



AQUIND Limited

PEIR CHAPTER 12

Commercial Fisheries

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12 COMMERCIAL FISHERIES

12.1 SCOPE OF THE ASSESSMENT

12.1.1 INTRODUCTION

12.1.1.1 This chapter provides preliminary information regarding environmental impacts on commercial fishing activities as a result of the Proposed Development.

12.1.1.2 This chapters outlines information regarding the potential impacts associated with the construction, operation including maintenance and repairs, and decommissioning of the Proposed Development, as known at the time of publication. The potential effects of decommissioning are, in the worst case, considered to be equivalent to the effects associated with construction/installation and are assessed on this basis, though they may potentially be less than those associated with construction/installation depending on the decommissioning activities undertaken, for instance where the marine cable is left in situ.

12.1.2 STUDY AREA

12.1.2.1 The Entire Marine Cable Corridor for the Project extends from the Landfall at Eastney, near Portsmouth to Pourville in Normandy, France.

Marine Cable Corridor

12.1.2.2 The Marine Cable Corridor encompasses the location of the Landfall and extends from Eastney, from MHWS, out to the UK/France EEZ boundary line (see Figure 3.1 of Chapter 3 Description of the Proposed Development).

12.1.2.3 For the purposes of this chapter, baseline data is relevant for the whole of the Channel (i.e. the Entire Marine Cable Corridor), however the assessment is focussed on the Marine Cable Corridor and Landfall within the UK marine area (as this comprises the Proposed Development to be assessed). Where impacts arise as a result of the combination of the impacts of the Proposed Development and the impacts of projects in the UK marine area and/or other EEA states, these will also be identified and assessed.

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

12.1.2.5 As fisheries in this area are wide ranging, utilising both UK and French waters, the study area used for the commercial fisheries baseline is defined with reference to the ICES rectangles which overlap the Entire Marine Cable Corridor. As illustrated in Figure 12.1, these include the following:

- ICES Rectangle 30E8;

- ICES Rectangle 30E9;
- ICES Rectangle 29E9;
- ICES Rectangle 29F0;
- ICES Rectangle 28F0; and
- ICES Rectangle 28F1.

Landfall

- 12.1.2.6 The marine cables will make Landfall through the use of HDD methods which will travel underneath the intertidal area at Eastney from an exit/entry point in the marine environment approximately 1 km seaward from the transition joint bays located in the car park behind Fraser Range (Figure 3.3 in Chapter 3 Description of the Proposed Development). The Landfall falls within ICES rectangle 30E8.
- 12.1.2.7 The fishing activities assessed which are relevant to the Landfall take place in the intertidal in the vicinity of Eastney.
- 12.1.2.8 HDD is now also proposed to be undertaken at Langstone Harbour to enable the cables to cross underneath Langstone Harbour from Portsea Island to the mainland (see Figure 3.9 of Chapter 3 Description of the Proposed Development). It is anticipated that no HDD works will occur within the marine environment of Langstone Harbour as the drilling will be underneath seabed of the harbour area. The entry/exit points of the drill will be located above the MHW mark. The HDD crossing under the north-western corner of Langstone Harbour has also been considered to be part of the study area.

12.2 LEGISLATION, POLICY AND GUIDANCE

- 12.2.1.1 This assessment has taken into account the current legislation, policy and guidance relevant to commercial fisheries. These are listed below.

12.2.2 LEGISLATION

- 12.2.2.1 Key fisheries policy and regulations in UK waters in areas relevant to the Proposed Development are outlined in the following sections with full details provided in Appendix 12.1 Commercial Fisheries Baseline Report.
- 12.2.2.2 Commercial fishing in European Union ('EU') waters is subject to a range of considerations at the 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 the commercial fisheries baseline.

12.2.3 PLANNING POLICY

National Policy

- 12.2.3.1 UK Government produces NPS which provide the framework within which Examining Authorities make their recommendations to the Secretary of State. NPS comprise the Government's objectives for the development of NSIPs. EN-1 Overarching NPS for Energy (2011, DECC) is the relevant NPS for the Proposed Development.
- 12.2.3.2 The main bodies regulating fishing activity in England are the EU through the EU Common Fisheries Policy ('CFP'), and the MMO through national and regional regulations.
- 12.2.3.3 It should be noted that access to fishing grounds within UK territorial waters (out to 12 nmi 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 nmi limit. As shown in Table 12.2, France, Germany, Netherlands 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.
- 12.2.3.4 The Scallop Fishing (England) Order (2012) is also relevant and sets specific limits for the dimensions, format and number of scallop dredges permitted to be operated within 12 nmi of the UK by British vessels.

Regional Policy

- 12.2.3.5 South Inshore and South Offshore Marine Plan (2018) includes the following objectives of specific relevance to commercial fisheries:
- Objective 3 includes policies to support diversification of activities which improve socio-economic conditions in coastal communities.
 - Objective 3: Policy S-FISH-1 requires that proposals which support the diversification of a sustainable fishing industry and or enhance fishing industry resilience to the effects of climate change should be supported.
 - Objective 5: Displacement: S-FISH-2: requires proposals to avoid, minimise or mitigate significant adverse impacts on access to, or within, sustainable fishing sites.
- 12.2.3.6 At a regional level, fisheries in England are managed by IFCAs in waters out to the 6 nmi limit. The area of the Proposed Development that is located within the UK 6 nmi limit falls within the Southern IFCA and Sussex IFCA Districts (Figure 12.3).

- 12.2.3.7 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 nmi (Figure 12.3). The Sussex IFCA District borders Southern IFCA to the west, extending to the Sussex/Kent border in the east (Figure 12.3). 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.
- 12.2.3.8 Southern IFCA and Sussex IFCA have implemented a number of byelaws and codes of practice to help the management of fishing activity and conservation of fisheries resources within their Districts. Those relevant to the Proposed Development are listed in the references list and can be found on the IFCA websites.
- 12.2.3.9 Southern IFCA Byelaws and Codes of Practice:
- Restriction on the use of vessels of specified descriptions - No fishing vessel over 12 m 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 (Southern IFCA, 2019a).
 - Bottom towed fishing gear 2016 - Area based restrictions prohibit the use of bottom towed gear. 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 (Southern IFCA, 2019a).
 - Temporary closure of shellfish beds - 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 applies to the oyster fishery within the Southern District from 1st March to 31st October. 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). (Southern IFCA, 2019a)
 - Scallop fishing - 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 (Southern IFCA, 2019a).
 - Prohibition of gathering (sea fisheries resources) in seagrass beds - 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 (Southern IFCA, 2019a).

- Fishing for oysters, mussels and clams - 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 (Southern IFCA, 2019a).
- 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 (Southern IFCA, 2019a).
- Cuttlefish traps Code of Practice - 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 (Southern IFCA, 2019b).

12.2.3.10 Sussex IFCA Byelaws:

- Vessel length - The maximum authorised overall length of vessels fishing for sea fish within the Sussex IFCA district is 14 m, unless specific requirements are met by the vessel owner (i.e. historic practices) (Sussex IFCA, 2019).
- Scallop closed season - 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 (Sussex IFCA, 2019).
- Fishing instruments - 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 (Sussex IFCA, 2019).
- Shellfish permit byelaw 2015 - 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. For lobster/crab, whelk the number of pots is limited to 300 out to the IFCA 3 nmi limit, with a total of 600 within the IFCA 6 nmi limit. For cuttlefish, the limit is 300 out to the 6 nmi limit (Sussex IFCA, 2019).

12.2.4 GUIDANCE

- ### 12.2.4.1
- Key guidance used for the characterisation of the commercial fisheries baseline in respect of the Proposed Development is outlined below:

- 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).

12.3 SCOPING OPINION AND CONSULTATION

12.3.1 SCOPING OPINION

12.3.1.1 As detailed within Chapter 1 Introduction, a Scoping Opinion was received by the Applicant from PINS on 7 December 2018. The responses from PINS in relation to commercial fisheries, and how those comments have been addressed in this chapter of the PEIR, are set out below in Table 12.1.

Table 12.1 - Scoping opinion responses

Consultee	Scoping Opinion ID	Summary of Comment Received	How this has been addressed by the Applicant in this PEIR
PINS	4.7.2	The Inspectorate notes that no study area has been defined in this Chapter of the Scoping Report. The study area should be clearly defined and justified in the ES and aided by clear figures.	The study area is defined and justified in this PEIR chapter (Section 12.1.2) and illustrated in Figure 12.1.
PINS	4.7.3	The Scoping Report identifies a variety of fishing vessels and techniques but does not indicate how sensitive receptors will be determined. Justification as to how sensitive receptors are determined should be clearly explained in the ES.	The identification of sensitive receptors and the basis on which they are identified is presented in Section 12.5.
PINS	4.7.4	The Inspectorate acknowledges the Applicant’s intention to consider effects on commercially harvested fish and shellfish in the Fish and Shellfish aspect chapter of the ES and discuss any significant effects in the commercial Fish aspect chapter. The ES should clearly identify the relationship between the assessments and include appropriate cross-referencing.	Noted, and appropriate cross-referencing is included within this PEIR chapter
PINS	4.7.5	It is acknowledged that cable protection could be used along stretches of the cable as a mitigation measure, but the current volume/tonnage, type and locations are unknown at present. Table 12.1 states that “the most appropriate cable protection will be used to minimise impacts to fisheries”. The ES should clearly identify whether any loss will be permanent or temporary and also quantify the loss, where significant effects are likely to occur. This comment is also applicable to the Fish	Both permanent and temporary loss is assessed in both the Commercial Fisheries and Fish and Shellfish (Chapter 9) PEIR chapters. Where appropriate, the amount of loss is quantified, and a consistent approach has been taken to assessing the worst case in terms of volume/tonnage and area of potential habitat by cable protection for both the fish and shellfish, and commercial fisheries PEIR chapters.

Consultee	Scoping Opinion ID	Summary of Comment Received	How this has been addressed by the Applicant in this PEIR
		Shellfish aspect chapter. The ES should apply consistency between the assessment of impacts considered in the Commercial Fisheries aspect chapter and those presented within the Fish and Shellfish aspect chapter.	
PINS	4.7.6	The Applicant should make effort to engage with the recreational fishing community to obtain relevant baseline information to inform the impact assessment.	Potential impacts to recreational angling are covered in Chapter 13 Shipping, Navigation and Other Marine Users and Appendix 13.1 Navigation Risk Assessment. Further consultation with the recreational angling community is planned for early 2019. Where necessary, following engagement with the recreational angling community, an assessment on disruption to angling activity will be undertaken in the final ES Chapter 13 Shipping, Navigation and Other Marine Users, once this baseline is complete.
PINS	4.7.7	The ES should ensure that the baseline data sources, including references to published papers are included in full.	Data sources and references are included within this chapter.
MMO	Section 3.1	The Scoping Report acknowledges the comments regarding fisheries made in the MMO EIA Scoping Opinion dated 22 June 2018 and has agreed to use the recommended sources of data and published literature sources to inform the EIA, and this is welcomed.	Noted and sources have been used within this chapter.
MMO	Section 3.2	As set out in our EIA Scoping Opinion of 22 June 2018, the MMO recommends seeking consultation with the Fisheries industry at the earliest opportunity as the greater the level of consultation the greater the opportunity to mitigate against any impact to the fishing industry. The	This chapter and Chapter 9 Fish and Shellfish provide the details of the additional consultation undertaken to date with fisheries stakeholders. The information collected during these consultations has been used to inform this chapter as well as the fish and shellfish chapter.

Consultee	Scoping Opinion ID	Summary of Comment Received	How this has been addressed by the Applicant in this PEIR
		<p>MMO also recommends working with members of the recreational fishing community. The Solent represents an important area for both private anglers and for charter vessels providing a platform for recreational fishers.</p>	<p>Potential impacts to recreational angling is covered in Chapter 13 Shipping, Navigation and Other Marine Users and Appendix 13.1 Navigation Risk Assessments. Further consultation with the recreational angling community is planned for early 201, and where necessary, an assessment on disruption to angling activity will be undertaken in the final ES Chapter 13 Shipping, Navigation and Other Marine Users.</p>

12.3.2 CONSULTATION

12.3.2.1 Consultation is a key part of the DCO application process. Further consultation will be undertaken after views have been sought on the PEIR, including as part of further pre-application engagement and following submission of the DCO application.

12.3.2.2 A summary of the consultation undertaken for the commercial fisheries assessment to date is detailed in Table 12.2 below.

Table 12.2 - Consultation Response

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
Portsmouth Fisheries Stakeholders UK	18 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	19 October 2017, Selsey	First introduction to the Proposed Development and discussion of geophysical survey.	General information on fishing activities and key concerns.
Southern IFCA UK	18 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 6 nmi and the byelaws that regulate fishing activities.
Sussex IFCA UK	19 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 Proposed Development.	Detailed information on fisheries operating in the Sussex IFCA District out to 6 nmi and the byelaws that regulate fishing activities.
MMO UK	20 September 2018, Portsmouth	The Proposed Development was introduced. The	Detailed information on fisheries in The

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
		types and ranges of the fisheries in the study area were discussed, as well as concerns about the Proposed Development.	Solent and vessel operating practices.
Portsmouth Fisheries Stakeholders UK	18 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	19 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 Proposed Development.	Detailed information on fisheries operating in the vicinity of the Proposed Development and in The Solent, vessel operating practices and gear specifications.
Selsey Fisheries Stakeholders UK	19 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.
CRPMEM of Normandy France	31 August 2017 Caen	The Proposed Development was introduced. French fishing activities in the study area were discussed, as well as	Principle of sharing VALPENA data was agreed.

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
		questions about the Proposed Development.	
CRPMEM of Normandy CRPMEM of Hauts-de-France	Video conferences, phone calls and e-mails. From 8 September 2017 to 15 December 2017	Project update Co-ordination of Aquind marine surveys	VALPENA reports specifications
CRPMEM of Normandy CRPMEM of Hauts-de-France	20 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	18 January 2018 Lille	The Proposed Development was detailed. 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. From 26 January 2018 to 23 March 2018	Project update 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. From 16 May 2018 to 21 August 2018	Project update Co-ordination of Aquind marine surveys	Discussion on VALPENA final report specifications
CRPMEM of Normandy CRPMEM of Hauts-de-France	11 September 2018 Dieppe Formal fisheries workshop, as	A project update was given to the CRPMEMs. Lessons learnt following Aquind	Specific workshop to be set up for cable protection Specific workshop to be set up with

Consultee	Date (Method of Consultation)	Discussion	Summary of Outcome of Discussions
	part of the follow-up of the preliminary stakeholder consultation.	marine surveys were discussed. Preliminary discussions on cable burial, protection and installation strategy	fishermen using static gears inshore Preliminary version of VALPENA final report
Sander Meyns (Redercentrale) Belgium	28 September 2018. Phone call with Brown & May ('BMM') Fisheries Liaison Consultants for the Project.	The Proposed Development was introduced. Belgian fishing activities in the study area were discussed.	Belgian fishing activity in the vicinity of the Proposed Development is primarily demersal trawling with plaice and sole as target species.
David Ras (VisNed) The Netherlands	2 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.
Deutcher Fisherei Verband Germany	Contacted by both email and phone by BMM. No response received.	N/A	N/A

12.3.2.3 Details of project consultation undertaken to date and planned future consultation for all disciplines is presented within Chapter 5 Consultation.

12.4 METHODS OF ASSESSMENT

12.4.1.1 There is currently no universally recognised methodology for quantifying the assessment of impacts from marine cables on commercial fishing activity. As such, assessment of any potential effects as a result of the Proposed Development have been based on the following method and guidance documents and publications:

- CIEEM for projects in marine and coastal environments (CIEEM, 2018);

- Cefas, MCEU, 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’;
- Marine licensing requirements (replacing Section 5 Part II of the FEPA 1985 and Section 34 of the CPA 1949);
- Sea Fish Industry Authority and UK Fisheries Economic Network (UKFEN) (2012), ‘Best practice guidance for fishing industry financial and economic impact assessments’; and
- International Cable Protection Committee (2009) ‘Fishing and Submarine Cables - Working Together’.

12.4.2 MAGNITUDE

12.4.2.1

The magnitude, detailed in Table 12.3 below, is a means to assess the scale of an effect and is based on the importance of the fishing ground, the proportion of fishing ground which is affected, duration of the effect and the recoverability of the fishery post impact.

Table 12.3 - Definitions of magnitude of impact

Magnitude of Impact	Definition
High	<p>A major proportion of the fishing ground is encompassed by the construction or maintenance activities for a long period (e.g. entire construction period).</p> <p>The area encompassed represents a major proportion of total annual landings values.</p> <p>The effect to fishing activity is permanent with no recoverability.</p>
Medium	<p>A moderate proportion of the fishing ground is encompassed by the construction or maintenance activities for a long period of time (e.g. entire construction period) or the entire fishing grounds is encompassed for a short period (days/weeks).</p> <p>The area encompassed represents a moderate proportion of total annual landings values.</p> <p>The effect to fishing activity is temporary with recoverability within a moderate time frame.</p>
Low	<p>A minor proportion of the fishing ground is encompassed by the construction or maintenance activities for a long period (e.g. entire construction period), or a moderate proportion of the fishing ground is encompassed for a short period (days/weeks).</p> <p>The area encompassed represents a minor proportion of total annual landings values.</p> <p>The effect to fishing activity is temporary with recoverability in a short time frame.</p>

Magnitude of Impact	Definition
Negligible	<p>A negligible proportion of the fishing ground is encompassed by the construction or maintenance activities for a long period (e.g. entire construction period), or a minor proportion of the fishing ground is encompassed for a short period of time (days/weeks)</p> <p>Little or no history of fishing in the area.</p> <p>The effect to fishing activity is temporary with immediate recoverability.</p>

12.4.3

SENSITIVITY

12.4.3.1

The sensitivity, detailed in Table 12.4 below, is a means to measure how sensitive receptors and/or the receiving environment is to change. The sensitivity is assessed based on spatial adaptability of the fishing method (e.g. availability of alternative, similar grounds), the versatility of the fishing method and operational range of the vessels.

Table 12.4 - Definitions of sensitivity

Value/Sensitivity	Definition
High	<p>Fishing vessels with low adaptability due to limited operational range and ability to deploy only one gear type. Limited spatial tolerance due to dependence upon a single fishing ground.</p> <p>Limited recoverability due to inability to mitigate loss of fishing area by operating in alternative areas.</p>
Medium	<p>Fishing vessels with some spatial adaptability due to extent of operational range and/or ability to deploy an alternative gear type. Moderate spatial tolerance due to dependence upon a limited number of fishing grounds. Limited recoverability with some ability to mitigate loss of fishing area by operating in alternative areas.</p>
Low	<p>Fishing vessels with high spatial adaptability due to extensive operational range and/or ability to deploy a number of gear types.</p> <p>High spatial tolerance due to ability to fish a number of fishing grounds.</p> <p>High recoverability due to ability to mitigate loss of fishing area by operating in range of alternative areas.</p>
Negligible	<p>Category of fishing receptor with an extensive operational range and/or very high method versatility.</p> <p>Vessels are able to exploit a large number of fisheries.</p>

12.4.4 SIGNIFICANCE CRITERIA

12.4.4.1

The overall determination of the significance of an effect is assessed using the matrix shown in Table 12.5, by reference to the sensitivity of the receptor and magnitude of change.

Table 12.5 - Significance of effects matrix

		Sensitivity of receptor/receiving environment to change			
		High	Medium	Low	Negligible
Magnitude of Change	High	Major	Major to Moderate	Moderate	Negligible
	Medium	Major to Moderate	Moderate	Minor to Moderate	Negligible
	Low	Moderate	Minor to Moderate	Minor	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

12.4.4.2

Effects deemed to be significant for the purposes of the assessment are those which are described as 'major' and 'major/moderate'.

12.4.4.3

Embedded mitigation and, where appropriate, additional mitigation measures will be identified and described where they will avoid, reduce and/ or compensate for potentially significant effects. This includes avoidance through the design process. It is also good practice to propose mitigation measures to reduce negative effects that are not significant.

12.4.5 LIMITATIONS

12.4.5.1

The information in respect of construction installation methods presented within Chapter 3 Description of Proposed Development is the most recent emerging information on the most likely construction methods for the Proposed Development. As the design and construction methods for the Proposed Development are still evolving at the time of writing of this chapter, not all of the proposed construction methods have been assessed. Accordingly, assessments within this chapter do not give consideration to the following construction methods described in Chapter 3 Description of the Proposed Development:

- Use of flotation pits to enable installation vessels to approach closer to shore;
- Grounding of installation vessels on the seabed at low tide; and
- Use of a TSHD vessel to create the trench for pre-lay installation.

12.4.5.2 The information contained herein is intended to inform consultation responses at this stage. Any gaps in information identified at this PEIR stage will be considered and addressed along with specific mitigation measures as part of the assessments for the production of the ES.

12.4.5.3 A more detailed assessment of potential significant impacts as a result of the final design and construction methods of the Proposed Development on identified sensitive receptors will be undertaken and presented in the ES.

12.5 BASELINE ENVIRONMENT

12.5.1.1 This baseline summarises the information outlined in the Appendix 12.1 Commercial Fisheries Baseline Report.

12.5.1.2 A range of fishing methods are used within the Channel by a number of nationalities. Each nationality and the fishing methods they use will be described in this baseline.

12.5.2 DATA SOURCES

12.5.2.1 The principal sources of data and information used to inform this baseline are summarised in Table 12.6. Further detailed information on fisheries data sources is provided in Appendix 12.1 Commercial Fisheries Baseline Report and Section 9.5 of Chapter 9 Fish and Shellfish.

Table 12.6 - Sources of data and information

Country	Data/ source	Nature of data	Year(s)	Description	Limitations
UK	MMO, 2018	Fisheries statistics (landings and effort data)	2012 – 2016	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	2011 – 2015	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.
		Vessel Monitoring System ('VMS')	2012 – 2016	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)	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 from the OBSMER programme. However, the use of 2014 data was justified by the availability year of other French data sets ('VALPENA')	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 nmi ² .

Country	Data/ source	Nature of data	Year(s)	Description	Limitations
	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.
	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 species. The seasonal variability is also recorded. Fishing density in number of vessels by 3x3 nmi 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 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. 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 (e.g. 36.9% of the fleet based in Hauts-de-France). 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.
	UMR Amure – relevant	Reports from the Channel	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

Country	Data/ source	Nature of data	Year(s)	Description	Limitations
	research on French fisheries in the English Channel	integrated approach for marine resource management ('CHARM') project – EU Interreg IVa.			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.
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.
		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.	Data does not include information on vessels of less than 15 m in length.

Country	Data/ source	Nature of data	Year(s)	Description	Limitations
				VMS data provided as the aggregated number of vessel positions within a grid of rectangles of approximately 56 nmi ² .	
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.
		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 nmi 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 nmi ² .

12.5.3 MARINE CABLE CORRIDOR

12.5.3.1 From the data available and the information gathered during consultation with fisheries stakeholders, it is understood that the following national fleets are active in the study area (Figure 12.4):

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

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

UK Fleet

Principle UK fisheries in the study area

12.5.3.3 Within the inshore section of the Proposed Development, i.e. ICES 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) (Figure 12.5). These small vessels target a variety of species (Figure 12.7) using a variety of methods (Figure 12.6), principally:

- 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, clams and oysters; and
- Traps – primarily targeting cuttlefish.

12.5.3.4 In the central (29E9 and 29F0) and southern (28F0 and 28F1) section of the study area, the majority of UK fishing activity is by larger vessels over 15 m in length, primarily scallop dredgers and Scottish seiners (Figure 12.5 and Figure 12.6). 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. There is also some activity by trawlers targeting pelagic species in 29E9 and 29F0, and some beam trawlers targeting flatfish species such as Dover sole and plaice in 29E9.

12.5.3.5 Landings values, indicating the main ports from where fishing operates, are highest in Shoreham, Portsmouth, Poole and Selsey for rectangles 30E8 and 30E9 (Figure 12.7). For rectangles 29E9, 29F0 and 28F0 landings values are highest in Shoreham, Boulogne, Newhaven and Scheveningen.

Seasonality

12.5.3.6 The near shore rectangles (30E8 and 30E9) see some seasonality in landings, even though many fisheries do operate year-round (Plate 12.1).

12.5.3.7

Seasonal variation sees landings from potting peak between March and July, from gillnets between September and November, from hooks and lines between April and December, from dredging between October and March, and from traps between April to June (Plate 12.1). A small seasonal oyster and clam fishery also exists within Langstone Harbour, targeted by dredgers between November and February.

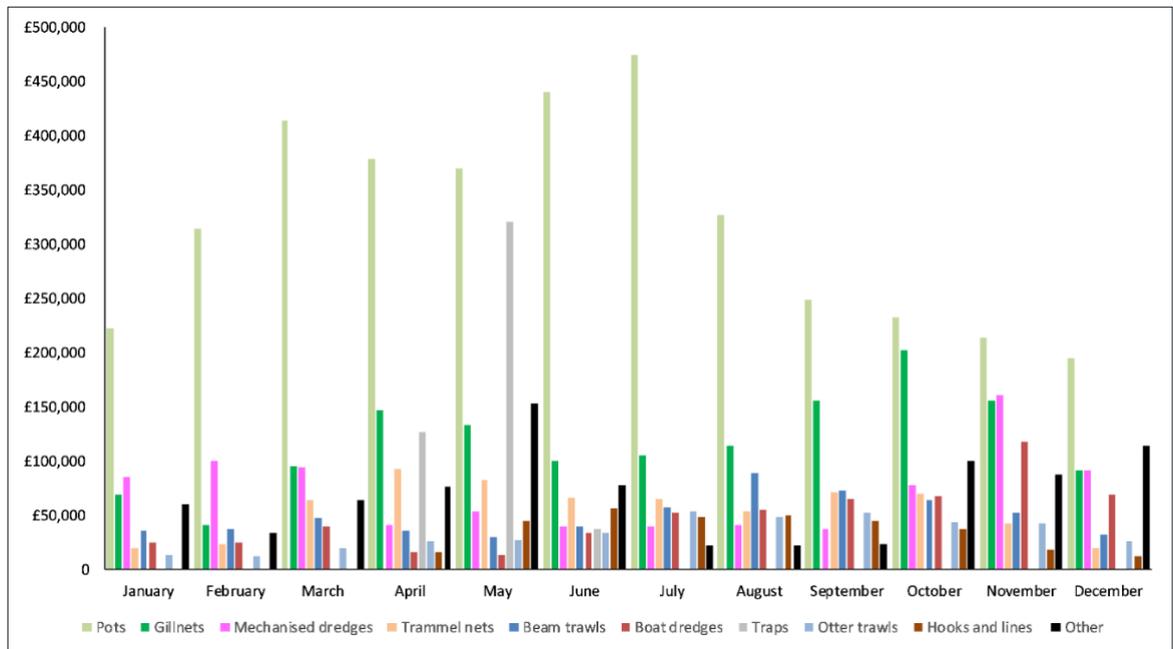


Plate 12.1 - Average Monthly UK Landings Values (£) by Method in ICES 30E8 & 30E9 (2012-2016; MMO, 2018)

12.5.3.8

There is more seasonal variation in landings in the central rectangles (29E9, 29F0 and 28F0) (Plate 12.2). Dredging and seine netting activity is principally recorded between October and April, with lower landings values between May to September. Landings from midwater trawling are primarily recorded between November and January. Potting is carried out year-round, with slightly higher landings between January and April.

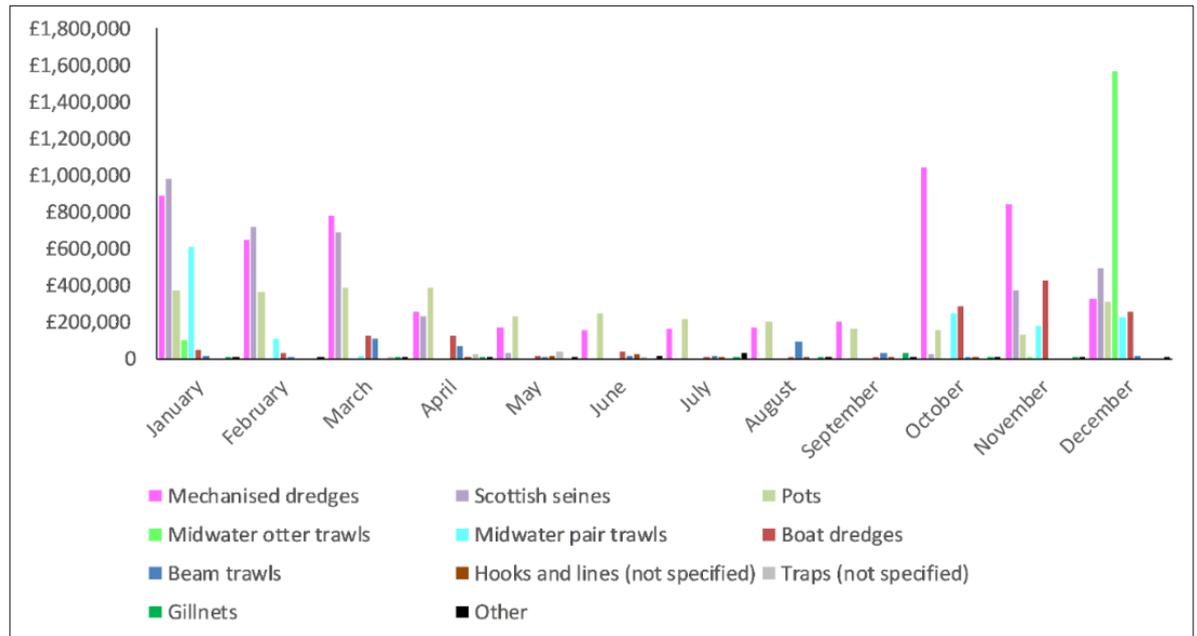


Plate 12.2 - Average Monthly UK Landings Values (£) by Method in ICES 29E9, 29F0 & 28F0 (2012-2016; MMO, 2018)

Annual Variations

- 12.5.3.9 In 30E8 and 30E9, landings are consistently greatest from potting, followed by dredging and gillnetting (Plate 12.3). Beam trawl landings have gradually decreased over time from 2008, while landings from traps, trammel nets, and hooks & lines have remained consistent, though relatively low.
- 12.5.3.10 In 29E9, 29F0 & 28F0, landings from dredges underwent large increases from 2008 peaking in 2011 (Plate 12.4). Landings from Scottish seiners have gradually risen since 2007 to a peak in 2016, while midwater trawl landings have also increased since 2014 (Plate 12.4).

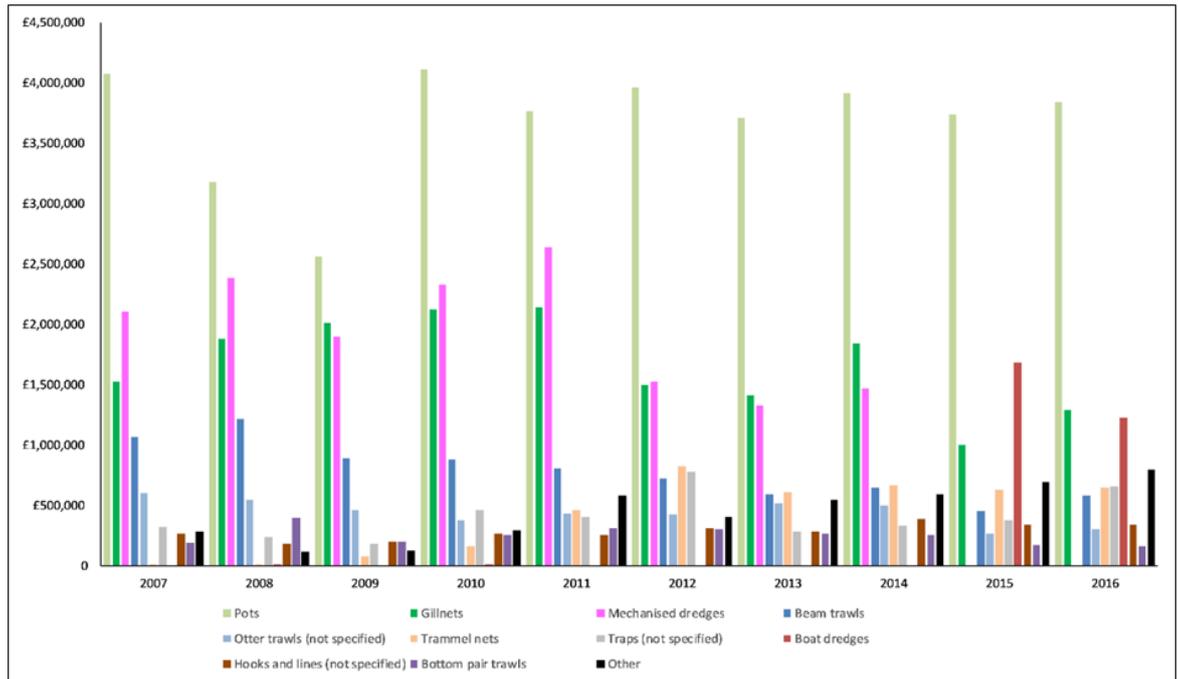


Plate 12.3 - Total Yearly UK Landings Values (£) by Method in ICES 30E8 & 30E9 (2007 -2016; MMO, 2018)

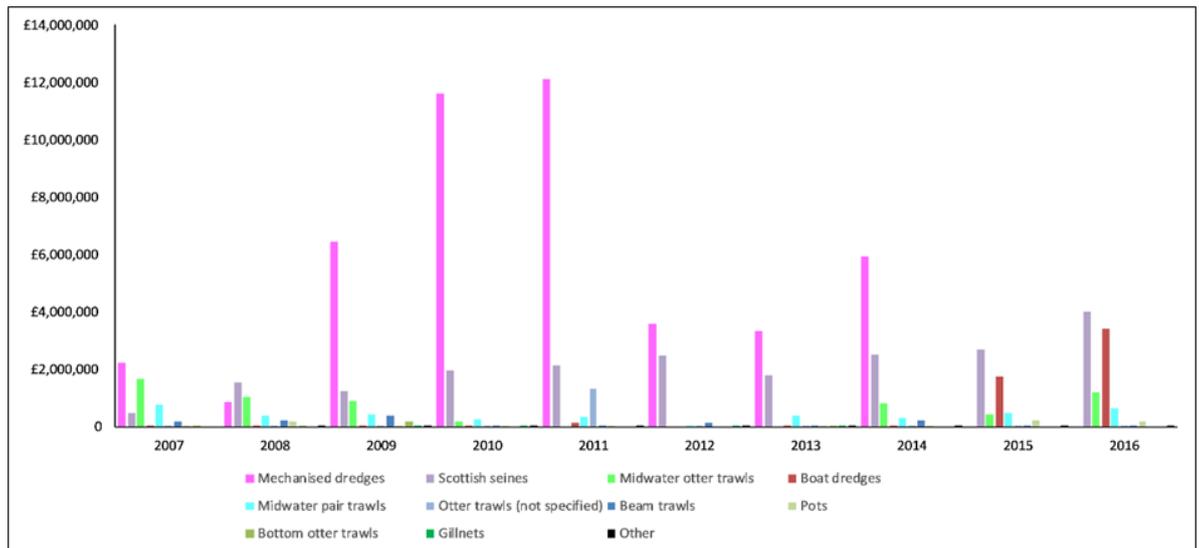


Plate 12.4 - Total Yearly UK Landings Values (£) by Method in ICES 29E9, 29F0 & 28F0 (2007 -2016; MMO, 2018)

Distribution of UK activity in the study area

Local Inshore Fleet (<6 nmi)

12.5.3.11

The majority of UK local vessels targeting inshore grounds utilise multiple gear types, with few vessels applying a single method. Based on surveillance sightings, the majority of vessels within < 6 nmi limit between 2011 and 2015 were potters / wheelers (Figure 12.8). Demersal trawlers, gill, seine netters and scallop dredgers were also recorded but to a much lesser extent.

- 12.5.3.12 The following sections provide a summary of the inshore fleet’s fishing activities based on information gathered through consultation with local fishermen, Southern and Sussex IFCA’s and the MMO (Table 12.2).
- **Potters**
- 12.5.3.13 Pots and traps are used to catch crab, lobster, whelk and cuttlefish. Potting is carried out within the Solent, off Selsey Bill, within the Inner and Outer Owers, and off the south-east coast of the Isle of Wight (Figure 12.9). Potting for lobster and edible crab predominantly occurs in the vicinity of Selsey Bill and extends out to the Outer Owers (Figures 12.10), while cuttlefish trapping occurs along the coast from west of Portsmouth Harbour to Selsey (Figures 12.9 and Figure 12.11), predominantly between May and June.
- 12.5.3.14 Whelk potters generally target ‘softer’ ground, which was identified during consultation. Whelk potting was highlighted as a key fishery throughout the Solent, off the Eastney Landfall, off Selsey coast and as far out as the 12 nmi limit (even beyond) (Figure 12.9). Fishermen from Selsey, Shoreham, Portsmouth, Chichester and Isle of Wight routinely fish for whelks year-round. Highest catch rates are reported during February and April.
- **Gill/Seine Netters and Longliners**
- 12.5.3.15 Gillnetting and longlining is known to occur throughout the Solent, predominantly in the spring and summer months. Several of the smaller Selsey vessels (5-8 m) undertake netting (including tangle, gill and trammel nets) for Dover sole, plaice, cod and sea bass, and, in more discrete areas, longlining for cod and sea bass (Figure 12.9) One vessel from the Isle of Wight is known to undertake gill-netting for cod and occasionally smoothhound in winter.
- **Demersal Trawlers and Dredgers**
- 12.5.3.16 The Portsmouth fleet and Isle of Wight fleet are known to trawl for Dover soles, plaice and skates, and dredge for scallops, oysters and the Manila clam throughout the year. One vessel from the Isle of Wight is known to undertake twin-rig otter trawling for flatfish, notably Dover sole and plaice, for the majority of the year.
- 12.5.3.17 Trawling for flatfish occurs in the nearshore area of the Proposed Development off Eastney (Figure 12.10). Consultation 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. Some Isle of Wight vessels also dredge for scallops off the east coast of the island, however these grounds do not overlap with the Proposed Development.

UK Over 15 m Fleet

- **Scallop Dredgers**

12.5.3.18 Activity by UK over 15 m vessels in the study area originates mainly from the scallop fleet. VMS data for the Channel shows the relatively high levels of activity, concentrated in the central section (29E9 and 29F0) within both the UK and French EEZ areas including along parts of the Proposed Development (Figure 12.6).

12.5.3.19 It should be noted, that the vessels engaged in this fishery, unlike 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, Channel and Western Approaches (Figure 12.13). 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.

- **Seine Netters**

12.5.3.20 Fishing activity by seine netters for the most part concentrates in the area within the UK's and French 12 nmi limits (Figure 12.14). The highest levels of activity are recorded in rectangle 29F0, in a discrete area immediately to the north-east of the Proposed Development, although general fishing levels across the Proposed Development are comparatively low.

12.5.3.21 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).

- **Pelagic Trawlers**

12.5.3.22 Activity by these vessels is concentrated in offshore areas between the UK's and French 12 nmi limits, with activity being patchy and at relatively low levels (Figure 12.5). It should be noted that although these vessels are registered for fishing in the UK, they are Dutch owned and as such, are often referred to as the Anglo-Dutch fleet. Landings from these vessels are recorded as part of the UK's landings, and as such, are reported here within the baseline. However, due to their Dutch ownership, for the purposes of the assessment for the Proposed Development, these vessels are assessed as part of the Dutch fleet.

- **Beam Trawlers**

12.5.3.23 Activity by these vessels in the vicinity of the Proposed Development and Entire Marine Cable Corridor occurs at relatively low levels, with the highest levels of activity are recorded within ICES rectangle 30E9 (Figure 12.6).

12.5.3.24 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.

French fleet

Principle French fisheries in the study area

12.5.3.25 Consultation and fisheries data indicated that demersal otter trawling, pelagic trawling and scallop dredging are the principle methods used by the French fleet. Activity by these methods, for the most part, takes place seaward of the French 6nmi limit and extends out to the UK's 12 nmi territorial limit.

12.5.3.26 Please note that the assessment is of the Proposed Development, which comprises the section of the Marine Cable Corridor within the UK marine area only.

Distribution of French fishing activity in the study area

12.5.3.27 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 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 nmi grid for the year 2014 which is the most recent available data and is expressed as a percentage of total vessels by fishing method (or group of method) in the immediate vicinity of the Marine Cable Corridor.

Scallop Dredgers

12.5.3.28 Scallop dredging density was greatest over the central section of the Channel along the UK/France EEZ boundary line and within the French EEZ, and density is to a lesser extent between the UK/France boundary line and the UK 12 nmi territorial limit (Figure 12.17 and Figure 12.18).

12.5.3.29 Activity in the UK marine area was markedly lower in 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. Activity in the study area was greatest between February and April, also peaking in October, directly before and after the opening of the Baie de Seine scallop fishery.

Demersal Trawlers

12.5.3.30 Demersal trawling takes place outside the French 12 nmi territorial limit, in the central Channel either side of the UK/France EEZ boundary line, although the greatest levels of fishing occur between May and October within French waters (The "Dieppe-Le Treport" ground) (Figures 12.19 to 12.21)The monthly distribution of fishing activity confirms that most vessels use demersal otter trawls during the scallop fishery closure (April to October). Demersal trawlers also operate at varying densities within the UK marine area while the highest densities occur between the UK 12 nmi territorial limit and the UK/France boundary line from January to April.

Pelagic Trawlers

- 12.5.3.31 Pelagic trawl activity is highest between October and February when squid and pelagic species such as herring are targeted (Figures 12.19 to 12.21). During this period, fishing is primarily focussed in the central part of the study area. Outside this period, activity is lower and primarily concentrated in French waters targeting mackerel, horse mackerel, black sea bream and red mullet. Pelagic trawlers also operate at varying densities within the UK marine area, with the highest vessel densities occurring between the UK 12 nmi territorial limit and the UK/French EEZ boundary line from September to February.

Belgian fleet

Principle Belgian fisheries in the study area

- 12.5.3.32 The Belgian fleet operating within the study area consists mainly of 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 (Figures 12.24 to 12.26).
- 12.5.3.33 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 (29F0), gill and trammel netting primarily targeting sole also occurs, though it is at comparatively lower levels.

Distribution of Belgian fishing activity in the study area

Demersal Trawlers (beam and demersal otter trawlers)

- 12.5.3.34 Belgian beam trawler activity occurs at moderate levels in the study area, and for the most, part takes place between the French 12 nmi limit and the UK's 6 nmi limit (Figure 12.27). The relatively high levels of activity by these vessels within the UK's 6 and 12 nmi limits reflect the fact that these vessels have historic rights in the area.
- 12.5.3.35 In the immediate vicinity of the Proposed Development, beam trawling activity is primarily concentrated in the areas within the UK EEZ area, with comparatively lower activity levels recorded in French waters.
- 12.5.3.36 Belgian demersal trawler activity occurs at low levels within the study area (Figure 12.28).

Seine Netters

- 12.5.3.37 Activity by Belgian seine netters, for the most part, takes place between the UK and French 12 nmi territorial limits, with activity concentrated in 29E9 and 29F0 in the UK marine area (Figure 12.29).

Scallop Dredgers

- 12.5.3.38 Activity by Belgian scallop dredgers occurs at low levels within the study area, with activity mainly confined to UK waters in the central section of the study area (29E9 and 29F0) (Figure 12.30).

Netters

- 12.5.3.39 Belgian netting activity within the UK marine area is mainly confined to areas further east of the Proposed Development, with negligible activity along the Marine Cable Corridor itself (Figure 52 - Appendix 12.1).

Dutch fleet

Principle Dutch fisheries in the study area

- 12.5.3.40 Dutch vessels engaged in fishing activity within the study area are all over 15 m in length. The majority of activity in the study area is by seine netters and to a lesser extent by pelagic trawlers (Figure 12.31). Key target species for these vessels include herring and various fish species (red mullet, red gurnard and tub gurnards) for pelagic trawlers, and squid for seine netters (David Ras, VisNed pers. comm.), although this is identified in fisheries data as 'others' (Figure 12.32).

- 12.5.3.41 The total annual landings values by Dutch vessels show consistently that the highest proportion of landings are accounted for by seine netters (Appendix 12.1 Commercial Fisheries Baseline Report). Substantially lower, but consistent, landings were recorded for pelagic trawls.

Distribution of Dutch fishing activity in the study area

Seine Netters

- 12.5.3.42 Dutch seine netters operate between the French and UK 12 nmi territorial limits, within both French and UK EEZ waters (Figure 12.33). Fishing occurs at moderate levels across the central section of the study area (29E9 and 29F0). The highest levels of activity are however recorded towards the eastern areas of the Channel.

Pelagic Trawlers

- 12.5.3.43 Dutch pelagic trawlers mainly operate between the French and UK 12 nmi territorial limits, within both French and UK EEZ waters (Figure 12.34).

12.5.4 LANDFALL

- 12.5.4.1 Within the confines of Langstone Harbour, a small, seasonal oyster fishery exists (Figure 12.9). 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 including;

- Langstone Harbour is where oysters predominantly occur;
- There is a local byelaw preventing oyster dredging in other areas of the solent;

- There are seasonal restrictions to protect the oysters during their breeding season.

12.5.4.2 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.

12.5.4.3 HDD is proposed to enable the cables to cross underneath Langstone Harbour from Portsea Island to the mainland. As no works will occur in the marine environment and fishing is prohibited from this area, there will be no impact on commercial fisheries receptors in Langstone Harbour.

12.5.4.4 Therefore, any fisheries within Landfall at Langstone Harbour have been scoped out for further assessment.

12.5.5 IDENTIFICATION OF RECEPTORS

Marine Cable Corridor

12.5.5.1 Commercial fisheries receptors requiring assessment in relation to the potential impacts of the Proposed Development have been identified (Table 12.7) based on the fisheries information described in the sections above, including that information gathered during consultation with stakeholders.

Table 12.7 - Receptors identified in relation to commercial fisheries along the Marine Cable Corridor

Receptor
Local UK inshore fleet (potters, netters, demersal trawlers, longliners and dredgers)
UK over-15m scallop dredgers
UK beam trawlers (south coast of England)
French scallop dredgers
French demersal otter trawlers
French pelagic trawlers
French pelagic trawlers
Belgian beam trawlers
Belgian scallop dredgers
Belgian seine netters
Dutch seine netters*
Dutch pelagic trawlers

* includes the Anglo Dutch vessels

12.5.6 FUTURE BASELINE

- 12.5.6.1 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 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 Channel and North Sea.
- 12.5.6.2 For foreign fishing fleets, Brexit may have a significant impact on quotas and accessibility to UK waters, as full fisheries independence within the UK 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 (31 December 2020).
- 12.5.6.3 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.
- 12.5.6.4 Further information on EU, UK and French fisheries legislation relevant to the Proposed Development is provided Appendix 12.1 Commercial Fisheries Baseline Report.

12.6 IMPACT ASSESSMENT

12.6.1 WORST CASE DESIGN ENVELOPE

- 12.6.1.1 Table 12.8 gives worst-case design parameters which apply to commercial fisheries for the relevant aspects of the Proposed Development during construction (and decommissioning) and operation (including repair and maintenance).
- 12.6.1.2 Worst-case parameters (Table 12.8) are identified from Chapter 3 Description of Proposed Development. The sequencing of construction activities is not finalised and the assessment is based on a worst case which assumes all fishing activity will be excluded from the Proposed Development (i.e. the Marine Cable Corridor within the UK marine area) for the entire period of seabed preparation and construction. It is recognised that this worst-case scenario may not be reflective of the final construction programme.
- 12.6.1.3 At Landfall, the marine cables will come ashore via HDD methods approximately 1-1.6 km off the coast at Eastney. In addition, HDD methods will be used to enable cables to pass through the north-west corner of Langstone harbour from Portsea Island to the mainland. As no commercial fishing occurs on Eastney beach or in the north-west of Langstone Harbour (due to IFCA byelaws), there will be no impacts to fishing and this is not considered further in the assessment.

Table 12.8 - Worst case scenario

Potential impact	Design envelope scenario assessed
Construction (& Decommissioning) Stage	
Temporary loss or restricted access to established fishing grounds	<p>The Marine Cable Corridor will be closed to fishing for the duration of cable installation for up to 2 years and 3 months. This ‘installation exclusion zone’ will be 1,450 m wide, based on the maximum 700 m rolling exclusion zone either side of a construction barge (to accommodate anchor spread), plus 50 m spacing between the two cables, for 108 km (from HDD exit/entry point location out to the UK/France UK/France EEZ boundary line).</p> <p>The Marine Cable Corridor will be closed to fishing for the duration of the seabed clearance/preparation for up to 6 months. This ‘pre-installation exclusion zone’ will be 1,050 m wide, resulting from the 500 m rolling exclusion zone either side of the construction vessel, plus 50 m cable spacing for 108 km (from HDD exit/entry point location out to the UK/France EEZ boundary line).</p> <p>The worst case is that all fishing vessels will be excluded from the pre-installation exclusion zone (1,050 m x 108 km) for a period of 6 months followed by exclusion from the installation exclusion zone (1,450 m x 108 km) for a further 2 years and 3 months.</p> <p>Total time of exclusion is 2 years and 9 months.</p>
Temporary displacement of fishing activity into other areas	<p>Worst case is that all fishing vessels will be excluded from the pre-installation exclusion zone (1,050 m x 108 km) for a period of 6 months followed by exclusion from the installation exclusion zone (1,450 m x 108 km) for a further 2 years and 3 months. Total time of exclusion is 2 years 9 months.</p>
Interference to normal fishing practices	<p>Fishing will occur in the vicinity of the Marine Cable Corridor at the same time as construction, which may lead to interference to normal fishing practices.</p> <p>As set out at Table 3.6 of Chapter 3 Description of Proposed Development, the indicative number of vessels required for seabed preparation, cable installation and HDD works which may be present at any one time is estimated at 62 if two parallel campaigns were undertaken at the same time. There is an estimated number of vessel movements of 4,160 in total for the completion of construction.</p>
Navigational safety issues for fishing vessels	<p>Fishing will occur in the vicinity of the Marine Cable Corridor at the same time as construction, which may pose a navigational safety risk.</p> <p>According to Table 3.6 of the Chapter 3 Description of Proposed Development the indicative number of vessels required for seabed preparation, cable installation and HDD works which may be present on the entire Marine Cable</p>

Potential impact	Design envelope scenario assessed
	Corridor at any one point is 62 if two parallel campaigns were undertaken at the same time. With an estimated number of vessel movements of 4,160 for the duration of the works.
Temporary increases in steaming times	Exclusion zones (up to 700 m) with the worst-case number of vessels requiring exclusions zones due to lack of manoeuvrability and nature of works (seabed preparation vessels, cable lay vessels, jack up vessels and survey vessels) during construction is up to 25 vessels if two parallel campaigns were run simultaneously. Therefore, up to 25 exclusion zones maybe in operation at any one time along the Marine Cable Corridor within the UK marine area.
Obstacles on the seabed	Cables may be exposed on the seabed prior to their burial. Obstacles on the seabed as a result of pre-installation and installation activities could include objects associated with grapnel runs, displacement ploughs and also dropped objects from vessels.
Operational (including Repair and Maintenance) stage	
Complete /Temporary loss or restricted access to established fishing grounds	<p>Operation: The installation of non-burial cable protection may result in permanent loss of fishing grounds. The worst case total area for cable protection is 0.39 km² (0.38 km² for rock placement, 0.007 km² for cable crossing protection and 0.0009 km² for temporary HDD mattresses). This footprint also allows a 10% rock placement non-burial contingency, in case predicted burial depths are not met during construction and/or if further non-burial protection is required during maintenance/repair activities during operation Vessels may not wish to fish over the installed cables with a worst-case area of 8.64 km² (80 m width by 108 km).</p> <p>Repair/Maintenance activities: 700 m exclusion zones around maintenance vessels and infrastructure during repair/maintenance works. Inspection of the marine cables will likely be every 6-12 months for the first 2-5 years, reducing to once every 1-5 years during the remaining expected lifespan of 40 years. One repair is estimated to be required every 10-12 years.</p>
Complete /Temporary displacement of fishing activity into other areas	<p>Operation: The installation of non-burial cable protection may result in permanent loss of fishing grounds. The worst-case area of non-burial cable protection is 0.39 km². Vessels may not wish to fish over the installed cables with a worst-case area of 8.64 km² (80 m width by 108 km).</p> <p>Repair/Maintenance activities: 700 m exclusion zones around maintenance vessels and infrastructure during repair/maintenance works.</p>

Potential impact	Design envelope scenario assessed
	<p>Inspection of the marine cables will likely be every 6-12 months for the first 2-5 years, reducing to once every 1-5 years during the remaining expected lifespan of 40 years. One repair is estimated to be required every 10-12 years.</p>
<p>Interference to normal fishing activities</p>	<p>Repair/Maintenance activities only: It is anticipated that inspection surveys will be undertaken every 6-12 months for the first 2-5 year, reducing to once every 1-5 years during the remaining life of the Proposed Development (expected lifespan of 40 years). One repair is estimated to be required every 10-12 years.</p>
<p>Navigational safety issues for fishing vessels</p>	<p>Repair/Maintenance activities only: 700 m exclusion zones around maintenance vessels and infrastructure during repair/maintenance works. It is anticipated that inspection surveys will be undertaken every 6-12 months for the first 2-5 year, reducing to once every 1-5 years during the remaining life of the Proposed Development (expected lifespan of 40 years). An indicative worst-case is anticipated to be one repair every 10-12 years.</p>
<p>Increased steaming times</p>	<p>Repair/Maintenance activities only: Exclusion zones around maintenance vessels (up to 700 m) with the worst-case number of vessels during operation less than that of construction.</p>
<p>Obstacles on the seabed after maintenance</p>	<p>Exposed cables Repair/Maintenance activities only: Obstacles on the seabed may be present after maintenance activities. These may include spoil mounds from maintenance vessel anchors, uneven ground from cable repairs and dropped objects.</p>

12.6.1.4 The options for decommissioning will likely include consideration of leaving the marine cable in situ, removal of the entire marine cable or removal of sections of the marine cable. Current best practice is to leave the inert and environmentally benign cable in situ so as to avoid unnecessary disturbance of the seabed (see Chapter 3 Description of the Proposed Development). The corresponding potential impacts resulting from decommissioning are considered likely to be less in nature than those considered for construction, however as the decommissioning activities are at this time not confirmed, the worst case is considered which is that the impacts will be equivalent to those associated with construction.

12.6.1.5 There is potential for impacts on fish and shellfish to arise both during construction (and decommissioning) and during operation (and repair/maintenance) of the Proposed Development. Impacts on fish and shellfish could impact commercially important species and have indirect impacts on the productivity of the fishery. The effects upon commercially exploited species resulting from the Proposed Development are assessed fully within Chapter 9 Fish and Shellfish. All impacts identified by that assessment were found to be not significant and as such, they are not considered further within the assessment below.

12.6.2 CONSTRUCTION

12.6.2.1 Potential impacts from construction of the Proposed Development are:

- Temporary loss or restricted access to established fishing grounds;
- Temporary displacement of fishing activity into other areas;
- Interference to normal fishing activities;
- Navigational safety issues for fishing vessels;
- Temporary increases in steaming times; and
- Obstacles on the seabed.

12.6.2.2 For the purposes of the PEIR assessment, no consideration of the potential activities of construction of the flotation pits, grounding of vessels at low tide or the use of TSHD for cable trenching has been undertaken. If these methods are part of the final Project design, impacts associated with these activities will be assessed for the ES.

Temporary Loss or Restricted Access to Established Fishing Grounds

12.6.2.3 Temporary loss or restricted access to established fishing grounds may be caused by the implementation of a pre-installation exclusion zone (the exclusion zone for the seabed clearance and preparation works) and of an installation exclusion zone (the exclusion zone for cable installation works) around installation vessels. It will be necessary to exclude fishing from the section of the Marine Cable Corridor where an installation vessel is working. As the sequencing of the work is yet to be finalised, it is assumed that these exclusion zones (of 1,050 m wide for pre-installation works and 1,450 m wide for installation works) will encompass the full 108 km of the Marine Cable Corridor of the Proposed Development, while these works take place. In addition, it is assumed that pre-installation and installation will be implemented concurrently for up to 2 years 9 months (6 months for the pre-installation exclusion zone and 2 years 3 months for the installation exclusion zone).

UK Inshore fleet

12.6.2.4 The UK inshore fleet uses a range of fishing gear types. They use pots to catch crab, lobster, whelk and cuttlefish. In addition, other gear includes longlining, netting and demersal trawling. Consultation with fishermen and Southern IFCA identified that all of these methods occur in discrete patches throughout the inshore area and in some places, overlap the Marine Cable Corridor. The one inshore fishery which does not overlap the Marine Cable Corridor is scallop dredging which occurs to the west, off the coast of the Isle of Wight.

12.6.2.5 The UK inshore fleet are known to use multiple gear types which helps to maintain commercial viability by exploiting a range of species; it is common for vessels to work more than one gear type. The ability of these vessels to use a range of gear types allows them to target different fisheries outside of the proposed exclusion zones. It is noted however, that these smaller vessels have limited operational range so only alternative grounds within a certain distance from port are available to them. In addition, seasonal and gear restrictions by IFCA's on inshore fisheries may also restrict the inshore potting fleet's ability to adapt to temporary loss or restricted access to established fishing grounds.

12.6.2.6 The pre-installation and installation exclusion zones will follow the Marine Cable Corridor with a worst-case width of 1,450 m. This represents a relatively small proportion of the fishing ground available and only for a limited time period. In addition, recoverability is expected once the exclusion zones are removed and deemed safe for vessels to return. Therefore, the magnitude of this impact is considered to be low.

12.6.2.7 The size of the vessels utilised by the inshore fleet results in a relatively limited spatial range, however many vessels use multiple gear types and can exploit a number of species and grounds. Overall, this results in the receptor being of medium sensitivity.

12.6.2.8 The significance of the effect from temporary loss or restricted access to fishing grounds for the inshore fleet is minor to moderate, except for the inshore scallop dredging which is negligible, as the fishery does not overlap the Marine Cable Corridor.

UK over-15 m scallop dredgers

12.6.2.9 The over 15 m scallop dredging fleet actively concentrates in the central section of the Channel within ICES rectangles 29E9 and 29F0 (Figure 12.12). Areas of high value (more than £35,000), as identified in VMS data from 2012-2016, are located within the UK marine area, between the UK 12 nmi territorial limit and the UK/France EEZ boundary line. In addition to the two central rectangles there are also areas of medium value (£10,000 to £20,000) and low value (£3,000 to £10,000) in the most southerly section of rectangle 30E9. The potential pre-installation and installation exclusion zones will pass through areas of high, medium and low value scallop grounds however, grounds in this area are extensive with alternative areas of high value located to both the east and west.

12.6.2.10 Unlike the inshore scallop dredging vessels, the over 15 m fleet have a wide operational range and target grounds around the UK.

12.6.2.11 Given that only a small proportion of fishing ground is encompassed by the exclusion zones for a limited time, this represents a minor proportion of annual landings and the magnitude of impact is low.

12.6.2.12 As the scallop fleet has an extensive operational range and ability to exploit a large number of alternative grounds, the sensitivity is negligible.

12.6.2.13 Based on the current worst case, the significance of the effect resulting from temporary loss or restricted access to established fishing grounds for the UK over 15 m scallop dredgers is negligible.

Anglo-Dutch Seine Netters and Pelagic Trawlers

12.6.2.14 Dutch fishing interests own and operate UK-registered vessels that engage in seine netting and pelagic trawlers in offshore areas. For this reason, potential effects on this fleet are assessed under the section detailing the Dutch fishing fleet.

UK Beam Trawlers

12.6.2.15 The UK over 15 m beam trawling fleet operates within rectangle 30E9 and the western half of 29E9 as well as substantial grounds outside the study area (rectangles 30F0 particularly). It should be noted that VMS data identifies the values as low to medium (£1,000 to £3,000 and £3,000 to £6,000) with the highest values (£3,000 to £6,000) located in the southern and eastern areas of rectangle 30E9 (Figure 12.16). The potential pre-installation and installation exclusion zones will pass through areas of low to medium value however, alternative grounds of similar value are widely available to east and west.

- 12.6.2.16 It is understood that the majority of the over 15 m beam trawling fleet target grounds across the Channel and Western Approaches, with large operational range and ability to target alternative fishing grounds.
- 12.6.2.17 Given that the small proportion of the fishing ground encompassed by the exclusion zones for a limited period, and with a minor proportion of total landings derived from these areas, it is considered that the magnitude of impact is low.
- 12.6.2.18 As the UK beam trawling fleet has an extensive operational range, and can exploit a large area of alternative grounds the sensitivity is negligible.
- 12.6.2.19 Based on the current worst case, the significance of the effect resulting from temporary loss or restricted access to established fishing grounds is negligible.
- French Fleet**
- 12.6.2.20 French vessels operating within the UK EEZ include scallop dredgers, demersal otter trawlers and pelagic trawlers.
- 12.6.2.21 The French scallop dredging fleet operates on both sides of the UK/France boundary line (Figures 12.17 and 12.18). It is shown by CRPMEM data (2014) however, that the highest density of vessels remains within the French EEZ, although a small area of medium density does overlap the UK EEZ in the central Channel at certain times of year. While the majority of vessels remain within French waters, some actively fish within the UK EEZ and territorial waters up to 6 nmi from the UK coast. These vessels are in low densities (0-6 and 6-12 %) however, with vessel density decreasing the closer inshore to the UK they fish. Despite the potential exclusion zones passing through areas of French scallop dredging grounds, these grounds are extensive with similar alternative grounds widely available in both the UK and French EEZ marine areas.
- 12.6.2.22 Given the relatively small proportion of fishing ground encompassed by the potential exclusion zones in UK waters, the magnitude of impact is low.
- 12.6.2.23 Due to the French fleet's high spatial tolerance and wide availability for alternative areas to fish, the sensitivity is considered to be low.
- 12.6.2.24 The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the French scallop fleet is minor.
- 12.6.2.25 The French demersal trawling fleet operates more centrally in the Channel with small areas of highest density (12-18%) in both UK and French EEZ waters (CRPMEM, 2014). They tend to fish in UK waters, right up to the UK 12 nmi territorial limit (Figure 12.19) particularly between January to April. Areas of medium/low (6-12%) vessel density can be seen between the UK/France EEZ boundary line and the 12 nmi territorial limit, and only a low vessel density (0-6%) between the UK 12 nmi and 6 nmi limits.

- 12.6.2.26 Although the proposed exclusion zones will pass through areas of medium and medium/low vessel density, similar alternative fishing grounds are widespread to the east and west in both the UK and French EEZ. Areas within the UK 12 nmi territorial limit are used by French demersal fleet at certain times of the year. However, this area has limited seasonal use and only a small proportion of this area will be taken up by the Marine Cable Corridor; as such, the magnitude of impact is considered to be low.
- 12.6.2.27 Due to fleet's high special tolerance and wide availability of alternative areas to fish, the sensitivity is considered to be low.
- 12.6.2.28 The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the French demersal fleet is therefore of minor significance.
- 12.6.2.29 The French pelagic trawler fleet operate within the central Channel on both the sides of the UK/France EEZ boundary line (Figures 12.22 and 12.23). Fishing vessel densities are shown to be west of the proposed exclusion zones. Fishing vessel densities within UK waters range from small areas of high vessel density (12-16%), large areas of medium/high density (8-12%) and medium/low density (4-8%) and also low density areas (0-4%).
- 12.6.2.30 Due to the westerly location of the main fishing grounds, the proposed exclusion zones will overlap only a small area of fishing grounds and similar alternative fishing grounds are widely available. Therefore, the magnitude of impact is considered to be low and the sensitivity of the fleet is negligible as little fishing overlaps the Marine Cable Corridor.
- 12.6.2.31 The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the French pelagic trawler fleet is negligible.
- Belgian Fleet**
- 12.6.2.32 Belgian vessels operating within the UK EEZ include scallop dredgers, beam trawlers and seine netters.
- 12.6.2.33 The Belgian scallop dredging fleet operate on both sides of the UK/France EEZ boundary line (Figure 12.30). VMS data identify that areas of medium value (€25,000 to €50,000) are located in the northern half of rectangle 29F0 and north-east corner of rectangle 29E9. Although it should be noted that these medium value areas are interspersed with lower value areas (€10,000 to €25,000 and €5,000 to €10,000). The Marine Cable Corridor passes through an area of low value scallop ground and a small area of medium value scallop ground in the central Channel between the UK/France boundary line and the UK 12nmi territorial limit.

- 12.6.2.34 It should be noted that similar and higher value scallop grounds are widely available outside the proposed exclusion zones. As only a small proportion of the Belgian scallop fleet fishing grounds overlap the Marine Cable Corridor the magnitude of impact is considered to be low and sensitivity of the fleet is negligible.
- 12.6.2.35 The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the Belgian scallop dredging fleet is therefore negligible.
- 12.6.2.36 Belgian beam trawlers are widely dispersed throughout the Channel on both side of the UK/France boundary line although the majority of the fishery by value is on the UK side (Figure 12.27). The highest value grounds, as identified by VMS data, is shown to be outside of the study area (rectangles 30F0 and 30F1). The proposed exclusion zones will pass through areas of medium value (€100,000 to €250,000) between the UK/France boundary line and the UK 12nmi territorial limit, with the value decreasing to less than €5,000 inland of the UK 6 nmi limit.
- 12.6.2.37 Similar or higher value grounds are widely available in the immediate vicinity of the proposed exclusion zones. While Belgium beam trawlers do fish within the Marine Cable Corridor this represents only a relatively small proportion of their fishing grounds. Therefore, the magnitude of impact is considered to be low and the fleet's sensitivity is low.
- 12.6.2.38 The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the Belgian beam trawlers is minor.
- 12.6.2.39 The Belgian seine netting fleet predominantly operate on the UK side of the UK/French EEZ boundary line, with an area of medium to high value (€250,000 to €500,000), as identified by VMS data (Figure 12.29). The majority of Belgian seine netting (by value) is located to the east of the Marine Cable Corridor in the northern half of rectangle 29F0 and southern half of rectangle 30F0 which is outside the study area. The proposed exclusion zones will pass through an area of medium value (€50,000 to €100,000) in the central Channel with subsequent values decreasing towards the Landfall area of the Proposed Development.
- 12.6.2.40 Similar or higher value grounds are widely available in the vicinity of the proposed exclusion zones. As only a small proportion of the Belgium seine fleet fishing grounds overlap the Marine Cable Corridor, the magnitude of impact is considered to be low and the fleet's sensitivity to change is negligible.
- 12.6.2.41 The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the Belgian seine netting fleet is negligible.
- Dutch Fleet**
- 12.6.2.42 There are a number of Dutch vessels which operate within UK EEZ which include seine netters and pelagic trawlers. This assessment includes the Anglo-Dutch fleet.

- 12.6.2.43 The Dutch pelagic trawl fleet operate widely in the Channel with the area of highest value, identified by VMS data, located on the French side of the UK/France boundary line in the central Channel (Figure 12.34). The fleet operates within both UK and French waters with areas of medium to high value (€250,000 to €500,000) located between the UK/France EEZ boundary line and the UK 12 nmi territorial limit. The proposed exclusion zones pass through a range of fishing ground values however, alternative similar or higher value areas are widely available within the immediate vicinity of the exclusion zones. These vessels are among the largest in Europe and have extensive fishing areas in the North Sea, Channel, Celtic Sea, off the east and north coast of Scotland, North East Atlantic and as far afield as the west coast of Africa.
- 12.6.2.44 In light of these considerations, and given the tiny proportion of fishing ground encompassed by the proposed exclusion zones, representing a minor proportion of total annual landings for the Dutch pelagic fleet, the magnitude for this impact is considered to be low. Due to the extensive operational ranges and high spatial tolerance of the fleet, the sensitivity to change is negligible.
- 12.6.2.45 The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the Dutch pelagic trawl fleet (and Anglo Dutch) is therefore negligible.
- 12.6.2.46 According to IMARES (2018), for the period 2013 to 2017, landings by the Dutch seine netting fleet occur within ICES rectangles across the study area, apart from 30E8 (Figure 12.33). The highest landings are recorded from rectangle 29F0 in the central Channel. VMS data show that although the proposed exclusion zones pass through an area of medium to high value (€250,000 to €500,000) and medium value (€100,000 to €250,000), the highest value areas are located to the east of the Proposed Development in the northern half of rectangle 29F0. Similar and higher value grounds are widely available in the immediate vicinity. These vessels are over 15 m in length and have a range of grounds in the North Sea and elsewhere within the Channel.
- 12.6.2.47 Given the small proportion of fishing ground encompassed by the proposed exclusion zones, representing a minor proportion of total annual landings for the Dutch seine fleet, the magnitude of impact is considered to be low. Due to the large operational ranges and high spatial tolerance of the fleet, the sensitivity of the fleet to change is low.
- 12.6.2.48 The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the Dutch (and Anglo Dutch) seine netting fleet is therefore minor.

Temporary Displacement of Fishing Activity into Other Areas

- 12.6.2.49 The impact of temporary displacement of fishing activity into other areas is directly linked to the impact of temporary loss or restricted access to established fishing grounds. When the pre-installation and installation exclusion zones are in place, vessels will be unable to fish within their boundaries and will need to fish in alternative fishing grounds until the exclusion zones are re-opened.
- 12.6.2.50 This impact has the potential to increase conflict between vessels competing for the same grounds or between different fishing methods. This impact is particularly relevant for the inshore potting fleet where gear will likely need to be removed from the exclusion zones during construction. Potential conflict can then possibly occur between inshore vessels fishing different gear types.
- 12.6.2.51 As temporary displacement impacts are linked to temporary loss or restricted access to fishing grounds, the effects from this impact would not exceed those already assessed. Accordingly, the significance of the effect resulting from temporary displacement is negligible for all UK fishing vessels with the exception of the inshore static fleet (potters, netters and longliners) which is minor to moderate.
- 12.6.2.52 With regard to foreign vessels fishing the offshore section of the proposed exclusion zones, any potential displacement will also not exceed the sensitivity or the magnitude of impact that has already been assessed for temporary loss or restricted access. This is due to the wide availability of alternative fishing grounds and large operational range of these vessels. Accordingly, the significance of the effect resulting from temporary displacement is negligible for all foreign fisheries with the exception of the French demersal trawlers and Belgian beam trawlers which fish up to the UK 6 nmi limit which may come into conflict with displaced fishing gear. The significance of the effect resulting from temporary displacement on these larger fleets is therefore minor.

Interference to Normal Fishing Activities

- 12.6.2.53 There is a potential for the propellers, rudders or towed survey equipment of installation and/or survey vessels to become entangled in fishing gear, thus causing interference to fishing activity through loss of fishing equipment.
- 12.6.2.54 This is particularly relevant to static fishermen, as their gear is left deployed in the water for long periods of time, therefore creating a risk of entanglement of buoys and attachment lines. Fisheries employing towed gear vessels are more able to avoid each other, hence the risk to gear damage is less.

- 12.6.2.55 In order to minimise gear losses, static gear fishermen generally avoid deploying their gears in shipping routes and areas of high shipping activity. Embedded mitigation such as circulation of information via Kingfisher, Notice to Mariners, as well as the presence of guard vessels will notify sea users of construction works. Additionally, the appointment of a Fisheries Liaison Officer ('FLO') will aid in ensuring local fishermen are made aware of the cable installation works. These measures should negate the requirement for fishing vessels engaged in fishing to alter course and reduce any risk to fishing gears being towed.
- 12.6.2.56 A conservative assumption is that transit routes of construction vessels could be in the vicinity of static and towed gear grounds. Notice to Mariners would be issued and policies would be in place to avoid conflicts with visible static gears deployed at sea as far as is reasonably possible. Accordingly, the magnitude of impact for vessels towing gear is negligible and for static gear is low.
- 12.6.2.57 Taking into account the mobility of towed gear vessels targeting the fisheries in the vicinity of the Proposed Development, their sensitivity is considered to be low. Recognising the static nature of the potting, netting and lining fisheries, which are set in the water for periods of a few hours to several days, these fisheries are considered to have less tolerance and adaptability and therefore, are considered to be medium sensitivity.
- 12.6.2.58 The significance of effect of interference with mobile fishing activities (UK and foreign) during construction is therefore considered to be negligible. The significance of effect of interference with static gear activities during installation is considered to be minor to moderate.

Navigational Safety Issues for Fishing Vessels

- 12.6.2.59 Assessing safety issues for fishing vessels follows standard practice (IMO Formal Safety Assessment Methodology) and is assessed in Chapter 13 Shipping, Navigation and Other Marine Users. This methodology assigns each impact a 'severity of consequence' and a 'frequency of occurrence' to evaluate the level of significance. The overall significance of the impact is then assessed as 'Unacceptable', 'Tolerable' or 'Broadly Acceptable'. This methodology has been used for this impact rather than the EIA methodology identified in Section 12.4.
- 12.6.2.60 The increase in number and movements of vessels from construction activities has the potential to create navigational safety issues for fishing vessels.
- 12.6.2.61 There will be a number of different vessels in operation during construction activities, and their ability to take avoidance action in the event of a potential collision is dependent on the task in which they are engaged. The larger vessels such as cable lay and jack up vessels/barges have restricted manoeuvrability and therefore the safety risk is potentially higher.

- 12.6.2.62 There is likely to be a higher propensity for navigational safety issues in the middle of the Channel due to a high number of both UK and foreign fishing vessels operating towed gears, and in the nearshore areas of the Proposed Development due to the high number of inshore fishing vessels using multiple gears, and fishing vessels transiting in and out of ports.
- 12.6.2.63 A safety issue risk is considered outside of acceptable limits if it is greater than those incurred during the course of normal fishing operations. The implementation of exclusion zones and presence of guard vessels during seabed clearance and construction activities are in line with standard best practice and are embedded into the design of the Proposed Development to reduce the navigational risk to fishing vessels.
- 12.6.2.64 In order to ensure that fishermen are fully aware of the safety risks associated with the pre-installation and installation phases, stakeholder liaison and notification regarding safety related issues would form a key part of the pre-installation fisheries liaison programme. Fishermen would be kept fully informed of the installation schedule through Notices to Mariners, the Kingfisher Information Service, via local FLOs/Fishing Industry Representative ('FIR') and through any other communication channels recommended by fishermen's representatives. In addition, all vessels are expected to comply with International Regulations for Preventing Collisions at Sea ('COLREG's) and safety of Life at Sea Regulations ('SOLAS').
- 12.6.2.65 In light of the above, the navigational safety issues for fishing vessels during construction of the Proposed Development is assessed as having a Tolerable (moderate risk) significance as highlighted in Chapter 13 Shipping, Navigation and Other Marine Users
- Temporary Increases in Steaming Times**
- 12.6.2.66 The implementation of 700 m exclusion zones for both pre-installation and installation activities has the potential to result in some temporary and short term increases in steaming times for vessels navigating around them to access fishing grounds. The worst-case scenario is considered to be up to 62 construction vessels operating within the Proposed Development at any one time, with up to 25 of the vessels requiring exclusion zones.
- 12.6.2.67 However, as these are likely to be of such short duration (hours or days) and encompassing such small areas (i.e. 700 m), they are not expected to result in any discernible increases in either steaming times or vessel running costs. Therefore, for all fleets taken forward for assessment, the effect of increased steaming times resulting from the Proposed Development is not expected to exceed negligible significance.

Obstacles on the Seabed

- 12.6.2.68 Obstacles on the seabed can be defined as exposed cable, objects accidentally dropped by construction vessels, uneven ground created as a result of installation activities, and spoil mounds resulting vessel anchoring.
- 12.6.2.69 Seabed obstacles pose a risk to fishing vessels which place gear on the seabed (i.e. those operating demersal gear and static fishermen) as they represent potential snagging hazards and safety risks. Pelagic fishing methods are unlikely to be affected as they do not come into contact with the seabed.
- 12.6.2.70 Assessing the risk of exposed cables on the seabed for fishing vessels follows standard practice (IMO Formal Safety Assessment Methodology) and is assessed in Chapter 13 Shipping, Navigation and Other Marine User. This methodology assigns each impact a 'severity of consequence' and a 'frequency of occurrence' to evaluate the level of significance. The overall significance of the impact is then assessed as 'Unacceptable', 'Tolerable' or 'Broadly Acceptable'. In addition to the risk posed by exposed cables on fishing vessels, the risk of other seabed obstacles e.g. berms or dropped objects, have been considered within this chapter and have been assessed by standard EIA methodology outlined in Section 12.4 of this chapter.
- 12.6.2.71 There is a higher risk of snagging from demersal fishing gear if the cable is exposed. Consequences of snagging an exposed cable could range from damage to gear and the cable, loss of stability due to lines being put under strain and in the worst case, capsize of a vessel, men overboard and risk of injury or fatality. For example, a risk of capsize could occur if the vessel attempted to free its gear by raising the cable rather than slipping and releasing the gear. The risk of fishing vessels operating demersal gear that interacts with the seabed snagging on exposed cable is higher than other gear types. The frequency of this impact is considered to be remote assuming the cable is left exposed for a period of time during construction, and the severity is considered to be serious, resulting in an overall ranking of tolerable (moderate risk), taking into account all embedded mitigation. Therefore, additional mitigation measures are required beyond the embedded mitigation of appointment of FLO, circulation of information (kingfisher bulletin), and the potential use of guard vessels for exposed cables during construction to reduce this impact. Chapter 13 Shipping, Navigation and Other Marine Users identifies the additional mitigation of minimising the duration the cable is exposed. This would reduce the ranking to tolerable (ALARP) for vessels towing demersal gear (otter trawlers, beam trawls, dredges, and seine nets).
- 12.6.2.72 Other vessel types and the risk posed by exposed cables were not assessed in Chapter 13 Shipping, Navigation and Other Marine Users however, as seine netters and pelagic vessels do not have gear in contact with the seabed, and as static gear is not towed, the significance of effect on these fisheries is only negligible

12.6.2.73 In addition to exposed cables, given the safety implications associated with the interaction of fishing gear and obstacles on the seabed, any risks resulting from potential obstacles on the seabed will be rectified before re-opening of any exclusion zones. In addition, discarding of objects or waste at sea is prohibited by offshore policy (IMO, 1996) and the reporting and recovery of any accidentally dropped objects is also required.

12.6.2.74 Activities such as vessel anchoring or cable trenching/ploughing could result in spoil mounds, which represent potential snagging hazards to fishing gear. However, it is expected that should any risks to navigational safety be identified, appropriate rectification measures would be undertaken to remove any such irregularities from the seabed before the re-opening of any exclusion zones.

12.6.2.75 For all other obstacles on the seabed apart from exposed cable (dropped objects and spoil mounds), given the reporting procedures and due to the lack of scheduling information the area of the exclusion zones are unlikely to be opened until installation activities are complete, where upon they will be surveyed to confirm burial depth and seabed conditions, the sensitivity for demersal fisheries is low and the magnitude of impact is low. Therefore, the effect of this impact on demersal fisheries is of minor significance, and effects on vessels operating pelagic gear or static gear is negligible

12.6.3 OPERATION (INCLUDING REPAIR AND MAINTENANCE)

12.6.3.1 Potential impacts from operation (repair/maintenance) of the Proposed Development are:

- Complete/temporary loss or restricted access to established fishing grounds;
- Complete/temporary displacement of fishing activity into other areas;
- Interference to normal fishing activities;
- Navigational safety issues for fishing vessels;
- Increased steaming times; and
- Obstacles on the seabed after maintenance/repair

Complete/Temporary Loss or Restricted Access to Established Fishing Grounds

12.6.3.2 Once construction of the Proposed Development is complete and the exclusion zones are re-opened, fishing practices can be resumed. For the majority of the Marine Cable Corridor, the marine cables will be buried to target depths of between 0.6 to 5.1 m. Where target burial depth cannot be achieved, non-burial cable protection will be used (e.g. rock placement and concrete mattresses). This is also true for the areas where the Marine Cable Corridor crosses over existing cables. The worst-case total area for non-burial protection is 0.39 km². Figure 3.5 (Sheets 1-4) from Chapter 3 Description of the Proposed Development illustrate the preliminary key locations of where non-burial cable protection will be used.

- 12.6.3.3 There may be restricted access to fishing grounds during the operational phase as a result of temporary transitory exclusion zones associated with any maintenance or repair activities. The Proposed Development will be designed to minimise the requirement for regular inspection surveys. However, it is anticipated that inspection surveys will be undertaken every 6-12 months for the first 2-5 years, reducing to once every 1-5 years during the remaining life of the Proposed Development (expected lifespan of 40 years). The Proposed Development has been designed so that routine maintenance to the marine cable is not required during their operational lifetime. An indicative worst-case is anticipated to be one repair every 10-12 years.
- 12.6.3.4 In terms of complete loss or restricted access to established fishing grounds, it is recognised that some fishermen may be hesitant to fish over buried cables after installation and therefore, for these vessels, the effect will be higher than the rest of the fleet as a whole. However, cable protection poses more of a perceived risk to fishermen with towed gear in contact with the seabed, particularly at cable crossings where cable protection is used on soft ground. Where cable protection is placed on rocky ground (which will be the majority of the area where it is employed as these are the locations where the target burial depths are difficult to achieve), this represents less of a loss of fishing ground to vessels operating towed gears as they tend not to fish in these areas. Vessels are known to fish over buried marine cables with various fishing methods. It is known that a number of over-trawlability assessments have taken place for marine export cables from wind farms which have shown that both buried cables and cables protected by mattressing can be fished over successfully.
- 12.6.3.5 In line with standard practice in other marine industries, consultation will be undertaken to seek to ensure that cable protection measures are satisfactory to the fishing industry. Protection options will be assessed using a number of criteria including the aim of selecting protection methods that would cause the least disturbance to fishing practices. In addition, post-lay surveys will be carried out following burial of the cable to assess burial depth, position of protection and seabed status will also determine whether fishing activity can resume safely. In the event that seabed rectification procedures are required, the appropriate measures will be undertaken to seek to ensure that the seabed is returned to an acceptable condition.
- 12.6.3.6 In light of the considerations outlined above, it is assumed that during the operational phase the Proposed Development will not result in any material loss of fishing ground for the mobile fleets and that fishing activity will be able to continue normally across the area. Taking this into account, the magnitude is negligible and sensitivity is considered to be medium. Therefore, the significance of effects from complete/temporary loss or restricted access to established fishing grounds is considered to be minor for the UK inshore fleet.
- 12.6.3.7 The magnitude and sensitivity for larger offshore UK and foreign demersal fleets (scallop dredgers, beam trawlers, otter trawlers and seiners) is negligible and therefore, the significance is negligible

- 12.6.3.8 There will be no impact to those vessels operating pelagic gear (pelagic trawlers) as there is no contact with the seabed.
- 12.6.3.9 For static gear there is less impact from rock placement; potters target hard ground, hence the placement of cable protection represents very little change in ground conditions for these fisheries. Other static gear, such as longlines and nets do not necessarily target hard ground and therefore, cable protection does not represent a perceived hazard. For static gear fishers impacts may arise as a result of inspection and maintenance/repair activities. There is the possibility static gear will need to be cleared from the area of the survey of the Proposed Development for the duration of the inspections, as well as during any maintenance/repair activity, which represents a temporary loss of fishing grounds. The magnitude of this impact is less than during construction due to the infrequency of the works and is therefore negligible, the sensitivity of the receptors remains the same at medium, hence the impact to the UK inshore static gear fleet is minor.
- 12.6.3.10 This conclusion can also be reached for beam trawlers as they can fish over rougher ground. Although these vessels may be affected during maintenance/repair activities, works are likely to be infrequent, highly localised and undertaken by a substantially lower number of vessels than that proposed for construction, as such both the magnitude of impact and sensitivity is negligible. The significance of effects from complete/temporary loss or restricted access to established fishing grounds is considered to be negligible for these vessels.
- Complete/Temporary Displacement of Fishing Activity into Other Areas**
- 12.6.3.11 The impact of complete/temporary displacement of fishing activity into other areas is directly linked to the impact of complete/temporary loss or restricted access to established fishing grounds, explained above. The installation of non-burial cable protection (0.39 km²) and 700 m safety zones around any maintenance/repair vessels will displace activity into other areas.
- 12.6.3.12 Displacement is only likely to potentially affect the most sensitive receptors, namely, the <15 m fleet, static and mobile gear fisheries working within the area of the Proposed Development. As the number of fisheries affected would be considerably less than that for construction activities, any potential displacement to normal fishing practices as a consequence of operations and maintenance/repair activities will be discussed with relevant vessel owners and further evidence sought in order to determine the most appropriate mitigation measures.
- 12.6.3.13 With this in mind, both the magnitude and sensitivity are both considered to be low. Therefore, it is considered that the effect of displacement resulting from maintenance and repair activities will not exceed minor significance for UK inshore fisheries.

12.6.3.14 With regard to the other categories of fishing vessels (e.g. UK and foreign over-15 m vessels), any proposed exclusion zones occurring as a result of operations and maintenance/repair activities would be infrequent, highly localised and undertaken by a significantly lower number of vessels than that proposed for construction and represents a very small proportion of the total fishing grounds available. As a result, both the magnitude and sensitivity are considered to be negligible. Therefore, any displacement effects are not anticipated to exceed negligible significance for these fleets.

Interference to Normal Fishing Activities

12.6.3.15 There is a potential for the propellers, rudders or towed survey equipment of maintenance/repair and/or survey vessels to become entangled in fishing gear, thus causing interference to fishing activity through loss of fishing equipment. Static fishermen are most at risk from this impact, as they leave their gear in the water for long periods of time, whilst those towing mobile gear are less affected as vessels can avoid each other.

12.6.3.16 Static gear fishermen generally avoid deploying their gears in shipping routes and areas of high shipping activity. Embedded mitigation such as circulation of information about maintenance/repair and inspection works via Kingfisher, Notice to Mariners, as well as the potential presence of guard vessels, will notify sea users of works. Additionally, the appointment of a FLO will aid in ensuring local fishermen are made aware of maintenance or repair activities. This should negate the requirement for fishing vessels engaged in fishing to alter course and reduce any risk to fishing gears whilst being towed by fishing vessels. Activity by works vessels during the operational stage is expected to be significantly less than that occurring during the construction stage. Furthermore, it is considered that codes of conduct between works vessels and fishing vessels would be well established by then after the completion of construction activities. The magnitude of impact for vessels towing gear is considered to be negligible, and for static gear this is low.

12.6.3.17 Taking into account the mobility of towed gear vessels targeting the fisheries in the vicinity of the Proposed Development, their sensitivity is considered low. Recognising the static nature of the potting, netting and longlining fisheries, which are set in the water for periods of a few hours to several days, these fisheries are considered to have less tolerance and adaptability and are considered to have a medium sensitivity. As such, the effect of interference with mobile fishing activities during operational activities is considered to be of negligible significance for those vessels operating towed gear and is of minor to moderate significance for static gear vessels.

Navigational Safety Issues for Fishing Vessels

- 12.6.3.18 Assessing safety issues for fishing vessels follows standard practice (IMO Formal Assessment Methodology) and is assessed in Chapter 13 Shipping, Navigation and Other Marine Users. This methodology assigns each impact a ‘severity of consequence’ and a ‘frequency of occurrence’ to evaluate the level of significance. The overall significance of the impact is then assessed as ‘Unacceptable’, ‘Tolerable’ or ‘Broadly Acceptable’. This methodology has been used for assessing this impact rather than standard EIA methodology presented in Section 12.4.
- 12.6.3.19 Vessels from maintenance/repair activities has the potential to create navigational safety issues for fishing vessels.
- 12.6.3.20 Given the considerably lower number of vessel movements that will be required during maintenance or repair, navigational safety issues for fishing vessels will be significantly less than during the construction phase.
- 12.6.3.21 In addition, liaison and notification regarding safety related issues would have been established as part of the pre-installation and installation fisheries liaison programme. Following on from the construction stage, fishermen would be kept fully informed of the maintenance schedule and any unforeseen repairs through Notices to Mariners, Kingfisher Bulletin, and through the appointment of a FLO. In addition, all vessels are expected to comply with COLREGs and SOLAS.
- 12.6.3.22 In light of the above, safety issues for fishing vessels during the operation stage of the Proposed Development are assigned a ranking of tolerable (Moderate risk) as highlighted in in Chapter 13 Shipping, Navigation and Other Marine Users.

Increased Steaming Times

- 12.6.3.23 No permanent exclusion zones are proposed where vessels will have to navigate around during operation. Temporary exclusion zones may be required during maintenance or repair activities.
- 12.6.3.24 However, maintenance and repair activities are likely to be infrequent with any potential exclusions zones being highly localised and temporary. Increased steaming times that may result from activities during the operational phase will not exceed that already assessed for the construction phase.
- 12.6.3.25 In light of the above, the magnitude of impact and sensitivity is considered to be negligible. Accordingly, the significance of any effects resulting from increased steaming times during operation for all fleets is considered to be negligible.

Obstacles on the Seabed After Maintenance/Repair

- 12.6.3.26 Similar to the construction stage, obstacles that remain on the seabed after maintenance/repair activities can pose a risk to fishing vessels as they represent hazards which may result in damage or complete loss of fishing gear. Obstacles on the seabed are defined as exposed cable, objects accidentally dropped by maintenance vessels, uneven ground created as a result of cable repair, and spoil mounds resulting from maintenance vessel anchoring.
- 12.6.3.27 In addition, any cable left exposed after a repair would be either re-buried or subject to non-burial cable protection using similar methods employed during the construction phase. If required, temporary exclusion zones would be put in place during maintenance/repair activities.
- 12.6.3.28 Given the safety implications associated with the interaction of fishing gear and obstacles on the seabed any significant risks will be rectified as a result of post works survey before re-opening of the exclusion zones. In addition, discarding of objects or waste at sea is prohibited by offshore policy with reporting and recovery of any accidentally dropped objects required.
- 12.6.3.29 The consideration of the risk posed by exposed cables was considered in Chapter 13 Shipping, Navigation and Other Marine Users using the with IMO Formal Safety Assessment Methodology. The frequency of this impact is considered to be extremely unlikely assuming the cable is marked on navigational charts and suitably protected via burial or other non-burial protection measures. The severity of the impact is considered to be serious, but the overall ranking is tolerable (moderate risk), taking into account all embedded mitigation.
- 12.6.3.30 Not all fishing type vessels were assessed in Chapter 13 Shipping, Navigation and Other Marine Users, however, as seine netter and pelagic vessels do not have gear in contact with the seabed, and static gear is not towed, the significance of effects from obstacles on the seabed for these vessels is considered to be minor
- 12.6.3.31 The risk posed by other seabed obstacles has been considered in accordance with the EIA methodology outlined in Section 12.4 of this chapter. Vessel anchoring or cable trenching/ploughing resulting from maintenance/repair works could result in spoil mounds, which represent potential snagging hazards to fishing gear. However, it is expected that should any risks to navigational safety be identified, appropriate rectification measures to remove the hazard would be undertaken to remove any such irregularities from the seabed before the re-opening of any exclusion zones. As such, the sensitivity for all fisheries from other obstacles on the seabed is low and the magnitude of impact is considered to be low. Therefore, the effect resulting from this impact is considered to be of minor significance for all vessels, with the exception of vessels operating pelagic gear or static gear where the significance is considered to be negligible.

12.6.4 DECOMMISSIONING

12.6.4.1 During decommissioning, there is potential for decommissioning works to impact on normal fishing activities. The impacts of decommissioning in the worst case are likely to be similar to that of the construction stage with any effects likely to be the same or less than those already assessed.

12.6.5 CUMULATIVE EFFECTS ASSESSMENT

12.6.5.1 Cumulative effects on commercial fisheries may arise from the interaction of significant effects resulting from the Proposed Development during installation, operation (including repair and maintenance) or decommissioning and effects from other planned or consented projects in the vicinity of the Proposed Development.

12.6.5.2 A list of projects within the vicinity of the Proposed Development that have the potential to give rise to a cumulative effect on commercial fisheries receptors have been assessed (and this assessment is presented in Appendix 12.2 Commercial Fisheries Cumulative Assessment Matrix). Only those impacts assessed that extend beyond the Proposed Development are likely to have a cumulative effect.

12.6.5.3 As detailed in Chapter 28 - Cumulative Effects, the cumulative effects assessment ('CEA') is to be undertaken with regards to PINS Advice Note 17 – Cumulative Effects Assessment (PINS, 2015). The long list of projects in Appendix 12.2 has been refined for commercial fisheries as follows:

- First, a spatial assessment was conducted. Any project identified in the long list of cumulative projects falling within the Zol study area (which is the same spatial extent as the study area) for commercial fisheries was screened in for further consideration.
- A temporal, scale and nature-based assessment was conducted for those projects where a potential spatial overlap was identified.
- Taking the above into account, any projects considered likely to affect the commercial fisheries receptors, and/or likely to result in significant effects due to their scale and nature were identified.

12.6.5.4 Those projects where a significant cumulative effect was considered a possibility are identified below:

- AQUIND Interconnector (French side); and
- IFA2.

12.6.5.5 The cumulative assessment for these projects is yet to be undertaken, and will be detailed in the ES to be submitted in support of the application for development consent in due course.

12.6.6 TRANSBOUNDARY EFFECTS

12.6.6.1 The possibility for transboundary effects exists where the impacts of the Proposed Development extend beyond the UK marine area, either in isolation or cumulatively. However, no significant effects have been identified in relation to commercial fishing activities, and as such, it is considered that there will likely not be any transboundary effects in isolation. The likelihood for any cumulative transboundary effects will be assessed in the ES to be submitted in support of the application for development consent.

12.7 PROPOSED MITIGATION

12.7.1.1 At this stage, the approach to assessment in this chapter assumes that mitigation measures embedded into the design (e.g. routing the cable to avoid constraints, use of appropriate construction techniques, pollution prevention measures) or which constitute industry standard environmental plans and best practice will be in place. As the final design evolves further detail on all embedded mitigation measures will be provided and assessments will reflect all the embedded and proposed mitigation measures within the ES.

12.7.2 CONSTRUCTION (AND DECOMMISSIONING)

12.7.2.1 This section details the embedded mitigation measures that have been identified to be in place prior to the construction and decommissioning stages, as outlined within Chapter 13 Shipping, Navigation and Other Marine Users:

- Circulation of information via Notice to Mariners, Radio Navigational Warnings, NAVTEX, and/or broadcast warnings in advance of and during the marine works. Information will also be circulated to local ports, harbours and marinas in the area. The notices will include a description of the work being carried out.
- CLVs will display appropriate marks and lights, and broadcast their status on AIS at all times, to indicate the nature of the work in progress, and highlight their restricted manoeuvrability.
- Temporary aids to navigation will be deployed (if required) to guide vessels around any areas of installation or decommissioning activity.
- Guard vessel(s) will be employed where appropriate, to work alongside the installation vessel(s) during any work carried out. The guard vessel(s) will alert third party vessels to the presence of the installation or decommissioning activity and provide assistance in the event of an emergency.
- The potential use of guard vessels along the Marine Cable Corridor where there are cable exposures resulting in significant risk to receptors.
- Compliance with COLREGS (IMO, 1972) and the International regulations for the SOLAS.
- A rolling 500 m exclusion zone around dynamically positioning ('DP') vessels and up to 700 m around barges that require anchor spreads will be requested during the construction phase and monitored by the guard vessel(s).

- A FLO will be in place.

12.7.2.2

Additional mitigation measures to bring impacts assessed as Unacceptable and Tolerable to ALARP are presented below, as well as minimise impact to inshore fisheries:

- Minimising the period of time the cable is left exposed, where possible.
- Specific methodology for the cable laying operation within the TSS, and ensuring they are compliant with COLREGS.
- Establishment of an Inshore Fisheries Working Group.
- Potential over-trawlability assessment in the Solent for inshore demersal fisheries.

12.7.2.3

An inshore fisheries working group will include key fisheries stakeholders to ensure ongoing engagement with the fishing industry. It is proposed that representatives from both the Southern and Sussex IFCAs, Applicant and FIRs from relevant ports be in attendance. The objectives of the Fisheries Working Group will include:

- Contribution to the Construction Management Plan;
- Minimise interference to fishing activities; and
- Agree clear engagement protocols between AQUIND and fishermen (including FLO, dissemination of project information, over trawlability assessments, construction vessel navigation routes and removal of dropped objects).

12.7.3

OPERATION (INCLUDING REPAIR AND MAINTENANCE)

12.7.3.1

The embedded mitigation measures assumed to be in place during the operation and maintenance/repair stage are detailed below:

- The Proposed Development will be clearly marked on nautical charts in line with UKHO standards, with associated note/warning.
- Details of the marine cable locations and associated cable protection will be included in fishermen's awareness charts issued by Kingfisher.
- The cable will be suitably protected, e.g., buried where feasible, to help protect against snagging from fishing gear and risk from vessel anchors. Cable burial and non-burial protection will be informed by a Cable Burial Risk Assessment (the current target burial depth is between 0.6 m and 5.1 m).
- Circulation of information via Notice to Mariners, Radio Navigational Warnings, NAVTEX, and/or broadcast warnings in advance of and during maintenance works. Information will also be circulated to local ports, harbours and marinas in the area. The notices will include a description of the work being carried out.
- Any cable protection measures used (e.g. rock placement) will not reduce the existing water depths by greater than 5%.

12.7.3.2

In addition, the Inshore Fisheries Working Group should be maintained during planned maintenance or repair work.

12.8 RESIDUAL EFFECTS

12.8.1.1 The residual effects are summarised in Table 12.9. These take into account industry-standard embedded mitigation and the additional mitigation measures described above as required to reduce the impact to fisheries.

Table 12.9 - Summary of residual effects

Project Phase	Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation	Significance of Residual Effect
Construction & Decommission -ing	Temporary loss or restricted access to established fishing grounds	Local UK inshore fleet (potters, netters, demersal trawlers, longliners)	Low	Medium	Minor to moderate	Establishment of Inshore Fisheries Working Group	Minor
		Local UK inshore fleet (dredgers)	Negligible	Negligible	Negligible	Establishment of Inshore Fisheries Working Group	Negligible
		UK over-15m scallop dredgers	Low	Negligible	Negligible		Negligible
		UK beam trawlers	Low	Negligible	Negligible		Negligible
		French Scallop dredgers	Low	Low	Minor		Minor
		French Demersal otter trawlers	Low	Low	Minor		Minor
		French Pelagic trawlers	Low	Negligible	Negligible		Negligible
		Belgian beam trawlers	Low	Low	Minor		Minor
		Belgian scallop dredgers	Low	Negligible	Negligible		Negligible
		Belgian seine netters	Low	Negligible	Negligible		Negligible
		Dutch seine netters	Low	Low	Minor		Minor
Dutch pelagic trawlers	Low	Negligible	Negligible		Negligible		

Project Phase	Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation	Significance of Residual Effect
	Temporary displacement of fishing activity into other areas	Local UK inshore fleet (potters, netters, longliners)	Low	Medium	Minor to Moderate	Establishment of Inshore Fisheries Working Group	Minor
		Local UK inshore fleet (dredgers, demersal trawlers)	Negligible	Low	Negligible	Establishment of Inshore Fisheries Working Group	Negligible
		UK over-15m scallop dredgers and UK beam trawlers	Low	Negligible	Negligible		Negligible
		French Scallop dredgers	Low	Negligible	Negligible		Negligible
		French Demersal otter trawlers	Low	Low	Minor		Minor
		French Pelagic trawlers	Low	Negligible	Negligible		Negligible
		Belgian beam trawlers	Low	Low	Minor		Minor
		Belgian scallop dredgers and seine netters	Low	Negligible	Negligible		Negligible
		Dutch seine netters and pelagic trawlers	Low	Negligible	Negligible		Negligible

Project Phase	Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation	Significance of Residual Effect
	Interference to normal fishing activities	Local UK inshore fleet (potters, netters, longliners)	Low	Medium	Minor to Moderate	Establishment of Inshore Fisheries Working Group	Minor
		Local UK inshore fleet (dredgers, demersal trawlers) and over-15m scallop dredgers and UK beam trawlers	Negligible	Low	Negligible	Establishment of Inshore Fisheries Working Group	Negligible
		French Scallop dredgers, Demersal otter trawlers and Pelagic trawlers	Negligible	Low	Negligible		Negligible
		Belgian beam trawlers, scallop dredgers and seine netters	Negligible	Low	Negligible		Negligible
		Dutch seine netters and pelagic trawlers	Negligible	Low	Negligible		Negligible
	Navigational safety issues for fishing vessels	All receptors	n/a	n/a	Tolerable		Tolerable
	Temporary increases in steaming times	All receptors	Negligible	Negligible	Negligible		Negligible

Project Phase	Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation	Significance of Residual Effect
	Obstacles on the seabed Exposed cables Other obstacles	Demersal Vessels (Otter trawlers, beam trawlers, dredgers and seine nets)	n/a Low	n/a Low	Tolerable Minor		Tolerable Minor
		Pelagic vessels (pelagic trawlers) and static gear (potters, netters and longline) vessels	Low	Negligible	Negligible		Negligible
Operation (including repair/maintenance)	Complete/temporary loss or restricted access to established fishing grounds	Local UK inshore fleet	Negligible	Medium	Minor	Establishment of Inshore Fisheries Working Group Over-trawlability assessment	Minor
		All other vessels	Negligible	Negligible	Negligible		Negligible
	Complete/temporary displacement of fishing activity into other areas	UK inshore <15m fleet (trawlers, dredgers and static gear)	Low	Low	Minor	Establishment of Inshore Fisheries Working Group	Minor
		All other vessels	Negligible	Negligible	Negligible		Negligible

Project Phase	Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation	Significance of Residual Effect
	Interference to normal fishing activities	Local UK inshore fleet (potters, netters, longliners)	Low	Medium	Minor to Moderate	Establishment of Inshore Fisheries Working Group	Minor
		All other vessels	Negligible	Low	Negligible		Negligible
	Navigational safety issues for fishing vessels	All receptors	n/a	n/a	Tolerable		Tolerable
	Increased steaming times	All receptors	Negligible	Negligible	Negligible		Negligible
	Obstacles on the seabed after maintenance/repair	Demersal Vessels (Otter trawlers, beam trawlers, dredgers and seine nets)	n/a Low	n/a Low	Tolerable Minor	Over-trawlability assessment	Tolerable Negligible
		Exposed cables Other obstacles	Pelagic vessels (pelagic trawlers) and static gear (potters, netters and longline) vessels	Low	Negligible	Negligible	

12.9 SUMMARY AND CONCLUSIONS

BASELINE

- 12.9.1.1 A comprehensive baseline has been developed describing the commercial fisheries along the Entire Marine Cable Corridor in the UK and French waters including the Proposed Development and surrounding area.
- 12.9.1.2 The fishing practices vary considerably within the footprint and vicinity of the Proposed Development.
- 12.9.1.3 Inshore areas (within the UK 12 nmi limit) are dominated by potting for crab, lobster and whelk. These vessels are small with a limited operational range and operate a range of gear types including potting, longlining, and netting.
- 12.9.1.4 The offshore areas (beyond the UK 12 nmi territorial limit up to the UK/France EEZ boundary line) is fished by a number of nationalities including French, Belgian and Dutch vessels. These vessels use a range of gear types including dredges, seine nets, and demersal trawls targeting a number of fish species such as scallops, herring and flatfish

ASSESSMENT

- 12.9.1.5 The following impacts were assessed on relevant receptors:

Construction (and Decommissioning)

- Temporary loss or restricted access to established fishing grounds;
- Temporary displacement of fishing activity into other areas;
- Interference to normal fishing activities;
- Navigational safety issues for fishing vessels;
- Temporary increases in steaming times; and
- Obstacles on the seabed.

Operation (incl. Maintenance/Repair)

- Complete/temporary loss or restricted access to established fishing grounds;
- Complete/temporary displacement of fishing activity into other areas;
- Interference to normal fishing activities;
- Navigational safety issues for fishing vessels;
- Increased steaming times; and
- Obstacles on the seabed.

- 12.9.1.6 A cumulative screening exercise was also undertaken which identified the following projects as having the potential to lead to significant cumulative effects:
- AQUIND Interconnector (France); and
 - IFA2.

12.9.1.7 The potential for cumulative effects with these projects will be assessed in the ES to be submitted in support of the application for development consent.

12.9.1.8 The possibility for transboundary effects exists where the impacts of the Proposed Development extend beyond the UK marine area, either in isolation or cumulatively. However, no significant effects have been identified in relation to commercial fishing activities, and as such, it is considered that there will likely not be any transboundary effects in isolation. The likelihood for any cumulative transboundary effects will be assessed in the ES to be submitted in support of the application for development consent.

MITIGATION

12.9.1.9 As well as the embedded mitigation measures identified in Section 12.7, additional mitigation measures proposed to minimise impacts include:

- Minimising the period of time the cable is left exposed, where possible;
- Specific methodology for the cable laying operation within the TSS, and ensuring they are compliant with COLREGS;
- Establishment of an Inshore Fisheries Working Group; and
- Potential over-trawlability assessment in the Solent for inshore demersal fisheries.

RESIDUAL EFFECTS

12.9.1.10 No potentially significant effects are currently predicted to arise on commercial fisheries as a result of the construction, decommissioning and operation (including repair and maintenance) of the Proposed Development.

CONCLUSION

12.9.1.11 This chapter provides the PEIR in respect of commercial fisheries for the Proposed Development (as described in Chapter 3 Description of the Proposed Development and accounting for activities not yet assessed as detailed at Section 12.4.5) based upon the data available at the time of production. No potentially significant effects are currently predicted to arise in relation to commercial fisheries as a consequence of the Proposed Development.

12.10 ASSESSMENTS AND SURVEYS STILL TO BE UNDERTAKEN

12.10.1.1 A number of additional assessments will be undertaken for submission with the ES, including:

- Assessment of impacts arising from construction and operation of flotation pits, use of a TSHD vessel for trenching and vessel groundings; and
- CEA.

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.

Cefas, 2012 - 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, MCEU, Defra and DTI (2004). Offshore Wind Farms - Guidance note for Environmental Impact Assessment In respect of FEPA and CPA requirements, Version 2. Available from: <https://www.cefas.co.uk/publications/files/windfarm-guidance.pdf>. [Accessed 17/01/2019]

CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester. Available from: <https://www.cieem.net/data/files/ECIA%20Guidelines.pdf>. [Accessed 17/01/2019]

International Cable Protection Committee (2009) 'Fishing and Submarine Cables - Working Together'. Available from: <https://www.iscpc.org>. [Accessed 17/01/2019]

FLOWW (2014). Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison. Available from: <https://www.sff.co.uk/wp-content/uploads/2016/01/FLOWW-Best-Practice-Guidance-for-Offshore-Renewables-Developments-Jan-2014.pdf>. [Accessed 17/01/2019]

FLOWW (2015). Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds. Available from: <https://www.thecrownstate.co.uk/media/1776/floww-best-practice-guidance-disruption-settlements-and-community-funds.pdf>. [Accessed 17/01/2019]

Oil and Gas UK (2015). Guidelines on Liaison with the Fishing Industry on the UKCS Issue 6. Update to the previous issue No. 5. Available from: <https://oilandgasuk.co.uk/product/guidelines-on-liaison-with-the-fishing-industry-on-the-ukcs-issue-6/>. [Accessed 17/01/2019]

PINS (2015) Advice note 17: Cumulative effects Assessment. Available from: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> [Accessed 17/01/2019]

Sea Fish Industry Authority and UK Fisheries Economic Network (UKFEN)(2012). Best practice guidance for fishing industry financial and economic impact assessments. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/263986/0579.pdf. [Accessed 17/01/2019]

Southern IFCA (2019a). Byelaws. Available from: <http://www.southern-ifca.gov.uk/byelaws#>
[Accessed 17/01/2019]

Southern IFCA (2019b). Other Regulations. Available from: <http://www.southern-ifca.gov.uk/other-regulations> [Accessed 17/01/2019]

Sussex IFCA (2019). Byelaws. Available from: <https://www.sussex-ifca.gov.uk/byelaws>
[Accessed 17/01/2019]