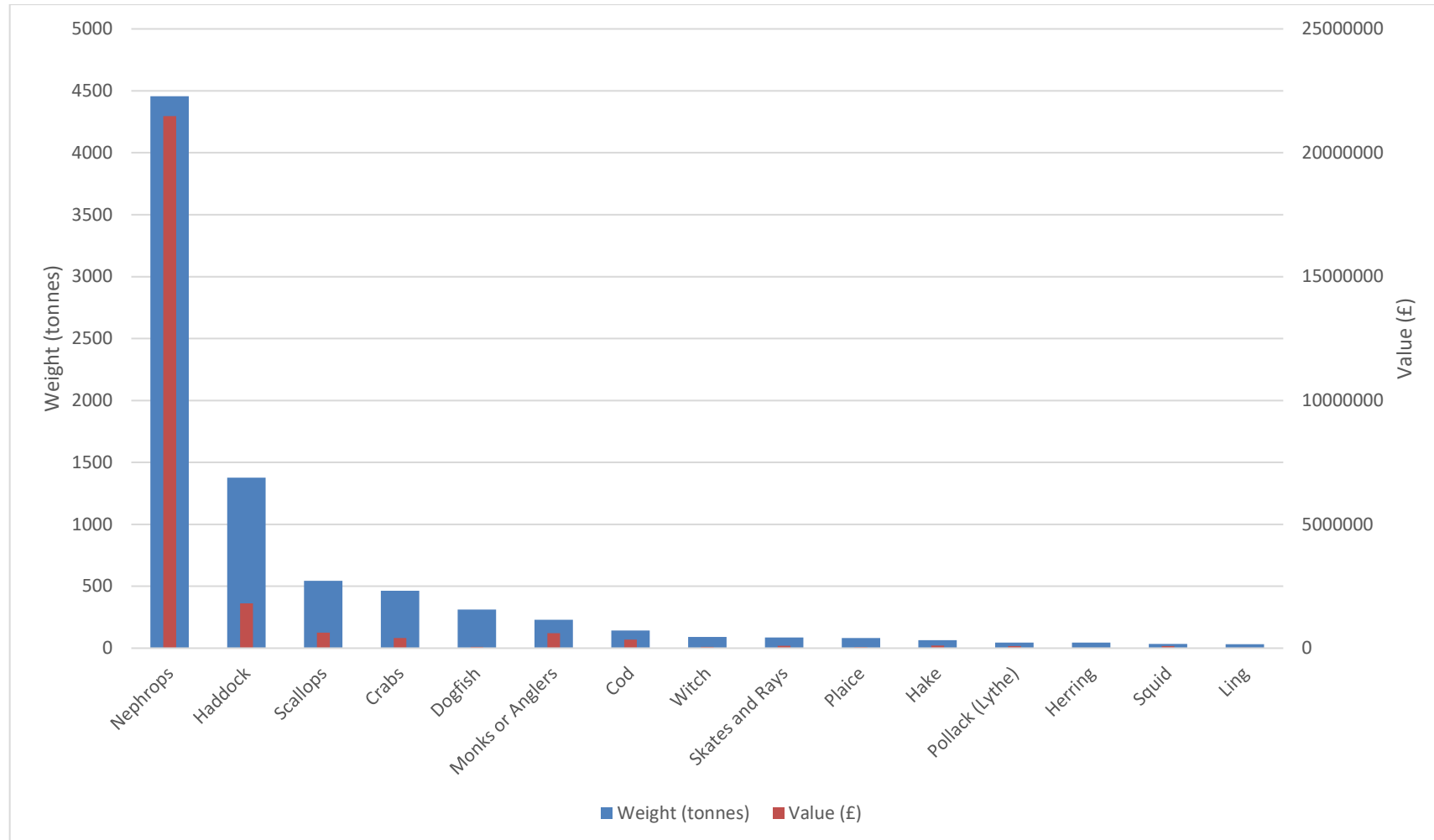


Figure 2.12: Species caught in ICES Rectangle 36E5 (Irish Sea) (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

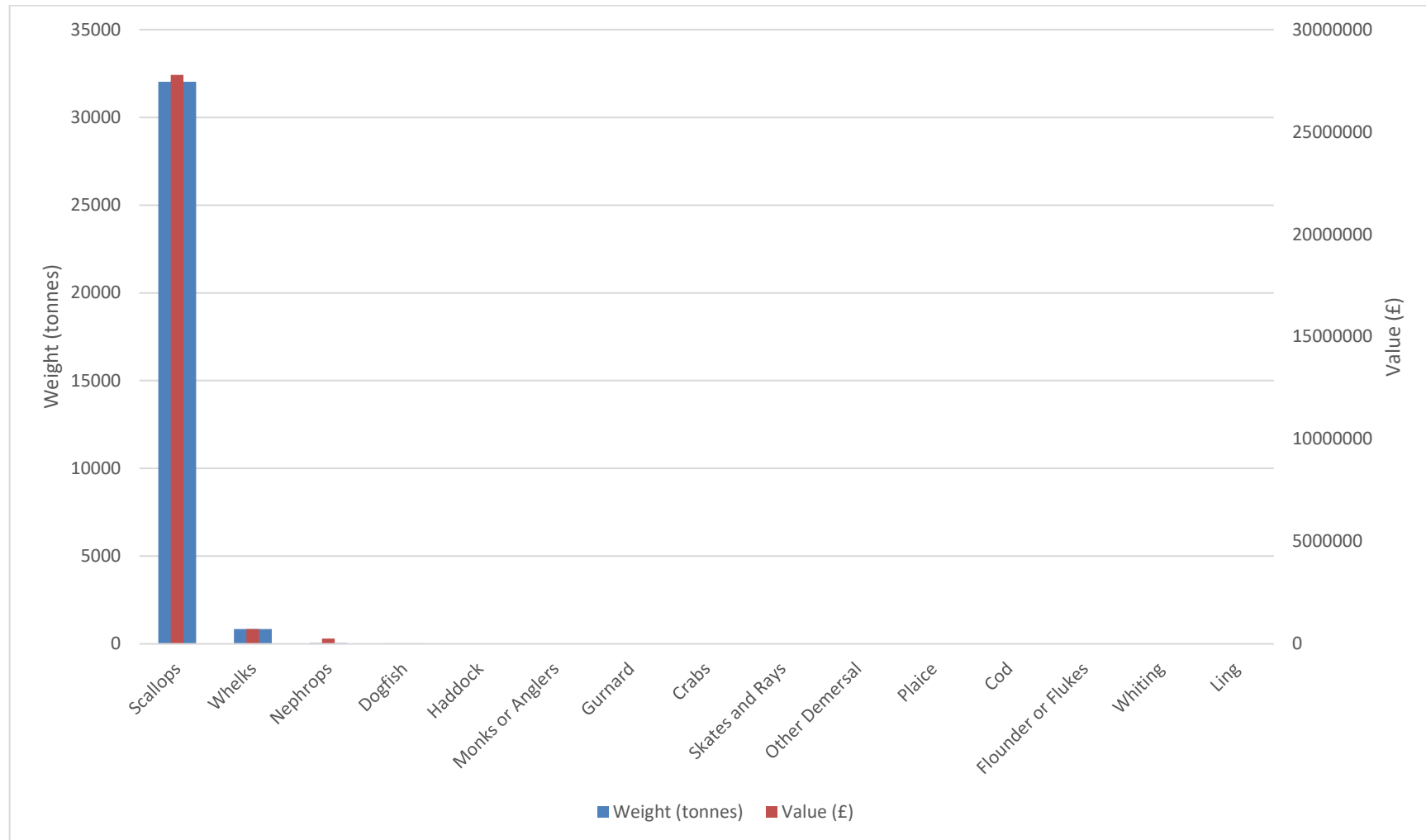


Figure 2.13: Species caught in ICES Rectangle 36E6 (Irish Sea) (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

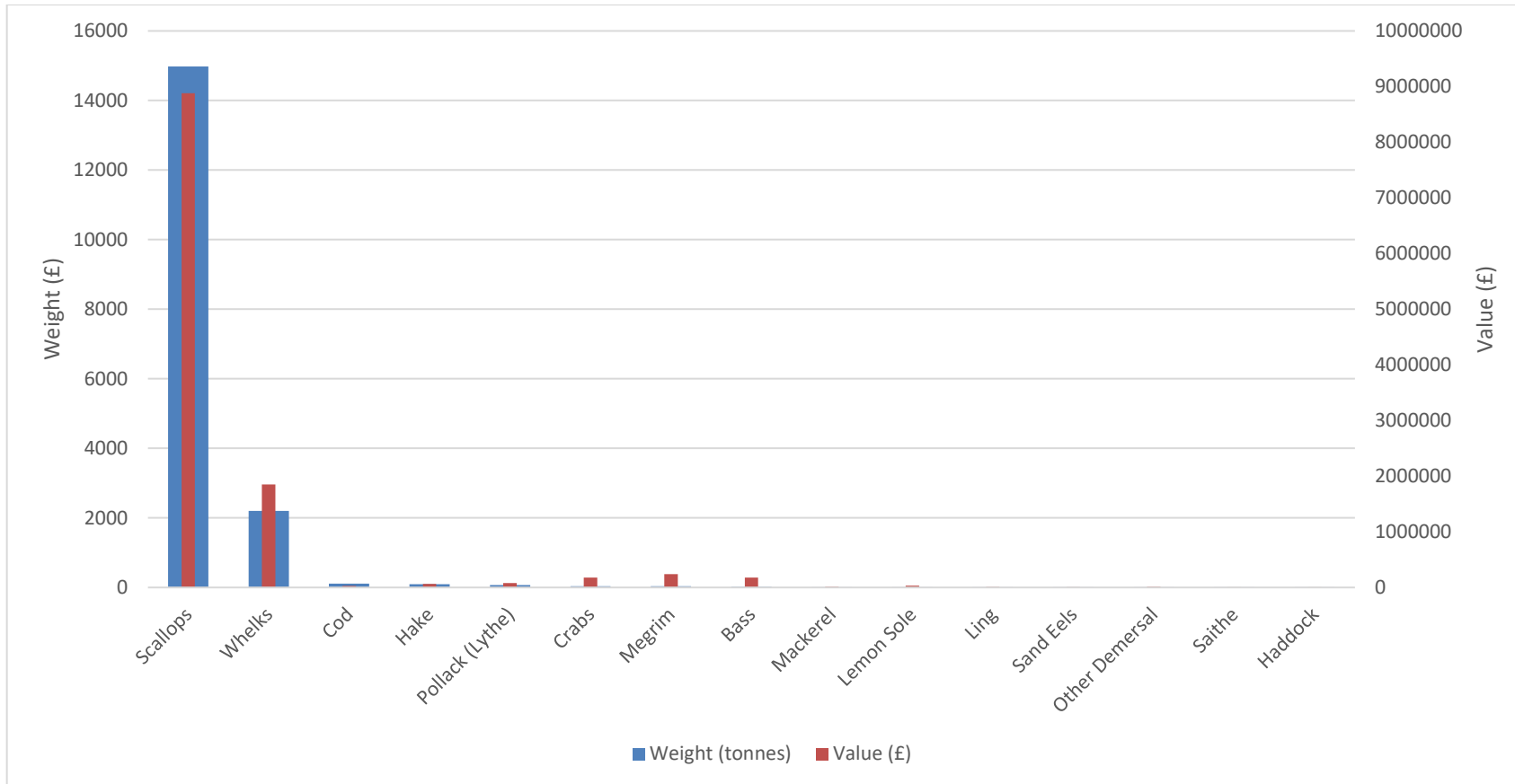


Figure 2.14: Species caught in ICES Rectangle 37E5 (Irish Sea) (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

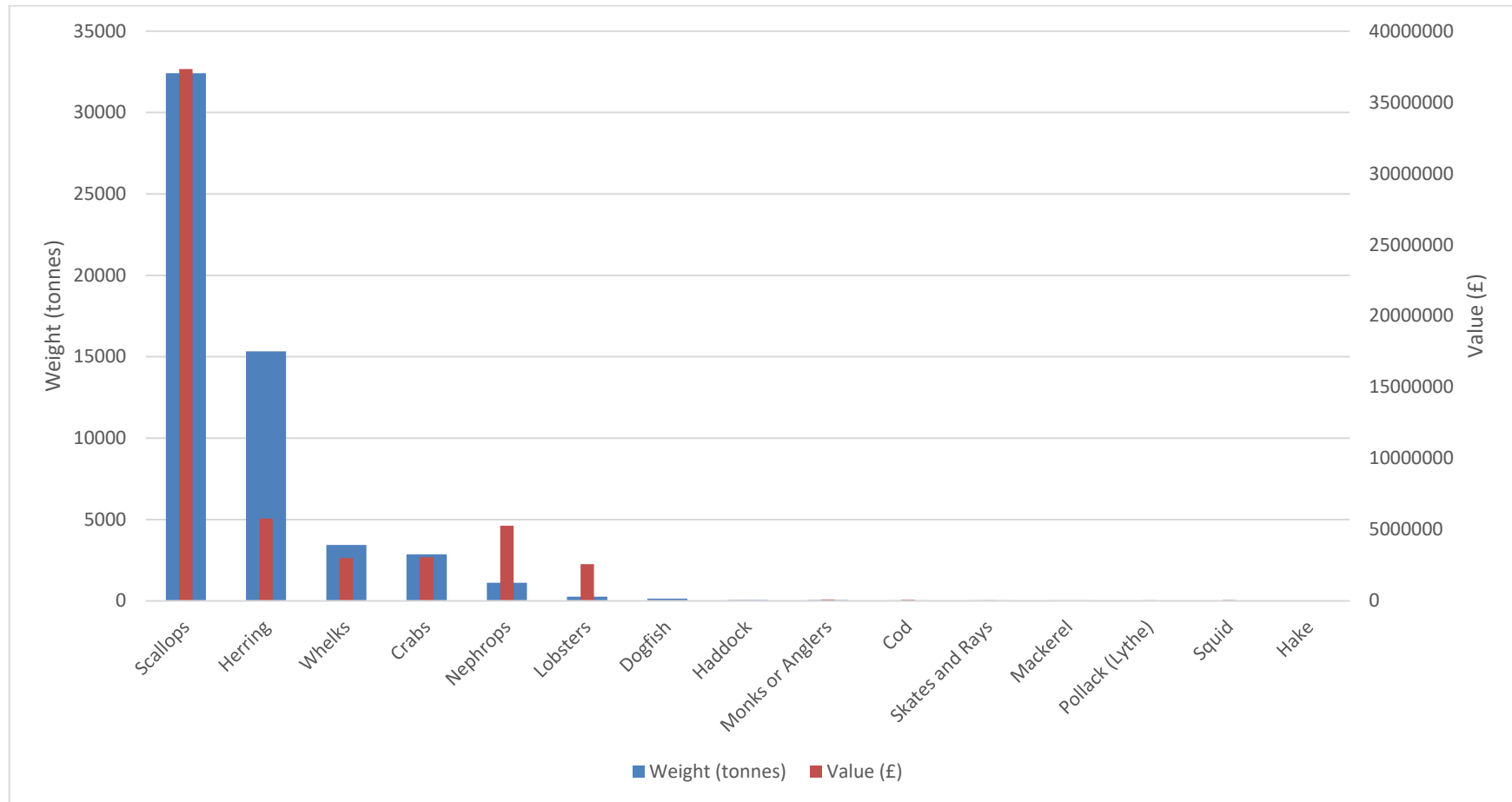


Figure 2.15: Species caught in ICES Rectangle 39E8 (North Sea) (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

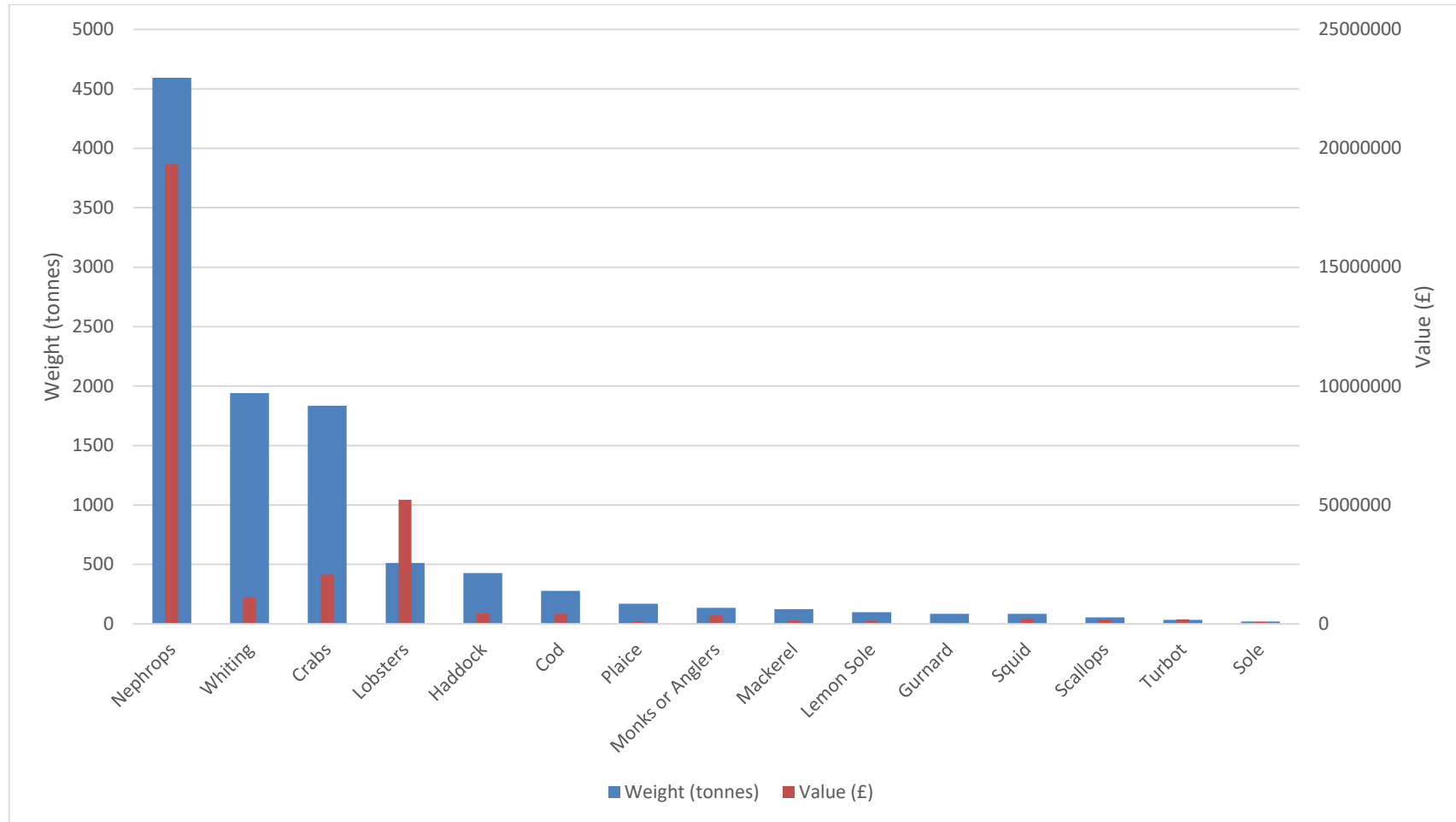


Figure 2.16: Species caught in ICES Rectangle 39E9 (North Sea) (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

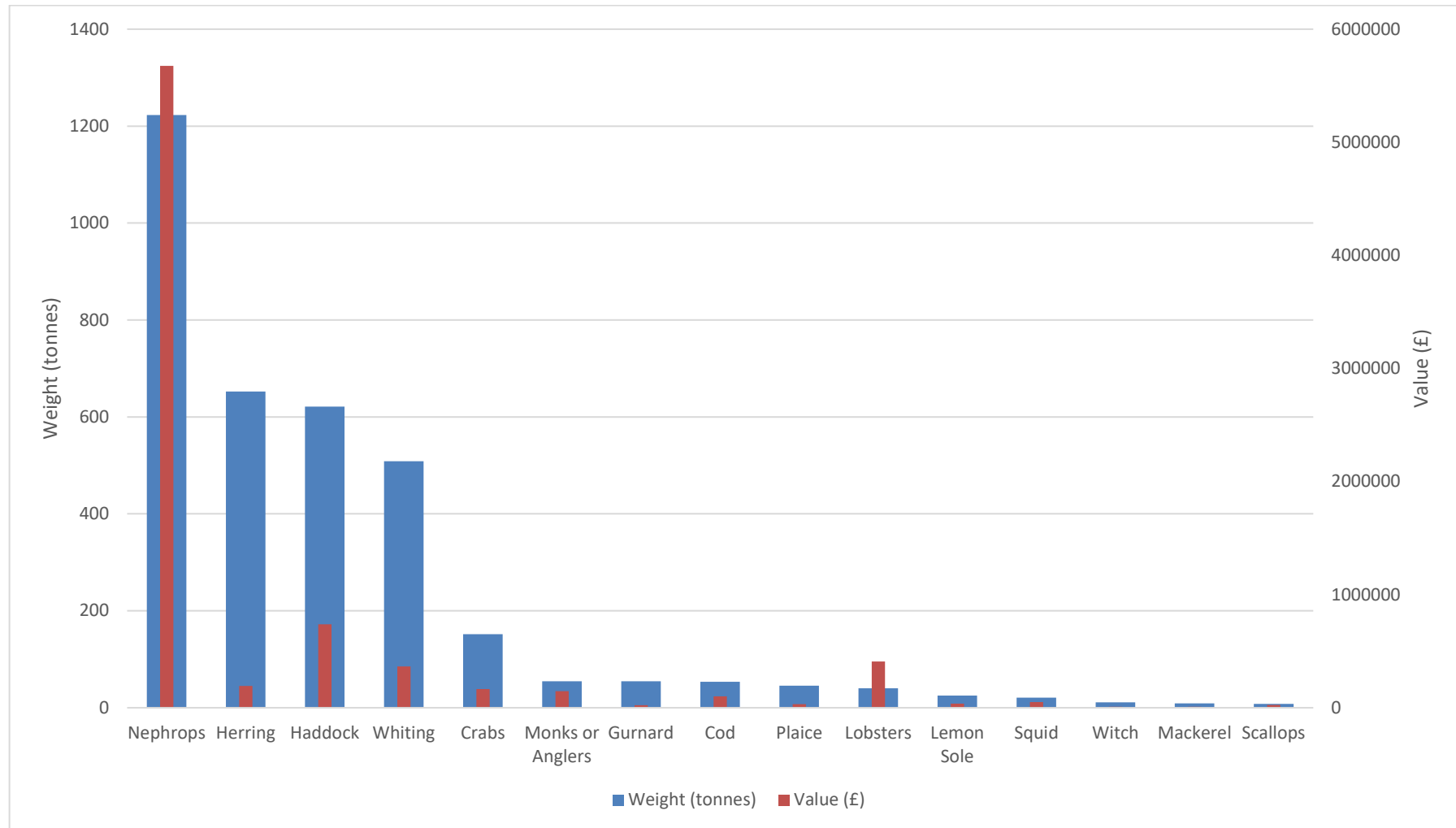


Figure 2.17: Species caught in ICES Rectangle 39F0 (North Sea) (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

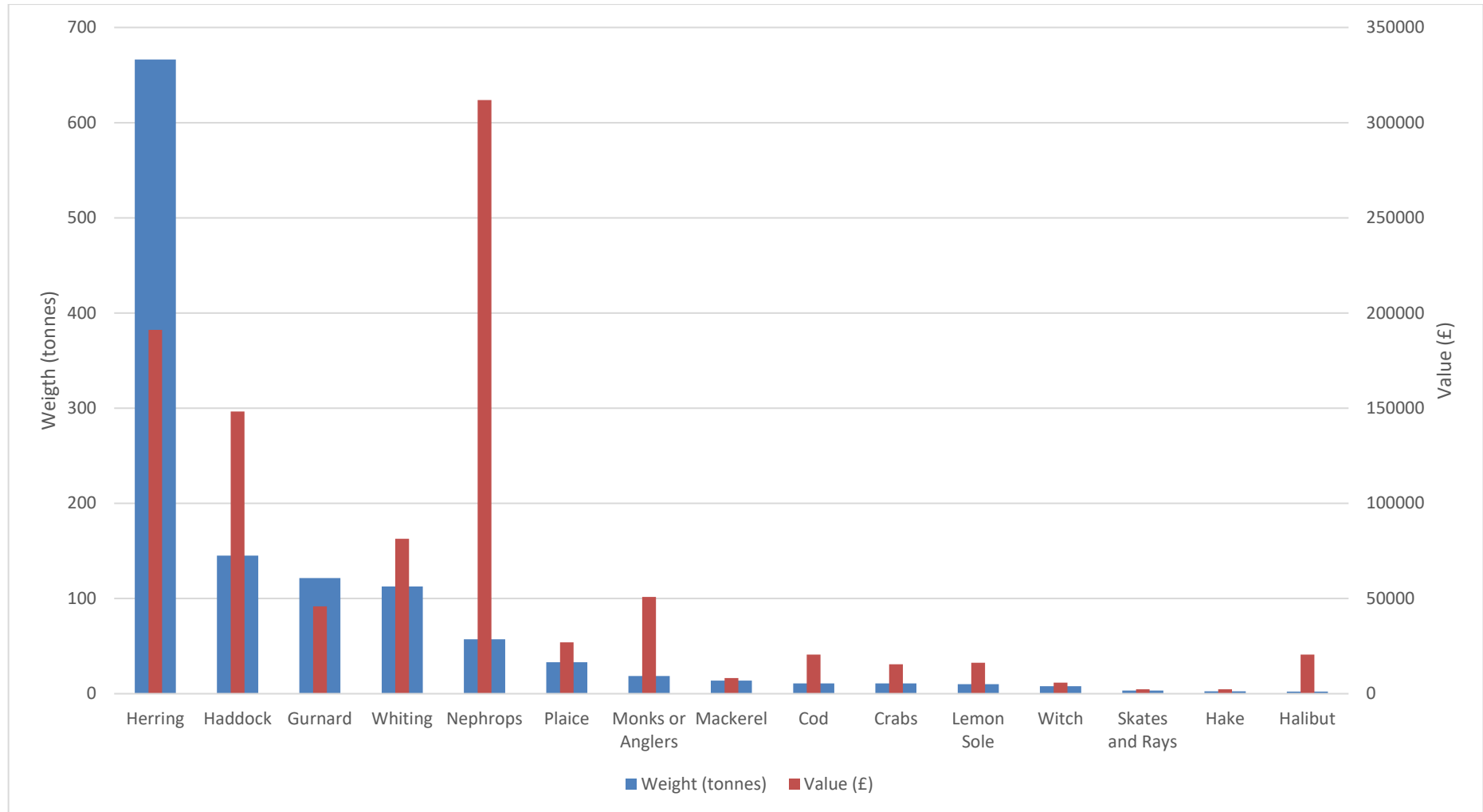


Figure 2.18: Species caught in ICES Rectangle 39F1 (North Sea) (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

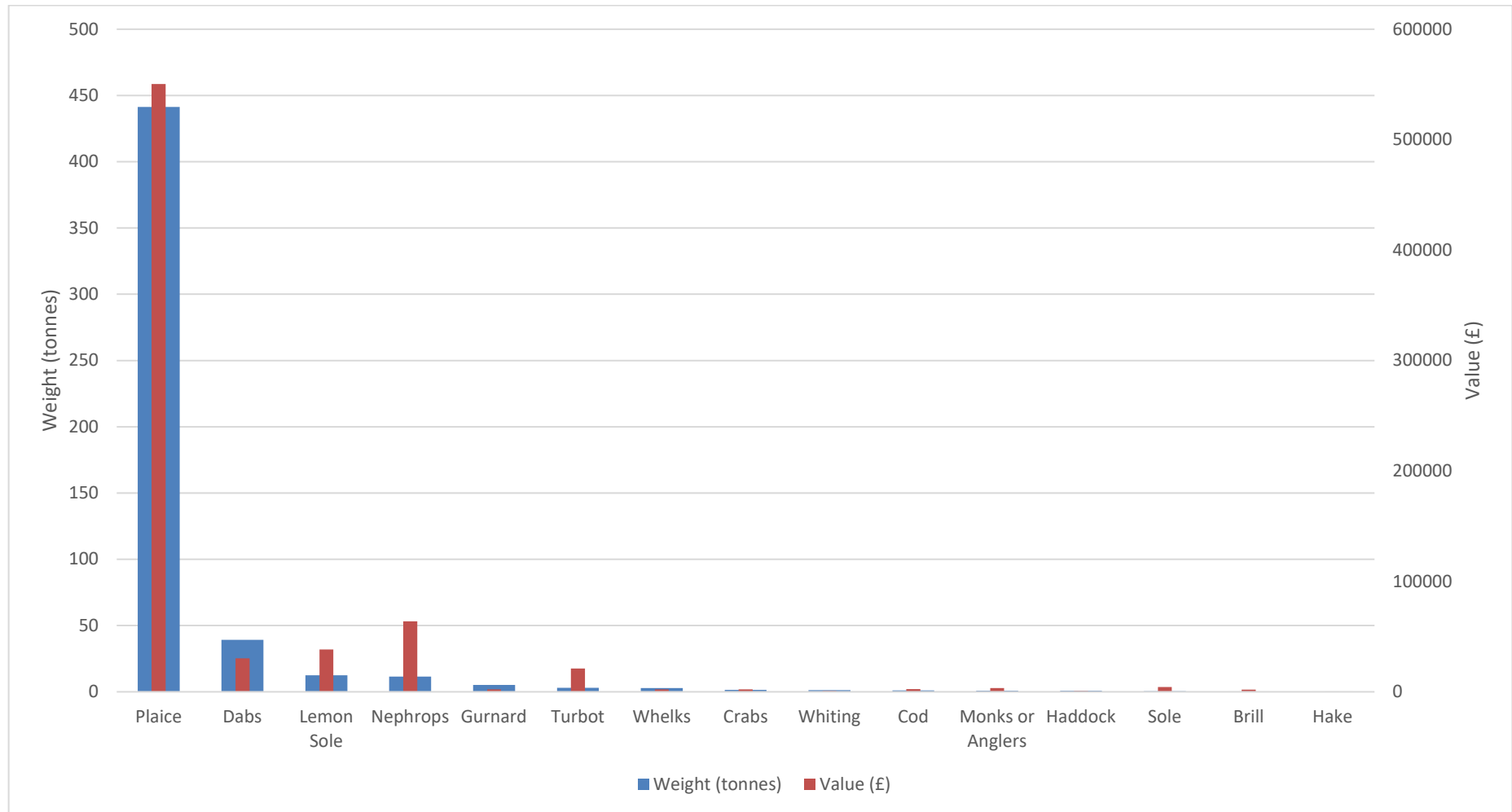


Figure 2.19: Species caught in ICES Rectangle 40F1 (North Sea) (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

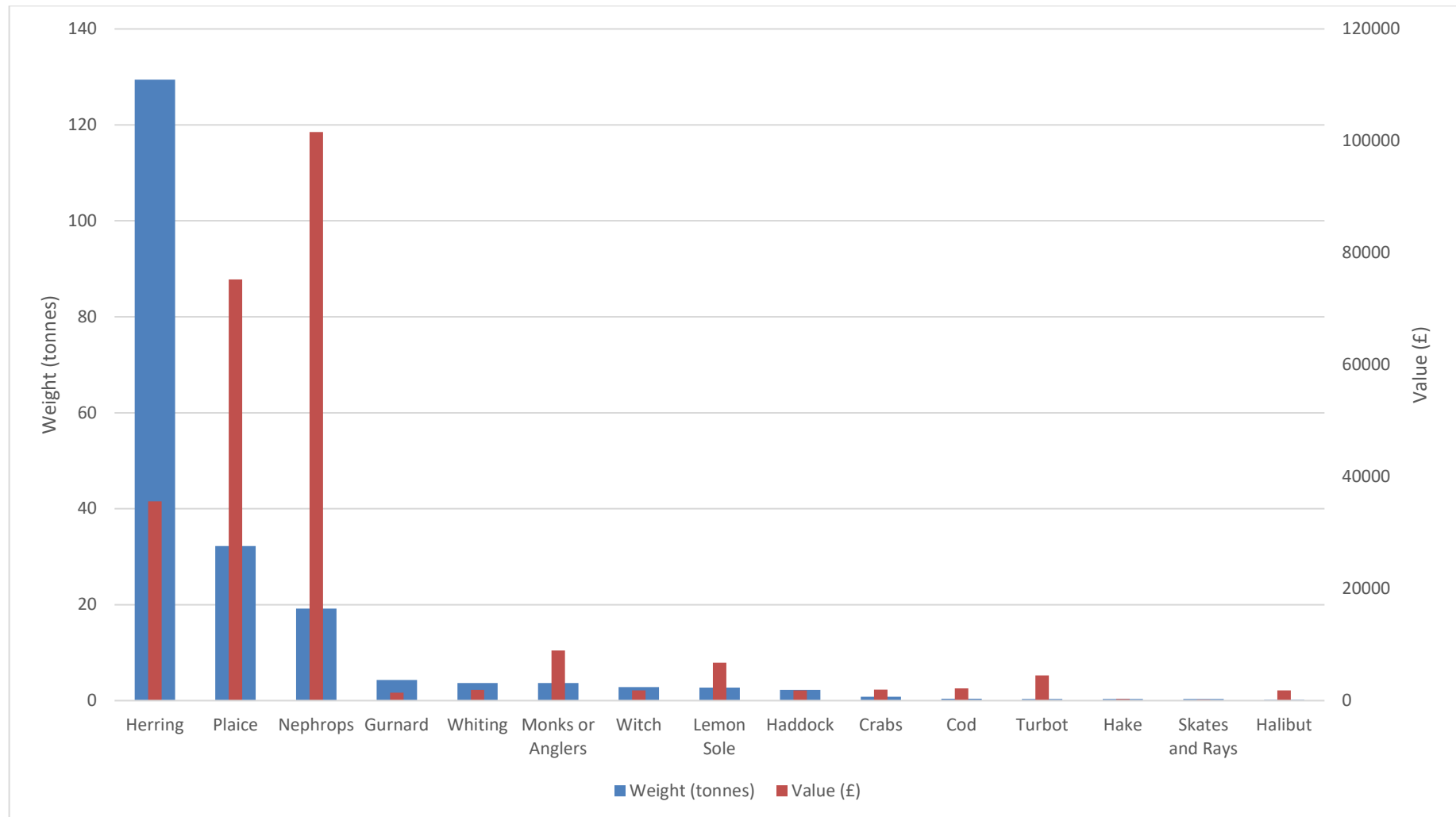


Figure 2.20: Species caught in ICES Rectangle 40F2 (North Sea) (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

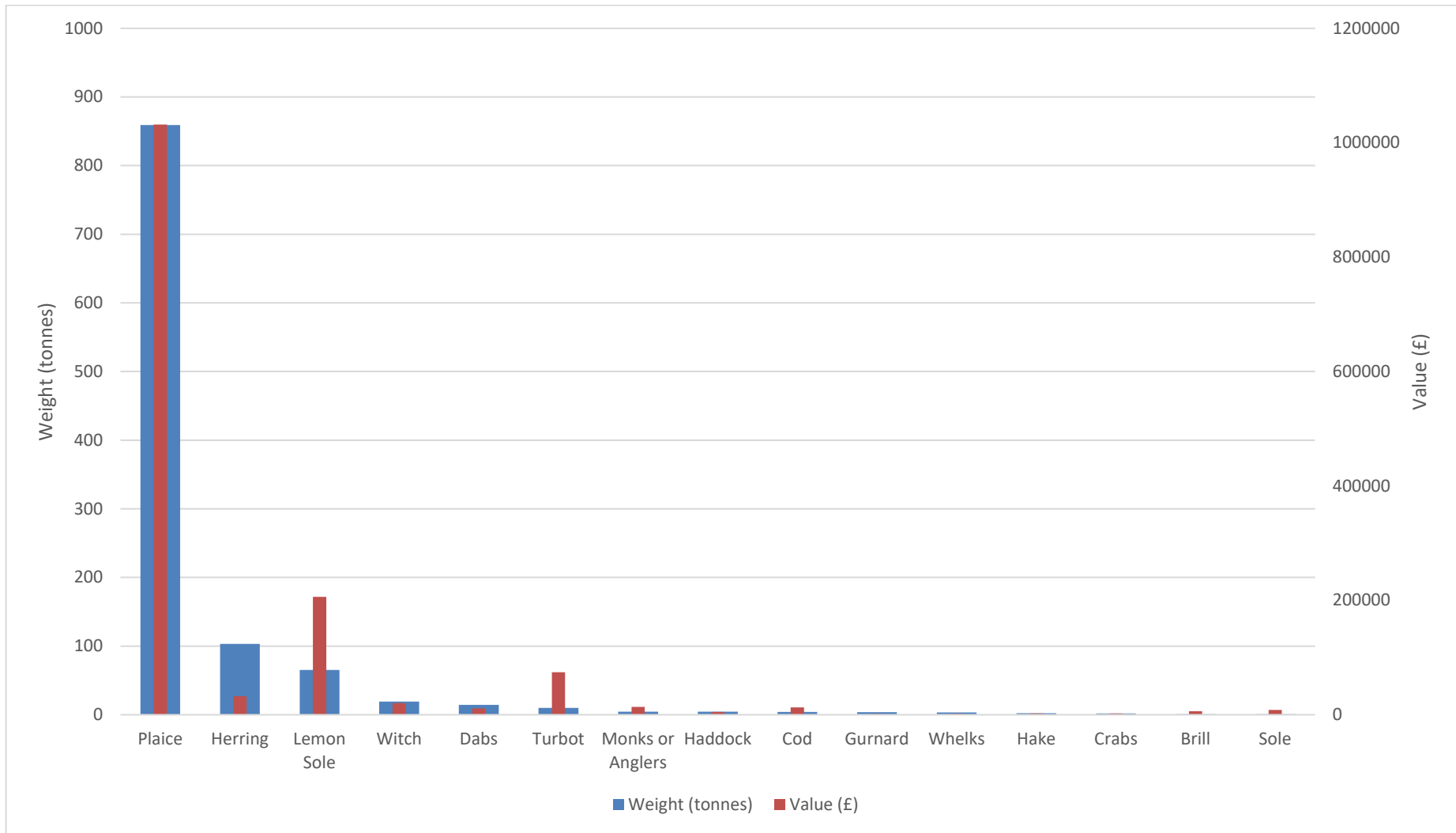
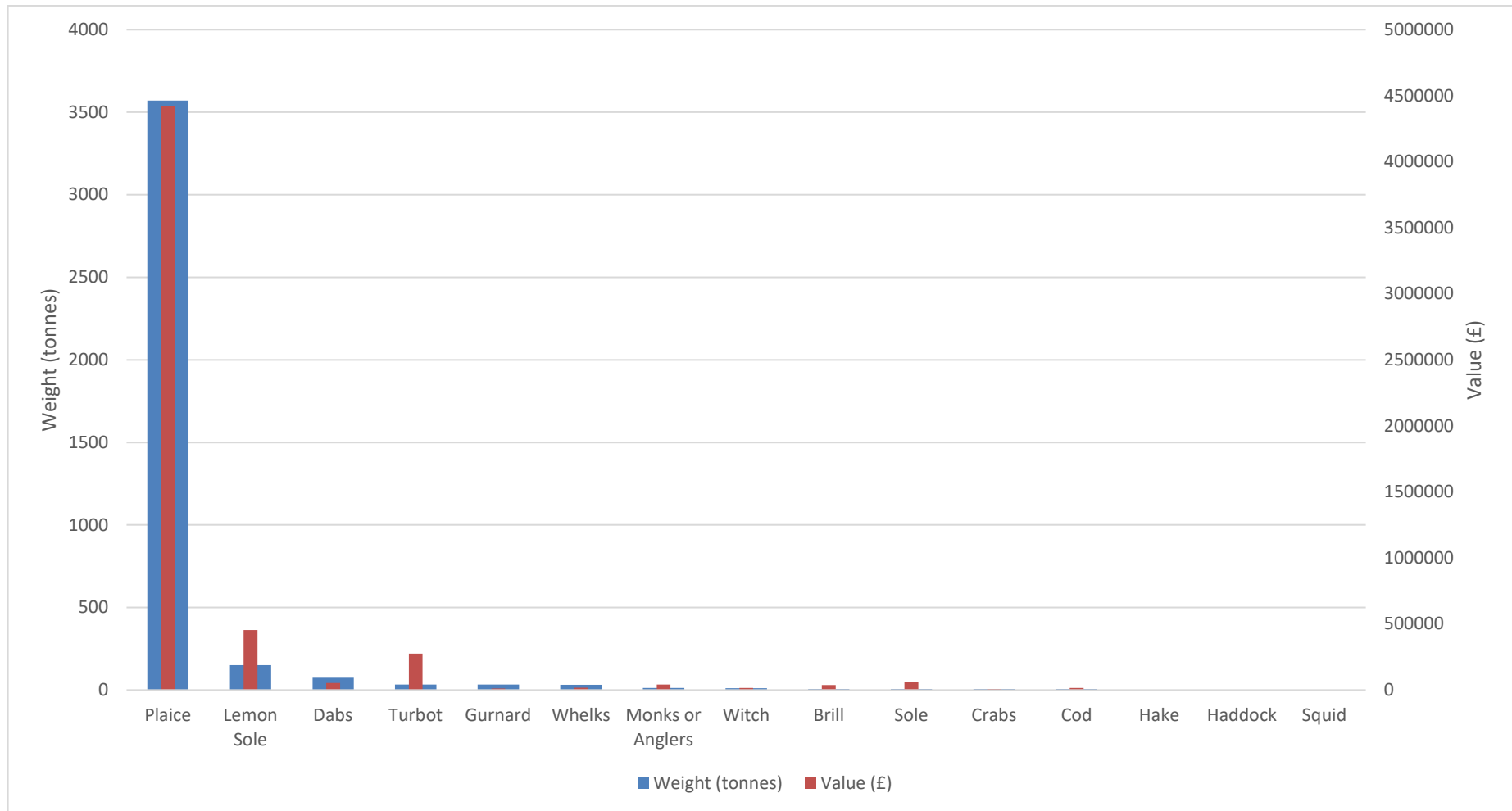


Figure 2.21: Species caught in ICES Rectangle 40F3 (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)



2.7.7 Temporal Variation in Landings Weight and Value

Figure 2.22, Figure 2.23, Figure 2.24 and Figure 2.25 show annual trends in the sum of landed weight and value between 2012-2016 for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3.

In the Irish Sea overall, there was a general decrease in weight landed between 2012 and 2016, with the lowest overall weight landed in 2014. 37E5 and 36E5 are the dominant rectangles for landed weights and very little is landed from 36E3 relative to these. The weight landed from 36E6 is possibly becoming more important over time.

In terms of value there was a decrease from 2012-2014 but then a relatively steep increase from 2014-2016. As above, the dominant rectangles in terms of value are 37E5 and 36E5, with very little overall value from 36E3.

In the North Sea overall there was a general decrease in weight landed, although there was a peak in 2013. 39E8 is the dominant rectangle in terms of consistent landed weight. Landed weight from 40F2 saw a peak in 2015 but then a sharp decrease into 2016.

In terms of value, overall the trend identified above in landed weight correlates with an overall decrease. The peak identified in landed weight is not seen in landed value. The minimum total landed value occurred in 2015 and 39E8 was again the dominant rectangle in terms of landed value. The peak in landed weight from 40F2 is not reflected in the landed value.

Figure 2.22: Annual Trends in Sum of Landings Weight (2012-2016) for ICES Rectangle (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source, MMO: 2017)

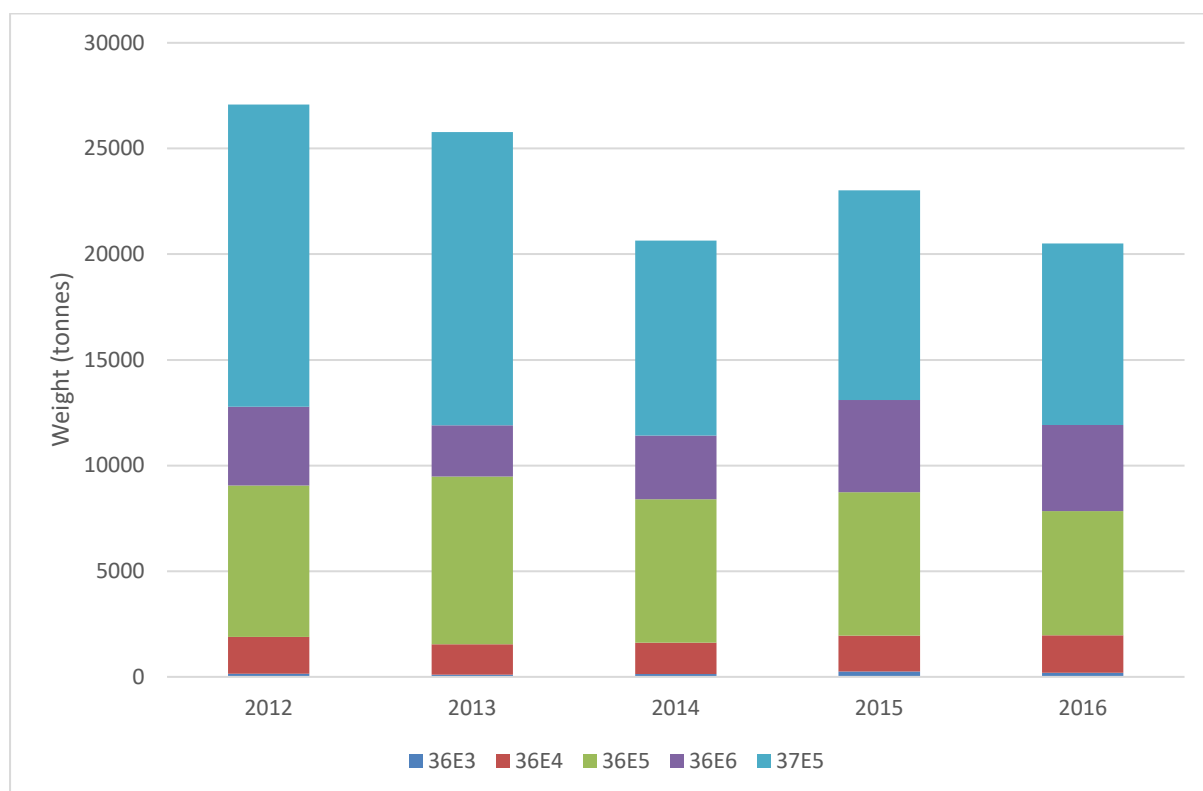


Figure 2.23: Annual Trends in Sum of Landings Value (2012-2016) for ICES Rectangle (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: MMO, 2017)

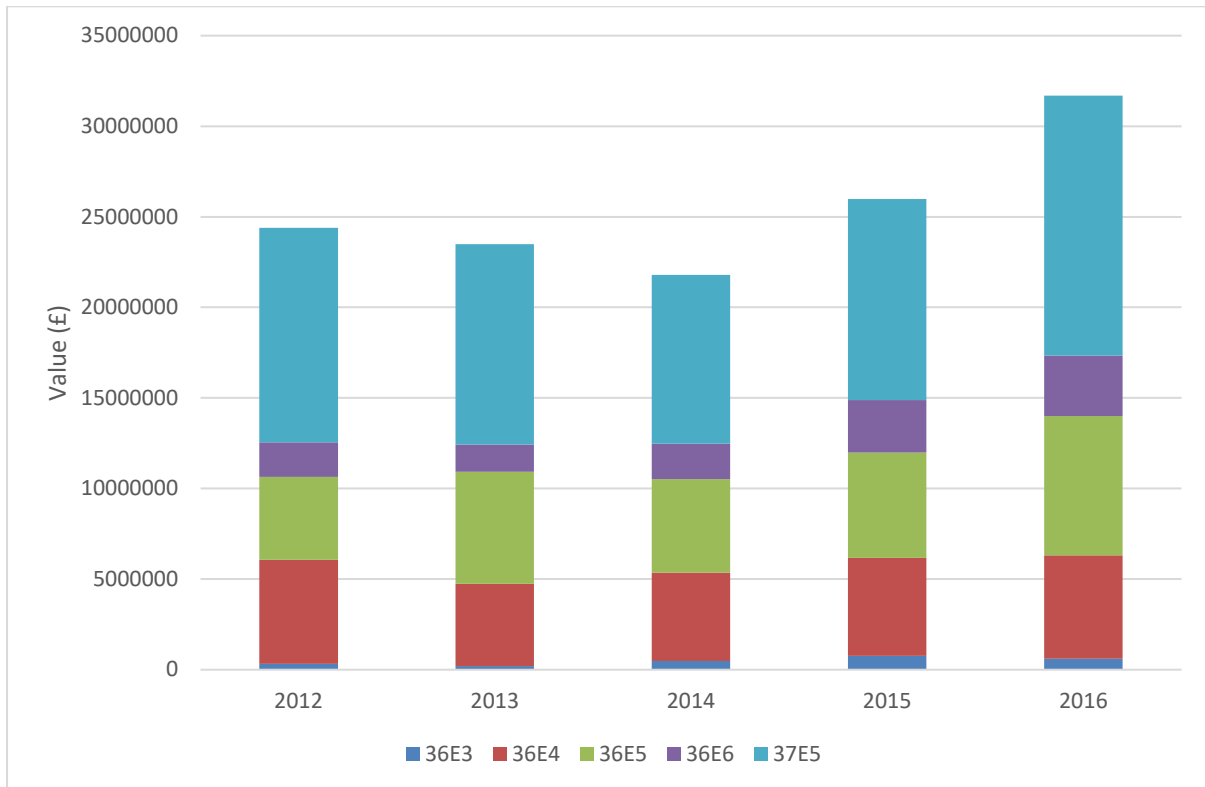


Figure 2.24: Annual Trends in Sum of Landings Weight (2012-2016) for ICES Rectangle (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source, MMO: 2017)

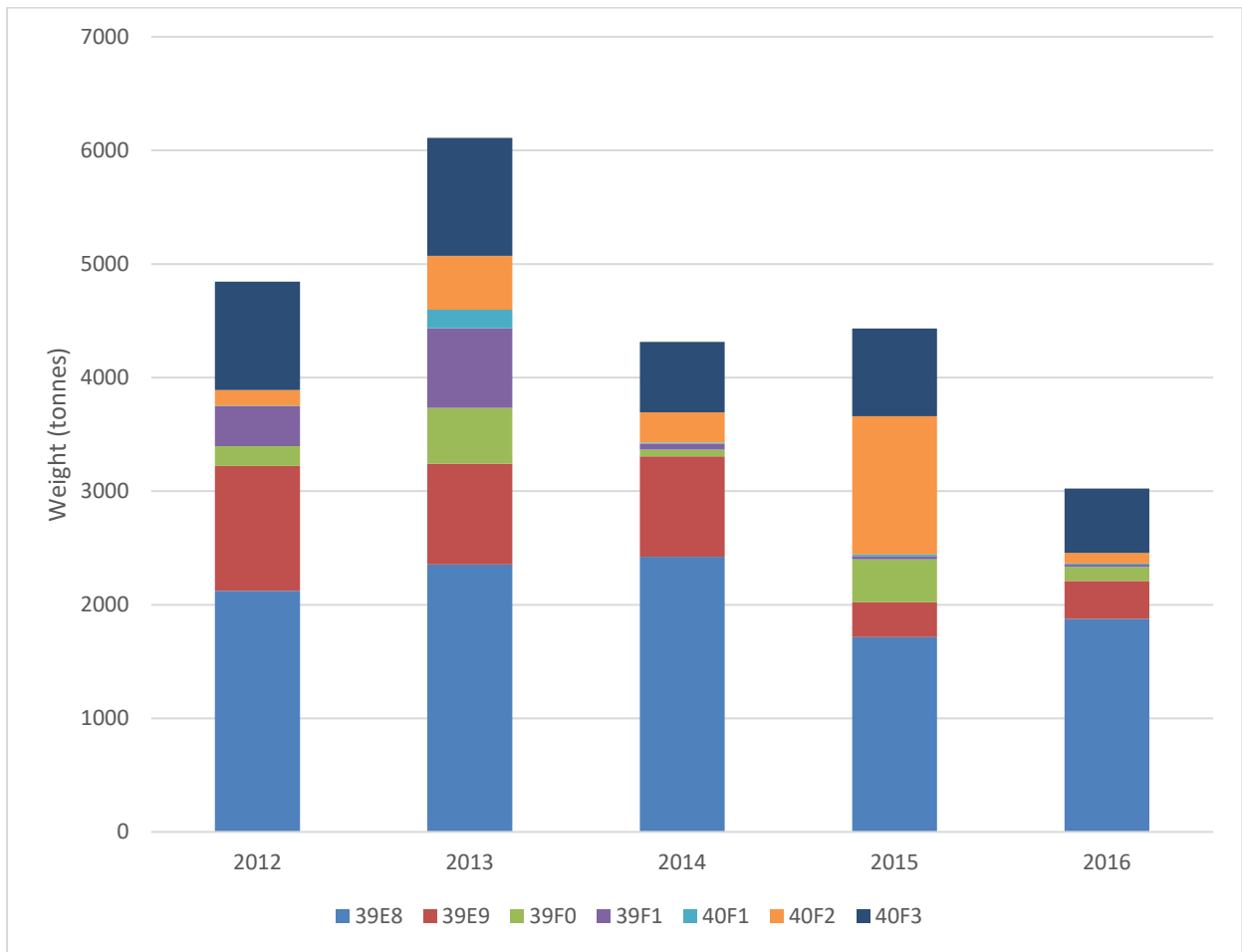


Figure 2.25: Annual Trends in Sum of Landings Value (2012-2016) for ICES Rectangle (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: MMO, 2017)

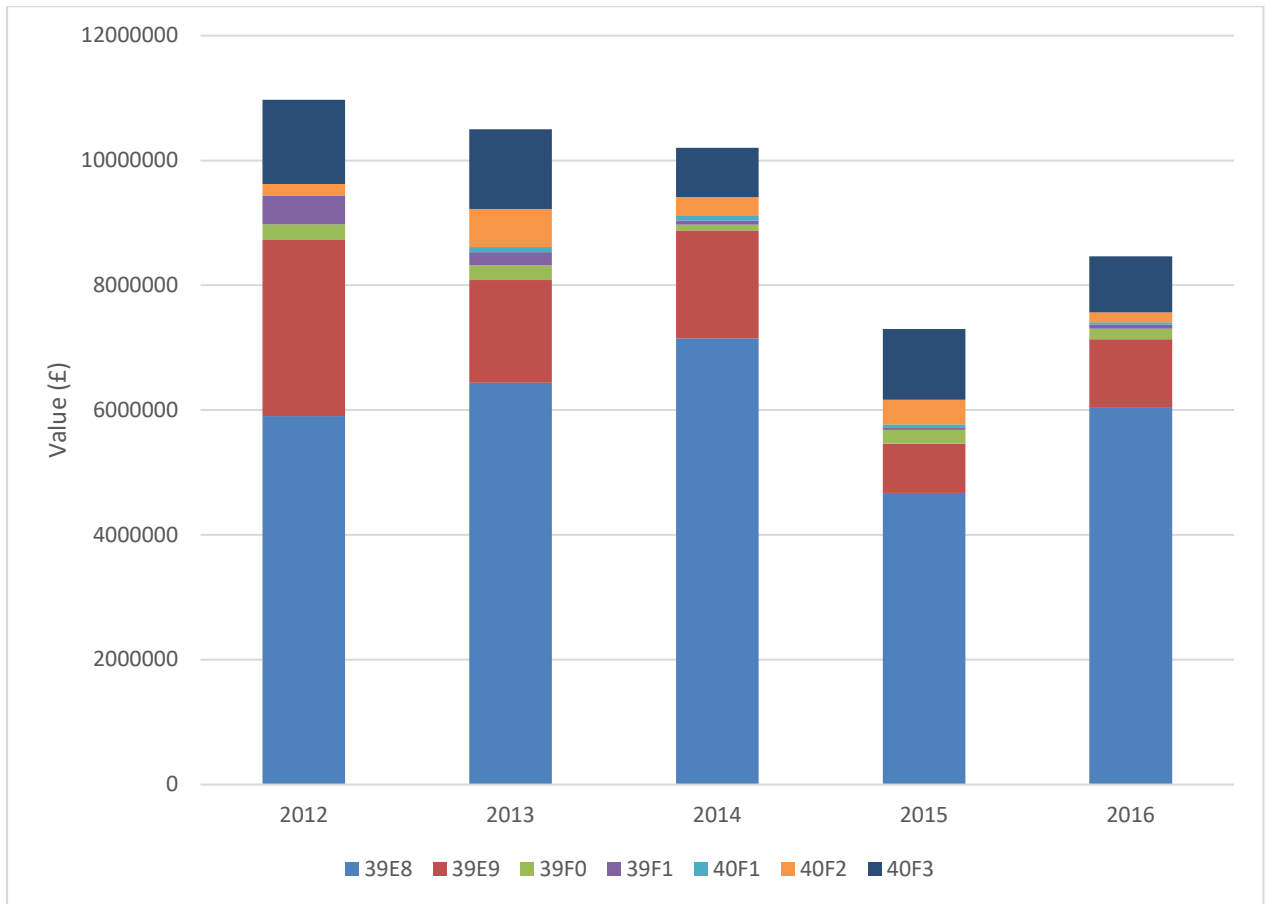


Figure 2.26, Figure 2.27, Figure 2.28 and Figure 2.29 show seasonal trends in the sum of landed weight and value by ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3 (2012-2016).

The landed weight from rectangles along the cable route exhibit peaks in late summer and late winter/early spring, with maximum weights in September at around 25,000 tonnes. This is compared to the minimum months of April, May and June where weight is around 6,000 tonnes. Seasonality is more pronounced in 37E5 and 36E5.

Landed values from rectangles along the cable route in the Irish Sea correlate mostly with the landed weights discussed above. One deviation is that the peak value occurred in November.

The landed weight from rectangles along the cable route in the North Sea peak in May, June, August and November at around 2,500 tonnes. The lowest weights are landed during February, March and April. Landings from 40F2 appear very seasonal in terms of overall weight with a maximum weight during May and the season lasting until September.

Landed values correlate with the winter peaks discussed above for weight, but the summer peaks are not repeated within the values.

Figure 2.26: Seasonal Trends in Sum of Landings Weight (2012-16) for ICES Rectangles (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: MMO, 2017)

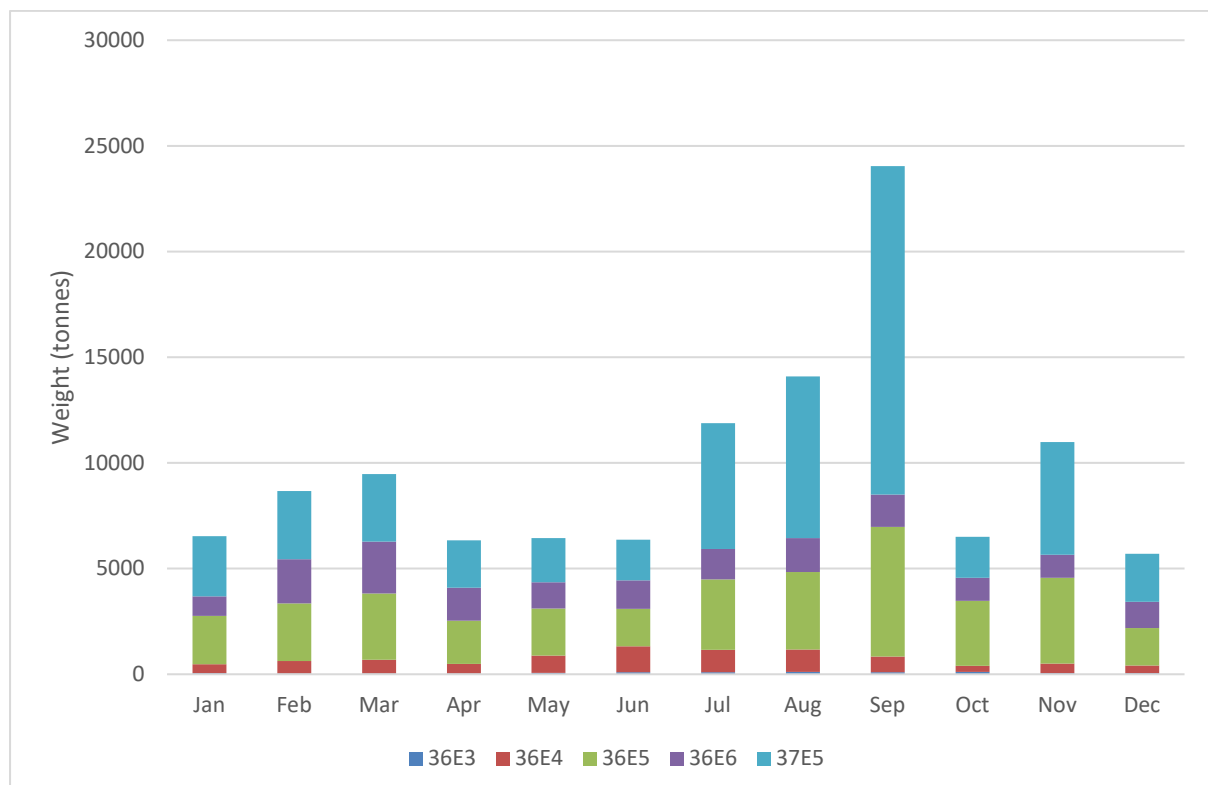


Figure 2.27: Seasonal Trends in Sum of Landings Value (2012-16) for ICES Rectangles (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: MMO, 2017)

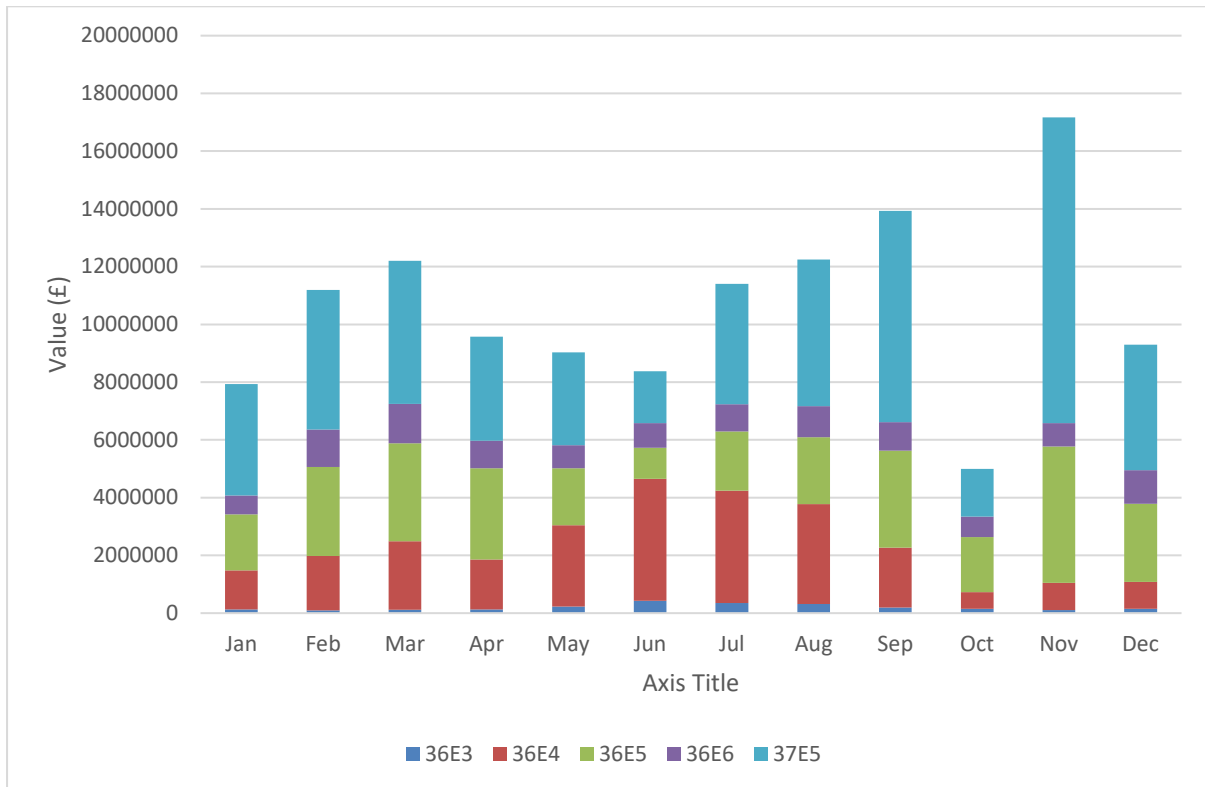


Figure 2.28: Seasonal Trends in Sum of Landings Weight (2012-16) for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: MMO, 2017)

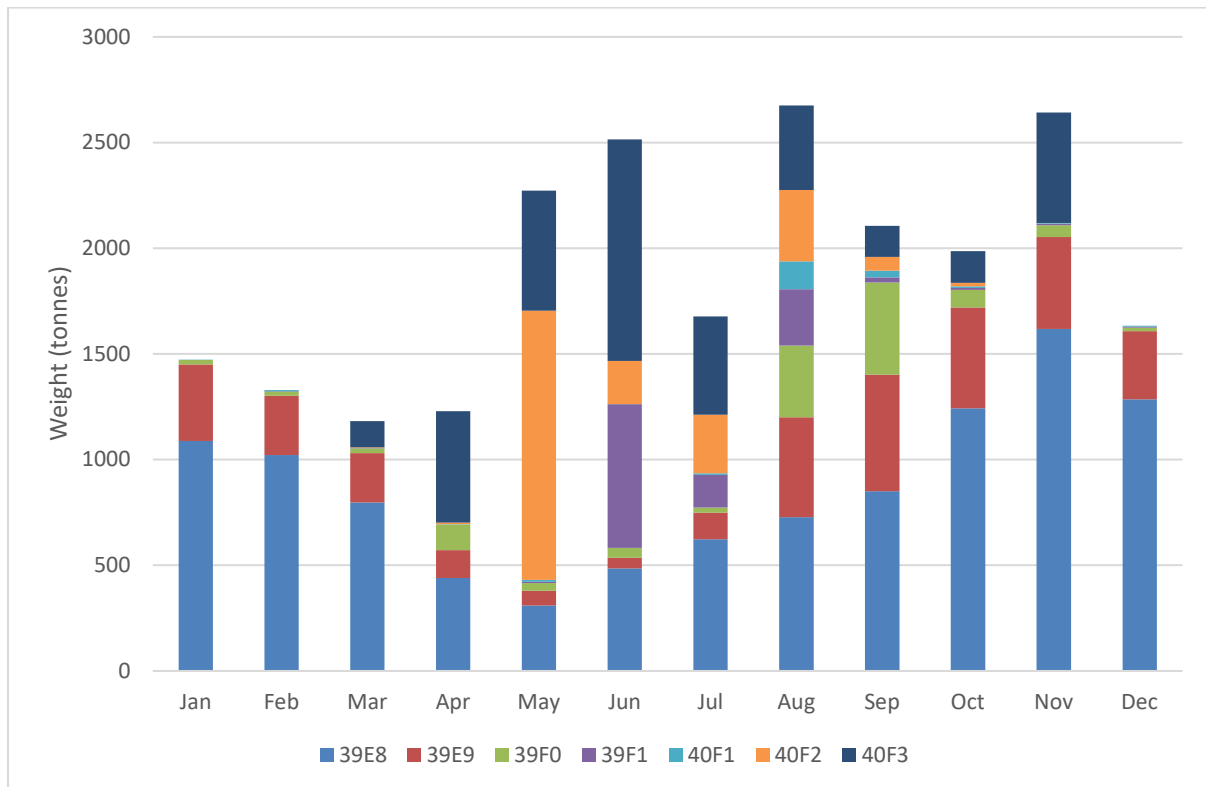


Figure 2.29: Seasonal Trends in Sum of Landings Value (2012-16) for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: MMO, 2017)

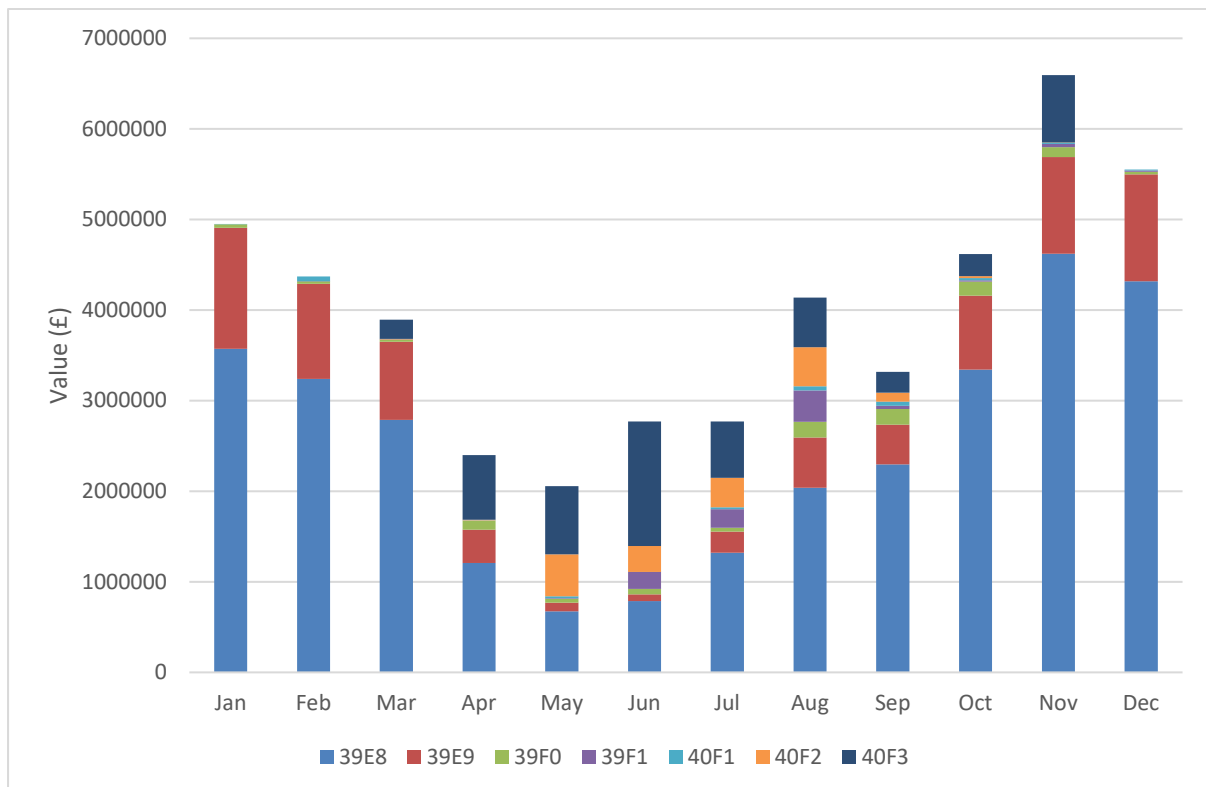


Figure 2.30 shows the top 5 species (scallops, herring, whelks, *Nephrops* and crabs) in terms of landed weight for ICES rectangles along the cable route in the Irish Sea. Across all species there is an overall trend of decline in landed weight between 2012 and 2016.

Scallop (Figure 2.31) landings in terms of weight peaks in February, March, July, August, September and November with a maximum landed weight of around 10,000 tonnes during November.

Herring (Figure 2.32) shows clear seasonality with the majority of landings occurring August to October and a peak of around 14,000 tonnes landed in September. Very little is landed during other months.

Whelks (Figure 2.33) see a maximum weight landed through the summer and autumn months, however, these weight are significantly lower than seen above in scallop and herring with a maximum of around 900 tonnes. Minimum landed weight occurred in December.

Nephrops (Figure 2.34) are landed to a maximum weight during June to August at around 900 tonnes. This species is caught throughout the year, but with minimum weights landed during October to December.

Crabs (Figure 2.35) are a seasonal species landed mostly between June and November, with a maximum during October of around 600 tonnes. The minimum landed weight occurs during March.

Figure 2.30: Annual Trends in Top Five Species by Sum of Landings Weight (2012-2016) for ICES Rectangles (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: MMO, 2017)

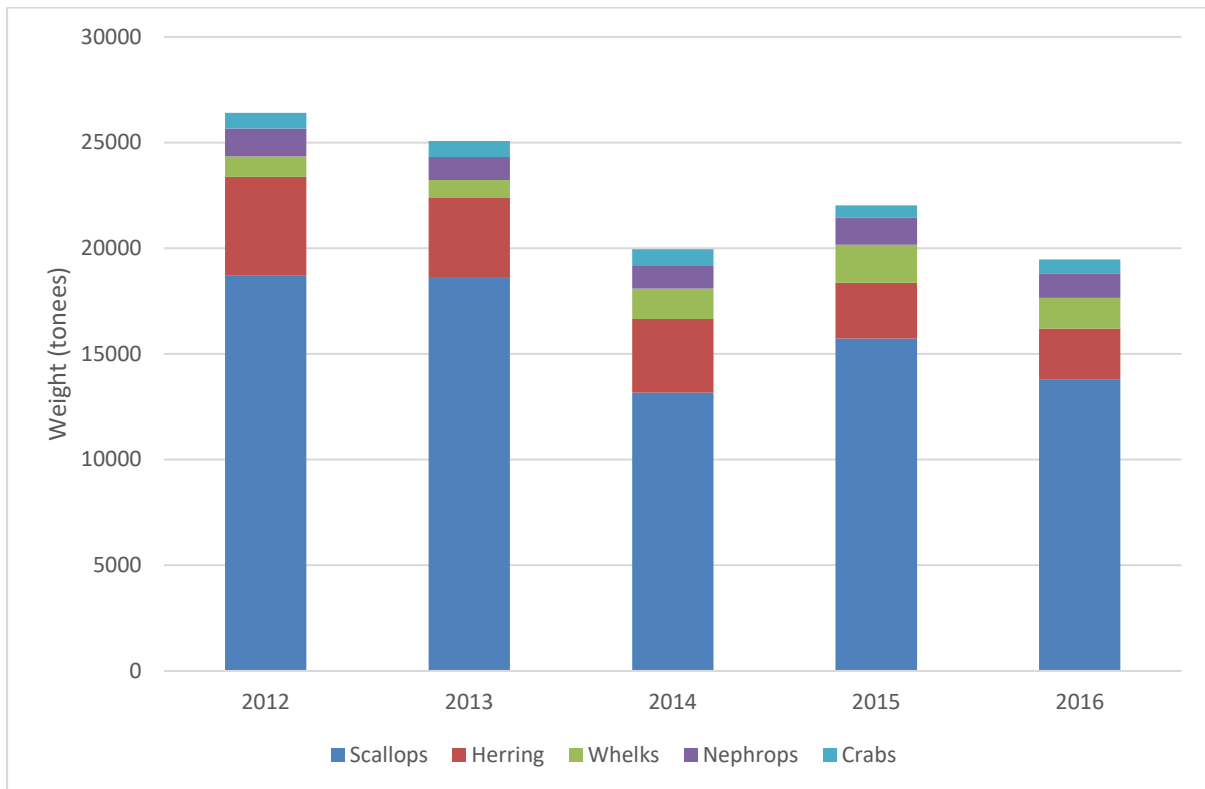


Figure 2.31: Seasonality of Landed Weight (tonnes) of Scallops (2012-2016) for ICES Rectangles (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: MMO, 2017)

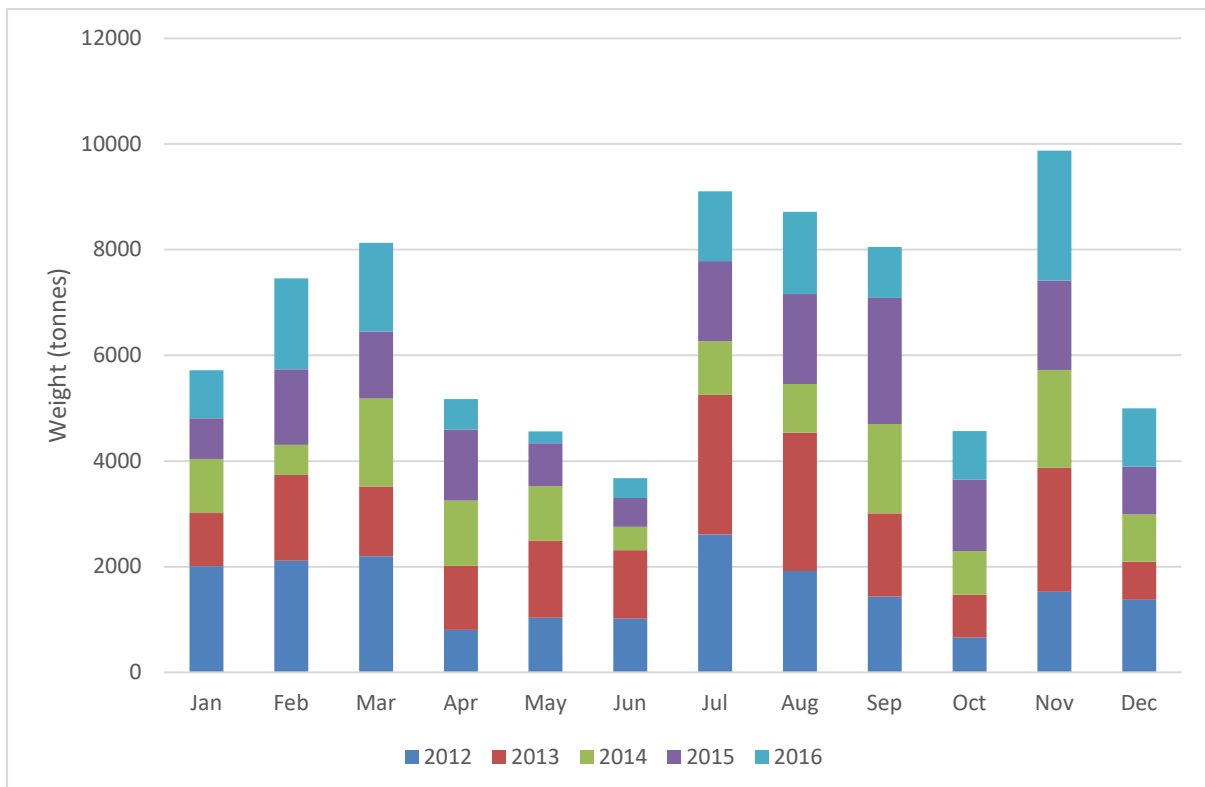


Figure 2.32: Seasonality of Landed Weight (tonnes) of Herring (2012-2016) for ICES Rectangles (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: MMO, 2017)

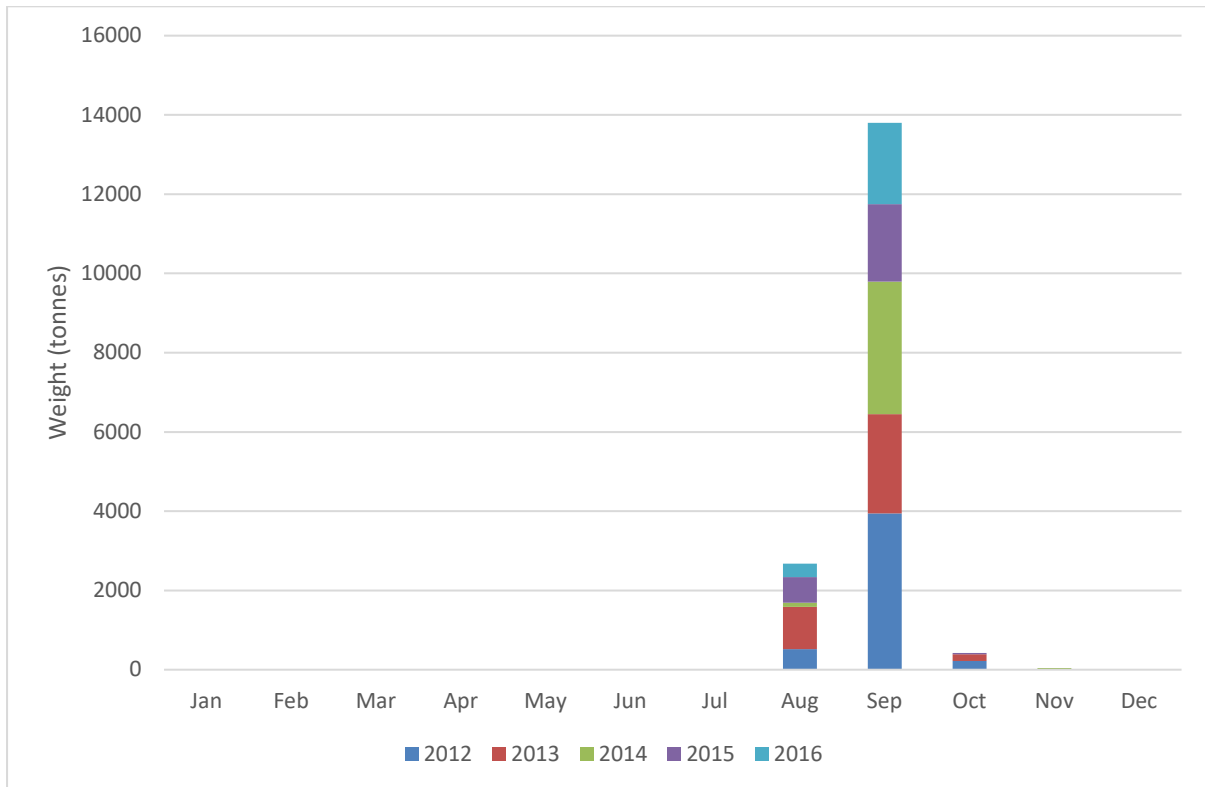


Figure 2.33: Seasonality of Landed Weight (tonnes) of Whelks (2012-2016) for ICES Rectangles (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: MMO, 2017)

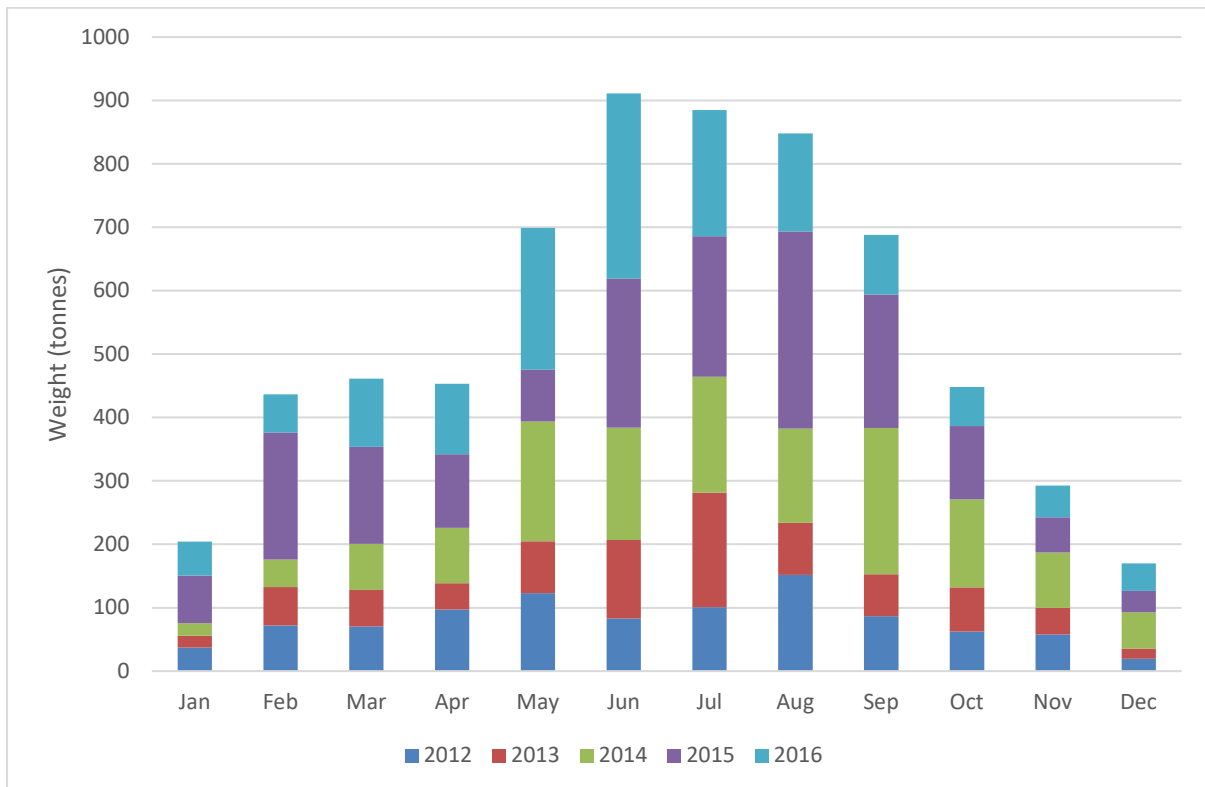


Figure 2.34: Seasonality of Landed Weight (tonnes) of Nephrops (2012-2016) for ICES Rectangles (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: MMO, 2017)

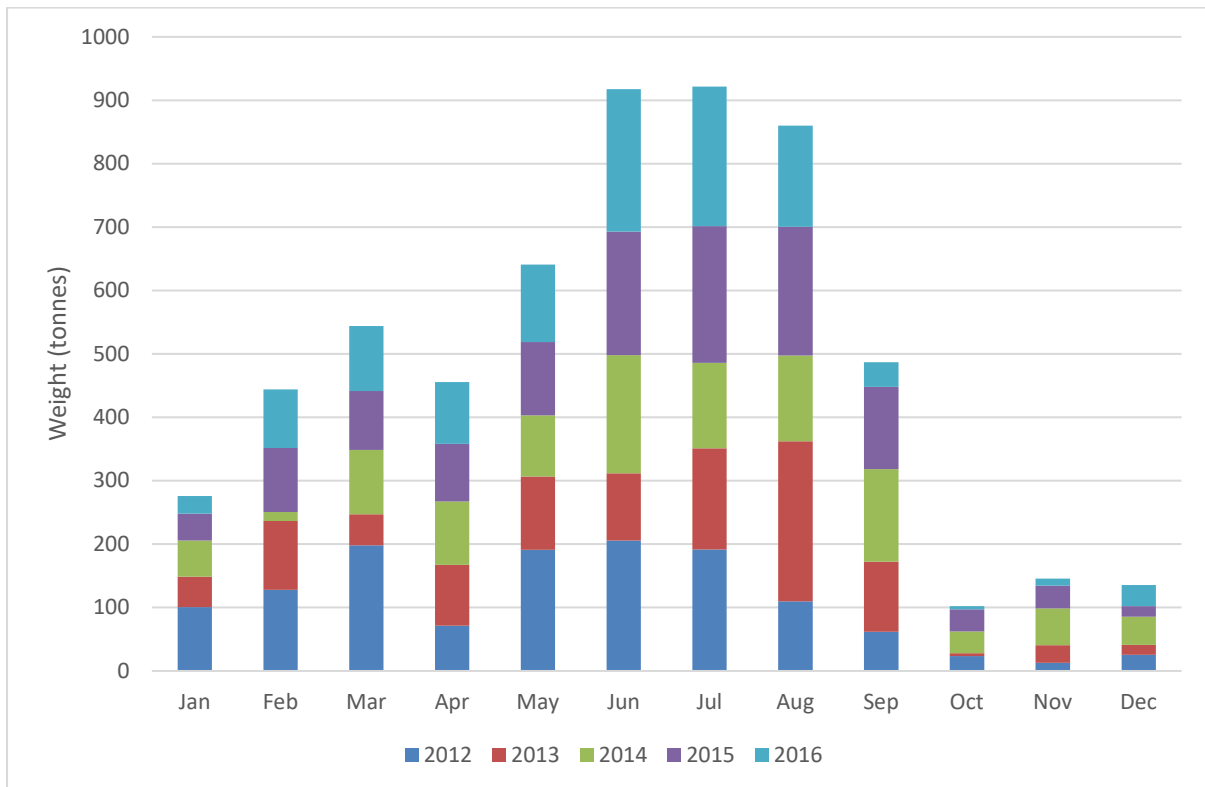


Figure 2.35: Seasonality of Landed Weight (tonnes) of Crabs (2012-2016) for ICES Rectangles (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: MMO, 2017)

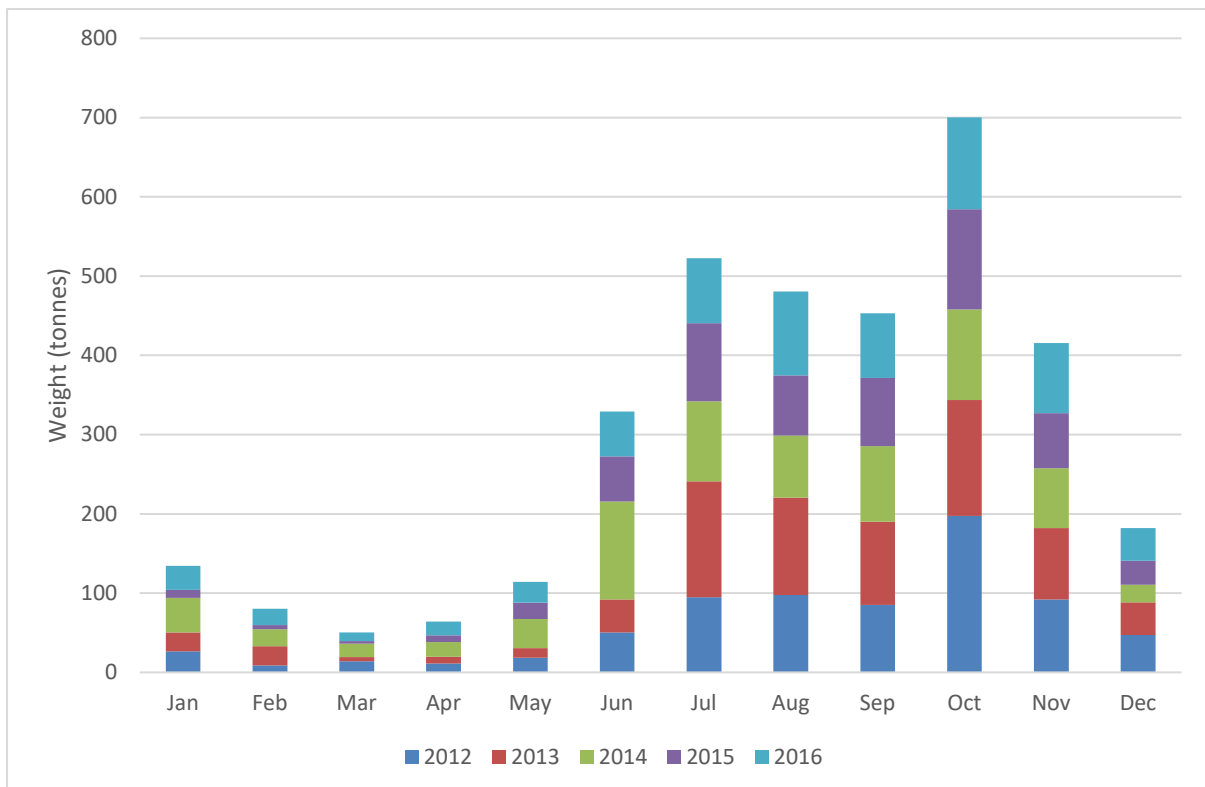


Figure 2.36 shows the top 5 species (*Nephrops*, plaice, whiting, crabs and herring) in terms of landed weight for ICES rectangles along the cable route in the North Sea. Across all species there is an increase in landed weight between 2012 and 2013, but then an overall decline to 2016. Herring and plaice peak in 2013 but landed weights for these species in very low in 2016.

Nephrops (Figure 2.37) is landed seasonally with most of the overall weight during October to March, maximum occurring during November/December at around 900 tonnes. Minimum weights are landed during May and June and as mentioned above, 2013 was a prominent year in terms of weight of landed species.

Plaice (Figure 2.38) shows clear seasonality in terms of landed weights, the majority occurring between April and September but with a second peak during November. The maximum weight was landed during June at around 1,200 tonnes and during December to February landed weights are very low.

Whiting (Figure 2.39) is landed predominantly between June and December but caught all year. A maximum weight was landed during November of around 420 tonnes.

Crabs (Figure 2.40) landed from rectangles along the cable route in the North Sea do not exhibit such seasonality as other species, although catch throughout the year is comparably lower. A maximum landed weight occurred during November of around 270 tonnes, with a minimum during May.

Herring (Figure 2.41) landed weight shows a very seasonal trend between June and September, with a peak in August of around 800 tonnes. A secondary peak occurs in September but this is only due to landings during 2013. Very little is landed during 2016.

Figure 2.36: Annual Trends in Top Five Species by Sum of Landings Weight (2012-2016) for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: MMO, 2017)

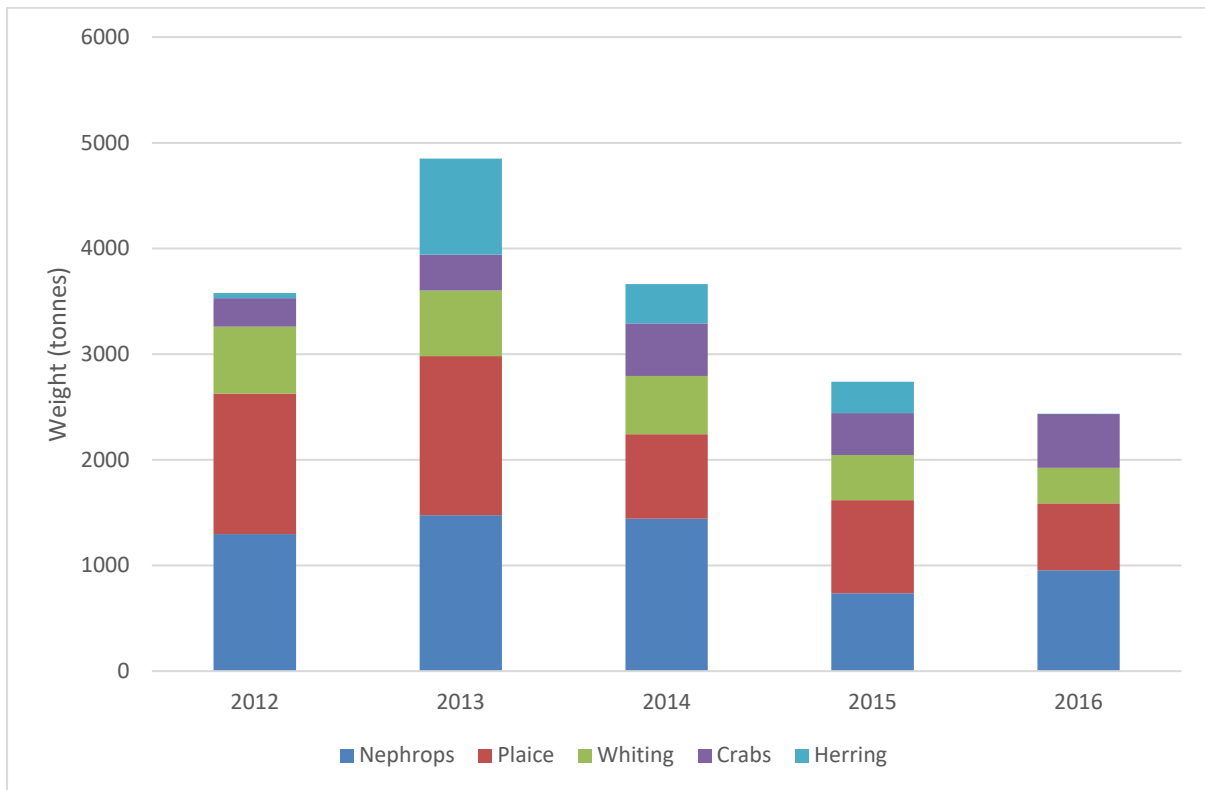


Figure 2.37: Seasonality of Landed Weight (tonnes) of Nephrops (2012-2016) for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: MMO, 2017)

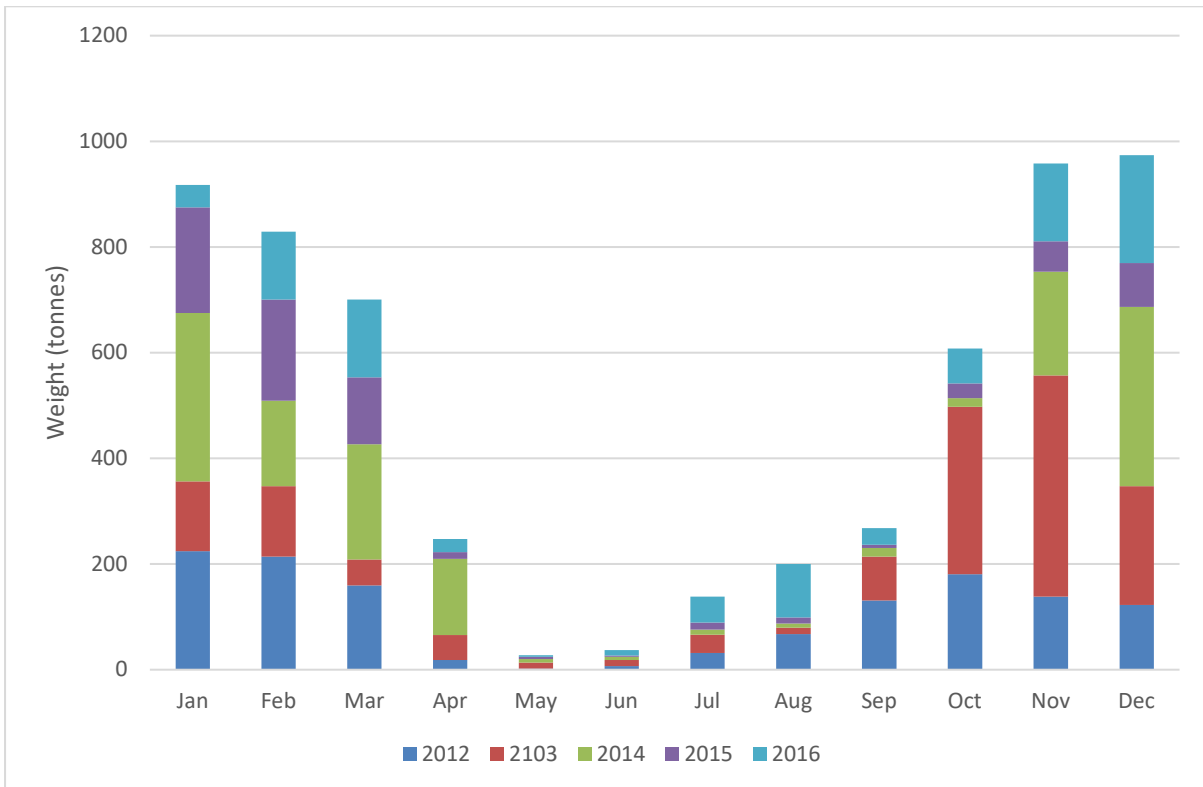


Figure 2.38: Seasonality of Landed Weight (tonnes) of Plaice (2012-2016) for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: MMO, 2017)

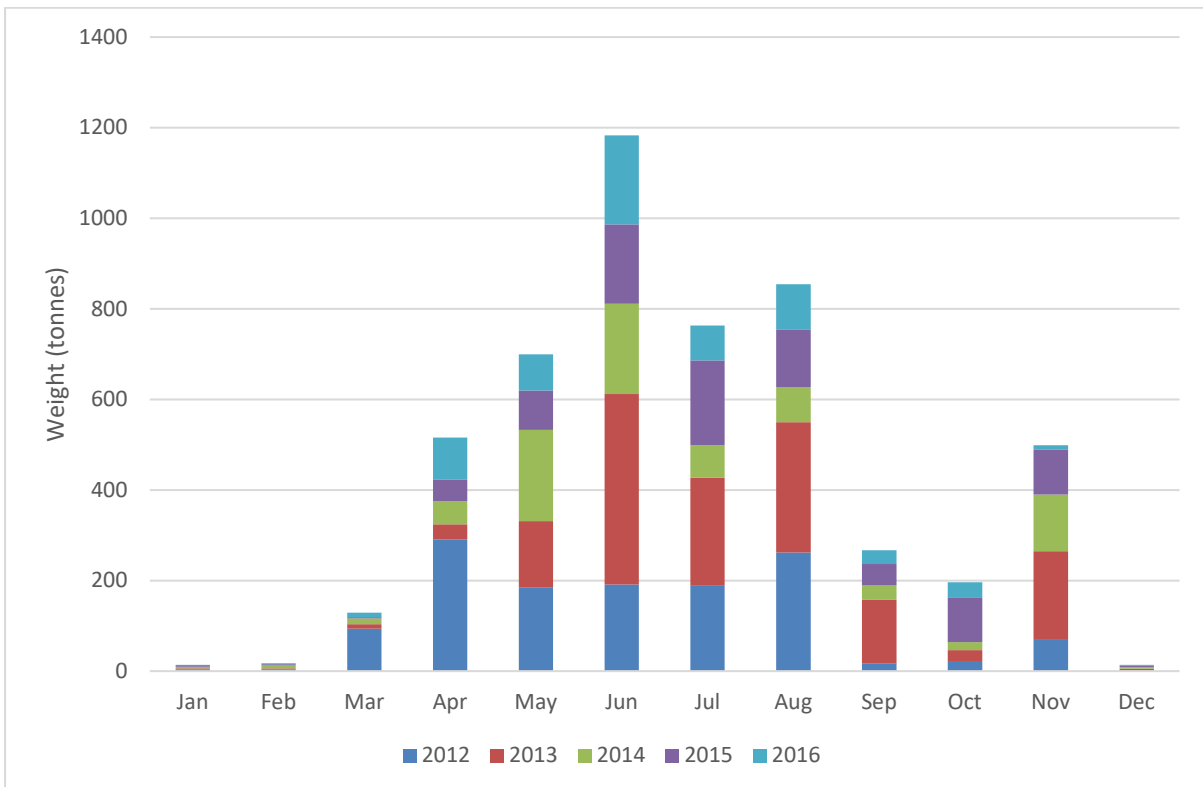


Figure 2.39: Seasonality of Landed Weight (tonnes) of Whiting (2012-2016) for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: MMO, 2017)

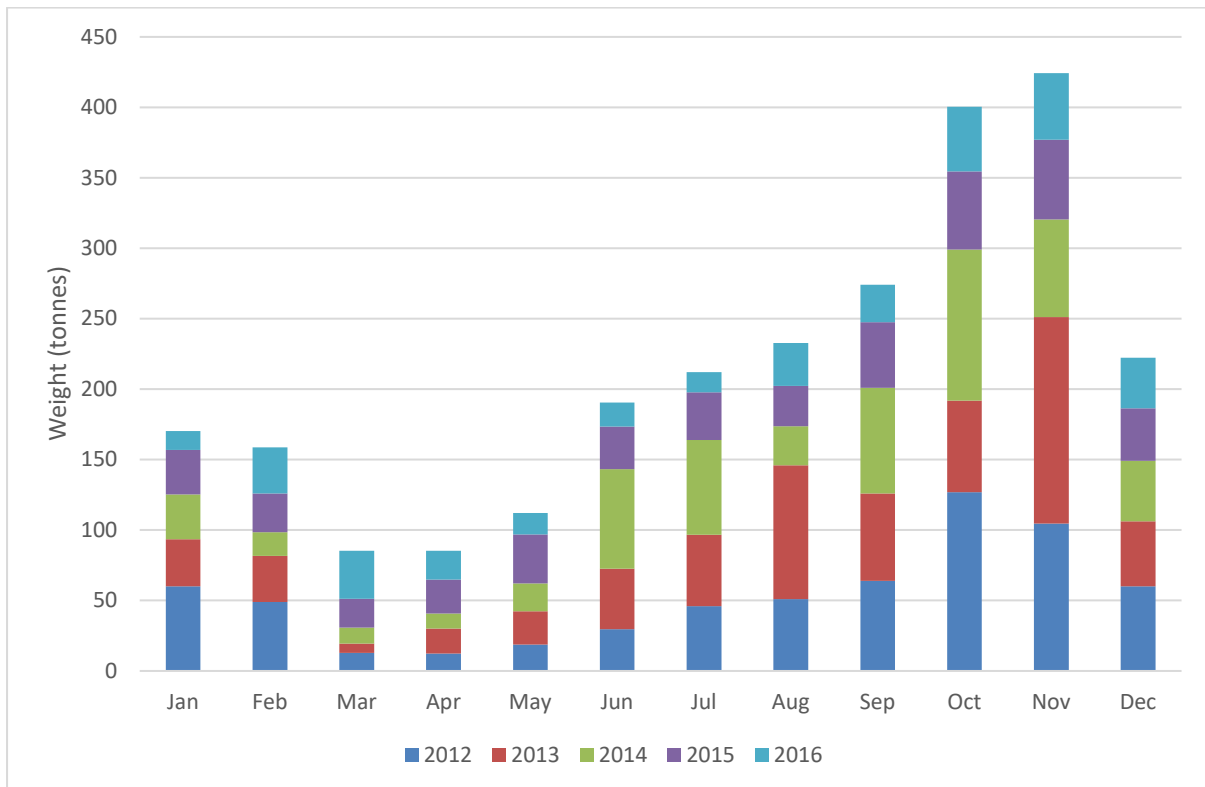


Figure 2.40: Seasonality of Landed Weight (tonnes) of Crabs (2012-2016) for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: MMO, 2017)

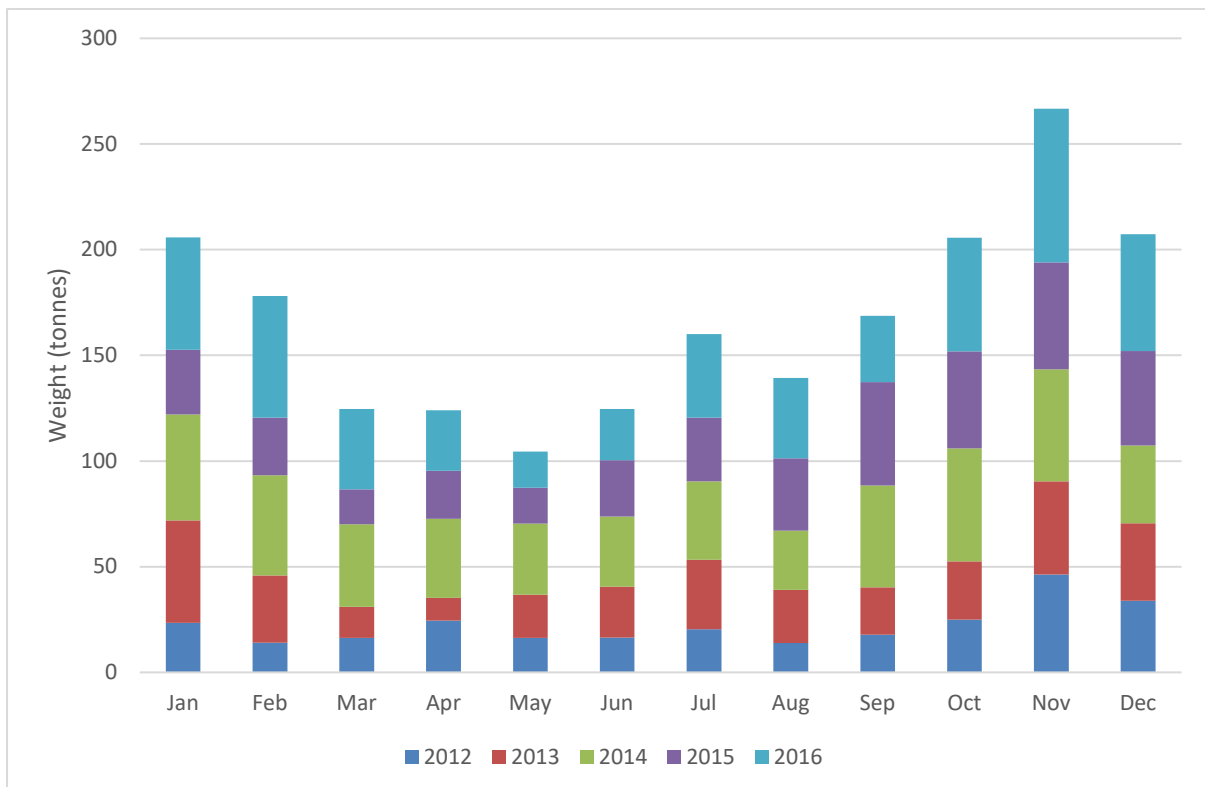
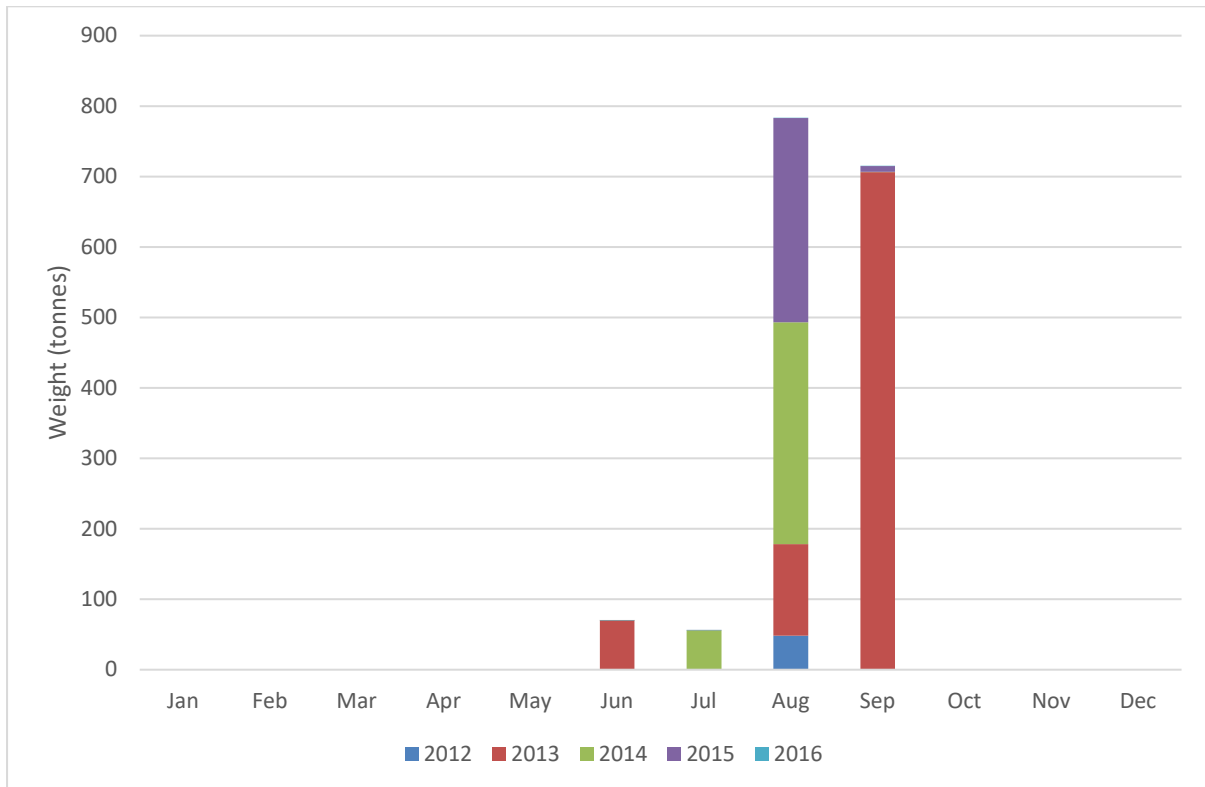


Figure 2.41: Seasonality of Landed Weight (tonnes) of Herring (2012-2016) for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: MMO, 2017)



2.7.8 Landings Weight and Value by Regional Ports

Landings data compiled by the MMO (MMO, 2017a) were reviewed for the period January 2011 to December 2015 and filtered to just show landings into major ports closest to the Havingstun cable. The ports used in this analysis were Blyth and North Shields (northeast UK), Fleetwood (northwest UK), Port St. Mary, Peel and Douglas (IoM) and Howth (Ireland). Data was sorted by Port and further filtered to analyse details within different vessel size class and species group. This data was further sorted by species to then analyse the most important commercial species, in terms of landed weight and value, into each port. This enabled a more detailed analysis of fishing activity from ports most likely to be affected by the Havingstun cable.

2.7.8.1 Northeast UK – Blyth & North Shields

Figure 2.42 shows the majority of landings into Blyth port are from both < and >10 m vessels and mostly demersal and shellfish species. There are some pelagic landings in the <10 m fleet but comparably low to demersal and shellfish. Figure 2.44 shows the total weight landed into Blyth by species. The key species class is *Nephrops* in terms of weight and value across all years. Whiting has the second highest weight landed here but is third in value. Lobster, which ranks sixth in landed weight is second in terms of value.

Figure 2.43 shows that the >10 m fleet dominate the weight of demersal and shellfish species landed within North Shields. As seen at Blyth, Figure 2.45 shows *Nephrops* are the key species class, followed by whiting, but lobster does not feature here.

Figure 2.42: Total landings (tonnes) into Blyth port (2011-2015) displayed by species group and vessel length (Source: MMO, 2017a)

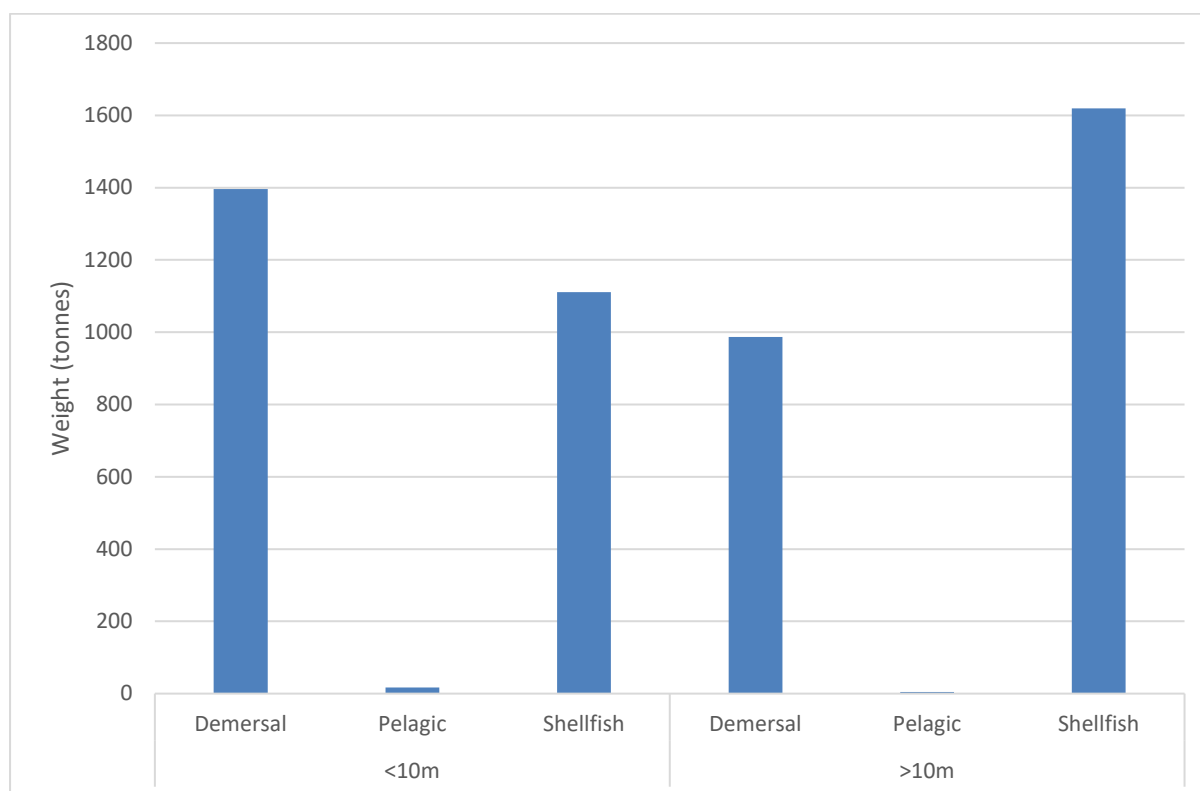


Figure 2.43: Total landings (tonnes) into North Shields port (2011-2015) displayed by species group and vessel length (Source: MMO, 2017a)

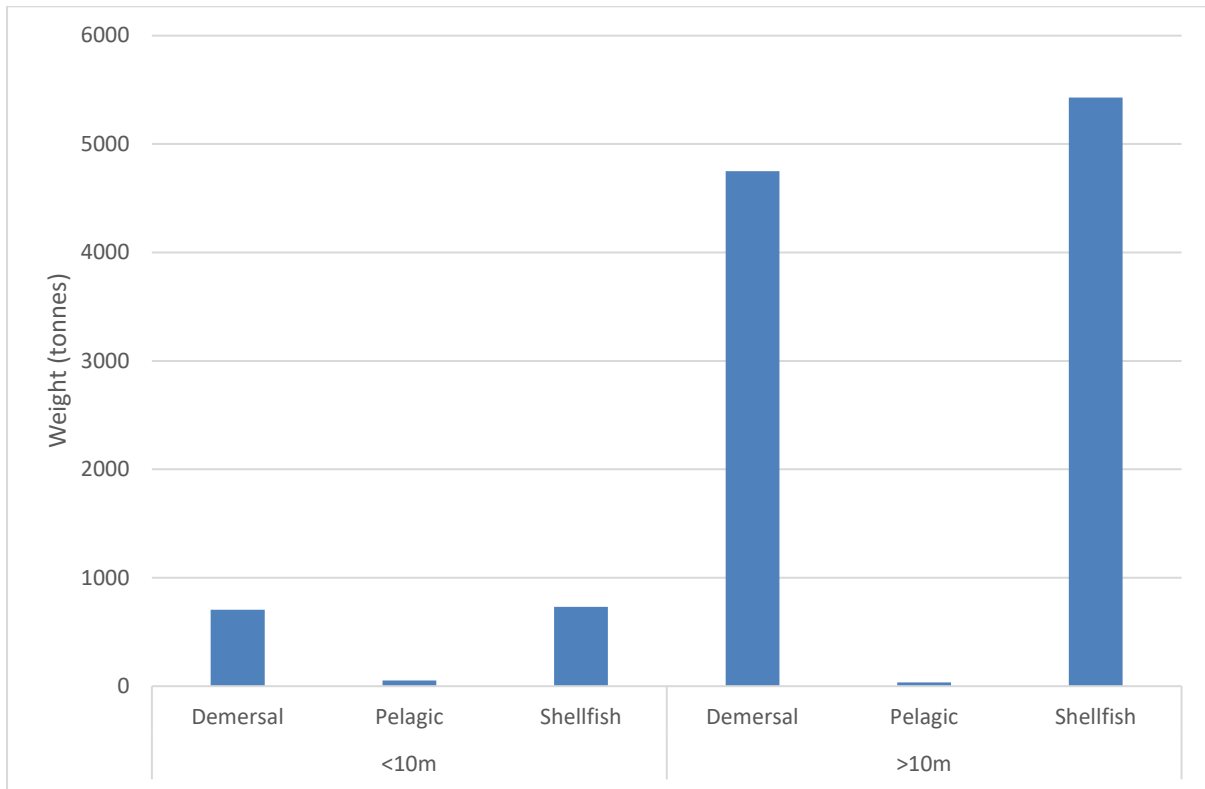
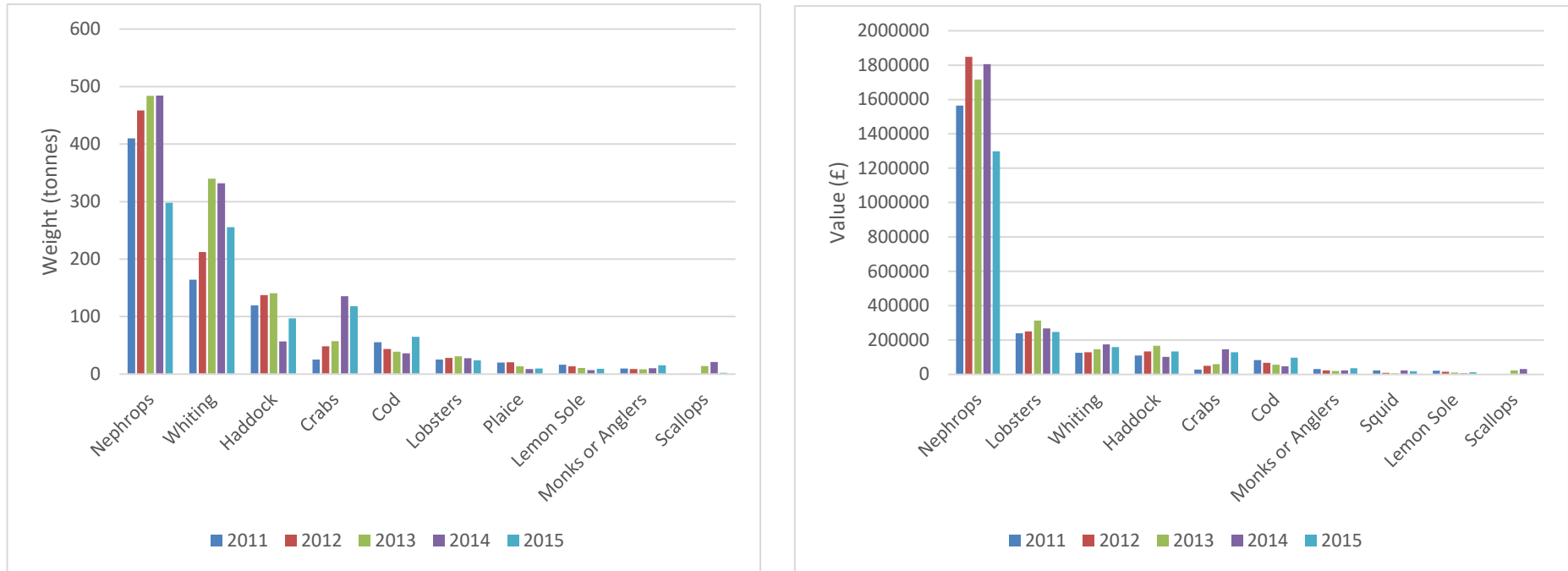
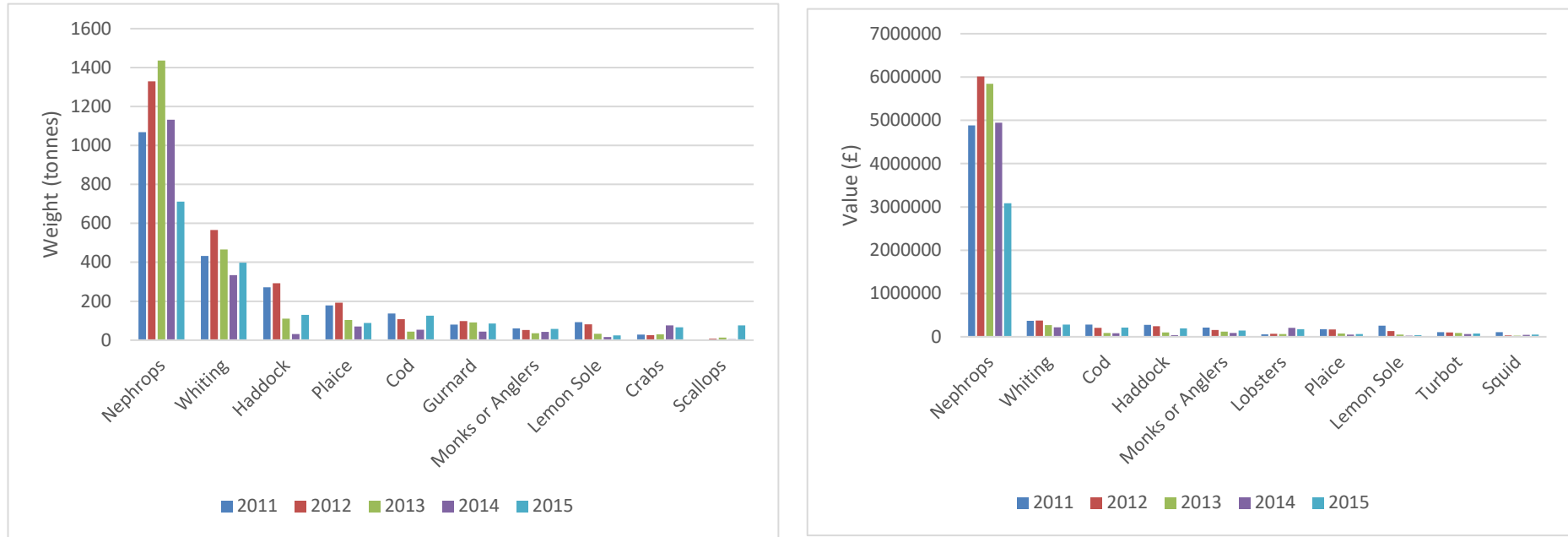


Figure 2.44: Total weight (tonnes) and value of landings into Blyth port (2011-2015) displayed by species class (Source: MMO, 2017a)²



² Species with landed weight of <1 tonne are not included within this figure

Figure 2.45: Total weight (tonnes) and value of landings into North Shields port (2011-2015) displayed by species class (Source: MMO, 2017a)³



³ Species with landed weight of <1 tonne are not included within this figure

2.7.8.2 Northwest – Fleetwood

Figure 2.46 shows that the key fishing activity in terms of landed weight into Fleetwood is shellfish caught by the over 10 m fleet. There are some demersal landings in both the < and >10 m fleet but no pelagic landed weight.

Figure 2.47 shows that whelks and ‘other shellfish’ are the dominant species class in terms of weight and value⁵ across all years. All other species are landed in relatively low weights and vary annually.

Figure 2.46: Total landings (tonnes) into Fleetwood port (2011-2015) displayed by species group and vessel length (MMO, 2017a)

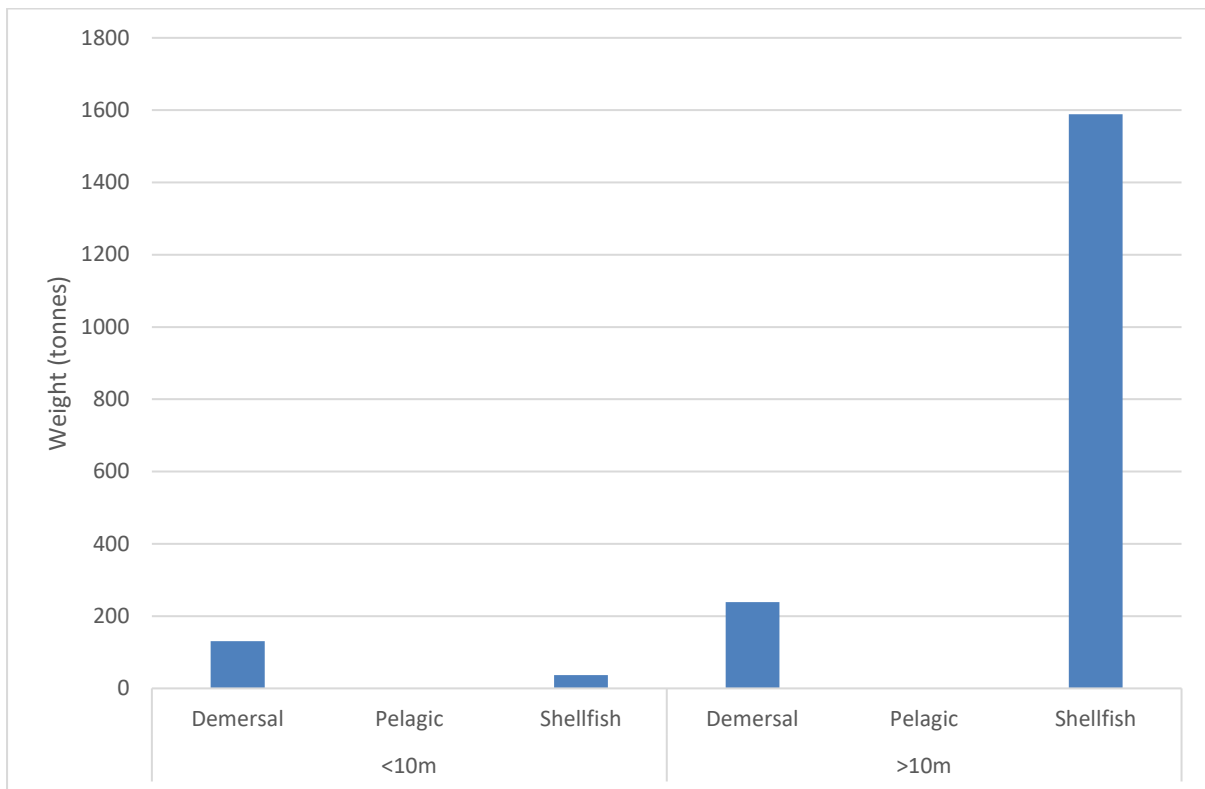
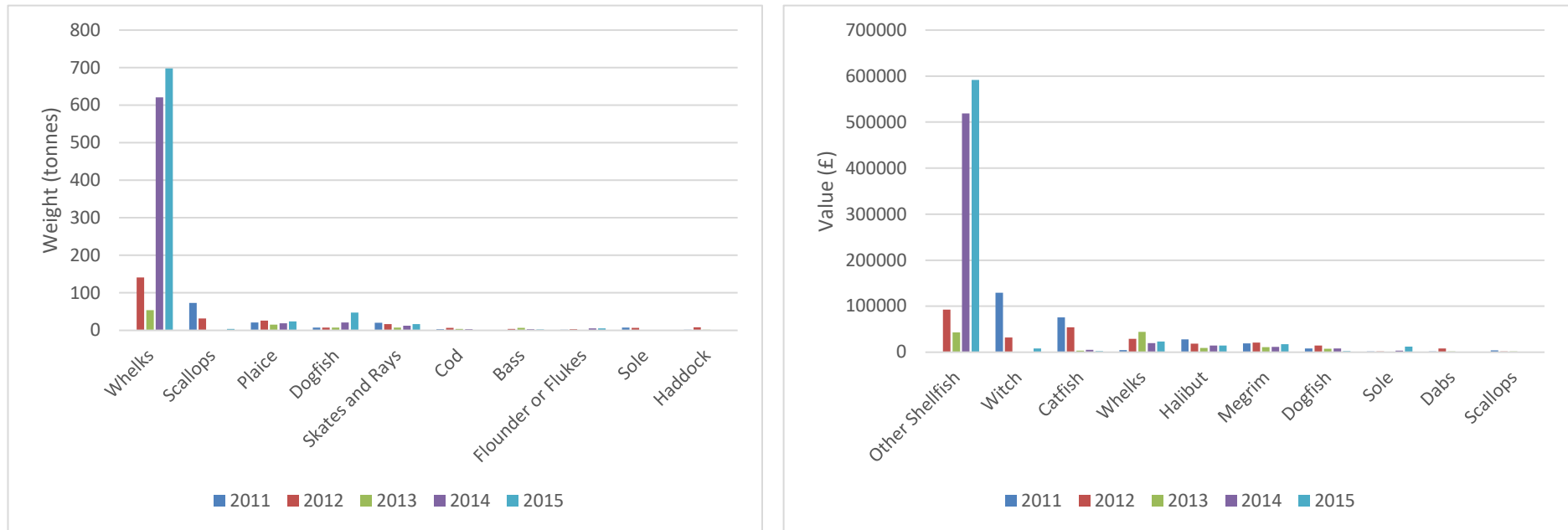


Figure 2.47: Total weight (tonnes) and value of landings into Fleetwood port (2011-2015) displayed by species class (Source: MMO, 2017a)⁴⁵



⁴ Species with landed weight of <1 tonne are not included within this figure

⁵ NB – species logged as Other Shellfish on chart of value of landings potentially should be considered as Whelks given the strong correlation between Whelk landed weight and Other Shellfish Landed Value charts.

2.7.8.3 IoM – Port St. Mary, Peel & Douglas

Figure 2.48 shows that shellfish species are key to landed weights into Port St. Mary, particularly in the >10 m fleet. There is a small percentage of demersal landed weight from the >10 m fleet, but no pelagic. Figure 2.51 shows that scallops are the key species in terms of weight and value across all years (2011-2015). Lobster is the next key species across all years, followed by crab, but weights and values are relatively low compared with scallop and lobster.

From Figure 2.49 it can be seen that both the < and >10 m fleet and landed weights of shellfish are key at Peel port. There are no recorded landings of demersal or pelagic species. Figure 2.52 shows scallop and crab to be the key species landed at Peel port, with 2015 being a particularly high year for scallop. Some whelk and lobster are also landed here.

Figure 2.50 shows the dominant landings in terms of weight into Douglas is shellfish from both the < and >10 m fleet. As with Peel, there are no landings of demersal or pelagic species. Figure 2.53 shows that the key species class is scallops and whelks.

Figure 2.48: Total landings (tonnes) into Port St Mary port (2012-2015) displayed by species group and vessel length (MMO, 2017a)

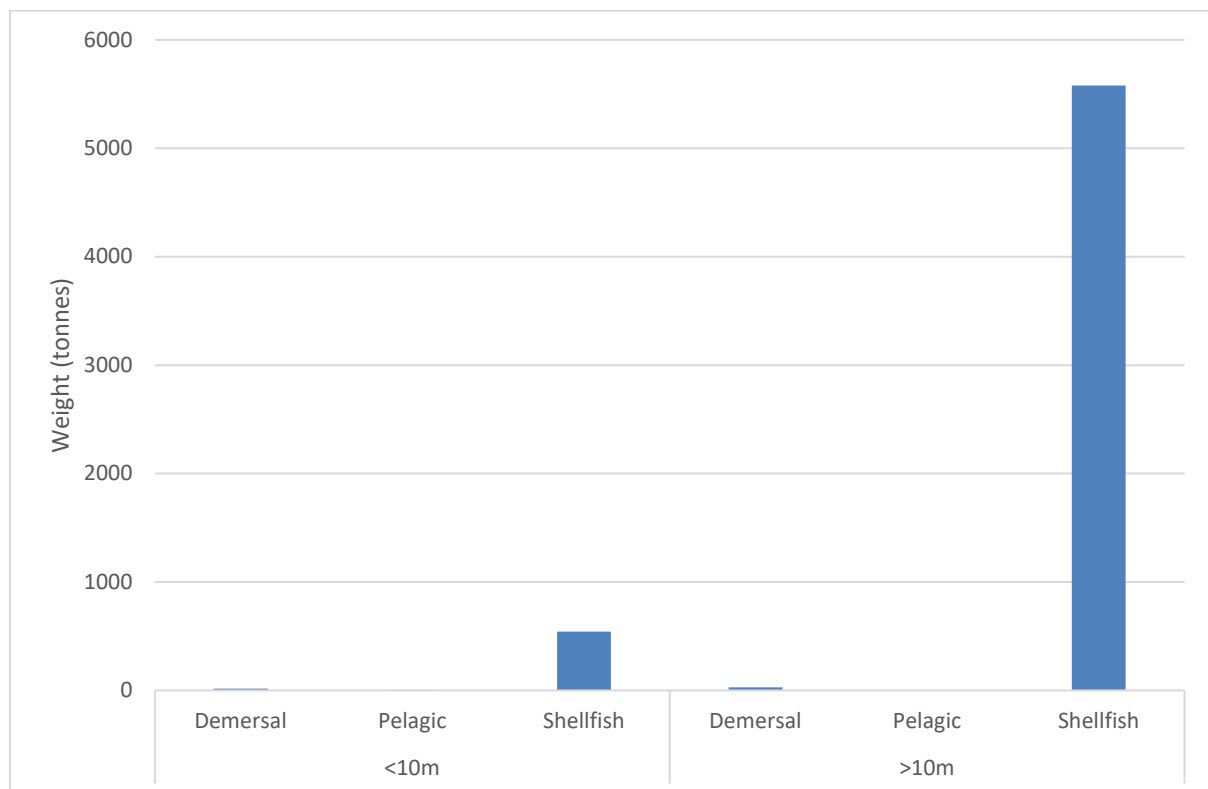


Figure 2.49: Total landings (tonnes) into Peel port (2012-2015) displayed by species group and vessel length (MMO, 2017a)

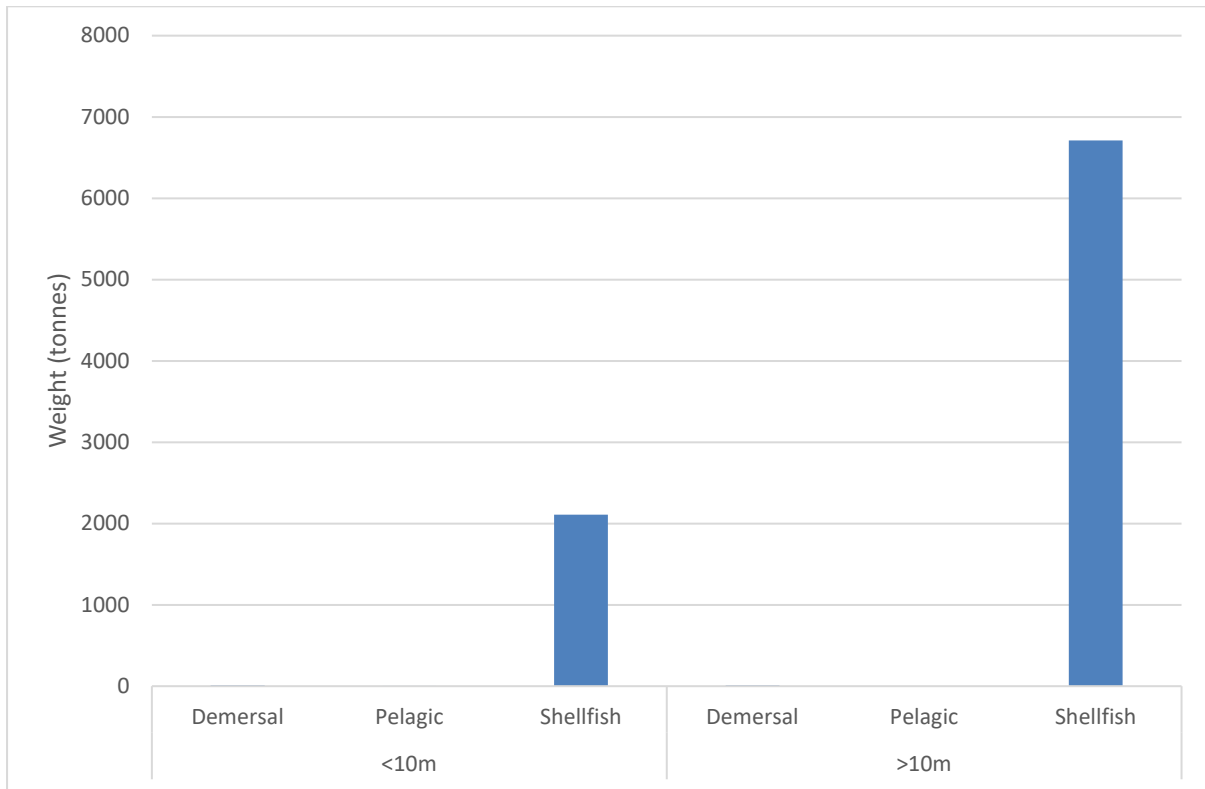


Figure 2.50: Total landings (tonnes) into Douglas port (2012-2015) displayed by species group and vessel length (MMO, 2017a)

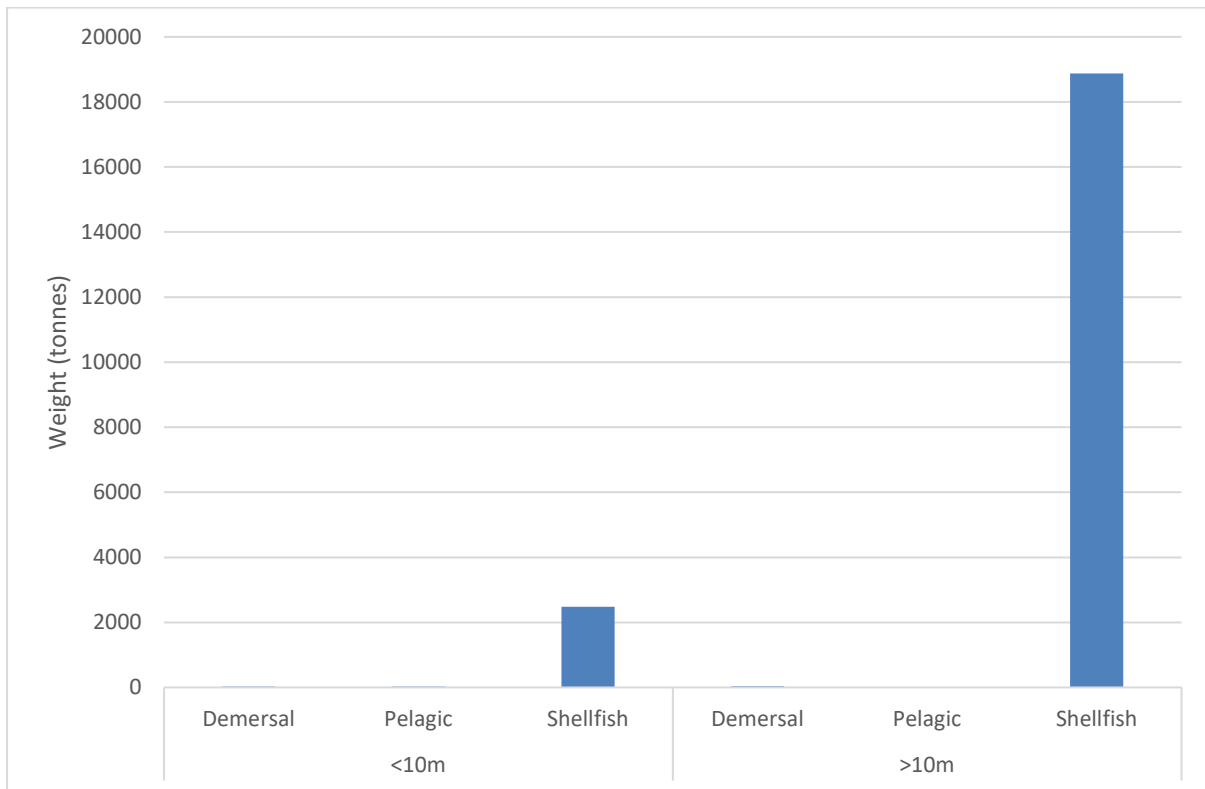
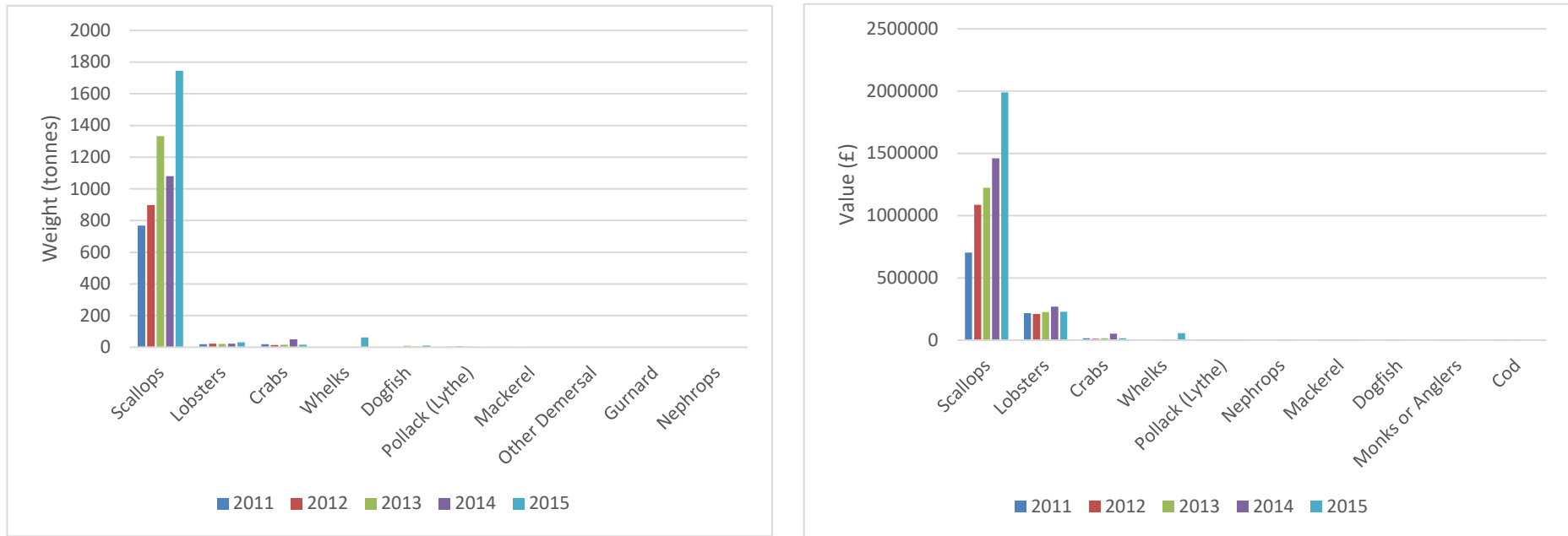
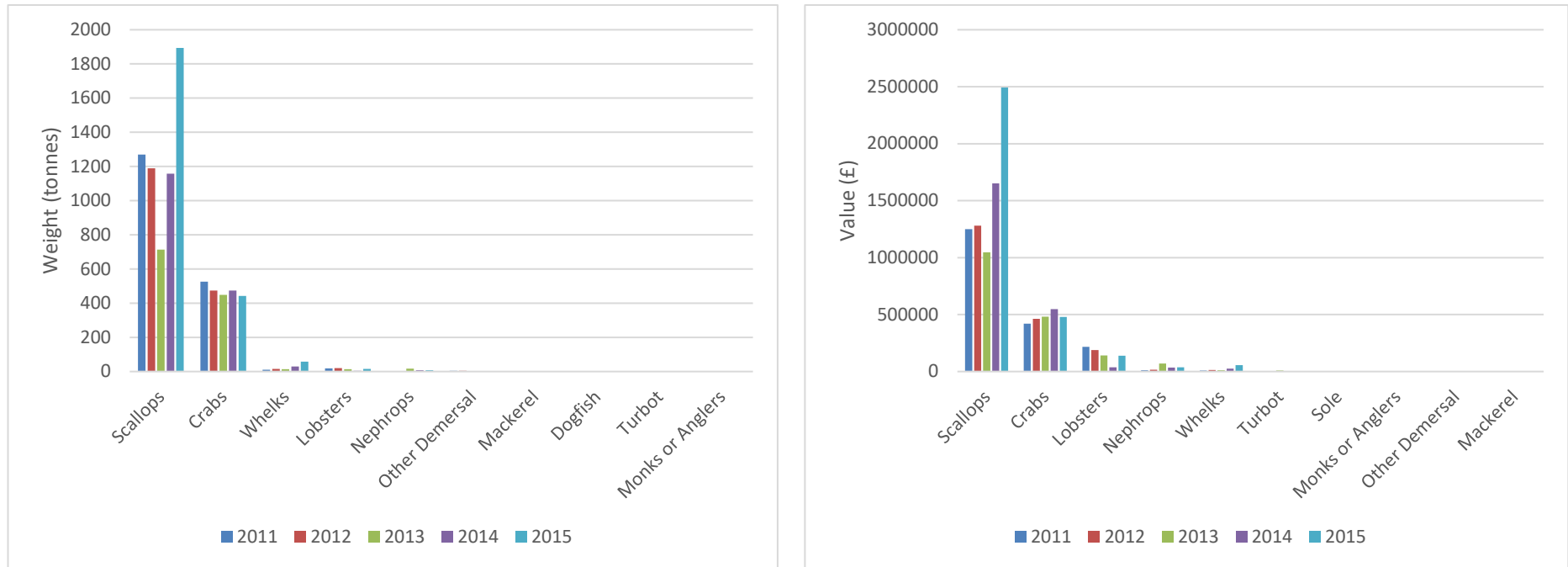


Figure 2.51: Total weight (tonnes) and value of landings into Port St Mary port (2012-2015)⁶ Error! Bookmark not defined. displayed by species class (Source: MMO, 2017a)⁶



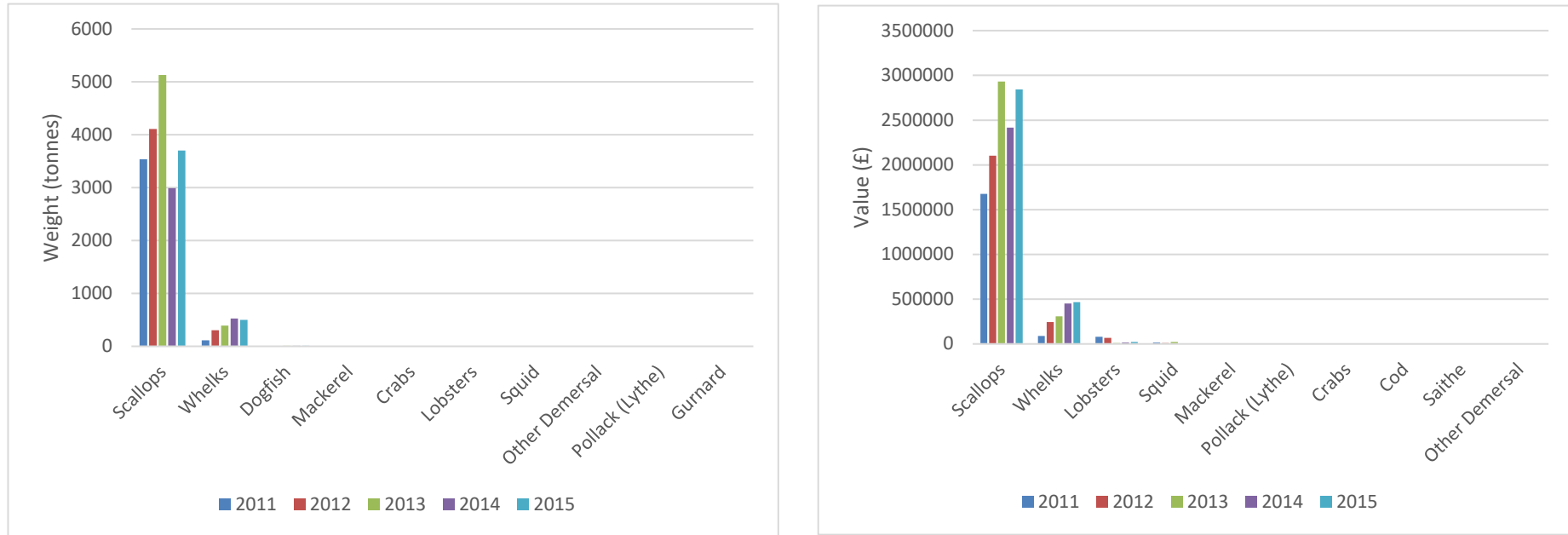
⁶ Species with landed weight of <1 tonne are not included within this figure

Figure 2.52: Total weight (tonnes) and value of landings into Peel port (2012-2015)⁷ displayed by species class (Source: MMO, 2017a)⁷



⁷ Species with landed weight of <1 tonne are not included within this figure

Figure 2.53: Total weight (tonnes) and value of landings into Douglas port (2012-2015)^{Error! Bookmark not defined.} displayed by species class (Source: MMO, 2017a)⁸



⁸ Species with landed weight of <1 tonne are not included within this figure

2.7.8.4 Ireland – Howth

Figure 2.54 shows that the majority of landings into Howth are demersal and shellfish species from the over 10 fleet. There is some landings of shellfish from the <10 m fleet also. Figure 2.55 shows the species associated with this and haddock and whiting are key, haddock across all years but whiting just during 2014 and 2015. Scallops are present during 2011 and 2015.

Figure 2.54: Total landings (tonnes) into Howth port (2012-2015) displayed by species group and vessel length (MMO, 2017a)

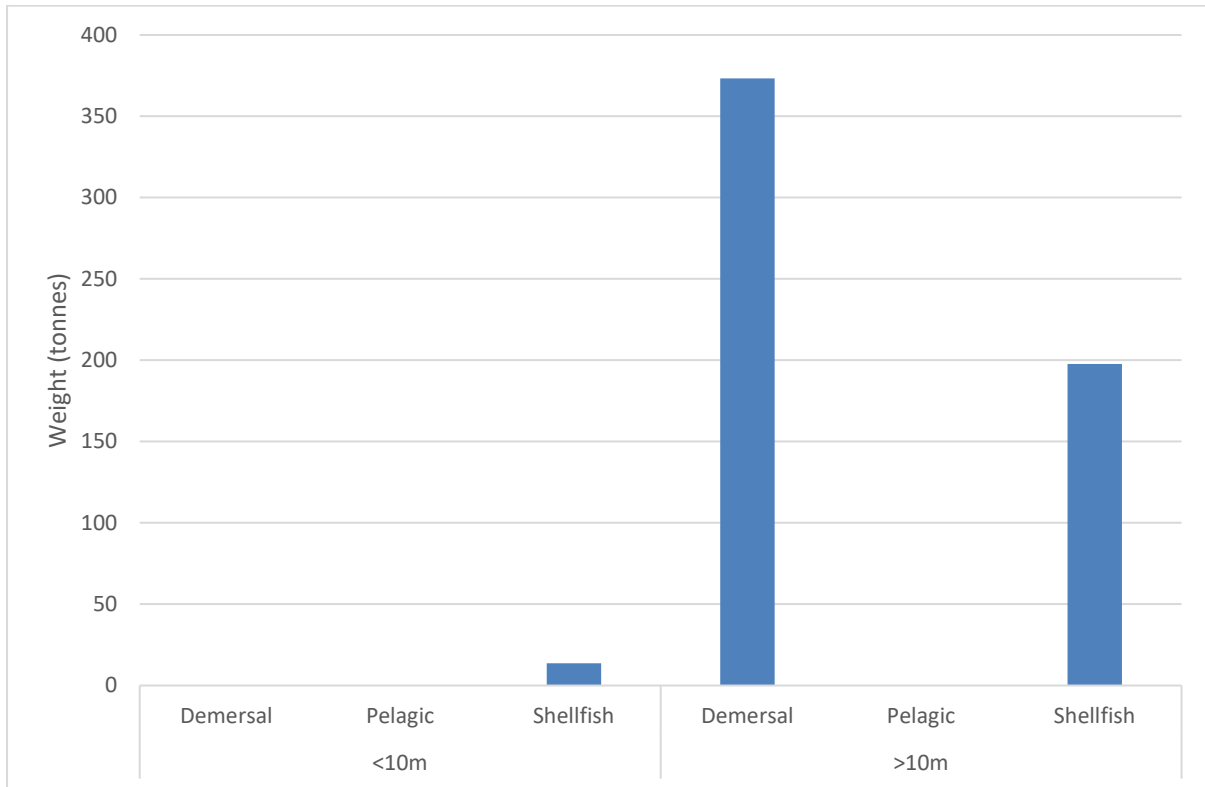
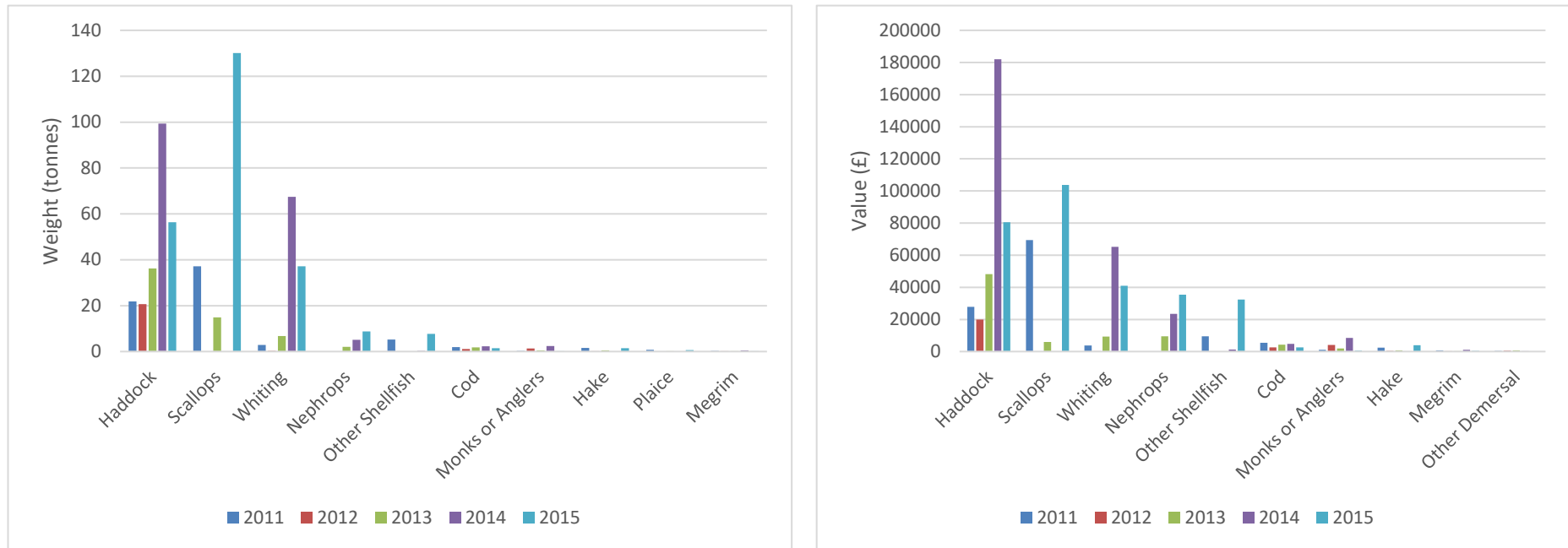


Figure 2.55: Total weight (tonnes) and value of landings into Howth port (2012-2015)⁹ displayed by species class (Source: MMO, 2017a)⁹



⁹ Species with landed weight of <1 tonne are not included within this figure

2.8 STECF Landings Data (Non-UK Vessels)¹⁰

Data on other EU fishing activity in and around the proposed Havhingsten cable have been obtained from the website of the EU Scientific, Technical and Economic Committee for Fisheries (STECF) (<https://stecf.jrc.ec.europa.eu/about-stecf>). The STECF data set includes most, but not all species and fishing gears that are relevant to Ireland. Additionally, effort data for Irish vessels <10m are not available and landings data for these vessels are not available at the rectangle level.

These non-UK data are not in a format that allows direct comparison to the data provided by the MMO but they do provide a good overview of fishing activity and trends in this region.

Within the Irish Sea the non-UK fleet is primarily Irish (Figure 2.56), with a proportion of Belgian and Dutch vessel also fishing the area surrounding the cable route. The North Sea section of the cable route sees much greater variation in non-UK vessel fishing (Figure 2.57) with the majority of non-UK landings being undertaken by Danish, Swedish, Dutch and German boats.

¹⁰ IoM landings not included here as whilst vessel are non-UK fleet, landings data from manx vessels is already captured within the MMO datasets

Figure 2.56: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (2012-16) (Source: STECF, 2018)

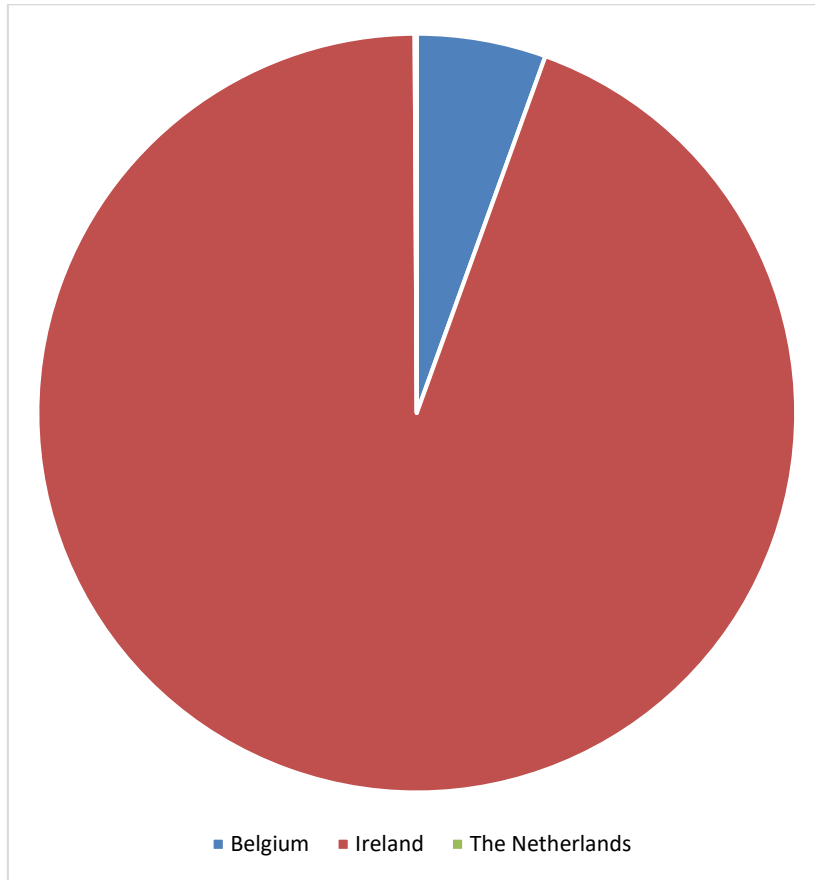
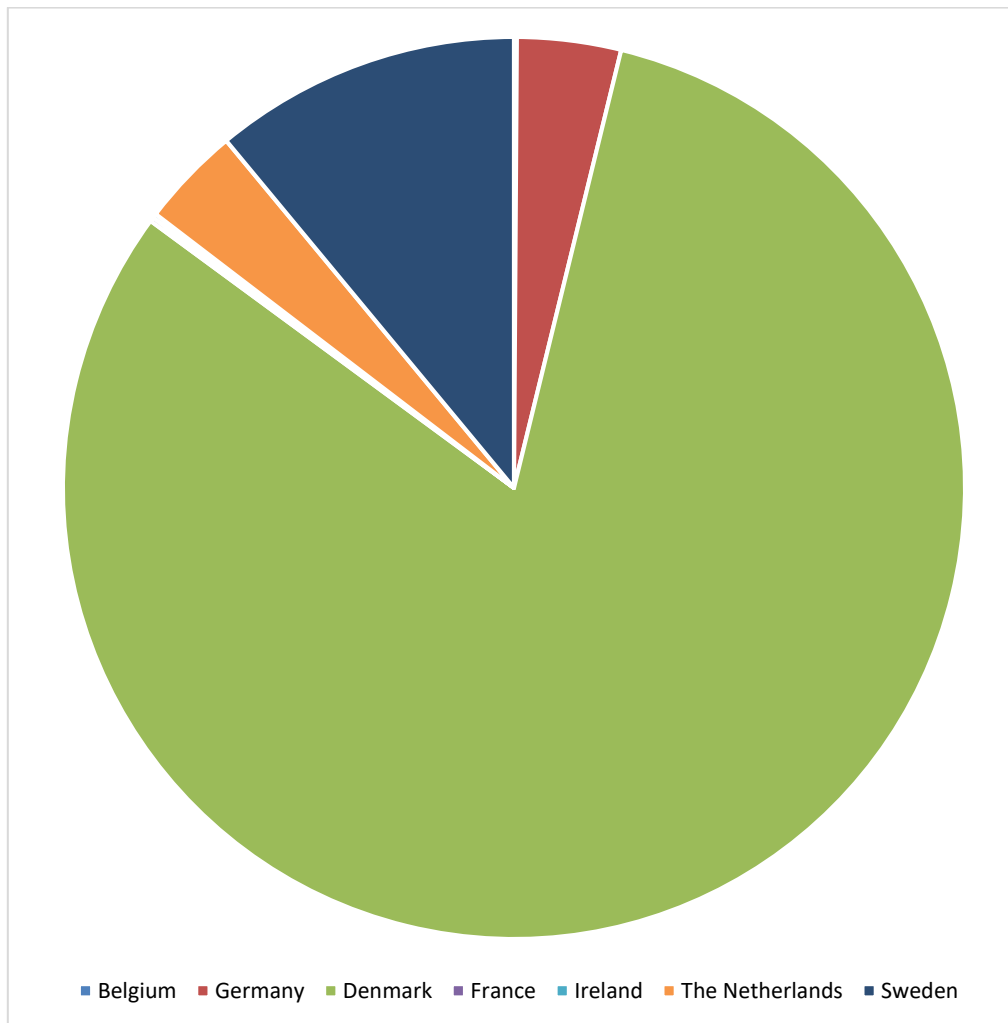


Figure 2.57: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (2012-16) (Source: STECF, 2018)



2.8.1 Temporal Variation in Landings Weight in the Irish Sea

Within rectangles 36E3 (Figure 2.58), 36E4 (Figure 2.59) and 36E5 (Figure 2.60), on the western side of the Irish Sea, landings from non-UK fleet is dominated by Irish vessels with a small input to total landed weight from Belgian vessels. In 36E3 a weight of around 1,300 tonnes was landed each year, apart from 2014 when only around 700 tonnes were landed. 36E4 sees a decreasing trend over the years in weight landed from a maximum in 2012 of around 3,500 tonnes to less than 2,000 tonnes in 2016. In 36E5 there has been an overall increase in weight landed by Irish vessels to a peak of around 500 tonnes in 2016. There is a greater Belgian input here (around 100 tonnes) and this trend is increasing over time.

Within rectangles 36E6 (Figure 2.61) and 37E5 (Figure 2.62), on the eastern side of the Irish Sea landed weight is dominated by Belgian vessels, albeit at relatively low amounts. In 36E6 the maximum landed weight of around 300 tonnes was during 2012 and there has been a steep decrease to 2016 since. There is still an Irish input but with weights of less than 50 tonnes. In 37E5 landed weight by Belgian vessels is dominant during 2012 and 2014 and by Irish vessel in 2015 and 2016, however, the total weight landed from this rectangle is notably low (less than 5 tonne).

Figure 2.58: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (Irish Sea) 36E3 (2012-16), displayed by year (Source: STECF, 2018)

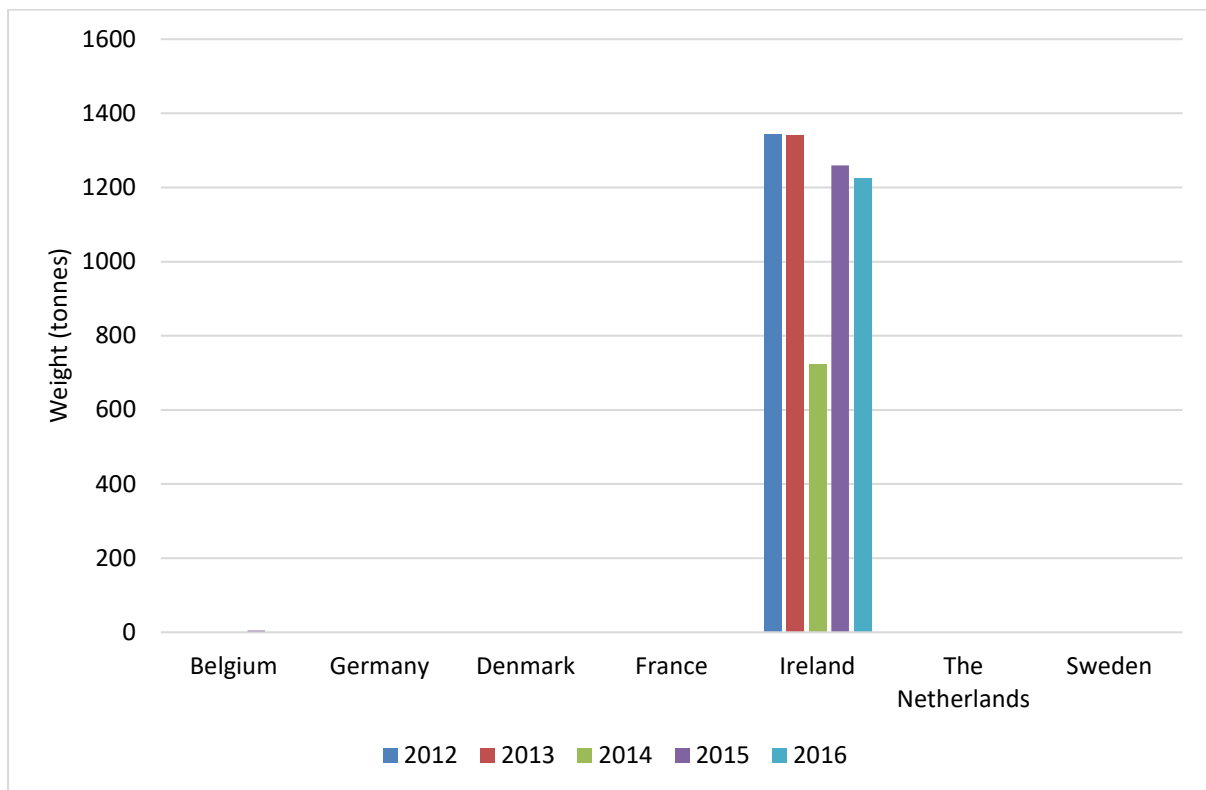


Figure 2.59: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (Irish Sea) 36E4 (2012-16), displayed by year (Source: STECF, 2018)

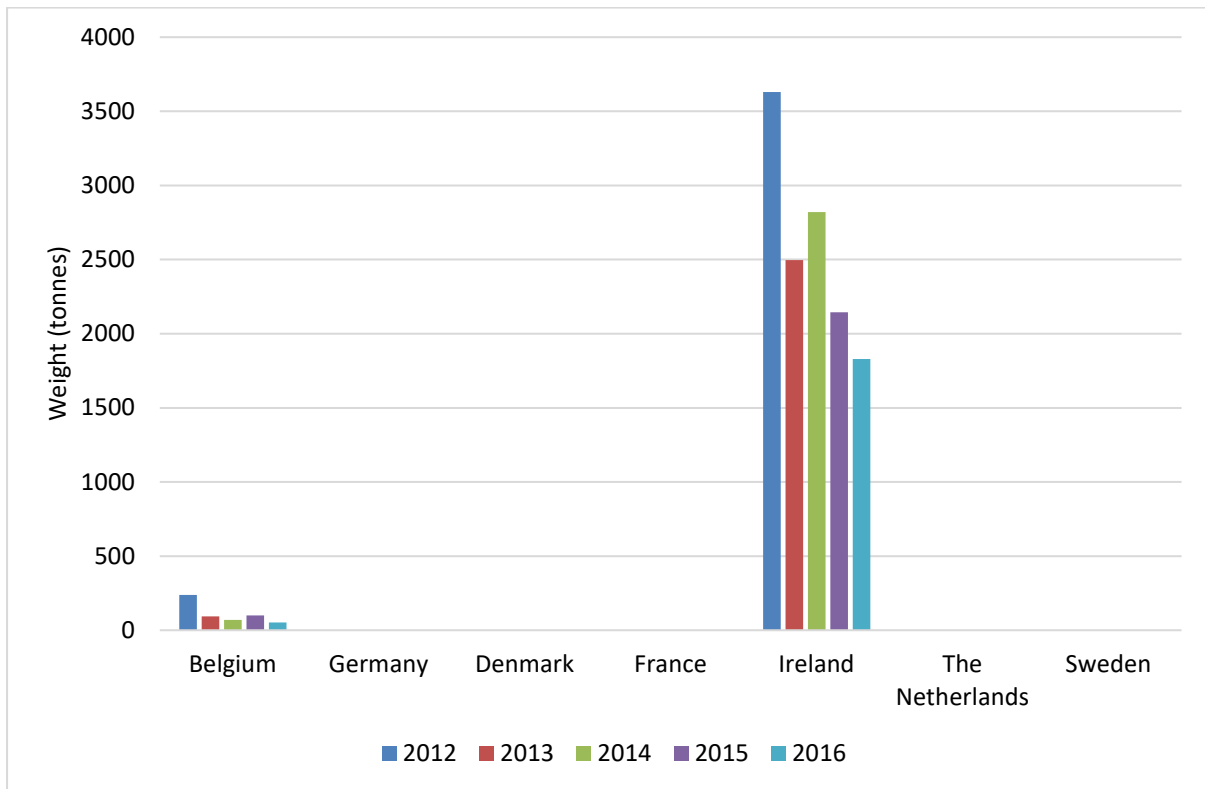


Figure 2.60: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (Irish Sea) 36E5 (2012-16), displayed by year (Source: STECF, 2018)

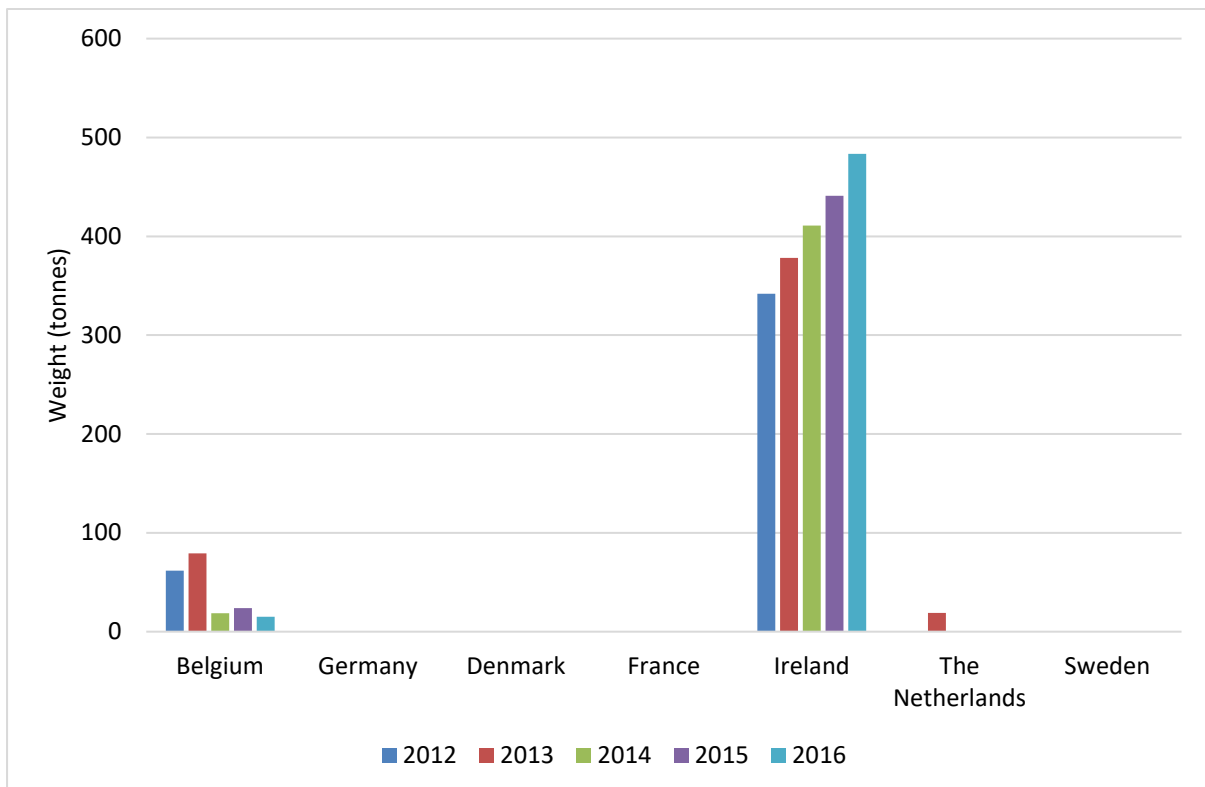


Figure 2.61: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (Irish Sea) 36E6 (2012-16), displayed by year (Source: STECF, 2018)

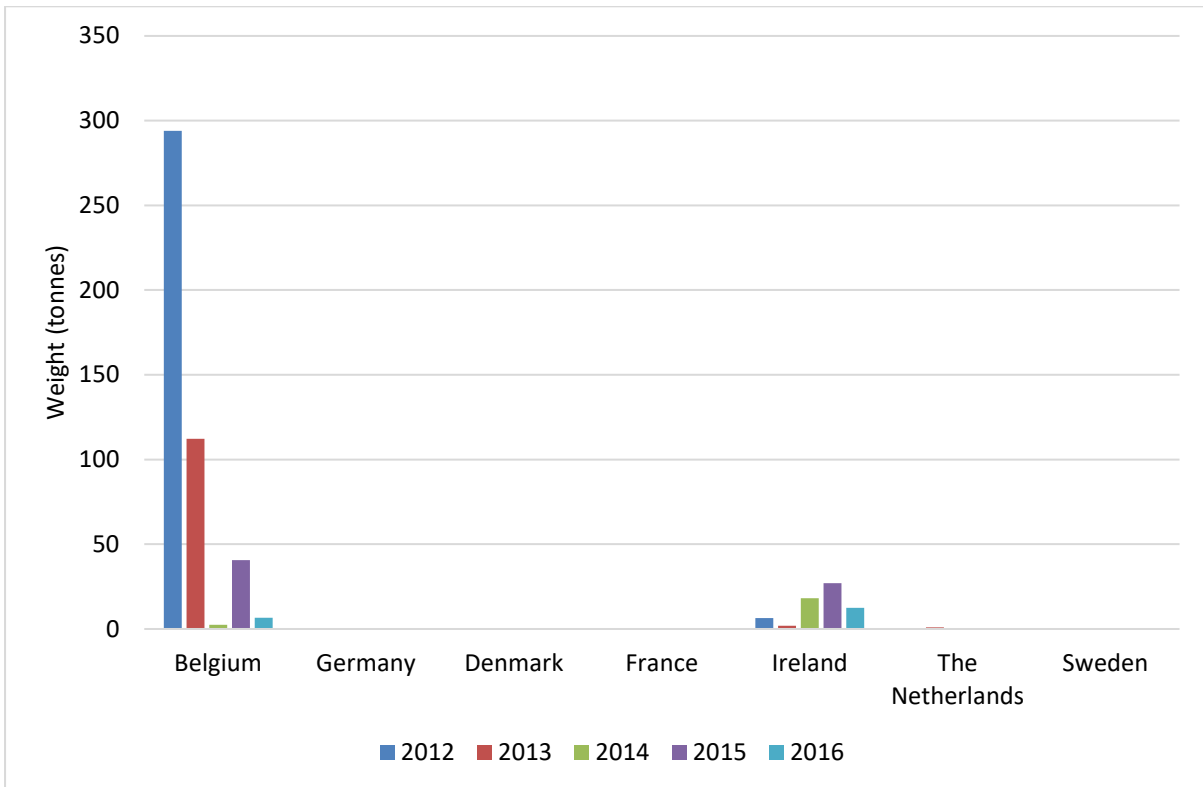
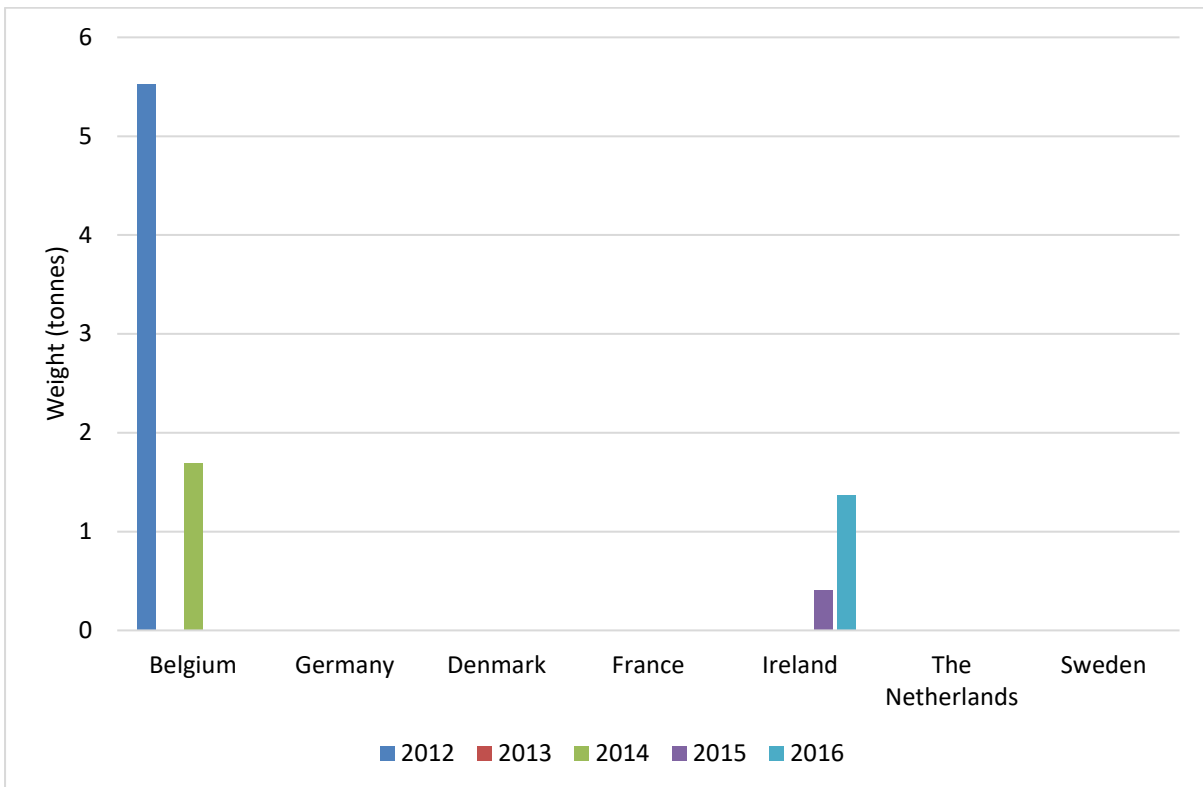


Figure 2.62: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (Irish Sea) 37E5 (2012-16), displayed by year (Source: STECF, 2018)



2.8.2 Temporal Variation in Landings Weight in the North Sea

In the North Sea along the cable route the majority of the landed weight from 39E8 (Figure 2.63), 39E9 (Figure 2.64), 39F0 (Figure 2.65), 39F1 (Figure 2.66), 40F1 (Figure 2.67) and 40F2 (Figure 2.68) was due to the Danish fleet. 39E8 saw a French influence in terms of landed weight, although landings overall from this rectangle (closest to UK coast) by the non-UK fleet was very low (< 12 tonnes). In 39E9 there was an increase over time in weight landed by the Danish fleet to a maximum of around 1,500 tonnes in 2016. There was some input by the French and Dutch fleet to the total weight landed across all years, but relatively low, although 2013 and 2015 saw peaks in Dutch landed weight. German vessel contributed to the total landed weight in 2013 and Irish vessel in 2014. In 39F0 the Danish vessel landed a maximum weight in 2015, however the overall trend is a decrease with time. In this area of the cable route there was some contribution to the total weight by German, Dutch and Swedish vessels, however all less than 2,500 tonnes. In 39F1 the landed weight by Danish vessel peaked during 2013 and 2015 to over 50,000 tonnes.

Landings from Swedish vessel occurred in all years with a maximum in 2013 and 2015 at around 10,000 tonnes. Landings from German and Dutch fleets occurred every year but at relatively low weights. Again, in 40F1, Danish vessels dominated the landed weight with a maximum of around 4,500 tonnes from 2015. Dutch and Swedish fleets landed weight every year but with a maximum in 2016 and 2014 respectively of around 1,000 tonnes. Within 40F2 the maximum landed weights were during 2013 and 2015 by the German fleet and 2015 by Danish vessels, all of around 700 tonnes. Dutch and Belgian vessel consistently landed from this area across all years, usually around 100 tonnes.

In rectangle 40F3 (Figure 2.69) landings from the Dutch fleet were consistently the highest at around 5-800 tonnes over the years. The Danish fleet landed the maximum during 2013 at around 1,300 tonnes. Some weight can be attributed to landings by the German and Belgian vessels, albeit at relatively low levels.

Figure 2.63: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (North Sea) 39E8 (2012-16), displayed by year (Source: STECF, 2018)

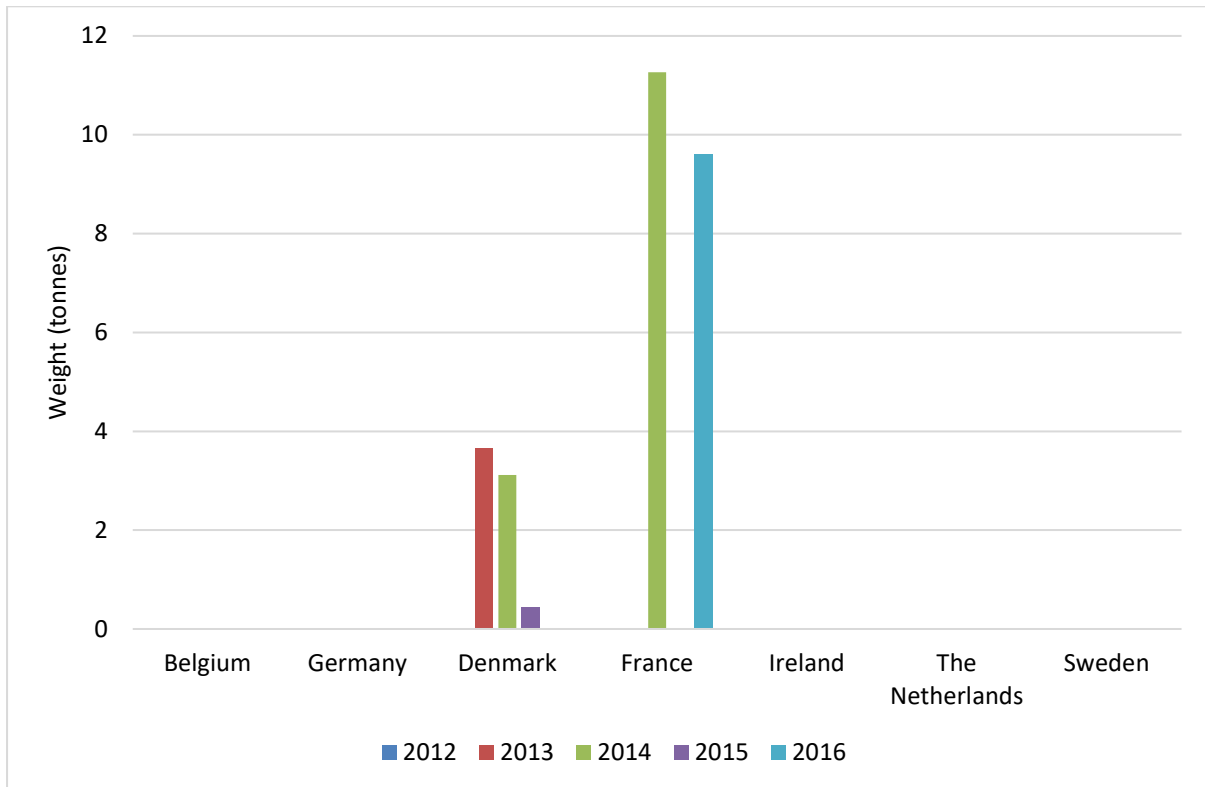


Figure 2.64: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (North Sea) 39E9 (2012-16), displayed by year (Source: STECF, 2018)

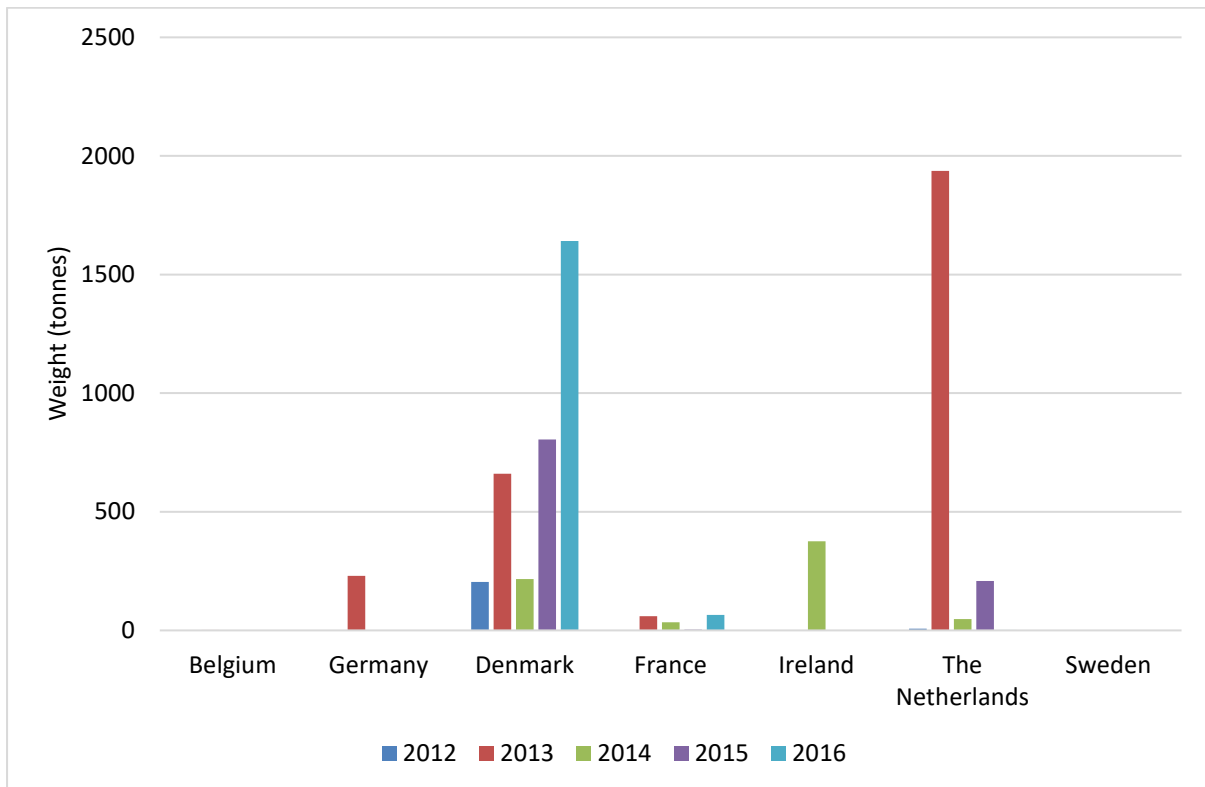


Figure 2.65: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (North Sea) 39F0 (2012-16), displayed by year (Source: STECF, 2018)

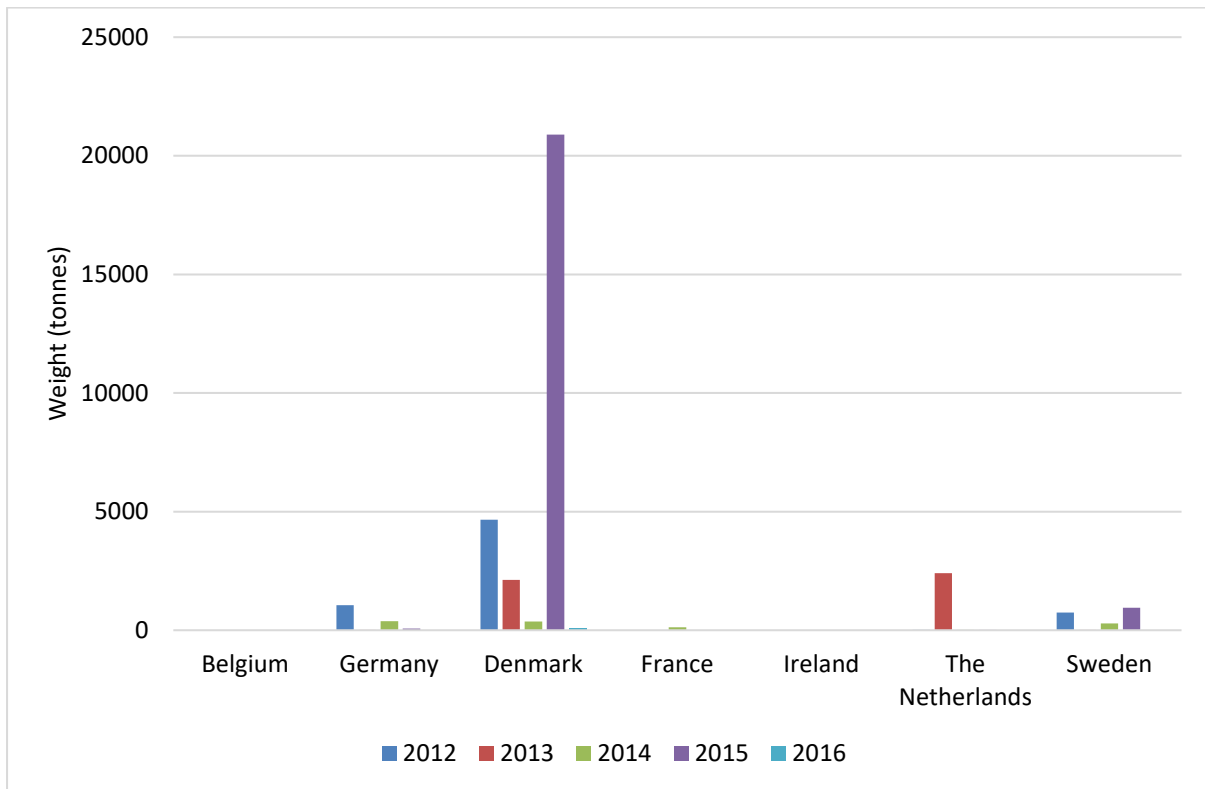


Figure 2.66: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (North Sea) 39F1 (2012-16), displayed by year (Source: STECF, 2018)

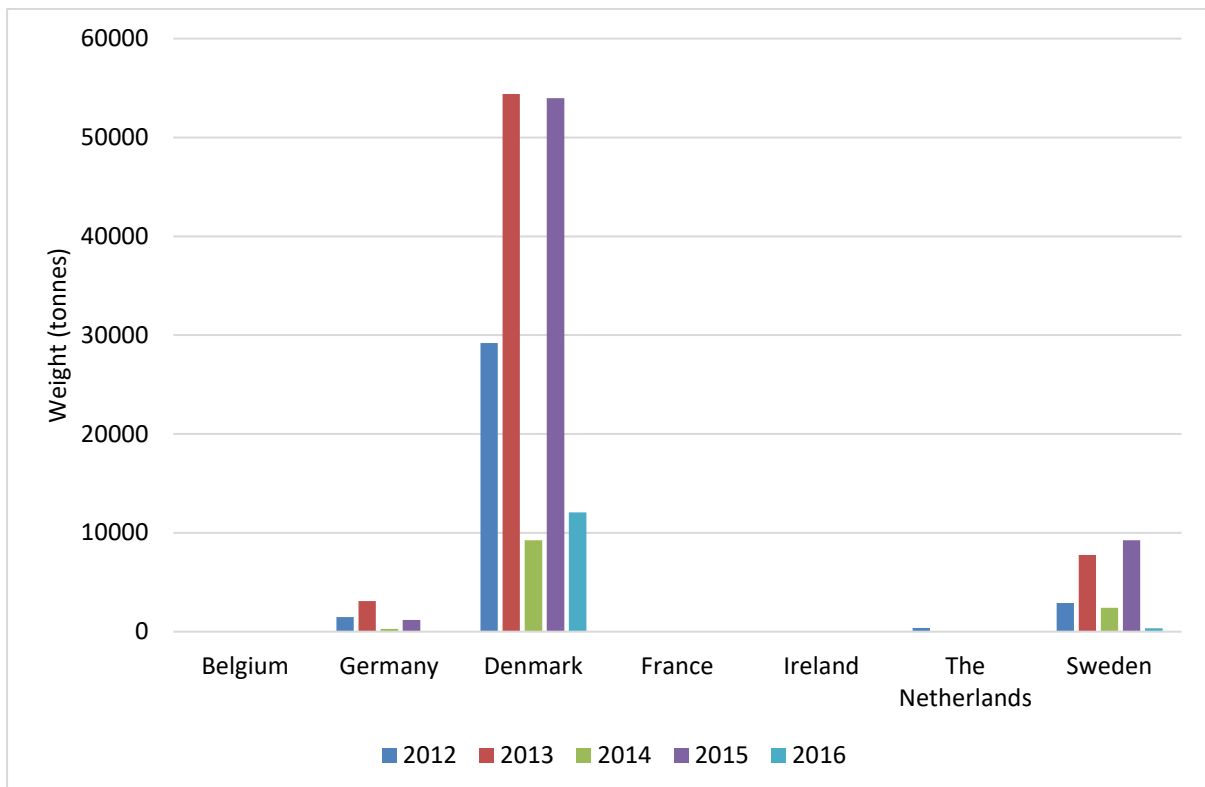


Figure 2.67: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (North Sea) 40F1 (2012-16), displayed by year (Source: STECF, 2018)

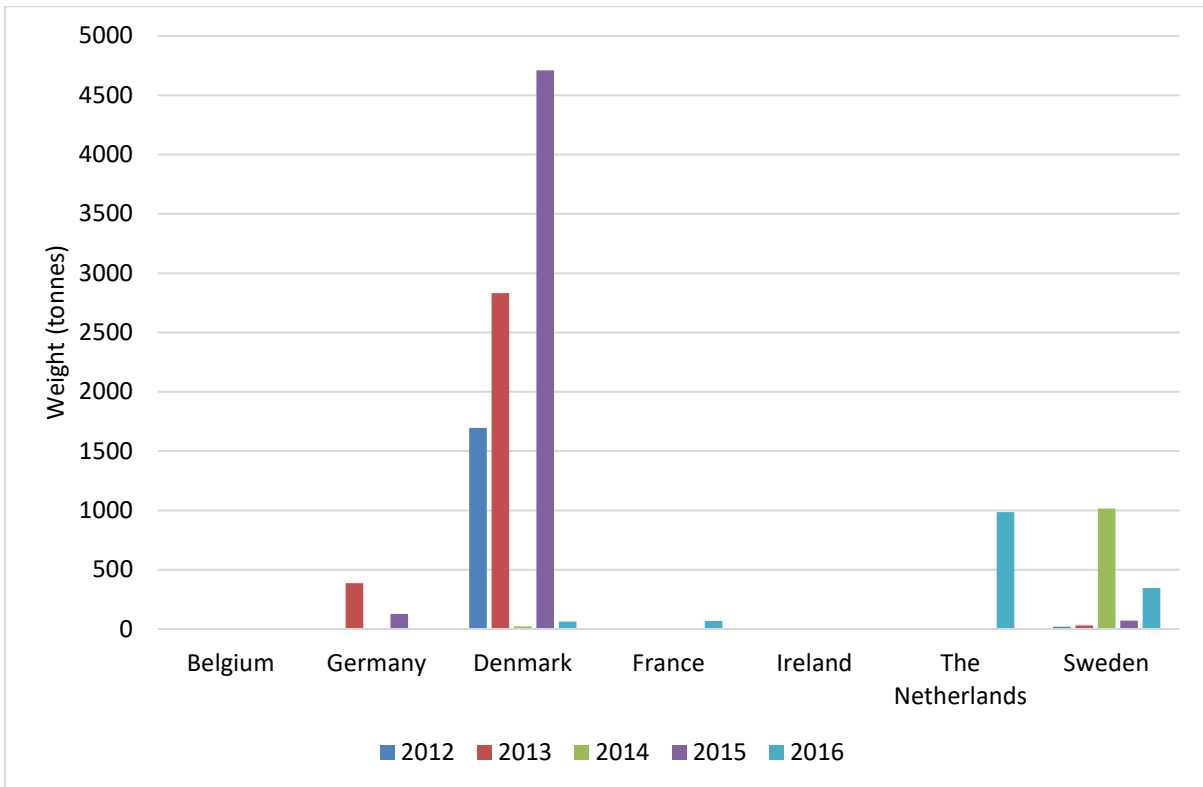


Figure 2.68: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (North Sea) 40F2 (2012-16), displayed by year (Source: STECF, 2018)

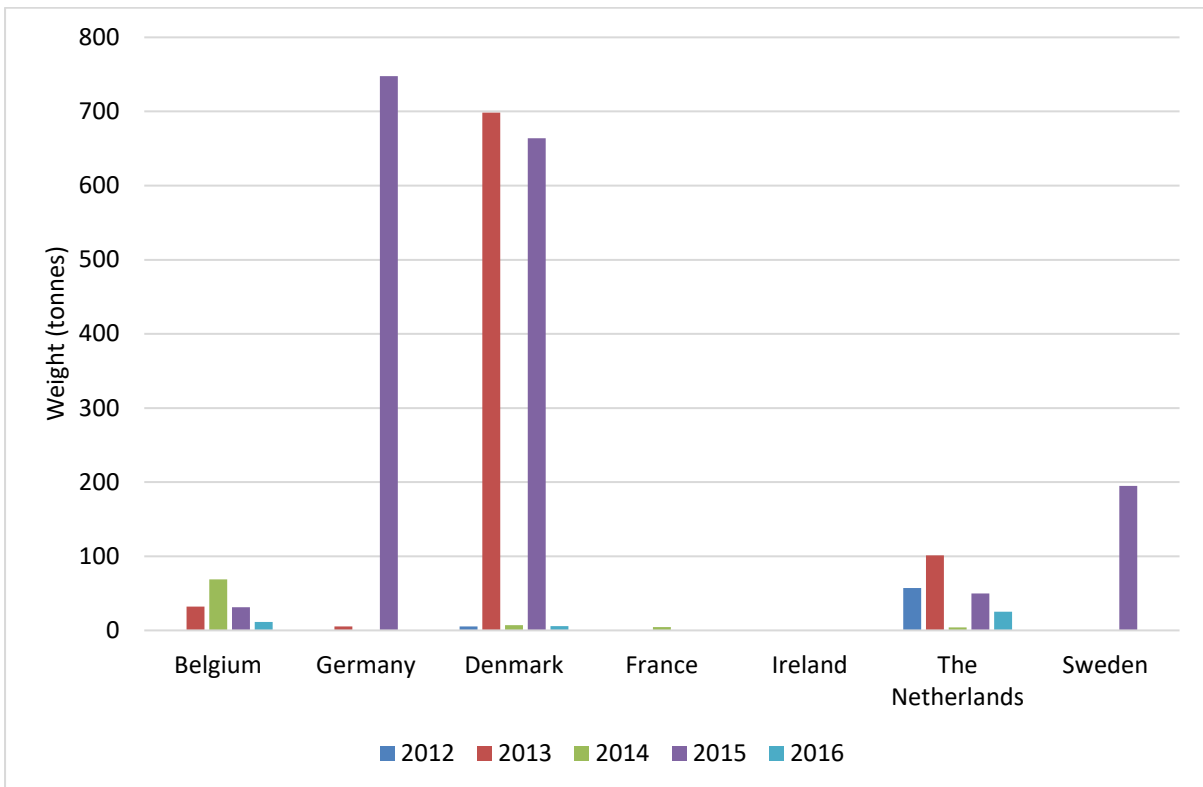
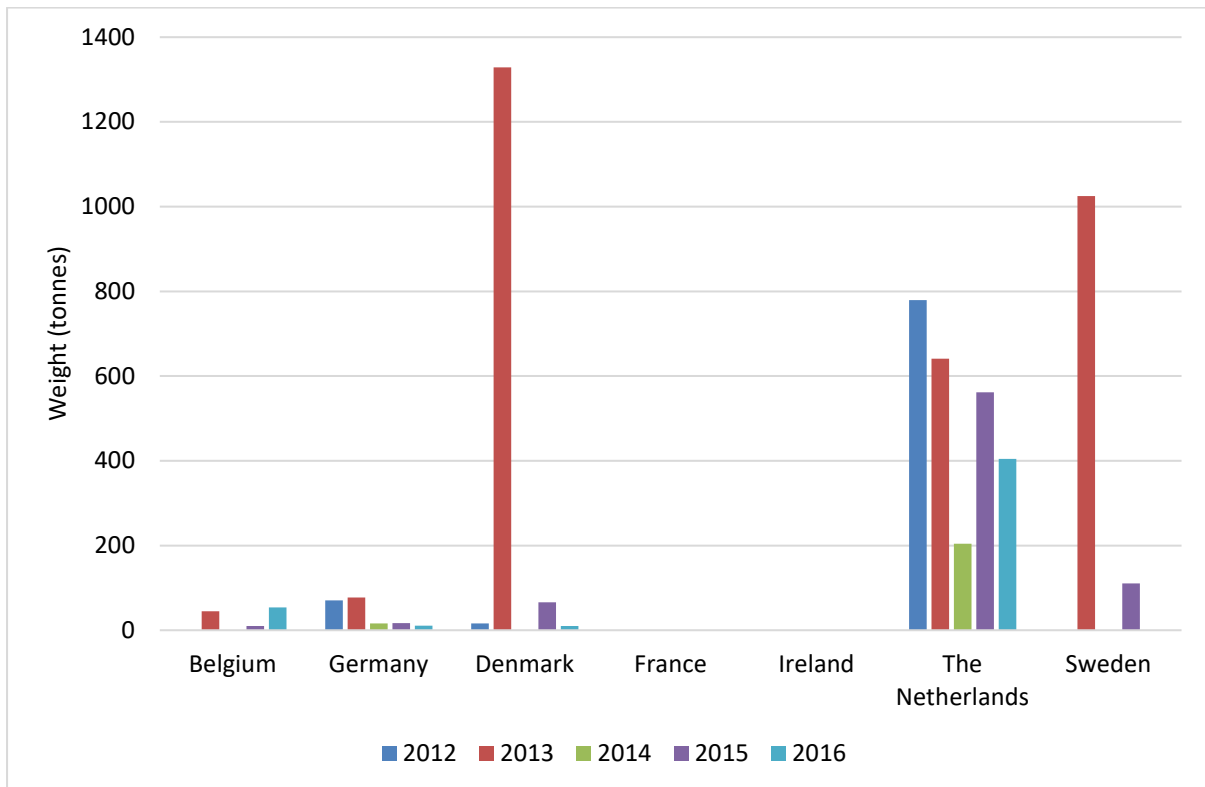


Figure 2.69: Sum of landings weight from non-UK vessels within ICES Statistical Rectangle (North Sea) 40F3 (2012-16), displayed by year (Source: STECF, 2018)



2.8.3 Landings Weight by Species – Irish Sea

The Irish fleet landings (Figure 2.70) into 36E3 and 36E4 were dominated in all years by sword razor shell, Norway lobster and razor clams at 1 to 1,600 tonnes. Great Atlantic scallop was the key species within 36E5 (all years just under 2,000 tonnes) 36E6 (2014-16 approximately 60 tonnes) and 37E5 (2016 less than 1.5 tonnes).

The Belgian fleet landings (Figure 2.71) into 36E3, 36E4 and 37E5 were dominated by European plaice, across all years in 36E4, 2015 in 36E3 and 2012 and 2014 in 37E5. Other key species in these rectangles were common sole, thornback ray, blonde ray and spotted ray. Common sole was the key species in 36E5 across all years landed at just over 35 tonnes. Thornback ray was the key species landed from 36E6 at approximately 140 tonnes.

Figure 2.70: Sum of landings weight (tonnes) from Irish vessels within ICES Statistical Rectangle (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (2012-16), displayed by species (Source: STECF, 2018)

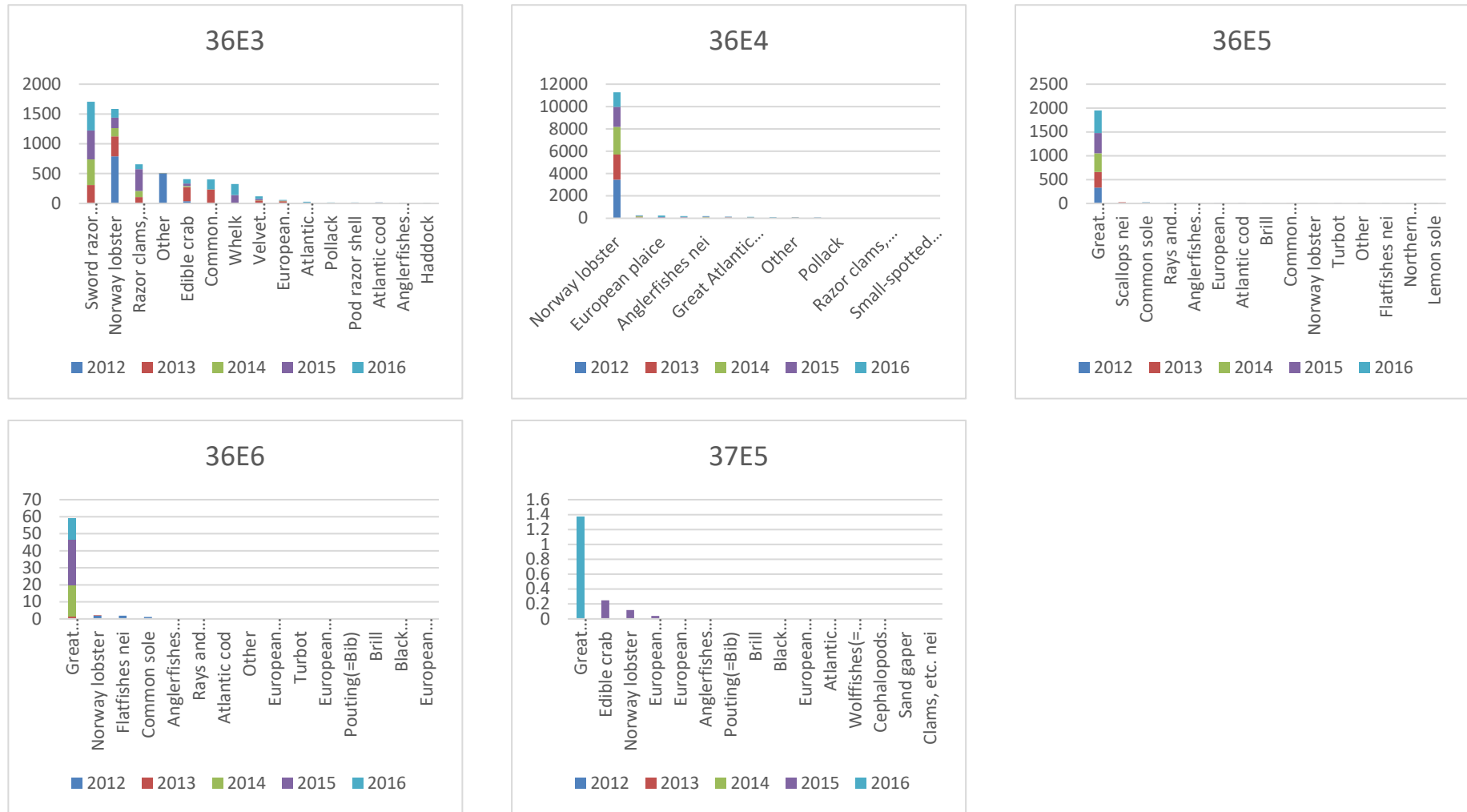


Figure 2.71: Sum of landings weight (tonnes) from Belgian vessels within ICES Statistical Rectangle (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (2012-16), displayed by species (Source: STECF, 2018)



2.8.4 Landings Weight by Species – North Sea

The landings from the German fleet (Figure 2.72) from rectangles 39E9, 39F0 and 40F0 were dominated by Atlantic herring with variation amongst the areas over the 2012-2016 period. Atlantic Herring contributed to maximum landed weights from 39E9 in 2013 (approximately 2,000 tonnes), from 39F0 in 2014 and 2016 (around 1,400 tonnes) and from 40F1 in 2013 and 2015 (less than 500 tonnes). Sandeels were the key species in terms of landed weight from 39F1 across all years with a total weight of approximately 6,000 tonnes and from 40F2 in 2015 at just under 700 tonnes. European plaice was the key species landed from 40F3 at approximately 170 tonnes. There were no landings by the German fleet from 39E8.

The landed weight from Danish vessels (Figure 2.73) was dominated by Sandeels along almost all of the cable route in the North Sea. In 39E9, across all years a total weight of approximately 2,700 tonnes, during 2015 in 39F0 a total weight of around 2,000 tonnes was landed. Across all years a total of 150,000 tonnes was landed from 39F1 and during 2013 and 2015 just less than 7,000 tonnes was landed from 40F1. During 2013 and 2015 in 40F2 and 2012 and 2013 from 40F3 a total weight of 1,300 tonnes was landed from each rectangle. Norway lobster was the key species in terms of landed weight from 39E8 with a total of approximately 5 tonnes during 2013-2015.

Atlantic herring was the key species in terms of landed weight by the Dutch fleet (Figure 2.74) from 39E9 in 2013 and 2015 (approximately 2,000 tonnes), from 39F0 in 2013 (approximately 2,400 tonnes) and from 40F1 during 2016 (under 1,000 tonnes). Sandeel was the key species in terms of landed weight from 39F1 during 2012 and 2013 at approximately 350 tonnes. European plaice was the key species from 40F2 and 40F3 across all years with total weights of 180 and 2,400 tonnes respectively. There were no landings from 39E8 by the Dutch fleet.

Atlantic herring was also the key species in terms of landed weight by the Swedish fleet (Figure 2.75) from 39F0 during 2012 and 2014 (approximately 1,000 tonnes) and 40F1 during 2014 and 2016 (approximately 1,300 tonnes). Sandeel was also a key species from 39F0, as well as Atlantic herring, during 2015 at around 900 tonnes, from 39F1 across all years (approximately 20,000 tonnes), from 40F2 during 2015 (approximately 170 tonnes) and from 40F3 in 2013 (approximately 1,100 tonnes).

Figure 2.72: Sum of landings weight (tonnes) from German vessels within ICES Statistical Rectangle (North Sea) 39E8 (no landings), 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (2012-16), displayed by species (Source: STECF, 2018)

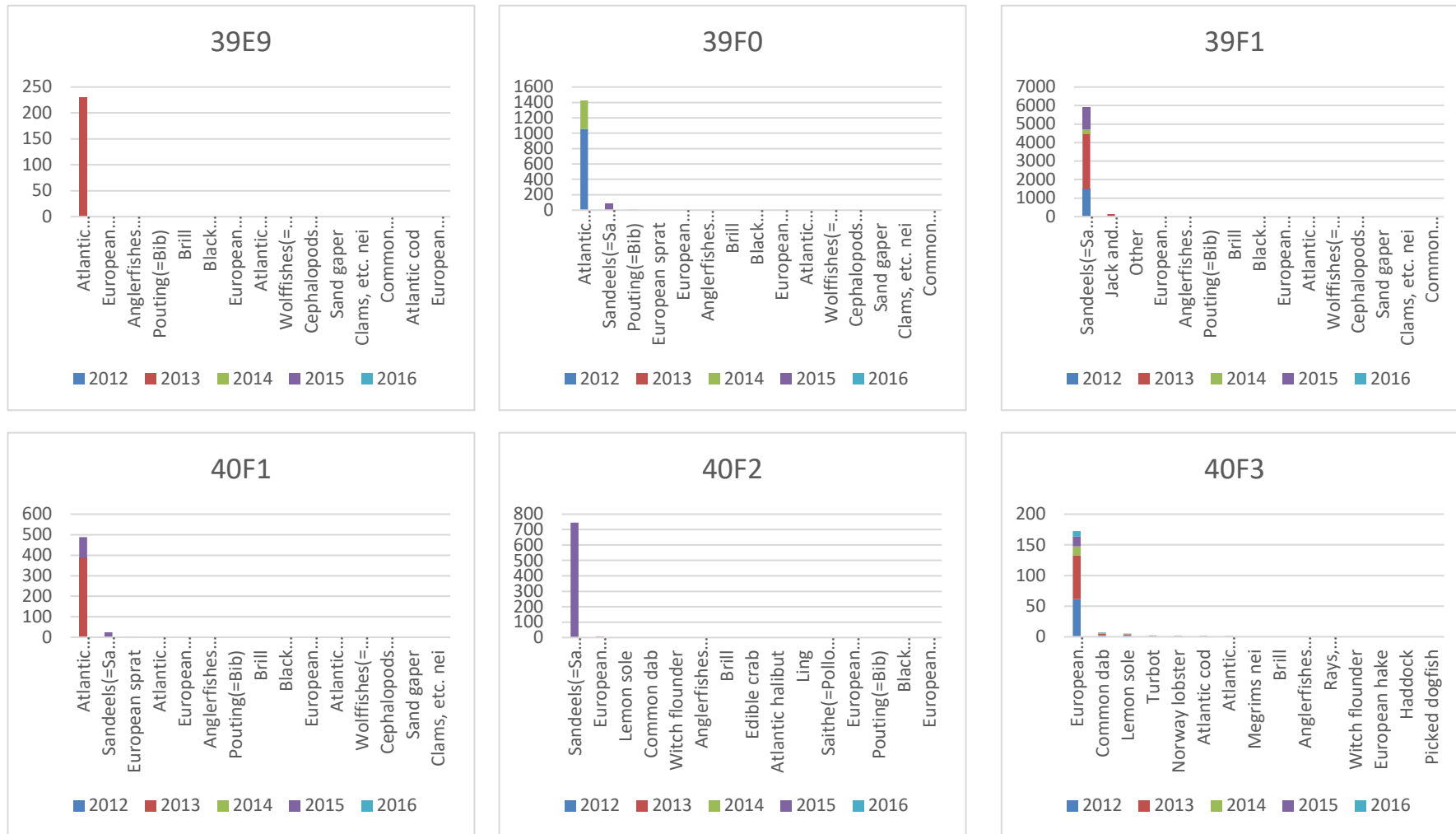
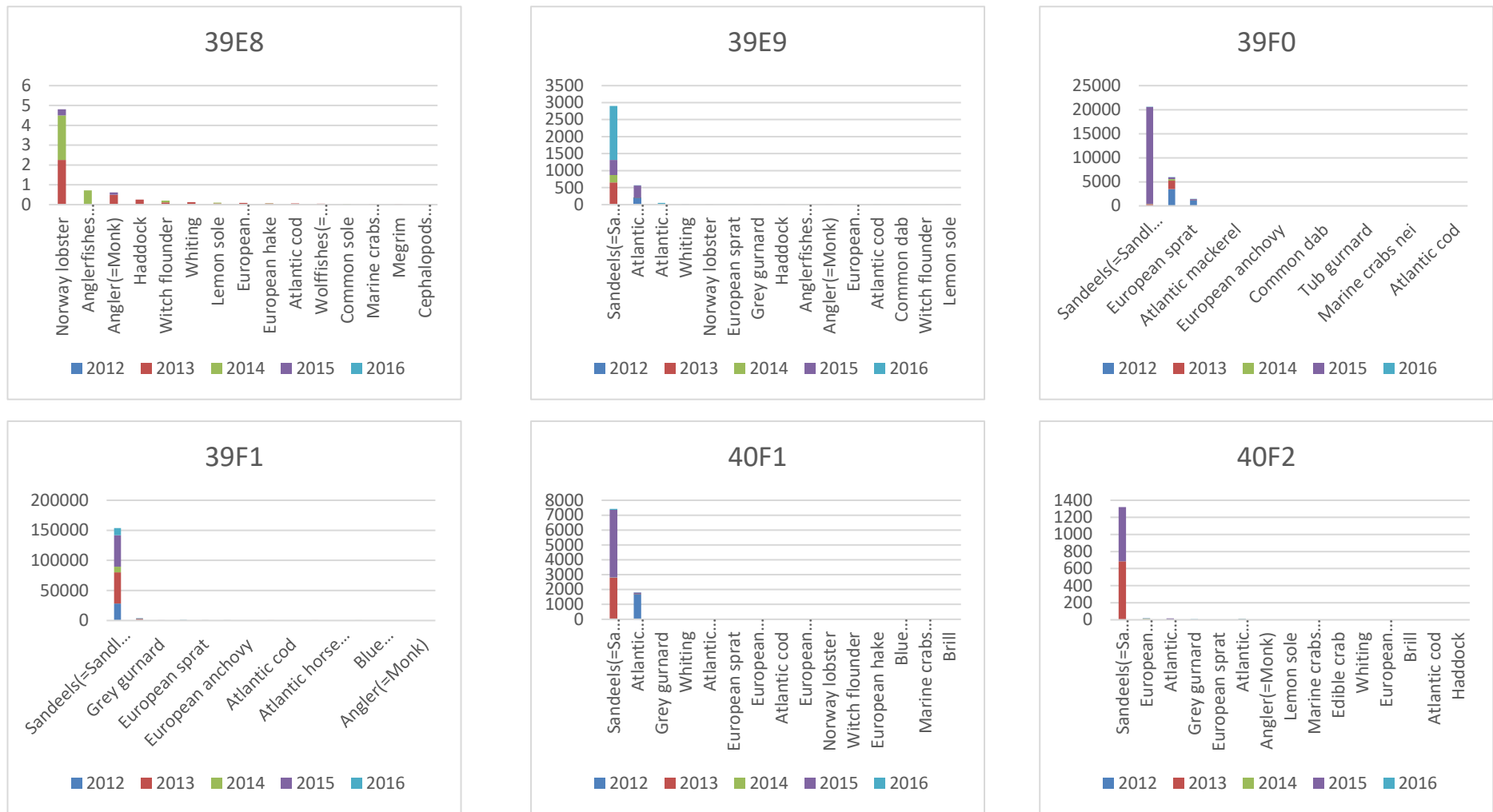


Figure 2.73: Sum of landings weight (tonnes) from Danish vessels within ICES Statistical Rectangle (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (2012-16), displayed by species (Source: STECF, 2018)



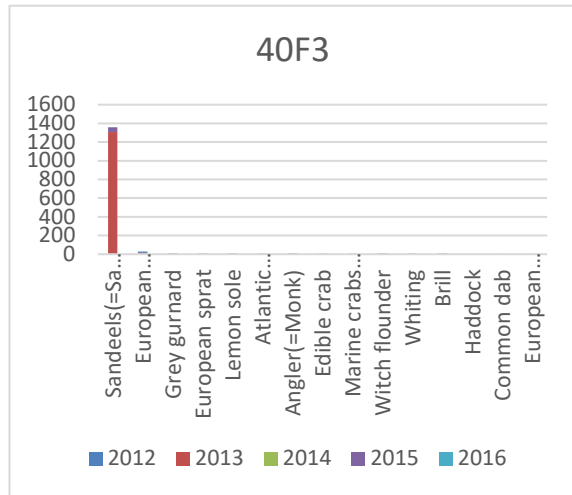


Figure 2.74: Sum of landings weight (tonnes) from Dutch vessels within ICES Statistical Rectangle (North Sea) 39E8 (no landings), 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (2012-16), displayed by species (Source: STECF, 2018)

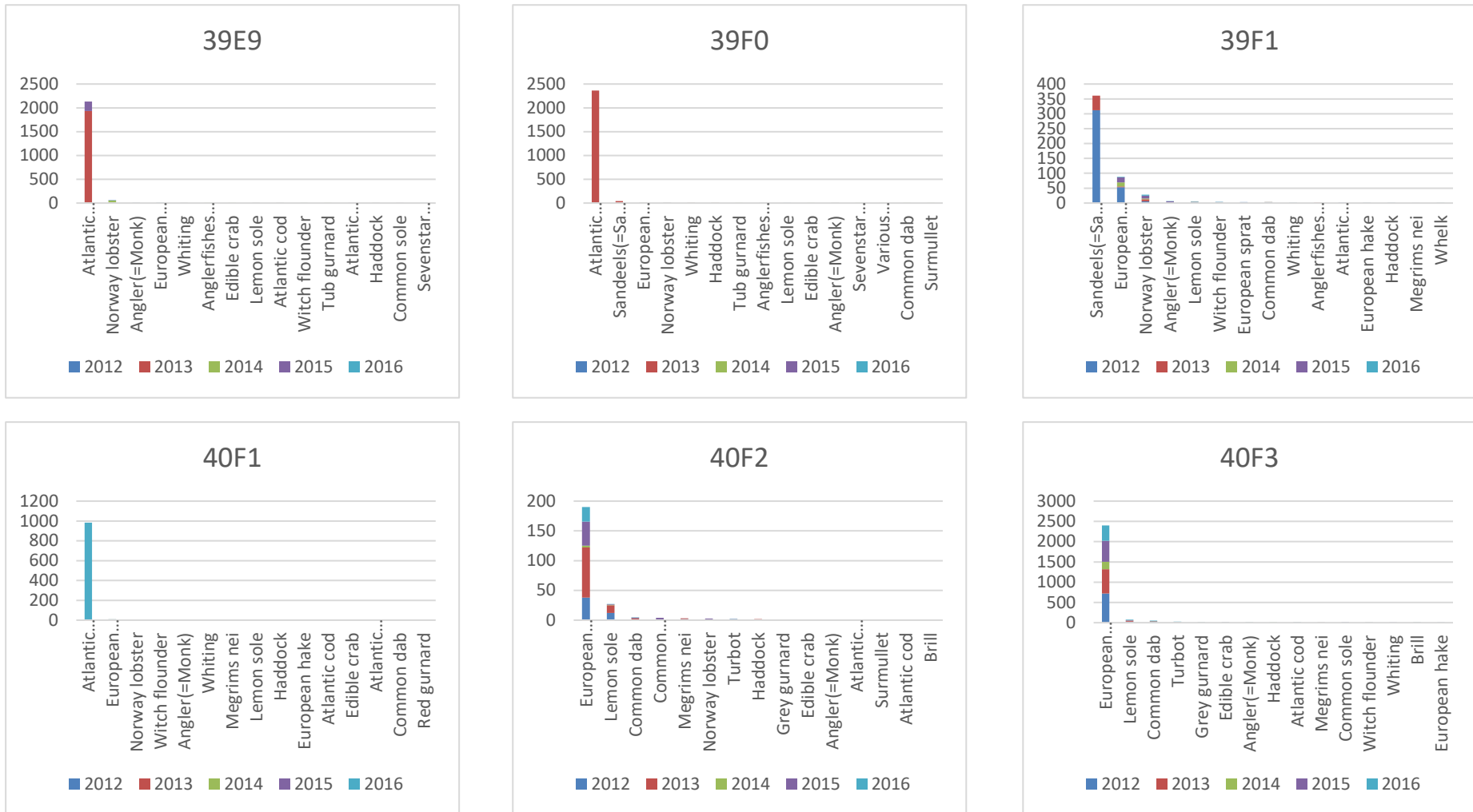
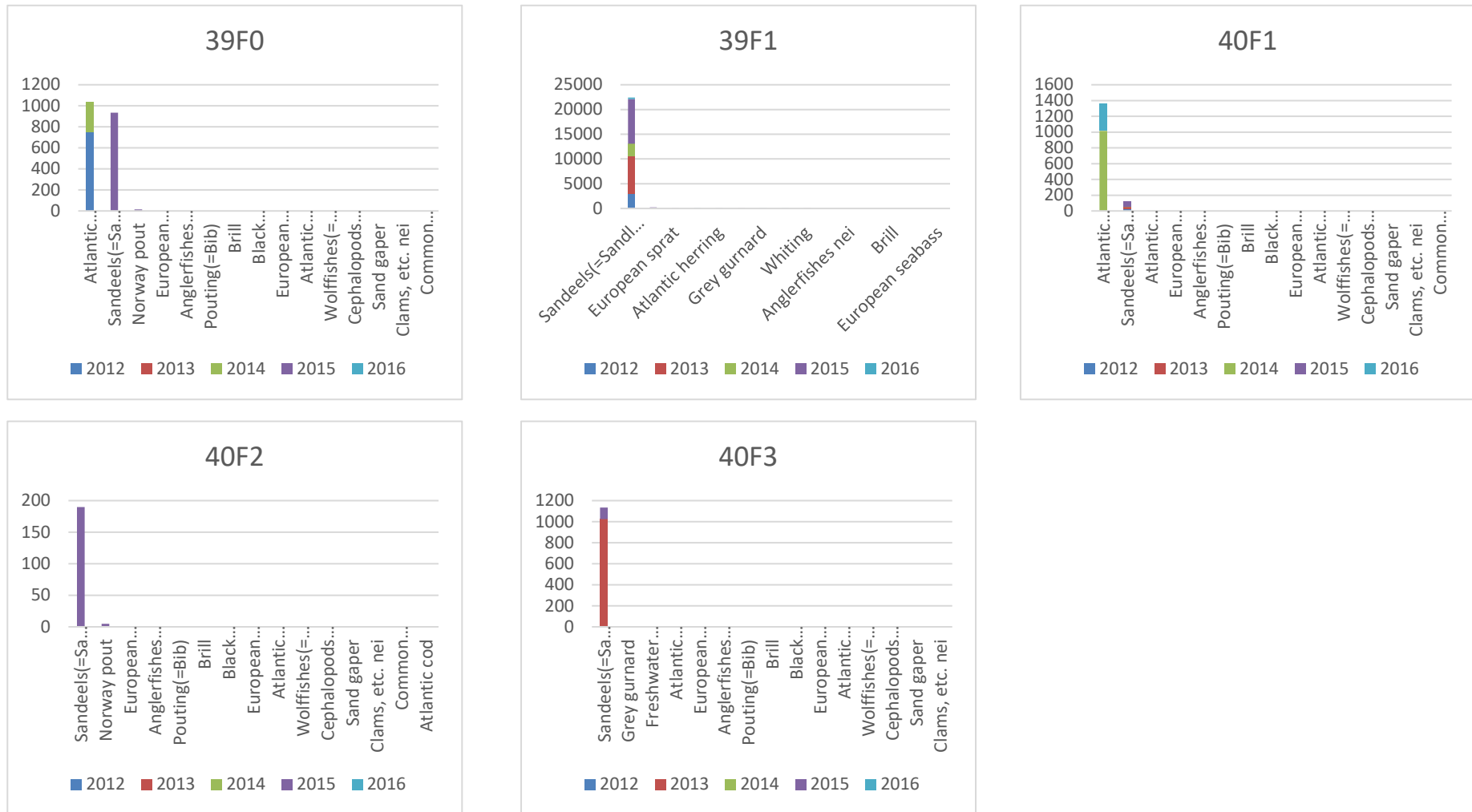


Figure 2.75: Sum of landings weight (tonnes) from Swedish vessels within ICES Statistical Rectangle (North Sea) 39E8 (no landings), 39E9 (no landings), 39F0, 39F1, 40F1, 40F2 and 40F3 (2012-16), displayed by species (Source: STECF, 2018)



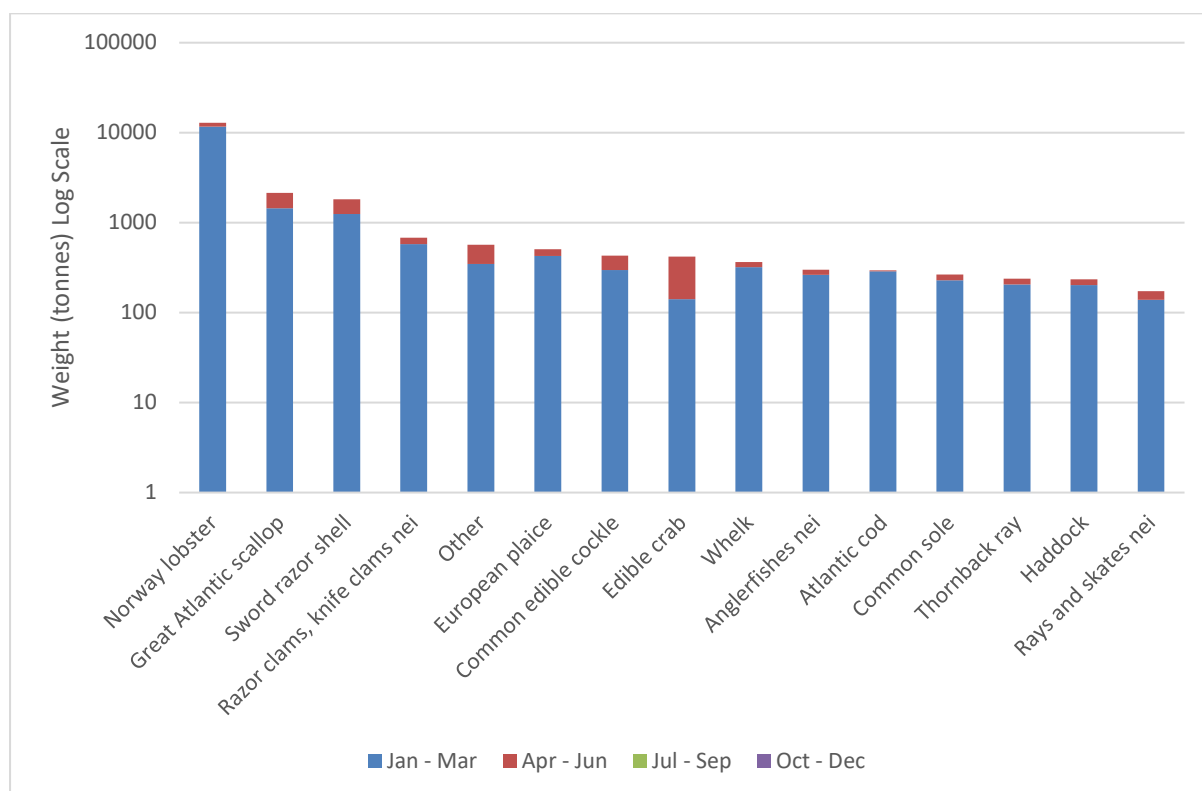
2.8.5 Temporal Variation by Species

The STECF species data was analysed further allowing a closer look at the temporal variation of the top fifteen most commercially important species.

Figure 2.76 shows the top 15 species by landed weight from the non-UK vessels within the Irish Sea. Norway lobster is the key species with the majority of catch landed during January to March. This trend is seen throughout all of the top 15 species along with a small percentage of landings during April to June. Edible crab showed the highest percentage of all the top 15 species for landed weight during April to June. None of the top species are landed during July to September or October to December.

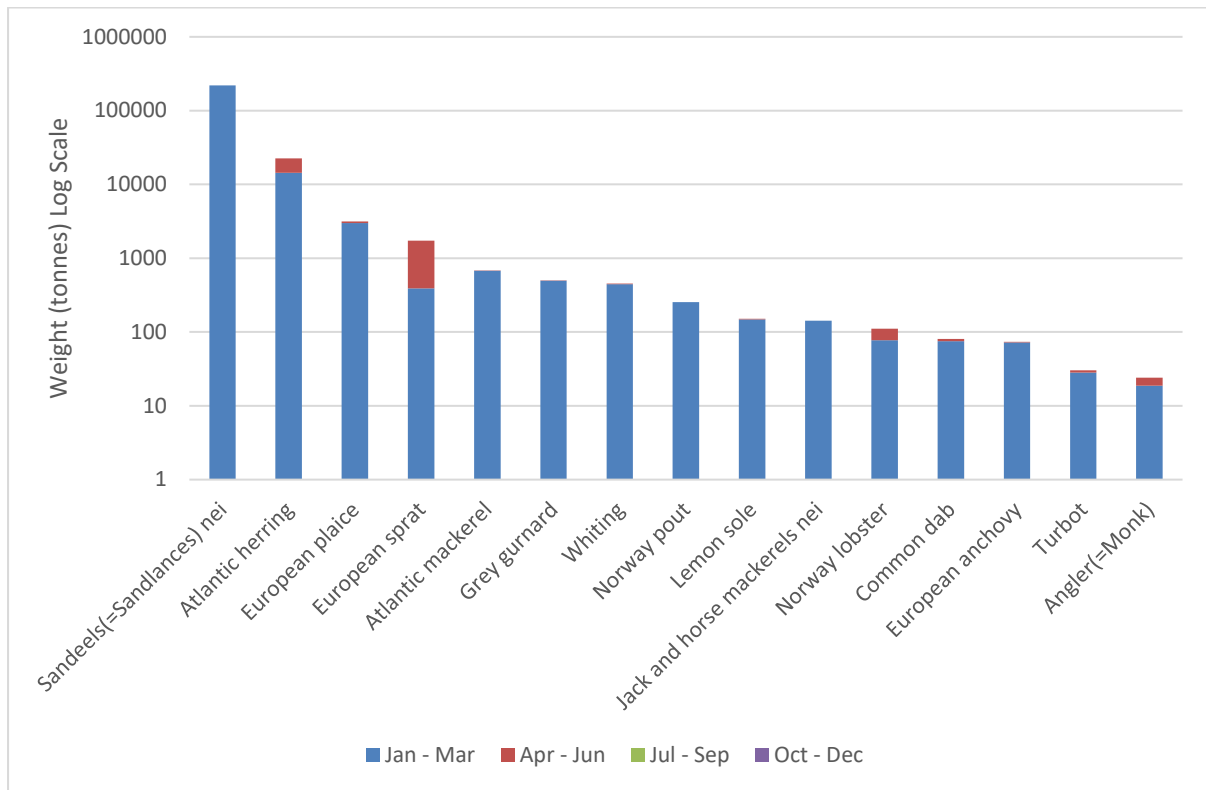
Figure 2.77 shows the top 15 species by landed weight from the non-UK vessels within the North Sea. Sandeels were the key species and all landings were during the January to March period. The majority of all landings across the top 15 species was during the same period. European sprat had the highest percentage of all species landed during April to June.

Figure 2.76: Seasonal Trends in Top 15 Species by Sum of Landings Weight from Non-UK¹¹ vessels (2012-2016) for ICES Rectangles (Irish Sea) 36E3, 36E4, 36E5, 36E6 and 37E5 (Source: STECF, 2018)



¹¹ Non-UK data from Irish and Belgian vessels

Figure 2.77: Seasonal Trends in Top 15 Species by Sum of Landings Weight from Non-UK¹² vessels (2012-2016) for ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2 and 40F3 (Source: STECF, 2018)



¹² Non-UK data from German, Danish, Dutch, Swedish, Belgian, Irish and French vessels.

2.9 Vessel Monitoring Systems and Landings Data Combined

Since 2000, all fishing vessels ≥ 24 m in length have been required, by European Law, to indicate their position once every 2 hours via the Vessel Monitoring System (VMS), which is a system whereby fishing vessel positional data are collected via a satellite logging the GPS position of the vessel. The requirement for VMS has subsequently been amended several times to include increasingly smaller vessels (2004: fishing vessels ≥ 18 m, 2005: fishing vessels ≥ 15 m). Since 2012, all vessels ≥ 12 m in length have been required to operate VMS. Commercial fishing activity by vessels <12 m in length is not captured by VMS data at present.

For this assessment, data (2013-2016) have been analysed to be as consistent as possible with other data used throughout this report. Data have been categorised into aggregated gear groups and positional data have been extracted from GPS-derived VMS data. From 2011 onwards, effort was provided in kilowatt hours (kWh), which has been calculated by multiplying the time associated with each VMS report (in hours), by the engine power of the vessel concerned at the time of the activity. Also included in the GIS data layers are the quantity (tonnes) of live weight fish landed with gear type, and value (sterling) of live weight fish landed with gear type. The GIS data layers of relevance to the current report were those from 2013-2016.

2.9.1 Fishing Effort – UK Vessels

Figure 2.78 and Figure 2.79 show annual (2013-2016) fishing effort by UK vessels (both <15 m and >15 m) using all gear types, on a regional scale plotted by ICES Rectangles. The location of the proposed Havhingsten cable is included for reference.

Figure 2.80 to Figure 2.85 show annual (2013-2016) plot of total hours fished in and around the proposed Havhingsten cable using all gear, static gear and mobile gear, by UK vessels >15 m within ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3 using VMS data.

Figure 2.78: Havhingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to annual fishing effort (kilowatt/days) (mobile & static gear) by all UK vessels by ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2013-2016)(Source: MMO, 2017b)

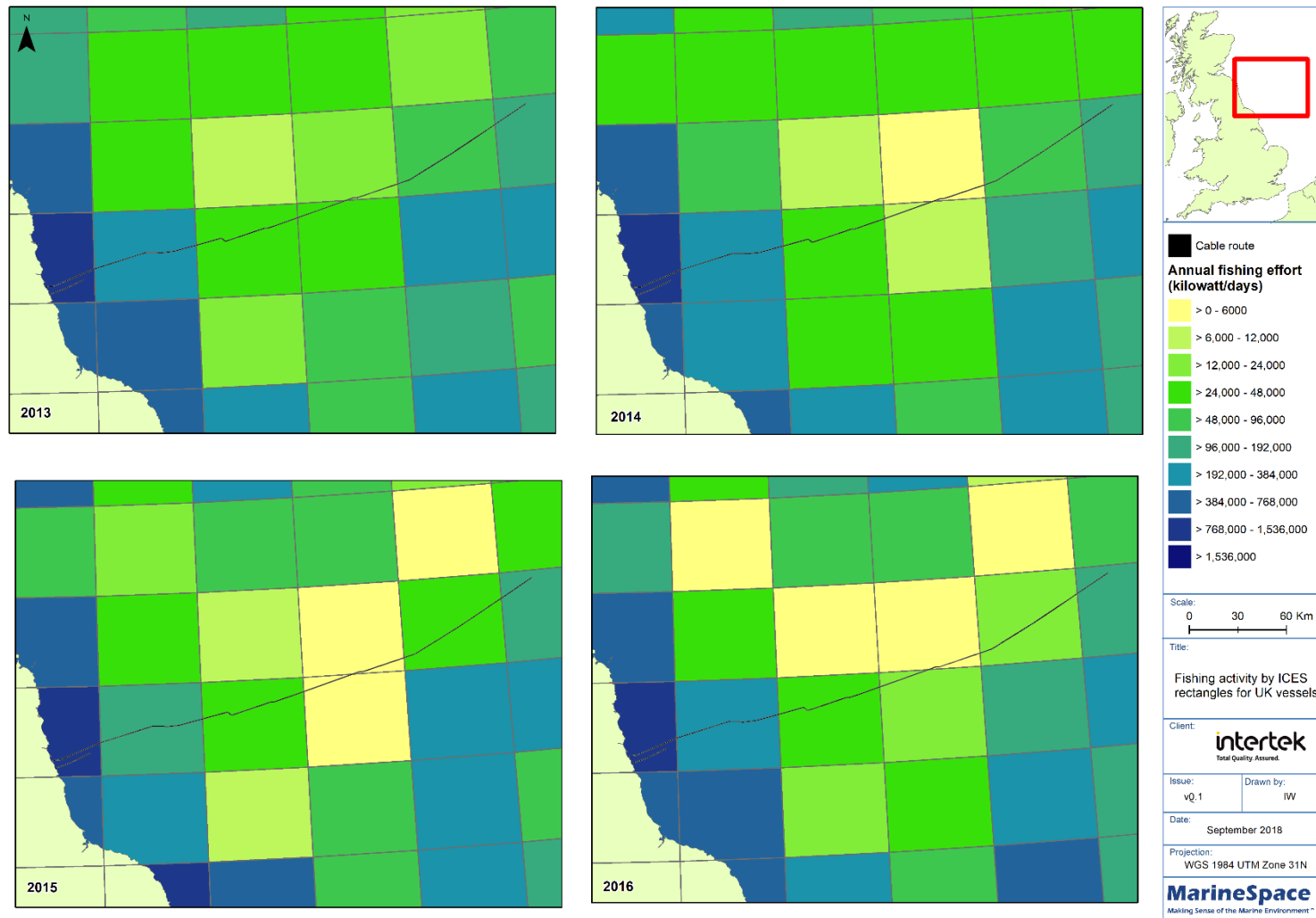


Figure 2.79: Havhingsten Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to annual fishing effort (kilowatt/days) (mobile & static gear) by all UK vessels by ICES Rectangles 37E5, 36E6, 36E5, 36E4, 36E3 (2013-2016)(Source: MMO, 2017b)

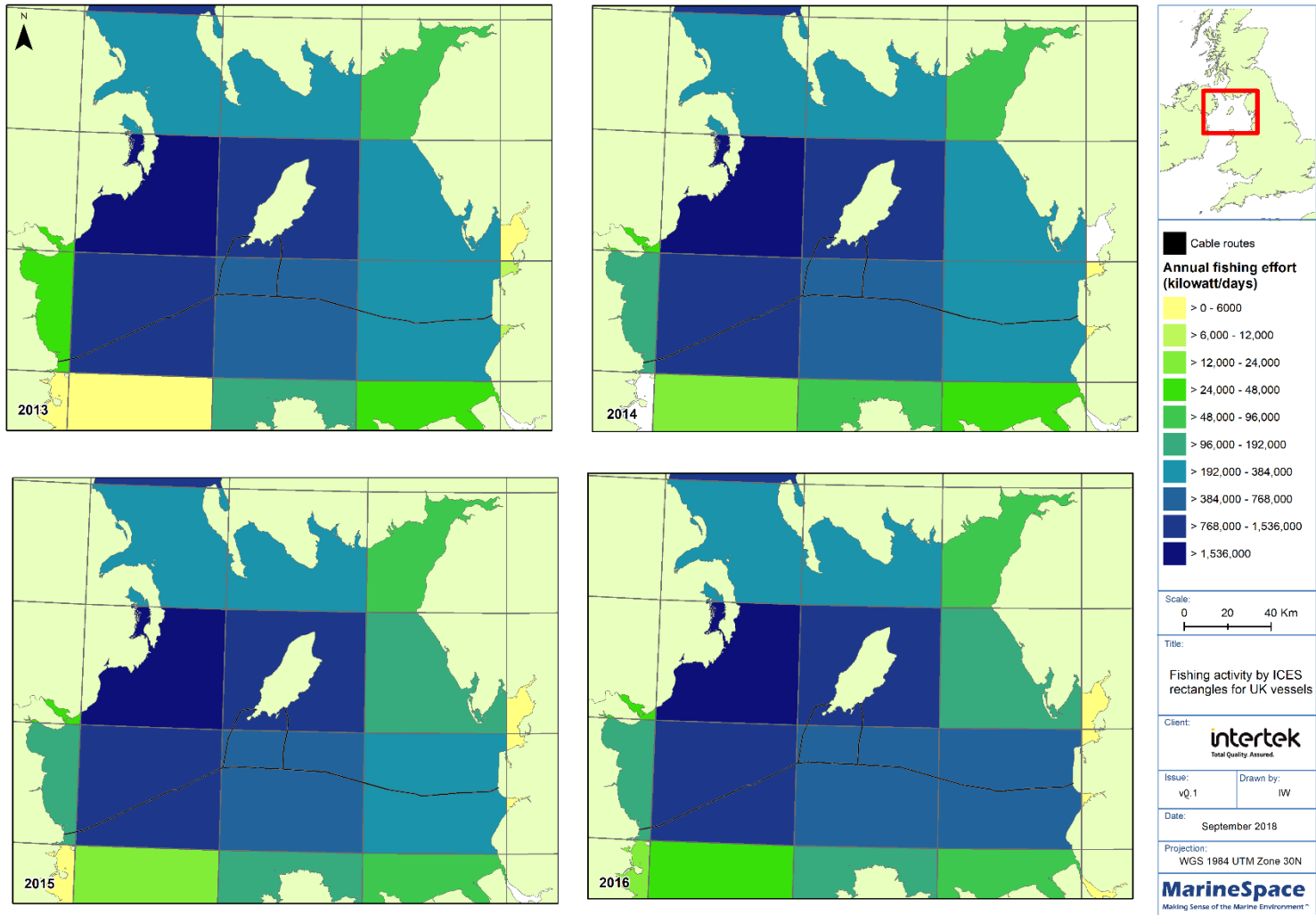


Figure 2.80: Havhingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (mobile & static gear) by all UK vessels by ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2013-2016)(Source: MMO, 2017b)

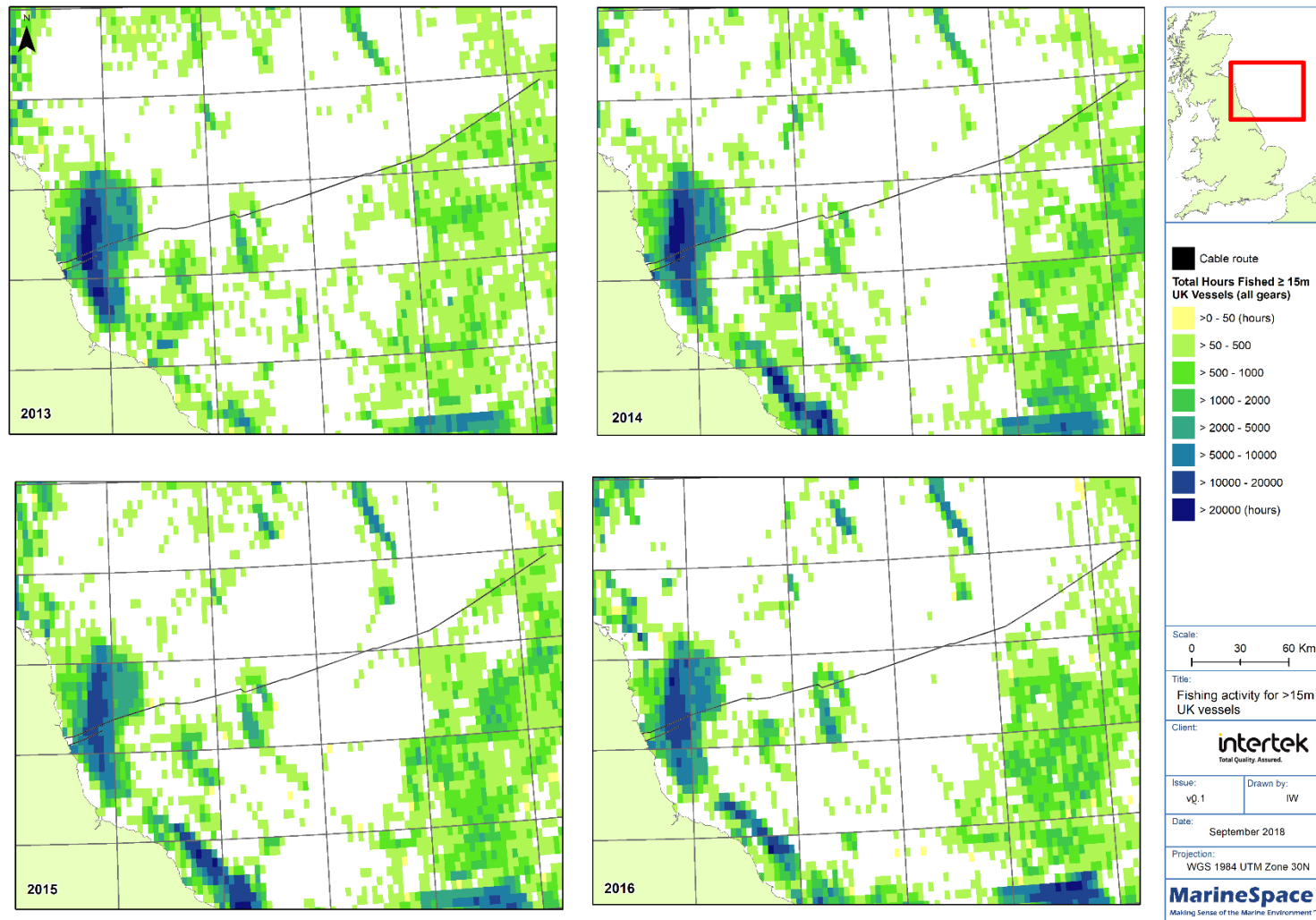


Figure 2.81: Havhingsten Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to the total hours fished (mobile & static gear) by all UK vessels by ICES Rectangles 37E5, 36E6, 36E5, 36E4, 36E3 (2013-2016)(Source: MMO, 2017b)

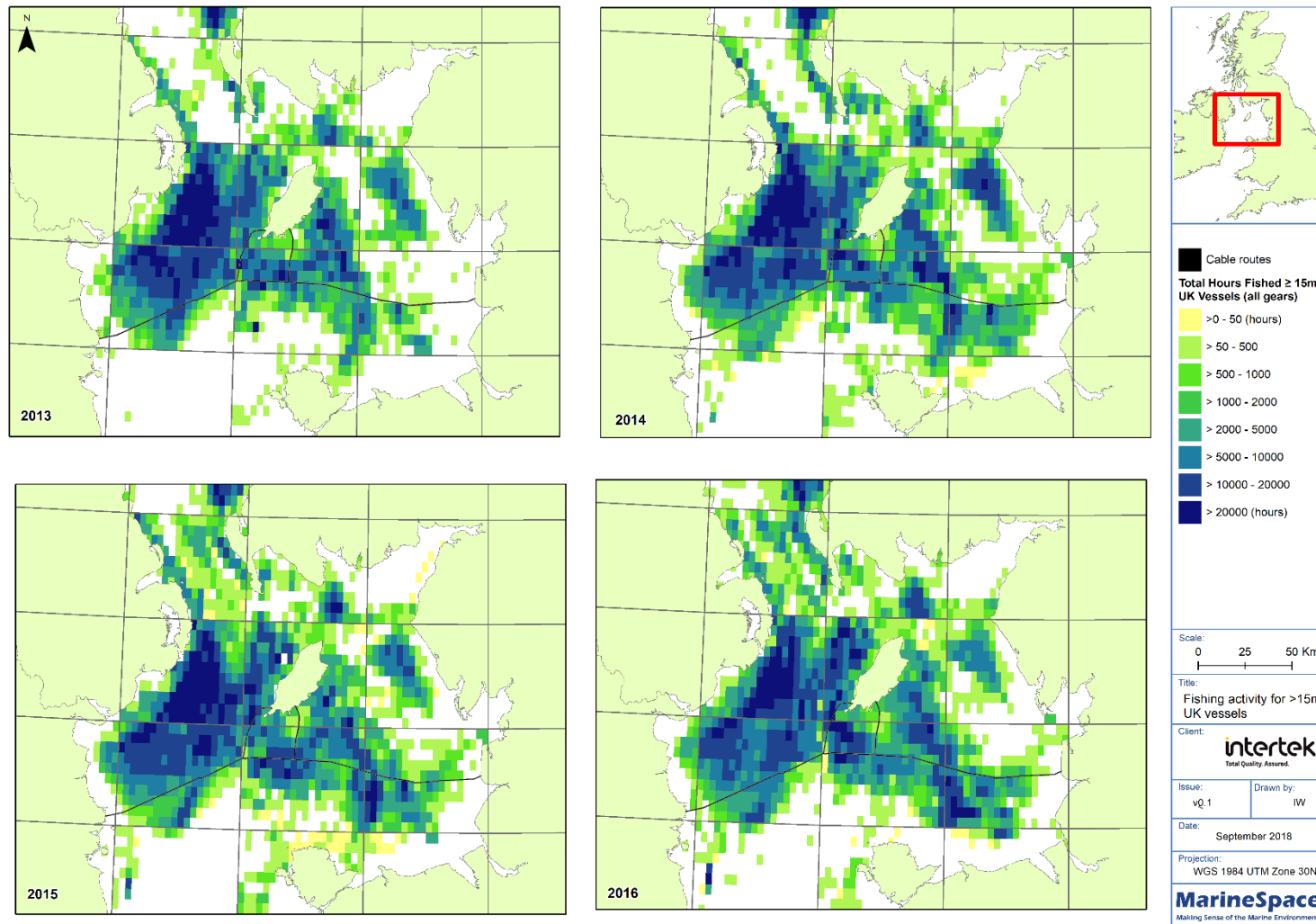


Figure 2.82: Havingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (static gear) by UK vessels (>15m) within ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2013-2016) (Source: MMO, 2017b)

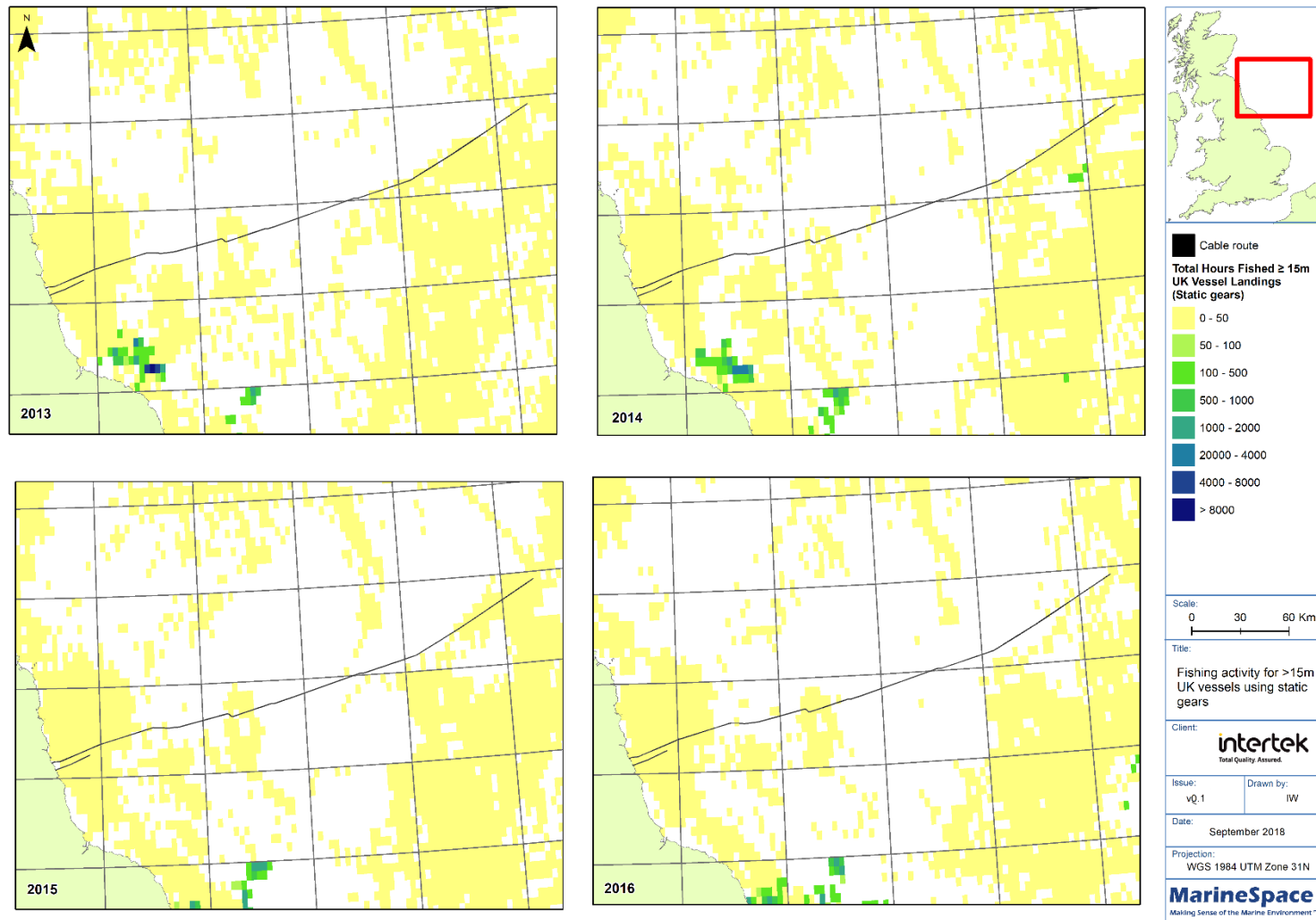


Figure 2.83: Havhingsten Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to the total hours fished (static gear) by UK vessels (>15m) within ICES Rectangles 37E5, 36E6, 36E5, 36E4, 36E3 (2013-2016) (Source: MMO, 2017b)

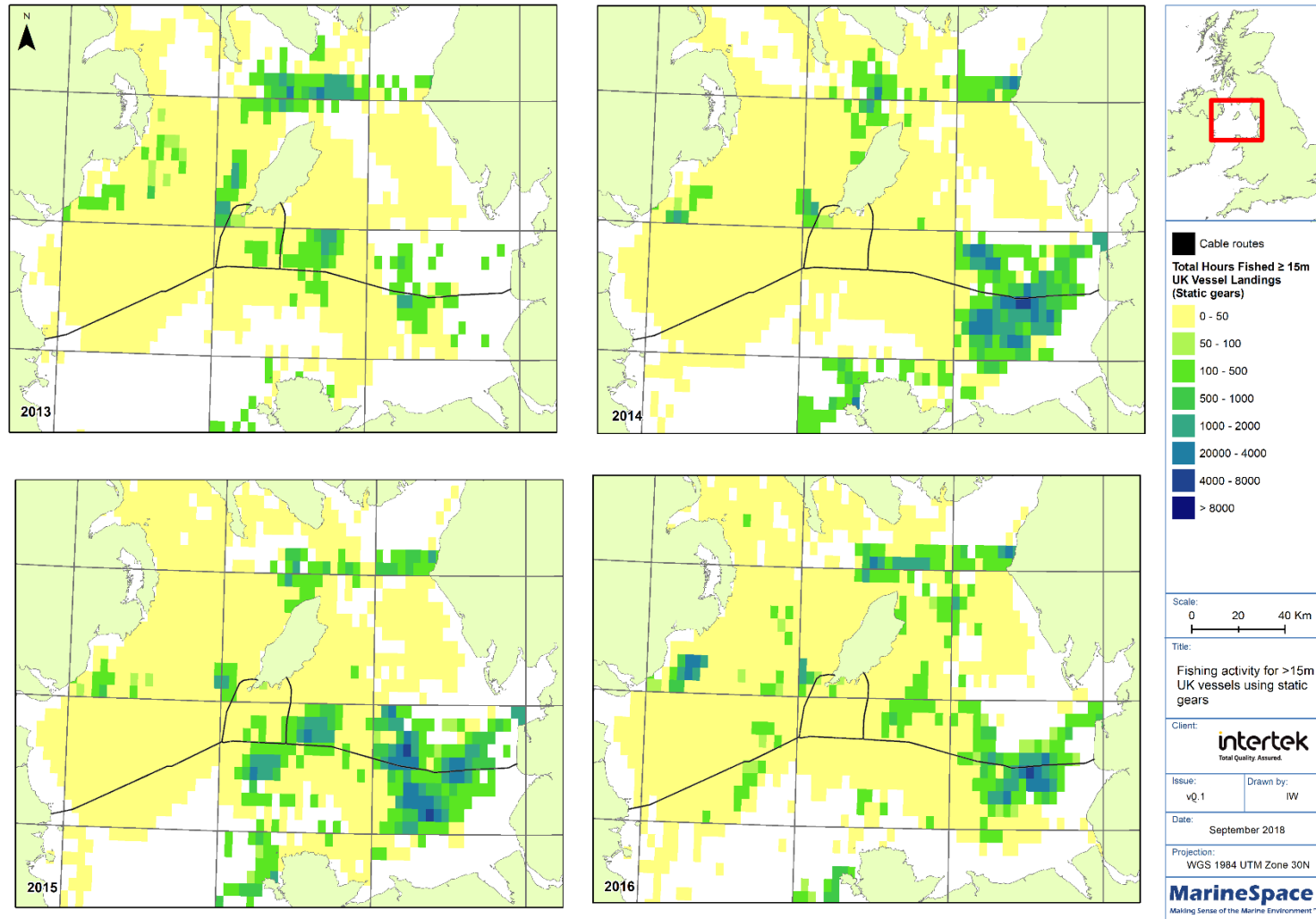


Figure 2.84: Havingstun Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (mobile gear) by UK vessels (>15 m) within ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2013-2016) (Source: MMO, 2017b)

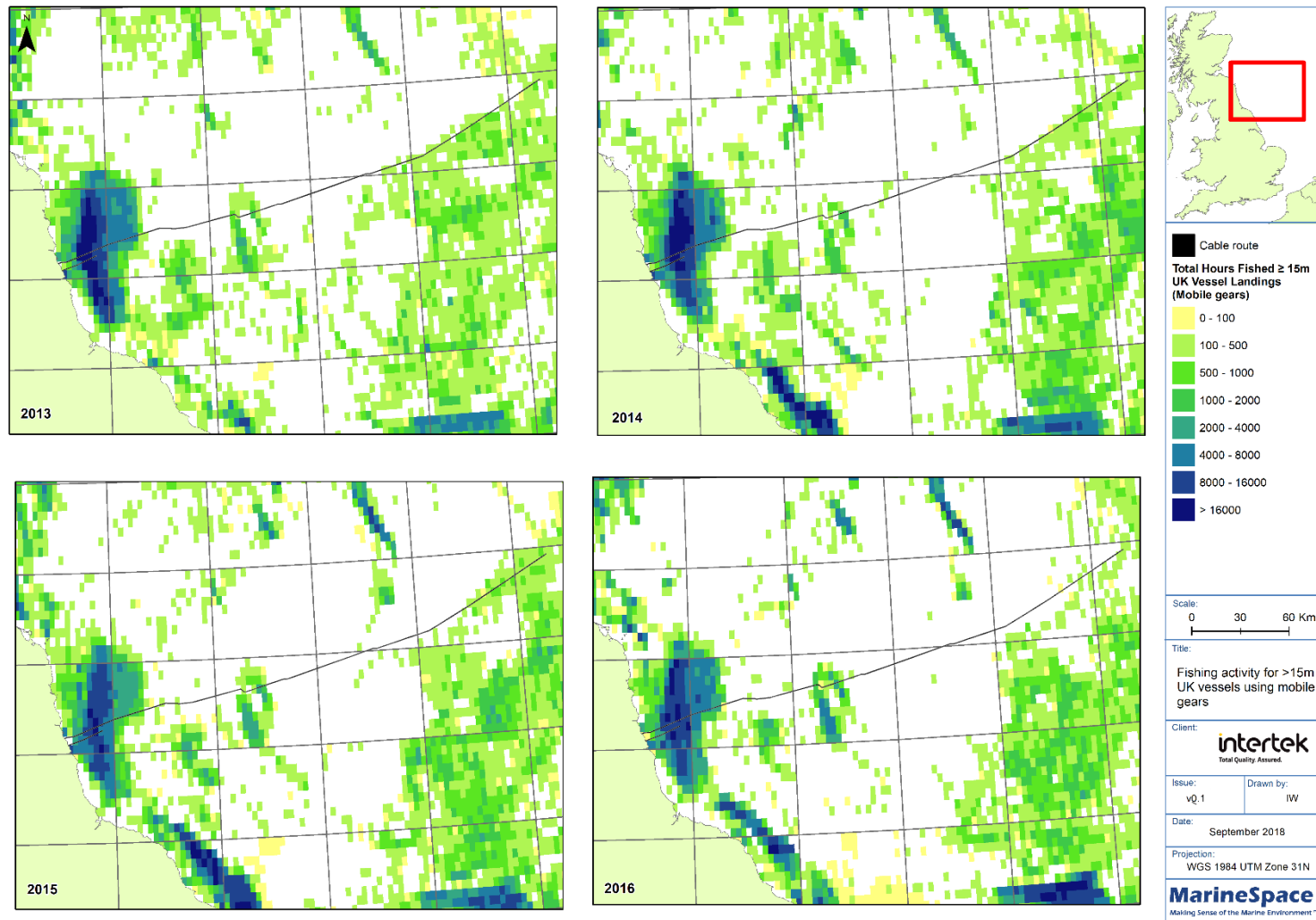
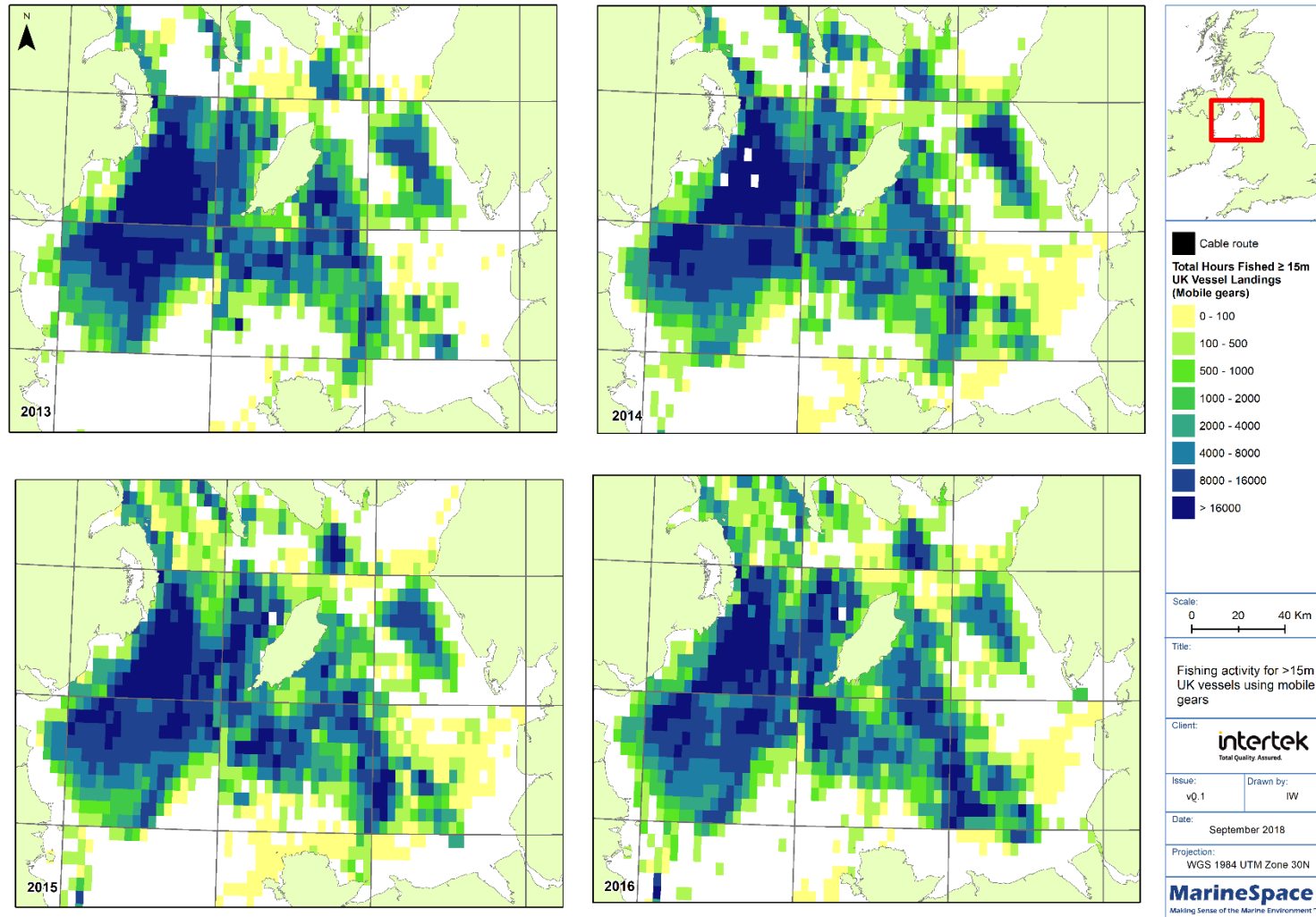


Figure 2.85: Havingstun Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to the total hours fished (mobile gear) by UK vessels (>15 m) within ICES Rectangles 37E5, 36E6, 36E5, 36E4, 36E3 (2013-2016) (Source: MMO, 2017b)



2.9.2 Fishing Value – UK Vessels

Figure 2.86 and Figure 2.87 shows annual (2013-2016) fishing value landed by UK vessels (<15 m and >15 m) using all gear types, on a regional scale plotted by ICES Rectangles. The location of the proposed Havhingsten cable corridor is included for reference.

Figure 2.88 and Figure 2.89 shows annual (2013-2016) total value landed from in and around the proposed Havhingsten cable using all gear, by UK vessels (>15 m) within ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3 using VMS data.

Figure 2.90 and Figure 2.91 shows annual (2013-2016) total value landed along the proposed Havhingsten cable, using all gear, by UK vessels >15 m. The VMS data values have been clipped to the cable corridor and split up into the following sea areas: UK 6 nm (nautical mile) fishing zone, 12 nm boundary, Irish Territorial Seas and Offshore region. Please see Table 2.9 for associated landing values within each region.

Table 2.9: Average Landings Value from VMS Data split into Sea Regions along the proposed Havhingsten Cable (Source: MMO, 2017b)

Irish Sea				
Year	UK 6nm	UK 12nm	Irish Territorial Waters	Offshore
2013	£630,811.98	£590,307.62	£20,678.72	£939,796.01
2014	£640,191.17	£495,122.22	£6,535.59	£828,113.89
2015	£413,205.41	£501,417.24	£38,858.00	£1,207,249.40
2016	£814,829.13	£727,281.89	£60,564.17	£1,032,742.18
Total Value	£2,499,037.70	£2,314,128.96	£126,636.48	£4,007,901.47
Average	£624,759.42	£578,532.24	£31,659.12	£1,001,975.37
North Sea				
Year	UK 6nm	UK 12nm	Offshore	
2013	£251,614.21	£461,310.29	£470,897.04	
2014	£185,003.84	£424,398.60	£501,057.48	
2015	£133,368.89	£209,637.10	£253,361.74	
2016	£92,096.23	£227,673.05	£298,286.77	
Total Value	£662,083.18	£1,323,019.04	£1,523,603.03	
Average	£165,520.80	£330,754.76	£380,900.76	

Figure 2.86: Havhingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total value of landings (mobile & static gear) by year by all UK vessels (between 2013-2016) (Source: MMO, 2017c)

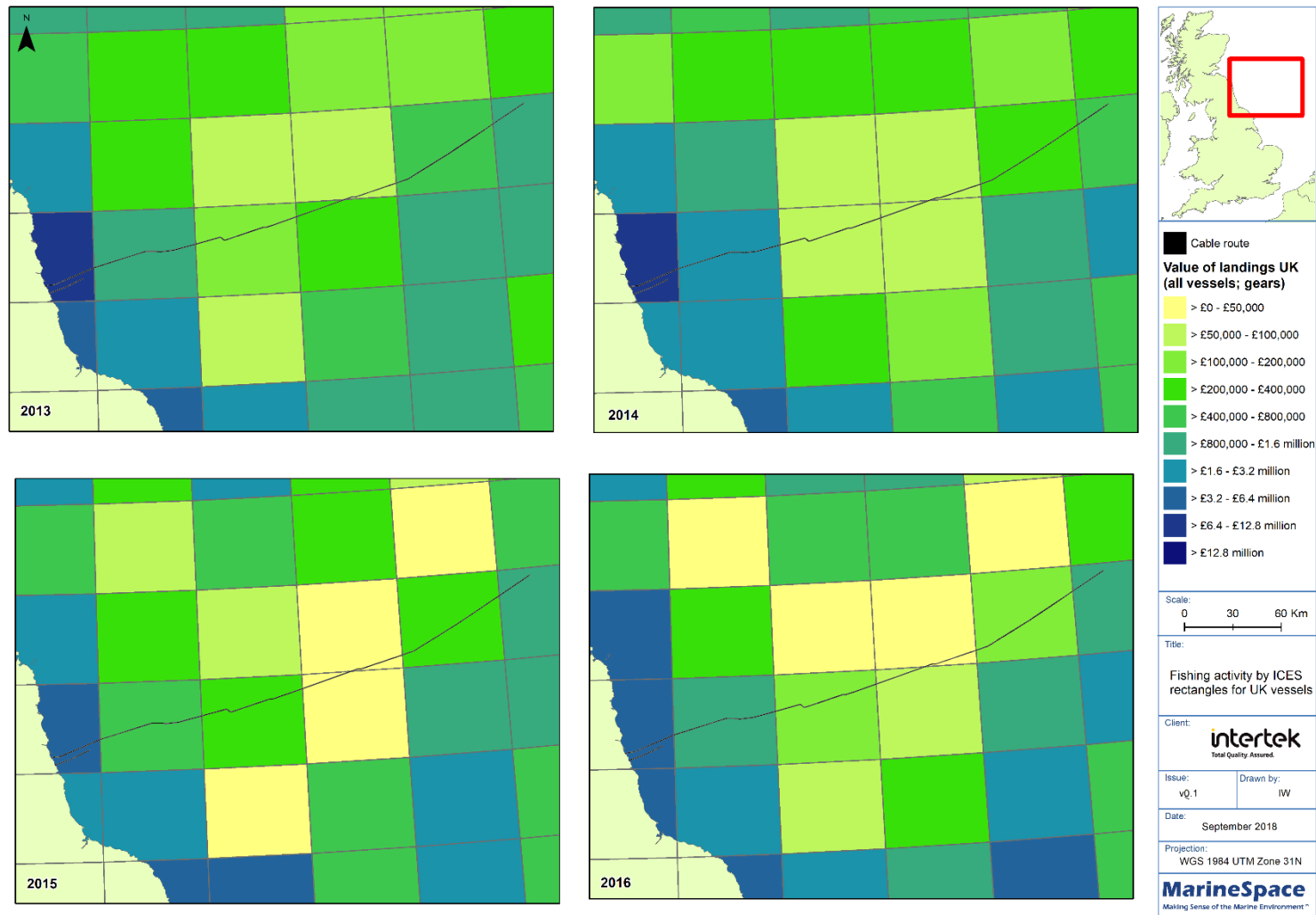


Figure 2.87: Havingsten Fibre Optic Telecommunications Cable Corridor (Irish Sea Sea) in relation to the total value of landings (mobile & static gear) by year by all UK vessels (between 2013-2016) (Source: MMO, 2017c)

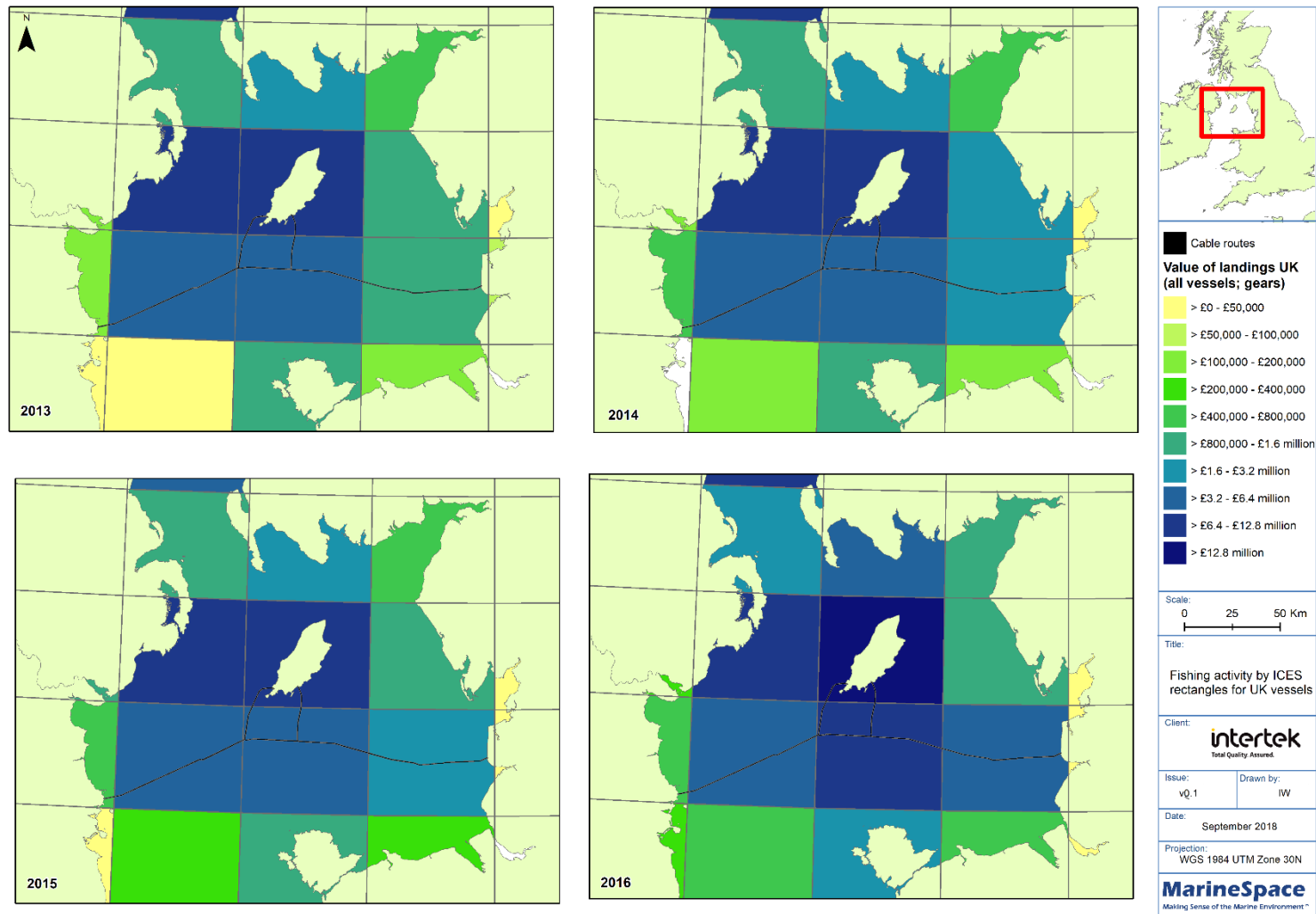


Figure 2.88: Havhingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total value of landings (mobile & static gear) by year by UK vessels (>15 m) (between 2013-2016) (Source: MMO, 2017c)

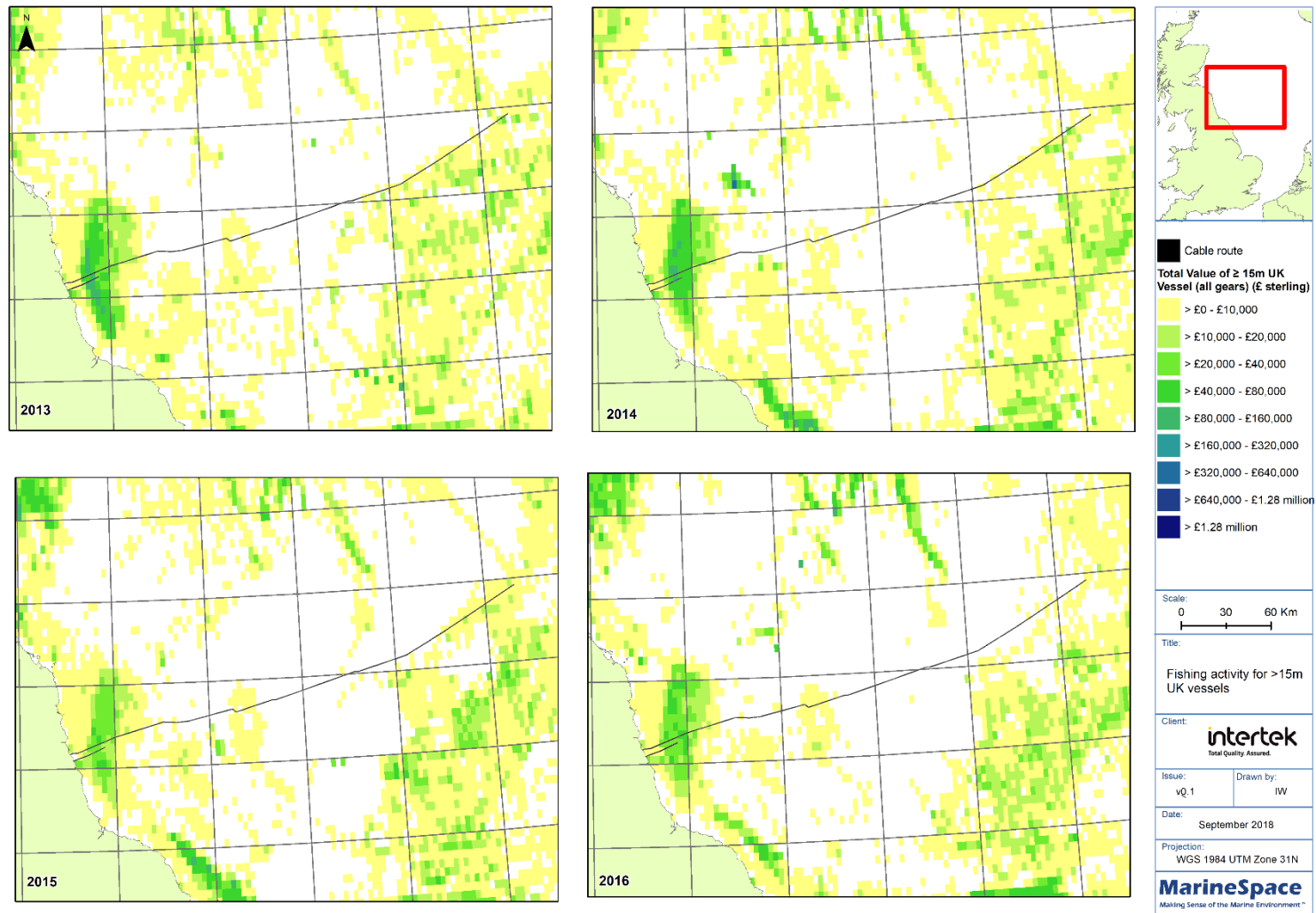


Figure 2.89: Havingstun Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to the total value of landings (mobile & static gear) by year by UK vessels (>15 m) (between 2013-2016) (Source: MMO, 2017c)

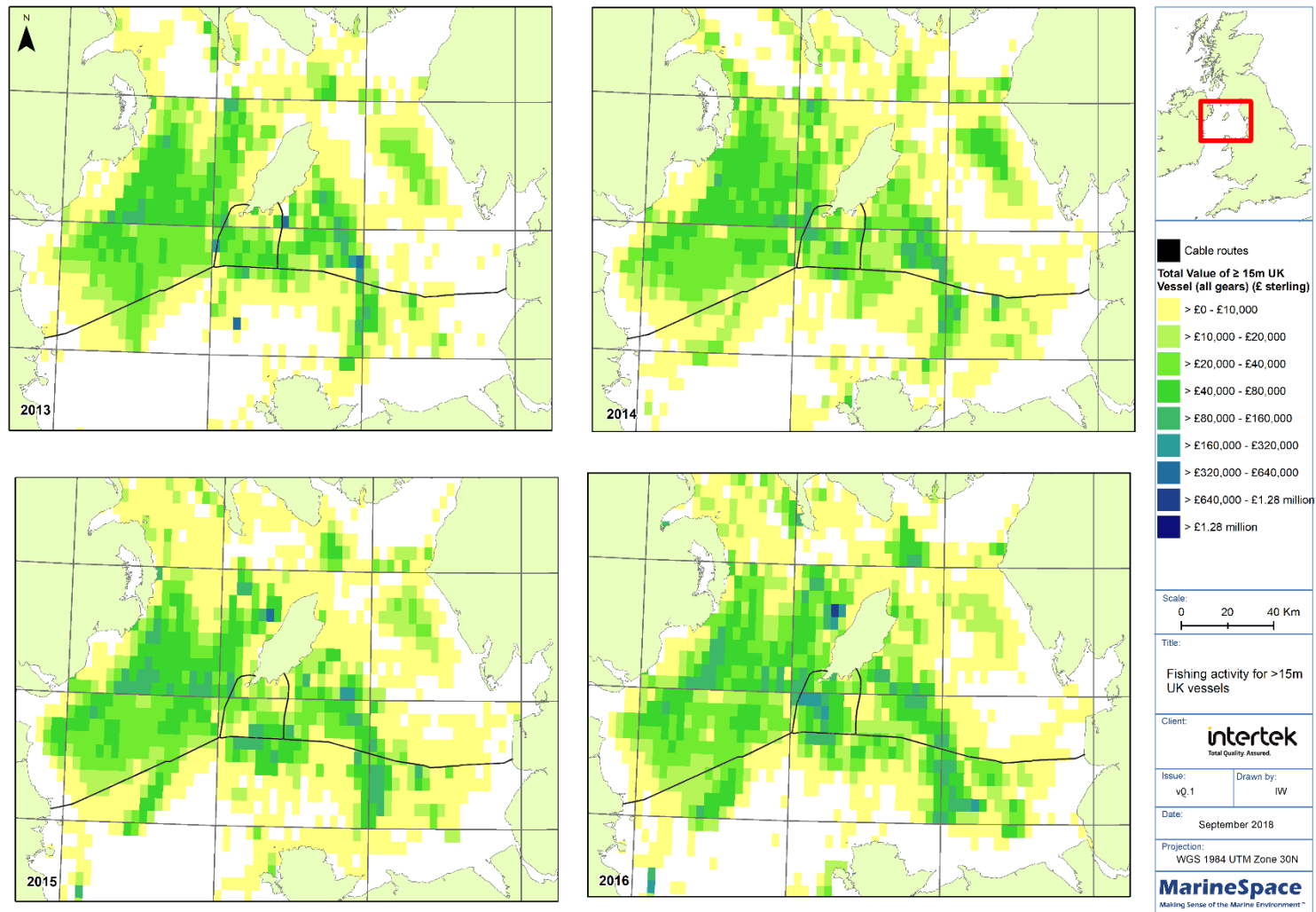


Figure 2.90: Havhingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total value of landings (mobile & static gear) divided into sea areas by nautical Miles, by UK vessels (>15 m) (between 2013-2016) (Source: MMO, 2017c)

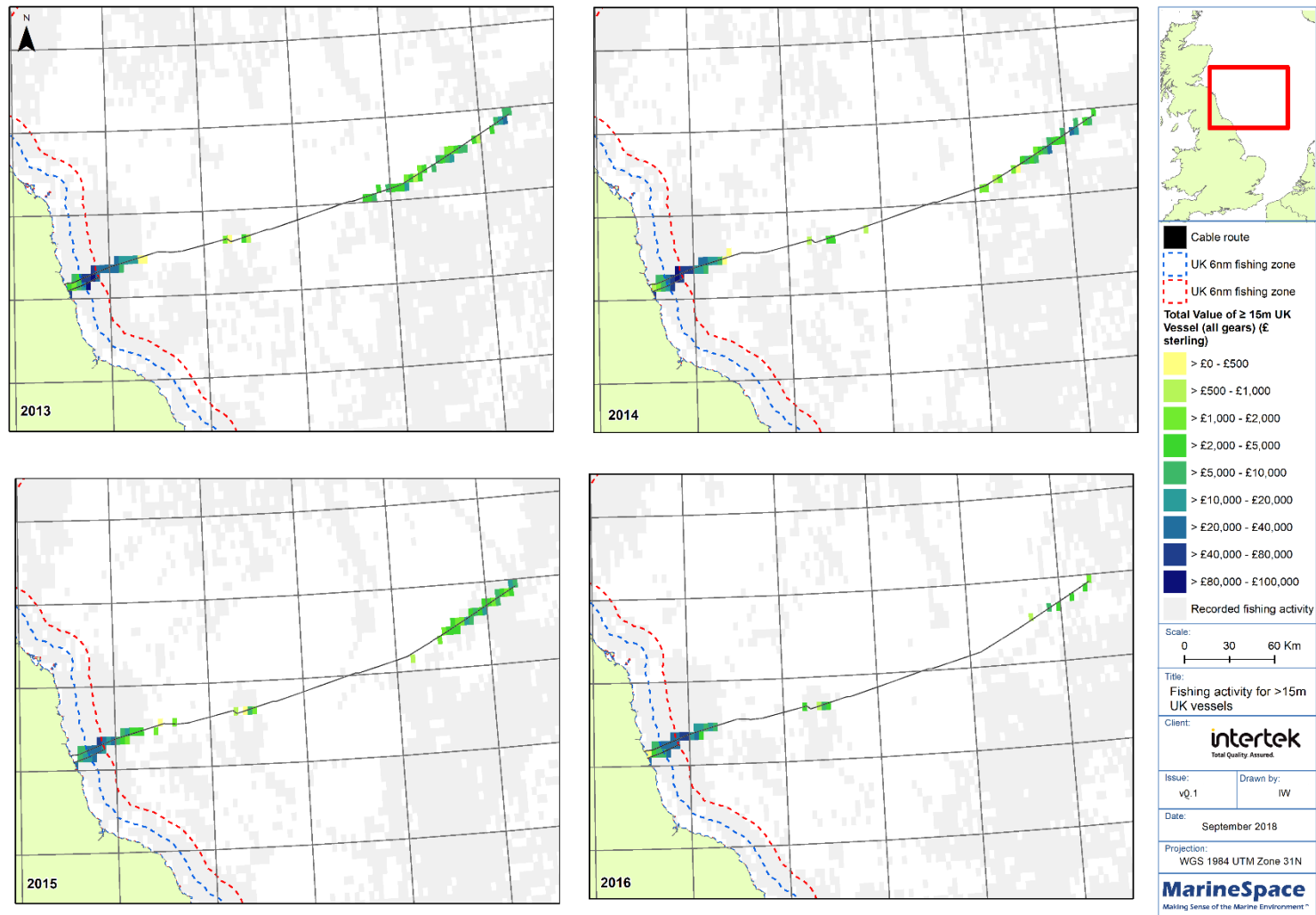
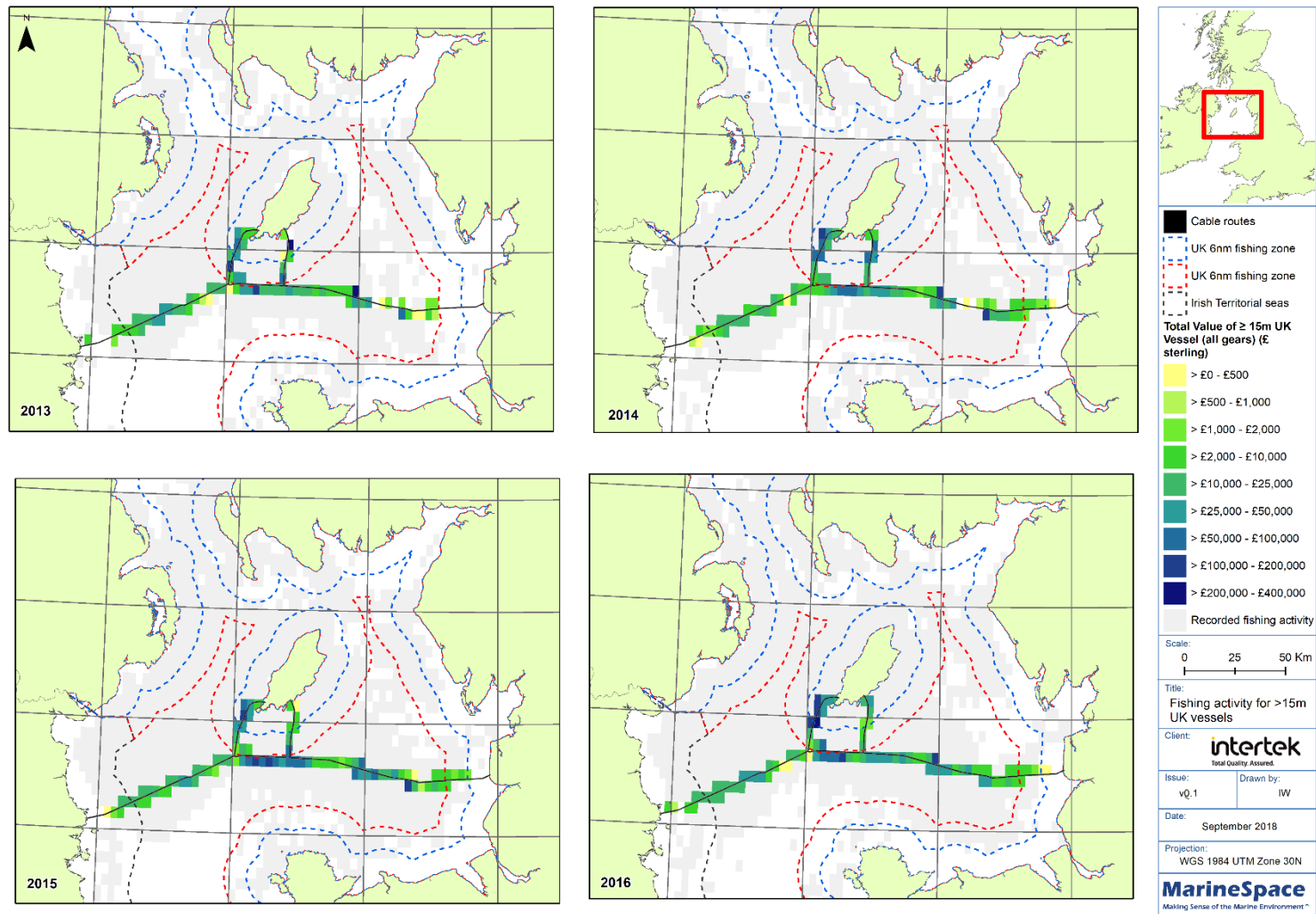


Figure 2.91: Havhingsten Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to the total value of landings (mobile & static gear) divided into sea areas by nautical Miles, by UK vessels (>15 m) (between 2013-2016) (Source: MMO, 2017c)



2.9.3 Fishing Effort – Non-UK Vessels

The non-UK data figures below have also been created using VMS data. However, within this non-UK data set there is no landed value figures and the time period is different to that used above for the UK fleet and ranges from 2007-2010.

Figure 2.92 to Figure 2.102 show total hours fished between 2007-2010 in and around the proposed Havingsten cable by non-UK vessels over 15 m, Belgian, Danish, Dutch, French, Irish & Spanish using all gear types within ICES Rectangles (North Sea) 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3, (Irish Sea) 37E5, 36E6, 36E5, 36E4, 36E3 using VMS data.

Figure 2.92: Havingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (mobile & static gear) by Belgian vessels (>15 m) within ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2007-2010) (Source: MMO, 2014)

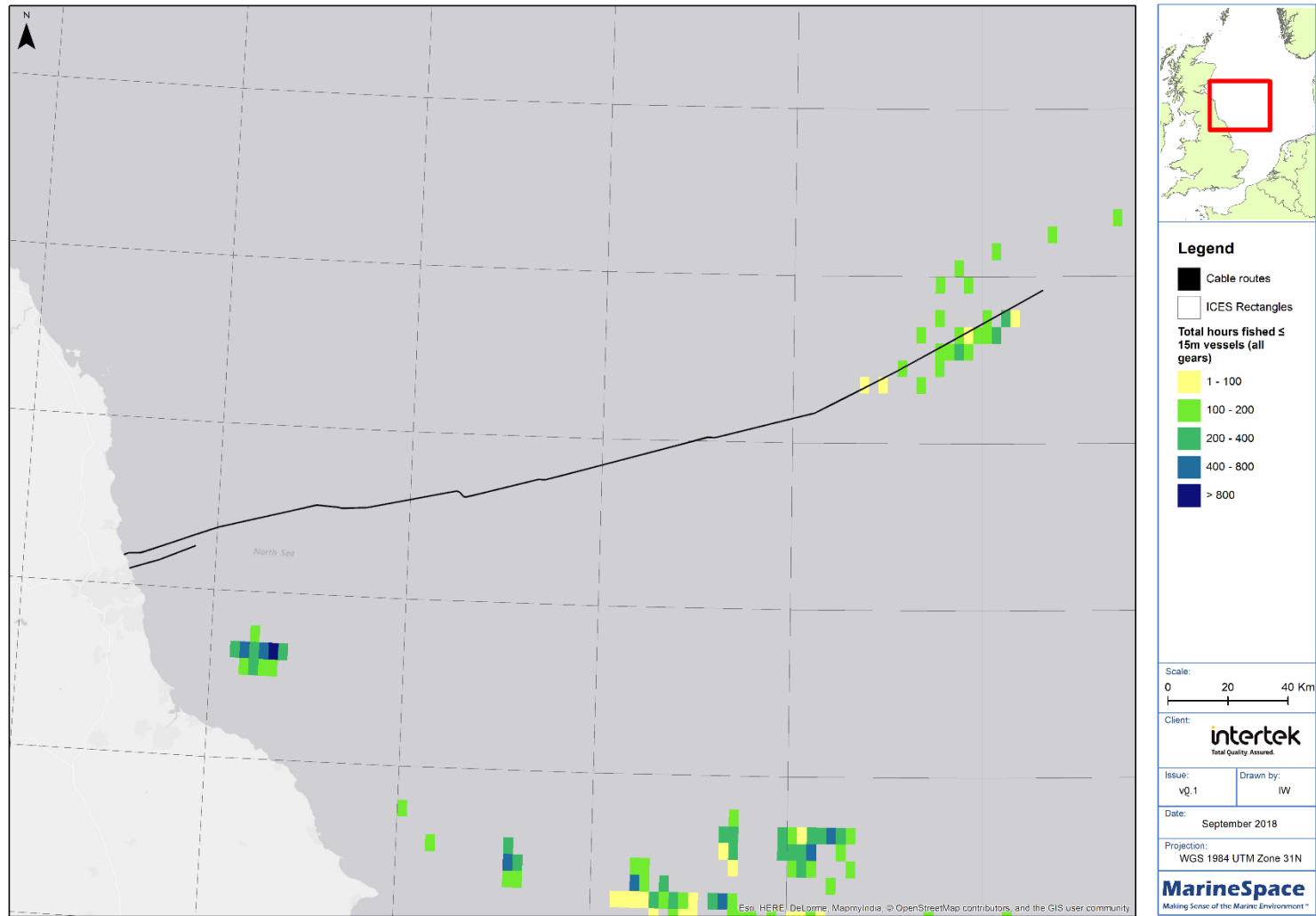


Figure 2.93: Havhingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (mobile & static gear) by Danish vessels (>15 m) within ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2007-2010) (Source: MMO, 2014)

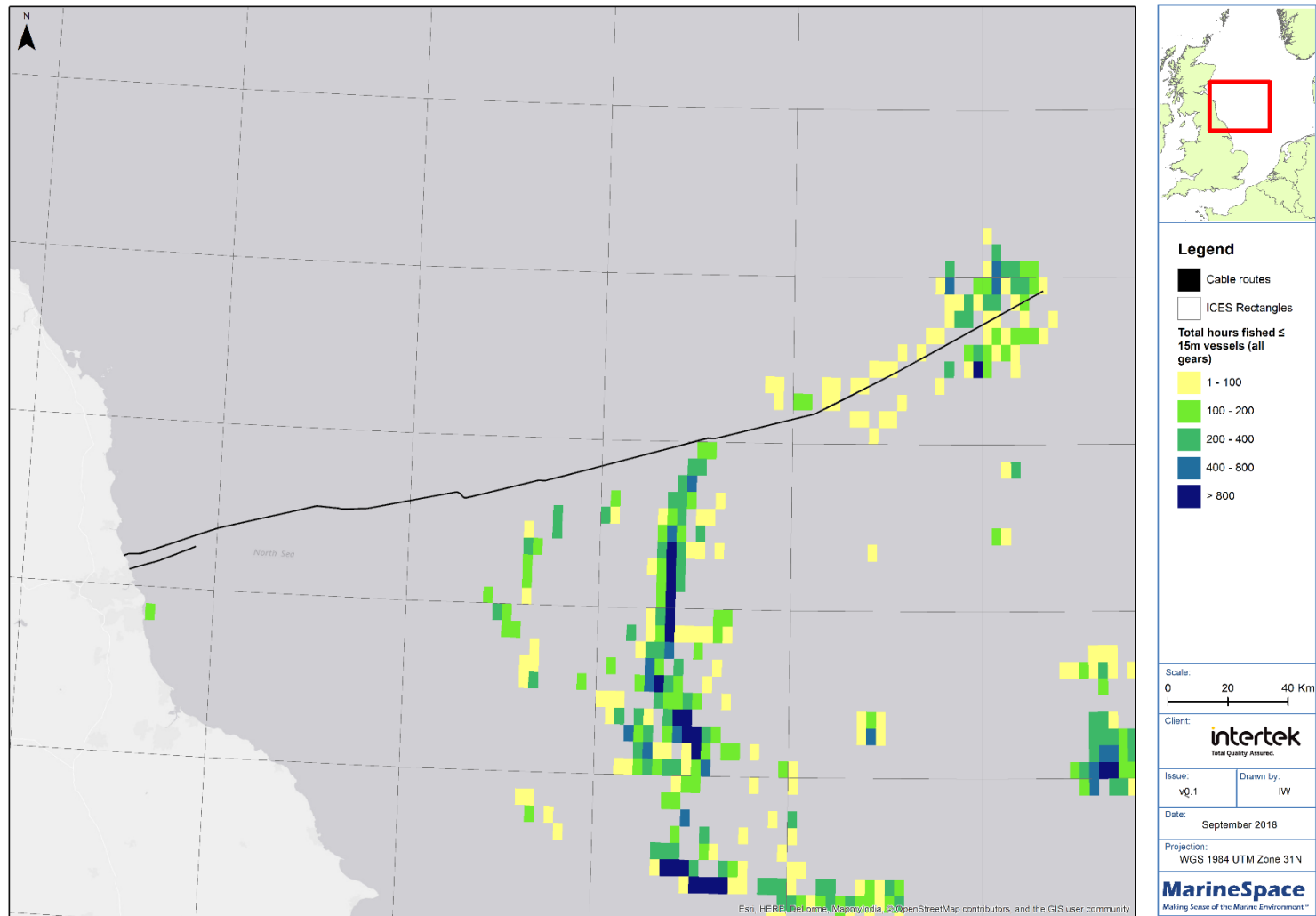


Figure 2.94: Havingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (mobile & static gear) by Dutch vessels (>15 m) within ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2007-2010) (Source: MMO, 2014)

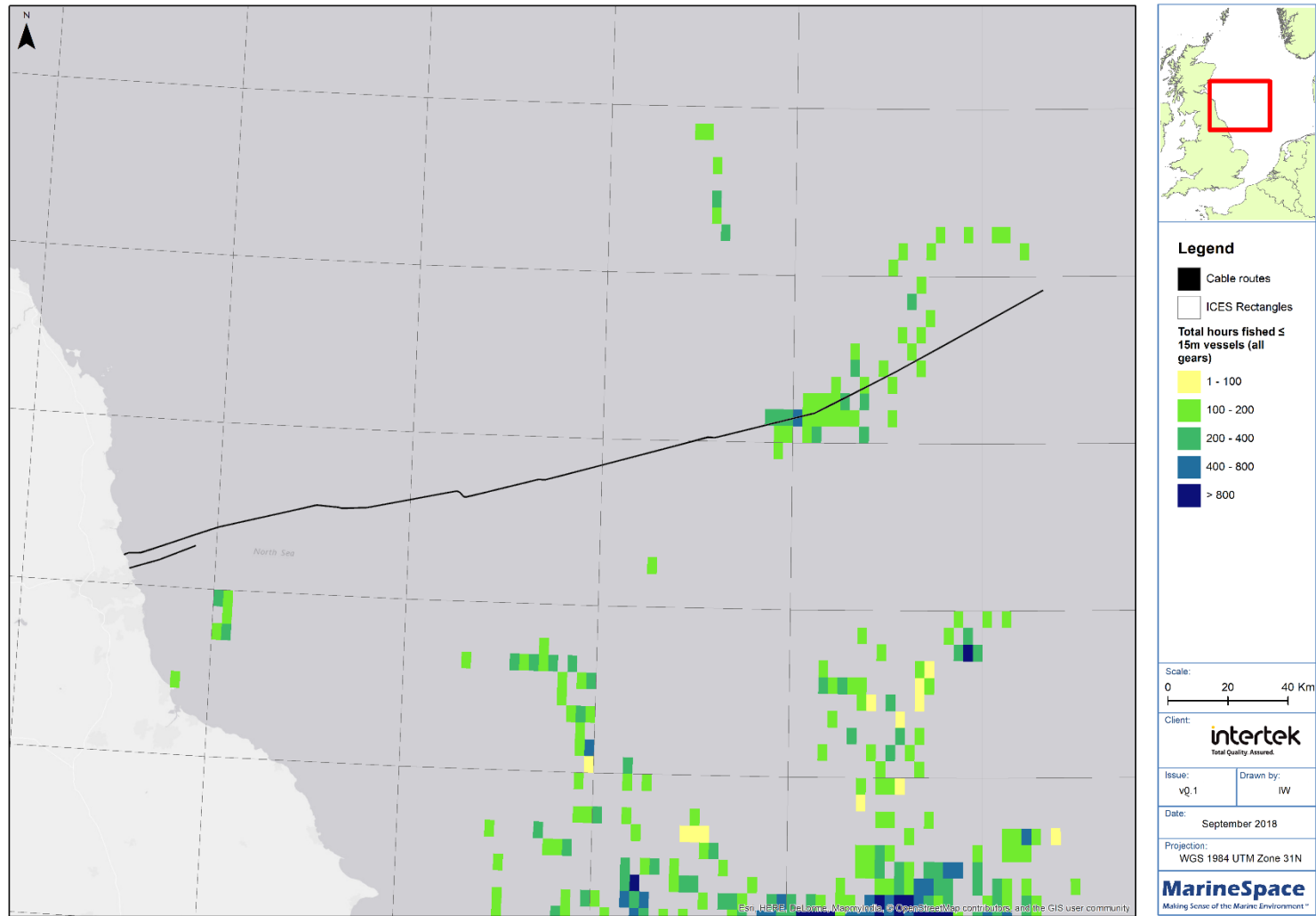


Figure 2.95: Havhingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (mobile & static gear) by French vessels (>15 m) within ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2007-2010) (Source: MMO, 2014)

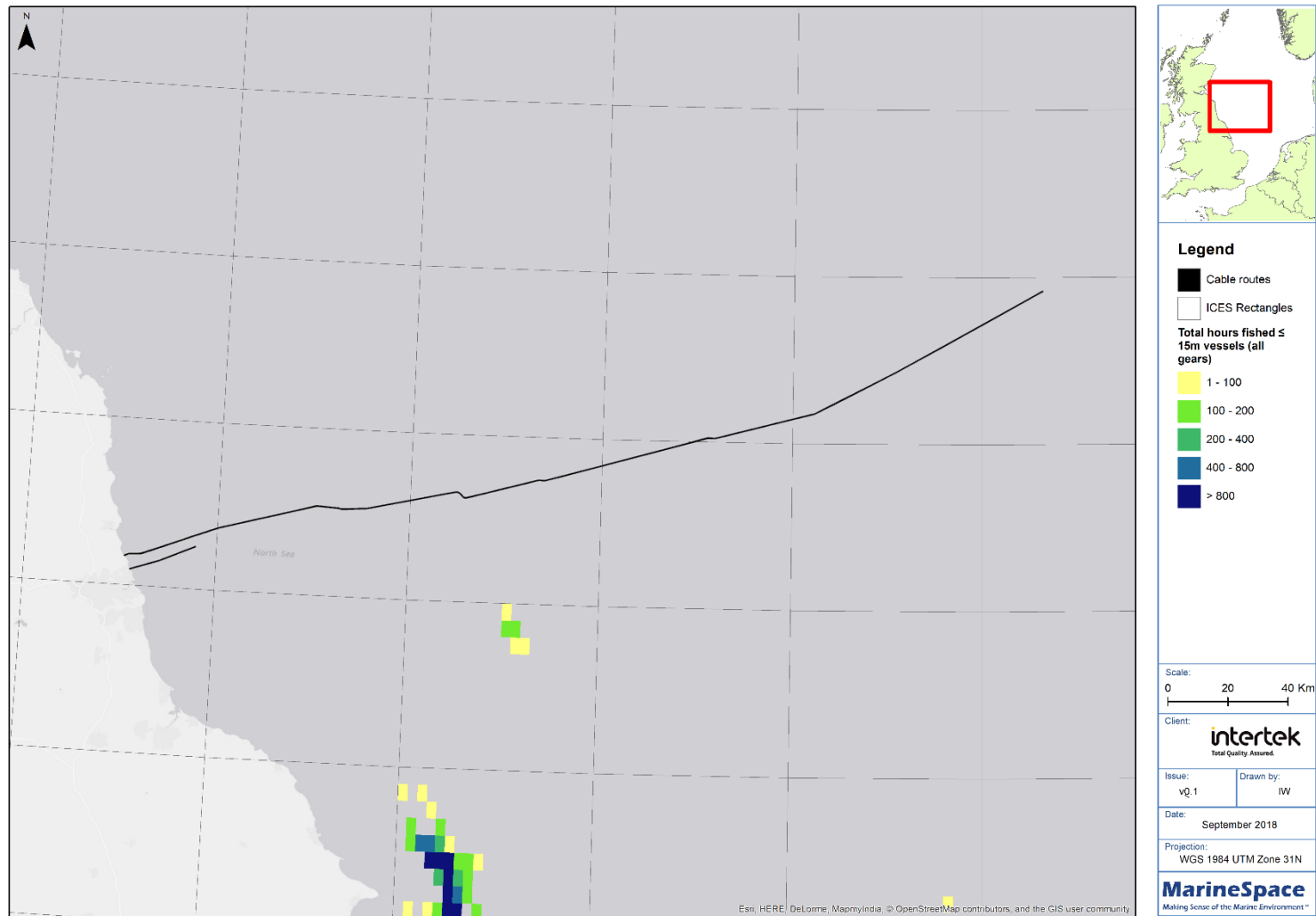


Figure 2.96: Havingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (mobile & static gear) by German vessels (>15 m) within ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2007-2010) (Source: MMO, 2014)

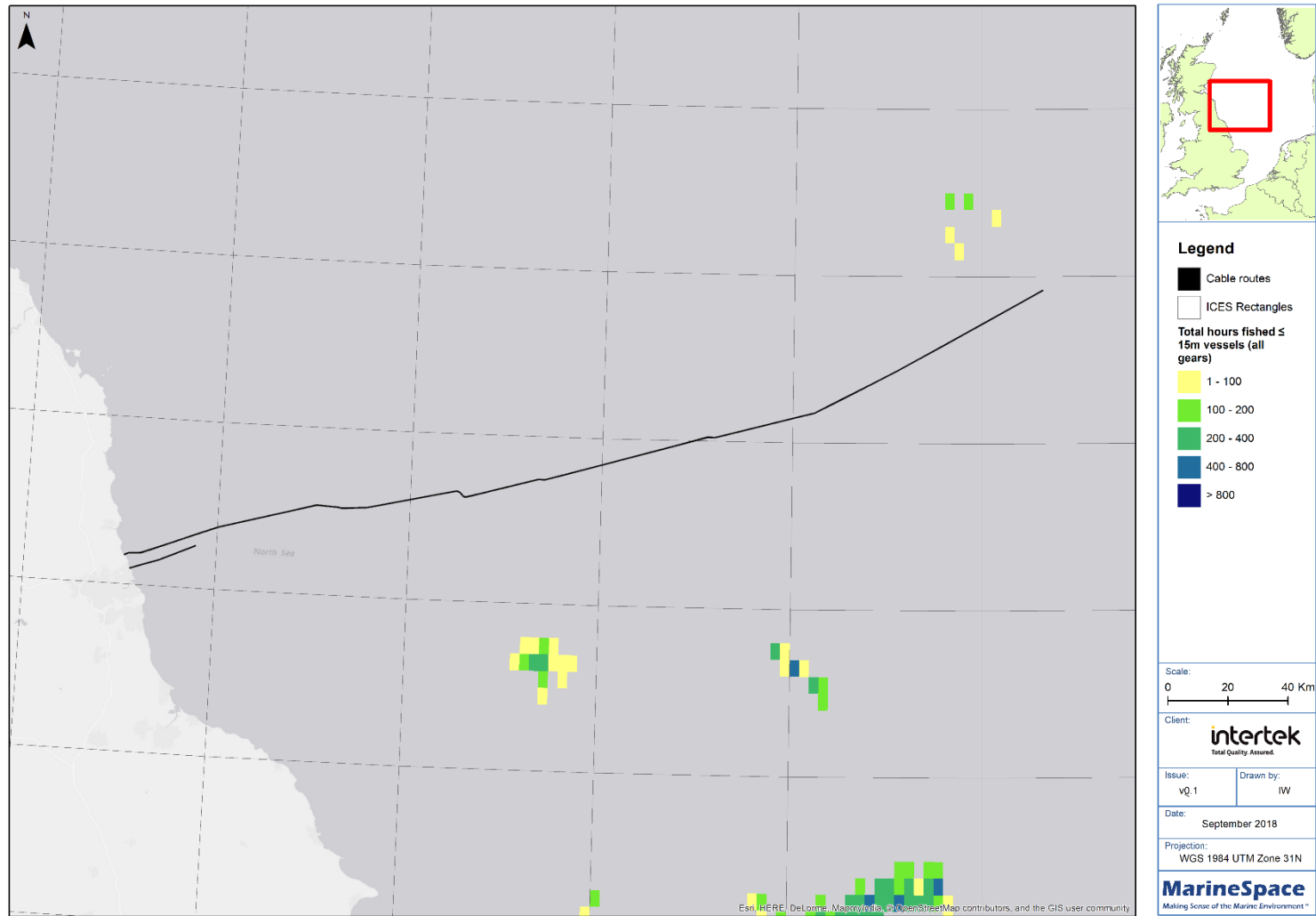


Figure 2.97: Havhingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (mobile & static gear) by Norwegian vessels (>15 m) within ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2007-2010) (Source: MMO, 2014)

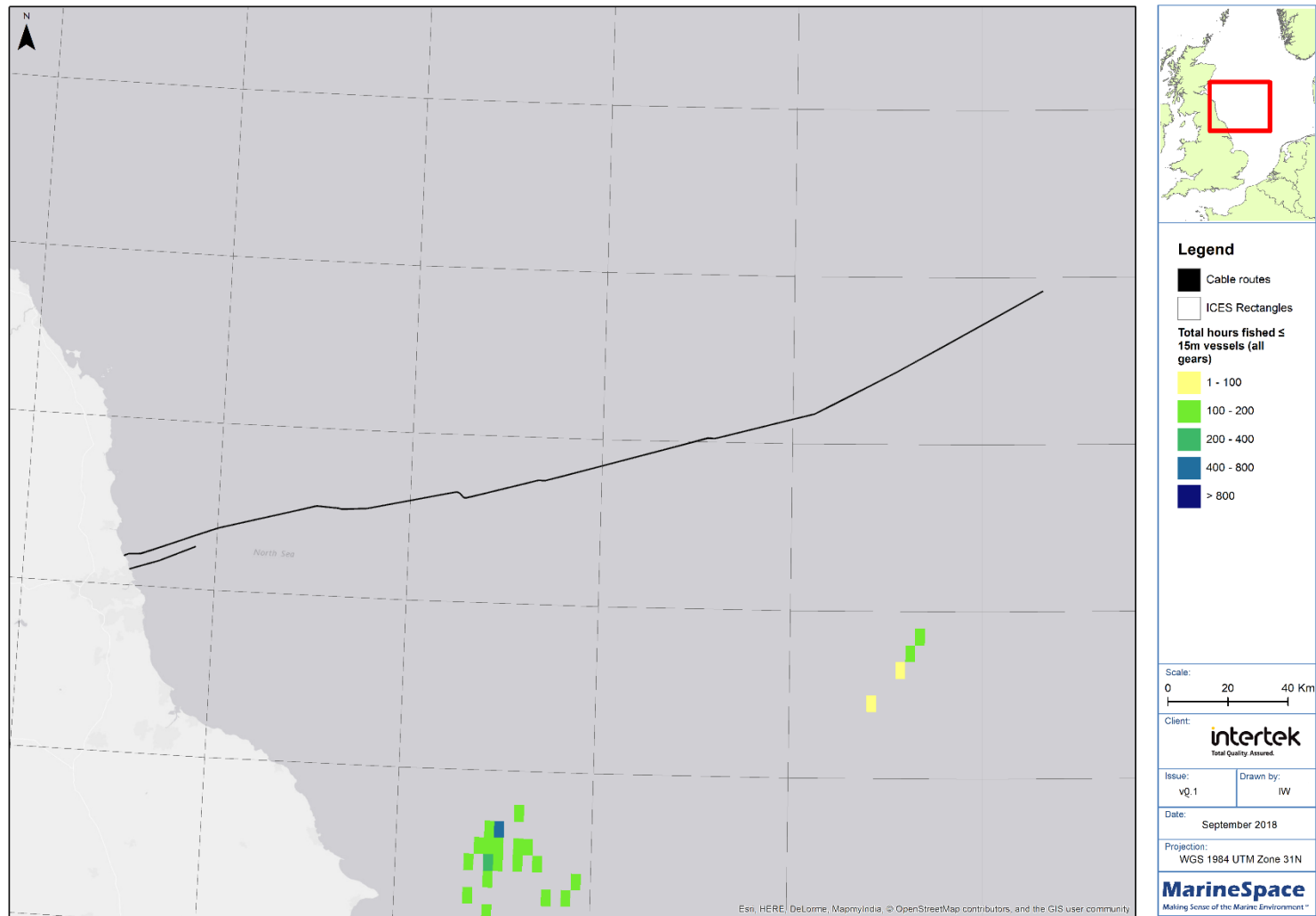


Figure 2.98: Havhingsten Fibre Optic Telecommunications Cable Corridor (North Sea) in relation to the total hours fished (mobile & static gear) by Swedish vessels (>15 m) within ICES Rectangles 39E8, 39E9, 39F0, 39F1, 40F1, 40F2, 40F3 (2007-2010) (Source: MMO, 2014)

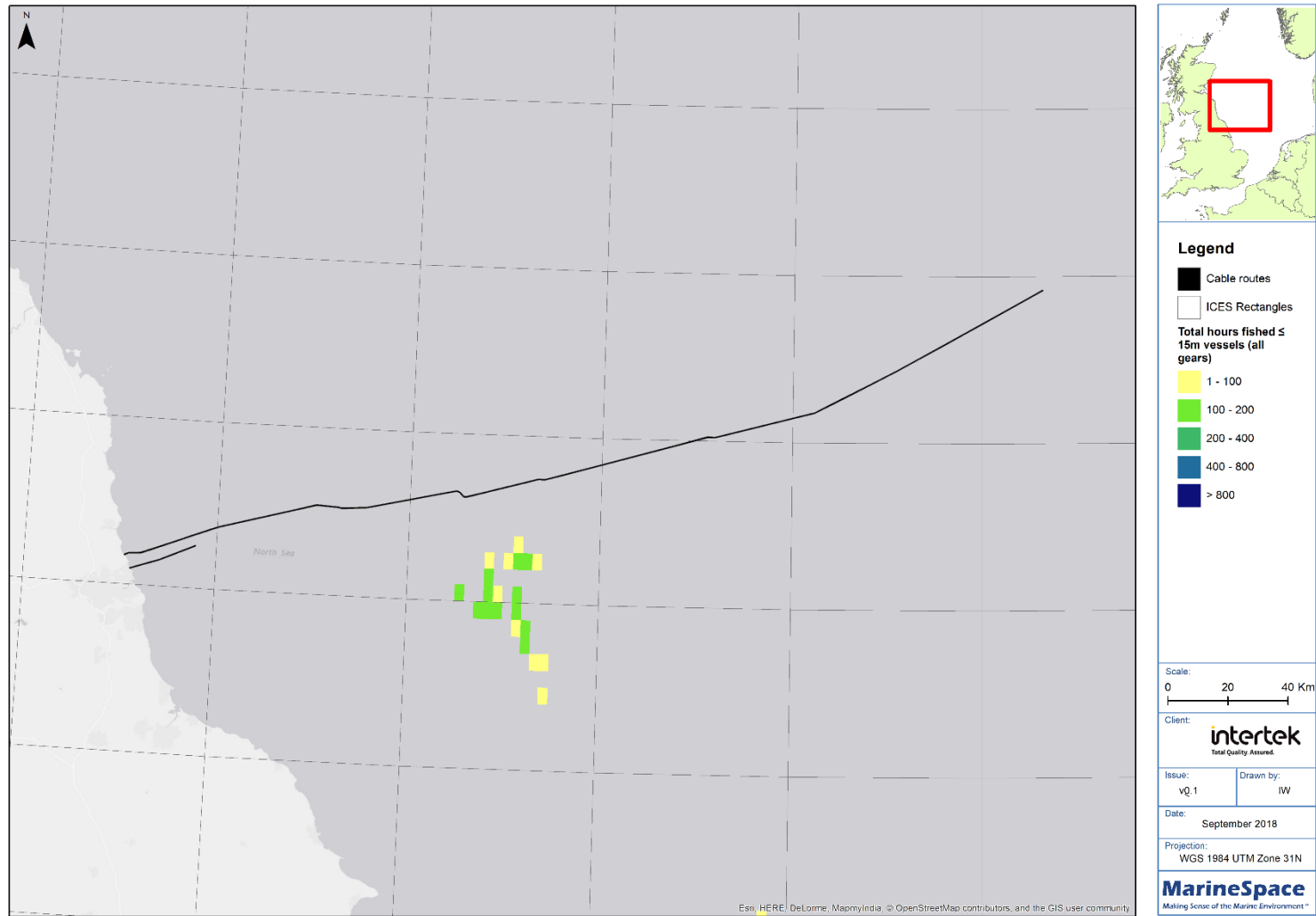


Figure 2.99: Havhingsten Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to the total hours fished (mobile & static gear) by Belgian vessels (>15 m) within ICES Rectangles 37E5, 36E6, 36E5, 36E4, 36E3 (2007-2010) (Source: MMO, 2014)

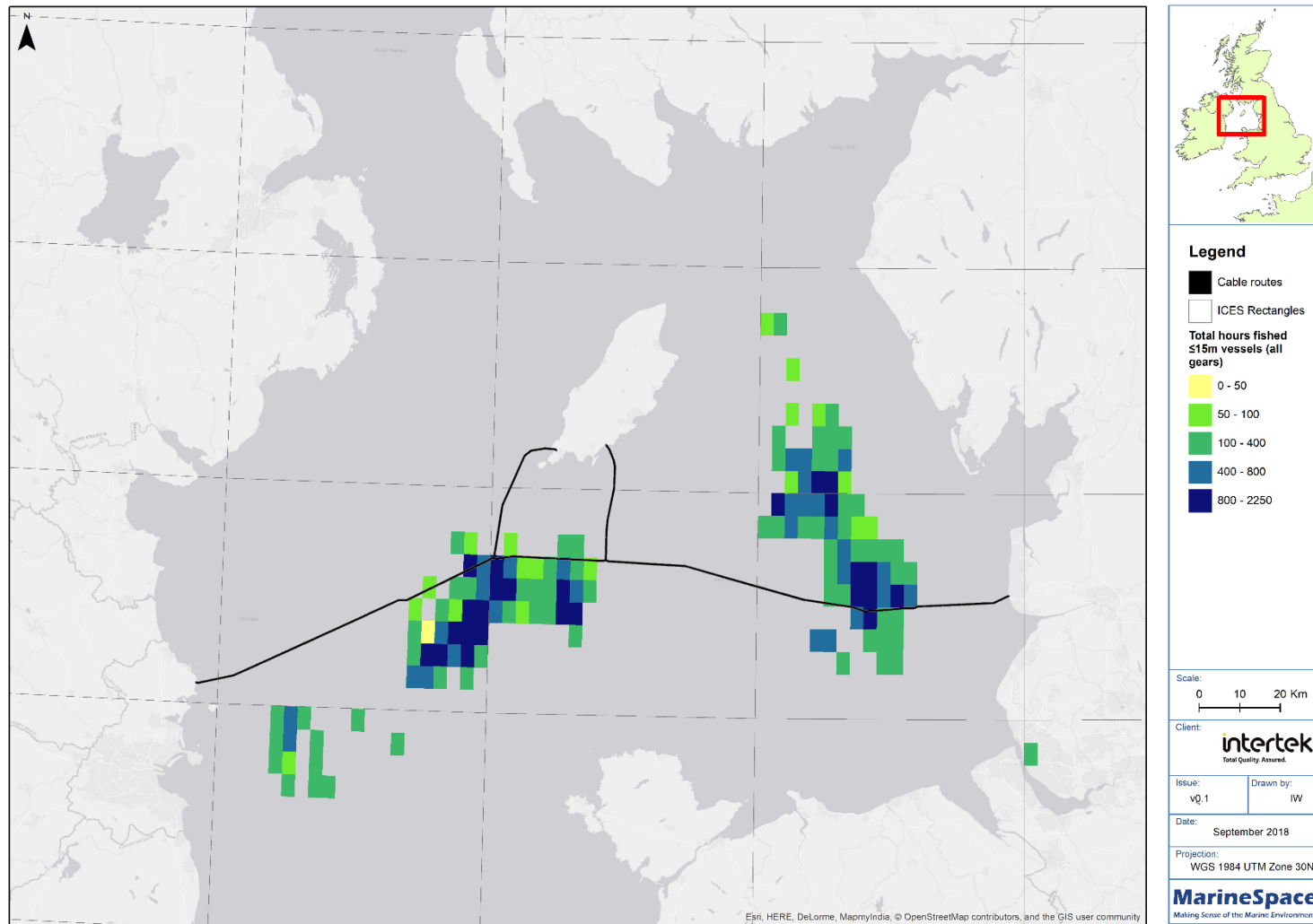


Figure 2.100: Havingsten Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to the total hours fished (mobile & static gear) by French vessels (>15 m) within ICES Rectangles 37E5, 36E6, 36E5, 36E4, 36E3 (2007-2010) (Source: MMO, 2014)

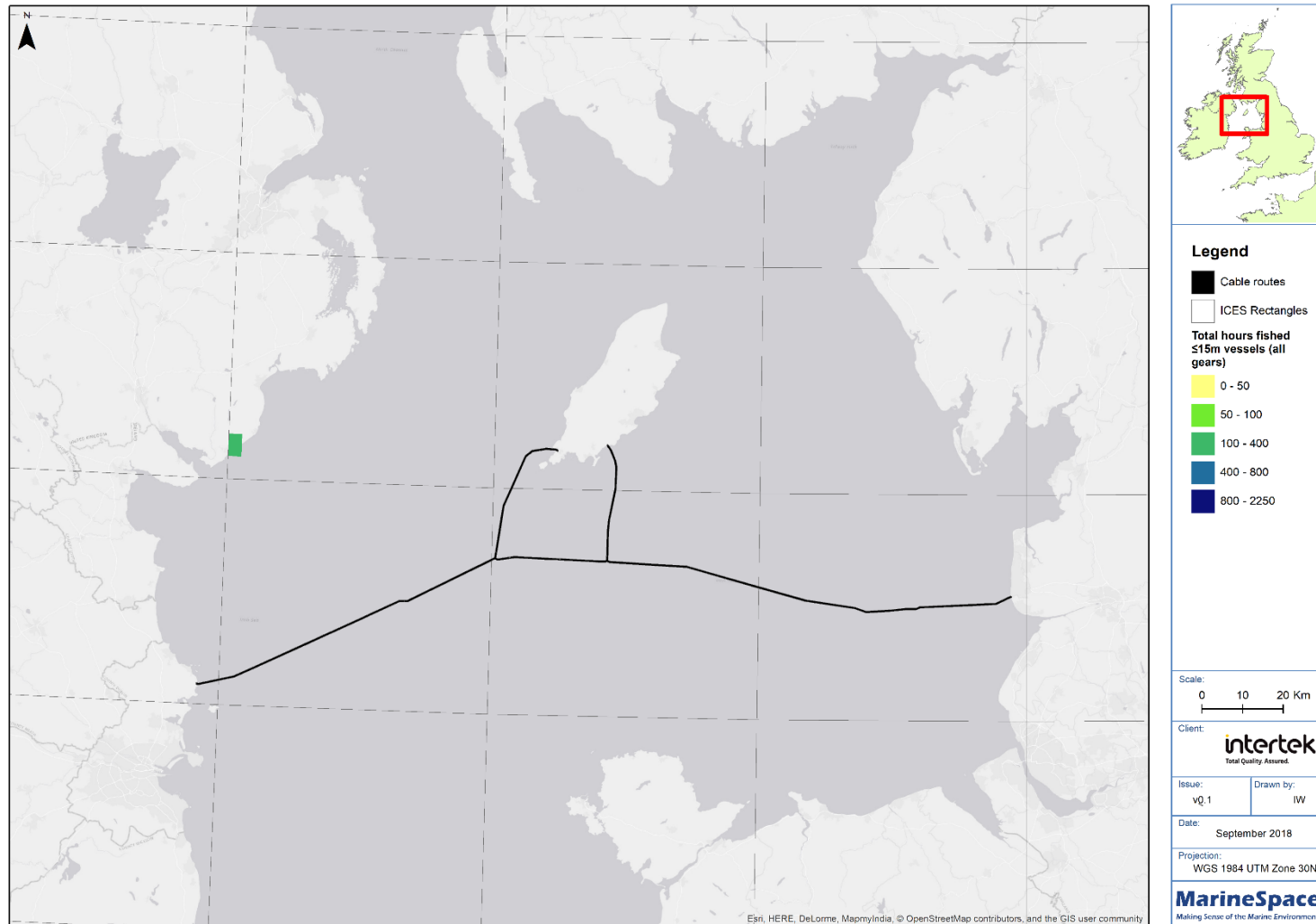


Figure 2.101: Havhingsten Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to the total hours fished (mobile & static gear) by Irish vessels (>15 m) within ICES Rectangles 37E5, 36E6, 36E5, 36E4, 36E3 (2007-2010) (Source: MMO, 2014)

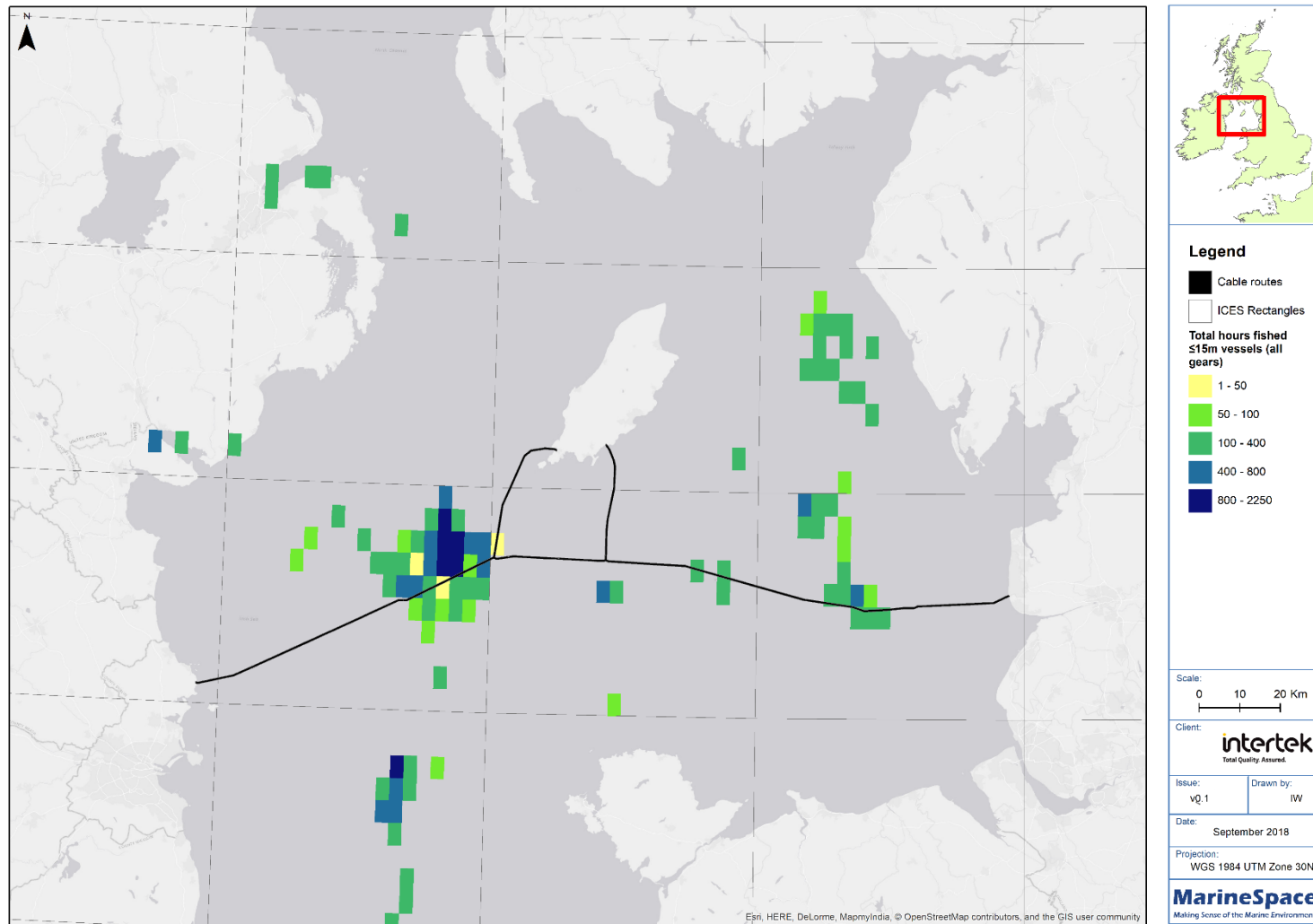


Figure 2.102: Havingstun Fibre Optic Telecommunications Cable Corridor (Irish Sea) in relation to the total hours fished (mobile & static gear) by Norwegian vessels (>15 m) within ICES Rectangles 37E5, 36E6, 36E5, 36E4, 36E3 (2007-2010) (Source: MMO, 2014)

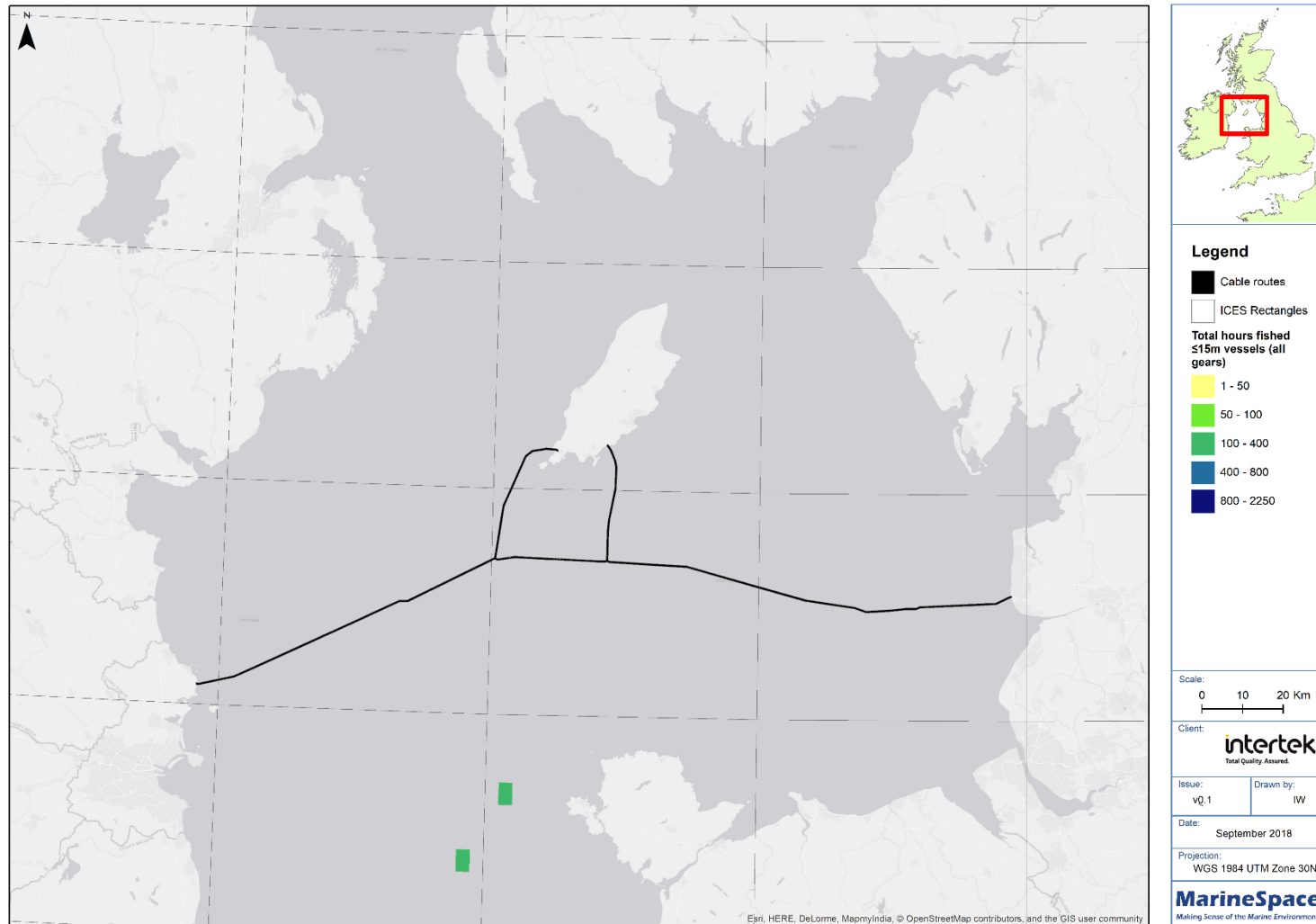
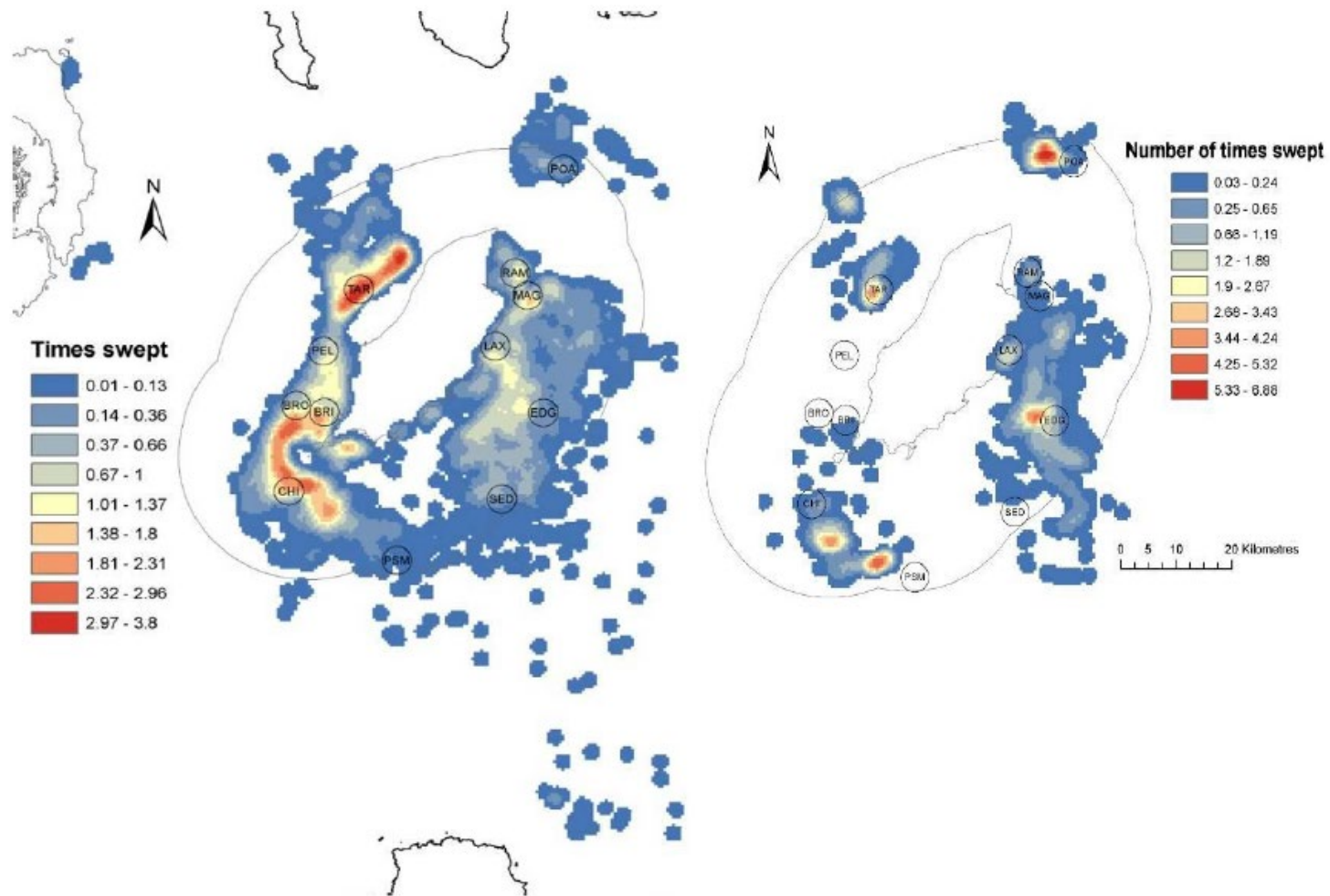


Figure 2.103: Number of times the seabed was swept by Manx vessels fishing for a) King scallop and b) Queen scallop between 1st November 2008 and 30th November 2010 (DEFA, 2018)



2.9.4 Fishing Effort – By Regional Ports

Figure 2.104 and Figure 2.105 show fishing effort (kWh / day) in relation to regional ports in the North Sea and Irish Sea and mapped to show proximity to the proposed Havhingsten cable.

Figure 2.104: Havingsten Fibre Optic Cable Corridor (North Sea) in relation to the fishing effort by regional ports based on data from 2013-2016 (Source: MMO, 2017c)

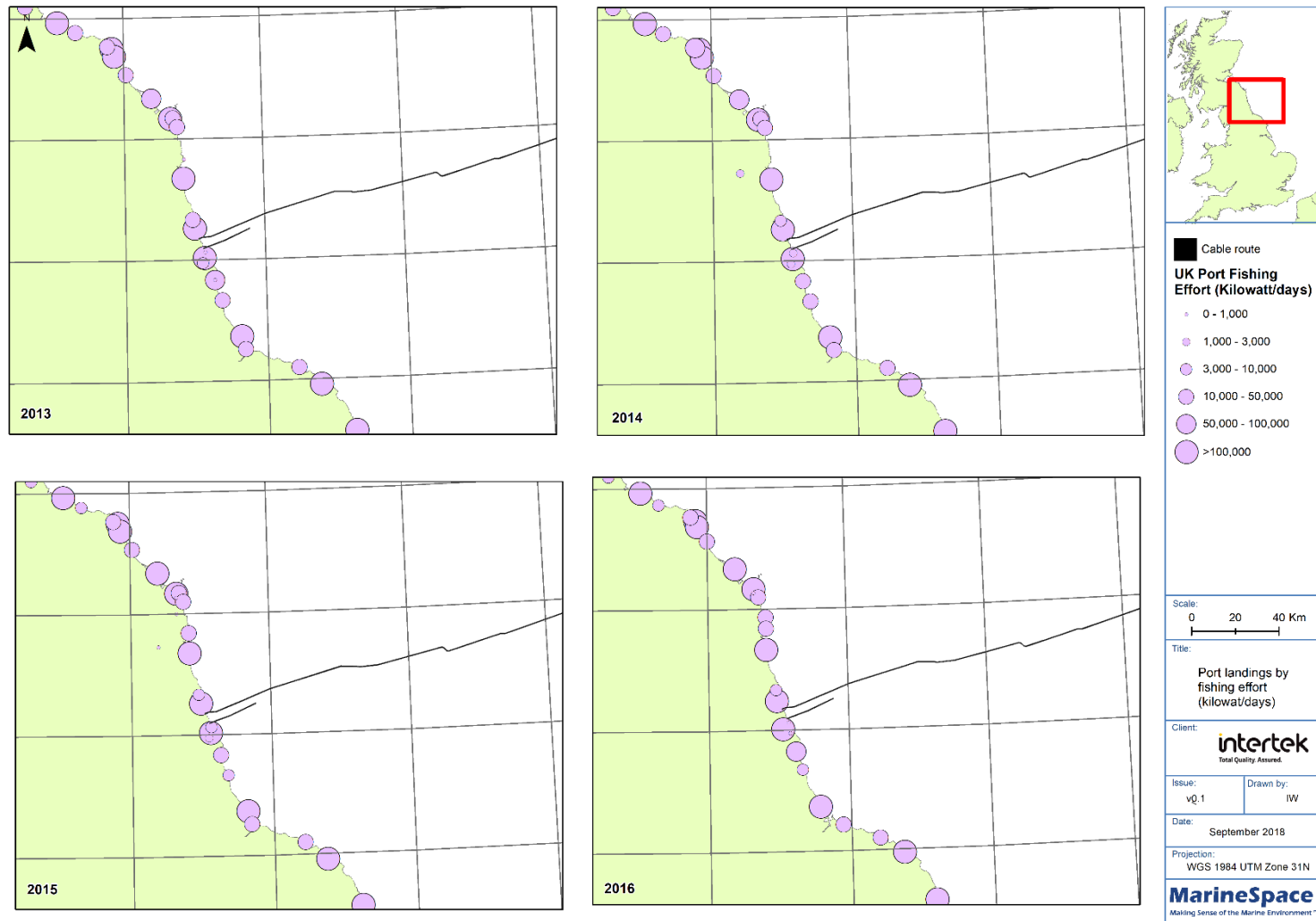
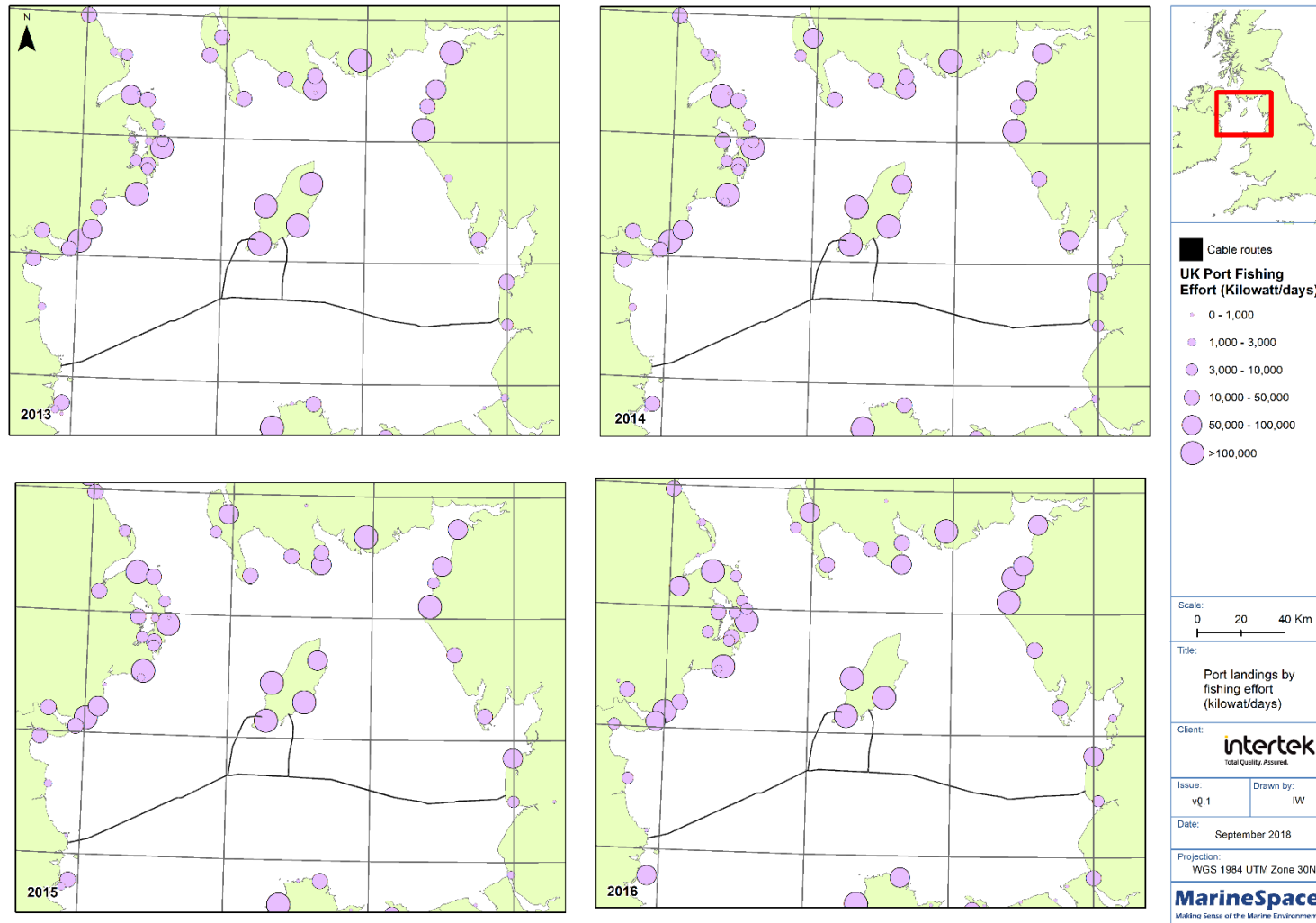


Figure 2.105: Havingsten Fibre Optic Cable Corridor (Irish Sea) in relation to the fishing effort by regional ports based on data from 2013-2016 (Source: MMO, 2017c)



3. Recreational Fishing Activity

3.1 UK Recreational Fisheries

3.1.1 Northeast

Recreational fishing and coastal & sea angling are popular on the northeast coast of the UK. The target species range from crab and lobster to bass, cod, whiting and sole. There are a number of charter boats working out of the Tyne and Wear and Teesside regions. Beach and rock fishing are also popular.

3.1.2 Northwest

There are a few charter boats operating out of Fleetwood and from nearby beaches all year round. The target catch for recreational fishing is bass, plaice, cod and rays with the peak season during spring months.

Rossall Point is a popular location for shore anglers fishing for bass, cod, whiting and flounder at high water, and for push netters after shrimps and prawns at low water.

3.2 Irish Recreational Fisheries

Irish anglers have a high tendency to fish for multiple species and, as such, it is difficult to categorise them by species sought. However, the most recent survey work carried out by IFI (Millward Brown, 2015) indicated that when anglers were asked to choose only one angling type above all others, sea angling was one of the most popular, being chosen by approximately 24% of the Irish anglers surveyed (giving an estimated total of 656,642 Irish sea anglers); a further 4% considered themselves to be bass anglers (109,443). Results of the 2013 Tourist Developmental International (TDI) report indicated that domestic Irish anglers across all angling types spend an estimated €1,974 annually on their fishing, with sea anglers spending an average of €1,331 and bass anglers spending €2,685 (IFI, 2015).

3.3 IoM Recreational Fishing

In Manx waters the following recreational fishing methods are used: hand collection; charter angling; long lining; potting (Port Erin is particularly important); beach seining; scuba diving; angling (and hand lining), angling from kayaks; rod and line from shore; rod and line from boats. There are also several recreational angling competitions throughout the year which are supported by both local and visiting anglers from UK, Ireland and further afield. Recreational angling, as a catch and release practice, for small shark species, e.g. Tope has become popular on the Isle of Man (Henley et al, 2013).

4. Feedback from Commercial Fishing Representatives

As part of this desk-based study the following fishing organisation have been contacted to gain a wider understanding of fishing activity in the region of the Havhingsten Cable:

UK Organisations

- National Federation of Fishermen's Organisations (NFFO);
- North Irish Fish Producers Organisation (NIFPO); and
- Anglo North Irish Fish Producers Organisation (ANIFPO).

Irish Organisations

- Irish South and East Fish Producers Organisation;
- North East Regional Inshore Fisheries Forum (NERIFF); and
- Irish Sea Fisheries Board (BIM);

IoM Organisations

- IoM Government Fisheries Directorate; and
- IoM Fish Producers Organisation.

Contact with these organisations has been primarily focussed on the following objectives:

- Providing and update/introduction to the proposed project, including clarifying the status of the project;
- Discussing the key findings of the review of MMO/EU data to identify any particular anomalies or inaccuracies; and
- Obtaining information on nearshore fishing activity (by <10 m vessels) whose activity may not be fully recorded in official MMO/EU data-sets.

Based on discussions to date, key issues identified are summarised below:

Key Issues

- Disruption to normal fishing activities during ongoing survey and planned installation phase;
- Damage or loss of gear;
- Gear removal required for survey/installation phase and time/cost incurred to do so;
- Underwater noise emitted during survey/installation activities and proximity of this noise to the seabed. Of concern is how this may affect the scallop fishery around the IoM if the noise was close to seabed;
- IoM organisations recommended against any works being undertaken during the peak scallop season from November each year;
- Manx waters are almost all utilised by fishing activities, whether they be mobile or static, or restricted areas, management zones etc. and so during displacement due to installation activities will be difficult for fishermen to relocate;
- Concerns over if the cable will emit any heat once installed;
- Concerns over if the cable will be buried deep enough that future fishing activities will not at risk of snagging and/or excluded from the cable route;
- Feedback from all organisation that engagement with respect to survey operations should have been earlier, particularly from the NFFO and Northern Irish organisations and;

- All organisations have stressed that earlier engagement with the fishing industry needs to occur before the next phase of the project.

5. Summary

An assessment of commercial and recreational fishing activity in the region of the proposed Havhingsten cable has been undertaken via a review of official landings and fishing activity data collated from the MMO and EU-data sources. Consultation has also been undertaken with selected representatives of commercial fishing organisations for both the North Sea and Irish Sea.

From the data presented in this report the following key conclusions can be reached with respect to fishing activity in this area:

5.1 Overview of Fisheries Activity

5.1.1 North Sea

- Fishing activities within the North Sea are diverse, not only in terms of target species and methods adopted, but also in terms of fleet nationalities fishing the same grounds.
- Along the north-eastern stretch of the cable route within the North Sea key target species are *Nephrops* and white fish;
- Two of the major ports on the northeast coast of the UK in the vicinity of the proposed cable route are Blyth and North Shields, although vessels also fish out of other ports in this region including Sunderland, Amble, Filey, Redcar and Seahouses;
- Based on recent vessel lists (MMO, November 2018), there are nine <10 m vessels fishing out of Blyth and also two >10 m vessels, all targeting shellfish and whitefish, as well as *Nephrops* in the Farn Deep area for most of the year, with cod, haddock, whiting, plaice and lemon sole providing an important bycatch;
- North Shields is home to around 44 <10 m vessels and 36 >10 m vessels, highlighting its position as the leading fishing port in the north-east region. As per Blyth, the <10 m fleet primarily target shellfish but also whitefish at certain times of year. The >10 m vessels regularly fish within 12 miles of the coast, particularly in winter, though some of these boats fish out to 30 miles offshore in calm weather. Scottish boats, particularly those from the Firth of Forth also frequently land their catches here.

5.1.2 Irish Sea

- Fishing in the Irish Sea is widely distributed and key target species groups are shellfish and demersal;
- Northwest England**
- Off the northwest UK fishing activities are less intense than other areas around the UK by the local fishing fleet. However, visiting vessels from Northern Ireland and non-UK vessels targeting whelks mean that fishing effort offshore off the coast is still diverse;
 - The two main English fishing ports in this region are Fleetwood and Morecambe. The latest fishing vessel lists (MMO, November 2018) list 14 <10 m vessels registered at Fleetwood and a further eight >10 m vessels. At Morecambe, there are eight <10 m vessels and zero >10 m vessels. There are also a handful of registered vessels at Barrow, Maryport and Whitehaven;
 - Key species for majority of fishing in the northwest is *Nephrops* and mixed demersal species and scallops;

- The local declining fishing fleet is subject to competition from larger visiting trawlers;

Northern Ireland

- A key source of fishing activity in the Irish Sea region are Northern Irish vessels, operating out of ports such as Kilkeel, Portavogie, Belfast, Ardglass and Greencastle. These vessels target Nephrops, scallop and whitefish across the route of the Havingstun cable route;
- For the <10 m fleet, the latest vessel list (MMO, November, 2018) indicates the following vessel numbers per port; Ardglass (18); Kilkeel (30). In terms of the >10 m fleet, the latest vessel list (MMO, November, 2018) indicates the following vessel numbers per port; Ardglass (21); Kilkeel (59); Portvogie (23); (Belfast (6); and Greencastle (6). Many of these vessels hold scallop licences and will target waters in and around the IoM;

Republic of Ireland

- Off the east coast of the Republic of Ireland, the target species are shellfish, specifically lobster, crab, whelks and scallop;
- Primary seasons for key species off the coast of Ireland are lobster and crabs – March to October and whelks, all year round;
- The port of Howth is home to 14 permanent commercial fishing vessels;
- There are also a number of <10m vessels that fish a variety of gear in the immediate nearshore region of the proposed cable route around Loughshinny;

Isle of Man

- Commercial fishing activity is an important industry for the IoM, supporting around 400 jobs and inputting £12 million pounds per annum into the local economy;
- The Manx key fishery is scallop, which has been targeted since the 1950s;
- Traditionally, King scallop was dominant but in recent years the Queen scallop has become more prominent;
- The King scallop fishery is targeted by 60 vessels and opens annually from November to May and the majority of effort is focussed to the south and west of the IoM;
- There are 26 Northern Irish vessels with King scallop licences;
- The Queen scallop fishery is targeted by 34 vessels and opens in July. This fishery has a quota and thus closes once this has been met;
- There is also a Queen scallop dredge zone which opens after the normal Queen fishery has closed and;
- Potting is also widespread around the coast of the IoM. Target species are crab and European lobster. The area around the cable route leading to the Port Grenaugh landfall is of specific importance to the Manx potting fishery. This route also lies in close proximity to the whelk fishing grounds.

5.2 Overview of Landings Data

5.2.1 Landings by Weight and Value

UK Fleet - Irish Sea

- From MMO data, in terms of landed weight the >10 m fleet are dominant within the Irish Sea, with a notable concentration of fishing activity occurring within 37E5 and 36E5, around and south of the IoM. MMO data on landed weight correlates with this trend;
- Shellfish are the key species group and in terms of landed weight and value the >10 m are of most importance. This activity is prominent within 37E5 and 36E5. Demersal species are landed more commonly from areas of deeper waters in more western areas of the Irish Sea and along the cable route;
- Key species landed from rectangles along the cable route are *Nephrops*, crabs, other shellfish, scallops and whelks. *Nephrops* and lobster are key in terms of landed value. Herring and haddock are the only key pelagic species and both have low recorded value when considering weight;
- The top five species landed from rectangles along the cable route were scallops, herring, whelks, *Nephrops* and crab;
- Ports on the IoM were dominated by shellfish landings, both from the < and >10 m fleet. Peel and Douglas received no pelagic or demersal landings. Some demersal species were landed at Port St. Mary (due to limited processing facilities on the IoM ports data may give a skewed outlook on fishing that occurs in the region) and;
- Ports in Ireland are dominated consistently by demersal landings, mostly herring. Shellfish are key in some years but not all.

UK Fleet – North Sea

- From MMO data, in terms of weight, the >10 m fleet are dominant in the North Sea with notable concentrations within the coastal area of 39E8. MMO data on landed weight correlates with this trend;
- Demersal are the key species group in terms of landed weight and are more widespread throughout the study area and along the cable route within the North Sea. In terms of landed value, however, Shellfish are the key species group, particularly from 39E8;
- Species landed from the area around the cable route in the North Sea show more variety than that observed in the Irish Sea. *Nephrops* are the key species in areas closer to the UK coast. With increasing distance offshore, pelagic species become more common;
- The top five species landed from rectangles along the cable route were *Nephrops*, plaice, whiting, crabs and herring;
- Ports in the northeast of UK were dominated by shellfish and demersal landings from both the < and >10 m fleet. *Nephrops* was a key species at both Blyth and North Shields and;
- Ports in the northwest of the UK saw a majority of landings of shellfish from the >10 m fleet, most likely whelk ('other shellfish' within MMO data) across all years. Some demersal landings were also observed in the data.

Non-UK Fleet – Irish Sea

- Landings from the non-UK fleet along the cable route within the Irish Sea was dominated by Irish vessels, with some influence from the Belgian fleet closer to the UK coast;
- Landings weight shows an overall decreasing trend between across the years observed;
- Worth noting again that IoM fleet are included above within the UK dataset and;
- The key species group landed from the Irish fleet were shellfish whereas the Belgian fleet landed weight was predominantly European plaice, common sole and ray species.

Non-UK Fleet – North Sea

- Landings from the non-UK fleet in the North Sea was dominated by Danish, Swedish, Dutch and German vessel, with the Danish fleet having a consistent presence over the years observed and along most of the cable route. Dutch vessels were more notable with distance offshore from the UK coast;
- In terms of landed weight, the non-UK fleet have a greater influence with increasing distance from the UK coast;
- Landings from the non-UK fleet along the cable route within the North Sea showed more variation than within the Irish Sea;
- Key species landed by the non-UK fleet were as follows, Danish – Sandeels and Norway lobster, German – Atlantic herring and Sandeel, Dutch – Atlantic herring and Swedish – Atlantic herring and Sandeel.

5.2.2 Temporal Trends (2012-2016)

- Fishing activity in the Irish Sea shows clear seasonality with key periods during late summer and late winter/early spring;
- Fishing activity in the North Sea shows clear seasonality with key periods during spring/summer and during November and;
- In both the Irish and North Sea, the key periods in terms of landed weight from the top 15 species were during January to March, followed by April to June.

5.3 Overview of Spatial Distribution of Fishing Activity/Value

- The spatial distribution of fishing activity/value in the entire region has been displayed via review and analysis of VMS data;
- Fishing generally occurs along all parts of the proposed cable route in both the Irish and North Sea. There is particular concentration within the UK nearest to the east coast within the North Sea. The non-UK fleet are focussed much further offshore. Within the Irish Sea there is a focus by both the UK (inclusive of IoM fleet) and non-UK in and around the IoM and within the central region of the Irish Sea;
- The key fisheries of the IoM, scallop, is widespread around the island with particular focus and effort to off the southwestern tip (Figure 2.103);
- To try and further differentiate areas of particular value along the proposed cable route, the value of landings has been calculated based on fishery limits, i.e. UK 6nm, UK 12nm etc. This analysis has provided the following average annual values of landings over the 2012-2016 study period;

- Irish Sea
 - UK coast to 6nm: £620,000 per annum;
 - 6nm to 12nm: £570,000 per annum;
 - Irish territorial waters: £31,000 per annum;
 - Outside 12nm : £1,000,000 per annum;
- North Sea
 - UK coast to 6nm: £165,000 per annum;
 - 6nm to 12nm: £330,000 per annum;
 - Outside 12nm: £380,000 per annum;

5.4 Feedback from Targeted Consultation

- Contact has been made with the following commercial fishing organisations;
 - UK Organisations**
 - National Federation of Fishermen’s Organisations (NFFO);
 - North Irish Fish Producers Organisation (NIFPO); and
 - Anglo North Irish Fish Producers Organisation (ANIFPO).
 - Irish Organisations**
 - Irish South and East Fish Producers Organisation;
 - North East Regional Inshore Fisheries Forum (NERIFF); and
 - Irish Sea Fisheries Board (BIM);
 - IoM Organisation**
 - Fisheries Directorate; and
 - IoM Fish Producers Organisation;
- The data analysis and interpretation undertaken to date appears to reflect the key activity and trends in the commercial fishery in this region;
- Potting is common in and around all landfall locations of the cable route;

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