



Bowdun Offshore Wind Farm, Offshore EIA Report

Volume 3, Technical Appendix 14.3: Shipping and
Navigation Vessel Traffic Survey Report 2025

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NASH

MARITIME

BOWDUN OFFSHORE WIND FARM

Survey Report – Summer/Winter 2025

Tetra Tech RPS Energy

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ABBREVIATIONS

Abbreviation	Detail
AIS	Automatic Identification System
CCTV	Closed Circuit Television
EIA	Environmental Impact Assessment
GPS	Global Positioning System
GT	Gross Tonnage
kts	Knot (unit of speed equal to nautical mile per hour, approximately 1.15 mph)
kW	Kilowatt
L	Litres
LOA	Length Overall
LNG	Liquefied natural gas
m	Metre
MCA	Maritime and Coast Guard Agency
MGN	Marine Guidance Note
nm	Nautical Mile
NLB	Northern Lighthouse Board
NRA	Navigation Risk Assessment
OREI	Offshore Renewable Energy Installations
OWF	Offshore Windfarm
UTC	Coordinated Universal Time
VHF	Very High Frequency (radio communication)

1. INTRODUCTION

1.1 OVERVIEW AND DOCUMENT OBJECTIVE

NASH Maritime Ltd (NASH Maritime) have been contracted by Tetra Tech RPS Energy (previously RPS Energy Ltd) to undertake a Shipping and Navigation study for Thistle Wind Partner's proposed Bowdun Offshore Windfarm (OWF). The objective of this document is to provide a factual record of the primary marine vessel traffic datasets collected by NASH Maritime using Automatic Information System (AIS), marine radar and visual observations to support the Navigation Risk Assessment.

Full details on the assessment and data requirements, together with the data collection methodology used for the two surveys is contained within the documents titled 'TWP_Ayre_and_Bowdun_VTS_Methodology_R02_00' and 'TWP_Bowdun_Winter_VTS_Methodology_R03_00'.

Additional project shipping and navigation datasets will be collected to assist in the characterisation of vessel traffic in the project area and will be integrated with the data presented in this document during the Navigation Risk Assessment.

This survey supplements the two other vessel traffic surveys undertaken for the Bowdun OWF in summer 2023 (30-Jun-23 to 14-Jul-23) and winter 2024 (05-Jan-24 and 19-Jan-24) which are described in their own report (21-NASH-0285-BowdunVTS | R03-00). The purpose of this top up survey is to remain compliant with Maritime Coastguard Agency's (MCA) Marine Guidance Note (MGN) 654 titled 'Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response' guidelines. These guidelines defined the requirements for vessel traffic survey validity of 24 month prior to the Environmental Impact Assessment (EIA) report submission. Following consultation with the MCA on 14-Jan-2025 in relation to vessel traffic survey validity it was advised that a top up summer survey and winter survey in accordance with the MGN 654 requirements would be required for the Bowdun OWF.

This document does not extend to interpretive analysis of the data collected which was undertaken during the Navigation Risk Assessment as a component of the EIA.

1.2 GUIDANCE

Marine vessel traffic data for the proposed Bowdun OWF has been collected in accordance with requirements of MGN 654.

4.6 Navigation Risk Assessment (NRA) – Traffic Survey

a. An up to date, traffic survey of the proposed development area concerned should be undertaken within 12 months prior to submission of the EIA Report. This should include all the vessel and craft types found in the area and total at least 28 days duration but also take account of seasonal variations and peak times in traffic patterns and fishing operations. AIS data alone will not constitute an appropriate traffic survey; radar, manual observations, other data sources (e.g. for fishing and recreation) and stakeholder consultation will ensure those vessels that are not required to carry and operate AIS are included, and it provides an appropriate representation of the base line marine traffic.

2. MARINE VESSEL TRAFFIC SURVEY METHODOLOGY

2.1 SURVEY AREA AND DATA EXTENTS

The study area and Survey Areas have been defined within the Bowdun Offshore Wind Farm Offshore Scoping Report¹ and data was therefore collected for the OWF site with a 10 nm buffer. The nominal vessel location for the surveys is also shown in **Figure 1**.

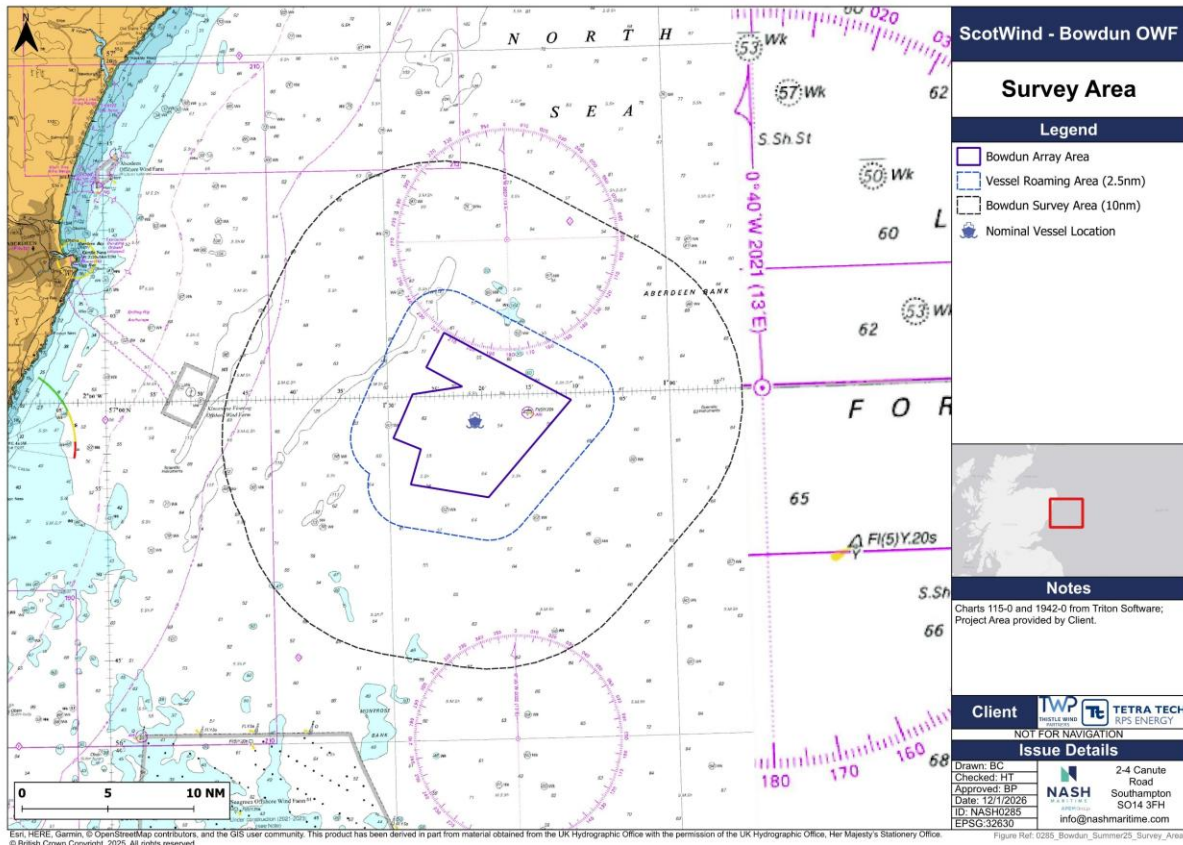


Figure 1: Survey Area

2.2 SURVEY VESSELS

The vessel based marine vessel traffic survey was undertaken using the Karelle survey vessel for both the summer and winter survey (see **Table 1** and **Figure 2**).

Table 1: Karelle Specifications

Feature	Value
Name	Karelle
Callsign	n/a
Date built	1996
Hull	Steel

¹ Bowdun Offshore Wind Farm Offshore Scoping Report – document number: TWP-BOW-RPS-OFS-RPT-00004 / FINAL. <https://marine.gov.scot/?q=node/25561>

Feature	Value
Length	27.85 m
Breadth	8.7 m
Depth	4.8 m
Tonnage	338 GT
Main Engine	Man Alpha 588 kW
Auxiliary Engine	Cummings 155BHP/Mitsubishi D622TC 214 kW
Speed	12 kts cruising 14 kts max
Fuel Oil Capacity	50,000 L
Freshwater Capacity	19,000 L



Figure 2: Karelle Survey Vessel

2.3 SURVEY EQUIPMENT

Survey equipment was installed on the survey vessel and was tested and maintained by NASH Maritime engineers throughout the survey period to integrate with the vessel's onboard systems. **Table 2** and **Table 3** provide an outline of general equipment on the vessel and the specific survey equipment used for vessel based AIS, radar and visual surveys.

Table 2: Survey Equipment

Item	No.	Purpose/Description
Survey Laptop Incl. logger software	2	1x laptop to record AIS and radar data outputs from vessel equipment – configured with chart and Survey Area layers for surveyor visual reference and context (to verify range/function etc.) and to record radar data outputs from vessel equipment 1x spare laptop for back-up Include battery for local power back-up to provide minimum of 1 hr emergency power
Power adaptor	2	Power for laptops (inc surge protection)
RS232 Cable	2	For data connection from AIS and radar equipment to laptop (may vary)
USB Memory Stick	2	Hourly back up of survey data files and images (per laptop and in duplicate)

Table 3: Karelle Vessel Equipment

Item	No.	Purpose/Description
ARPA Radar	2	Furuno ARPA AIS Chart overlay Koden ARPA AIS Chart overlay
AIS Receiver	1	Furuno
Satellite Broadband	1	Vessel fit Used for daily data transfer
Mobile Phone Coverage 4G and 5G	1	As varies Used for daily data transfer

2.4 SURVEY PERIODS

In accordance with MGN 654², the data was collected over 28 days in total. In order to ensure the overall survey incorporated seasonal variations in traffic patterns and consider peak and off-peak periods, the top up surveys were split into two survey campaign periods each of 14 days over a summer and winter season. The top-up survey was conducted to ensure that all 28 days of data were undertaken within the validity period of 24 months prior to submission of the EIA report.

The summer survey between 16-Jul-25 (05:00) and 30-Jul-25 (08:00) and the winter survey data was collected between 02-Dec-25 (17:00) and 16-Dec-25 (17:00).

² MCA MGN 654 Safety of Navigation: Offshore Renewable Energy Installations (OREIs) - Guidance on UK Navigational Practice, Safety and Emergency Response.
https://assets.publishing.service.gov.uk/media/64637cd60b72d3000c34454c/MGN_654.pdf

Daily radar logs were collated from the vessel and provided in **Appendix A**.

2.4.1 Vessel Downtime

No Downtime was recorded during the time on location for either the summer or winter survey.

2.5 SURVEY VESSEL LOCATION

The location of the survey vessel was monitored using onboard GPS, and a survey vessel track is presented in **Figure 3**.

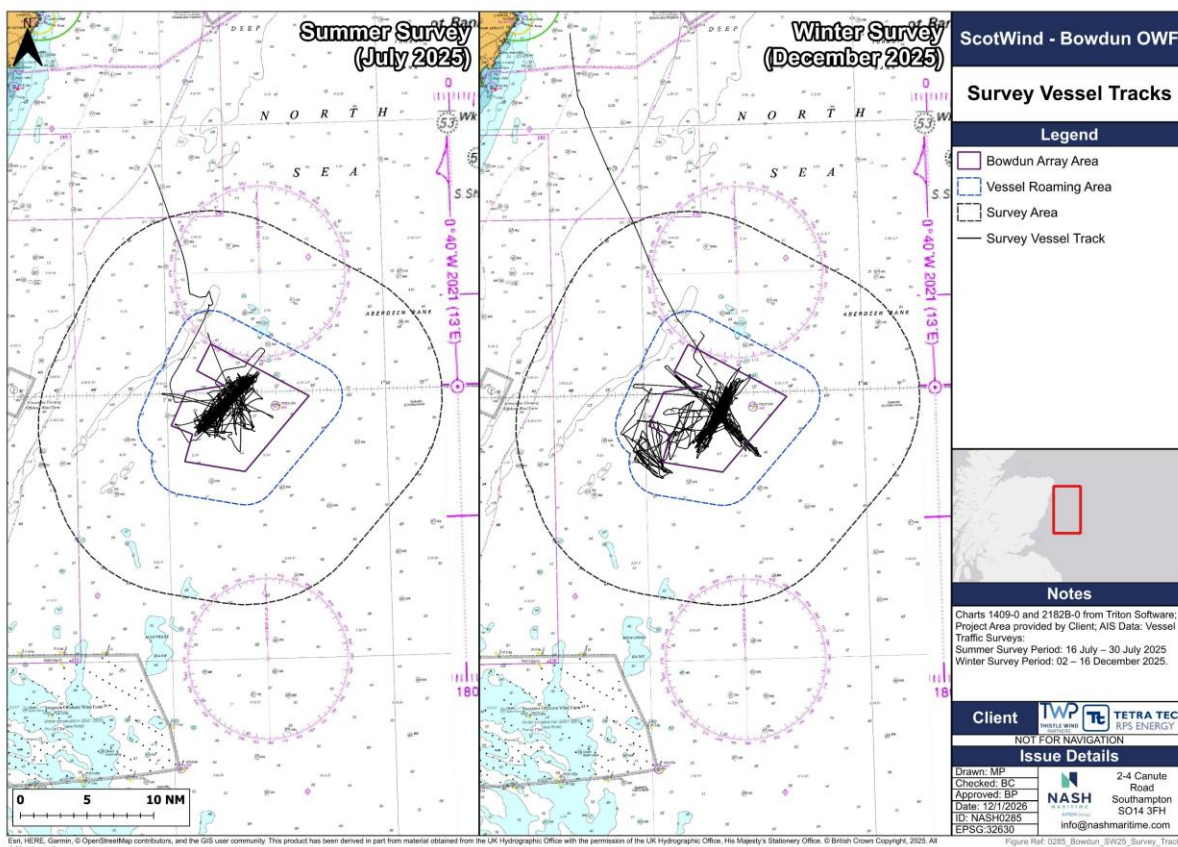


Figure 3: Summer and Winter Survey Vessel Tracks

2.6 WEATHER LOG

Weather was recorded by the survey vessel at six hourly intervals during each survey campaign (see **Appendix B** for the survey weather log).

For the summer period, the maximum wind experienced was 28 kts on 04-Jul-25. These winds contributed to a swell of 1.9 m and a moderate sea state.

During the winter period, the maximum wind experienced was 40 kts on 10-Dec-25 from the southeast (veering to the southwest) which contributed to a swell of 2 m and very rough sea state.

2.7 DATA COMPETENCY

Quality assurance checks on the survey vessel equipment and data collection was undertaken on a continuous basis throughout the surveys to ensure competency of equipment, area coverage and data collection fidelity. Initial data outputs following preliminary post processing of data are presented in **Section 3** and the data will be further post processed, interpreted and integrated with additional project datasets during the NRA.

It should be noted that some vessel tracks, as shown in this section, appear shortened or isolated. Reasons for this may include the below factors and, where notable for individual tracks, narrative is provided to accompany the plots.

- Coinciding with commencement or completion of survey (including survey vessel weather downtime events).
- Tracking vessels by radar initially and subsequently aligning with an AIS transmission (at which point radar tracking was ceased) or vice versa.
- Target vessel factors including:
 - Radar signature of the target vessel (shape and size of the vessel – for example a smaller vessel represents a smaller detectable radar signature).
 - Stability of the target vessel (shape and size of the vessel and motion in different sea states).
 - AIS transmission and detection range from target vessel can vary in strength and consistency due to factors including:
 - Whether equipment is on and transmitting (some small non mandatory vessels manually elect to transmit [and receive] infrequently for operational reasons)
 - Power and setting configuration of transmission equipment over Very High Frequency (VHF)
 - Location/height of aerial
 - Partial/intermittent shielding of AIS transmission aerial by vessel structures (common on smaller vessels)
 - Interference with other ship borne systems/communication equipment
 - State of repair of equipment and ancillary cables/fittings
 - Distance and range between target vessel and survey vessel
- Met-ocean effects including:

- Atmospheric pressure (ducting of AIS signals improves in higher pressure conditions); sea state and combination of swell waves and wind generated waves
- Precipitation and poor visibility (e.g. fog) will reduce radar and VHF range due to attenuation of signal and also influence ability of watch keeper making visual contact to identify vessel

3. SURVEY RESULTS

This section presents a series of vessel traffic plots, for the 10 nm Survey Area ('Survey Area') around the Bowdun OWF Array Area ('Array Area').

3.1 VESSEL TYPE

Figure 4, Figure 5, and Table 4 provide counts of identified vessels within the Survey Area for each of the main vessel types, comprising both AIS and non-AIS transit data. The most frequently identified vessel type during the summer survey was tug and service, with 136 vessels identified in the summer survey (35.8% of all summer vessels). Comparatively, cargo vessels were the most frequently transiting vessel type during the winter survey with 64 transits in the Survey Area (47% of all winter vessels).

The next most frequently identified vessel types during the summer survey were recreational and cargo, with 81 and 80 recorded vessel transits (21.3% and 21.2% of all summer vessels, respectively). It should be noted that the recreational vessel count is disproportionately inflated by local Tall Ships Races which took place in Aberdeen between the 19-22 July and saw a large number of recreational vessels transiting into and out of the area. This is atypical and does not necessarily reflect normal vessel traffic. During the winter survey, there were no recreational vessel transits.

Fishing is common in the region and was more prevalent overall in the summer survey than the winter survey.

There were no ferries observed within the Survey Area during either survey period. Cruise vessels were only observed within the Survey Area during the summer period.

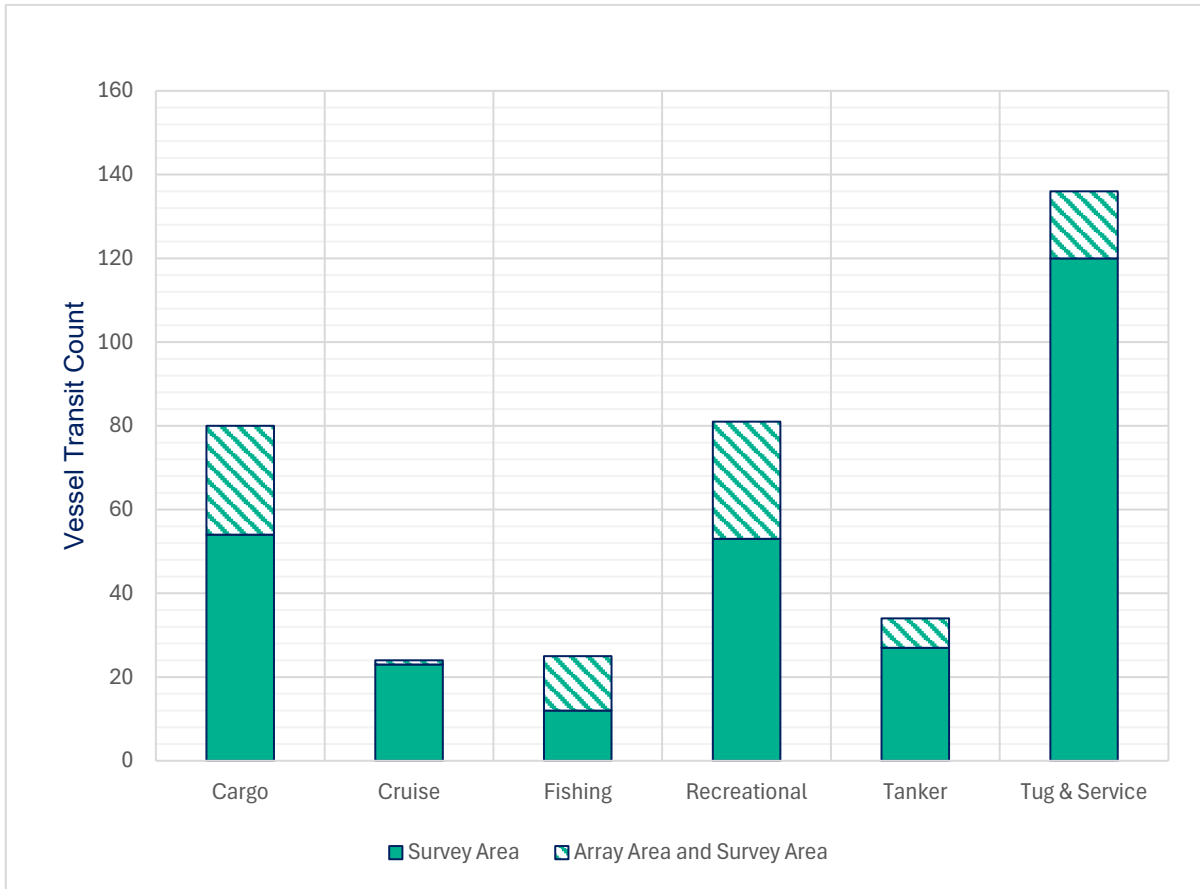


Figure 4: Vessel Transit Counts for Summer Survey

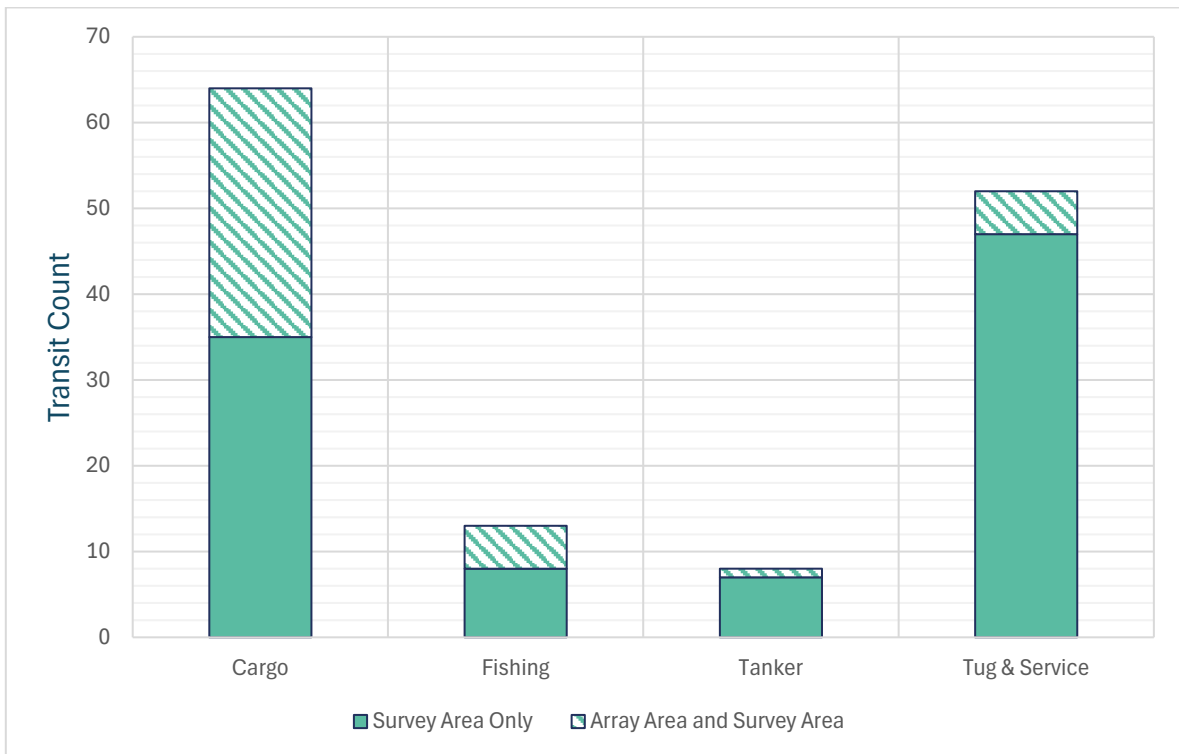


Figure 5: Vessel Transit Counts for Winter Survey

Table 4: Summary of Vessel Traffic Survey

Attributes	Summer 2025	Winter 2025
Vessel	Karelle (27.85 m Fishing Vessel)	
Dates	16-Jul-25 (05:00) to 30-Jul-25 (08:00)	02-Dec-25 (17:00) to 16-Dec-25 (17:00)
Downtime	N/A	
Survey Area	Bowdun Array Area + 10 nm	
Total Vessels Recorded (Survey Area)	380 (25.3/day) AIS: 375; Non-AIS: 5	137 (9.8/day) AIS: 136; Non-AIS: 1
Total Vessels Recorded (Array Area)	91 (5.7/day) AIS: 86; Non-AIS: 5	40 (2.9/day) AIS: 40; Non-AIS: 0
Cargo	Survey Area: 80 (5.7/day) Array Area: 26 (1.9/day)	Survey Area: 64 (4.6/day) Array Area: 29 (2.1/day)
Cruise	Survey Area: 24 (1.7/day) Array Area: 1 (0.1/day)	Survey Area: 0 (0/day) Array Area: 0 (0/day)
Ferry	Survey Area: 0 (0/day) Array Area: 0 (0/day)	Survey Area: 0 (0/day) Array Area: 0 (0/day)
Fishing	Survey Area: 25 (1.8/day) Array Area: 13 (0.9/day)	Survey Area: 13 (0.9/day) Array Area: 5 (0.4/day)
Recreational	Survey Area: 81 (5.8/day) Array Area: 28 (2/day)	Survey Area: 0 (0/day) Array Area: 0 (0/day)
Tanker	Survey Area: 34 (2.4/day) Array Area: 7 (0.5/day)	Survey Area: 8 (0.6/day) Array Area: 1 (0.1/day)
Tug & Service	Survey Area: 136 (9.7/day) Array Area: 16 (1.1/day)	Survey Area: 52 (3.7/day) Array Area: 5 (0.4/day)

3.1.1 Cargo

Figure 6 shows the transits of cargo vessels within the Survey Area. A total of 80 cargo vessel transits entered the Survey Area during the summer survey, representing 21.1% of all summer vessel transits, with 26 entering the Array Area. The winter survey recorded similar results with the number of cargo vessels transits entering the Survey Area being 64 (47% of all winter vessel transits) and 29 of these transits intersecting the Array Area.

Of the summer and winter cargo vessels (98 total), the majority of vessel transits were oriented northwest-southeast directly across the Array Area. Other transits (32 total) were made by vessels travelling east-west across the north extent of the wider Survey Area generally to/from Aberdeen.

The largest cargo vessel recorded during transiting the Array Area during the survey period was the bulk carrier *Lowlands Century*, with LOA of 228m which was recorded during the summer survey period.

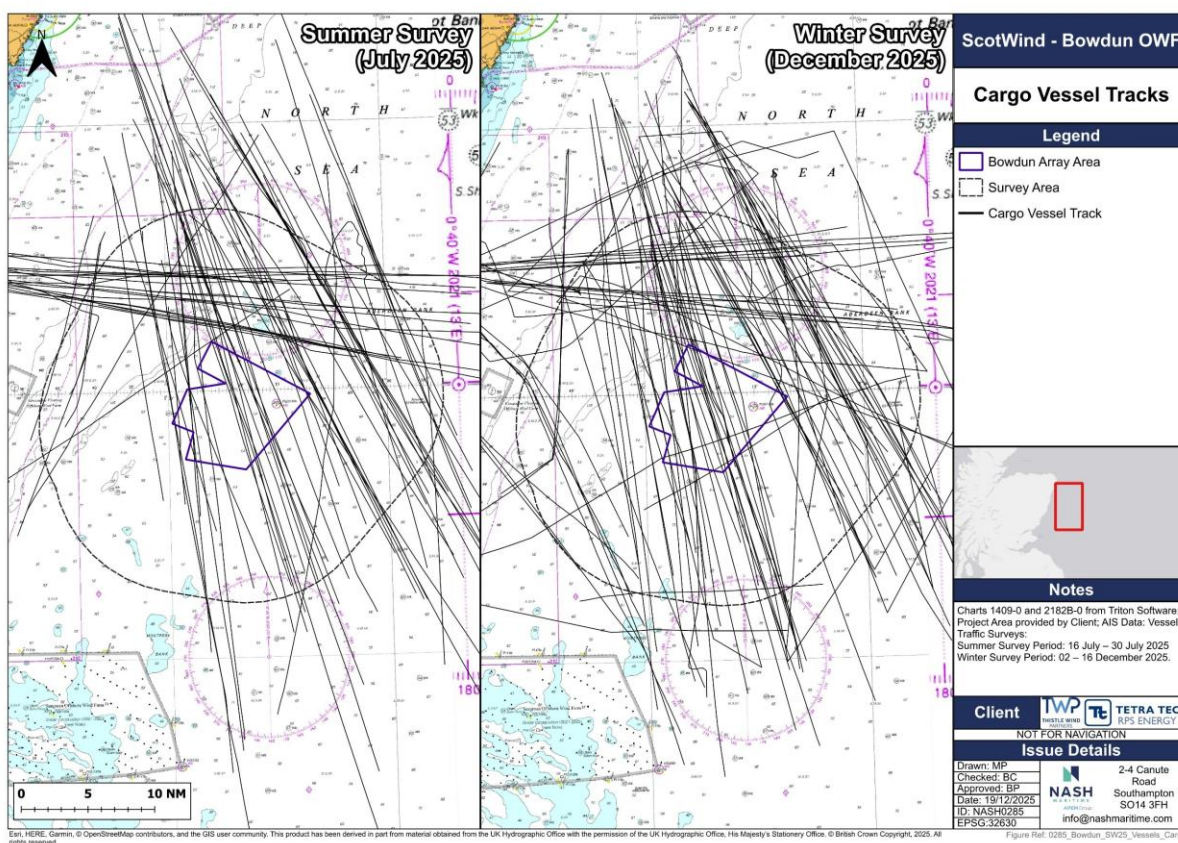


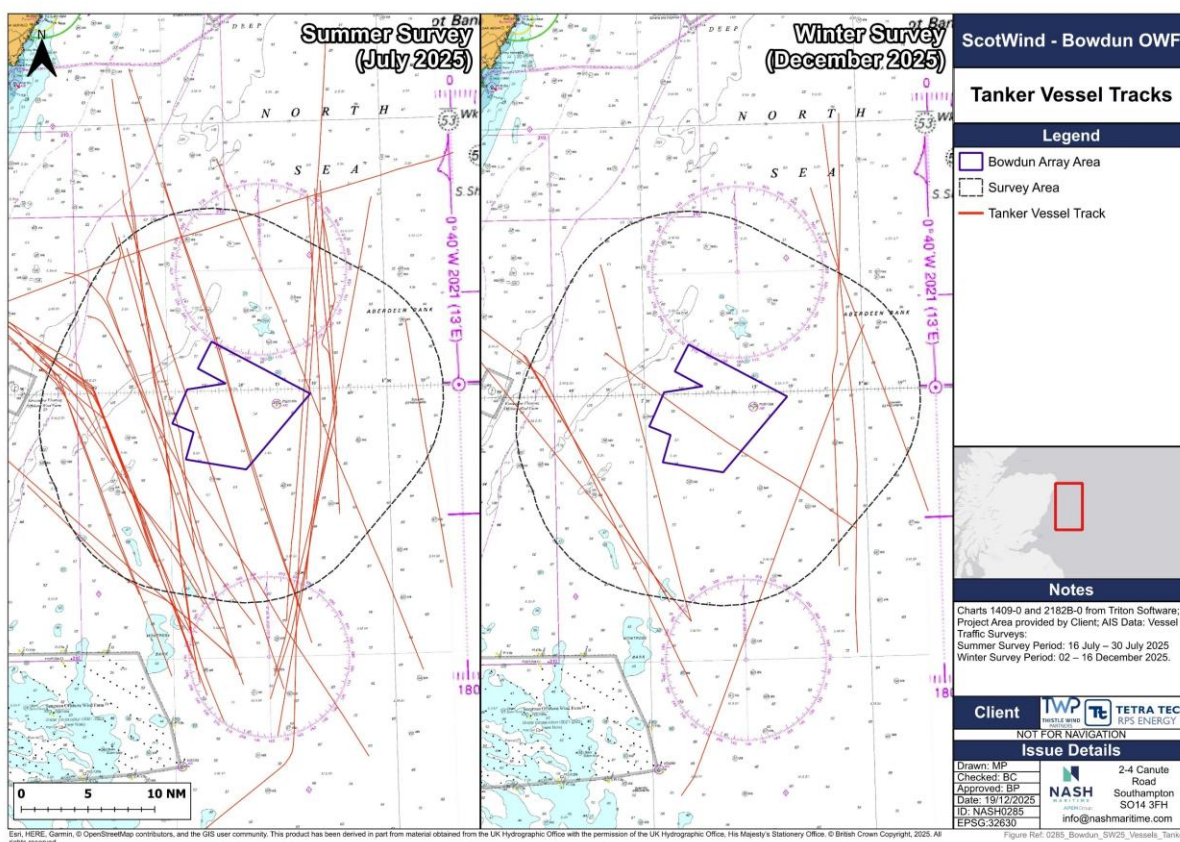
Figure 6: Cargo Vessel Tracks

3.1.2 Tanker

Figure 7 presents the transits of tanker vessels during the surveys. A total of 34 tanker vessels entered the Survey Area during the summer survey (8.9% summer survey transits), of which seven entered the Array Area. The winter survey recorded eight tanker transits (6% winter survey transits) entering the Survey Area, of which one intersected the Array Area.

The tanker transits that primarily passed through the Array Area oriented in a north-south direction in both surveys. There are a small number of tanker vessels operating out of the Port of Aberdeen that enter the southwestern region of the Survey Area (11 transits in the summer survey and three in the winter survey).

The largest tanker vessel to transit the Array Area was the 180 m LOA LNG tanker *Ineos Independence*.



3.1.3 Passenger

Figure 8 presents passenger vessel transits by vessel type: cruise vessel or passenger ferry. A total of 24 cruise vessel transits intersected the Survey Area during the summer survey with one entering the Array Area. During the winter survey there were no cruise vessels recorded entering the Survey Area. No ferry vessels were identified within the Survey Area across either survey period.

The majority of cruise vessels that entered the Survey Area transited west of the Array Area in a northeast-southwest orientation. The cruise vessel that passed through the Array Area did so in a north-south orientation; this vessel was the *Balmoral*, operated by Fred Olsen cruise lines, with LOA 218 m.

The cruise operators identified most often during the summer survey was Viking Cruises with three recorded transits. The largest cruise vessel in the vicinity was the 330 m LOA *Regal Princess*, operated by Princess Cruises.

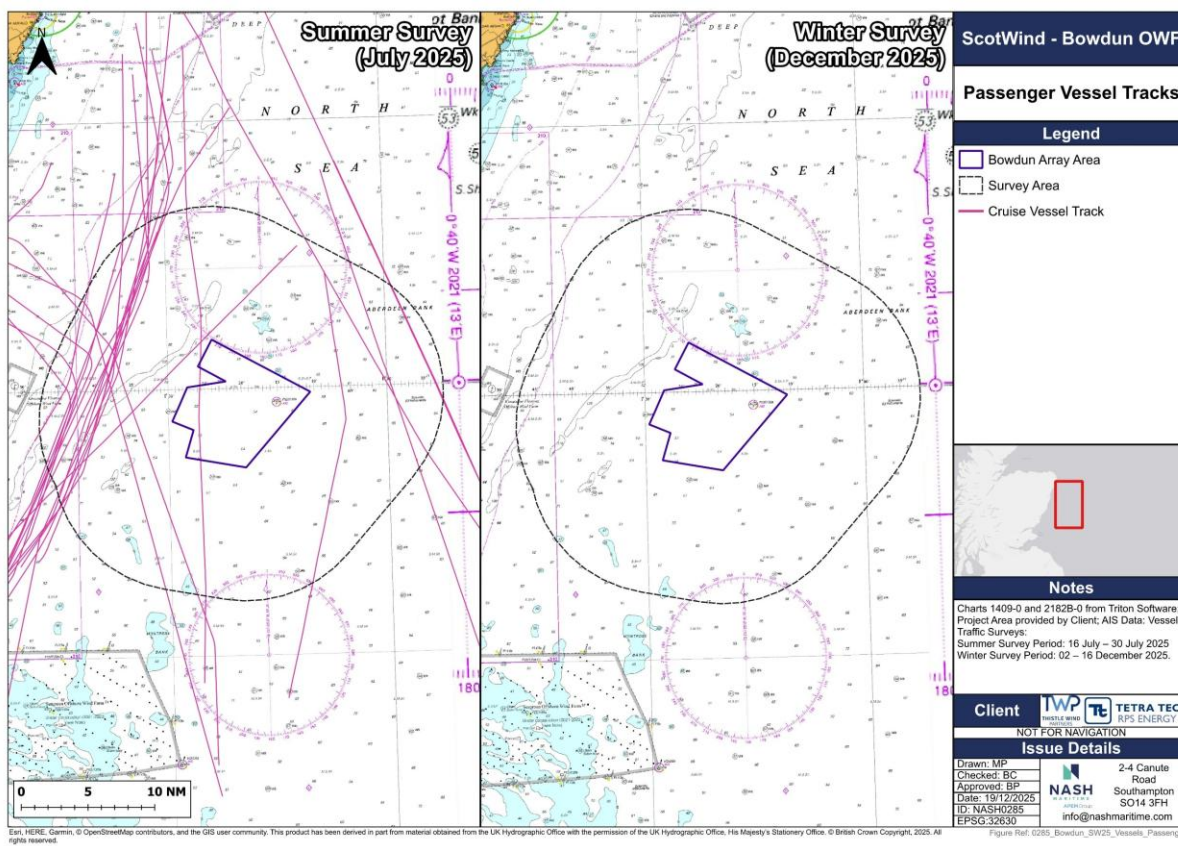


Figure 8: Passenger Vessel Tracks

3.1.4 Fishing

Figure 9 presents transits of fishing vessels recorded by both AIS and non-AIS (radar/visual methods) during the survey periods. A total of 25 fishing vessel transits were recorded in the Survey Area during the summer survey (representing 6.6% of summer survey transits) with 13 entering the Array Area. The winter survey recorded 13 fishing vessel transits within the Survey Area and five of these intersected the Array Area.

During the summer survey, aside from the five unidentified vessel transits recorded with non-AIS data, the vast majority of transits within the Array Area can be attributed to the trawler *North Star* (responsible for the zigzag tracks evident in the summer survey data). During the winter survey there were 12 different fishing vessels recorded by AIS and fishing vessel transits were much less frequent.

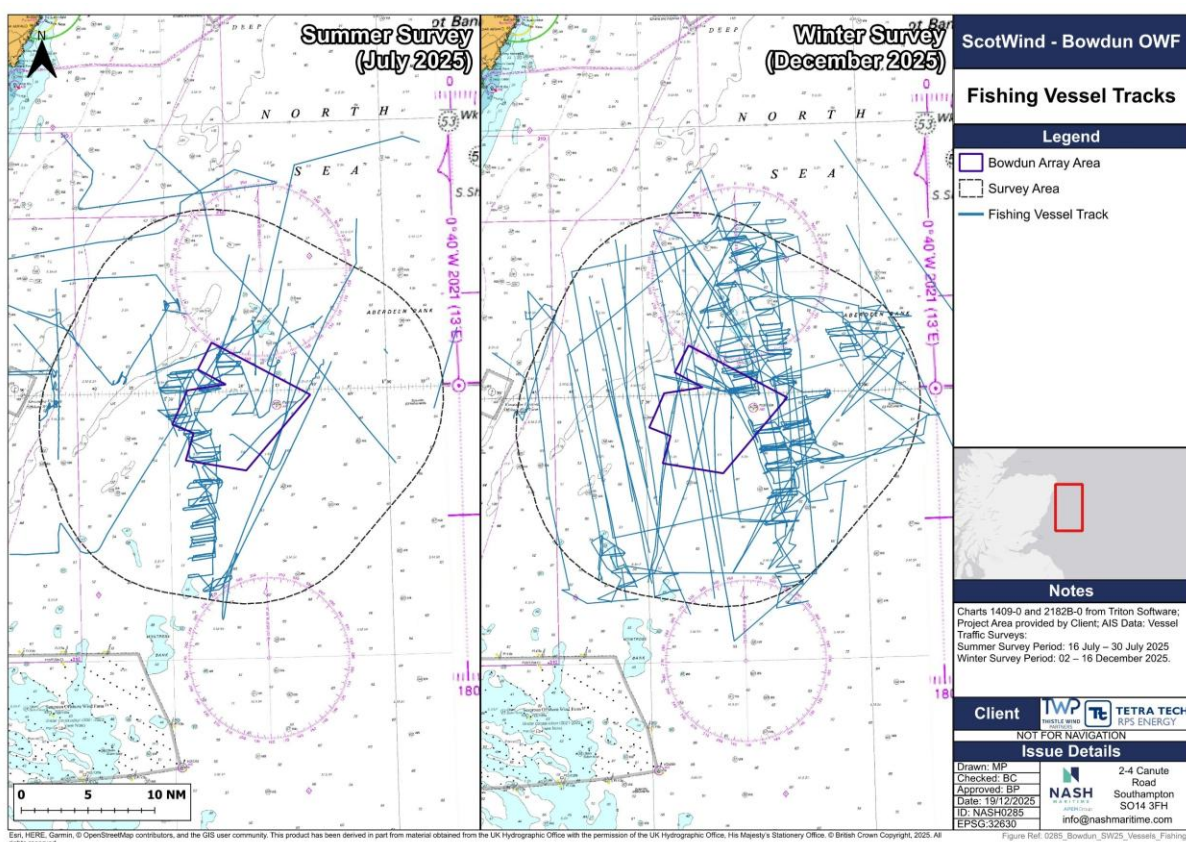


Figure 9: Fishing Vessel Tracks

3.1.5 Recreational

Figure 10 presents recreational vessel activity within the Survey Area. A total of 81 recreational transits were recorded during the summer survey, accounting for 21.3% of summer survey transits. Of these, 28 transits intersected with the Array Area. Most recreational vessels transited east-west on the northern half of the Survey Area. As noted in **Section 3.1**, recreational transits are exaggerated over this period due to the Tall Ships Races that occurred over the 19-22 July. On the 16-17th and 22nd July, 35 and 30 recreational transits were recorded respectively, collectively making up 80% of transits for this vessel type. The Tall Ships Race event is held annually at a different location every year. It has been scheduled three times in Aberdeen, in 1991, 1997, and 2025, and is not scheduled to be hosted here again for the remainder of the published timetable, which covers up until 2029. Typical counts of recreational tracks over the summer period are likely to be less frequent with approximately 16 transits per two-week period.

Recreational tracks *not* occurring on the 16, 17, or 22 July (which are assumed to be associated with the Tall Ships Races) largely transited in a northwest-southeast direction, directly across the Array Area.

There were no recreational vessel transits made within the Survey Area during the winter survey period.

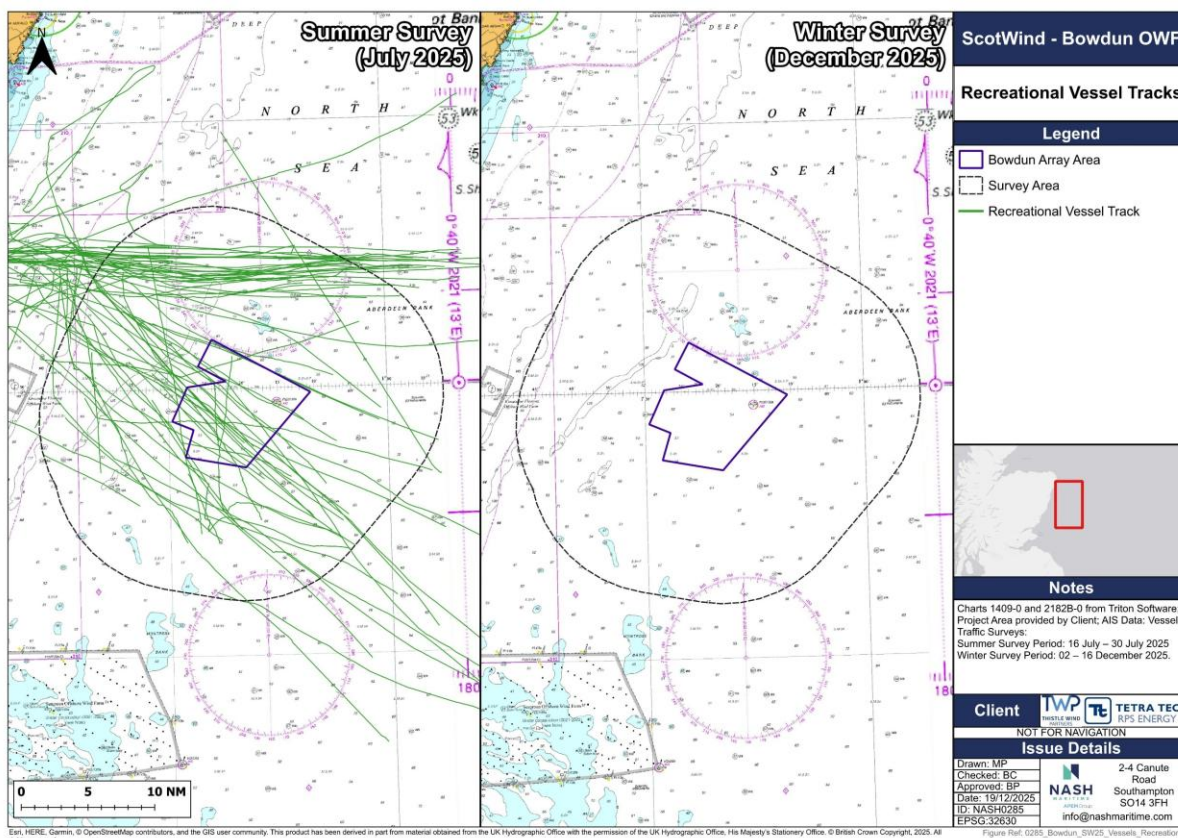


Figure 10: Recreational Vessel Tracks

3.1.6 Tug & Service

Tug and service vessel transits are presented in **Figure 11**. A total of 136 tug and service vessels entered the Survey Area during the summer survey with 16 entering the Array Area. This was the most numerous vessel type, accounting for 35.8% of summer survey transits. The winter survey recorded fewer tug and service vessel transits, with 52 in the Survey Area (38% of winter survey transits) and five intersecting the Array Area.

During both surveys, the majority of tug and service vessels identified were transiting broadly east-west through the northern region of the Survey Area. These are composed almost entirely of oil and gas support vessels operating out of Aberdeen. During the winter survey, dense transits were recorded in a northwest-southeast orientation to the east of the Array Area. These were due to a survey vessel for the Eastern Geen Link 5 project.

The largest vessel observed was the 154 m LOA *North Sea Giant*, recorded once during the summer survey.

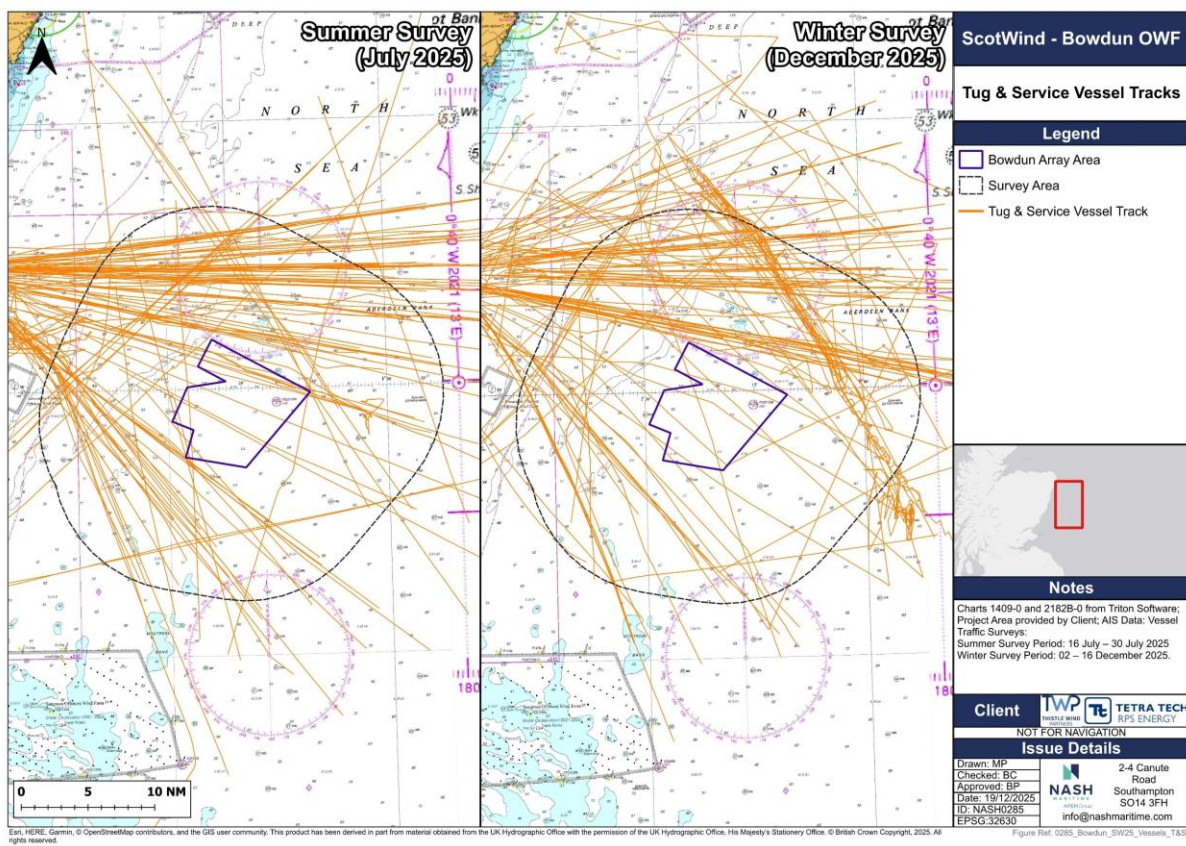


Figure 11: Tug & Service Vessel Tracks

3.2 VESSEL COUNTS

Figure 12 and **Figure 13** show the daily counts of vessel transits by vessel type through the Survey Area during the summer and winter survey periods. It should be considered that the first and last day of each survey period are not representative of a full 24 hour day.

There were 380 and 137 individual transits identified through the Survey Area during the summer and winter survey periods averaging 25 and ten per day, respectively. Transits intersecting the Array Area totalled to 86 and 40 transits during the summer and winter survey, averaging six and three per day, respectively.

Generally, the proportions of vessel transits by vessel type are consistent throughout the summer survey period, however there were days during the summer survey with deviation from average (16, 17, and 22 July) as discussed in **Sections 3.1** and **3.1.5**. The winter survey had comparatively fewer transits overall from all vessel types with the busiest full day totalling a similar number of transits to the least busy full summer day.

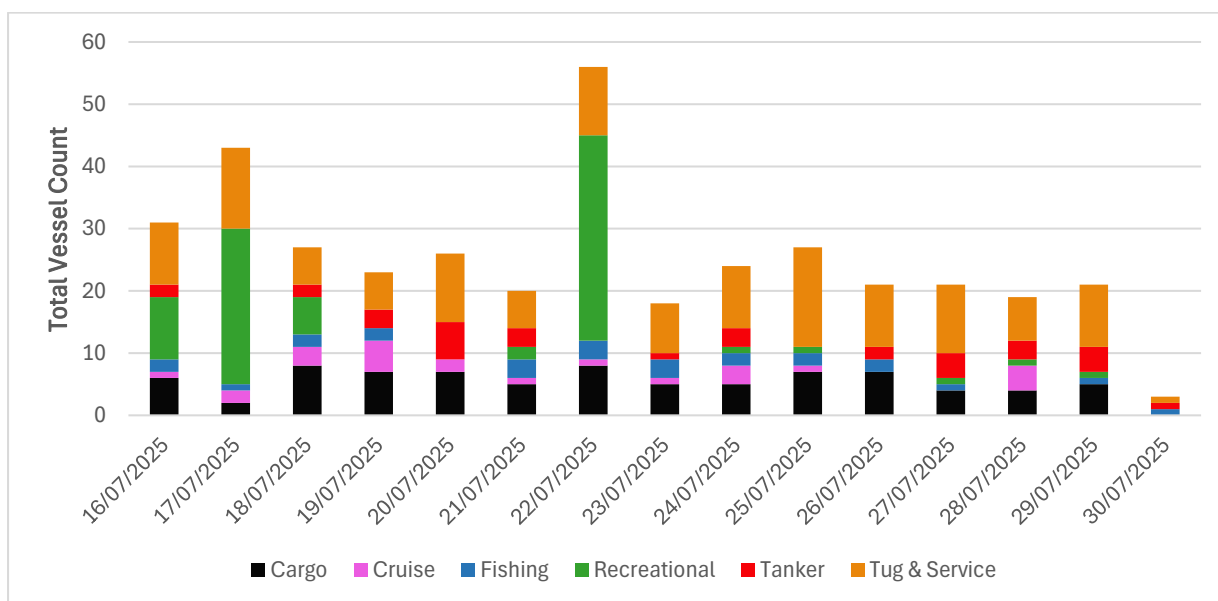


Figure 12: Daily Vessel Counts During the Summer Survey

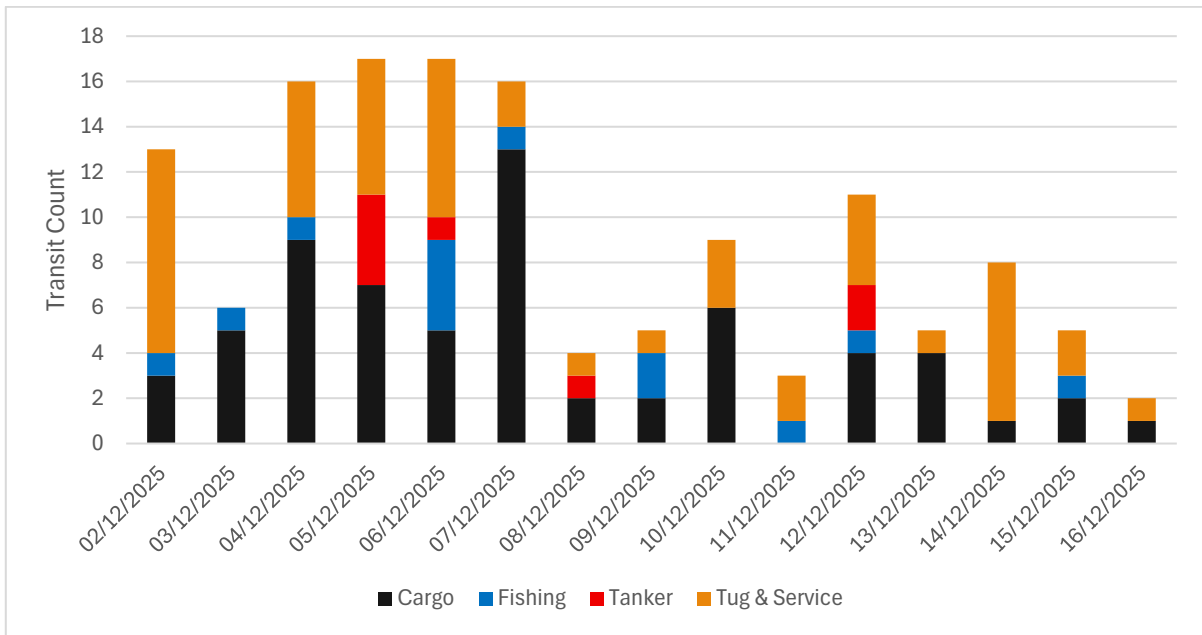


Figure 13: Daily Vessel Counts During the Winter Survey

3.3 VESSEL SIZE

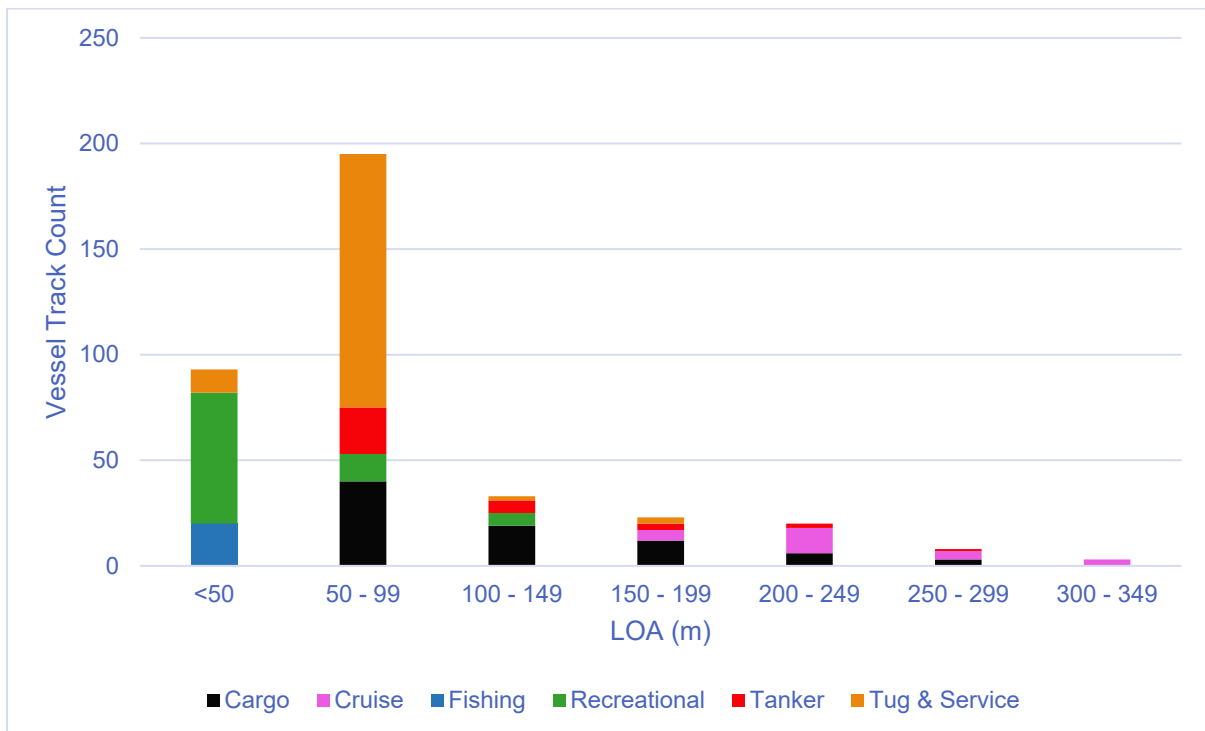


Figure 14 and

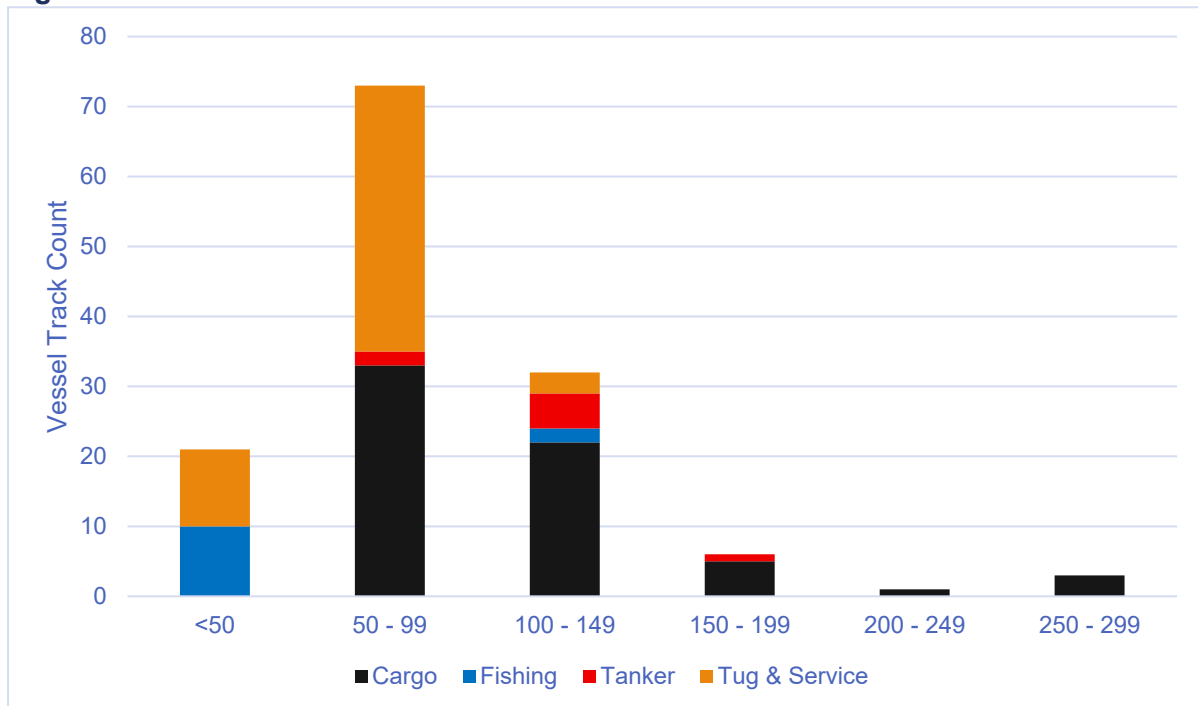


Figure 15 show the counts of individual vessel transits through the Survey Area by vessel type and length overall (LOA) during the summer and winter survey periods. This figure only accounts for vessels recorded within the AIS data as the Radar data does not contain vessel lengths.

During the summer survey, the smallest vessels with LOA < 50 m (93 transits; 24.8% summer survey transits) were largely recreational and fishing vessel types, as well as tug and service. A total of 195 transits (52% summer survey transits) observed during the summer survey were between 50 m and 99 m LOA, mainly due to cargo and tug and service vessels. The winter survey was proportionally similar with a total of 73 (53.7%) vessel transits in the winter survey made by vessels between 50 m and 99 m LOA, also composing primarily of transits made by cargo vessels and tug and service vessels.

A total of 54 tracks (14.4%) during the summer period were made by vessels \geq 150 m LOA, compared with ten tracks (7.4%) during the winter period. This difference is largely due to the presence of large cruise vessels during the summer survey, including vessels \geq 300 m LOA.

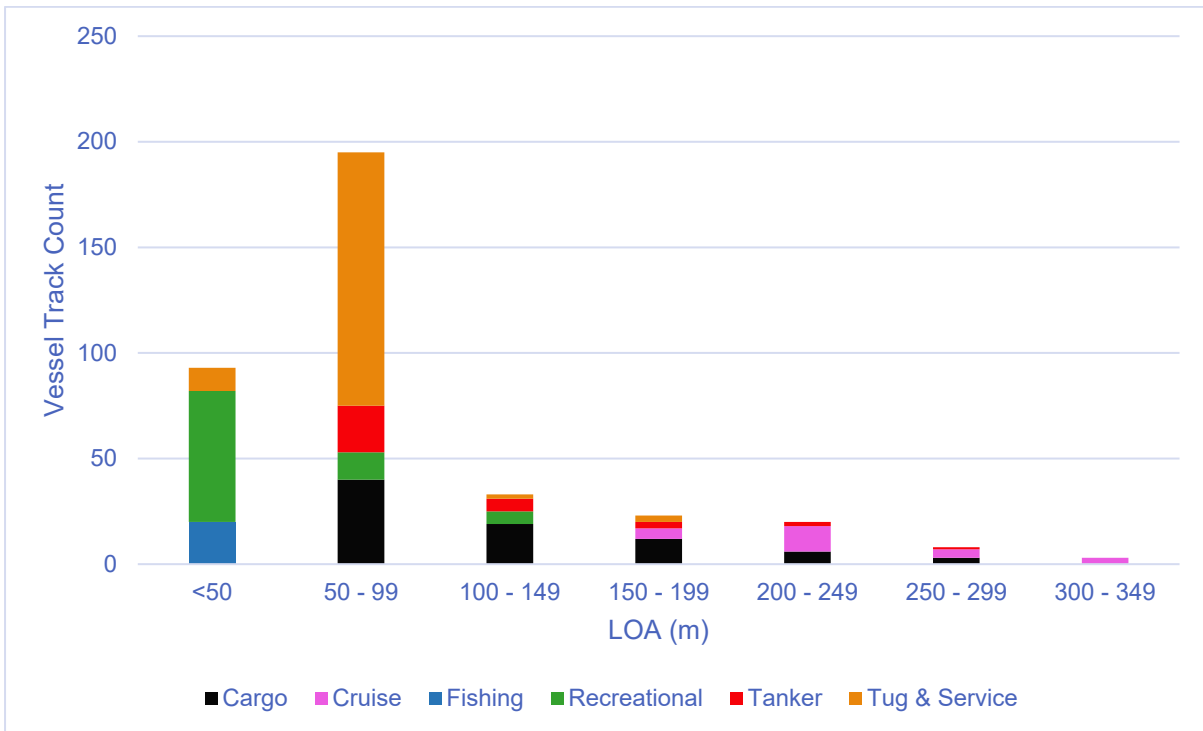


Figure 14: Vessel Track Counts by LOA During the Summer Survey

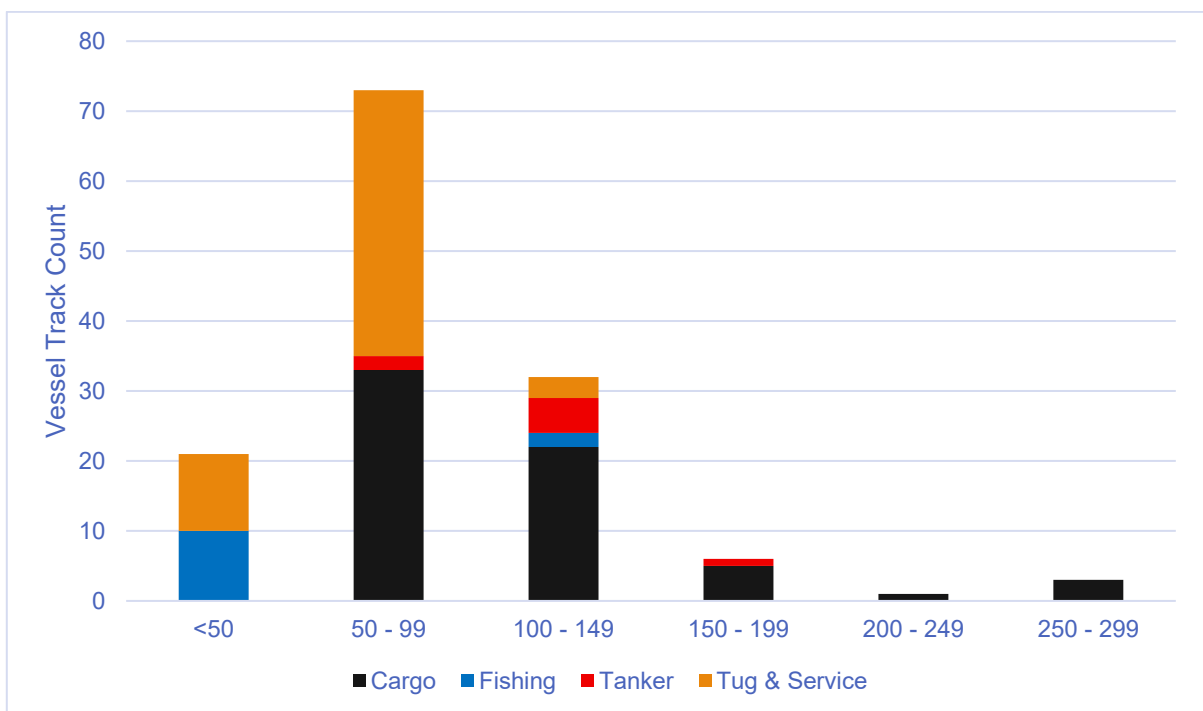


Figure 15: Vessel Track Counts by LOA During the Winter Survey

3.4 VESSEL DESTINATIONS

Table 5 shows a summary of the main destinations for the commercial vessels identified by AIS for both the summer and winter survey periods. Only the destinations that were provided

within the AIS data have been included (11 transits in total did not include destination information).

Overall the most popular destinations for all commercial vessels over both survey periods were Aberdeen (33 transits), Rotterdam (25 transits) and Immingham (21 transits). Of the transits made by cargo vessels, 23 were heading for Aberdeen, and 21 for Rotterdam. There were also 11 cargo vessel transits destined for Immingham, while both Aberdeen and Immingham were equally visited by tanker vessels (ten tanker vessel transits to each destination).

Table 5: Destination Count for Commercial Vessels During 2025 Surveys

Destination	Cargo	Tanker	Total
ABERDEEN	23	10	33
AMSTERDAM	2		2
ANTWERP	1		1
BELFAST	1		1
BEVERWIJK	2		2
BLYTH	2		2
CAMPBELTOWN	1		1
CYGNUS FIELD	1		1
DORDRECHT	1		1
DOVER			1
DUBLIN	1		1
DUNKIRK	1		1
DUSAVIK	1		1
EGERSUND	1		1
ERITH	1		1
ESBJERG	1		1
FOYNES	1		1
FUGLAFJORD	1		1
GLENSANDA	5		5
GRANGEMOUTH		3	3
GRIMSBY		1	1
HAMBURG	1		1
HULL	1		1
HUSOY	1		1
IMMINGHAM	11	10	21
INVERNESS	2	2	4
KYLEAKIN, UK	1	1	2
LEITH	2		2
LIVERPOOL,	1		1
LONDONNERY	1		1
MARCUS HOOK		1	1
MILNE INLET	1		1
MISTLEY	1		1
MONGSTAD		1	1
MONTROSE	2		2
MORAY FIRTH	1		1
NORTHFLEET	1		1
PETERHEAD	2	3	5
POINT TUPPER		1	1
POINTE NOIRE	1		1
POINTE-AU-PIC	1		1
PORT CARTIER	1		1

PORT OF REYKJAVIK	7		7
PORT OF SEPT-ILES	1		1
PORT OF TYNE	1		1
ROSYTH	1		1
ROTTERDAM	21	4	25
RUNAVIK	1		1
SALTEN	1		1
SANTANDER	1		1
SHEARWATER PF-	1		1
SHOREHAM	2		2
STANLOW		2	2
STENA DON	1		1
STRAUMSVIK	1		1
SUNDERLAND	1		1
TEESPORT		2	2
THORLAKSHOFN	4		4
TILBURY	1		1
TORSHAVN	3		3
VALARIS 121	1		1
VALARIS 122	2		2
VALARIS STAVANGER	1		1
VELSEN	1		1
VERDAL	1		1
WICK	1		1
Total	134	41	175

4. SUMMARY

This report presents analysis of two 14 day dedicated marine traffic surveys carried out for the Bowdun OWF site. The following periods of survey were undertaken by the survey vessel Karelle:

- 16-Jul-25 (05:00 UTC) and 30-Jul-25 (08:00 UTC);
- 02-Dec-25 (17:00 UTC) and 16-Dec-25 (17:00 UTC)

The most frequently identified vessel types during both the summer and winter periods were tug and service vessels (136 transits in summer and 52 transits in winter), and cargo vessels (80 transits in summer and 64 transits in winter). Transits made all vessel types were less frequent during the winter survey, particularly for recreational vessels and passenger vessels. Recreational vessel activity was abnormally high during the summer survey due to a sailing event hosted at Aberdeen. Fishing vessels were observed during both surveys (though less frequently transiting during winter) and generated the only Radar (non-AIS) transits.

The highest proportion of transits by LOA were those made by vessels with an LOA of 50 m to 99 m during both survey periods. Additionally, the presence of large cruise ships during the summer survey period cause three transits by vessels ≥ 300 m.

The most commonly reported destinations for commercial vessels recorded during the survey periods were Aberdeen, Rotterdam, and Immingham.

Overall, there were 91 transits recorded intersecting the Array Area during the summer survey period and 40 transits intersecting during the winter survey period, representing 23% and 29% of all transits within the Survey Area, respectively.

Appendix A

Daily Radar Logs

Track IDs	08								
Date	17-07-2025	Start Time (UTC)	1330	End Time (UTC)	1442				
Speed (kts)	6.8	Photo Taken?	NO	Photo ID					
Latitude	56°56.73'N	Longitude	001°21.53'W	Tracking Colour	GREEN				
Vessel Details	No AIS details shown on screen (SMALL CRAB BOAT)								
Observations	Tracked the small crab boat and after small time it was observed that the tracked transferred to the sailing yacht which we tracked for another 20 minutes before THE skipper realised that the tracking has transferred.								

Track IDs	09								
Date	21-07-2025	Start Time (UTC)	1510	End Time (UTC)	1642				
Speed (kts)	8.1	Photo Taken?	YES	Photo ID	09				
Latitude	56°54.49'N	Longitude	001°29.23'W	Tracking Colour	GREEN				
Vessel Details	Scallop vessel								
Observations	During the watch small echo observed on the radar screen, we tracked the target and it comes out the scallop vessel which has turned off her AIS.								

Track IDs	10								
Date	22-07-2025	Start Time (UTC)	2335	End Time (UTC)	0210(23-07-2025)				
Speed (kts)	7.1 then to 0.4	Photo Taken?	YES	Photo ID	10				
Latitude	57°01.92'N	Longitude	001°17.93'W	Tracking Colour	GREEN				
Vessel Details	Crab vessel								
Observations	Mate observed small echo on the radar screen and acquired the target, as I start heading towards the target, they called me on CH 06 to inform me what's their intention so it comes out that she was a small crab vessel which anchored for the night on the mentioned position and later she start steaming, picture attached in								

Track IDs	11								
Date	23-07-2025	Start Time (UTC)	0718	End Time (UTC)	0901				
Speed (kts)	1.2	Photo Taken?	YES	Photo ID	11				
Latitude	57°04.29'N	Longitude	001°17.64'W	Tracking Colour	GREEN				
Vessel Details	Crab vessel								
Observations	Small echo observed on radar screen, tracked it and at the same time her AIS was off. Later, confirmed it's a small crab vessel. Crab boat hauling her pots on the mentioned position								

Track IDs	14								
Date	29-07-2025	Start Time (UTC)	2114	End Time (UTC)	2250				
Speed (kts)	10.2	Photo Taken?	YES	Photo ID	14				
Latitude	56°55.04'N	Longitude	001°20.18'W	Tracking Colour	GREEN				
Vessel Details	Scallop vessel (confirmed through binocular)								
Observations	Small echo noticed by the mate on the radar screen and tracked it which comes out to be a scallop vessel which has put her AIS off.								

Track IDs	07								
Date	03/12/2025	Start Time (UTC)	03.45	End Time (UTC)	05.20				
Speed (kts)	10kts	Photo Taken?	YES	Photo ID	07				
Latitude	56°52.26'N	Longitude	001°31.95'W	Tracking Colour	GREEN				
Vessel Details	Unkown vessel								
Observations	Small echo observed on radar screen track it and non AIS vessel								

Appendix B

Weather Log

Summer Survey Weather Log

Date / Time	Survey Day	Wind (Dir / Ave. Speed [Knots])	Visibility (nm)	Atmospheric Pressure (mb)	Sea State (e.g. calm/slight /moderate/ rough)	Comments (e.g. swell height and direction, precipitation, trends)
Wed 16-July-25 00:00	15	15	09	1044mb	MODERATE	0.7m
Wed 16-July-25 06:00	15.25	10	09	1045mb	MODERATE	0.4m
Wed 16-July-25 12:00	15.5	08	09	1046mb	CALM	0.1m
Wed 16-July-25 18:00	15.75	05	09	1047mb	CALM	0.2m
Thu 17-July-25 00:00	16	05	09	1047mb	CALM	0.2m
Thu 17-July-25 06:00	16.25	10	08	1046mb	MODERATE	0.4m
Thu 17-July-25 12:00	16.5	15	09	1046mb	MODERATE	0.8m
Thu 17-July-25 18:00	16.75	18	09	1044mb	MODERATE	1.4m
Fri 18-July-25 00:00	17	15	08	1042mb	MODERATE	0.9m
Fri 18-July-25 06:00	17.25	15	08	1042mb	MODERATE	0.9m
Fri 18-July-25 12:00	17.5	15	08	1041mb	MODERATE	0.8m
Fri 18-July-25 18:00	17.75	12	08	1041mb	MODERATE	0.9m
Sat 19-July-25 00:00	18	10	05	1040mb	MODERATE	0.6m
Sat 19-July-25 06:00	18.25	18	05	1039mb	MODERATE	0.8m
Sat 19-July-25 12:00	18.5	22	06	1037mb	MODERATE	1.2m
Sat 19-July-25 18:00	18.75	20	07	1036mb	MODERATE	1.9m
Sun 20-July-25 00:00	19	18	06	1034mb	MODERATE	1.1m
Sun 20-July-25 06:00	19.25	20	04	1034mb	MODERATE	1.3m
Sun 20-July-25 12:00	19.5	22	04	1033mb	MODERATE	1.5m
Sun 20-July-25 18:00	19.75	25	05	1033mb	MODERATE	1.9m
Mon 21-July-25 00:00	20	15	04	1032mb	MODERATE	1.2m
Mon 21-July-25 06:00	20.25	15	05	1032mb	MODERATE	0.9m
Mon 21-July-25 12:00	20.5	10	06	1033mb	MODERATE	0.5m
Mon 21-July-25 18:00	20.75	08	09	1034mb	MODERATE	0.5m
Tue 22-July-25 00:00	21	10	08	1035mb	MODERATE	0.5m
Tue 22-July-25 06:00	21.25	08	08	1036mb	MODERATE	0.4m
Tue 22-July-25 12:00	21.5	10	08	1038mb	MODERATE	0.5m
Tue 22-July-25 18:00	21.75	10	09	1039mb	MODERATE	0.4m
Wed 23-July-25 00:00	22	15	07	1041mb	MODERATE	1.2m
Wed 23-July-25 06:00	22.25	18	08	1043mb	MODERATE	1.8m
Wed 23-July-25 12:00	22.5	18	08	1045mb	MODERATE	1.6m
Wed 23-July-25 18:00	22.75	15	07	1046mb	MODERATE	1.0m
Thu 24-July-25 00:00	23	12	08	1048mb	MODERATE	0.7m
Thu 24-July-25 06:00	23.25	10	09	1048mb	MODERATE	0.7m
Thu 24-July-25 12:00	23.5	10	08	1047mb	MODERATE	0.4m
Thu 24-July-25 18:00	23.75	08	06	1047mb	MODERATE	0.3m
Fri 25-July-25 00:00	24	05	08	1046mb	CALM	0.2m
Fri 25-July-25 06:00	24.25	05	08	1046mb	CALM	0.2m

Date / Time	Survey Day	Wind (Dir / Ave. Speed [Knots])	Visibility (nm)	Atmospheric Pressure (mb)	Sea State (e.g. calm/slight /moderate/ rough)	Comments (e.g. swell height and direction, precipitation, trends)
Fri 25-July-25 12:00	24.5	07	09	1045mb	CALM	0.2m
Fri 25-July-25 18:00	24.75	05	09	1045mb	CALM	0.2m
Sat 26-July-25 00:00	25	06	08	1046mb	CALM	0.2m
Sat 26-July-25 06:00	25.25	06	09	1046mb	CALM	0.2m
Sat 26-July-25 12:00	25.5	08	08	1046mb	CALM	0.3m
Sat 26-July-25 18:00	25.75	05	08	1045mb	CALM	0.2m
Sun 27-July-25 00:00	26	15	07	1043mb	MODERATE	1.4m
Sun 27-July-25 06:00	26.25	18	08	1043mb	MODERATE	1.5m
Sun 27-July-25 12:00	26.5	22	09	1043mb	MODERATE	1.9m
Sun 27-July-25 18:00	26.75	20	09	1044mb	MODERATE	2.2m
Mon 28-July-25 00:00	27	12	08	1046mb	MODERATE	0.6m
Mon 28-July-25 06:00	27.25	05	09	1046mb	CALM	0.4m
Mon 28-July-25 12:00	27.5	05	09	1047mb	CALM	0.3m
Mon 28-July-25 18:00	27.75	05	09	1047mb	CALM	0.2m
Tue 29-July-25 00:00	28	08	09	1048mb	CALM	0.3m
Tue 29-July-25 06:00	28.25	08	09	1048mb	CALM	0.3m
Tue 29-July-25 12:00	28.5	06	09	1048mb	CALM	0.3m
Tue 29-July-25 18:00	28.75	05	09	1049mb	CALM	0.2m
Wed 30-July-25 00:00	29	12	09	1048mb	MODERATE	0.5m

Winter Survey Weather Log

Date / Time	Survey Day	Wind (Dir / Ave. Speed [Knots])	Visibility (nm)	Atmospheric Pressure (mb)	Sea State (e.g. calm/slight /moderate/ rough)	Comments (e.g. swell height and direction, precipitation, trends)
Tue 02-DEC-25 00:00	0	30 kts	09	1039	Rough	3m
Tue 02-DEC-25 06:00	0.25	25kts	08	1039	Mod-Rough	2.5m
Tue 02-DEC-25 12:00	0.5	20kts	07	1038	Moderate	2m
Tue 02-DEC-25 18:00	0.75	20kts	07	1036	Moderate	2m
Wed 03-DEC-25 00:00	1	15kts	07	1036	Moderate	1.75
Wed 03-DEC-25 06:00	1.25	17kts	07	1036	Moderate	1.7m
Wed 03-DEC-25 12:00	1.5	20kts	08	1034	Moderate	2m
Wed 03-DEC-25 18:00	1.75	20kts	08	1034	Moderate	2m
Thu 04-DEC-25 00:00	2	20kts	08	1034	Moderate	2m

Date / Time	Survey Day	Wind (Dir / Ave. Speed [Knots])	Visibility (nm)	Atmospheric Pressure (mb)	Sea State (e.g. calm/slight /moderate/rough)	Comments (e.g. swell height and direction, precipitation, trends)
Thu 04-DEC-25 06:00	2.25	21Kts	08	1032	Mod-rough	2m
Thu 04-DEC-25 12:00	2.50	22kts	07	1032	Mod-Rough	2m
Thu 04-DEC-25 18:00	2.75	25kts	07	1032	Mod-Rough	2m
Fri 05-DEC-25 00:00	3	20kts	07	1032	Mod-rough	2m
Fri 05-DEC-25 0600	3.25	21kts	07	1034	Mod-Rough	2.5m
Fri 05-DEC-25 12:00	3.50	20kts	09	1032	Mod-Rough	1.5m
Fri 05-DEC-25 18:00	3.75	25kts	08	1030	Rough	2.5m
Sat 06-DEC-25 00:00	4	30 kts	07	1029	Very Rough	2.5m
Sat 06-DEC-25 06:00	4.25	25kts	07	1022	Rough	2.2m
Sat 06-DEC-25 12:00	4.50	20kts	08	1022	Mod-Rough	2.5-3m
Sat 06-DEC-25 18:00	4.75	10 kts	08	1027	Slight-mod	1m
Sun 07-DEC-25 00:00	5	10kts	08	1027	Slight	0.5m
Sun 07-DEC-25 06:00	5.25	7kts	08	1030	Slight	1m
Sun 07-DEC-25 12:00	5.50	10kts	08	1031	Slight-mod	1m
Sun 07-DEC-25 18:00	5.75	15kts	07	1023	Moderate	1m
Mon 08-DEC-25 00:00	6	20kts	07	1025	Mod-Rough	1-1.5m
Mon 08-DEC-25 06:00	6.25	17kts	08	1028	Mod-Rough	1.3m
Mon 08-DEC-25 12:00	6.50	20kts	08	1029	Mod-Rough	1.5m
Mon 08-DEC-25 18:00	6.75	15kts	08	1033	Slight-mod	1m
Tue 09-DEC-25 00:00	7	15kts	08	1036	Slight-mod	0.5m
Tue 09-DEC-25 06:00	7.25	15kts	08	1033	Slight-Mod	0.4m
Tue 09-DEC-25 12:00	7.50	15kts	07	1028	Moderate	1m
Tue 09-DEC-25 18:00	7.75	35kts	07	1022	Rough	2m
Wed 10-DEC-25 00:00	8	40kts	07	1016	Very Rough	2m
Wed 10-DEC-25 06:00	8.25	31kts	07	1027	Rough	1.4m
Wed 10-DEC-25 12:00	8.5	30kts	07	1029	Rough	4m
Wed 10-DEC-25 18:00	8.75	30kts	07	1032	Rough	3m
Thu 11-DEC-25 00:00	9	30kts	07	1036	Rough	2m
Thu 11-DEC-25 06:00	9.25	20KTS	07	1038	Mod-Rough	2m
Thu 11-DEC-25 12:00	9.5	15kts	08	1039	Slight-Mod	1m
Thu 11-DEC-25 18:00	9.75	20kts	08	1040	Moderate	1.5m
Fri 12-DEC-25 00:00	10	20kts	07	1040	Moderate	1.5m
Fri 12-DEC-25 06:00	10.25	20kts	07	1041	Moderate	1.5m
Fri 12-DEC-25 12:00	10.5	15kts	08	1043	Slight-Mod	1m
Fri 12-DEC-25 18:00	10.75	15kts	08	1045	Slight-Mod	1m
Sat 13-DEC-25 00:00	11	15kts	08	1046	Slight-Mod	1m
Sat 13-DEC-25 06:00	11.25	20kts	08	1046	Moderate	1m
Sat 13-DEC-25 12:00	11.5	25kts	08	1045	Mod-Rough	2m
Sat 13-DEC-25 18:00	11.75	30kts	08	1043	Rough	3m
Sun 14-DEC-25 00:00	12	30kts	07	1038	Rough	3m

Date / Time	Survey Day	Wind (Dir / Ave. Speed [Knots])	Visibility (nm)	Atmospheric Pressure (mb)	Sea State (e.g. calm/slight /moderate/rough)	Comments (e.g. swell height and direction, precipitation, trends)
Sun 14-DEC-25 06:00	12.25	22kts	07	1037	Mod-Rough	1.3m
Sun 14-DEC-25 12:00	12.5	20kts	08	1035	Mod-Rough	1m
Sun 14-DEC-25 18:00	12.75	25kts	07	1032	Rough	1.5m
Mon 15-DEC-25 00:00	13	30kts	07	1029	Rough	1.5m
Mon 15-DEC-25 06:00	13.25	8kts	08	1036	Slight-Mod	1m
Mon 15-DEC-25 12:00	13.5	10kts	09	1033	Slight-Mod	0.5-1m
Mon 15-DEC-25 18:00	13.75	10 kts	08	1034	Slight	0.5m
Tue 16-DEC-25 00:00	14	10kts	07	1034	Slight	0.5m
Tue 16-DEC-25 06:00	14.25	14kts	07	1038	Slight	1m
Tue 16-DEC-25 12:00	14.5	12kts	08	1041	Slight	0.5-1m
Tue 16-DEC-25 18:00	14.75	12kts	08	1042	Slight-Mod	1m



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