GREENLINK
MARINE ENVIRONMENTAL STATEMENT- WALES

APPENDIX F

Commercial Fisheries Assessment

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Greenlink Interconnector
- connecting the power markets
in Ireland and Great Britain

Greenlink
INTERCONNECTOR

Co-financed by the European Union
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MarineSpace

Making Sense of the Marine Environment ™

Greenlink Interconnector Commercial Fisheries Assessment 2018

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Greenlink Interconnector Commercial Fisheries Assessment 2018

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Executive Summary

Greenlink Interconnector Ltd, trading as 'Greenlink,' is proposing to develop an electricity interconnector linking the existing electricity grids in the UK and Ireland. The 'Greenlink' project will consist of two converter stations, one close to the existing substation at Great Island in County Wexford (Ireland) and one close to the existing substation at Pembroke in Pembrokeshire (Wales). The converter stations will be connected by underground cables (onshore) and subsea cables (offshore).

MarineSpace Ltd has been commissioned by Intertek to undertake a desk-based study on commercial and recreational fisheries activity near to the proposed Greenlink cable corridor (Welsh and Irish waters).

This report presents the findings of an assessment of official Marine Management Organisation (MMO) and Scientific, Technical and Economic Committee for Fisheries (STECF) fisheries (landings and activity) data in relation to the Greenlink proposed cable corridor and combines these data with findings of stakeholders engagement meetings held with key representatives of the commercial fishing industry.

The assessment has highlighted that there is a wide spatial distribution of commercial fishing activity in the Irish and Celtic Sea, with demersal and shellfish species being the most important in terms of landings by weight and value. Key demersal target species include; cod, haddock, ling, monkfish, plaice, ray, skate and sole. 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.

The Welsh fisheries are particularly characterised by valuable potting grounds for crab, lobster and whelks around the Pembrokeshire coast (inside the 6nm limit), with mollusc fisheries also taking place in some estuaries and bays. Since 1995, a significant whelk fishery has developed in Carmarthen Bay and offshore of the Gower, Fishguard and Milford Haven. Since the late 1980s, the bass rod and line fishery has also proved popular amongst both commercial and recreational fishermen.

The otter/beam trawler fleet concentrates its efforts in the Bristol Channel and Cardigan Bay and lands a mixed catch throughout the year. These trawlers (mostly <10 m) fish mainly inshore, and competition outside 6 miles from the coast can be intense, especially when the sole fishery attracts visiting beam trawlers from the south coast of Devon, Cornwall and Belgium.

There are a large number of medium-sized ports along the south and east coast of Ireland, the largest of which is Dunmore East. The ports along the south coast receive a mix of pelagic, demersal and shellfish species (Marine Institute, 2014). The inshore pot fishery for crab, lobster, *Nephrops* and whelk is an important component of Irish fisheries in this region.

The proposed Greenlink cable corridor lies within International Council for the Exploration of Sea (ICES) Rectangles 32E3, 32E4 and 33E3.

Based on the most recent 5 years of MMO data available at this time, which ranges from 2010-2016, the maximum weight and value of landings by all vessels over the period assessed were from 32E4 which covers the Welsh inshore region. Over this period, for all vessels, over 5.4 million tonnes of fish (all species) were landed with a value of over £10.5 million.

Of this value, £6.6 million was landed by <10 m vessels with the remaining £3.9 million landed by the >10m fleet. 86.7% of the total value of landings from 32E4 were represented by shellfish. These data highlight the importance of the Welsh inshore static gear (potting) fishery in the area of the proposed cable corridor.

With respect to individual species, whelk, edible crab, lobster, haddock and spider crab were the most important in terms of UK fleet landings along the proposed cable corridor.

For the non-UK Fleet, the key ICES Rectangle for the Irish fleet (in terms of landings) was 33E3 (Irish inshore). The key ICES Rectangles for the French fleet were 32E3 (offshore section) and 32E4 (welsh inshore) and for the Belgian fleet the key ICES Rectangle was 32E3 (offshore section).

Key species landed by the Irish (offshore) fleet was the European sprat followed by “other”, herring, great Atlantic scallop and edible crab. Key species landed by French vessels were rays/skates followed by haddock, anglerfish, whiting and “other”. Key species landed by Belgium vessels were anglerfish followed by common sole, megrim, thornback ray and blonde ray.

Although landings by weight and value varied across all ICES Rectangles (32E3, 32E4 & 33E3) between 2012-2016 generally there were no obvious trends in terms of increases or decreases in either of these values. In terms of intra-annual variation, landings for all species/vessels over the period 2012-2016 peaked in July, with a clear seasonal pattern of highest weight/value of landings between May and October each year.

For the top five individual species landed in the ICES Rectangles 32E3, 32E4 & 33E3 the following were the key periods for landings by weight and value:

- Whelk - April to July;
- Crab (C.P Mixed Sexes) – June to November;
- Haddock – June to September;
- Lobster - April to October; and
- Spider Crab - May to July inclusive.

For the non-UK fleet, based on data only presented by Quarter, the period October to December appears to be the most important in terms of landings, especially for species including “other”, herring, sprat and edible crab.

The spatial distribution of fishing activity/value in the entire region has been assessed via review and analysis of Vessel Monitoring System (VMS) data. These data indicate that fishing generally occurs along all parts of the proposed cable corridor, although there appears to be a greater concentration of activity in the Welsh inshore region compared to the Irish inshore region. There is a clearly defined focus of activity by UK and non-UK vessels in the middle “offshore“ section of the proposed cable corridor.

To try and further differentiate areas of particular value within the proposed cable corridor, the value of landings has been calculated based on formal fishery limits, i.e. UK 6nm, UK 12nm etc. This analysis has provided the following average annual values of landings from within the proposed cable corridor over the 2012-2016 study period;

- UK coast to 6nm: £1.3 million per annum;
- 6nm to 12nm: £3.7 million per annum;
- Outside 12nm: £4.8 million per annum;
- Irish coast to 12nm: £1.2 million per annum.

Further data on fishing activity off the Welsh coast has been obtained via review of a range of data sources which have all been collated on the Wales Marine Planning Portal. These data corroborate the official MMO data in that they highlight the distribution of potting activity off the welsh coast and demonstrate otter and beam trawling activity in the inshore region and also further offshore.

Informal consultation has also been undertaken with a number of key representatives of the commercial fishing industry on both the Welsh and Irish coasts. The data analysis and interpretation undertaken to date appears to reflect the key activity and trends in the commercial fishery in this region. The Welsh inshore section of the proposed cable corridor features a high intensity of static gear fishing, particularly in the summer months, even though vessels do move further offshore later in the year. However, weather and sea conditions limit many vessels moving any further offshore which intensifies the importance of the nearshore (0-6nm) section on the Welsh side.

The Irish inshore section of the proposed cable corridor also features high intensity static gear fishing, with a herring fishery becoming important during the late summer/autumn months. Larger vessels, primarily catching white fish species are present further offshore, albeit in lesser numbers than smaller inshore vessels.

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1.1 Project Background

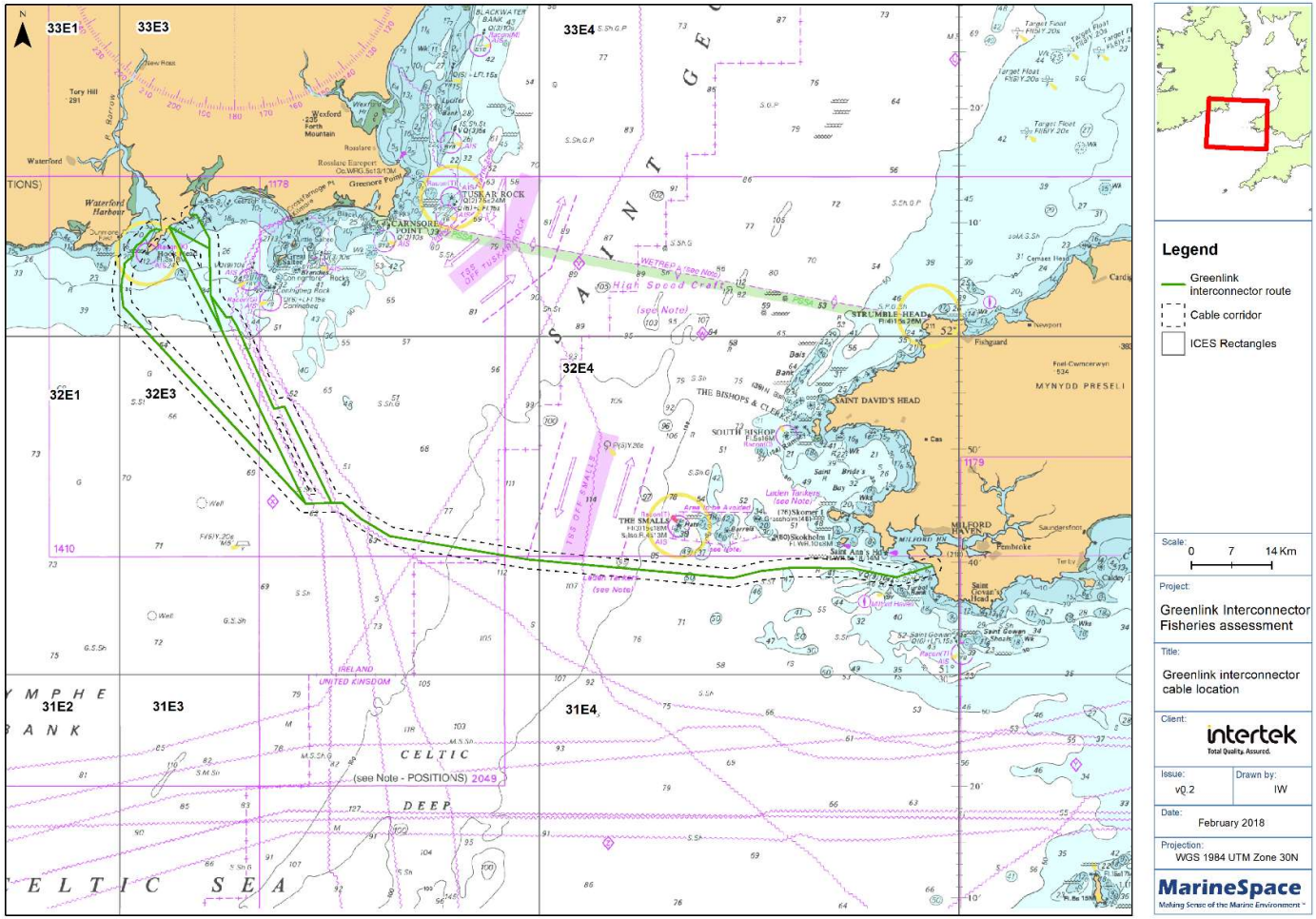
Greenlink Interconnector Limited, trading as 'Greenlink,' is proposing to develop an electricity interconnector linking the existing electricity grids in the UK and Ireland. The 'Greenlink' project will consist of two converter stations, one close to the existing substation at Great Island in County Wexford (Ireland) and one close to the existing substation at Pembroke in Pembrokeshire (Wales) (Figure 1.1). The converter stations will be connected by underground cables (onshore) and subsea cables (offshore).

Greenlink will have key strategic importance providing significant additional interconnection between Ireland, the UK and onwards to mainland Europe. It will provide additional transmission network capacities, reinforcing the existing electricity grids in south-east Ireland and south Wales and contributing to each country's strategic interconnection objectives. The development and construction of Greenlink will deliver increased security of supply, fuel diversity and greater competition and ultimately provide significant benefits to consumers in Ireland, Wales and Great Britain as a whole.

Greenlink was awarded an Interconnector Licence in Great Britain, by Ofgem, on 10th February 2015 and was also awarded Initial Project Assessment (IPA) Status under Ofgem's Cap and Floor Regime, on 30th September 2015.

Greenlink is designated as a European Union (EU) Project of Common Interest (PCI project number 1.9.1) under the provisions of European Union Regulation No. 347/2013 on guidelines for Trans-European Network for Energy (TEN-E Regulations) and has successfully applied for funding under the Connecting Europe Facility (CEF).

Figure 1.1.1: Location of the Greenlink Interconnector cable corridor 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 assessment is to identify the extent of commercial and recreational fishing activity in and around the location of the proposed Greenlink interconnector cable. This information will be used to plan future survey work along the cable corridor and to inform any future Environmental Impact Assessment (EIA) work undertaken in relation to 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 Greenlink proposed cable corridor, covering both UK and Irish waters using the International Council for the Exploration of the Sea (ICES) Statistical Rectangles 33E3, 32E3 and 32E4, 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;
    - presence of indicative fishing grounds for fished species; and
    - any additional information obtained via direct consultation with representatives of local and regional fishing organisations.
- To review and assess the level of recreational fishing (angling) that occurs in and around the proposed Greenlink cable corridor.

2. Commercial Fisheries Activity

2.1 Introduction

Commercial fishing in the Irish and Celtic 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.

The closest main Welsh fishing port to the proposed Greenlink Interconnector cable corridor is Milford Haven, on the west coast of Wales. In February 2018, there were 416 fishing vessels registered to the Port of Milford Haven, 93% of which were 10 m and under (MMO, 2018). 122 of those vessels form the Pembrokeshire fleet, with only 14 vessels over 10 metres (MMO, 2018). The closest Irish fishing port to the proposed Greenlink Interconnector cable corridor is Dunmore East, on the southeast coast of Ireland.

2.2 Welsh Fisheries

There are valuable potting grounds for crab, lobster and whelks around the Pembrokeshire coast, with mollusc fisheries also taking place in some estuaries and bays. With the exception of larger vessels working out of Milford Haven, most fishing off the southwest coast of Wales occurs close inshore, with very few boats working outside 6 miles. Inshore fishing activities are often inhibited by prevailing westerly winds during the winter (Walmsley & Pawson, 2007).

The shellfish industry in south Wales is now considered to be of the greatest local economic importance in terms of commercial fishing activity. Netting restrictions have been introduced around much of the Welsh coast, although various types are still used to catch bass, rays, cod, flatfish and crustacea. Since the late 1980s, the bass rod and line fishery has also proved popular amongst both commercial and recreational fishermen (Walmsley & Pawson, 2007).

Shellfish

Most fishermen working from the Pembrokeshire coast rely heavily on potting for crabs and lobsters, with activity peaking during the warmer months. Pots and nets are also used for crawfish around the rocky Pembrokeshire coast and for spider crabs both inshore and offshore. Pots are also set for prawns in parts of the north Pembrokeshire coast and there is some limited potting for green crab in Milford Haven (Walmsley & Pawson, 2007).

Since 1995, a significant whelk fishery has developed in Carmarthen Bay and offshore of the Gower, Fishguard and Milford Haven. Larger vessels prosecute the latter fisheries during the winter and set up to 2,000 pots each. Up to 1,000 pots per boat are used on inshore grounds. Effort is dependent upon price, which has generally been around £600/tonne since 1996 to date. Several local and (mainly) Scottish visiting boats dredge for scallops in Cardigan Bay, particularly in winter, landing into Fishguard and Milford Haven (Walmsley & Pawson, 2007).

Trawlers target native oysters in winter in Swansea Bay and Milford Haven. Cuttlefish are caught in pots in spring from Milford to St Brides Bay (Walmsley & Pawson, 2007).

Demersal Fish

Flatfish and rays (principally thornback) are taken in fixed nets and otter and beam trawls from spring through to the end of the year. Boats using gill nets and otter trawls take cod and whiting during the colder months. Large-meshed tangle nets are used for rays and large flatfish such as turbot. In many areas, Welsh Government (previously South Wales Sea Fisheries Committee) byelaws prohibit netting between April and October, and a Minimum Mesh Size (MMS) of 100 mm is in place for all nets, except trawls and purse seines.

The trawler fleet concentrates its efforts in the Bristol Channel and Cardigan Bay and lands a mixed catch throughout the year. These trawlers (mostly <10 m) fish mainly inshore, and competition outside 6 miles from the coast can be intense, especially when the sole fishery attracts visiting beam trawlers from the south coast of Devon, Cornwall and Belgium.

The majority of otter trawling effort is by Devon and Cornish vessels operating twin rig gear. There is also increasing Belgian activity in the 6-12 mile zone (Walmsley & Pawson, 2007).

Pelagic Fish

Bass are caught in fixed and drift nets, by rod and line, on longlines and, more recently, in high lift trawls, increasingly throughout the year. Mullet are sometimes taken as a bycatch in nets. The bass rod and line fishery has expanded since the late-1980s due to these restrictions, the low cost of fishing gear and the high demand for this species. The popularity of bass angling has also increased demand for sandeels as bait and many rod and line fishermen also utilise sandeel nets to collect this species in shallow sandy bays to provide bait for their bass fishing activity. Mackerel are caught in drift nets and by hand-lining and the charter angling sector is highly dependent on mackerel during the summer. Sprats are occasionally taken in mid-water trawls and inshore in gill nets (Walmsley & Pawson, 2007).

2.3 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.

There are a large number of medium-sized ports along the south and east coast of Ireland, the largest of which is Dunmore East. The ports along the south coast receive a mix of pelagic, demersal and shellfish species (Marine Institute, 2014).

Based on information presented in Atlas of Commercial Fisheries for Shellfish around Ireland (Tully, 2017), the following key observations can be made with respect to the inshore shellfisheries in and around the Irish part of the proposed cable corridor:

- For the areas West and south of Dunmore East to Saltees (South coast) and South Wexford (South coast), a total of 48 vessels were registered as fishing for crab and lobster in 2015, deploying a total of 13,680 pots;
- This represented 6.2% of all vessels targeting these species in the Irish inshore fleet and 6.3% of total pots deployed in the entire Irish inshore region;
- Shrimp was another key target species for many vessels, including those landing into Dunmore East and Kilmore Quay;
- Razor clams are targeted by some vessels in the inshore region offshore of Wexford using hydraulic water jet dredges or non-hydraulic propeller dredges used to penetrate sediment to 25cm depth. Landings over 1,000 tonnes have been made in recent years; and
- There are key scallop fishing grounds off the south coast of Ireland with approximately 10-20 >15 m vessels and several <15 m vessels working inshore.

Based on information presented in Atlas of Commercial Fisheries around Ireland (Gerritsen & Lordan, 2014), the following key observations can be made with respect to the commercial fisheries in and around the Irish part of the proposed cable corridor:

- Inside the Irish Exclusive Economic Zone (EEZ), around 62% of the fishing hours are accounted for by >15m otter and beam trawlers;
- Longliners account for around 15% and Gill and trammel netters 7%;
- Pelagic trawlers only account for 5% of the total effort inside the EEZ but they are responsible for more landings than any other gear type, both in terms of volume and value;
- Irish vessels are only responsible for 36% of the international effort of vessels >15 m inside the EEZ, with Spanish vessels accounting for 30% of the effort (mainly demersal otter trawlers and longliners) and French and the UK accounting for a further 20% and 11% respectively of total effort;
- International landings inside the Irish EEZ are dominated by pelagic species like horse mackerel, mackerel, boarfish, blue whiting and herring in terms of bulk. In terms of value, mackerel and horse mackerel are important but *Nephrops*, anglerfish and hake stocks are almost equally valuable; and
- Despite the large bulk of boarfish and blue whiting landings, their value is relatively low. Ireland takes around 30% of mackerel and horse mackerel and nearly all of the boarfish and herring inside the Irish EEZ. Ireland also takes more than 75% of *Nephrops* but only around 25% of anglerfish and less than 10% of hake.

2.4 Data Sources & Methodology

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

- Marine Management Organisation (MMO) UK fleet landings by selected ICES Rectangle (2012-2016) – see Figure 1.1.1;
- MMO UK and foreign fleet landings into the UK by port (2011-2015);
- Welsh Government, Marine Planning Portal, NRW – Sea Fish Atlas; (2010);
- 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 (2012-2015); and
- MMO Marine Information System.

2.5 MMO Landings Data (UK Fleet)

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 32E3, 32E4 and 33E3 – see Figure 1.1.1. Data were filtered further to show data by vessel size class, species group and gear types.

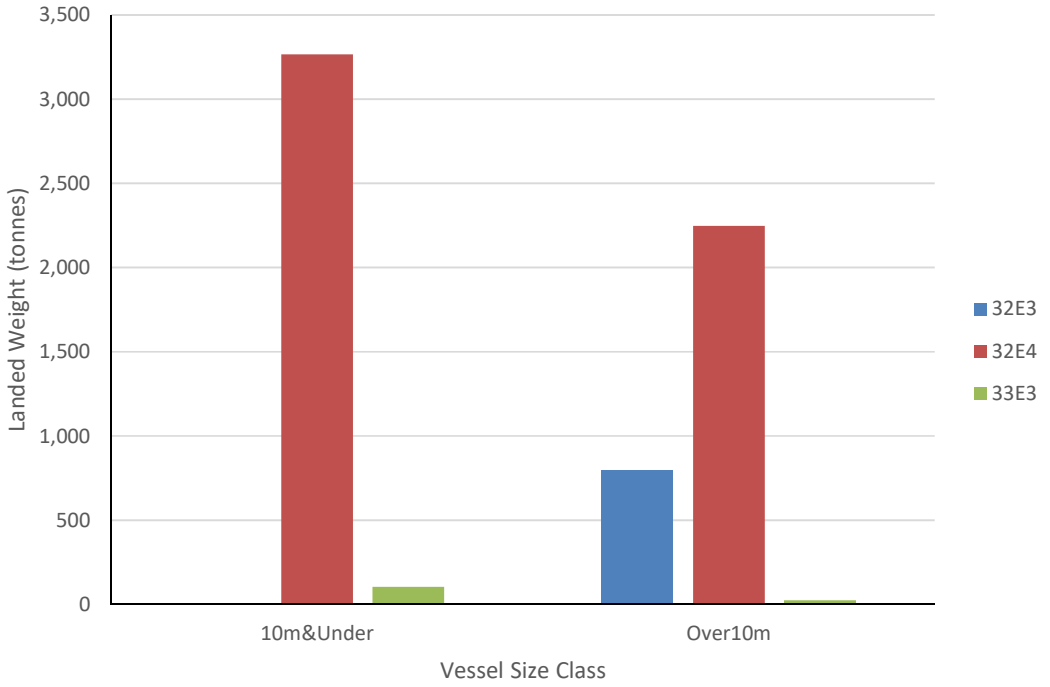
2.5.1 Landed Weight by Vessel Size Class

Table 2.1 and **Error! Reference source not found.** show the total weight of landings from ICES Rectangles 32E3, 32E4 and 33E3 between 2012-2016, divided by vessel size classes. The maximum weight landed throughout this time period was 3,265 tonnes by vessels <10 m within 32E4. The minimum weight was 25.04 tonnes, landed by vessels >10 m and occurred within 33E3. No data exists for vessels <10 m within 32E3, the most offshore of the ICES rectangles included within this assessment, illustrating the fact that fishing activity by <10m vessels was concentrated on more inshore areas.

Table 2.1: Total landings (tonnes) from ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16) based on vessel size classes (Source: MMO, 2017)

ICES Statistical Rectangle	Vessel Size Class	2012	2013	2014	2015	2016	Total (tonnes)
32E3	<10m	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable
	>10m	67.42	233.07	233.65	71.31	190.79	**796.24**
32E4	<10m	516.85	643.30	897.56	610.06	597.22	**3,265.00**
	>10m	507.27	465.57	422.05	386.88	466.88	**2,248.66**
33E3	<10m	7.27	27.19	25.81	19.63	26.28	**106.18**
	>10m	10.07	8.79	2.05	0.21	3.91	**25.04**

Figure 2.5.1: Total landings weight (tonnes) from ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16) based on vessel size classes (Source: MMO, 2017)



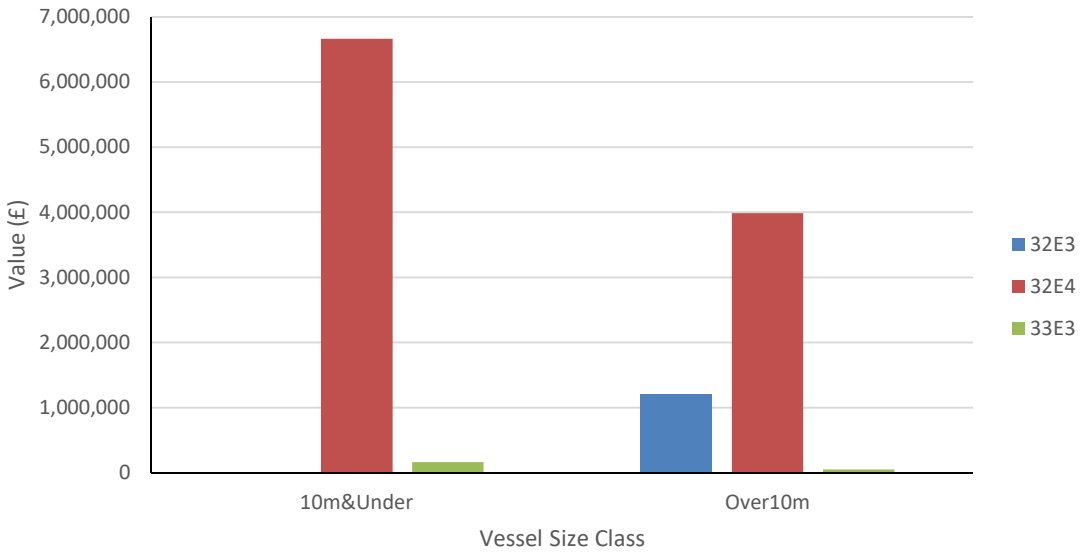
2.5.2 Landings Value by Size Class

Table 2.2 and **Figure** 2.5.2 show the total value of landings from ICES Rectangles 32E3, 32E4 and 33E3 (2012-2016), divided by vessel size classes. The maximum value landed throughout this time period was £6,663,206 by vessels <10 m within 32E4. The minimum value of £47,695 was landed by vessels > 10 m within 33E3. No data exists for vessels <10 m within 32E3. These trends correspond with landings weight across the three rectangles during the 2012-2016 time period assessed via this study.

Table 2.2: Total value (£) of landings from ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16) based on vessel size classes (Source: MMO, 2017)

ICES Statistical Rectangle	Vessel Size Class	2012	2013	2014	2015	2016	Total Value (£)
32E3	<10m	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable
	>10m	119,447.21	35,6401.96	354,811.99	123,472.27	254,623.68	**1,208,757.11**
32E4	<10m	1,334,036.61	133,6077.38	1,447,053.46	1,200,217.30	1,345,821.83	**6,663,206.58**
	>10m	956,157.35	860,178.52	747,677.17	648,890.14	769,354.68	**3,982,257.86**
33E3	<10m	9,255.00	37,952.16	35,917.90	34,598.25	44,678.00	**162,401.31**
	>10m	106,54.83	17,080.58	8,629.31	555.12	10,775.26	**47,695.10**

Figure 2.5.2: Total landings value (£) from ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16) based on vessel size classes (Source: MMO, 2017)



2.5.3 Landed Weight by Species Group

Table 2.3 presents the total weight of landings from ICES Rectangles 32E3, 33E3 and 32E4 (2012-16) for each species group. The overall maximum weight of 4,931 tonnes of shellfish was landed within 32E4. The minimum weight of 16.08 tonnes of pelagic species and 16.40 tonnes of demersal species related to 32E4 and 33E3 respectively. No data exists for pelagic species landed into 33E3.

Table 2.3: Total landings weight (tonnes) from ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16) based on species group (Source: MMO, 2017)

ICES Statistical Rectangle	Species Group	2012	2013	2014	2015	2016	Total (Tonnes)
32E3	Demersal	56.87	220.84	226.57	61.89	26.19	**592.36**
	Pelagic	Data unavailable	Data unavailable	Data unavailable	Data unavailable	137.12	**137.12**
	Shellfish	10.55	12.23	7.08	9.42	27.48	**66.77**
32E4	Demersal	123.67	196.68	111.71	87.01	46.99	**566.07**
	Pelagic	2.12	1.50	11.72	0.58	0.15	**16.08**
	Shellfish	898.34	910.69	1196.18	909.35	1,016.95	**4,931.51**
33E3	Demersal	9.95	3.29	0.73	0.21	2.21	**16.40**
	Pelagic	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable
	Shellfish	7.39	32.69	27.14	19.63	27.98	**114.82**

2.5.4 Landings Value by Species Group

Table 2.4 presents the total value of landings from ICES Rectangles 32E3, 33E3 and 32E4 (2012-16) for each species group. The overall maximum value of £9,231,667 was landed within 32E4, with 86.7% of the overall value represented by landings of shellfish species. The minimum value, £5,840 related to pelagic species and was also landed from 32E4. No data exists for pelagic species landed into 33E3.

Table 2.4: Total value (£) of landings from ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16) based on species group (Source: MMO, 2017)

ICES Statistical Rectangle	Species Group	2012	2013	2014	2015	2016	Total Value (£)
32E3	Demersal	76,223.06	303,613.48	320,768.53	82,955.24	32,253.35	**815,813.66**
	Pelagic	Data unavailable	Data unavailable	Data unavailable	Data unavailable	75,558.12	**75,558.12**
	Shellfish	43,224.15	527,88.48	34,043.46	40,517.03	146,812.21	**317,385.33**
32E4	Demersal	302,108.41	413,079.05	358,816.88	207,778.90	126,173.37	**1,407,956.61**
	Pelagic	2,741.11	1,555.33	211.47	906.04	426.51	**5,840.46**
	Shellfish	1,985,344.44	1,781,621.52	1,835,702.28	1,6404,22.50	1,988,576.63	**9,231,667.37**
33E3	Demersal	10,110.10	5,280.74	1,839.33	555.12	4,096.94	**21,882.23**
	Pelagic	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable	Data unavailable
	Shellfish	9,799.73	49,752.00	42,707.88	34,598.25	51,356.32	**188,214.18**

2.5.5 Landings by Vessel Size Class and Species Group

Figure 2.5.3 and Figure 2.5.4 present a summary of the total landed weight and value (2012-16) for ICES Rectangles 32E3, 33E3 and 32E4, plotted by vessel class sizes and species group. 32E4 is the most dominant region both in terms of weight and value for landings of shellfish by both <10 m and >10 m vessels. Total weight is 4,931.51 tonnes and value £9,231,667. There are landings of pelagic species across all rectangles. Pelagic species are least significant in terms of weight and value with total across all three rectangles of 153.2 tonnes and £81,398.

Figure 2.5.3: Sum of landings weight from ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16), displayed by vessel size classes and species group (Source: MMO, 2017)

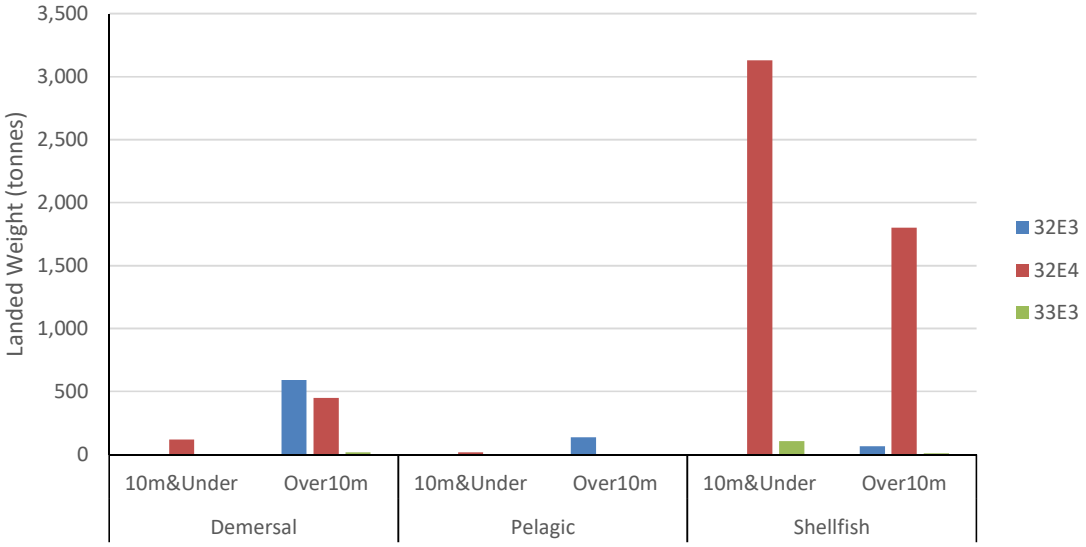
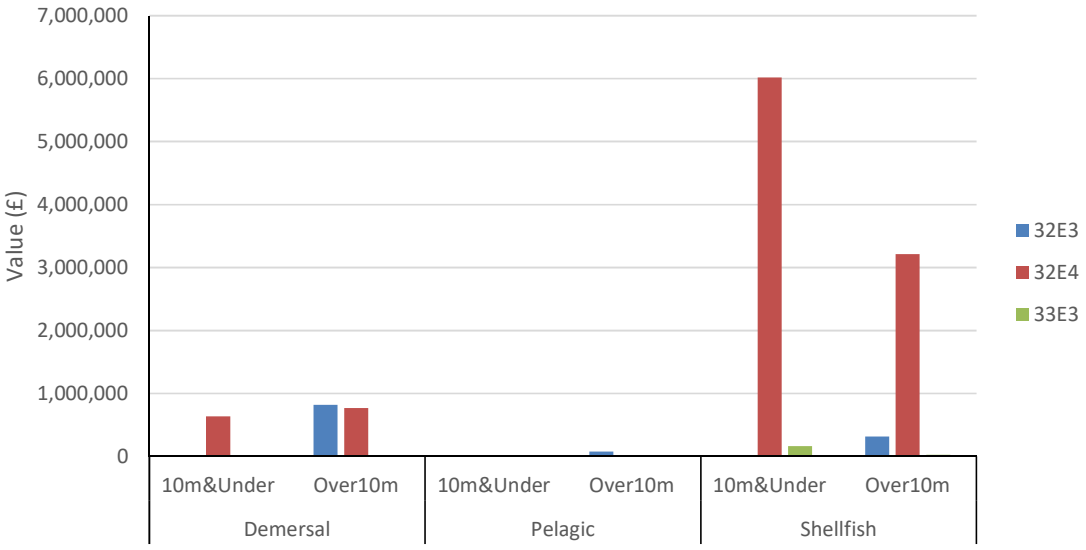


Figure 2.5.4: Sum of landings value from ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16), displayed by vessel size classes and species group (Source: MMO, 2017)



2.5.6 Landings Weight and Value by Species

The MMO landings data for 2012-2016 were filtered to show the weight and value of individual species landed from each ICES Rectangles. A total of 72, 70 and 25 species classes were landed from ICES Rectangles 32E3, 32E4 and 33E3, respectively. However, these data are believed to contain some inaccuracies and inflated figures, due to duplication of species under different common names and grouping at higher taxonomic levels.

Total landed weight and value for each species class were determined for the 5-year period (2012-2016) within the respective ICES Rectangles. Species were then filtered to identify the species with the highest landed weights and corresponding values (Figure 2.5.5, Figure 2.5.6 and Figure 2.5.7), to identify the most commercially important fished species.

Within Rectangle 32E3 (Figure 2.5.5), whelk was the species with the greatest weight of landings (2,389 tonnes) which also resulted in the second largest value of landings (£2,037,042) for the period 2012-2016. The four next most commercially important species landed, in terms of weight, were Crab (C.P. Mixed Sexes), haddock, lobster and spider crab. Lobsters landed from 32E3 were the dominant species in terms of value (£4,182,247) with a corresponding weight of 390.55 tonnes. Other notable species that stand out from the overall trend with relatively low weight, but relatively high value are *Nephrops* (87.15 tonnes and £420,484) and bass (81 tonnes and £576,185).

Within Rectangle 32E4 (Figure 2.5.6), whelk was again the species with the greatest weight of landings (2,379.67 tonnes) which also resulted in the second largest value of landings (£2,029,257) for the period 2012-2016. The four next most commercially important species landed, in terms of weight, were crab (C.P. Mixed Sexes), lobster, spider crab and haddock. As seen within rectangle 32E3, lobsters were again the dominant species in terms of value, £4,133,185. Other notable species that vary from the overall trend with relatively low weight and high value are bass (81.51 tonnes and £575,314) and common prawn (17.53 tonnes and £355,185).

Within Rectangle 33E3 (Figure 2.5.7) the overall weight, value and species diversity is lower than that discussed for 32E3 and 32E4. The dominant species was crab (C.P. Mixed Sexes) which had a total landings weight and value of 79.23 tonnes and £83,683 respectively. The four next most commercially important species landed, in terms of weight, were crab (velvet), whelk, haddock and lobster. As seen in the other rectangles lobster was dominant in terms of value, £47,141 for 4.45 tonnes landed weight. *Nephrops* also exhibited relatively high value (£19,221) for the landed weight (4.41 tonnes).

Figure 2.5.5: Species caught in ICES Rectangle 32E3 (2012-2016) based on highest landings weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

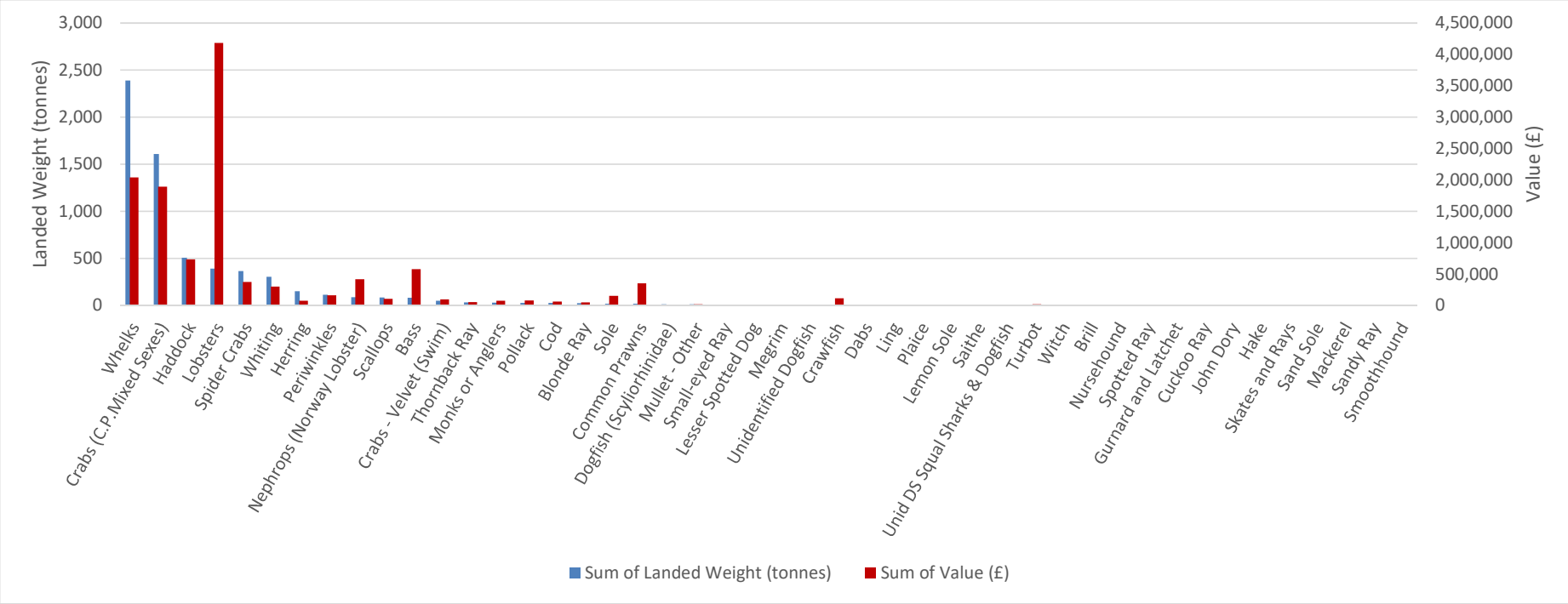


Figure 2.5.6: Species caught in ICES Rectangle 32E4 (2012-2016) based on highest landings weight (tonnes) and corresponding value (£) (Source: MMO, 2017)

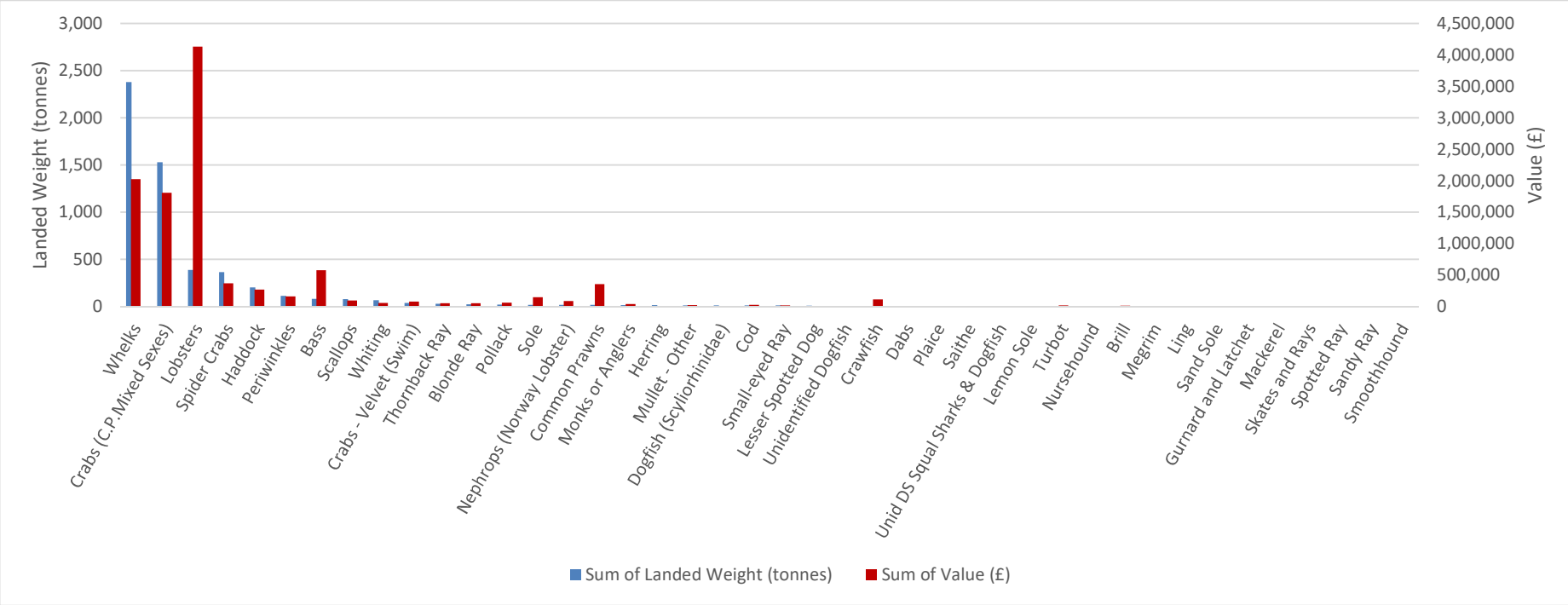
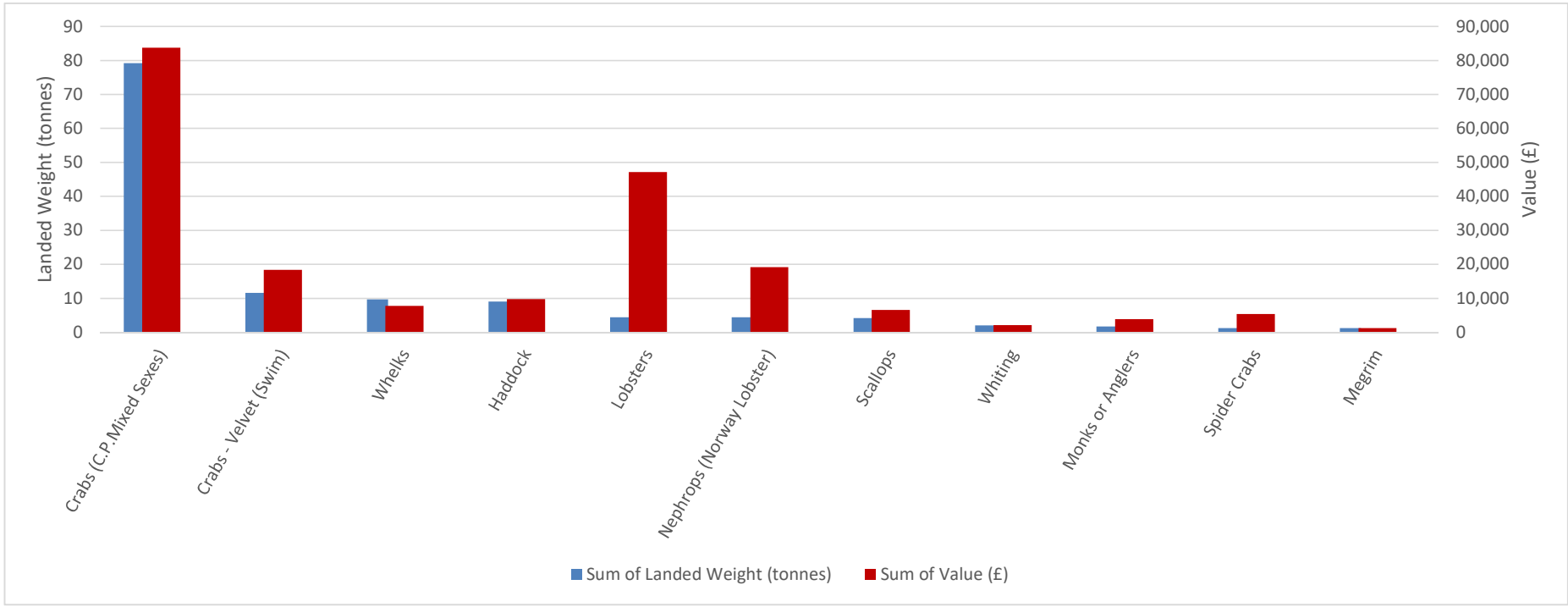


Figure 2.5.7: Species caught in ICES Rectangle 33E3 (2012-2016) based on highest weight (tonnes) and corresponding value (£) (Source: MMO, 2017)



2.5.7 Temporal Variation in Landings Weight and Value

Between 2012-2016, across all ICES Rectangles (32E3, 32E4 & 33E3) the range in the sum of landed weight varied from a minimum of 1,088.1 tonnes in 2015 to a maximum of 1,581.14 tonnes in 2014 (Figure 2.5.8). The range in the sum of landed value varied from a minimum of £2,007,735 in 2015 to a maximum of £2,607,690 in 2013 (Figure 2.5.9).

Figure 2.5.8: Annual Trends in Sum of Landings Weight (2012-2016) for ICES Rectangle 32E3, 32E4 and 33E3 (Source, MMO: 2017)

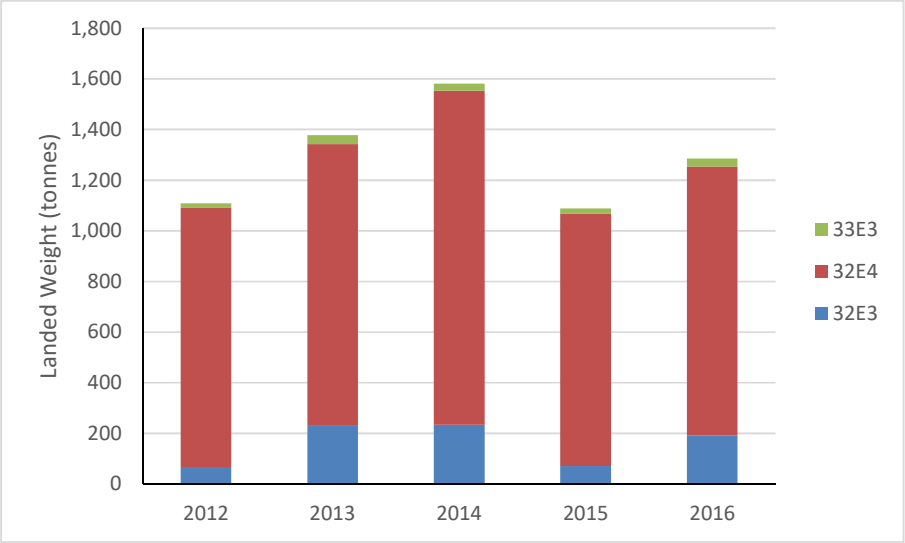
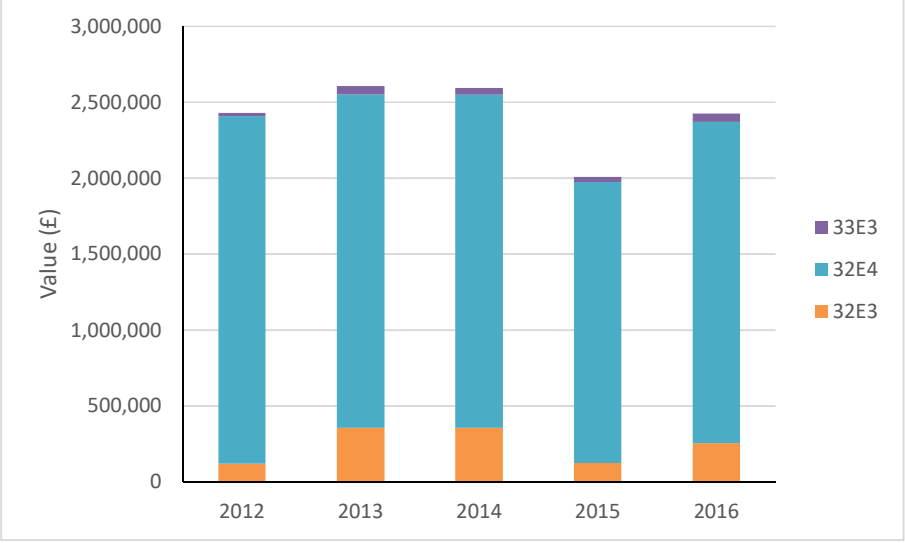


Figure 2.5.9: Annual Trends in Sum of Landings Value (2012-2016) for ICES Rectangle 32E3, 32E4 and 33E3 (Source: MMO, 2017)



Across all ICES Rectangles (32E3, 32E4 & 33E4), the seasonal (intra-annual) range in landed weight (2012-2016) varied from 200.62 tonnes in February to 841.64 tonnes in July (Figure 2.5.10). The landed value follows a similar trend with the minimum value of £484,298 in January and maximum of £1,516,314 in July (Figure 2.5.11). With respect to the individual rectangles, 32E4 (Welsh inshore region) mirrored the overall trend with peak landings in June/July. Both 32E3 (offshore region) and 33E3 (Irish inshore region) actually had greater landings in September/October than June/July.

Figure 2.5.10: Seasonal Trends in Sum of Landings Weight (2012-16) for ICES Rectangles 32E3, 32E4 and 33E3 (Source: MMO, 2017)

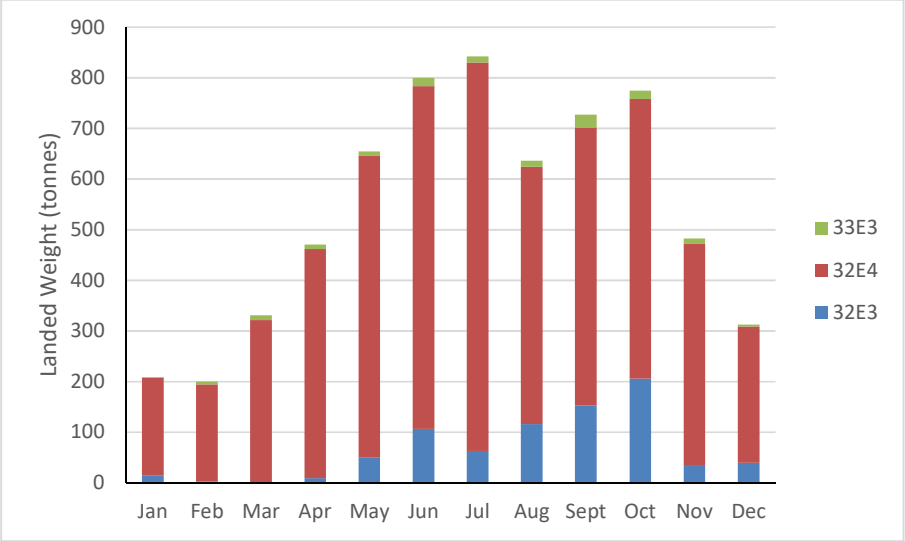
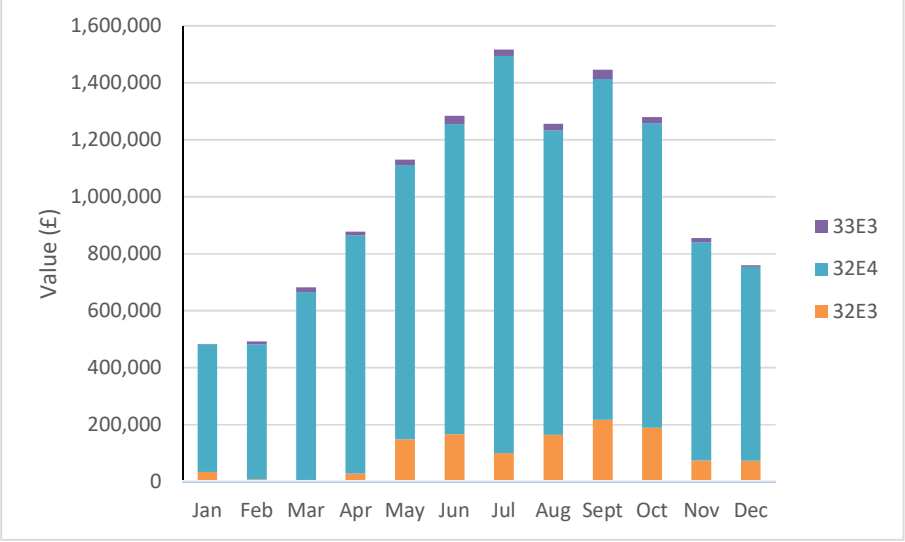


Figure 2.5.11: Seasonal Trends in Sum of Landings Value (2012-16) for ICES Rectangles 32E3, 32E4 and 33E3 (Source: MMO, 2017)



The species data was analysed further to identify notable trends in the temporal variation of the top five most commercially important species. Overall, whelk and crab made up the top 2 species in terms of landed weight across all years and rectangles. Haddock appears to be of particular importance in terms of landed weight during 2013.

The most important months for landings of whelk during 2012-2016 were April to July inclusive, with a landed weight range from 9.84 to 109.37 tonnes (Figure 2.5.13). Landed weight on whelk is noticeably lower during 2012 and the peak occurs later in the year during 2016. The minimum landed weight of whelk occurred during December 2015 at 4.71 tonnes.

Crab (C.P. Mixed Sexes) landings, in terms of weight, were most prominent during June to November inclusive, with a landed weight range of 11.05 to 76.34 tonnes (Figure 2.5.14). The minimum landed weight of crab (C.P. Mixed Sexes) was 2.96 tonnes and occurred during February 2014.

The trend in landings weight of haddock appears particularly seasonal during 2012-2016, with June and September inclusive being the most important months. The landed weight during this peak period ranged from 0.01 to 88.12 tonnes (Figure 2.5.15). There are months of the year where no Haddock is landed, suggesting that seasonality is an important factor with respect to this particular species.

Lobster landings, in terms of weight, were most prominent during April to October inclusive, although this species is landed all year round and appears to have much less of a strong seasonal trend. The range in weight during the key months was 4.18 to 17.31 tonnes (Figure 2.5.16) and the minimum of 0.14 tonnes occurred during January 2014.

Spider crab landings, in terms of weight, were most prominent during May to July inclusive, with a landed weight range of 5.95 to 27.86 tonnes (Figure 2.5.17). The minimum landed weight of spider crab occurred in February 2014 at 0.12 tonnes.

Figure 2.5.12: Annual Trends in Top Five Species by Sum of Landings Weight (2012-2016) for ICES Rectangles 32E3, 32E4 and 33E3 (Source: MMO, 2017)

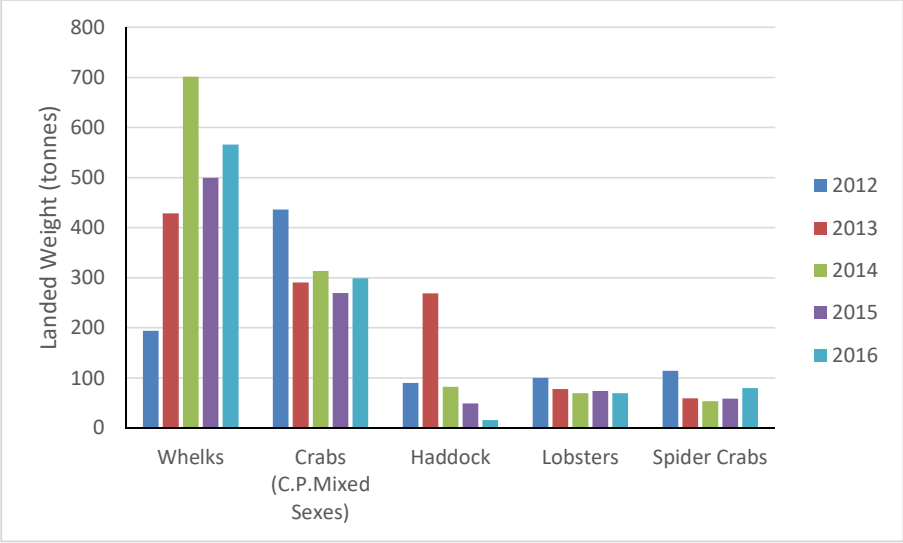


Figure 2.5.13: Seasonality of Landed Weight (tonnes) of Whelk (2012-2016) for ICES Rectangles 32E3, 32E4 and 33E3 (Source: MMO, 2017)

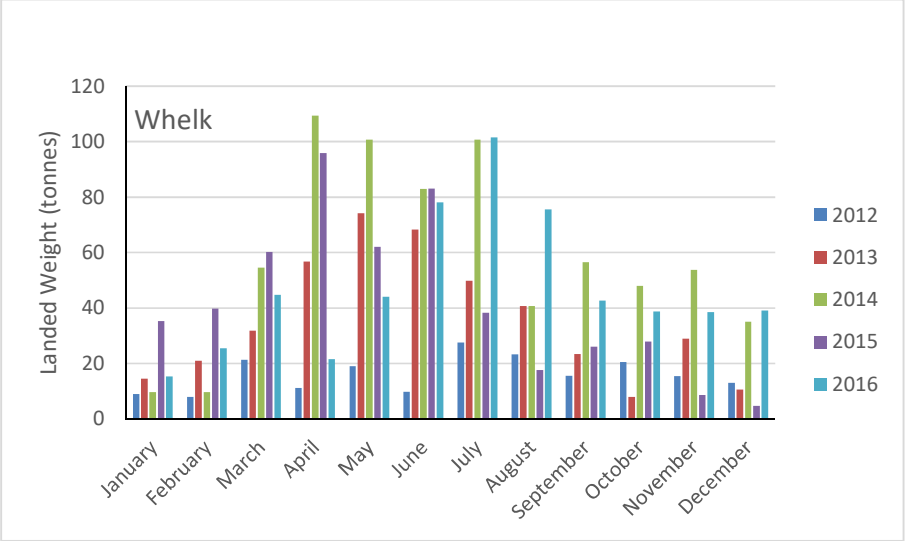


Figure 2.5.14: Seasonality of Landed Weight (tonnes) of Crabs (C.P. Mixed Sexes) (2012-2016) for ICES Rectangles 32E3, 32E4 and 33E3 (Source: MMO, 2017)

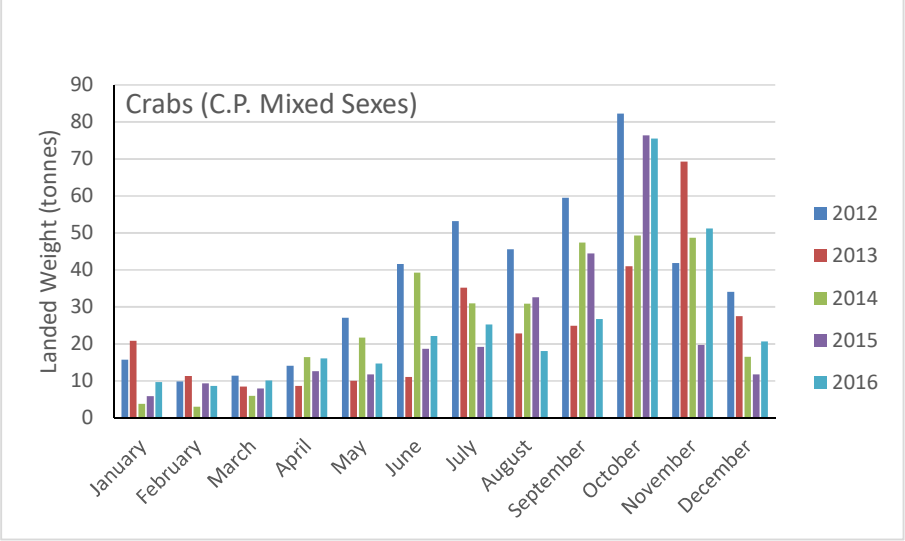


Figure 2.5.15: Seasonality of Landed Weight (tonnes) of Haddock (2012-2016) for ICES Rectangles 32E3, 32E4 and 33E3 (Source: MMO, 2017)

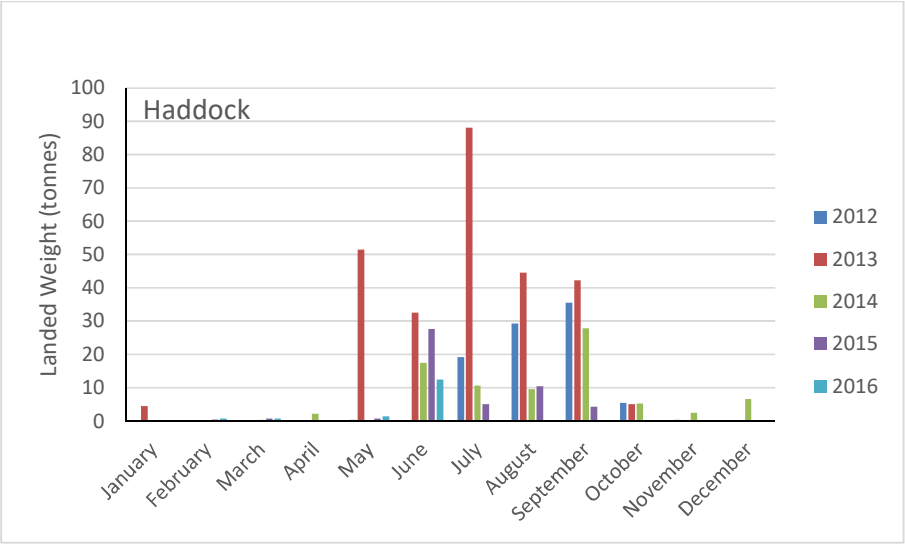


Figure 2.5.16: Seasonality of Landed Weight (tonnes) of Lobster (2012-2016) for ICES Rectangles 32E3, 32E4 and 33E3 (Source: MMO, 2017)

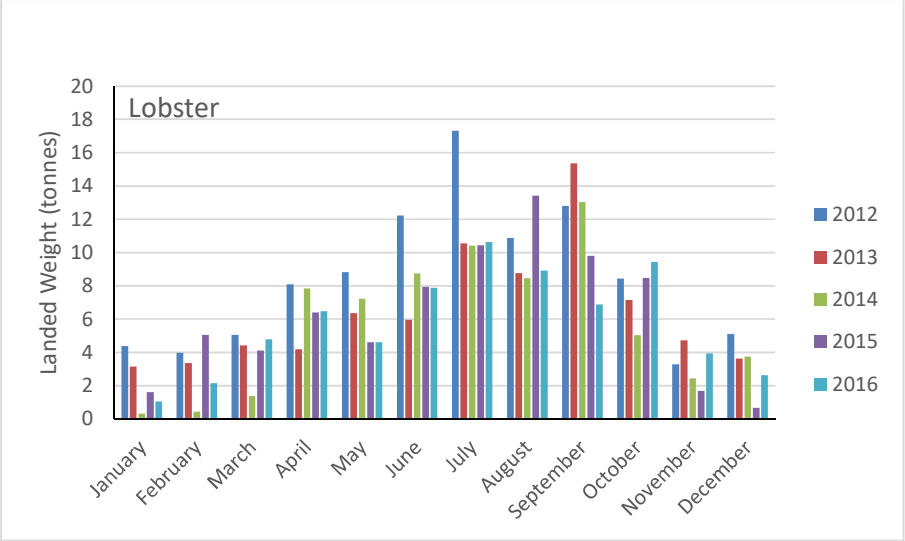
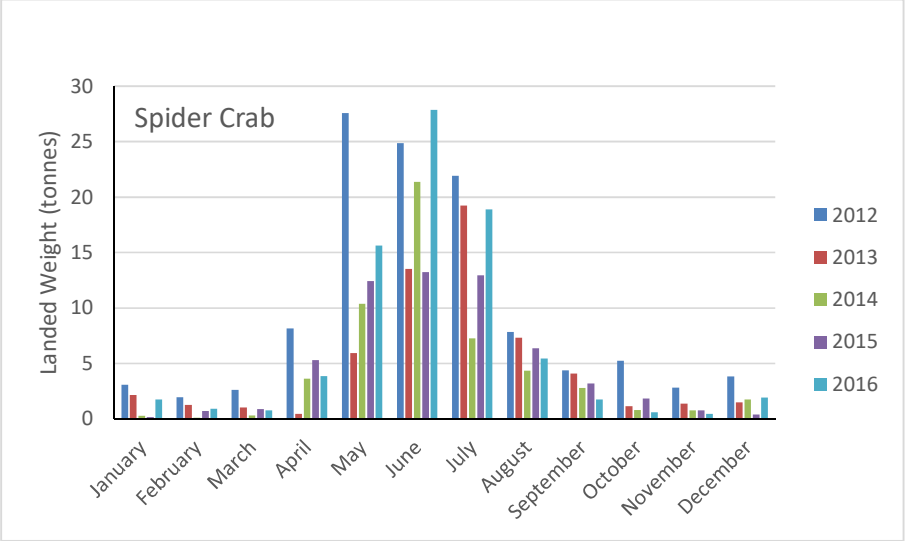


Figure 2.5.17: Seasonality of Landed Weight (tonnes) of Spider Crab (2012-2016) for ICES Rectangles 32E3, 32E4 and 33E3 (Source: MMO, 2017)



2.5.8 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 Welsh and Irish ports closest to the proposed cable corridor. The ports used in this analysis were Milford Haven and Fishguard (Welsh coast) and Dunmore East and Kilmore Quay (Irish coast). 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 Greenlink interconnector cable.

2.5.8.1 Milford Haven

Vessels >10 m are dominant at the port of Milford Haven in terms of landed weight and the key species groups are demersal and shellfish, with total landed weights between 2011 and 2015 of 16,957.09 and 5,751.87 tonnes respectively (Figure 2.5.18). Landed weight in the <10 m vessel size class were lower but demersal (625.96 tonnes) and shellfish (1,099.82 tonnes) landings were still important. For both vessel size categories, the pelagic species group was the least dominant by weight and value of landings.

A total of 83 species were landed at Milford Haven during 2012-2016 - Figure 2.5.19. The top five species in terms of landed weight were megrim, sole, monks/anglers, scallops and crabs (C.P. Mixed Sexes). The weight range across these five species was 3,117.87 to 1,870.81 tonnes. In terms of value, Sole was the key species with a total value of £17,665,950 from a landed weight of 2,412.22 tonnes. This reflects the role of the beam trawl fishery which operates out of this port.

Figure 2.5.18: Total landings (tonnes) into Milford Haven port (2011-2015) displayed by species group and vessel length (Source: MMO, 2017a)

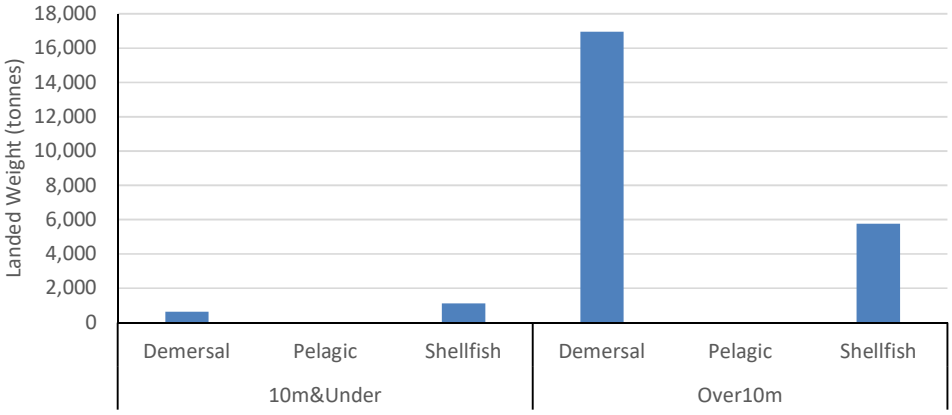
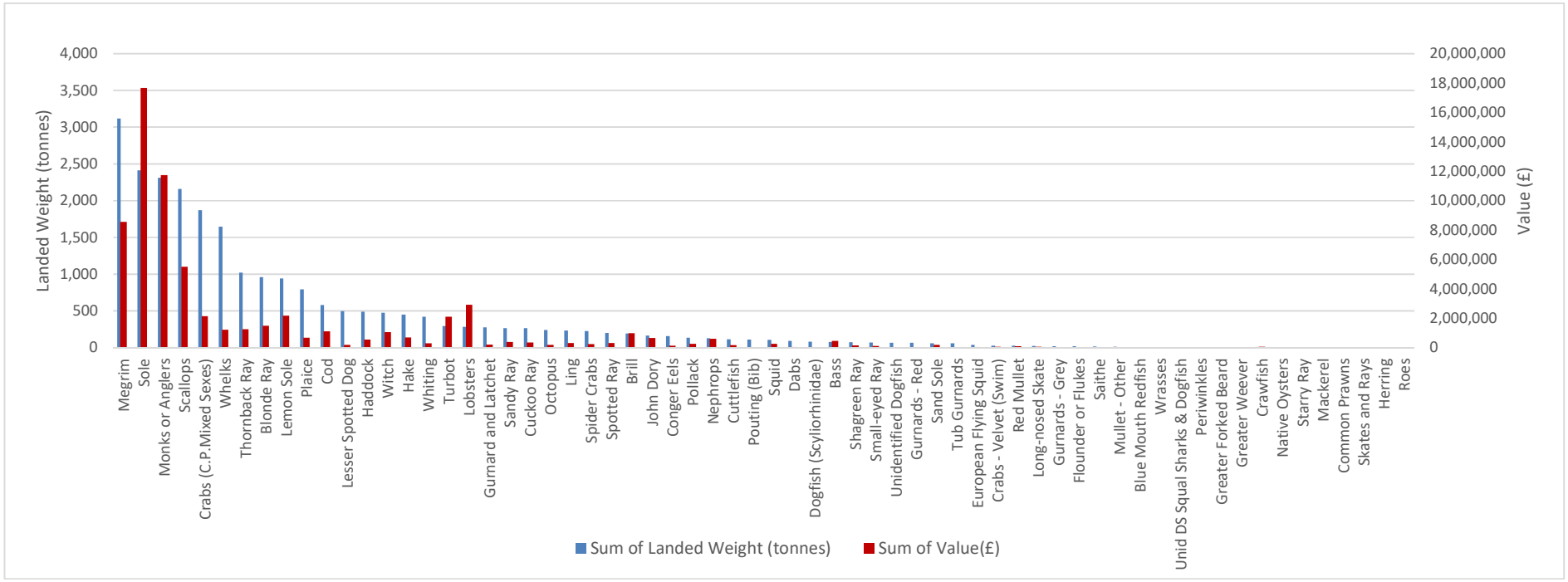


Figure 2.5.19: Total weight (tonnes) and value of landings into Milford Haven port (2011-2015) displayed by species class (Source: MMO, 2017a)[1]



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

2.5.8.2 Fishguard

Vessels >10 m are dominant at the port of Fishguard in terms of landed weight and the key species group was shellfish, with total landed weights between 2011 and 2015 of 5,319.35 tonnes (Figure 2.5.20). Whilst lower overall landings weight occurred from the <10 m vessels, shellfish was also the key species group with a weight of 1,516.14 tonnes. Landed weights of demersal and pelagic species was low with a weight of 0.02 and 18.1 tonnes respectively, across all vessel size classes. There were no landings of pelagic species into Fishguard during 2011-2016 by the >10 vessel fleet.

A total of 28 species were landed at Fishguard during 2011-2015 (Figure 2.5.21). The top five species in terms of landed weight were whelk, scallop, crabs (C.P. Mixed Sexes), spider crab and lobster. The weight range across these five species was 3,722.01 to 77.99 tonnes. In terms of value, scallop was the key species with a total value of £5,819,391 from a landed weight of 2,599.30 tonnes.

Figure 2.5.20: Total landings (tonnes) into Fishguard port (2011-2015) displayed by species group and vessel length (MMO, 2017a)

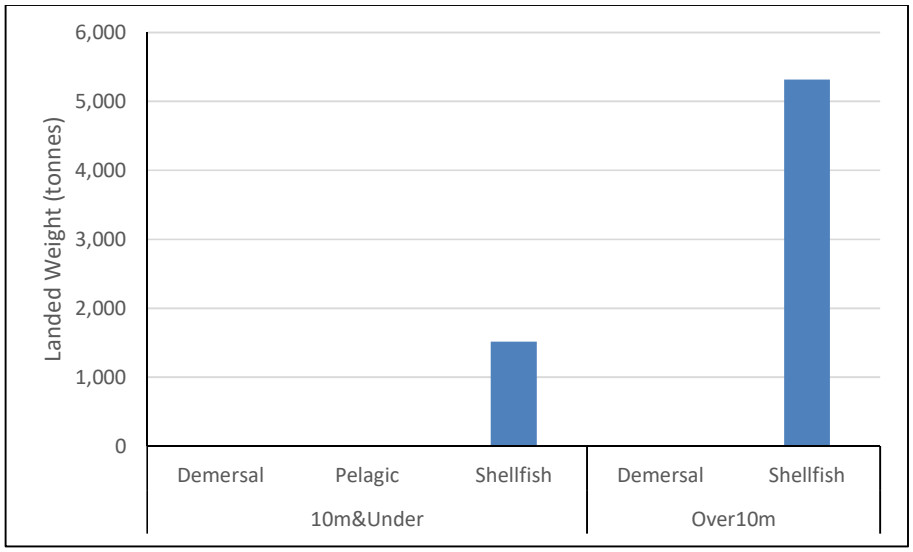
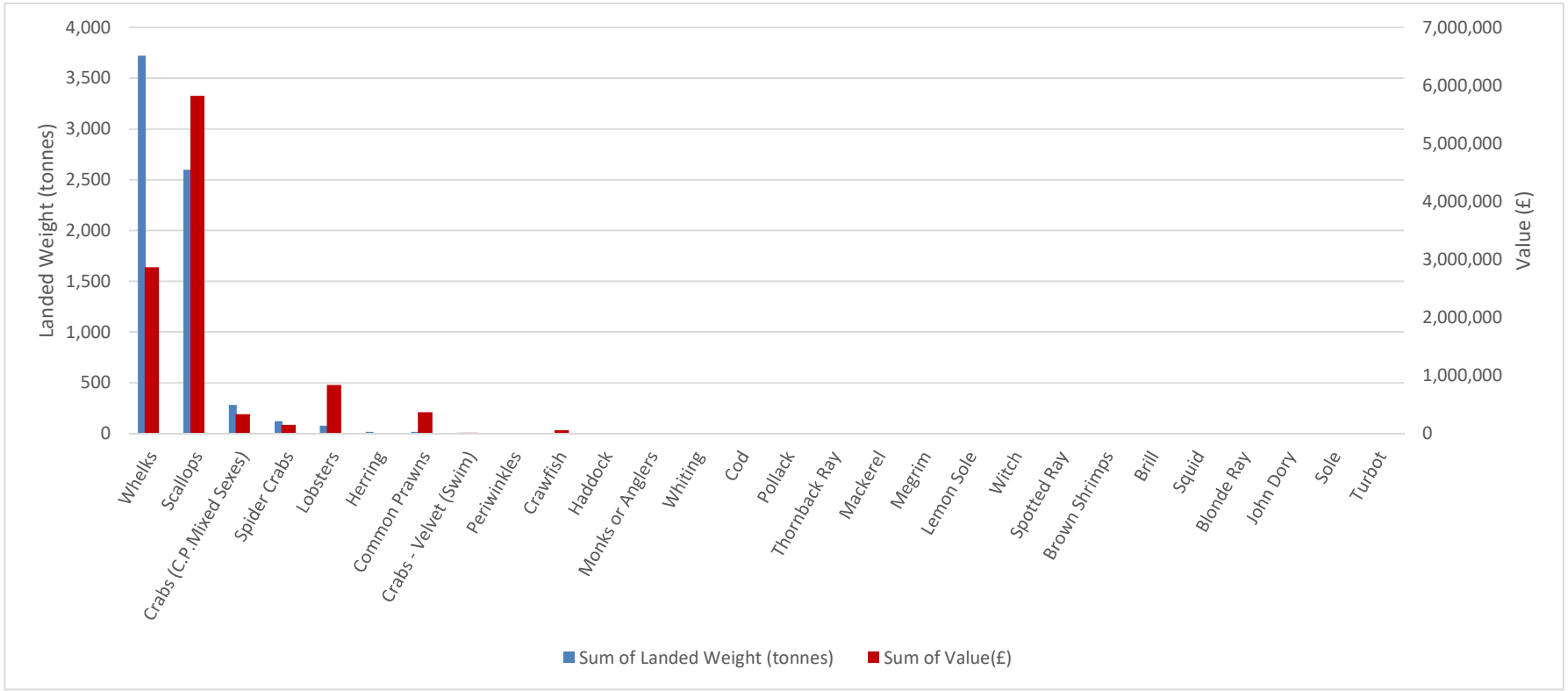


Figure 2.5.21: Total weight (tonnes) and value of landings into Fishguard port (2011-2015) displayed by species class (Source: MMO, 2017a)



2.5.8.3 Dunmore East

Vessels >10 m are dominant at the port of Dunmore East in terms of landed weight and the key species group was demersal, with total landed weights between 2011 and 2015 of 891.98 tonnes (Figure 2.5.22). There are no recorded landings by <10 m vessels into Dunmore East. Landed weights of shellfish species were lower with a weight of 55.83 tonnes.

A total of 33 species were landed at Dunmore East during 2011-2015 (Figure 2.5.23). The top five species in terms of landed weight were haddock, whiting, *Nephrops*, cod and hake. The weight range across these 5 species was 511.25 to 39.50 tonnes. In terms of value, haddock was also the key species with a total landed value of £692,922.

Figure 2.5.22: Total landings (tonnes) into Dunmore East port (2011-2015) displayed by species group and vessel length (MMO, 2017a)

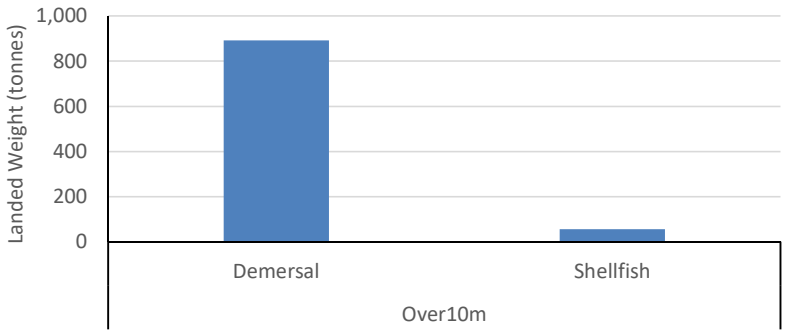
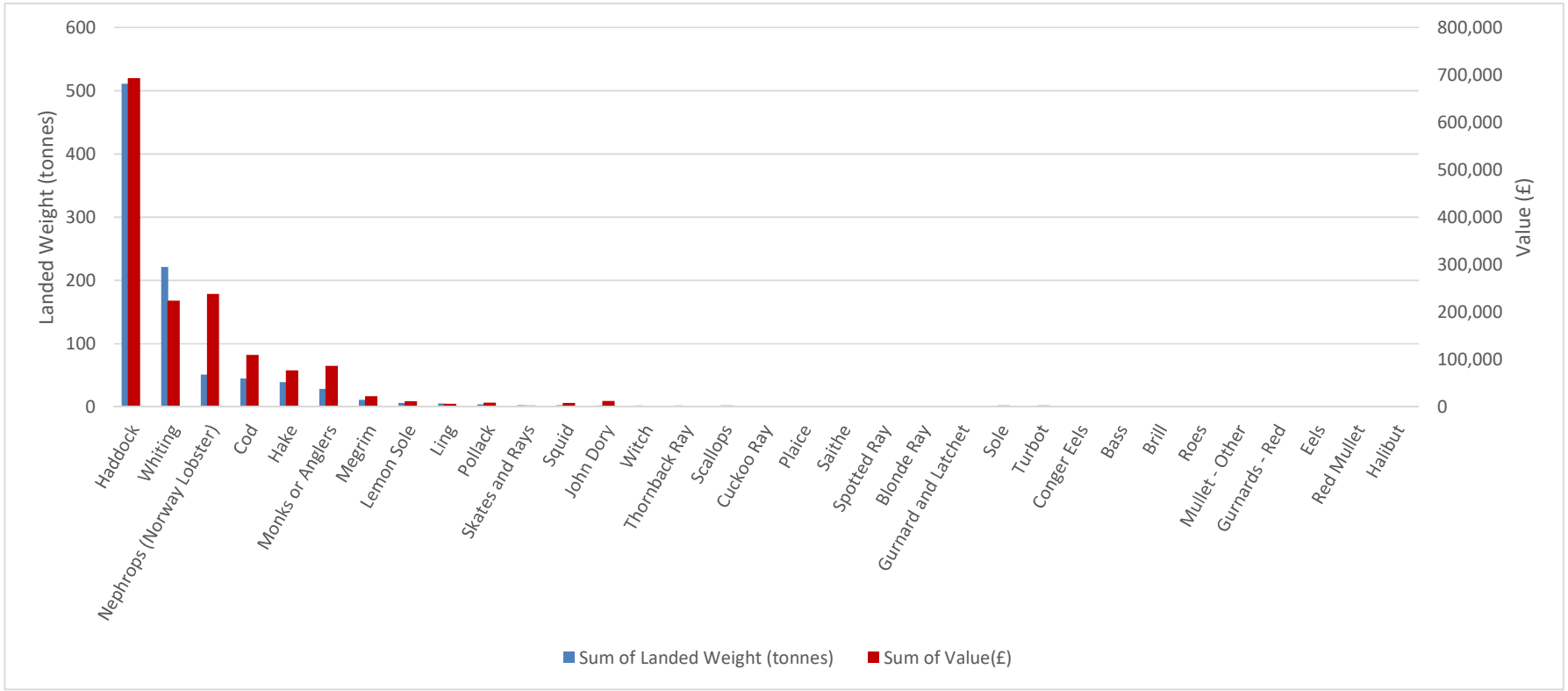


Figure 2.5.23: Total weight (tonnes) and value of landings into Dunmore East port (2011-2015) displayed by species class (Source: MMO, 2017a)

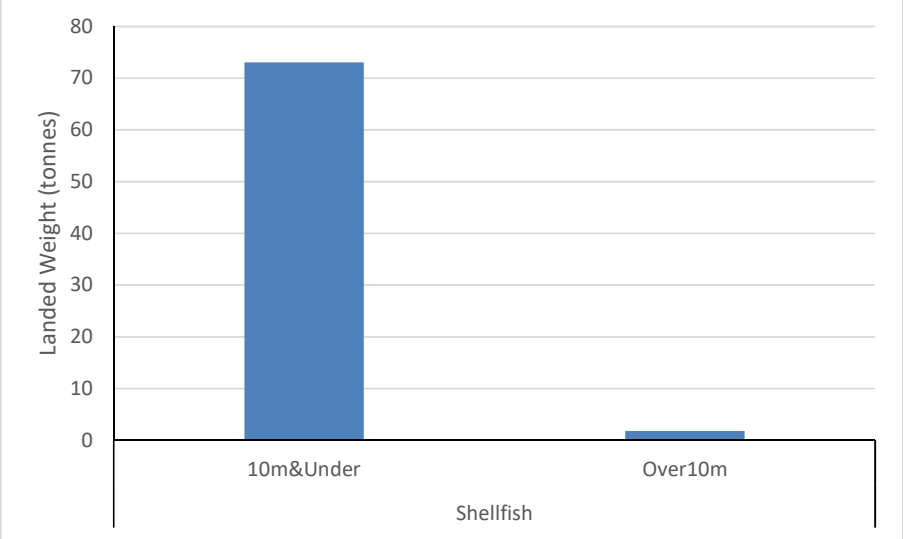


2.5.8.4 Kilmore Quay

There was no recorded landings of demersal or pelagic species into Kilmore Quay by either the <10 m or >10 m vessel size classes. Vessels <10 m are dominant at the port of Kilmore Quay in terms of landed weight and the key species group was shellfish, with total landed weights between 2011 and 2015 of 73.03 tonnes (Figure 2.5.24). This same trend is observed within the >10 m vessel fleet, with a total weight of 1.76 tonnes landed during 2011-15.

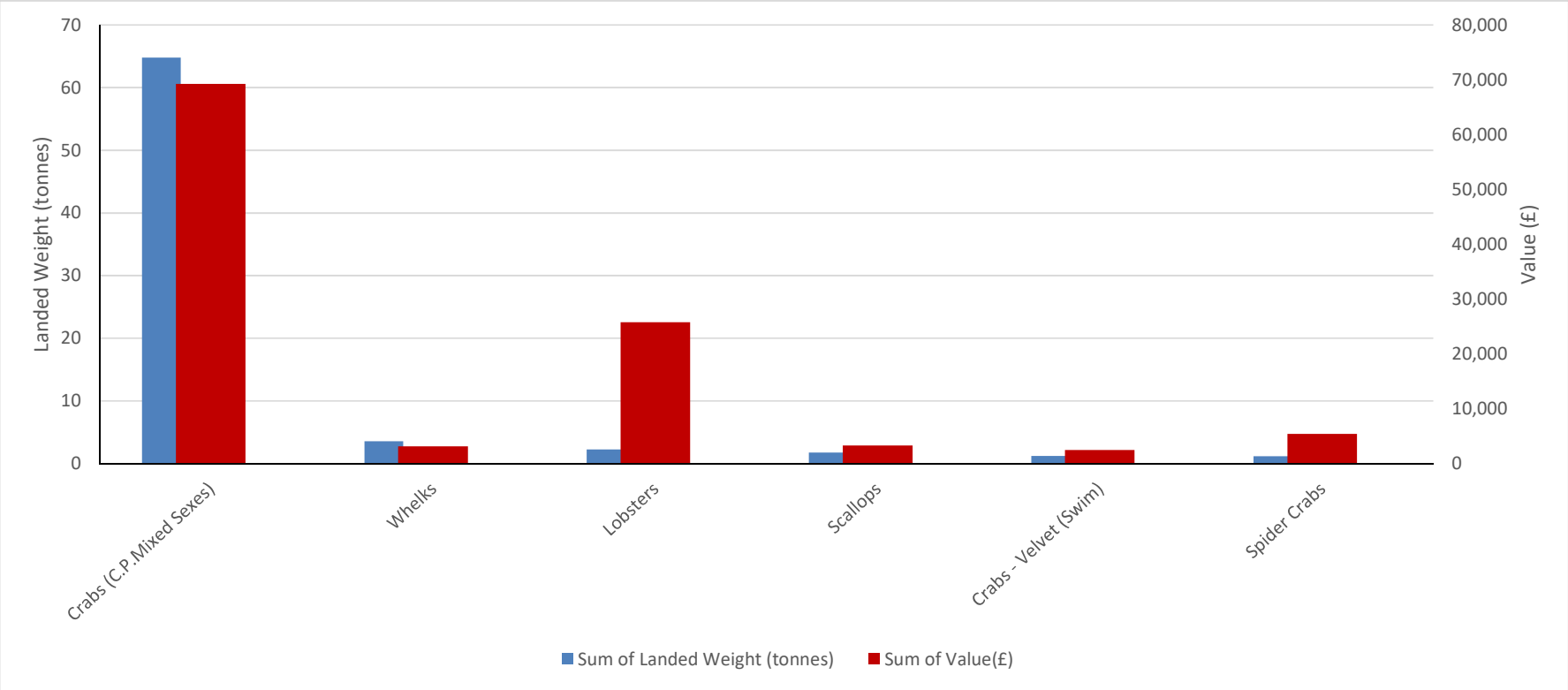
A total of six species were landed at Kilmore Quay during 2011-2015 (Figure 2.5.25). The top five species in terms of landed weight were crab (C.P. Mixed Sexes), whelk, lobster, scallop and crab (velvet). The weight range across these five species was 64.08 to 1.23 tonnes. In terms of value, crab (C.P. Mixed Sexes) was also the key species with a total landed value of £69,232. The overall value of lobster landed (£25,758) was high relative to the weight (2.28 tonnes).

Figure 2.5.24: Total landings (tonnes) into Kilmore Quay port (2012-2015) displayed by species group and vessel length (MMO, 2017a)[2]



[2]Landings data for Kilmore Quay only available from October 2012 to December 2015.

Figure 2.5.25: Total weight (tonnes) and value of landings into Kilmore Quay port (2012-2015)[2] displayed by species class (Source: MMO, 2017a)



2.6 STECF Landings Data (Non-UK Vessels)

Data on other EU fishing activity in and around the proposed Greenlink project 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 directly comparison to the data provided by the MMO but they do provide a good overview of fishing activity and trends in this region.

2.6.1 Temporal Variation in Landed Weight by ICES Rectangle

The range in the sum of landed weight for vessels in the Irish fleet (2012-2016), across all ICES Rectangles (32E3, 32E4 & 33E3) varied from a minimum of 53.56 tonnes (2012) to a maximum of 3,947.27 tonnes (2014) – see Figure 2.6.1. The key ICES Rectangle for the Irish fleet in terms of landings was 33E3.

The range in the sum of landed weight by vessels from the French fleet (2012-2016), across all ICES Rectangles (32E3, 32E4 & 33E3) ranged from a minimum of 1.22 tonnes (2016) to a maximum of 1,465.99 tonnes (2012) – see Figure 2.6.2. The key ICES Rectangles for the French fleet were 32E3 and 32E4.

The range in the sum of landed weight by vessels from the Belgian fleet (2012-2016), across all ICES Rectangles (32E3, 32E4 & 33E3) ranged from a minimum of 1.10 tonnes (2015) to a maximum of 837.05 tonnes (2012) – see Figure 2.6.3. The key ICES Rectangle for the Belgian fleet was 32E3.

Figure 2.6.1: Sum of landings weight from Irish vessels within ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16), displayed by year (Source: STECF, 2018)

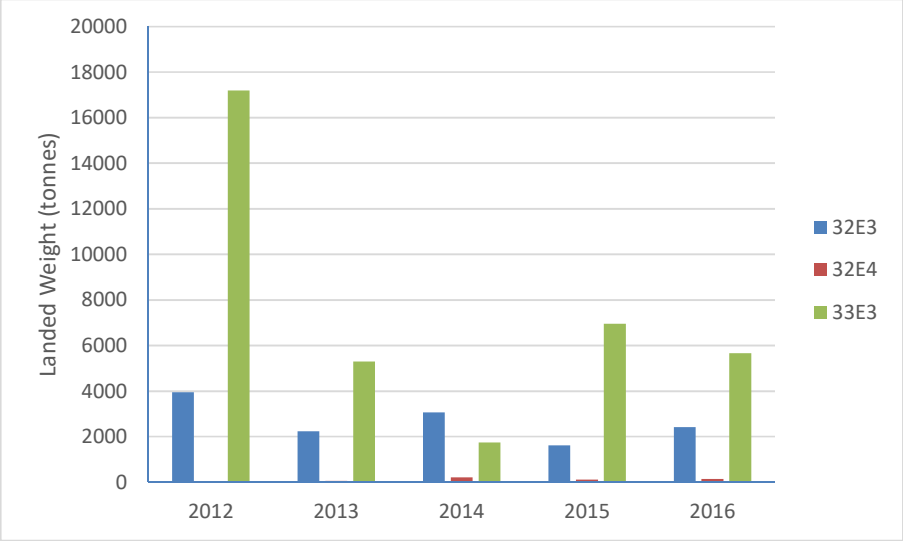


Figure 2.6.2: Sum of landings weight from French vessels within ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16), displayed by year (Source: STECF, 2018)

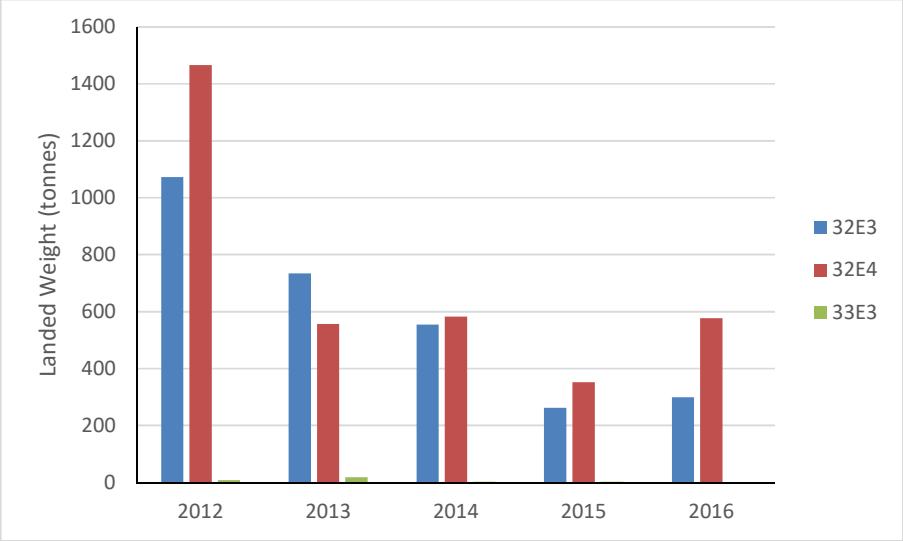
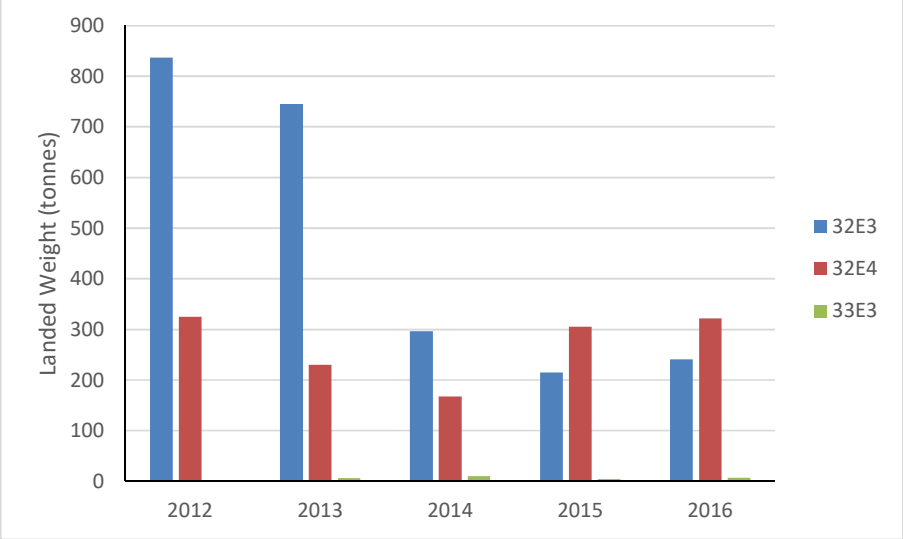


Figure 2.6.3: Sum of landings weight from Belgian vessels within ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16), displayed by year (Source: STECF, 2018)



2.6.2 Landings Weight by Species

A total of 56 species were landed by Irish vessels during 2012-2016 (Figure 2.6.4), with 72% of all landings made from ICES Rectangle 33E3. The key species landed across all Rectangles was European sprat with a total weight of 12,328.61 tonnes. The four next most commercially important species in terms of landed weight were "other"[3], herring, great atlantic scallop and edible crab. There were significant landings of herring and scallop from both 32E3 and 33E3.

A total of 29 species were landed by French vessels during 2012-2016 (Figure 2.6.5). The key ICES Rectangles for the French fleet was 32E3 and 32E4, with landings from 33E3 only making up 0.05% of the total landed weight. The key species landed across all Rectangles was rays/skates with a total weight of 1,989.31 tonnes. The four next most commercially important species in terms of landed weight were haddock, anglerfish, whiting and other[3]. There were significant landings of herring and scallop from both 32E3 and 33E3.

A total of 43 species were landed by Belgian vessels during 2012-2016 (Figure 2.6.6). The key ICES Rectangles for the Belgian fleet was 32E3 (63% of the total landed weight). The key species landed across all Rectangles was anglerfish with a total weight of 713.74 tonnes. The four next most commercially important species in terms of landed weight were common sole, megrim, thornback ray and blonde ray.

[3] This species category is only prominent during 2012 and may possibly be a result of raw data inaccuracies and, therefore, these data should be treated with caution.

Figure 2.6.4: Sum of landings weight from Irish vessels within ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16), displayed by species (Source: STECF, 2018)

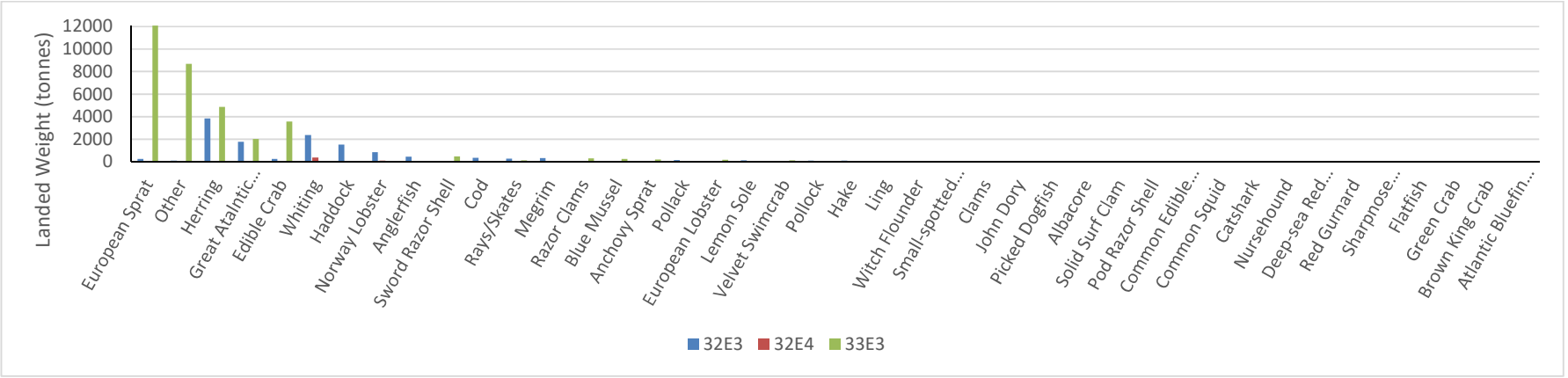


Figure 2.6.5: Sum of landings weight from French vessels within ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16), displayed by species (Source: STECF, 2018)

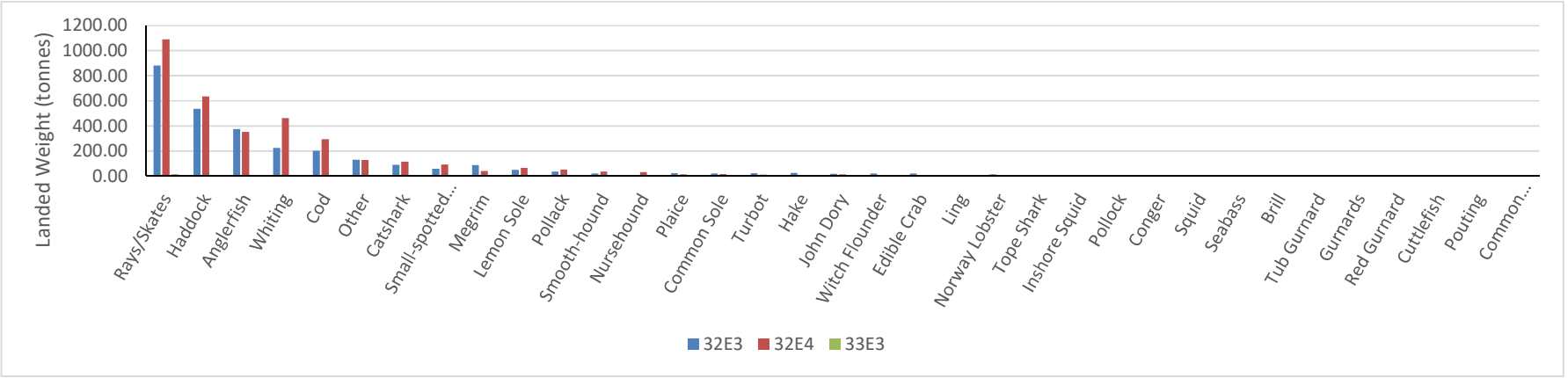
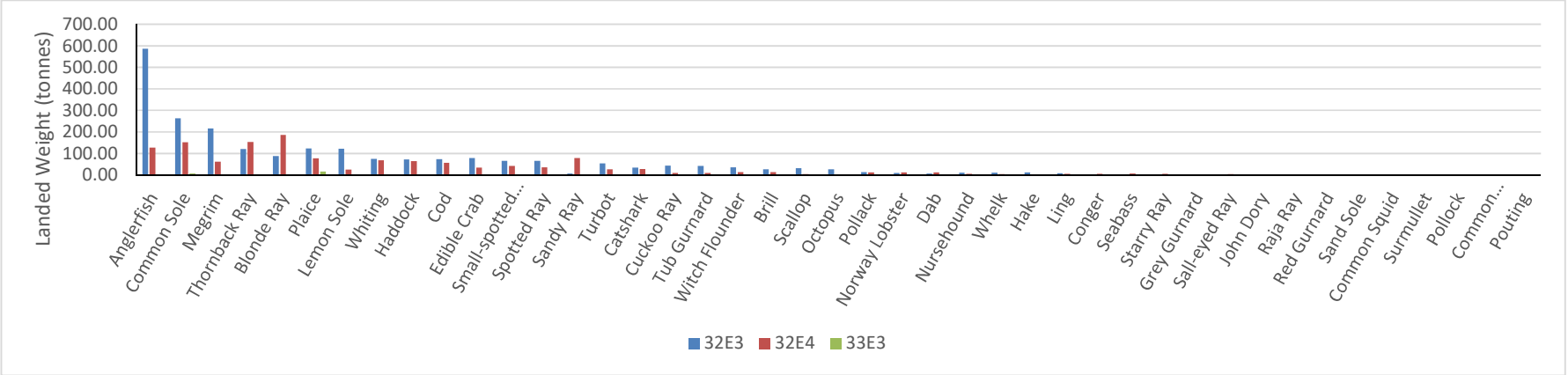


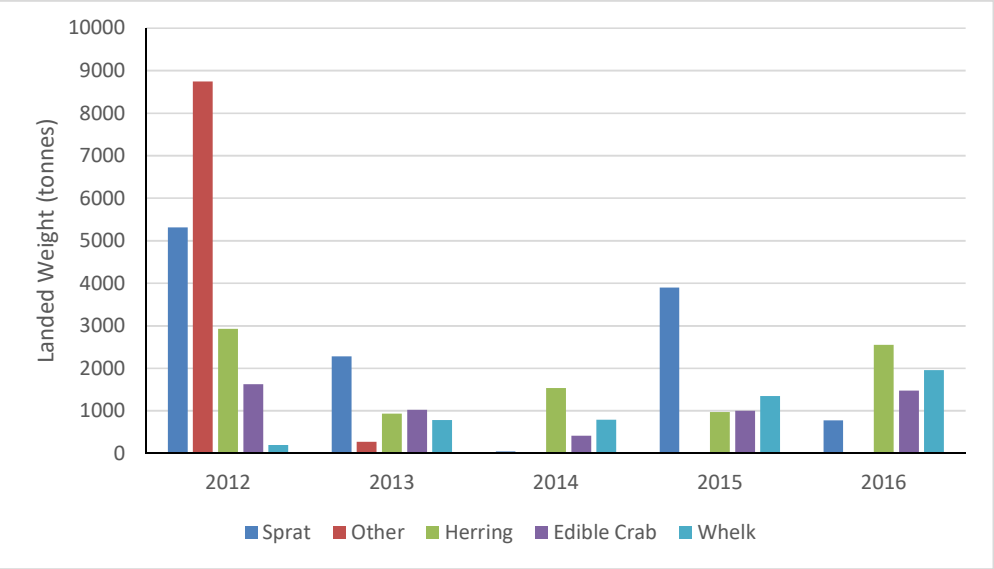
Figure 2.6.6: Sum of landings weight from Belgian vessels within ICES Statistical Rectangle 32E3, 32E4, 33E3 (2012-16), displayed by species (Source: STECF, 2018)



2.6.3 Temporal Variation by Species

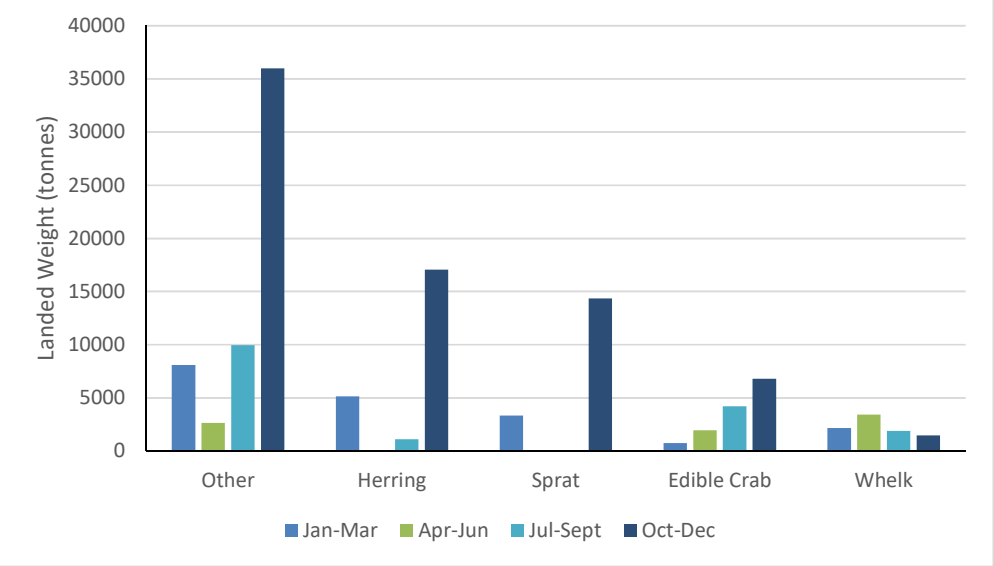
The STECF species data was analysed further allowing a closer look at the temporal variation of the top five most commercially important species. Overall, "other"[3] made up the top species group in terms of total landed weight across all years and rectangles, however, this trend may be skewed due to such a high number in this category during 2012. "Other" does not feature so prominently in 2013-2016. Sprat is more consistently the key species across the years with a landed weight range from 50 to 5,314.8 tonnes. Edible crab and whelk are the species which exhibit the least annual variation with total landed weight ranges of 414.16 to 1,629.53 tonnes and 198.09 to 1,953.65 tonnes respectively.

Figure 2.6.7: Annual Trends in Top 5 Species by Sum of Landings Weight from Non-UK[4] vessels (2012-2017) for ICES Rectangles 32E3, 32E4 and 33E3 (Source: STECF, 2018)



[4] Non-UK data from Irish, French and Belgian vessels.

Figure 2.6.8: Seasonal Trends in Top 5 Species by Sum of Landings Weight from Non-UK[4] vessels (2012-2017) for ICES Rectangles 32E3, 32E4 and 33E3 (STECF, 2018)



2.7 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 <12m in length is not captured by VMS data at present.

For this assessment, data (2012-2015) 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 2012-2015.

2.7.1 Fishing Effort – UK Vessels

Figure 2.7.1 shows annual (2012-2015) 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 Greenlink Interconnector cable corridor is included for reference.

Figure 2.7.2 to Figure 2.7.4 show annual (2012-2015) plot of total hours fished in and around the proposed Greenlink Interconnector cable corridor using all gear, static gear and mobile gear, by UK vessels >15 m within ICES Rectangles 32E3, 32E4 and 33E3 using VMS data.

Figure 2.7.1: Greenlink Interconnector Cable Corridor in relation to annual fishing effort (kilowatt/days) (mobile & static gear) by all UK vessels by ICES Rectangles 32E3, 32E4 & 33E3 (2012-2015)(Source: MMO, 2017e)

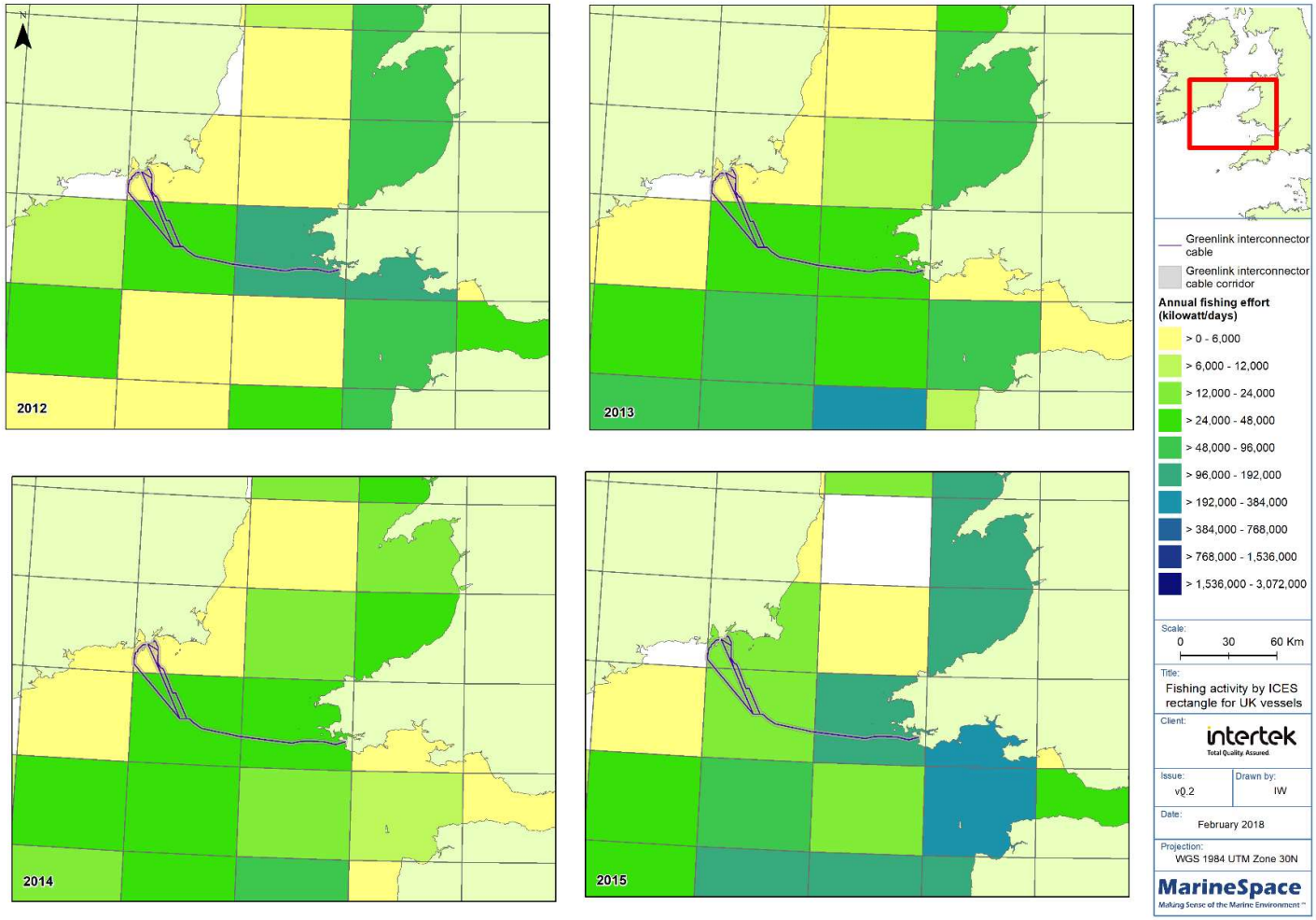


Figure 2.7.2: Greenlink Interconnector Cable Corridor in relation to the total hours fished (mobile & static gear) by UK vessels (>15 m) within ICES Rectangles 32E3, 32E4 & 33E3 (2012-2015) (Source: MMO, 2017d)

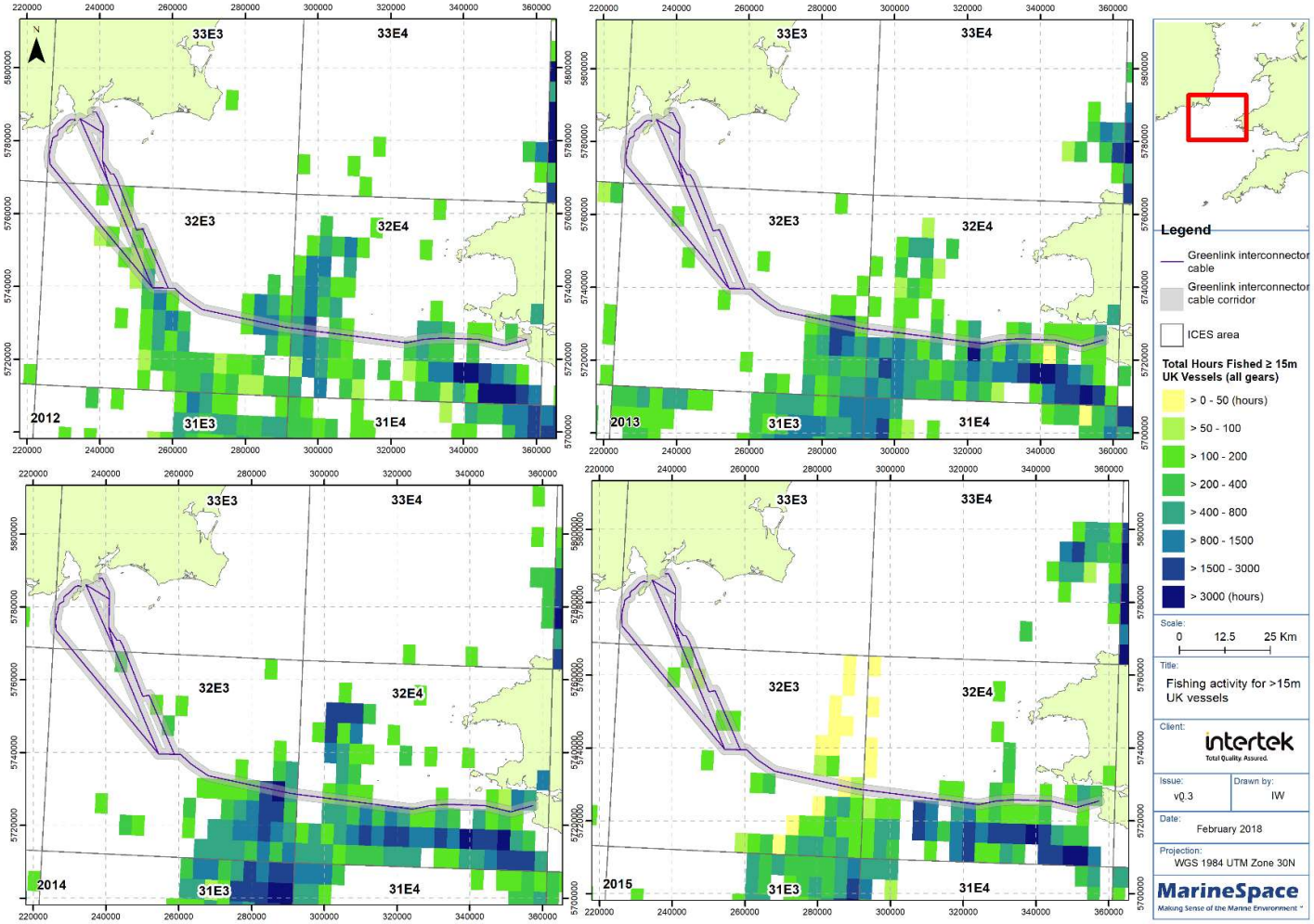


Figure 2.7.3: Greenlink Interconnector Cable Corridor in relation to the total hours fished (static gear) by UK vessels (>15m) within ICES Rectangles 32E3, 32E4 & 33E3 (2012-2015) (Source: MMO, 2017d)

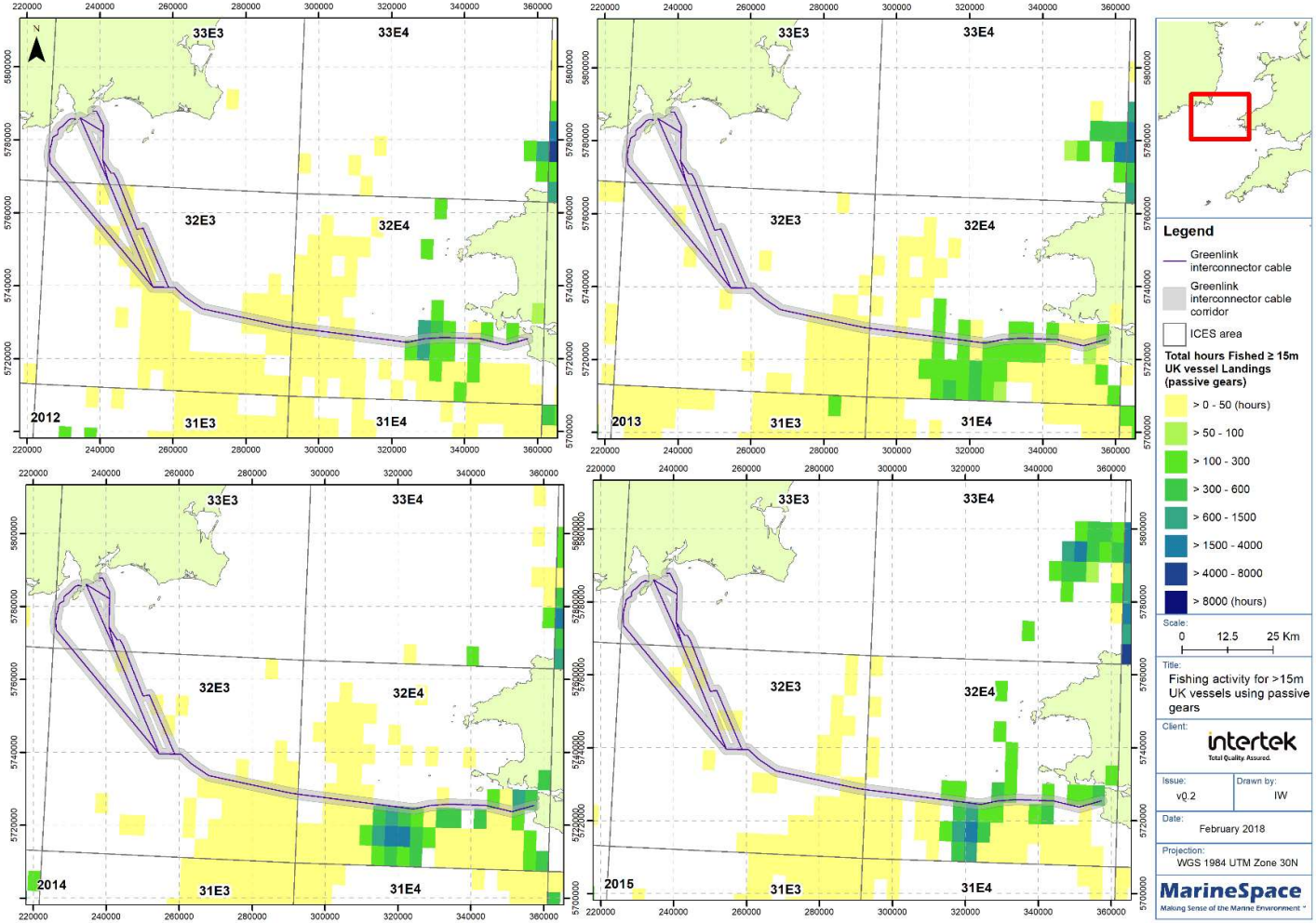
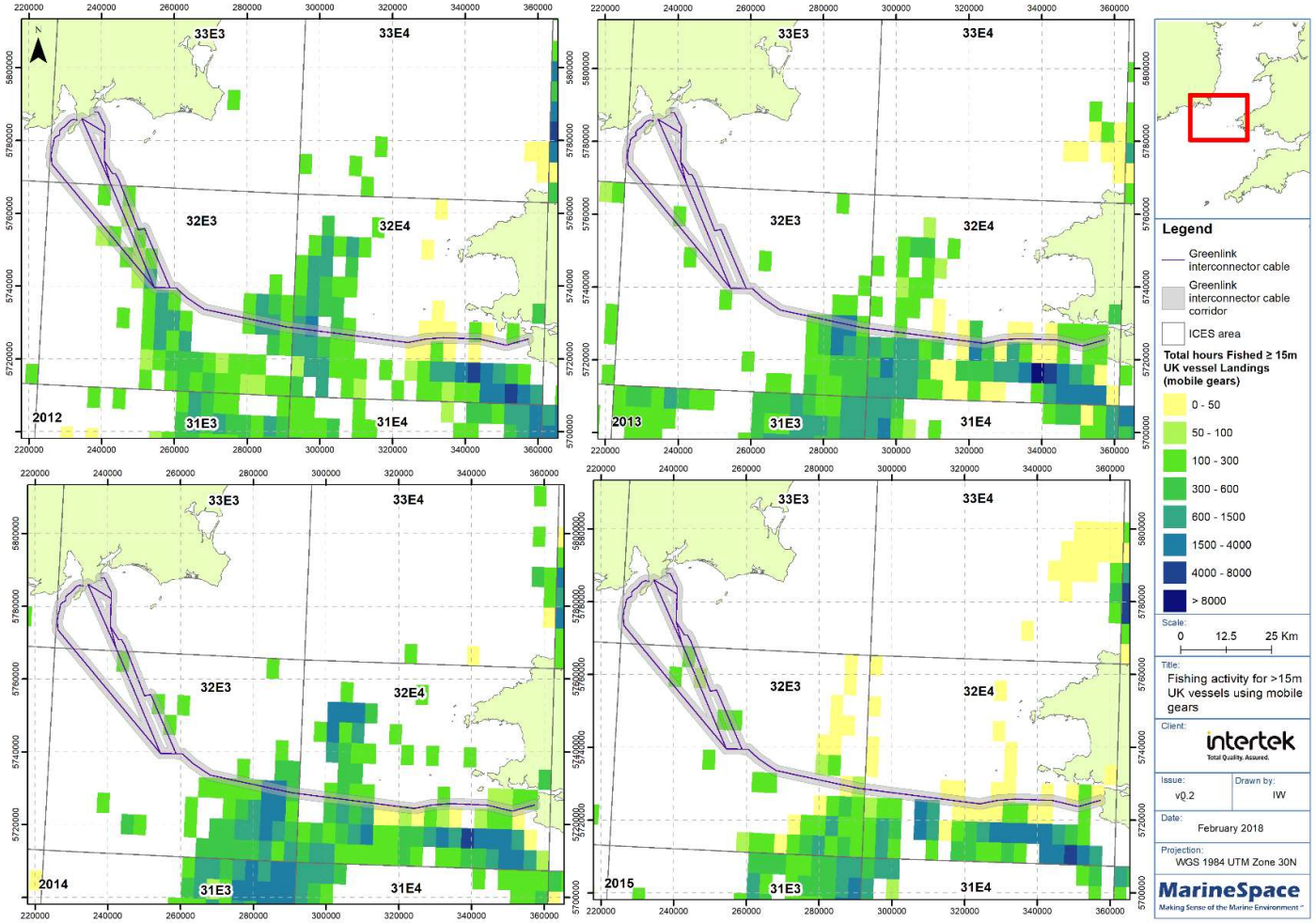


Figure 2.7.4: Greenlink Interconnector Cable Corridor in relation to the total hours fished (mobile gear) by UK vessels (>15 m) within ICES Rectangles 32E3, 32E4 & 33E3 32E4 (2012-2015) (Source: MMO, 2017d)



2.7.2 Fishing Value – UK Vessels

Figure 2.7.5 shows annual (2012-2015) 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 Greenlink Interconnector cable corridor is included for reference.

Figure 2.7.6 shows annual (2012-2015) total value landed from in and around the proposed Greenlink Interconnector cable corridor using all gear, by UK vessels (>15 m) within ICES Rectangles 32E3, 32E4 and 33E3 using VMS data.

Figure 2.7.7 shows annual (2012-2015) total value landed along the proposed Greenlink Interconnector cable corridor, 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 2.5 for associated landing values within each region.

Table 2.5: Average Landings Value from VMS Data split into Sea Regions along the proposed Greenlink Interconnector Cable Corridor (Source: MMO, 2017d)

	Sea Region			
Year	UK 6nm	UK 12nm	Irish Territorial Waters	Offshore
2012	£573.03	£3,264.01	£431.85	£1,659.96
2013	£1,968.59	£8,902.66	£1,011.78	£1,1075.80
2014	£1,651.09	£833.40	£3,162.62	£5,886.82
2015	£1,018.98	£1,832.64	£368.66	£819.91
Total Value	**£5,211.69**	**£14,832.71**	**£4,974.91**	**£19,442.49**
Average	**£1,302.92**	**£3,708.18**	**£1,243.73**	**£4,860.63**

Figure 2.7.5: Greenlink Interconnector Cable Corridor in relation to the annual value of landings (mobile & static gear) by all UK vessels by ICES Rectangles 32E3, 32E4 & 33E3 (2012-2015)(Source: MMO, 2017e)

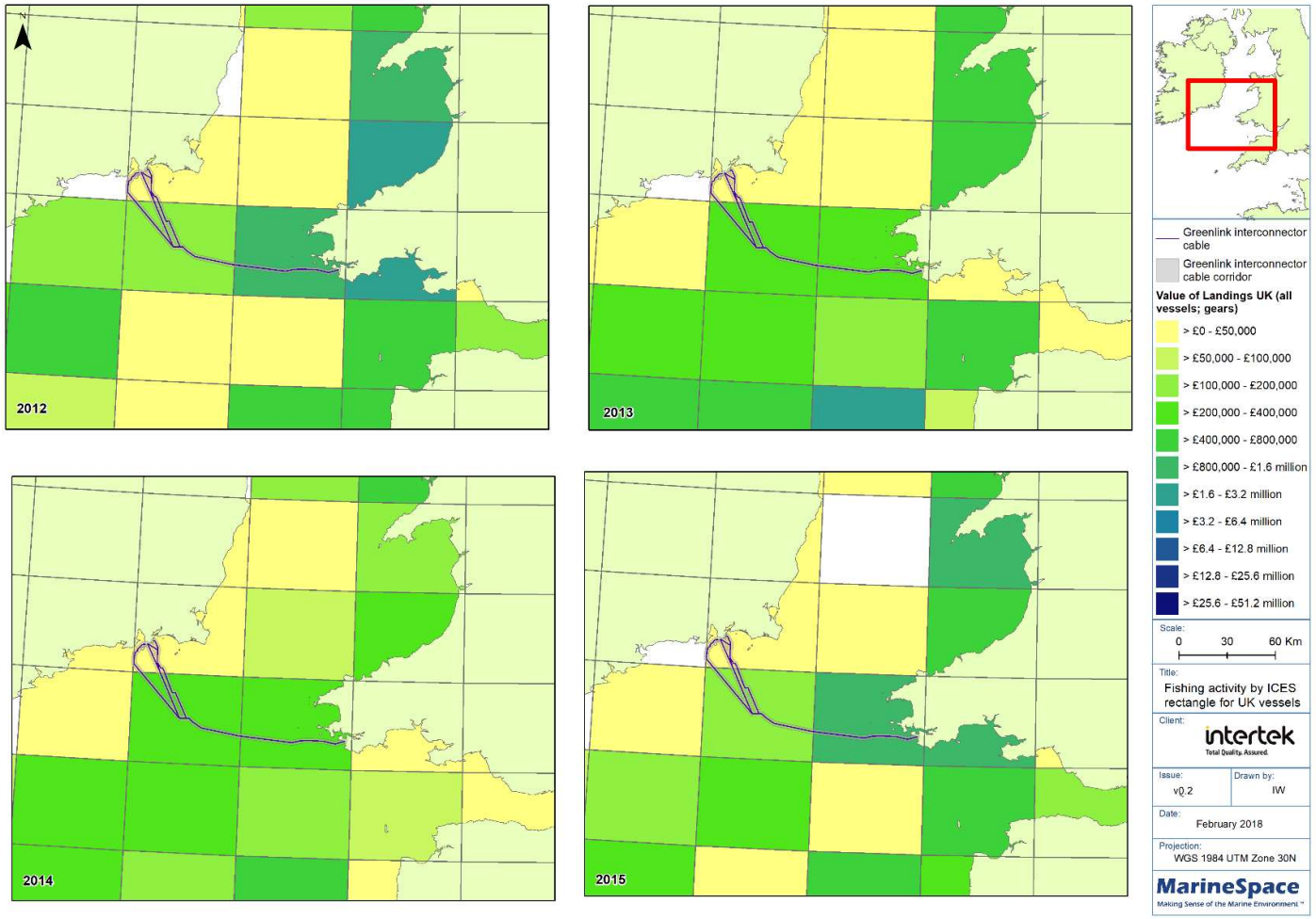


Figure 2.7.6: Greenlink Interconnector Cable Corridor in relation to the total value of landings (mobile & static gear) by UK vessels (>15 m) (between 2012-2015) (Source: MMO, 2017d)

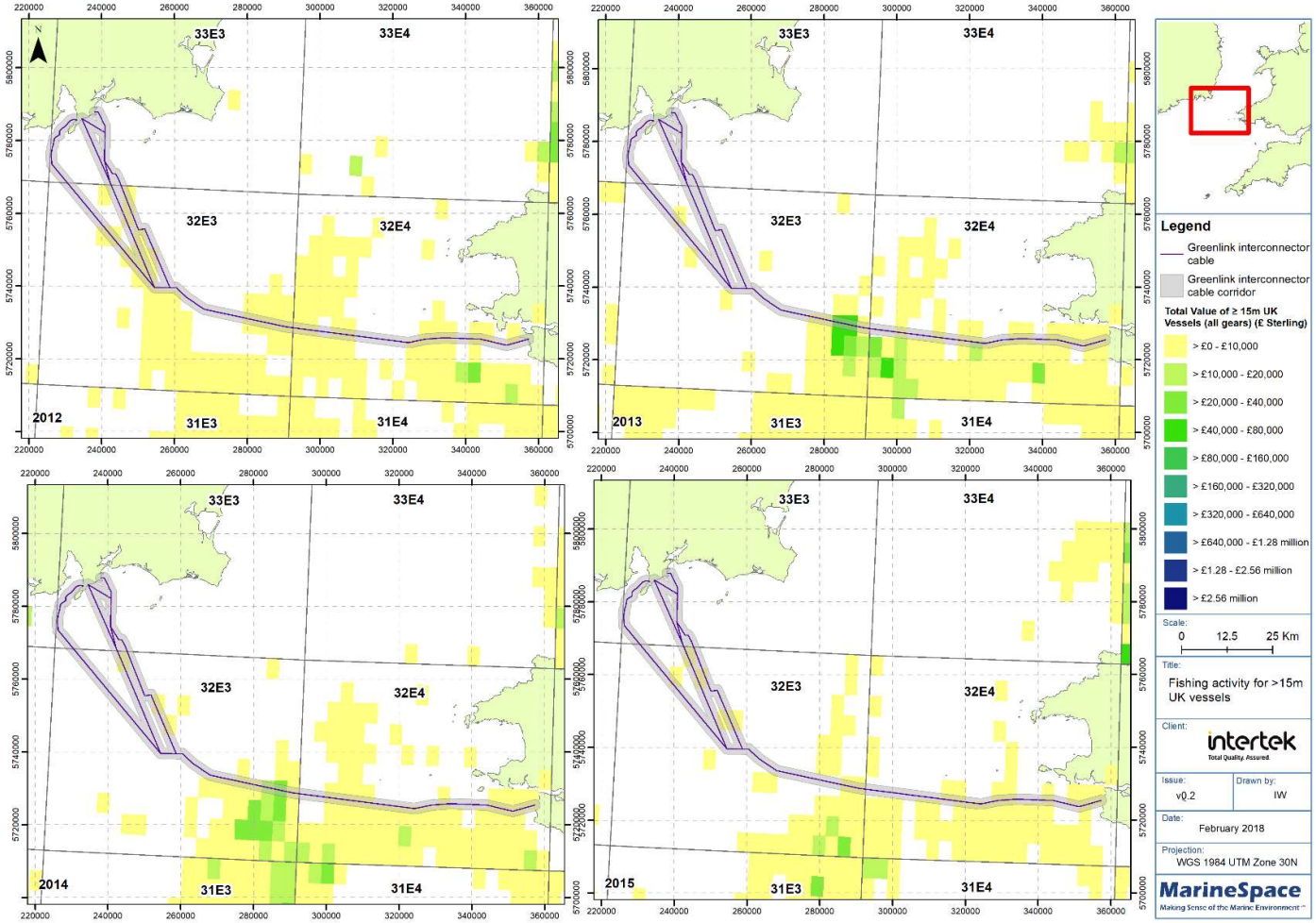
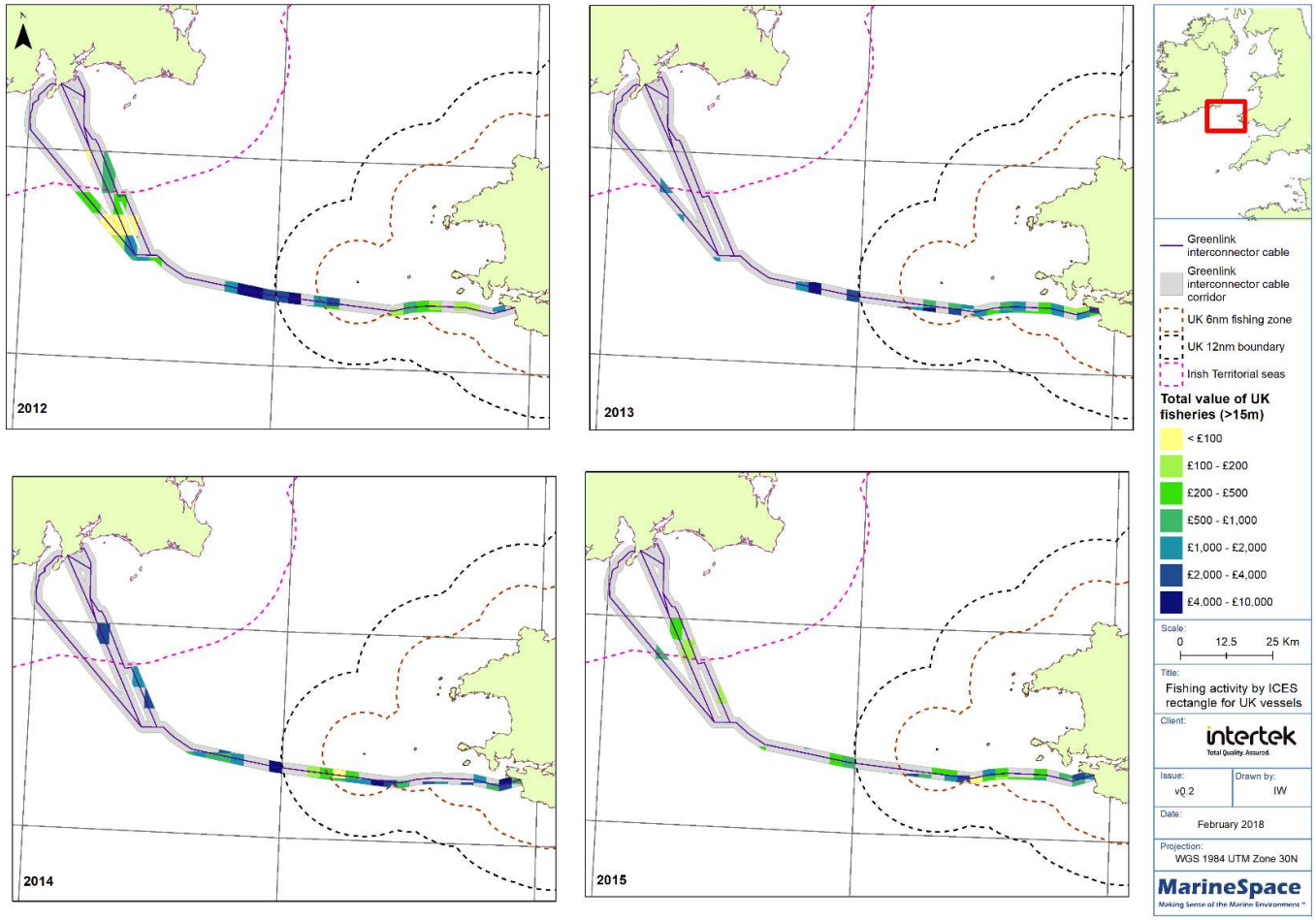


Figure 2.7.7: Greenlink Interconnector Cable Corridor in relation to the total value of landings (mobile & static gear) divided into sea areas by nautical Miles, by UK vessels (>15 m) (between 2012-2015) (Source: MMO, 2017d)



2.7.3 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 2.7.8 to Figure 2.7.11 show total hours fished between 2007-2010 in and around the proposed Greenlink Interconnector cable corridor by non-UK vessels over 15 m, Irish, French, Belgian, Spanish & Dutch, using all gear types within ICES Rectangles 32E3, 32E4 and 33E3 using VMS data.

Figure 2.7.8: Greenlink Interconnector Cable Corridor in relation to the total hours fished (mobile & static gear) by Irish vessels (>15 m) within ICES Rectangles 33E3, 32E3 & 32E4 (2007-2010) (Source: MMO, 2014)

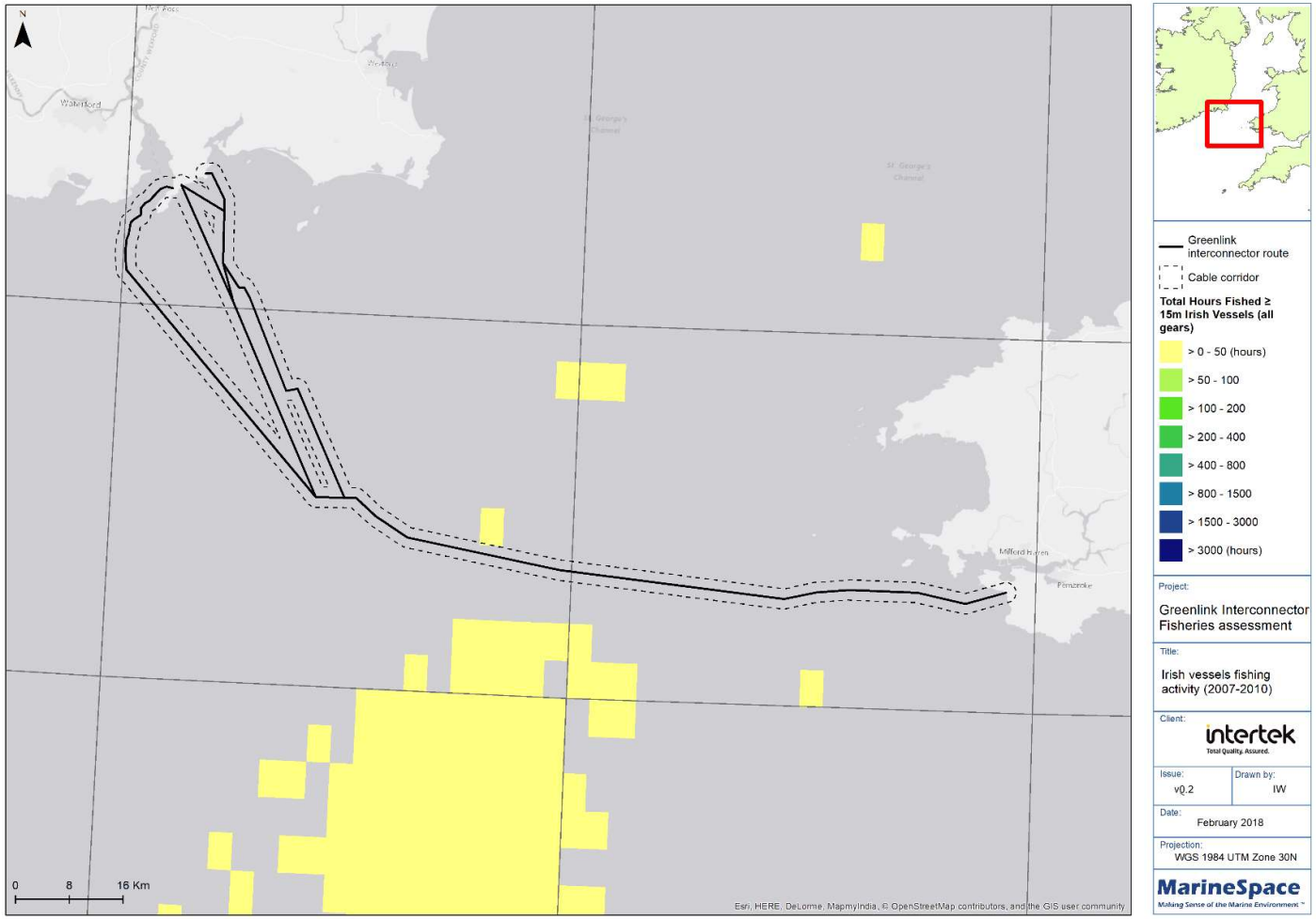


Figure 2.7.9: Greenlink Interconnector Cable Corridor in relation to the total hours fished (mobile & static gear) by French vessels (>15 m) within ICES Rectangles 33E3, 32E3 & 32E4 (2007-2010) (Source: MMO, 2014)

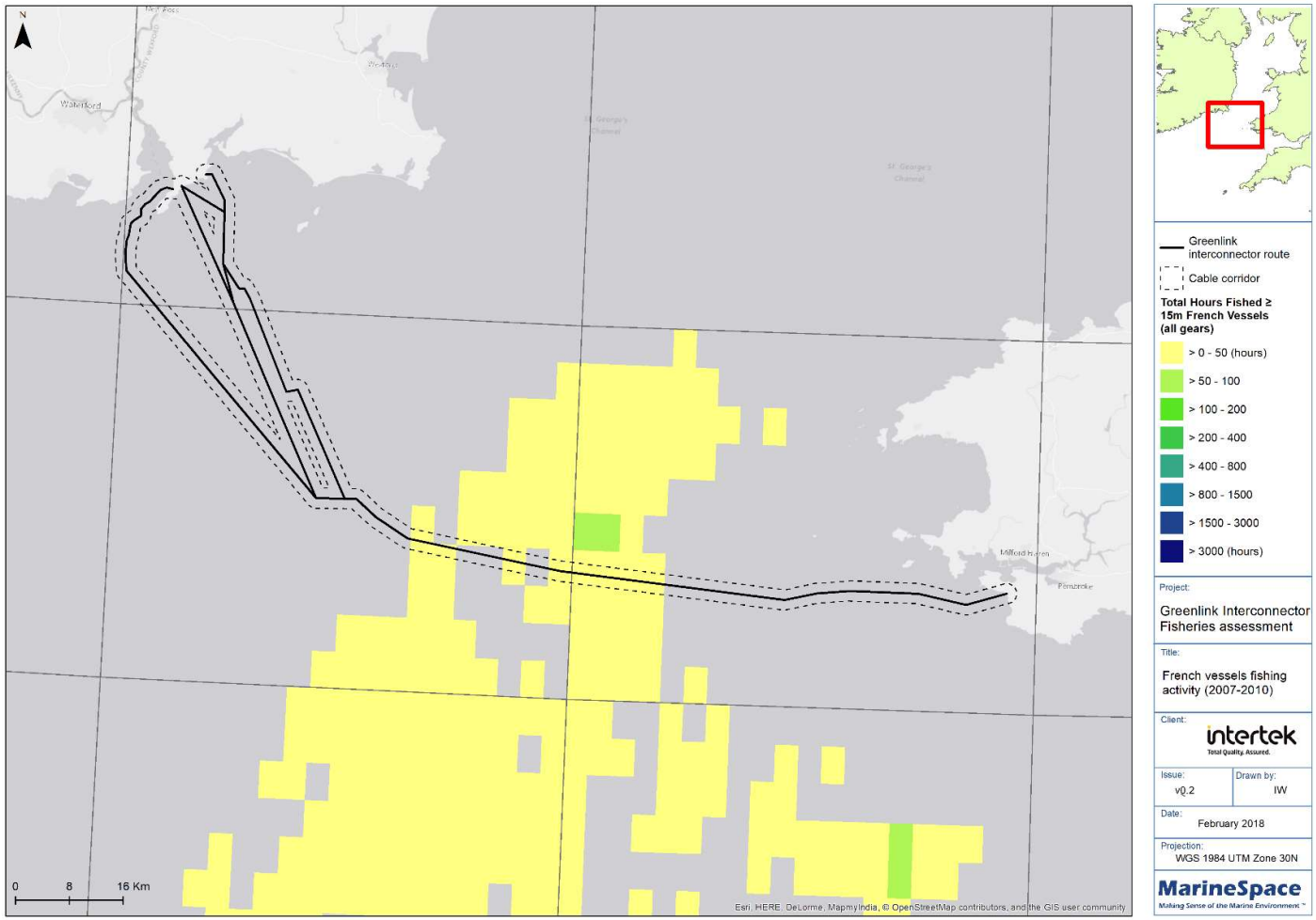


Figure 2.7.10: Greenlink Interconnector Cable Corridor in relation to the total hours fished (mobile & static gear) by Belgian vessels (> 15 m) within ICES Rectangles 33E3, 32E3 & 32E4 (2007-2010) (Source: MMO, 2014)

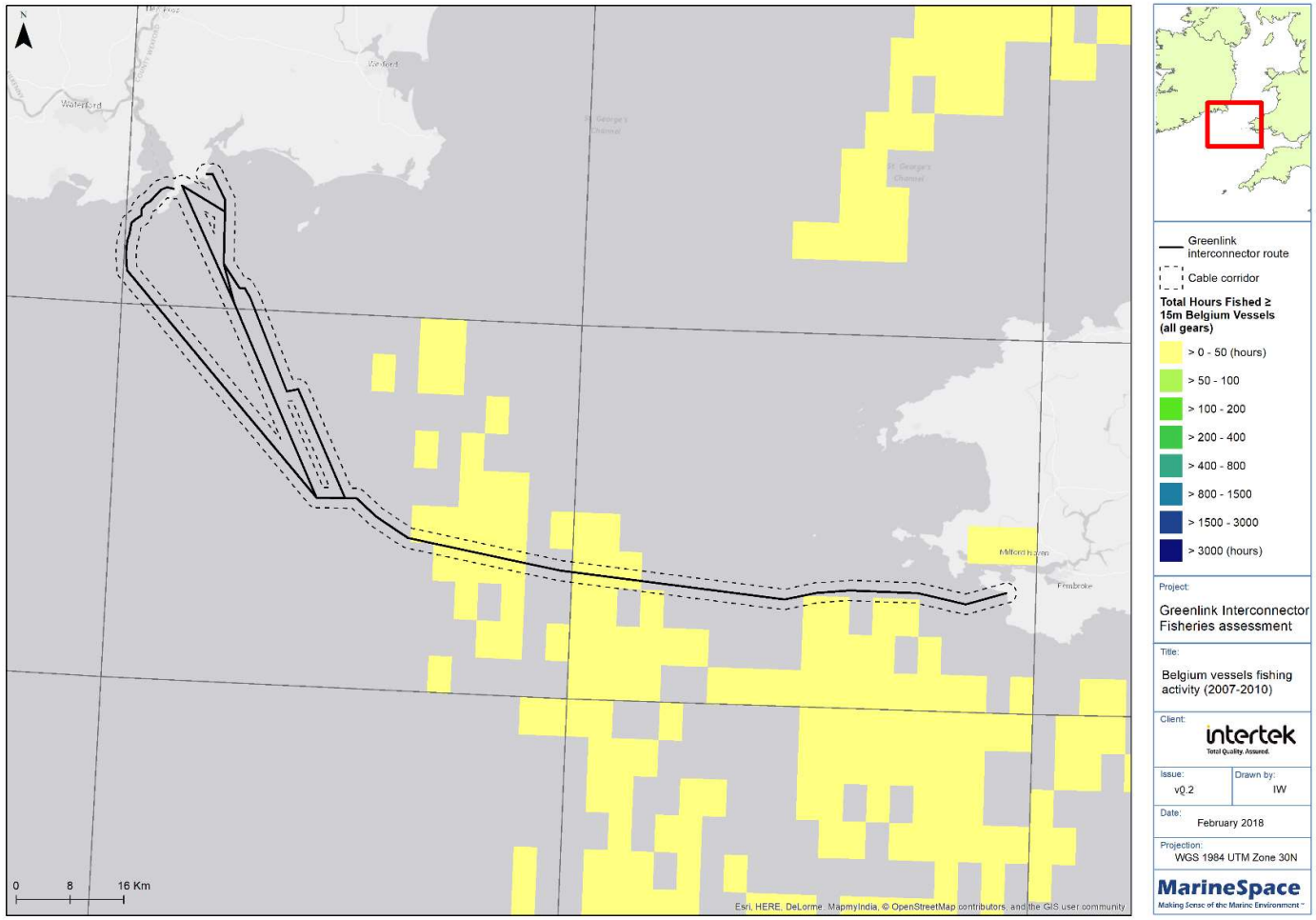
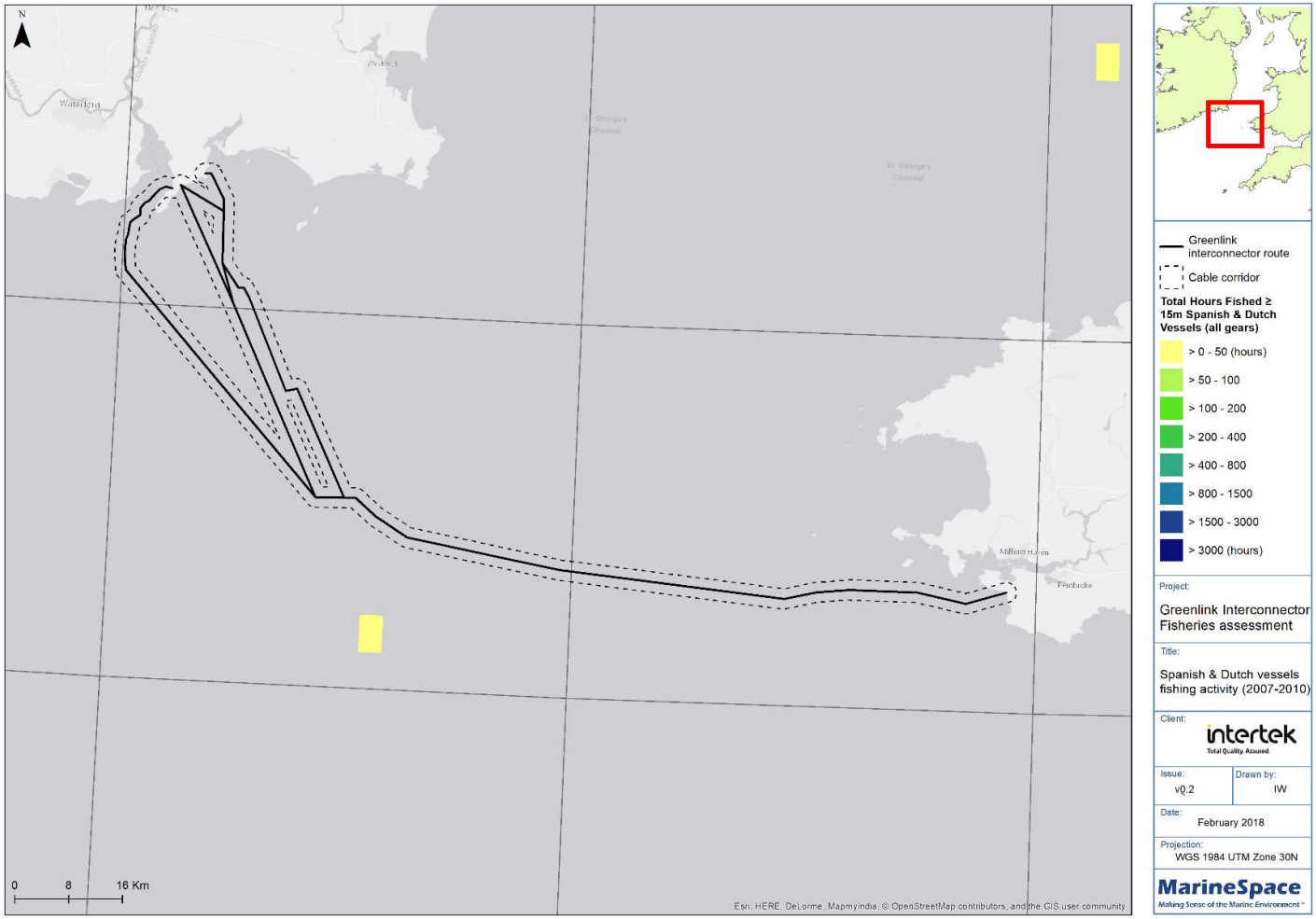


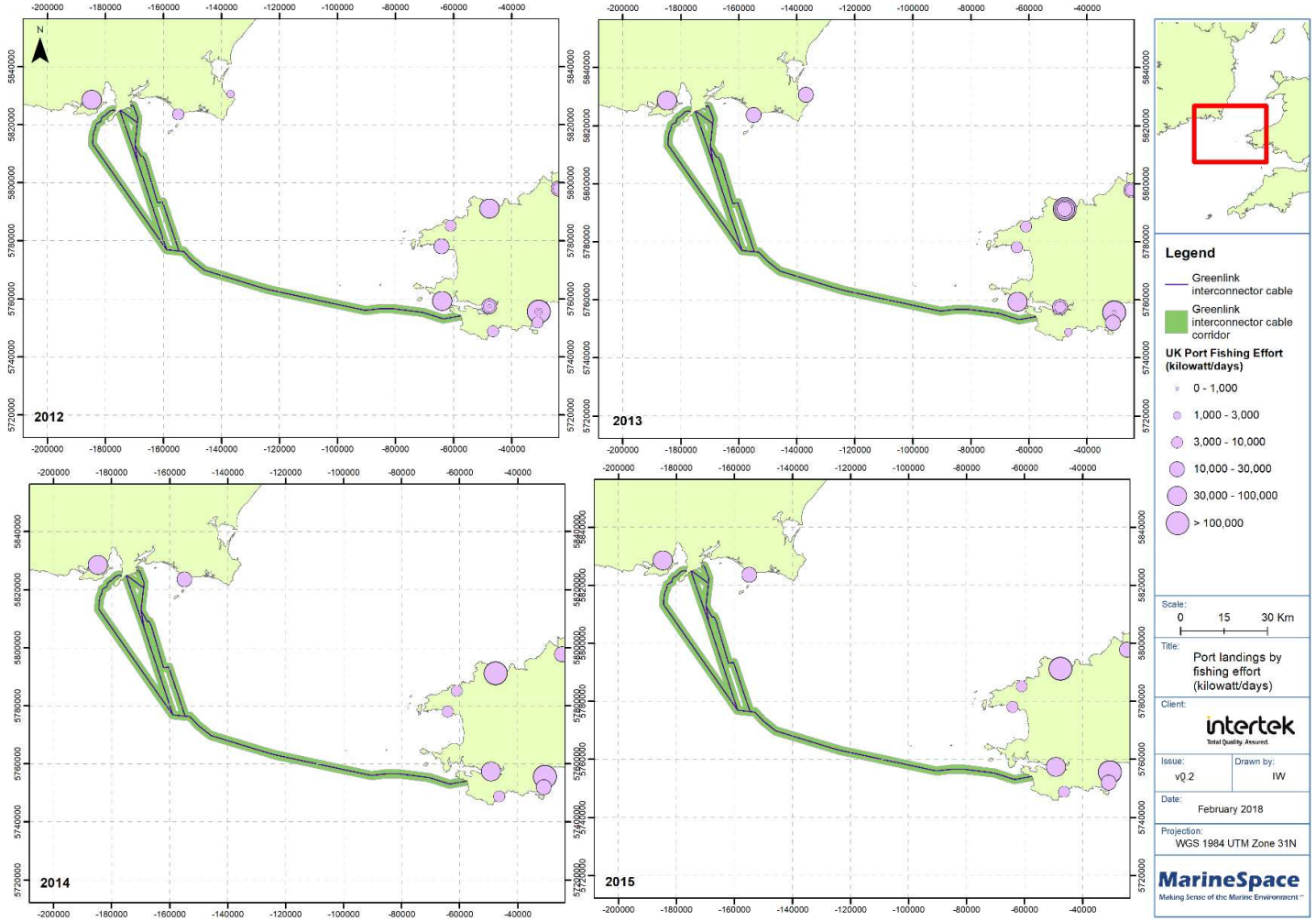
Figure 2.7.11: Greenlink Interconnector Cable Corridor in relation to the total hours fished (mobile & static gear) by Spanish & Dutch vessels (>15 m) within ICES Rectangles 33E3, 32E3 & 32E4 (2007-2010) (Source: MMO, 2014)



2.7.4 Fishing Effort – By Regional Ports

Figure 2.7.12 shows fishing effort (kWh / day) in relation to regional ports in Wales and Ireland and mapped to show proximity to the proposed Greenlink Interconnector cable corridor.

Figure 2.7.12: Greenlink Interconnector Cable Corridor in relation to the fishing effort by regional ports based on data from 2012-2015 (Source: MMO, 2017e)



2.8 Sea Fishing Atlas for Wales

The Sea Fishing Atlas for Wales was compiled by the then Countryside Council for Wales (CCW) (now Natural Resources Wales) in 2010 from information collected between 2000 and 2005 from various sources including fishermen, fishery officers and fishery regulators and other marine users. The maps of fishing activity have been prepared primarily on the basis of anecdotal comments received by the former CCW from a variety of sources. The maps are purely indicative in nature and give a general indication of where fishing activity is thought to have occurred at the given time. Please bear in mind that there is a low level of confidence in the data.

Figure 2.8.1 and Figure 2.8.2 show indicative fishing areas within Welsh waters using both static and mobile gear. These figures have been produced using data from the Wales Marine Planning Portal following a study undertaken by CCW in 2010.

Figure 2.8.1: Indicative fishing areas (static gear) in the vicinity of the Greenlink Interconnector cable corridor, within UK waters (CCW, 2010) (Source: NRW, 2010)

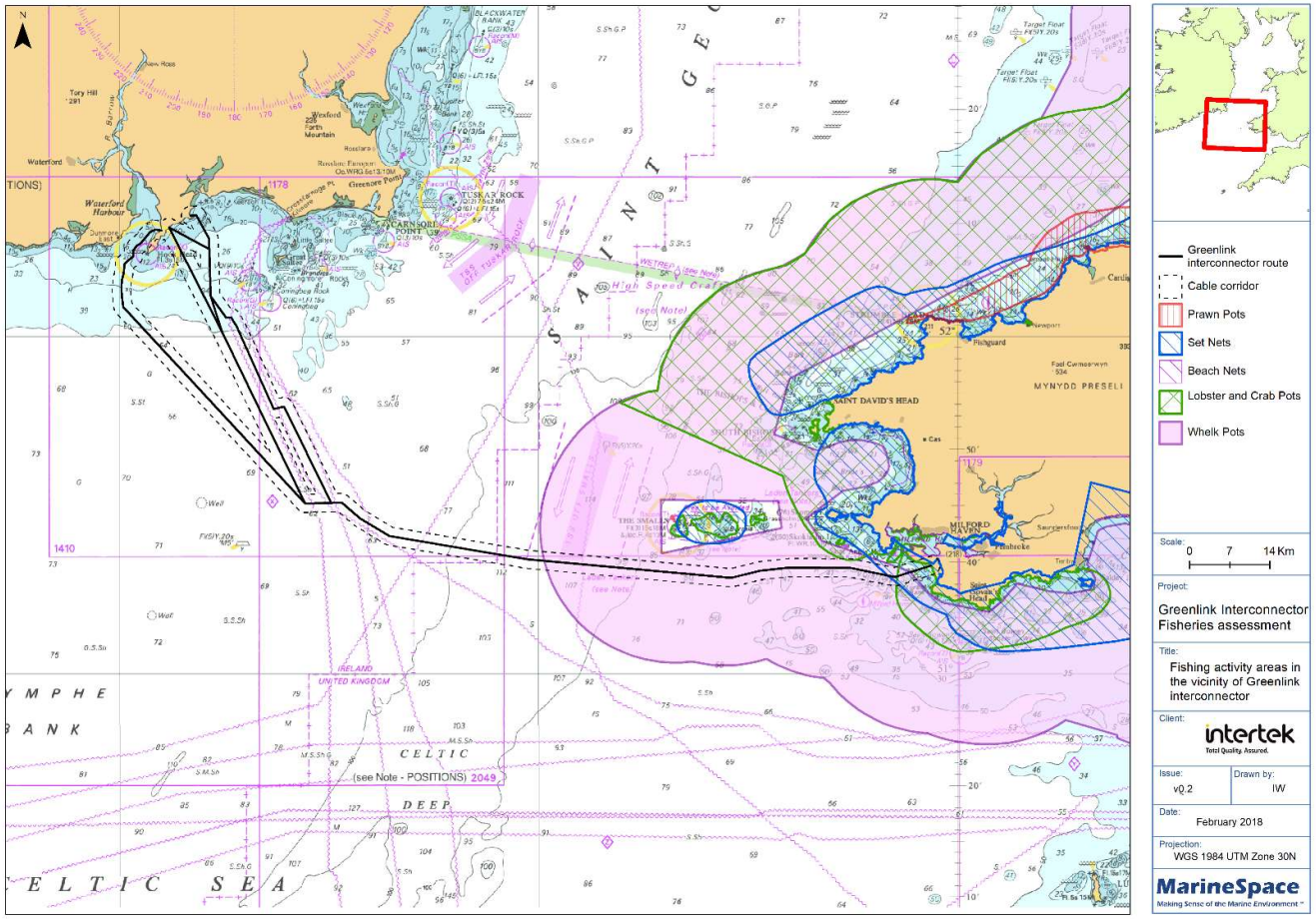
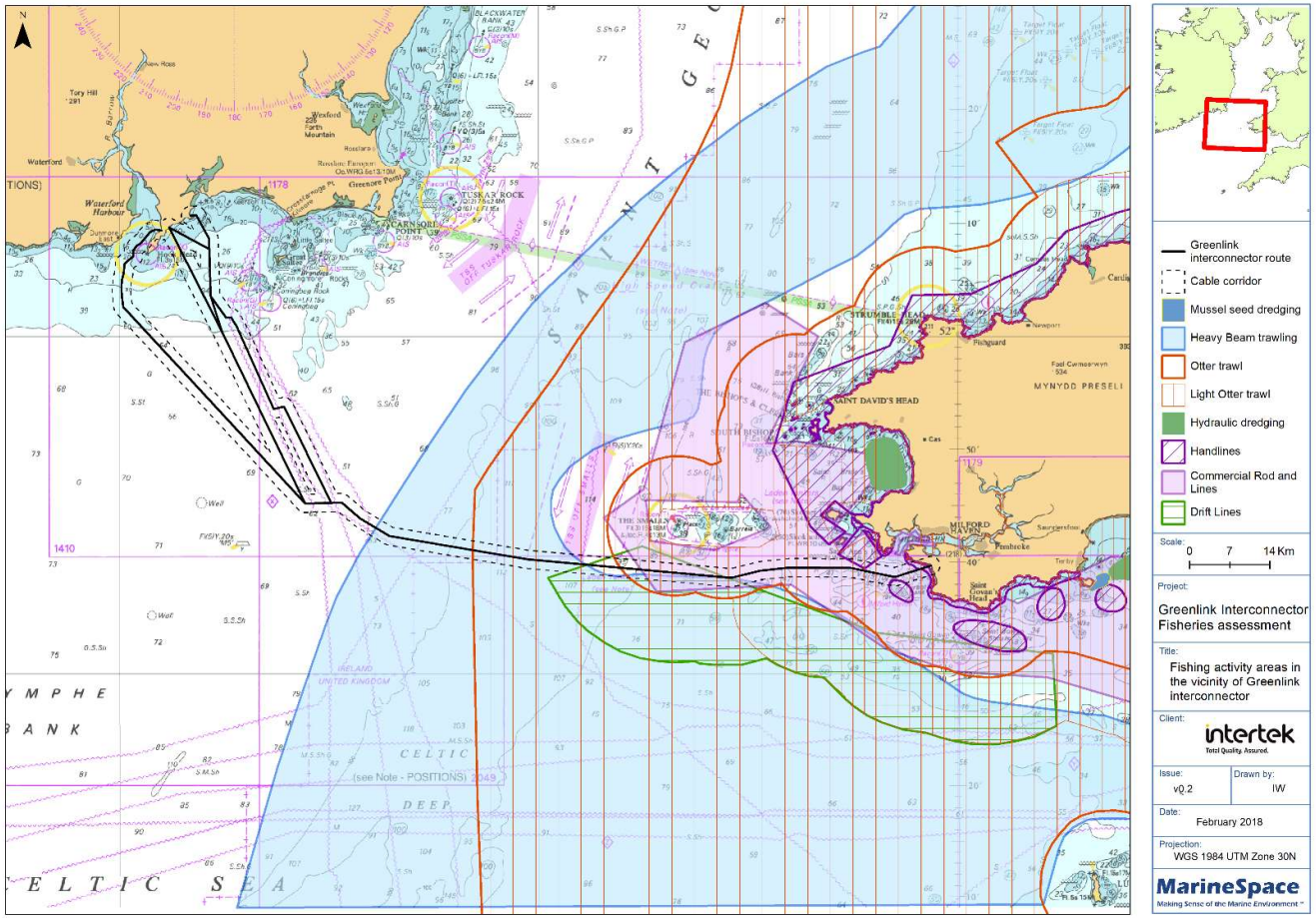


Figure 2.8.2: Indicative fishing areas (mobile gear) in the vicinity of the Greenlink Interconnector cable corridor, within UK waters (CCW, 2010) (Source: NRW, 2010)



3. Recreational Fishing Activity

3.1 Welsh Recreational Fisheries

Sea angling, comprising boat and shore fishing, is a very popular recreational activity in the UK and Ireland. In particular, Wales is able to offer, amongst a wide range of species, excellent shore fishing for bass, cod and whiting, and boat fishing for black bream and tope.

Little statistical information has been hitherto available for the scale and economic worth of sea angling, and despite its obvious popularity, it is often over-looked when tourism and coastal development matters are debated. With the assistance of local sea angling specialists and fishing clubs we have been able to estimate that the sport in Wales involves the participation of approximately 12,000 locally resident anglers, and upwards of 28,000 visiting anglers. Estimates of angler spend suggest that this sport makes a gross contribution to the coastal economy of Wales of over £28 million (Nautilus, 2000).

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).

4. Feedback from Commercial Fishing Representatives

Table 4.1 lists the fishing organisations who have been contacted as part of this desk-based study into fishing activity in the region of the Greenlink interconnector project. 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, i.e. next stage being offshore survey work in summer 2018;
- 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:

Fishing Activity

- The key observations and trends identified via review of MMO and EU landings/activity data appear sound and in line with consultees understanding of activity in the region;
- The Welsh inshore section of the proposed cable corridor features a high intensity of static gear fishing, particularly in the summer months, even though vessels do move further offshore later in the year;
- Sea and weather conditions (SW prevailing wind and larges swells) limits the ability of smaller inshore vessels to work further offshore, which intensifies the importance of the nearshore (0-6nm) section on the Welsh side;
- The Irish inshore section is also subject to high intensity static fishing activity, along with an active herring fishery towards the later parts of the year; and
- Further offshore (near to where the proposed cable corridor splits) from the Irish coast is fished less intensely, although this area is still important for larger vessels, primarily catching white fish species.

Key Issues Raised by Stakeholders

- Planned survey works in 2018 will impact on fishing activity in Welsh and Irish inshore regions and will require early engagement with the fishing industry to plan gear movements etc;
- The West Wales Shellfishermen's Association (WWSFA) will not deal with the Welsh Fishermen's Association (WFA) in any such future discussions and requests that they be contacted separately for any future consultation;
- Regarding gear removal, the issue regarding potential compensation was raised by both the WWSFA and South West Wales Fishing Communities (SWWFC) for the Welsh inshore fisheries;
- With regards to gear removal ahead of the summer 2018 survey and future cable installation works, the South East Regional Inshore Fisheries Forum (SERIFF) suggest that previous engagement methods be implemented whereby the cable corridor is split into smaller grids and these numbered regions are presented to the fishing community. These areas are then

used by way of actively notifying the fishing vessels which area the survey vessel will be moving into, when and how long it is expected to remain in each region;

- Installation of the cable may damage seabed habitats that are important to local fishing, in particular any sub-tidal reef features;
- Concern regarding the methods of cable installation and that if not buried will cause potential loss of fishing grounds and displacement of the fishing fleet;
- Will the project be subject to a full EIA/HRA process in order to assess impacts around the Pembrokeshire Marine SAC?; and
- Will guard vessels be used during installation?

Table 4.1: Summary of consultation held with commercial fishing organisations

Contact Name	Organisation	Address	Contact No. Email	Liaison to date
Dale Rodmell	National Federation of Fisherman's Organisations (NFFO)	30 Monkgate, York YO31 7PF	01904 635430 dale.rodmell@nffo.org.uk	Notified of project by email and provided with figures for input on 13/02/18
Welsh Fisheries				
Jim Evans	Welsh Fishermen's Association (WFA)	Maes-Y-Dre, New Road Newcastle Emlyn,SA389BA	07376044936 office@wfa-cpc.co.uk	Phonecalls/Emails between Jonny Lewis and Jim Evans throughout Jan 2018. Face to face meeting on 24/01/2018 (See meeting minutes in Appendix 1 for further details)
Marion Warlow	South and West Wales Fishing Communities (SWWFC)	1 Victory House, Milford Marina, Milford Haven Pembrokeshire, SA73 3AA	01646 699127 07769 117 827 marion@swwfc.org.uk	Planned meeting (15/02/2018) postponed. Call with Marion 22/02/2018 (See meeting minutes in Appendix 1 for further details)
Margaret Rees	Welsh Marine Fisheries Advisory Group (WMFAG)	Llys-y-ddraig Penllergaer Business Park, Penllergaer, Swansea SA4 9NX	0300 025 2454 marineandfisheries@gov.wales	Notified of project by email and provided with figures for input on 13/02/18
Stephen De-Waine	West Wales Shell Fisherman's Association (WWSFA)	73 Church Road Llanstadwell, Neyland Pembrokeshire, SA73 1EA	07528 281 246 wwsfa@hotmail.co.uk	Spoke to Stephen on 13/02/18 – followed up with email and figures (cc'd in Sue Burton)to show cable corridor. Face to Face meeting on 15/02/2018 (See meeting minutes in Appendix 1 for further details)
Sue Burton	SAC Officer	Gorsewood Drive, Milford Haven, Pembrokeshire, SA73 3EP	sue.burton@mhpa.co.uk	Notified of project by email to Stephen De-Waine (above) on 13/02/2018. Further email sent 21/02/2018 following meeting with Stephen including figures for input.
Irish Fisheries				
Hugo Boyle	Irish South and East Fish Producers Organisation (IS&EFPO)	Ground Floor, Viewmount House, Viewmount Park, Viewmount Park, WATERFORD X91 NCK4	+353 86 022 2090 +353 51 853 627 ISEFPO@Eircom.net	Phone conversation 31/01/2018 between Hugo Boyle and Claire Griffiths (MarineSpace) – discussed project details. Telecon planned for 20/02/2018, Hugo did not attend.

Contact Name	Organisation	Address	Contact No. Email	Liaison to date
Trudy McIntyre	South East Regional Inshore Fisheries Forum (RIFF)	Dunmore East	+353 87 122 5636 trudymac08@hotmail.com	Phone conversation 31/01/2018 between Trudy McIntyre and Claire Griffiths (MarineSpace) – discussed project details. Trudy had a meeting on 15/02 to discuss the project. Telecon on 21/02/2018 to gain input from the inshore fishing community off the southeast coast. (See meeting minutes in Appendix 1 for further details)
Patrick Murphy	Irish South and West Fish Producers Organisation (IS&WFPO)	The Pier, Castletownbere, Co. Cork, Ireland	+353 862 360001 patrick@IrishSouthAndWest.ie	Email between Patrick and Claire Griffiths (MarineSpace) on 30/01/2018 requesting further on the project. Tried to call and left messages but no response from Patrick. Emailed figures and project details again on 20/02/2018 following telecon with Trudy.
John Hickey	Irish Sea Fisheries Board (BIM)	BIM Office, Stella Maris Community Centre, Kilmore Quay, Co. Wexford	+353 53 29632 john.hickey@bim.ie	Email contact between John Hickey and Claire Griffiths (MarineSpace) on 23/01/2018 – passed on Hugo Boyle and Trudy McIntyre's contacts.
Devon & Cornwall Fisheries				
John Balls	North Devon Fisheries Association	Bidna Wharf, Appledore, North Devon, EX39 1UZ	01237 424185 jaballs@sky.com	Notified of project by email and provided with figures for input on 13/02/18
Sarah Clarke Libby Ross	Severn and Devon IFCA	Brixham Laboratory, Freshwater Quarry, Brixham, Devon, TQ5 8BA	01803 854648 office@devonandsevernifca.gov.uk	Anna Farley (Intertek) spoke with Libby Ross in 2016 regarding the project. Notified of project by email and provided with figures for input on 13/02/18
Paul Trebilcock	Cornish Fish Producers Association (CFPO)	46 Fore Street, Newlyn Cornwall, TR18 5JR	01736 351050 admin@cfpo.org.uk	Notified of project by email and provided with figures for input on 13/02/18
Jim Portus	South West Fish Producers Organisation (SWFPO)	5 Pynewood House, 1A Exeter Road, Ivybridge, Devon PL21 0FN	01752 690950 swfpo@btinternet.com	Telecon with Jonny Lewis on 11/01/2018 – discussion on data review being undertaken and assurance that it will capture activity of vessels that operate under SWFPO.
Andrew Pillar	Interfish		andrew@interfish.co.uk	Contacted via email from Jim Portus

5. Summary

An assessment of commercial and recreational fishing activity in the region of the proposed Greenlink Interconnector 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 on both the Welsh and Irish coasts.

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

- There is a wide spatial distribution of commercial fishing in the Irish and Celtic Sea, with demersal and shellfish species being the most important in terms of landings by weight and value;
- The most important demersal target species include; cod, haddock, ling, monkfish, plaice, ray, skate and sole;
- 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;
- The main Welsh fishing port to the proposed cable corridor is Milford Haven, on the west coast of Wales. The closest Irish fishing port to the proposed cable corridor is Dunmore East, on the southeast coast of Ireland.

5.1.1 Welsh Fisheries

- The Welsh fisheries are particularly characterised by valuable potting grounds for crab, lobster and whelks around the Pembrokeshire coast, with mollusc fisheries also taking place in some estuaries and bays. Since 1995, a significant whelk fishery has developed in Carmarthen Bay and offshore of the Gower, Fishguard and Milford Haven;
- With the exception of larger vessels working out of Milford Haven, most fishing off the southwest coast of Wales occurs close inshore, with very few boats working outside 6 miles;
- Several local and (mainly) Scottish visiting boats dredge for scallops in Cardigan Bay, particularly in winter, landing into Fishguard and Milford Haven;
- Although netting restrictions have been introduced around much of the Welsh coast, various types are still used to catch bass, rays, cod, flatfish and crustacea (in particular spider crabs);
- Since the late 1980s, the bass rod and line fishery has also proved popular amongst both commercial and recreational fishermen (Walmsley & Pawson, 2007);
- With respect to demersal fish, key species include flatfish and rays (principally thornback) which are taken in fixed nets and otter and beam trawls from spring through to the end of the year. Boats using gill nets and otter trawls also take cod and whiting during the colder months;
- The trawler fleet concentrates its efforts in the Bristol Channel and Cardigan Bay and lands a mixed catch throughout the year. These trawlers (mostly <10 m) fish mainly inshore, and competition outside 6 miles from the coast can be intense, especially when the sole fishery attracts visiting beam trawlers from the south coast of Devon, Cornwall and Belgium;

- The majority of otter trawling effort is by Devon and Cornish vessels operating twin rig gear. There is also increasing Belgian activity in the 6–12 mile zone (Walmsley & Pawson, 2007).

5.1.2 Irish Fisheries

- There are a large number of medium-sized ports along the south and east coast of Ireland, the largest of which is Dunmore East. The ports along the south coast receive a mix of pelagic, demersal and shellfish species (Marine Institute, 2014);
- The inshore pot fishery for crab, lobster, *Nephrops* and whelk is an important component of Irish fisheries in this region;
- For the areas West and south of Dunmore East to Saltees (South coast) and South Wexford (South coast), a total of 48 vessels were registered as fishing for crab and lobster in 2015, deploying a total of 13,680 pots (This represented 6.2% of all vessels targeting these species in the Irish inshore fleet and 6.3% of total pots deployed in the entire Irish inshore region);
- Shrimp was another key target species for many vessels, including those landing into Dunmore East and Kilmore Quay;
- There are key scallop fishing grounds off the south coast of Ireland with approximately 10-20 >15 m vessels and several <15 m vessels working inshore;
- Inside the Irish EEZ, around 62% of the fishing hours are accounted for by >15m otter and beam trawlers;
- Longliners account for around 15% and Gill and trammel netters 7%;
- Pelagic trawlers only account for 5% of the total effort inside the EEZ but they are responsible for more landings than any other gear type, both in terms of volume and value;
- Irish vessels are only responsible for 36% of the international effort of vessels >15 m inside the EEZ, with Spanish vessels accounting for 30% of the effort (mainly demersal otter trawlers and longliners) and French and the UK accounting for a further 20% and 11% respectively of total effort; and
- International landings inside the Irish EEZ are dominated by pelagic species like horse mackerel, mackerel, boarfish, blue whiting and herring in terms of bulk. In terms of value, mackerel and horse mackerel are important but *Nephrops*, anglerfish and hake stocks are almost equally valuable.

5.2 Overview of Landings Data

5.2.1 Landings by Weight and Value

UK Fleet

- Based on MMO data, the maximum weight and value of landings by all vessels over the period assessed (2012-2016) were from ICES Rectangle 32E4 which covers the Welsh inshore region;
- Over this period, for all vessels, over 5.4 million tonnes of fish (all species) were landed with a value of over £10.5 million. Of this value, £6.6 million was landed by <10 m vessels with the remaining £3.9 million landed by the >10m fleet. 86.7% of the total value of landings from 32E4 were represented by shellfish. These data highlight the importance of the Welsh inshore static gear (potting) fishery in the area of the proposed cable;

- With respect to individual species, within 32E3 (middle "offshore" cable section) and 32E4 (Welsh inshore section), whelk was the species with the greatest weight of landings and the second largest value of landings, followed by Crab (C.P. Mixed Sexes), Haddock, Lobster (highest value species) and Spider Crab;
- Within Rectangle 33E3 (Irish inshore region) the dominant species in terms of weight of landings was Crab (C.P. Mixed Sexes) followed by Crab (Velvet), Whelk, Haddock and Lobster (greatest value of landings);

Non-UK Fleet

- Based on STECP (EU) data, the range in the sum of landed weight for non-UK vessels in the Irish fleet (2012-2016), across all ICES Rectangles (32E3, 32E4 & 33E3) varied from a minimum of 53.56 tonnes (2012) to a maximum of 3,947.27 tonnes (2014). The key ICES Rectangle for the Irish fleet in terms of landings was 33E3 (Irish inshore);
- The range in the sum of landed weight by non-UK vessels from the French fleet (2012-2016), across all ICES Rectangles (32E3, 32E4 & 33E3) ranged from a minimum of 1.22 tonnes (2016) to a maximum of 1,465.99 tonnes (2012). The key ICES Rectangles for the French fleet were 32E3 (offshore section) and 32E4 (welsh inshore); and
- The range in the sum of landed weight by non-UK vessels from the Belgian fleet (2012-2016), across all ICES Rectangles (32E3, 32E4 & 33E3) ranged from a minimum of 1.10 tonnes (2015) to a maximum of 837.05 tonnes (2012). The key ICES Rectangle for the Belgian fleet was 32E3 (offshore section);
- Key species landed by the Irish (offshore) fleet was the European Sprat followed by "Other", Herring, Great Atlantic Scallop and Edible Crab;
- Key species landed by French vessels were Rays/Skates followed by Haddock, Anglerfish, Whiting and Other;
- Key species landed by Belgium vessels were Anglerfish followed by Common Sole, Megrim, Thornback Ray and Blonde Ray.

5.2.2 Temporal Trends (2012-2016)

- Whilst landings by weight and value varied across all ICES Rectangles (32E3, 32E4 & 33E3) between 2012-2016, generally there were no obvious trends in terms of increases or decreases in either of these values;
- In terms of intra-annual variation, landings for all species/vessels in the three ICES rectangles combined over the period 2012-2016 peaked in June/July, with a clear seasonal pattern of highest weight/value of landings between May and October each year;
- When assessed in more detail, peak landings in 33E3 (Irish inshore) and 32E3 (offshore section) were actually slightly later in the year around September/October;
- For the top five individual species landed in the study area, the following were the key periods for landings by weight and value:
    - Whelk - April to July;
    - Crab (C.P Mixed Sexes) – June to November;
    - Haddock – June to September;
    - Lobster - April to October; and
    - Spider Crab - May to July inclusive.

- For the non-UK fleet, based on data only presented by Quarter, the period October to December appears to be the most important in terms of landings, especially for species including “other”, herring, sprat and edible crab.

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, although there appears to be a greater concentration of activity in the Welsh inshore region compared to the Irish inshore region. There is a clearly defined focus of activity by UK and non-UK vessels in the middle “offshore“ section of the proposed cable corridor;
- 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;
    - UK coast to 6nm: £1.3 million per annum;
    - 6nm to 12nm: £3.7 million per annum;
    - Outside 12nm: £4.8 million per annum;
    - Irish coast to 12nm: £1.2 million per annum.
- Further data on fishing activity off the Welsh coast has been obtained via review of a range of data sources which have all been collated on the Wales Marine Planning Portal[5]. These data corroborate the official MMO data in that they highlight the distribution of potting activity off the welsh coast and also demonstrate otter and beam trawling activity in the inshore region and also further offshore.

5.4 Feedback from Targeted Consultation

- Contact has been made with the following commercial fishing organisations;

    Welsh Organisations
    - Welsh Fishermen’s Association;
    - South and West Wales Fishing Communities;
    - Welsh Marine Fisheries Advisory Group;
    - West Wales Shellfishermen’s Association;
    - Pembrokeshire Marine SAC Officer;

    Irish Organisations
    - Irish South and East Fish Producers Organisation;
    - South East Regional Inshore Fisheries Forum;
    - Irish South and West Fish Producers Organisation;

[5] http://lle.gov.wales/apps/marineportal/#lat=52.5145&lon=-3.9111&z=8

  - Irish Sea Fisheries Board (BIM);

    Devon & Cornish Fisheries
  - North Devon Fisheries Association;
  - Severn and Devon IFCA;
  - Cornish Fish Producers Organisation;
  - South West Fish Producers Organisation;
  - Interfish;
- The data analysis and interpretation undertaken to date appears to reflect the key activity and trends in the commercial fishery in this region;
- There is a targeted fishery for *Nephrops* by French vessels in the mid-section of the proposed cable corridor;
- The Welsh inshore section of the proposed cable corridor features a high intensity of static gear fishing, particularly in the summer months, even though vessels do move further offshore later in the year. However, weather and sea conditions limit many vessels moving any further offshore which intensifies the importance of the nearshore (0-6nm) section on the Welsh side;
- The Irish inshore section of the proposed cable corridor in and around Hook Head features high intensity static gear fishing undertaken by smaller inshore vessels. The Herring fishery is important inshore in late summer/autumn;
- Further offshore on the Irish side there is fishing activity undertaken by larger vessels, albeit to a lesser intensity than the static fishing closer inshore. This is primarily with mobile gear for white fish species;
- Planned survey works in 2018 will impact on fishing activity in Welsh and Irish inshore regions and will require early engagement with the fishing industry to plan gear movements etc; and
- Installation of the cable may damage seabed habitats that are important to local fishing, in particular any sub-tidal reef features.

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APPENDIX 1 – Meeting Minutes

Meeting Date & Time: 24/01/2018 - 10:00

Meeting Called by: Jonny Lewis (MarineSpace Ltd)

Meeting Attendees: Jonny Lewis, Claire Griffiths (MarineSpace Ltd) and Jim Evans (Welsh Fishermen's Association)

Objective: To discuss the proposed Greenlink project and planned survey works due to commence summer 2018

Agenda Topics:

- Introduce MarineSpace, Intertek and Greenlink Companies
- Introduce Greenlink Project and provide update on the status
- Overview of role of the WFA and which areas/sectors it represents
- Discuss the desk-based fisheries assessment being undertaken
- Discussion on key findings of data review and confirmation that key findings make sense.
- Discuss planned survey operations for summer 2018
- Discuss key contacts and fisheries and provision of additional contact names

Action Items:

- MarineSpace to issue a more detailed email with relevant charts to Jim Evans to take along to a board meeting at the end of February 2018 for further input
- MarineSpace to contact other Welsh fisheries groups for input
- MarineSpace to arrange a further meeting with Marion Warlow of South and West Wales Fishing Communities (SWWFC)

Meeting Date & Time: 15/02/2018 - 13:00

Meeting Called by: Claire Griffiths (MarineSpace Ltd)

Meeting Attendees: Jonny Lewis, Claire Griffiths (MarineSpace Ltd) and Steve De-Waine (West Wales Shell Fisherman's Association WWSFA)

Objective: To discuss the proposed Greenlink project and planned survey works due to commence summer 2018

Agenda Topics Covered:

- Introduce MarineSpace, Intertek and Greenlink Companies
- Introduce Greenlink Project and update on status
- Introduce the desk-based fisheries assessment being undertaken by MarineSpace
- Overview of role of the WWSFA and which areas/sectors it represents including fact it sits completely discrete from the WFA
- Discuss planned survey operations for summer 2018
- Detailed discussion on nature and seasonality of fishing in the inshore section of the cable corridor (static gear, very busy in summer months)
- Discussion on potential impacts of the actual cable (installation and operation). Topics included damage to reef features, SAC (HRA) issues, need for cable protection.
- Need to engage properly; expectation that 2018 survey will require gear clearance and disruption payments. Dialogue must be via WWSFA and not WFA only or disruption will be promoted.

Action Items:

- MarineSpace to issue a more detailed email with relevant charts to Stephen to disseminate to all members of the WWSFA to give the opportunity for individuals to make comment.

Meeting Date & Time: 20/02/2018 - 15:15

Meeting Called by: Claire Griffiths (MarineSpace Ltd)

Meeting Attendees: Claire Griffiths (MarineSpace Ltd), Trudy McIntyre (South East Regional Inshore Fisheries Forum SERIFF), Hugo Boyle - *did not attend* (Irish South and East Fish Producers Organisation IS&EFPO).

Objective: To discuss the proposed Greenlink project and planned survey works due to go commence summer 2018

Agenda Topics:

- Introduce MarineSpace, Intertek and Greenlink Companies
- Introduce Greenlink Project and update on status
- Introduce the desk-based fisheries assessment being undertaken by MarineSpace
- Discuss planned survey operations for summer 2018
- Detailed discussion on nature and seasonality of fishing in the inshore section of the cable corridor (static gear in and around Hook Head, but presence of Herring fishery predominantly in late summer/autumn, larger vessels, but to lesser magnitude than inshore vessels, present further offshore
- Discussion on potential impacts of the actual cable (installation and operation). Topics included damage to rocky ground which is important to static inshore fisheries. Concern that if cable is not buried there will be loss of fishing grounds and displacement
- Need to engage properly; expectation that 2018 survey will require gear clearance and that inshore fisheries will need ample warning as they are restricted by weather for moving gear. Dialogue must be via SERIFF and IS&EFPO in order that smaller vessels are kept fully informed and not just by NtM
- Suggest that a similar protocol is adopted here as used on previous surveys in the region whereby the cable corridor was split into grids and these smaller areas were used to notify the local fishing community on exactly where the survey would be in advance
- Expressed that any form of seismic survey would not be accommodated by the local fishing community following previous disturbance caused to crabs and white fish
- Discussed any additional contacts – Trudy offered to liaise with Patrick Murphy at a meeting she was attending that evening

Action Items:

- MarineSpace to issue a more detailed email along with figures to Patrick Murphy of Irish South and West Fish Producers Organisation (IS&WFPO)

Meeting Date & Time: 22/02/2018 - 15:15

Meeting Called by: Claire Griffiths (MarineSpace Ltd)

Meeting Attendees: Claire Griffiths (MarineSpace Ltd), Marion Warlow (South and West Wales Fishing Communities SWWFC)

Objective: To discuss the proposed Greenlink project and planned survey works due to go commence summer 2018

Agenda Topics:

- Introductions of MarineSpace, Intertek, Greenlink Companies and update of Greenlink Project already undertaken during previous call to Marion
- Confirmation of MarineSpace's role in the project and the purpose of desk-based fisheries assessment
- Brief discussion of planned survey operations for summer 2018
- Expressed concern over extent of cable corridor zone shown on the figures, but assured that this area is for indicative purposes and that the cable itself will sit within this larger area with the exact location to be confirmed following this summer's survey
- Confirmation that Marion represents around 20 fishing vessels (under 10m) within Pembrokeshire and estimated that of around 8 of the larger vessels they would estimate in excess of around 5,000 pots to be present in the proposed cable corridor region off the coast of Pembrokeshire
- Concerns that this area is heavily fished (static gear) and that it may be problematic to get fishermen to move pots with a brief discussion on the potential need for compensation

Action Items:

- Marion to try and get a figure to MarineSpace with any key fishing ground areas marked on for reference