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Environmental Statement – Volume 1 – Chapter 12 – Commercial Fisheries

The Planning Act 2008

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12. COMMERCIAL FISHERIES

12.1. SCOPE OF THE ASSESSMENT

12.1.1. INTRODUCTION

12.1.1.1. This chapter reports the outcome of the assessment of likely significant effects arising from the Proposed Development upon on commercial fisheries. The Proposed Development that forms the basis of this assessment is described in Chapter 3 (Description of the Proposed Development) of the ES Volume 1 (document reference 6.1.3). This chapters outlines information regarding the potential impacts associated with the construction, operation including maintenance and repairs, and decommissioning of the Proposed Development.

12.1.1.2. 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.

12.1.1.3. Where effects 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 Member States, these have also been identified and assessed in Section 12.7.

12.1.1.4. This chapter should be read in conjunction with Chapter 13 (Shipping, Navigation and other Marine Users) of the ES Volume 1 (document reference 6.1.13) and Chapter 9 (Fish and Shellfish) of the ES Volume 1 (document reference 6.1.9), which provide further information regarding potential effects. Chapter 13 (Shipping, Navigation and Other Marine Users) presents the assessment of likely significant effects arising from the Proposed Development on recreational angling.

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.

12.1.2.2. For the purposes of assessment the study area comprises the Landfall and Marine Cable Corridor (as shown on Figure 3.1 of the ES Volume 2 (document reference 6.2.3.1)) within the UK Marine Area (as this comprises the Proposed Development). The study area is as shown in Figure 12.1 of the ES Volume 2 (document reference 6.2.12.1).

Landfall

12.1.2.3. The Marine Cables will make Landfall through the use of Horizontal Directional Drilling ('HDD') methods which will travel underneath the intertidal area at Eastney from an exit/entry point in the marine environment beyond 1 km (between Kilometre

Point ('KP') 1 and KP 1.6) and the Transition Joint Bays ('TJBs') located in the car park behind Fraser Range (Figure 3.3 of the ES Volume 2 (document reference 6.2.3.3) in Chapter 3 (Description of the Proposed Development)). It is not determined yet whether the HDD direction will be onshore to marine, marine to onshore, or drilling from both ends. The Landfall falls within International Council for the Exploration of the Sea ('ICES') rectangle 30E8 (Figure 12.1).

12.1.2.4. HDD is 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 (Section 7 on the map) of the ES Volume 2 (document reference 6.2.3.9) 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 Mean High Water Spring ('MHWS') mark. It has been agreed with the Marine Management Organisation ('MMO') that this is considered to be an exempt activity that does not require a Marine Licence, subject to the conditions of Article 35 of Marine Licensing (Exempted Activities) Order 2011 (as amended). The Consultation Report (document reference 5.1) provides further detail on this and other consultations.

12.1.2.5. The HDD crossing under the north-western corner of Langstone Harbour has also been considered to be part of the study area.

12.1.2.6. For the purpose of this chapter, the fishing activities assessed which are relevant to the Landfall assessment take place in the intertidal area in the vicinity of Eastney. All other fishing activities that take place seaward of the intertidal areas are assessed under the Marine Cable Corridor. assessment.

Marine Cable Corridor

12.1.2.7. 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)).

12.1.2.8. 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). Appendix 12.1 (Commercial Fisheries Baseline Report) of the ES Volume 3 (document reference 6.3.12.1) presents the Commercial Fisheries Baseline Report and a summary of the findings is presented in Section 12.5 of this Chapter.

12.1.2.9. The Proposed Development is located in the ICES Division VIId (Eastern English Channel). Fisheries data is recorded, collated and analysed by statistical rectangles (ICES rectangles) within each ICES Division.

12.1.2.10. 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 of the ES Volume 2 (document reference 6.2.12.1), these include the following:

- ICES Rectangle 30E8;
- ICES Rectangle 30E9;
- ICES Rectangle 29E9;
- ICES Rectangle 29F0;
- ICES Rectangle 28F0; and
- ICES Rectangle 28F1.

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 Section 1.2 of 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.

International

- Regulation (EU) No 1380/2013 on the common fisheries policy (Known as 'The Common Fisheries Policy' or 'CFP');
  - Annex 1 of EU Regulation 1380/2013 (Referring to Historic International Fishing Rights);
- EC Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (known as the 'Habitats Directive').

National

12.2.2.3. The main bodies regulating fishing activity in England are the EU through the EU CFP, and the MMO through national and regional regulations.

- Marine and Coastal Access Act ('MCAA') (2009);

12.2.2.4. The MCAA 2009 establishes the Inshore Fisheries and Conservation Authorities ('IFCA's') and defines their districts. Under the Act IFCA's have duties to manage the exploitation of sea fisheries resources and ensure that the conservation objectives of any Marine Conservation Zones ('MCZs') are furthered within their

district. The Act provides IFCA's the power to create and enforce local byelaws conferring common enforcement powers to Inshore Fisheries and Conservation officers; as well as providing them powers to enforce local byelaws and legislation relevant to the regulation of fisheries and the protection of MCZs.

12.2.2.5. It should be noted that access to fishing grounds within UK Territorial Waters (out to 12 nautical miles ('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 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 6 and 12 nmi limits.

12.2.2.6. 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

12.2.2.7. At a regional level, fisheries in England are managed by IFCA's 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 of the ES Volume (document reference 6.2.12.3)).

12.2.2.8. The Southern IFCA District stretches from the Devon/Dorset border in the west to the Hampshire/Sussex border in the east and covers the combined areas of the relevant councils as well as the entire Dorset, Hampshire and Isle of Wight coastline out to 6 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.

12.2.2.9. 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.

12.2.2.10. Key obligations under the Southern IFCA Byelaws and Codes of Practice include:

- 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 seabed. 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 whelk 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).

12.2.2.11. 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 whelk 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).

12.2.3. PLANNING POLICY

National Policy

12.2.3.1. EN-1 Overarching National Policy Statement ('NPS') for Energy (2011, DECC) is the relevant NPS for the Proposed Development.

12.2.3.2. Paragraph 4.1.6 of EN-1 requires the Secretary of State to have regard to the Marine and Coastal Access Act 2009 which provides for the preparation of a Marine Policy Statement ('MPS') and Marine Plans. Part 5 of EN-1 sets out how generic (physical) impacts (i.e. those impacts most likely to arise from the development of any type of energy infrastructure) and means of mitigation will be considered.

Regional Policy

12.2.3.3. 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.

12.2.3.4. Further detail and consideration on how the Proposed Development meets the requirements of these and other policies is presented within the Planning Statement (document reference 5.4) that accompanies the Application.

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;
- Fishing Liaison with Offshore Wind and Wet Renewables' ('FLOWW') Best Practice Guidance for Offshore Renewables Developments. Recommendations for Fisheries Liaison. FLOWW (') Group (2014); and
- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds. FLOWW (2015).

12.3. SCOPING OPINION AND CONSULTATION

12.3.1. SCOPING OPINION

12.3.1.1. As detailed within Chapter 5 (Consultation) of the ES Volume 1 (document reference 6.1.5), a Scoping Opinion was received by the Applicant from PINS on 7 December 2018. Table 1 of Appendix 12.2 (Commercial Fisheries Consultation Responses) of the ES Volume 3 (document reference 6.3.12.2) explains how the comments received from PINS in relation to commercial fisheries have been taken into account. This appendix also summarises any consultation that was undertaken prior to the publication and consultation on the Preliminary Environmental

Information Report ('PEIR') in Table 2 of Appendix 12.2 (Commercial Fisheries Consultation Responses). Key items that were raised included;

- The study area should be clearly defined;
- The assessment of how sensitive receptors are determined should be fully justified;
- Consultation with the angling community should be undertaken; and
- Consultation with the fisheries industry should be undertaken.

12.3.2. CONSULTATION PRIOR TO PUBLICATION OF THE PEIR

12.3.2.1. Consultation was also undertaken prior to the publication of the PEIR. The items discussed and outcomes are summarised in Table 2 of Appendix 12.2 (Commercial Fisheries Consultation Responses). In summary, the key items that were discussed included:

- Introduction of the Proposed Development (and Geophysical Survey) to the UK fisheries industry on the south coast of the UK. This included Portsmouth, Selsey and Isle of Wight fisheries stakeholders. Detailed information on the fisheries operating in the vicinity of the Proposed Development, vessel operating practices and gear specifications were documented;
- Introduction of the Proposed Development to Southern, Sussex IFCAs and MMO. Details of fisheries operating in these IFCA districts were recorded; and
- Introduction of the Proposed Development to foreign fisheries organisations (French, Netherlands, Belgian and German) operating in the Channel. Detailed information taken on the activity of these vessels in the vicinity of the Proposed Development, operating practices and gear specification were documented.

12.3.3. PEIR CONSULTATION

12.3.3.1. Consultation on the PEIR was undertaken between February and April 2019. All of the comments received from the consultation relevant to the assessment are presented in Table 3 of Appendix 12.2 (Commercial Fisheries Consultation Responses), however the key items that were raised included:

- Use of the most up to date commercial fisheries landings data for both UK and foreign vessels should be used;
- Limitations of commercial fisheries data should be considered;
- Consultation with the angling community should be undertaken;
- Consultation with the fisheries industry should be undertaken; and
- Consideration against the details of the South Marine Plans.

12.3.3.2. During March and April 2019, in order to coincide with the PEIR consultation, further meetings were held to engage with commercial fisheries stakeholders and the recreational angling sector (see Chapter 13 (Shipping, Navigation and Other Users)) where impacts to recreational angling is assessed).

12.3.3.3. Meetings were held on 8th and 9th April 2019 in Ryde, Selsey and Portsmouth with fishermen's organisations where the fishermen were given an overview of the PEIR assessment.

12.3.3.4. The Consultation Report provides further detail on consultations and fisheries specific meetings.

12.3.4. POST-PEIR CONSULTATION

12.3.4.1. Further consultation with key stakeholders has been undertaken following publication of the PEIR. This was to ensure all impacts are assessed. The key items that have been discussed are presented in Table 12.1 below.

Table 12.1 – Summary of post-PEIR consultation

Consultee	Date (Method of Consultation)	Discussion/Topic
Southern IFCA	June/July 2019 Emails	IFCA responded to queries regarding native oysters and location of oyster beds. They provided shapefiles of oyster bed locations.
MMO	18 July 2019 Teleconference	Discussion on the Applicant's responses to the feedback received from MMO on the PEIR.
MMO	1 August 2019 Teleconference	Review and discussions on the Deemed Marine Licence ('dML').
MMO	19 September and 02 October 2019 Email	MMO are content with approach to cumulative assessment and requested one new coastal project to be added to long list.

12.3.4.2. The Consultation Report (document reference 5.1) provides further detail on consultation and fisheries specific meetings. Consultation with key stakeholders on specific commercial fisheries related data and information was undertaken on an ad hoc basis in order to ensure all relevant vessels and impacts were assessed.

12.3.5. ELEMENTS SCOPE OUT OF THE ASSESSMENT

12.3.5.1. A number of elements have been scoped out of this assessment but are included in other chapters. These are:

- An assessment of likely significant effects from the Proposed Development to recreational angling is presented in Chapter 13 (Shipping, Navigation and Other Marine Users, document reference 6.1.13); and

- An assessment of the likely significant effects from the Proposed Development on commercially important fish and shellfish species is presented in Chapter 9 Fish and Shellfish, document reference 6.1.9).

12.3.6. IMPACTS SCOPED IN TO THE ASSESSMENT

12.3.6.1. The following impacts have been scoped in to the assessment:

- 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 (including repair and maintenance):
  - 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.

12.4. ASSESSMENT METHODOLOGY

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 has been based on the following method and guidance documents and publications:

- Chartered Institute of Ecology and Environmental Management ('CIEEM') for projects in marine and coastal environments (CIEEM, 2019);
- 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';
- International Maritimes Organisation ('IMO') Guidelines for Formal Safety Assessment ('FSA') – Maritime Safety Council ('MSC')/Circ. 1023/MEPC/Circular 392 (IMO, 2002).

- 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'.

12.4.1.2. The process for assessment through the following stages:

- Describing the baseline within the study area;
- Identifying the receptors;
- Determining the importance of the receptors present within the study area that may be affected by the Proposed Development;
- Identifying and characterising the potential impacts, based on the nature of the construction, operation and maintenance including repair and replacement, and decommissioning activities associated with the Proposed Development;
- Determining the significance of the impacts;
- Identifying the counter effect of any mitigation measures to be undertaken, that may be implemented in order to address significant adverse effects;
- Determining the residual impact significance after the effects of mitigation have been considered; and
- Assessing cumulative effects (with mitigation where applicable).

12.4.1.3. Significance was assessed on a fleet level for receptor fishery, rather than impacts to individual vessels, whereby a significant effect will only be concluded should the impact affect the viability of the fishery within the study area.

12.4.2. MAGNITUDE

12.4.2.1. The magnitude 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 12.2).

Table 12.2 – Definitions of magnitude of impact

Magnitude of Impact	Definition
High	• A major proportion of the fishing ground is encompassed by the construction or maintenance activities for a long period (e.g. entire construction period). • The area encompassed represents a major proportion of total annual landings values. • The effect to fishing activity is permanent with no recoverability.

Magnitude of Impact	Definition
Medium	• 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). • The area encompassed represents a moderate proportion of total annual landings values. • The effect to fishing activity is temporary with recoverability within a moderate time frame.
Low	• 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). • The area encompassed represents a minor proportion of total annual landings values. • The effect to fishing activity is temporary with recoverability in a short time frame.
Negligible	• 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) • Little or no history of fishing in the area. • The effect to fishing activity is temporary with immediate recoverability.

12.4.3. SENSITIVITY

12.4.3.1. The sensitivity 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 12.3).

Table 12.3 – Definitions of sensitivity

Sensitivity	Definition
High	• 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. • Limited recoverability due to inability to mitigate loss of fishing area by operating in alternative areas.
Medium	• 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.
Low	• Fishing vessels with high spatial adaptability due to extensive operational range and/or ability to deploy a number of gear types. • High spatial tolerance due to ability to fish a number of fishing

Sensitivity	Definition
	grounds. • High recoverability due to ability to mitigate loss of fishing area by operating in range of alternative areas.
Negligible	• Category of fishing receptor with an extensive operational range and/or very high method versatility. • Vessels are able to exploit a large number of fisheries.

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 12.4, by reference to the sensitivity of the receptor and magnitude of change.

Table 12.4 – Significance of effects matrix

		Sensitivity of receptor/receiving environment to change			
		High	**Medium**	**Low**	**Negligible**
Magnitude of Impact	**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 purpose of assessment are those which are described as 'major' and 'major to moderate/'. In addition, 'moderate' effects can also be deemed as significant, all other impacts are not significant. Whether they do so shall be determined by a qualitative analysis of the specific impact and has been based on professional judgement. If/where this is the case, the basis for any judgement has been outlined.

12.4.4.3. In addition to assessing the potential impacts on commercial fisheries using the methodology outlined above, there is overlap with the assessments in Chapter 13 (Shipping, Navigation and Other Marine Users) regarding;

- potential construction (and decommissioning) impacts on navigational safety of fishing vessels and obstacles on the seabed (exposed cables); and

- the potential operational (including repair and maintenance) impacts on navigational safety of fishing vessels and obstacles on the seabed after maintenance/repair.

12.4.4.4. This assessment methodology follows standard practice (IMO FSA Methodology) and is described in more detail in Chapter 13 (Shipping, Navigation and Other Marine Users) and Appendix 13.1 (Navigation Risk Assessment) of the ES Volume 3 (document reference 6.3.13.1).

12.4.4.5. The IMO FSA methodology assigns the 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'**.

12.4.4.6. All other potential impacts (including obstacles on the seabed other than exposed cables) are assessed using the methodology described above. It should be noted that the assessment for obstacles on the seabed in Chapter 13 (Shipping, Navigation and Other Marine Users) does not assess the risk of dropped objects and spoil mounds on fishing vessels, hence this is assessed using the commercial fisheries methodology described in (Sections 12.4.2 and 12.4.3 and paragraph 12.4.4.2).

12.4.5. ASSUMPTIONS AND LIMITATIONS

12.4.5.1. Assessment has been undertaken based on the information provided within Chapter 3 (Description of the Proposed Development) and using the worst-case design parameters presented in Appendix 3.2 (Marine Worst-Case Design Parameters) of the ES Volume 3 (document reference 6.3.3.2). How these parameters are relevant for worst-case scenarios for commercial fisheries is presented in Section 12.6.1.

12.5. BASELINE ENVIRONMENT

12.5.1.1. This baseline summarises the full baseline assessment contained in the Appendix 12.1 (Commercial Fisheries Baseline Report) of the ES Volume 3 (document reference 6.3.12.1).

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 is described.

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 12.5. 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 12.5 – Sources of data and information

Country	Data/ source	Nature of data	Year(s)	Description	Limitations
UK	MMO, 2018	Fisheries statistics (landings and effort data)	2013 – 2017	Fishing effort in days and landings, values in pounds by UK registered vessels by species, method, size and port. Includes vessels of all categories (under 10, 10-15 m and over 15 m).	Low spatial resolution as data is compiled by ICES rectangle. 2018 data was not available at the time of writing.
		Surveillance sightings	2013 – 2017	Sightings of all fishing vessels (regardless of size or nationality) recorded by routine patrols within the UK EEZ.	May underestimate total extent of fishing activity due to low patrol frequency and timing. Does not provide information on fishing patterns in areas relevant to the Proposed Development that fall within the French EEZ. 2018 data was not available at the time of writing.
		Vessel Monitoring System ('VMS')	2013 – 2017	VMS data combined with log book data of all over 15 m UK vessels. Data provided in terms of effort and value. Data filtered by speed. VMS data provided as	Some UK vessels targeting the study area and its vicinity are under 15 m in length and therefore not included in VMS datasets. 2018 data was not available at

Country	Data/ source	Nature of data	Year(s)	Description	Limitations
				aggregated number of vessel positions within a grid of rectangles of approximately 5.3 nmi.	the time of writing.
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. The data only covers 2014.
	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. The data only overs 2011.
	Comité Régional des	VALPENA data	2014	The VALPENA data derives from interviews with voluntary	The data only covers 2014 and therefore represents a

Country	Data/ source	Nature of data	Year(s)	Description	Limitations
	Pêches Maritimes et des Elevages Marins (CRPMEM) of Normandie, CRPMEM of Hauts-de-France, Valpena report, Jalon 2, April 2018			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.	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	Reports from the	2011 – 2012	Reports include description of	The description is undertaken

Country	Data/ source	Nature of data	Year(s)	Description	Limitations
	– relevant research on French fisheries in the Channel	Channel integrated approach for marine resource management ('CHARM') project – EU Interreg IVa.		French fleets targeting grounds in the Channel.	at the scale of the Channel and uses dated data. More relevant data were used to describe Commercial Fishing activities in the vicinity of the Proposed Development.
	Scientific, Technical and Economic Committee for Fisheries ('STECF') – 2018 annual economic report on the EU fishing fleet	Statistics on European fishing fleets economic performance	2016	Report includes description of French fleet (structure, economic performance, etc.) as a whole.	The French fleet is described at a larger scale than other data sets made available to the Proposed Development. This data source was therefore not used in the description of the baseline.
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. VMS data provided as the aggregated number of vessel positions within a grid of	Data does not include information on vessels of less than 15 m in length.

Country	Data/ source	Nature of data	Year(s)	Description	Limitations
				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 of the ES Volume 2 (document reference 6.2.12.4)):

- 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 of the ES Volume 2 (document reference 6.2.12.5)). These small vessels target a variety of species (Figure 12.7 of the ES Volume 2 (document reference 6.2.12.7)) using a variety of methods (Figure 12.6 of the ES Volume 2 (document reference 6.2.12.6)), 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 seiners (Figure 12.5 and Figure 12.6) using Scottish seine nets. 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 as it is within French Territorial Waters where no UK vessels can fish. 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 and 29F0.

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 (see

Figure 11 in Appendix 12.1 (Commercial Fisheries Baseline Report)). For rectangles 29E9, 29F0 and 28F0 landings values are highest in Shoreham, Boulogne, Newhaven and Scheveningen.

Seasonality

12.5.3.6. The nearshore 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 April and October, from hooks and lines between April and December, from dredging between October and March, and from traps between April and June (Plate 12.1). A small seasonal oyster and clam fishery also exists within Langstone Harbour, targeted by dredgers between November and February.

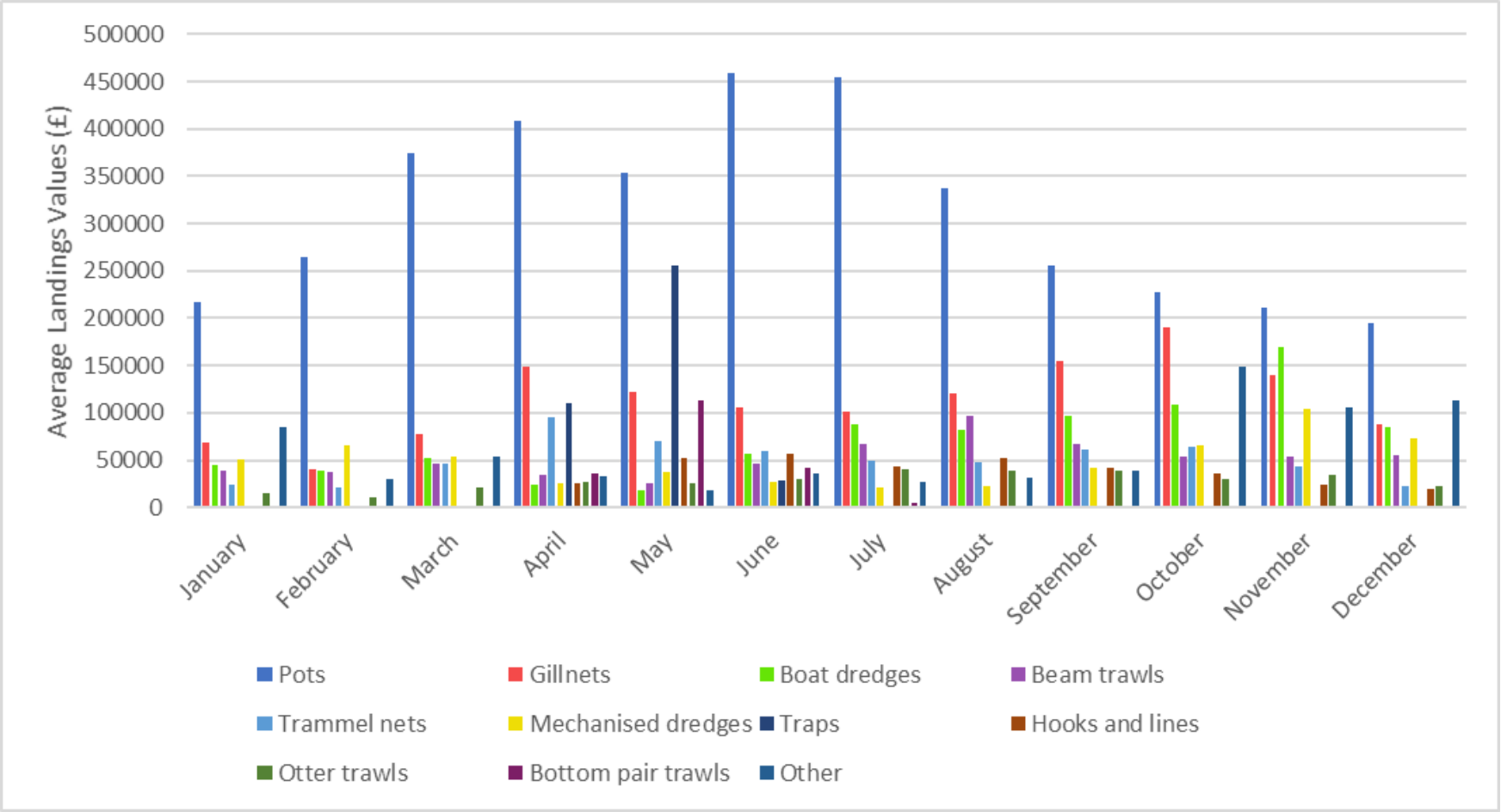

Plate 12.1 – Average Monthly UK Landings Values (£) by Method in ICES 30E8 & 30E9 (2013-2017; MMO, 2018)

12.5.3.8. There is more seasonal variation in landings further offshore 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 October and January. UK beam trawling is carried out year-round, with slightly higher landings between January and March.

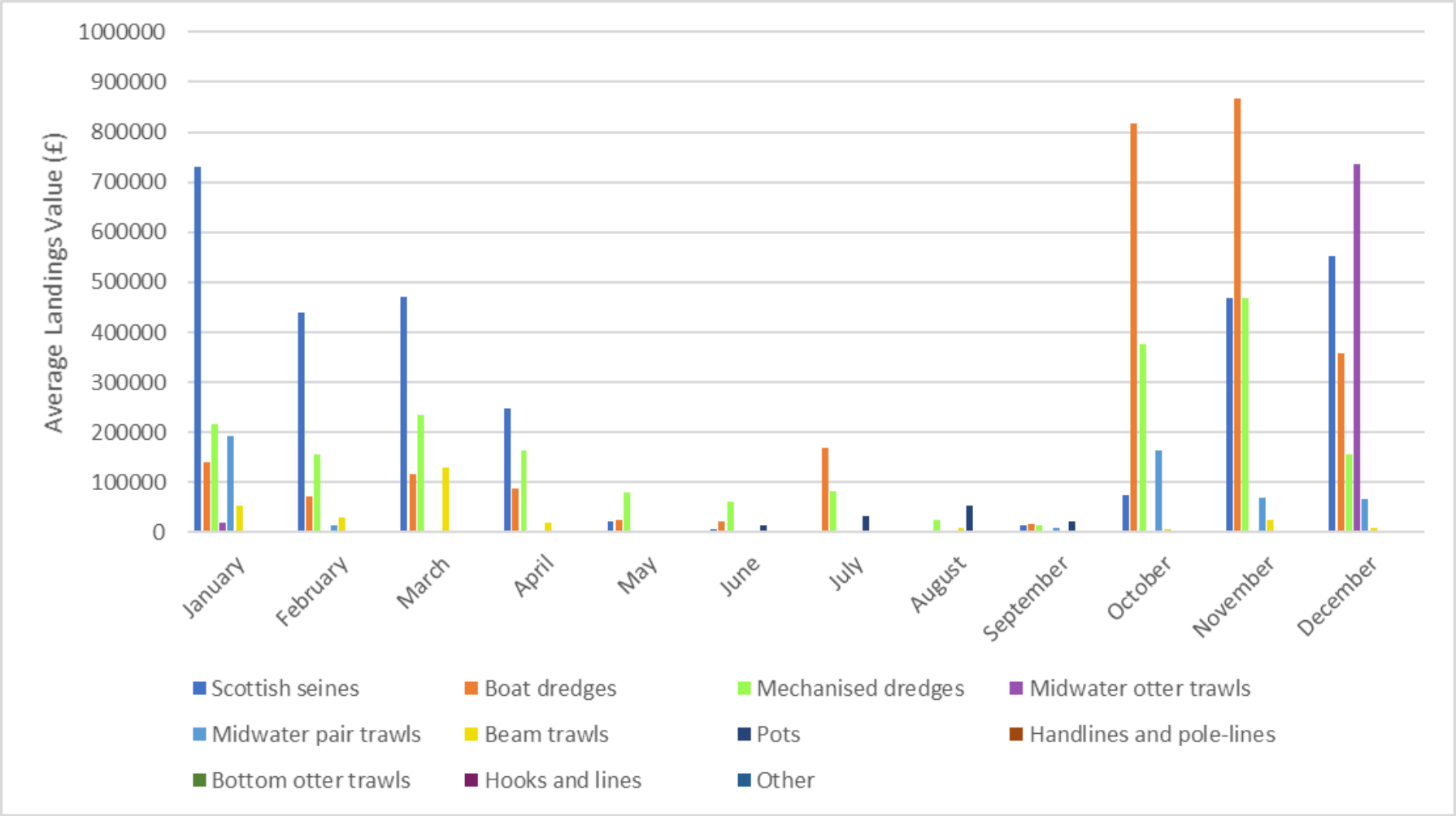

Plate 12.2 – Average Monthly UK Landings Values (£) by Method in ICES 29E9, 29F0 & 28F0 (2013-2017; MMO, 2018)

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 and 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). However, since 2012 lower landings from dredges have been recorded. Landings from Scottish seiners have gradually risen since 2008 to a peak in 2016, while midwater trawl landings have also increased slightly since 2014. Landings from beam trawls have remained consistent from 2008 to 2017 (Plate 12.4).

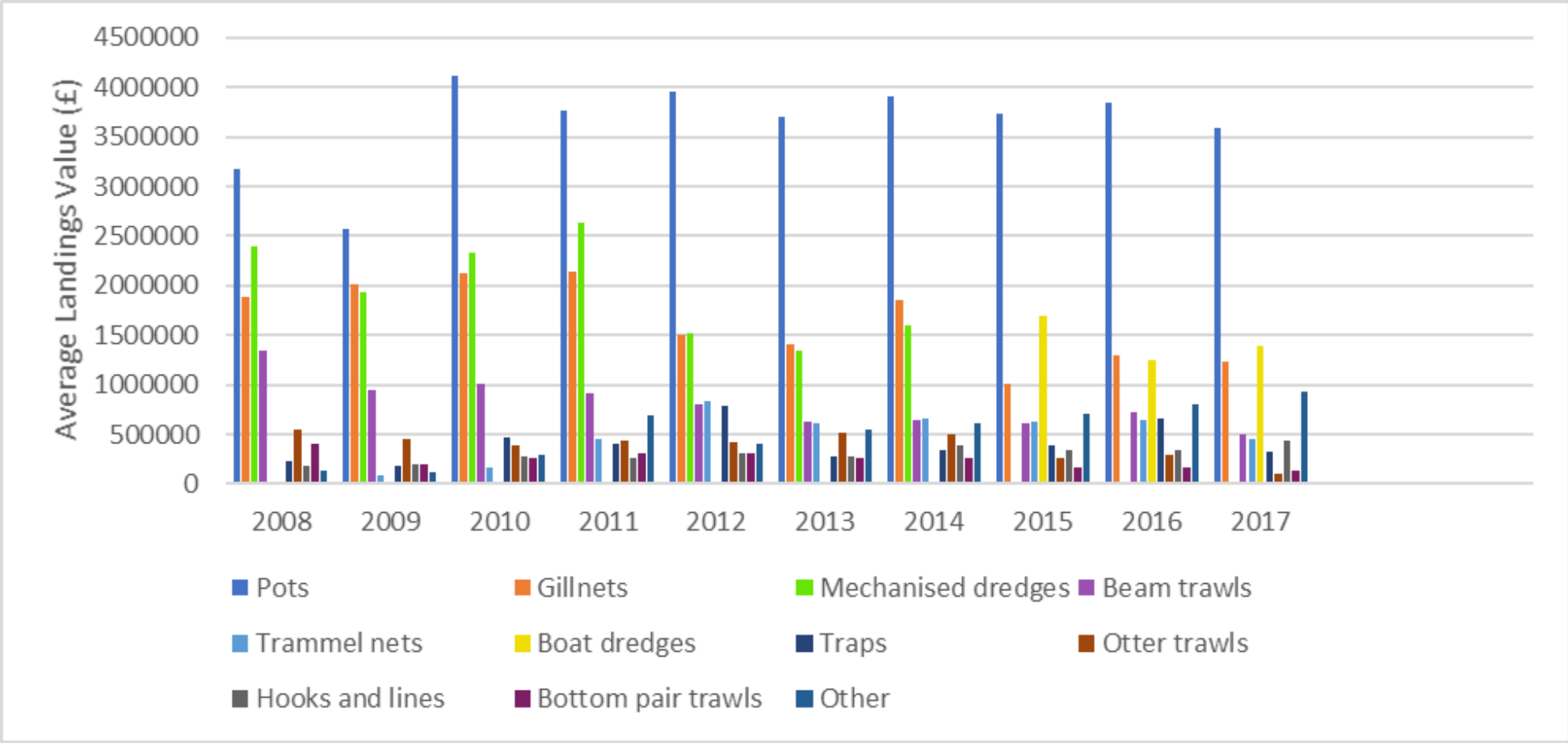

Plate 12.3 – Total Yearly UK Landings Values (£) by Method in ICES 30E8 &30E9 (2008 -2017; MMO, 2018)

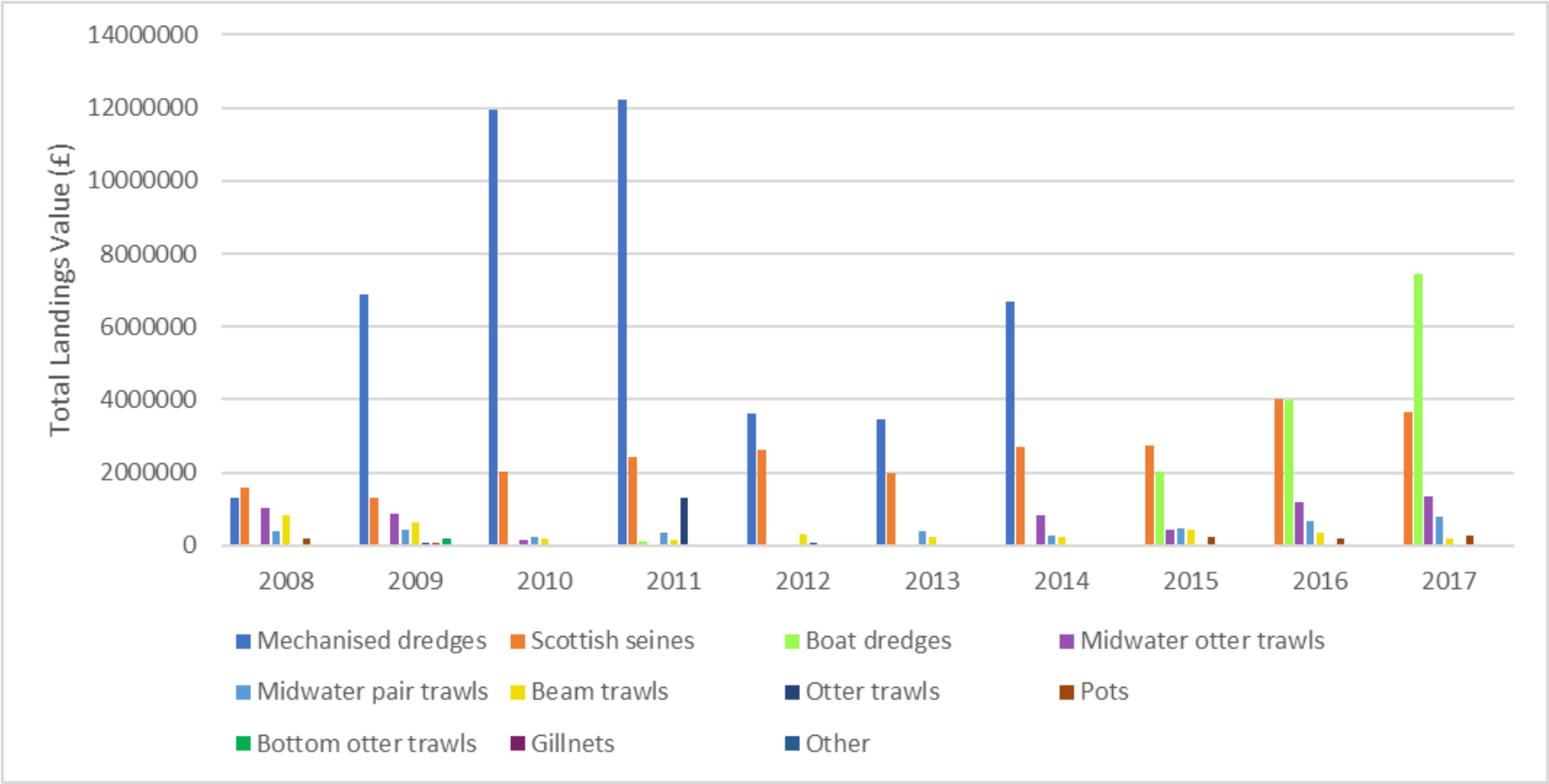

Plate 12.4 – Total Yearly UK Landings Values (£) by Method in ICES 29E9, 29F0 & 28F0 (2008 -2017; MMO, 2018)

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. These local UK vessels are less than 15 m in length and predominantly under 10 m. Based on surveillance sightings, the majority of vessels within < 6 nmi limit between 2011 and 2015 were potters / whelkers (Figure 12.8 of the ES Volume 2 (document reference 6.2.12.8)). Demersal trawlers, gill netters, and scallop dredgers were also recorded but to a much lesser extent.

12.5.3.12. Although these vessels use multiple gear types, they are subject to limited availability of quota, restrictions on bass fishing and regulations e.g. bylaws to protect Marine Protected Areas ('MPA'). In addition, alternative fisheries available to these vessels are also subject to their own seasonal restrictions and catch fluctuations.

12.5.3.13. 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 IFCAs and the MMO (Appendix 12.2 (Commercial Fisheries Consultation Responses)).

- **Potters**

12.5.3.14. 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 of the ES Volume 2 (document reference 6.2.12.9)). 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.

12.5.3.15. 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 whelk year-round. Highest catch rates are reported during February and April.

- **Netters and Longliners**

12.5.3.16. 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 gillnetting for cod and occasionally smooth-hound in winter.

- **Demersal Trawlers and Dredgers**

12.5.3.17. The Portsmouth fleet and Isle of Wight fleet are known to trawl for Dover sole, plaice and skate, 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.

12.5.3.18. Trawling for flatfish occurs in the nearshore area of the Proposed Development off Eastney (Figure 12.10 of the ES Volume 2 (document reference 6.2.12.10)). 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**

12.5.3.19. 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).

12.5.3.20. 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 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 of the ES Volume 2 (document reference 6.2.12.13)). 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**

12.5.3.21. Fishing activity by seine netters for the most part occurs between the UK's and French 12 nmi limits (Figure 12.14 of the ES Volume 2 (document reference 6.2.12.14)). 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.

12.5.3.22. From consultation carried out with VisNed (association of Dutch producers organisations), 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)) and therefore have been assessed as part of the Dutch fleet.

- **Pelagic Trawlers**

12.5.3.23. 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 12.15 of the ES Volume 2 (document reference 6.2.12.15)). 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**

12.5.3.24. 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 recorded within ICES rectangle 30E9 (Figure 12.16 of the ES Volume 2 (document reference 6.2.12.16)).

12.5.3.25. 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

12.5.3.26. 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 6 nmi limit and extends out to the UK's 12 nmi territorial limit.

12.5.3.27. It should be noted that this 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

12.5.3.28. 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

12.5.3.29. 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 of the ES Volume 2 (document reference 6.2.12.17) and Figure 12.18 of the ES Volume 2 (document reference 6.2.12.18)).

12.5.3.30. 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

12.5.3.31. 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 of the ES Volume 2 (document reference 6.2.12.19, 6.2.12.20 and 6.2.12.21)). 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

12.5.3.32. Pelagic trawl activity is highest between October and February when squid and pelagic species such as herring are targeted (Figures 12.22 to 12.23 of the ES Volume 2 (document reference 6.2.12.22 and 6.2.12.23)). 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

12.5.3.33. 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 of the ES Volume 2 (document reference 6.2.12.24, 6.2.12.25 and 6.2.12.26)).

12.5.3.34. 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

Scallop Dredgers

12.5.3.35. 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 of the ES Volume 2 (document reference 6.2.12.30)).

Belgium demersal trawlers (beam and demersal otter trawlers)

12.5.3.36. 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 of the ES Volume 2 (document reference 6.2.12.27)). 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.

12.5.3.37. 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.

12.5.3.38. Belgian demersal trawler activity occurs at low levels within the study area (Figure 12.28 of the ES Volume 2 (document reference 6.2.12.28)).

Seine Netters

12.5.3.39. 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 of the ES Volume 2 (document reference 6.2.12.29)).

Netters

12.5.3.40. 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 (Commercial Fisheries Baseline Report)).

Dutch fleet

Principle Dutch fisheries in the study area

12.5.3.41. 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 of the ES Volume 2 (document reference 6.2.12.31)). Key target species for these vessels include herring and various fish species (including 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 of the ES Volume 2 (document reference 6.2.12.32)).

12.5.3.42. 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

12.5.3.43. Dutch seine netters operate between the French and UK 12 nmi territorial limits, within both French and UK EEZ waters (Figure 12.33 of the ES Volume 2 (document reference 6.2.12.33)). 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

12.5.3.44. Dutch pelagic trawlers mainly operate between the French and UK 12 nmi territorial limits, within both French and UK EEZ waters (Figure 12.34 of the ES Volume 2 (document reference 6.2.12.34)).

12.5.4. LANDFALL

12.5.4.1. There are no commercial fisheries at the Landfall, which for the purpose of this chapter is defined as the intertidal area.

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

12.5.4.3. 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.

12.5.4.4. 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.

12.5.4.5. Therefore, any fisheries at the Landfall and within Langstone Harbour have been scoped out of 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 12.6) based on the fisheries information described in the sections above, including that information gathered during consultation with stakeholders.

Table 12.6 – Receptors identified in relation to commercial fisheries along the Marine Cable Corridor

Receptor
Local UK inshore fleet (potters, netters and longliners, demersal trawlers and dredgers)
UK over-15m scallop dredgers
UK beam trawlers
French scallop dredgers
French demersal otter trawlers
French pelagic trawlers
Belgian scallop dredgers
Belgian demersal trawlers (beam and demersal otter trawlers)
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 ('CFP') which are applied to all fleets, in addition to the potential effects of Brexit are likely to have significant impacts on Commercial Fishing within the 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 should, for example, arrangements are included in a withdrawal agreement between the UK and EU.

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 in Appendix 12.1 (Commercial Fisheries Baseline Report).

12.6. IMPACT ASSESSMENT

12.6.1.1. This section describes the potential impacts that may arise from the construction, operation (including maintenance and repair) and decommissioning of the Proposed Development and the effects these may have on commercial fisheries.

12.6.1.2. Chapter 3 (Description of the Proposed Development) provides further information regarding decommissioning. The options for decommissioning include leaving the marine cables in situ, removal of the entire cables or removal of sections of the marine cables.

12.6.1.3. The Crown Estate currently supports removal of cables where practicable for offshore wind farms (BEIS, 2019). If cables are retrieved, decommissioning will be undertaken in line with industry best practice, and any effects are predicted to be equivalent to or lesser in nature than those assessed for activities undertaken during construction. As such, predicted effects from decommissioning the Proposed Development are not assessed individually in the following paragraphs for each feature and impact.

12.6.2. EMBEDDED MITIGATION

12.6.2.1. Embedded mitigation measures which are included in the Construction Stage for the Proposed Development are as follows:

- Circulation of information via Notice to Mariners, Radio Navigational Warnings, Radio Navigational Warnings, Navigational Telex ('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 Automated Identification System ('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;
- Compliance with Convention on the International Regulations for Preventing Collisions at Sea, 1972 ('COLREGS') (IMO, 1972) and International Convention for the Safety of Life at Sea ('SOLAS') regulations;
- A 500 m recommended exclusion zone around dynamic positioning ('DP') vessels and up to 700 m around barges that require anchor spreads will be requested during the Construction Stage and monitored by the guard vessel(s);
- Where cable exposures exist that would result in significant risk to receptors, guard vessels will be used until the risk has been mitigated e.g. burial and/or other protection methods;
- Agreement of Cable Burial and Installation Plan (through the dML including vessel procedures required; and
    - for installation within the Dover Straits Traffic Separation Scheme ('TSS') in consultation with the Dover Channel Navigation Information Service ('CNIS') and Dover Straits TSS Working Group forum; and.
    - to manage access to Langstone Harbour when works are being undertaken in areas adjacent to the harbour entrance.
- Liaison with local ports and harbours
- A Fisheries Liaison Officer ('FLO') will be in place.

12.6.2.2. Embedded mitigation measures which are included in the Operation Stage (Including repair and maintenance) for the Proposed Development are as follows:

- The Proposed Development will be clearly marked on nautical charts in line with United Kingdom Hydrographic Office ('UKHO') requirements, with associated note/warning.
- Details of the marine cable locations and associated cable protection will be included in the Kingfisher Bulletin which provides awareness charts.
- The cable will be suitably protected, e.g., buried where practicable, 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 1 m and 3 m).

- Circulation of information via Notice to Mariners, Radio Navigational Warnings, NAVTEX, and/or broadcast warnings in advance of and during repair 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.
- Maintenance vessels compliance with COLREGS (IMO, 1972) and the International regulations for the SOLAS (IMO, 1974).
- Any cable protection measures used (e.g. rock placement) will not reduce the existing water depths by greater than 5 % (noting guidance contained within Marine Guidance Note (MGN) 543).

12.6.3. WORST CASE DESIGN ENVELOPE

12.6.3.1. Table 12.7 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).

12.6.3.2. Worst-case parameters (Table 12.7) 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 and Landfall 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, however the potential effects will not be worse than reported given the conservative approach taken when assessing the worst-case scenario.

12.6.3.3. A rolling 500 m recommended safe passing distance around DP vessels and up to 700 m around barges that require anchor spreads will be requested during the Construction Stage and monitored by the guard vessel(s). For the purposes of this assessment, these safe passing distances are considered as ‘exclusion zones’ for commercial fisheries as fishers will not be able fish or place gear within these areas until completion of construction.

12.6.3.4. 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.

Table 12.7 – Worst case scenario

Potential impact	Worst case parameters used for assessment
Construction (& Decommissioning) Stage	
Temporary loss or restricted access to established fishing grounds	The Marine Cable Corridor and Landfall area will be closed to fishing for the duration of the seabed clearance/preparation for up to 9 months. This 'pre-installation exclusion zone' will be 1,050 m wide, resulting from the 500 m exclusion zone either side of the construction vessel/s, plus 50 m cable spacing for 108 km (from HDD exit/entry point location out to the UK/France EEZ Boundary Line). The Marine Cable Corridor and Landfall area will be closed to fishing for the duration of cable installation for up to 1 year 9 months. This 'installation exclusion zone' will be 1,450 m wide, based on the maximum 700 m 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). The worst-case is that all fishing vessels will be excluded from the pre-installation exclusion zone (1,050 m x 109 km) for a period of 9 months followed by exclusion from the installation exclusion zone (1,450 m x 108 km) for a further 1 year 9 months. Maximum total time of exclusion is **2 years and 6 months.**
Temporary displacement of fishing activity into	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 9 months followed by exclusion from the installation exclusion zone (1,450 m x 108 km) for a further 1 year 9 months.

Potential impact	Worst case parameters used for assessment
other areas	Total time of temporary displacement is **2 years 6 months.**
Interference to normal fishing practices	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 outside the exclusion zones. As set out at 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 51 if two campaigns were undertaken in parallel. There is an estimated number of vessel movements of 825 in total for the completion of construction.
Navigational safety issues for fishing vessels	Fishing will occur in the vicinity of the Marine Cable Corridor at the same time as construction, which may pose a navigational safety risk. Chapter 3 (Description of Proposed Development) identifies the indicative number of vessels required for seabed preparation, cable installation and HDD works which may be present on the Marine Cable Corridor at any one point is 51 if parallel campaigns were undertaken, with an estimated number of vessel movements of 825 for the duration of the works.
Temporary increases in steaming times	Safe passage distances (up to 700 m) with the worst-case number of vessels requiring safe passage distances 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 20 vessels if two parallel campaigns were run simultaneously. Therefore, up to 20 safe passage distances zones may be in operation at any one time along the Marine

Potential impact	Worst case parameters used for assessment
	Cable Corridor within the UK Marine Area.
Obstacles on the seabed	Cables may be exposed on the seabed prior to their burial. The cables could be left exposed for up to 2 months. 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	The installation of non-burial cable protection may result in permanent loss of fishing grounds. Total area of habitat loss from non – burial protection is 0.7 km^2 due to non-burial protection during construction of the Marine Cables, the Atlantic Cable Crossing and HDD exit / entry point protection measures. This maximum footprint also allows an additional 10% rock placement non-burial contingency (additional 0.33 km^2) required during maintenance/repair activities during a 15-year period post construction.
Complete /Temporary displacement of fishing activity into other areas	Vessels may not wish to fish over the installed cables with a worst-case area of 8.64 km^2. This includes a 50 m separation distance between the two cables and 15 m disturbed area from cable installation either side of the cables (80 m width by 108 km). Repair/Maintenance activities: 700 m safe passage distance 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. During operation, reburial of cables and placement of cable protection may be required but it is predicted

Potential impact	Worst case parameters used for assessment
	that the replacement/repair of sections of cable would constitute the worst-case. It is assumed that an indicative worst-case failure rate of the Marine Cables would require: • One repair every 10-12 years; • A length of cable up to 3 x water depth to be recovered from the seabed (e.g. in the worst-case, at the maximum water depth of approximately 70 m, this could amount to approximately 1,100 m of cable to typically be recovered and re-laid for each repair of a cable pair); and • The actual jointing operation may take up to 5 – 6 days, and the handling of the joint and deployment to the seabed could take 1 – 2 days. Depending on the extent of cable damage, cable repair operations typically have a duration of several weeks to months. It is therefore considered that should any repair and maintenance works be required the works would be of shorter duration and smaller in extent than the Construction Stage.
Interference to normal fishing activities	Repair/Maintenance activities: 700 m safe passage distances zones around maintenance vessels and infrastructure during repair/maintenance works.
Navigational safety issues for fishing vessels	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. During operation, reburial of cables and placement of cable protection may be required but it is predicted that the replacement of sections of cable would constitute the worst-case. It is assumed that an indicative

Potential impact	Worst case parameters used for assessment
	worst-case failure rate of the Marine Cables would require: • One repair every 10-12 years; • Aa length of cable up to 3 x water depth to be recovered from the seabed (e.g. in the worst-case, at the maximum water depth of approximately 70 m, this could amount to approximately 1,100 m of cable to typically be recovered and re-laid for each repair of a cable pair); and • The actual jointing operation may take up to 5 – 6 days, and the handling of the joint and deployment to the seabed could take 1 – 2 days. Depending on the extent of cable damage, cable repair operations typically have a duration of several weeks to months. It is therefore considered that should any repair and maintenance works be required; the works would be of shorter duration and smaller in extent than the Construction Stage.
Increased steaming times	Repair/Maintenance activities only: Safe passage distance around maintenance vessels (up to 700 m) with the worst-case number of vessels during operation predicted to be less than that of construction.
Obstacles on the seabed after maintenance	Cable may become exposed during the Operational Stage of the Project Development. 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.

12.6.4. CONSTRUCTION (AND DECOMMISSIONING) IMPACTS

12.6.4.1. Potential impacts from construction (and decommissioning) 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.

Temporary Loss or Restricted Access to Established Fishing Grounds

12.6.4.2. Temporary loss or restricted access to established fishing grounds may be caused by the implementation of a pre-installation exclusion zone and an installation exclusion zone around installation vessels. See Table 12.7 for details of the exclusion zones and their durations.

UK fleet

Local UK Inshore fleet

12.6.4.3. The UK inshore fleet uses a range of fishing gear types. They use pots to catch crab, lobster, whelk and cuttlefish. Other gear includes longlining, netting, demersal trawling and scallop dredging. Consultation with fishermen and Southern IFCA identified that all 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 (Figure 12.9).

12.6.4.4. 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 IFCAs and limited quotas on inshore fisheries may also restrict the inshore potting fleet's ability to adapt to temporary loss or restricted access to established fishing grounds.

12.6.4.5. 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.**

12.6.4.6. 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 (subject to quotas and restrictions). Overall, this results in the receptor being of **medium** sensitivity.

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

UK over 15 m scallop dredgers

12.6.4.8. 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 of the ES Volume 2 (document reference 6.2.12.12)). Areas of high value (more than £35,000), as identified in VMS data from 2013-2017, 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 high value (£20,000 to £35,000), 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.

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

12.6.4.10. 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.**

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

12.6.4.12. 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 (and not significant).**

Anglo-Dutch Seine Netters and Pelagic Trawlers

12.6.4.13. 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

12.6.4.14. The UK over 15 m beam trawling fleet operates within rectangle 30E9 and the eastern 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, £3,000 to £6,000 and £6,000 to £10,000) with the highest values (£6,000 to £10,000) 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.

12.6.4.15. 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.

12.6.4.16. Given 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.**

12.6.4.17. As the UK beam trawling fleet has an extensive operational range and can exploit a large area of alternative grounds the sensitivity is **negligible.**

12.6.4.18. Based on the current worst-case, the significance of the effect resulting from temporary loss or restricted access to established fishing grounds is **negligible (not significant).**

French Fleet

12.6.4.19. French vessels operating within the UK EEZ include scallop dredgers, demersal otter trawlers and pelagic trawlers.

French scallop dredgers

12.6.4.20. The French scallop dredging fleet operates on both sides of the UK/France EEZ 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 %) and, vessel density decreases towards to the UK shore. 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.

12.6.4.21. Given the relatively small proportion of fishing ground encompassed by the potential exclusion zones in UK waters, the magnitude of impact is **low.**

12.6.4.22. Due to the French fleet's high spatial tolerance and wide availability for alternative areas to fish, the sensitivity is considered to be **low.**

12.6.4.23. The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the French scallop fleet is **minor (not significant).**

French demersal otter trawlers

12.6.4.24. The French demersal trawling fleet operates more centrally in the Channel with small areas of high 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.

12.6.4.25. 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.**

12.6.4.26. Due to fleet's high spatial tolerance and wide availability of alternative areas to fish, the sensitivity is considered to be **low.**

12.6.4.27. 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** and **not significant.**

French pelagic trawlers

12.6.4.28. The French pelagic trawler fleet operates within the central Channel on both the sides of the UK/France EEZ Boundary Line (Figures 12.22 and 12.23), but fishing vessels are shown at greater densities to the 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 %).

12.6.4.29. Due to the westerly location of the main fishing grounds, the proposed exclusion zones will overlap only a small area of the 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**.

12.6.4.30. The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the French pelagic trawler fleet is **negligible (not significant).**

Belgian Fleet

12.6.4.31. Belgian vessels operating within the UK EEZ include scallop dredgers, beam trawlers and seine netters.

Belgium scallop dredgers

12.6.4.32. 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 12 nmi territorial limit.

12.6.4.33. As illustrated by Figures 12.30, similar value scallop grounds are widely available outside the proposed exclusion zones. As only a small proportion of the Belgium 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.**

12.6.4.34. 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** and **not significant.**

Belgium demersal trawler (beam and otter)

12.6.4.35. Belgian trawlers (predominantly beam trawlers) are widely dispersed throughout the Channel on both side of the UK/France EEZ Boundary Line although the majority of the fishery by value is on the UK side (Figure 12.25). 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 EEZ Boundary Line and the UK 12 nmi territorial limit, with the value decreasing to less than €5,000 inland of the UK 6 nmi limit.

12.6.4.36. 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.**

12.6.4.37. The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the Belgian beam trawlers is **minor** and **not significant.**

Belgium seine netters

12.6.4.38. 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) identified by VMS data (Figure 12.29) within the study area. 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.

12.6.4.39. 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.**

12.6.4.40. The significance of the effect resulting from temporary loss or restricted access to established fishing grounds to the Belgian seine netting fleet is **negligible** and **not significant.**

Dutch Fleet

12.6.4.41. There is a number of Dutch vessels which operate within UK EEZ including seine netters and pelagic trawlers. This assessment includes the Anglo-Dutch fleet.

Dutch pelagic trawlers

12.6.4.42. 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 EEZ 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 fishing grounds of a range of 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.

12.6.4.43. 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 sensitively to change is **negligible.**

12.6.4.44. 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** and **not significant**.

Dutch seine netters

12.6.4.45. 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 (Figure 12.33). The highest landings (€1,000,000 to €1,500,000) are recorded from

rectangle 30F0 in the central Channel, although this is outside of the study area. 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.

12.6.4.46. 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.**

12.6.4.47. 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** and **not significant.**

Temporary Displacement of Fishing Activity into Other Areas

12.6.4.48. 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 the boundary of the Proposed Development and will need to fish in alternative fishing grounds until the exclusion zones are re-opened.

12.6.4.49. 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 static 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 with different gear types. As a result of this the sensitivity of the UK inshore static fleet is **medium**. 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, therefore the magnitude is **low**. Hence the effect to the Local UK inshore static fleet (potters, netters and longliners) is predicted to be **minor to moderate** and **not significant**.

12.6.4.50. While inshore demersal trawlers have greater flexibility in their movements, and the inshore scallop grounds do not overlap the Marine Cable Corridor there is some potential for conflict arising from displaced static gear placed in areas used by mobile gear, hence their sensitivity to this impact is **low,** combined with a **low** magnitude, this results in a **minor** impact (**not significant**).

12.6.4.51. With regard to UK over 15 m fleet (scallop dredger and beam trawlers) and all foreign fisheries 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 (and not significant)** for UK over 15 m fleet and all foreign fisheries. The only exception to this is for French demersal trawlers and Belgian beam trawlers which fish up to the UK 6 nmi limit which may come into conflict with displaced static fishing gear and are considered to have a **low** sensitivity and magnitude of impact. The significance for French demersal trawlers and Belgian demersal trawlers is therefore **minor** and **not significant.**

Interference to Normal Fishing Activities

12.6.4.52. 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.

12.6.4.53. 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. Due to the static nature of the potting, netting and lining fishing gear, these fisheries are considered to have less tolerance and adaptability and therefore, are considered to be **medium** sensitivity.

12.6.4.54. 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 FLO will aid in ensuring local fishermen are made aware of the construction works. These measures should significantly reduce the potential requirement for fishing vessels engaged in fishing to alter course and reduce any risk to fishing gears being towed. 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 procedures would be in place to avoid conflicts with visible static gears deployed at sea as far as is reasonably possible. Given this the magnitude for the Local UK inshore fleet with static gear is **low**. The significance of effect of interference with static gear activities during installation is considered to be **minor to moderate** and therefore **not significant**.

12.6.4.55. Fisheries employing towed gear vessels are more able to avoid each other, hence the risk to gear damage is less. Accordingly, the magnitude of impact for vessels towing gear is **negligible**. 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**. The significance of effect of interference with mobile fishing activities (UK inshore and offshore fleet and foreign fisheries) during construction is therefore considered to be **negligible** and **not significant.**

Navigational Safety Issues for Fishing Vessels

12.6.4.56. Assessing safety issues for fishing vessels follows standard practice (IMO FSA Methodology) and the methodology for assessing these impacts is presented in Chapter 13 (Shipping, Navigation and Other Marine Users).

12.6.4.57. The increase in number and movements of vessels from construction activities has the potential to create navigational safety issues for fishing vessels.

12.6.4.58. 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.

12.6.4.59. 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.

12.6.4.60. A safety 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.

12.6.4.61. 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 and through any other communication channels recommended by fishermen's representatives. In addition, all vessels are expected to comply with 'COLREG's and SOLAS'.

12.6.4.62. In light of the above, the navigational safety issues for all fishing vessels during construction of the Proposed Development is assessed as having a **tolerable (moderate risk; not significant**) significance as highlighted in Chapter 13 (Shipping, Navigation and Other Marine Users).

Temporary Increases in Steaming Times

12.6.4.63. 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 51 construction vessels operating within the Proposed Development at any one time, with up to 20 of the vessels requiring exclusion zones.

12.6.4.64. However, as these are likely to be of such short duration (hours or days) and encompassing such small areas (i.e. radius 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 magnitude and sensitivity are considered to be **negligible**. The effect of increased steaming times resulting from the Proposed Development is **negligible** and therefore is **not significant**.

Obstacles on the Seabed

12.6.4.65. Obstacles on the seabed can be defined as exposed cables, objects accidentally dropped by construction vessels, uneven ground created as a result of installation activities, and spoil mounds resulting from vessel anchoring.

12.6.4.66. Assessing the risk of exposed cables on the seabed specifically for fishing vessels follows standard practice (IMO FSA Methodology) and is presented in Chapter 13 (Shipping, Navigation and Other Marine Users). Assessing the risk of dropped objects and spoil mounds was not assessed in Chapter 13 (Shipping, Navigation and Other Marine Users), hence is assessed using standard commercial fisheries methodology (see Section 12.4).

12.6.4.67. Seabed obstacles pose a risk to fishing vessels which use gear in contact with the seabed (i.e. those operating demersal gear) 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.

12.6.4.68. 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.

12.6.4.69. 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 limited period of time during construction, and the severity is considered to be serious, resulting in an overall ranking of **tolerable (moderate risk; not significant),** when taking into account all embedded mitigation.

12.6.4.70. 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 any exclusion zones. In addition, discard of objects or waste at sea is prohibited by offshore policy (IMO, 1996) and the reporting and potential recovery of any accidentally dropped objects is also required through the dML.

12.6.4.71. 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 or obstacles from the seabed so fishers are able to access the Marine Cable Corridor.

12.6.4.72. For all other obstacles on the seabed apart from exposed cable (e.g. dropped objects and spoil mounds), given the reporting procedures and due to the lack of scheduling information, fishing is assessed as not occurring within exclusion zones 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 all other obstacles on the seabed (i.e. not including possible exposed cables) on demersal fisheries is of **minor** significance (**not significant**).

12.6.4.73. Other fisheries and the risk posed by exposed cables, dropped objects and spoil mounds are not assessed in Chapter 13 (Shipping, Navigation and Other Marine Users). However, as vessels employing pelagic gear do not have contact with the seabed, and as static gear is not towed, they are considered to have **negligible** sensitivity to the impact and **low** magnitude. Therefore, the significance of effect on these fisheries is predicted to be **negligible** and therefore **not significant.**

12.6.5. OPERATION (INCLUDING REPAIR AND MAINTENANCE) IMPACTS

12.6.5.1. 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

12.6.5.2. Once construction of the Proposed Development is complete and the exclusion zones are re-opened, fishing practices can be resumed. However, complete or temporary loss or restricted access to established fishing grounds may still arise due to a number of reasons including transitory exclusion zones associated with any maintenance or repair activities and changes in ground conditions due to cable protection.

12.6.5.3. 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).

12.6.5.4. An indicative worst-case for the need to repair / replace cables is anticipated to be one repair every 10-12 years. It is also estimated that cable repairs may require replacement of 1,100 m while cable repair operations will typically have a duration of several weeks to months (depending on the extent of cable damage, water depth etc.).

Local UK inshore fleet

Complete loss or restricted access to established fishing grounds from any maintenance or repair activities will be felt most by the UK inshore fleet, as they have relatively limited spatial range, are restricted in the spatial extent of the areas available to fish. For static gear fishing vessels impacts may arise as a result of inspections and maintenance/repair activities. There is also the possibility static gear will need to cleared from the area of the survey for the duration of the inspections, as well as during any maintenance/repair activity, which represents a temporary loss of fishing grounds.

12.6.5.5. Therefore, for the UK Inshore fleet the sensitivity is considered **medium**. Given the predicted infrequent nature of maintenance and repair activities and their restricted duration and spatial extent, the magnitude of this impact is considered to be **low.** Therefore, the significance of the effect from temporary loss or restricted access to fishing grounds from cable maintenance or repair activities for the UK inshore fleet is **minor to moderate** and therefore **not significant.**

12.6.5.6. In terms of complete loss or restricted access to established fishing grounds from cable protection, it is recognised that 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 offshore wind farms which have shown that both buried cables and cables protected by mattressing can be fished over successfully.

12.6.5.7. Where cable protection is placed on rocky ground (which will be the majority of the area where it is placed, as these are the locations where the target burial depths are difficult to achieve as they are rocky), this represents less of a loss of fishing ground to vessels operating towed gears as they tend not to fish in these areas. For static gear there is less impact from cable protection as; 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.

12.6.5.8. In line with standard practice in other marine industries, consultation will be undertaken to in order to try and ensure that cable protection measures are satisfactory, and/or reduce possible effects, 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, which will allow consideration of whether fishing activity can resume safely. In the event that seabed rectification procedures are required, the appropriate measures will be undertaken to help the seabed to be returned to an acceptable condition.

12.6.5.9. 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 from cable protection is considered to be **negligible** for the UK inshore fleet, and therefore **not significant.**

12.6.5.10. 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.

Over 15 m UK and foreign vessels

12.6.5.11. For the over 15 m UK and foreign vessels their sensitivity to complete loss or restricted access to established fishing grounds from any maintenance or repair activities is considered **low** due to their large spatial range and wide availability of alternative grounds. Given the predicted infrequent nature of these potential works and their restricted duration and spatial extent, the magnitude of this impact is considered to be **negligible.** Therefore, significance of the effect from temporary loss or restricted access to fishing grounds from cable maintenance or repair activities for the over 15 m UK and foreign vessels is **negligible** and therefore **not significant.**

12.6.5.12. In terms of complete loss or restricted access to established fishing grounds from cable protection, it is recognised that 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 offshore wind farms

which have shown that both buried cables and cables protected by mattressing can be fished over successfully.

12.6.5.13. Beam trawlers can fish over rougher ground and demersal fleets (scallop dredgers, beam trawlers, otter trawlers and seiners) are known to fish over buried cables. Cable protection poses no risk to the pelagic fleet as gear is not in contact with the seabed.

12.6.5.14. In line with standard practice in other marine industries, consultation will be undertaken to in order to try and ensure that cable protection measures are satisfactory, and/or reduce possible effects, 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, which will allow consideration of whether fishing activity can resume safely. In the event that seabed rectification procedures are required, the appropriate measures will be undertaken to help the seabed to be returned to an acceptable condition.

12.6.5.15. In light of the above the magnitude of this impact for the 15 m UK and foreign demersal fleets (scallop dredgers, beam trawlers, otter trawlers and seiners) is considered to be **negligible** as a negligible proportion of fishing ground available is encompassed. The sensitivity is considered to be **negligible** as these vessels have extensive operational ranges, can target alternative grounds and are known to fish over buried cables. Therefore, the significance is **negligible** and **not significant.**

12.6.5.16. There will be **no impact** to those vessels operating pelagic gear (pelagic trawlers) as there is no contact with the seabed.

Complete/Temporary Displacement of Fishing Activity into Other Areas

12.6.5.17. 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 (0.7 km^2) and 700 m exclusion zones around any maintenance/repair vessels will displace activity into other areas.

12.6.5.18. Displacement only has the potential to affect the most sensitive receptors, namely, the Local UK Inshore fleet working within the area of the Proposed Development, for which their sensitivity to both exclusion zones and non-burial protection is assessed to be **medium**. As the number of fishers 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. With this in mind, the magnitude is considered to be **low**. Therefore, it is considered that the effect of

displacement resulting from maintenance and repair activities will **minor to moderate** and **not significant** for the UK Inshore Fleet.

12.6.5.19. 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** and any displacement effects are anticipated to be **not significant** for these fleets.

Interference to Normal Fishing Activities

12.6.5.20. 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.

12.6.5.21. 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 following completion of construction activities. The magnitude of impact for all vessels including static and towed gear is considered to be **negligible**.

12.6.5.22. 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 for all fishing vessels during operational activities is considered to be of **negligible** and **not significant**.

Navigational Safety Issues for Fishing Vessels

12.6.5.23. Assessing safety issues for fishing vessels follows standard practice (IMO FSA Methodology) and is presented in Chapter 13 Shipping, Navigation and Other

Marine Users. This methodology has been used for assessing this impact rather than standard EIA methodology presented in Section 12.4.

12.6.5.24. Vessels from maintenance/repair activities have the potential to create navigational safety issues for fishing vessels. Given the considerably reduced 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 Stage.

12.6.5.25. 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 Bulletins, and through the appointment of a FLO. In addition, all vessels are expected to comply with COLREGs and SOLAS.

12.6.5.26. 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; not significant)** as presented in in Chapter 13 (Shipping, Navigation and Other Marine Users).

Increased Steaming Times

12.6.5.27. No permanent vessel exclusion zones are proposed during the Operation Stage. Temporary exclusion zones may be required during maintenance or repair activities.

12.6.5.28. However, maintenance and repair activities are likely to be infrequent with any potential exclusion zones being highly localised and temporary. Increased steaming times that may result from activities during the Operational Stage will not exceed that already assessed for the Construction Stage.

12.6.5.29. 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** and therefore **not significant.**

Obstacles on the Seabed After Maintenance/Repair

12.6.5.30. 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.

12.6.5.31. 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 Stage. If required, temporary exclusion zones would be put in place during maintenance/repair activities.

12.6.5.32. 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 with reporting and recovery of any accidentally dropped objects required as part of the dML.

12.6.5.33. The consideration of the risk posed by exposed cables is considered in Chapter 13 (Shipping, Navigation and Other Marine Users) using the IMO FSA 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; not significant),** taking into account all embedded mitigation.

12.6.5.34. Not all fishing vessels were assessed in Chapter 13 (Shipping, Navigation and Other Marine Users), however, as vessels deploying pelagic gear do not have gear in contact with the seabed, and static gear is not towed, both magnitude and sensitivity is considered to be **negligible** for these vessels. Therefore, the significance of effects from exposed cables on the seabed for these vessels is considered to be **negligible** and **not significant**.

12.6.5.35. 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, i.e. 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 **minor** and **not significant** for all vessels, with the exception of vessels operating pelagic gear or static gear which are considered to have **negligible** magnitude and sensitivity. Therefore, the significance is considered to be **negligible** and **not significant.**

12.7. CUMULATIVE EFFECTS ASSESSMENT

12.7.1. OVERVIEW

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

12.7.1.2. It is considered that the potential for cumulative effects will be greatest during the construction stage of the Proposed Development. Decommissioning is assumed to have similar (or lesser) impacts than construction depending on the particulars of the decommissioning activities. In the event that cables need to be repaired or maintained, the activities required to undertake the works are considered similar to the effects that may arise during construction although much lower in magnitude due to the considerable reduced scale and shorter duration of works.

12.7.1.3. 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 considered (and presented in Appendix 12.3 (Commercial Fisheries Cumulative Assessment Matrix) of the ES Volume 3 (document reference 6.3.12.3)). This included major projects (offshore wind farms, interconnector cables, oil and gas), aggregate dredging projects, dredging and disposal projects, and coastal projects. This long list was agreed with the MMO (see Table 12.1). The locations of projects within this list in relation to the Proposed Development are shown in Figures 29.1 to 29.5 of the ES Volume 2 (document reference 6.2.29.1, 6.2.29.2, 6.2.29.3, 6.2.29.4 and 6.2.29.5).

12.7.1.4. As detailed in Chapter 29 (Cumulative Effects) of the ES Volume 1 (document reference 6.1.12), the cumulative effects assessment is to be undertaken with regards to PINS Advice Note 17 – Cumulative Effects Assessment (PINS, 2019). The long list of projects in Appendix 12.3 (Commercial Fisheries Cumulative Assessment Matrix) 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 Zone of Influence ('ZOI') 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; and
- 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 have been identified.

12.7.1.5. The cumulative impact assessment in relation to the construction (and decommissioning) impacts of navigational safety issues for fishing vessels and obstacles on the seabed; and the operational (including repair and maintenance) impacts of navigational safety issues for fishing vessels and obstacles on the seabed including risk of exposed cables on the seabed after maintenance/repair to follows standard practice (IMO FSA Methodology) and is presented in Chapter 13 (Shipping, Navigation and Other Marine Users) and Appendix 13.1 (Navigation Risk Assessment).

12.7.2. INTER-PROJECT EFFECTS

12.7.2.1. A number of impacts were assessed for the Proposed Development alone but not all of these impacts are relevant when considered cumulatively with other projects.

12.7.2.2. Table 12.8 identifies those impacts that are relevant to the cumulative assessment. Interference to normal fishing activities, navigational safety issues for fishing vessels and increases in steaming times during the operational stage are not considered. This is because once operational, fishers will be aware of the Proposed Development as constructed, and due to the limited spatial, temporal scale of maintenance activities steaming times, will not be unduly affected and additional shipping movements (e.g. maintenance activities) which will be negligible when compared to background vessel movements.

12.7.2.3. In addition, only the UK inshore fishing fleet has been assessed cumulatively. The local UK inshore fishing fleet comprises of vessels which are limited in their spatial range and generally operate within the 12 nmi limit and therefore this area is also considered to be the ZOI (i.e. the study area out to 12 nmi). These limitations as well as reduced fishing area (due to being within the Solent), limited availability of quota, restrictions on bass fishing and Marine Protected Area regulations make them more sensitive to a cumulative impact.

12.7.2.4. Conversely those larger UK and foreign vessels (15 m and over) have the ability to utilise grounds further offshore in the Channel, around the UK and in foreign waters. These vessels are not limited in their spatial range or restricted by their need to be close to land. Fishing grounds for these vessels is extensive with areas of high value widely available. Although some of these vessels may fish within the 12 nmi limit, it is considered that for these vessels, no significant cumulative effect exists given the large fishing areas available to them and the tiny proportion of grounds any cumulative projects would cover.

Table 12.8 – Impacts to be assessed cumulatively with other projects for the UK Inshore Fleet

Stage	Impacts
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
	Obstacles on the seabed

Stage	Impacts
Operation (and maintenance and repair)	Complete/temporary loss or restricted access to established fishing grounds
	Complete/temporary displacement of fishing activity into other areas
	Obstacles on the seabed after maintenance/repair

12.7.3. CUMULATIVE PROJECTS

12.7.3.1. As only effects to the UK inshore fishing fleet are being assessed, and the ZOI is considered to be the extent of the study area out to the 12 nmi limit, only relevant projects which are within this ZOI have been considered. Those projects which are considered for Stage 3 and 4 assessment presented in Table 12.9.

12.7.3.2. It should be noted that in some instances projects that are within the Solent have not been included in the list above. This is because they are undertaken in areas where no commercial fishing occurs e.g. in a quay, harbour or intertidally.

It is recognised that both the Rampion Offshore Wind Farm and the Rampion Offshore Wind Farm Extension project are also within the 12 nm limit. With regards Rampion Offshore Wind Farm, this is in the Operational Stage and therefore any works will be of limited in temporal and spatial scale, and the UK inshore fleet will be able to fish within and around the Offshore Wind Farm boundary. For the Rampion Offshore Wind Farm Extension it should be noted that this project is in the very early stages of planning and no information is available. This project is therefore not included in the cumulative assessment.

12.7.3.3. In addition, there are many projects which dispose of dredged material at the Nab Tower disposal ground. As they all dispose within the confines of this designated disposal area they will be considered as one project (Nab Tower) rather than each disposal in isolation.

12.7.3.4. The following sections consider the cumulative impacts on each receptor, taking into considering the various projects. Note that Table 12.10 presents a summary of the cumulative effects assessment.

Table 12.9 – Description of cumulative projects to be considered

Project	Description	Area	Fishing activity in area	Can fishing operations continue?
Owers sub region aggregate sites				
Tarmac Marine Dredging Ltd **Marine aggregate dredging area 396/1 (18)**	A combined total over Sites 1 and 2 of 7,500,000 tonnes of marine aggregate is permitted to be removed over a 15-year period with no greater that 1,000,000 tonnes being extracted in any calendar year.	3.80 km^2	Surveillance sightings identify low levels of gillnetting and potting. Fisheries identified by Southern IFCA and by local fishermen show potential overlap with an area of crab, lobster and whelk potting.	Yes. Dredging vessels operate within defined zones ('active dredge zones') and fishing activities can continue outside of these areas. Once an area has been dredged, fishing in that area can resume.
Tarmac Marine Dredging Ltd **Marine aggregate dredging 396/2 (19)**	A combined total over Sites 1 and 2 of 7,500,000 tonnes of marine aggregate is permitted to be removed over a 15-year period with no greater that 1,000,000 tonnes being extracted in any calendar year.	0.06 km^2	Surveillance sightings identify low levels of gillnetting and potting. Fisheries identified by Southern IFCA and local fishermen show potential overlap with an area of crab, lobster and whelk potting.	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas. Once an area has been dredged, fishing in that area can resume.
Hanson Aggregates Marine Ltd **Marine**	A combined total over sites 1 and 2 of 15,000,000 tonnes of marine aggregate is permitted to be removed over a 15-year period.	1.52 km^2	Surveillance sightings identify low levels of gillnetting and potting. Fisheries identified by Southern IFCA and local fishermen show potential	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas.

Project	Description	Area	Fishing activity in area	Can fishing operations continue?
aggregate dredging 435/1 (20)			overlap with an area of crab, lobster and whelk potting.	Once an area has been dredged, fishing in that area can resume.
Hanson Aggregates Marine Ltd **Marine aggregate dredging 435/2 (21)**	Maximum annual extraction tonnage of 1,000,000 tonnes, with a maximum extraction tonnage.	8.26 km^2	Surveillance sightings identify low levels of gillnetting and potting. Fisheries identified by Southern IFCA and local fishermen show potential overlap with an area of crab, lobster and whelk potting.	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas. Once an area has been dredged fishing in that area can resume.
Tarmac Marine Dredging Ltd **Marine aggregate dredging area 488 (28)**	A maximum of 3,000,000 tonnes over a 15 year period with maximum annual extraction of 500,000.	2.19 km^2	Surveillance sightings identify low levels of gillnetting and potting. Fisheries identified by Southern IFCA and local fishermen show potential overlap with an area of crab, lobster and whelk potting.	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas. Once an area has been dredged fishing in that area can resume.
Cemex UK Marine ltd **Marine aggregate dredging area**	A total of 3,750,000 tonnes of marine aggregate is permitted to be removed over a 15-year period from the area, with a maximum annual extraction rate of 500,000	2.47 km^2	Surveillance sightings identify low levels of gillnetting and potting. Fisheries identified by Southern IFCA and local fishermen show potential overlap with an area of crab, lobster	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas.

Project	Description	Area	Fishing activity in area	Can fishing operations continue?
453 (29)	tonnes in any calendar year.		and whelk potting.	Once an area has been dredged, fishing in that area can resume.
East of Isle of Wight sub region aggregate sites				
Westminster Gravels Ltd **Marine aggregate dredging Area 451 (13)**	A total of 18,750,000 tonnes of marine aggregate is permitted to be removed over a 15-year period from the licence area, with a maximum of 2,500,000 tonnes to be extracted in any calendar year.	11.94 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA, and through consultation with fishermen show no overlap with this project.	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas. Once an area has been dredged, fishing in that area can resume.
Volker Dredging Ltd **Marine aggregate dredging Area 340 (14)**	A total of 7,500,000 tonnes of marine aggregate is permitted to be removed over a 15-year period from the licence area, with a maximum of 1,000,000 tonnes to be extracted in any calendar year.	15.32 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA, and through consultation with fishermen show no overlap with this project.	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas. Once an area has been dredged, fishing in that area can resume.
Cemex UK Marine Ltd **Marine**	A total of 15,000,000 tonnes of marine aggregate is permitted to be removed over a 15-year period from the	15.32 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA,	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of

Project	Description	Area	Fishing activity in area	Can fishing operations continue?
aggregate dredging area 340 (15)	licence area, with a maximum of 1,000,000 tonnes to be extracted in any calendar year.		and through consultation with fishermen show no overlap with this project.	these areas. Once an area has been dredged, fishing in that area can resume.
Tarmac Marine Dredging Ltd **Marine aggregate dredging area 351 (16)**	A total of 11,250,000 tonnes of marine aggregate is permitted to be removed over a 15 year period from the licence area, with a maximum of 1,500,000 tonnes to be extracted in any calendar year.	7.26 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA, and through consultation with fishermen show no overlap with this project.	Yes. Dredging vessels operate within defined zones so fishing can continue outside of these areas. Once an area has been dredged, fishing in that area can resume.
Volker Dredging Ltd **Marine aggregate dredging area 351 (17)**	A total of 11,250,000 tonnes of marine aggregate is permitted to be removed over a 15 year period from the licence area, with a maximum of 1,500,000 tonnes to be extracted in any calendar year.	7.26 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA, and through consultation with fishermen show no overlap with this project.	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas. Once an area has been dredged, fishing in that area can resume.
Tarmac Marine Dredging Ltd **Marine**	A combined total over Sites 1 and 2 (Area 395/1 and Area 395/2) of 7,500,000 tonnes of marine aggregate is	0.35 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA,	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of

Project	Description	Area	Fishing activity in area	Can fishing operations continue?
aggregate dredging 395/2 (26)	permitted to be removed over a 15 year period with no greater than 1,000,000 tonnes being extracted in any calendar year.		and through consultation with fishermen show no overlap with this project.	these areas. Once an area has been dredged, fishing in that area can resume
Aggregate Industries UK Ltd **Marine aggregate dredging area 395/1 (27)**	A combined total over Sites 1 and 2 (Area 395/1 and Area 395/2) of 7,500,000 tonnes of marine aggregate is permitted to be removed over a 15 year period with no greater than 1,000,000 tonnes being extracted in any calendar year.	2.89 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA, and through consultation with fishermen show no overlap with this project.	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas. Once an area has been dredged, fishing in that area can resume
Hanson Aggregates Marine Ltd Marine aggregate dredging 372/1 (30)	A total of 3,400,000, tonnes of marine aggregate is permitted to be removed over an 11 year period, with a maximum annual extraction of 500,000 tonnes.	3.04 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA, and through consultation with fishermen show no overlap with this project.	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas. Once an area has been dredged, fishing in that area can resume
Cemex UK Marine ltd Marine aggregate dredging area	A total of 15,000,000 tonnes of marine aggregate is permitted to be removed over a 15-year period with no greater than 2,000,000 million	40.81 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA, and through consultation with	Yes. Dredging vessels operate within active dredge zones and fishing activities can continue outside of these areas.

Project	Description	Area	Fishing activity in area	Can fishing operations continue?
407 (31)	tonnes being extracted in any calendar year.		fishermen show no overlap with this project.	Once an area has been dredged, fishing in that area can resume.
Disposal sites				
Nab tower disposal site (35)	The site is the main disposal location for both maintenance and capital material from ports, harbours, berths and navigational channels in Southampton, Portsmouth and the Isle of Wight.	11.87 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA, and through consultation with fishermen show no overlap with this project.	No fishing is assumed whilst the site is operational.
Treloar Hole disposal site (36)	Used for disposal of dredged material from Chichester Harbour.	5 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA, and through consultation with fishermen show no overlap with this project.	No fishing is assumed whilst the site is operational.
Dredging sites				
ABP Southampton Maintenance Dredge Nab	Navigational maintenance dredging activities in order to maintain safe navigation of the harbour and its	2.40 km^2	Surveillance sightings identify very low levels of gillnetting and potting. Fisheries identified by Southern IFCA show overlap with an area of seabass	Yes. Although fishing vessels will be unable to fish within the safety/exclusion zone around the dredger

Project	Description	Area	Fishing activity in area	Can fishing operations continue?
Channel (65)	approaches.		longlining. Fisheries consultation with fishermen show overlap with potting grounds (crab, lobster and whelk) and netting/longlining grounds (whitefish and flatfish).	
Other projects				
IFA 2 (7)	HVDC Interconnector from the UK to France	1.4 km^2 (208 km long by up to 5m wide)	Surveillance sightings identify low levels of potting and very low levels of gillnetting and demersal trawling. Fisheries identified by Southern IFCA show an overlap with whelk potting, cuttlefish trapping and seabass longlining grounds. Fisheries consultation with fishermen show overlap with potting grounds (crab, lobster and whelk), netting and longlining grounds (white fish and flatfish) and cuttlefish trapping grounds.	Yes. This project is expected to be constructed by 2020. Therefore, likely to be operational during construction of the Proposed Development. Restrictions are only expected to apply to exclusion zones around repair and maintenance vessels.
South Hayling Beach Management	Maintaining Eastoke beach height and profile through beach nourishment	n/a	Surveillance sightings identify no fishing activity in the area. Fisheries identified by Southern IFCA	Yes. Although fishing vessels will be unable to fish within the safety/exclusion

Project	Description	Area	Fishing activity in area	Can fishing operations continue?
Plan (116)			show a possible overlap with whelk potting, cuttlefish trapping grounds. Fisheries consultation with fishermen show a possible overlap with cuttlefish trapping grounds.	zone around the dredger.

12.7.4. CUMULATIVE CONSTRUCTION (AND DECOMMISSIONING) IMPACTS

12.7.4.1. There is potential that the indicative programmes for all projects may align with the construction period of the Proposed Development. Although unlikely, the worst-case is considered to be that all cumulative projects will be occurring at the same (although IFA2 is assumed to be in the Operational Stage). It is assumed therefore that the UK Inshore fleet will be temporarily excluded from all of these sites during extraction/disposal/construction/operation.

Temporary loss or restricted access to established fishing grounds

12.7.4.2. For the Proposed Development this impact relates to the temporary loss or restricted access to established fishing grounds from 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. When this impact was assessed for the Proposed Development alone, it was concluded to be minor to moderate significance for all vessels except for the inshore scallop dredging fleet which was negligible.

12.7.4.3. The South Coast Marine Aggregate Regional Environmental Assessment ('MAREA') (EMU, 2012) was produced to assess, amongst other things, the effects of aggregate extraction on commercial fisheries. This document covers all the aggregate sites in both the Owers and East of Isle of Wight sub regions so is highly relevant to this cumulative assessment. The South Coast MAREA assesses temporary exclusion under the effect of 'vessel displacement' with the inshore fleet as not significant for the East of Isle of Wight sites, and of minor significance for those aggregate sites in the Owers area. Potential effects on commercial fisheries were not assessed for disposal at Nab Tower, Treloar Hole or ABP Southampton maintenance dredge of Nab Channel.

12.7.4.4. The aggregate sites being considered as part of this Cumulative Effects Assessment ('CEA'; (see Table 12.9) are located in both East of Isle of Wight and Owers sub regions. These are to the west and east of the Proposed Development. It is not clear from surveillance sightings (2013 to 2017; MMO, 2018) if fishing occurs within these sites. However, potting vessels and gill netters are identified in the vicinity of the Owers sub region, with substantially lower numbers operating in the vicinity of the East of Isle of Wight sub region. No fisheries were identified in either sub region from both consultation with fishermen or Southern IFCA. It should also be noted that although exclusion zones are employed around aggregate dredgers, they are of limited spatial extent and operate in defined areas, i.e. active dredge zones which are communicated with the fishing industry. In addition, areas no longer required, e.g. aggregate dredging has been completed, are surrendered so fishing can resume. This means that temporary loss or restricted access for the

inshore fleet is minimised. However, as the inshore fleet operate within this area, albeit at low levels, as well as in the Proposed Development a cumulative effect exists.

12.7.4.5. The disposal site at Nab Tower is located to the south east of the Isle of Wight and occupies an area of 11.9 km^2. Based on surveillance sightings, no Commercial Fishing occurs within the Nab Tower area, this is supported by information provided through consultation with Southern IFCA and local fishermen. Therefore, in terms of temporary loss or restricted access to fishing ground no cumulative effect exists from the site.

12.7.4.6. Treloar hole disposal ground is located in the mouth of Chichester Harbour. It occupies an area 5 km^2 and is used for beneficial disposal of dredges from the Chichester harbour area. Although there is no publicly available ES for this site, fishing vessels are likely to be excluded during disposal operations. This assessment assumes therefore that all fishing is excluded from this disposal site. Although surveillance sightings show some potting and longlining occurring in this area, it is unlikely to be within the disposal ground given the risks associated, e.g. loss of gear. In addition, no fishing grounds were identified in this area during consultation by either Southern IFCA or local fishermen. Therefore, in terms of temporary loss or restricted access to established fishing grounds no cumulative effect exists from the site.

12.7.4.7. ABP Southampton Maintenance Dredge of Nab Channel is located centrally in the Solent to the west of the Proposed Development. With dredging occurring up to twice a year between March-April and September-October. Surveillance sightings show no fishing to occur within Nab Channel with some potting in close proximity. In contrast, consultation with Southern IFCA and local fishermen highlights sea bass longlining, netting and potting overlapping both the Nab Channel and the Proposed Development. Given this overlap a potential cumulative effect exists.

12.7.4.8. IFA2 runs parallel with the Proposed Development from approximately the 12 nmi limit until the outer Solent where it then turns west to its landfall at Lee-on-Solent. This project is expected to be installed by 2020 so only repair and maintenance activities are considered to have the potential of a cumulative effect with the Proposed Development. Surveillance sightings show some potting and very low levels of gillnetting and scallop dredging to occur in the vicinity of this project. Consultation with the Southern IFCA and local fishermen show that sea bass longlining, netting and longlining (white fish and flatfish), cuttlefish trapping and potting (whelk, crab and lobster) overlap both IFA2 and the Proposed Development. Given this overlap a potential cumulative effect exists.

12.7.4.9. The South Hayling Beach Management Plan is for the recharging of beach sediments by rainbowing from a dredging vessel directly on to the beach. During this process an exclusion zone is likely to be in place around the dredge vessel. No

fishing activity was shown to occur in this area from surveillance sightings but Southern IFCA and fishermen highlight possible overlap with cuttlefish trapping grounds and the Proposed Development. It is considered however that as the dredge vessel will need to be in close proximity to the beach for the rainbowing of sediments to occur the exclusion zone is not considered to extend far enough seaward to incur any temporary loss or restricted access for inshore fishing vessels. Therefore, no cumulative effect exists from this site.

12.7.4.10. When the aggregate extraction sites, maintenance dredging of Nab Channel and IFA2 are assessed cumulatively, the sensitivity of the UK inshore fleet is considered to be medium. This is because although these vessels have the ability to deploy alternative gear types, these alternative fisheries are subject to limited availability of quota, restrictions on bass fishing and Marine Protected Area regulations. In addition, they only have a moderate spatial tolerance due to their range resulting in a dependence on a limited number of fishing grounds (i.e. within the Solent and up to the 12 nm limit).

12.7.4.11. The magnitude of impact is considered to be **low** for the potters, gill netters, longliners and demersal trawlers, as although there is overlap between these projects and a number of fisheries highlighted by Southern IFCA (e.g. the Proposed Development, ABP Southampton maintenance dredge and IFA2 overlap longlining, netting and potting grounds to some degree) the areas affected within these fisheries will be small. In addition, low or very low numbers of vessels are identified within these project boundaries by surveillance sightings with no longlining recorded in the bass longlining area. The magnitude of impact is considered to be **negligible** for the scallop dredgers of the UK inshore fleet as although low numbers are present in the vicinity of the Marine Cable Corridor, they generally target grounds outside (east of Isle of Wight) of the Proposed Development and the projects considered as part of the CEA.

12.7.4.12. Therefore, the cumulative effect of temporary loss or restricted access to fishing grounds for potters, gill netters, longliners and demersal trawlers is **minor to moderate** and for the scallop dredging vessels it is **negligible**, and therefore are **not significant.**

Temporary displacement of fishing activity into other areas

12.7.4.13. As described in the assessment for the Proposed Development alone, the effect of temporary displacement of fishing activity into other areas is directly linked to the effect 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. This effect was assessed as minor to moderate significance (minor with mitigation) for the Proposed Development alone.

12.7.4.14. The effect of vessel displacement was assessed in the South Coast MAREA (EMU, 2012) as minor significance for all aggregate sites to the east of Isle of Wight and not significant for all aggregate sites in the Owers sub regions. This effect was not assessed for the ABP Southampton maintenance dredge of Nab Channel. There is no publicly available information on this effect being assessed for Nab Tower or Treloar Hole disposal grounds. For IFA2 the effect of temporary displacement of fishing activity into other areas (during operation) was assessed as minor.

12.7.4.15. The cumulative displacement of fishing vessels from all of these projects may increase conflict between inshore vessels competing for the same grounds or between different fishing methods.

12.7.4.16. Despite the potential for a cumulative effect from displacement it should be noted that although exclusion zones are employed around aggregate dredgers, they are of small spatial extent and operate in defined active dredge areas which are communicated with the fishing industry. In addition, aggregate areas no longer required are surrendered so fishing can resume. As only the repair and maintenance (during operation) activities for IFA2 are predicted to contribute to cumulative effects, and these activities are expected to be infrequent and highly localised and any contribution to the effect of displacement is negligible.

12.7.4.17. Surveillance sightings show that potting is the dominant method in the vicinity of the Proposed Development Marine Cable Corridor, aggregate sub zones, Nab Channel dredge area and IFA2. Although displacement of these potting vessels may occur, alternative potting grounds are widely available. In addition, gill netters, longliners and demersal trawlers, although in the vicinity of these projects, are only present in very low numbers.

12.7.4.18. The sensitivity of the UK inshore fleet is **medium,** and for potters, gill netters, longliners and demersal trawlers the magnitude is also **medium,** hence, the cumulative effect of displacement of fishing vessels is **minor to moderate** significance, and therefore, not significant. For the scallop dredging vessels magnitude is **negligible** as this inshore fishing ground does not overlap the Marine Cable Corridor, hence this is of **negligible significance** (not significant).

Interference to normal fishing activities

12.7.4.19. 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.

12.7.4.20. 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 able to avoid construction/dredging areas, hence the risk to gear damage is less. This effect was

assessed as minor to moderate (minor with mitigation) for the inshore static fleet for the Proposed Development alone.

12.7.4.21. It is assumed that all fishing is excluded from both the Nab Tower and Treloar Hole disposal grounds whilst they are in use. Therefore, there is no risk that interference to normal fishing practices will occur at these sites and a cumulative effect does not exist.

12.7.4.22. This impact was not assessed for the aggregate sites however it was acknowledged in the South Coast MAREA (EMU, 2012) that damage to gear may occur if it is set in an active dredging area. Although this impact was not assessed for the Nab Channel maintenance dredge the same is also likely to be true, however static gear is unlikely to be set in Nab Channel as it is a busy shipping channel. This effect was not assessed for the South Hayling Beach Management Plan as there is no fishing activity in the area. The impact of interference to normal fishing activities was assessed for IFA2 as negligible for vessels towing gear and low for the static gear (during operation). Therefore, based on the above consideration of possible cumulative effects, only IFA2 has any potential to contribute towards a cumulative effects with the Proposed Development.

12.7.4.23. The sensitivity of the static inshore vessels (potters, gillnetters and longliners) is **medium** with a **low** magnitude of impact, therefore the is effect is considered to be **minor to moderate** and **not significant.** For those vessels towing gear (scallop dredgers and demersal trawls) the sensitivity is **low** with a **negligible** magnitude to the possible impact as they can better avoid this potential effect. Therefore, the effect is considered to be **negligible** and **not significant.**

Navigational safety issues for fishing vessels

12.7.4.24. Assessing safety issues for fishing vessels follows standard practice (IMO FSA Methodology) and the methodology for assessing these impacts is presented in Chapter 13 (Shipping, Navigation and Other Marine Users).

12.7.4.25. Navigational safety issues for fishing vessels during construction is possible due the increase in number and movements of vessels from construction activities. For the Proposed Development alone this was assessed as Tolerable (moderate risk; not significant).

12.7.4.26. Although this impact was not specifically assessed for fishing vessels each of the cumulative projects will ensure safety risks to fishing vessels associated with their construction activities will be minimised. This will be via embedded mitigation such as liaison with the fishing industry, adherence to International regulations (COLREGS and SOLAS) and mitigation measures specific to each project (e.g. FLO).

12.7.4.27. It is considered, therefore, that despite the potential increase in vessel traffic within this area as a result of all the cumulative projects identified in Table 12.8 the safety

practices and embedded mitigation in place will reduce navigational risk to fishing vessels. Therefore, the cumulative effect of navigational safety issues for fishing vessels remains as **Tolerable (moderate risk; not significant).**

Temporary increases in steaming times

12.7.4.28. For the Proposed Development this impact assesses the potential short term increases in steaming times for fishing vessels due to the presence of 700 m exclusion zones around construction vessels, and the need to navigate around them to access fishing grounds. For the Proposed Development alone this was assessed as negligible.

12.7.4.29. This effect was not assessed for the aggregate sites, disposal sites and dredging of Nab Channel, although there is likely to be exclusion zones around active dredging and disposal vessels. This effect was assessed for IFA2 as negligible during operation, in part due to short duration and extent of any exclusion zones. Although this effect was not specifically assessed for the South Hayling Beach Management Plan, exclusion zones are likely to be in place. However, these areas are predicted to be of small spatial and temporal extent, and in close proximity to the shoreline. Even as a worst-case that all these activities are occurring at the same time, considered cumulatively the exclusion zones around construction (and repair and maintenance) and dredging vessels will be so small, and temporary that they are not predicted to result in any discernible increases in either steaming times or vessel running costs. The sensitivity and magnitude is therefore **negligible.**

12.7.4.30. The cumulative effect of temporary increases in steaming times is therefore predicted to be of **negligible significance (not significant)** for the UK inshore fleet.

Obstacles on the seabed

12.7.4.31. For the Proposed Development, 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. This impact for exposed cables for the Proposed Development alone was assessed as tolerable for vessels towing demersal gear (otter trawls, beam trawls, and dredges) and negligible for vessels operating pelagic and static gear. For all other obstacles the effect was assessed as minor for demersal vessels and negligible for pelagic and static gear vessels. Assessing the risk of exposed cables on the seabed specifically for fishing vessels follows standard practice (IMO FSA Methodology) and is presented in Chapter 13 (Shipping, Navigation and Other Marine Users). Assessing the risk of other obstacles including dropped objects and spoil mounds was not assessed in Chapter 13 (Shipping, Navigation and Other Marine Users), hence is assessed using standard commercial fisheries methodology (see Section 12.4).

12.7.4.32. It is assumed that all fishing is excluded from both the Nab Tower and Treloar Hole disposal grounds, but in any case, the nature of disposal activities (e.g. release of dredged sediment) are unlike to result in significant risk. Therefore, a cumulative effect from obstacles on the seabed from these sites will not occur.

12.7.4.33. The effect of seabed removal was assessed for all aggregate sites in both the East of Isle of Wight and Owers sub regions (EMU, 2012). This effect identifies that changes in topography due to dredging can create an uneven seabed, however this is assessed as not significant for commercial fishing vessels. This effect was not assessed for the maintenance dredging of the Nab Channel although some uneven seabed is likely to occur. It is noted however that commercial fishing in this area is unlikely as it is a busy shipping channel. This is confirmed in surveillance sightings (2013 to 2017; MMO, 2018).

12.7.4.34. Obstacles on the seabed during operation was assessed as within broadly acceptable limits for IFA2 as obstacles would be removed on completion of the works.

12.7.4.35. This impact was not assessed for the South Hayling Beach Management Plan. However, it should be noted that as sediment will be rainbowed onto the beach (and not deposited on the seabed), no obstacles are expected to occur as a result of this Project. Therefore, no cumulative effect is expected from this Project.

12.7.4.36. When considered cumulatively, the effect of dropped objects, uneven ground and spoil mounds on those UK inshore vessels which tow demersal fishing gear (scallop dredgers and demersal trawls) is **Tolerable** (as per Chapter 13 (Shipping, Navigation and Other Marine Users)). However, it should also be noted that these vessels generally operate across a much greater spatial extent than covered by the projects considered within this CEA, i.e. scallop dredging within the Solent, off the East coast of the Isle of Wight and beyond the 6 nm limit; demersal trawling centrally in the outer Solent and beyond the 6 nm limit.

12.7.4.37. The sensitivity of static gear to this effect is **negligible** as they are not towed and therefore are at less risk of snagging. The magnitude is also **negligible** because of the small area any obstacles will occupy and static fishing grounds are widely available within the 12 nm limit (as identified by surveillance sights 2013 to 2017).

12.7.4.38. Therefore, the cumulative effect of obstacles on the seabed for the UK inshore fleet are of **negligible significance (not significant)** for both the static gear (pots, gill nets, and longlines) and **Tolerable (moderate; not significant)** for towed gear vessels (scallop dredgers and demersal trawls).

12.7.5. CUMULATIVE OPERATION (INCLUDING REPAIR AND MAINTENANCE) IMPACTS

Complete/temporary loss or restricted access to established fishing grounds

12.7.5.1. For the Proposed Development, complete loss relates to areas of the Marine Cable Corridor where appropriate cable burial depths cannot be attained, and cable protection is required and also restricted temporary transitory exclusion zones during maintenance and/or repair activities. This effect for the Proposed Development alone was assessed as minor to moderate for the UK Inshore fleet.

12.7.5.2. The effect of seabed / sediment removal was assessed for all aggregate sites in both the East of Isle of Wight and Owers sub regions (EMU, 2012). This effect could represent a potential loss of fishing ground with anecdotal evidence (Cooper, 2015) indicating that trawlers avoid licence areas due to anticipated changes in topography. Despite this EMU (2012) considered dredged depressions not to impact on commercial fishing and this effect was assessed as not significant.

12.7.5.3. This effect was not assessed for Nab tower or Treloar Hole disposal sites. As it is assumed that fishing does not occur in these sites and is unlikely to for many years (due to ground conditions), therefore there is no cumulative impact from these sites.

12.7.5.4. In the Nab Channel, fishing vessels are unlikely to be permanently excluded from this area and therefore even after the maintenance dredging work is complete it will not represent a complete loss of fishing grounds. However, this area may be dredged again in the future to maintain the shipping channel therefore a small cumulative effect exists.

12.7.5.5. For IFA2, the effect of temporary loss or restricted access to established fishing grounds (during operation) was assessed as negligible or minor due to the requirement for temporary transitory safety zones around maintenance or repair activities.

12.7.5.6. For South Hayling Beach Management Plan, it is considered that as the dredge vessel will need to be in close proximity to the beach for the rainbowing of sediments to occur, the exclusion zone is not considered to extent far enough seaward to result incomplete/temporary loss or restricted access for inshore fishing vessels. Therefore, no cumulative effect exists from this site.

12.7.5.7. When considered cumulatively these projects represent an increased area of fishing grounds where fishers will experience a complete loss or restricted access to established fishing grounds. In terms of sensitivity it remains **medium** for the UK inshore fleet due to the limited number of grounds and operational ranges, with the exception of scallopers which is **negligible**. However, given the limited fishing which takes place within and in close proximity to the projects being assessed cumulatively, coupled with the small loss of area arising associated with the

Proposed Development arising from cable protection and the short duration of maintenance works expected the magnitude is **low.**

12.7.5.8. Therefore, the cumulative effect of complete/temporary loss or restricted access to established fishing grounds is predicted to be **minor to moderate** for the UK inshore fleet with the exception of the scallop fleet which is predicted to be **negligible,** as their fishing grounds does not overlap the footprint of the other cumulative project. Therefore, the effects are **not significant.**

Complete/temporary displacement of fishing activity into other areas

12.7.5.9. For the Proposed Development this impact may occur due to the installation of non-burial cable protection (0.7km^2) and 700 m safety zones around any maintenance/repair vessels which will displace fishing activity into other surrounding areas. This effect was assessed as minor to moderate significance for the inshore fleet for Proposed Development alone.

12.7.5.10. This effect was not specifically assessed during operation for any of the cumulative projects considered apart from IFA2 which assessed this effect as negligible to minor. On completion of Nab Channel maintenance dredge, fishing vessels will be allowed access to this area (although it is recognised that it is a busy shipping channel and vessels may choose not to fish in this area due to safety concerns). For the aggregate dredging sites once, dredging is completed in active dredging areas, fishing vessels will regain access (although anecdotal evidence suggests demersal vessels avoid aggregate dredged areas).

12.7.5.11. As this effect is linked to complete/temporary loss or restricted access to established fishing grounds, and in consideration of low levels of fishing activity which may potentially be displaced from the projects considered as part of this CEA, the significance of effects is predicted to be **minor to moderate (not significant)** for the UK inshore fleet.

Obstacles on the seabed after maintenance/repair

12.7.5.12. For the Proposed Development this effect relates to obstacles on the seabed such 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. The potential effect for exposed cables was assessed for the Proposed Development alone as tolerable for vessels towing demersal gear (otter trawls, beam trawls, dredges and seine nets) and negligible for vessels operating pelagic and static gear. For all other objects, negligible for static and pelagic gear and minor for all other vessels, which is not significant.

12.7.5.13. The effect of seabed removal was assessed for all aggregate sites in both the East of Isle of Wight and Owers sub regions (EMU, 2012). This effect identifies that changes in topography due to dredging can create an uneven seabed. This uneven ground could be considered as an obstacle (and a risk) to fishing vessels. Despite

anecdotal evidence suggesting that trawlers avoid licence areas due to changes in topography this effect was assessed as not significant for commercial fishing vessels.

12.7.5.14. Nab Tower and Treloar Hole disposal sites have not been assessed as it is assumed that fishing will not resume in these areas for many years.

12.7.5.15. This effect was not assessed for the maintenance dredging of the Nab Channel although some uneven seabed is likely to occur once work is complete. It is noted however that commercial fishing in this area is unlikely as it is a busy shipping channel.

12.7.5.16. The effect of obstacles on the seabed after maintenance was assessed for IFA2 as within broadly acceptable limits as objects would be removed on competition of the works.

12.7.5.17. For South Hayling Beach Management Plan it is expected that as sediment will be rainbowed onto the beach and not deposited on the seabed no obstacles are expected to occur. Therefore, no cumulative effect is expected from this Project.

12.7.5.18. For the Proposed Development, any risks to navigational safety, e.g. obstacles on the seabed will be rectified before an area is re-opened to fishing vessels, and regular cable burial surveys and remedial work will help reduce the frequency and duration of cable exposures Cable exposures as an obstacle are only relevant to the Project and IFA2.

12.7.5.19. When considered cumulatively this effect is most likely to affect demersal trawlers and scallop dredgers as they tow fishing gear along the seabed. Therefore, the effect is predicted to be **tolerable (moderate; not significant)** for these vessels. However, it should be noted that surveillance sightings show very low numbers of these vessels in the vicinity of the Proposed Development and cumulative projects.

12.7.5.20. For those vessels operating static gear (pots, gillnets and longlines) the sensitivity is **negligible** as they can be placed on rough ground and magnitude **negligible** as alternative grounds are widely available and these project areas represent a small proportion of available fishing grounds.

12.7.5.21. Therefore, the cumulative effect of obstacles on the seabed for the inshore feet are of **negligible significance** for static gear (pots, gill nets, and longlines) and **tolerable (moderate)** for towed gear vessels (scallop dredgers and demersal trawls). Therefore, the effects are considered to be **not significant.**

12.7.6. SUMMARY OF CUMULATIVE EFFECTS

12.7.6.1. It is concluded that each of the impacts assessed for both construction (and decommissioning) and operation (including repair and maintenance) for the Proposed Development cumulatively with other plans and projects are not significant.

12.7.6.2. Table 12.10 presents a summary of the cumulative effects assessment undertaken in Sections 12.7.4 and 12.7.5.

Table 12.10 – Summary of cumulative assessment (projects listed in Section 12.7.3) * ID nos. are shown in Appendix 9.2 and illustrated in Figures 29.1, 29.3 and 29.5

ID no.*	Tier	Project Name and Reference	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
Construction (and Decommissioning)					
Nos. 13, 14, 15, 16, 17, 18, 19, 20, 21, 26, 27, 28, 29, 30, 31	1	Aggregate sites	**Temporary loss or restricted access to established fishing grounds** The cumulative effect of temporary loss or restricted access to fishing grounds for potters, gill netters, longliners and demersal trawlers is **minor to moderate** and for the scallop dredging vessels it is **negligible**. **Temporary displacement of fishing activity to other areas** The cumulative effect of displacement of fishing vessels for potters, gill netters, longliners and demersal trawlers is **minor to moderate** significance and for the scallop dredging vessels it is **negligible** significance. **Interference to normal fishing activities** The cumulative effect of interference to normal fishing practices is considered to be **minor to moderate** significance for potters, gillnetters and longliners as they are static and **negligible** significance for inshore scallop dredgers and demersal trawlers as gear is towed and can therefore better	None	Not significant
Nos. 35 and 36	1	Disposal sites			
65	1	Dredging site			
Nos. 7 and 116	1	Other sites			

ID no.*	Tier	Project Name and Reference	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
			avoid this effect. **Navigational safety issues for fishing vessels** The cumulative effects on navigational safety issues for fishing vessels remains as tolerable (**moderate risk, not significant**). **Temporary increases in steaming times** The cumulative effect of temporary increases in steaming times is **negligible** significance for the inshore fleet. **Obstacles on the seabed** The cumulative effect of obstacles on the seabed for the inshore feet is of **negligible** significance for both the static gear (pots, gill nets, and longlines) and also **tolerable** (**moderate**) for towed gear vessels (scallop dredgers and demersal trawls).		
Operation (incl. Repair and Maintenance)					
Nos. 13, 14, 15, 16, 17, 18, 19, 20, 21, 26, 27, 28, 29, 30, 31	1	Aggregate sites	**Complete/temporary loss or restricted access to established fishing grounds** The cumulative effect of complete/temporary loss or restricted access to established fishing grounds is **minor to moderate** for the UK inshore fleet apart from the scallop fleet	None	Not significant

ID no.*	Tier	Project Name and Reference	Assessment of cumulative effect	Proposed mitigation	Residual cumulative effect
Nos. 35 and 36	1	Disposal sites	which is negligible as their fishing grounds does not overlap the boundaries of the cumulative project considered.		
65	1	Dredging site	**Complete/temporary displacement of fishing activity to other areas** As this effect is linked to complete/temporary loss or restricted access to established fishing grounds the significance is therefore **minor to moderate** for the UK inshore fleet. **Obstacles on the seabed** The cumulative effect of obstacles on the seabed for the inshore feet are of **negligible** significance for both the static gear (pots, gill nets, and longlines) and also **Tolerable (moderate)** for towed gear vessels (scallop dredgers and demersal trawls).		
Nos. 7 and 116	1	Other sites			

12.7.7. INTRA-PROJECT EFFECTS

12.7.7.1. As detailed in Chapter 4 (EIA Methodology) of the ES Volume 1 (document reference 6.1.4), Chapter 29 (Cumulative Effects) presents consideration of potential intra-project effects for commercial fisheries.

12.7.8. TRANSBOUNDARY EFFECTS

12.7.8.1. The possibility for transboundary effects exists where the impacts of the Proposed Development extend beyond the UK Marine Area, either in insolation or cumulatively. Vessels which operate in the central Channel in the vicinity of the French and UK EEZ include, scallop dredgers (UK, French, Belgian), seine netters (UK (Anglo Dutch), Belgian, Dutch), pelagic trawlers (UK (Anglo Dutch), French, Dutch), beam trawlers (UK, Belgian), demersal trawlers (French) and static gear (French).

12.7.8.2. These vessels are large and have extensive operational ranges. They are able to fish grounds on both on the French and UK sides of the EEZ with grounds extending throughout the Channel and also North Sea, Atlantic and Irish Sea. As these vessels operate freely across a number of Territorial Waters, and as no significant effects for the Proposed Development alone or cumulatively were identified for these fleets, no transboundary effects are considered likely to occur.

12.8. PROPOSED MITIGATION

12.8.1.1. 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 are in place.

12.8.1.2. However, some additional mitigation has been identified to further reduce the effect of the Proposed Development on commercial fisheries receptors.

12.8.2. CONSTRUCTION (AND DECOMMISSIONING)

12.8.2.1. Additional mitigation measures are presented below, have been proposed to minimise impact to UK inshore fisheries:

- Minimising the period of time the Marine Cables are left exposed, where possible. Applicable to UK inshore vessels with gear in contact with the seabed (e.g. demersal trawler, scallop dredger).
- Potential over-trawlability assessment in the Solent for inshore demersal fisheries. Applicable to UK inshore vessels with gear in contact with the seabed (e.g. demersal trawler, scallop dredger).
- Establishment of an Inshore Fisheries Working Group. Applicable to all UK inshore fishing vessels.

12.8.2.2. The 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, the Applicant and relevant Fishing Industry Representative ('FIR') will be in attendance. The objectives of the Fisheries Working Group will include:

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

12.8.3. OPERATION (INCLUDING REPAIR AND MAINTENANCE)

12.8.3.1. Additional mitigation measures are presented below, have been proposed to minimise impact to UK inshore fisheries:

- Minimising the period of time the cable is left exposed, where possible; and
- Continuation of Inshore Fisheries Working Group into the Operational Stage.

12.9. RESIDUAL EFFECTS

12.9.1.1. The residual effects are summarised in Table 12.11. These take into account industry-standard embedded mitigation and the additional mitigation measures described above.

Table 12.11 - Summary of Effects

Potential Impact	Receptor	Magnitude	Sensitivity	Significance of effect	Proposed Additional Mitigation	Significance of Residual Effect
Construction (and Decommissioning)						
Temporary loss or restricted access to established fishing grounds	Local UK inshore fleet (potters, netters, longliners and demersal trawlers,	Low	Medium	Minor to moderate	Establishment of Inshore Fisheries Working Group	Not Significant
	Local UK inshore fleet (scallop dredgers)	Low	Negligible	Negligible	Establishment of Inshore Fisheries Working Group	Not Significant
	UK over-15m scallop dredgers	Low	Negligible	Negligible	None	Not Significant
	UK beam trawlers	Low	Negligible	Negligible	None	Not Significant
	French scallop dredgers	Low	Low	Minor	None	Not Significant
	French demersal otter trawlers	Low	Low	Minor	None	Not Significant
	French pelagic trawlers	Low	Negligible	Negligible	None	Not Significant
	Belgian scallop dredgers	Low	Negligible	Negligible	None	Not Significant
	Belgian demersal trawlers (beam and	Low	Low	Minor	None	Not Significant

Potential Impact	Receptor	Magnitude	Sensitivity	Significance of effect	Proposed Additional Mitigation	Significance of Residual Effect
	otter trawlers)					
	Belgian seine netters	Low	Negligible	Negligible	None	Not Significant
	Dutch seine netters	Low	Low	Minor	None	Not Significant
	Dutch pelagic trawlers	Low	Negligible	Negligible	None	Not Significant
Temporary displacement of fishing activity into other areas	Local UK inshore static fleet (potters, netters, longliners)	Low	Medium	Minor to Moderate	Establishment of Inshore Fisheries Working Group	Minor - Not Significant
	Local UK inshore mobile fleet (inshore scallop dredgers, demersal trawlers)	Low	Low	Minor	Establishment of Inshore Fisheries Working Group	Negligible - Not Significant
	UK over-15m scallop dredgers and UK beam trawlers	Low	Negligible	Negligible	None	Not Significant
	French scallop dredgers	Low	Negligible	Negligible	None	Not Significant
	French demersal otter trawlers	Low	Low	Minor	None	Not Significant
	French pelagic trawlers	Low	Negligible	Negligible	None	Not Significant

Potential Impact	Receptor	Magnitude	Sensitivity	Significance of effect	Proposed Additional Mitigation	Significance of Residual Effect
	Belgian beam trawlers	Low	Low	Minor	None	Not Significant
	Belgian scallop dredgers and seine netters	Low	Negligible	Negligible	None	Not Significant
	Dutch seine netters and pelagic trawlers	Low	Negligible	Negligible	None	Not Significant
Interference to normal fishing activities	Local UK inshore static fleet (potters, netters, longliners)	Low	Medium	Minor to Moderate	Establishment of Inshore Fisheries Working Group	Minor - Not Significant
	Local UK inshore mobile fleet (dredgers, demersal trawlers)	Negligible	Low	Negligible	Establishment of Inshore Fisheries Working Group	Not Significant
	UK offshore mobile fishermen (scallop dredger and beam trawlers and all foreign fisheries	Negligible	Low	Negligible	None	Not Significant
Navigational safety issues for fishing vessels	All fisheries	n/a	n/a	Tolerable		Tolerable - Not Significant

Potential Impact	Receptor	Magnitude	Sensitivity	Significance of effect	Proposed Additional Mitigation	Significance of Residual Effect
Temporary increases in steaming times	All fisheries	Negligible	Negligible	Negligible	None	Not Significant
Obstacles on the seabed **(Exposed cables)**	UK and foreign demersal fisheries (otter trawlers, beam trawlers, dredgers and seine nets)	n/a	n/a	Tolerable	UK Inshore Fleet (trawlers, dredgers) - Minimising duration cable is exposed; Establishment of Inshore Fisheries Working Group Inshore; over-trawlability assessment	Tolerable – (ALARP) - Not Significant
Obstacles on the seabed (Other obstacles i.e. dropped objects and spoil mounds)	UK and foreign demersal fisheries (otter trawlers, beam trawlers, dredgers and seine nets)	Low	Low	Minor	UK Inshore Fleet (trawlers, dredgers) - Establishment of Inshore Fisheries Working Group Inshore; over-trawlability assessment	Not Significant

Potential Impact	Receptor	Magnitude	Sensitivity	Significance of effect	Proposed Additional Mitigation	Significance of Residual Effect
Obstacles on the seabed (Exposed cables, and other obstacles i.e. dropped objects and spoil mounds)	UK and foreign pelagic (pelagic trawlers) and static gear (potters, netters and longline) fisheries	Low	Negligible	Negligible	UK Inshore Fleet (Potters, netters and longline) - Establishment of Inshore Fisheries Working Group Inshore; Minimising duration cable is exposed.	Not Significant
Operation (including repair/maintenance)						
Complete/temporary loss or restricted access to established fishing grounds **(O & M including cable repair)**	Local UK inshore fleet	Low	Medium	Minor to Moderate	Continuation of Inshore Fisheries Working Group	Not Significant
	Over 15 m UK and foreign vessels	Negligible	Low	Negligible	None	Not Significant
Complete/temporary loss or restricted	Local UK inshore fleet	Negligible	Medium	Negligible	Continuation of Inshore Fisheries Working Group	Not Significant

Potential Impact	Receptor	Magnitude	Sensitivity	Significance of effect	Proposed Additional Mitigation	Significance of Residual Effect
access to established fishing grounds **(non-burial protection)**	15 m UK and foreign demersal fleets (scallop dredgers, beam trawlers, otter trawlers and seiners)	Negligible	Negligible	Negligible	None	Not Significant
	Pelagic vessels	n/a	n/a	No impact	None	Not Significant
Complete/temporary displacement of fishing activity into other areas	Local UK Inshore fleet	Low	Medium	Minor to Moderate	Continuation of Inshore Fisheries Working Group	Not Significant
	UK and foreign over 15 m vessels	Negligible	Negligible	Negligible	None	Not Significant
Interference to normal fishing activities	Local UK inshore static fleet (potters, netters, longliners)	Negligible	Medium	Negligible	Continuation of Inshore Fisheries Working Group	Not Significant
	All other fisheries	Negligible	Low	Negligible	None	Not Significant
Navigational safety issues for fishing vessels	All receptors	n/a	n/a	Tolerable	None	Tolerable – Not Significant

Potential Impact	Receptor	Magnitude	Sensitivity	Significance of effect	Proposed Additional Mitigation	Significance of Residual Effect
Increased steaming times	All receptors	Negligible	Negligible	Negligible	None	Not Significant
Obstacles on the seabed after maintenance/repair **(Exposed cables)**	UK and foreign demersal fisheries (otter trawlers, beam trawlers, dredgers and seine nets)	n/a	n/a	Tolerable	UK Inshore Fleet (demersal fisheries) - Continuation of Inshore Fisheries Working Group; Minimising duration cable is exposed	Tolerable – (ALARP) Not Significant
	Pelagic fisheries (pelagic trawlers) and static gear (potters, netters and longline) vessels	Negligible	Negligible	Negligible	UK Inshore Fleet (potter, netters and longlines) - Continuation of Inshore Fisheries Working Group	Not Significant
Obstacles on the seabed after maintenance/repair **(Other obstacles)**	UK and foreign demersal fisheries (otter trawlers, beam trawlers, dredgers and seine nets)	Low	Low	Minor	UK Inshore Fleet (demersal) - Continuation of Inshore Fisheries Working Group	Not Significant

Potential Impact	Receptor	Magnitude	Sensitivity	Significance of effect	Proposed Additional Mitigation	Significance of Residual Effect
	Pelagic fisheries (pelagic trawlers) and static gear (potters, netters and longline) vessels	Negligible	Negligible	Negligible	UK Inshore Fleet (potter, netters and longlines) - Continuation of Inshore Fisheries Working Group	Not Significant

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