AQUIND Limited

AQUIND INTERCONNECTOR

Environmental Statement – Volume 3 – Appendix 12.1a Commercial Fisheries Baseline Report

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(a)

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Units 5 & 10
Stephenson House,
Horsley Business Centre
Horsley,
Northumberland,
NE15 0NY
England, UK

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Prepared By	J. Miller, F. Birch, S. Xoubanova, A. Fry
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Approved By	J. Lancaster
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1 COMMERCIAL FISHERIES

1.1 SCOPE OF THE ASSESSMENT

INTRODUCTION

1.1.1. This technical report has been produced by Brown and May Marine Ltd (BMM) under contract to Natural Power Consultants Ltd (Natural Power) on behalf of AQUIND Limited and describes the Commercial Fisheries Baseline of the Environmental Statement (ES) in areas relevant to the AQUIND Interconnector (the Proposed Development).

1.1.2. For the purposes of this document, commercial fishing is defined as the legitimate capture of finfish and shellfish to be sold for profit by a licensed fishing vessel. The report focuses specifically on those fleets which are active in the vicinity of the Proposed Development. These include UK and French local inshore fleets as well as larger vessels which operate further offshore and have home ports in the UK, France and other European countries.

1.1.3. The Proposed Development under assessment within Chapter 12 Commercial Fisheries is considered to be only those marine elements (i.e. marine cable corridor and landfall) within the UK marine area. The areas of the Proposed Development relevant to this baseline report are the entire marine cable corridor within UK and French marine areas and the landfalls (both the UK and French landfall sites).

STUDY AREA

1.1.4. The Proposed Development is located in International Council for the Exploration of the Sea (ICES) Division VIId (Eastern English Channel). Fisheries data are recorded, collated and analysed by statistical rectangles (ICES rectangles) within each ICES Division.

1.1.5. The study area used for the characterisation of the commercial fisheries baseline has therefore been defined with reference to the ICES rectangles within which the marine cable corridor and the landfalls (both the UK and French landfall sites) are located. As illustrated in Figure 1, these include the following:

- ICES Rectangle 30E8;
- ICES Rectangle 30E9;
- ICES Rectangle 29E9;
- ICES Rectangle 29F0;
- ICES Rectangle 28F0; and

- ICES Rectangle 28F1.

MARINE CABLE CORRIDOR

1.1.6. The entire marine cable corridor for the purposes of this report extends from the south coast of England to Haute Normandie in France and runs along ICES rectangles 30E8, 30E9, 29E9, 29F0, 28F0 and 28F1) (Figure 1).

1.1.7. The total length of the marine cable corridor in UK marine area is approximately 109 km from the UK European Economic Zone (EEZ) Median Line to the UK landfall site.

1.1.8. The total length of the marine cable corridor in French waters is approximately 73 km from the French EEZ Median Line to the French landfall site.

LANDFALL

1.1.9. The UK landfall site falls within ICES rectangle 30E8 and is located in Eastney, to the south-east of Portsmouth.

1.1.10. The French landfall site falls within ICES rectangle 28F1 and is located in Pourville, Hautot-sur-mer. For the purposes of this report, the descriptions of fishing activity given for areas relevant to the landfall refer to activities that take place in the intertidal and/or in nearshore areas in the immediate vicinity of the UK and French landfall sites.

LIMITATIONS

1.1.11. This appendix of the ES provides current information as it relates to the Proposed Development to date and to data currently available.

1.1.12. In addition, it should be noted that this report has been informed by a range of fisheries data and information sources. As discussed in Section 1.4.1, these are subject to various limitations and sensitivities (see Table 3).

1.2 FISHERIES LEGISLATION, POLICY AND GUIDANCE

1.2.1. This baseline assessment has taken into account the current legislation, policy and guidance relevant to Commercial Fisheries. These are listed below.

LEGISLATION

1.2.2. Commercial fishing in European Union (EU) waters is subject to a range of controls and regulations at European, national and local levels. The majority of such measures have a direct impact on fishing effort, landings weights and values and therefore have potential to influence commercial fisheries baselines.

1.2.3. Key fisheries policy and regulations in UK and French waters in areas relevant to the Proposed Development are outlined in the following sections. Further

information on EU, UK and French fisheries legislation relevant to the Proposed Development is provided in Annex 2.

UK POLICY

NATIONAL

1.2.4. The main bodies regulating fishing activity in England are the EU through the EU Common Fisheries Policy (CFP) and the Marine Management Organisation (MMO) through national and regional regulations.

1.2.5. It should be noted that access to fishing grounds within UK territorial waters (out to 12 nm) is generally restricted to UK vessels, with the exception of vessels from countries which hold historic fishing rights to operate in the area between the UK's 6 and 12 nm limit. As shown in Figure 2, both France and Belgium have historic rights in the area and therefore vessels from these nationalities can operate between the UK's 6 and 12 nm limits.

1.2.6. Another relevant article of legislation is the Scallop Fishing (England) Order (2012), which sets specific limits for the dimensions, format and number of scallop dredges permitted to be operated within 12 nm of the UK by British vessels.

REGIONAL

1.2.7. Further to the above, at the regional level, fisheries in England are managed by Inshore Fisheries Conservation Authorities (IFCAs) in waters out to the 6 nm limit. The area of the Proposed Development that is located within the UK 6 nm limit falls within the Southern IFCA and Sussex IFCA Districts (Figure 3).

1.2.8. The Southern IFCA District stretches from the Devon/Dorset border in the West to the Hampshire/Sussex border in the East and covers the combined areas of the relevant councils as well as the entire Dorset, Hampshire and Isle of Wight coastline out to 6 nautical miles (Figure 3). The Sussex IFCA District borders Southern IFCA to the West, extending to the Sussex/Kent border in the East. The aim of these authorities is to lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry.

1.2.9. Southern IFCA and Sussex IFCA have implemented a number of byelaws to help the management of fishing activity and conservation of fisheries resources within their Districts. Those relevant to the Proposed Development are listed below:

1.2.10. Southern IFCA byelaws:

- No fishing vessel over 12m in length may operate in specified waters within the Southern IFCA jurisdiction unless registered prior to 1995,

or previously used for fishing in the specified area between 2010 and 2012.

- Area based restrictions prohibit the use of bottom towed gear, under the Bottom Towed Fishing Gear Byelaw (2016). Prohibited areas include specific parts of Chichester Harbour, Langstone Harbour, Portsmouth Harbour, Southampton Water, the Solent and the Isle of Wight. These prohibited areas, whilst in the vicinity of the Proposed Development, do not coincide with it.

- The Solent native oyster fishery is now largely closed to commercial exploitation activities. Only a few harbours remain open to the fishery, including Langstone Harbour. A closed season also applies to the oyster fishery within the Southern District from 1st March to 31st October.

- Oyster dredges used in the Southern IFCA jurisdiction should not have a front edge or blade exceeding 1.5 m in length. In the case of several dredges being used, the total length of the front edge of dredges should not exceed 3 m.

- The maximum number of dredges which may be towed to target scallops in the Southern IFCA jurisdiction is twelve. The mouth of any dredge must not exceed 85 cm in overall width and the tow bar should not exceed 5.18 m including attachments. The scallop fishery is closed between 1900 and 0700 on any day.

- Temporary closures of shellfish beds can be decided at very short notice in order to ensure the recovery of the stock (including periwinkles, mussels, clams).

- No fishing vessel, other than those deploying nets, rod & line or hook & line, may take any sea fisheries resource in or from protected seagrass beds, which are located within defined areas of Chichester Harbour, Langstone Harbour, Portsmouth Harbour, the Solent and the Isle of Wight.

- Minimum landing sizes apply to mussels (50 mm), clams (63 mm), skates & rays (40 cm) and fish (see below):

    - Black Seabream - 23 cm;
    - Brill - 30 cm;
    - Dab - 23 cm;
    - Conger Eel - 58 cm;

- Flounder - 27 cm;
- Lemon Sole - 25 cm;
- Red Mullet - 15 cm;
- Grey mullet - 30 cm;
- Shad - 30 cm;
- Turbot - 30 cm; and
- Witch Flounder - 28 cm.

- When fishing for oysters, clams and mussels in any fishery only the following methods may be used:
  - Handpicking; and
  - Dredging using a dredge with a rigid framed mouth so designed as to take shellfish only when towed along the sea bed. Shellfish may only be removed from the dredge when it has been hauled and lifted into the vessel.

- All vessels with a licence to operate static gear such as potting for crustaceans, potting for whelks and netting are subject to technical restrictions such as the number of pots/length of nets allowed by vessel.

- The removal of berried female lobsters from the European lobster fishery is prohibited. Any berried lobster must be immediately returned to the sea, as near as possible to the place from which it was taken.

- The cuttlefish fishery utilises cuttlefishes breeding behaviour, hence it is common for the females to lay her eggs on traps, which can become damaged. In response to this, Southern IFCA developed a voluntary cuttlefish egg byelaw, whereby traps bearing eggs are left submerged until the eggs hatch.

1.2.11. Sussex IFCA byelaws:

- The maximum authorised overall length of vessels fishing for seafish within the Sussex IFCA district is 14 m, unless specific requirements are met by the vessel owner (i.e. historic practices).

- A closed season applies to scallop dredging within the Sussex IFCA district from 1st June to 31st October. Furthermore, during the

prohibited season, no more than 200 scallops per person may be removed from the fishery during any period of 24 hours.

- All vessels with a licence to operate static gear such as potting for crustaceans, potting for whelks and netting are subject to technical restrictions such as the number of pots/length of nets allowed by vessel.

- All vessels operating pots and/or traps for the capture of shellfish must hold a shellfish permit and purchase permit tags. Permit tags must then be attached to all deployed pots. The species managed through the shellfish permit are currently whelk, lobster, crab, cuttlefish, spider crab, velvet swimming crab and prawn. The number of pots or traps that can be fished by commercial fishers under the shellfish permit and tagging scheme are detailed in Table 1 below:

Table 1 Sussex IFCA Shellfish Permit

Type of pot or trap	Number of pots or traps per vessel
Lobster/Crab	300 out to IFCA 3 nautical mile limit, with a total of 600 within IFCA 6 nautical mile limit
Whelk	300 out to IFCA 3 nautical mile limit, with a total of 600 within IFCA 6 nautical mile limit
Prawn	No limits
Cuttlefish	300 within IFCA 6 nautical mile limit

1.2.12. Further details on the Southern IFCA and Sussex IFCA byelaws can be found in the links below:

- http://www.southern-ifca.gov.uk/byelaws
- https://www.sussex-ifca.gov.uk/byelaws

FRENCH POLICY

NATIONAL

1.2.13. As per any other EU member, France can manage resources within territorial waters (out to 12 nm) but any legislation put in place should abide by EU

regulations. The French department in charge of fisheries is the Direction des pêches maritimes et de l'aquaculture (DPMA), which operates under the authority of the Ministry of Agriculture. French fishermen are represented at a national, regional and local level by fisheries committees whose roles and duties are detailed in the Rural and Sea fisheries code. The national fisheries committee (CNPMEM) is involved in the management of sea fisheries and contributes to the drawling-up of French, European and international regulations applicable to the industry.

1.2.14. As described above for the UK, access to fishing grounds within French territorial waters (out to 12 nm) is also restricted to French vessels, with the exception of vessels from countries which hold historic fishing rights to operate in the area between the 6 and 12 nm limit (Figure 2).

REGIONAL

1.2.15. At a regional level, regional fisheries committees (CRPMEMs) represent their members, manage certain fishing licences and contribute to the drawing-up of specific regulations for gears not regulated at national or European levels. They can also organise the coexistence of various fishing methods in territorial waters. Their proposals need to be validated by relevant French authorities (DIRM) in order to come into force.

1.2.16. Fisheries regulations in place in areas relevant to the Proposed Development are summarised below:

- The study area falls within the Hors Baie de Seine scallop management zone (Figure 4). Within this area, scallop dredging occurs during the winter (October to May), with the fishery closed for the remainder of the year. The start of the scallop dredging season is decided every year through local law.

- Through its COMOR (Coquilles Manche Orientale) programme, IFREMER undertakes annual King scallop stock assessment in Baie de Seine, in order to assess stock levels and distribution. Results inform the scallop fishing management (opening dates, quotas, etc.).

- IFREMER also carries out toxicity tests on scallop fished in Baie de Seine and Hors Baie de Seine in order to assess the level of Diarrheic Shellfish Poisoning (DSP), Paralytic Shellfish Poisoning (PSP) and Amnesic Shellfish Poisoning (ASP). These tests are undertaken every 15 days during the scallop fishing season. Based on the results of the toxicity tests, closed areas can be established for scallop dredging off Normandy. Indeed, if the level of poisoning in scallops is considered too high to carry on fishing, authorities can decide to close one of the 17 zones in both Baie de Seine and Hors Baie de Seine, which has the potential to cause displacement of

activity into other fishing areas. The study area transects areas 13, 14, 15, I and J (Figure 4).

- Scallop dredging is prohibited within 6 nm in the study area, but derogations can be applicable. It should be noted that mussel dredging is allowed within 3 nm in the study area from April to September.

- As far as trawling is concerned, article 4 of decree 90-94 (25/01/1990) established a ban on trawling activities within the 3 nm limit off the coast of France and islands. There are however exemptions to this, including:

    - Trawling for cuttlefish within the 3 nm limit off the coast of Seine maritime which usually occurs in April or May, depending on a decision of the administration based on a proposal of the cuttlefish commission of the Regional fisheries committee (CRPMEM).

- All vessels with a licence to operate static gear such as potting for crustaceans, potting for whelks and netting are subject to technical restrictions in Normandy such as the number of pots/length of nets allowed by vessel.

GUIDANCE

1.2.17. Key guidance used for the characterisation of the commercial fisheries baseline in respect of the Proposed Development is outlined below:

UK

- Sea Fish Industry Authority and UK Fisheries Economic Network (UKFEN) (2012) Best practice guidance for fishing industry financial and economic impact assessments;

- UK Oil and Gas (2015) Fisheries Liaison Guidelines - Issue 6;

- International Cable Protection Committee (2009) Fishing and Submarine Cables - Working Together;

- Centre for Environment, Fisheries and Aquaculture Science (Cefas) (2012) Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects. Contract report: ME5403, May 2012;

- Cefas, Marine Consents and Environment Unit (MCEU), Department for Environment, Food and Rural Affairs (DEFRA) and Department of Trade and Industry (DTI) (2004) Offshore Wind

Farms - Guidance note for Environmental Impact Assessment In respect of FEPA and CPA requirements, Version 2;

- FLOWW Best Practice Guidance for Offshore Renewables Developments. Recommendations for Fisheries Liaison. FLOWW (Fishing Liaison with Offshore Wind and Wet Renewables Group) (2014); and

- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds. FLOWW (Fishing Liaison with Offshore Wind and Wet Renewables Group) (2015).

FRANCE

- MEDDE (2012) Energies Marines Renouvelables – Etude méthodologique des impacts environnementaux et socio-économiques – Version 2012, 342 p. http://www.developpementdurable.gouv.fr/IMG/pdf/120615_etude_version_finale.pdf;

- MEDDE (2017) Guide d'évaluation des impacts sur l'environnement des parcs éoliens en mer – Version 2017, 201 p. https://www.ecologique-solidaire.gouv.fr/sites/default/files/guide_etude_impact_eolien_mer_2017_complet.pdf; and

- Canalisations et cables sous-marin (2010) Etat des connaissances. Preconisations relative a la pose, au suivi et a la pose, au suivi et a la depose de ces ouvrages sur le DPM, CETMEF 2010.

1.3 CONSULTATION

1.3.1. Consultation is a key part of the DCO application process. A summary of the consultation undertaken with commercial fisheries stakeholders to date is detailed in Table 2 below. Consultation will continue to be on-going.

1.3.2. Full details of project consultation for all disciplines are presented within Chapter 5 Consultation of the ES.

Table 2 Consultation with fisheries stakeholders

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
Portsmouth Fisheries Stakeholders **UK**	18th October 2017, Portsmouth	First introduction to the Proposed Development and discussion of geophysical survey.	General information on fishing activities and key concerns.
Selsey Fisheries Stakeholders **UK**	19th October 2017, Selsey	First introduction to the Proposed Development and discussion of geophysical survey.	General information on fishing activities and key concerns.
Southern Inshore Fisheries and Conservation Authority (IFCA) **UK**	18th September 2018, Poole	The Proposed Development was introduced. The types and ranges of the fisheries in the study area were discussed, as well as concerns about the Proposed Development.	Detailed information on fisheries operating in the Southern IFCA District out to 6nm and the byelaws that regulate fishing activities.
Sussex IFCA **UK**	19th September 2018, Shoreham	The Proposed Development was introduced. The types and ranges of the fisheries in the study area were discussed, as well as concerns about the	Detailed information on fisheries operating in the Sussex IFCA District out to 6nm and the byelaws that regulate fishing activities.

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
		Proposed Development.	
Marine Management Organisation (MMO) **UK**	20th September 2018, Portsmouth	The Proposed Development was introduced. The types and ranges of the fisheries in the study area were discussed, as well as concerns about the Proposed Development.	Detailed information on fisheries in the Solent and vessel operating practices.
Portsmouth Fisheries Stakeholders **UK**	18th September 2018, Portsmouth	The Proposed Development was introduced. The types and ranges of the fisheries in the study area were discussed, as well as concerns about the Proposed Development.	Detailed information on fisheries operating in the vicinity of the Proposed Development and in the Solent, vessel operating practices and gear specifications.
Isle of Wight Fisheries Stakeholders **UK**	19th September 2018, Ryde, Isle of Wight	The Proposed Development was introduced. The types and ranges of the fisheries in the study area were discussed, as well as concerns about the	Detailed information on fisheries operating in the vicinity of the Proposed Development and in the Solent, vessel operating practices and

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
		Proposed Development.	gear specifications.
Selsey Fisheries Stakeholders **UK**	19th September 2018, Selsey	The Proposed Development was introduced. The types and ranges of the fisheries in the study area were discussed, as well as concerns about the Proposed Development.	Detailed information on fisheries operating in the vicinity of the Proposed Development and off Selsey Bill, vessel operating practices and gear specifications.
Isle of Wight Fisheries Stakeholders **UK**	8th April 2019, Ryde, Isle of Wight	An update on the Proposed Development was provided, specifically in relation to the marine application process and project timeline.	Gathered feedback on the preferred way forward in terms of consultation and information dissemination, stakeholder concerns and mitigation measures.
Selsey Fisheries Stakeholders **UK**	9th April 2019, Selsey	An update on the Proposed Development was provided, specifically in relation to the marine application process and project timeline.	Gathered feedback on the preferred way forward in terms of consultation and information dissemination, stakeholder concerns and mitigation measures.

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
Portsmouth Fisheries Stakeholders **UK**	9th April 2019, Portsmouth	An update on the Proposed Development was provided, specifically in relation to the marine application process and project timeline.	Gathered feedback on the preferred way forward in terms of consultation and information dissemination, stakeholder concerns and mitigation measures.
CRPMEM of Normandy **France**	31st August 2017, Caen	The Proposed Development was introduced. French fishing activities in the study area were discussed, as well as concerns about the Proposed Development.	Principle of sharing VALPENA data was agreed.
CRPMEM of Normandy **CRPMEM of Hauts-de-France** **France**	Video conferences, phone calls and e-mails. Main dates: 08/09/2017 02/10/2017 06/10/2017 23/10/2017 25/10/2017 24/11/2017 29/11/2017 12/12/2017 15/12/2017	Update on Proposed Development. Co-ordination of Aquind marine surveys. VALPENA reports specifications.	

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
CRPMEM of Normandy **CRPMEM of Hauts-de-France** **France**	20th December 2017	Signature of co-operation agreements between Aquind Ltd. and both Committees.	VALPENA reports specifications. Co-ordination of Aquind marine surveys.
CRPMEM of Hauts-de-France **France**	18th January 2018, Lille	The Proposed Development was outlined. French fishing activities in the study area were discussed, as well as questions about the Proposed Development.	
CRPMEM of Normandy **CRPMEM of Hauts-de-France** **France**	Video conferences, phone calls and e-mails. Main dates: 26/01/2018 09/02/2018 27/02/2018 16/03/2018 23/03/2018	Update on Proposed Development. Co-ordination of Aquind marine surveys. Discussion on preliminary VALPENA report.	Co-ordination of Aquind marine surveys. Preliminary VALPENA report.
CRPMEM of Normandy **CRPMEM of Hauts-de-France**	Video conferences, phone calls and e-mails. Main dates: 16/05/2018 24/05/2018	Update on Proposed Development.	

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
France	05/06/2018 14/06/2018 21/08/2018	Co-ordination of Aquind marine surveys. Discussion on VALPENA final report specifications.	
CRPMEM of Normandy **CRPMEM of Hauts-de-France** **France**	11th September 2018, Dieppe Formal fisheries workshop, as part of the follow-up of the preliminary stakeholder consultation.	Update on Proposed Development. Lessons learnt following Aquind marine surveys were discussed. Preliminary discussions on cable burial, protection an installation strategy.	Specific workshop to be set up for cable protection. Specific workshop to be set up with fishermen using static gears inshore. Preliminary version of VALPENA final report.
CRPMEM of Normandy **CRPMEM of Hauts-de-France** **France**	6th April 2018, Dieppe Formal fisheries workshop, as part of the project preliminary stakeholder consultation.	A project update was given to relevant CRPMEMs. Lessons learnt following Aquind marine surveys were discussed.	In depth discussions on operational practices and preliminary results of VALPENA report.
Sander Meyns (Redercentrale) **Belgium**	28th September 2018	The Proposed Development was introduced. Belgian fishing activities in the	Belgian fishing activity in the vicinity of the Proposed Development is

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
	Phone call with BMM.	study area were discussed.	primarily demersal trawling with plaice and sole as target species.
David Ras (VisNed) **The Netherlands**	2nd October 2018 Phone call and email correspondence with BMM.	The Proposed Development was introduced. Dutch fishing activities in the vicinity of the Proposed Development were discussed.	Dutch fishing activity in the vicinity of the Proposed Development is primarily seine netting and pelagic trawling with red gurnard and red mullet as target species.
Deutchser Fisherei Vernband **Germany**	Contacted by both email and phone by BMM. No response received.	N/A	N/A

1.4 BASELINE ENVIRONMENT

MARINE CABLE CORRIDOR

SOURCES OF DATA AND INFORMATION

1.4.1. The principal sources of data and information used to inform this technical report are summarised in Table 3. Further detailed information on fisheries data sources is provided in Annex 1.

Table 3 Sources of data and information

Country	Data/information source	Nature of data	Year(s)	Description	Limitations
UK	Marine Management Organisation (MMO), 2018	Fisheries statistics (landings and effort data)	2013 - 2017	Fishing effort in days and landings values in pounds by UK registered vessels by species, method, size and port. Includes vessels of all categories (under 10, 10-15 m and over 15 m).	Low spatial resolution as data is compiled by ICES rectangle.
		Surveillance sightings	2013 - 2017	Sightings of all fishing vessels (regardless of size or nationality) recorded by routine patrols within the UK EEZ.	May underestimate total extent of fishing activity due to low patrol frequency and timing. Does not provide information on fishing patterns in areas relevant to the Proposed Development that fall within the French EEZ.

Country	Data/information source	Nature of data	Year(s)	Description	Limitations
		Vessel Monitoring System (VMS)	2013 - 2017	VMS data combined with log book data of all over 15 m UK vessels. Data provided in terms of effort and value. Data filtered by speed. VMS data provided as aggregated number of vessel positions within a grid of rectangles of approximately 5.3 nm.	Some UK vessels targeting the study area and its vicinity are under 15 m in length and therefore not included in VMS datasets.
France	OBSMER report 2015 (IFREMER/DPMA)	Vessel Monitoring System (VMS)	2014	Effort data derived from VMS in days by over-15 m French vessels by method. It is acknowledged that more recent data is available	Some French vessels targeting the study area and its vicinity are under-15 m in length and are therefore not included in VMS datasets. VMS data is anonymised. Aggregated number of vessel positions are given within a grid of ICES rectangles of approximately 50 nm².

Country	Data/information source	Nature of data	Year(s)	Description	Limitations
				from the OBSMER programme. However, the use of 2014 data was justified by the availability year of other French data sets (VALPENA)	
	SIH Publications by ICES rectangles (SIH publication archimer.ifremer.fr (2013))	Fisheries statistics for ICES rectangle 28F0, 29F0, 29E9	2011	Fleet structure and specifications for vessels recording activity in a given ICES rectangle that year.	ICES rectangles cover a sea area considerably larger than the footprint of the Proposed Development. These data sets were used for validation of more precise data made available to the baseline.
	CRPMEM of Normandie, CRPMEM of Hauts-de-France, Valpena report, Jalon 2, April 2018	VALPENA data	2014	The VALPENA data derives from interviews with voluntary skippers who indicate for a given year the distribution of their fishing activity, gear used and target	The data only covers 2014 and therefore represents a snapshot of the fishing activity and does not show annual variations. Fishing density maps are based on interviews with skippers which can involve inaccuracies or estimations.

Country	Data/information source	Nature of data	Year(s)	Description	Limitations
				species. The seasonal variability is also recorded. Fishing density in number of vessels by 3x3 nm cell (30 km^2) at the scale of study area. Fleet structure: distribution of vessels by gear type and average length. Seasonal variation of fishing activity by method. The data cover all vessels regardless of the size and therefore includes <15 m vessels.	The dataset is based on the assumption that activity is even within each VALPENA cell. The dataset used by CRPMEM of Hauts-de-France is an extrapolation of a limited number of interviews. Indeed, 36.9% of the fleet based in Hauts-de-France was covered by sampling effort in 2014. However, it is recognised that the error margin is lower than 10% (GIS Valpena). In comparison, the coverage of vessels based in Normandy was almost comprehensive (83.6%) in 2014.

Country	Data/information source	Nature of data	Year(s)	Description	Limitations
	UMR Amure – relevant research on French fisheries in the English Channel	Reports from the Channel integrated approach for marine resource management (CHARM) project – EU Interreg IVa.	2011 - 2012	Reports include description of French fleets targeting grounds in the English Channel.	The description is undertaken at the scale of the English Channel and uses dated data. More relevant data were used to describe commercial fishing activities in the vicinity of the Proposed Development.
	Scientific, Technical and Economic Committee for Fisheries (STECF) – 2018 annual economic report on the EU fishing fleet	Statistics on European fishing fleets economic performance	2016	Report includes description of French fleet (structure, economic performance, etc.) as a whole.	The French fleet is described at a larger scale than other data sets made available to the Proposed Development. This data source was therefore not used in the description of the baseline.

Country	Data/information source	Nature of data	Year(s)	Description	Limitations
Belgium	Belgian Institute for Agricultural and Fisheries Research (ILVO), 2016	Fisheries statistics (landings and effort data)	2010 - 2014	Fishing effort in days and landings values in euros for all over-10 m Belgian vessels.	Low spatial resolution as data is compiled by ICES rectangle.
		Vessel Monitoring System (VMS)	2010 - 2014	VMS data combined with log book data by over-15 m Belgian vessels to give values and effort for. Data filtered by speed. VMS data provided as the aggregated number of vessel positions within a grid of rectangles of approximately 56 nm^2.	Data does not include information on vessels of less than 15 m in length.

Country	Data/information source	Nature of data	Year(s)	Description	Limitations
Netherlands	Netherlands, Institute for Marine Resources and Ecosystem Studies (IMARES) and Landbouw Econmisch Instituut (LEI) VMS and integrated Landings data, 2018	Fisheries statistics (landings and effort data)	2013 - 2017	Fishing effort in days and landings values in euros for all over-10 m Dutch vessels.	Low spatial resolution as data is compiled by ICES rectangle.
		Vessel Monitoring System (VMS)	2013 - 2017	VMS data combined with logbook data by Dutch vessels in the North Sea to give fishing effort and value. Data filtered by speed. VMS data are provided as the aggregated number of vessel positions within a grid of rectangles of approximately 56 nm^2.	Identity of vessels included in the VMS is anonymised. IMARES therefore provides the aggregated number of vessel positions within a grid of rectangles of approximately 56 nm^2.

OVERVIEW

1.4.2. From the fisheries data available and the information gathered during consultation with fisheries stakeholders to date, it is understood that the following national fleets are active in the study area:

- UK fleet;
- French fleet;
- Belgian fleet; and
- Dutch fleet.

1.4.3. Figure 5, illustrating UK surveillance sightings by nationality, demonstrates the above fleets are prolific within the study area.

1.4.4. The following sections provide a description of the commercial fisheries baseline separately for each of the fleets identified above.

UK FLEET

PRINCIPAL UK FISHERIES IN THE STUDY AREA

1.4.5. Analysis of MMO landings and effort data for UK vessels (Figure 6 to Figure 10) indicates that in the ICES rectangles where the UK inshore section of the Proposed Development is located (rectangles 30E8 and 30E9), the majority of UK fishing activity is by local small inshore vessels (less than 15 m in length and predominantly under 10 m). The main fishing methods used by these vessels in this area include:

- Potting – targeting whelk, lobster and edible crab;
- Netting and longlining – targeting fish species such as sole, plaice and bass;
- Demersal trawling (beam trawling and otter trawling) – targeting flatfish species;
- Dredging – targeting bivalves such as scallops and clams; and
- Traps – primarily targeting cuttlefish.

1.4.6. In the central and southern section of the study area (rectangles 29E9, 29F0 and rectangles 28F0 and 28F1, respectively), the majority of UK fishing activity is by larger vessels (over 15 m in length) primarily scallop dredgers and Scottish seines (Figure 6 to Figure 10). The latter target a wide range of

species, primarily cephalopods (i.e. squid) and fish species such as red mullet, bass and tub gurnard. There were no UK landings recorded in ICES 28F1.

1.4.7. Across the central section of the study area (rectangles 29E9 and 29F0) there is also some activity by pelagic trawlers targeting mackerel and other pelagic species. In addition, in rectangles 29E9 and 29F0, there is some activity by beam trawlers which target flatfish species such as Dover sole and plaice.

LANDINGS

1.4.8. Landings values from ICES rectangles 30E8 and 30E9 are highest in Shoreham, Portsmouth, Poole and Selsey among others (Figure 11). From rectangles 29E9, 29F0 and 28F0 landings values are highest in Shoreham, Boulogne, Newhaven and Scheveningen.

1.4.9. Landings values indicate that pots are deployed in rectangles 30E8 and 30E9 by UK vessels year-round with a peak between March and July (Diagram 1). Gillnets are operated year-round with slightly higher landings values between April and October. Dredges, beam trawls and otter trawls are operated year-round by UK vessels, with higher landings values from dredging recorded between October and March. Landings values from traps are low for the majority of the year, apart from April to June, when landings rise dramatically. Landings from hooks and lines are primarily recorded between April and December.

1.4.10. There is more seasonal variation in landings values in the central ICES rectangles (29E9, 29F0 and 28F0) than those near shore to the UK (Diagram 2). Dredging and seine netting activity is principally recorded between October and April, with lower landings values recorded in May to September. UK landings from midwater trawling are primarily recorded between October and January. UK beam trawling is carried out year-round, with higher landings from this method between January and March.

1.4.11. Annually, in ICES rectangles 30E8 and 30E9, landings from potting are consistently highest, followed by dredging and gillnetting (Diagram 3). Beam trawl landings have gradually decreased over time, with highest values recorded in 2008. Landings from traps, trammel nets and hooks & lines are comparatively lower, but have remained largely consistent.

1.4.12. Landings values for dredges by year in ICES rectangles 29E9, 29F0 & 28F0 underwent large annual increases between 2008 and 2011 (Diagram 4). However, since 2012, lower landings for dredges have been recorded. Landings from Scottish seines have gradually risen since 2008 to a peak in 2016, while midwater trawls have also increased slightly since 2014. Landings from beam trawls have remained consistent.

1.4.13. The distribution and levels of fishing activity by the UK fisheries identified above is discussed separately by method in the following sections.

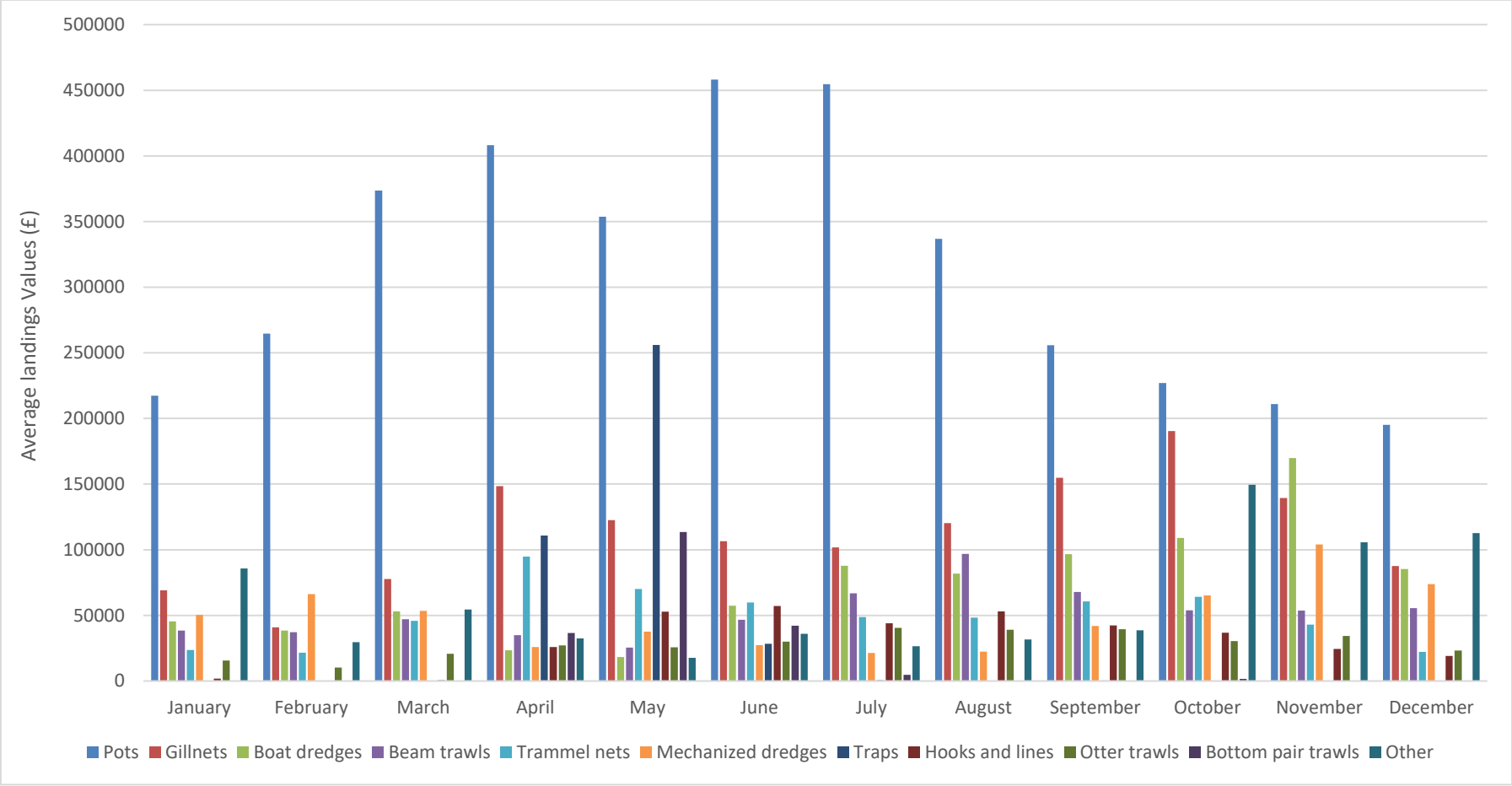

Diagram 1. Average monthly UK landings values (£) by method in ICES rectangles 30E8 & 30E9 (2013-2017; MMO, 2018)

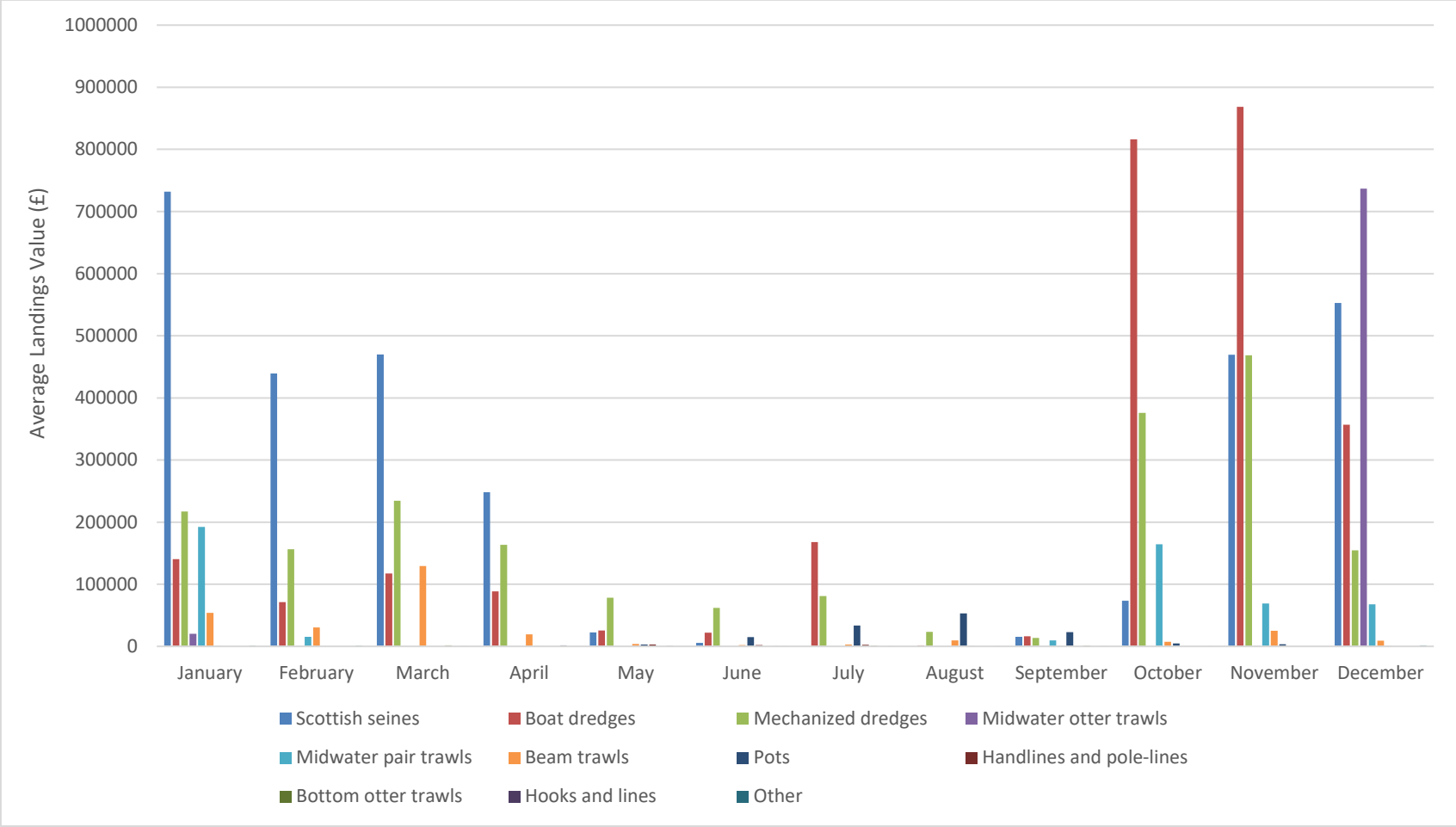

Diagram 2 Average monthly UK landings values (£) by method in ICES rectangles 29E9, 29F0 & 28F0 (2013-2017; MMO, 2018)

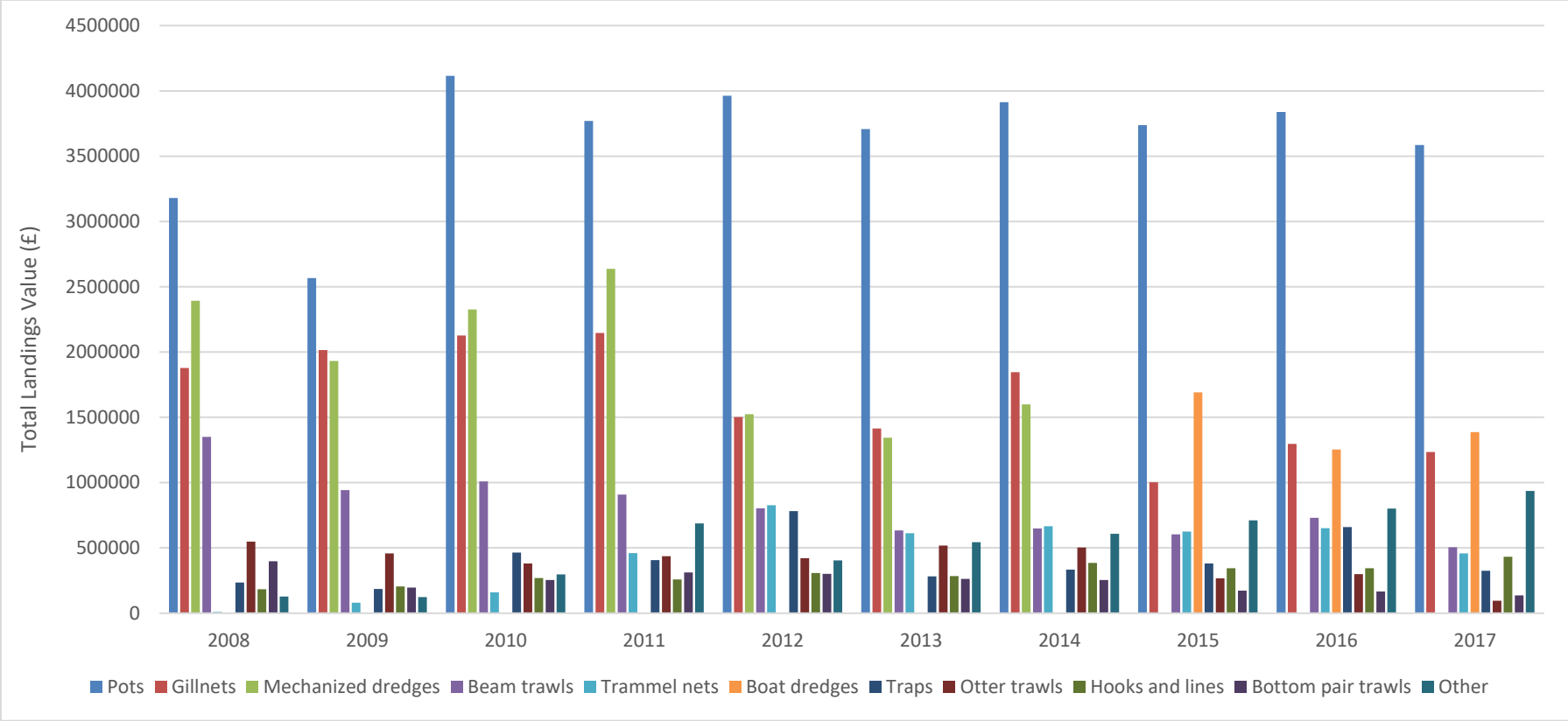

Diagram 3. Total annual UK landings values (£) by method in ICES rectangles 30E8 & 30E9 (2008-2017; MMO, 2018)

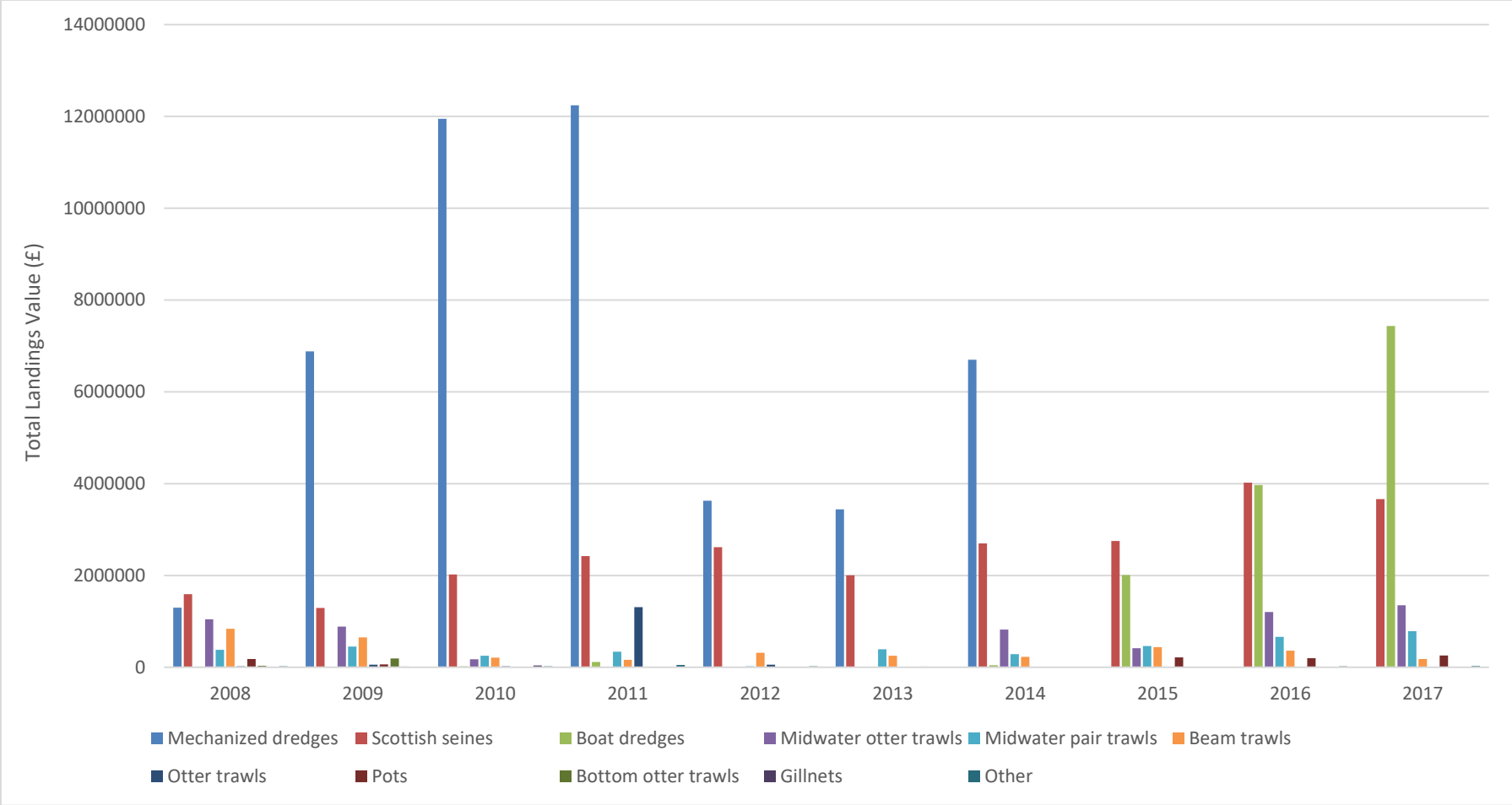

Diagram 4. Total annual UK landings values (£) by method in ICES rectangles 29E9, 29F0 & 28F0 (2008-2017; MMO, 2018)

UK LOCAL INSHORE FLEET

1.4.14. Surveillance sightings shown in Figure 12 demonstrate that the majority of vessels sighted within the inshore area (out to the UK's 6 nm limit) between 2011-2015 were potters/whelkers. Demersal trawlers, gill netters, seine netters and scallop dredgers were also recorded but to a much lesser extent.

1.4.15. The majority of UK local vessels targeting inshore grounds utilise multiple gear types, with few vessels applying a single method for the majority of their fishing. Amongst the wider fleet, the time spent working a particular gear type or targeting a particular fishery, will vary seasonally and/or on an individual vessel basis.

1.4.16. In order to identify the extent of fishing areas used by the UK local inshore fleet, information on fishing grounds was collected as part of the consultation process (Table 2). Fishermen from a range of ports and harbours including Gosport, Portsmouth, Cowes, Bembridge, Chichester, Langstone and Selsey were consulted, in addition to the fisheries regulatory authorities of Southern IFCA, Sussex IFCA and the MMO. From the consultation undertaken, it is understood that the inshore section of the marine cable corridor is mainly fished by local under 12 m vessels based at Selsey, Chichester, the Isle of Wight and Portsmouth. The following sections provide information on the inshore fleet's fishing activities out of local ports and harbours, gathered through consultation.

Southern IFCA

1.4.17. During consultation with Southern IFCA, fishing grounds were identified for the various fisheries operating within the District. Whelk potting was highlighted as a key fishery throughout the Solent and in the vicinity of the landfall site off Eastney, as was the cuttlefish fishery, extending along the shoreline from Portsmouth harbour to Selsey Bill. Potting, longlining and gillnetting are also known to occur throughout the Solent, whilst scallop and commercial clam dredging for the Manila clam also takes place throughout the year. Consultation with Southern IFCA also revealed a small and localised sandeel fishery within and at the mouth of Langstone harbour. Sandeel catches are used primarily as bait by the angling fleet. Figure 13 illustrates the indicative delineations of these fisheries.

Sussex IFCA

1.4.18. Consultation with Sussex IFCA confirmed static gear operations off Selsey and within the Inner and Outer Owers, chiefly potting for whelks, lobster and edible crab. Shoreham vessels targeting whelks are also known to fish grounds within the vicinity of the marine cable corridor, some of which venture as far out as the UK/French EEZ.

Selsey

1.4.19. Consultation with local fishermen from Selsey identified 15 vessels, which engage in commercial fishing activities. Ten vessels are between 8-10 m in length, while five are between 5-8 m in length. The majority of Selsey vessels are full time and undertake potting within nearshore waters all year round for edible crab, lobster and whelks. Potting for lobster and edible crab predominantly occurs in the vicinity of Selsey Bill and extend out to the Outer Owers, due to the presence of extensive rocky grounds providing ideal habitat for edible crab and lobster (Figure 14). Bullock Patch is another important lobster and edible crab potting ground to the west of Selsey, highlighted during consultation. Whelks are routinely fished all year round generally on 'softer' ground; the extensive gravel deposits found in the Solent provide the ideal substratum. The highest catch rates of whelks are seen between February and April; this coincides with when the whelks are most actively feeding.

1.4.20. Several of the smaller Selsey vessels (5-8 m) also undertake limited netting (including tangle, gill and trammel nets) for Dover sole, plaice, cod and sea bass, in addition to longlining for cod and sea bass (Figure 15). Netting and longlining are slightly more weather dependent, requiring calmer sea conditions, thus, they are typically worked hardest in spring and summer. Some fishermen from Selsey also target cuttlefish, among other species, between May and June, with grounds extending from the mouth of Portsmouth Harbour to Medmery Bank (Figure 15).

Portsmouth

1.4.21. Larger in number than the Selsey fleet, the fleet at Portsmouth is understood to be full time utilising pots, trawls and to a lesser extent nets, dredges and longlines for a range of fish and shellfish species. These include potting for crab, lobster, whelk and cuttlefish, dredging for Manila clams, oysters and scallops, longlining for sea bass and cod, in addition to trawling for Dover soles, plaice and skates. The distribution of potting, netting and longlining grounds derived from information collected during consultation is illustrated in Figure 14 and Figure 15. These coincide with the inshore section of the marine cable corridor, largely within 12 nm.

Isle of Wight

1.4.22. Consultation with Isle of Wight fishermen found that one 12 m vessel focused on whelk, lobster and crab potting. At the time of consultation, the vessel had 200 parlour pots set within the Solent and additional whelk pots in the central English Channel, which would be left for a period of up to two days at a time (Figure 14). In contrast, another fisherman consulted noted a preference to work within the Solent, having targeted the same fishing grounds for the past 40 years. This vessel undertakes twin-rig otter trawling for flatfish, notably Dover sole and plaice, for the majority of the year and deploys cuttlefish traps between May and June in inshore areas. The same fisherman also undertakes gill-netting for cod and occasionally smoothhound in winter.

UK OVER 15 M FLEET

UK Scallop dredgers

1.4.23. Activity by UK over 15 m registered vessels in the study area originates mainly from the scallop fleet.

1.4.24. An indication of the distribution and levels of fishing activity by over 15 m UK scallop dredgers is given in Figure 16 and Figure 17, based on VMS data. As shown, in the English Channel, fishing activity by these vessels occurs at relatively high levels. In the study area, activity concentrates in the central section (rectangles 29E9 and 29F0), between the UK's and French 12 nm limits, including along the area of the Proposed Development.

1.4.25. It should be noted, that the vessels engaged in this fishery, unlike local smaller scallop dredgers, which have more limited operational ranges, are capable of fishing continuously for several days and of working in difficult weather conditions. They are described as nomadic due to their wide operational range, having the ability to target grounds around the UK, including the North Sea, Irish Sea, English Channel and Western Approaches (see Figure 18 and Figure 19). Scallop fishing by the nomadic fleet is generally cyclical and grounds are intensively targeted for a period of time and then left to recover. Therefore, the number of nomadic vessels active in the study area would vary annually, depending on productivity and access to grounds.

UK Seine netters

1.4.26. An indication of the distribution and levels of activity of UK over 15 m seine netters is given in Figure 20 and Figure 21 based on VMS data. As shown and as in the case of scallop dredgers, fishing activity by seine netters for the most part concentrates in the area within the UK's and French 12 nm limits. In the study area, the highest levels of activity are recorded in rectangle 29F0, in a discrete area immediately to the northeast of the Marine Cable Corridor. In general terms, fishing levels across the Proposed Development are comparatively low.

1.4.27. From consultation carried out with VisNed, it is understood that the majority of UK seine netters that operate in the area, whilst UK registered, are Dutch owned and operated ("Anglo-Dutch" netters).

UK Pelagic trawlers

1.4.28. An indication of the distribution and levels of activity of UK over 15 m pelagic trawlers is given in Figure 22 and Figure 23 based on VMS data. Activity by these vessels for the most part concentrates in offshore areas between the UK's and French 12 nm limits. Within the study area, including in the area of the Proposed Development, activity is patchy and occurs at relatively low levels.

UK Beam Trawling

1.4.29. An indication of the distribution and levels of activity of UK over 15 m beam trawlers is given in Figure 24 and Figure 25 based on VMS data. Within the study area activity by these vessels for the most part occurs at relatively low levels. In the immediate area of the Proposed Development, the highest levels of activity are recorded within ICES rectangle 30E9.

1.4.30. It is understood that the majority of the over 15 m UK beam trawlers active in this area are part of the south coast of England beam trawl fleet, which targets grounds across the Channel and the Western Approaches.

UK VESSEL SPECIFICATIONS AND OPERATING PRACTICES

1.4.31. The majority of UK local vessels targeting inshore grounds within the vicinity of the Proposed development, utilise multiple gear types, helping to maintain commercial viability by exploiting a range of species and enabling flexibility in response to seasonal regulations imposed by Southern IFCA byelaws. Few vessels apply a single method for the majority of their fishing. Amongst the wider fleet the time spent working a particular gear type or targeting a particular fishery will vary seasonally and/or on an individual vessel basis. Methods used in the area include potting, longlining, static netting, drift netting, demersal trawling (single, twin rig and beam trawls), dredges (scallop, clam and oyster) and rod and line. It is common for crews to work more than one gear type over a day's fishing.

1.4.32. Lobsters and brown crabs are targeted year-round through the deployment of pots by the UK local inshore fleet. The parlour pot is the most common method for targeting crab and lobster within the Solent; these are fished in strings of up to twenty pots by the larger vessels and singularly by the smaller open boats.

1.4.33. The most common whelk pots used in the area are reclaimed 25l plastic containers that are weighted at one end with concrete (Plate 1). The pots are shot in strings in a similar fashion to lobster pots. Whelks are attracted into the pot by the scent of bait; the most common bait used is dogfish, brown crab and spider crab. It is common for the pots to be left at sea permanently and hauled on a one to three-day basis.

1.4.34. The fixed net vessels work various styles and combinations according to the season; typically gillnets for cod in the winter and trammel nets for plaice and Dover sole in the early spring. In the spring/summer season, trammel nets are set for plaice and sole and gillnets for bass. In the autumn trammel nets are set for plaice and sole and gillnets set for bass and cod.

1.4.35. The start of the cuttlefish season is temperature dependent, when the water reaches 13 - 14°C (around May) and the cuttlefish come into shallow, inshore waters to breed. For an example of a local cuttlefish vessel, see Plate 2.

Breeding is so energetically expensive that once this has occurred, they die and thus the fishery for the adults begins to dwindle around July.

1.4.36. Cuttletraps have a feathered finger entrance designed for the cuttlefish to be able to enter but not exit (Plate 3). The traps are worked in strings of 10 - 20 (depending upon the size of the vessel) with a spacing of approximately 50 ft in between each trap. It is common practice to haul the traps every two days. Instead of food, a white ceramic tile or a female is used as 'bait' as the fishery operates during the breeding season. This attracts the males and thus other females into the trap. From July to August, small quantities of cuttlefish are still caught in beam trawlers as bycatch, some are adults, but most are 2 - 3-month-old juveniles.

1.4.37. The type of oyster dredges used within the area of the Proposed Development are locally known as the Solent oyster dredge. Two dredges are commonly used, each on a single warp being hauled and shot at 10-minute intervals. Oyster dredges have a fixed flat bar across the forward section of the dredge. This bar digs the oysters out of the seabed; they are then collected in a bag behind the bar. Oyster dredging is typically associated with fishing vessels less than 10 m. One or two oyster dredges are typically towed from the stern of the vessel.

1.4.38. Examples of the specifications of local inshore vessels are provided in Table 4.

Table 4 Specification of two example UK local inshore vessels

Specification	Potter	Trawler
Homeport	Langstone	Cowes
Fishing association	N/A	N/A
Average days at sea per year	200	250
Length	9m	9.8m
Beam	4.5 m	5 m
Draft	1.0 m	1.5 m
Main engine HP	150 bhp	300 bhp
Typical trip duration	10 h	14 h
Typical distance steamed per trip	Furthest sets of gear 32 nm roundtrip	4-38 nm

Specification	Potter	Trawler
Principal method (s)	Potting[1]	Otter Trawl[2]
Main species	Whelk – all year Brown crab and lobster – all year Cuttlefish – mid April-June	Sole, plaice, bass and skate
Equipment type	Whelk – lay down drums/acid drums Crab and lobster – parlour and softeye Cuttlefish – cuttletraps	Bison (L 4.5 ft x H 3.0 ft) Sole trawl net, 1 m headline height, 10 m between wing ends Mesh size 80 mm
No of fleets (pots per fleet) / spread of door	Whelks – 20 (30) Crab and Lobster – 12-20 (depends on length) (15-25) Cuttlefish – 10 (9)	80 ft spread, 15 m length ground line, 120 kg chain and wheels
Typical soak time / towing speed and tow duration	Whelk – rotate every 1-2 days Crab and Lobster 2-3 days	2 knots for 2 hours per tow

1.4.39. Whilst considerable activity is recorded by UK registered seine netters, these vessels in fact belong to the Anglo-Dutch fleet. The operating patterns and practices of these vessels are therefore not considered here but described under the section dedicated to the operating patterns and practices of the Dutch fleet.

1.4.40. Further information on fishing methods and gear descriptions is given in Annex 3.

[1] Potting is the principal method but static and (surface) drift nets are also employed at certain times.
[2] Trawling is the principal method but surface drift nets, cuttletraps and longlines are also employed at certain times.

Plate 1 Whelk pots (BMM, 2017)

Plate 2 Local inshore vessel (9.94 m) which works nets, longlines, dredge and cuttlefish traps (BMM, 2018)

Plate 3 Cuttlefish trap (BMM, 2017)

Plate 4 Over 15 m UK vessel converted from beam trawler to scallop dredger (BMM, 2016)

FRENCH FLEET

PRINCIPAL FRENCH FISHERIES IN THE STUDY AREA

1.4.41. From the information gathered during consultation and the fisheries data available for French vessels, it is understood that the principal fishing methods used by the French fleet in the study area include demersal otter trawling, pelagic trawling and scallop dredging. Activity by these methods for the most part takes place beyond the French 6 nm limit and extends out to the UK's 12 nm limit.

1.4.42. In addition to the fisheries noted above, in the inshore section of the study area (primarily out to the French 6 nm limit), there is also activity by local inshore vessels that operate static gears.

DISTRIBUTION OF FRENCH FISHING ACTIVITY IN THE STUDY AREA

1.4.43. The following sections provide a description of the spatial and seasonal distribution of fishing activity by the French fishing fleets identified above. This has been primarily derived from fishing density information based on VALPENA data and included in a report produced by the CRPMEM in 2018 (Balazuc *et al.,* 2018). The VALPENA data shows the distribution of fishing density on a 3x3 nm grid for the year 2014 expressed as a percentage of total vessels by fishing method (or group of method) in the immediate vicinity of the marine cable corridor.

FRENCH SCALLOP DREDGERS

1.4.44. Analysis of VALPENA data indicates that activity by French vessels operating scallop dredges in 2014 was highest over the central section of the marine cable corridor within the French EEZ and up to the 6nm French territorial limit (Figure 27 and Figure 28).

1.4.45. Activity in the English EEZ was markedly lower and primarily recorded on the east side of the marine cable corridor in rectangle 29F0 (in the vicinity of the "Greenwich buoy" ground). It is important to note that scallop dredging by French vessels of over 16 m is prohibited between May and September every year. In the study area in 2014, the activity was highest between February and April as well as in October, directly before and after the opening of the Baie de Seine scallop fishery for which numerous under-16 m vessels have a licence (Diagram 5).

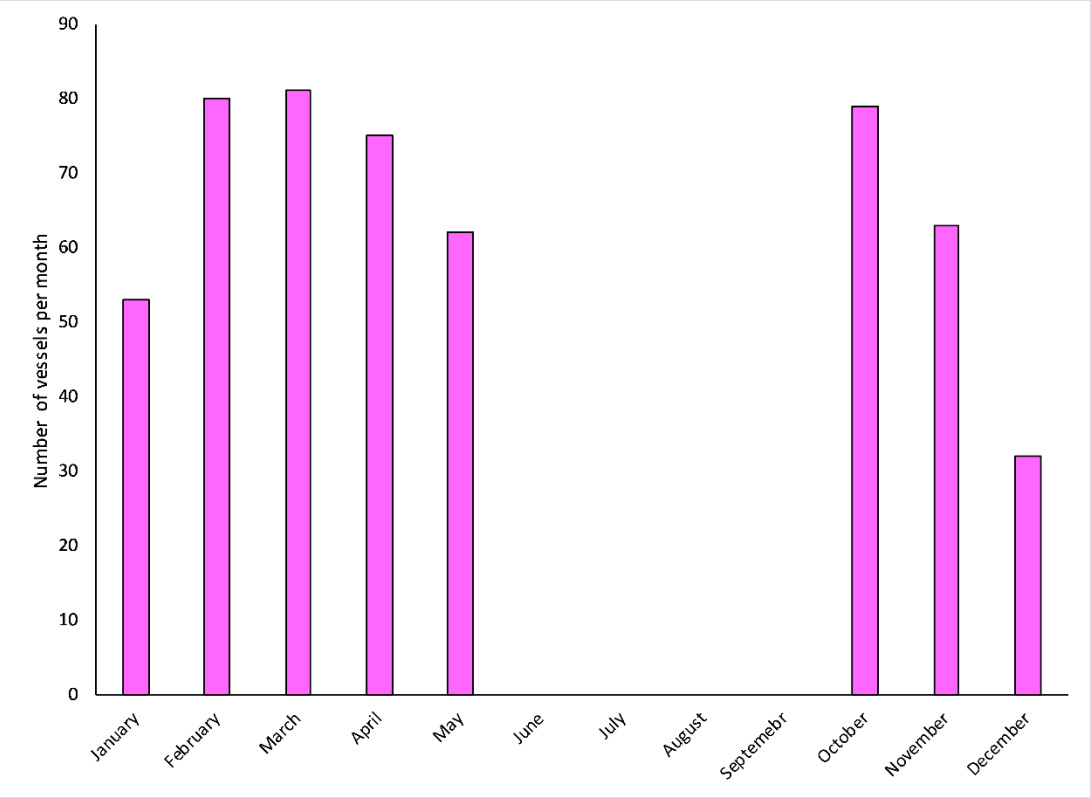

Diagram 5. Seasonality of the scallop dredging activity in the study area in 2014 (VALPENA, 2018)

FRENCH DEMERSAL TRAWLERS

1.4.46. Analysis of 2014 effort data derived from VMS (IFREMER, 2015) indicates relatively high levels of activity by French vessels operating demersal otter trawls in the study area, particularly in areas relevant to the central section of the marine cable corridor (rectangle 29F0) (Figure 37).

1.4.47. VALPENA data for 2014 indicates that from November to April, activity by French vessels using demersal towed gears (other than scallop dredge) takes place off the French 12nm limit, either side of the UK-France boundary (Figure 29, Figure 30 and Figure 31). From May to October, the highest levels of activity are recorded between 6 and 12nm off the French coast, immediately to the south-east of the marine cable corridor (The "Dieppe-Le Treport" ground) (Figure 30 and Figure 31). The monthly distribution of fishing activity by number of vessels using demersal towed gears (Diagram 6) confirms that most vessels use demersal otter trawls during the scallop fishery closure (April to October).

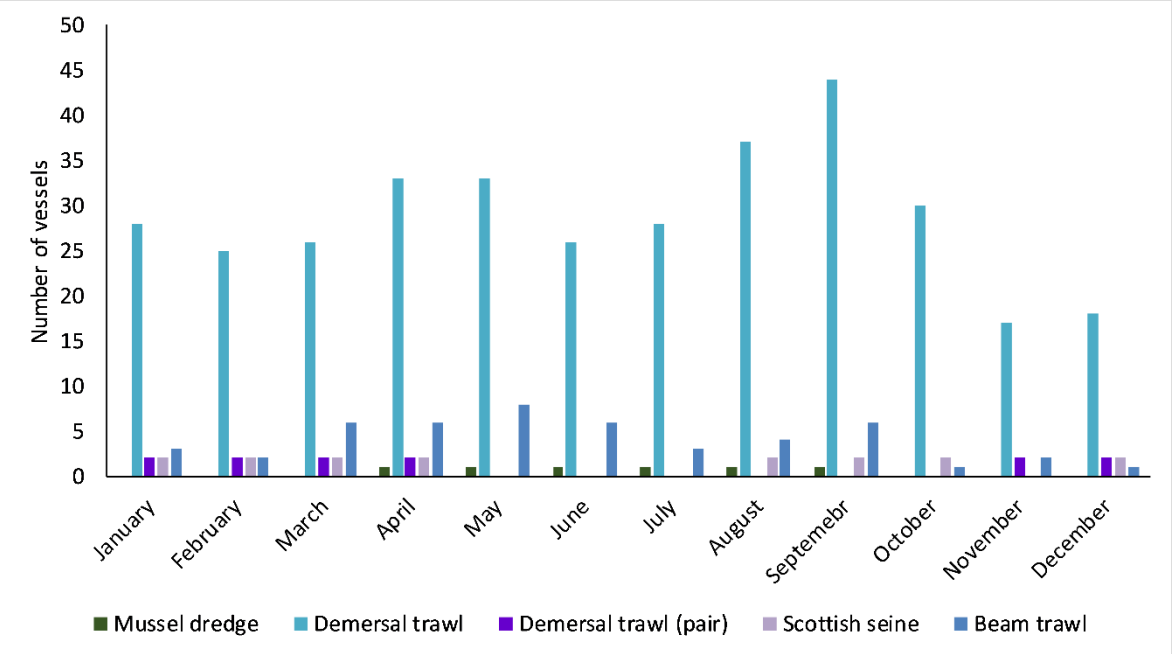

Diagram 6 Seasonality of the demersal towed gear activity (other than scallop dredges) in the study area in 2014 (Source: VALPENA)

FRENCH PELAGIC TRAWLERS

1.4.48. As described above for demersal trawling, analysis of effort data derived from VMS (IFREMER, 2015) also suggests that within the study area, fishing activity by French pelagic trawlers is highest in areas relevant to the central section of the marine cable corridor (in rectangle 29F0) (Figure 38).

1.4.49. VALPENA data (Figure 32 and Figure 33) indicates that activity by vessels operating pelagic trawls is generally highest from October to February when squid is targeted along with pelagic fish species such as herring. During this period, fishing is primarily focussed in the central part of the study area, on the western side of the marine cable corridor. From April to December, activity levels by this fleet are lower and primarily concentrate in waters between the French 3 nm and 12 nm limits. During this period the main species targeted include mackerel, horse mackerel, black sea bream and red mullet. The monthly distribution of the fishing activity by number of vessels using pelagic gears is shown in Diagram 7.

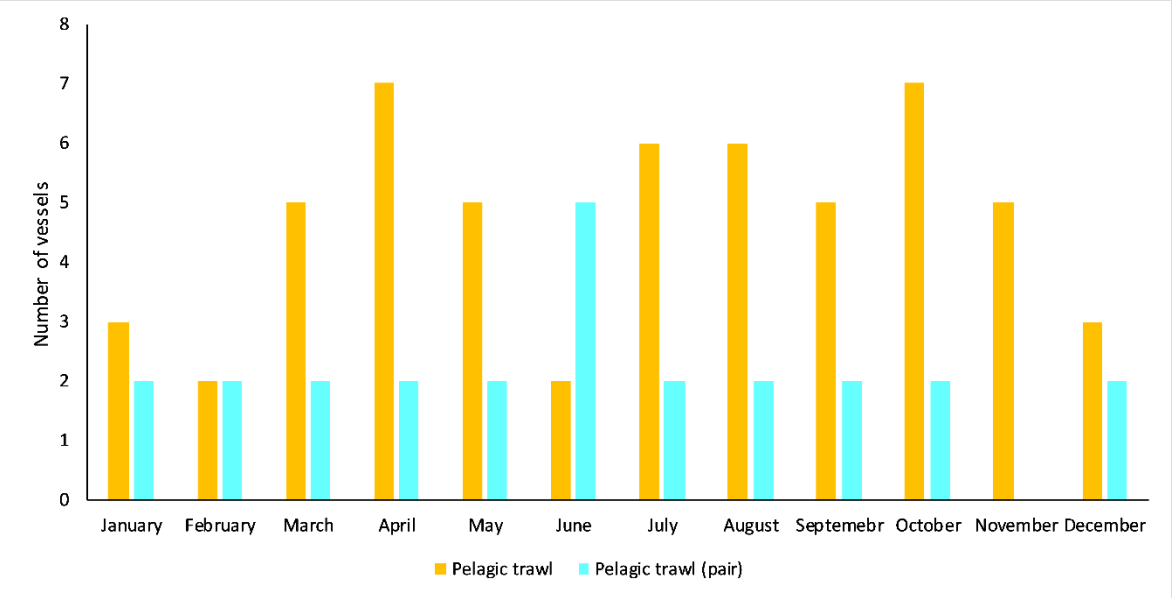

Diagram 7 Seasonality of the pelagic towed gears in the study area in 2014 (Source: VALPENA)

FRENCH STATIC GEARS

1.4.50. Analysis of VALPENA data (Figure 34, Figure 35 and Figure 36) indicates that activity by French vessels operating static gears in the study area, is focussed in inshore areas out to the French 6 nm limit, including the area where the nearshore section of the marine cable corridor is located.

1.4.51. Activity by vessels using set nets is relatively consistent throughout the year with higher intensity between September and December. Drift netting is seasonally used by some vessels from October to December (mainly targeting herring). Potting for cuttlefish is undertaken close to shore in May and June, whereas potting for whelk is relatively consistent throughout the year (Diagram 8). There is only one ground for crustacean potting in the vicinity of the study area: to the west of Pourville, Hautot-sur-mer off the Ailly cape.

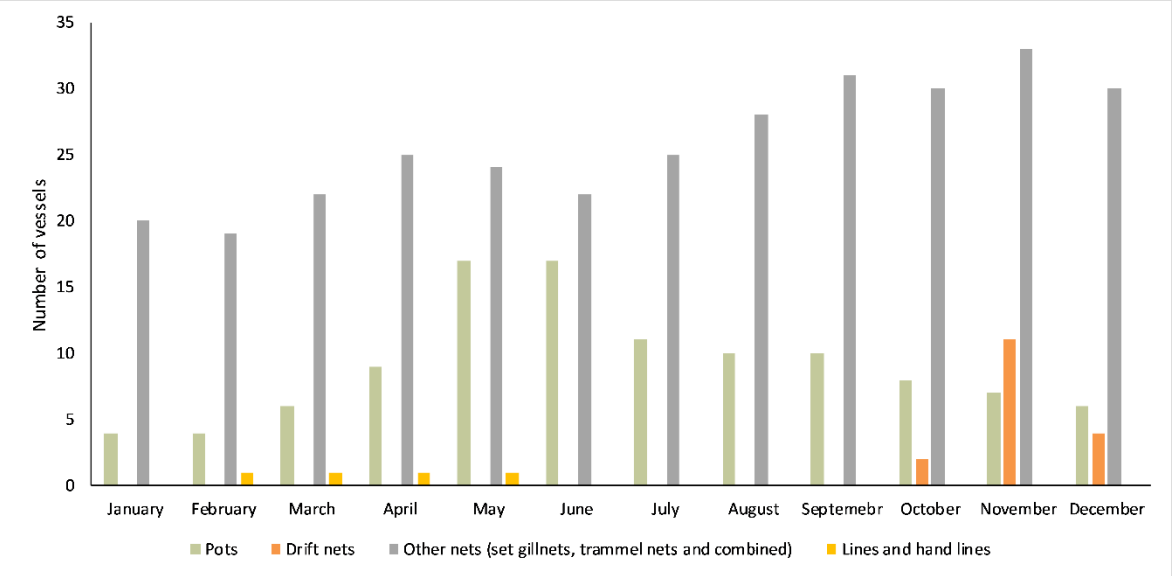

Diagram 8 Seasonality of the static gear activity in the study area in 2014 (Source: VALPENA)

FRENCH VESSEL SPECIFICATIONS AND OPERATING PRACTICES

1.4.52. Of the 750 vessels that are registered in Normandy and Hauts-de-France (From Cherbourg to Dunkerque), 195 vessels fished the study area in 2014. 42 of them are registered in Hauts-de-France and are based in Le Treport, Le Hourdel, Boulogne-sur-Mer and Dunkerque. The remaining 153 vessels are based in one of the 19 ports or landing points of Normandy. It is important to note that Pourville, Hautot-sur-mer), Quiberville and Etretat do not have harbours but host small vessels called “doris” which are directly launched from the beach.

1.4.53. The three ports hosting most vessels fishing the study area are Dieppe (43), Le Treport (32) and Boulogne-sur-Mer (24) (2014 figures – Balazuc *et al.,* 2018).

1.4.54. The majority of the French fleet active in the study area (153 vessels out of 195) use towed gears (dredge, demersal otter trawl, beam trawl, pelagic trawl and seine nets) with an average length of 16 m. 40 vessels use static gears only (pots, nets, longlines and hook and line). Their average length is 10.4 m. Only two vessels use both towed and static gear (scallop dredge alternatively with pots and nets).

1.4.55. Most vessels operating in this area are multi-purpose; their operational practices are shaped by changing conditions in species abundance and market demand. The fleet and sub-fleet structure is detailed in Table 5.

Table 5 Number of vessels and average length (m) by sub-fleet for the study area in 2014

Gear type	Sub-fleet	Number of vessels		Average length (m)	
Towed	Trawler/dredger	153	92	16	14
	Exclusive demersal trawlers		21		21.4
	Exclusive dredgers		20		16
	Mixed trawlers (demersal and pelagic)		16		22.3
	Trawlers/seiners		2		24.4
	Exclusive pelagic trawlers		2		22
Mixed	Multipurpose dredgers	2		13.9	
Static	Exclusive netter/potter	40	21	10.4	9.9
	Exclusive netter		13.1		12
	Exclusive potter		3		9.6
	Exclusive netter		1		10
	Exclusive liner		1		6.3
	Multipurpose netter/potter		1		9.3
Total fleet		195		14.7	

TOWED GEAR VESSELS

1.4.56. Most French vessels operating across the study area use demersal trawls during summer months to complement the winter scallop dredging season. Scallop dredging opens in October in Hors-Baie de Seine (where the Proposed Development is located) and mostly occurs from 6 nm to the EEZ limit (Plate 6 and Plate 7). Most under-16 m local scallopers have a licence to fish the very productive Baie de Seine scallop grounds and therefore fish there from November/December. As indicated in previous sections, scallop dredging is banned from the 6 nm strip within the entire study area, but some derogations apply and scallop dredging can occasionally take place between 3 to 6 nm.

1.4.57. Demersal trawling mostly takes place outside territorial waters (12 nm) from November to April on either side of the UK-France boundary; activity occurs closer inshore during summer months to the east of the study area (Dieppe Le Treport ground).

1.4.58. Herring are targeted on the French side of the Channel during the winter months by pelagic and demersal trawlers using pelagic gear. In the study area, the peak in activity by vessels from Hauts-de-France occurs between December and April. Some vessels then move to the southern North Sea to target whiting during the summer months.

1.4.59. From October to February, pelagic trawling is used in the central area of the Channel to target squid and various pelagic species. From March to December, pelagic trawls are also used in the inshore area to target red mullet, black sea bream, horse mackerel and mackerel.

STATIC GEAR VESSELS

1.4.60. As outlined in Table 5, the principal methods used by the French local static gear fleet are netting and potting. The VALPENA analysis indicates that in 2014, up to 40 vessels used static gear in the study area, with an average vessel length of 10.4 m.

1.4.61. The smallest units (under 10m “doris”) only use nets during neap tides (<90) within 6 nm between Saint Valery-en-Caux and Penly and are mainly based in Saint Aubin and Pourville, Hautot-sur-mer (Plate 5). Consultation with local fishing interests indicated that up to 10 doris target grounds in the direct vicinity of the Pourville Hautot-sur-mer landing. These vessels use up to 10 km of nets during 6 to 12-hour trips to target flatfish species such as sole, plaice, brill and dab, along with demersal fish species. Some doris also operate pots to target crustaceans or cuttlefish in the inshore area during spring. These vessels are very dependent on weather conditions and usually avoid winter months.

Plate 5 Under 10m "doris" vessel

1.4.62. Larger vessels, mainly based in Dieppe, set nets further offshore up to just outside territorial limits. A contributing factor to this distribution is the presence of well identified trawling and seine netting grounds outside territorial waters, which are targeted by several European fleets and limits the use of static gear. These vessels can operate with greater tidal coefficients. They target various species of flat fish, demersal fish and skates and rays. It is important to note that the opening of the scallop fishery in the 6-12 nm can modify the distribution of netting activity, which tends to concentrate inside the 6 nm during the peak scalloping season.

1.4.63. Up to 15 netters based in Dunkerque seasonally move to Dieppe to target offshore grounds. The presence of a drift netting fishery along the coast of Seine Maritime from October to December (mainly targeting herring) should also be noted. Drift nets can be up to 8-10m high and are fished in the upper layer of the water column. The soak time is shorter than for set nets (up to 3 hours).

1.4.64. Potters mainly target whelk in the study area. Activity takes place all year round and concentrates in inshore areas (0 to 6 nm). Potting for crustaceans tends to concentrate in the vicinity of hard substrates by a few vessels around the Cape of Ailly. There has been no evidence of such activity occurring in the direct vicinity of Pourville Hautot-sur-mer, where the nature of sediment is more prone to targeting whelk. In addition, up to 15 potters seasonally targeted cuttlefish in inshore areas (April to May) in 2014.

Plate 6 French fishing vessels rigged with scallop dredges, Dieppe Harbour (BMM)

Plate 7 A Multi-purpose French fishing vessel operating scallop dredges from the stern (BMM)

BELGIAN FLEET

PRINCIPAL BELGIAN FISHERIES IN THE STUDY AREA

1.4.65. Analysis of landings and effort data for the Belgian fleet (Figure 39 to Figure 43) indicates that across the study area, fishing activity is by vessels over 18 m in length, the majority of which deploy demersal trawl gear (primarily beam trawls and to a lesser extent demersal otter trawls) to target flatfish species such as sole, plaice, turbot and brill.

1.4.66. In addition, albeit at much lower levels, some activity is also recorded in the area by Belgian scallop dredgers and seine netters. The latter target various species including squid, red mullet and tub gurnard. In the central section of the study area (rectangle 29F0) netting using gillnets and trammel nets is also recorded at comparatively lower levels. These vessels primarily target sole.

1.4.67. The total landings values by Belgian vessels by year show the highest proportion of landings are consistently accounted for by beam trawlers in the study area (Diagram 9). Considerably lower landings values are shown by Belgian vessels operating other methods.

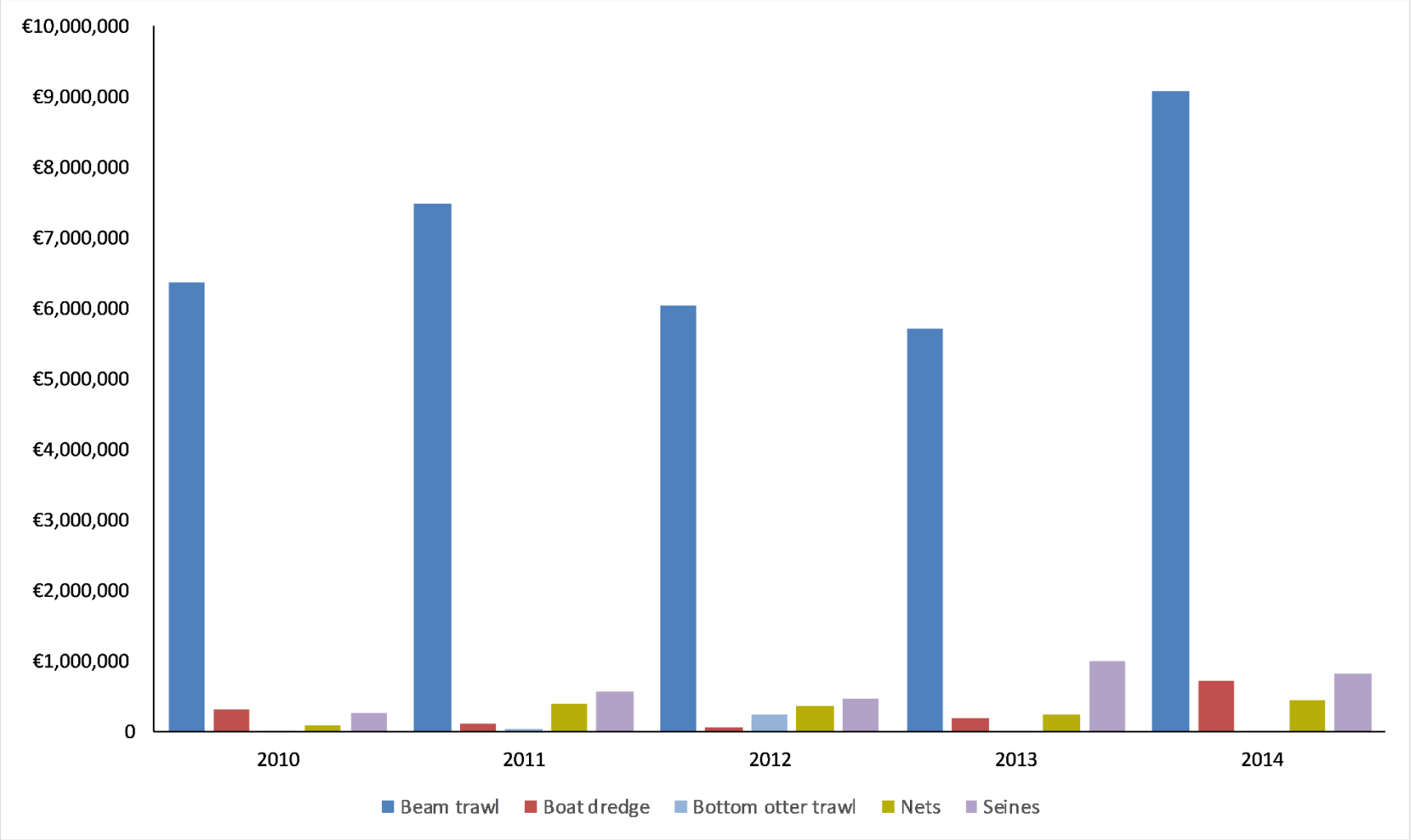

Diagram 9. Total yearly Belgian landings values (€) by method in the study area (2012-2014; IVLO, 2016)

DISTRIBUTION OF BELGIAN FISHING ACTIVITY IN THE STUDY AREA

BELGIAN DEMERSAL TRAWLERS (BEAM TRAWLERS AND DEMERSAL OTTER TRAWLERS)

1.4.68. Analysis of VMS data for Belgian beam trawlers indicates that activity occurs at moderate levels in the study area, and for the most part takes place between the French 12 nm limit and the UK's 6 nm limit (Figure 44 and Figure 45). The relatively high levels of activity by these vessels within the UK's 6 and 12nm limit reflect the fact that these vessels have historic rights in the area.

1.4.69. In areas in the immediate vicinity of the marine cable corridor, beam trawling activity is primarily concentrated in the areas within the UK EEZ, with comparatively lower activity levels recorded in the section of the marine cable corridor located in French waters.

1.4.70. VMS data for Belgian demersal trawlers (Figure 46 and Figure 47) suggest activity by these vessels in the study area occurs at comparatively low levels.

BELGIAN SEINE NETTERS

1.4.71. Activity by Belgian seine netters for the most part takes place between the UK's and French 12nm limits. Within the study area, including along the marine cable corridor, fishing activity occurs at low levels and primarily concentrates in rectangles 29E9 and 29F0 (Figure 48 and Figure 49).

BELGIAN SCALLOP DREDGERS

1.4.72. Activity by Belgian scallop dredgers occurs at low levels within the study area, including the area of the marine cable corridor (Figure 50 and Figure 51). For the most part their activity it is confined to UK waters in the central section of the study area (rectangles 29E9 and 29F0).

BELGIAN NETTERS

1.4.73. Analysis of VMS data indicates some low levels of Belgian netting activity occurs in the central section of the study area. As shown in Figure 52 and Figure 53, however, this activity is confined to areas to the east of the marine cable corridor, with negligible activity along the marine cable corridor itself.

BELGIAN VESSEL SPECIFICATIONS AND OPERATING PRACTICES

1.4.74. The Belgian fishing fleet comprises of 35 vessels over-24 m in length and 40 which are less than 24 m, the majority of which are beam trawlers (Plate 8). Belgian vessels operating in the vicinity of the study area are typically 38-40 m with main engine powers of up to 1300 hp. The majority of the fleet are registered to the Belgian ports of Oostende or Zeebrugg.

1.4.75. From consultation with Rederscentrale, it is understood that vessels operating up to the UK's 6 limit are Eurokotters with the larger (>30m in length vessels) operating out to the UK's 12 nm limit.

1.4.76. Specifications of a typical Belgian beam trawling vessel are detailed in Table 6.

Plate 8 Belgian beam trawler (BMM, 2016)

Table 6 Specifications of a typical Belgian beam trawler

Category	Specification
Homeport	Zeebrugge
Fishing Association	Redercentrale

Category	Specification
Length	38 m
Beam	8.5 m
Draft	5.0 m
Main engine HP	1,300 bhp
Typical trip duration	7 to 10 days
Typical distance steamed per trip	160 nm
Principal method	Traditional beam gear and sum wing (depending on ground)
Main species	Common sole, plaice and skate
Beam length	2x11 m
Groundline length	28 m
Tickler chain length	1x18 m, 1x17 m, 1x16 m, 1x15 m
Net type	V-net (open gear)
Cod end mesh size	Sole – 85 mm
Average towing speed	5 to 8 knots
Average towing duration	2.5 hours

DUTCH FLEET

PRINCIPAL DUTCH FISHERIES IN THE STUDY AREA

1.4.77. Dutch registered, owned and operated vessels engaged in fishing activity within the study area are over 15 m in length (Figure 54 and Figure 55). The majority of activity in the study area is by seine netters using the fly shooting technique and to a lesser extent by pelagic trawlers (Figure 56 and Figure 57).

1.4.78. Key target species for these vessels include herring in the case of pelagic trawlers and various fish species (red mullet, red gurnard and tub gurnards) and squid in the case of seine netters (Figure 58).

1.4.79. The total annual landings values by Dutch vessels show consistently that the highest proportion of landings are accounted for by seine netters in the study area (Diagram 10). Landings values by Dutch seine netters was especially high in 2015, and similar across other years. Substantially less landings values were recorded by midwater trawls, at a relatively constant value per year.

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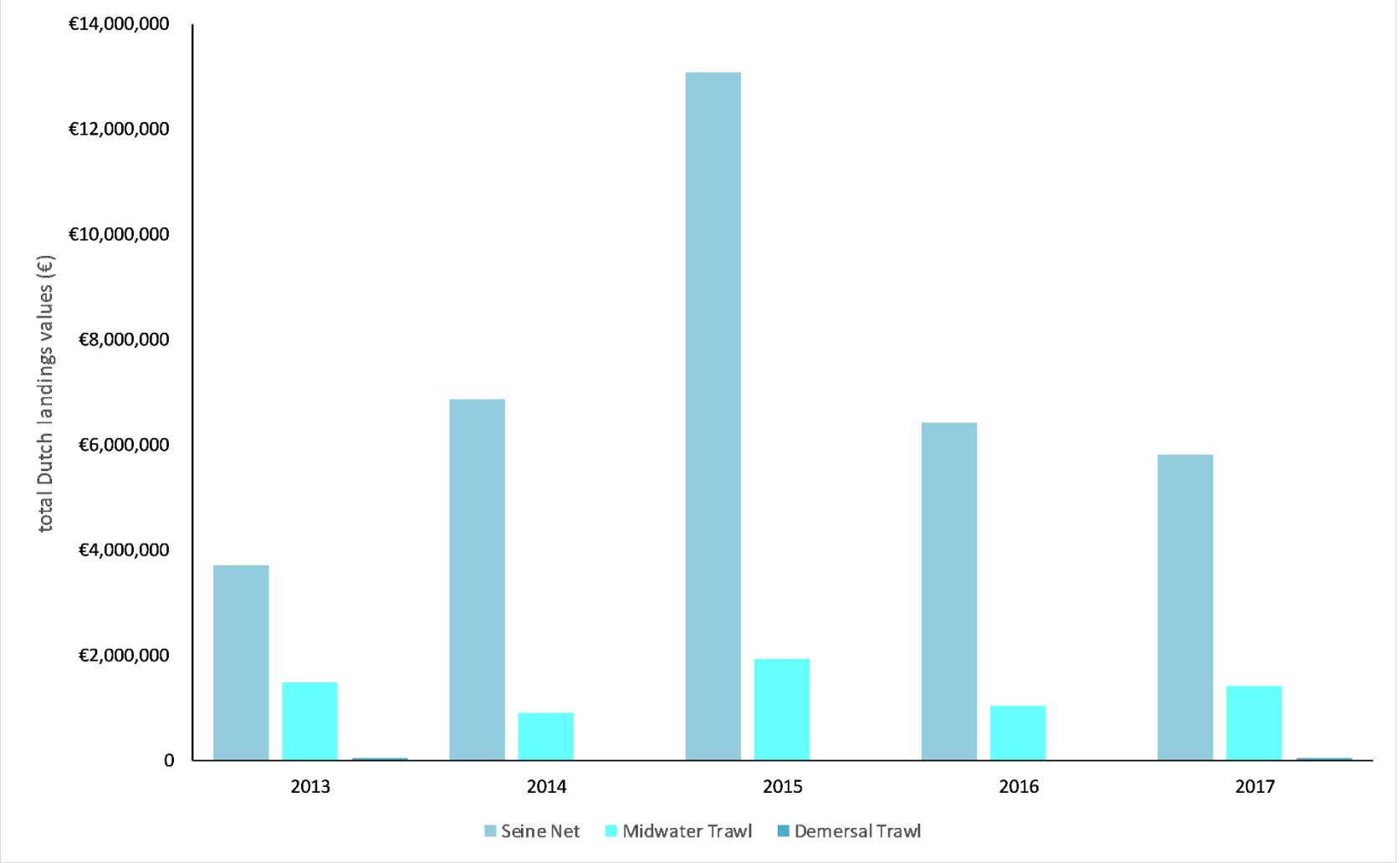

Diagram 10. Total yearly Dutch landings values (€) in the study area (2013 to 2017; IMARES, 2018)

DISTRIBUTION OF DUTCH FISHING ACTIVITY IN THE STUDY AREA

DUTCH SEINE NETTERS

1.4.80. The grounds fished by Dutch seine netters are confined to the area between the French and UK's 12 nm limits and extend over both French and UK EEZ waters (Figure 59 and Figure 60).

1.4.81. Fishing by Dutch seine netters, occurs at moderate levels across the central section of the study area, including areas of the marine cable corridor (rectangles 29E9 and 29F0).

1.4.82. The highest levels of activity by these vessels are however recorded immediately to the east of the marine cable corridor rather than over the corridor itself.

DUTCH PELAGIC TRAWLERS

1.4.83. Similarly to seine netting activity, fishing activity by Dutch pelagic trawlers is more prevalent across the central section of the study area (rectangles 29E9 and 29F0) and is confined to the area between the French and UK's 12 nm limits, extending over both French and UK EEZ waters (Figure 61 and Figure 62).

DUTCH VESSEL SPECIFICATIONS AND OPERATING PRACTICES

1.4.84. The Dutch fishing fleet is one of the largest in Europe. Vessels within the fleet employ diverse fishing methods including mussel dredging, shrimp trawling, pelagic trawling, single and twin-rig trawling, demersal seine netting, netting and beam trawling. As previously mentioned, Dutch fishing activity in the vicinity of the Proposed Development is predominantly by seine netters using the fly shooting technique and pelagic trawlers.

1.4.85. Many Dutch seine netting vessels undertake the Scottish (fly) seining method and this is the principal method used by this fleet in the Channel. Fishing by this method occurs only during the daytime in the vicinity of the study area. This fleet mainly targets non-quota species such as gurnards, red mullet, squid and bib, landings of which are largely unrestricted. Quota species such as whiting are also targeted.

1.4.86. Activity by the Dutch fleet occurs year-round with a peak occurring in the Channel from October to March. A significant number of these vessels are Dutch owned but UK registered (Anglo-Dutch).

1.4.87. Specifications of a typical Dutch owned, UK registered seine netter are given in Table 7.

1.4.88. Another component of the Dutch fleet of relevance in the study area is the pelagic trawl fleet. These vessels are among the largest in the world, often

over 100 m in length and have exceptionally wide operational ranges, including grounds in the Channel.

Table 7 Specification of an example Dutch owned, UK registered seine netter

Category	Specification
Homeport	Padstow
Fishing Association	LFPO
Length	36.6 m
Beam	8.8 m
Draft	5.3 m
Main engine HP	1,600 bhp
Typical trip duration	5 days
Principal method	Seine net/twin rig
Main species	Red mullet, red gurnard, plaice, dab, turbot, brill, lemon sole, squid, bib
Seine rope length each side	3.5 km
Seine rope diameter	44 mm
Seine rope breaking strain	10 ton
Groundline length	70 m

IDENTIFICATION OF RECEPTORS

1.4.89. Commercial fisheries receptors requiring assessment in relation to the potential impacts of the marine cable corridor have been identified based on the fisheries information described in the sections above, including that gathered during consultation with stakeholders. These are listed below in Table 8.

Table 8 Receptors identified in relation to commercial fisheries along the marine cable corridor

Receptor	Relevant to the assessment within UK EEZ waters	Relevant to the assessment within French EEZ waters
Local UK inshore fleet (potters, netters, demersal trawlers, longliners and dredgers)	Yes	No – Local UK inshore vessels focus their activity in areas out to the UK's 12 nm (and primarily within the 6 nm limit)
UK over-15 m scallop dredgers	Yes	Yes
Anglo-Dutch seine netters	Yes	Yes
Anglo-Dutch pelagic trawlers	Yes	Yes
UK beam trawlers (south coast of England)	Yes	Yes
French Scallop dredgers	Yes	Yes
French Demersal otter trawlers	Yes	Yes
French Pelagic trawlers	Yes	Yes
French local inshore vessels (static gears)	No – French local inshore vessels focus their activity out to the French	Yes

Receptor	Relevant to the assessment within UK EEZ waters	Relevant to the assessment within French EEZ waters
	12 nm limit (and primarily within the 6 nm limit)	
Belgian beam trawlers	Yes	Yes
Belgian scallop dredgers	Yes	Yes
Belgian seine netters	Yes	Yes
Belgian netters	No – There is no activity by these vessels in the immediate vicinity of the Proposed Development	
Dutch seine netters	Yes	Yes
Dutch pelagic trawlers	Yes	Yes

LANDFALL

FISHING ACTIVITY

UK

1.4.90. Within the confines of Langstone Harbour, a small, seasonal oyster fishery exists (Figure 13). The Solent oyster fishery was once the largest in Europe however, in recent years, only a few harbours, including Langstone, remain open to the fishery. There are several reasons for this. Firstly, Langstone Harbour is where oysters predominantly occur; secondly there is a local byelaw preventing oyster dredging in other areas of the Solent; and thirdly there are seasonal restrictions to protect the oysters during their breeding season. The oyster fishery in the vicinity of the landfall area is solely commercial using specially designed dredges. Limited clam dredging is also undertaken within Langstone Harbour.

FRANCE

1.4.91. Based on the CRPMEM report (Balazuc *et al.,* 2018) and ongoing consultation with the CRPMEM of Normandy, it is understood that the French intertidal area of the study area is not subject to significant commercial shellfish handpicking activity, unlike elsewhere in the region (Calvados, etc.).

IDENTIFICATION OF RECEPTORS

1.4.92. Commercial fisheries receptors requiring assessment with regards to the area of the landfall have been identified based on the fisheries information described in the sections above, including that gathered during consultation with stakeholders. These are listed below in Table 9.

Table 9 Receptors identified in relation to commercial fisheries at the landfall site

Receptor	Relevant to the assessment within UK EEZ waters	Relevant to the assessment within French EEZ waters
Local UK inshore dredgers targeting oysters and clams within Langstone Harbour	Yes	No

FUTURE BASELINE

1.4.93. Changes to quota and effort allocation, fishing areas and gear restrictions make predicting future patterns of fishing activity difficult and to an extent subjective. Furthermore, significant changes to the Common Fisheries Policy (CFP) which are applied to all fleets in addition to the potential effects of Brexit are likely to have significant impacts on commercial fishing within the North Sea.

1.4.94. For foreign fishing fleets, Brexit may have a significant impact on quotas and accessibility to UK waters, as full fisheries independence within the UK's EEZ has been postulated. At present, the final outcome in terms of foreign fleet's access within UK territorial limits is therefore difficult to predict. Whilst as stated above, full independence has been suggested, it is possible that to a large extent the current patterns of access and effort and catch controls may largely remain as they are at present following the end of the Brexit transition phase (31st December 2020).

1.4.95. Furthermore, regardless of Brexit, the pattern of fishing in the last 30 years has been one of significant change in vessel and gear design, operating practices, species targeted and the levels of controls and regulations to which fishing vessels have to adhere.

1.4.96. Further information on EU, UK and French fisheries legislation relevant to the Proposed Development is provided in Annex 2.

1.5 SUMMARY

Table 10. Summary Table

Nationality	Fleet	Fleet description	Activity distribution & seasonality
UK	Local inshore fleet	Many vessels are less than 12m and multipurpose. Principal methods include potting, trawling, dredging netting and longlining. Vessels operate from local ports such as Selsey, Chichester, the Isle of Wight and Portsmouth.	The majority of activity by this fleet in the study area is within 6nm of the UK coast. Activity is year-round, but the species targeted may vary with the time of year. Potting for lobster, crab and whelk; dredging for clams; and trawling for flatfish, takes place all year round. Nets and longlines targeting Dover sole, plaice, cod and sea bass, are typically worked hardest in spring and summer. Between May and June, cuttlefish are fished using traps deployed in shallow, inshore grounds.
	Scallop dredgers	Comprises the majority of over 15m vessels operating in the English Channel. Often these vessels are	High activity is recorded within the study area and is focussed in the central ICES 29E9 and 29F0, especially in UK waters. A higher concentration of activity is recorded south west of the study area.

Nationality	Fleet	Fleet description	Activity distribution & seasonality
		converted beam trawlers and are nomadic.	Activity is year-round with a peak between October and March each year.
	Seine netters	The majority of UK registered over-15m seine netting vessels are Dutch owned and operated	Moderate to high activity is focussed in central ICES 29F0 with low activity over the proposed development. Activity is highest between November and April each year
	Midwater (pelagic) trawlers	The majority of UK registered over-15m pelagic trawling vessels are Dutch owned and operated with large operational ranges	Low patchy activity is recorded throughout the study area. Activity is mostly recorded between October and February each year
	Beam trawlers	UK beam trawling vessels operating in the study area are part of the South England fleet, focusing on	Low activity in the study area focussed mainly in ICES 30E9. Most of these vessels operate out of ports on the south coast of England. Activity is recorded year-round

Nationality	Fleet	Fleet description	Activity distribution & seasonality
		grounds in the Western Approaches and Channel	
France	Demersal trawlers	The majority of the fleet fishing the study area use towed gears (153 vessels out of 195 in 2014) with 92 of those vessels operating trawls and dredges. Pelagic trawl vessels operate to a lesser extent.	In the study area, trawling for demersal fish mainly occurs outside of territorial waters (12nm) on either side of the UK-France boundary during winter. Demersal trawling activity tends to occur closer inshore during summer months, to the east of the study area.
	Pelagic trawlers		Pelagic trawling mainly occurs over the central section of the study area during winter months. Between April and December, pelagic species are also targeted between 3 and 12nm in French waters.
	Scallop dredgers		Scallop dredging tends to concentrate over the central section of the study area, within the French EZZ and up to the French 6nm limit. Scallop dredging is prohibited in French

Nationality	Fleet	Fleet description	Activity distribution & seasonality
			waters between May and September, and activity is high outside of these months.
	Static gear	40 vessels used static gear in the study area in 2014. Among them, 21 use pots and nets and 13 are exclusive netters.	Up to 10 local small vessels (under 10m doris) operate within 6nm of the French coast, along with 15 cuttlefish potting vessels within 3nm. Larger netters operate further offshore. Netting is operated year-round. Drift netting is operated between October and December. Potting for cuttlefish occurs between May and June, whelking vessels operate year-round.
Belgium	Demersal trawlers	Comprises 35 vessels which are typically 38-40 m Eurokotter vessels operating beam and demersal otter trawls and to a lesser extent seine nets, scallop	Activity is moderate in the central ICES but highest outside of the study area in the north east channel.
	Seine netters & scallop dredgers		Low activity is recorded in the study area, primarily in central ICES 29E9 and 20F0. Scallop dredging activity is focussed in the UK waters

Nationality	Fleet	Fleet description	Activity distribution & seasonality
	Netters	dredges. Belgian vessels have historic fishing rights to access grounds between 6 and 12nm of the UK	Low activity is recorded ICES 29F0 over a small area between the 12nm limits of the UK and France with low activity recorded in the marine cable corridor itself.
Netherlands	Seine netters	Predominately operate the fly shooting seine netting technique.	Activity is moderate across the central ICES 29E9 and 29F0, but is highest to the east of the cable corridor. Year round with a peak between October and March
	Pelagic trawlers	Often more than 100m in length, with very large operating ranges	Moderate activity is recorded in the study area especially in central ICES 29E9 and 29F0. Year round with a peak between October and March

1.6 REFERENCES

Balazuc A., Leblanc N., El Ghaziri A., Viera A. (2018). Analyse des activités halieutiques sur le corridor du projet d'Interconnexion électrique AQUIND. Rapport des CRPMEM de Normandie et des Hauts-de-France pour la société AQUIND Limited – Jalon 2 : Analyse complète. Réalisation Mars-Avril 2018. 65p.

BMM (2012) Plate 9 Nomadic UK scallop dredger at Portsmouth port, registered to Peterhead

BMM (2016) Plate 8 Belgian beam trawler

BMM (2017) Plate 1 Whelk pots

BMM (2018) Plate 2 Local inshore vessel (9.94 m) which works nets, longlines, dredge and cuttlefish traps

Canalisations et cables sous-marin (2010). Etat des connaissances. Preconisations relative a la pose, au suivi et a la pose, au suivi et a la depose de ces ouvrages sur le DPM, CETMEF 2010.

UKHO (2011) Ministry of Agriculture Fisheries and Food under the superintendence of

Rear admiral D.W Hetsen CB. OBE Hydrographer of the navy.

1.7 ANNEXES

ANNEX 1

DATA SOURCES AND LIMITATIONS

MARINE MANAGEMENT ORGANISATION (MMO) SURVEILLANCE SIGHTINGS DATA

1.7.1. As a means of fisheries protection and to ensure the fishing industry complies with UK and EU law, aircraft and vessels are used to compile surveillance sightings of fishing vessels in UK waters. The data is used to give a relative spatial distribution of fishing vessels over time by method and nationality. It should be noted that due to the low frequency of flight and vessel patrols carrying out surveillance in an area (generally weekly and only during daylight hours), sightings data gathered should not be used to give a quantitative assessment of fishing activity and only presents overarching patterns of activity. The MMO has provided vessel and flight surveillance sighting data for all fishing vessels in UK waters by nationality and method between 2013 and 2017.

MMO FISHERIES STATISTICS (LANDINGS VALUES AND FISHING EFFORT DATA)

1.7.2. Landings and effort data are collected by the MMO by ICES rectangles for all UK and non-UK vessels landing into UK ports (covering years between 2013 and 2017). Landings and effort datasets have been analysed to identify:

- Vessel length categories (under 10m, 10 to 15m and over 15m);
- Fishing methods used;
- Species targeted;
- Ports; and
- Seasonal variation (by month and year).

1.7.3. The main source of fisheries landing data is the European Commission (EC) daily log sheets that all vessels over 10m must complete and submitted to the MCA. Fishing vessels under-10m in length are not required to submit daily log sheets,

although skippers can choose to do so. Dockside inspections are made on vessels in the under-10m fleet by local fisheries officers. The Shellfish Entitlement Scheme (2004) and the 'Registration of Buyers and Sellers of First Sale Fish and Designation Auction Site Scheme' (2005) further facilitate collection of fisheries data from the under-10m fleet. It should also be recognised that under these schemes, fishermen are required only to identify the ICES sub-area within which catch was taken and not the specific ICES rectangle. Local MMO officers, however, allocate catches, effort and values by the under-10 m fleet into ICES rectangles on the basis of best estimate.

1.7.4. Fisheries statistics giving landings values and fishing effort are also provided from ILVO (covering years between 2010 and 2014) and IMARES (covering 2013 and 2017).

1.7.5. Fisheries statistics giving landings weights by method and species have been provided by the Channel Integrated Approach for Marine Resource Management (CHARM) for the years between 2001 and 2010.

VESSEL MONITORING SYSTEM (VMS) DATA

1.7.6. Since January 2005, all EC vessels over-15 m in length have been fitted with satellite tracking equipment which transmits the vessels' position at a minimum of every two hours to the relevant Member States' fisheries authority. The VMS data for each nation is described below.

United Kingdom

1.7.7. VMS data from the MMO is the most comprehensive fisheries data set currently available for the UK fleet which shows the intensity of over-15 m fishing vessel activity in the vicinity of the Project. The MMO monitors all UK vessels irrespective of location, and all foreign vessels within the UK Exclusive Economic Zone (EEZ). Information regarding non-UK vessels can only be disclosed by the MMO with prior permission from the vessels national regulating body.

1.7.8. The satellite data has been cross-referenced with landings data to give values and the time associated with VMS reports is multiplied by each vessel's engine size to give effort in KW hours. This data is averaged across the years 2013 to 2017 in a 0.05° by 0.05° grid. The disclosure of independent UK vessels' identities is restricted under the Data Protection Act (1998) and the coordinates of individual vessels are only available with permission from the vessel's skipper/owner. Any rectangles that contain less than five transmissions, or vessels that are stationary in port are assumed not to be fishing and so are not included in the data set. VMS data does not differentiate between vessels fishing and steaming. As a result,

the data has been filtered by speed, with only vessels travelling at speeds of between 1 and 6 knots included (speeds which are consistent with common fishing vessel speeds in Lee *et al.,* 2010).

1.7.9. As of 2012, EU legislation required all Member State vessels over-12m in length to have VMS installed. The current MMO VMS dataset, however, only includes information on vessels over-15m in length.

The Netherlands

1.7.10. Landbouw Econmisch Instituut (LEI) and the Institute for Marine Resources and Ecosystem Studies (IMARES) have provided comprehensive VMS datasets from 2013 to 2017. The grid used in this dataset is larger than that utilised by the MMO. A grid is defined a 1/16th of an ICES rectangle. IMARES have combined VMS with logbook data and information on fish value and fishing effort is recorded in days. Logbook data are added to VMS records to indicate those records that are associated with fishing activity. The data have also been filtered by speed.

Belgium

1.7.11. The Belgian Institute for Agricultural and Fisheries Research (ILVO) provided BMM with VMS data for Belgian vessels for the period 2010 to 2014. The data has been combined with logbook data to give fish values and effort is recorded in days. The data have been filtered by speed with all speeds of less than 1kt removed. This VMS dataset only includes records of vessels over-15m in length.

France

1.7.12. IFREMER issued a report in 2015 in which French fishing effort recorded in days for over 18 m vessels is given (IFREMER, 2015). This VMS data was georeferenced as actual datasets have not been shared.

1.7.13. In addition, the French CRPMEM published a report in 2018 covering the commercial fishing activity in 2014 in waters relevant to the study area (CRPMEM, 2018). In this dataset, the fishing effort is expressed as a percentage of the total number of vessels operating a method in each grid within the study area. This data was also georeferenced.

1.7.14. BMM submitted a formal request to the French government data holders specific to the Proposed Development, on April 24th 2018, with follow up emails on June 14th 2018 and 20th September 2018 without success.

VALPENA DATA (CRPMEM OF NORMANDY & HAUTS-DE-FRANCE)

The VALPANA data provided by relevant French CRPMEMs are subject to a number of limitations which are detailed below:

- **Partial data**: the 2014 VALPENA data used in the report cover 91% of the fleet based in Normandy and Hauts-de-France.

- **Data derived from fishermen's statements**: the data set can therefore be subject to approximations or inaccuracies. This particularly the case for skippers of large vessels operating towed gear who have extended fishing grounds in the English Channel and elsewhere. However, each interview goes through individual and collective validation to minimize level of approximation.

- **VALPENA grid**: The cells used to record fishing activity are somewhat larger than the footprint of a cable corridor. Furthermore, the methodology tends to homogenize fishing activity at the scale of each cell which does not reflect true fishing patterns.

- **Bias introduced by the temporal indicator**: the VALPENA methodology requires skippers to indicate the number of months spent in each cell, which does not allow the differentiation between vessels spending one day or 20 days in the given cell on a given month.

- **Use of one year of data**: relying on one year does not allow to flatten annual variability of fishing activity which often occurs due to environmental, regulatory or market factors.

ANNEX 2

LEGISLATION AND POLICY

1.7.15. The legislation relevant to the Proposed Development is given below in Table 11.

Table 11 Commercial Fishing Legislation relevant to the Proposed Development

Country	Commercial fisheries legislation - Source	Nature of legislation	Coverage	Relevance to Aquind interconnector
European Union Member States	EU - Common Fisheries Policy (CFP)	TACs and quotas, Minimum Landing Size (MLS), Technical measures	All EU registered vessels	All vessels targeting grounds around the Aquind study area need to abide by EU regulations in terms of quota available, seasonal closures, discard ban etc.
	Historic rights	The territorial fishing limits of EU member states extend out to 12 nm, within which only the vessels of a state or vessels from other states with historical rights are entitled to legally fish (EU Regulation 1380/2013 Annex 1).	All EU registered vessels	Historical fishing rights in areas relevant to the Proposed Development are shown in **Error! Reference source not found.**. In UK territorial waters relevant to the cable corridor, fishing rights within the 6 to 12 nm are held by the French for all species and by Belgium for demersal species. On the French section of the cable corridor, fishing rights are held by Germany for herring from October 1st to December 31st.
	Bilateral Agreement – Scallop management in the Channel	UK and French authorities have reached an agreement on the management of scallop stocks in the English Channel for 2018-2019, following a first agreement reached for the 2013-2014 season. UK vessels obtained extra days at sea under the	UK and French vessels	In 2018, the UK over-15 m scallop fleet obtained additional effort days each. In return, UK fishermen agreed not to fish in area VIId (eastern English Channel) in August and September, in certain areas of French waters in VIId between August and November and to a closure of an area further west off the French coast within Area VIIe between August and December (MMO).

Country	Commercial fisheries legislation - Source	Nature of legislation	Coverage	Relevance to Aquind interconnector
		Western Waters regime in exchange for them observing area closures.		No agreement could be found for the UK under-15m fleet. This agreement will have consequences on effort patterns of the UK scallop fleet in some parts of the cable corridor, transferring activity from summer months to winter. Another relevant article of legislation to note is the Scallop Fishing (England) Order (2012), which sets specific limits for the dimensions, format and number of scallop dredges permitted to be operated within 12 nm of the UK by British vessels.
	EU/ International conventions	Marine Protected Areas include several protection tools such as Special Areas of Conservation (SACs), Special Protected Areas (SPAs) and UK Marine Conservation Zones (MCZs).	MCZs are a type of MPA designed by the UK to protect habitats, species and geology of national importance; likewise, SACs are implemented to protect habitats and species listed under the Habitats Directive (Council Directive 92/43/EEC). Therefore, it is	The UK MCZs most relevant to the Aquind interconnector study area are: - Utopia - Offshore Overfalls - Offshore Brighton These three sites were designated as MCZ in 2016 and management measures are still to be designed and implemented. On the French side, the “Littoral seino-marin” SPA was designated in 2013 to protect certain species of birds and it is not expected that specific fishing regulations will be introduced.

Country	Commercial fisheries legislation - Source	Nature of legislation	Coverage	Relevance to Aquind interconnector
			possible that MCZs and SACs may impose restrictions on fishing activity within the vicinity of the project.	
France	CRPMEM/ Préfecture de région	Restrictions on static gear	All vessels with a licence to operate static gear such as potting for crustaceans, potting for whelks and netting are subject to technical restrictions in Normandie.	Restrictions on the number of pots/length of nets allowed by vessel provide some useful information about the type of gear likely to be set in the vicinity of the Aquind interconnector study area.
		Restrictions on towed gear	All vessels with a licence to operate towed gear such as demersal and pelagic trawling, and dredging for bivalves, are subject to technical	Article 4 of decree 90-94 (25/01/1990) established a ban on trawling activities within the 3nm limit off the coast of France and islands. There are however exemptions to this, including: • Trawling for cuttlefish within the 3nm limit off the coast of Seine maritime which usually occurs in April or May, depending on a decision of the administration based on a proposal of the cuttlefish commission

Country	Commercial fisheries legislation - Source	Nature of legislation	Coverage	Relevance to Aquind interconnector
			restrictions in Normandie.	of the Comite Regional des Peches Maritime de Normadie (CRPM). Off the coast of Seine Maritime, there is a ban on scallop dredging within the 6nm limit from Fécamp to Le Treport (order 81/86) but dispensations do apply on a case by case basis. Besides, both trawling and mussel dredging are allowed within the 6 nm limit. The Project falls within the Hors Baie de Seine scallop management zone. Within this area, scallop dredging occurs during the winter, with the fishery closed for the remainder of the year. The start of the scallop dredging season is decided every year through local law.
	IFREMER	Scallop dredging closed areas	Vessels entitled to target scallop in the Hors Baie de Seine area	IFREMER carries out toxicity tests on scallop fished in Baie de Seine and Hors Baie de Seine in order to assess the level of Diarrheic Shellfish Poisoning (DSP), Paralytic Shellfish Poisoning (PSP) and Amnesic Shellfish Poisoning (ASP). Those tests are undertaken every 15 days during the scallop fishing season (October to March/April). Based on the results of the toxicity tests, closed areas can be established for scallop dredging off Basse Normandie. Indeed, if the level of poisoning in scallops is considered too high to carry on fishing, the administration can decide to close one of the 17 zones in both Baie de Seine and Hors Baie de Seine, which has the potential to cause displacement of activity in other fishing areas.

Country	Commercial fisheries legislation - Source	Nature of legislation	Coverage	Relevance to Aquind interconnector
UK	MMO	Sea area closures and restrictions were introduced in 2008 and are administered by the MMO.	Prohibited gears in RTCs and seasonal closed areas include demersal trawls and seines, beam trawls, gill and trammel nets and longlines. Scallop dredges, pots, pelagic gears, driftnets and purse seines are however permitted within RTCs and seasonal closed areas.	At the time of writing, there are no RTCs in operation in proximity to the Aquind cable study area.
	IFCA Byelaws	The Southern IFCA and the Sussex IFCA are responsible for the management of fisheries within the areas of the 6nm limit that are relevant to the inshore section of the cable corridor. Byelaws are implemented by the respective IFCA to manage the fisheries within their jurisdiction.	Byelaws impacting the vessels fishing in the vicinity of the project include minimum landing sizes (MLS), temporary closed areas, seasonal	The most relevant Southern IFCA byelaws applicable to the Aquind project are listed below[3]: • No fishing vessel over 12m in length may operate in specified waters within the Southern IFCA jurisdiction unless registered prior to 1995, or previously used for fishing in the specified area between 2010 and 2012. • Area based restrictions prohibit the use of bottom towed gear, under the Bottom Towed Fishing Gear Byelaw (2016).

[3] The full details of these and further measures are available on the Southern IFCA website (http://www.southern-ifca.gov.uk/byelaws)

Country	Commercial fisheries legislation - Source	Nature of legislation	Coverage	Relevance to Aquind interconnector
			closures by species and gear restrictions.	Prohibited areas include specific parts of Chichester Harbour, Langstone Harbour, Portsmouth Harbour, Southampton Water, the Solent and the Isle of Wight. These prohibited areas do not coincide with the Proposed Development. • The Solent native oyster fishery is now largely closed to commercial exploitation activities. Only a few harbours remain open to the fishery, including Langstone Harbour. A closed season also applies to the oyster fishery within the Southern District from 1st March to 31st October. • Oyster dredges used in the Southern IFCA jurisdiction should not have a front edge or blade exceeding 1.5 m in length. In the case of several dredges being used, the total length of the front edge of dredges should not exceed 3.0 m. • The maximum number of dredges which may be towed to target scallops in the Southern IFCA jurisdiction is twelve. The mouth of any dredge must not exceed 85 cm in overall width and the tow bar shall not exceed 5.18 m including attachments. The scallop fishery is closed between 1900 and 0700 on any day. • Temporary closures of shellfish beds can be decided at very short notice in order to ensure the recovery of the stock (including periwinkles, mussels, clams). • No fishing vessel, other than those deploying nets, rod & line or hook & line, may take any sea fisheries resource in or from protected seagrass beds, which are

Country	Commercial fisheries legislation - Source	Nature of legislation	Coverage	Relevance to Aquind interconnector

				located within defined areas of Chichester Harbour, Langstone Harbour, Portsmouth Harbour, the Solent and the Isle of Wight.
				• Minimum landing sizes apply to mussels (50 mm), clams (63 mm), skates & rays (40 cm) and fish (see below).
				  ○ Black Seabream - 23 cm;
				  ○ Brill – 30 cm;
				  ○ Dab - 23 cm;
				  ○ Conger Eel - 58 cm;
				  ○ Flounder - 27 cm;
				  ○ Lemon Sole - 25 cm;
				  ○ Red Mullet - 15 cm;
				  ○ Grey mullet - 30 cm;
				  ○ Shad - 30 cm;
				  ○ Turbot - 30 cm; and
				  ○ Witch Flounder - 28 cm.
				• When fishing for oysters, clams and mussels in any fishery only the following methods may be used:
				• Handpicking; and
				• Dredging using a dredge with a rigid framed mouth so designed as to take shellfish only when towed along the sea bed. Shellfish may only be removed from the dredge when it has been hauled and lifted into the vessel.
				• All vessels with a licence to operate static gear such as potting for crustaceans, potting for whelks and netting are subject to technical restrictions such as the number of pots/length of nets allowed by vessel.
				• The removal of berried female lobsters from the European lobster fishery is

Country	Commercial fisheries legislation - Source	Nature of legislation	Coverage	Relevance to Aquind interconnector
				prohibited. Any berried lobster shall be immediately returned to the sea, as near as possible to the place from which it was taken. • The cuttlefish fishery utilises cuttlefishes breeding behaviour, hence it is common for the females to lay her eggs on traps, which can become damaged. In response to this, Southern IFCA developed a voluntary cuttlefish egg byelaw, whereby traps bearing eggs are left submerged until the eggs hatch. The most relevant Sussex IFCA byelaws applicable to the Aquind interconnector study area are listed below[4]:The most relevant Sussex IFCA byelaws applicable to the Aquind interconnector study area are listed below[5]: • The maximum authorised overall length of vessels fishing for seafish within the Sussex IFCA district is 14 m, unless specific requirements are met by the vessel owner (i.e. historic practices). • A closed season applies to scallop dredging within the Sussex district from 1st June to 31st October. Furthermore, during the prohibited season no more than 200 scallops per person may be removed from the fishery during any period of 24 hours. • All vessels with a licence to operate static gear such as potting for crustaceans, potting for whelks and netting are subject

[4] The full details of these and further measures are available on the Sussex IFCA website (https://www.sussex-ifca.gov.uk/byelaws)
[5] The full details of these and further measures are available on the Sussex IFCA website (www.sussex-ifca.gov.uk)

<table>
<tr><th>Country</th><th>Commercial fisheries legislation - Source</th><th>Nature of legislation</th><th>Coverage</th><th>Relevance to Aquind interconnector</th></tr>
<tr><td></td><td></td><td></td><td></td><td>to technical restrictions such as the number of pots/length of nets allowed by vessel.
• All vessels operating pots and/or traps for the capture of shellfish must hold a shellfish permit and purchase permit tags. Permit tags must then be attached to all deployed pots. The species managed through the shellfish permit are currently whelk, lobster, crab, cuttlefish, spider crab, velvet swimming crab and prawn. The number of pots or traps that can be fished by commercial fishers under the shellfish permit and tagging scheme are detailed below:
<table>
<tr><th>Type of pot or trap</th><th>Number of pots or traps per vessel</th></tr>
<tr><td>Lobster/crab</td><td>300 out to IFCA 3 nautical mile limit, with a total of 600 within IFCA 6 nautical mile limit</td></tr>
<tr><td>whelk</td><td>300 out to IFCA 3 nautical mile limit, with a total of 600 within IFCA 6 nautical mile limit</td></tr>
<tr><td>prawn</td><td>No limits</td></tr>
<tr><td>cuttlefish</td><td>300 within IFCA 6 nautical mile limit</td></tr>
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ANNEX 3

FISHING METHODS AND GEAR TYPES

SCALLOP DREDGING

1.7.16. Scallop 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 number of dredges per side can typically vary from three to four on a 10 m boat to up to 14 for the larger class of vessel. The principal type of dredge used is the Newhaven 'Springer' type, whereby the scallops are 'raked' from the seabed by steel teeth that are attached along the leading edge of the dredges. The teeth can penetrate the seabed to depths of approximately 20 cm.

1.7.17. A large proportion of vessels operating scallop dredges in the English Channel are nomadic, and target grounds across the UK (Plate 9).

Plate 9 Nomadic UK scallop dredger at Portsmouth port, registered to Peterhead (BMM, 2012)

SEINE NETTING

1.7.18. Seine nets are deployed over clean, obstruction-free seabed for the capture of a range of whitefish species. Single or multiple seine nets can be operated. As shown by Diagram 11, the seine ropes are laid on the seabed in a triangular pattern with the net located in the middle of the base of the triangle. The initial hauling phase involves the winching in of the seine ropes so they are pulled together, which exploits the reaction of the fish to swim ahead of the ropes moving over the seabed. Once the ropes are approximately parallel, the hauling speed is increased and the net is hauled over the seabed capturing the fish that have been herded within its path. It is understood that the

maximum lengths of ropes deployed each side of the net by the largest of the Dutch seine netters deploying Scottish seine nets, can be up to 3km (Pers. comm: P. Visser, 11/04/2018).

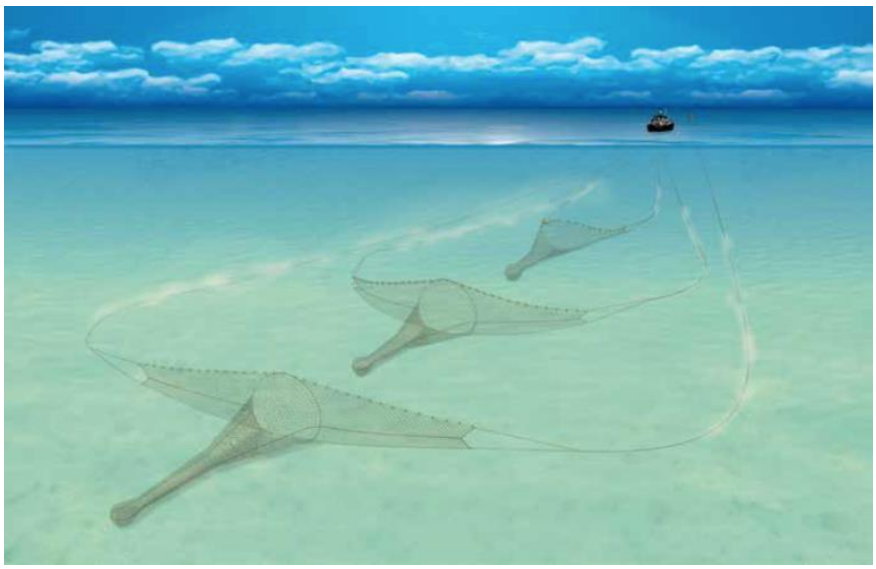


Diagram 11 Seine nets (Seafish, 2015)

PELAGIC TRAWLING

1.7.19. Pelagic trawls consist of a funnel shaped net with a large opening, which is towed through the mid-water column with the fish being retained within the cod end (Diagram 12). The bridles between the net and trawl doors are rigged to result in a wide net opening, along with weights along the lower wing ends and the hydrodynamic force from towing the nets through the water column. The speed at which the net is towed and the length of the trawl warp affects the depth of the net in the water column in order to target specific shoals of fish (Plate 10). Nets on pelagic trawl vessels can be as large as 200 metres wide and 150 metres deep.

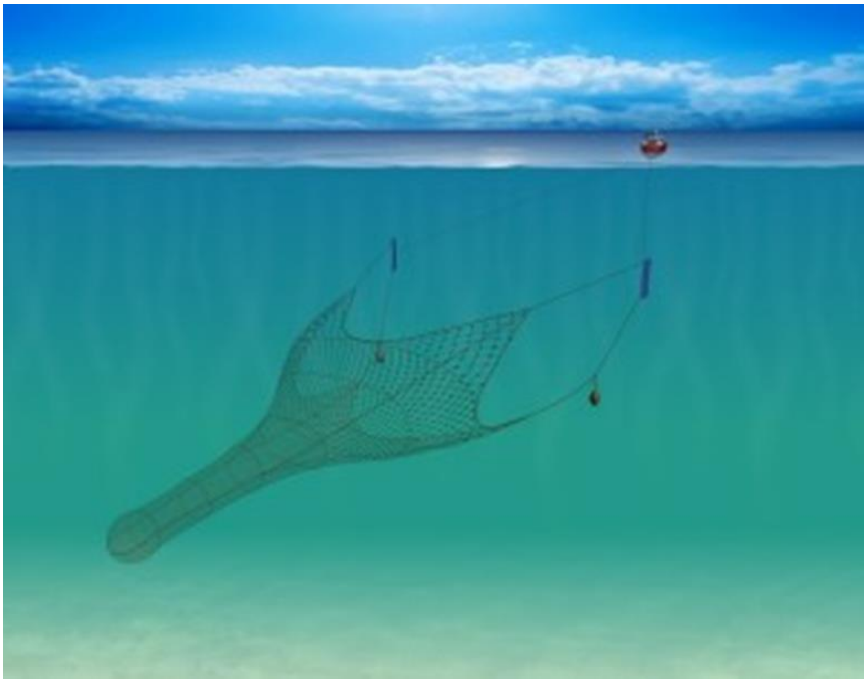


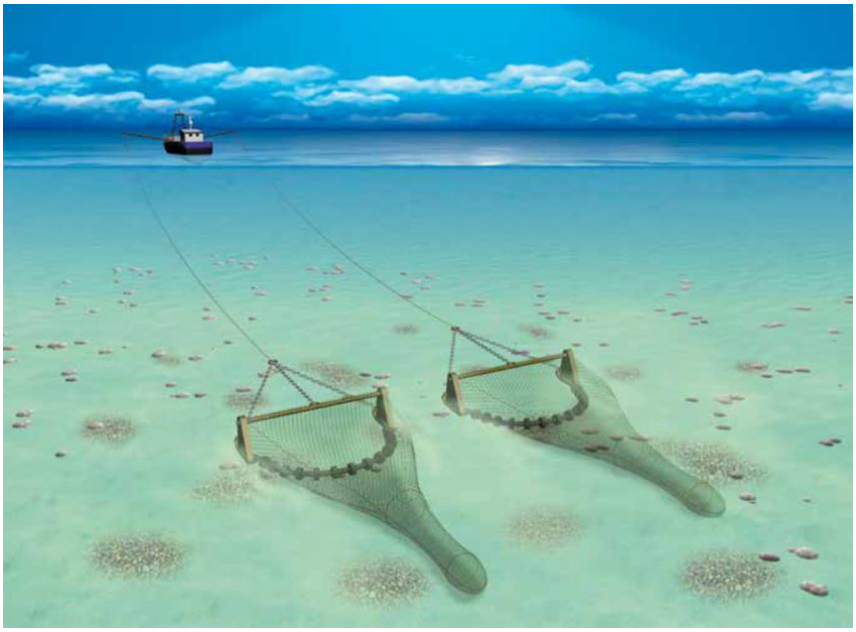
Diagram 12 Pelagic trawler (Seafish, 2015)

Plate 10 pelagic trawl net being towed in the mid-water column (BMM, 2012)

BEAM TRAWLING

1.7.20. Traditional beam trawls comprise a steel beam held above the seabed by shoes at each end, onto which a net is attached (Diagram 13). The beam is towed using chain bridles that attach to the shoes and gear and is towed from outrigger booms on either side of the vessel. Tickler chains disturb fish to rise off the seabed to be caught in the net. When operating in areas of hard, rocky substrate, chain mats made of a lattice of chains attached to the beam across the mouth of the net are also used. Beam trawls can range in length from four to twelve metres. Fully rigged (in air) weights of beam trawls used in the area can vary from four to six tonnes, although recently there has been effort made to reduce weights and therefore drag in light of increasing fuel costs. Towing directions are influenced by a number of factors such as seabed contours, tidal flow direction, weather and the need to avoid snagging and entanglement

Diagram 13 A Beam Trawl (Seafish, 2015)



DEMERSAL TRAWLING

1.7.21. Demersal otter trawls are similar to pelagic trawls, but the funnel shaped net is towed over the seabed (Diagram 14). The horizontal opening of the net is achieved by a combination of the hydrodynamic and ground sheer forces acting on the trawl doors. The vertical opening of the net is maintained by a series of floats along the net headline and the base of the net kept on the seabed by the weighted ground line, which for fishing over rough ground can be fitted with a series of rubber disks known as “rock hoppers”. The net can be towed along the seabed (termed benthic otter trawling) or just above the benthic zone (termed demersal otter trawling).

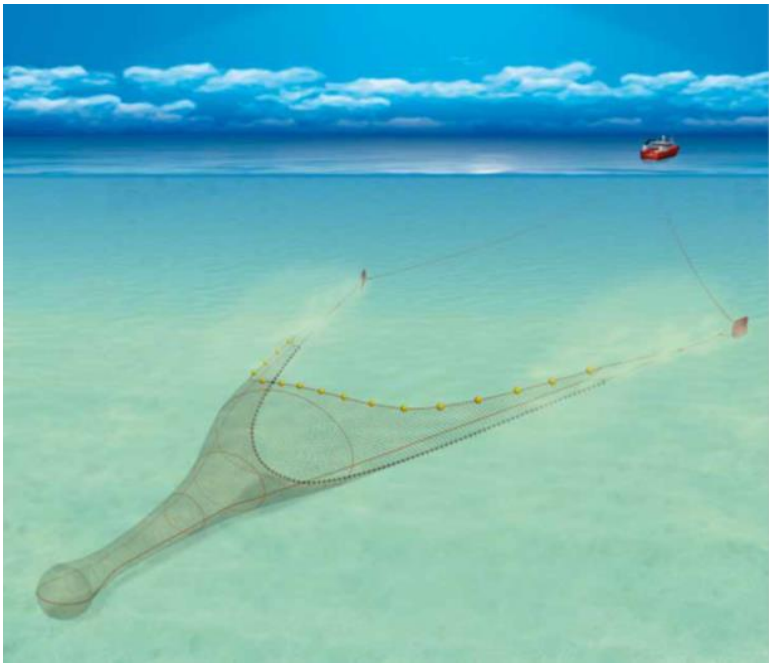


Diagram 14 Demersal otter trawl (single rig) (Seafish, 2015)

CLAM DREDGING

1.7.22. Hydraulic dredging is the main method for collecting clams. Hydraulic dredges operate in restricted coastal areas (i.e. from 3 to 10 m deep) in areas with sandy substrata.

1.7.23. Water jets fluidise the sediment immediately ahead of the dredge and a hollow blade penetrates into the sediment to lift out the clams. A backwater jet is often used to lift clams up through a pipe into a collecting device.

POTTING

1.7.24. In general, all pots have one or more “funnel” shaped entrances for the shellfish to enter. Whelks are generally harvested using a purpose designed pot or, more often, a modified and weighted 25 litre plastic drums (Plate 11). The number of whelk pots in a string can be higher than for crab and lobster, with up to 80 pots per string. Strings are generally similar lengths to those used for crab and lobster potting but can be longer.

1.7.25. Parlour pots (Plate 11) are generally used for the capture of crabs and lobster with pots, usually baited with fish. Pots are rigged in fleets of between 10 and 50 pots per string depending upon the vessel size and the area to be fished. Ramsgate fleet deploys around 20-25 lobster pots per string due to smaller vessel size. Lengths of a string of pots may range from 100 to 500 metres, anchored at each end with either an anchor or chain clump weights. A variety of surface markers are used to indicate the presence of pots including flagged dhans (marker flags), buoys and cans. Soak times, the time between baiting and deployment to emptying and harvesting, varies from approximately 12

hours to two days, although this can be longer during periods of adverse weather.

1.7.26. Vessels engaging in potting are generally under-10 m in length, with crew members varying from one to three.

Plate 11 Whelk pots (left) and parlour pots (right) used to target whelks and lobsters (BMM 2016, 2013)

CUTTLEFISH TRAPS

1.7.27. There are two main designs of cuttletraps; one is a metre square steel frame with a nylon net covering, the other is a smaller round trap (also known as a 'French style' trap). Both types have a feathered finger entrance designed for the cuttlefish to be able to enter but not exit and a trap door for emptying and baiting.

1.7.28. The traps are typically worked in strings of 10 - 20 (depending upon the size of the vessel) with a spacing of around 50 feet in between each trap. Instead of food, a white ceramic tile or a female is used as 'bait', as traps are deployed during the breeding season, which attracts males and thus other females into the trap. On each haul the catch is emptied, the female is replaced and the gear is shot again in succession. The cuttlefish season is short, operating between May and September.

LONGLINING

1.7.29. Longlining involves a main line on to which a series of shorter lengths of line (snoods) are attached with baited hooks (Diagram 15). Longlines can be up to several miles in length with anchors at regular intervals and at each end. This method can be used to catch both demersal and pelagic fish species but in the area under consideration it is used primarily for the capture of demersal species, particularly cod. It is known to be fuel efficient and is recognised as a selective method with minimal bycatch.

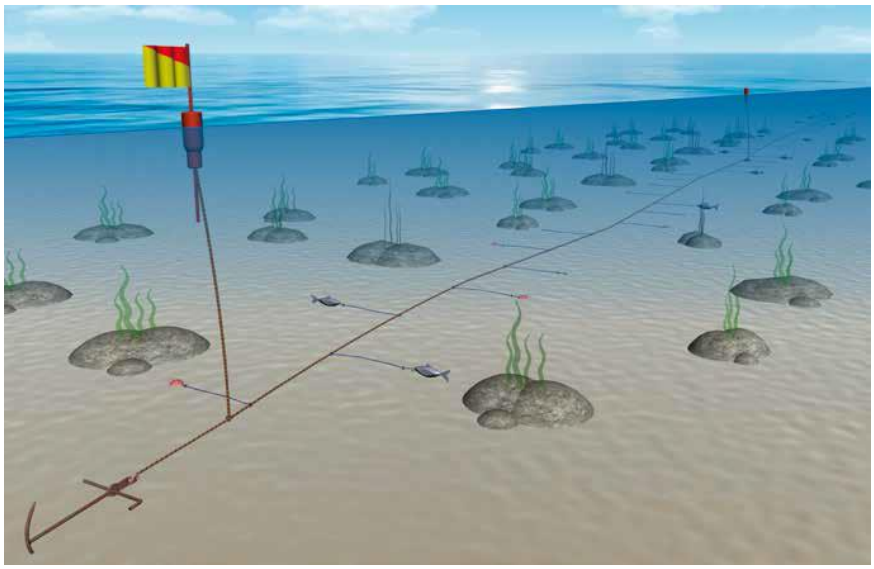


Diagram 15 Demersal Longlines (Seafish, 2015)

GILLNETTING

1.7.30. Fleets of gillnets usually comprise a series of four to six 500m monofilament nets joined together. Nets can be either fixed or drifting. As with fleets of pots, each end of the fleet of nets is marked by surface marker buoys. Gillnets can either be panels of monofilament nets, also called tangle nets or trammel nets, which consist of a smaller mesh inner net with larger mesh net panels on either side. Fixed nets are set normally only during neap tides. Drift nets are deployed across the tide and left for a period of three to six hours to drift with the tidal current.

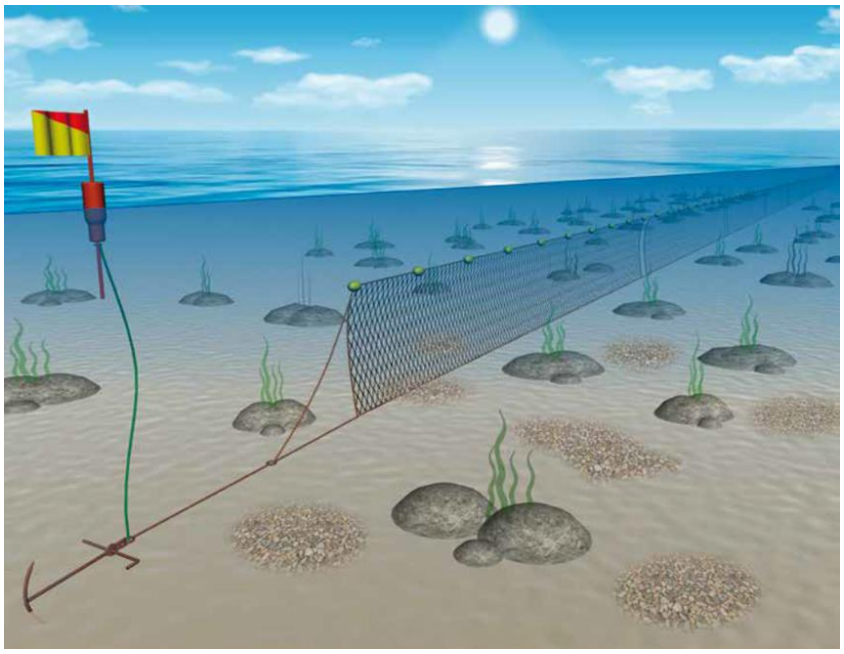


Diagram 16 Fleet of bottom set gillnets (Seafish, 2015)

TRAMMEL NETTING

1.7.31. Trammel nets are constructed of three ‘sheets’ of nets, with two outer nets rigged each side of a fine inner mesh panel. The inner layer of smaller mesh netting is hung onto the headline and foot rope much slacker that the outer two layers; it is also made much deeper than the two outside layers. This creates plenty of slack netting that the fish swim into and get tangled in pockets of netting between the two outer layers. As with the gill net, the netting in the trammel net is almost invisible to the fish. They will swim through the meshes of the first layer of large mesh netting, into the layer of slack small mesh, forcing the slack fine mesh netting through the meshes of the second layer of large mesh and entrapping them in a pocket of the inner mesh netting. The nets sit or ‘swim’ in 3 to 8 feet of water. The fixed net only fishes on the slowest run of the tide. Fish targeted in this manner are plaice, sole, cod and cuttlefish.

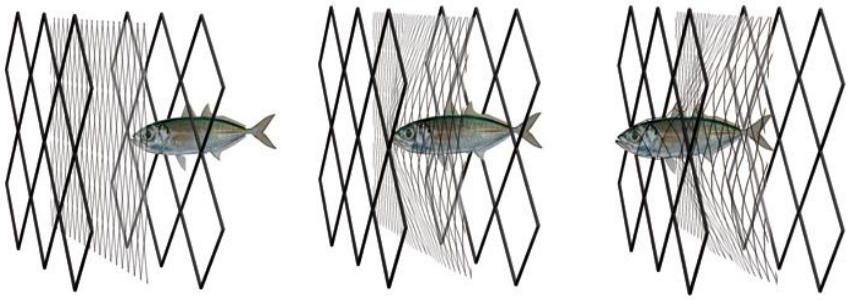


Diagram 17 Trammel net catching method (Seafish, 2015)

Brown and May Marine Ltd
Progress Way
Mid Suffolk Business Park
Eye
Suffolk
IP23 7HU