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Volume 8 Additional Information

Appendix 31: Moray Firth Special Protection Area Long-Term Vessel Traffic Assessment

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Volume 8 Appendix 31: Moray Firth Special Protection Area Long-Term Vessel Traffic Assessment

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This document contains the following report: 'Moray Firth Special Protection Area Long-Term Vessel Traffic Assessment' as prepared by Anatec Limited in July 2025. For the purpose of submitting additional information to Marine Directorate – Licensing Operations Team (MD-LOT), the document has been retitled to: 'Volume 8 Additional Information, Appendix 31: Moray Firth Special Protection Area Long-Term Vessel Traffic Assessment', alongside the addition of a new front cover.

Moray Firth Special Protection Area Long-Term Vessel Traffic Assessment

Prepared by	Anatec Limited
Presented to	Caledonia Offshore Wind Farm Ltd
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Revision Number	Date	Summary of Change
00	09 July 2025	Initial Draft

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Abbreviations Table

Abbreviation	Definition
AIS	Automatic Identification System
GT	Gross Tonnage
km	Kilometre
m	Metre

Abbreviation	Definition
SPA	Special Protection Area

1 Introduction

This technical note summarises the findings of analysis of 12 months of vessel traffic data comprising 12 months of Automatic Identification System (AIS) data from 01 October 2023 to 30 September 2024 within the Moray Firth Special Protection Area (SPA) undertaken by Anatec on behalf of the Caledonia Offshore Wind Farm Ltd. Additional periods from 2020 have also been included at the request of Caledonia Offshore Wind Farm Ltd.

The technical note analyses the vessel traffic in terms of vessel count, vessel type, vessel size, vessel speed, and vessel destination information gathered. It is a supplement to the Geographic Information System (GIS) files of the 12 months of AIS vessel traffic data, and as such the two should be viewed in conjunction with each other. High level analysis of the 2020 data has also been included.

Two additional 14-day periods of AIS data within the region have also been captured, with these vessel tracks presented in Section 3.

The set of deliverables are as follows:

- The Moray Firth Special Protection Area Long-Term Vessel Traffic Assessment;
- Caledonia_12 Months of AIS Data within 2km of the Moray Firth SPA (2023-2024).shp; and
- Caledonia_30 Days of AIS Data within 2km of the Moray Firth SPA (2020).shp.

1.1 Data Sources

The primary data sources considered include AIS data captured by multiple satellite and terrestrial AIS receivers local to the SPA resulting in good overall coverage. The 12 months of AIS data covers the time period from 01 October 2023 to 30 September 2024 (hereafter referred to as the 'study period').

Two additional data periods from 2020 have also been assessed, covering 05 to 19 January 2020 and 23 February to 08 March 2020.

It is noted that all vessel tracks recorded have been included in the relevant figures and analysis, including those moored or in berths, as well as those transiting in a 'temporary' nature, such as vessels involved in the construction or guarding of Moray West, as well as vessels engaged in other non-related surveys.

In addition, it should be considered that the start/end time and average speed fields are based on the entirety of each vessel track captured (i.e., average vessel speed does not include the average speed within the study area only, but the average vessel speed of all points within a bounding box of the study area).

1.2 Study Area

The Moray Firth SPA encompasses an area of the Scottish coastal waters within the Moray Firth. The study area used in this report includes a 2-kilometre (km) buffer of the Moray Firth SPA. The study area was requested by Caledonia Offshore Wind Farm Ltd and is presented alongside the Moray Firth SPA in Figure 1.1.

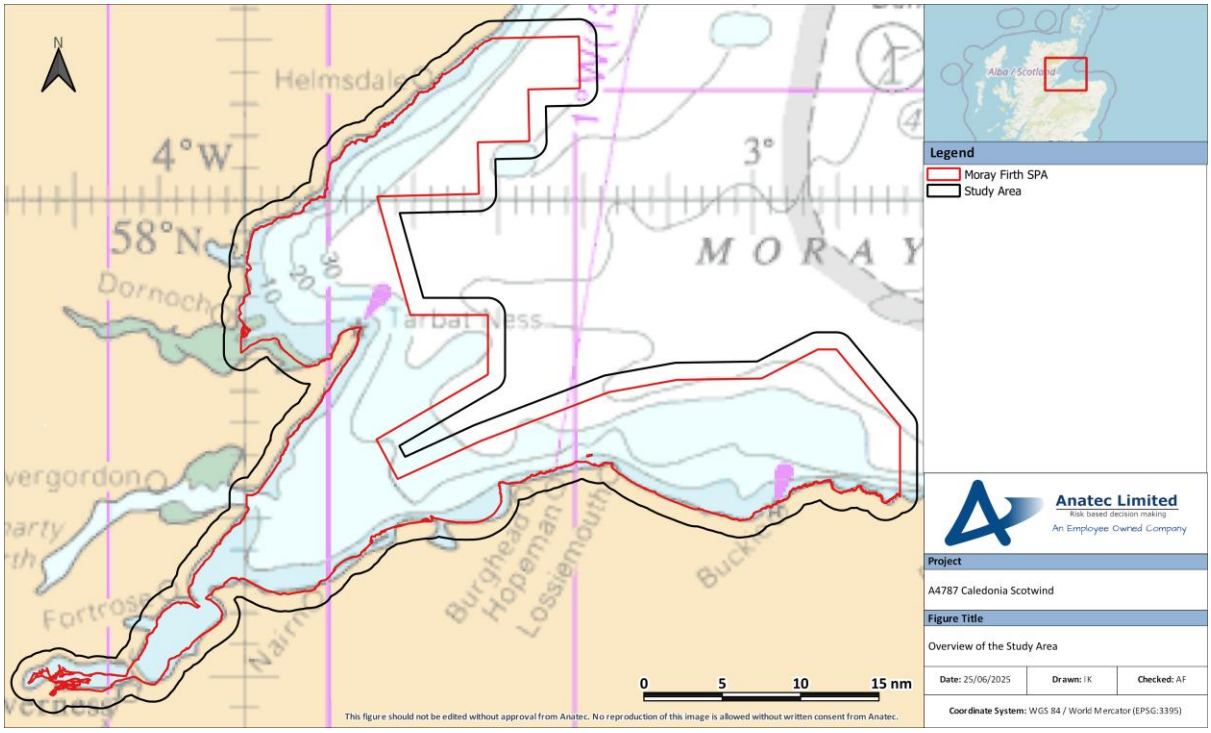

Figure 1.1 Overview of the Study Area

1.3 Data Limitations

The carriage of AIS is required on board all vessels of greater than 300 Gross Tonnage (GT) engaged on international voyages, cargo vessels of more than 500GT not engaged on international voyages, passenger vessels irrespective of size built on or after 1 July 2002, and fishing vessels over 15 metres (m) length overall. Recreational vessels and smaller fishing vessels are therefore not required to broadcast on AIS (although may do so voluntarily), and as such, there may be a proportion of the vessel traffic in the area which is not covered by the AIS data.

Downtime was assessed to be limited overall for the study period assessed noting that multiple receivers were used to collect the AIS data (see Section 1.1).

For the purposes of this report, all information broadcast via AIS is assumed accurate unless there is clear evidence to the contrary. It has also been assumed that all vessels required to broadcast will do so. Vessel information listed as a value of '0' within the GIS for vessel length, draught, and speed are assumed to be unknown or unspecified and therefore not included within the relevant analysis in Section 2.

2 Vessel Traffic Data – 2023/2024

This section presents analysis of the vessel tracks recorded on AIS within the study area during the study period.

All vessel tracks recorded within the study area during the study period are presented in Figure 2.1 in colour-coded by vessel type.

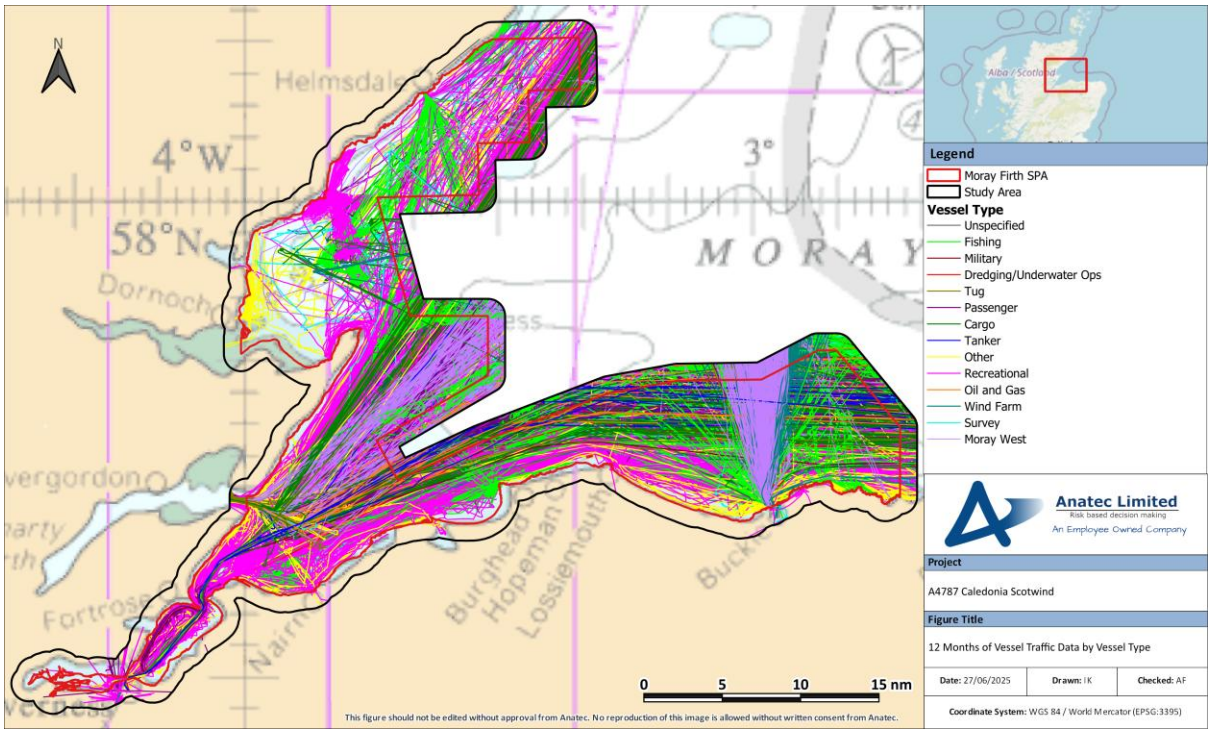

Figure 2.1 12 Months of Vessel Traffic Data by Vessel Type

2.1 Vessel Count

The distribution of unique vessels per day recorded within the study area for each month of the study period is presented in Figure 2.2.

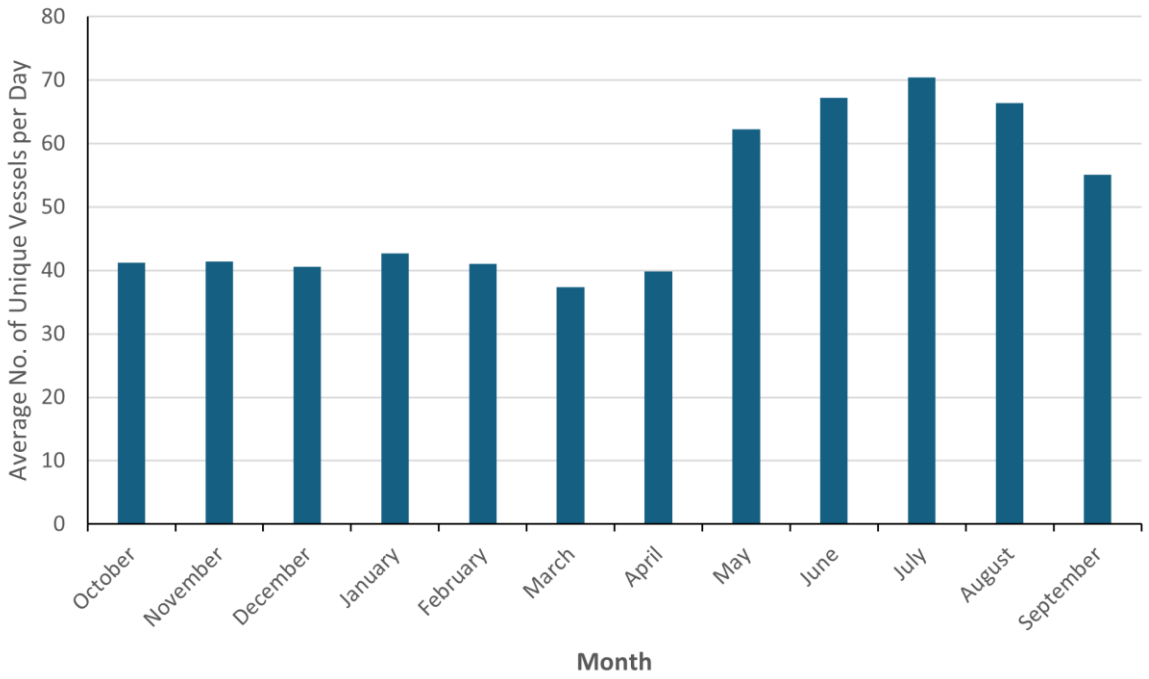

Figure 2.2 Vessel Count Summary within the Moray Firth SPA and Study Area

There was an average of 51 unique vessels per day recorded within the study area during the study period. The busiest month was July, with approximately 70 unique vessels per day recorded. The quietest month was March, with approximately 37 unique vessels per day recorded. Overall, summer months (May to September) had higher vessel counts compared to the winter months (October to February). This is likely due to an increase in recreational vessel activity during summer periods, with these vessels being the most commonly-recorded overall (see Section 2.2).

2.2 Vessel Type

The distribution of recorded vessel types within the study area during the study period is presented in Figure 2.3.

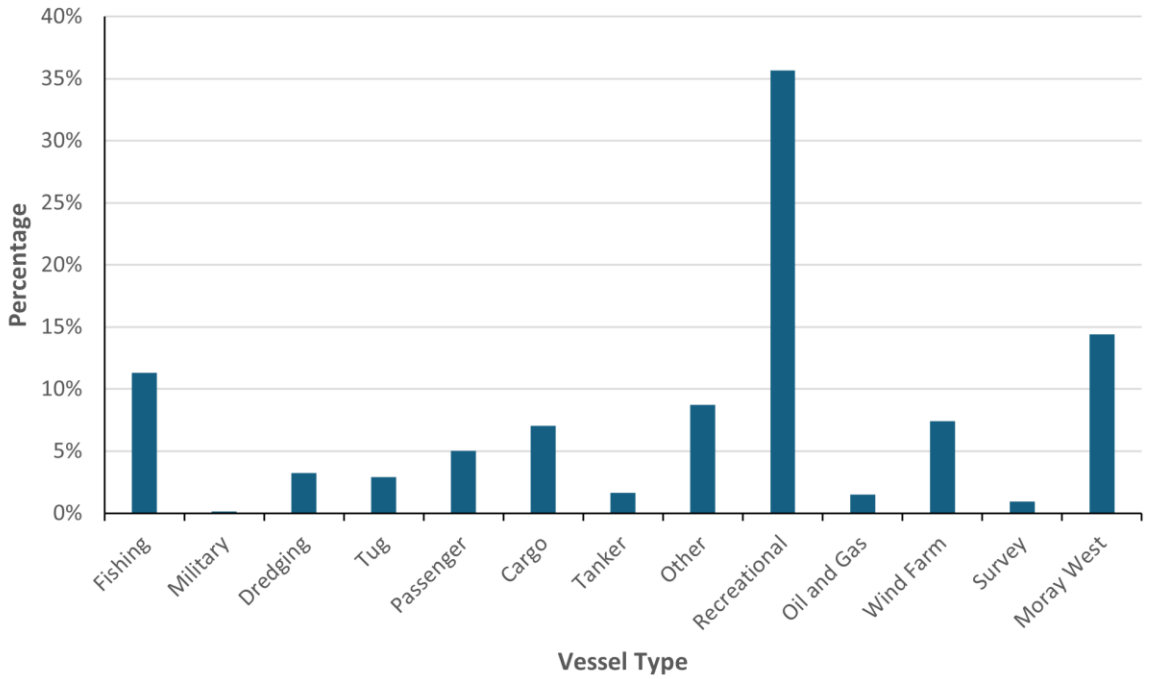

Figure 2.3 Distribution of Vessel Types

The most common vessel types recorded within the study area during the study period were recreational vessels (36%), vessels associated with the construction of Moray West (14%), and fishing vessels (11%).

2.3 Vessel Size

2.3.1 Vessel Length

The vessel tracks recorded within the study area during the study period are colour-coded by vessel length and presented in Figure 2.4.

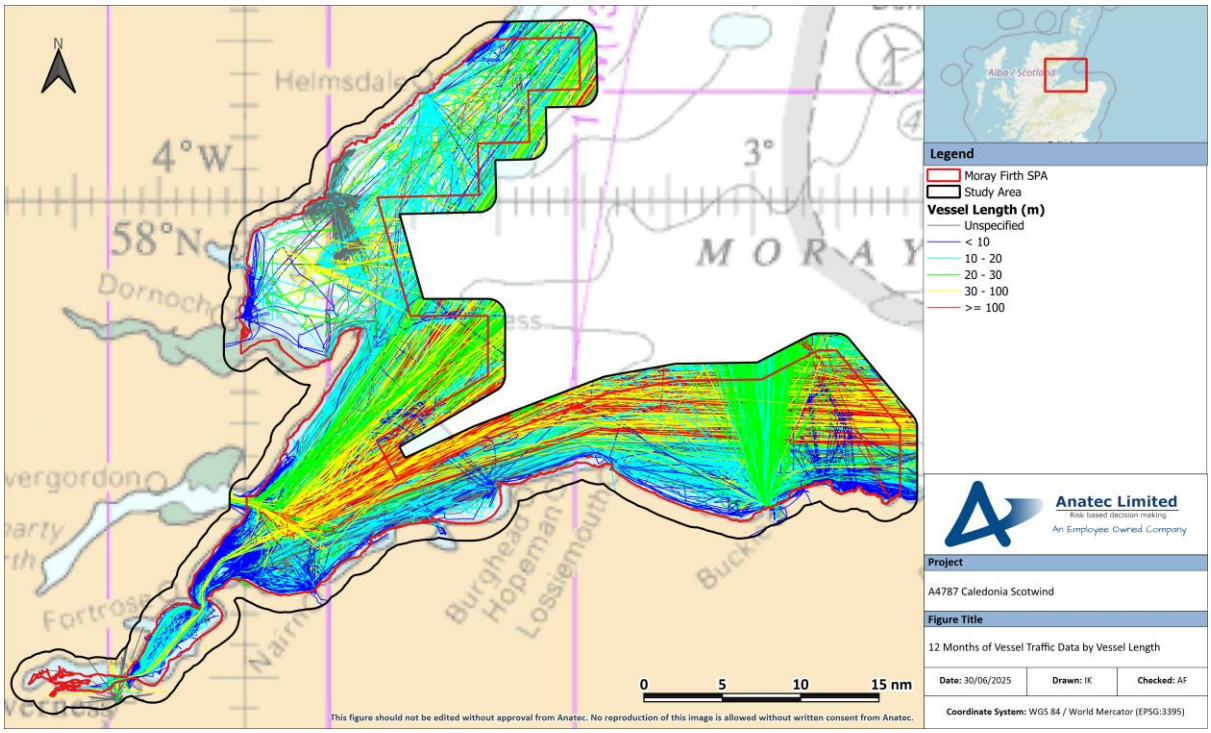

Figure 2.4 12 Months of Vessel Traffic Data by Vessel Length

Vessels of greater length were typically noted as being commercial vessels, and recorded routeing between Inverness and destinations to the east, on an east-west bearing. Those of lesser length included recreational and fishing vessels primarily undertaking coastal transits.

The distribution of vessel lengths recorded within the study area during the study period is presented in Figure 2.5.

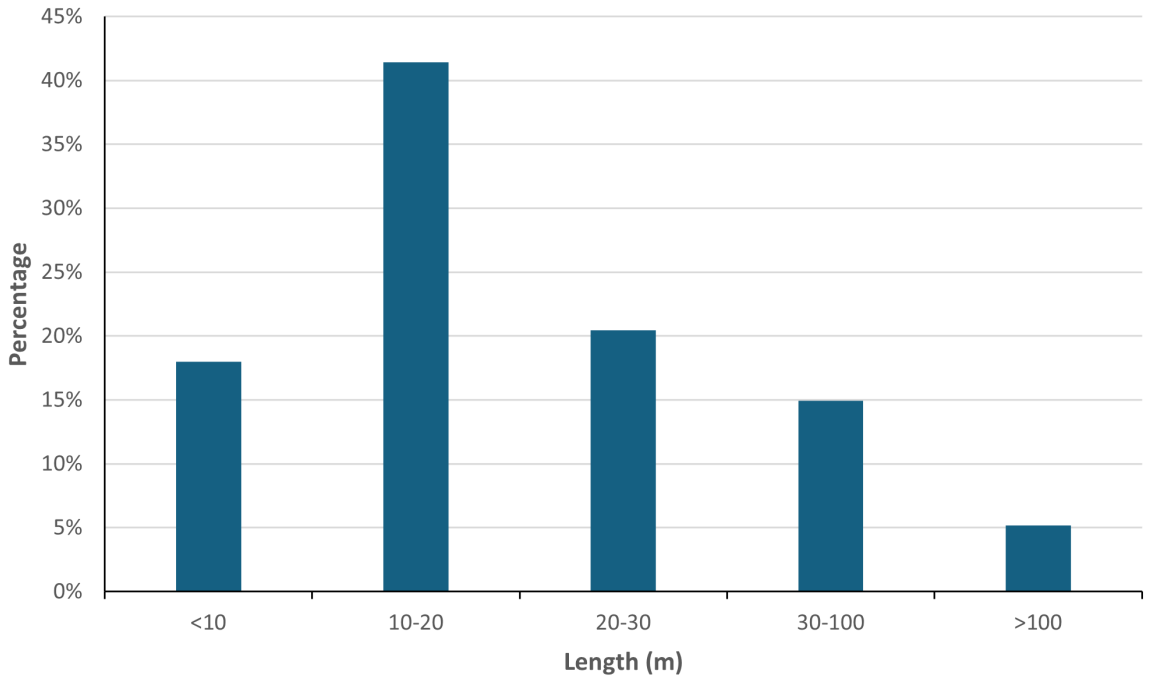

Figure 2.5 Distribution of Vessel Lengths

Vessel length was able to be identified for approximately 93% of all vessels recorded. Overall, the average length of vessels recorded within the study area during the study period was 32m. The largest vessel recorded within the study area during the study period was a 345m-long cruise liner transiting from Southampton to Invergordon en route to Greenock on 02 September 2024.

2.3.2 Vessel Draught

The vessel tracks recorded within the study area during the study period are colour-coded by vessel draught and presented in Figure 2.6.

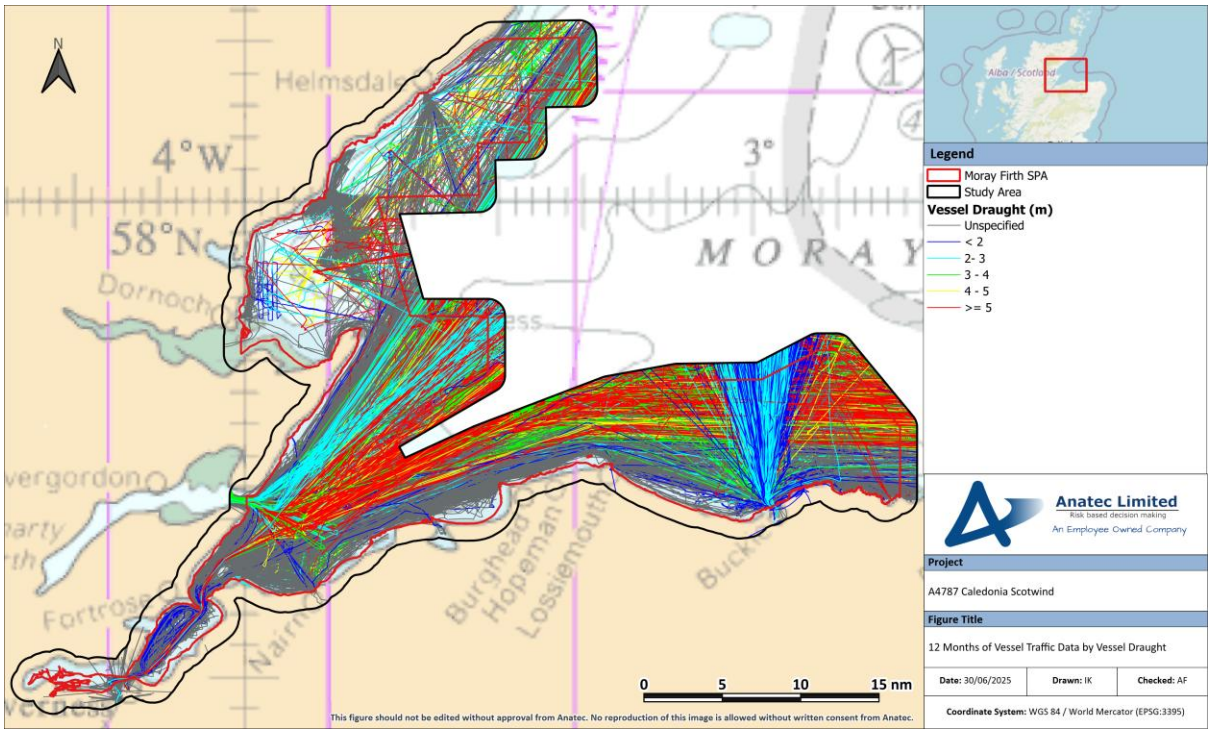

Figure 2.6 12 Months of Vessel Traffic Data by Vessel Draught

As with vessel length (see Section 2.3.1), vessels with larger draughts were primarily commercial vessels routeing between Inverness and destinations to the east. Those of lesser draught included wind farm vessels to Moray East, Moray West, and Beatrice, as well as recreational and fishing vessels engaged in coastal routeing.

The distribution of vessel draughts recorded within the study area during the study period is presented in Figure 2.7.

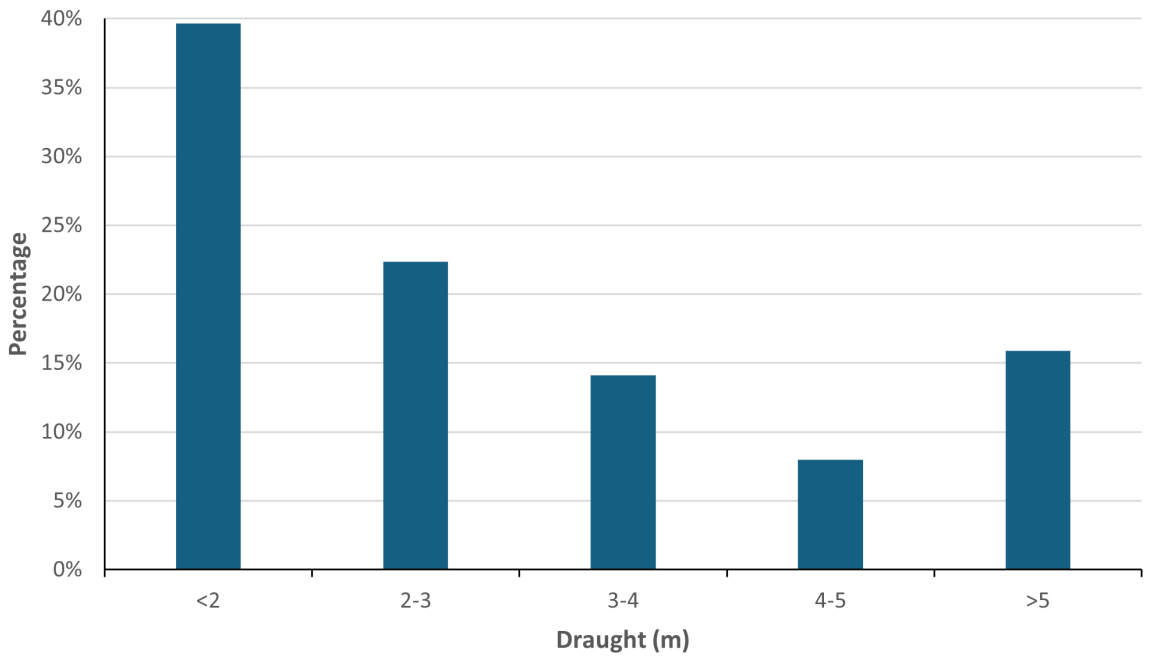

Figure 2.7 Distribution of Vessel Draughts

Vessel draught was able to be reliably identified for approximately 47% of all vessels recorded. This is likely due to the prevalence of fishing and recreational vessels in the region. Overall, the average draught of vessels recorded within the study area during the study period was 3.2m. The vessel of greatest draught recorded within the study area during the study period was a 13m-draught heavy lift vessel routeing to the Port of Nigg between 24 and 28 November 2023 (including several days off the coast likely at anchor).

2.4 Vessel Speed

The vessel tracks recorded within the study area during the study period are colour-coded by average vessel speed and presented in Figure 2.8.

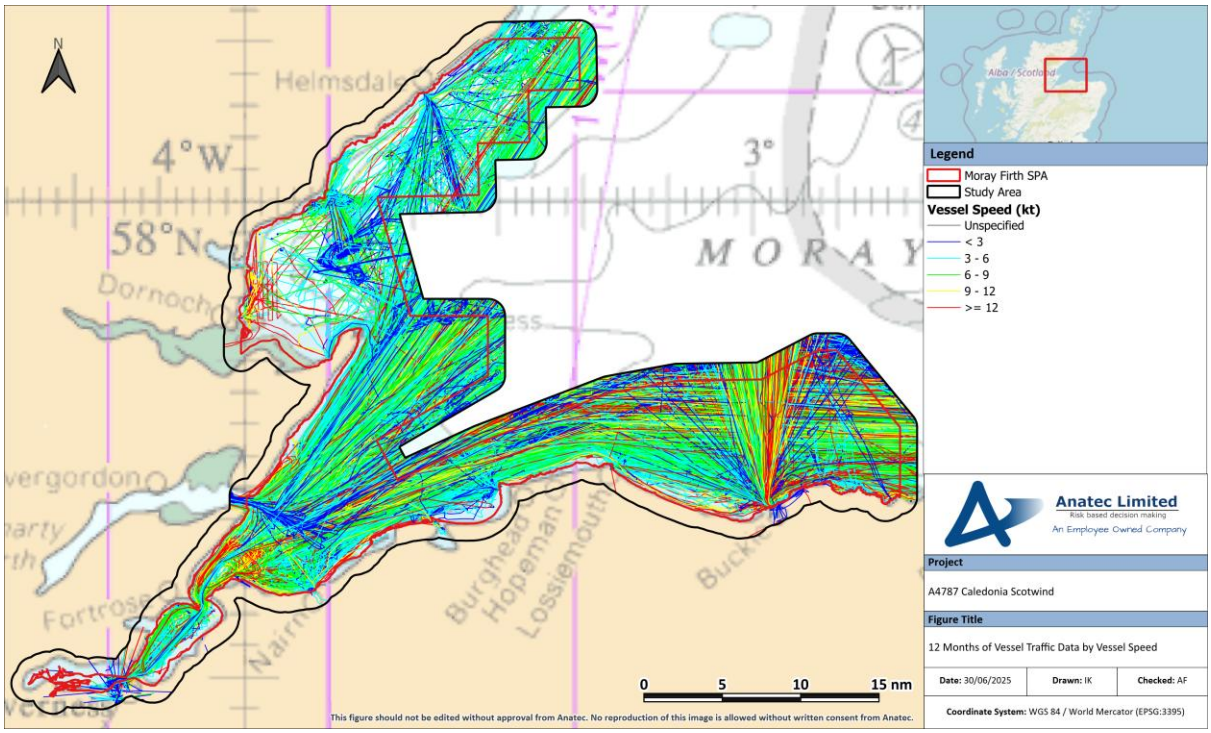

Figure 2.8 12 Months of Vessel Traffic Data by Average Vessel Speed

The vessels of greatest average speed were typically crew transfer vessels for Moray West, or SAR vessels. Fishing vessels were among those of lower average speeds, which is potentially indicative of active fishing in the area.

2.5 Vessel Destination

Vessel destination information is broadcast over AIS. Using this, the most frequently broadcast destinations are presented in Figure 2.9. Approximately 54% of vessels did not broadcast a valid destination and have therefore been excluded from the analysis.

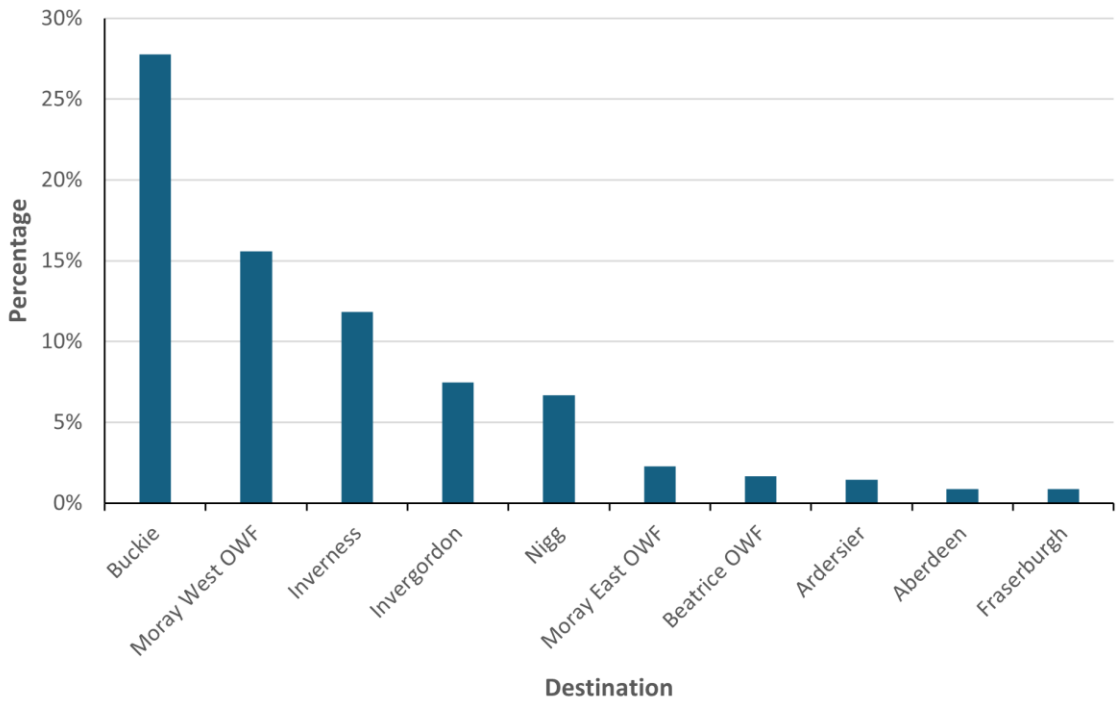

Figure 2.9 Distribution of Vessel Destinations

The most commonly broadcast destinations were Buckie (28%), Moray West (16%), and Inverness (12%). Other frequent destinations included other ports on the Scottish coast, and operations and maintenance vessels related to the Moray East and Beatrice wind farms.

3 Additional Data Periods from 2020

An additional dataset covering 30 days of AIS data from 2020 was requested by Caledonia Offshore Wind Farm Ltd, the breakdown of periods consists of:

- 5th to 19th January 2020; and
- 23rd February to 8th March 2020.

These have been combined into a single 30-day dataset, which is presented below in Figure 3.1.

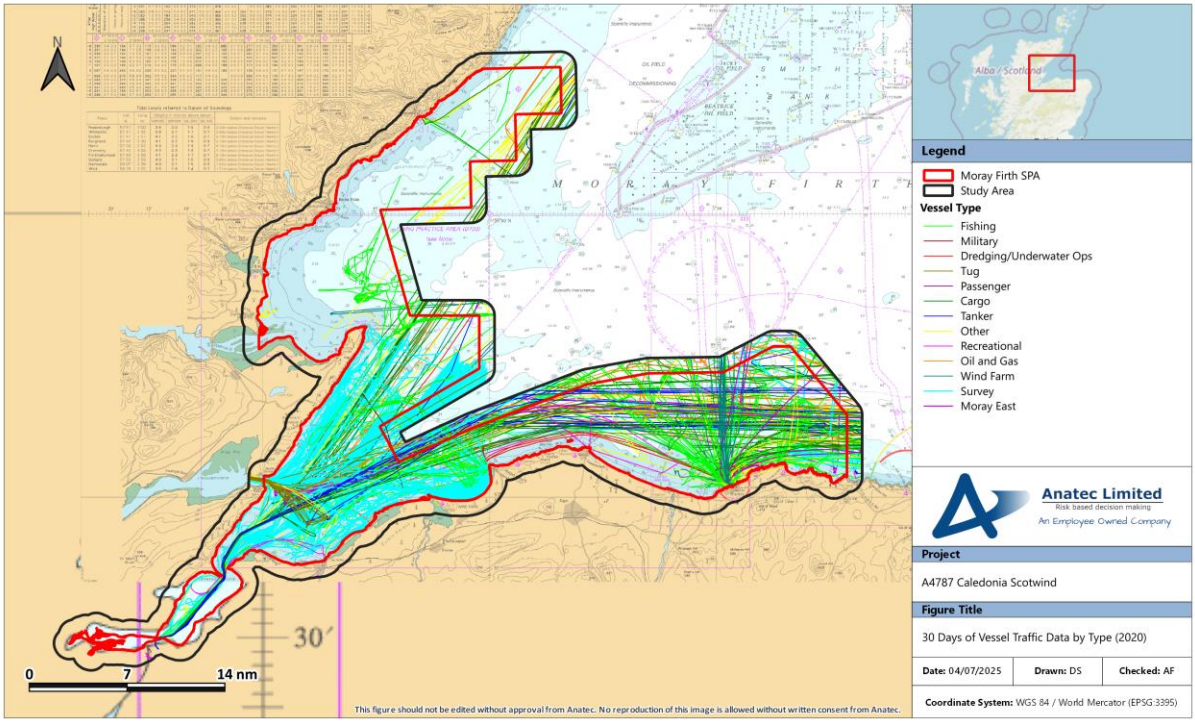

Figure 3.1 30 Days of Vessel Traffic Data by Vessel Type (2020)

4 Summary

This report presents analysis of vessel traffic data collected within a 2km study area around the Moray Firth SPA during a 12-month period in from October 2023 to September 2024.

On average there were 51 unique vessels per day recorded within the study area throughout the study period. The most common vessel types were recreational (36%), vessels associated with Moray West (14%), and fishing vessels (11%).

The average length and draught of vessels was 32m and 3.2m, respectively. The longest vessel recorded was a 345m cruise liner and the deepest draught recorded was 13m for a heavy lift vessel.

The most frequently broadcast destinations were Buckie (28%), Moray West (16%), and Inverness (12%).

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