European Offshore Wind Deployment Centre
Environmental Statement

Appendix 21.1: Commercial Fisheries Baseline Technical Report

A project part-funded by the European Union under the European Economic Plan for Recovery in the field of Energy

European Offshore Wind Deployment Centre (EOWDC)

Commercial Fishing Aspects

Aberdeen Offshore Wind Farm Ltd (AOWFL)

Brown & May Marine Ltd
Progress Way
Mid Suffolk Business Park
Eye
Suffolk
IP23 7HU
Tel: 01379 870181
Fax: 01379 870673
Email: sja@brownmay.com

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1.0 Introduction

Given below is the description of the commercial fishing baseline for the proposed European Offshore Wind Deployment Centre (EOWDC) development, taking into account FEPA, CPA, Defra and CEFAS requirements as specified in the 2004 Guidelines (Cefas, 2004) and BWEA 2004 Recommendations (BWEA, 2004).

In the case of the wild salmon and sea trout fisheries, the combination of the regional socio-economic importance of these activities and the potential significance of the impacts from the proposed development are such that they have been separately assessed.

As there is no single data source or recognised model for establishing commercial fisheries baselines within small, discrete sea areas such as wind farm sites the following description of the baseline has, therefore, been derived using data and information from a number of sources.

2.0 Summary

To date, there have been very low levels of fishing activity within the proposed EOWDC site, largely as a result of the poor productivity of the area. Four local vessels have been identified as operating within the general area of the site, all of which are inshore demersal trawlers. These vessels range between 8 and 11 m in length, three of which register their home ports as Aberdeen. The fishing grounds of these vessels were stated to be between Aberdeen Harbour Fairway Buoy and the buoys off the Black Dog Firing Range, with the main target species being plaice. In addition to trawling, these three vessels have the capacity to deploy creel (potting) gears. The fourth vessel fishing the area, whose home port is Peterhead, fishes on a part time basis and only occasionally visits the site to trawl for plaice. From the consultation undertaken and the evidence obtained, it is apparent that the area of the proposed EOWDC site constitutes only a small proportion of the fishing grounds of these vessels.

Analysis of Vessel Monitoring System (VMS) plot data from over 15m vessels suggests that vessels with plots recorded within the site are steaming through it to more productive fishing grounds further afield. The nearest scallop dredging areas are on the Bennachie ground, which lies in the deeper offshore waters beyond Aberdeen Bay. The nearest nephrops grounds are identified well to the south of the site, off the coast of Montrose. Potting, largely by virtue of the habitat requirements of the main target species, is concentrated in areas to the south and north of the site.

3.0 Study Area(s)

The study area for the assessment of commercial fishing intensity and values is shown in Figure 3-1 below. The approach has been to follow a focus from a larger regional area down to the local area and the specific area of the site.

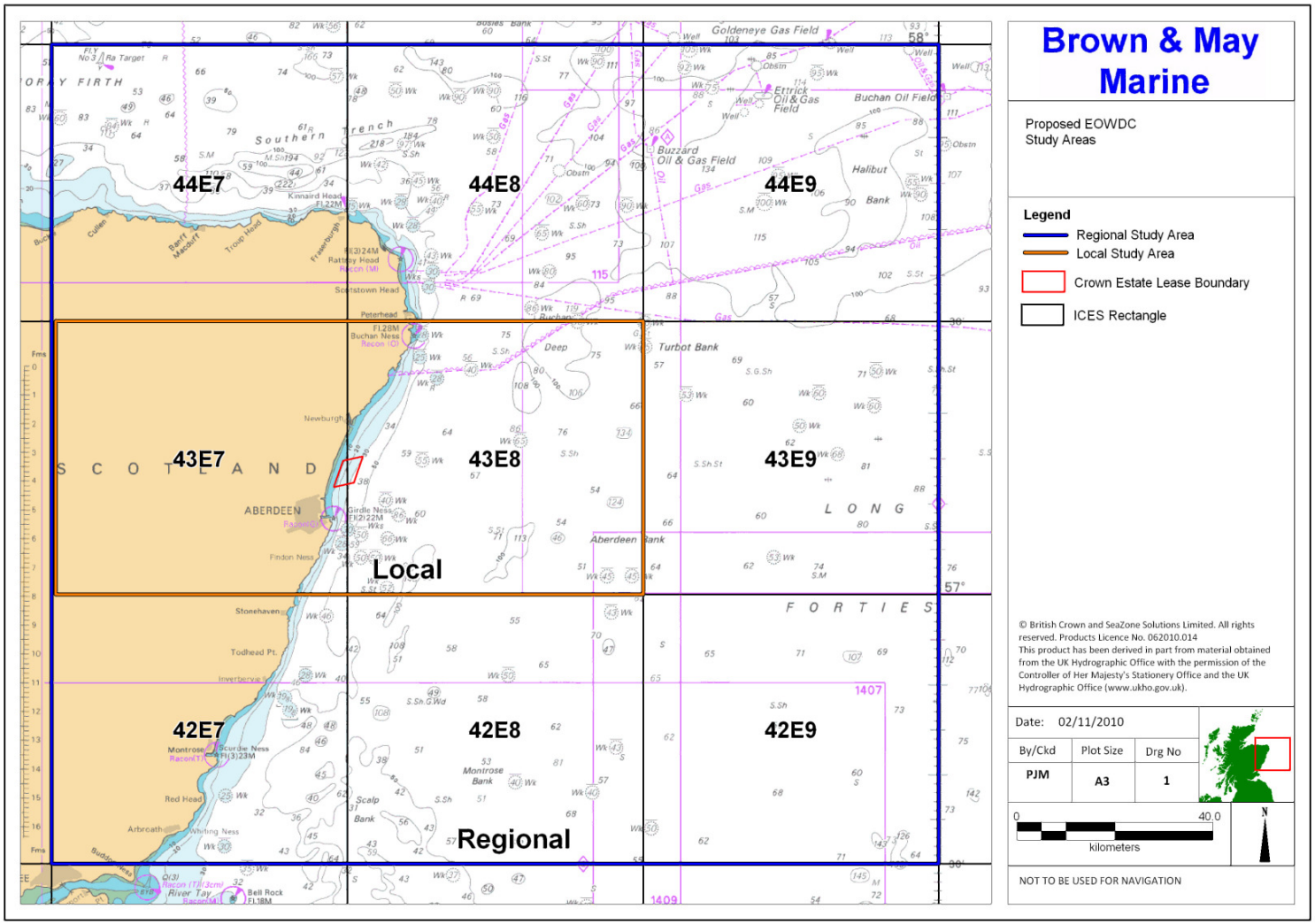


Figure 3-1 Proposed EODWC Study Areas

4.0 Methodology

4.1 Consultation

Consultation with the relevant local fishermen was principally undertaken by the Scottish Fishermen's Federation (SFF) between 2008 and 2010. The SFF represents approximately 90% of Scottish fishermen.

Four vessels were identified as fishing in the development area and direct consultation was undertaken with the skippers of these vessels, who along with the District Fisheries Officer provided valuable contributions to this report.

The information gathered through consultation has been verified by:

- Michael Sutherland, John Watt and John Ewan; of the Scottish Fishermen's Federation (SFF)
- Ian Balgowan; President Scottish Inshore Whitefish Producers

4.2 Key Guidance Documents

The following documents have been referenced for both the Baseline and Impact Assessments:

- Offshore Wind Farms, Guidance Note for Environmental Impact Assessment in Respect of FEPA and CPA Requirements - Version 2; Cefas, MCEU, Defra, DTI, June 2004
- Strategic Environmental Assessment(SEA) of Draft Plan for Offshore Wind Energy in Scottish Territorial Waters: Volume 1: Environmental Report; Marine Scotland 2010
- UK Offshore Energy – Strategic Environmental Assessment; DECC, January 2009
- Recommendations for Fisheries Liaison; FLOW, May 2008
- Fisheries Liaison Guidelines – Issue 5; UK Oil & Gas, 2008
- Guidelines to Improve Relations between Oil & Gas Industries and Near-shore Fishermen, UKOOA (renamed UK Oil & Gas), August 2006
- Fishing & submarine Cables – Working Together, International Cable Protection Committee (CPC), February 2009
- Options and Opportunities for Marine Fisheries Mitigation Associated with Wind farms, COWRIE 2010.
- Scoping Response -Marine Scotland (15.12.10)

4.3 Data Sources, Sensitivities and Qualifications

The principal sources of data and information used were:

- International Council for the Exploration of the Sea (ICES)
- Marine Management Organisation (MMO)
- Marine Scotland, Marine Scotland Science (MS)
- Scottish Fisheries Protection Agency (SFPA)
- European Fisheries Commission (Europa)

Analysis of the data and information sources used for the commercial fishing assessment are subject to the following qualifications, limitations, sensitivities and gaps:

4.3.1 International Council for the Exploration of the Sea (ICES) Statistical Rectangles

ICES statistical rectangles are the smallest spatial unit used for the collation of fisheries statistics used by the EC and member states. The boundaries of ICES rectangles align to 1˚ of longitude and 30' of latitude. As is apparent from Figure 3-1 above, however, the areas of ICES rectangles are large relative to the area of the proposed EOWDC site, which is situated on the border of ICES rectangles 43E7 and 43E8. Evaluation of fisheries statistics by ICES rectangle should therefore recognise the small proportion of the statistical rectangles that the proposed EOWDC site covers.

4.3.2 MMO Fisheries Statistics

The MMO collects and collates fisheries data by ICES rectangle. The principal source of data comes from the European Commission (EC) daily log sheets that all vessels over 10m are required to complete and submit.

Vessels of under 10 m in length are currently not obliged to submit daily log sheets, although voluntary submissions can be made. In addition, local fisheries officers undertake dockside checks on vessels under 10 m. The "Registration of Buyers and Sellers of First Sale Fish and Designation Auction Site Scheme" introduced in 2005 and the reporting requirements of the "Shellfish Entitlement Scheme" introduced in 2004, have further contributed to the validity of fisheries data for the under 10 m fleet. The MMO fisheries statistics for this category, especially in years prior to the introduction of the Scheme, in some cases underestimate the true levels of fishing in areas where a large percentage of the activity is by vessels within this category.

It should be noted that vessels referred to as "foreign" in the MMO fisheries data only include foreign vessels landing into UK ports. Foreign vessels fishing in the area but landing into non-UK ports are not recorded. The values given for foreign vessels should therefore not be taken as an indication of the total foreign activity.

4.3.3 MMO Surveillance Sightings

Surveillance sightings in UK waters are recorded by fishery protection aircraft and surface craft as a means of policing fisheries legislation. These data provide a good indication of the relative distribution of fishing activity by method and nationality but should not be taken as a quantitative assessment of fishing activity, given the low frequency of the flights over an area, which are generally once a week and only during daylight hours.

4.3.4 MMO UK Satellite Tracking (VMS) Data

All EU registered fishing vessels of more than 15 m in overall length are monitored by satellite tracking. The positions of the vessels are transmitted approximately every 2 hours via satellite link to the MMO and other national EU control centres. The MMO receives information on all UK vessels irrespective of location, and of foreign vessels within UK waters. The MMO cannot however disclose data on foreign vessels without prior permission from the regulating body of the applicable member state and disclosure of UK vessels' identities is restricted under the Data Protection Act (1998).

There has also been a change in MMO policy with regards to the release of individual vessel coordinates data even if the vessel's identities are withheld. Instead the number of plots by vessel type in a grid of rectangles of approximately 70 $n.m^2$ is provided. The 2009 data have therefore been presented separately from the 2005-2008 datasets given the differences in format.

5.0 Fisheries Controls and Legislation

Whilst the international aspect of European fisheries negotiation, such as the setting of quotas, remains a reserved power, the implementation of fisheries regulations is devolved to the Scottish Parliament, and administered by Marine Scotland.

5.1 Fishing Vessel Licenses

All vessels engaged in commercial fishing must hold a valid licence. The system is designed to prevent increases in both fleet numbers and catching capacities through a system of vessel capacity units (VCUs). In addition to limiting any further increases in fishing vessel numbers, decommissioning schemes have, over the past 20 years, resulted in significant reductions in the numbers of UK and certain other member states' fleets.

5.2 Territorial Limits

Member States' territorial fishing limits extend out to 12 nm. With some exceptions, access within 6n.m of the coast is restricted to the vessels of that Member State. The only vessels from other member states allowed access within the UK's 6-12nm limit are those with historic rights.

Figure 5-1 below shows there are no historic rights for other Member State's vessels within Scotland's 12 nm limit off the east coast and hence within the area of the proposed EOWDC site.

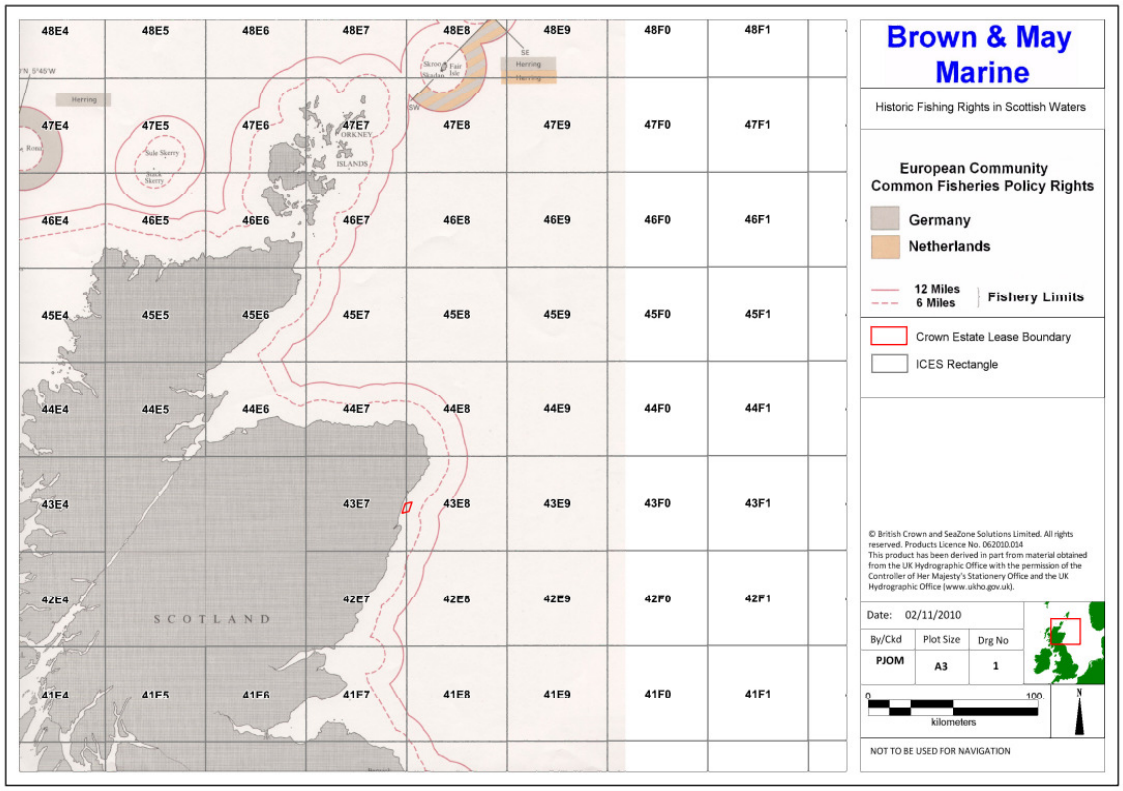


Figure 5-1 Historic Fishing Rights in Scottish Waters (Source: Admiralty Chart Q6385)

There is however, a number of UK flagged and licensed fishing vessels under foreign ownership, which could in theory have rights to fish within the UK 12 n.m limit.

5.3 Quota Restrictions

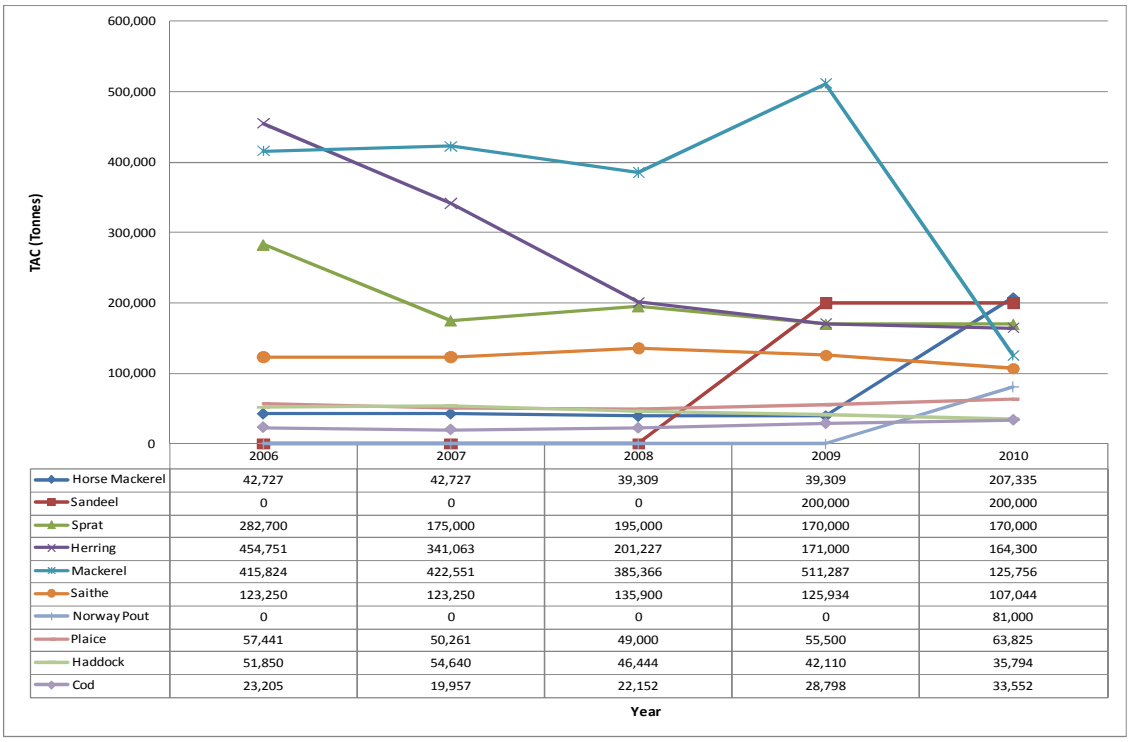
The Scottish Executive manages quotas for fish stocks and controls the activities of fishing vessels and fishing effort (days at sea) in the Scottish waters of the North Sea, West of Scotland and Faroese waters, plus all inshore fisheries within the 12 nm territorial limit (Scottish Government, 2010b). Such controls and regulations have had, and will continue to have, direct and indirect impacts on existing and future commercial fisheries baselines.

The principal remit of the EC Common Fisheries Policy (CFP), ratified in the early 1980's, is the long-term conservation of fish stocks in EU waters. A central element of the CFP is the system of quotas by ICES area and sub-area. Species identified as requiring management are defined as pressure stocks. Annual Total Allowable Catches (TACs) are allocated for each pressure stock by area or sub-area.

National, regional and individual quotas for the over 10 m fleet are assigned on the basis of historical rights and track records. Vessel quotas are in effect tangible assets which can and are sold or leased, and national quotas can, and have been, exchanged or swapped between member states.

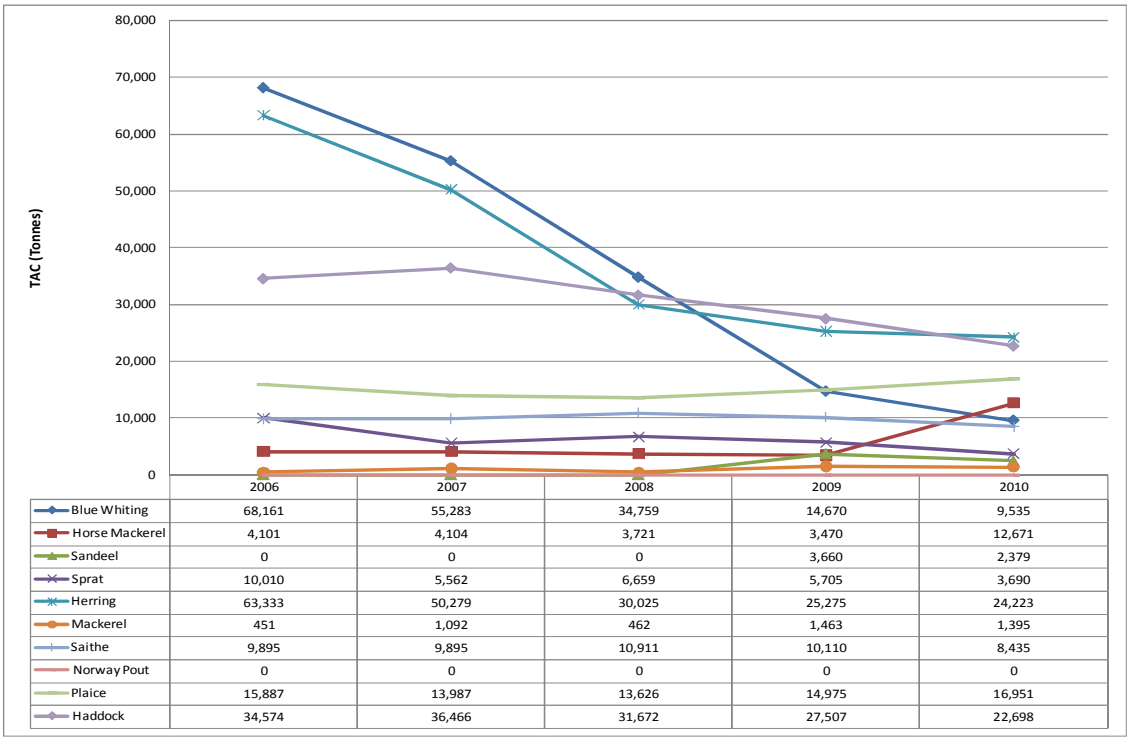
The system of quotas has however been criticized as a conservation measure despite being in place for more than 20 years as the primary stock conservation measure of the CFP. It is recognised that regulation by quotas encourages the discarding of either undersized or over quota fish at sea. In recognition of such failings, the CFP is currently under review, which could result in significant changes to future fisheries management policies and legislation.

Figure 5-2 and Figure 5-3 overleaf illustrate patterns of progressively reducing TACs and UK quotas in ICES Area IV (North Sea) for the principal pressure stock species since 2006. Blue whiting are the species caught in greatest numbers in the North Sea.



	2006	2007	2008	2009	2010
Horse Mackerel	42,727	42,727	39,309	39,309	207,335
Sandeel	0	0	0	200,000	200,000
Sprat	282,700	175,000	195,000	170,000	170,000
Herring	454,751	341,063	201,227	171,000	164,300
Mackerel	415,824	422,551	385,366	511,287	125,756
Saithe	123,250	123,250	135,900	125,934	107,044
Norway Pout	0	0	0	0	81,000
Plaice	57,441	50,261	49,000	55,500	63,825
Haddock	51,850	54,640	46,444	42,110	35,794
Cod	23,205	19,957	22,152	28,798	33,552

Figure 5-2 Total Allowable Catches of Principal Pressure Stock Species in the North Sea (ICES Area IV) (Source: Europa)



	2006	2007	2008	2009	2010
Blue Whiting	68,161	55,283	34,759	14,670	9,535
Horse Mackerel	4,101	4,104	3,721	3,470	12,671
Sandeel	0	0	0	3,660	2,379
Sprat	10,010	5,562	6,659	5,705	3,690
Herring	63,333	50,279	30,025	25,275	24,223
Mackerel	451	1,092	462	1,463	1,395
Saithe	9,895	9,895	10,911	10,110	8,435
Norway Pout	0	0	0	0	0
Plaice	15,887	13,987	13,626	14,975	16,951
Haddock	34,574	36,466	31,672	27,507	22,698

Figure 5-3 Annual UK Quotas of Principal Pressure Stock Species in the North Sea (ICES Area IV) (Source: Europa)

5.4 Effort (Days at Sea) Restrictions

Over 10 m vessels are also subject to days at sea (effort) limitations as part of the EC's policy of reducing fishing effort in EU waters. The regulation (Annex V, Council Regulation (EC) No 2287/2003) is somewhat complex and relates to gear type, mesh size and elected management periods. In essence, vessels using demersal whitefish gears are restricted to the equivalent of 14-15 days a month at sea.

5.5 Shellfish Entitlements

Since 2004 vessels must also be specifically licensed to catch crabs and lobsters. Under these arrangements, shellfish entitlements allowing unrestricted amounts of crabs and lobsters to continue to be caught were issued to owners of licensed vessels that had a track record of landing over a particular weight of these species per year. It is a condition of vessels of 10 m and under with shellfish entitlement that they submit weekly log sheets for crab and lobster landings.

5.6 Under 10 metre Fleet

The under 10 m fishing fleet has not, as yet, been subject to the same levels of restrictions upon their activities as the over 10 m sector. They are now however also subject to sea area and quota restrictions for certain species mainly as part of the 'Cod Recovery Programme'. Table 5-1 below shows the under 10 m quota allocations for 2010, 2009, 2008 and 2007.

Table 5-1 Under 10m Final Quota Allocations (Source: MMO)

Species	2010 Quota (Tonnes)	2009 Quota (Tonnes)	2008 Quota (Tonnes)	2007 Quota (Tonnes)
North Sea Cod	588.0	561.3	403.1	281.0
North Sea Haddock	127.9	80.5	131.6	175.2
North Sea Sole	110.5	275.7	342.1	278.1
North Sea Plaice	40.4	40.7	54.2	43.3
North Sea Whiting	321.9	355.5	89.8	660.6
North Sea Skate and Rays	103.1	106.3	265.1	209.3
North Sea Lemon Sole/ Witches	22.2	23.2	72.6	62.6
North Sea Turbot/ Brill	10.6	15.0	17.9	22.7
North Sea Dab/ Flounder	19.4	18.9	18.7	17.6

5.7 Regional and Local Fishing Restrictions

Restrictions upon fishing activities in addition to those transposed from EU and UK law are known as Scottish Statutory Instruments (SI), a form of secondary legislation in Scotland, created by the Scotland Act 1998, and used to exercise devolved powers.

There are no local fishing restrictions within the 3 nm limit specific to the Aberdeen Bay area (Figure 5-4). Fishing activity is instead constrained by other factors, such as species abundance and the avoidance of traffic entering and leaving the harbour.

In a wider regional context, the following fishing restrictions are imposed in the areas defined in Figure 5-4:

- Aberdeen to Mons Craig – Use of mobile or active gear is prohibited between 1st October and 31st March each year
- Mons Craig to Doolie Ness –Use of mobile or active gear prohibited all year
- Doolie Ness to Lang Craig – Use of mobile or active gear is prohibited between 1st October and 31st March each year within one mile and between 1st April and 30th September each year within one half mile
- Lang Craig to Arbroath - Use of mobile or active gear prohibited all year

In addition restrictions are placed on scallop dredging activity in terms of the number of dredges a vessel can operate. This activity is stated as predominantly taking place in areas to the south and east of the proposed EOWDC site (SFPA, 2007).

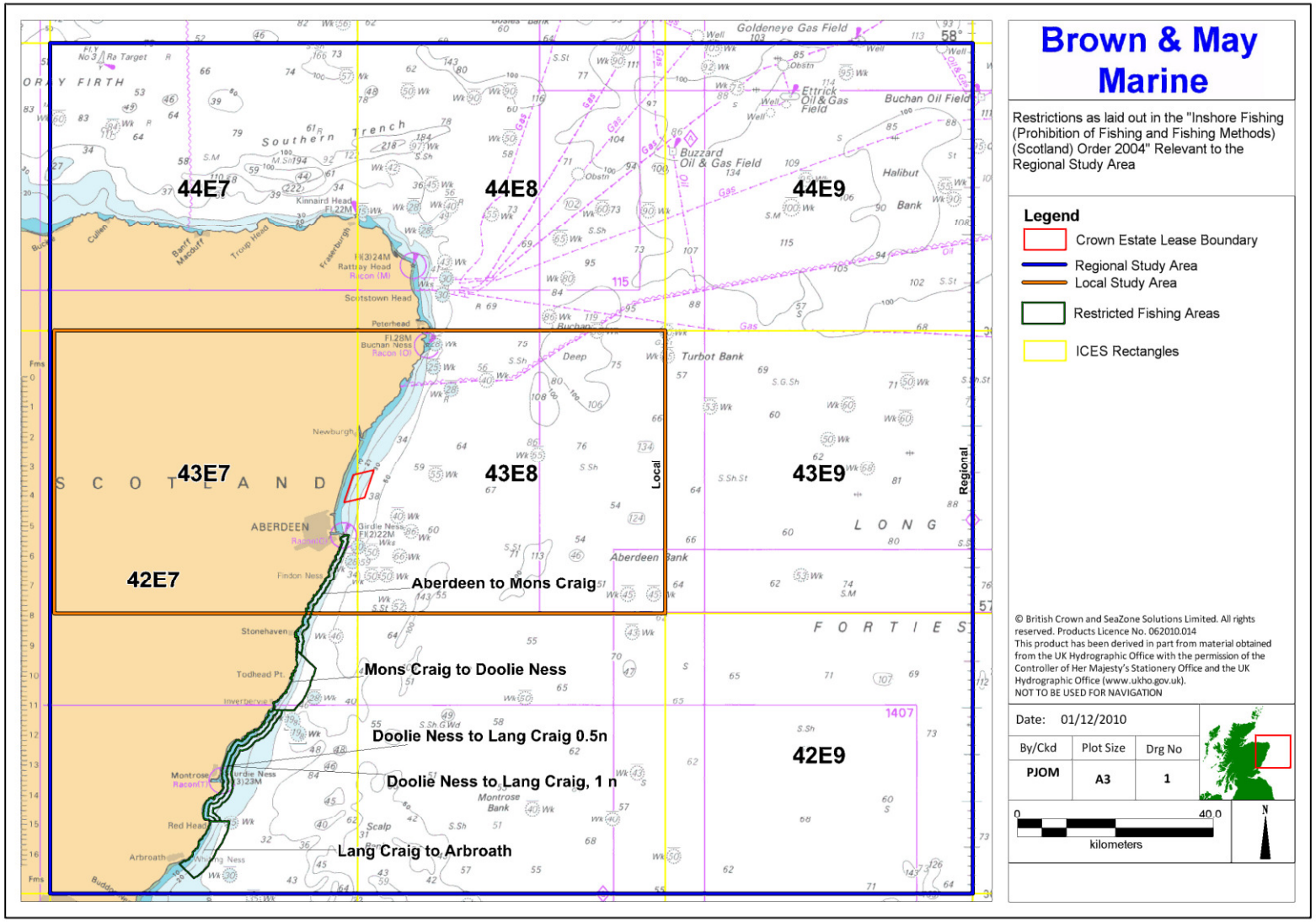


Figure 5-4 Restrictions as laid out in the "Inshore Fishing (Prohibition of Fishing and Fishing Methods) (Scotland) Order 2004" relevant to the Regional Study Area

6.0 Commercial Fishing in Scotland and Aberdeen

6.1 National Context

The following information has been taken from the Scottish Sea Fisheries Statistics (SSFS) 2009 and Marine Scotland publicly available information sources.

Since 1983 the structure and capacity of the UK and Scottish fishing fleets have been primarily dictated by the EU Common Fisheries Policy (CFP). Between 1997 and 2002 the Multi Annual Guidance Programme (MAGP) within the CFP was devised to manage fleet structures. In effect, fishing by method was restricted by capacity limits and effort reduction targets. When this programme ended it was replaced by member state level controls which impose effort level ceilings through a system of exit/entry restrictions. In essence, fleet capacity cannot be increased, allowing vessels only to enter the fleet when an equivalent or larger capacity has exited the fleet.

One of the most significant impacts upon the Scottish fleet in recent years has been the two successive decommissioning schemes in 2001-2002 and 2003-2004, under which 165 vessels were removed from the national demersal fleet.

In 2010 the Scottish Government introduced Licence Parking as a measure to help the fleet adjust to current, restrictive conditions. The principle is to enable multiple existing fishing licenses to be combined and placed upon a single fishing vessel – thus sharing it – in order to reduce fixed and variable costs over both the short and long term. Alternatively, those wishing to leave the industry may be bought out and their effort concentrated on remaining vessels (under previous licensing rules this was not possible). The process of 'parking' is however reversible; a parked license can be 'unparked'. Over 40 vessels have applied for this scheme to date. In consultation with industry stakeholders and the Scottish Fisheries Council, Ministers have now also introduced a publicly funded (co-funded by the European Fisheries Fund) fleet resilience grant scheme aimed at disposing of those vessels made dormant through license parking.

6.1.1 Scottish Landings Values

Table 6-1 lists the ports included within the three port districts, Fraserburgh, Peterhead and Aberdeen, in the region of the proposed development.

Table 6-1 Ports within the East Coast Port Districts of Fraserburgh, Peterhead and Aberdeen (Scottish Government, 2010a)

Fraserburgh	Peterhead	Aberdeen
Fraserburgh	Boddam	Aberdeen
Gardenstown	Peterhead	Arbroath
Macduff	Port Errol	Catterline
Pennan		Gourdon
Portsoy		Johnshaven
Rosehearty		Montrose
Sandhaven & Pitullie		Stonehaven
Whitehills		

Figure 6-1 below gives the 2009 total landings values for all vessels into Scottish ports by district and species group.

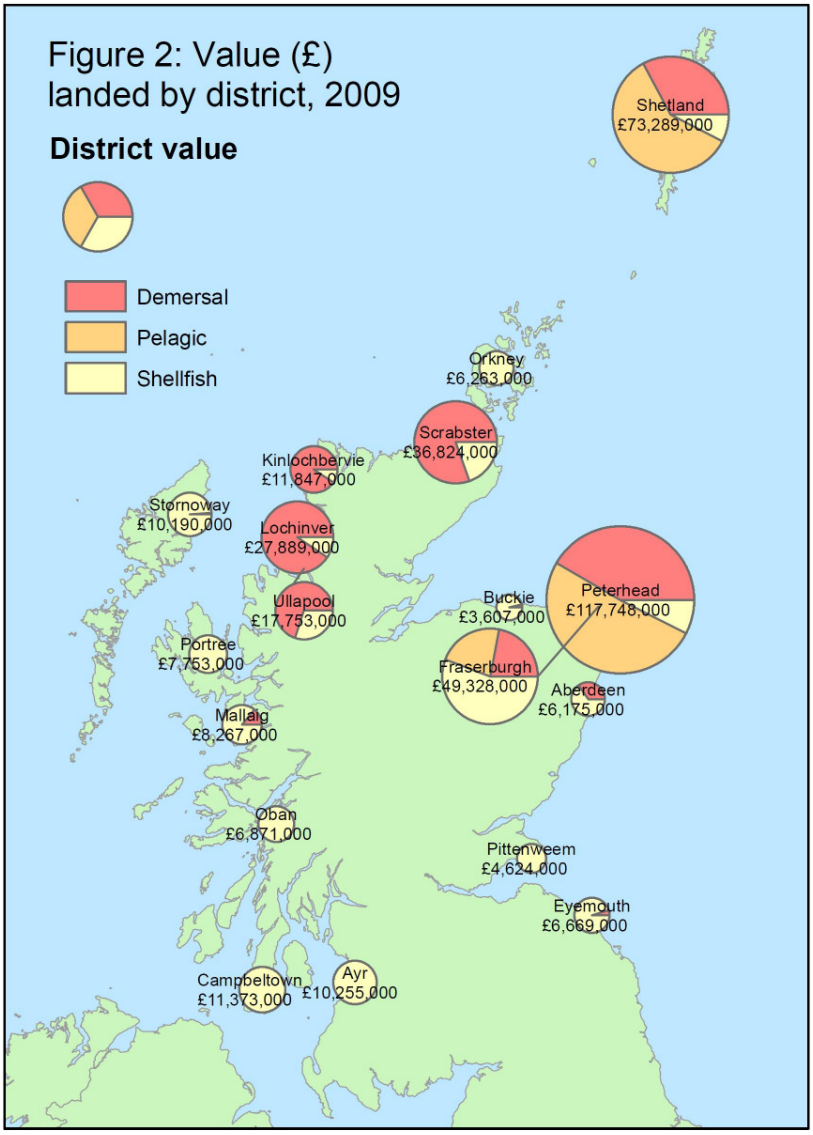


Figure 6-1 Total Landings Values (£) into Scottish ports by Port District, 2009 (Extracted from: Scottish Government, 2010a) ("Figure 2" in the picture refers to the report from which it was taken)

The 2009 total landings values show Peterhead (£117,748,000) to be the most important port district in Scotland and indeed within the UK, followed by Fraserburgh (£49,328,000) and Scrabster (£36,824,000) respectively. Aberdeen port district is fifteenth, with a 2009 total landings value of £6,175,000.

6.1.2 District Fleet Sizes

Table 6-2 shows that at the end of 2009 2,174 active fishing vessels were recorded as based in Scotland, a reduction of 31 (-1.4%) from 2008, which is the smallest fleet recorded for Scotland since the Second World War. Reductions occurred in 11 of the 18 districts, with losses mainly in the North West, including the Isles. Five districts saw an increase in vessel numbers, Oban (+6), Eyemouth (+5), Aberdeen (+3), Orkney (+2) and Kinlochbervie (+1).

Table 6-3 below gives fleet numbers by length for the three port districts in the region of the proposed EOWDC site. The majority of vessels based in Aberdeen are under 10 m, whereas fleets in Peterhead and Fraserburgh consist mainly of over 10 m vessels.

Table 6-2 Vessel Numbers by District (2005-2009) (Scottish Government, 2007; 2008; 2009; 2010a)

	Number of active vessels					
District	2005	2006	2007	2008	2009	Change between 2005-2009
Eyemouth	110	98	100	95	100	-10
Pittenweem	102	101	108	120	117	+15
Aberdeen	93	93	92	92	96	+3
Peterhead	98	99	104	107	100	+2
Fraserburgh	217	221	214	226	220	+3
Buckie	73	79	78	87	85	+12
Wick	123	120	128	129	129	6
Orkney	161	153	155	150	152	-9
Shetland	195	185	177	182	182	-13
Stornoway	311	303	281	267	258	-53
Lochinver	18	18	15	15	14	-4
Kinlochbervie	26	26	25	23	24	-2
Ullapool	69	67	69	85	82	+13
Mallaig	84	71	69	65	59	-25
Oban	140	132	129	123	129	-11
Campbeltown	162	161	155	137	135	-27
Ayr	161	158	153	157	149	-12
Portree	143	139	139	145	143	0
Total	**2,286**	**2,224**	**2,191**	**2,205**	**2,174**	**-112**

Table 6-3 Vessel Numbers by Length Division and Port District, 2009 (Scottish Government, 2010a))

Port District	10metres & Under	>10 <15 metres	15 <18 metres	18 <25 metres	25 <35 metres	35 <50 metres	50 metres +	Total
Eyemouth	73	16	3	7	1	-	-	100
Pittenweem	100	13	2	2	-	-	-	117
Aberdeen	81	8	-	5	2	-	-	96
Peterhead	46	-	2	24	19	5	4	100
Fraserburgh	102	11	14	59	22	1	11	220
Buckie	45	5	3	25	5	2	-	85
Scrabster	110	12	2	3	2	-	-	129
Total East Coast	557	65	26	125	51	8	15	847

6.2 Aberdeen

6.2.1 Historic Context

The fishing industry was the mainstay of Aberdeenshire's economy for much of the 1800 and 1900's. By 1892 it was Scotland's leading whitefish port (Aberdeen Maritime Museum, 2007). Trawling employed over 1,000 people (on boats as well as dockside) in 1900, a number that had doubled to more than 2,000 by 1910. Haddock was the most important species landed, followed by cod.

Aberdeen's importance as Scotland's premier fishing port remained high throughout the early and mid 1900's. In 1956 Aberdeen continued to land over 75% of Scotland's total whitefish catch and was known as a 'distant water port', with vessels fishing grounds as far afield as Faroese and Icelandic waters.

In the years spanning from the 1950's to the 1970's, a series of disputes and confrontations arose amongst fishing interests active in the grounds around Iceland. In 1958, Iceland, concerned about the over exploitation of declining fish stocks, increased its fishing limits from 4 to 12 nm. Among the foremost affected were UK registered vessels. In 1972 a second dispute ensued following Iceland

extending its territorial fishing limits to 50 nm. An agreement, lasting for 2 years was reached the following year limiting UK vessel access through the implementation of certain restrictions. However, when this agreement ended in 1975 the third and most confrontational 'Cod War' commenced. This culminated in Iceland threatening NATO with the closure of a base at Keflavik. A six month agreement was reached to restrict British vessels, after which time they were excluded from Iceland's 200 nm. limit, an outcome that heralded the demise of the UK's distant water fleet based at Aberdeen and other ports.

Aberdeen's fishing industry suffered a further setback in the mid to late 70's when many fishing vessel owners, suffering from a general downturn in the industry, transferred their vessels from Aberdeen to Fraserburgh or Peterhead. This was primarily due to Aberdeen's status as a 'dock labour' port, whereby all vessels landing into the port had to use the unionised dock labour for discharging their catch. By relocating to other ports vessels were able to make significant cost savings through the crews landing their own catches.

After the decline of the distant water fleet, the relative importance of the home fleet increased, and until around 15 years ago there were approximately 40 active full-time fishing vessels operating out of Aberdeen (Sutherland, 2007). Measures were however implemented by the EU in response to declining fish stocks that required a reduction in fishing effort. As a further response to the EU requirement of a reduction in fishing effort, the UK introduced decommissioning policies in Scotland in 2001 and 2002 (Section 6.1). This had a negative effect on the structure of the Aberdeen fishing fleet. There were no restrictions upon the age of vessels being decommissioned and frequently relatively new vessels were withdrawn, leaving an ageing industry in decline (Sutherland, 2007).

6.2.2 Aberdeen Port Today

The rapid expansion of oil and gas interests in the North Sea in the 1970's saw Aberdeen become the principal service port for the UK's offshore oil and gas industries. Where before the majority of the docks were given over to fishing vessels, there now remains only one fish quay – Commercial Quay. Although the market now handles significantly reduced quantities of fish, some vessels registered to other ports still land into Aberdeen. The port also has an important general maritime trade (in timber and grain, for example) as well as some naval activity.

There remain a number of fish processing plants in Aberdeen, with fish brought in by road transport from other ports in the north and west.

Interests within the fishing industry, notably the Scottish Fishermen's Federation (SFF), have derived benefits from the offshore oil and gas industries, which over the last 30 years have pursued a policy of deploying fishing vessels for oil-based work. The success of this diversification has contributed to the SFF establishing a Services Company which sources crew and vessels for work such as guard vessel duties and Marine Mammal Observation (MMO) duties.

7.0 MMO Fisheries Statistics

7.1 Landings Values by ICES Rectangle

7.1.1 Regional Study Area

Figure 7-1 and Figure 7-2 below illustrate the relative values of UK commercial fishing by method and species in comparison the ICES rectangles covering the regional area.

It can be seen that ICES rectangle 43E7, within which the inshore part of the proposed EWODC site is located has significantly lower landings values than other ICES rectangles in the region, largely due to its very small sea area. Rectangles to the north of the site contain the highest average landings values within the regional area. Bottom otter trawling for nephrops and whitefish is the principal fishing method undertaken in the regional study area, concentrated mainly in the northern rectangles, followed by scallop dredging by boat dredge mainly in the southern rectangles. Potting is generally deployed in inshore areas.

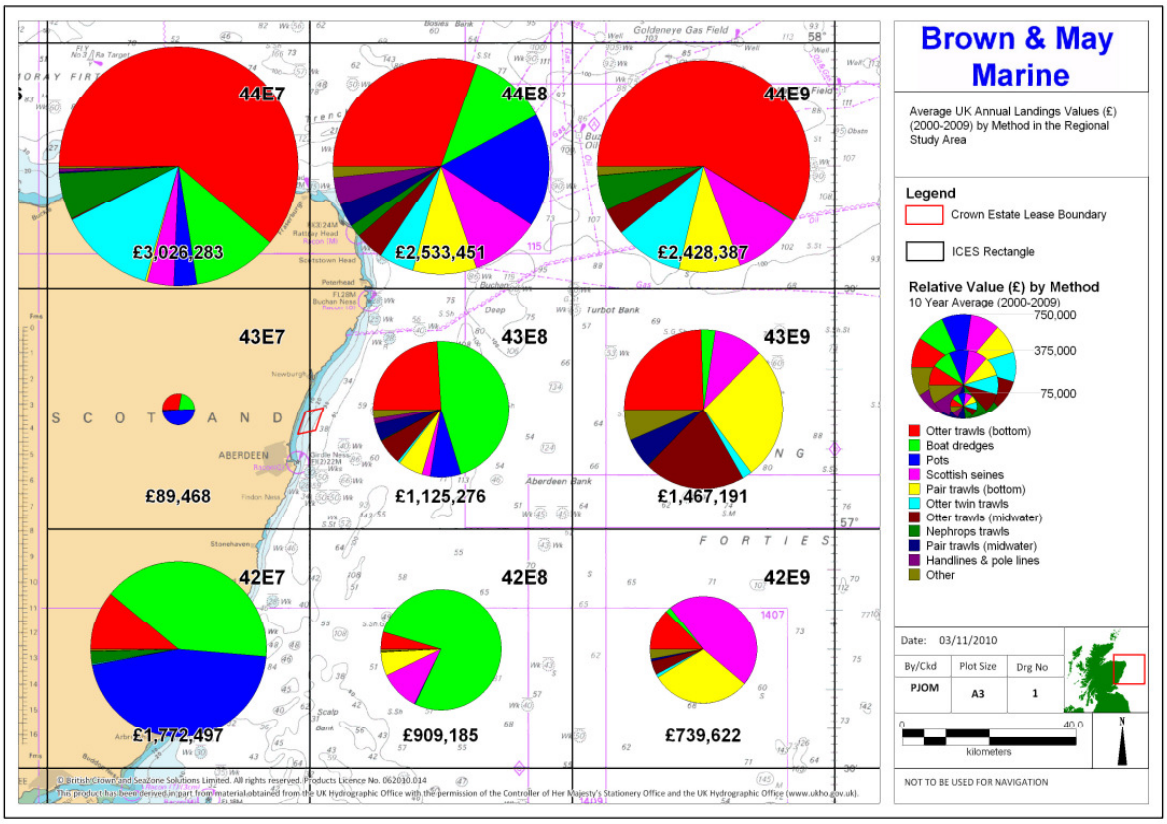


Figure 7-1 Averaged UK Annual Landings Values (2000-2009) by Method in the Regional Study Area

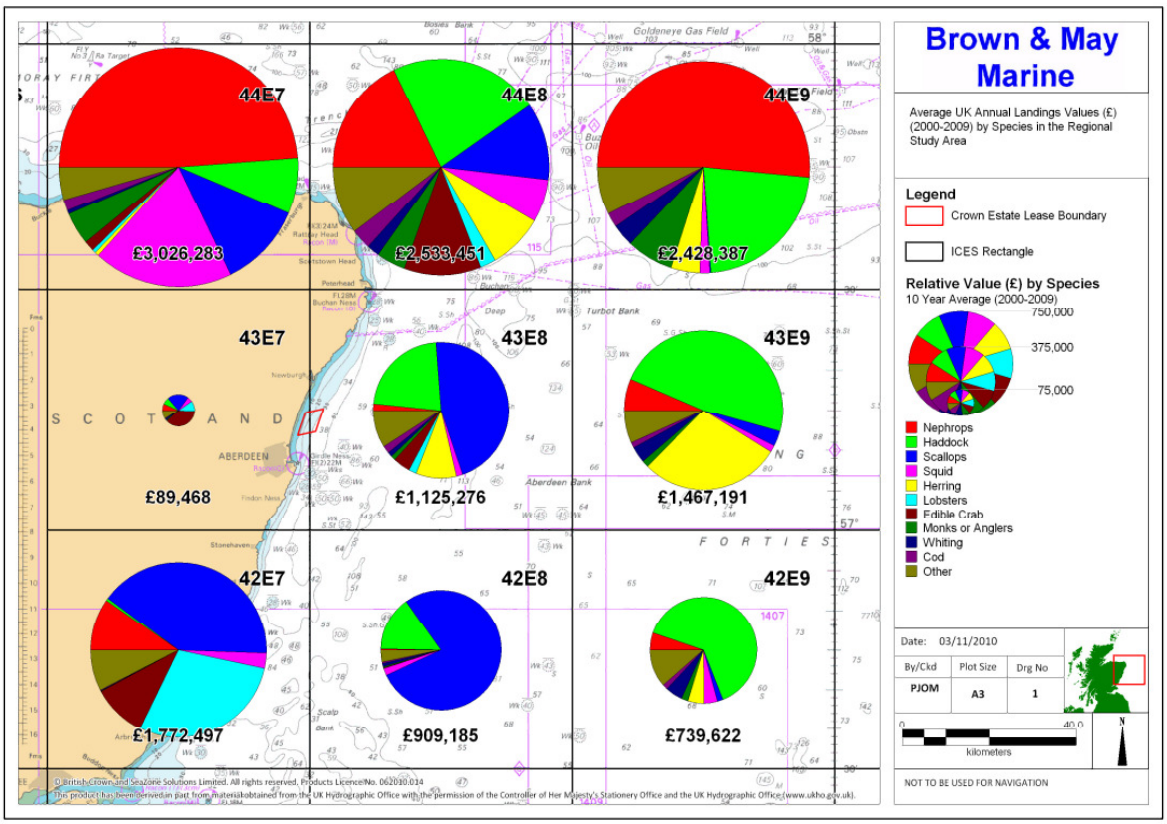


Figure 7-2 Averaged UK Annual Landings Values (2000-2009) by Species in the Regional Study Area

7.1.2 Local Study Area

ICES Rectangle 43E7

Figure 7-3 and Figure 7-4 below give the 10 year averaged annual values of landings by method and species for 43E7, the rectangle in which the inshore part of the proposed EOWDC site is located. These indicate that the majority of the value of fishing in the area of the proposed EOWDC site in 43E7 is from: potting for crab and lobsters; bottom otter trawling for whitefish and nephrops; and dredging for scallops, respectively. Other methods such as hand lines and pole lines, gillnets and Scottish seines recorded only low values.

Whereas the value of potting is largely derived from 10-15 m vessels, a greater percentage of the value of bottom otter trawling is from the 15 m and over fleet. Nearly all the value from boat dredging is derived from 15 m and over vessels.

There has been no foreign vessel activity recorded within ICES rectangle 43E7.

Figure 7-5 and Figure 7-6 give the annual landings values by method and species from ICES rectangle 43E7. Potting values have increased significantly since 2004, being consistently the highest value method since 2005, however this may be due to the introduction of shellfish entitlements in 2004 and the requirement for weekly catch returns. Bottom otter trawling, which had the highest average landings between 2000 and 2003 had seen a marked decline in the years following. There are significant fluctuations in the annual landings values for a number of principal species between 2000 and 2009. Edible crab, not generating particularly high landings values between 2000 and 2003 overall, had a significant increase in the following years, peaking in 2007 at £67,030. This in turn, coincided with a peak in potting, and the highest recorded value for one species in the 10 year

period. Similarly, scallops, targeted by boat dredges, which previously had low landings values levels, experienced a sharp peak in 2004 with relatively high values subsequently.

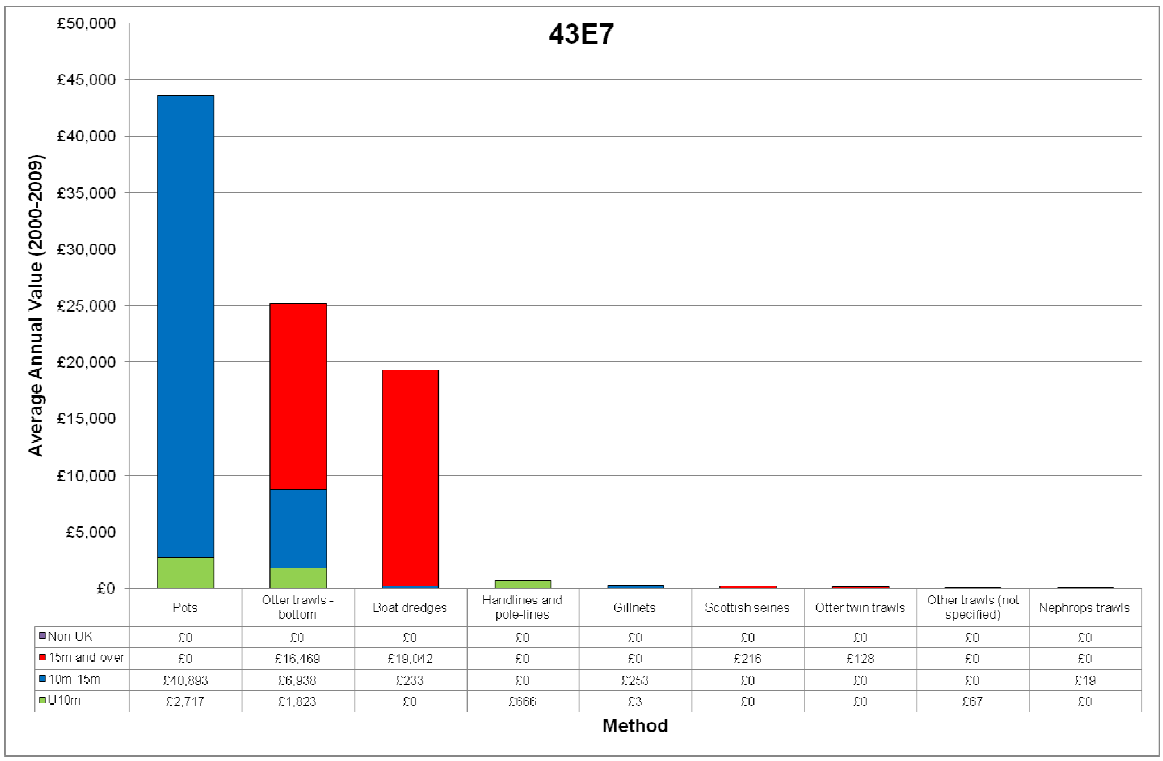


Figure 7-3 Averaged Annual Values (10 Year) by Method for 43E7, 2000-2009 (Source: MMO)

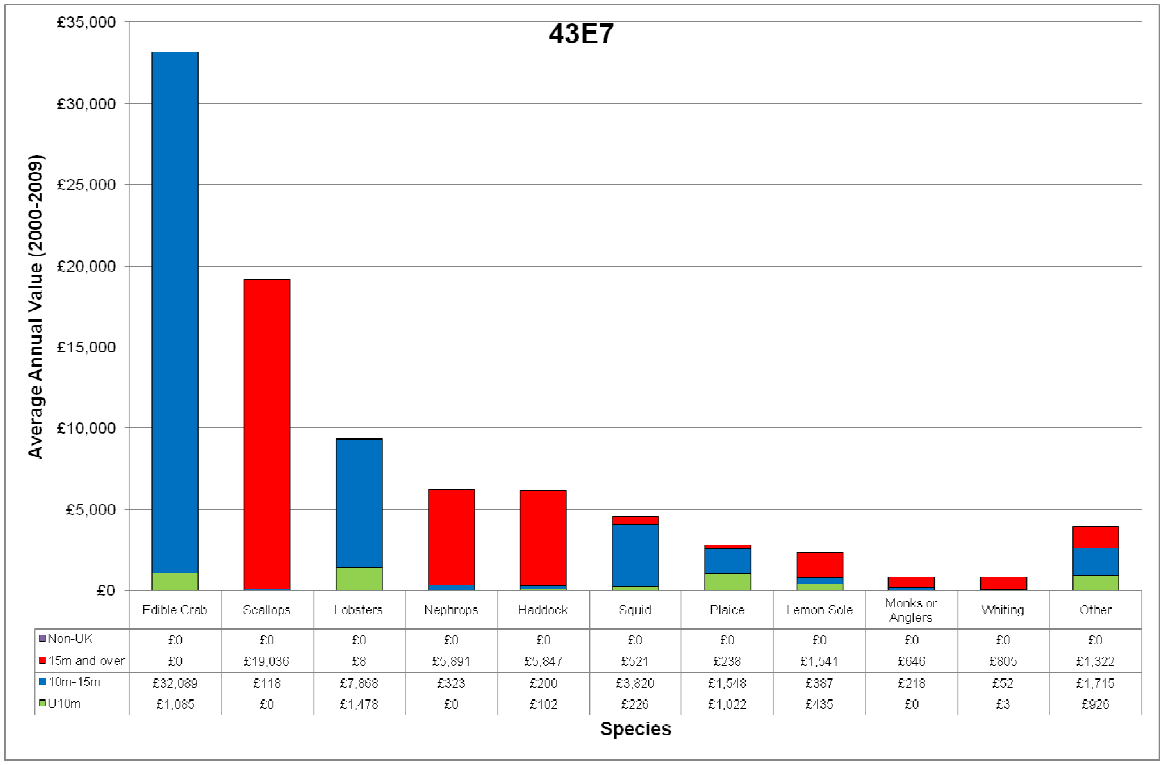
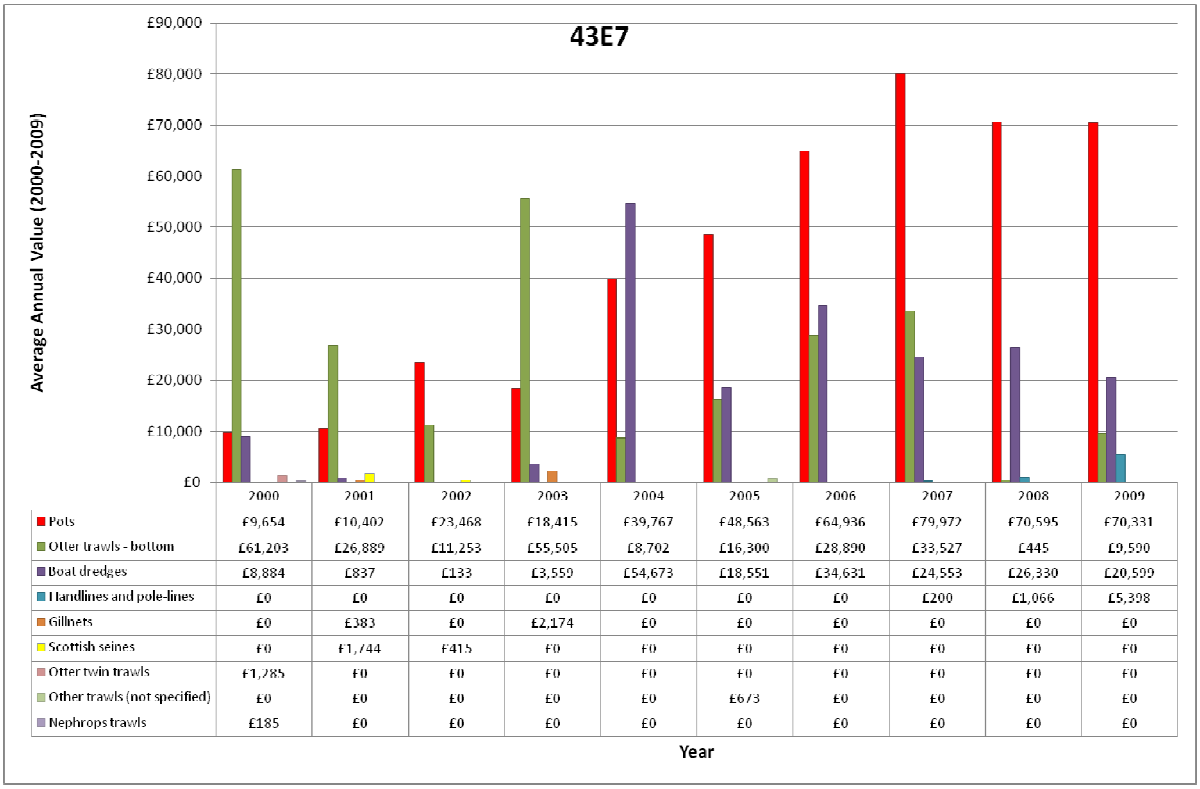
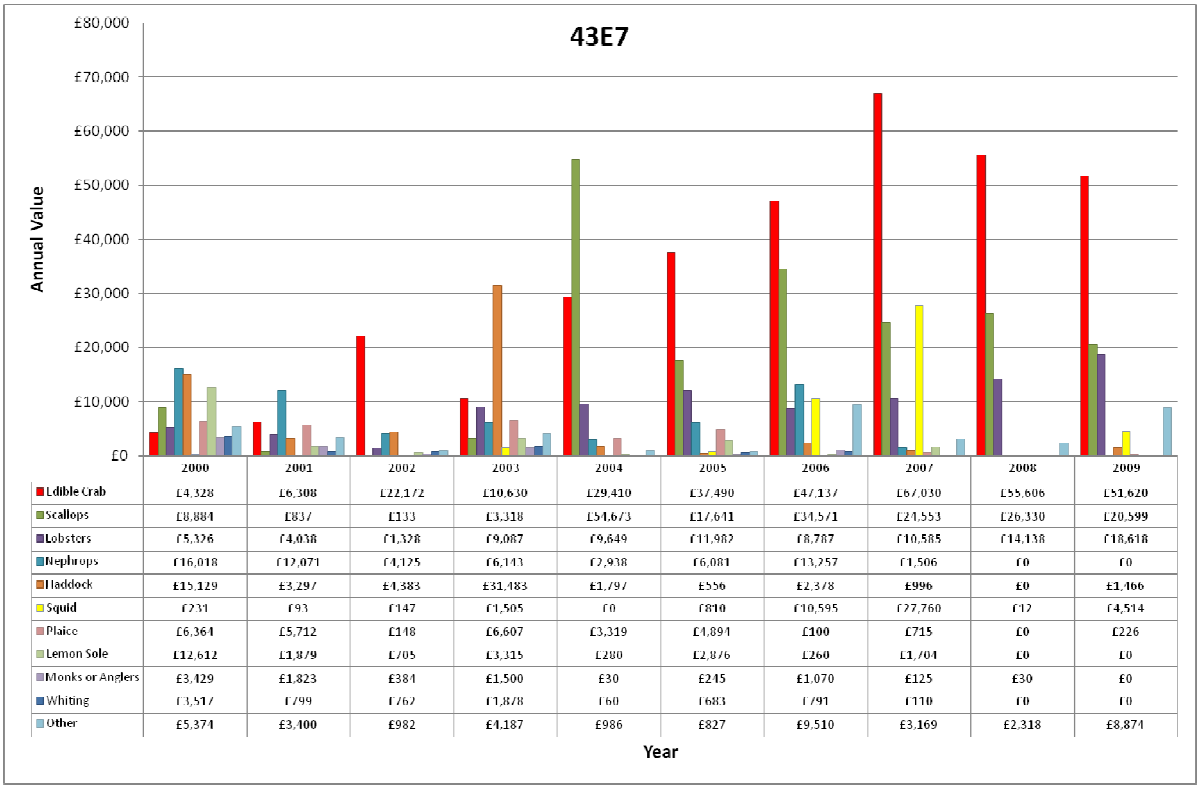


Figure 7-4 Averaged Annual Values (10 Year) by Species for 43E7, 2000-2009 (Source: MMO)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Pots	£9,654	£10,402	£23,468	£18,415	£39,767	£48,563	£64,936	£79,972	£70,595	£70,331
Otter trawls - bottom	£61,203	£26,889	£11,253	£55,505	£8,702	£16,300	£28,890	£33,527	£445	£9,590
Boat dredges	£8,884	£837	£133	£3,559	£54,673	£18,551	£34,631	£24,553	£26,330	£20,599
Handlines and pole-lines	£0	£0	£0	£0	£0	£0	£0	£200	£1,066	£5,398
Gillnets	£0	£383	£0	£2,174	£0	£0	£0	£0	£0	£0
Scottish seines	£0	£1,744	£415	£0	£0	£0	£0	£0	£0	£0
Otter twin trawls	£1,785	£0	£0	£0	£0	£0	£0	£0	£0	£0
Other trawls (not specified)	£0	£0	£0	£0	£0	£673	£0	£0	£0	£0
Nephrops trawls	£185	£0	£0	£0	£0	£0	£0	£0	£0	£0

Figure 7-5 Total Annual Landing Values by Method for 43E7, 2000-2009 Not Including Foreign Vessels (Source: MMO)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Edible Crab	£4,328	£6,308	£22,172	£10,630	£29,410	£37,490	£47,137	£67,030	£55,606	£51,620
Scallops	£8,884	£837	£133	£3,318	£54,673	£17,641	£34,571	£24,553	£26,330	£20,599
Lobsters	£5,326	£4,038	£1,328	£9,087	£9,649	£11,982	£8,787	£10,585	£14,138	£18,618
Nephrops	£16,018	£12,071	£4,125	£6,143	£2,938	£6,081	£13,257	£1,506	£0	£0
Haddock	£15,129	£3,297	£1,383	£31,483	£1,797	£556	£2,378	£996	£0	£1,466
Squid	£231	£93	£147	£1,505	£0	£810	£10,595	£27,760	£12	£4,514
Plaice	£6,361	£5,712	£118	£6,607	£3,319	£1,891	£100	£715	£0	£226
Lemon Sole	£12,612	£1,879	£705	£3,315	£280	£2,876	£260	£1,704	£0	£0
Monks or Anglers	£3,129	£1,823	£384	£1,500	£30	£245	£1,070	£125	£30	£0
Whiting	£3,517	£799	£762	£1,838	£60	£683	£791	£110	£0	£0
Other	£5,374	£3,400	£982	£4,187	£986	£827	£9,510	£3,169	£2,318	£8,874

Figure 7-6 Total Annual Landing Values by Species for 43E7, 2000-2009 Not Including Foreign Vessels (Source: MMO)

ICES Rectangle 43E8

Figure 7-7 and Figure 7-8 give the 10 year averaged annual values of landings by method and species for 43E8, within which the eastern section of the proposed EOWDC site is partially located.

It can be seen from Figure 7-7 and Figure 7-8 that the large majority of mechanical dredging and bottom otter trawling is by the 15m and over fleet. As is reflected in Figure 7-8, vessels employing these methods target scallops and whitefish respectively. There are low levels of pelagic activity by foreign vessels. Creel fishing (potting), shown in Figure 7-7 is undertaken almost exclusively by the under 10 m fleet.

Figure 7-9 and Figure 7-10 below give the annual landings values by species from ICES rectangle 43E8. Boat dredging for scallops and bottom trawling for whitefish have the overall highest landings values for the 10 year period between 2000 and 2009, with the former having significantly higher landings values than any other method since 2005. However, since a peak of annual landings of haddock by bottom trawling in 2004 of £752,470, landings values for the following years have dropped significantly.

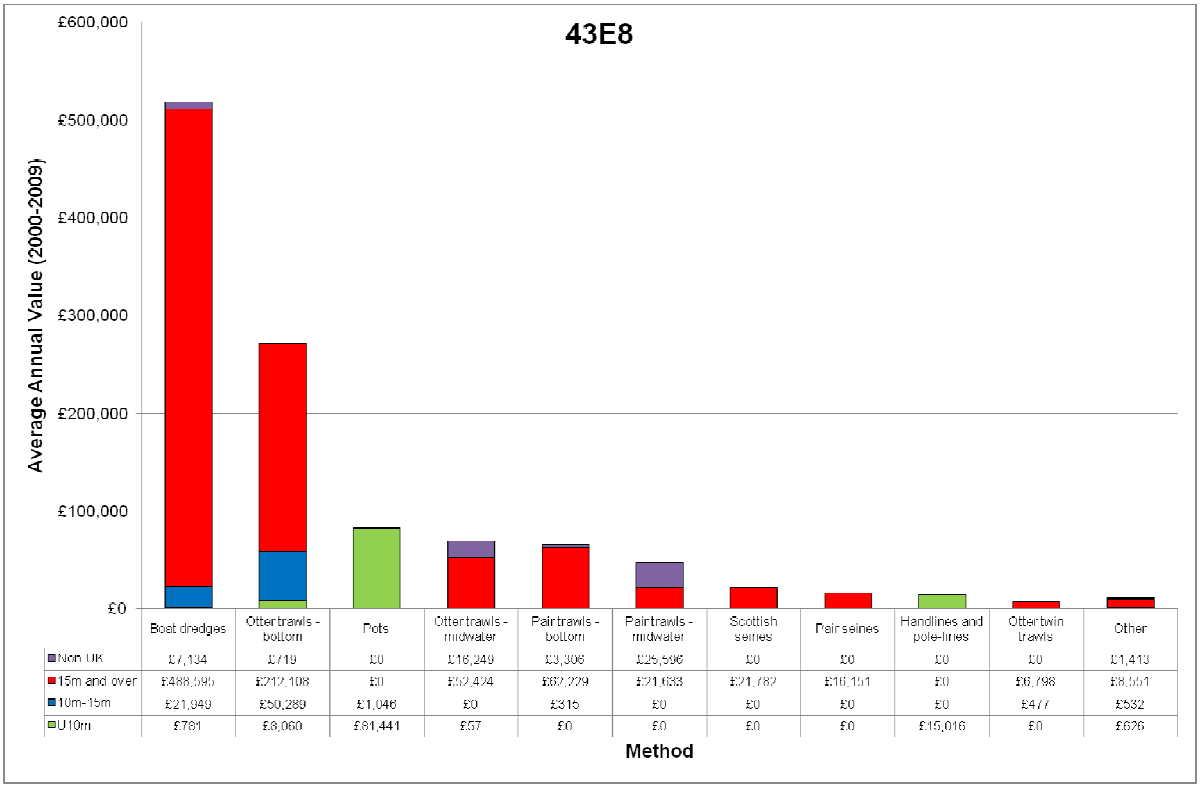
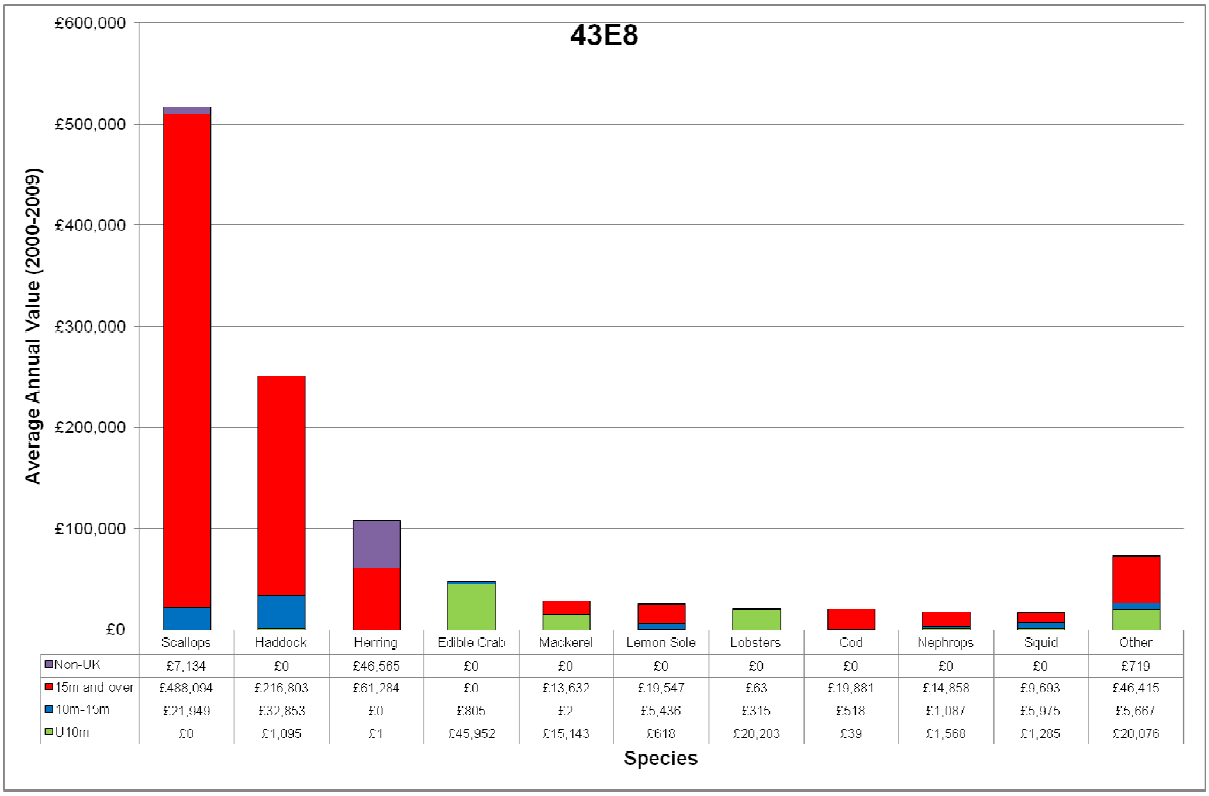
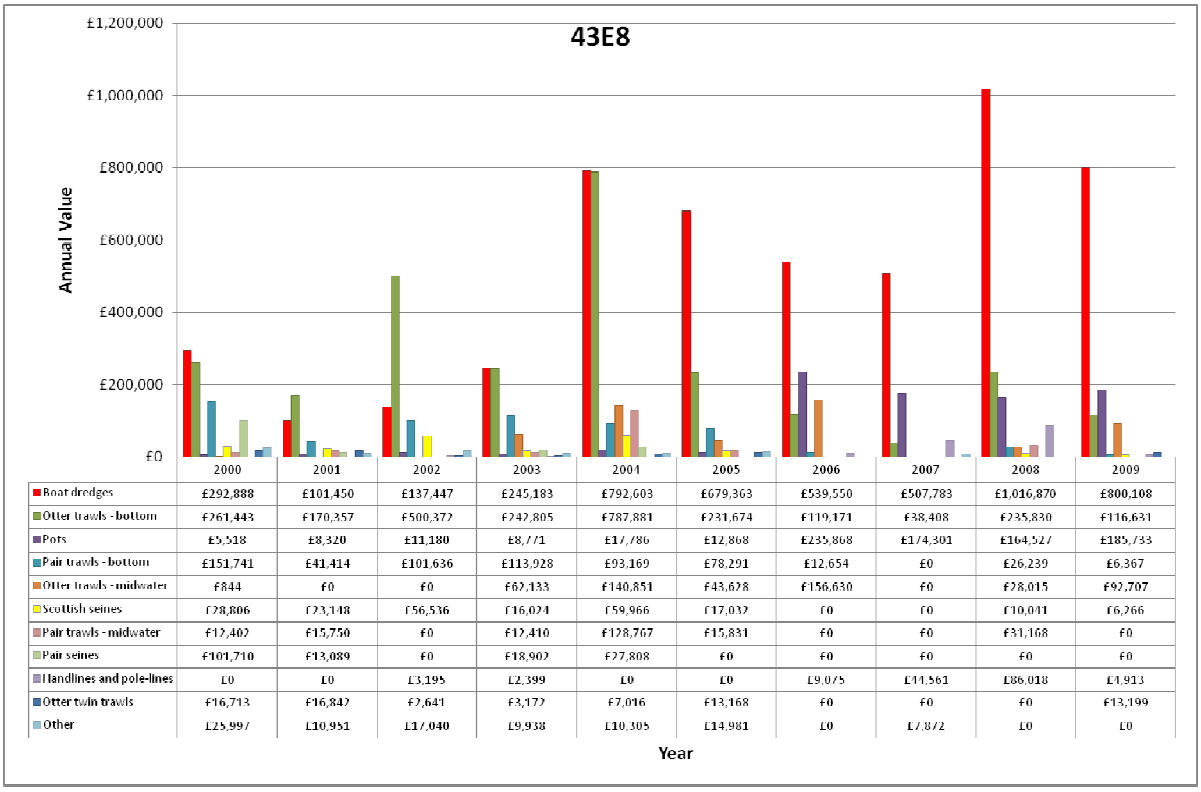


Figure 7-7 Averaged Annual Values (10 Year) by Method for 43E8, 2000-2009 (Source: MMO)



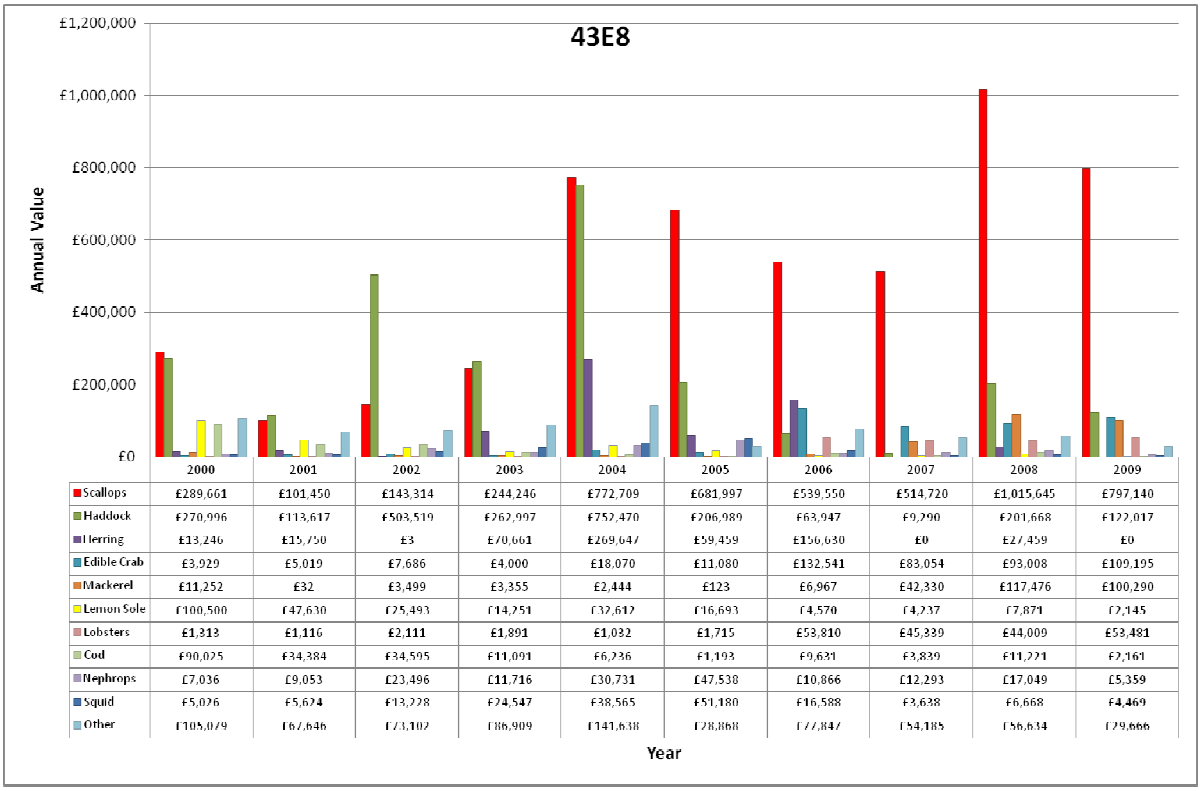
	Scallops	Haddock	Herring	Edible Crab	Mackerel	Lemon Sole	Lobsters	Cod	Nephrops	Squid	Other
Non-UK	£7,134	£0	£46,565	£0	£0	£0	£0	£0	£0	£0	£719
15m and over	£488,094	£216,803	£61,284	£0	£13,632	£10,547	£63	£10,881	£14,858	£9,603	£46,415
10m-15m	£21,949	£32,853	£0	£806	£0	£5,436	£315	£518	£1,087	£5,075	£5,867
U10m	£0	£1,095	£1	£45,952	£15,143	£618	£20,203	£39	£1,560	£1,285	£20,076

Figure 7-8 Averaged Annual Values (10 Year) by Species for 43E8, 2000-2009 (Source: MMO)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Boat dredges	£292,888	£101,450	£137,447	£245,183	£792,603	£679,363	£539,550	£507,783	£1,016,870	£800,108
Otter trawls - bottom	£261,443	£170,357	£500,377	£242,805	£787,881	£231,674	£119,171	£38,408	£235,830	£116,631
Pots	£5,518	£8,320	£11,180	£8,771	£17,786	£12,868	£235,808	£174,301	£164,527	£185,733
Pair trawls - bottom	£151,741	£41,414	£101,636	£113,928	£93,169	£78,291	£12,654	£0	£26,239	£6,367
Otter trawls - midwater	£844	£0	£0	£62,133	£140,851	£43,628	£156,630	£0	£28,015	£92,707
Scottish seines	£28,806	£23,148	£56,536	£16,024	£59,966	£17,032	£0	£0	£10,011	£6,266
Pair trawls - midwater	£12,402	£15,750	£0	£12,410	£128,767	£15,831	£0	£0	£31,168	£0
Pair seines	£101,710	£13,089	£0	£18,907	£27,808	£0	£0	£0	£0	£0
Handlines and pole-lines	£0	£0	£3,195	£2,399	£0	£0	£9,075	£11,561	£86,018	£1,913
Otter twin trawls	£16,713	£16,842	£7,641	£3,177	£7,016	£13,168	£0	£0	£0	£13,199
Other	£25,997	£10,951	£17,040	£9,938	£10,305	£14,981	£0	£7,872	£0	£0

Figure 7-9 Total Annual Landing Values by Method for 43E8, 2000-2009 Not Including Foreign Vessels (Source: MMO)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Scallops	£289,661	£101,450	£143,314	£244,246	£772,709	£681,997	£539,550	£514,720	£1,015,645	£797,140
Haddock	£270,996	£113,617	£503,519	£262,997	£752,470	£206,989	£63,947	£9,290	£201,668	£122,017
Herring	£13,246	£15,750	£3	£70,661	£269,647	£59,459	£156,630	£0	£27,459	£0
Edible Crab	£3,929	£5,019	£7,686	£4,000	£18,070	£11,080	£132,541	£83,054	£93,008	£109,195
Mackerel	£11,252	£32	£3,499	£3,355	£2,444	£123	£6,967	£42,330	£117,476	£100,290
Lemon Sole	£100,500	£47,630	£25,493	£14,751	£32,617	£16,693	£4,570	£4,237	£7,871	£2,145
Lobsters	£1,313	£1,116	£2,111	£1,891	£1,032	£1,715	£53,810	£45,339	£44,009	£53,481
Cod	£90,025	£34,384	£34,595	£11,091	£6,236	£1,193	£9,631	£3,839	£11,221	£2,161
Nephrops	£7,036	£9,053	£23,496	£11,716	£30,731	£47,538	£10,866	£12,293	£17,049	£5,359
Squid	£5,026	£5,624	£13,228	£24,547	£38,565	£51,180	£16,588	£3,638	£6,668	£4,469
Other	£105,079	£67,646	£73,102	£86,909	£141,638	£28,868	£27,847	£54,185	£56,614	£29,666

Figure 7-10 Total Annual Landing Values by Species for 43E8, 2000-2009 Not Including Foreign Vessels (Source: MMO)

7.2 Fishing Values by Landing Port

Table 7-1 below gives the average value for rectangles 43E7 and 43E8 by port, relative to the total landings into each port. It can be seen that, with the exception of Boddam and Port Erroll (see Figure 10-1), both rectangles constitute only a small proportion of each port's total landings. In addition, as a result of the very small area of rectangle encompassed by the proposed EOWDC site, it is considered that the majority of fishing activity within rectangles 43E7 and 43E8 is undertaken in areas outside this site.

Table 7-1 Relative Values of Landings by Port from 43E7 and 43E8 (10 yr avg, 2000-2009)

		43E7		43E8	
Port	Avg Total Port Value	Value	% of Port Total	Value	% of Port Total
Aberdeen	£12,482,442	£71,118	0.6%	£437,262	3.5%
Peterhead	£85,703,602	£7,802	0.0%	£436,479	0.5%
Fraserburgh	£40,502,160	£3,574	0.0%	£52,184	0.1%
Ijmuiden	£17,796,997	£0	0.0%	£38,675	0.2%
Boddam	£27,283	£30	0.1%	£24,433	89.6%
Buckie	£3,200,018	£171	0.0%	£20,805	0.7%
Eyemouth	£3,633,178	£101	0.0%	£16,622	0.5%
Arbroath	£839,533	£5,372	0.6%	£11,156	1.3%
Montrose	£233,401	£47	0.0%	£9,594	4.1%
Port Erroll	£14,650	£0	0.0%	£7,316	49.9%
Lochinver	£34,115,956	£0	0.0%	£3,963	0.0%
Macduff	£1,412,012	£17	0.0%	£2,972	0.2%
Stonehaven	£96,023	£130	0.1%	£1,567	1.6%
Grimsby	£5,660,109	£0	0.0%	£1,534	0.0%
Hartlepool	£1,447,672	£0	0.0%	£1,483	0.1%
Other Ports	£43,514,281	£1,106	0.0%	£4,813	0.0%

7.3 Fishing Effort by Port

Table 7-2 and Table 7-3 show the annual fishing effort (days fished/year) by port and vessel size category, for ICES rectangles 43E7 and 43E8 respectively. As is stated above, it is considered that the majority of activity will be undertaken in areas of the rectangles outside of proposed EOWDC site.

Table 7-2 Annual Fishing Effort (days fished / year) in 43E7

	Year										10 Year Average
Port	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
Under 10 Metres											
Aberdeen	7	6	0	5	14	40	0	1	26	0	**9.9**
Peterhead	0	0	0	0	0	9	0	7	0	3	**1.9**
Cove (Aberdeen)	0	0	0	0	0	0	0	0	16	0	**1.6**
Stonehaven	0	0	0	0	0	0	3	0	10	0	**1.3**
Fraserburgh	0	0	0	0	0	0	0	0	0	5	**0.5**
Boddam	0	0	0	0	0	0	2	0	0	0	**0.2**
Arbroath	0	0	0	0	1	0	0	0	0	0	**0.1**
Buckie	0	0	0	0	0	0	0	0	0	1	**0.1**
U10m Total	**7**	**6**	**0**	**5**	**15**	**49**	**5**	**8**	**52**	**9**	**15.6**
10m - 15m											
Aberdeen	27	67	159	169	195	204	190	203	162	148	**152.4**
Peterhead	0	0	0	0	0	0	6	4	0	0	**1**
Fraserburgh	0	0	0	0	0	4	0	2	0	0	**0.6**
Gourdon	1	0	0	0	0	0	0	3	0	0	**0.4**
Pittenweem	0	0	0	0	0	0	0	1	0	0	**0.1**
Buckie	0	0	0	0	0	0	0	1	0	0	**0.1**
Arbroath	0	0	0	0	1	0	0	0	0	0	**0.1**
Montrose	0	0	0	1	0	0	0	0	0	0	**0.1**
10m-15m Total	**28**	**67**	**159**	**170**	**196**	**208**	**196**	**214**	**162**	**148**	**154.8**
15m and over											
Aberdeen	41	1	6	34	26	2	16	15	12	13	**16.6**
Arbroath	27	15	4	9	0	1	3	0	0	0	**5.9**
Peterhead	2	1	1	2	9	7	8	1	7	3	**4.1**
Fraserburgh	0	0	3	2	0	2	4	4	0	1	**1.6**
Rosehearty	0	0	0	0	0	0	3	0	0	0	**0.3**
Wick	2	0	0	0	0	0	0	0	0	0	**0.2**
Eyemouth	1	0	0	0	0	0	1	0	0	0	**0.2**
Macduff	0	0	0	0	0	1	0	0	0	0	**0.1**
Buckie	0	0	0	0	1	0	0	0	0	0	**0.1**
Montrose	0	0	0	0	1	0	0	0	0	0	**0.1**
15m and over Total	**73**	**17**	**14**	**47**	**37**	**13**	**35**	**20**	**19**	**17**	**29.2**
Overall Total	**108**	**90**	**173**	**222**	**248**	**270**	**236**	**242**	**233**	**174**	**199.6**

Table 7-3 Annual Fishing Effort (days fished / year) in 43E8

Port	Year										10 Year Average
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	
Under 10 Metres											
Peterhead	84	38	28	22	83	34	393	675	439	441	223.7
Boddam	0	0	0	0	0	0	421	241	280	172	111.4
Fraserburgh	0	0	51	0	0	1	0	129	396	2	57.9
Port Erroll	0	0	0	0	0	0	196	58	40	37	33.1
Aberdeen	0	2	0	9	8	7	62	0	25	21	13.4
Stonehaven	0	0	0	0	0	0	36	0	0	0	3.6
Arbroath	0	0	0	0	0	0	23	0	0	6	2.9
Burghead	0	0	0	0	0	0	0	11	4	0	1.5
Montrose	0	0	0	0	0	0	5	0	0	0	0.5
Gourdon	0	0	0	0	0	0	5	0	0	0	0.5
Rosehearty	0	0	0	0	0	0	0	3	1	0	0.4
Johnshaven	0	0	0	0	0	0	4	0	0	0	0.4
Unknown	0	0	0	0	0	0	0	0	0	2	0.2
Helmsdale	0	0	0	0	0	0	1	0	0	0	0.1
Pittenweem	0	0	0	0	0	0	1	0	0	0	0.1
St Monance	0	0	0	0	1	0	0	0	0	0	0.1
U10m Total	**84**	**40**	**79**	**31**	**92**	**42**	**1147**	**1117**	**1185**	**681**	**449.8**
10m-15m											
Aberdeen	91	67	16	67	99	48	14	6	16	7	43.1
Peterhead	73	1	18	22	70	8	14	0	14	30	25
Fraserburgh	0	0	8	0	3	10	3	1	0	0	2.5
Buckie	0	0	0	0	0	2	6	0	0	6	1.4
Dunbar	0	0	0	0	0	0	0	1	0	0	0.1
North Shields	0	0	1	0	0	0	0	0	0	0	0.1
Stonehaven	1	0	0	0	0	0	0	0	0	0	0.1
Macduff	0	0	0	0	0	0	1	0	0	0	0.1
Gourdon	0	0	0	0	1	0	0	0	0	0	0.1
10m-15m Total	**165**	**68**	**43**	**89**	**173**	**68**	**38**	**8**	**30**	**43**	**72.5**
15m and over											
Aberdeen	218	150	236	86	473	165	140	175	305	145	209.3
Peterhead	185	77	89	139	221	239	141	70	111	205	147.7
Fraserburgh	17	17	7	20	47	31	27	21	26	51	26.4
Buckie	23	6	17	17	16	6	11	7	7	11	12.1
Arbroath	12	3	12	5	20	10	2	0	1	6	7.1
Eyemouth	0	12	4	13	16	14	4	2	1	3	6.9
Montrose	0	0	0	0	10	19	0	5	0	0	3.4
Macduff	5	0	1	1	11	0	4	1	3	3	2.9
Ijmuiden	1	1	0	1	7	2	3	0	1	0	1.6
Hartlepool	0	0	4	0	0	0	0	4	0	0	0.8
Grimsby	1	1	5	0	0	1	0	0	0	0	0.8
Burntisland	0	0	0	0	0	0	0	0	0	5	0.5
Scrabster	1	1	0	2	0	0	0	0	0	0	0.4
Wick	2	0	0	0	0	0	0	0	1	0	0.3
North Shields	0	0	0	1	0	2	0	0	0	0	0.3
Blyth	0	0	0	0	2	0	0	0	0	0	0.2
Troon and Saltcoats	0	0	0	0	2	0	0	0	0	0	0.2
Lossiemouth	0	0	0	1	0	0	0	0	0	0	0.1
West Mainland (Shetland)	0	0	0	0	0	1	0	0	0	0	0.1
Unspecified Danish Port	0	0	0	1	0	0	0	0	0	0	0.1
Lochinver	1	0	0	0	0	0	0	0	0	0	0.1
15m and over Total	**466**	**268**	**375**	**287**	**825**	**490**	**332**	**285**	**456**	**429**	**421.3**
Non UK											
Aberdeen	0	0	0	0	0	0	0	0	4	21	2.5
Peterhead	0	0	0	0	2	8	2	0	3	0	1.5
Lochinver	1	0	0	0	0	0	0	0	0	0	0.1
Buckie	0	0	0	0	0	0	1	0	0	0	0.1
Non UK Total	**1**	**0**	**0**	**0**	**2**	**8**	**3**	**0**	**7**	**21**	**4.2**
Overall Total	**716**	**376**	**497**	**407**	**1092**	**608**	**1520**	**1410**	**1678**	**1174**	**947.8**

7.4 Fisheries Seasonality

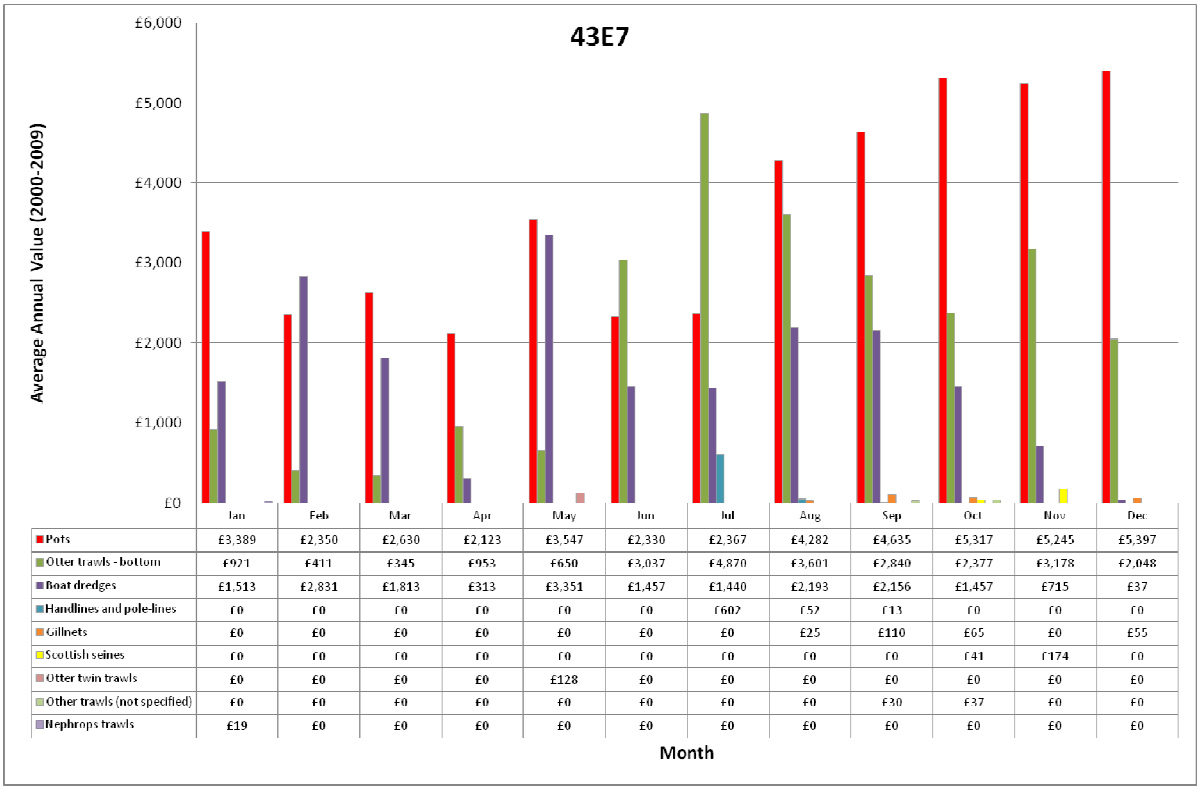
Figure 7-11 – Figure 7-14 give the averaged (2000-2009) monthly landings values by method and by species for rectangles 43E7 and 43E8, not including foreign vessels.

ICES Rectangle 43E7

Figure 7-11 and Figure 7-12 show that values of creel fishing (potting), targeting crab and lobster, is higher in the second half of the year. Bottom otter trawl landings, targeting haddock and plaice, are highest between June and November, with a peak in July. Dredging for scallops is highest in May, with very low levels in the final months of the year. There is a seasonal summer otter trawl fishery for squid between July and October.

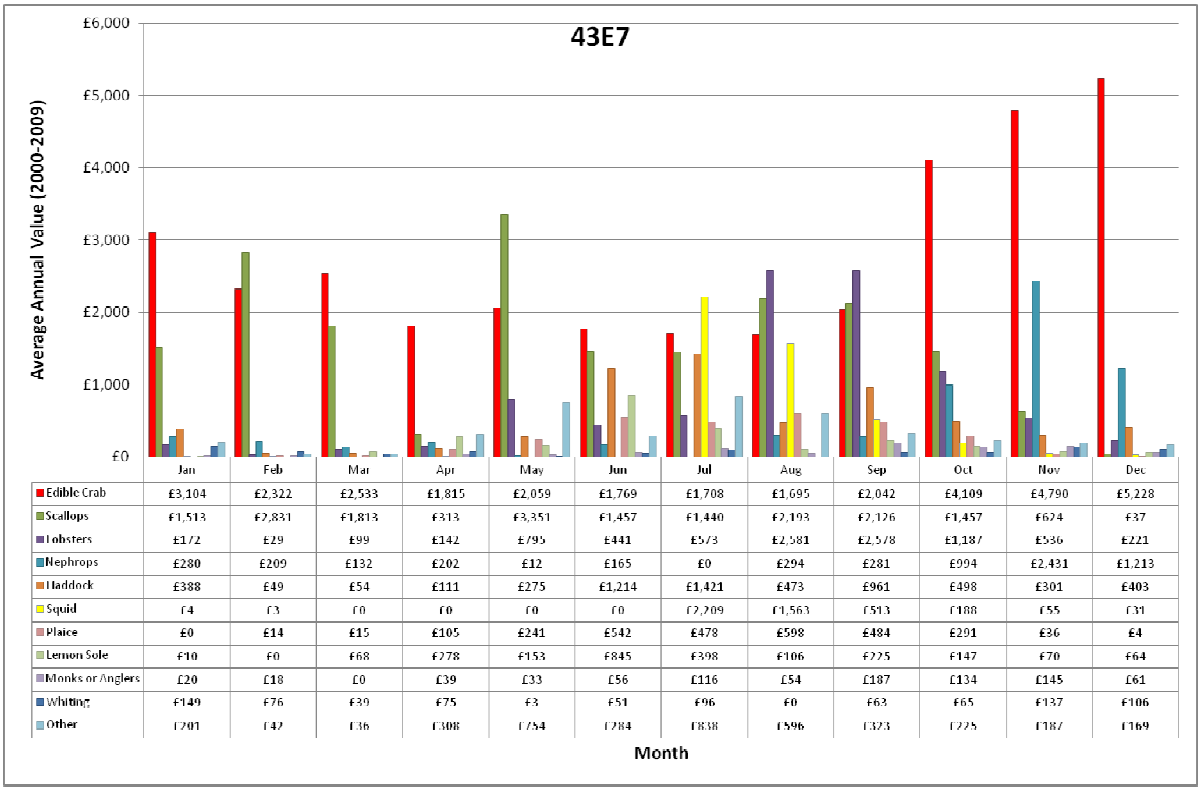
ICES Rectangle 43E8

The seasonality patterns described for ICES rectangle 43E7 above, are broadly repeated in rectangle 43E8 (Figure 7-13 and Figure 7-14), although this rectangle records far higher monthly landings values. The scallop fishery appears less erratic than in 43E7, with a gradual increase in landings from the beginning of the year to a peak in June, tailing off again in the latter months. Bottom otter trawling is highest in the summer months and the latter half of the year, with very low recorded activity in April. Creel fishing (potting) activity, in comparison both to the other methods employed in the rectangle and to the amount of activity in 43E7, is low. There is a short, seasonal fishery for herring in August and September.



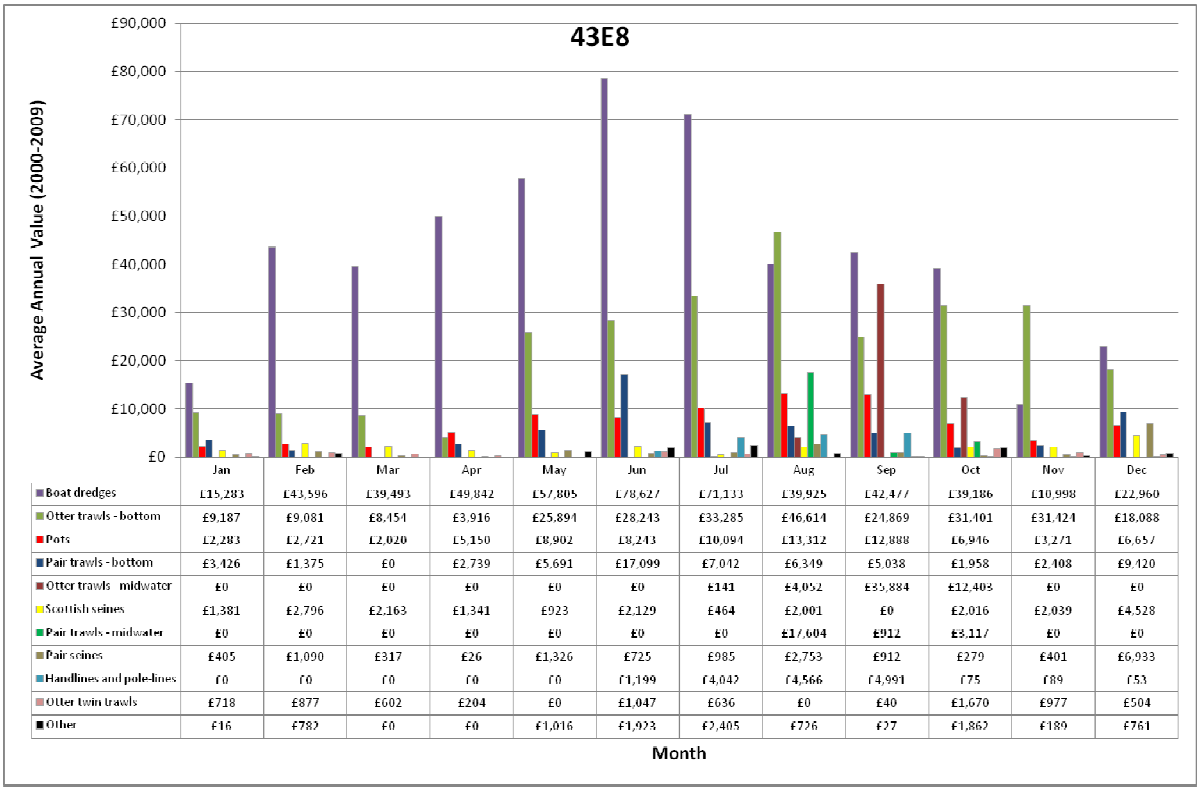
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pots	£3,389	£2,350	£2,630	£2,123	£3,547	£2,330	£2,367	£4,282	£4,635	£5,317	£5,245	£5,397
Otter trawls - bottom	£921	£411	£345	£953	£650	£3,037	£4,870	£3,601	£2,840	£2,377	£3,178	£2,048
Boat dredges	£1,513	£2,831	£1,813	£313	£3,351	£1,457	£1,440	£2,193	£2,156	£1,457	£715	£37
Handlines and pole-lines	£0	£0	£0	£0	£0	£0	£602	£52	£13	£0	£0	£0
Gillnets	£0	£0	£0	£0	£0	£0	£0	£25	£110	£65	£0	£55
Scottish seines	£0	£0	£0	£0	£0	£0	£0	£0	£0	£41	£174	£0
Otter twin trawls	£0	£0	£0	£0	£128	£0	£0	£0	£0	£0	£0	£0
Other trawls (not specified)	£0	£0	£0	£0	£0	£0	£0	£0	£30	£37	£0	£0
Nephrops trawls	£19	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0	£0

Figure 7-11 Average Seasonality (10 Year) by Method 43E7 Not Including Foreign Vessels (Source: MMO)



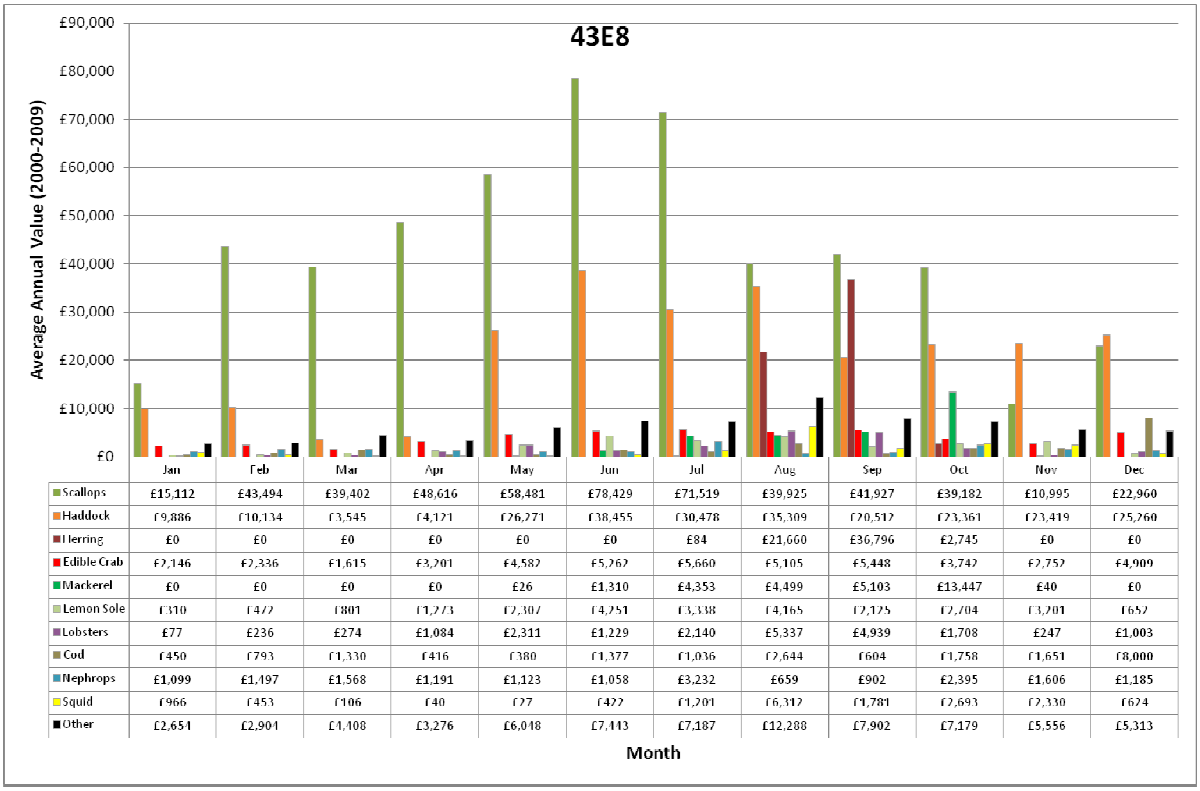
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Edible Crab	£3,104	£2,322	£2,533	£1,815	£2,059	£1,769	£1,708	£1,695	£2,042	£4,109	£4,790	£5,228
Scallops	£1,513	£2,831	£1,813	£313	£3,351	£1,457	£1,440	£2,193	£2,126	£1,457	£624	£37
Lobsters	£172	£29	£99	£142	£795	£441	£573	£2,581	£2,578	£1,187	£536	£221
Nephrops	£280	£209	£132	£202	£12	£165	£0	£294	£281	£994	£2,431	£1,213
Haddock	£388	£49	£54	£111	£275	£1,214	£1,421	£473	£961	£498	£301	£403
Squid	£4	£3	£0	£0	£0	£0	£2,209	£1,563	£513	£188	£55	£31
Plaice	£0	£14	£15	£105	£241	£542	£478	£598	£484	£201	£36	£4
Lemon Sole	£10	£0	£68	£278	£153	£845	£398	£106	£225	£147	£70	£64
Monks or Anglers	£20	£18	£0	£39	£33	£56	£116	£54	£187	£134	£145	£61
Whiting	£149	£76	£39	£75	£3	£51	£96	£0	£63	£65	£137	£106
Other	£701	£47	£36	£308	£754	£284	£838	£596	£323	£225	£187	£169

Figure 7-12 Average Monthly Landing Values (10 Year) by Species, 43E7 Not Including Foreign Vessels (Source: MMO)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Boat dredges	£15,283	£43,596	£39,493	£49,842	£57,805	£78,627	£71,133	£39,925	£42,477	£39,186	£10,998	£22,960
Otter trawls - bottom	£9,187	£9,081	£8,451	£3,916	£25,891	£28,243	£33,285	£46,614	£21,869	£31,401	£31,424	£18,088
Pots	£2,283	£2,721	£2,020	£5,150	£8,902	£8,243	£10,094	£13,312	£12,888	£6,946	£3,271	£6,657
Pair trawls - bottom	£3,426	£1,375	£0	£2,739	£5,691	£17,099	£7,042	£6,349	£5,038	£1,958	£2,408	£9,420
Otter trawls - midwater	£0	£0	£0	£0	£0	£0	£141	£4,052	£35,884	£12,403	£0	£0
Scottish seines	£1,381	£2,796	£2,163	£1,341	£923	£2,129	£464	£2,001	£0	£2,016	£2,039	£4,528
Pair trawls - midwater	£0	£0	£0	£0	£0	£0	£0	£17,604	£912	£3,117	£0	£0
Pair seines	£405	£1,090	£317	£26	£1,326	£725	£985	£2,753	£912	£279	£401	£6,933
Handlines and pole-lines	£0	£0	£0	£0	£0	£1,199	£4,042	£4,566	£4,991	£75	£89	£53
Otter twin trawls	£718	£877	£602	£204	£0	£1,047	£636	£0	£40	£1,670	£977	£504
Other	£16	£782	£0	£0	£1,016	£1,923	£2,405	£726	£27	£1,862	£189	£761

Figure 7-13 Average Seasonality (10 Year) by Method 43E8 Not Including Foreign Vessels (Source: MMO)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Scallops	£15,112	£43,494	£39,402	£48,616	£58,481	£78,429	£71,519	£39,925	£41,927	£39,182	£10,995	£22,960
Haddock	£9,886	£10,134	£3,545	£4,121	£26,271	£38,455	£30,478	£35,309	£20,512	£23,361	£23,419	£25,260
Herring	£0	£0	£0	£0	£0	£0	£84	£21,660	£36,796	£2,745	£0	£0
Edible Crab	£2,146	£2,336	£1,615	£3,201	£4,582	£5,262	£5,660	£5,105	£5,448	£3,742	£2,752	£4,909
Mackerel	£0	£0	£0	£0	£26	£1,310	£4,353	£4,499	£5,103	£13,447	£40	£0
Lemon Sole	£310	£472	£801	£1,273	£2,307	£4,751	£3,338	£4,165	£2,175	£2,704	£3,701	£652
Lobsters	£77	£236	£274	£1,084	£2,311	£1,229	£2,140	£5,337	£4,939	£1,708	£247	£1,003
Cod	£450	£793	£1,330	£416	£380	£1,377	£1,036	£2,644	£604	£1,758	£1,651	£8,000
Nephrops	£1,099	£1,197	£1,568	£1,191	£1,123	£1,058	£3,232	£659	£902	£2,395	£1,606	£1,185
Squid	£966	£453	£106	£40	£27	£422	£1,201	£6,312	£1,781	£2,693	£2,330	£624
Other	£2,651	£2,904	£1,108	£3,276	£6,018	£7,113	£7,187	£12,288	£7,902	£7,179	£5,556	£5,313

Figure 7-14 Average Seasonality (10 Year) by Species, 43E8 Not Including Foreign Vessels (Source: MMO)

8.0 Satellite Tracking

Since January 2005, all European Community vessels over 15 m in length have been fitted with satellite tracking equipment which transmits the vessels' position a minimum of every 2 hours to the relevant Member States' fisheries authorities. Each Member States' Fisheries Monitoring Centre (FMC) monitors the activities of their fishing vessels to ensure compliance with fisheries legislation.

All UK satellite data is still collected in one dataset by the MMO. The data was obtained from the MMO in CSV format.

It is recognised that satellite data is only indicative of the activity of certain types of fishing vessels, i.e. those over 15 m in length. Furthermore, the data do not specify whether a vessel is fishing or steaming. Position plots of vessels that are stationary in port have not been included.

Figure 8-1 overleaf provides an overview of the relative density of activity by UK over 15 m fishing vessels. It can be seen that the proposed EOWDC site is situated in an area of low recorded density, with higher levels of activity in the north and south. Table 8-1 provides the numbers of vessels, and the 2 hourly position plots of those vessels, tracked within the proposed EOWDC site for the same period.

Table 8-2 gives a breakdown of the individual vessels recorded by satellite tracking inside the proposed EOWDC site in 2008. As can be seen, the numbers of plots is very low, indicating that vessels are steaming through the proposed EOWC site to and from more distant fishing grounds.

Figure 8-2 and Figure 8-3 show the tracks of the vessel identified by the MMO as GBR66, in 2008, the vessel obtaining the highest plot count within the proposed EOWDC site. Figure 8-2 shows the vessel tracks in the regional area and Figure 8-3 shows the vessel tracks within the proposed EOWDC site, respectively. Whilst it is possible, given the pattern of sightings (Figure 8-3), that this vessel may have undertaken some occasional trawling to the north of the proposed EOWDC site, it would appear that the immediate site vicinity sustains, at most, only a very small proportion of total activity of this vessel.

Figure 8-4 shows the range of activity of the vessel identified as GBR842 between 2005 and 2006, demonstrating that the vessel's fishing grounds are in areas considerably further offshore than the area of the proposed EOWDC site. Figure 8-5 suggests that the tracks recorded through the proposed EOWDC site can be attributed to the vessel steaming.

As a result of the different data set provided for satellite tracked vessels in 2009 (previously discussed), Figure 8-6 to Figure 8-8 separately show activity for this period. Figure 8-6 provides the density of over 15 m vessels for all methods. Figure 8-7 and Figure 8-8 show the density by scallop dredging and demersal trawling for whitefish, respectively – the principal fishing methods undertaken in the area by the over 15 m fleet. As with previous years, these figures show higher levels of activity located in grounds further offshore. Again it is likely that the majority of sightings that occurred within the rectangle that encompasses the proposed EOWDC site are a result of vessels steaming to grounds to the north and east of the site, as consultation with local fishermen and the SFF confirms that no scalloping dredging or trawling by over 15 m vessels occurs within the site.

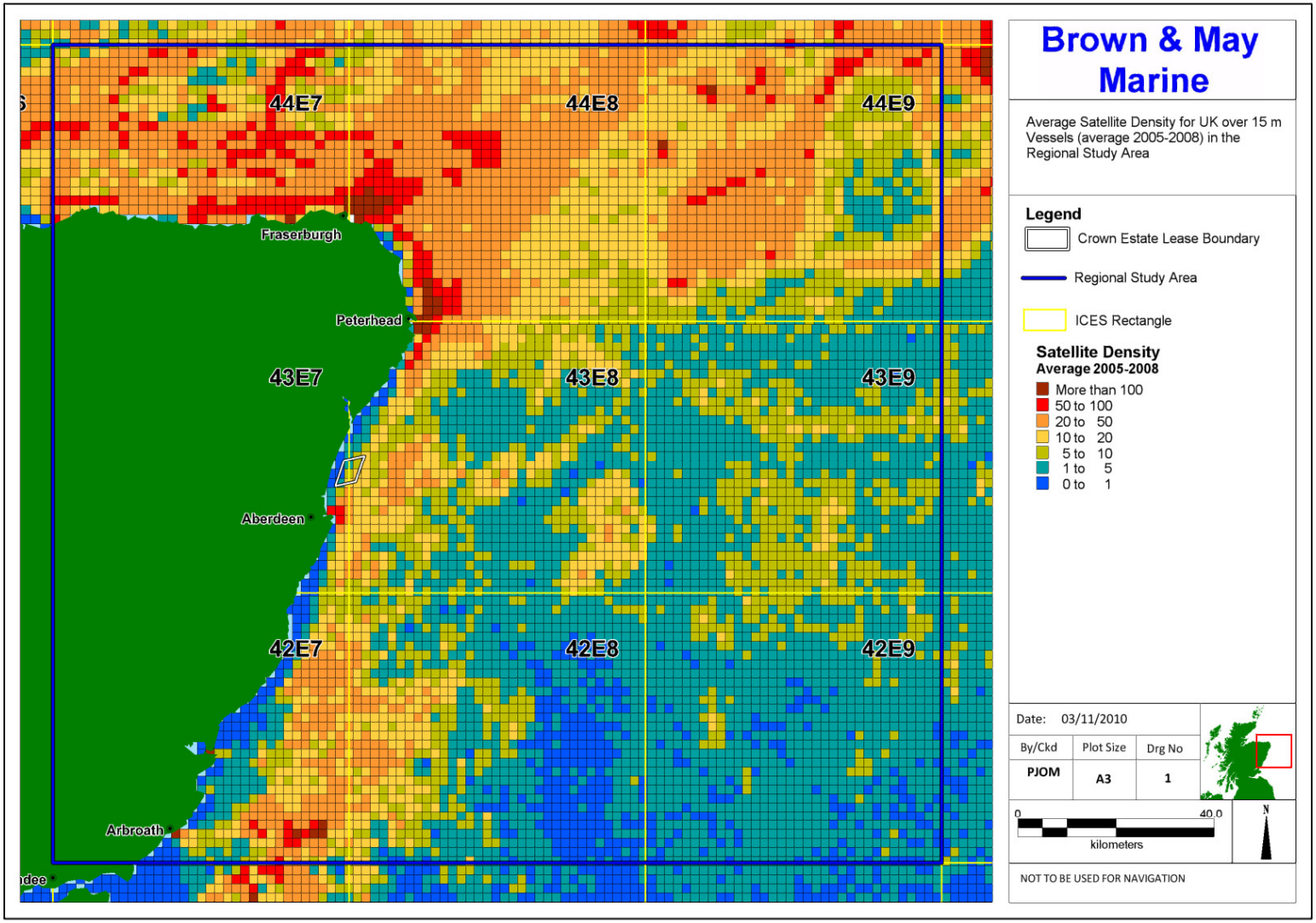


Figure 8-1 Average Satellite Density of UK over 15 m Vessels (average 2005 – 2008) in the Regional Study Area

Table 8-1 Numbers of Vessels and 2-Hourly Position Plots of Vessels Tracked within the Proposed EOWDC Site, 2005-2008 (Source: MMO)

	2005		2006		2007		2008	
Method	No. Vessels	No. Plots	No. Vessels	No. Plots	No. Vessels	No. Plots	No. Vessels	No. Plots
BOTTOM SEINER (ANCHOR/DANISH/FLY/SCOTS)	4	5	0	0	0	0	0	0
DEMERSAL STERN TRAWLER	3	3	0	0	0	0	0	0
NULL	22	45	22	49	18	34	19	45
PAIR TRAWLER (ALL)	2	2	0	0	0	0	0	0
PURSE SEINER	1	2	0	0	0	0	0	0
SCALLOP DREDGER (FRENCH/NEWHAVEN)	1	1	1	1	0	0	1	1
SIDE TRAWLER (PELAGIC/DEMERSAL)	3	11	0	0	0	0	0	0
Total	**36**	**69**	**23**	**50**	**18**	**34**	**20**	**46**

Table 8-2 Individual Vessel and Plots inside the Proposed EOWDC Site in 2008

Vessel	Type	Count in Proposed EOWDC Site
GBR66	Unidentified	11
GBR134	Unidentified	7
GBR231	Unidentified	6
GBR144	Unidentified	3
GBR354	Unidentified	3
GBR95	Unidentified	2
GBR145	Unidentified	1
GBR152	Unidentified	1
GBR189	Unidentified	1
GBR222	Unidentified	1
GBR23	Unidentified	1
GBR260	Unidentified	1
GBR278	Unidentified	1
GBR298	Unidentified	1
GBR317	Unidentified	1
GBR35	Unidentified	1
GBR37	Scallop Dredger	1
GBR380	Unidentified	1
GBR385	Unidentified	1
GBR7	Unidentified	1

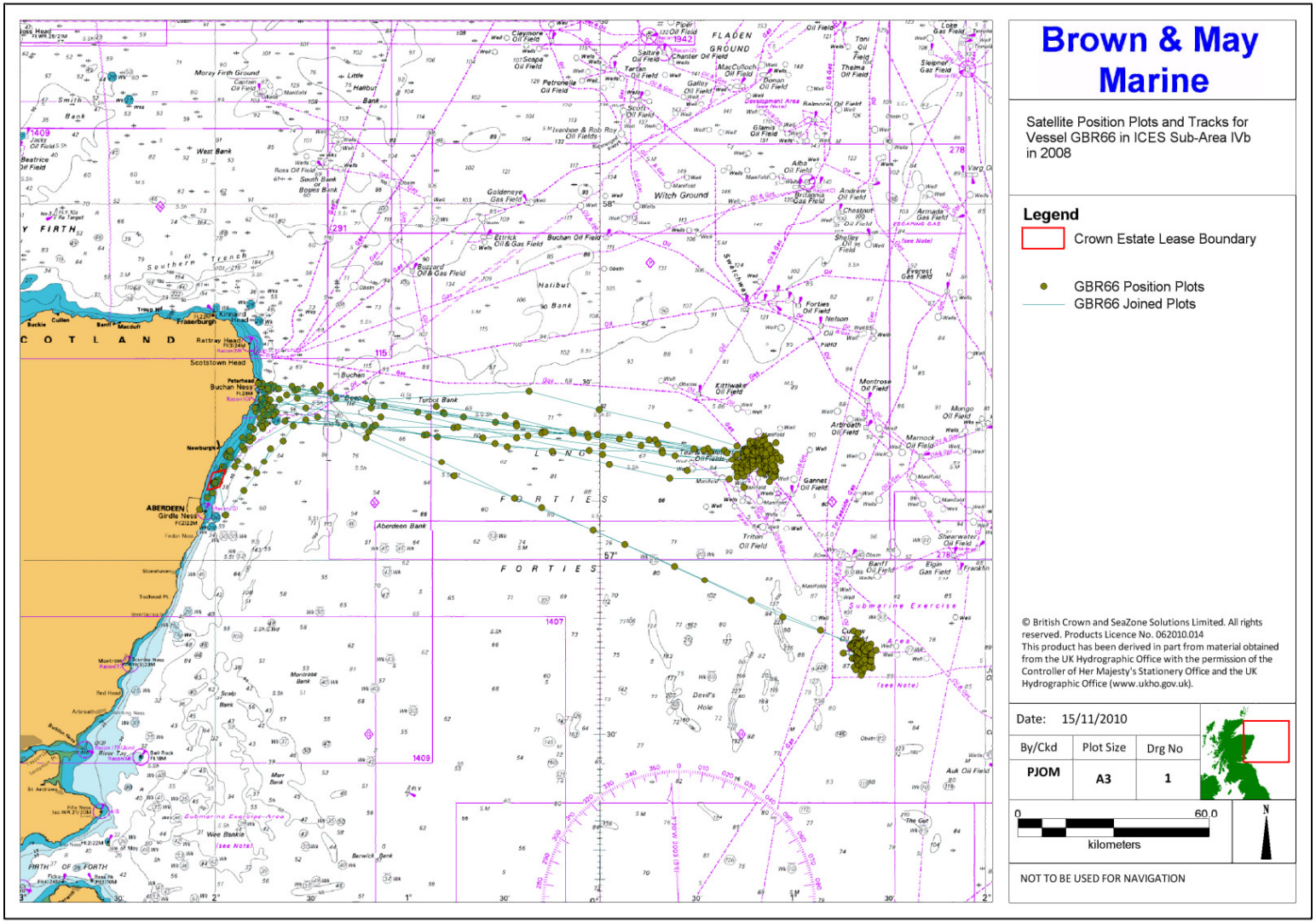


Figure 8-2 Satellite Position Plots and Tracks for Vessel GBR66 in ICES Sub Area IVb (Central North Sea) in 2008

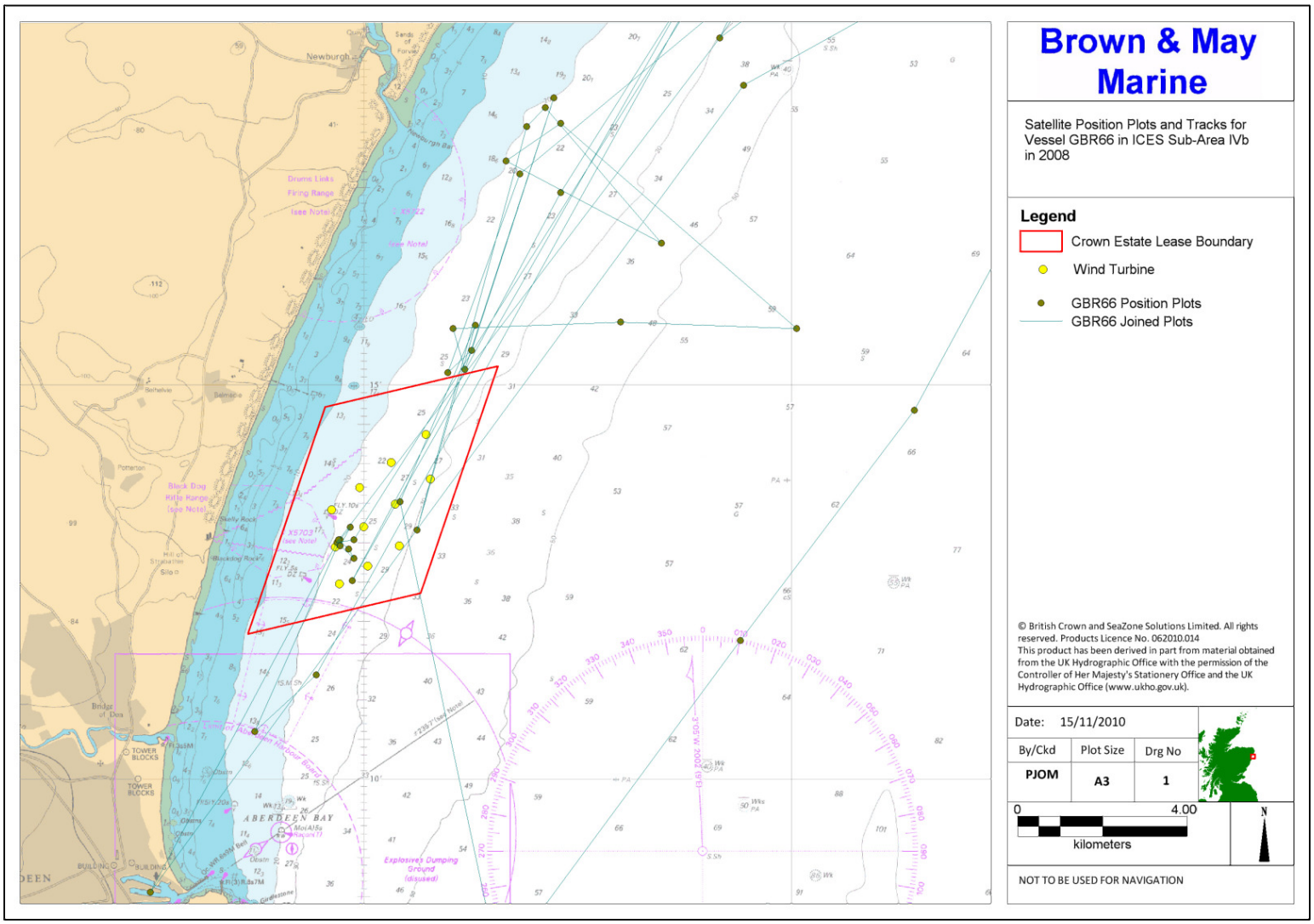


Figure 8-3 Satellite Position Plots and Tracks for Vessel GBR66 in ICES Sub Area IVb (Central North Sea) in 2008

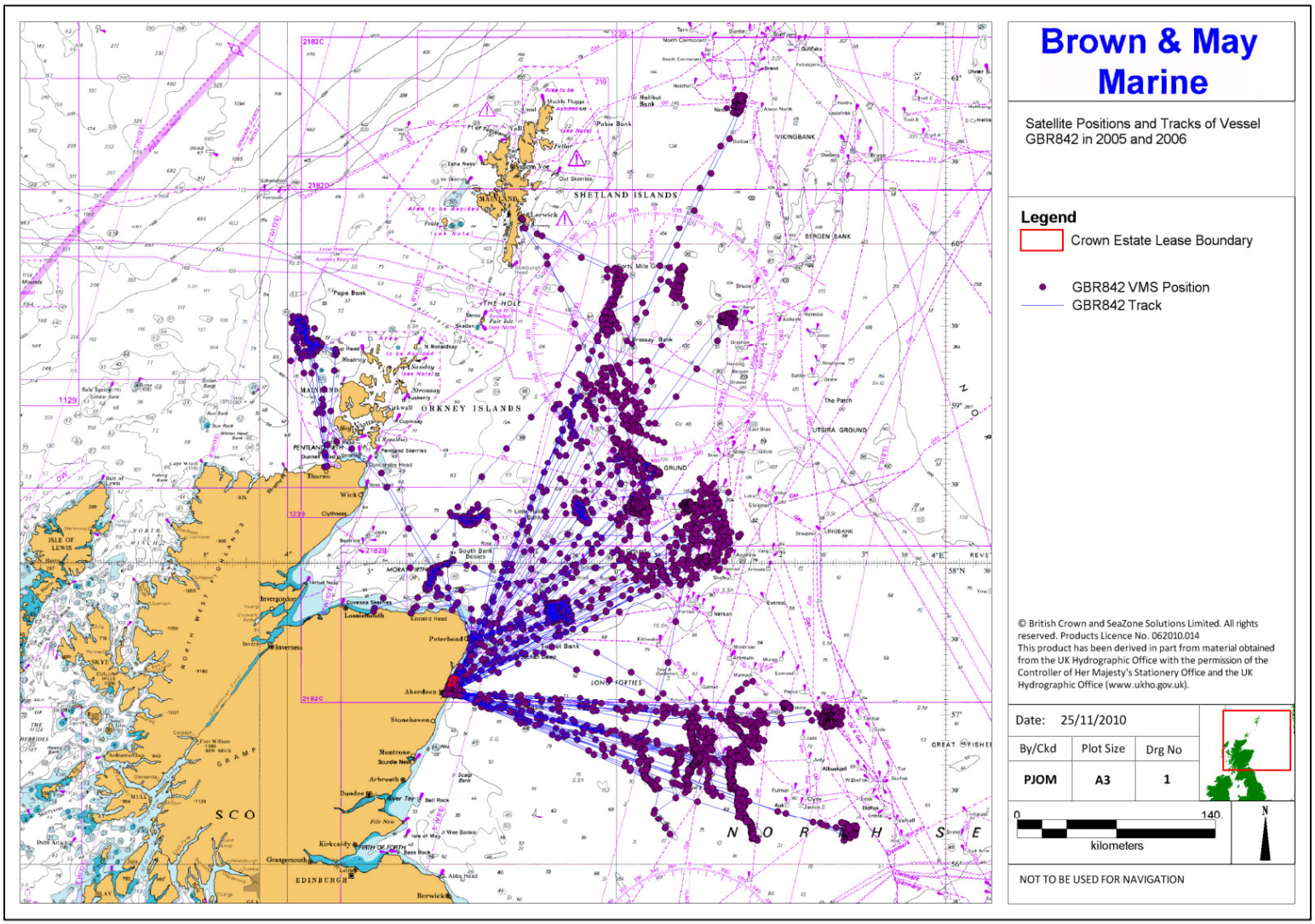


Figure 8-4 Satellite Position Plots and Tracks of Vessel GBR842 in 2005 and 2006

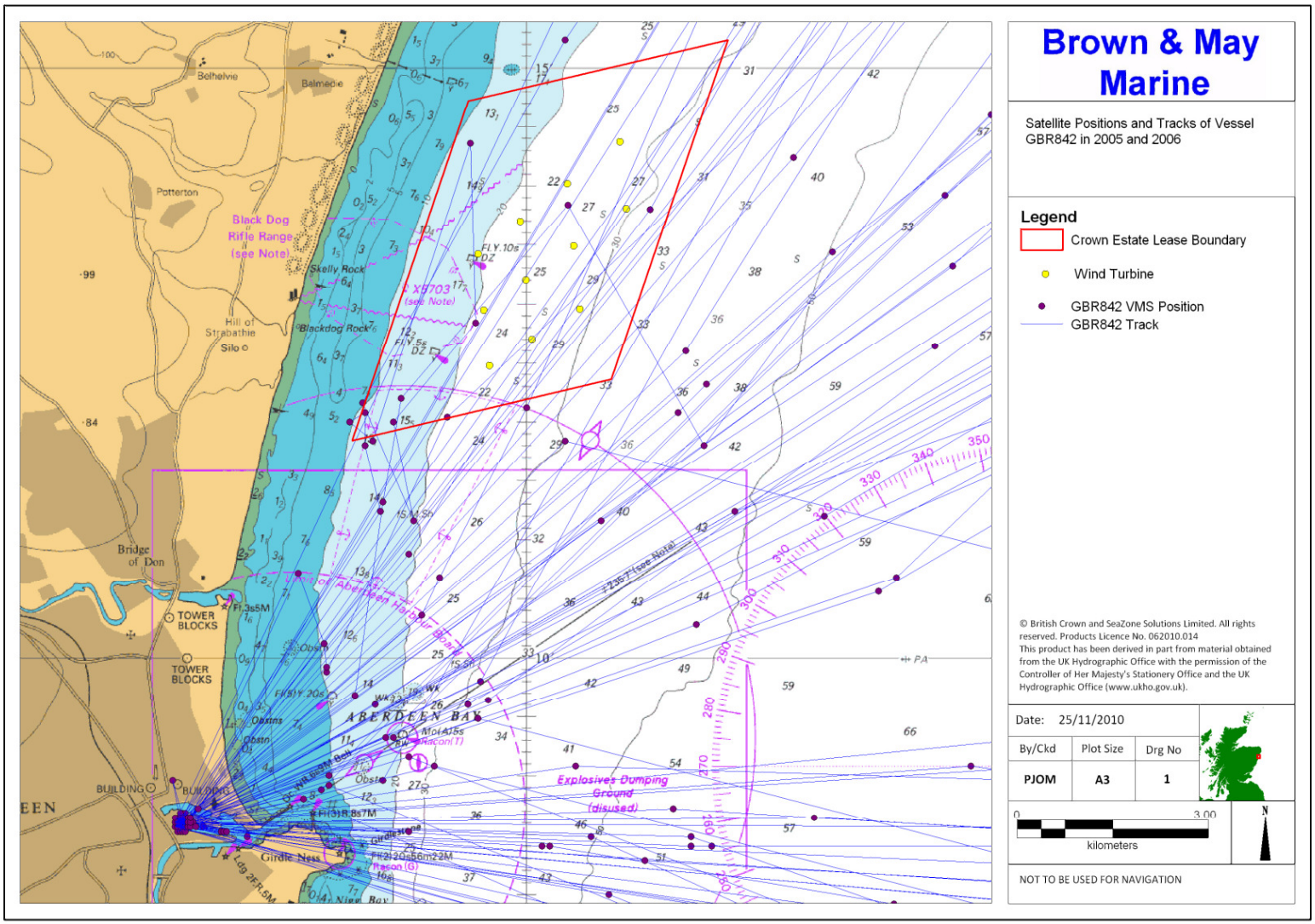


Figure 8-5 Satellite Position Plots and Tracks of Vessel GBR842 in 2005 and 2006

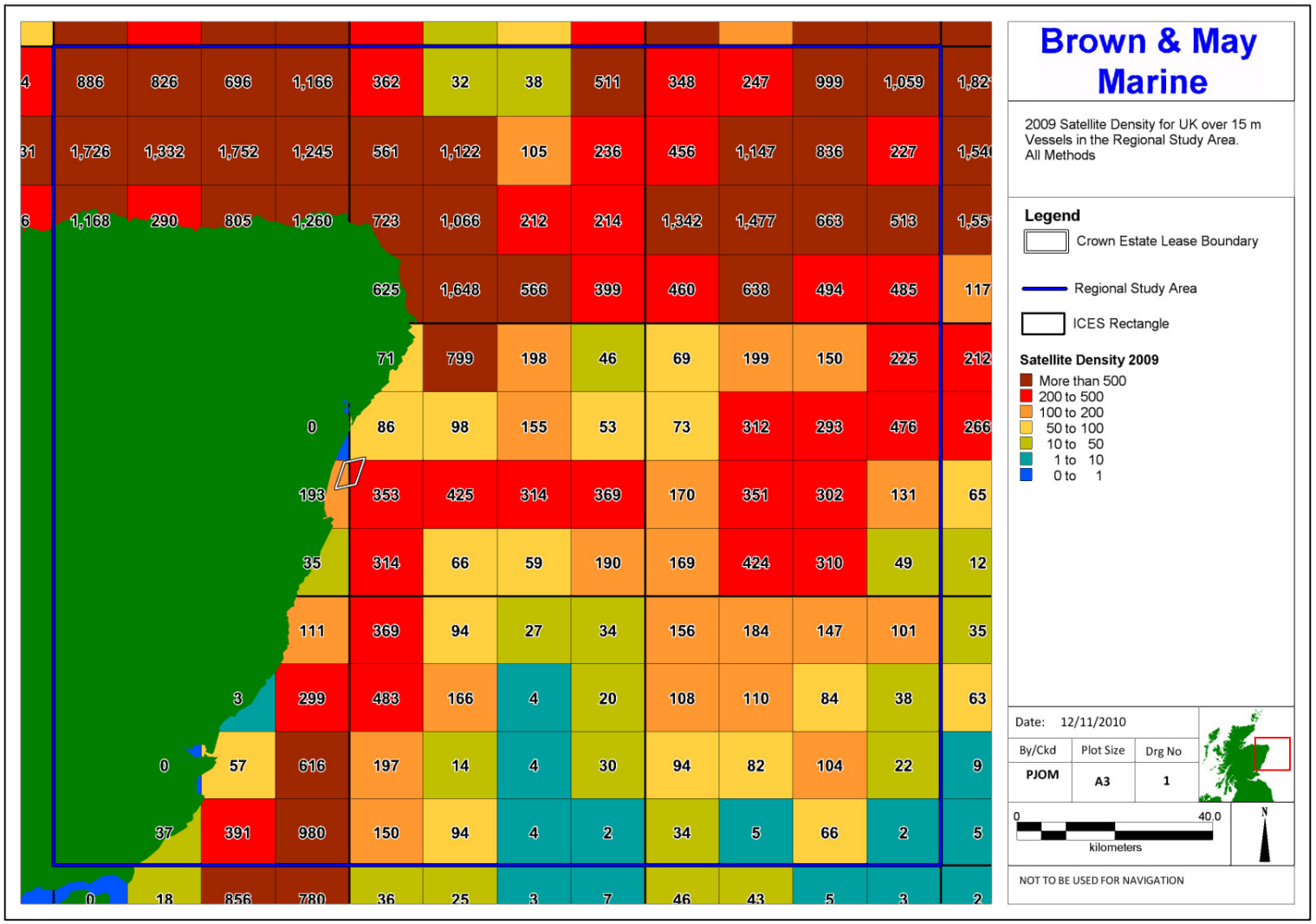


Figure 8-6 2009 Satellite Density for UK over 15 m Vessels in the Regional Study Area, All Methods

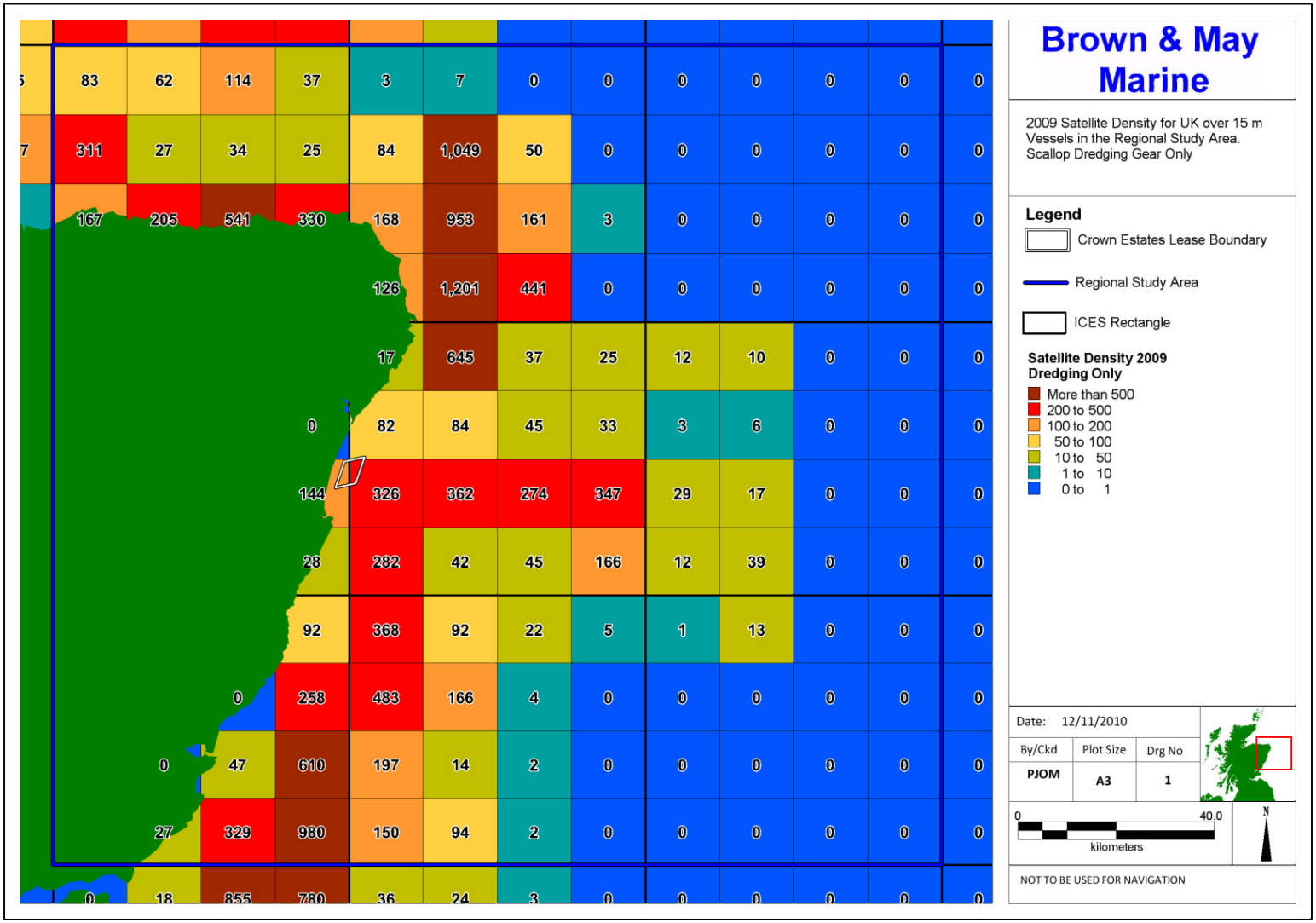


Figure 8-7 2009 Satellite Density for UK over 15 m Vessels in the Regional Study Area, Scallop Dredging Gear only,

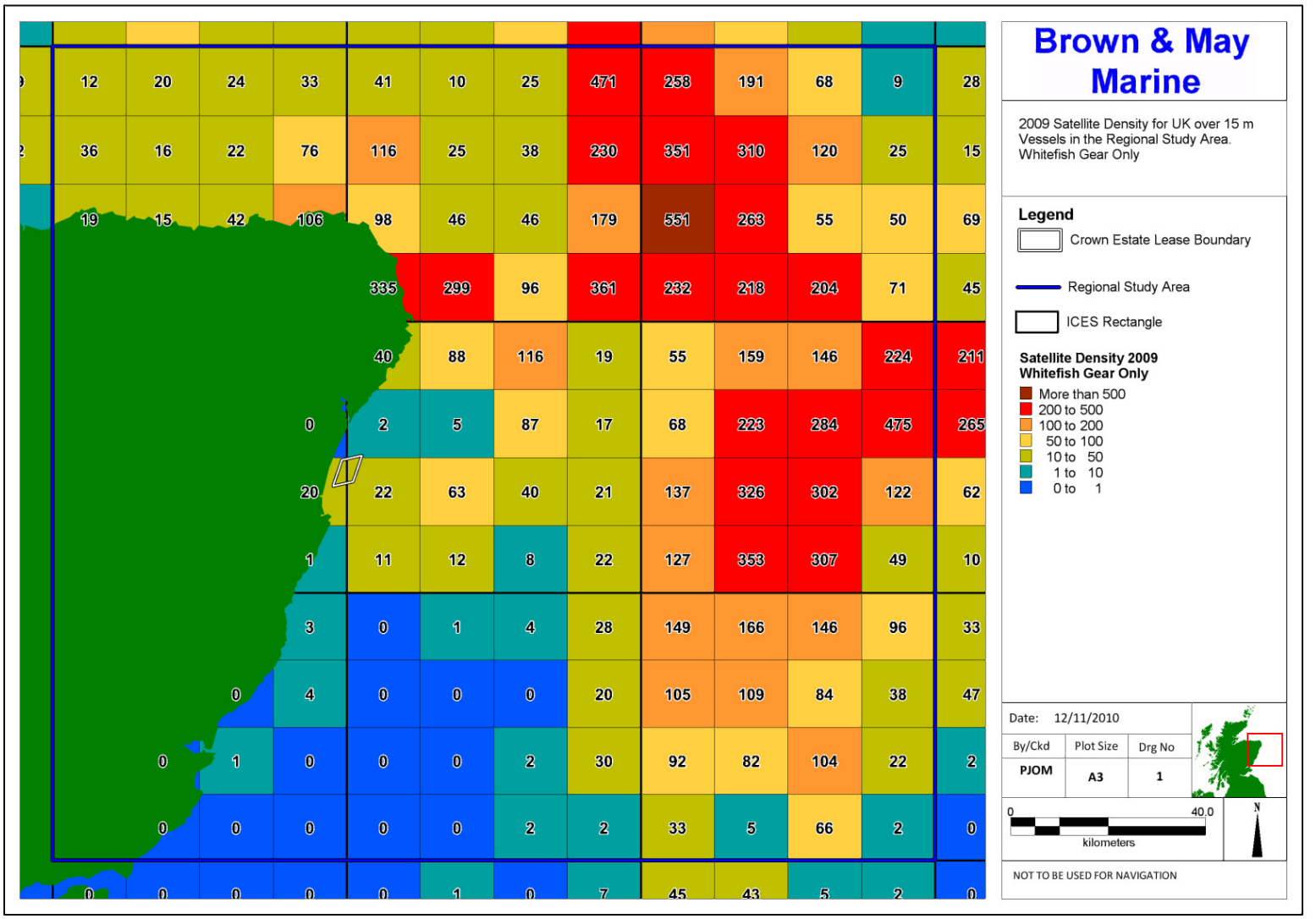


Figure 8-8 2009 Satellite Density for UK over 15 m Vessels in the Regional Study Area, Whitefish Gear only,

9.0 Fisheries Surveillance

Figure 9-1 gives the positions of vessels identified by Fisheries Protection surveillance by nationality. As shown, in this ten year period only 1 vessel was recorded within the proposed EOWDC site. No foreign vessels were observed in proximity to the proposed EOWDC site.

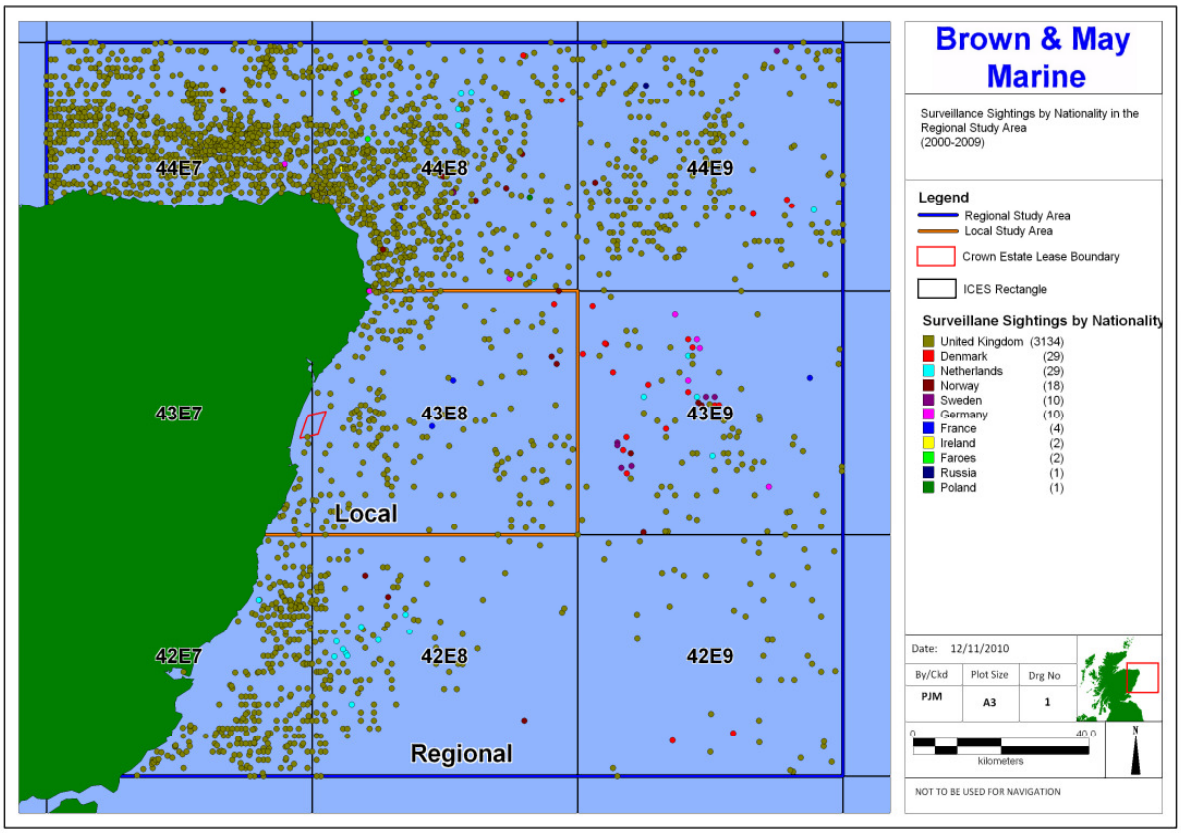


Figure 9-1 Surveillance Sightings by Nationality in the Regional Study Area (2000-2009) (Source: MMO)

Figure 9-2 shows the surveillance sightings by method. The majority of vessel categories observed in the vicinity of the proposed EOWDC site are demersal trawlers, scallop dredgers and potters/whelkers. Those labelled "Null" are vessels where the fishing method was unidentified.

The sightings plotted in Figure 9-1 and Figure 9-2 should however be taken in the context of the frequency of the surveillance patrols. Patrols over a particular area are generally at no more than weekly intervals and undertaken during daylight hours. These figures can therefore only be taken as a general indicator of the relative spatial distribution of different types of activity.

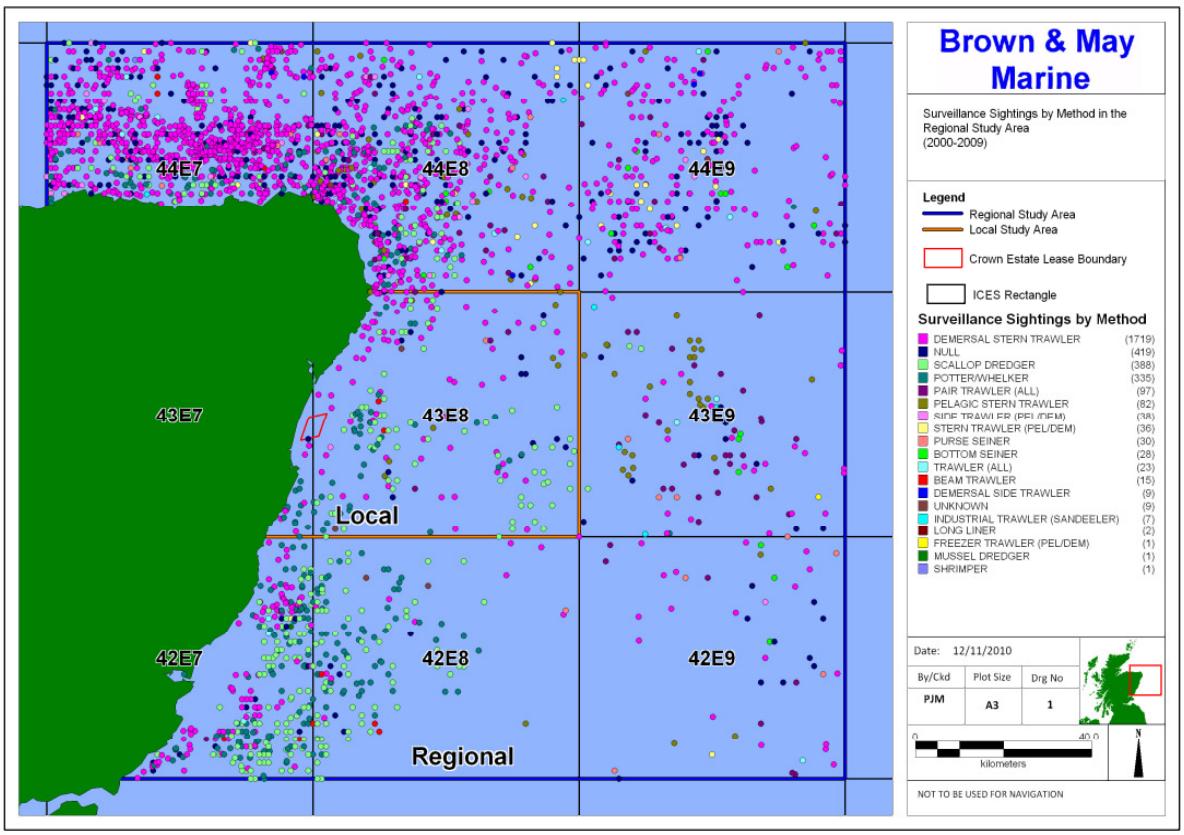


Figure 9-2 Surveillance Sightings by Method in the Regional Study Area (2000-2009) (Source: MMO)

10.0 Fishing Vessels, Methods, Operating Patterns and Practices

The information given in this section was gathered by the Scottish Fishermen's Federation (SFF) on the behalf of Brown and May Marine Ltd. A series of fieldwork trips and consultation with local fishermen was undertaken to ascertain the types, levels and locations of fishing activity in the regional area encompassing the proposed EOWDC site. The information was primarily gathered between 2008 and 2010.

10.1 Vessels by Port

Fishing vessels based at ports which could potentially be affected by the proposed EOWDC development extend from Port Erroll (Cruden Bay) in the North to Gourdon Bay in the south (Figure 10-1 below). Within this area Aberdeen is the largest harbour. A number of the small ports and harbours are used only during the spring, summer and autumn months by both full and part-time vessels as well as a number of small vessels, undertaking jigging, or rod fishing, or laying a few pots.

A common feature of these smaller harbours is their exposure to the easterly gales which are a feature of a north-east Scottish winter. The photographs given in Figure 10-2 to Figure 10-8 below show ports and vessels in the area of the proposed EOWDC.

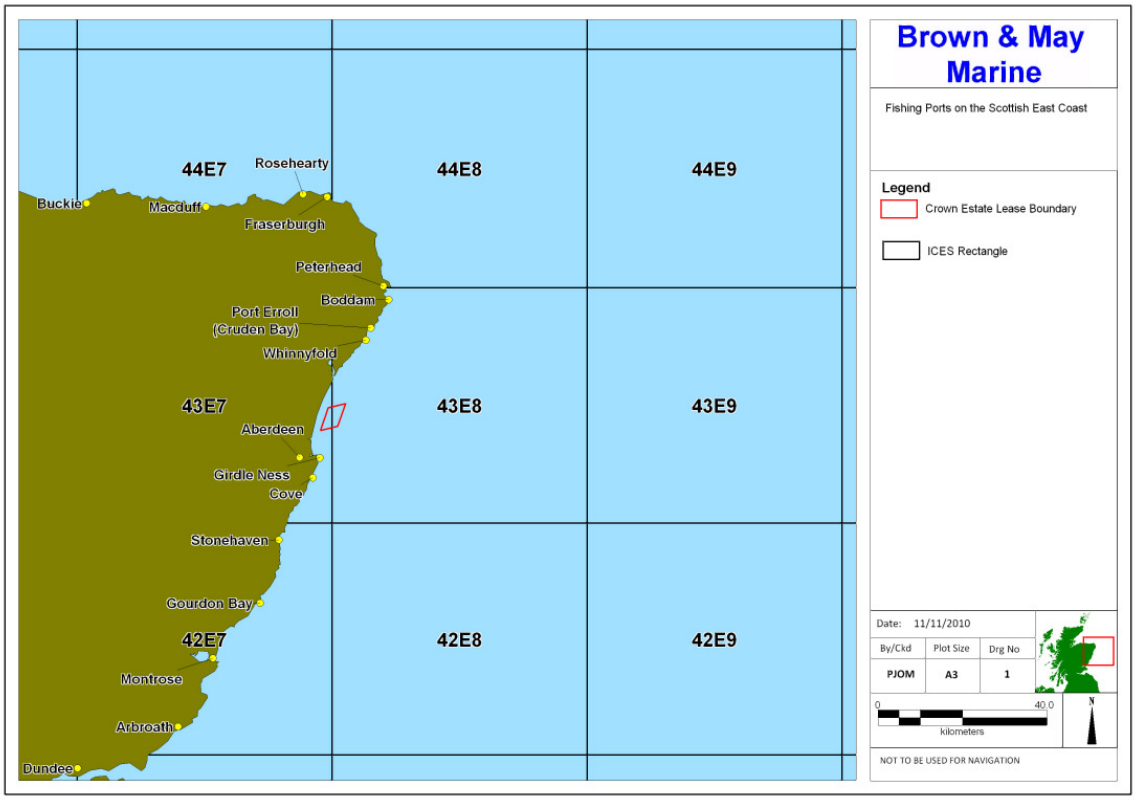


Figure 10-1 Fishing Ports on the Scottish East Coast

Figure 10-2 Inshore Craft berthed in Aberdeen

Figure 10-3 Boats Hauled out at Cruden Bay

Figure 10-4 Cove Harbour

Figure 10-5 Potter in Stonehaven Harbour

Figure 10-6 Vessels in Stonehaven Harbour

Figure 10-7 Gourdon Harbour

Figure 10-8 Demersal Otter Trawlers in Gourdon Bay Harbour

10.2 Fishing Methods

Figure 10-9 shows the fishing areas as identified through consultation with fishing interests in the area of the proposed EOWDC site.

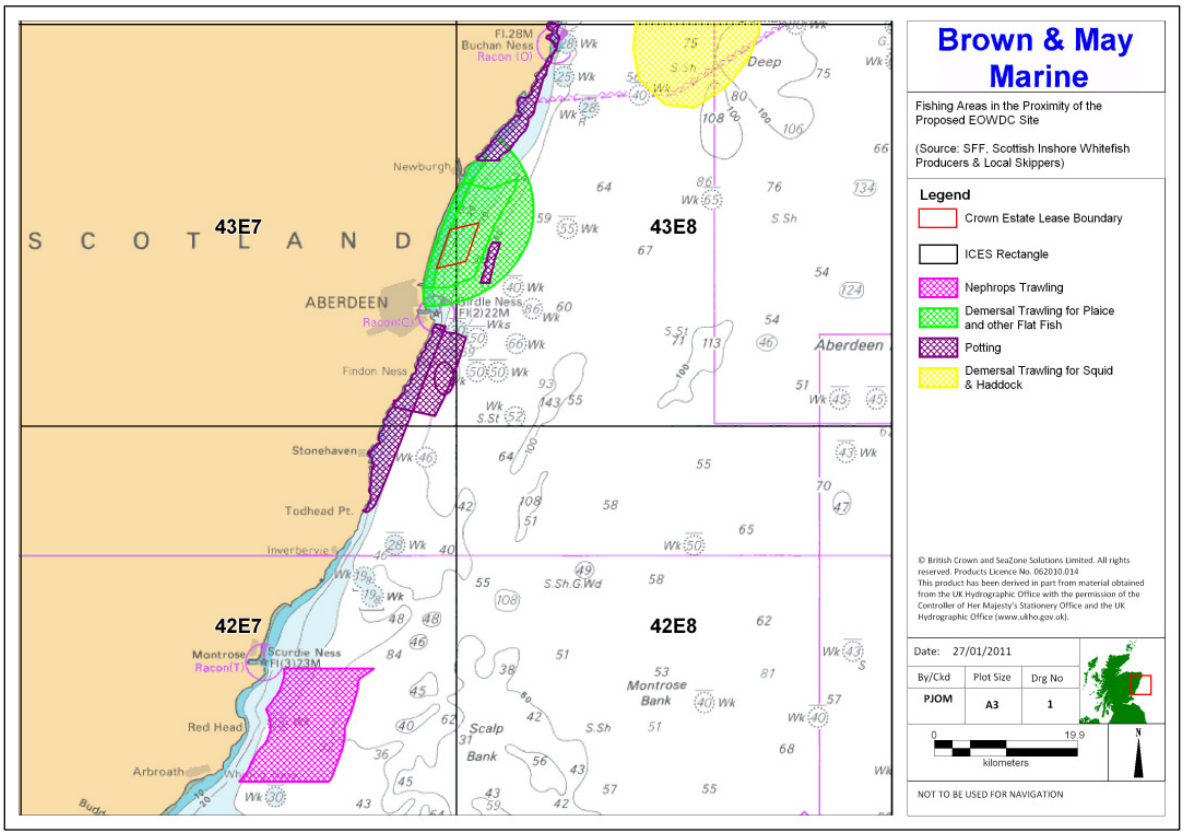


Figure 10-9 Fishing Areas in the proximity of the Proposed EOWDC Site

10.2.1 Demersal (bottom) Trawling

Demersal trawling is the most common fishing method in Scottish waters in terms of vessel numbers. Basic operating principles are the same throughout, with vessels towing one or more trawl nets, the lateral openings of which are affected by the trawl doors. The ratio of towing warp paid out to water depth is generally 3:1. Tow duration may vary from a single pass over a fish mark to tows of up to 5 hours. Towing speeds vary between 2 knots and 4 knots.

There is demersal trawling for whitefish in the general area around the proposed EOWDC site. In the past vessels from ports north of Aberdeen trawled the bay between Girdle Ness and Cruden Skares, just off the coast of Whinnyfold (Figure 10-1), for flat and roundfish, however, these vessels now target the more lucrative and reliable nephrops fisheries further offshore. Bottom trawling for flatfish, specifically for plaice, is the only trawling activity undertaken within the boundaries of the proposed EOWDC site, largely as a result of seabed substrate, which is sandy, homogenous ground largely devoid of features. This activity is restricted to a maximum of three to four inshore vessels during the summer. Figure 10-9 shows the principle demersal trawling grounds in and adjacent to the proposed EOWDC site. A few of the Aberdeen skippers also charter their vessels for rod and line fishing on wrecks to supplement their commercial fishing income.

10.2.2 Potting

Pots, or creels, are essentially traps baited to catch shellfish such as lobster, crab or nephrops. They are generally deployed in inshore waters, although some larger vessels will fish offshore areas. The priority of this fishery is the delivery of live catch. The scale of this activity can range from a 'hobbyist' fisherman setting 20 pots, to the long range vivier crabber which may set several hundred creels and keep crabs alive in purpose-built onboard vivier tanks.

Although it has been possible in the past to target brown crab in the Aberdeen Bay area, this activity has declined considerably as the port's uses have changed. It was stated by the Aberdeen District Fisheries Officer in 2010 that no part of the proposed EOWDC site is used by creel boats (Fraser, 2010). This is principally due to the risks associated with the large volume of marine traffic transiting, anchoring or sheltering in the bay. Potting activity for crab and lobster is generally concentrated approximately 5 nm to the north and south of the proposed EOWDC site.

The low levels of potting activity in the proposed EOWDC site are also attributed to the low productivity of the area. Higher concentrations of potting however occur in the coastal zones to the north and south of the site (Figure 10-9).

Due to the majority of vessels being smaller, local craft which are susceptible to weather limitations, activity normally takes place in the spring and summer, although some fish all year round.

10.2.3 Scallop Dredging

Vessels generally tow between one and two beams onto which a number of dredges are attached, depending on vessel size, engine power and winch capacity. The principal type of dredge used is the English 'Springer' type whereby the scallops are 'raked' from the seabed by steel teeth that are attached along the leading edge of the dredges which penetrate the seabed to a depth of approximately 20cms.

By virtue of their activity, scallop vessels are extremely migratory, fishing one location before moving to another and finally returning when the ground is thought to have recovered. In this way most of the suitable grounds around Scotland are fished. The Bennachie ground, which lies in the deeper offshore waters beyond Aberdeen Bay, is, at times, also fished for scallops. There is currently no evidence of scallop dredging occurring in the proposed EOWDC site.

10.2.4 Jigging and Hand Lining

As the name suggests, hand lining is fishing by hand using a multi-hooked line. Jigging is much the same except a mechanical, and generally computerised, jigger is used. The hooks are rigged with feathers or fish-like lures and 'jigged' up and down a few inches to attract the target species, which are pelagic fish or squid. This method is predominantly undertaken inshore, but larger craft may target shoaling fish further offshore. A further variation on hand-lining, known as 'ripper' is used to target cod and pollack on wrecks and pinnacles.

This method, as with potting, is for the most part undertaken in summer months and is carried out by a variety of small craft, both by professional and part-time fishermen. It was stated that there is very little jigging for mackerel within the boundaries of the proposed EOWDC site (pers comm, Ian Balgowan, 4th April 2008).

10.3 Vessels Active within the Proposed EOWDC Site

It was stated by the Aberdeen District Fisheries Officer that four vessels have been identified operating on occasions within and around the proposed EOWDC site (Fraser, 2010). Figure 10-10, Figure 10-12, Figure 10-13 and Figure 10-14 provide photographs of these vessels, with accompanying basic vessel specifications. All of these vessels are configured to undertake demersal trawling. In addition several of the vessels operate pots. Two of the vessels stated their activities were concentrated between the Aberdeen Harbour Fairway Buoy and the buoys off the Black Dog Firing Range, in the summer months between May and October. These vessels operate out of Aberdeen port. The two remaining vessel operate out of Peterhead and visit the area only occasionally, and also in the summer months.

SKUA II

Figure 10-10 Inshore Demersal Otter Trawler and Potter, Skua II

Registration	A17
Home Port	Aberdeen
Length	8.27m
Engine	130HP
Trawl Footrope	14m grass rope
Trawl Doors	Bison V, 760mm
Towing Depth	5.5 – 55m
Trawling Season	May to August

Figure 10-11 illustrates the trawl tows of Skua II, one of the four trawlers stated as operating in the proposed Eowdc site site. It can be seen that the majority of the vessel's fishing grounds lie inshore of the western boundary of the proposed EOWDC site.

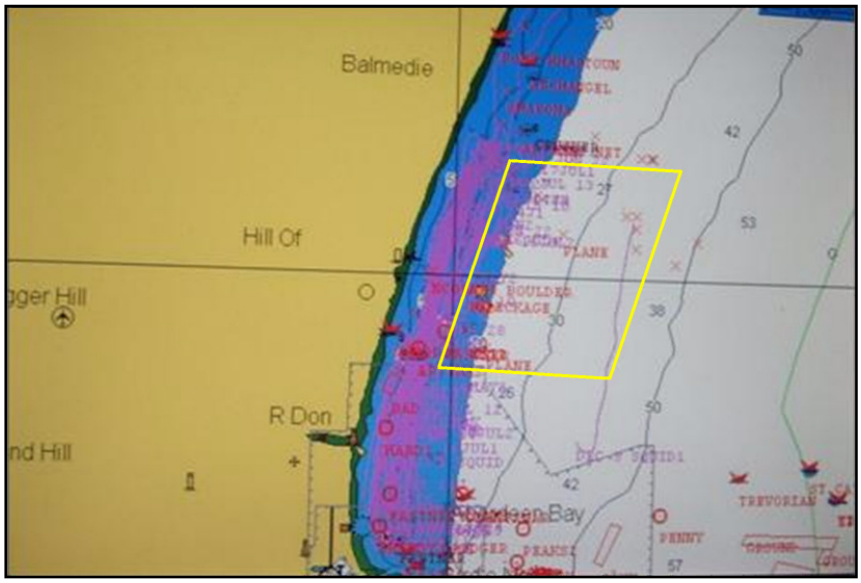


Figure 10-11 Skua II's tow tracks (in pink), taken from the vessel's electronic chart plotter (2008)

TERN

Figure 10-12 Potter and Inshore Demersal Trawler, Tern

Registration	A879
Home Port	Aberdeen
Length	9.99
Engine	98HP
Trawl Footrope	18m rubber-leg rope
Trawl Doors	1500mm
Towing Depth	9 – 55m
Trawling Season	May to October

Maddy Marie

Figure 10-13 Potter and Inshore Demersal Trawler, Maddy Marie

Registration	PD320
Home Port	Peterhead
Length	9.36 m
Engine	161HP
Trawling Season	May to October

Boy Paul

Figure 10-14 Inshore Demersal Trawler, Boy Paul, BM447

Registration	BM447
Home Port	Peterhead
Length	9.7m
Engine	119HP
Trawling Season	May to August (Flatfish); September to April (Squid & Haddock)

11.0 Future Fisheries

At present no new fisheries are foreseen in the area surrounding Aberdeen Bay, and in all probability there is unlikely to be an increase in either fishing effort or vessel numbers. It is also possible that increasing conservation concerns will lead to the implementation of designated protected marine conservation areas which will conceivably have the effect of enforcing further restrictions upon certain commercial fishing activities.

There exists the possibility that fishing practices within the proposed EOWDC site could change during its operational life. An example is the appearance of large shoals of squid inshore during the summer in the Moray Firth, providing a valuable fishery which previously did not exist. Furthermore, squid has been recorded at low levels in inshore areas in the proximity of the proposed EOWDC site. It is however considered that this species favours rockier grounds and that the substrate in Aberdeen Bay is not suitable.

Finally, future environmental and/or economic constraints may force fishermen to alter or amend current fishing practices. It is possible that vessels may be reconfigured with alternative gear, either to target the same species, or a different fishery.

12.0 References

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