

Addendum to the
Environmental Impact
Assessment Report

NISA
North Irish Sea Array

Volume 11 - Wider Scheme Appendices

Appendix A35.1

Offshore Bat Monitoring Report 2024



North Irish Sea Array Windfarm Limited

Appendix A35.1:

Offshore Bat Monitoring

2024

Results Report

Woodrow Ref: P13758

Date: December 2025



woodrow
APEM Group

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Experience

Oisín O Sullivan – Senior Ecologist; Technical Lead on bat surveys (OOS)

Oisín O’Sullivan was a Senior Ecologist with Woodrow. Oisín has completed a B.Sc. in Ecology and Environmental Biology at University College Cork. His final year thesis involved bat surveys of urban habitats in Cork City. His work as a graduate ecologist with Woodrow was focused on bat data analysis including bat call identification and bat roost/habitat suitability surveys. Oisín has developed a high level of proficiency with Kaleidoscope, Ecobat and BatExplorer, all of which are analysis software used to assess bat calls and activity. Since joining Woodrow, Oisín work involves coordinating, surveying, analysing data, and writing bat technical reports for onshore wind developments. This also involves the use of R (statistical analysis) to provide data on bat activity relative to weather conditions with the goal of informing curtailment strategies as a mitigation measure. During 2022 Woodrow began undertaking offshore bat surveys, Oisín is a technical lead on these projects. Oisín is a Qualifying member of CIEEM and holds a license from the Department of Culture Heritage and the Gaeltacht.

Qualifications:

BSc (Hons) Ecology and Environmental Biology. University College Cork 2020

Kevin O’Reilly – Ecologist (KOR)

Kevin O’Reilly is an Ecologist with Woodrow. He obtained First Class Honours degree in Business and Law at University College Dublin before training and qualifying as a Solicitor with the Law Society of Ireland. He is currently completing a master’s research project in environmental management and GIS with Ulster University with a focus on bats and street lighting. Kevin has also undertaken several volunteer projects to gain valuable experience in habitat surveying techniques and knowledge of environmental management and the flora and fauna of protected species in Ireland and abroad. Since joining Woodrow, Kevin has undertaken numerous bat surveys including static detector deployment and roost surveys and worked on several large-scale developments. He has also authored multiple bat technical reports and coordinated bat surveys. Kevin is a qualifying member of CIEEM and holds a full bat derogation licence issued by NPWS.

Qualifications:

BBL Bachelor of Business and Law – University College Dublin, 2016

Professional Practice Courses I & II – The Law Society of Ireland, 2019

PgDip Environmental Management with GIS – Ulster University, 2023

Patrick Power – Ecologist (PP)

Patrick Power is an Ecologist with Woodrow. Patrick has completed a BSc in Forestry, BSc (Hons) in land management in Forestry with Waterford Institute of Technology and a PGCert in Wildlife Biology and Conservation with Edinburgh Napier University.

His work with Woodrow is focused on bat data analysis including bat call identification and bat roost/habitat suitability surveys. Patrick has developed a high level of proficiency with Kaleidoscope and BatExplorer, the analysis software used to assess bat calls and activity. Patrick also possess Reptile, mammal, and woodland tree surveying Skills. Patrick currently has a bat licence from the Department of Culture Heritage and the Gaeltacht.

Qualifications:

BSc in Forestry. Waterford Institute of Technology. 2014

BSc (Hons) in Land Management in Forestry. Waterford Institute of Technology 2016.

PG Certificate in Wildlife Biology and Conservation. Edinburgh Napier University. 2023

Jason Guile – Associate Director

Jason Guile is an Associate Director with Woodrow and has reviewed this report. Jason has over 15 years' experience in ecological assessment and holds a BSc in Marine Biology/Oceanography from the University of Wales, Bangor and a HND in Coastal Conservation with Marine Biology from Blackpool and Fylde College. Jason has a wide range of experience in the preparation of Environmental Impact Assessment Reports, Appropriate Assessment Screening reports and Natura Impact Statements. Jason was the lead ecologist on a range of projects in the UK, including large scale infrastructural schemes. Since moving to Ireland, he has been lead ecologist / author (EIAR, EclA, AA Screening reports and NIS's) for a number of projects including historic landfill remediation works, urban planning applications and commercial regeneration sites.

North Irish Sea Array Windfarm Ltd (NISA, hereafter referred to as ‘the Developer’) has been considering the Request for Further Information (RFI) issued by An Bord Pleanála (now An Coimisiún Pleanála) as well as the third-party submissions received following public consultation. At An Coimisiún Pleanála’s behest, the Developer has also continued to consult with stakeholders in respect of the 2024 planning application throughout 2024-2026. The Developer has refined elements of the design to respond to the third-party submissions, the continued public and stakeholder consultation and the RFI. Full details of consultation undertaken can be found in Appendix A1.2: Consultation Report.

For the purposes of clarity, this document shall be read in conjunction with Chapter 35: Offshore Bats. Additional guidance on the reading of the document is provided in the Response to the RFI Report prepared alongside the 2024 EIAR Addendum.

Any cross reference to a chapter, section, table, image, figure or appendix within this document is to another location within the Addendum to the EIAR unless explicitly stated otherwise. Any cross reference to anything included in the 2024 EIAR will be clearly labelled as such.

The sections relevant to Appendix A35.1: Offshore Bat Monitoring Report 2024 in the RFI are included below.

RFI Section	RFI	Relevance to Report
1 (c)	The applicant is requested to confirm whether any on-going or additional surveying has been carried out since the application was lodged and, if so, the applicant is invited to submit any further survey data results and analysis and update the planning application documentation, as appropriate.	Bat surveys were undertaken in 2024 to provide data collected during vessel and headland surveys, as well as further surveys of the buildings at Rockabill Island. This Appendix A35.1 Offshore Bat Monitoring Report 2024, therefore complies with RFI Section 1 (c).
15 (a)	The Board notes the observation from the DAU in relation to the assessment of coastal foraging bats. The DAU notes there is some evidence of Leisler’s bats throughout the summer and autumn at Rockabill, which is c. 5/6km from the proposed offshore array and therefore the proposed development is within the foraging range of this species. The DAU observations note a potential roost of pipistrelles on Rockabill needs further investigation. The applicant is requested to include the use of the data collected during vessel and headland surveys in 2024, as well as further surveys of the buildings at Rockabill Island to determine if a bat roost is present and address the potential for any interaction between foraging bats on Rockabill and the offshore development area.	This survey report includes data collected during vessel and headland surveys in 2024, as well as further surveys of the buildings at Rockabill Island. Details of this report (Appendix A35.1 Offshore Bat Monitoring Report 2024) have been fully incorporated into the updated baseline and assessment in Chapter 35: Offshore Bats, therefore addressing RFI Section 15 (a).
15 (b)	Whilst the applicant has stated that any risk to migrating bats has been ruled out, the DAU notes that data collected by the applicant, particularly in relation to Leisler’s	Details of this report (Appendix A35.1 Offshore Bat Monitoring Report 2024) have been fully incorporated into Chapter 35: Offshore Bats, providing an updated and

bats, provides the strongest indication to date that this species may migrate between the UK and Ireland. The DAU recommend that further data should be acquired or more data analysed to allow further consideration of the implications of the proposed development on offshore bat activity. These analyses should include use of the data collected during vessel and headland surveys in 2024 as well as further surveys of the buildings at Rockabill Island to determine if a bat roost is present and should address the potential for any interaction between bats on Rockabill and the offshore development area. The applicant is requested to respond to the observation made by the DAU and address concerns raised.

comprehensive assessment of offshore bat activity and potential migratory movements. Therefore, addressing RFI Section 15 (a).

1. INTRODUCTION

Offshore bat surveys have been carried out to inform the impact assessment of bats from offshore wind infrastructure as part of the North Irish Sea Array (NISA) offshore wind farm (hereafter ‘the proposed development’).

The information contained within this report is intended to summarise the results of bat monitoring for Autumn 2024, consisting of four main survey components-

- Monitoring at Rockabill Lighthouse
- Monitoring on a marine survey vessel
- Monitoring on headlands
- Roost surveys on Rockabill (an island, off the north east of Skerries).

The 2024 surveys are a continuation of the monitoring conducted for the proposed development in 2022 and 2023.

The initial bat survey methodology was designed by Chloe Delgery (Arup) in collaboration with Woodrow Environmental Consultants. Deployments and maintenance were carried out by Oisín O Sullivan, Kevin O’Reilly and Patrick Power (Woodrow). The report was compiled by Charles Stamp (GoBe Consultants) and Jason Guile (Woodrow).

This report also addresses the request for further information received 10 April 2025 as part of the planning application to An Bord Pleanála (now An Coimisiún Pleanála (ACP); Ref: ABP-319866-24), specifically in response to the Department of Agriculture, Food and the Marine’s (DAU) submission seeking additional bat survey data for Rockabill Island and the headlands in 2024.

2. METHODOLOGY

2.1. Monitoring Surveys

2.1.1. Rockabill Static detector surveys

Static detector surveys were undertaken using Wildlife Acoustics full spectrum Song Meter 4s (SM4s) with SMM-U2 ultrasonic microphones. Detectors were deployed on Rockabill, c. 6km offshore of Skerries, Co. Dublin. The detectors were powered by external lithium-ion batteries. The detectors were housed in simple plastic boxes modified to allow for power and microphone cables, to prevent excessive fouling from terns directly onto detectors. Two static detectors were deployed continuously from 14th August 2024 to 11th November 2024. This deployment window covers the expected autumn migration windows for long distance migratory bat species which runs from August to October (Shiel et al. 1999; Collins 2016). One detector was positioned on the eastern side of the island while the other was placed on the western side, both in the same locations as on previous years of surveys (53.597212, -6.00454 and 53.597285, -6.004187), as presented in Figure 1 below. The detectors were fitted with 256/512 GB memory cards each, in anticipation of high levels of noise being recorded as a result of the island's large breeding tern colony. The detectors were set with 16kHz as the minimum frequency trigger for recording, differing from standard Irish bat survey methodology for which a minimum trigger of 12kHz is used to cover all species present in Ireland. This was done in order to reduce the amount of interfering noise files produced by the large tern colony on the island, while still recording within the normal echolocation frequencies of relevant species. The sample rate has been set to 128kHz (as in 2023 surveys) to ensure the memory cards are not fully filled during each deployment. Detector units and batteries were placed on the ground, while microphones were mounted at approximately 2m above the ground. The eastern side detector microphone was placed on a metal strut on the side of a storage shed adjacent to a wall, while the west side detector microphone was affixed to a post, positioned in the corner of a walled off area in front of the main building on the island. Both of the microphones were pointing upwards. Respective pictures for context are shown in Appendix A of this document.



Figure 1: Rockabill detector locations

2.1.1.1. Maintenance of Rockabill detectors

The island was accessed by boat. Memory cards, microphones, and batteries were changed on a monthly basis or as close to a monthly basis as weather would allow for safe boat navigation. The maintenance schedule is shown in Table 1.

Table 1: Maintenance of Rockabill detectors

Visit	Date	Detector E	Detector W
Deployment	14-Aug-24	WSS026	WSS095
Maintenance (Roost survey 3)	12-Sep-24	WSS026	WSS095
Maintenance period 1	23-Oct-24	WSS026	WSS095
Collection	11-Nov-24	WSS026	WSS095

2.1.2. Headland static detector survey

Two detectors were deployed along the coast to assess if bat activity events on Rockabill coincided with activity changes on the mainland. In line with the surveys that took place in 2022 and 2023 (NISA, 2024a & 2024b), one detector was placed on a treeline north of Balbriggan at the landfall area of the proposed development, while a second was deployed on the RNLI lifeboat station in Skerries. The detector at the Skerries headland was deployed on 14th August 2024, and then re-deployed on the 29th August 2024 after the unit failed, and then collected on 6th November 2024. The detector at the Balbriggan headland was deployed on 28th August 2024 and then collected on 4th November 2024. Details on the detector run times are displayed in Table 2. A Batlogger C was deployed at the Skerries

location initially until it was discovered that the unit had failed, at which point a SM-Minibat was deployed on the 29th August 2024 which recorded until the end of deployment. A Batlogger C detector was deployed at the Balbriggan location and recorded for the full length of deployment. Respective pictures for context are shown in Appendix A of this document.

Table 2: Headland deployment

Location	Detector	Latitude	Longitude	Recording Start	Recording End
Skerries	SM-Mini - WSS067	53.585937	-6.105593	29 th August 2024	6 th November 2024
Balbriggan	Batlogger C- WSS046	53.624458	-6.189347	28 th August 2024	4 th November 2024

2.1.3. Marine Vessel static detector survey

During the Autumn of 2024, the Developer undertook offshore site investigations within the proposed offshore array area by a marine survey vessel. Two SM-Minibat detectors were deployed on the vessel surveying the array area on dates between 7th and 28th September 2024. One detector was placed on the port and one on the starboard railing. These detectors were set to recorded 30 minutes pre-sunset to 30 minutes post sunrise with a minimum trigger frequency of 12kHz. There were no technical malfunctions during this deployment. The boat continuously travelled at 3 knots while surveying.

2.1.4. Calibration and testing of recording equipment

All detectors were tested and settings checked prior to deployment. The sensitivity of all microphones was tested prior to and after each deployment, and all microphone checks were logged in an excel spreadsheet.

2.2. Roost Surveys

2.2.1. Preliminary roost assessment

During the 2023 monitoring it was concluded that there was a potential pipistrelle roost located on the island, based on the proximity of calls detected in relation to sunrise/sunset. Due to this, it was recommended that a preliminary roost assessment should be carried out during the next monitoring period to assess for the potential presence of a roost with the aim of fully identifying if one is present.

A preliminary roost assessment of the external of all the buildings was carried out by OOS and PP on the 14th August 2024, under the licence DER/BAT 2024-27. This assessment comprised of reviewing all of the buildings and other natural features on the island that are accessible and considering their suitability for use by bats. Features such as crevices, voids and entry points are all considered, in

addition to the exposed and thermal characteristics of the features, to determine a buildings suitability. The assessment carried out followed the Bat Conservation Trust (BCT) Best Practice Guidelines (Collins et al. 2023). There is a total of 6 buildings on the island and all were considered during the assessment (refer to: Table 3).

Table 3: Preliminary roost assessment locations

Building	Description	Location (latitude, longitude)
1	Old building	53.59732325962725, -6.004601272428902
2	Storage building	53.59734899827291, -6.004332682422162
3	Toilet facilities	53.597200773610005, -6.004559364630987
4	Accommodation building	53.597036820062186, -6.004583504510925
5	Old building	53.596909477061764, -6.004757848088244
6	Lighthouse	53.59696041430802, -6.004359540069291

2.2.2. Emergence/Re-entry surveys

The results of the roost survey identified one building (building one) with moderate to higher potential for bats. However, due the proximity of the buildings, and surveyors having to stay on the island overnight, coverage of as many buildings as possible was established during the positioning of the surveyors and equipment. The surveys comprised of emergence surveys and re-entry surveys, carried out at dusk and dawn by surveyors using handheld bat detectors and infrared (IR) cameras, as per the BCT Best Practice Guidelines (Collins et al. 2023). There was a total of 3 pairs of emergence and re-entry surveys carried out in 2024, the timings, personnel and weather provided in Table 4. The equipment and technology used for carrying out the surveys is presented in Table 5 and photos from the surveyor locations are presented in Appendix B of this document. Sound files recorded during the surveys were analysed using BatExplorer with automatic European classifiers filtered to Irish species. All files were manually verified by a suitably experienced member of the Woodrow bat ecology team, with the aid of Russ 2012, Barataud 2015 and Middleton et al 2022.

Table 4: Emergence/re-entry surveys

Date (dawn/dusk)	Sunrise/Sunset	Start	End	Surveyor	Weather
14-Aug-24 (dusk)	20:54	20:39	22:34	OOS and PP	18°C, 7 m/s and 80% cloud
15-Aug-24 (dawn)	06:04	04:24	06:34	OOS and PP	17°C, 6 m/s and 80% cloud
28-Aug-24 (dusk)	20:25	20:10	21:25	OOS and KOR	15°C, 2 m/s and 10% cloud
29-Aug-24 (dawn)	06:28	05:58	06:43	OOS and KOR	12°C, 3 m/s and 80% cloud
12-Sep-24 (dusk)	19:45	19:30	21:16	OOS and KOR	9°C, 3 m/s and 80% cloud
13-Sep-24 (dawn)	06:55	06:25	07:10	OOS and KOR	9°C, 2 m/s and 80% cloud

Table 5: Surveyor and equipment for preliminary roost assessments

Date (dawn/dusk)	Surveyor	Equipment Used
14-Aug-24 (dusk)	OOS and PP	Detectors used – Batlogger; and IR Camera – Sony XA60
15-Aug-24 (dawn)	OOS and PP	Detectors used – Batlogger; and IR Camera – Sony XA60
28-Aug-24 (dusk)	OOS and KOR	Detectors used – Batlogger; and IR Camera – Sony XA60
29-Aug-24 (dawn)	OOS and KOR	Detectors used – Batlogger; and IR Camera – Sony XA60
12-Sep-24 (dusk)	OOS and KOR	Detectors used – Batlogger; and IR Camera – Sony XA60
13-Sep-24 (dawn)	OOS and KOR	Detectors used – Batlogger; and IR Camera – Sony XA60

2.3. Data Analysis

Sound files recorded using SM Minibat and SM4 detectors were analysed using Kaleidoscope Pro with automatic European classifiers filtered to Irish and UK species. Sound files recorded using Batloggers were analysed using BatExplorer software. All files were manually verified by a suitably experienced member of the Woodrow bat ecology team, with the aid of Russ 2012, Barataud 2015 and Middleton *et al* 2022. Due to the large quantity of noise generated during the boat-based survey every second batch of 100 noise files were manually verified while the remainder were left as automatically classified as noise.

Weather data for Rockabill were obtained from the M2 weather buoy in the Irish Sea, accessed via the Marine Institute website (Irish Weather Buoy Data). Located approximately 40 km southeast of Rockabill, the M2 buoy provides representative marine weather conditions relevant to the broader Irish Sea region. This offshore data source is particularly valuable for understanding marine influences such as wind patterns and temperatures, offering a more contextually appropriate perspective than land-based stations for coastal and offshore surveys. It is noted, however, from the wind data collected by the vessel, this data is not always representative of the array area. While this is worth considering for future studies in the array area, such as assessing flight direction (migration movement to/from Ireland), it does not affect the current focus on presence or absence within the array area.

For the headland sites, weather data were sourced from the Dublin Airport weather station (Dublin Airport Weather Data), situated around 20 km southwest of the sites. This station provides reliable land-based meteorological data, supporting the interpretation of terrestrial weather influences on the headland environments. It should be noted that while the data reflect terrestrial conditions, coastal weather patterns often differ from those further inland. Similarly to the offshore weather data, the terrestrial data may not always represent conditions at Rockabill or along the coastline during departure events. Weather data for Rockabill was gathered from the M2 weather buoy in the Irish Sea accessed via the Marine Institute website (Irish Weather Buoy Data). This buoy is located 40km south-east of Rockabill, which is a limitation in that there may be localised differences to Rockabill unaccounted for, i.e., there may be higher wind and lower temperature effects from the mainland. However, it provides an insight into the weather conditions in a marine context for the Irish Sea rather than using a land-based weather station. The weather data for the headland sites was obtained from Dublin Airport weather station (Dublin Airport Weather Data) which provided land-based weather data. Dublin Airport is located approximately 20km south-west of the headland sites.

3. RESULTS

3.1. Rockabill static detector survey

Five species were recorded at Rockabill during the 2024 survey period; Leisler's bat (*Nyctalus leisleri*), Nathusius' pipistrelle (*Pipistrellus nathusii*), soprano pipistrelle (*Pipistrellus pygmaeus*), common pipistrelle (*Pipistrellus pipistrellus*) and an unidentifiable Myotis species recording (*Myotis* sp.), with a total of 1317 recordings. Table 6 shows the split of these recordings between the different species per month. Slightly more passes of bats were recorded at the East detector (684) compared to the West deployment (633), with the only Nathusius' pipistrelle and Myotis species records being recorded by the Eastern detector, recorded on the 15th and 28th September.

The frequency of wind speeds and directions filtered for night time conditions are displayed graphically in Figure 2. The prevailing nightly winds were primarily south-westerly, accounting for approximately >40% of the deployment period, ranging from 0-8 m/s speeds. The highest speeds were recorded from the North-west, reaching up to 14m/s.

Table 6: Static detector results

Prospective species	Number in August	Number in September	Number in October	Total	Number of days detected (Total deployed = 89 days)
Leisler's bat	193	1112	1	1306	23
Soprano pipistrelle	1	4	0	5	2
Nathusius' pipistrelle	0	1	0	1	1
Common pipistrelle	2	2	0	4	3
Myotis sp.	0	1	0	1	1

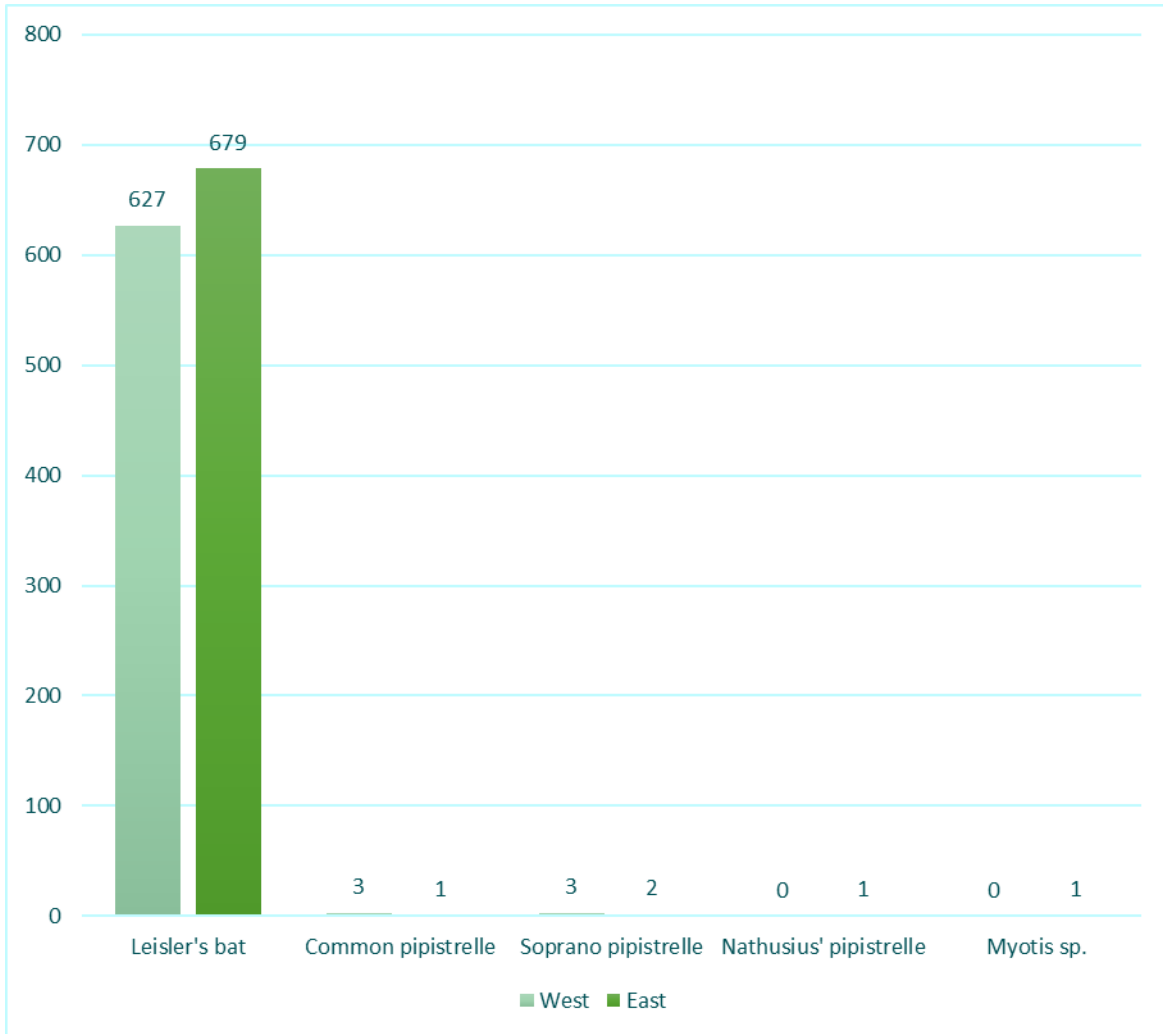


Figure 3: Comparison of species passes on the eastern vs western deployment location

3.1.1. Leisler’s bat activity

The overall activity for Leisler’ bat is shown in Figure 4.

Leisler’s bat activity was low in August, with peak activity recorded in September and only a single pass in October. Activity was recorded on just over a quarter of the deployment days.

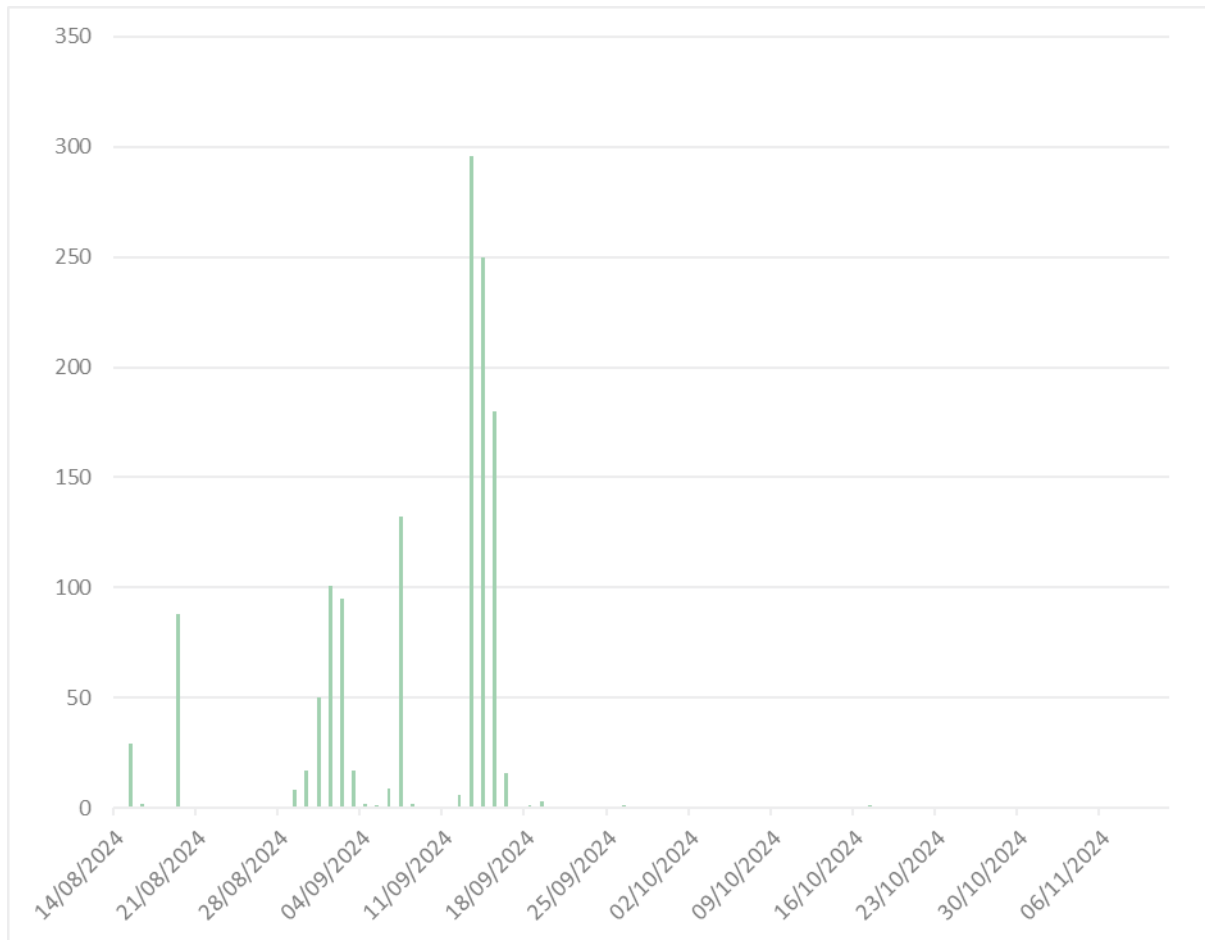


Figure 4: Number of Leisler's bat passes recorded across the length of the deployment

The highest peak in Leisler’s bat activity occurred between 13-Sept-24 and 15-Sept-24, with 296, 250 and 180 passes recorded on the 3 nights respectively. There was also a peak in activity on the 31-Aug-24 to 02-Sept-24, with 50, 101 and 95 passes recorded during that time. This partly mirrors what was observed with the 2022 and 2023 monitoring surveys in terms of the timing of peak activity, however it should be noted that the findings within 2024 represent a significantly higher fluctuation in passes recorded as a peak for this species in 2024 (296 passes) compared to in 2023 (38 passes) and slightly lower than in 2022 but with generally higher peaks over all. In 2022 the highest peak was 310 passes in one night, second highest peak being 75 passes. Comparatively, 2024 has 5 nights where over 100 passes were recorded.

Figure 5 shows the proximity of Leisler’s bat passes in relation to sunset, and the relative emergence window. The results show a significant number of bat passes before, within and immediately after the emergence window, indicating the potential presence of a Leisler’s roost on Rockabill, which (while not at the suggested scale above) is confirmed from the Roost surveys in Section 3.4. Further investigation of the passes recorded shows that the dates with peak activity during the expected emergence window for Leisler’s bat are likely accountable to a small number of individuals (1-10) rather than large numbers of the species. Figure 6, Figure 7, and Figure 8 show that the peak activity with correlation with emergence for the species was recorded in September. Within September the

dates with highest activity associated with possible emergence are 7th, 13th, 14th and 15th September (refer to Figure 7). Figure 8 then shows the activity per minute for each of the days with the highest activity associated with possible emergence. The activity per minute shows an average of 6-10 passes per minute during the hour of 20:00. This suggests that there are a small number of individuals (1-10) rather than large numbers of the species within a roost on site and that these individuals forage around the island before leaving. This is further supported by the passes per second for days of highest activity associated with possible emergence, example shown in Table 7.

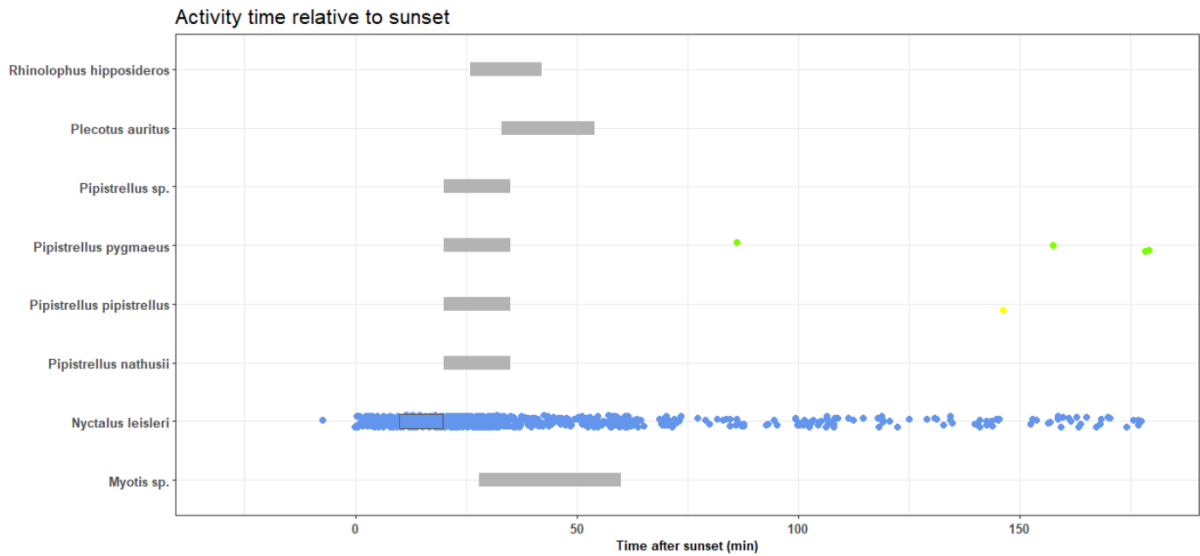


Figure 5: Species passes recorded in relation to time after sunset. (Typical emergence window is represented with a grey box)

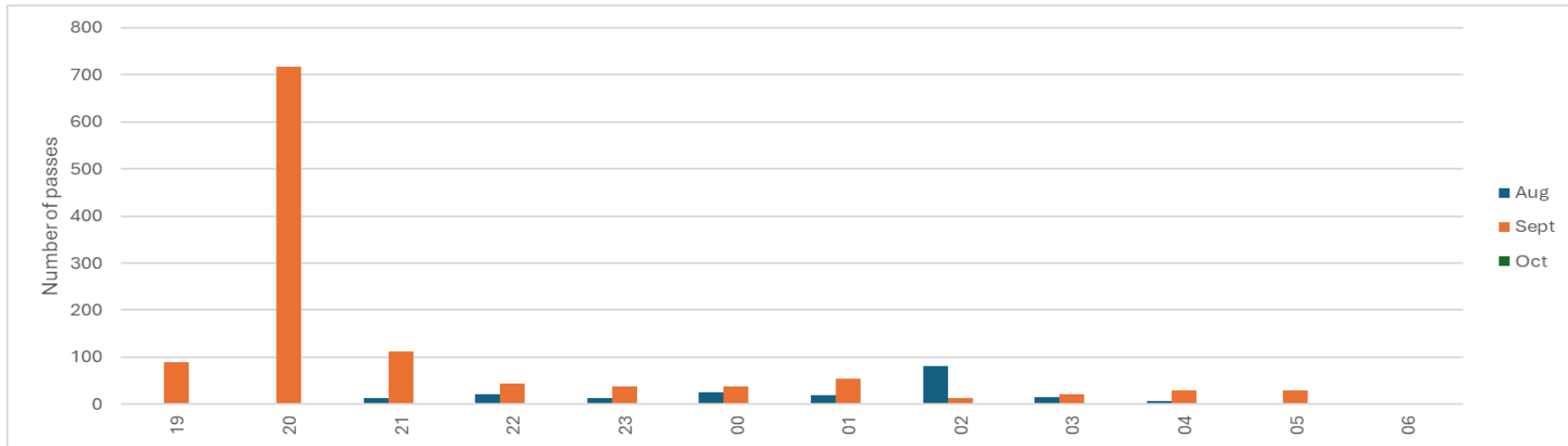


Figure 6: Leisler passes for each hour of activity per month

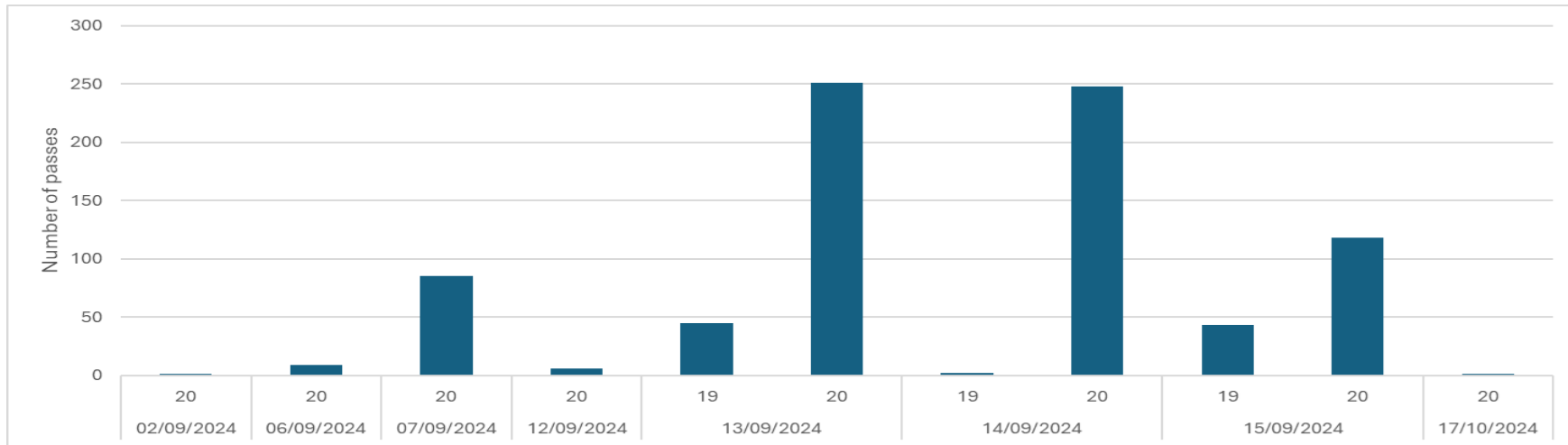


Figure 7: Number of passes per hour for dates with activity before within and immediately after the expected emergence window for Leisler's bat

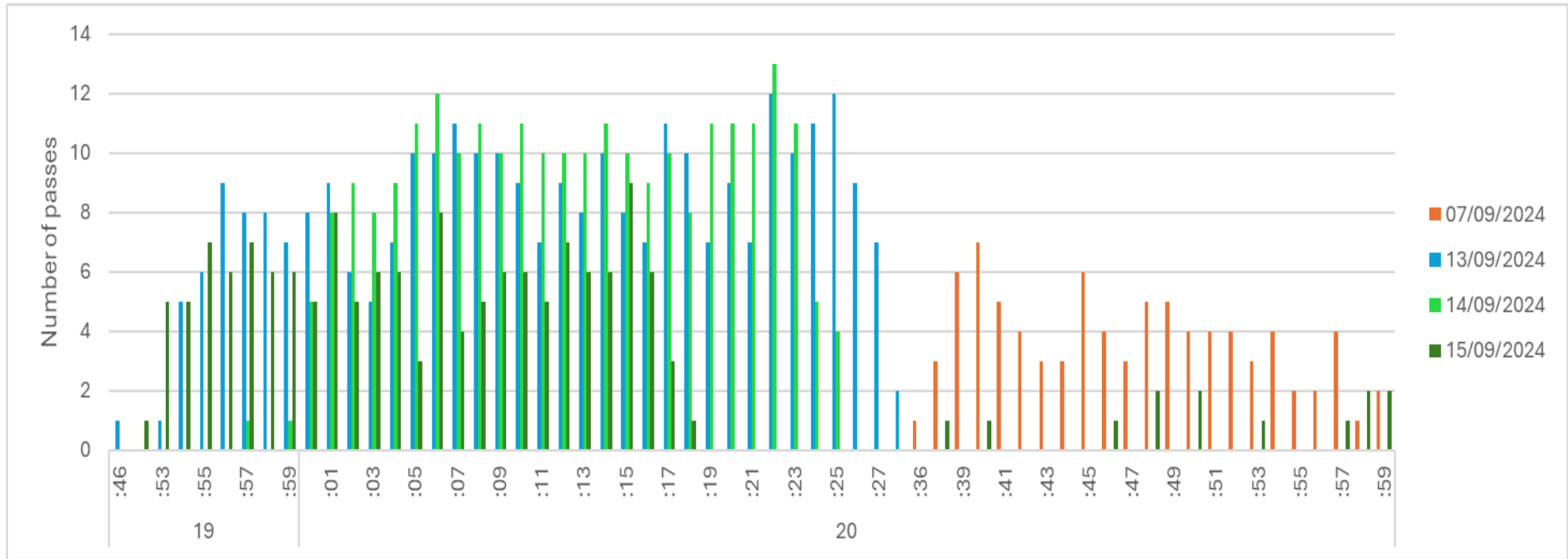


Figure 8: Activity per minute for hours before within and immediately after the expected emergence window for Leisler's bat

Table 7: Example of passes per second for one minute each day during expected emergence window for Leisler's bat

Date	Time	Date	Time	Date	Time
13/09/2024	20:08:05	14/09/2024	20:08:00	15/09/2024	20:08:06
13/09/2024	20:08:10	14/09/2024	20:08:01	15/09/2024	20:08:23
13/09/2024	20:08:13	14/09/2024	20:08:09	15/09/2024	20:08:35
13/09/2024	20:08:21	14/09/2024	20:08:17	15/09/2024	20:08:49
13/09/2024	20:08:26	14/09/2024	20:08:17	15/09/2024	20:08:55
13/09/2024	20:08:33	14/09/2024	20:08:28		
13/09/2024	20:08:36	14/09/2024	20:08:34		
13/09/2024	20:08:41	14/09/2024	20:08:38		
13/09/2024	20:08:53	14/09/2024	20:08:49		
13/09/2024	20:08:58	14/09/2024	20:08:51		
		14/09/2024	20:08:56		

As displayed in Table 8 below, Leisler's activity primarily coincided with south westerly winds; a trend heavily driven by the activity peak on the 13th to 15th September which had an average south-westerly wind speed of 8.27m/s (M2 weather buoy). The three most frequently observed offshore wind directions while Leisler's bat activity was recorded on the island were south-westerly, northerly and easterly winds. These conditions were present for 78.02% of recorded passes. Of the 21.98% of records made with other wind directions, south-easterly had the lowest recorded levels of activity with only 1.99% of Leisler's recorded during that wind direction.

Whilst the highest number of Leisler's passes were recorded during light winds, with 45.33% of passes recorded at wind speeds between 1-4 m/s (M2 weather buoy), similar in comparison to that recorded in the 2023 monitoring period (56.16% between 1-4 m/s (M2 weather buoy)), with 90% of passes recorded at wind speeds of ≤ 7 m/s and the 2022 monitoring period (80.89% between 1-4 m/s (M2 weather buoy), and with 99.18% of passes recorded at wind speeds of ≤ 7 m/s. The passes recorded at higher wind speeds in 2024 is disproportionate to that recorded in 2023 and 2022 as only 10% and 0.19% (1 pass) of Leisler activity was above 7 m/s respectively. The wind direction of higher wind speeds is still in line with the direction at lower wind speeds with more than 95% of wind speeds ≥ 7 m/s in south westerly direction. There were no passes recorded in 2024 when there was no or barely any wind present (< 1 m/s).

Table 8: Wind Speed and direction during Leisler's bat passes (M2 weather buoy)

Wind speed (m/s)	N	NE	E	SE	S	SW	W	NW	Total
<1	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
1-4	9.19%	0.38%	7.50%	1.99%	5.74%	13.17%	2.30%	5.05%	45.33%
4-7	5.59%	3.52%	0.69%	0.00%	0.08%	0.08%	0.77%	1.38%	12.10%
7-10	0.00%	0.08%	0.00%	0.00%	0.00%	22.66%	0.15%	0.54%	23.43%
10-13	0.00%	0.00%	0.00%	0.00%	0.00%	19.14%	0.00%	0.00%	19.14%
Total	14.78%	3.98%	8.19%	1.99%	5.82%	55.05%	3.22%	6.97%	100.00%

Wind speed in m/s converted to Marine Beaufort Scale (Met Éireann accessed June 2025)

- <1 m/s – 0 /Calm
- 1-4 m/s – 0 to 3 / Calm to Gentle breeze
- 4-7 m/s – 3 to 4 / Gentle breeze to Moderate breeze
- 7-10 m/s – 4 to 5 / Moderate breeze to Fresh breeze
- 10-13 m/s – 5 to 6 / Fresh breeze to Strong breeze

3.1.2. Pipistrelle activity

The overall pipistrelle activity recorded during the 2024 monitoring period is presented in Figure 9.

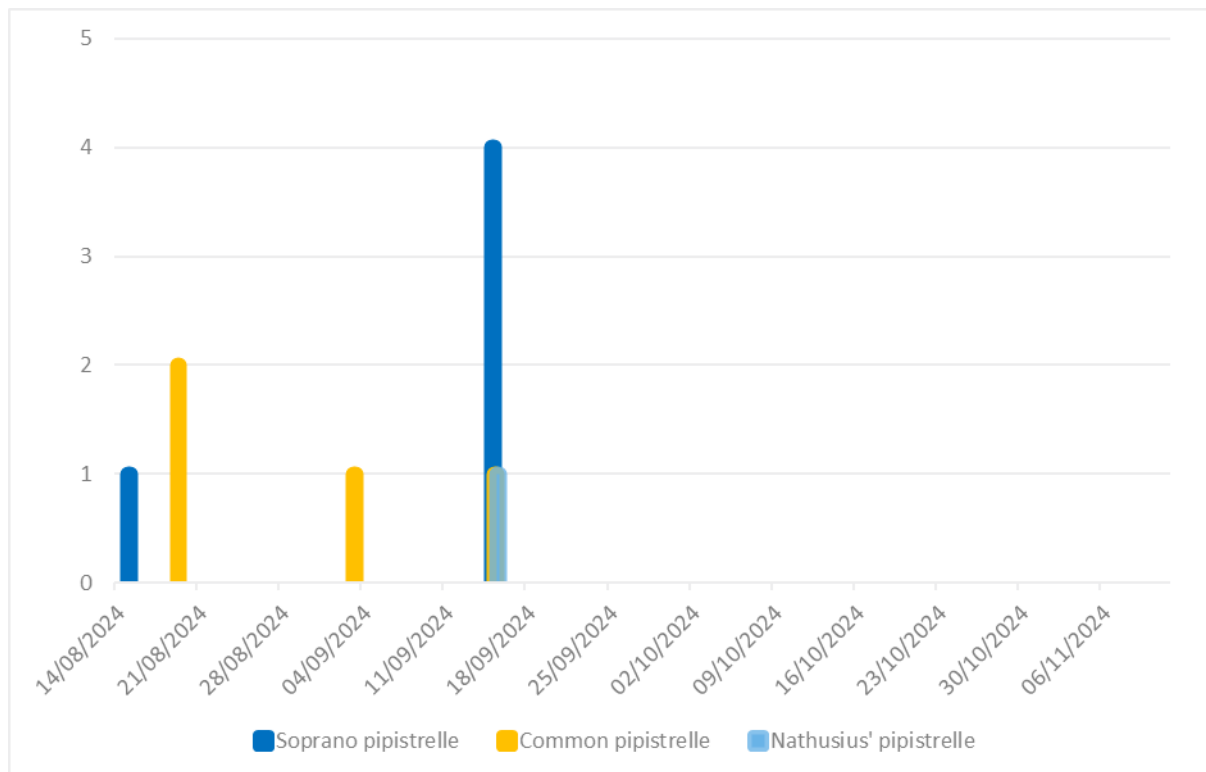


Figure 9: Number of pipistrelle passes recorded across the length of the deployment

3.1.2.1. Nathusius' pipistrelle

Nathusius' pipistrelle activity was recorded on one occasion (15th September 2024), which consisted of a single pass on the eastern detector at 23:03:45, making the pass approximately 3 hours and 30 minutes after sunset. The wind direction recorded at the time was south-westerly, and 2.17 m/s.

This level of activity is at a similar level to that recorded in the 2023 monitoring period (2 passes, over 2 days) and reduced from the number of passes recorded during the 2022 monitoring period (12 passes, over 3 days).

3.1.2.2. Common pipistrelle

There were a total of 4 passes of common pipistrelle recorded during the deployment, on the 19th August, 3rd September and 15th September 2024 respectively. There were 2 passes recorded in the early hours of the 19th August, first at the east detector, followed by 4 minutes later at the west detector. The times of the calls ranges between 22:15pm on the 15th September, to 04:02am on the 3rd September, making these passes approximately 2 hours 45 minutes after sunset, and 2 hours 30 minutes before sunrise respectively. All passes are outside the emergence and re-entry windows as shown in Figure 5. All passes recorded were during south-westerly or westerly winds, with wind speed ranging between 1.05 to 4.57 m/s.

This is a significantly reduced level of activity in comparison to that recorded in the same 2023 monitoring period (1084 passes total), and more in line with the results of 2022. Therefore, the suggested swarming event of 2023 is considered likely an isolated occasion.

The updated results from 2024 confirm that the assumed roost identified during the 2023 monitoring was not used by common pipistrelles in 2024. This strengthens the conclusion that the site does not function as a consistent annual roost, but rather may be used intermittently or opportunistically depending on environmental or behavioural factors.

3.1.2.3. Soprano pipistrelle

There were a total of 5 passes of soprano pipistrelle recorded during the deployment, all on either the 15th August (1 pass), or the 15th September 2024 (4 passes). 3 passes were recorded on the west detector, and two on the east, with the pass on the 15th August recorded at 22:30pm approximately 90 minutes after sunset, and the passes on the 15th September recorded between 22:26 and 23:07pm, being approximately 3 to 3 hours 30 mins after sunset. All passes recorded were during westerly or south-westerly winds, with wind speed ranging from 2.17 to 2.99 m/s.

This is a significantly reduced level of activity in comparison to recorded during the 2023 monitoring period (1610 passes total), and more in line with the results of 2022. Therefore, the suggested swarming event of 2023 is considered likely an isolated occasion.

The updated results from 2024 confirm that the assumed roost identified during the 2023 monitoring was not used by soprano pipistrelles in 2024. This strengthens the conclusion that the site does not function as a consistent annual roost, but rather may be used intermittently or opportunistically depending on environmental or behavioural factors.

3.1.3. Myotis activity

There was a single pass my *Myotis* sp. during the deployment, on the 28th September. The pass was recorded at 01:02am. The pass was recorded during north-westerly winds with a speed of 9.02 m/s. This was the first occasion that a *Myotis* sp. pass has been recorded during all years of monitoring.

3.2. Headland static detector surveys

While the headland detector data was examined specifically for trends in *Nathusius' pipistrelle* and *Leisler's* bat data, in light of the results recorded at Rockabill, all species have been reviewed for any correlation between the Rockabill and the headland.

3.2.1. *Leisler's* bat activity

Leisler's bat passes were recorded at both headland detector locations, with a total of 1065 passes at the Balbriggan location, and 41 passes at the Skerries location. Both of these are significantly lower than the numbers recorded at Rockabill, however there is a potential correlation in activity that can be drawn between Rockabill and the Balbriggan locations. Figure 10 shows a similar level of activity in August between Balbriggan and Rockabill locations, with both locations showing a rise in activity at the end of August peaking on 1st September with c. 100 *Leisler's* passes. A second rise in activity occurs mid-September in line with Rockabill. While the numbers are significantly different between the two locations, comparison between daily peaks and troughs in activity can be made.

As displayed in Table 9 below, *Leisler's* activity primarily coincided with westerly winds (Dublin Airport Weather Data) with 38.5% of passes occurring. The most frequently observed wind directions while *Leisler's* bat activity was recorded on the headland were westerly and north westerly winds. While these wind directions account for the majority of passes, wind direction for the passes at the headland locations were quite evenly spread between north, south, east and west. Wind speeds were much lower for the onshore activity based on Dublin Airport Weather Data than offshore, with most activity (96.35%) at wind speeds ≤ 7 m/s (of which 68.33% is for wind between 1-4 m/s).

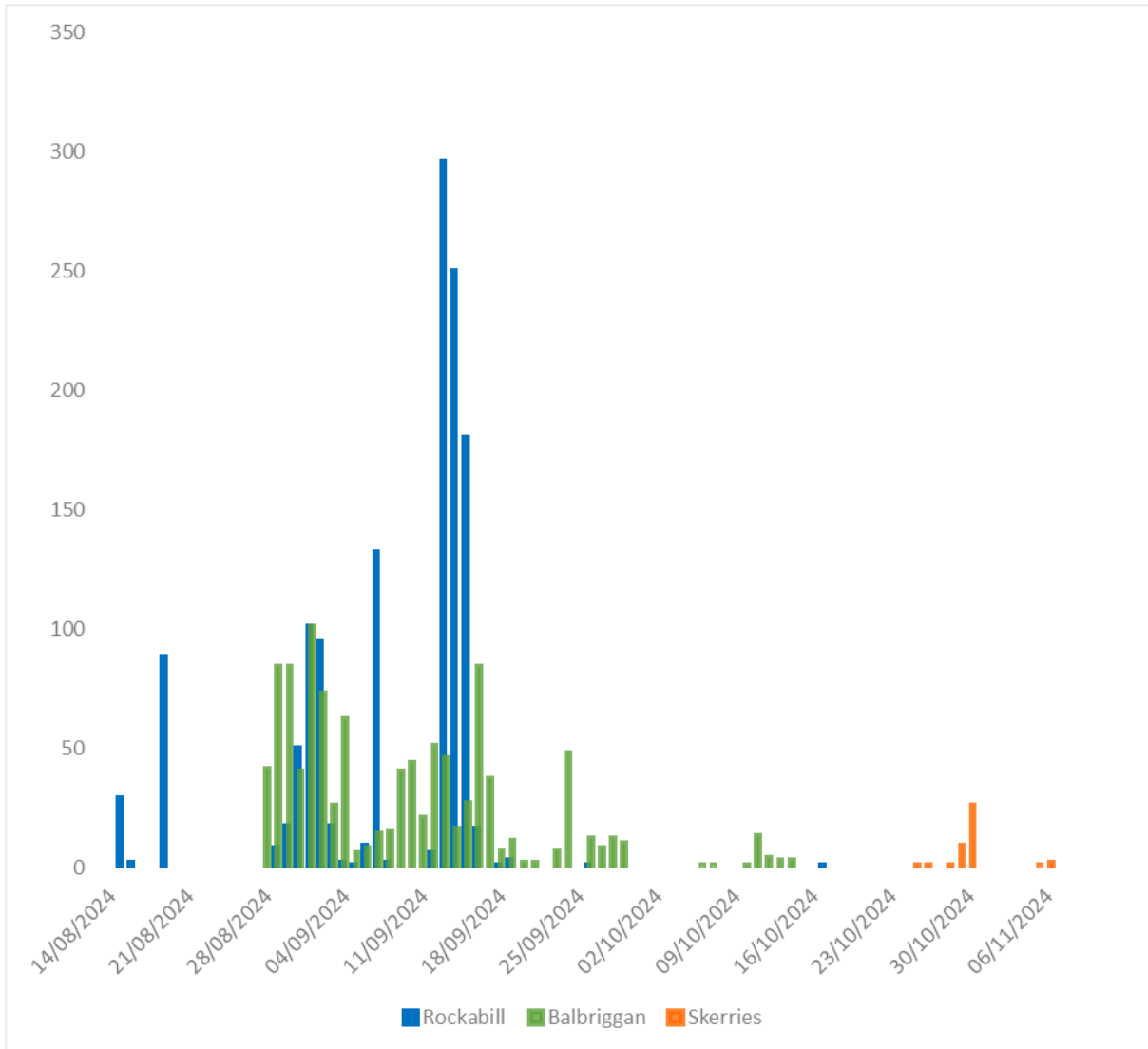


Figure 10: Numbers of Leisler's bat passes recorded on the same dates on Rockabill, Balbriggan and Skerries deployment locations

Table 9: Wind conditions during Leisler's bat passes (Dublin Airport Weather Data)

Wind speed (m/s)	N	NE	E	SE	S	SW	W	NW	Total
<1	1.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.33%
1–4	6.05%	1.78%	14.95%	3.74%	2.05%	8.19%	23.04%	8.54%	68.33%
4–7	0.18%	0.98%	0.00%	0.44%	4.36%	1.25%	12.72%	6.76%	26.69%
7–10	0.36%	0.00%	0.00%	0.00%	0.00%	0.00%	2.76%	0.27%	3.38%
10–13	0.27%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.27%
Total	8.19%	2.76%	14.95%	4.18%	6.41%	9.43%	38.52%	15.57%	100.00%

3.2.2. Nathusius' pipistrelle activity

There were five Nathusius' pipistrelle passes recorded on the Balbriggan headland detector, with none recorded at the Skerries deployment. Nathusius' pipistrelle was recorded on the 19th September and 22nd October at the Balbriggan detector, which does not align with when Nathusius' pipistrelle were recorded passing Rockabill, and therefore comparison between locations cannot be established.

As there were not enough passes to establish a connection between wind speed and Nathusius' pipistrelle passes, the data for all pipistrelle species passes were compared. Table 10 shows that 52.47% of all pipistrelle passes occurred in westerly wind directions and 91.34% of all passes occurred at wind speeds of 1-4 m/s.

Table 10: Wind conditions during Pipistrelle species passes (Dublin Airport Weather Data)

Wind speed (m/s)	N	NE	E	SE	S	SW	W	NW	Total
<1	0.46%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.46%
1-4	4.20%	5.39%	7.36%	6.78%	4.21%	12.16%	48.86%	2.44%	91.40%
4-7	0.35%	0.43%	0.16%	0.08%	0.16%	0.05%	3.10%	3.70%	8.03%
7-10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.01%	0.10%	0.11%
Total	5.07%	5.88%	7.56%	6.34%	4.08%	12.33%	52.47%	6.27%	100.00%

3.2.3. Common and soprano pipistrelle

There were 6037 common pipistrelle passes recorded at the Balbriggan headland detector and 68 at the Skerries detector. Both of these are significantly higher than the numbers recorded at Rockabill. As shown in Table 11 92% of all activity for common pipistrelle occurred in winds 1-4 m/s and 60% in a westerly direction.

Table 11: Wind conditions during common pipistrelle passes (Dublin Airport Weather Data)

Wind speed (m/s)	N	NE	E	SE	S	SW	W	NW	Total
<1	0.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.33%
1–4	3.27%	4.16%	6.79%	6.12%	4.16%	9.36%	55.48%	2.71%	92.06%
4–7	0.20%	0.41%	0.13%	0.03%	0.18%	0.07%	3.72%	2.78%	7.51%
7–10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.02%	0.08%	0.10%
Total	3.84%	4.64%	6.96%	5.48%	3.96%	9.54%	59.98%	5.60%	100.00%

There were 1870 soprano pipistrelle passes recorded at the Balbriggan headland detector and 16 at the Skerries detector. Both of these are significantly higher than the numbers recorded at Rockabill. As shown in Table 12 89% of all activity for soprano pipistrelle occurred in winds 1-4 m/s and mostly (50%) in a westerly or south-westerly direction.

Table 12: Wind conditions during common pipistrelle passes (Dublin Airport Weather Data)

Wind speed (m/s)	N	NE	E	SE	S	SW	W	NW	Total
<1	0.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.91%
1–4	7.27%	9.35%	9.25%	8.93%	4.38%	21.11%	27.37%	1.55%	89.20%
4–7	0.86%	0.48%	0.27%	0.21%	0.11%	0.00%	1.07%	6.73%	9.73%
7–10	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.16%	0.16%
Total	9.04%	9.84%	9.52%	9.14%	4.49%	21.12%	28.40%	8.45%	100.00%

Figure 11 shows that all passes for both common and soprano pipistrelle were recorded at the Balbriggan location before 25 October, no passes were recorded at Skerries for the same period.

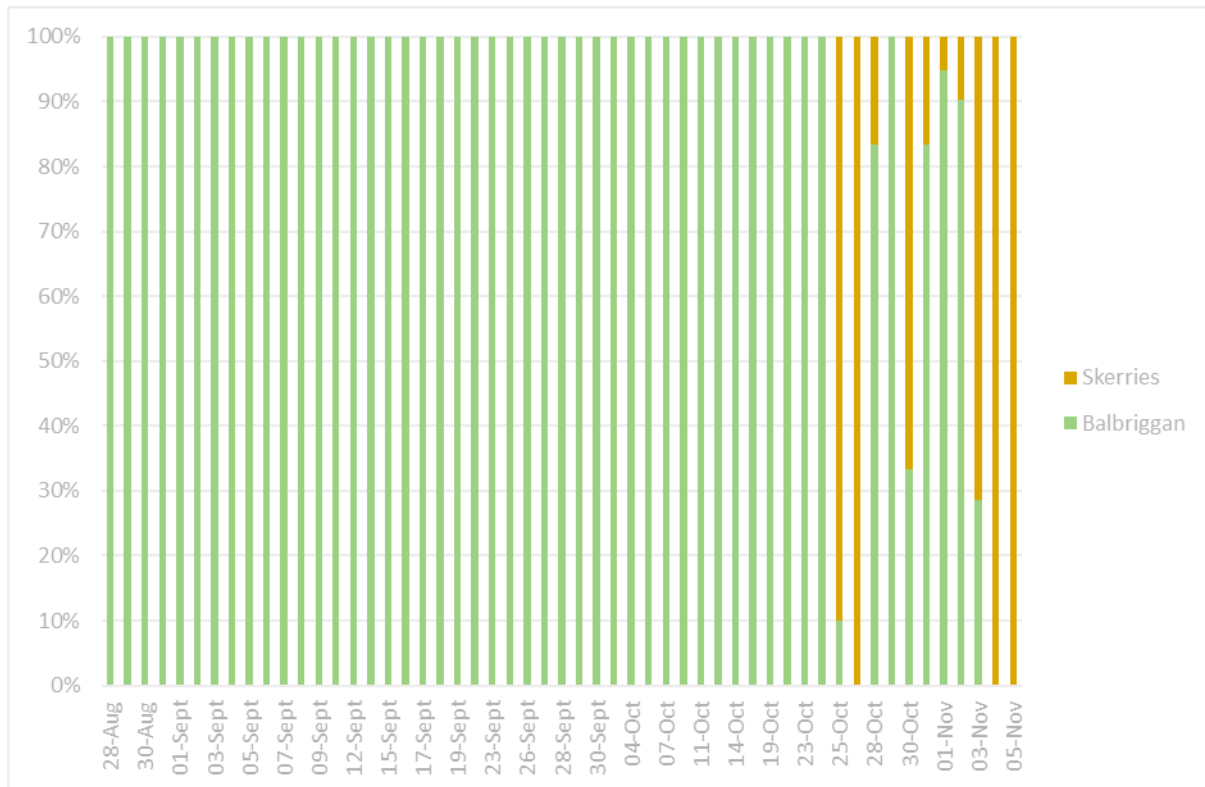


Figure 11: Common and soprano pipistrelle passes shown as a percentage of Balbriggan v’s Skerries per day recorded.

3.2.4. Myotis species

There was a total of seven passes recorded at the Balbriggan headland detector and none at the Skerries detector. None of the passes were recorded on the same day as the pass on Rockabill.

3.3. Marine vessel static detector surveys

The detectors deployed on the marine survey vessel recorded high levels of noise. 70 calls were recorded at times during which the boat was at sea. These comprised of Leisler’s bat (20 passes on 5 separate days), Soprano pipistrelle (49 passes on 8th September) and Nathusius’ pipistrelle (one pass on 28th September). Appendix C of this document presents the number of species detected in each location. Figure 12 shows the location of the calls on a map. While there are 70 calls recorded, due to the locations being nearly on top of each other, they have been grouped into 10 locations for display purposes.

The dates Leisler’s bat were detected align generally with those for passes recorded on Rockabill. Based on the start date and time of passes it is assumed that a total of eight individual Leisler’s passed through the array area on 7th (3 individuals), 8th (2 individuals), 15th (1 individual), 16th (1 individual) and 19th (1 individual) September. The wind data recorded on the boat for Leisler bats shows wind

speed is evenly split between 1-4, 4-7 and ≥ 7 . However, the direction is mainly (60% of detections) from north easterly winds (refer to Figure 13).

All Soprano pipistrelle bats were recorded on the 8th September 2024, with 47 calls within a 1 hour 1 minute window from 00:54-01:55, and the two remaining calls both at 04:18, this level of activity infers that up to two individual bats were present around the boat for the duration of the calls. The wind data recorded on the boat for soprano pipistrelle shows all activity within the 1 hr activity window occurred during speeds of 1-4 m/s and northerly to north easterly directions (refer to Figure 14).

As detailed in Section 2.3, there are wind data that for both the M2 weather buoy and vessel that match and weather that do not match. When directions coincide, wind speed differences are negligible, with soprano pipistrelle slightly positive ($\sim +1.4$ m/s) and Leisler bats near zero. Non-match cases, on the other hand, exhibit differences, especially for Leisler bats (3.5 m/s) and Nathusius pipistrelle (2.1 m/s), where vessel readings were consistently higher.

Wind direction follows a similar trend, matches show almost no variation, while non-match cases diverge sharply, often over 90° for Leisler bats and 120° for Nathusius pipistrelle (one pass). These patterns show that while non-match situations show notable variation in both speed and direction, matching conditions show strong consistency.

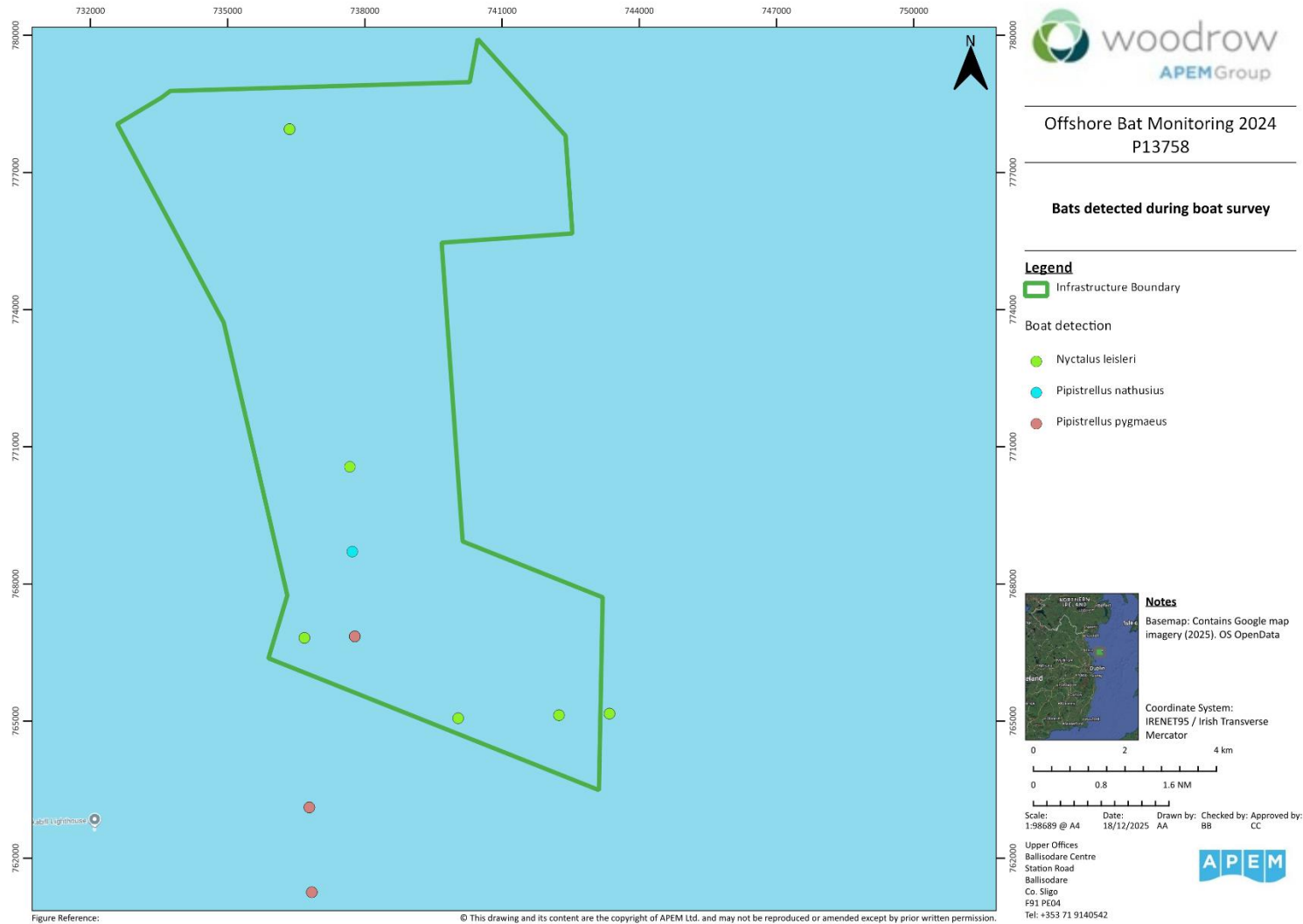


Figure 12: Map showing the locations where bats were detected during boat surveys

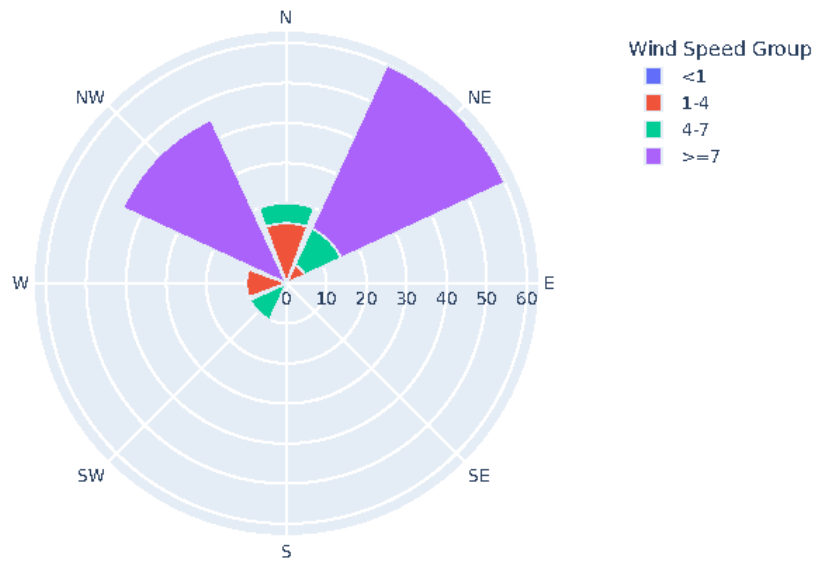


Figure 13: Wind speed and direction for boat detections of Leisler bats

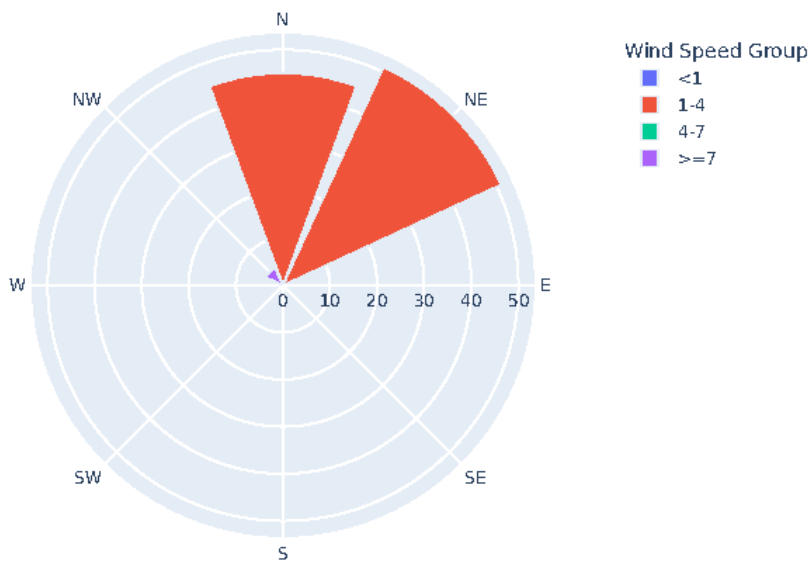


Figure 14: wind speed and direction for boat detections of soprano pipistrelle

3.4. Roost surveys

3.4.1. Preliminary roost assessment

The Preliminary Roost Assessment fully considered all 6 buildings present on the island and results shown in Table 13. Photos from this assessment are provided within Appendix B of this document.

Table 13: Preliminary roost assessment results

Building	Description	Roost suitability
1	Old building with multiple potential entry points located along the roof and brick work. Entry points in the roof where the wooden vent is located.	Moderate
2	Old building of drystone and brickwork which is used to store tern nesting boxes	Negligible
3	toilet facilities	Negligible
4	Accommodation building. Roof in good condition, and small number of potential entry points	Low
5	Solitary old building	Negligible
6	Lighthouse, all of the stonework is well pointed with no cracks or fractures	Negligible

3.4.2. Emergence/ Re-entry surveys

Following the preliminary roost assessment, only Building One was identified as requiring further investigation in line with the additional survey effort recommended by Collins (2023). Three emergence/re-entry surveys were conducted on Building One, exceeding the minimum requirement of two surveys for its classification under Collins (2023). Photos from the surveyor locations are presented in Appendix D of this document.

During the emergence/ re-entry surveys the only species detected was Leisler's bat, which included a likely emergence of one individual bat on 12-Sept-24 at 20:19. A total of 4 Leisler's bat passes were recorded during the surveys, all on the 12th September 2024. Only a single bat was observed emerging and we conclude that the feature is used as a day roost for Leisler's bats. Based on the results of the roost surveys and the static surveys of all years, it is likely that the roost is a transitional or stopover roost for a small number (1-10 individuals) over the course of the migration period.

Further to the results of the roost survey and the absence of pipistrelle species on the island compared to 2023, it is concluded that the assumed roost identified during the 2023 monitoring was not used by common pipistrelles in 2024. This strengthens the conclusion that the site does not function as a consistent annual roost but rather may be used intermittently or opportunistically depending on environmental or behavioural factors.

4. DISCUSSION

The results from the 2024 bat monitoring surveys provide a clear overview of when and where bat activity occurred within the study area within the scope of the survey parameters. The findings show bat activity levels across the monitored locations, with particularly high levels recorded on Rockabill for Leisler's bat when compared to the headlands and the offshore survey vessel.

As highlighted in Section 2.3, weather data for the offshore and headland sites were sourced from the M2 marine buoy and the Dublin Airport weather station, respectively, providing useful insight into broad marine and terrestrial weather conditions. However, it should be acknowledged both datasets have limitations in representing the exact local weather at the survey areas. Offshore wind data collected on the vessel and from the M2 buoy, located 40 km southeast of Rockabill, may not fully reflect conditions within the array, particularly where localised wind or temperature patterns occur. Similarly, the Dublin Airport station, situated approximately 20 km inland from the headland sites, may not capture the distinct coastal conditions present during departure events. While these limitations are important to acknowledge, they do not affect the current study's focus on presence or absence within the array area, with the weather data providing a useful variable to consider further when looking at the results.

A discussion on each of the locations surveyed is provided below.

Rockabill

In total, five species were detected on Rockabill: Leisler's bat, soprano pipistrelle, common pipistrelle, Nathusius' pipistrelle, and an unidentified *Myotis* species. Despite this range, Leisler's bat accounted for over 90% of all recordings, confirming its dominant presence at the site for 2024. While not consistent with data collected for previous years on Rockabill, this finding is consistent with studies that show Leisler's bats are highly active in late summer and early autumn, especially in open areas and near coastlines, which they use for foraging and travel (Shiel et al., 1999; Collins, 2023).

Over the survey period a spike of presence on the island is evidenced in September, with low levels of activity in August, rising sharply in September, and then dropping off again in October. The highest number of detections occurred between the 13th and 15th of September, when nearly 300 passes were recorded on a single night. This peak period was accompanied by moderate south-westerly winds, which appear to have supported the higher bat activity, especially for Leisler's bats. Bat activity was relatively well distributed between the east and west detectors on Rockabill, with slightly more recordings at the eastern location. Slightly more species were recorded at the eastern detector, including a small number of calls from Nathusius' pipistrelle, common pipistrelle, soprano pipistrelle, and a single *Myotis* species. These species are also known to occur in coastal areas but are usually less common offshore. Their low detection numbers align with studies showing that these bats tend to stay closer to mainland habitats and may only occasionally visit offshore locations (Lagerveld et al., 2021; Rydell et al., 2014).

Finally, the roost surveys on Rockabill provided direct evidence of a small day roost for Leisler bats within Building One. While only a single bat was observed emerging, this confirms that bats are not only flying around the island but are also using it for daytime rest or shelter at least temporarily. This

is not supported by previous data collected at Rockabill for this species with all activity from previous years being after the expected emergence window for the species.

The potential presence of a day roost adds important context to the high number of detections at the static detectors during the 2024 survey. However, most of the activity recorded is assumed to be from a small number of individual bats based on the island for a small part of the migration season. Roosts used in remote or exposed locations like islands has been reported before, particularly when structures provide shelter and food is available nearby (Richardson, 2000; Collins, 2023).

Headlands

The mainland headland detectors, located at Balbriggan and Skerries, recorded significantly lower levels of bat activity, for targeted species Leisler and Nathusius' pipistrelle, compared to Rockabill. Of the two, the Balbriggan headland had noticeably more bat detections than Skerries. Leisler's bat was again the most commonly recorded species, with over 1,000 detections at Balbriggan and only 41 at Skerries. The timing of activity peaks at Balbriggan loosely followed those on Rockabill, with notable increases in late August and mid-September, although at a much lower intensity.

Activity patterns for pipistrelle species on the headlands were less pronounced. Nathusius' pipistrelle was detected only five times, and exclusively at the Balbriggan site. These detections did not occur on the same dates as those recorded on Rockabill or during the vessel survey, making direct comparison difficult. This species is known to use coastlines and open water during certain times of the year, particularly in autumn, but its offshore movements are generally brief and weather-dependent (Bach et al., 2022; Lagerveld et al., 2021). The low number of detections is consistent with these patterns.

Wind conditions during bat activity at Balbriggan generally involved low wind speeds and westerly directions, similar to observations offshore.

Marine vessel

The detectors on the offshore vessel recorded a smaller number of bat passes, though they still provided valuable insight. A total of 70 calls were identified while the boat was active at sea. Most of these were soprano pipistrelle, recorded within a tight one-hour window on the 8th of September, and likely represent one or two individuals flying near the vessel. Leisler's bat was also detected offshore on multiple dates in September, on similar dates in line with activity observed on Rockabill. With consideration that this was during the migration window it is possible that this data may support a hypothesis that Leisler's bats pass through the array area as a result of movement along the coast (north of the array to Rockabill or vice versa). A single call from Nathusius' pipistrelle was also recorded.

While we do not know why the soprano pipistrelle bat(s) were present, it is known that while this species do not migrate they have been recorded offshore (Ahlén et al., 2007; Boshamer and Bekker, 2008). Taking into consideration of the date and timing of the calls, and no correlation with levels of activity of this species at the headlands or Rockabill detectors, it is considered likely this is an isolated occasion.

There were no other Nathusius's pipistrelle passes recorded at the other detectors on the 28th September 2024, however, Nathusius' pipistrelle are known to migrate and therefore, it is considered possible that an individual Nathusius pipistrelle was recorded during migration through the array area.

As there was only one pass recorded, it can be inferred that the presence of the boat did not attract the bat, as might have been the case for the soprano pipistrelle passes. This is in line with the EIAR impact assessment for the species.

Summary

In summary, the 2024 survey data show that Rockabill is a location of high bat activity during late summer and autumn when compared to the other survey locations, particularly for Leisler's bat, with the highest detection rates and a confirmed transitional roost. The headlands and offshore vessel recorded much lower activity overall, but still contributed useful supporting information about when and where bats were active.

The comparison between 2023 and 2024 highlights several trends. First, overall bat activity decreased substantially in 2024, with fewer detections compared to 2022 and 2023. Secondly the dominance of Leisler's bats in 2024 contrasts with the prevalence of soprano pipistrelle bats in 2023.

5. REFERENCES

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Appendix A: Static detector locations

Rockabill



Plate 1: Western detector, microphone circled in red, detector and battery circled in yellow



Plate 2: Eastern detector, microphone circled in red, detector and battery circled in yellow.

Headlands



Plate 3: Skerries detector on the RNLI weather mast



Plate 4: Balbriggan detector on treeline adjacent to beach

Appendix B: Preliminary roost assessment photos

Building

1



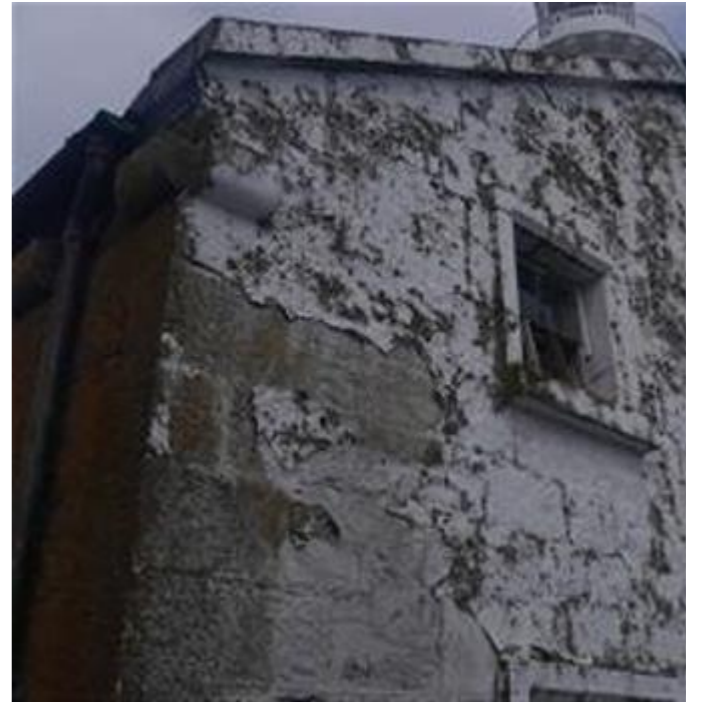
2



3



4



5



6



Appendix C: Marine vessel results

LAT	LONG	Date	Leisler's bats	Soprano pipistrelle	Nathusius' pipistrelle
53 37.424 N	005 51.385 W	07-Sept-24	3	0	0
53 44.248 N	005 56.421 W	07-Sept-24	5	0	0
#N/A	#N/A	07-Sept-24	2	0	0
53 35.860 N	005 56.704 W	08-Sept-24	0	1	0
53 35.886 N	005 56.799 W	08-Sept-24	0	1	0
53 35.926 N	005 56.869 W	08-Sept-24	0	1	0
53 35.973 N	005 56.915 W	08-Sept-24	0	4	0
53 36.023 N	005 56.942 W	08-Sept-24	0	2	0
53 36.125 N	005 56.938 W	08-Sept-24	0	2	0
53 36.178 N	005 56.917 W	08-Sept-24	0	2	0
53 36.284 N	005 56.872 W	08-Sept-24	0	3	0
53 36.337 N	005 56.851 W	08-Sept-24	0	5	0
53 36.756 N	005 56.665 W	08-Sept-24	0	4	0
53 36.859 N	005 56.619 W	08-Sept-24	0	1	0
53 38.011 N	005 56.065 W	08-Sept-24	3	0	0
53 38.093 N	005 55.856 W	08-Sept-24	0	2	0
53 38.219 N	005 55.961 W	08-Sept-24	0	1	0
53 38.271 N	005 55.936 W	08-Sept-24	0	4	0
53 38.324 N	005 55.910 W	08-Sept-24	0	3	0
53 38.492 N	005 55.829 W	08-Sept-24	0	2	0
53 38.549 N	005 55.801 W	08-Sept-24	0	4	0
53 38.662 N	005 55.744 W	08-Sept-24	0	3	0
53 38.719 N	005 55.717 W	08-Sept-24	0	1	0
53 38.829 N	005 55.662 W	08-Sept-24	0	2	0
53 38.993 N	005 55.579 W	08-Sept-24	0	1	0
53 37.016 N	005 50.602 W	15-Sept-24	2	0	0

LAT	LONG	Date	Leisler's bats	Soprano pipistrelle	Nathusius' pipistrelle
53 37.991 N	005 50.550 W	15-Sept-24	2	0	0
53 40.351 N	005 55.424 W	16-Sept-24	1	0	0
53 37.678 N	005 53.404 W	19-Sept-24	1	0	0
53 37.787 N	005 53.418 W	19-Sept-24	1	0	0
53 39.426 N	005 55.547 W	28-Sept-24	0	0	1

Appendix D: Rockabill emergence/re-entry surveyor and equipment locations



Plate 5 Building One, surveyor facing east/northeast



Plate 6: Building One, surveyor facing west/northwest