Chapter 15: Infrastructure and Other Users

Array EIA Report

2024

Version	Comments	Authored by	Reviewed by	Approved by
FINAL	Final	RPS	RPS	RPS

Approval for Issue		
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15. INFRASTRUCTURE AND OTHER USERS

15.1. INTRODUCTION

1. This chapter of the Array Environmental Impact Assessment (EIA) Report presents the assessment of the likely significant effects (as per the EIA Regulations) on infrastructure and other users as a result of the Ossian Array which is the subject of this application (hereafter referred to as "the Array"). Specifically, this chapter considers the potential impacts of the Array on infrastructure and other users receptors during the construction, operation and maintenance, and decommissioning phases.

2. Likely significant effect (LSE[1]) is a term used in both the EIA Regulations and the Habitat Regulations. Reference to LSE[1] in this Array EIA Report refers to the "likely significant effect" as used by the "IA Regulations. The Array EIA Report is accompanied by a Report to inform Appropriate Assessment (RIAA) which uses the term as defined by the Habitats Regulations Appraisal (HRA) Regulations (LSE[2]).

3. The following technical chapters also inform the assessment presented in this chapter:

   - volume 2, chapter 7: Physical Processes;
   - volume 2, chapter 12: Commercial Fisheries; and
   - volume 2, chapter 13: Shipping and Navigation.

4. Many of the potential impacts upon infrastructure and other users are related to navigational safety and collision risk. To avoid duplication, navigational safety, and risk to all vessel types (including recreational vessels) is considered in volume 2, chapter 13. The following assessment only considers impacts that will potentially affect the undertaking of a marine activity or the operational effectiveness of marine infrastructure in the relevant infrastructure and other users study area, as described in section 15.3. Restrictions to port activities and users are also assessed in volume 2, chapter 13. In particular, the assessment of under keel clearance and risk to recreational vessels from floating foundations is considered in volume 2, chapter 13.

15.2. PURPOSE OF THE CHAPTER

5. The Array EIA Report provides the Scottish Ministers, statutory and non-statutory stakeholders with adequate information to determine the LSE[1] of the Array on the receiving environment. This is further outlined in volume 1, chapter 1.

6. The purpose of this infrastructure and other users Array EIA Report chapter is to:

   - present the existing environmental baseline established from desk studies, site-specific surveys (if available) and consultation with stakeholders;
   - identify any assumptions and limitations encountered in compiling the environmental information presented in this document;
   - present the environmental impacts on infrastructure and other users arising from the Array and reach a conclusion on the LSE[1] on infrastructure and other users, based on the information gathered and the analysis and assessments undertaken; and
   - highlight any necessary monitoring and/or mitigation measures which are recommended to prevent, minimise, reduce, or offset the likely significant adverse environmental effects of the Array on infrastructure and other users.

15.3. STUDY AREA

7. The infrastructure and other users study area varies in scale depending on the receptor (Figure 15.1). This has been divided into different areas according to each receptor, as follows:

   - infrastructure and other users study area – inner area (purple dashed line) (within 1 km of the Array): this area includes the extent of potential direct physical overlap between the Array activities and the following receptors:
     - recreational receptors (including receptors carrying out recreational fishing, sailing and motor cruising, kite surfing, surfing, windsurfing, sea/surf kayaking and canoeing and beach users);
     - offshore energy projects (e.g. offshore wind farms, tide and wave projects); and
     - cables and pipelines operators.
   - broad infrastructure and other users study area (green): this area is based on one tidal ellipse from the Array (8 km from the Array; see volume 2, chapter 7) and relates to the potential for increases in Suspended Sediment Concentrations (SSCs) to occur relating to the Array. This broad infrastructure and other users study area is related to only those receptors which are susceptible to increases in SSCs, specifically:
     - marine aggregate extraction and disposal sites;
     - recreational receptors (e.g. diving sites);
     - carbon capture and storage, natural gas storage and underground coal gasification;
     - coal deposits; and
     - microwave, Very High Frequency (VHF) and Ultra High Frequency (UHF) links (within 1 km of the Array).

8. The nearest onshore point is located at Coastal Cove Path, Aberdeen, 79.6 km north-west of the infrastructure and other users study area – inner area.

9. The Cumulative Effects Assessment (CEA) will consider all other projects and plans within 100 km radius of the broad infrastructure and other users study area (volume 3, appendices 6.4 and 6.5).

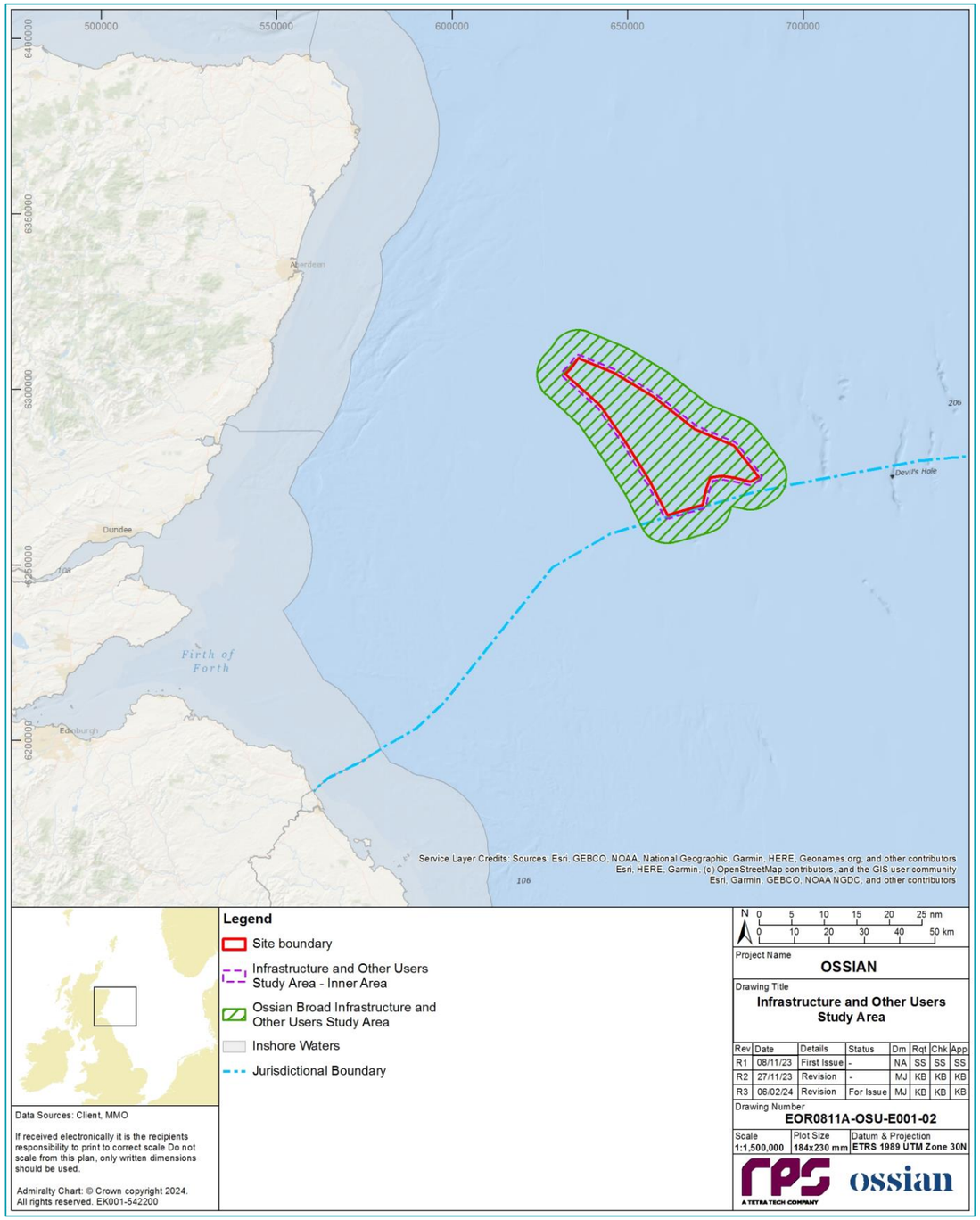

Figure 15.1: Infrastructure and Other Users Study Areas

15.4. POLICY AND LEGISLATIVE CONTEXT

10. Volume 1, chapter 2 of the Array EIA Report presents the policy and legislation of relevance to renewable energy infrastructure. Planning policy, specifically in relation to infrastructure and other users in Scotland, is contained in the Sectoral Marine Plan (SMP) for Offshore Wind Energy (Scottish Government, 2020a), the Scottish National Marine Plan (NMP) (Scottish Government, 2015) and the United Kingdom (UK) Marine Policy Statement (MPS) (HM Government, 2011).

11. Table 15.1 to Table 15.3 present a summary of the policy provisions relevant to infrastructure and other users. Further detail is presented in volume 1, chapter 2.

Table 15.1: Summary of SMP for Offshore Wind Energy Relevant to Infrastructure and Other Users (Scottish Government, 2020a)

Summary of Relevant Legislation	How and Where Considered in the Array EIA Report
General Policies	
Minimise the potential adverse effects on other marine users and economic sectors resulting from further commercial scale offshore wind development.	The potential adverse effects on other marine users are discussed in section 15.7 of this chapter. Economic sectors are discussed in volume 2, chapter 18 and volume 3, appendix 18.1.
Community and Stakeholder Engagement	
Developers will be expected to undertake further and ongoing engagement with the renewables, commercial fishing, shipping, defence and aviation stakeholders. Engagement should have a particular focus on cumulative assessment, socio-economic impacts and commercial fisheries.	Other renewable projects are discussed in paragraph 39 to paragraph 51 in this chapter. Commercial fisheries are discussed in volume 2, chapter 12 and volume 3, appendix 12.1. Shipping is discussed in volume 2, chapter 13 and volume 3, appendix 13.1. Defence and aviation are discussed in volume 2, chapter 14; volume 3, appendix 14.1 and volume 3, appendix 14.1, annex A. Cumulative effects are discussed in section 15.12.3 of this chapter and discussed further in volume 3, appendix 6.4 and 6.5.
Cumulative and In-combination Effects	
Further assessment work will be required to identify and address cumulative and in combination effects of offshore wind developments. Scheduling of work and the effects should be carefully monitored and addressed at a project-level and taken into account in the iterative plan review process.	Cumulative and in combination effects of offshore wind developments are discussed in section 15.12.3 of this chapter with schedules and effects at a project level addressed in Table 15.14. Further details can be found in volume 3, appendix 6.4 and 6.5.

Table 15.2: Summary of Scottish National Marine Plan Policies Relevant to Infrastructure and Other Users (Scottish Government, 2015)

Summary of Relevant Policy Framework	How and Where Considered in the Array EIA Report
Oil and Gas	
Oil and Gas Policy – A) Maximise the recovery of reserves through a focus on industry-led innovation, enhancing the skills base and supply chain growth. B) An industry which delivers high-level risk management across all its operations and that is especially vigilant in more testing and current environments. C) Continued technical development of enhanced oil recovery and exploration, and the associated seismic activity carried out according to the principles of the Best Available Technique (BAT) and Best Environmental Practice approach. D) Where possible to work with emerging sectors to transfer the experience, skills and knowledge built up in the oil and gas industry to allow other sectors to benefit and reduce their environmental impact.	Oil and gas interests have been identified through a desktop study and are discussed in this chapter (paragraph 41 to paragraph 49).

Summary of Relevant Policy Framework	How and Where Considered in the Array EIA Report
Offshore Wind, Wave and Tidal Projects	
Offshore Wind and Marine Renewable Energy Policy – A) Sustainable development of offshore wind, wave and tidal renewable energy in the most suitable locations. B) Economic benefits from offshore wind, wave and tidal energy developments maximised by securing a competitive local supply chain in Scotland. C) Alignment of marine and terrestrial planning and efficient consenting and licensing processes including but not limited to data sharing, engagement, and timings, where possible. D) Aligned marine and terrestrial electricity transmission grid planning and development in Scottish waters. E) Contribute to achieving the renewable targets to generate electricity equivalent to 100% of Scotland's gross annual electricity consumption from renewable sources by 2020. F) Contribute to achieving the decarbonisation target of 50g CO_2/kWh by 2030 (to cut carbon emissions from electricity generation by more than four-fifths). G) Sustainable development and expansion of test and demonstration facilities for offshore wind and marine renewable energy devices. H) Co-ordinated government and industry-wide monitoring.	Offshore wind projects have been identified through a desktop study and are discussed in paragraph 39 of this chapter. Offshore wave and tidal projects are discussed in paragraph 40 of this chapter.
Subsea Cables	
Submarine Cable Policy – A) Protect submarine cables whilst achieving successful seabed user co-existence. B) Achieve the highest possible quality and safety standards and reduce risks to all seabed users and the marine environment. C) Support the development of a Digital Fibre Network, connecting Scotland's rural and island communities and contributing to world-class connectivity across Scotland. D) Safeguard and promote the global communications network. E) Support the generation, distribution and optimisation of electricity from traditional and renewable sources to Scotland, UK and beyond.	Issues regarding subsea cables have been raised by Scottish Hydro Electric Transmission PLC in the Ossian Array Scoping Opinion (Marine Directorate – Licensing and Operations Team (MD-LOT), 2023) and are discussed in paragraph 53 to paragraph 57 in this chapter.

Table 15.3: Summary of UK Marine Policy Statement Relevant to Infrastructure and Other Users (HM Government, 2011)

Summary of Relevant Legislation	How and Where Considered in the Array EIA Report
General Policies	
When considering potential benefits and impacts of proposals, decision makers should take into account any multiple and cumulative impacts of proposals, in the light of other projects and activities.	Cumulative effects are discussed in section 15.12 of this chapter.
There is equitable access for those who want to use and enjoy the coast, seas and their wide range of resources and assets and recognition that for some island and peripheral communities the sea plays a significant role in their community.	Other marine users are discussed in section 15.7 of this chapter.

15.5. CONSULTATION

12. Table 15.4 presents a summary of the key issues raised during consultation activities undertaken to date specific to infrastructure and other users for the Array and in the Ossian Array Scoping Opinion (MD-LOT, 2023) along with how these have these have been considered in the development of this infrastructure and other users Array EIA Report chapter. Further detail is presented within volume 1, chapter 5.

Table 15.4: Summary of Issues Raised During Consultation and Scoping Opinion Representations Relevant to Infrastructure and Other Users

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
Scoping Opinion (MD-LOT, 2023)			
June 2023	Royal Yachting Association (RYA) Scotland Scoping Representation (May 2023)	RYA Scotland stated that *"the requirements of MGN 654 will have to be met but no additional data is required even though only a proportion of recreational vessels transmit an Automatic Identification System (AIS) signal and recreational vessel can be difficult to spot on radar. It would be assumed that a small number of vessels will pass through the site each year."*	Sailing and boating activities are further discussed in section 15.7, volume 2, chapter 13 and volume 3, appendix 13.1.
June 2023	Scottish Hydro Electric Transmission PLC Scoping Representation (May 2023)	The Scottish Hydro Electric Plc stated that *"the Eastern Green Link (EGL) 2 subsea cable transmission reinforcement project which aligns on an approximately north-south orientation approximately 22 km to the east of the Array at its closest point, and for which a Marine Licence Application was submitted to MD-LOT in July 2022 under application number 00009943."* They then stated that they are in *"the early-stage of the routeing development of an additional subsea cable transmission reinforcement Eastern Green Link 3. They stated it is likely that this upgrade will be required to route in proximity to the Ossian development site and/or offshore export cable alignments."*	The designed in measures adopted as part of the Array are presented in section 15.10. Subsea cables are discussed in section 15.7 and the CEA in section 15.12.
June 2023	Scottish Environmental Protection Agency (SEPA) Scoping Representation (May 2023)	SEPA highlights that *"any operation should be cross checked to see if the Array is in or adjacent to a designated bathing water (within 2 km). If so, ideally all physical operations should be done outside the Bathing Water Season (01 June to 15 September). If works to be done within Bathing Water Season, a strong case should be made as to why a particular operation would not present a risk to Bathing Waters."*	Bathing waters are further discussed in section 15.7. The Array is approximately 80 km offshore and therefore bathing waters have been scoped out.
June 2023	Cruising Association Scoping Representation (May 2023)	The Cruise Association noted that *"the area chosen for the Ossian OWF is not in an area which has a high concentration of recreational boats so the Array will not have a big impact during construction or when operational. However, there will be some traffic north and south along the coast and small amount of traffic across the North Sea to Denmark, Norway, Sweden, all mostly in the summer months, perhaps as boats make for the Baltic Sea which is a popular cruising area. It should be borne in mind that sailing boats do not necessarily follow direct routes, depending on wind direction."* They then stated they have *"some concerns that when new arrays are being planned not enough consideration is given to the interaction with existing arrays of those being earmarked for the future. Each new array displaces larger commercial and fishing vessels which can result in increased traffic concentration between arrays. This can present an increased hazard for small craft who do not wish to pass through the arrays. It would be good if these issues of interaction could be considered in more detail. We consider it important that vessels have the right of passage through arrays both during their construction and when they are operational (subject of course to the guidance given in the MCA MGN 372 Amendment 1 (M+F)) so we would not want to see any objections raised to this. In fact, given the point above regarding the concentration of traffic between arrays it can sometimes be safer for small craft to transverse an array in order to avoid shipping channels. When considering the density of traffic passing through the area proposed for the Array the analysis should not depend on AIS data for small craft. Many still do not carry AIS and many that do only receive and do not transmit their position. There are no numbers available to quantify this but my guess is that it would be prudent to assume that less than 20% transmit.""*	Sailing and boating activities are further discussed in section 15.7 of this chapter, volume 2, chapter 13 and volume 3, appendix 13.1. An overview of the surveys conducted for the shipping and navigation Array EIA chapter can be found in volume 2, chapter 13 and paragraph 28 of this chapter. Hazards to small crafts are discussed further in volume 3, appendix 13.1.

Date	Consultee and Type of Consultation	Issue(s) Raised	Response to Issue Raised and/or Where Considered in this Chapter
June 2023	North Sea Transition Authority (NSTA) Scoping Representation (May 2023)	NSTA stated that *"with regards to the one block that is part of the 33rd licence round (27/8), applications are currently being reviewed by the NSTA and any potential interactions with planned wind farm developments are being discussed and addressed with Crown Estate Scotland. Awards are expected Q3 2023."* *"In addition it is noted that there are no interactions with existing carbon storage licences and there are also no overlaps with areas opened for application in the carbon storage licence round. Having reviewed our own studies into future carbon storage potential it appears the Array location coincides with an area of medium-low priority for future carbons storage. There is a small area of potentially high priority for future carbon storage just north of the lease option around blocks 27/2 and 27/3 but this does not overlap with the lease option itself. However, the applicant should be aware of the potential for future carbon storage activities near to the Array location."*	Oil and gas blocks are further discussed in section 15.7. The future baseline scenario and potential for future carbon storage activities is discussed in section 15.7.2.
June 2023	Maritime and Coastguard Agency (MCA) Scoping Representation (May 2023)	The Maritime and Coastguard Agency stated that *"the development area carries a moderate amount of traffic with several important commercial shipping routes to/from UK ports and the North Sea. Attention needs to be paid to routing, particularly in heavy weather conditions so that vessels can continue to make safe passage without large-scale deviations. The likely cumulative and in combination effects on shipping routes should be considered for this project. It should consider the proximity to other wind farm developments, other infrastructure, and the impact on safe navigable sea room."* They further stated that *"the proximity to other offshore wind farms in particular the proposed Morven and Bellrock offshore wind farms will need to be fully considered, with an appropriate assessment of the distances between OREI boundaries and shipping routes as per MGN 654."*	The main ports which may be affected and the passage of vessels in adverse weather conditions are discussed in section 15.7. Other offshore wind farm developments in relation to the Array are discussed in section15.7Cumulative effects are discussed in section 15.12. Further details about shipping and navigation can be found in volume 2, chapter 13 and volume 3, appendix 13.1. The cumulative effect and proximity to Morven and Bellrock are discussed in section 15.12 and from a shipping and navigation perspective in volume 2, chapter 13.
June 2023	MD-LOT	The Scottish Ministers *"emphasised the importance of engaging with other marine users, including developers of ScotWind projects, throughout all phases of the development of the Proposed Development"*.	The Applicant discusses engaging with other developers of ScotWind projects in section section 15.7.
June 2023	MD-LOT	The Scottish Ministers highlight *"the representations from the Cruising Association and Royal Yachting Society and advise that these must be fully considered in the EIA report. They further highlight the representation from the NSTA which advises the Developer to be aware of the potential impacts from future carbon storage activities near to the Array location."*	Recreational boating activity is discussed in section 15.7. The potential for future carbon storage activities near to the Array are discussed in section 15.7.
June 2023	MD-LOT	The Scottish Ministers note the *"representation from Scottish and Southern Electricity Network (SSEN) which outlines nearby licensed and future subsea transmission infrastructure. The Scottish Ministers advise that consideration is given to the representation from SSEN and its nearby transmission infrastructure."*	Subsea transmission infrastructure in the vicinity of the Array is discussed in section 15.7

15.6. METHODOLOGY TO INFORM BASELINE

15.6.1. DESKTOP STUDY

13. Information on infrastructure and other users within the infrastructure and other users study areas was collected through a detailed desktop review of existing studies and datasets which are summarised in Table 15.5.

Table 15.5: Summary of Key Desktop Reports

Title	Source	Extent	Year	Author
Offshore renewable and cable access	KIS-ORCA	2024	KIS-ORCA, 2024	KIS-ORCA
Identifying Recreational Cruising Routes, Sailing and Racing Areas	RYA	2005	RYA, 2005	RYA
Neart na Gaoithe (NnG) Offshore Wind Farm Report	Marine Directorate Information	2019	Marine Directorate, 2019	Mainstream Renewable Power Ltd
Scottish Marine Recreation and Tourism Survey	Scottish Government	2015	Marine Directorate, 2015	Marine Directorate
Scotland National Marine Plan Interactive	Marine Directorate	Compiles a series of data	NMPi, 2023	Marine Directorate
Scotland's National Marine Plan	Scottish Government	2015	Scottish Government, 2015	Marine Directorate
Scotland Tourism Board	VisitScotland	N/A	N/A	N/A
UK Coastal Atlas of Recreational Boating	RYA	2019	RYA, 2019a	RYA
Webmap service – Offshore Wind Farm	C4Offshore	Complies a series of data	C4Offshore, 2023	C4Offshore
Webmap Service – Various layers including offshore cables and disposal sites	National Marine Plan interactive (NMPi)	2022	NMPi, 2023	Marine Directorate
Webmap Service – Offshore oil and gas activity	NSTA	2023	NSTA, 2023a	NSTA
Wrecks (diving sites)	UK Diving	2010	UK Diving, 2010	UK Diving
Webmap service – Various human activities layers	EMODNet	2023	EMODNet, 2023	European Commission (EC)

15.6.2. SITE-SPECIFIC SURVEYS

14. No site-specific surveys have been undertaken to inform the EIA for infrastructure and other users. This is because receptor information and data related to this topic can be readily collected through desktop study, consultation with relevant stakeholders, and is currently available due to suitable data throughout the east Scotland region.

15. Additional data and modelling studies will not be required to characterise the infrastructure and other users baseline for the Array. It should be noted, however, that Vessel Traffic Surveys (VTS) were completed to inform the Navigational Risk Assessment (NRA) in compliance with Marine Guidance Note (MGN) 654 (MCA, 2021). Further information can be found in volume 2, chapter 13 and volume 3, appendix 13.1.

15.7. BASELINE ENVIRONMENT

15.7.1. OVERVIEW OF BASELINE ENVIRONMENT

16. The following sections provide a summary of the infrastructure and other users baseline recreational boating (including sailing and motor cruising), recreational fishing, other recreational activities, offshore energy projects, offshore cables and pipelines, and carbon capture storage within the infrastructure and other users study areas.

17. Various user groups were scoped out of assessment in the Ossian Array Scoping Opinion (MD-LOT, 2023) and are therefore not considered further in this chapter. These user groups are as follows:

- coastal recreational activities (e.g. surfing) user groups;
- bathing waters;
- wave and tidal projects;
- natural gas storage, underground gasification and coal deposits;
- subsea telecommunication cables;
- marine disposal sites; and
- marine aggregate extraction sites.

Harbours and marinas

18. The main ports in proximity to the Array are Aberdeen, Peterhead and Peterhead Bay Marina. The Port of Aberdeen is Scotland's largest berthage port, accommodating large vessels required for the offshore energy industry and cruise ships (Port of Aberdeen, 2023). Peterhead is one of the UK's most versatile ports providing berthing facilities at up to 14 m and serving a range of industries including offshore energy industries, fishing and leisure activities. Peterhead Bay Marina is a purpose-built leisure facility catering for local and visiting boatowners. Its easterly position provides an ideal stopover point for vessels heading to and from Scandinavia, and it is also extensively used to access the popular sailing areas along the west coast of Scotland (Peterhead Port Authority, 2023).

19. The Port of Aberdeen, Peterhead and Peterhead Bay Marina are all located to the north-west of the Array at 81 km, 90 km and 91 km, respectively from the infrastructure and other users study area – inner area (Figure 15.2) (NMPi, 2023).

20. Additional information relating to harbours in the vicinity of the Array is presented in volume 2, chapter 13.

Recreational sailing and motor cruising

21. This section provides an overview of recreational sailing, boating and motor cruising within the vicinity of the Array (Figure 15.3). It should be noted that recreational sailing and motor cruising are considered in the NRA (volume 3, appendix 13.1) as a specific vessel size category, and the infrastructure and other users chapter considers receptors undertaking recreational sailing and motor cruising as an activity only.

22. There is high recreational activity in the east coast of Scotland. In a 2015 survey of 279 businesses involved in marine recreation and tourism, general recreation, sailing and other forms of boating was reported as the second largest category that the businesses serve (Marine Directorate, 2015).

23. Boating areas include general sailing areas, racing areas, sailing schools and sailing clubs (Figure 15.2). General boating areas are used for day to day use by all recreational boating users, including dinghies, sailboards, watercraft, and small cruisers. Recreational sailing can be random, with activities subject to

weather conditions and in general activities do not involve point to point passage as seen with larger commercial vessels (RYA, 2005). Cruising may include day trips between local ports and often includes a return journey to the home port on the same day. In general, recreational sailing is highly seasonal, with a greater density of vessels found throughout summer, as well as highly diurnal, with boating usually occurring during the daytime (RYA, 2005). Offshore sailing is usually undertaken by yachts in the form of either cruising or organised offshore racing. Inshore sailing is typically undertaken by smaller vessels including dinghies and recreational vessels that are used for either cruising at leisure or racing.

24. Scotland is a popular destination to learn to sail, gain experience and obtain sailing qualifications. Sailing is predominantly concentrated along the west coast of Scotland and in the Clyde (NMPi, 2023). Sailing area profits along the east coast of Scotland are responsible for 10% of overall revenue while the west coast and Clyde are responsible for 29% and 44% respectively (Scottish Government, 2015). RYA Scotland is a membership organisation that provide facilities for the interests of individuals, clubs, teams and training centres. The organisation also provide sailing in all forms in Scotland, ranging from racing, to sail cruising to powerboating (RYA, 2023). Sailing season typically runs from May to August, with a peak of activity in July. The Aberdeen and Stonehaven Yacht Club (ASYC) holds races on a regular basis from June to November at Stonehaven Bay (ASYC, 2023). The Peterhead Sailing Club (PSC) holds races from May to September at Peterhead Harbour (PSC, 2023). The majority of sailing activity from these clubs is held in coastal regions, approximately 84 km north-west of the Array (Figure 15.2).

25. Racing areas are generally used at weekends and during holiday periods by sailing, boating and motor cruising users. These areas are under the control of nearby sailing clubs and often contain temporary or permanent marker buoys. Racing routes are often determined on the day of the race and are subject to bespoke racing rules while following conventional collision regulations when additional vessels are in conflict (RYA, 2005). Further details about these collision regulations can be found in volume 2, chapter 13 including Convention on the International Regulations for Preventing Collisions at Sea (COLREG) and International Convention for the Safety of Life at Sea (SOLAS). Racing areas are only located in coastal areas and therefore, due to the distance of the Array from the shore, there are no known racing areas in the infrastructure and other users study area – inner area (NMPi, 2023). However, racing areas are subject to change and it should be noted that the coastal areas around the Array are extensively utilised by several recreational sailing, boating and motor cruising activities (Figure 15.2).

26. The infrastructure and other users area – inner area is not in close proximity to general boating areas associated with RYA Clubs (Figure 15.2). ASYC and PSC are located approximately 84 km north-west and 90 km north-west from the infrastructure and other users study area – inner area, respectively. General boating areas are located to the south of Arbroath. The closest general boating area is located at Montrose, approximately 97.1 km west of the infrastructure and other users study area – inner area (NMPi, 2023). Motor cruising areas do not extend to the Array.

27. AIS data for recreational craft identifies vessels transiting predominantly in a parallel direction to the Scottish coastline (Figure 15.3). The majority of vessel traffic in the Firth of Forth and therefore offshore of North Berwick originates from South Queensferry, Newhaven, Burntisland, Anstruther and Eyemouth. Based on the AIS data, the majority of vessel tracks to the north and north-west of the Array depart or arrive into the major ports of Aberdeen and Peterhead. Vessel tracks are found to very rarely intersect the broad infrastructure and other users study area. Despite this, vessel tracks are seen to reach the vicinity of the broad infrastructure and other users study area from several origins, including north of Fraserburgh (MarineTraffic, 2023) (Figure 15.3).

28. Two 14-day AIS, Radar and visual observation VTS surveys were undertaken to inform the NRA for the Array in compliance with MGN 654 (MCA, 2021). The dataset from each vessel traffic survey was supplemented with AIS collected from alternate AIS receivers to ensure optimal coverage. A number of vessel tracks recorded during the survey period were classified as temporary (non-routine) and were therefore excluded from the analysis to ensure the data was representative of routine activity. This included survey and research vessels and a vessel associated with the construction of the Seagreen 1 Offshore Wind Farm. Data has been extracted from the VTS reports to inform the recreational vessel activity within a 10 nm buffer study area around the Array. Across both survey periods, recreational vessels were generally recorded in north-west/south-east transit within the 10 nm buffer study area. There were minimal levels of recreational vessels recorded, and all recreational vessels were recorded during the summer period, which aligns with input received during the consultation (Table 15.4). Furthermore, during the consultation it was noted that some recreational vessels transit across the North Sea to Denmark, Norway and Sweden however, it was also noted that recreational vessels do not necessarily follow direct routes and their path can depend on wind direction. A full description of the data recorded during the VTSs for the Array is included in the NRA (volume 3, appendix 13.1).

29. The NRA presents information on the Array relative to the existing and estimated future navigational activity. During the consultation there was mixed responses as to whether shipping companies would transit through the Array or would seek alternative routes in adverse weather conditions. Recreational vessels, although not part of this consultation, may take similar actions and vessels may transit in inshore locations during adverse weather rather than in the vicinity of the Array. Additional information can be found in volume 2, chapter 13.

30. Additional information related to recreational sailing, boating and motor cruising is presented in volume 2, chapter 13.

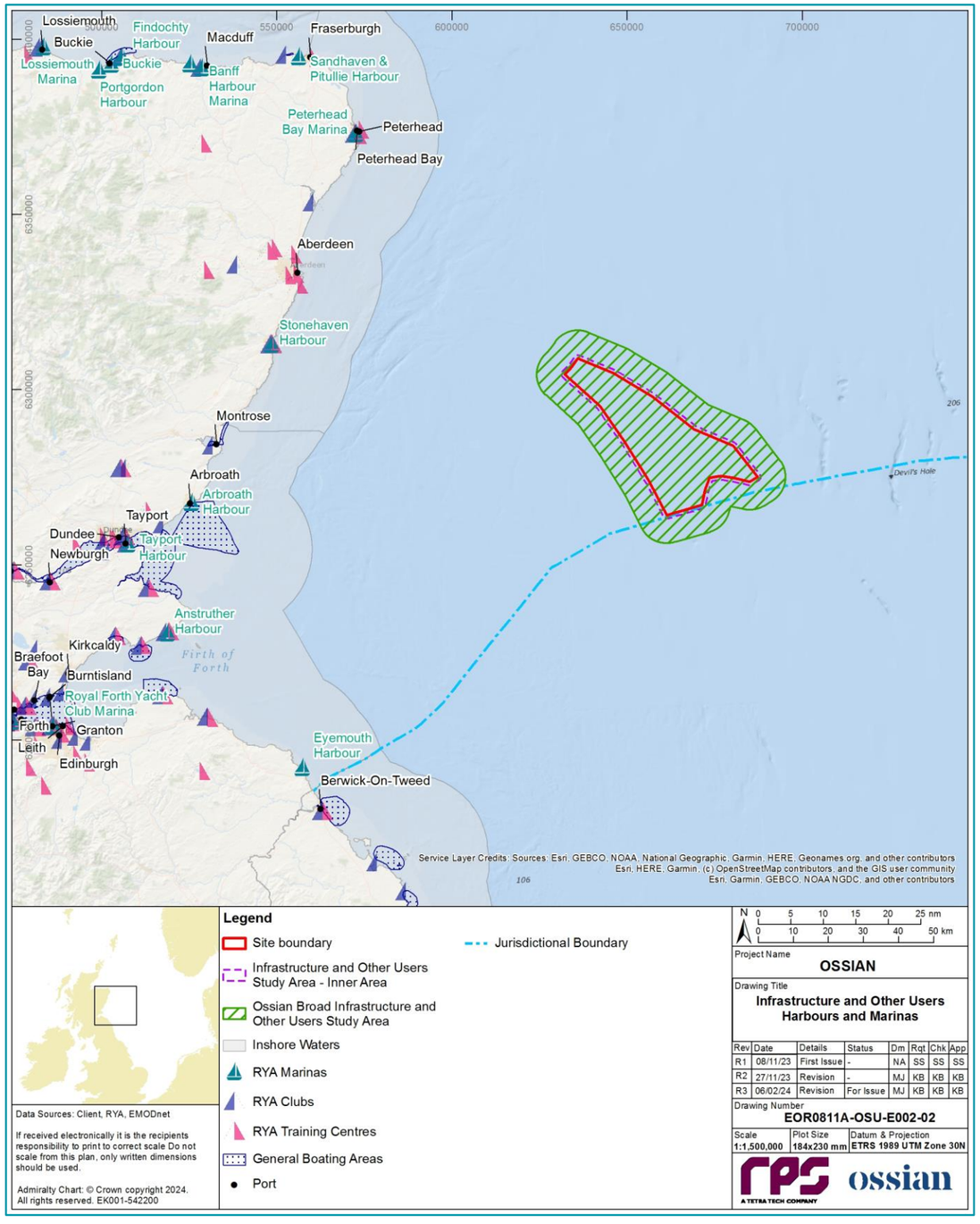

Figure 15.2: Harbours and Marinas in the Vicinity of the Infrastructure and Other Users Study Areas

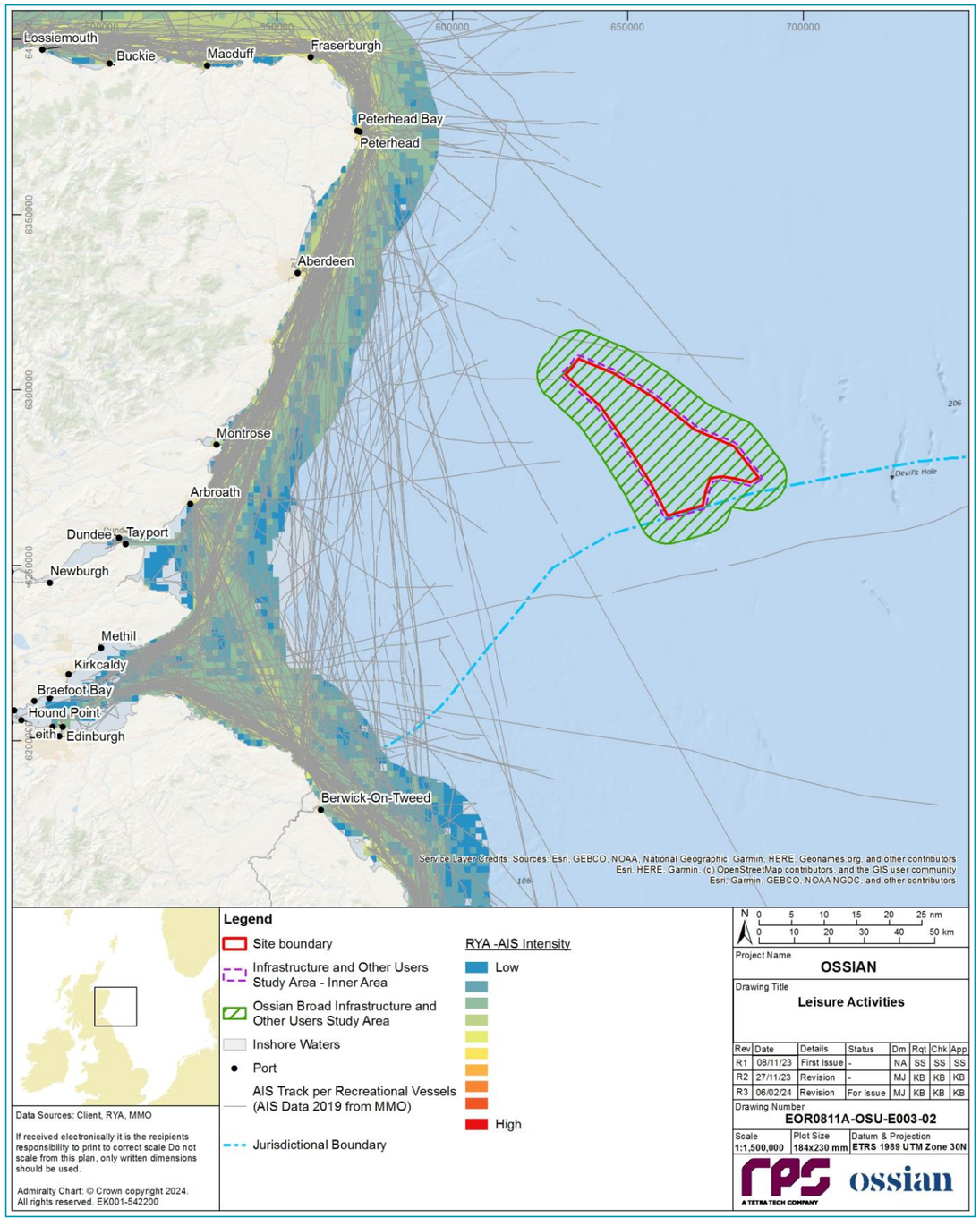

Figure 15.3: Vessel Intensity in the Infrastructure and Other Users Study Areas

Recreational fishing

31. This section provides an overview of recreational fishing activity within the vicinity of the Array (i.e. fishing for pleasure rather than commercial reasons). It should be noted that recreational fishing vessels are considered in the NRA (volume 3, appendix 13.1) as a specific vessel size category, and the infrastructure and other users chapter considers receptors undertaking recreational fishing as an activity only.

32. Recreational sea angling occurs along most regions of the Scottish coastline and generates an estimated £140.9 million for the Scottish economy whilst supporting over 3,000 full time equivalent jobs (Scottish Government, 2015). A wide range of species are targeted during recreational sea angling and can include cod *Gadus morhua,* tope *Galeothinus galeus,* bass *Dicentrarchus labrax,* pollock *Pollachius pollachius,* rays *Raja sp.,* mackerel *Scomber scombrus,* spurdog *Squalus acanthias,* salmon *Salmo salar* and sea trout *Salmo trutta* (NMPi, 2023).

33. The east coast of Scotland is a popular coastline for recreational sea anglers fishing from the shore. Peterhead Pier offers good general sea fishing, especially for cod, dab *Pleuronectidae sp.*, saithe *Pollachius virens* and wrasse *Labrus bergylta*. The mouth of the River Don in Aberdeenshire holds flatfish *Pleuronectiformes sp.,* cod, whiting *Merlangius merlangus* and European eel *Anguilla anguilla*. Gourdon Harbour and Crawton Rock Marks are also popular for cod and saithe. These two popular sites are approximately 90 km north-west of the Array. Various harbours, rock marks and beaches in Arbroath, Montrose, Dundee, St Andrews, Edinburgh and Musselburgh are popular for general fishing (British Sea Fishing, 2023). Sea angling from the shore is more popular in north-east Scotland due to the lack of quality sheltered areas to conduct sea angling from boats (The Scottish Government, 2009).

34. Recreational sea angling activity by boat is highest near to the coast (Figure 15.4), Specific to the Array, the highest recreational sea angling activity by boat (red area) is approximately 90 km south-west of the Array (NMPi, 2023) (Figure 15.4). Arbroath, Stonehaven and Peterhead are popular launch sites for sea anglers with Arbroath described as a “hot spot” for boat fishing (Scottish Government, 2009). Cod is the most popular targeted species for boat fishing in north-east Scotland, followed by pollock and mackerel (Scottish Government, 2009). There are multiple opportunities for offshore recreational charter fishing with trips leaving from Edinburgh, Dundee, Aberdeen and Peterhead, located to the west of the Array (Charter Boats UK (CBUK), 2023).

35. Recreational fishing effort is highly seasonal and dependent on specific weather conditions. Additional information pertaining to recreational fishing is presented in volume 2, chapter 12.

Other recreational activities

36. According to the British Marine Federation, the marine leisure industry, including waterborne recreational pursuits, supports nearly 1,800 full time equivalent jobs in Scotland (Scottish Government, 2015). It is noted that the marine leisure industry is supported by a solid local market with contribution to the rural economy, specifically along the west coast of Scotland (Scottish Government, 2015).

37. The closest designated bathing waters to the Array are located at Stonehaven, approximately 83.9 km west from the infrastructure and other users study area – inner area. As the Array is approximately 80 km off the east coast of Scotland, impacts to designated bathing waters have been scoped out and are not considered further in this chapter.

38. Furthermore, coastal and inshore recreational activities such as SCUBA diving, water sports (e.g. canoeing, kayaking, surfing, windsurfing and kite surfing) and beach users are not considered further in this chapter due to the distance between the Array and the shore (Figure 15.5; Figure 15.6). The closest charted wreck is located 3 nm from the north-western corner of the Array, at an approximate depth of 67 m below chart datum (CD). Further details of wrecks, including non-charted wrecks is provided in volume 2, chapter 19. There are no offshore diving sites in the vicinity of the Array and therefore, as well as coastal and inshore SCUBA diving, diving further offshore is also scoped out and not considered further in this chapter (UK Diving, 2010).

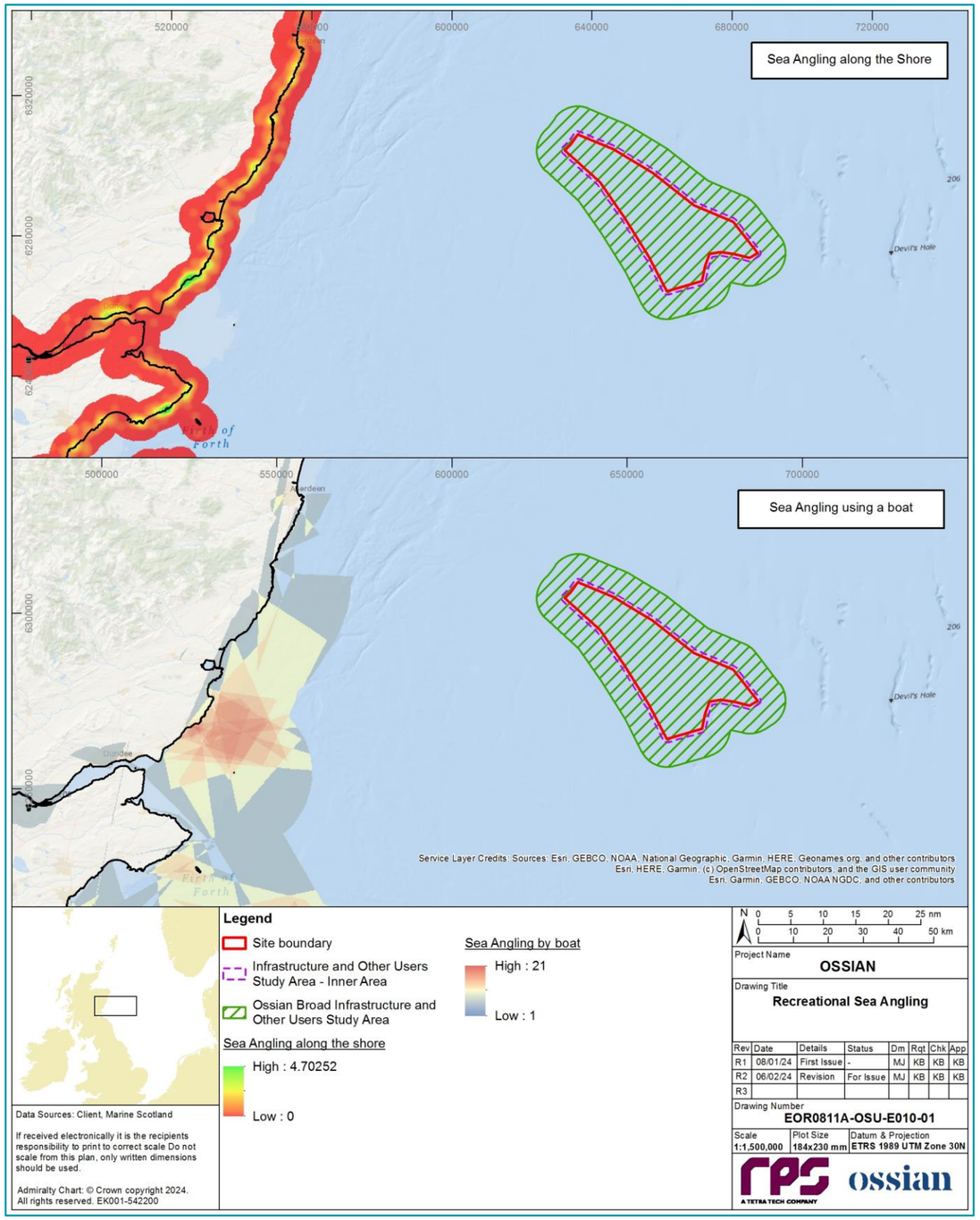

Figure 15.4: Sea Angling in the Infrastructure and Other Users Study Areas

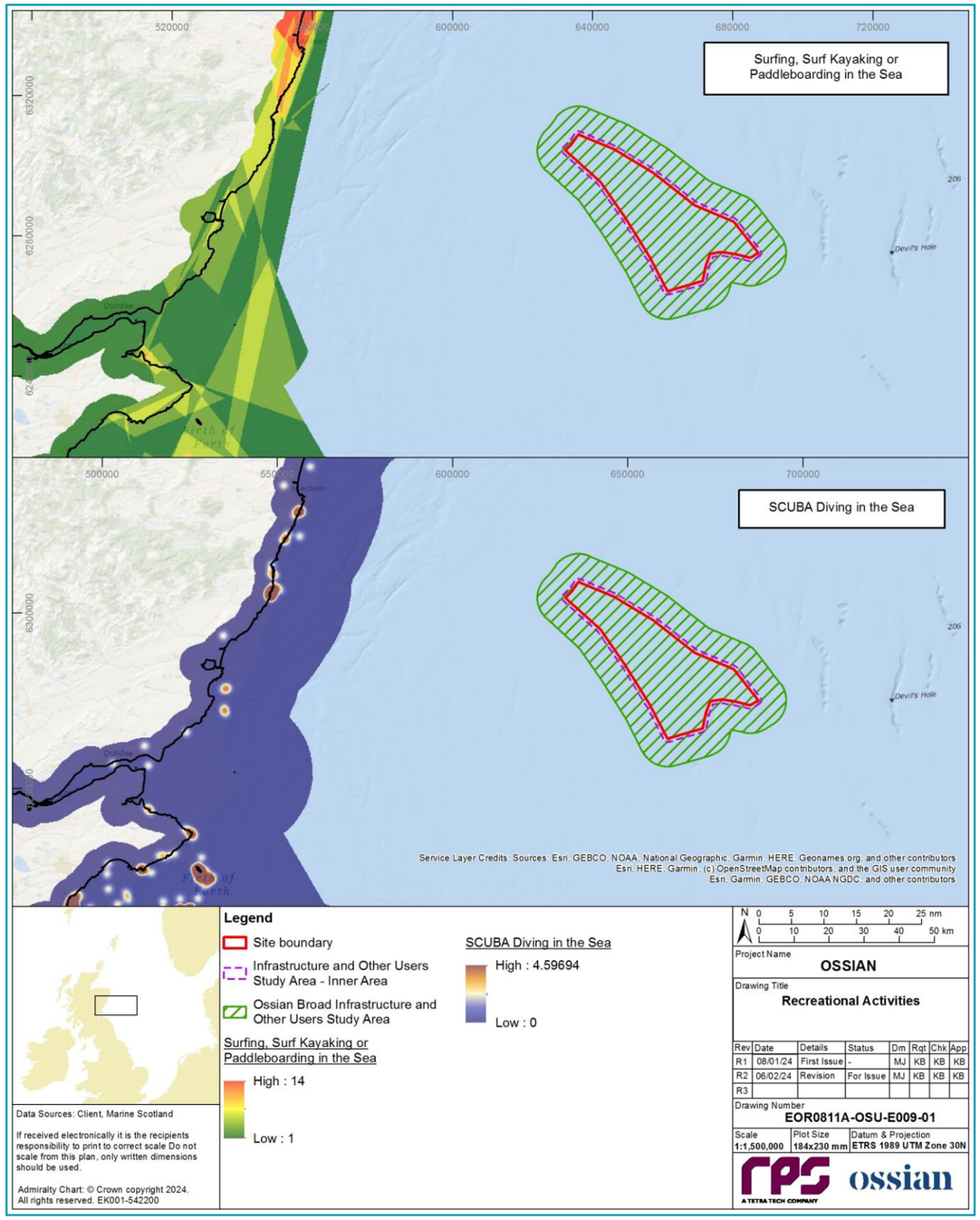

Figure 15.5: Surfing, Sea Kayaking, Paddleboarding and SCUBA Diving in the Infrastructure and Other Users Study Areas

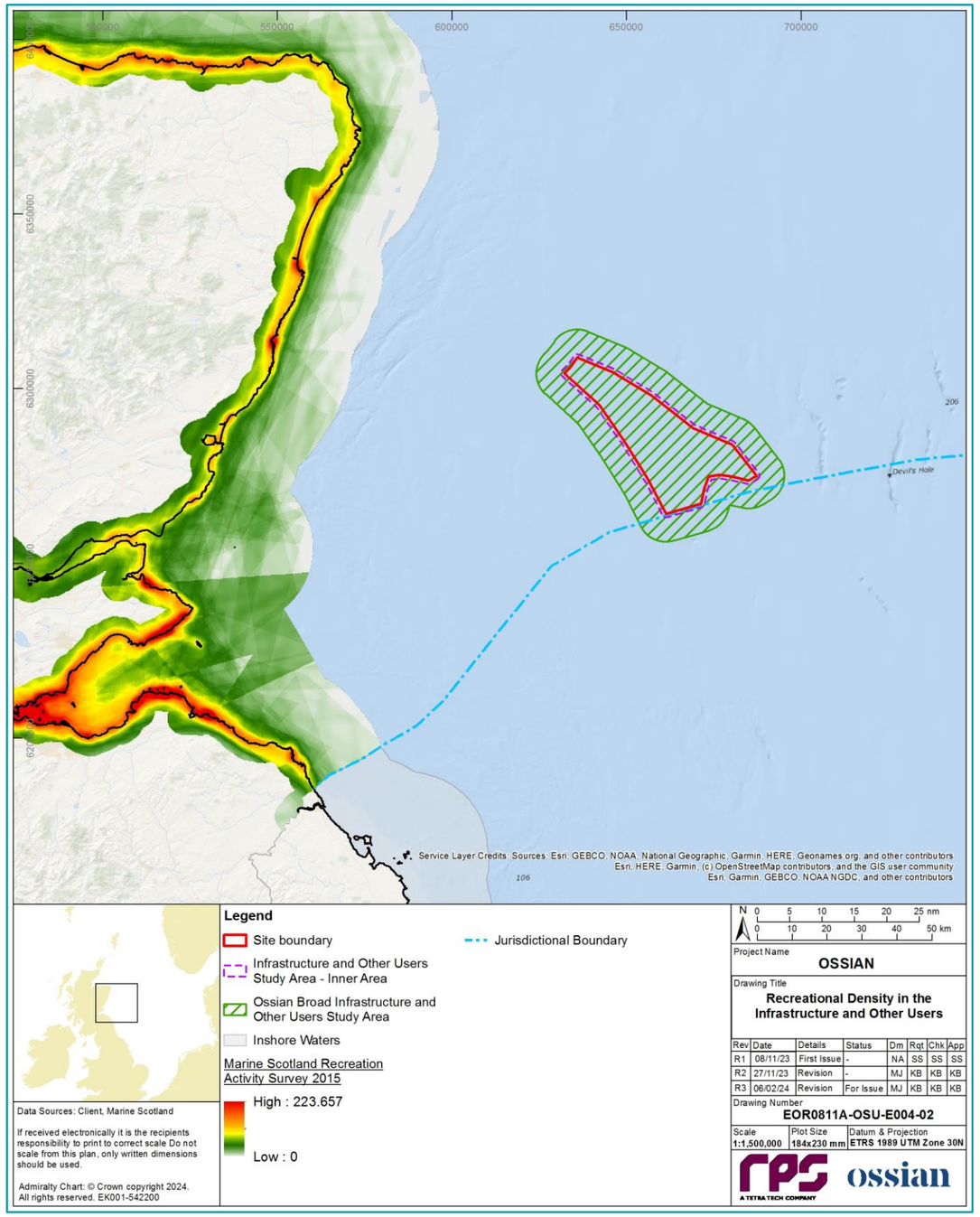

Figure 15.6: Recreational Density in the Infrastructure and Other Users Study Areas

Offshore energy projects

Offshore wind

39. There are a number of offshore wind projects in proximity to the infrastructure and other users study area – inner area (Figure 15.7). Table 15.6 and Figure 15.7 details the offshore wind farm projects located within 100 km of the infrastructure and other users study area – inner area. Figure 15.7 also shows additional wind farms outside of the 100 km buffer but are still in vicinity to the Array and should be considered as part of the baseline environment. Forthwind Methil Demonstration, Methil Demo (also known as Levenmouth Demonstration), NnG Offshore Wind Farm and Green Volt Offshore Wind Farm have been included with their distances as 154.64 km, 154.95 km, 105.05 km and 100.80 km, respectively (Forthwind, 2024; Catapult Offshore Renewable Energy, 2017; Marine Directorate, 2018; Green Volt Offshore Wind Farm Ltd, 2023). The nearest active offshore wind farm is Seagreen 1 Offshore Wind Farm located approximately 51 km west of the infrastructure and other users study area – inner area. The Seagreen offshore export cable route is located to the west of the wind Seagreen 1 Offshore Wind Farm and the landfall site is located at Carnoustie.

Table 15.6: Offshore Energy Projects in the Order of their Distance from the Infrastructure and Other Users Study Area – Inner Area

Project Name	Distance (km)	Project Details	Reference
Active/In Operation			
Seagreen 1 Offshore Wind Farm	50.70	27 km off the coast of Angus in North Firth. Approximately 114 wind turbines with an installed capacity of 1,075 MW.	Seagreen Wind Energy, 2021
Kincardine Offshore Wind Farm	61.70	15 km off the Kincardineshire coast. Up to 8 wind turbines that will produce an installed capacity of 50 MW.	Kincardine Offshore Windfarm, 2014
Hywind Buchan Deep Demo (hereafter referred to as “Hywind”)	72.08	5 wind turbines at a capacity of 30 MW.	Equinor, 2015
Aberdeen Offshore Wind Farm	79.32	11 wind turbines at a capacity of 96.8 MW located off the coast of Aberdeen.	Vattenfall, 2024
Under Construction			
Seagreen 1A Project	66.30	27 km off the coast of Angus in North Firth. This project refers to the remaining 36 wind turbines which have been consented and are of larger size than those represented in Seagreen 1 Offshore Wind Farm.	Seagreen Wind Energy, 2021
Inch Cape Offshore Wind Farm	86.90	15 km from the Angus coast and 49 km offshore Dunbar. Landfall at Cockenzie, East Lothian to the National Grid. Approximately 72 wind turbines with an installed capacity of 1,000 MW.	Marine Directorate, 2019
Pre-planning			
Morven Offshore Wind Farm	5.50	60 km off the coast of Aberdeen. Approximately 191 wind turbines to deliver a capacity of 2.9 GW. Landfall site is currently undetermined.	BP, 2022
Bellrock Offshore Wind Farm	8.67	117.6 km off the coast of Aberdeen. Capacity of up 1.2 GW. Landfall site is currently undetermined.	BlueFloat, 2023
Bowdun Offshore Wind (previously Cluaran Deas Ear Offshore Wind Farm)	25.36	47 km off the Aberdeen coast. Capacity of 1008 MW. Landfall site currently undetermined.	TWP, 2023
Campion Offshore Wind Farm	44.15	100 km off the east-coast of Scotland. Capacity of 2 GW. Landfall site is currently undetermined.	CampionWind, 2022
Muir Mhor Offshore Wind Farm	51.38	64,1 km off the coast of Peterhead. Capacity of 798 MW. Landfall site is currently undetermined.	Muir Mhor, 2023
Berwick Bank Offshore Wind Farm	56.84	38 km off the coast of St Abb’s Head and 48 km to the East Lothian coastline from the nearest boundary. Landfall at Skateraw Harbour. Maximum of 307 wind turbines and deliver a capacity of 4.1 MW.	SSER, 2022

Wave and tidal

40. The closest wave project is Mocean Energy Ltd, located in Deerness, approximately 248 km from the infrastructure and other users study area – inner area. The closest tidal project is Orbital Projects 6 Limited, located in Ness of Duncansby, approximately 236 km from the infrastructure and other users study area – inner area. Wave and tidal projects have therefore not been considered further.

Oil and gas

41. Licences for the exploration and extraction of oil and gas on the UK Continental Shelf (UKCS) have been offered since 1964 and are granted by the NSTA (formally the Oil and Gas Authority (OGA)). These licences are granted for identified geographical United Kingdom Hydrographic Office (UKHO) areas (blocks and part-blocks) in consecutive rounds.

42. The Firth of Forth supports oil and gas activities such as those associated with Grangemouth refinery, oil storage and tanker terminals. The Port of Aberdeen is Europe’s premier port for the oil and gas industry, offering a strategic location with direct access to an unrivalled energy supply chain (Port of Aberdeen, 2023). Additionally, the Port of Dundee is ideally placed to serve the North Sea oil and gas industry, providing deep-water berths and extensive landside project areas; the port regularly accommodates projects destined for North Sea and Norwegian sector operations (Forth Ports, 2023).

43. The infrastructure and other users study area – inner area overlaps with several non-active hydrocarbon licence blocks, including Blocks 27/1, 27/2, 27/7, 27/8, 27/13, 27/14, 27/15, and 28/11.

44. In October 2022, the NSTA launched the 33rd UK Offshore Licensing Round with 898 blocks or part-blocks on offer across the main producing areas of UKCS. The infrastructure and other users study area – inner area overlaps with three blocks which were on offer in the 33rd UK Offshore Licencing Round – Block 27/3, Block 27/9 and Block 27/10 (Figure 15.8). In October 2023, all three blocks were licenced and are operated by North Sea Natural Resources Ltd (Licence number: P2321) (NSTA, 2023b). Furthermore, there are several other active hydrocarbon licence blocks in close proximity to the infrastructure and other users study area – inner area (Table 15.7).

45. There is potential for further exploration or development in this area of the North Sea due to the North Sea Natural Resources Ltd existing licence overlapping the infrastructure and other users study area – inner area, and the potential for future UK Offshore Licencing Rounds. The Applicant has been engaging with North Sea Natural Resources Ltd since the ScotWind pre-application stage and following award. Engagement will continue to ensure activities are managed in a manner that facilitates coexistence.

Table 15.7: Active Hydrocarbon Licence Blocks in the Order of their Distance from the Infrastructure and Other Users Study Area – Inner Area

Block Reference	Distance (km)	Overlap with Array[1]	Operator
27/3	0	✓	North Sea Natural Resources Ltd
27/9	0	✓	North Sea Natural Resources Ltd
27/10	0	✓	North Sea Natural Resources Ltd
28/6	2.84	×	North Sea Natural Resources Ltd
27/4	3.87	×	North Sea Natural Resources Ltd
27/5	11.66	×	North Sea Natural Resources Ltd
28/1	18.28	×	North Sea Natural Resources Ltd
28/2a	27.25	×	Orcadian Energy (CNS) Ltd
28/3a	35.72	×	Orcadian Energy (CNS) Ltd
28/9a	37.66	×	Premier Oil UK Limited
28/9f	39.43	×	Premier Oil UK Limited
21/27a	44.91	×	Orcadian Energy (CNS) Ltd

46. At present no recent exploration, appraisal or production wells have been drilled within the infrastructure and other users study area – inner area (NSTA, 2023a). There is an appraisal well that is currently being drilled by North Sea Natural Resources Ltd in Block 27/5, approximately 19 km north-east of the infrastructure and other users study area – inner area. The permits of this operation are scheduled to expire in January 2024 and as such it is expected that no activities will overlap with the application of the Array (DESNZ, 2024).

47. The closest well to the Array is approximately 4 km to the north-east of the Array, overlapping with the broad infrastructure and other users study area. The well is located within P2321, however, this was drilled, plugged and abandoned in 1970 by Amoco UK Petroleum Limited, and did not encounter any hydrocarbons.

Pipelines

48. There are no oil and gas pipelines located within the infrastructure and other users study area – inner area. The closest pipeline (Catcher Gas Export Pipeline) is located approximately 48 km from the infrastructure and other users study area – inner area (Figure 15.8)

Transport

49. The following services are associated with the oil and gas industry:

- helicopters: the oil and gas industry rely on helicopters for personnel transfer and emergency evacuation. Helicopter and associated aviation considerations are addressed separately in volume 2, chapter 14; and
- vessels: the oil and gas industry require supply or support vessels for its operations. Vessels and associated navigational considerations are addressed separately in volume 2, chapter 13.

[1] This column refers to whether there is an overlap between the active hydrocarbon licence blocks and the infrastructure and other users study area – inner area.

Natural gas storage, underground gasification and coal deposits

50. There are no natural gas storage sites, underground gasification sites or coal deposits located within the broad infrastructure and other users study area (Figure 15.8). Natural gas storage, underground gasification and coal deposits have therefore not been considered further.

Carbon capture storage

51. Carbon capture and storage is regarded as a potential abatement technology for limiting the impact of climate change. There are no carbon capture storage sites located within the infrastructure and other users study area – inner area (Figure 15.8). The closest carbon capture storage licenced area is in St Fergus approximately 117 km north-west from the infrastructure and other users study area – inner area. As a National Transmission System (NTS) entry point, St Fergus has been identified as an ideal location for developing low carbon hydrogen due to its delivery point, approved CO_2 licence and proximity to UK CO_2 storage reservoirs (Pale Blue Dot, 2019). In 2019, a feasibility study took place to scope out the Acorn Hydrogen Project, to be developed in this licenced area in St Fergus. The project will deliver an energy and cost-efficient process for hydrogen production from North Sea Gas, whilst capturing and sequestering CO_2 emissions to help prevent climate change. The project would be potentially the first operational low carbon hydrogen plant in Europe, operational before the end of 2025 (Pale Blue Dot, 2019).

52. The Scottish Ministers regulate the licencing authority of offshore carbon storage within the territorial sea adjacent to Scotland. The NSTA is responsible for regulating offshore carbon storage in all other UK territorial waters and they are the licencing authority that approve, and issue storage permits. It should be noted that, to support the drive to net zero carbon by 2050, they are committed to working with the government, industry and other relevant stakeholders to promote future opportunities for offshore carbon dioxide storage. Therefore, although the current Carbon Dioxide Appraisal and Storage Licencing Round has now closed, there is potential for NSTA to run future licencing rounds in the near future (NSTA, 2023c).

Offshore cables, pipelines and subsea communications infrastructure

53. More than 95% of international telecommunications is through subsea cabling networks, of which approximately 40% of the UK's active international telecommunication cables are located along the Scottish seabed (Scottish Government, 2015).

54. The Eastern Link Project (Eastern Link 1) is a new energy link between Scotland and England, comprising a submarine cable route connecting Torness Power Station to Hawthorn Pit to further support the growth of renewable energy (Eastern Link Project, 2021). Additionally, the Scotland to England Eastern Green Link (EGL) 2 is a subsea High Voltage Direct Current (HVDC) link between Peterhead, Scotland and North Yorkshire, England (Marine Directorate, 2021). Eastern Link 1 submarine cable is located 111.2 km south-west from the infrastructure and other users study area – inner area. EGL2 cable is located to the west of the infrastructure and other users study area – inner area at a distance of 23.7 km at the closest point (north-west corner of the Array).

55. As offshore wind is being developed at an unprecedented scale off the east coast of England and Scotland, the existing high-voltage electricity network will no longer be sufficient. Therefore, the Eastern Green Link (EGL) 3 and Eastern Green Link (EGL) 4 projects are required to increase network capacity and transport new clean green energy to the homes and businesses where it is needed. EGL3 will be a new HVDC electrical link from Peterhead to the south Lincolnshire area. EGL4 will be a new offshore HVDC electrical link from east Scotland to the south Lincolnshire area. Both cables are in their pre-planning stage, with the first stage of consultation completed in early 2024 (National Grid, 2024). The Applicant is conducting ongoing consultation with the developers of EGL3 and EGL4 with respect to the Proposed offshore export

cable corridor(s) and the Proposed onshore transmission infrastructure. This will be documented in a separate consent application(s).

56. A review of additional active and disused subsea cables and pipelines has identified no other active cables or pipelines in the infrastructure and other users study area – inner area (KIS-ORCA, 2024).

57. There are currently no offshore export cables located in the infrastructure and other users study area – inner area. The closest offshore export cable, the Seagreen 1 Offshore Wind Farm cable route, is located approximately 65 km south-west from the infrastructure and other users study area – inner area (Figure 15.8).

58. There are no active or disused subsea telecommunication cables located within the infrastructure and other users study area – inner area (Figure 15.8) (KIS-ORCA, 2024). The nearest active telecommunications cable is the Cruden Bay Cable, located approximately 71 km north-west from the infrastructure and other users study area – inner area.

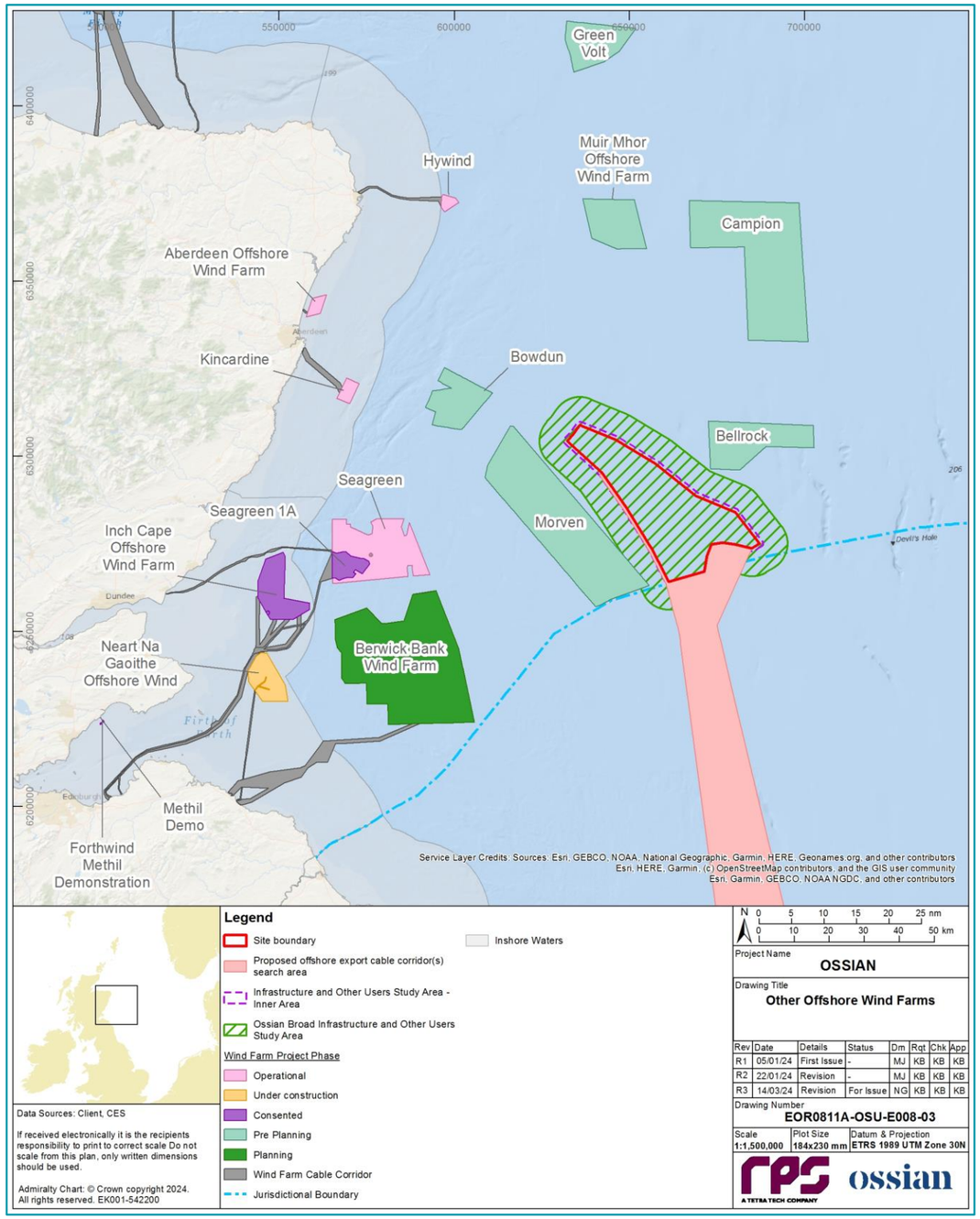

Figure 15.7: Offshore Wind Projects in the Vicinity of the Infrastructure and Other Users Study Areas

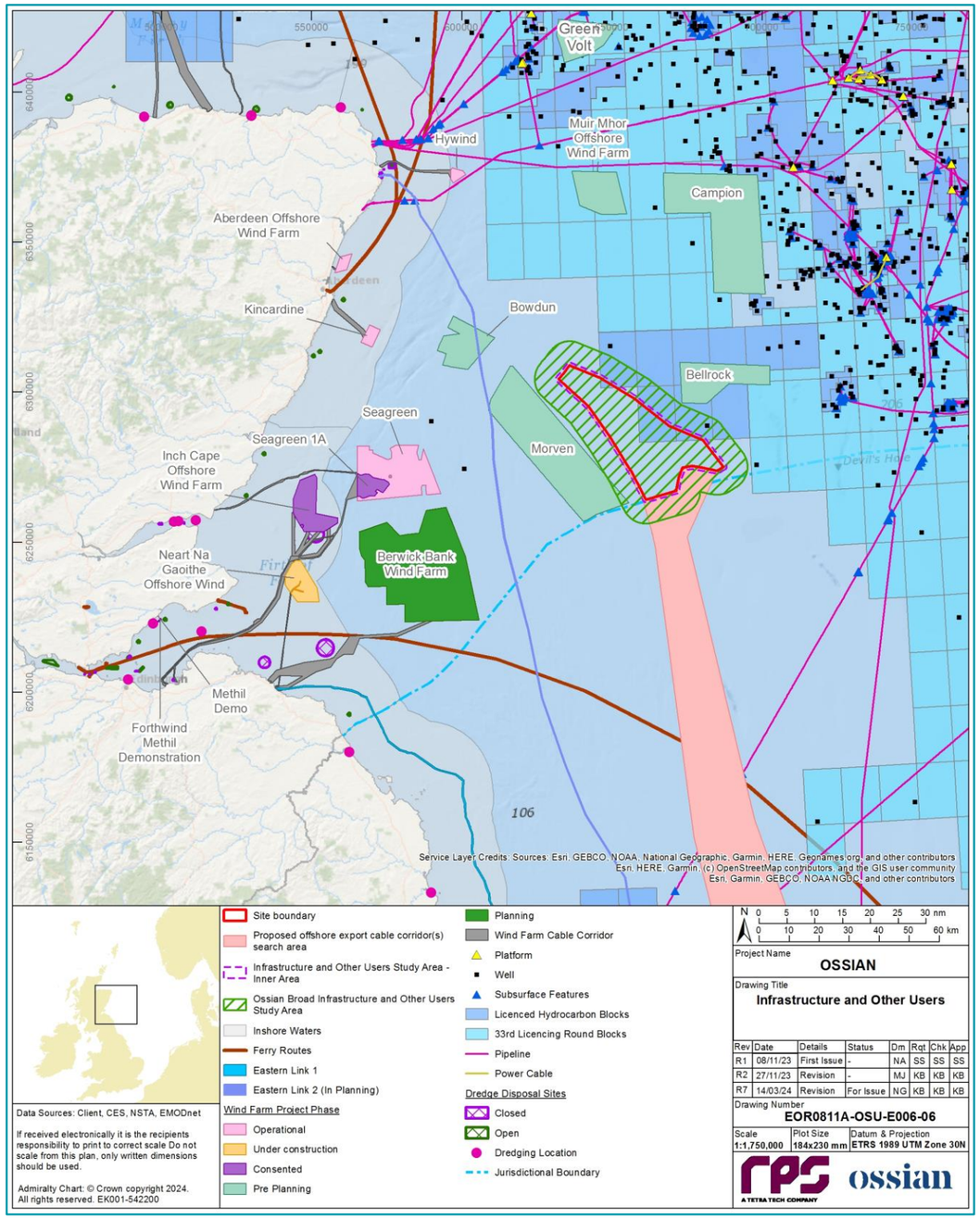

Figure 15.8: Offshore Energy Projects, Natural Gas Storage, Underground Gasification, Coal Deposits and Carbon Storage, Offshore Cables, Pipelines and Subsea Communications Infrastructure in the Vicinity of the Infrastructure and Other Users Study Areas

15.7.2. FUTURE BASELINE SCENARIO

59. The EIA Regulations require that a "*description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project as far as natural changes from the baseline scenario can be assessed with reasonable effort, on the basis of the availability of environmental information and scientific knowledge*" is included within the Array EIA Report.

60. In the event that the Array does not come forward, an assessment of the future baseline conditions has been carried out and is described within this section.

61. The future baseline scenario for recreational activities is considered unlikely to change substantially from that presented in section 15.7.2, in the absence of the Array. The future baseline scenario for recreational sailing and motor cruising, recreational fishing and other recreational activities is likely to gradually increase in line with population growth in Scotland, however, this is unlikely to represent a substantial change in the short term.

62. There is potential for significant growth in offshore wind energy within Scotland, with the Scottish Government setting out plans to increase offshore wind capacity to 11 GW of energy installed by 2030. In June 2020, Crown Estate Scotland (CES) launched the first ScotWind Leasing Round for commercial scale offshore wind energy projects within Scottish waters (Scottish Government, 2020a). Further details and an overview of the ScotWind Leasing Round can be found in volume 1, chapter 4. As part of the ScotWind Leasing Round, 20 potential development sites, including Ossian, were awarded Agreements for Lease, with a total generating capacity of just under 27.6 GW. In response to the issues raised in the consultation, the Applicant will ensure ongoing engagement with other developers of ScotWind projects. Other renewable sources, such as wave and tidal energy devices, are in their early research and development stage.

63. Oil and gas are vital to Scotland and were responsible for nearly 90% of the country's primary energy in 2015 (Scottish Government, 2021). Although the sector is seen as a critical and integral component to the economy, support for oil and gas programs moving forward will be conditional on the sector's actions to facilitate sustainable energy transitions for the future (Scottish Government 2021). A route map to the Scottish 2045 target, including funding, and what the funding will be directed towards, was highlighted in the recent Draft Energy Strategy and Just Transition Plan (2023) (Scottish Government, 2023b). The draft plan states that Scotland must limit its dependence on oil and gas and that "*Scotland is well positioned to do so in a way that ensures we have sufficient, secure and affordable energy to meet our needs, to support economic growth and to capture sustainable export opportunities"* (Scottish Government, 2023b). This plan, which follows on from Scotland's Offshore Wind Route Map, is currently under construction and is due to be formally published in summer 2024, detailing how Scotland will harness offshore wind, and other renewable generation techniques, to become a "*renewable powerhouse*" (Scottish Government, 2023b).

64. The Innovation and Targeted Oil and Gas Decarbonisation (INTOG) allowed developers to apply for seabed rights to develop offshore wind projects that either reduce emissions from the North Sea oil and gas sector (by supplying renewable electricity directly to oil and gas infrastructure (TOG)) or consists of small-scale innovative projects (IN) of 100 MW or less. The distinctive offshore wind leasing is different to any other previously carried out in the UK or in the world (Crown Estate Scotland, 2023). Further details can be found in volume 1, chapter 2. Therefore, as there is a shift towards more utilisation of renewable sources of energy, the baseline environment for oil and gas activity in the vicinity of Array is unlikely to change. However, North Sea Natural Resources Ltd currently hold rights to develop blocks and therefore there may be a possibility of developments in oil and gas blocks in the future.

65. There is currently potential for marine aggregate extraction to increase in line with the increased demand for aggregate utilisation in gravity bases for marine renewable energy infrastructure and in coastal defence construction (Scottish Government, 2015). Marine aggregate extraction was recently completed as part of the construction of the south harbour expansion in Aberdeen, where dredged materials were re-used as building materials for the harbour. During an assessment undertaken on behalf of the Crown Estate Scotland in 2013, fill areas were identified in the vicinity of the Array that are of potential value for land

reclamation use (Scottish Government, 2020b). Aggregate extraction is subject to licencing procedures, under Section 21 of the Marine (Scotland) Act 2010, an application under The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2017 and an agreement to dredge the seabed from Crown Estate Scotland (Scottish Government, 2020b). There are currently no active licences for marine aggregate extraction in the Firth of Forth and Firth of Tay marine region and therefore the baseline environment for marine aggregates mining activity in proximity to the Array is unlikely to change.

66. There were no identified or awarded carbon capture and storage areas in the vicinity of the Array in the previous licencing round. The 21 licences awarded during the previous licencing round could store up to 30 million tonnes of CO_2 per year by 2030, approximately 10% of the UK's annual emissions which were 341.5 million tonnes in 2021 (NSTA, 2023d). It is expected that as many as 100 storage licences may be required to reach net zero targets and the volume of applications received for the first round demonstrated the industry's desire for future opportunities (NSTA, 2023d). The Array coincides with an area of medium to low priority for future carbon storage with a small area around Blocks 27/2 and 27/3 that has potentially high priority. While there is no overlap with the Array, it should be noted that NSTA state that there is potential for future carbon capture and storage areas to be identified and awarded in proximity to the Array in future carbon capture and storage licencing rounds, however, the timing of these is not known at the time of writing (Table 15.4).

67. The future baseline scenario for offshore cables, natural gas storage and underground coal gasification is subject to gradual change as new projects and/or sites are further identified.

15.7.3. DATA LIMITATIONS AND ASSUMPTIONS

68. The data sources used in this chapter are detailed in Table 15.5. The data used are the most up to date publicly available information which can be obtained from the applicable data sources cited. The data are therefore limited by what is available and by what has been made available, at the time of writing the Array EIA Report. It is considered that the data employed in the assessment are robust and sufficient for the purposes of the assessment of effects presented.

15.8. KEY PARAMETERS FOR ASSESSMENT

15.8.1. MAXIMUM DESIGN SCENARIO

69. The Maximum Design Scenarios (MDSs) identified in Table 15.8 are those expected to have the potential to result in the greatest effect on an identified receptor or receptor group. These scenarios have been selected from the details provided in volume 1, chapter 3 of the Array EIA Report. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Description (volume 1, chapter 3) (e.g. different infrastructure layout), to that assessed here, be taken forward in the final design scheme.

Table 15.8: Maximum Design Scenario Considered for Each Potential Impact as Part of the Assessment of LSE[1] on Infrastructure and Other Users

Potential Impact	Phase[2]			Maximum Design Scenario	Justification
	C	O	D		
Displacement of recreational sailing and motor cruising, recreational fishing (boat angling) and other recreational activities (diving vessels) due to safety zones and advisory safe passing distances in the Array may result in a loss of recreational resource.	✓	✓	✓	**Site Preparation and Construction Phases** • up to 8 years construction phase; • reduction of access around infrastructure during construction: – wind turbines: up to 265, minimum spacing 1,000 m between wind turbines; – Offshore Substation Platforms (OSPs): up to 15; – inter-array cables: up to 1,261 km, with up to 12 cable crossings; and – interconnector cables: up to 236 km, with up to 12 cable crossings. • construction safety zones: 500 m safety zones around wind turbines and OSPs during their construction. 50 m safety zone around each structure during the construction phase where no construction works are taking place (for example, where a wind turbine is incomplete or is in the process of being tested before commissioning). Rolling advisory safety zones of 500 m around vessels installing inter-array cables and interconnector cables. • site preparation vessels: up to a total of 10 site preparation vessels on site at any one time (2 survey vessels, 3 boulder clearance vessel, 2 geotechnical survey vessels, 1 sand wave clearance vessel and 2 Unexploded Ordnance (UXO) clearance vessels); • construction vessels: up to a total of 87 construction vessels on site at any one time (6 main installation vessels, 9 cargo barges, 10 support vessels, 27 tug/anchor handlers, 6 construction/support vessels, 3 cable installation vessels, 6 guard vessels, 3 survey vessels, 6 Crew Transfer Vessels (CTVs), 3 trenching support vessels, 2 geophysical survey vessels, 1 sand wave clearance vessels and 5 other vessels; • up to 7,902 vessel movements (return trips) during construction (220 main installation vessels, 421 cargo barges, 1,269 support vessels, 2,059 tug/anchor handlers, 1,353 construction support vessels, 236 cable installation vessels, 1,026 guard vessels, 80 survey vessels, 770 CTVs, 189 trenching support vessels, 42 boulder clearance vessels, 50 geophysical survey vessels, 42 sand wave clearance vessels, 4 UXO clearance vessels, 64 Pre Lay Grapnel Run (PLGR) vessels, 40 rock dumping vessels and 36 Dive Support Vessels (DSVs)); and • during the construction phase the displacement of recreational activities will be gradual as the presence of infrastructure increases, reaching the MDS outlined below in the operations and maintenance phase. The MDS in terms of the presence of infrastructure would be on the completion of construction, during the operations and maintenance phase. **Operation and Maintenance Phase** • 35 year operation and maintenance duration; • safety zones: 500 m around infrastructure such as a wind turbine during periods of major maintenance; • a total of 31 vessels at any one time will be involved over the duration of operation and maintenance phase (35 years) at any one time making a total of up to 508 return trips. Vessels will be associated with a range operation and maintenance activities, including routine inspections, repairs and replacements, removal of marine growth, painting, and removal of fishing debris; and • reduction of access within the Array due to the presence of infrastructure, such as wind turbines, as per the construction phase above and cable repair/reburial activities: – inter-array cables: repair of up to 5% of cables annually. Reburial of up to 5% of cables annually. Up to 27 instances of inter-array cable ancillary equipment repair per year. Replacement of cable protection twice over the lifetime of the asset; and – interconnector cables: up to 1 repair event every 5 years. Reburial of up to 5% of cables annually. Replacement of cable protection twice over the lifetime of the asset. **Decommissioning Phase**	The construction of infrastructure and implementation of safety zones around construction activities and vessels may displace recreation vessels. Likewise, operation and maintenance, and decommissioning activities may also displace recreational vessels due to presence of infrastructure and implementation of safety zones around infrastructure and vessels. The greatest amount of the largest infrastructure and associated minimum spacing and the greatest extent of safety zones, over the longest construction, operations and maintenance, and decommissioning phases represents the greatest potential for displacement of recreational activities.

[2] C = Construction, O = Operation and maintenance, D = Decommissioning

Potential Impact	Phase[2] C	Phase[2] O	Phase[2] D	Maximum Design Scenario	Justification
				• during the decommissioning phase any displacement of recreational activities would gradually decrease from the operational MDS as structures are removed or cut at seabed level and left *in situ*.	
Installation and presence of the wind turbines, OSPs and inter-array/interconnector cabling within the Array, including associated safety zones and advisory safe passing distances, may affect or restrict access to active hydrocarbon licence blocks by oil and gas operators either temporarily or long term.	✓	✓	✓	As for 'Displacement of recreational sailing and motor cruising, recreational fishing and other recreational activities' – see above.	The construction of infrastructure and implementation of safety zones around construction activities and vessels may displace oil and gas operators from carrying out activities within licenced blocks overlapping the Array. Likewise, operation and maintenance, and decommissioning activities may also displace oil and gas activities from licenced blocks due to presence of infrastructure and implementation of safety zones around infrastructure and vessels. The greatest amount of the largest infrastructure and associated minimum spacing and the greatest extent of safety zones, over the longest construction, operations and maintenance, and decommissioning period represents the greatest potential for reduction or restriction of oil and gas exploration activities.

15.8.2. IMPACTS SCOPED OUT OF THE ASSESSMENT

70. On the basis of the baseline environment and the Project Description outlined in volume 1, chapter 3 of the Array EIA Report, a number of potential impacts are proposed to be scoped out of the assessment for infrastructure and other users in the Array EIA Scoping Report (Ossian OWFL, 2023) and no concerns were raised by key consultees within the Ossian Array Scoping Opinion (MD-LOT, 2023).

71. The impacts are outlined, together with a justification for scoping them out, in Table 15.9.

Table 15.9: Impact Scoped Out of the Assessment for Infrastructure and Other Users (Tick Confirms the Impact is Scoped Out)

Potential Impact	Phase[3]			Justification
	C	O	D	
Impact on wave and tidal projects.	✓	✓	✓	There are no wave and tidal projects within the infrastructure and other users study area – inner area and have therefore been scoped out of the assessment.
Impact on carbon capture, natural gas storage, underground gasification and coal deposits.	✓	✓	✓	There are no carbon capture, natural gas storage, underground gasification or coal deposit projects within the broad infrastructure and other users study area and have therefore been scoped out of the assessment.
Impact on subsea telecommunication cables.	✓	✓	✓	There are no subsea telecommunications cables within the infrastructure and other users study area – inner area and have therefore been scoped out of the assessment.
Impact on marine disposal sites.	✓	✓	✓	There are no marine disposal sites within the infrastructure and other users study area – inner area and have therefore been scoped out of the assessment.
Impact on marine aggregate extraction sites.	✓	✓	✓	There are no marine aggregate extraction sites within the infrastructure and other users study area – inner area and have therefore been scoped out of the assessment.
Impact on bathing waters	✓	✓	✓	Due to the distance of the infrastructure and other users study area – inner area from the coast (80 km), there will be no impact on designated bathing waters and have therefore been scoped out of the assessment.
Displacement of coastal recreational activities (e.g. surfing) due to safety zones and advisory safe passing distances within the Array may result in a loss of recreational resource.	✓	✓	✓	Due to the distance of the infrastructure and other users study area – inner area from the coast (80 km), there will be no impact on coastal recreational activities and have therefore been scoped out of the assessment.

15.9. METHODOLOGY FOR ASSESSMENT OF EFFECTS

15.9.1. OVERVIEW

72. The infrastructure and other users assessment of effects has followed the methodology set out in volume 1, chapter 6 of the Array EIA Report. Specific to the infrastructure and other users EIA, the following guidance documents have also been considered:

- The RYA Scotland's Position on Offshore Renewable Energy Developments: Paper 1 (of 4) – Wind Energy, June 2019 (RYA, 2019b);
- Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment (Marine Institute, 2000);
- Guidance on Environmental Impact Assessment of Offshore Renewable Energy Development on Surfing Resources and Recreation (Surfers Against Sewage (SAS), 2009);
- European Subsea Cables Association (ESCA) Guideline No.6. The Proximity of Offshore Renewable Energy Installations and Submarine Cable Infrastructure in UK Waters (ESCA, 2016);
- International Cable Protection Committee (ICPC) recommendations (ICPC, 2021):
  - Recommendation No. 2. Cable Routing and Reporting Criteria;
  - Recommendation No. 3. Telecommunications Cable and Oil Pipeline/Power Cables Crossing Criteria; and
  - Recommendation No. 13. The Proximity of Offshore Renewable Wind Energy Installations and Submarine Cable Infrastructure in National Waters.
- TCE and Crown Estate Scotland (CES) Agreements and Oil and Gas Licences (NSTA, 2023a);
- TCE Guidance: Submarine cables and offshore renewable energy installation – Proximity study (TCE, 2012); and
- European Boating Association (EBA) Position Statement, Offshore Wind Farms (EBA, 2019).

15.9.2. CRITERIA FOR ASSESSMENT OF EFFECTS

73. When determining the significance of effects, a two stage process is used which involves defining the magnitude of the potential impacts and the sensitivity of the receptors. This section describes the criteria applied in this chapter to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in further detail in volume 1, chapter 6 of the Array EIA Report.

74. The criteria for defining magnitude in this chapter are outlined in Table 15.10. Each assessment considered the spatial extent, duration, frequency and reversibility of impact when determining magnitude which are outlined within the magnitude section of each impact assessment (e.g. a duration of hours or days would be considered for most receptors to be of short term duration, which is likely to result in a low magnitude of impact).

Table 15.10: Definition of Terms Relating to the Magnitude of an Impact

Magnitude of Impact	Definition
High	Total loss of ability to carry on activities and/or impact is of extended physical extent and/or long-term duration (i.e. total lifetime of project) and/or frequency of repetition is continuous and/or effect is not reversible for the project (Adverse).
Medium	Loss or alteration to significant portions of key components of current activity and/or physical extent of impact to moderate and/or medium-term duration (i.e. operational period) and/or frequency of repetition is medium to continuous and/or effect is not reversible for project phase (Adverse).
Low	Minor shift away from baseline, leading to a reduction in level of activity that may be undertaken and/or physical extent of impact is low and/or short to medium-term duration (i.e. construction period) and/or frequency of repetition is low to continuous and/or effect is not reversible for project phase (Adverse).
Negligible	Very slight change from baseline condition and/or physical extent of impact is negligible and/or short-term duration (i.e. less than two years) and/or frequency of repetition is negligible to continuous and/or effect is reversible (Adverse).

[3] C = Construction, O = Operation and maintenance, D = Decommissioning

75. The criteria for defining sensitivity in this chapter are outlined in Table 15.11.

Table 15.11: Definition of Terms Relating to the Sensitivity of the Receptor

Value (Sensitivity of the Receptor)	Description
High	Receptor or the activities of the receptor is of high value to the local, regional or national economy and/or the receptor or the activities of the receptor is generally vulnerable to impacts that may arise from the project and/or recoverability is slow and/or costly.
Medium	Receptor or the activities of the receptor is of moderate value to the local, regional or national economy and/or the receptor or the activities of the receptor is somewhat vulnerable to impacts that may arise from the project and/or has moderate to high levels of recoverability.
Low	Receptor or the activities of the receptor is of low value to the local, regional or national economy and/or the receptor or the activities of the receptor is not generally vulnerable to impacts that may arise from the project and/or has high recoverability.
Negligible	Receptor or the activities of the receptor is of negligible value to the local, regional or national economy and/or the receptor or the activities of the receptor is not vulnerable to impacts that may arise from the project and/or has recoverability.

76. The magnitude of the impact and the sensitivity of the receptor are combined when determining the significance of the effect upon infrastructure and other users. The particular method employed for this assessment is presented in Table 15.12.

77. Where a range is suggested for the significance of effect, for example, minor to moderate, it is possible that this may span the significance threshold. The technical specialist's professional judgement was applied to determine which outcome defines the most likely effect, which takes in to account the sensitivity of the receptor and the magnitude of impact. Where professional judgement is applied to quantify final significance from a range, the assessment has set out the factors that result in the final assessment of significance. These factors may include the likelihood that an effect will occur, data certainty and relevant information about the wider environmental context.

78. For the purposes of this assessment:

- a level of residual effect of moderate or more will be considered a 'significant' effect in terms of the EIA Regulations; and
- a level of residual effect of minor or less will be considered 'not significant' in terms of the EIA Regulations.

79. Effects of moderate significance or above are therefore considered important in the decision-making process, whilst effects of minor significance or less warrant little, if any, weight in the decision-making process.

Table 15.12: Matrix Used for the Assessment of the Significance of the Effect

Sensitivity of Receptor	Magnitude of Impact: Negligible	Low	Medium	High
Negligible	Negligible	Negligible to Minor	Negligible to Minor	Minor
Low	Negligible to Minor	Negligible to Minor	Minor	Minor to Moderate
Medium	Negligible to Minor	Minor	Moderate	Moderate to Major
High	Minor	Minor to Moderate	Moderate to Major	Major

15.10. MEASURES ADOPTED AS PART OF THE ARRAY

80. As part of the Array design process, a number of designed in measures have been proposed to reduce the potential for impacts on infrastructure and other users (see Table 15.13). They are considered inherently part of the design of the Array and, as there is a commitment to implementing these measures, these have been considered in the assessment presented in section 15.11 (i.e. the determination of magnitude and therefore significance assumes implementation of these measures). These designed in measures are considered standard industry practice for this type of development.

Table 15.13: Designed In Measures Adopted as Part of the Array

Designed In Measures Adopted as Part of the Array	Justification
Promulgation of information through timely and efficient posting of Notice to Mariners (NtM), Kingfisher Bulletins and navigational warnings, as appropriate. Information will include but not be limited to vessel routes, timings and locations, safety zones and advisory safe passing distances as required.	Maximises awareness of the Array allowing vessels to passage plan in advance.
Apply for and implement safety zones during major construction and operation and maintenance activities.	Application for safety zones up to 500 m around structures where vessels are undertaking construction work during construction and periods of major operation and maintenance and 50 m around partially completed or completed but not yet fully commissioned surface piercing structures during construction. Advisory temporary safe passing distances to be promulgated.
The Applicant will seek to engage with oil and gas operators.	The Applicant will seek to engage early with oil and gas operators and, where possible and appropriate to do so, coordinate activities to facilitate coexistence.

15.11. ASSESSMENT OF SIGNIFICANCE

81. Table 15.8 summarises the potential effects arising from the construction, operation and maintenance and decommissioning phases of the Array, as well as the maximum design scenario against which each impact has been assessed. An assessment of the likely significance of the effects of the Array on the infrastructure and other users receptors caused by each identified impact is given below.

DISPLACEMENT OF RECREATIONAL SAILING AND MOTOR CRUISING, RECREATIONAL FISHING (BOAT ANGLING) AND OTHER RECREATIONAL ACTIVITIES (DIVING VESSELS)

82. Construction, operation and maintenance, and decommissioning activities may lead to displacement of recreational sailing and motor cruising, recreational fishing (boat angling) and other recreational activities (diving vessels) due to the presence of the infrastructure safety zones and advisory safe passing distances in relation to the Array and may result in a loss of recreational resource.

Construction phase

Magnitude of impact

83. The installation of infrastructure in the Array may displace recreational activities from the footprint of the Array and from any areas subject to safety zones in place during the construction phase and advisory safe passing distances, resulting in a loss of recreational resource.

84. The maximum design scenario is represented by the installation of up to 265 floating wind turbines, up to 15 OSPs, up to 12 cable crossings of 1,261 km inter-array cabling and up to 236 km of interconnector cabling, with associated safety zones and/or advisory safe passing distances. Construction activities may take place over a period of up to eight years (Table 15.8). During the site preparation, there may be up to 8 site preparation vessels on site at one time (2 survey vessels, 1 boulder clearance vessel, 2 geotechnical survey vessels, 1 sand wave clearance vessel and 2 UXO clearance vessels). There may be up to 97 vessels on site within the Array during the construction phase (including site preparation activities) at any one time, comprised of cargo barges, support vessels, tug/anchor handlers, cable installation vessels, guard vessels, survey vessels, CTVs, trenching support vessels, boulder clearance vessels, geophysical survey vessels and sand wave clearance vessels. It is likely that construction activity will be concentrated in certain locations at certain periods of time during the construction phase. Therefore, it should be noted that while up to 97 vessels may be on site at one time, the impact and safety zones in place will not be reflected and constant across the 859 km^2 area of the Array.

85. As described in section 15.7, there are a number of recreational activities occurring in the vicinity of the Array, although as most activities occur closer to the shore it is unlikely that these activities will overlap with the Array. General sailing areas associated with ASYC and PSC are located 84 km and 90 km to the north-west of the infrastructure and other users study area – inner area, respectively. The closest general boating area is located at Montrose, approximately 97.1 km west of the infrastructure and other users study area – inner area (NMPi, 2023). Recreational fishing also occurs in the proximity of the Array.

86. The spatial extent of the impact on boating activities will be relatively small in the context of the available sailing and sea angling areas in the vicinity of the Array. There will be potential for localised displacement of recreational marine craft from the 500 m safety zones around the structures being actively installed within the Array. Additionally, there may be advisory safe passing distances in place around installation vessels operating within the Array. The impact of safety zones in place during the construction phase is mostly reversible as once each structure has been installed and commissioned these will be removed. Construction of the Array is expected to occur over an eight year period. The level of recreational activity within the Array is low, and recreational fishing is likely to be limited, giving a very low frequency of impact.

87. As described inTable 15.13, NtMs will be issued regularly during the construction phase, advising of the location, nature and timing of activities associated with the Array, ensuring that recreational activities can be planned accordingly. The Applicant will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Array.

88. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous, and the effect is not reversible for the construction phase. The magnitude is therefore considered to be low.

Sensitivity of the receptor

89. Recreational boating and sea angling vessels are able to alter their route or transit (dependent on their target destination) past installation activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array. There are other locations available for sailing and sea angling such that alternatives are available if required during installation works.

90. The receptor is deemed to be of low value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the project and recoverability is high. The sensitivity of the receptor is therefore considered to be low.

Significance of the effect

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

Secondary mitigation and residual effect

92. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in Table 15.13) is not significant in EIA terms.

Operation and maintenance phase

Magnitude of impact

93. The presence of the Array infrastructure and/or operation and maintenance activities within the Array may displace recreational activities from the footprint of the development and from any areas subject to safety zones or advisory safe passing distances during periods of major maintenance, resulting in a loss of recreational resource.

94. The maximum design scenario is represented by the presence of up to 265 floating wind turbines, up to 15 OSPs, up to 1,261 km of inter-array cabling with up to 12 cabling crossings and up to 236 km of interconnector cabling, with associated safety zones and/or advisory safe passing distances during periods of major maintenance, over a period of up to 35 years. There may be up to 31 vessels on site at any one time during the operation and maintenance phase, comprised of workboats/CTVs/Service Operation Vessel (SOVs), tug/anchor handlers, jack-up vessels, cable repair vessels, CSVs and DSVs. It is likely that vessel activities related to the operation and maintenance phase will be concentrated in certain locations at certain periods of time during the operation and maintenance phase. Therefore, it should be noted that while up to 31 vessels may be on site at one time, the impact and safety zones in place will not be reflected and constant across the 859 km^2 area of the Array.

95. As described in section 15.7, there are a number of recreational activities occurring in the vicinity of the Array, although with most activities occurring closer to shore it is unlikely that these activities will overlap with the Array.

96. The spatial extent of the impact on boating activities will be relatively small in the context of the available sailing and sea angling area in the vicinity of the Array, with the potential for localised displacement of recreational craft around installed structures or around the individual 500 m safety zones and/or advisory safe passing distances temporarily and infrequently established around major maintenance activities. The level of recreational vessel and fishing activity in the Array is low and there will be no long-term exclusion of navigation within the Array during the lifetime of the Array (assessment of impacts on navigation is presented in volume 2, chapter 13).

97. As described in Table 15.13, NtMs will be issued regularly during the operation and maintenance phase, advising of the location, nature and timing of any maintenance activities and associated safety zones/advisory safe passing distances, ensuring that recreational activities can be planned accordingly. The Applicant will also distribute Kingfisher notifications and other navigational warnings of the position and nature of works associated with the Array.

98. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction in the level of recreational activity that may be undertaken for a medium term duration. The frequency of repetition is continuous and the effect is of not reversible for the operation and maintenance phase. The magnitude is therefore considered to be medium.

Sensitivity of the receptor

99. Recreational boating and sea angling vessels are able to alter their route or transit (dependent on their target destination) past maintenance activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array. There are other locations available for sailing and sea angling such that alternatives are available if required during maintenance works.

100. The receptor is deemed to be of low value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the project and recoverability is high. The sensitivity of the receptor is therefore considered to be low.

Significance of the effect

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

Secondary mitigation and residual effect

102. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in (Table 15.13) is not significant in EIA terms.

Decommissioning phase

Magnitude of impact

103. The effects of decommissioning activities within the Array are expected to be the same or similar to the effects from construction. The operational lifetime of the Array is expected to be 35 years. At the end of the operational lifetime of the Array, it is anticipated that any displacement of recreational activities would gradually decrease from the operational MDS as floating turbines and foundations will be fully removed from site and any driven piles or anchors will be cut down to seabed level and left *in situ*. This will be kept under review depending on current legislation and guidance requirements, best practice and other options may be required.

104. The decommissioning sequence will generally be the reverse of the construction sequence and involve similar types and numbers of vessels and equipment.

105. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous and the effect is of not reversible for the decommissioning phase. The magnitude is therefore considered to be low.

Sensitivity of the receptor

106. It is anticipated that recreational boating and sea angling vessels will be able to alter their route or transit past installed structures and any decommissioning activities, given the adequate sea room around the Array. There are other locations available for sailing and sea angling such that alternatives are available if required during decommissioning works.

107. The receptor is deemed to be of low value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the project and recoverability is high. The sensitivity of the receptor is therefore considered to be low.

Significance of the effect

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

Secondary mitigation and residual effect

109. No infrastructure and other sea users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in (Table 15.13) is not significant in EIA terms.

INSTALLATION AND PRESENCE OF THE WIND TURBINES, OSPS AND INTER-ARRAY/INTERCONNECTOR CABLING WITHIN THE ARRAY, INCLUDING ASSOCIATED SAFETY ZONES AND ADVISORY SAFE PASSING DISTANCES, MAY AFFECT OR RESTRICT ACCESS TO ACTIVE LICENCE BLOCKS BY OIL AND GAS OPERATORS EITHER TEMPORARILY OR LONG TERM

110. Activities associated with the construction, operation and maintenance, and decommissioning phases may lead to the reduction or restriction of access to active hydrocarbon licence blocks by oil and gas operators. The MDS is represented by the greatest amount of the largest infrastructure and associated minimum spacing and the greatest extent of safety zones, over the longest construction, operation and maintenance, and decommissioning period represents the greatest potential for reduction or restriction of oil and gas exploration activities. This is summarised in Table 15.13. An assessment of route deviations to vessels is provided in volume 2, chapter 13.

Construction phase

Magnitude of impact

111. The installation of infrastructure in the Array and associated presence of safety zones and advisory safe passing distances may displace oil and gas operators from carrying out activities within licenced blocks overlapping the Array.

112. The maximum design scenario is represented by the installation of up to 265 floating wind turbines, up to 15 OSPs, up to 12 cable crossings of 1,261 km inter-array cabling and up to 236 km of interconnector cabling, with associated safety zones and/or advisory safe passing distances. Construction activities may take place over a period of up to eight years (Table 15.8). During the site preparation, there may be up to eight site preparation vessels on site at one time (including survey vessels, boulder clearance vessels, geotechnical survey vessels, sand wave clearance vessels and UXO clearance vessels). There may be up to 97 vessels on site within the Array during the construction phase (including site preparation activities) at any one time, comprised of cargo barges, support vessels, tug/anchor handlers, cable installation vessels, guard vessels, survey vessels, CTVs, trenching support vessels, boulder clearance vessels, geophysical survey vessels and sand wave clearance vessels.

113. The Array overlaps active hydrocarbon licence Blocks 27/3, 27/9 and 27/10, which are operated by North Sea Natural Resources Ltd (Licence number: P2321). As infrastructure in the Array is installed, the area available for seismic surveys and drilling will be restricted, and the presence of safety zones and advisory safe passing distances around infrastructure and vessels may also further restrict the ability to use certain alternative survey methods. The impact of safety zones and advisory safe passing distances is mostly reversible as once each structure has been installed and commissioned these will be removed. Furthermore, while the area for seismic surveys and drilling will be restricted during the construction phase, this will only be in concentrated areas of the Array and there will still be area available within these blocks for these activities. The greatest amount of the largest infrastructure and associated minimum spacing, and the greatest extent of safety zones over the longest construction phase represents the greatest potential for reduction or restriction of oil and gas exploration activities.

114. As shown on Figure 15.8, there is no infrastructure associated with any oil and gas project within the broad infrastructure and other users study area, such that vessel access is not anticipated to be restricted to any existing oil and gas project asset.

115. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to active oil and gas blocks for a short to medium term duration. The frequency of repetition is continuous and the effect is not reversible for the construction phase. The magnitude is therefore considered to be low.

Sensitivity of the receptor

116. At the timing of writing this chapter, consultation with North Sea Natural Resources Limited identified that works at the appraisal well were completed in October 2023. The data from this work is under review before a decision on the next steps is taken.

117. It is anticipated that oil and gas operators will be able to alter their route or transit past installation activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array.

118. In addition, the Applicant will continue to liaise with North Sea Natural Resources Ltd and other relevant oil and gas operators throughout the construction phase in order to understand any upcoming and/or planned oil and gas exploration activities to ensure limited interference and to facilitate coexistence.

119. The receptor is deemed to be of moderate value to the local economy and oil and gas activities are somewhat vulnerable to impacts that may arise from the project and recoverability is moderate to high. The sensitivity of the receptor is therefore considered to be medium.

Significance of the effect

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

Secondary mitigation and residual effect

121. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in (Table 15.13) is not significant in EIA terms.

Operation and maintenance phase

Magnitude of impact

122. As described in paragraph 113, the presence of the Array and any safety zones and advisory safe passing distances associated with major maintenance activities may reduce or restrict the ability to carry out seismic surveys and drilling within the active hydrocarbon licence blocks overlapping with the Array during the operation and maintenance phase. The area available for seismic surveys and drilling will be restricted, however, there will still be area available within these blocks for these oil and gas exploration activities.

123. The maximum design scenario is represented by the presence of up to 265 floating wind turbines, with a minimum separation distance of 1,000 m, up to 15 OSPs, up to 1,261 km of inter-array cabling with up to 12 cabling crossings and up to 236 km of interconnector cabling, with associated safety zones and/or advisory safe passing distances during periods of major maintenance, over a period of up to 35 years. There may be up to 31 vessels on site at any one time during the operation and maintenance phase, comprised of workboats, tug/anchor handlers, jack-up vessels, cable repair vessels, CSVs and DSVs.

124. The spatial extent of the impact of the reduction or restriction of access to active hydrocarbon licence blocks by oil and gas operators will be relatively small. Any restriction of access with any safety zones or advisory safe passing distances around infrastructure and individual vessels carrying out major maintenance activities is mostly reversible as once these activities are completed and vessels move away from the area, all safety zones and advisory safe passing distances will be removed. Furthermore, any major maintenance activities are expected to be both temporary and infrequent. Any plans for new oil and gas infrastructure will be developed by oil and gas operators with an awareness of the Array. In the event that new oil and gas infrastructure is planned in close proximity, consultation will take place between the Applicant and the relevant oil and gas operator to establish close communication. Whilst not a legislative requirement, the NSTA interactive maps show the locations of wind farm developments. The greatest amount of the largest infrastructure and associated minimum spacing and the greatest extent of safety zones, over the longest operation and maintenance period represents the greatest potential for reduction or restriction of oil and gas exploration activities.

125. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to active oil and gas blocks for a long term duration. The frequency of repetition is continuous and the effect is not reversible for the operation and maintenance phase. The magnitude is therefore considered to be medium.

Sensitivity of the receptor

126. At the time of writing this chapter, consultation with North Sea Natural Resources Limited identified that works at the appraisal well were completed in October 2023. The data from this work is under review before a decision on the next steps is taken.

127. It is anticipated that oil and gas operators will be able to alter their route or transit past installation activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array.

128. In addition, the Applicant will continue to liaise with North Sea Natural Resources Ltd and other relevant oil and gas operators throughout the construction phase in order to understand any upcoming and/or planned oil and gas exploration activities to ensure limited interference and to facilitate coexistence.

129. The receptor is deemed to be of moderate value to the local economy and oil and gas activities are somewhat vulnerable to impacts that may arise from the project and recoverability is moderate. The sensitivity of the receptor is therefore considered to be low.

Significance of the effect

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

Secondary mitigation and residual effect

131. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in (Table 15.13) is not significant in EIA terms.

Decommissioning phase

Magnitude of impact

132. The effects of decommissioning activities within the Array are expected to be the same or similar to the effects from construction. The operational lifetime of the Array is expected to be 35 years. At the end of the operational lifetime of the Array, it is anticipated that any affects or restrictions to oil and gas operators would gradually decrease from the operational MDS as floating turbines and foundations are removed and any driven piles or anchors are cut down to seabed level and left *in situ*. This will be kept under review depending on current legislation and guidance requirements, best practice and other options may be required.

133. The decommissioning sequence will generally be the reverse of the construction sequence and involve similar types and numbers of vessels and equipment.

134. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to active oil and gas blocks for a short to medium term duration. The frequency of repetition is continuous and the effect is not reversible for the decommissioning phase. The magnitude is therefore considered to be low.

Sensitivity of the receptor

135. It is anticipated that oil and gas operators will be able to alter their route or transit past decommissioning activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array.

136. In addition, the Applicant will continue to liaise with North Sea Natural Resources Ltd and other relevant oil and gas operators throughout the decommissioning phase in order to understand any upcoming and/or planned oil and gas exploration activities to ensure limited interference and to facilitate coexistence.

137. The receptor is deemed to be of moderate value to the local economy oil and gas activities are somewhat vulnerable to impacts that may arise from the project and recoverability is moderate to high. The sensitivity of the receptor is therefore considered to be medium.

Significance of the effect

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

Secondary mitigation and residual effect

139. No infrastructure and others users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in (Table 15.13) is not significant in EIA terms.

15.12. CUMULATIVE EFFECTS ASSESSMENT

15.12.1. METHODOLOGY

140. The CEA assesses the impact associated with the Array together with other relevant plans, projects and activities. Cumulative effects are defined as the combined effect of the Array in combination with the effects from a number of different projects, on the same receptor or resource. Further details on CEA methodology are provided in volume 1, chapter 6.

141. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise (see volume 3, appendix 6.4 of the Array EIA Report). Volume 3, appendix 6.4 further provides information regarding how information pertaining to other plans and projects is gained and applied to the assessment. Each project or plan has been considered on a case-by-case basis for screening in or out of this chapter's assessment based upon data confidence, impact-receptor pathways and the spatial/temporal scales involved.

142. In undertaking the CEA for the Array, it should be noted that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside the Array. Therefore, a tiered approach has been adopted which provides a framework for placing relative weight upon the potential for each project/plan to be included in the CEA to ultimately be realised, based upon the project/plan's current stage of maturity and certainty in the projects' parameters. The tiered approach which will be utilised within the Array CEA employs the following tiers:

- tier 1 assessment – Array and the Proposed offshore export cable corridor(s), Proposed onshore transmission infrastructure, and all plans/projects which became operational since baseline characterisation, those under construction, and those with consent and submitted but not yet determined;
- tier 2 assessment – All plans/projects assessed under Tier 1, plus those projects with a Scoping Report; and
- tier 3 assessment – All plans/projects assessed under Tier 2, which are reasonably foreseeable, plus those projects likely to come forward where an Agreement for Lease (AfL) has been granted.

143. The specific projects scoped into the CEA for infrastructure and other users, are outlined in Table 15.14 and Figure 15.9. For the infrastructure and other users study area, only the projects within 100 km of the Array have been included in the CEA assessment.

144. The range of potential cumulative impacts that are identified and included in Table 15.14, is a subset of those considered for the Array alone CEA assessment. This is because some of the potential impacts identified and assessed for the Array alone, are localised and temporary in nature. It is considered therefore, that these potential impacts have limited or no potential to interact with similar changes associated with other plans or projects. These have therefore not been taken forward for detailed assessment.

145. Similarly, some of the potential impacts considered within the Array alone assessment are specific to a particular phase of development (e.g. construction, operation and maintenance, or decommissioning). Where the potential for cumulative effects with other plans or projects only have potential to occur where there is spatial or temporal overlap with the Array during certain phases of development, impacts associated with a certain phase may be omitted from further consideration where no plans or projects have been identified that have the potential for cumulative effects during this period.

Table 15.14: List of Other Projects and Plans Considered within the CEA for Infrastructure and Other Users

Project/Plan	Status [i.e. Application, Consented, Under Construction, Operational]	Distance from Array Area (km)	Description of Project/Plan	Dates of Construction (If Applicable)	Dates of Operation (If Applicable)	Overlap with the Array [e.g. Project Construction Phase Overlaps with Array Construction Phase]
Tier 1						
Proposed offshore export cable corridor(s)	Planned	0.00	The Proposed offshore export cable corridor(s) for the Array.	2030 to 2037	2038 to 2072	Screened in as the construction and operation and maintenance phases of the Proposed export cable corridor(s) overlap with those of the Array.
Offshore Wind Projects and Associated Cables						
Seagreen 1 Offshore Wind Farm	Active/In Operation	50.72	Up to 114 wind turbines with no maximum generating capacity.	N/A	2023 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Berwick Bank Offshore Wind Farm	Planning	56.84	Up to 307 wind turbines with a capacity of up to 4.1 GW	2025 to 2032	2033 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Kincardine Offshore Wind Farm	Active/In Operation	61.65	6 wind turbines at a capacity of 50 MW.	N/A	2023 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Seagreen 1A Project	Consented	66.28	Up to 36 wind turbines with no maximum generating capacity.	2023 to 2025	2026 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Hywind	Active/In Operation	73.95	Up to 5 wind turbines at a capacity of 30 MW.	N/A	2023 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Aberdeen Offshore Wind Farm	Active/In Operation	79.32	Up to 11 wind turbines at a capacity of 96.8 MW.	N/A	2023 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Inch Cape Offshore Wind Farm	Consented	86.92	Up to 72 wind turbines with no maximum generating capacity.	2025 to 2026	2027 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Oil and Gas Activities						
No Oil and Gas Projects identified within the infrastructure and other users cumulative study area.						
Aggregate Extraction						
No Aggregate Extraction sites identified within the infrastructure and other users cumulative study area.						
Disposal Sites						
Aberdeen – CR110	Open	75.9	Disposal Site	N/A	2023 onwards	Screened out as no impact receptor pathway with infrastructure and other users.
Coastal Protection/Infrastructure						

Project/Plan	Status [i.e. Application, Consented, Under Construction, Operational]	Distance from Array Area (km)	Description of Project/Plan	Dates of Construction (If Applicable)	Dates of Operation (If Applicable)	Overlap with the Array [e.g. Project Construction Phase Overlaps with Array Construction Phase]
No Coastal Protection or Infrastructure identified in the infrastructure and other users cumulative study area.						
Subsea Cables (Telecommunications and Interlinks) and Pipelines						
EGL2	Marine Licence Application	24.37	Scotland to England Green Link	2027 to 2029	2030 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Unnamed Power Line	Active	35.86	N/A	N/A	2027 onwards	Screened out as no impact receptor pathway with infrastructure and other users.
Burgman Bundle	Active	42.49	Oil pipeline from Buzzard field to the Forties pipeline.	N/A	2027 onwards	Screened out as no impact receptor pathway with infrastructure and other users.
Varadero Bundle	Active	45.91	Oil pipeline from Varadero Bundle	N/A	2027 onwards	Screened out as no impact receptor pathway with infrastructure and other users.
Catcher Bundle	Active	46.04	Oil pipeline from Catcher Bundle.	N/A	2027 onwards	Screened out as no impact receptor pathway with infrastructure and other users.
Catcher Gas Export Cable	Active	46.05	Gas pipeline from Catcher.	N/A	2027 onwards	Screened out as no impact receptor pathway with infrastructure and other users.
CATS Pipeline	Active	56.36	396 km gas export pipeline from central North Sea to CATS terminal in Teesside.	N/A	2027 onwards	Screened out as no impact receptor pathway with infrastructure and other users.
Tier 2						
Offshore Wind Projects and Associated Cables						
Morven BP – EnBW	Scoping	5.50	Up to 191 wind turbines at a capacity of 2,300 MW.	2031 to 2037	2038 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Muir Mhor Offshore Wind Farm	Scoping	51.38	Up to 798 MW.	2027 to 2029	2030 onwards	Screened in due to potential for survey works, development operation or maintenance to coincide with the construction of the Array.
Salamander Offshore Wind farm	Scoping	79.49	Proposed for up to 100 MW.	Unknown	Unknown	Screened in due to a spatial overlap with the 100 km screening buffer. It cannot be discarded that the operation and maintenance phase of the project will not overlap with the Array.
Cenos Offshore Wind Farm	Scoping	91.70	Proposed for up to 1,350 MW.	Unknown	Unknown	Screened in due to a spatial overlap with the 100 km screening buffer. It cannot be discarded that the operation and maintenance phase of the project will not overlap with the Array.
Oil and Gas Activities						
No Oil and Gas Projects identified within the infrastructure and other users cumulative study area.						
Aggregate Extraction						

Project/Plan	Status [i.e. Application, Consented, Under Construction, Operational]	Distance from Array Area (km)	Description of Project/Plan	Dates of Construction (If Applicable)	Dates of Operation (If Applicable)	Overlap with the Array [e.g. Project Construction Phase Overlaps with Array Construction Phase]
No Aggregate Extraction sites identified within the infrastructure and other users cumulative study area.						
Disposal Sites						
No Disposal Sites identified within the infrastructure and other users cumulative study area.						
Coastal Protection/Infrastructure						
No Coastal Protection or Infrastructure identified in the infrastructure and other users cumulative study area.						
Subsea Cables (Telecommunications and Interlinks) and Pipelines						
No Subsea Cables and Pipelines identified within the infrastructure and other users cumulative study area.						
Tier 3						
Offshore Wind Projects and Associated Cables						
Bellrock	Pre Planning	8.67	Proposed capacity of 1,200 MW	Unknown	Unknown	Screened in due to a spatial overlap with the 100 km screening buffer. It cannot be discarded that the operation and maintenance phase of the project will not overlap with the Array.
Bowdun Offshore Wind Farm	Pre Planning	25.36	Up to 60 wind turbines at a capacity of 1,000 MW.	Unknown	Unknown	Screened in due to a spatial overlap with the 100 km screening buffer. It cannot be discarded that the operation and maintenance phase of the project will not overlap with the Array.
Campion	Pre Planning	44.15	Up to 100 wind turbines at a capacity of 2,000 MW.	Unknown	Unknown	Screened in due to a spatial overlap with the 100 km screening buffer. It cannot be discarded that the operation and maintenance phase of the project will not overlap with the Array.
Cedar	Pre Planning	51.65	Proposed for up to 1,008 MW.	Unknown	Unknown	Screened in due to a spatial overlap with the 100 km screening buffer. It cannot be discarded that the operation and maintenance phase of the project will not overlap with the Array.
Flora Floating Wind Farm	Pre Planning	68.41	Proposed for up to 50 MW.	Unknown	Unknown	Screened in due to a spatial overlap with the 100 km screening buffer. It cannot be discarded that the operation and maintenance phase of the project will not overlap with the Array.
Aspen	Pre Planning	85.61	Proposed for up to 1,008 MW.	Unknown	Unknown	Screened in due to a spatial overlap with the 100 km screening buffer. It cannot be discarded that the operation and maintenance phase of the project will not overlap with the Array.
Oil and Gas Activities						

Project/Plan	Status [i.e. Application, Consented, Under Construction, Operational]	Distance from Array Area (km)	Description of Project/Plan	Dates of Construction (If Applicable)	Dates of Operation (If Applicable)	Overlap with the Array [e.g. Project Construction Phase Overlaps with Array Construction Phase]
No Oil and Gas Projects identified within the infrastructure and other users cumulative study area.						
Aggregate Extraction						
No Aggregate Extraction sites identified within the infrastructure and other users cumulative study area.						
Disposal Sites						
No Disposal Sites identified within the infrastructure and other users cumulative study area.						
Coastal Protection/Infrastructure						
No Coastal Protection or Infrastructure identified in the infrastructure and other users cumulative study area.						
Subsea Cables (Telecommunications and Interlinks) and Pipelines						
EGL3[4]	Planned	N/A	Scotland to England Green Link 3	Unknown	Unknown	Screened out due to low data availability at the time of assessment.
EGL4[5]	Planned	N/A	Scotland to England Green Link 4	Unknown	Unknown	Screened out due to low data availability at the time of assessment.

[4] Eastern Green Link 3 cannot be included in Figure 15.9 because the cable is currently only planned and location is currently undetermined.

[5] Eastern Green Link 4 cannot be included in Figure 15.9 because cable is currently only planned and the location is currently undetermined.

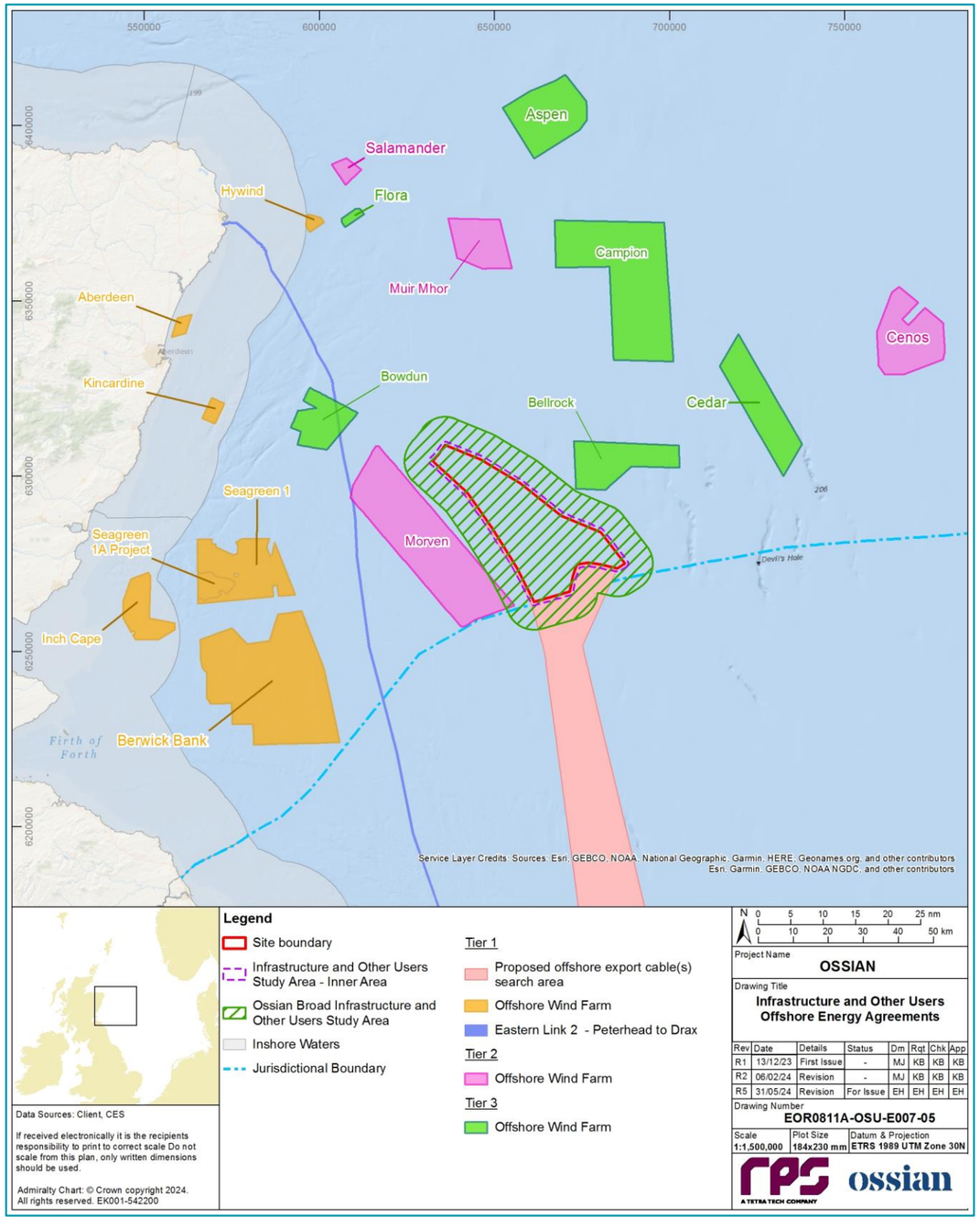

Figure 15.9: Other Projects/Plans Screened into the Cumulative Effects Assessment for Infrastructure and Other Users

15.12.2. MAXIMUM DESIGN SCENARIO

146. The MDSs identified in Table 15.8 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative effects presented and assessed in this section have been selected from the details provided in volume 1, chapter 3 of the Array EIA Report as well as the information available on other projects and plans (see volume 3, appendix 6.4), to inform a 'maximum design scenario'. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the Project Description (volume 1, chapter 3) (e.g. different wind turbine layout), to that assessed here, be taken forward in the final design scheme.

Table 15.15: Maximum Design Scenario Considered for Each Impact as part of the Assessment of Likely Significant Cumulative Effects on Infrastructure and Other Users

Potential Cumulative Effect	Phase[6] C	Phase[6] O	Phase[6] D	Tier	Maximum Design Scenario
Displacement of recreational sailing and motor cruising, recreational fishing (boat angling) and other recreational activities (diving vessels) due to safety zones and advisory safe passing distances in the Array may result in a loss of recreational resource.	✓	✓	✓	**Tier 1** • Berwick Bank Offshore Wind Farm • Inch Cape Offshore Wind Farm • Seagreen 1 Offshore Wind Farm • Seagreen 1A Project • EGL2 **Tier 2** • Morven Offshore Wind Farm • Muir Mhor Offshore Wind Farm • Salamander Offshore Wind Farm • Cenos Offshore Wind Farm **Tier 3** • Bellrock Offshore Wind Farm • Bowdun Offshore Wind Farm • Campion Offshore Wind Farm • Cedar • Flora Floating Wind Farm • Aspen	Maximum design scenario as described for the Array (Table 15.8) assessed cumulatively with the following other projects/plans present. Outcome of the CEA will be greatest when the activities of other projects/plans occur within the same recreational area creating the greatest area that will be restricted at any one time for any single receptor.
Installation and presence of the wind turbines, OSPs and inter-array/interconnector cabling within the Array, including associated safety zones and advisory safe passing distances, may affect or restrict access to active hydrocarbon licence blocks by oil and gas operators either temporarily or long term.	✓	✓	✓	**Tier 1** • Berwick Bank Offshore Wind Farm • Inch Cape Offshore Wind Farm • Seagreen 1 Offshore Wind Farm • Seagreen 1A Project • EGL2 **Tier 2** • Morven Offshore Wind Farm • Muir Mhor Offshore Wind Farm • Salamander Offshore Wind Farm • Cenos Offshore Wind Farm **Tier 3** • Bellrock Offshore Wind Farm • Bowdun Offshore Wind Farm • Campion Offshore Wind Farm • Cedar • Flora Floating Wind Farm • Aspen	Maximum design scenario as described for the Array (Table 15.8) assessed cumulatively with the following other projects/plans present. Outcome of the CEA will be greatest when the activities of other projects/plans occur within the same recreational area creating the greatest area that will be restricted at any one time for any single receptor.

[6] C = Construction, O = Operation and maintenance, D = Decommissioning

15.12.3. CUMULATIVE EFFECTS ASSESSMENT

147. An assessment of the likely significance of the cumulative effects of the Array upon infrastructure and other users receptors arising from each identified impact is given below.

148. The CEA for infrastructure and other users assesses cumulative effects for all infrastructure and other users receptors considered within the assessment of effects undertaken above. Only the displacement of recreational vessels and recreational activities and the restricted access to active hydrocarbon licence blocks (as per Table 15.17) has been taken forward for assessment at a cumulative level.

DISPLACEMENT OF RECREATIONAL SAILING AND MOTOR CRUISING, RECREATIONAL FISHING (BOAT ANGLING) AND OTHER RECREATIONAL ACTIVITIES (DIVING VESSELS) DUE TO SAFETY ZONES AND ADVISORY SAFE PASSING DISTANCES IN THE ARRAY MAY RESULT IN A LOSS OF RECREATIONAL RESOURCE

Tier 1 and 2

Construction phase

Magnitude of impact

149. The installation of Array infrastructure within the Array, together with the Tier 1 and 2 projects identified in Table 15.14 , may displace recreational vessels and activities, resulting in a loss of recreational resource.

150. Figure 15.9 provides an overview of the location of other projects screened into the cumulative assessment in relation to recreational interests. General sailing areas associated with ASYC and PSC are located 84 km and 90 km to the north-west of the infrastructure and other users study area – inner area, respectively. The closest general boating area is located at Montrose, approximately 97.1 km west of the infrastructure and other users study area – inner area (NMPi, 2023). Recreational fishing also occurs in the proximity of the Array. Extensive recreational boating occurs in the area of the sea between Berwick-upon-Tweed, Aberdeen and Peterhead, with tracks extending to the south-east towards the Array. Smaller levels of displacement may also occur due to site investigation activities associated with EGL2, Berwick Bank Offshore Wind Farm, Seagreen 1A Project, Inch Cape Offshore Wind Farm, Morven Offshore Wind Farm and and Muir Mhor Offshore Wind Farm. Additional displacement may also occur during maintenance activities undertaken at Seagreen 1 Offshore Wind Farm, Kincardine Offshore Wind Farm, Hywind and Aberdeen Offshore Wind Farm.

151. The spatial extent of the impact on boating activities taking place along the east coast of Scotland will be relatively small in the context of the available sailing, boating and sea angling in the wider vicinity, with the potential for localised displacement of recreational craft from the individual safety zones and advisory safe passing distances around structures and vessels associated with each project. Safety zones in place during the construction phase will be temporary until each structure has been installed and commissioned, and advisory safe passing distances around vessels will be transient as the vessel progressively completes the relevant installation, maintenance, and survey activity. It is unlikely that the activities of all projects would temporally coincide to displace the same recreational vessel on multiple occasions.

152. As described in Table 15.13, NtMs will be issued regularly during the construction phase of the Array, advising of the location, nature and timing of activities, ensuring that recreational activities can be planned accordingly. Similar measures are likely to apply at the other projects as standard practice.

153. The cumulative impact is predicted to cause a minor shift away from the baseline at a regional spatial extent, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous and the effect is not reversible for the construction phase. The magnitude is therefore considered to be low.

Sensitivity of receptor

154. It is anticipated that recreational boating and sea angling vessels will be able to alter their route or transit past installation and survey activities, given the adequate sea room in the vicinity of each project. There are other locations available for sailing and sea angling which are unlikely to be altered by multiple projects at the same time, such that alternatives are available.

155. The receptor is deemed to be of low value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the project and recoverability is high. The sensitivity of the receptor is therefore considered to be low.

Significance of effect

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

Further mitigation and residual effect

157. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10) is not significant in EIA terms.

Operation and maintenance phase

Magnitude of impact

158. The presence of the Array infrastructure and/or operation and maintenance activities within the Array, together with the Tier 1 and Tier 2 projects identified in Table 15.14, may displace recreational vessel activities, resulting in a loss of recreational resource.

159. It is understood that Seagreen 1A Project is currently under construction, Inch Cape Offshore Wind Farm has been consented, Berwick Bank Offshore Wind Farm at the planning stage and EGL2 in the Marine Licence Application stage. Morven Offshore Wind Farm, Muir Mhor Offshore Wind Farm, Salamander Offshore Wind Farm and Cenos Offshore Wind Farm are at the Scoping stage. Therefore, it has been assumed for the purposes of this assessment, as a maximum design scenario, operation and maintenance phases for these projects may overlap with the operation and maintenance phase of the Array. However, due to the lack of project information at this stage, a qualitative assessment is provided below. For the purposes of this assessment, these projects are expected to include similar maintenance activities as those described for the Array, including similar types of vessels. Additional displacement may also occur during maintenance activities undertaken at Seagreen 1 Offshore Wind Farm, Kincardine Offshore Wind Farm, Hywind and Aberdeen Offshore Wind Farm.

160. As described above, there are a number of recreational vessel activities taking place along the east coast of Scotland, with activity likely to be concentrated inshore of the projects considered in this cumulative assessment. Once the infrastructure have been installed for each project, only temporary and infrequent maintenance is likely to be required over the projects' lifetimes, which is unlikely to take place concurrently at multiple project locations. Therefore, the potential for cumulative displacement of recreational vessel activities within the nearshore sea area is considered to be low. There is potential for recreational vessels undertaking long distance journeys further offshore to be displaced by the presence of infrastructure within each application area.

161. The spatial extent of the impact on boating activities taking place along the east coast of Scotland will be relatively small in the context of the available sailing, boating and sea angling areas in the wider vicinity,

with the potential for localised displacement of recreational craft from the individual safety zones and advisory safe passing distances around structures and vessels associated with major maintenance activities at each project. It is unlikely that maintenance activities at all projects would temporally coincide to displace the same recreational vessel on multiple occasions.

162. As described in Table 15.13, NtMs will be issued regularly during the lifetime of the Array, advising of the location, nature and timing of activities, ensuring that recreational activities can be planned accordingly. Similar measures are likely to apply at the other offshore wind farm projects as standard practice.

163. The cumulative impact is predicted to cause a minor shift away from the baseline, leading to a reduction in the level of recreational activity that may be undertaken for a medium term duration. The frequency of repetition is continuous and the effect is of not reversible for the operation and maintenance phase. The magnitude is therefore considered to be medium.

Sensitivity of receptor

164. It is anticipated that recreational boating and sea angling vessels will be able to alter their route or transit past installation and survey activities, given the adequate sea room in the vicinity of each project. There are other locations available for sailing and sea angling which are unlikely to be altered by multiple projects at the same time, such that alternatives are available.

165. The receptor is deemed to be of low value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the project and recoverability is high. The sensitivity of the receptor is therefore considered to be low.

Significance of effect

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

Further mitigation and residual effect

167. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10 is not significant in EIA terms.

Decommissioning phase

Magnitude of impact

168. The decommissioning of the infrastructure within the Array, together with the Tier 1 and 2 projects identified in Table 15.14, may displace recreational vessels, resulting in a loss of recreational resource.

169. Figure 15.9 provides an overview of the location of other projects screened into the cumulative assessment in relation to recreational interests. General sailing areas associated with ASYC and PSC are located 84 km and 90 km to the north-west of the infrastructure and other users study area – inner area,, respectively. The closest general boating area is located at Montrose, approximately 97.1 km west of the infrastructure and other users study area – inner area (NMPi, 2023). Recreational fishing also occurs in the proximity of the Array. Extensive recreational boating occurs in the area of the sea between Berwick-upon-Tweed, Aberdeen and Peterhead, with tracks extending to the south-east towards the Array. Smaller levels of displacement may also occur due to site investigation activities associated with EGL2, Berwick Bank Offshore Wind Farm, Seagreen 1A Project, Inch Cape Offshore Wind Farm, Morven Offshore Wind Farm, Muir Mhor Offshore Wind Farm, Salamander and Cenos Offshore Wind Farms. Additional displacement may also occur during maintenance activities undertaken at Seagreen 1 Offshore Wind Farm, Kincardine Offshore Wind Farm, Hywind and Aberdeen Offshore Wind Farm.

170. The spatial extent of the impact on boating activities taking place along the east coast of Scotland will be relatively small in the context of the available sailing, boating and sea angling in the wider vicinity, with the potential for localised displacement of recreational craft from the individual safety zones and advisory safe passing distances around structures and vessels associated with each project. Safety zones will be temporary until each structure has been installed and commissioned, and advisory safe passing distances around vessels will be transient as the vessel progressively completes the relevant installation, maintenance, and survey activity. It is unlikely that the activities of all projects would temporally coincide to displace the same recreational vessel on multiple occasions.

171. At the end of the operational lifetime of the Array, it is anticipated that all structures above the seabed or ground level will be completely removed where this is feasible and practicable. This will be kept under review depending on current legislation and guidance requirements, best practice and other options may be required including cutting structures below the seabed. It is proposed than an assessment will be undertaken on a maximum design scenario of removing all inter-array cables. The decommissioning sequence will generally be the reverse of the construction sequence and involve similar types and numbers of vessels and equipment.

172. As described in Table 15.13, NtMs will be issued regularly during the decommissioning phase of the Array, advising of the location, nature and timing of activities, ensuring that recreational activities can be planned accordingly. Similar measures are likely to apply at the other offshore wind farm projects as standard practice.

173. The cumulative impact is predicted to cause a minor shift away from the baseline at a regional spatial extent, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous and the effect is not reversible for the decommissioning phase. The magnitude is therefore considered to be low.

Sensitivity of receptor

174. It is anticipated that recreational boating and sea angling vessels will be able to alter their route or transit past installation and survey activities, given the adequate sea room in the vicinity of each project. There are other locations available for sailing and sea angling which are unlikely to be altered by multiple projects at the same time, such that alternative are available.

175. The receptor is deemed to be of low value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the project and recoverability is high. The sensitivity of the receptor is therefore considered to be low.

Significance of effect

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

Further mitigation and residual effect

177. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10 is not significant in EIA terms.

Tier 3

Construction phase

Magnitude of impact

178. In addition to the installation of Array infrastructure within the Array and Tier 1 and Tier 2 projects, Tier 3 projects have been identified in Table 15.14. These projects may displace recreational vessels and activities, resulting in a loss of recreational resource.

179. As these are Tier 3 projects, there are no Scoping Reports in the public domain. Therefore, there is no information available on the impact that the construction of these Tier 3 projects may have on infrastructure and other user receptors. Displacement of recreational activities associated with these Tier 3 projects is expected to be similar in nature and extent to the Array. Furthermore, if the projects are approved, smaller levels of displacement may also occur due to site investigation activities associated with Bellrock Offshore Wind Farm, Bowdun Offshore Wind Farm, Campion Offshore Wind Farm, Cedar, Flora Floating Wind Farm and Aspen.

180. The maximum duration of the offshore construction phase for the Array is up to eight years (2031 to 2038). There are currently no dates available for when the construction phase of the Tier 3 projects will commence and therefore there may be a minimal overlap between the site preparation and construction activities of the Array and that of Tier 3 projects (Table 15.14). It should be noted that the various sites are of small scale (3 MW to 1,350 MW).

181. As described in Table 15.13, NtMs will be issued regularly during the construction phase of the Array, advising of the location, nature and timing of activities, ensuring that recreational activities can be planned accordingly. Similar measures are likely to apply at the other projects as standard practice.

182. The cumulative impact is predicted to cause a minor shift away from the baseline at a regional spatial extent, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous and the effect is not reversible for the construction phase. The magnitude is therefore considered to be low.

Sensitivity of receptor

183. It is anticipated that recreational boating and sea angling vessels will be able to alter their route or transit past installation and survey activities, given the adequate sea room in the vicinity of each project. There are other locations available for sailing, sea angling and diving which are unlikely to be altered by multiple projects at the same time, such that alternative are available.

184. The receptor is deemed to be of low value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the project and recoverability is high. The sensitivity of the receptor is therefore considered to be low.

Significance of effect

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

Further mitigation and residual effect

186. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10) is not significant in EIA terms.

Operation and maintenance phase

Magnitude of impact

187. In addition to the presence of Array infrastructure and/or operation and maintenance activities within the Array and Tier 1 and Tier 2 projects, Tier 3 projects been identified in Table 15.14. These projects may displace recreational vessels and activities, resulting in a loss of recreational resource.

188. As these are Tier 3 projects, there are no Scoping Reports in the public domain. Therefore, there is no information available on the impact that these Tier 3 projects may have on infrastructure and other user receptors. If these projects are approved, it has been assumed for the purposes of this assessment, as a maximum design scenario, operation and maintenance phases for these projects may overlap with the operation and maintenance phase of the Array. However, due to the lack of project information at this stage, a qualitative assessment is provided below. For the purposes of this assessment, these projects are expected to include similar maintenance activities as those described for the Array, including similar types of vessels. It is unlikely that maintenance activities at all projects would temporally coincide to displace the same recreational vessel on multiple occasions.

189. As described in Table 15.13, NtMs will be issued regularly during the lifetime of the Array, advising of the location, nature and timing of activities, ensuring that recreational activities can be planned accordingly. Similar measures are likely to apply at the other offshore wind farm projects as standard practice.

190. The cumulative impact is predicted to cause a minor shift away from the baseline at a regional spatial extent, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous and the effect is not reversible for the operation and maintenance phase. The magnitude is therefore considered to be low.

Sensitivity of receptor

191. It is anticipated that recreational boating and sea angling vessels will be able to alter their route or transit past installation and survey activities, given the adequate sea room in the vicinity of each project. There are other locations available for sailing, and sea angling which are unlikely to be altered by multiple projects at the same time, such that alternatives are available.

192. The receptor is deemed to be of low value to the local economy and recreational activities are not generally vulnerable to impacts that may arise from the project and recoverability is high. The sensitivity of the receptor is therefore considered to be low.

Significance of effect

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

Further mitigation and residual effect

15 No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10) is not significant in EIA terms.

INSTALLATION AND PRESENCE OF THE WIND TURBINES, OSPS AND INTER-ARRAY/INTERCONNECTOR CABLING WITHIN THE ARRAY, INCLUDING ASSOCIATED SAFETY ZONES AND ADVISORY ASFE PASSING DISTANCES, MAY AFFECT OR RESTRICT ACCESS TO ACTIVE HYDROCARBON LICENCE BLOCKS BY OIL AND GAS OPERATORS EITHER TEMPORARILY OR LONG TERM

Tier 1 and 2

Construction phase

Magnitude of impact

194. The installation of Array infrastructure within the Array, together with the Tier 1 and 2 projects identified in Table 15.14, may lead to the reduction or restriction of access to active hydrocarbon licence blocks by oil and gas operators.

195. Figure 15.9 provides an overview of the location of other projects screened into the cumulative assessment in relation to accessibility for oil and gas operators. The infrastructure and other users study area – inner area overlaps active hydrocarbon licence Blocks 27/3, 27/9 and 27/10, which are operated by North Sea Natural Resources Ltd (Licence number: P2321). Further displacement may occur due to site investigation activities associated with associated with EGL2, Berwick Bank Offshore Wind Farm, Seagreen 1A Project, Inch Cape Offshore Wind Farm, Morven Offshore Wind Farm, Muir Mhor Offshore Wind Farm, Salamander Offshore Wind Farm and Cenos Offshore Wind Farm. Additional displacement may also occur during maintenance activities undertaken at Seagreen 1 Offshore Wind Farm, Kincardine Offshore Wind Farm, Hywind and Aberdeen Offshore Wind Farm.

196. The spatial extent of the impact on accessibility to active hydrocarbon licence blocks in the vicinity of the Array, together with the Tier 1 and 2 projects will be relatively small. Any restriction of access with any safety zones or advisory safe passing distances placed around structures or individual vessels carrying out construction activities is expected to be temporary and it is unlikely that the activities of all projects would temporarily coincide to restrict the access to all the considered active hydrocarbon licence blocks. The greatest amount of the largest infrastructure and associated minimum spacing, and the greatest extent of safety zones over the longest construction phase represents the greatest potential for reduction or restriction of oil and gas exploration activities.

197. As described in Table 15.13, NtMs will be issued regularly during the construction phase of the Array, advising of the location, nature and timing of activities, ensuring that oil and gas operational activities can be planned accordingly. Similar measures are likely to apply at the other projects as standard practice.

198. The cumulative impact is predicted to cause a minor shift away from the baseline at a regional spatial extent, leading to a reduction in the level of oil and gas activity that may be undertaken for a short to medium term duration. The frequency of repetition is intermittent and the effect is non-reversible for the construction phase. The magnitude is therefore considered to be low.

Sensitivity of receptor

199. It is anticipated that oil and gas operators will be able to alter their route or transit past installation activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array.

200. Continued and regular communication with oil and gas operators in line with industry standard will ensure relevant parties are kept informed of planned activities in order to minimise spatial and temporal interactions between conflicting activities and maximise coexistence.

201. The receptor is deemed to be of moderate value to the regional economy and oil and gas activities are somewhat vulnerable to impacts that may arise from the project and recoverability is moderate to high. The sensitivity of the receptor is therefore considered to be medium.

Significance of effect

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

Further mitigation and residual effect

203. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10) is not significant in EIA terms.

Operation and maintenance phase

Magnitude of impact

204. In addition to the presence of Array infrastructure and/or operation and maintenance activities within the Array and Tier 1 and Tier 2 projects, Tier 3 projects been identified in Table 15.14 which may lead to the reduction or restriction of access to active hydrocarbon licence blocks by oil and gas operators.

205. It is understood that Seagreen 1A Project is currently under construction, Inch Cape Offshore Wind Farm has been consented, Berwick Bank Offshore Wind Farm at the planning stage and EGL2 in the Marine Licence Application stage. Morven Offshore Wind Farm, Muir Mhor Offshore Wind Farm, Salamander Offshore Wind Farm and Cenos Offshore Wind Farm are at the Scoping stage. Therefore, it has been assumed for the purposes of this assessment, as a maximum design scenario, operation and maintenance phases for these projects may overlap with the operation and maintenance phase of the Array. However, due to the lack of project information at this stage, a qualitative assessment is provided below. For the purposes of this assessment, these projects are expected to include similar maintenance activities as those described for the Array, including similar types of vessels. Additional displacement may also occur during maintenance activities undertaken at Seagreen 1 Offshore Wind Farm, Kincardine Offshore Wind Farm, Hywind and Aberdeen Offshore Wind Farm.

206. As described above, the infrastructure and other users study area – inner area overlaps active hydrocarbon Blocks 27/3, 27/9 and 27/10. Once the infrastructure has been installed for each project, only temporary and infrequent maintenance is likely to be required over the projects' lifetimes, which is unlikely to take place concurrently at multiple project locations. Therefore, the potential for cumulative restriction of access for oil and gas operators is considered to be low. If an overlap occurs, the Applicant will seek to engage with oil and gas operators at the earliest opportunity to coordinate activities and facilitate coexistence.

207. The spatial extent of the impact on accessibility to active hydrocarbon licence blocks in the vicinity of the Array, together with the Tier 1 and 2 projects will be relatively small. Any restriction of access with any

safety zones or advisory safe passing distances placed around structures or individual vessels carrying out major maintenance activities is expected to be temporary and it is unlikely that the activities of all projects would temporarily coincide to restrict the access to all the considered active hydrocarbon licence blocks. The greatest amount of the largest infrastructure and associated minimum spacing, and the greatest extent of advisory safety zones over the longest construction phase represents the greatest potential for reduction or restriction of oil and gas exploration activities.

208. As described in Table 15.13, NtMs will be issued regularly during the operation and maintenance phase of the Array, advising of the location, nature and timing of activities, ensuring that oil and gas operational activities can be planned accordingly. Similar measures are likely to apply at the other projects as standard practice.

209. The impact is predicted to cause a minor shift away from the baseline, leading to a reduction of access to active oil and gas blocks for a long term duration. The frequency of repetition is continuous and the effect is not reversible for the operation and maintenance phase. The magnitude is therefore considered to be medium.

Sensitivity of receptor

210. It is anticipated that oil and gas operators will be able to alter their route or transit past maintenance activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array.

211. Continued and regular communication with oil and gas operators in line with industry standard will ensure relevant parties are kept informed of planned activities in order to minimise spatial and temporal interactions between conflicting activities and maximise coexistence.

212. The receptor is deemed to be of moderate value to the regional economy and oil and gas activities are somewhat vulnerable to impacts that may arise from the project and recoverability is moderate. The sensitivity of the receptor is therefore considered to be low.

Significance of effect

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

Further mitigation and residual effect

214. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10 is not significant in EIA terms.

<u>Decommissioning phase</u>

Magnitude of impact

215. The decommissioning of the infrastructure within the Array, together with the Tier 1 and 2 projects identified in Table 15.14may lead to the reduction or restriction of access to active hydrocarbon licence blocks by oil and gas operators.

216. Figure 15.9 provides an overview of the location of other projects screened into the cumulative assessment in relation to accessibility for oil and gas operators. The infrastructure and other users study area – inner area overlaps active hydrocarbon licence Blocks 27/3, 27/9 and 27/10, which are operated by North Sea Natural Resources Ltd (Licence number: P2321). Smaller levels of displacement may also occur due to site investigation activities associated with EGL2, Berwick Bank Offshore Wind Farm, Seagreen 1A Project, Inch Cape Offshore Wind Farm, Morven Offshore Wind Farm, Muir Mhor Offshore Wind Farm, Salamander Offshore Wind Farm and Cenos Offshore Wind Farm. Additional displacement may also occur during maintenance activities undertaken at Seagreen 1 Offshore Wind Farm, Kincardine Offshore Wind Farm, Hywind and Aberdeen Offshore Wind Farm.

217. The spatial extent of the impact on accessibility to active hydrocarbon licence blocks in the vicinity of the Array, together with the Tier 1 and 2 projects will be relatively small. Any restriction of access with any safety zones or advisory safe passing distances placed around individual vessels carrying out decommissioning activities is expected to be temporary and it is unlikely that the activities of all projects would temporarily coincide to restrict the access to all the considered active hydrocarbon licence blocks. The Applicant intend to communicate with other projects to limit temporal overlap of activities. The greatest amount of the largest infrastructure and associated minimum spacing, and the greatest extent of advisory safety zones over the longest decommissioning phase represents the greatest potential for reduction or restriction of oil and gas exploration activities.

218. At the end of the operational lifetime of the Array, it is anticipated that all structures above the seabed or ground level will be completely removed where this is feasible and practicable. This will be kept under review depending on current legislation and guidance requirements, best practice and other options may be required including cutting structures below the seabed. It is proposed than an assessment will be undertaken on a maximum design scenario of removing all inter-array cables. The decommissioning sequence will generally be the reverse of the construction sequence and involve similar types and numbers of vessels and equipment.

219. As described in Table 15.13, NtMs will be issued regularly during the decommissioning phase of the Array, advising of the location, nature and timing of activities, ensuring that oil and gas operational activities can be planned accordingly. Similar measures are likely to apply at the other projects as standard practice.

220. The cumulative impact is predicted to cause a minor shift away from the baseline at a regional spatial extent, leading to a reduction in the level of recreational activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous and the effect is not reversible for the decommissioning phase. The magnitude is therefore considered to be low.

Sensitivity of receptor

221. It is anticipated that oil and gas operators will be able to alter their route or transit past decommissioning activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array.

222. Continued and regular communication with oil and gas operators in line with industry standard will ensure relevant parties are kept informed of planned activities in order to minimise spatial and temporal interactions between conflicting activities and maximise coexistence.

223. The receptor is deemed to be of moderate value to the local economy oil and gas activities somewhat vulnerable to impacts that may arise from the project and recoverability is moderate to high. The sensitivity of the receptor is therefore considered to be medium.

Significance of effect

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

Further mitigation and residual effect

225. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10 is not significant in EIA terms.

Tier 3

Construction phase

Magnitude of impact

226. In addition to the installation of Array infrastructure within the Array and Tier 1 and Tier 2 projects, Tier 3 projects have been identified in Table 15.14, which may lead to the reduction or restriction of access to active hydrocarbon licence blocks by oil and gas operators.

227. As these are Tier 3 projects, there are no Scoping Reports in the public domain. Therefore, there is no information available on the impact that the construction of these Tier 3 projects may have on infrastructure and other user receptors. Reduction or restriction of access to active hydrocarbon licence blocks by oil and gas operators associated with these Tier 3 projects is expected to be similar in nature and extent to the Array. Furthermore, if the projects are approved, smaller levels of displacement may also occur due to site investigation activities associated with Bellrock Offshore Wind Farm, Bowdun Offshore Wind Farm, Campion Offshore Wind Farm, Cedar, Flora Floating Wind Farm and Aspen.

228. The maximum duration of the offshore construction phase for the Array is up to eight years (2031 to 2038). There are currently no dates available for when the construction phase of the Tier 3 projects will commence and therefore there may be a minimal overlap between the site preparation and construction activities of the Array and that of Tier 3 projects (Table 15.14). It should be noted that the various sites are of small scale (3 MW to 1,350 MW). The greatest amount of the largest infrastructure and associated minimum spacing, and the greatest extent of advisory safety zones over the longest construction phase represents the greatest potential for reduction or restriction of oil and gas exploration activities.

229. As described in Table 15.13, NtMs will be issued regularly during the construction phase of the Array, advising of the location, nature and timing of activities, ensuring that oil and gas operational activities can be planned accordingly. Similar measures are likely to apply at the other projects as standard practice.

230. The cumulative impact is predicted to cause a minor shift away from the baseline at a regional spatial extent, leading to a reduction in the level of oil and gas activity that may be undertaken for a short to medium term duration. The frequency of repetition is continuous and the effect is not reversible for the construction phase. The magnitude is therefore considered to be low.

Sensitivity of receptor

231. It is anticipated that oil and gas operators will be able to alter their route or transit past installation activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array.

232. The receptor is deemed to be of moderate value to the regional economy and oil and gas activities are somewhat vulnerable to impacts that may arise from the project and recoverability is moderate to high. The sensitivity of the receptor is therefore considered to be medium.

Significance of effect

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

Further mitigation and residual effect

234. No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10) is not significant in EIA terms.

Operation and maintenance phase

Magnitude of impact

235. The presence of the Array infrastructure and/or operation and maintenance activities within the Array, together with the Tier 3 projects identified in Table 15.14, may lead to the reduction or restriction of access to active hydrocarbon licence blocks by oil and gas operators.

236. As these are Tier 3 projects, there are no Scoping Reports in the public domain. Therefore, there is no information available on the impact that these Tier 3 projects may have on infrastructure and other user receptors. If these projects are approved, it has been assumed for the purposes of this assessment, as a maximum design scenario, operation and maintenance phases for these projects may overlap with the operation and maintenance phase of the Array. However, due to the lack of project information at this stage, a qualitative assessment is provided below. For the purposes of this assessment, these projects are expected to include similar maintenance activities as those described for the Array, including similar types of vessels. It is unlikely that maintenance activities at all projects would temporally coincide to displace the same oil and gas operators on multiple occasions.

237. As described in Table 15.13, NtMs will be issued regularly during the operation and maintenance phase of the Array, advising of the location, nature and timing of activities, ensuring that oil and gas operational activities can be planned accordingly. Similar measures are likely to apply at the other projects as standard practice.

238. The cumulative impact is predicted to cause a minor shift away from the baseline at a regional spatial extent, leading to a reduction in the level of oil and gas activity that may be undertaken for a medium term duration. The frequency of repetition is continuous and the effect is not reversible for the operation and maintenance phase. The magnitude is therefore considered to be low.

Sensitivity of receptor

239. It is anticipated that oil and gas operators will be able to alter their route or transit past maintenance activities and associated safety zones and advisory safe passing distances, given the adequate sea room around the Array.

240. The receptor is deemed to be of moderate value to the regional economy and oil and gas activities are somewhat vulnerable to impacts that may arise from the project and recoverability is moderate to high. The sensitivity of the receptor is therefore considered to be medium.

Significance of effect

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

Further mitigation and residual effect

16 No infrastructure and other users mitigation is considered necessary because the likely effect in the absence of further mitigation (beyond the designed in measures outlined in section 15.10 is not significant in EIA terms.

15.13. PROPOSED MONITORING

242. No infrastructure and other users monitoring to test the predictions made within the assessment of LSE[1] on infrastructure and other users is considered necessary.

15.14. TRANSBOUNDARY EFFECTS

243. A screening of transboundary impacts has been carried out and has identified that there were no likely significant transboundary effects with regard to infrastructure and other users from the Array upon the interests of European Economic Area (EEA) states.

15.15. INTER-RELATED EFFECTS (AND ECOSYSTEM ASSESSMENT)

244. A description of the likely inter-related effects arising from the Array on infrastructure and other users is provided in volume 2, chapter 20 of the Array EIA Report.

245. For infrastructure and other users, the following potential impacts have been considered within the inter-related assessment:

- physical restriction on space for recreational craft and recreational fishing vessels;
- physical restriction on space for recreational activities/recreational fishing; and
- physical impact or loss of access to existing cables and pipelines.

246. Table 15.16 lists the inter-related effects (project lifetime effects) that are predicted to arise during the construction, operation and maintenance phase, and decommissioning of the Array and also the inter-related effects (receptor-led effects) that are predicted to arise for infrastructure and other users receptors.

247. As noted above, effects on infrastructure and other users also have the potential to have secondary effects on other receptors and these effects are fully considered in the topic-specific chapters. These receptors and effects are:

- physical restriction on space for recreational craft and recreational fishing vessels;
- displacement of recreational sailing and motor cruising, recreational fishing (boat angling) and other recreational activities (diving vessels);
- physical restriction on space for recreational activities/recreational fishing;
- displacement of recreational fishing (shore angling) and other recreational activities and
- physical impact or loss of access to existing cables and pipelines.

Table 15.16: Summary of Likely Significant Inter-Related Effects for Infrastructure and Other Users from Individual Effects Occurring Across the Construction, Operation and Maintenance and Decommissioning Phases of the Array (Array Lifetime Effects) and from Multiple Effects Interacting Across all Phases (Receptor-led Effects)

Description of Impact	Phase[7] C	O	D	Likely Significant Inter-Related Effects
Array Lifetime Effects				
Physical restriction on space for recreational craft/recreational fishing vessels.	✓	✓	✓	The presence of infrastructure, safety zones and advisory safe passing distances during the construction phase may result in the displacement of recreational craft and recreational fishing vessels from the Array. During the operation and maintenance phase, the presence of infrastructure, safety zones and advisory safe passing distances around maintenance activities may result in the displacement of recreational craft and recreational fishing vessels in the Array. During the decommissioning phase, the presence of infrastructure, safety zones, and advisory safe passing distances may result in the displacement of recreational craft and recreational fishing vessels from the Array. The level of recreational activity within the Array is low. Therefore, across the Array project lifetime, the effects on recreational craft users and recreational fishing vessels are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phase.
Physical impact or loss of access to existing cables and pipelines.	✓	✓	✓	Existing cables and pipelines may be affected where they are crossed by the Array infrastructure. In addition, the presence of the Array infrastructure, safety zones and advisory safe passing distances may restrict access to existing cables and pipelines during construction, operation and maintenance, and decommissioning activities. Cable and pipeline crossing proximity agreements will be developed and implemented with each relevant cable and pipeline operator to minimise the potential for any impact. Crossing agreements will include the ability of a cable/pipeline operator to access their infrastructure as far as practical during the Array construction and decommissioning phases and the crossing agreements will ensure close communication and planning between the affected parties to ensure disruption of activities is minimised. Therefore, across the Array project lifetime, the effects on infrastructure and other users are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual phase.
Receptor led effects				
Potential exists for spatial and temporal interactions between direct and indirect impacts to infrastructure and other users receptors. Based on current understanding and expert knowledge, there is scope for potential inter-related impacts to arise from the physical restriction on space for recreational craft and recreational fishing vessels interacting with the displacement of recreational sailing and motor cruising, recreational fishing (boat angling) and other recreational activities. Where both impacts overlap spatially and temporally, there is potential for inter-related effects as the restriction/displacement on movements of recreational activity may cover a large area. However, as a vast extent of alternative resource for recreational activities will remain available and the impacts initially identified were of minor adverse significance these impacts are not likely to interact in a way that results in a significant inter-related effect.				

[7] C = Construction, O = Operation and maintenance, D = Decommissioning

15.16. SUMMARY OF IMPACTS, MITIGATION, LIKELY SIGNIFICANT EFFECTS AND MONITORING

248. Information on infrastructure and other users within the broad infrastructure and other users study area and the infrastructure and other users study area – inner area was collected through desktop review and consultation. This information is summarised in Table 15.17 and Table 15.18.

249. Table 15.17 presents a summary of the potential impacts, designed in measures and the conclusion of LSE[1] in EIA terms in respect to infrastructure and other users. The impacts assessed include displacement of recreational sailing and motor cruising, recreational fishing (boat angling) and other recreational activities due to the presence of infrastructure safety zones and advisory safe passing distances, resulting in the loss of recreational resources; and temporary or long term restriction of access to active hydrocarbon licence blocks by oil and gas operators either temporarily or long term as a result of installation, maintenance and decommissioning activities.

250. Overall, it is concluded that there will be no likely significant arising from the Array during the construction, operation and maintenance, and decommissioning phases.

251. Table 15.18 presents a summary of the potential impacts, designed in measures and the conclusion of LSE[1] on infrastructure and other users in EIA terms. The cumulative effects assessed include displacement of recreational vessels, and restricted access to active hydrocarbon licence blocks by oil and gas operators. Overall, it is concluded that there will be no likely significant cumulative effects from the Array alongside other projects/plans.

252. No likely significant transboundary effects have been identified in regard to effects of the Array.

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Table 15.17: Summary of Likely Significant Environmental Effects, Secondary Mitigation and Monitoring

Description of Impact	Phase	Magnitude of Impact	Sensitivity of Receptor	Significance of Effect	Additional Measures	Significance of Residual Effect	Proposed Monitoring
Displacement of recreational sailing and motor cruising, recreational fishing (boat angling) and other recreational activities (diving vessels) due to safety zones and advisory safe passing distances in the Array may result in a loss of recreational resource	Construction	Low	Low	Minor	N/A	N/A	None
	Operation and maintenance	Medium	Low	Minor	N/A	N/A	None
	Decommissioning	Low	Low	Minor	N/A	N/A	None
Installation and presence of the wind turbines, OSPs and inter-array/interconnector cabling within the Array, including associated safety zones and advisory safe passing distances, may affect or restrict access to active licence blocks by oil and gas operators either temporarily or long term	Construction	Low	Medium	Minor	N/A	N/A	None
	Operation and maintenance	Medium	Low	Minor	N/A	N/A	None
	Decommissioning	Low	Medium	Minor	N/A	N/A	None

Table 15.18: Summary of Likely Significant Cumulative Environment Effects, Mitigation and Monitoring

Description of Impact	Phase	Cumulative Effects Assessment Tier	Magnitude of Impact	Sensitivity of Receptor	Significance of Effect	Additional Measures	Significance of Residual Effect	Proposed Monitoring
Displacement of recreational sailing and motor cruising, recreational fishing (boat angling) and other recreational activities (diving vessels) due to safety zones and advisory safe passing distances in the Array may result in a loss of recreational resource	Construction	Tier 1, 2 and 3	Low	Low	Minor	N/A	Minor	None
	Operation and maintenance	Tier 1, 2 and 3	Medium	Low	Minor	N/A	N/A	None
	Decommissioning	Tier 1, 2 and 3	Low	Low	Minor	N/A	N/A	None
Installation and presence of the wind turbines, OSPs and inter-array/interconnector cabling within the Array, including associated safety zones and advisory safe passing distances, may affect or restrict access to active licence blocks by oil and gas operators either temporarily or long term	Construction	Tier 1, 2 and 3	Low	Medium	Minor	N/A	N/A	None
	Operation and maintenance	Tier 1, 2 and 3	Medium	Medium	Minor	N/A	N/A	None
	Decommissioning	Tier 1, 2 and 3	Low	Medium	Minor	N/A	N/A	None

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