

20 OTHER SEA USERS

20.1 Introduction

This chapter focuses on assessing the potential impacts of the Project on other users of the sea that have not already been covered as part of assessments carried out for commercial fisheries (Chapter 13), shipping and navigation (Chapter 16), recreation and tourism, and local businesses (socio-economic assessment (Chapter 18)). The focus of this assessment is therefore on subsea cables and pipelines, aggregate and hydrocarbon extraction, disposal areas, unexploded ordnance and other offshore renewable energy projects.

This assessment was carried out by Xodus and is based on results from a desk based study only. No additional studies or surveys have been carried out as part of this assessment.

20.1.1 Area of assessment

The assessment of potential impacts of the Project on other sea users covers the entire offshore Project area (turbine deployment area and cable route corridor options) as shown in Figure 20-1.

20.2 Legislation and policy

No additional legislation or policy has been identified as being of relevance to this Environmental Impact Assessment (EIA) topic over and above that identified in Chapter 3: Planning and Legislation.

20.3 Scoping and consultation

TVL has been involved in on-going consultation since commencement of the Project. This has played an important part in ensuring the scope of the baseline characterisation work and impact assessment have been appropriate to the Project and the requirements of the regulator and their advisors. Issues raised in relation to other sea users covered under other EIA topics are summarised in the relevant chapters of the Environmental Statement (ES). In terms of the other sea users covered in this chapter no specific issues were raised during general consultation or in the EIA Scoping Opinion provided by Department of Environment Northern Ireland (DoENI) Marine Division and Department of Enterprise, Trade and Investment (DETI).

Issues relating to other sea users within Tidal Resource Zone 2 were identified as part of the Strategic Environmental Assessment (SEA) of the Offshore Renewable Energy Strategic Action Plan (ORESAP) and the subsequent Regional Locational Guidance for Offshore Renewable Energy Developments in NI Waters. Where relevant to the Torr Head AfL area and area of search for the export cable corridor these have been taken into consideration as part of the baseline characterisation for this impact assessment (Section 20.4).

20.4 Baseline description

The following section describes the baseline with regards to other sea users not previously discussed in other chapters within this ES. It has been compiled from available published data.

20.4.1 Existing subsea cables and pipelines

A number of existing subsea cables (electricity and telecommunications) pass north south through the North Channel and east west between Northern Ireland and Scotland (Figure 20.1). The closest cable is the Rathlin Interconnector which runs from Ballycastle harbour to Rathlin Island 11 km to the north west of the Project. The Hibernia Atlantic telecommunications cable (HIBERNIA 'A'), which is part of the Hibernia Atlantic telecommunications network, runs north south through the centre of North Channel passing within 13 km of the AfL area (KIS-ORCA, 2014).

There are no existing subsea pipelines in the area of search for the export cable corridor or AfL area. The closest pipeline is a small outfall located 8.6 km south of the Project area at Cushendun Bay (Figure 20.1). Subsea pipelines will not be considered further in this assessment.

Proposed subsea cables and pipelines are considered in Section 20.11: Cumulative Impact Assessment. Cables relating to other Projects in the area e.g. Fair Head Tidal Energy Array are discussed under other renewable energy developments.

20.4.2 Disposal and aggregate extraction areas

There are several sea dumping/spoil areas within Rathlin Sound that have in the past been used for the disposal of dredge material from Ballycastle Harbour and Rathlin Harbour. These areas, all of which are now closed, are located between 11.5 km and 15 km from the Project (Figure 20-1).

There are no existing or proposed aggregate dredging areas within the Project study area. This will not be considered further within the assessment.

20.4.3 Military practice and exercise area

The whole of the North Channel is separated into different military exercise areas by the Ministry of Defence (MoD). Although the Project is located within military practice and exercise area (PEXA) X5528: Torr and used as a submarine exercise area (Figure 20-1, DTI, 2006), the MOD has indicated that no further consultation would be required unless the design of the Project was to change significantly from that presented in the EIA Scoping Report.

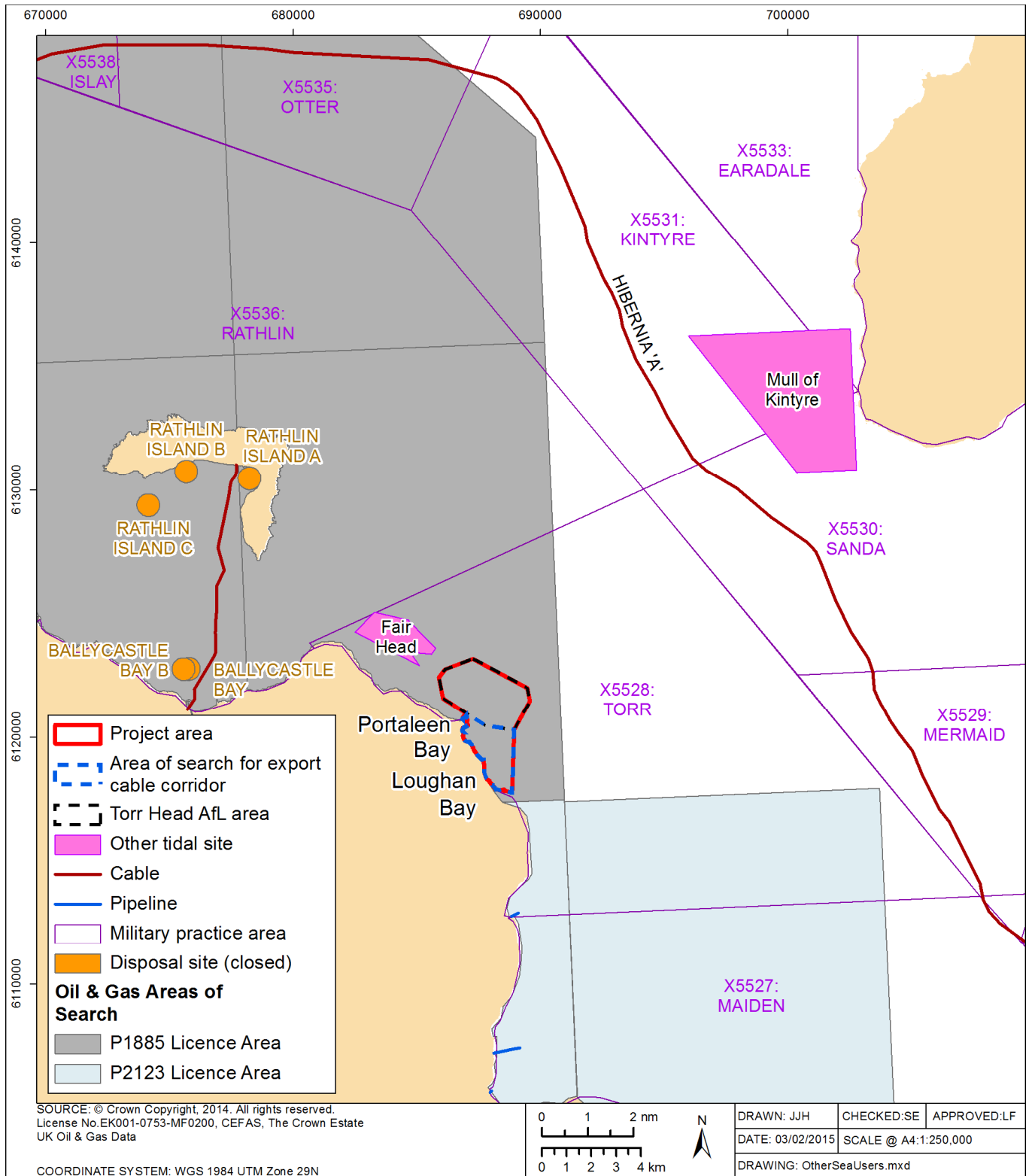
20.4.4 Munitions dumps and unexploded ordnance (UXO)

There are no known sea dumping sites for unexploded munitions within the AfL area or along the export corridor. There is a known munitions dump, Beaufort's Dyke, located between Northern Ireland and Scotland in the North Channel. The dyke is a 50 km long, 3.5 km wide and 200 m to 300 m deep sea trench which runs north south off the Rhinns of Galloway, and lies approximately 50 km south east of the AfL area at its closest point.

Whilst unlikely, there is potential that munitions from Beaufort's Dyke could have migrated north along the North Channel towards Torr Head and the Project area. A study carried out by QinetiQ Proprietary for the Scottish Executive (QinetiQ, 2007) indicated that while there is a potential risk for munitions from Beaufort's Dyke to migrate either to the north, and south, of the area, the extent of any migration is not fully known as this depends on local tidal current and wave conditions. Given that the AfL area is located 50 km to the north of Beaufort's Dyke, and that the main areas of risk for munitions migration are concentrated around the coastal areas of the Solway Firth and through the North Channel to the northern tip of the Rhins, the potential for munitions to be present in the Project area is low.

The AfL area is located within an MOD PEXA. Although, there is currently no live military exercise or training in the area, the west coast of Scotland and North Channel is recognised as having high levels of military exercise activity. It is therefore not possible to rule out the potential for UXO's from historical military training exercises to be present in the Project area. The potential for explosive ordnance legacy from two World Wars e.g. moored mines to be present in the Project area also cannot be ruled out. While no UXOs were identified during the benthic survey (drop down camera video and stills), a number of anomalies were identified from the review of existing geophysical data carried out to inform the marine archaeology impact assessment (Chapter 15). Three of which were identified from the Titan magnetometry survey and thought to be associated with underlying geology rather than anthropogenic material.

Figure 20-1 Other sea users in the vicinity of the Project area



20.4.5 Oil and gas infrastructure

There is no existing oil and gas infrastructure located in the vicinity of the Project area. However, the Project is located within the Offshore Frontier Licence Block P1885 awarded to Providence Resources by DECC in 2012 as part of the UK's 26th Oil and Gas Licencing Round (Figure 20.1). The Offshore Frontier Licence Block P1885 covers an area of approximately 1,116 km² and consists of six offshore blocks around Rathlin Island. The term of the licence is six years. At the time of ES submission information on the nature of the offshore oil and gas investigations to be carried out under the licence were unknown. However, if no drilling has occurred within the licence block after three years (by 2015) the licence holder has to relinquish 75% of all acreage. If no drilling has occurred after six years e.g. by 2018, the licence holder is required to relinquish all acreage (RPS, 2013). A second licence application has been submitted to DECC under Petroleum Exploration Licences P2123. This licences application, which covers five blocks extending south from an area to the south of Torr Head is still under consideration.

20.4.6 Renewable energy projects

In addition to the Torr Head AfL, two additional AfL areas were awarded for offshore renewable energy Projects in Northern Ireland, the Fair Head Tidal Energy Array AfL area which is located approximately 4 km north west of the Torr Head AfL area and the First Flight Wind Offshore Wind AfL area which is located off the coast of Kilkeel approximately 112 km south of the Torr Head AfL area. The First Flight Wind Offshore Wind Farm Project, is however, no long being taken forward for development. In addition, the Mull of Kintyre tidal array is located in Scottish waters, 15.5 km north east of Torr Head off the coast of the Kintyre peninsula.

At the time of ES submission, detail on the final tidal array layout and export cable corridor was not available for the Fair Head Tidal Energy Array.

20.4.7 Carbon Capture and Storage (CCS)

There are no sites present in or adjacent to the area currently under consideration for Carbon Capture and Storage (CCS). This will not be considered further within the assessment.

20.5 Data gaps and uncertainties (baseline)

There are no data gaps or uncertainties with regards to the baseline for other sea users.

20.6 Impact assessment

Following establishment of the baseline conditions, and an understanding of the Project activities it is possible to assess the potential impacts from the Project. The range of impacts that have been considered is based on the impacts identified during EIA Scoping and any further potential impacts that have been highlighted as the EIA progressed. Table 20.1 below lists all of the direct and indirect impacts to be covered as part of the impact assessment for this topic and identifies the relevant phases under which each impact will be assessed. This table also identifies where potential interactions between impacts and inter-relationships between receptors and EIA topics are likely to occur. Cumulative and in-combination impacts are discussed in Section 20.11

Table 20.1 Impacts covered in impact assessment

Potential impact	Relevant phase of Project			Interactions / inter-relationships
	C/I	O/M	D	
Damage to subsea cables due to anchor strike	✓	✗	✓	N/A
Reduced access to subsea cables for maintenance	✓	✓	✓	N/A
Disturbance of / reduced access to disposal areas (harbour dredge material)	✓	✗	✓	N/A

Potential impact	Relevant phase of Project			Interactions / inter-relationships
	C/I	O/M	D	
Interference with military practice and exercise areas	✓	✓	✓	N/A
Disturbance of munitions dumps	✓	✗	✗	N/A
Interference with oil and gas exploration activities	✓	✓	✓	N/A
Interference with other renewable developments	✓	✓	✓	N/A

C/I = construction / installation, O/M = operations and maintenance and D = decommissioning

20.6.1 Assessment criteria

The EIA process and methodology are described in detail in Chapter 8. However, each assessment section is required to develop its own criteria for the 'sensitivity and value of receptor' and 'magnitude of impact' aspects since the definition of these will vary between different topics. The sensitivity and value of the receptor and magnitude of impact criteria specific to other sea users are defined in Table 20.2 and 20.3 respectively.

The sensitivity of and value receptor and magnitude of impact are then combined to determine the consequences of the impact alongside a qualitative understanding of the likelihood (using the criteria detailed in Chapter 8). The definitions for impact consequence are presented in Chapter 8, Table 8.1. The significance of the impact is then considered by reference to the relevant criteria in the EIA Regulations. Definitions for impact significance are presented in Chapter 8, Table 8.2.

Table 20-2 Criteria for sensitivity and value of other sea users

Sensitivity / value of receptor	Definition
Very high	Assets or resources of international or European importance. Very high sensitivity to loss of, damage to, or restricted access to approved or licenced activity, service, resource or asset. Recovery only possible over a long time period.
High	Assets or resources of national importance (UK or Ireland). High sensitivity to loss of, damage to, or restricted access approved or licenced activity, service, resource or asset. May be ability to tolerate some disruption or would be expected to recover without long term effects.
Medium	Assets or resources of regional importance (Northern Ireland). Medium sensitivity to loss of, damage to, or restricted access to approved or licenced activity, service, resource or asset. May be ability to tolerate some disruption or would be expected to recover without long term effects.
Low	Assets or resources of local importance Low sensitivity to loss of, damage to, or restricted access to approved or licenced activity, service, resource or asset. Adaptable to and would tolerate change, or can recover over a short period of time.
Negligible	Very low or no sensitivity even at a local scale. Activities not likely to be affected by the Project.

Table 20-3 Criteria for magnitude of impact

Magnitude of impact	Definition
Severe	Permanent or long lasting disruption that threatens the future viability of an approved or licenced activity, service, resource or asset.
Major	Temporary disruption that affects an approved or licenced activity, service, resource or asset, but does not threaten future viability.
Moderate	Temporary and low level disruption of approved or licenced activity, service, resource or asset.
Minor	Little disruption to other sea users.
Negligible	No detectable disruption.

20.6.2 Data gaps and uncertainties

There are no data gaps or uncertainties associated with the impact assessment on other sea users.

20.6.3 Design envelope

In line with the design envelope approach, this assessment considers the maximum ('worst case') Project parameters. This ensures that impacts of greater adverse significance would not arise should any other development scenario be taken forward in the final scheme design. With regard to assessing impacts on other sea users the key design envelope parameters include:

TSSs and turbines:

- > AfL area is 6.8 km²;
- > Up to 100 turbines will be installed within the AfL area in an array of up to 20 per row;
- > There will be a minimum clearance of 8 m between sea surface at LAT and turbine blade tip, and 4 m between seabed and turbine blade tip;
- > GBS TSS has the largest footprint on the seabed at 30 m x 40 m = 1,200 m² per base. Total footprint for 100 turbines would be 0.12 km² (approximately 2% of the total AfL area);
- > Each turbine will be connected by an inter-array cable. Inter-array cables will be surface laid. The Project will require a maximum of 100 inter-array cables. These are likely to occupy approximately 3% of the remaining seabed area within the AfL area;
- > Subsea cable connection hubs will be used to group inter-array cables and connect them to export cable(s). A maximum of eight subsea cable connection hubs will be required. Each subsea cable connection hub will have a footprint of 3 m by 4 m (12 m²);
- > A maximum of eight export cables will be surface laid from the AfL area to a landfall located to the south of Torr Head. The maximum export cable corridor length will be 3 km; and
- > Cable protection may be required along the full length of the export cable. This will be in the form of rock placement, concrete mattresses and / or grout bags. The total width of seabed directly affected by the 8 cables is estimated at 40 m (5 m per cable). Allowing for a spacing of 2-3 times water depth between each cable, the maximum width of corridor in which cables will be installed is 1,260 m.

Vessel requirements:

- > Vessels required for the installation of the TSSs and turbines will include either a DP construction vessel with 250 to 400 tonne crane lift capacity and a DP construction vessel with 150 tonne crane lift capacity or a purpose built twin hulled three point heavy lift deployment barge with capacity to install TSS as single unit. Depending on site conditions and selected TSS and turbine it may be necessary to use a moored barge or jack up barge instead of the DP vessel;

- > Other support vessels required during installation of the TSS and turbines include small DP vessels with ROV on board, crew transfer vessels (RIBS), dive vessels (RIBS) and tug boats;
- > Specialised vessels will be required for the installation of the export cables. This will include a specialised cable lay vessel and a vessel with either a fall pipe (for rock placement protection) or heavy lift crane facility (if concrete mattresses or grout bags) are to be used for cable protection. A small tug with ROV will also be required plus another support vessel (e.g. RIB);
- > Where HDD is required at the cable landfall there may be a need to use a jack up barge if the HDD runs from sea to shore;
- > Maintenance activities required during operation of the tidal array will involve a small (25 – 30 m) offshore work class DP tug or similar with ROV on-board. RIBS and dive boats may also be required. These vessels will be used routine inspections and preventative maintenance;
- > Where turbines need to be removed from the sea for maintenance, this will require the use of large DP crane vessels or a purpose built twin hulled three point heavy lift deployment barge. Other support vessels will also be required including small DP vessel, crew transfer vessel and dive boats; and
- > Vessels required during decommissioning will be similar to those used during installation.

Duration of vessel presence in the AfL area / along export cable corridor (note these timescale are indicative and are dependent on weather and site conditions).

- > During installation of the TSSs and turbines, vessels will be present in AfL area for approximately 30 – 35 weeks during Phases 1 and 2 (2018 and 2019) respectively;
 - > Cable installation activities (inter-array and export cables) are expected to take place over an eight week period during both Phase 1 (2018) and Phase 2 (2019);
 - > Installation of cable protection measures are expected to take approximately four to eight weeks in each phase (Phase 1 and Phase 2) depending on the cable protection measures being installed;
 - > During operation it is likely that vessels will be present in the AfL area throughout the year. On average this is expected to be one vessel per day. However, there may be periods when there are more vessels e.g. two or three or no vessels depending on weather conditions and maintenance works required. Maintenance activities will include:
 - Routine inspections: these are expected to occur over one to two days every two years per turbine (based on 20 minute ROV inspections per turbine); and
 - General maintenance – either at site (depending on weather conditions) or activities related to the removal and re-deployment of turbines removed for general maintenance at onshore facility.
- > Decommissioning activities are expected to occur over similar timescales / duration to installation.

The impacts from potential alternative development options are addressed in Section 20.13.

20.7 Impacts and mitigation during construction and installation

20.7.1 Impact 20.1: Damage to existing subsea cables due to anchor strike

There is potential that vessels involved in the installation of TSSs, turbines, inter-array and export cables could impact existing subsea cables if there is a requirement for vessels to drop anchors in the vicinity of an existing cable. Some of the vessels involved in installation activities may use Dynamic Positioning (DP) to hold position, therefore reducing the requirement for vessels to drop anchors e.g. DP heavy lift crane barges or specialised DP deployment barges. However, jack-up barges or moored barges may be required depending on site conditions / selected TSS and turbine. All vessel providers will be notified of the location of all subsea infrastructure in the surrounding area prior to vessel mobilisation.

Given that the Project is located approximately 11 km from the closest existing subsea cable the risk of anchor strike from vessels involved in installation within the AfL area is very low, especially given that some vessels may use DP and therefore will not need to drop any anchors. The existing subsea cables will also already be protected against anchor strike.

As the subsea cables are of national importance (Northern Ireland) they are considered to be of medium sensitivity. However, the Project will be located approximately 11 km from the Rathlin Interconnector and 13 km from the Hibernia 'A' cable therefore any impact is considered to be highly unlikely to occur. The magnitude of a potential impact on the cable from an anchor is also considered negligible on the basis that the cable is already protected from accidental anchor strike. The consequence of the impact is also negligible and the impact is not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Medium	Negligible	Negligible	Not significant

Mitigation relating to Impact 20.1
> No mitigation measures have been identified from this impact as it was concluded that the impact was not significant.

20.7.2 Impact 20.2: Disturbance to maintenance access of existing subsea cables

As the two existing subsea cables are located at a minimum distance of 11 km from the Project, disturbance to maintenance operations of the Rathlin Interconnector or Hibernia 'A' cables from installation activities occurring within the Project area is considered highly unlikely. All vessels involved in installation activities will be notified of the location of all subsea infrastructure in the surrounding area prior to vessel mobilisation further reducing the likelihood for any disruption to cable maintenance activities.

Although the sensitivity of receptor is considered medium, the magnitude of impact is considered to be negligible with an overall impact consequence of negligible giving an overall significance of not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Medium	Negligible	Negligible	Not significant

Mitigation relating to Impact 20.2
> No mitigation measures have been identified from this impact as it was concluded that the impact was not significant.

20.7.3 Impact 20.3: Disturbance of marine disposal areas

The nearest harbour dredge marine disposal site is located 11.5 km from the AfL area. It is therefore highly unlikely that installation activities associated with the Project will result in direct disturbance to any of the closed marine disposal areas located in the Rathlin Sound. Given that the marine disposal areas are currently closed they are considered to be of low sensitivity. The magnitude of the impact is negligible with an overall impact consequence of negligible. The impact is therefore not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Low	Negligible	Negligible	Not significant

Mitigation relating to Impact 20.4

> No mitigation measures have been identified from this impact as it was concluded that the impact was not significant.

20.7.4 Impact 20.4 Interference with military practice and exercise areas

The AfL area is located within PEXA X5528: Torr. There is potential that activities associated with the installation of the TSSs, turbines and cables could interfere with military practice activities in this area. The array will occupy approximately 0.3% of the overall Torr PEXA. There are also a number of other practice and exercise areas in the surrounding waters. Therefore while military exercise activities in the AfL area and along the area of search for the export cable corridor will be restricted during installation, the overall area within which activities are restricted comprises only a small proportion of the wider area used by the Ministry of Defence (MOD) for military practice and exercise activities.

Although at the time of ES submission, MOD had not raised any concerns in relation to potential interference from installation activities with military activities in the Torr PEXA and had confirmed that no further consultation was required unless the details of the Project were to change significantly. Based on this, and taking into account the availability of other practice and exercise areas in the surrounding area, the sensitivity of this receptor has been assessed as medium. The magnitude of impact is considered to be minor due to the small scale of the Project area and temporary nature of the installation activities. The consequence of the impact is also minor, therefore the impact is not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Medium	Minor	Minor	Not significant

Mitigation relating to Impact 20.4

> No mitigation measures have been identified from this impact as it was concluded that the impact was not significant.

20.7.5 Impact 20.5: Disturbance of unexploded ordnance

There is potential that installation activities, in particular drilling of TSSs or HDD activities at the landfall, could disturb unexploded ordnance (UXO). However, the nearest known munitions dump is Beaufort's Dyke which is located approximately 50 km south east of the AfL area. This munitions dump is one of the largest in the UK and therefore assessed as being of high sensitivity, however the Project will not result in any direct disturbance direct disturbance of the dump. However, there is potential that munitions from Beaufort's Dyke (and other munitions dump in the area e.g. Luce Bay) could have migrated into the Project. Where munitions have migrated into the Project area, these could lead to localised contamination of seabed and water column if disturbed. The magnitude of any potential impact relating to munitions is therefore assessed as minor on the basis that while it is highly unlikely that munitions from Beaufort's Dyke or other dumps are not present in the Project area it cannot be ruled out. The consequence is also minor therefore the impact is not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
High	Minor	Minor	Not significant

Mitigation relating to Impact 20.5

- > Although no significant impact has been identified, due to the safety aspects associated with unexploded ordnance (see below), further survey work may be required as part of the planned geophysical survey to confirm that there is no unexploded ordnance present within the Project area.

20.7.6 Impact 20.6: Inadvertent interaction with UXO

There is potential for the presence of UXO in the area from historical military practice exercises and training and a legacy from two world wars. If UXO are present then there is a risk that equipment or personnel involved in installation activities could inadvertently come into contact with the UXO. Although the likelihood of an interaction with UXO is low, if an interaction did occur it could result in damage to equipment or injury to personnel. Based on this the sensitivity receptor is assessed as very high (personnel) and the magnitude of the impact is assessed as moderate. The resulting consequence is major resulting in a significant impact.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Very high	Moderate	Major	Significant

Mitigation relating to Impact 20.6

- > A more detailed assessment of munitions and UXO presence in the Project area will be carried out as part of the planned geophysical survey which will be carried out by TVL to inform detailed design of the tidal array.
- > Based on results from this survey, TVL will examine measures for reducing the risk from inadvertent interaction with munitions and UXO to personnel and the Project to As Low As Reasonably Possible (ALARP)

20.7.7 Impact 20.7: Interference with oil and gas exploration activities

The AfL area is located within Frontier Licence Block P1885. The licence awarded for this block is for offshore oil and gas exploration. At the time of ES submission information on the nature of the works planned in the area was not available in the public domain but is expected to involve some exploratory drilling. There is potential for installation activities to disrupt any drilling activities that are planned in the area as a result of increased vessel activity in the area and presence of TSSs, turbines and associated installation equipment. To ensure the safety of all personnel involved in installation activities it will be necessary to implement safety zones of up to 500 m radius on a rolling basis. These will be placed around active installation areas.

In line with the requirements of the safety zone, no other activities e.g. would be permitted within the safety zone area. However, given that the total area of Frontier Licence Block P1885 is 1,116 km² the total area that would be affected by any safety zone, even if it covered the entire AfL area which is very unlikely, would be less than 1% of the total area covered by the licence. The sensitivity of this receptor is assessed as medium on the basis that the licence block is of importance in terms of oil and gas exploration in Northern Ireland. Although installation activities are temporary, short term and will only affect a small area of the overall licence block, once the TSSs and turbines are installed drilling activities are likely to be restricted in those locations therefore the magnitude of the impact is considered minor. The consequence is also minor and the impact is not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Medium	Minor	Minor	Not significant

Mitigation relating to Impact 20.6

- > No mitigation measures have been identified from this impact as it was concluded that the impact was not significant.

20.7.8 Impact 20.7 Interference with other renewable developments

The AfL area and area of search for the export cable is located 4 km from the Fair Head Tidal Energy Array Project AfL area. Should the construction and installation of both Projects occur over the same time period, increased vessel presence and general activity in and around the Torr Head AfL area could disrupt installation activities associated with the Fair Head Project. However, both Projects will be required to implement safety zones of up to 500 m radius around installation activities. The presence of the safety zones will help to limit potential disruption from vessels associated with installation for this Project passing through the Fair Head Project area as all vessels will be required to adhere to the safety zones. This also applies to installation of the export cables and will help to reduce the potential risk of anchors from vessels involved in installation activities at Torr Head damaging cables being installed for the Fair Head Tidal Energy Array. All vessels involved in installation activities will also be notified of the location of all subsea infrastructure associated with the Fair Head Project prior to vessel mobilisation.

The Fair Head Tidal Project is of national importance (Northern Ireland) and therefore has medium sensitivity. The magnitude of impact is considered minor on the basis that although vessels from the Torr Head Project may need to pass through or around the Fair Head Project AfL area, the impact will be temporary (approximately 35 weeks in phase one and 30 weeks in Phase 2) and will only involve a small number of vessels. With the presence of safety zones the potential for anchor strike from vessels involved in this Project affects cables installed for the FHT array is also limited. The overall consequence is minor and the impact is not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Medium	Minor	Minor	Not significant

Mitigation relating to Impact 20.7

- > No mitigation measures have been identified from this impact as it was concluded that the impact was not significant.

20.8 Impacts and mitigation during operation and maintenance

20.8.1 Impact 20.8 Damage to existing subsea cables due to anchor strike

It is expected that during operation there will be a requirement for maintenance vessels to be present within the AfL area throughout the year (based on an average of one vessel per day). The numbers and types of vessels present will depend on the maintenance works required e.g. tugs or RIBS or ROV vessels for inspections or DP heavy lift crane barges. Depending on site conditions jack-up barges or moored barges may also be required to assist with the removal / re-installation of the turbines.

Although the cables are of national (Northern Ireland) importance and are therefore of medium sensitivity, the magnitude of any potential impact will be negligible on the basis that the nearest subsea cable is approximately 11 km from the AfL area therefore the likelihood of any vessels impacting these cables during Project maintenance is highly unlikely. The consequence will also be negligible and the impact will be not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Medium	Negligible	Negligible	Not significant

Mitigation relating to Impact 20.8

- > No mitigation measures have been identified from this impact as it was concluded that the impact was not significant.

20.8.2 Impact 20.9 Disturbance to maintenance access of existing subsea cables

Due to the distance between the AfL area and closest subsea cable (11 km) there will be no impact on access to these cables from either the physical presence of the tidal array or vessels involved in maintenance activities.

20.8.3 Impact 20.10 Interference with military practice and exercise areas

Although the AfL area is located within military PEXA X5528: Torr, the total area occupied by the tidal array will be less than 0.3% of the total military practice area. There are also a number of other practice and exercise areas in the surrounding waters. Therefore while the presence of the tidal array will restrict military exercise activities in the AfL area during operation of the Project (25 years), the total area affected comprises only a very small proportion of the wider area used by the Ministry of Defence (MOD) for military practice and exercise activities. The sensitivity of this exercise area has been assessed as medium. Even though activities in the AfL area will be restricted for the duration of the Project, the magnitude of impact is considered to be minor due to the small scale of tidal array in relation to the overall military exercise area. The consequence of the impact is also minor, therefore the impact is not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Medium	Minor	Minor	Not significant

Mitigation relating to Impact 20.10

- > No mitigation measures have been identified from this impact as it was concluded that the impact was not significant

20.8.4 Impact 20.11 Interference with oil and gas exploration activities

Although the AfL area is located within Frontier Licence Block P1885 the total area occupied by the tidal array will be less than 1% of the total area covered by the licence. Even though activities in the AfL area will be restricted during operation of the Project (25 years), the total area affected comprises only a very small proportion of the licenced area. The sensitivity of the Frontier Licence Block has been assessed as medium. Even though oil and gas exploration (and any subsequent production) activities in this area will be restricted for the duration of the Project the magnitude of impact is considered to be minor due to the small scale of tidal array in relation to the overall licenced area. The consequence of the impact is also minor, therefore the impact is not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Medium	Minor	Minor	Not significant

Mitigation relating to Impact 20.11

- > No mitigation measures have been identified from this impact as it was concluded that the impact was not significant.

20.8.5 Impact 20.12 Interference with other renewable developments

Potential cumulative impacts associated with the Fair Head Tidal Energy Array Project and Torr Head Tidal Energy Array Project have been assessed in detail in other relevant chapters of this ES.

In terms of interference with the operation of the Fair Head Tidal Energy Array Project, while there is potential for vessels involved in the maintenance of this Project to pass through the Fair Head AfL area these are highly unlikely to cause any disruptions to the ongoing operation of the Project. However, there is potential for those vessels to drop anchors on subsea cables installed for the Fair Head Project.

If maintenance works are required at either site, it is likely that safety zones will be established in the area of work to ensure personnel safety and minimise risk of collision between vessels. This will further help to reduce any interference with operations within the Fair Head AfL area. All vessels involved in maintenance activities will also be notified of the location of all subsea infrastructure / cables associated with the Fair Head Project prior to vessel mobilisation to further reduce the potential for any damage to the subsea infrastructure.

The Fair Head Tidal Energy Project is of national importance (Northern Ireland) and therefore has medium sensitivity. The magnitude of impact is considered negligible on the basis that the numbers of vessels expected to be required for maintenance are very low (average one vessel per day throughout the year) therefore the scale of any potential disruption to the Fair Head Tidal Energy Array project due to vessels transiting the area is very small. The overall consequence is also negligible and the impact is not significant.

Sensitivity / value of receptor	Magnitude of impact	Consequence	Significance
Medium	Negligible	Negligible	Not significant

Mitigation relating to Impact 20.12
> No mitigation measures have been identified from this impact as it was concluded that the impact was not significant.

20.9 Impacts and mitigation during decommissioning

Impacts during decommissioning are considered to be the same or less than those identified during installation.

20.10 Potential variances in environmental impacts

The impact assessment above has assessed the worst case Project options with regards to impacts on other sea users. There may be minor variances in impacts depending on the final Project design e.g. turbine micro-siting and location of inter-array cables within the turbine deployment area and Project vessel requirements. However, these will not significantly alter the conclusions presented here with respect to impacts on other sea users.

20.11 Cumulative and in-combination impacts

TVL, in consultation with the DoENI Marine Division, identified a list of other projects which together with the Torr Head Project may result in potential cumulative or in-combination impacts. The list of these projects including details of their status at the time of the EIA and a map showing their location is provided in Chapter 8; Table 8-4 and Figure 8-2 respectively.

A number of the projects identified for the Cumulative Impact Assessment (CIA) have already been considered as part of the assessment of impacts on other sea users. The main source of potential cumulative impacts is with the Fair Head Tidal Energy Array Project and the impacts of this project combined with the Torr Head Tidal Energy Array Project on other sea users.

Based on the results from this assessment it is concluded that cumulative impacts on subsea cables, harbour spoil disposal sites and unexploded ordnance are unlikely to occur during any phase of the Project due to the distance of these other users from both the Torr Head Project and the Fair Head Project. These other users are therefore not considered further in this CIA.

The key receptors in terms of potential cumulative impacts from the Fair Head and Torr Head Projects therefore include:

- > Interference with MOD practice and exercise areas; and

- > Interference with oil and gas exploration activities.

A description of potential cumulative impacts on these receptors for each phase of the Project are described below.

20.11.1 Potential cumulative and in-combination impacts during construction and installation

Both the Fair Head and Torr Head Projects are located within military practice area X5528: Torr and the Frontier Licence Block P1885. Assuming that both projects are installed at the same time, this is likely to result in an increase in the area within which military practice and exercise and oil and gas exploration activities are temporarily restricted. The Fair Head Tidal AfL area covers approximately 3 km². When considered with the Torr Head AfL area (6.8 km²) both projects combined will still occupy less than 1% of the area covered by the Frontier Licence and 0.4% of the Torr military practice area (X5528). Given the overall scale of the area affected in relation to the size of the available military practice area and oil and gas exploration areas it can be concluded that cumulative impacts on these activities due to temporary access restrictions during installation will not be significant.

20.11.2 Potential cumulative and in-combination impacts during operation and maintenance

During operation, the physical presence of the tidal arrays will restrict military practice and oil and gas exploration activities in both of the AfL areas (Fair Head and Torr Head) for the duration of the Projects (25 years). However, as described above the total area to which the restrictions will apply are less than 1% of the overall area available for both oil and gas exploration and military practice. It can therefore be concluded that cumulative impacts on these activities due to long term access restrictions during operation of both projects will not be significant.

20.11.3 Potential cumulative and in-combination impacts during decommissioning

Cumulative impacts during decommissioning are considered to be the same or less than those identified during installation.

20.12 Mitigation requirements for potential cumulative and in-combination impacts

No mitigation is required over and above the Project-specific mitigation.

20.13 Summary and conclusions

The assessment concludes that the Project will not have any significant impacts on other sea users. In terms of impacts on other sea users such as subsea cables, harbour dredge disposal sites and munitions dumps, it was concluded that impacts are very unlikely to occur during any phase of the Project due to the distance between the AfL area and these users (closest sub-sea cable is approximately 11 km from the AfL area).

There is potential for restricted access to the MOD military practice and exercise areas and oil and gas exploration areas during all phases of the Project. However, the area occupied by the Project is only 0.3 % of the Torr military practice and exercise areas and less than 1% of the area covered by the Frontier Licence Block P1885 oil and gas exploration area. Although potential impacts of restricted access in these areas is considered to be not significant due to the small scale of the area affected, in order to ensure that there is no potential future conflict between the Project, military and oil and gas exploration activities in this location TVL intends to continue to engage with the MOD and Providence Resources to ensure any concerns regarding future use of the waters and seabed within the Torr Head AfL area can be taken into consideration as the Project develops.

20.14 References

DTI (2006). Technical report on the other users of the SEA 7 area. Available from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/197043/SEA7_OtherUsers_Metoc.pdf [Accessed 22/10/2014].

KIS-ORCA (2014). Offshore Renewables and Cables Awareness. Seafish 2014. Available from <http://www.kis-orca.eu/> [Accessed 22/10/2014].



RPS (2013). Torr Head Tidal Energy Array EIA Scoping Report. Report prepared by RPS on behalf of TVL. Document number IBE0657. June 2013.

QinetiQ (2007). Potential Munitions Contamination of Marine Renewable Energy Sites in Scottish Waters – A Study for the Scottish Executive. QinetiQ Proprietary. January 2007.