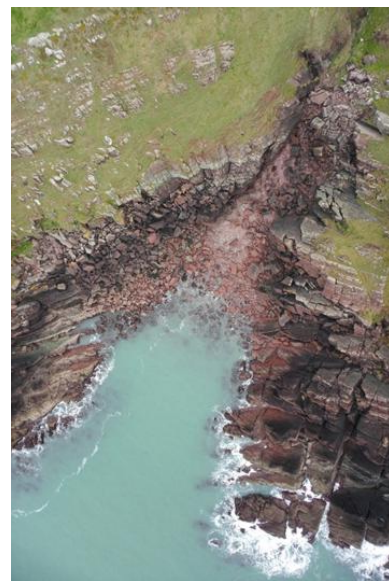




mWave Marine Energy Device and Onshore Infrastructure

ENVIRONMENTAL STATEMENT



June 2019

CHAPTER 11: Commercial Fisheries

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Glossary

Term	Definition
Acoustic Doppler Current Profiler	An Acoustic Doppler Current Profiler (ADCP) is a hydroacoustic current meter similar to sonar, used to measure waves and water current velocities over a range of depth.
Anadromous	Migrating up rivers from the sea to spawn.
Automatic Identification System	A system used in commercial fishing to allow environmental and fisheries regulatory organizations to monitor, minimally, the position, time at a position, and course and speed of fishing vessels.
Catadromous	Migrating down rivers to the sea to spawn
Cefas	A marine and freshwater science research centre
Gear type	The method/equipment used for fishing.
Gill net	Fishing net set vertically in the water so that fish swimming into it are entangled by the gills in its mesh.
ICES statistical rectangles	Defined areas, 1-degree longitude x 0.5-degree latitude equalling approximately 30 x 30 nm used for fisheries statistics.
Landings	Quantitative description of amount of fish returned to port for sale, in terms of value or weight.
Otter trawl	A net with large rectangular boards (otter boards) which are used to keep the mouth of the trawl net open. Otter boards are made of timber or steel and are positioned in such a way that the hydrodynamic forces, acting on them when the net is towed along the seabed, pushes them outwards and prevents the mouth of the net from closing.
Marine Energy Test Area Project	The META project, located in Pembrokeshire, consists of eight test sites where a range of marine energy testing activities will be permitted over a 15 year period. The licensing and consenting of the mWave project was originally intended to be undertaken within the consenting and licensing of the META project, with mWave being deployed within META Site 8.
Pelagic	Of or relating to the open sea.
Pelagic trawl	A net used to target fish species in the mid water column.
Scallop dredge	A method to catch scallop using steel dredges with a leading bar fitted with a set of spring loaded, downward pointing teeth. Behind this toothed bar (sword), a matt of steel rings is fitted. A heavy net cover (back) is laced to the frame, sides and after end of the mat to form a bag.
Steaming	Commercial fishing vessel in transit to fishing grounds.
String	A series of static fishing gear (pots) joined together to form a single deployable linear line of pots.
Subsea Umbilical Termination Unit	Underwater connection box approx 1.5m ² . mWave umbilical and ADCP will connect into unit.
Total Allowable Catches	Total Allowable Catches are catch limits, expressed in tonnes or numbers that are set for some commercial fish stocks.
Wave Energy Converter	Wave Energy Converter is defined as a device that converts the kinetic and potential energy associated with a moving wave. Devices can float on the sea surface or can be placed on the seabed.

Acronyms

Acronym	Description
AIS	Automatic Identification System
ADCP	Acoustic Doppler Current Profiler
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CIA	Cumulative Impact Assessment
DEFRA	Department for Environment, Food and Rural Affairs
EMP	Environmental Management Plan
EIA	Environmental Impact Assessment
ICES	International Council for the Exploration of the Sea
IFCA	Inshore Fisheries and Conservation Authorities
MCA	Maritime Coastguard Agency
META	Marine Energy Test Area
MEW	Marine Energy Wales
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MOD	Ministry of Defence
MPCP	Marine Pollution Contingency Plan
NM	Nautical Mile
NPS	National Policy Statement
NRW	Natural Resources Wales
PDE	Project Design Envelope
Spp.	Species
SUTU	Subsea Umbilical Termination Unit
TH	Trinity House
WEC	Wave Energy Converter
WFA	Welsh Fishermen's Association
WFSA	Welsh Federation of Sea Anglers
WMFAG	Welsh Marine Fisheries Advisory Group
WWSFA	West Wales Shellfisherman's Association

Units

Unit	Description
kg	kilograms
km	kilometres
kw/hr	Kilowatt/hour
m	metres
NM	Nautical Mile
tonne	Metric Tonne

11. COMMERCIAL FISHERIES

11.1 Introduction

11.1.1.1 This chapter of the Environmental Statement presents the results of the Environmental Impact Assessment (EIA) for the potential impacts of the mWave project on commercial fisheries. Specifically, this chapter considers the potential impact of the offshore component of mWave project during its three phases, namely installation, operation and maintenance, and decommissioning.

11.1.1.2 For the purpose of this chapter, commercial fishing is defined as any form of fishing activity legally undertaken for taxable profit. Recreational fishing is addressed in chapter 16: Other Users. Navigational aspects related to fishing vessels are addressed in Chapter 12: Shipping and Navigation. The assessment presented is informed by the following technical chapters:

- Chapter 8: Fish and Shellfish; and
- Chapter 12: Shipping and Navigation.

11.2 Purpose of this chapter

11.2.1.1 The primary purpose of the Environmental Statement is to support the marine licence application for the mWave project, including the full scale WEC, marine communications cable up to MHWS, Acoustic Doppler Current Profiler (ADCP), Subsea Umbilical Termination Unit (SUTU) and navigational markers (if needed). The Environmental Statement will also support the planning application for the onshore section of the communication cable (from MLW), the termination box, cable anchor point and onshore control station.

11.2.1.2 This Environmental Statement chapter:

- Presents the existing environmental baseline established from desk studies, and consultation;
- Presents the potential environmental effects on commercial fisheries arising from the mWave project, based on the information gathered and the analysis and assessments undertaken;
- Identifies any assumptions and limitations encountered in compiling the environmental information; and
- Highlights any necessary monitoring and/or mitigation measures which have been incorporated into the project or could be used to prevent, minimise, reduce or offset the possible environmental effects identified in the EIA process.

11.3 Study area

11.3.1.1 As discussed in Chapter 1: Introduction, the licensing and consenting of the mWave project was originally intended to be undertaken within the consenting and licensing of the Marine Energy Wales META project with mWave being deployed at the eastern end of META Site 8 (East Pickard Bay). Whilst the mWave device is short term and of limited extent compared to the META project, the baseline information for the META Site 8 has been used in the following assessment to ensure consistency of information across the two projects which are likely to be in the consenting process at the same time.

11.3.1.2 The port of Milford Haven is considered a major port within the Department of Environment, Food and Rural Affairs (DEFRA) network of commercial landings recording. Statistics for the major ports are published annually by DEFRA, and for the major sea areas defined by the International Council for the Exploration of the Sea (ICES). The ICES and DEFRA landing and fishing effort data is sufficient to provide a high degree of confidence in the commercial fisheries baseline characterisation. Whilst the wider study area overlaps with ICES rectangles 31E4 and 31E5 (Figure 11.1), these rectangles have not been included within the baseline characterisation due to insufficient number of days fished or due to minimal overlap with the commercial fisheries study area. Inclusion of these ICES rectangles may result in an unrealistic assessment as a result of skewed analysed data on the study area and mWave site.

11.3.1.3 The commercial fisheries study area overlaps with ICES rectangles 32E4 (3,415,000,000 m²) and 32E5 (1,220,000,000 m²). For context, the commercial fisheries wider study area is 1,739,760,000 m² (37.5% of 32E4 and 32E5 combined). The local study area is the proposed consented area of META Site 8, with mWave deployment site at its eastern end. The local study area is 1,230,000 m², which equates to 0.036% of 32E4 area, with the mWave deployment site being 0.00008% of the wider study area and 0.12% of the local study area. (Figure 11.1).

11.3.1.4 Commercial fishing can be spatially and temporally variable, and primarily dependent on fish stocks, therefore, for the mWave project commercial fisheries EIA the following study area was identified:

- The wider commercial fisheries study area –extends from the upper reaches of the Milford Haven Waterway (hereafter referred to as the Waterway), out to 12 NM from the mouth of the Milford Haven, to a point between St Govan's Head and Skomer Island (Figure 11.1).
- The local study area is defined as META Site 8 proposed consented boundary, with mWave being deployed in the inshore area at its south eastern end (see Figure 11.1 insert) and the area inshore which encompasses the marine cable route.

11.4 Policy context

11.4.1 National Policy Statements

- 11.4.1.1 Planning policy on renewable energy infrastructure, specifically in relation to commercial fisheries, is contained in the overarching National Policy Statement (NPS) for Energy (EN-1; DECC, 2011a) and the NPS for Renewable Energy Infrastructure (EN-3, DECC, 2011b). How the mWave project has considered and complied with the UK Marine Policy Statement and the Draft Welsh National Marine Plan has been considered in Chapter 3: Needs and Alternatives, Tables 3.1 and 3.2 respectively, and have not been reiterated here.
- 11.4.1.2 NPS EN-3 includes guidance on what matters are to be considered in the assessment. These are summarised in Table 11.1.
- 11.4.1.3 NPS EN-3 also highlights several factors relating to the determination of an application and in relation to mitigation. These are summarised in Table 11.2 below.

Table 11.1: Summary of NPS EN-3 provisions relevant to commercial fisheries.

Summary of NPS EN-3 provision	How and where considered in the Environmental Statement
Consultation	
Early consultation should be undertaken with statutory advisors and with representatives of the fishing industry which could include discussions of impact assessment methodologies. Where any part of a proposal involves a grid connection to shore, appropriate inshore fisheries groups should also be consulted (paragraph 2.6.127 of NPS EN-3).	Engagement with the local and regional industry, through the META project which included mWave project, over the period May 2017 to present (see section 0).
Where a number of offshore marine projects have been proposed within an identified zone, it may be beneficial to undertake such consultation at a zonal, rather than a site-specific, level (paragraph 2.6.128 of NPS EN-3).	Consultation has been undertaken both at a site-specific level and over a wider study area (see section 0).
Baseline data	
Robust baseline data should have been collected and studies conducted as part of the assessment (paragraph 2.6.129 of NPS EN-3).	In addition to recent official landings and surveillance data and data from published reports have been used to establish baseline data (see section 11.7).
Safety zones	
Where there is a possibility that safety zones will be sought around offshore infrastructure, potential effects should be included in the assessment on commercial fishing (paragraph 2.6.130 of NPS EN-3).	During the short duration for deployment a 200m advisory safety zone will be implemented around the works. A RIB will be present on site during mWave deployment which will also operate as a guard vessel if need be. If required, during operation the device will be marked (as agreed with the MCA). A Notice to Mariners (NtM) will be issued in advance of works.
Where the precise extents of potential safety zones are unknown, a realistic worst-case scenario should be assessed. Applicants should consult the MCA (paragraph 2.6.131 of NPS EN-3).	

Table 11.2: Summary of NPS EN-3 policy on decision making relevant to commercial fisheries.

Summary of NPS EN-3 policy on decision making	How and where considered in the Environmental Statement
Commercial fisheries	
The Local Planning Authority should be satisfied that the site selection process has been undertaken in a way that reasonably minimises adverse effects on fish stocks, including during peak spawning periods and the activity of fishing itself (paragraph 2.6.132 of NPS EN-3).	The site selection process has been discussed in Chapter 3: Needs and Alternatives, with fishing activity in section 11.7.2 <i>et seq.</i> and spawning periods in Chapter 8: Fish and Shellfish.
The Local Planning Authority should consider the extent to which the proposed development occupies any recognised important fishing grounds and whether the project would prevent or significantly impede protection of sustainable Commercial Fisheries or fishing activities (paragraph 2.6.132 of NPS EN-3).	The extent to which mWave impacts on recognised fishing grounds has been considered and consultation with fishing stakeholders has taken place in order to fully understand any potential impacts (see section 0).
The Local Planning Authority should be satisfied that the applicant has sought to design the proposal having consulted representatives of the fishing industry with the intention of minimising the loss of fishing opportunity taking into account effects on other marine interests (paragraph 2.6.133 of NPS EN-3).	

11.5 Consultation

- 11.5.1.1 A summary of the key issues raised during consultation for the META project specific to commercial fisheries for the mWave project is outlined below, together with how these issues have been considered in the production of this Environmental Statement chapter.
- 11.5.1.2 Table 11.3 below summarises the issues raised relevant to commercial fisheries, which have been identified during consultation activities undertaken to date. Table 11.3 also indicates either how these issues have been addressed within this Environmental Statement or how the Applicant has had regard to them.

Table 11.3: Summary of key consultation issues raised during consultation activities relevant to META Site 8 and mWave site.

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
03/05/2017	Welsh Government (Phil Marshall) – Personal communications	Potting level is high within the Waterway with gill nets present.	No issues raised, however, loss of 'fishing opportunity' will be assessed in section 11.11.2.15
22/08/2017 & 31/1/19	West Wales Shellfisherman's Association - engagement with representatives	No issues raised.	No response given.
		Potting and angling in the Waterway and spider fish crabbing in sandy areas of East Pickard Bay	Loss of fishing opportunity to be assessed in section 11.11.2.15
09/11/2018	Welsh Marine Fisheries Advisory Group (WMFAG) and the Welsh Fishermen's Association (WFA) – introductory meeting for feedback	Potential loss of 'fishing opportunity'	Potential loss of 'fishing opportunity' has been considered further in section 11.11.2.15
20/11/2018	Welsh Federation of Sea Anglers – Discussion of META sites	All deployments are marked, and angling community notified	A 'Notice to Mariners' will be issued and any navigational marker buoys will be agreed with MCA. See Table 11.11.
28/03/2019	NRW – Scoping Opinion	The report identifies which impact pathway have been scoped in and the justification for that. However, those impact pathways that have been scoped out have not been included so it is difficult to determine if everything has been considered.	Impact of accidental pollution scoped out in commercial fisheries but assessed in Fish and Shellfish. Text added to Table 11.7 to justify. Obstruction of fishing vessel transit routes is scoped out as it is deemed to be covered under Chapter 12: Shipping and Navigation.

11.6 Methodology to inform the baseline

11.6.1 Desktop study

- 11.6.1.1 Information on commercial fisheries within the wider and local commercial fisheries study area was collected through a detailed desktop review of existing studies and datasets. These are summarised at Table 11.4 below.
- 11.6.1.2 In addition, consultation with Welsh fisheries has been pertinent in both ground-truthing the data sources in Table 11.4 and understanding temporal and spatial patterns of fishing activity.

Landing statistics

- 11.6.1.3 Landings data for all species are collected via the European Union (EU) logbooks scheme and recorded by ICES statistical rectangle and stored in the EU Data Collection Framework database, accessible through the EU Joint Research Committee. Landings data have been collated for all ICES statistical rectangles that overlap the commercial fisheries study area, as discussed previously and as shown in Figure 11.1.
- 11.6.1.4 Landing statistics for UK registered vessels were obtained from the Marine Management Organisation (MMO) with the following parameters: year; gear type; ICES rectangle; species; landed weight (tonnes) and value (£). This data was collated across nine-year period (2009 to 2017) to ensure reflection of long-term trends. Landing statistics include all landings by that country's nationally registered vessels into the port of Milford Haven. The following parameters were examined: year; gear type; ICES rectangle; species; value (£); and landed weight (tonnes).

Table 11.4: Summary of key desktop reports.

Title	Source	Year	Author
Landings data (ICES rectangles: 32E4 and 32E5)	Marine Management Organisation	2009-2017	MMO
Crab and lobster stock assessments	Cefas	2014	Cefas
Vessel AIS data	ABPmer	2017	ABPmer
Wales Marine Planning Portal	Welsh Government	Compiles a series of relevant data sources	British Crown and OceanWise Ltd.
National Biodiversity Network (NBN) Gateway	NBN Atlas	Compiles a series of relevant data sources	Faber Maunsell and Metoc Plc

Automatic Identification System data

- 11.6.1.5 All EU fishing vessels (i.e. fishing vessels flying the flag of an EU Member State), and third-party fishing vessels operating in EU waters, that are ≥ 12 m in length, are required to have an AIS on board. This reports the vessels' position to fisheries management authorities, in the case of EU fishing vessels, every two hours. Since 1 January 2012, this obligation has applied to vessels that are ≥ 12 m in length (before 1 January 2012 it applied to vessels ≥ 15 m in length, see Council Regulation (EC) No 1224/2009). However, the MMO does not yet include AIS data for vessels between 12 to 14.9 m within its datasets; therefore, all MMO AIS data (2011 to 2017) presented within this chapter includes vessels that are ≥ 15 m in length.

- 11.6.1.6 A vessel's range varies due to weather conditions and skipper preferences as well as technical aspects such as power, but it is generally the case that vessels < 12 m in length fish within 20 NM offshore. Vessels ≥ 12 m in length can and do fish further afield, but in recent years many skippers have altered fishing patterns to favour fishing grounds closer to home ports due to increased fuel prices and time at sea restrictions (vessels being permitted a specific number of days at sea). This has particularly affected vessels operating mobile gears with high fuel demands, such as beam trawlers.
- 11.6.1.7 Although figures mapping AIS data may appear to show inshore areas as having lower (or no) fishing activity compared within offshore areas, this is not the case because AIS data do not include vessels typically operating in inshore area (i.e. typically vessels < 15 m in length). This is particularly important when assessing the activity off East Pickard Bay. Consultation has been key throughout the EIA process to determine extent and distribution of activity by the < 15 m fleet.
- 11.6.1.8 The MMO collate AIS data for UK registered vessels by aggregating the number of position plots by general gear type in a grid of ICES rectangles approximately 30 NM x 30 NM. This has been integrated with landings values and landed fish weight. These data have been analysed across a nine-year period from 2009 to 2017.

11.7 Baseline environment

- 11.7.1.1 This section characterises the existing environment within the wider commercial fisheries study area, with specific reference to the local study area, as illustrated in Figure 11.1 and described in section 11.3.

11.7.2 Commercially important species

- 11.7.2.1 Species predominantly caught within the commercial fisheries study area are shellfish and demersal fish species. Pelagic species are primarily caught out with the commercial fisheries study area, although there are small scale fisheries within the Waterway for some pelagic species. Migratory species are caught in low number by sea anglers within the Waterway.

Shellfish and crustaceans

- 11.7.2.2 The EC Shellfish Waters Directive (79/923/EEC), adopted 30th October 1979, aims to protect or improve shellfish waters in the UK to support shellfish life and growth, therefore contributing to the high quality of shellfish products directly edible by humans. Shellfish harvesting sites are classified from A to C according to the EU Food Hygiene Regulations (852/2004, 853/2004 and 854/2004) implemented in Wales through the Food Hygiene (Wales) Regulations 2006 (SI 2006/31). Grade A sites do not require pre-treatment and grade C sites require intensive purification. A fourth category exists, whereby harvesting is prohibited within these areas (Figure 11.2).

- 11.7.2.3 There are two areas within Waterway that have been designated as shellfish waters under this Directive. The waters within the Carew river were designated shellfish waters from 11th October 1999. The Milford Haven Cleddau (east and western Cleddau rivers) was also designated in 1999, however, following a review of designations in 2003/2004, the area was extended in March 2004 (Figure 11.2).
- 11.7.2.4 Historically, the Waterway has been harvested for wild cockles (*Cardiidae*) and Pacific oyster *Crassostrea gigas* and in recent years the fisheries market has grown to include permits for carpet shell clam *Ruditapes decussatus*, razor clam *Pharidae* spp. and native oyster *Ostrea eduli* (Cefas, 2012). In addition to the commercial shellfish beds, hand gathering for shellfish occurs within specific areas of the Waterway and at Freshwater West Beach. Species collected include cockles, mussels *Mytilus edulis*, periwinkles *Littorina littorea* and razor clam
- 11.7.2.5 Overall, the large area, diverse marine habitats and sediment types of the Waterway has resulted in colonisation by a variety of shellfish species and, in addition to those species mentioned above, mussel *Mytilus edulis*, lobster *Homarus gammus* and prawn *Palaemon serratus* also occur in the region, some of which have conservation and commercial interests (see section 11.7.4 for landed catches and value of species).
- 11.7.2.6 Potting for crustaceans, such as spider crab and lobster, occurs towards the outer reaches of the Waterway, as well as along the rocky headland and the coast to the north and south (Figure 11.2) including the waters off East Pickard Bay. .

Demersal fish species

- 11.7.2.7 Flatfish and rays (principally thornback ray *Raja clavata*) are taken in fixed nets, and otter and beam trawls from spring through to the end of the year. Boats using gill nets and otter trawls take cod *Gadus morhua* and whiting *Merlangius merlangus* during the colder months. Large-meshed tangle nets are used for rays and large flatfish such as turbot *Scophthalmus maximus* (Pawson *et al.*, 2002). The ray fishery within the area has expanded since the mid-1980s and is mostly fished by three larger trawlers that work between 3 to 6 NM from shore (Grey, 1995). Beach and beach seine nets set along sandy shores are tended to at low tide and commonly take flatfish such as flounders, dabs and plaice (see section 11.7.3.7 for more information on fishing grounds and gear type used).

Pelagic fish species

- 11.7.2.8 Adult fish visiting the estuary seasonally to feed include Atlantic mackerel *Scomber scombrus* (August to October) and monkfish *Lophius piscatorius* (summer to autumn). Mullet *Mugil cephalus*, Atlantic herring *Clupea harengus*., plaice *Pleuronectes platessa*, sole *Solea vulgaris*, turbot, brill *Scophthalmus rhombus* and mackerel are taken in the Waterway from the estuary mouth up to the Cleddau bridge using gill and tangle nets (Pawson *et al.*, 2002).

- 11.7.2.9 The presence of a local race of herring in waters of the Daugleddau (distinguished by its spring spawning habit between February and April with spawning peaking in March), supports a fishery which uses bottom-set gill nets and is centred around Llangwm (Pawson *et al.*, 2002).
- 11.7.2.10 Gill netting for bass *Dicentrarchus labrax* and mullet (*Mugilidae*) also takes place but, in order to protect salmon and sea trout, it is not permitted upstream of the Cleddau Bridge. An area in Pembroke Bay around the power station outfall is a designated bass nursery area where fishing for sea fish from a boat is prohibited between 1 May and 31 October (see Chapter 8: Fish and Shellfish).

Migratory fish species

- 11.7.2.11 Seven compass nets are licensed to take salmon and sea trout in the upper regions (beyond the Cleddau bridge) of the Waterway from 1 June to 31 August (Walmsley and Pawson, 2007). The Waterway acts as a migration corridor for anadromous species (sea trout *Salmo trutta* and Atlantic salmon *Salmo salmo*) and the catadromous species European eel *Anguilla anguilla* moving in and out of the Cleddau rivers (NRW, 2017). There is an established migratory fishery in both the eastern and western Cleddau rivers, although little specific information is available (Hobbs and Morgan, 1992).

11.7.3 Commercial fishing fleet

- 11.7.3.1 Compared to the rest of the UK, Wales has the largest percentage of boats below ten metres in length and the largest numbers of part-time fishermen (Terry *et al.* 2017). As a result, the Welsh fishery is dominated by small-scale vessels which predominantly fish demersal species and shellfish within the Welsh inshore fishing region, with the most landed species into Welsh ports by UK vessels being shellfish species, including scallops, whelks and crabs (see section 11.7.4 for landings data). The Welsh fishing feet operates from ports all over Wales, with the most active ports including Milford Haven, Fishguard, Holyhead, Saundersfoot and Swansea (Pantin *et al.* 2015).
- 11.7.3.2 A review undertaken by Walmsley and Pawson (2007) between 2006 to 2007 described an offshore fleet of around 43 British-registered vessels of Spanish ownership or origin, based in Milford Haven port. These boats fish within the commercial fisheries study area, Bristol Channel and south Ireland, and land their catches at Milford Haven (see section 11.7.4 for landings data).
- 11.7.3.3 Three or four local inshore trawlers, between 8-12 m length, fish within the commercial fisheries study area for demersal fish (Walmsley and Pawson, 2007). One or two vessels dredge for scallops during the winter outside of the restricted area, and set long lines for spurdogs *Squalus* spp., thornback rays, cod, conger eel *Conger* spp. and common ling *Molva molva* (Walmsley and Pawson, 2007). Approximately forty vessels are involved in the potting fishery, with only two vessels >10 m length. The larger vessels are able to set up to 1200 pots, known as 'strings', out to approximately 48 km offshore (Walmsley and Pawson, 2007). Smaller vessels set pots within a few miles of the coast for lobster, brown crab *Cancer pagurus* and velvet crab *Necora puber*, in often crowded fishing space (consultation - Welsh government: Table 11.3). Many of the <10 m vessels are involved in netting within rocky areas for crawfish (*Astacoidea*) and spider crabs *Maja squinado*.
- 11.7.3.4 Consultation with local stakeholders has revealed high fishing activity present at the mouth of the Waterway but decreases further up-stream in the Waterway within the commercial fisheries study area. Welsh Marine Fisheries Advisory Group (WMFAG), West Wales Shellfisherman's Association (WWSFA) and the Welsh Fishermen's Association (WFA) indicated that high shellfish potting activity is present along the south Angle peninsular, East Pickard Bay coastline, predominantly on the rocky outcrops, with some fixed netting. No trawling or drift nets are present within the area. The Welsh Federation of Sea Anglers (WFSA) also confirmed that casting from the shore occurs along the East Pickard Bay coastline.

Traditional fishing grounds

- 11.7.3.5 A review of the Wales Marine Planning Portal identifies several traditional fishing grounds found within the commercial fisheries study area. These include trawling, nets, potting, hand gathering and other (handlining and jigging, commercial rod and line, drift lines, longlining, oyster cultivation, fish cages). For the purposes of this chapter, the 'other' category will be excluded as data is limited for landed take and value of catch.
- 11.7.3.6 The light otter trawl is a cone-shaped net used throughout the commercial fisheries study area (Figure 11.3), the net is towed by small to large vessels (MMO, 2014). 'Wings' are used to keep the mouth of the net open and tickler wires to catch primarily demersal fish species. Heavy beam and larger otter trawls are found to the south and west border of the commercial fisheries study area along the 12 NM territorial waters boundary. Light otter trawl can only be used on open areas of sandy-gravelly sediment as rocky substrate would result in the snagging of the equipment.
- 11.7.3.7 Three types of nets are used within the commercial fisheries study area, these are bottom set, beach and beach seine nets (Figure 11.4). Bottom set nets utilise weights and floats with a fine mesh net to catch demersal species. Beach and beach seine nets are predominately used close to shore within the intertidal to subtidal areas and can be deployed by hand or via boat. The net utilises weights and floats to create an area to entrap mainly fish species within the inshore area, nets can be deployed on all substrate types. Shellfish are rarely caught using this method as there is sufficient room under the net for shellfish species to escape.
- 11.7.3.8 Pots are deployed within the commercial fisheries study area to target certain shellfish including lobster, crab species, whelk (*Buccinidae*) and prawn species (Figure 11.5). Pots are generally barrel shape, made of varying material with an invaginated cone opening to permit lobsters entering but prevent them escaping and can be species specific, subject to mesh type and the size of the opening used. Pots are generally deployed over rocky substrate where crabs and lobsters have a preference for rocky reef habitat (Howard and Bennett, 1979). There is a small prawn potting site found approximately 130 m to the north of Warrior Way (site 6) and is approximately 18,000 m² (Figure 11.5).
- 11.7.3.9 Hand gathering, which is dependent on tides, is present within specific areas of the Waterway and on the rocky outcrop half way along Freshwater West Beach (Figure 11.6). Hand gathering includes the take of cockles, mussels *Mytilus edulis*, periwinkles *Littorina littorea* and razor clam.

11.7.4 Landings activity

11.7.4.1 The total fish and shellfish landed weight across the commercial fisheries study area by year (Figure 11.7) indicates a consistent level of catch (tonnes) from 2010 – 2017, with 2009 representing the introduction and implementation of the Marine Coastal Access Act 2009. The Marine Coastal Access Act 2009 established an independent body, the 'Marine Management Organisation'. This organisation has defined UK marine areas, introduced a new system of marine planning and provided greater fisheries enforcement powers for the purposes of enforcing sea fisheries legislation resulting in a more consistent landed weight from 2010 onwards.



Figure 11.7: Total fish and shellfish landings from the UK fleet landings per year for ICES rectangle 32E4 and 32E5 (based on nine-years data from 2009 – 2017) (data source: UK gov. database, 2018).

11.7.4.2 Landings from the commercial fisheries study area had an average annual value of £3,831,315.35 over nine years. Figure 11.8 shows the top ten species by average annual proportion that were caught over the nine years of data amounting to £3,625,611.28.

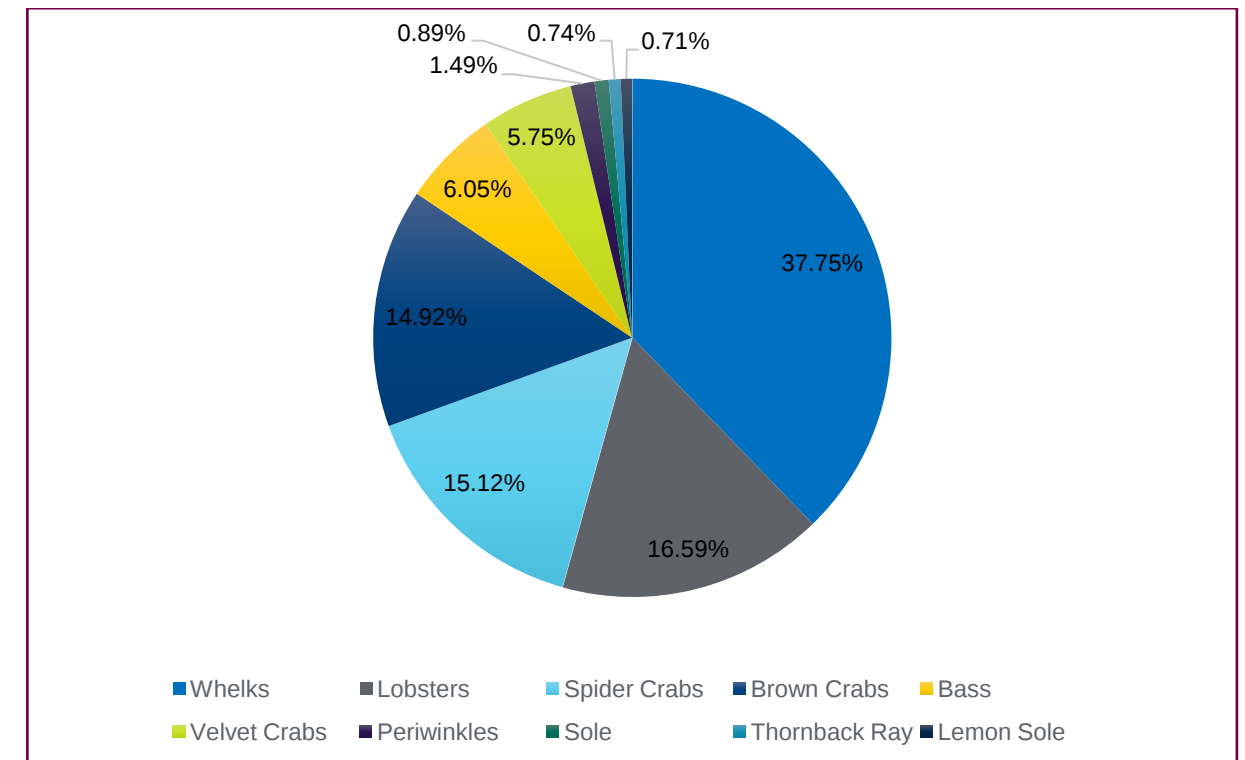


Figure 11.8: Average annual proportion of landings value by species for both ICES rectangles 32E4 and 32E5 (based on nine-years data from 2009 – 2017) (data source: UK gov. database, 2018).

11.7.4.3 Of these top ten species, shellfish dominate the landings, accounting for 91.6% of the annual value. Whelk, lobster *Homarus gammarus*, spider crabs and brown crab accounted for 84.4% of the annual value and the remaining 7.2% was accounted for by velvet crab and periwinkles. Bass, thornback ray and sole and lemon sole *Microstomus kitt*, all demersal species, comprise 8.4% of the annual value.

11.7.4.4 The annual average for other species caught, amounted to £205,704.06 of the £3,625,611.28. Species caught included the native oyster, mullet, cod, whiting and plaice (see Appendix 11.1).

11.7.5 Fishing effort

11.7.5.1 Fishing vessel effort data was collected between 2011 – 2014, for fishing vessels greater than 15 m. This dataset shows the average fishing activity (effort in kw/hr) for UK commercial fishing vessels of greater than 15 m in length and that are deemed to have been fishing¹. The fishing effort over a three year period within the commercial fisheries study area indicates 0-2,500 kw/hr. Data collected in 2016 also shows similar levels of relatively low fishing vessel effort (0-2,500 kw/hr), when compared to areas further out west from the commercial fisheries study area (160,000 – 320,000 kw/hr; Figure 11.9).

- 11.7.5.2 AIS fishing vessel data (greater than 15 m) collected by ABPmer (2017) in 2015 indicates an average weekly vessel density of zero – five vessels throughout the commercial fisheries study area. The vessel density increases (10 – 25 vessels) upon arrival into the Waterway which is to be expected as vessels are returning from their fishing grounds to land catch at the port of Milford Haven (Figure 11.10).
- 11.7.5.3 Consultation with local stakeholders, as described in section 11.7.3.4, has not revealed specific vessel numbers for vessels less than 15 m in length. It is known that META Site 8, off East Pickard Bay, has potting fisheries throughout the rocky coastline, but again no vessel numbers have been provided.
- 11.7.5.4 In addition, Chapter 12: Shipping and Navigation describes vessel movements throughout the area. In summary, for fishing vessel activity, few fishing vessel tracks were recorded within or in the vicinity of the META Site 8. Tracks were mainly recorded passing from Milford Haven Docks to sea, with no evidence of active fishing. This aligns with stakeholder consultation responses.

11.13.1.37 The trawling and netting fishery receptor is deemed to be of low vulnerability, high recoverability and high levels of alternative fishing grounds are available. The sensitivity of the receptor is therefore, considered to be low.

Significance of effect

11.13.1.38 Overall, the sensitivity of the receptor is considered to be low and the magnitude of the impact is deemed to be negligible to minor. The effect will therefore be of **negligible to minor adverse** significance, which is not significant in EIA terms.

11.14 Transboundary effects

11.14.1.1 Whilst other nations may fish within the ICES rectangles described, impacts to international commercial fisheries from the mWave project are expected to be similar to the impacts stated in the assessment. Considering no significant impacts were identified within the mWave assessment, significance of impact due to transboundary effects are expected to be negligible (adverse). Therefore, there is no potential for significant transboundary effects with regard to commercial fisheries from the mWave project upon the interests of other European Economic Area states.

11.14.2 Inter-related effects

11.14.2.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of the proposal on the same receptor. There are not considered to be any potential commercial fisheries inter-related effects.

11.15 Conclusion and summary

11.15.1.1 Table 11.13 summarises the assessment of effects on commercial fisheries associated with the installation, operation and maintenance, and decommissioning of the mWave project.

