codling wind park

EIAR Addendum

Appendix 13-A Offshore Bat Survey Report 2025

codling
wind park

Table of contents

List of tables

List of figures

List of plates

Abbreviations

Abbreviation	Term in Full
ACP	An Coimisiún Pleanála
AP	Acoustic Pipeline
asl	above sea level
BAI	Bat Activity Index
BCT	Bat Conservation Trust
BTO	British Trust for Ornithology
CWP	Codling Wind Park
EIAR	Environmental Impact Assessment Report
FIR	Further Information Request
FS	Full Spectrum
GB	Great Britain
IACs	inter-array cables
JNCC	Joint Nature Conservation Committee
NPWS	National Parks and Wildlife Service
OSSs	offshore substation structures
RFI	Request for Further Information
RSPB	Royal Society for the Protection of Birds
SM4BAT	Song Meter 4 bat detector
WTG	Wind turbine generator

Definitions

Glossary	Meaning
array site	The area within which the wind turbine generators (WTGs), inter-array cables (IACs) and the offshore substation structures (OSSs) are proposed.
Bat Activity Index	Mean number of bat passes per night of detector deployment.
Codling Wind Park (CWP) Project	The proposed development as a whole is referred to as the Codling Wind Park (CWP) Project, comprising of the offshore infrastructure, the onshore infrastructure and any associated temporary works.

APPENDIX 13-A OFFSHORE BAT SURVEY REPORT 2025

1 Introduction

1. Codling Wind Park Limited (hereafter 'the Applicant') is proposing to develop the Codling Wind Park (CWP) Project, which is located in the Irish Sea approximately 13 - 22 km off the east coast of Ireland, at County Wicklow.

2. On Friday 6th September 2024 Codling Wind Park Ltd. (referred to hereafter as the 'Applicant') applied for planning permission to An Coimisiún Pleanála (ACP) (referred to hereafter as the 'Commission') under Section 291 of the Planning and Development Act (PDA) 2000, as amended, for the construction, operation and decommissioning of the CWP Project.

3. On 1st August 2025, having reviewed the application documentation, including the Environmental Impact Assessment Report (EIAR) and the Natura Impact Statement (NIS), the Commission issued a Further Information Request (FIR) in relation to the CWP Project.

4. This appendix forms part of the Applicant's response to Item 14a of the Commission's FIR (see the **FIR Response Document**) and supports **Section 13.6** of the **EIAR Addendum**.

5. This report summarises the findings of the further baseline surveys undertaken in 2025, consisting of Spring and Autumn headland surveys (to replicate and update the 2022 surveys) and the offshore nocturnal boat-based surveys (conducted to characterise offshore bat activity in the vicinity of the CWP project area). This report includes the survey and analysis methodology and detailed results for surveys undertaken in 2025, with a comparison against the 2022 baseline dataset. Item 14e of the FIR, which requests a revised discussion of the 2022 dataset, is also addressed within this report.

2 Background and Scope

6. The purpose of the surveys was to provide additional up-to-date baseline information on offshore bat activity in relation to the CWP Project as requested by the Commission in their FIR. The FIR included a request for updated headland bat surveys and data from within the array site. Spring and Autumn headland surveys (to replicate and update the 2022 surveys) were therefore undertaken alongside boat-based surveys within the array site.

7. The timing of the surveys was designed to detect any bat activity over the potential Spring and Autumn migration periods, with detectors deployed on the headlands for approximately 12 weeks and the offshore boat survey for approximately 6 weeks during each migration period. The headland surveys were a repeat of the 2022 surveys which underpinned the submitted baseline in **Volume 3**, **Chapter 13 Offshore Bats** of the EIAR. These surveys were designed to detect evidence of potential migration from landfall points which may be used by bats as they leave from/arrive in Ireland or Wales on a route which would potentially cross the array site, while the boat-based surveys were designed to capture potential bat activity within the array site.

8. The boat based survey methodology was designed based on a mixture of the works undertaken for other offshore projects in the Irish Sea and the Eurobats guidance (Rodrigues *et al*., 2015).

3 Survey Methods

3.1 Headland Surveys (Ireland & Wales)

9. Headland surveys were undertaken at Bray Head (Detectors referred to as Ireland 1 - 2), Wicklow Golf Club (Ireland 3 - 4) and the Royal Society for the Protection of Birds (RSPB) South Stack reserve (Wales 1 - 4). Four Wildlife Acoustics Song Meter 4 (SM4) full-spectrum ultrasonic static bat detectors were deployed on each coast for approximately 12 weeks in both Spring and Autumn. The deployments over each migration period (Spring and Autumn) were timed to record as much of each potential migration period as possible.

10. Detectors recorded from 30 minutes before sunset to 30 minutes after sunrise. The batteries and memory cards were changed at approximately fortnightly intervals to minimise chances of detector failures or loss of large portions of data.

11. Deployment dates for each migration season are provided in **Table 1**. The 2022 survey dates are also included for ease of comparison however full details of the 2022 surveys are provided in **Section 13.4** of **Volume 3**, **Chapter 13 Offshore Bats**.

Table 1 Headland Survey Dates

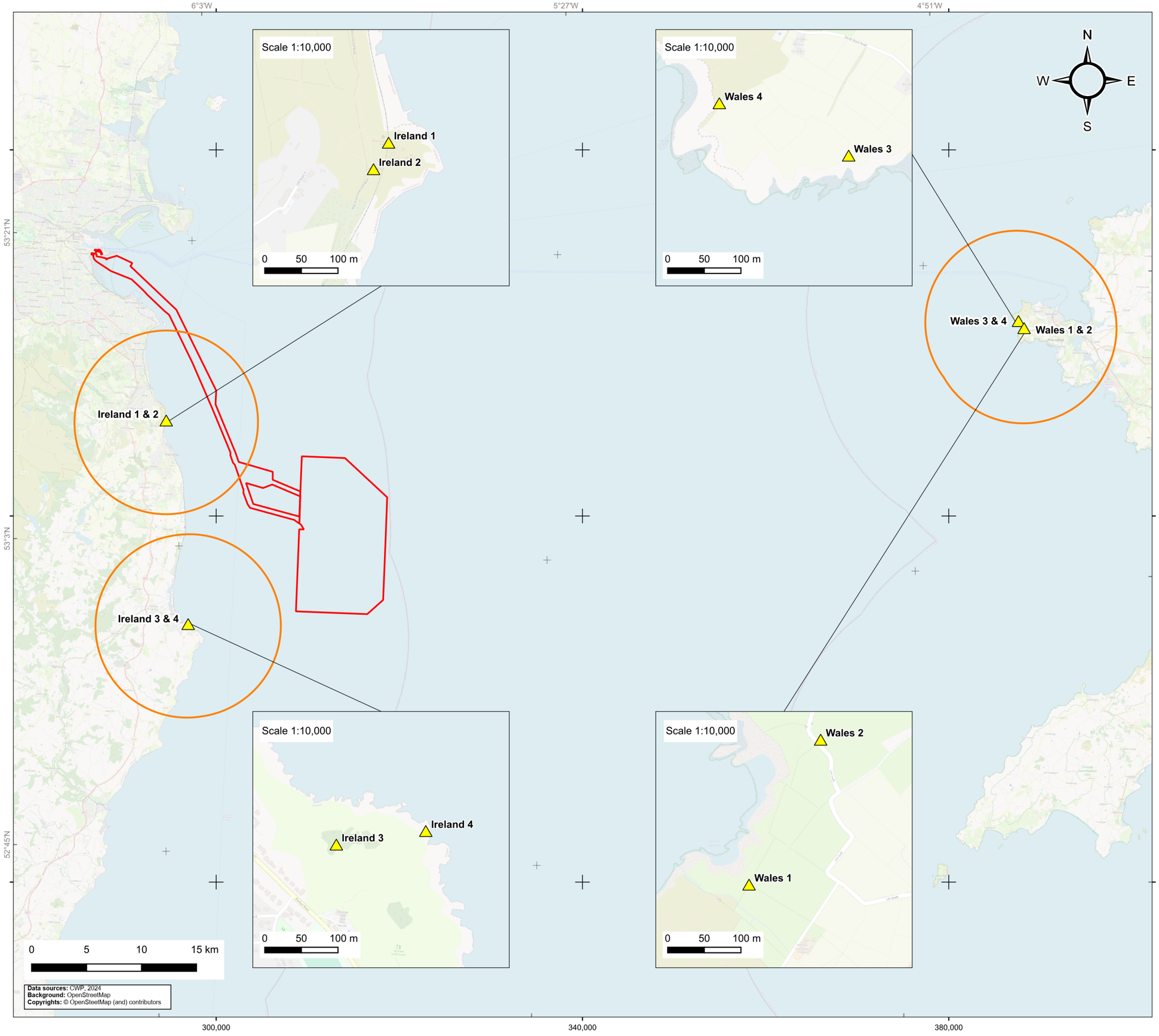
Detectors	Spring Start Date	Spring End Date	Autumn Start Date	Autumn End Date
Ireland 2022	11/04/2022	15/07/2022	18/08/2022	14/11/2022
Ireland 2025	14/04/2025	07/07/2025	22/08/2025	14/11/2025
Wales 2022	05/04/2022	01/07/2022	21/08/2022	18/11/2022
Wales 2025	11/04/2025*	04/07/2025	18/08/2025	18/11/2025

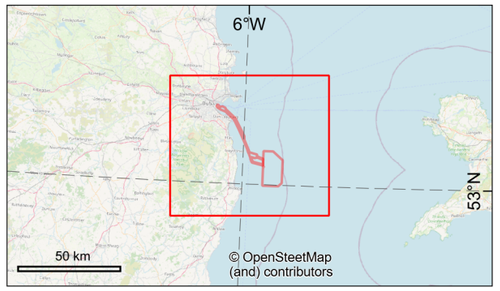
**The detectors failed to record for the first two weeks of the survey, as detailed in Section 5.*

12. Due to access considerations, it was not possible to deploy and collect the detectors on exactly the same dates in both locations. As such, to increase comparability of the different detector locations (Ireland and Wales) from 2025, the following dates have been used in the analysis (when all static detectors were deployed):

- 26 April – 07 July 2025; and
- 22 August – 14 November 2025

13. With four detectors placed along either coast, a total of eight static bat detectors were used. The static detectors were deployed as close to the coast as possible (restricted by access, the risks of public interference and health and safety) and as far as possible away from potential roost sites (as identified during a desk-based assessment). The detectors were deployed in the same locations during each deployment, utilising existing features within the landscape such as fence posts or bushes to ensure they blend in as well as possible with the landscape and reduce chances of interference. The locations used in the 2025 survey were the same as those used in the 2022. The locations used are shown in **Figure 1**, and the grid references are provided in **Table 2**.





Legend

- Planning Application Boundary (PAB)
- Indicative location of static bat detector
- 10 km buffer of static bat detector

codling wind park	*Project:* Codling Wind Park	*Contractor:* natural power www.naturalpower.com

Figure 1
Static bat detector locations

CWP doc. number: CWP-NPC-ENG-08-01-MAP-0751

Internal descriptive code:	*Size:*	*CRS:*
IS - PAB - BAT.DET..BUFF.10km - EIAR.FIG.13.01	*Scale:* 1:400,000	EPSG 25830

Rev.	*Updates*	*Date*	*By*	*Chk'd*	*App'd*
01	For FIR submission	2026/05/05	NN	BH/EA	LS

Table 2 Detector locations for both the 2022 and 2025 headlands deployments

Detector	Location	Grid Reference 2025	Grid Reference 2022	Location Details
Ireland 1	Bray Head coastal path	O 28797 15651	O 28797 15651	Detector at base of a small tree near a post and wire fence, microphone suspended from branch.
Ireland 2	Bray Head coastal path	O 28761 15576	O 28761 15576	Detector put on/next to an overgrown dry-stone wall in an area of scrub.
Ireland 3	Wicklow golf course	T 32600 93566	T 32600 93566	The detector is at the base of the tree within the golf course with the microphone suspended from one of the branches pointing out towards the coast.
Ireland 4	Wicklow golf course	T 32841 93620	T 32841 93620	The detector is at the base of the tree within the golf course at the coastal edge adjacent the fence, with the microphone suspended from one of the branches pointing out towards the coast.
Wales 1	RSPB South Stack	SH21577 80625	SH 21577 80625	Detector put between fence and stone and earth embankment near the corner of a field about 40 m from coastal cliff.
Wales 2	RSPB South Stack	SH21778 81018	SH 21778 81018	Detector put in corner of field where two fence lines meet and where a dry-stone wall and a stone and earth bank meet about 100 m from the coastal cliff.
Wales 3	RSPB South Stack	SH21253 81531	SH 21253 81531	The detector is between the fence line and the dry stone wall in a field that is being grazed by sheep, only a few metres from the coastal cliff.
Wales 4	RSPB South Stack	SH20902 81679	SH 20902 81679	The detector is between the fence and earth bank adjacent to the coastal cliffs.

3.2 Offshore Boat-based Nocturnal Surveys – 2025

14. Following the Commission's request to provide bat survey data from within the array site within an established migratory period, a survey vessel was chartered for 6 weeks in Spring and 6 weeks in Autumn. The vessel was fitted with two SM4BAT Full Spectrum (FS) units with microphones positioned to minimise recording of boat noise and avoid water pooling.

15. Prior to deployment on the vessel the detectors were pre-set to default settings with the time, date and location set for the array site; and were set to record from 30 minutes before sunset to 30 minutes after sunrise with each recording a maximum of 5 seconds. Each detector had a minimum of two 512 SD cards, and new batteries. The crew checked the detectors daily to confirm they were powered on prior to setting out. The data was downloaded and the batteries replaced approximately every two weeks by an Environmental Consultant.

16. On nights where it was safe to sail, the vessel departed the harbour an hour before sunset with the aim of being in the array site for half an hour prior to sunset. The vessel travelled in a line through the array site (North to South or South to North) with three stopping points used as sampling locations. The vessel was turned off at these stopping locations (when it was safe to do so) to reduce the noise which could potentially obscure the bat calls. The duration of these stops varied across the surveyed nights depending on the sea conditions, with occasional use of the engine necessary to move the vessel back into position. In Autumn, where the night length exceeded 12 hours, the maximum working time for the crew, the survey started later than sunset to detect potential migration from Wales towards Ireland.

17. See **Table 3** below for survey dates.

Table 3 Boat Survey Dates

Season	Start Date	End Date	Planned survey nights	Actual nights within array site after survey cancellations*
Spring	19/05/2025	30/06/2025	42	29
Autumn	08/09/2025	20/10/2025	42	23

**the majority of the survey cancellations resulted from unsafe weather conditions, this number includes nights where the survey was shortened by the weather and are therefore considered part nights.*

18. See below **Table 4** for Spring Boat Survey log and **Table 5** for Autumn Boat Survey log. Both tables include a row providing a summary of the total amount of time at each stop across the surveyed season.

Table 4 Log of Spring Boat Survey with time at each location/length of each survey night given in hours and minutes (00:00)

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
19/05/25	20:20	06:33	21:23	05:18	3	03:00	02:40	02:25	10:13	-
20/05/25	20:15	06:16	21:25	05:17	3	02:35	02:35	02:50	10:01	-
21/05/25	20:05	03:48	21:27	05:16	3	00:05	02:30	03:00	07:43	Survey abandoned at North stop due to weather.
22/05/25	20:12	06:30	21:28	05:14	3	02:39	02:36	02:48	10:18	-
23/05/25	20:00	06:50	21:29	05:13	3	01:20	02:25	03:15	10:50	-
24/05/25	N/A	N/A	21:31	05:12	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
25/05/25	19:30	23:10	21:32	05:11	2	00:20	02:50	00:00	03:40	Sea conditions at North stop unsuitable, survey abandoned at middle stop due to weather.
26/05/25	N/A	N/A	21:34	05:09	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
27/05/25	19:50	06:36	21:35	05:08	3	02:35	02:39	03:10	10:46	-
28/05/25	N/A	N/A	21:36	05:07	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
29/05/25	19:55	21:00	21:38	05:06	0	00:00	00:00	00:00	01:05	Vessel left the harbour but turned back at 20:27 due to adverse weather.
30/05/25	19:45	01:00	21:39	05:05	2	00:25	02:46	00:00	05:15	Anchor dragging at North stop so stop shortened, sea condition worsening so stayed at middle stop (safest stop at the time of the survey).
31/05/25	N/A	N/A	21:40	05:04	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather
01/06/25	N/A	N/A	21:41	05:04	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather
02/06/25	N/A	N/A	21:42	05:03	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather
03/06/25	19:45	06:15	21:43	05:02	2	00:10	08:22	00:00	10:30	Anchor not holding at North stop and sea conditions worsening so stayed at middle stop, no South stop.
04/06/25	19:45	06:15	21:45	05:01	2	00:00	03:25	04:40	10:30	Conditions at South stop too poor at first, second attempt after middle stop, North stop not surveyed due to sea conditions.

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
05/06/25	19:40	06:20	21:46	05:01	2	04:00	04:30	00:00	10:40	Sea conditions at South stop unfavourable stayed at the North and middle stops.
06/06/25	19:50	06:20	21:47	05:00	2	01:45	06:30	00:00	10:30	South stop not attempted.
07/06/25	N/A	N/A	21:47	05:00	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
08/06/25	19:40	06:20	21:48	04:59	3	02:30	01:25	04:15	10:40	-
09/06/25	N/A	N/A	21:49	04:59	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
10/06/25	19:45	06:10	21:50	04:58	2	04:05	04:10	00:00	10:25	South stop not attempted.
11/06/25	19:45	06:10	21:51	04:58	3	01:28	05:30	01:12	10:25	-
12/06/25	N/A	N/A	21:51	04:58	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather
13/06/25	19:15	06:10	21:52	04:58	1	00:00	08:32	00:00	10:55	Did not change locations due to strong current
14/06/25	20:05	06:25	21:53	04:57	4	00:00	03:05	02:15	10:20	Tidal conditions not suitable for anchoring at north.

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
15/06/25	19:58	06:45	21:53	04:57	3	02:30	02:45	02:35	10:47	-
16/06/25	N/A	N/A	21:54	04:57	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather
17/06/25	19:45	06:10	21:54	04:57	3	03:20	02:35	02:20	10:25	-
18/06/25	19:40	05:45	21:54	04:57	1	00:00	08:35	00:00	10:05	Not changing locations due to heavy fog; return time to harbour estimated.
19/06/25	19:40	05:45	21:55	04:57	4**	02:55	02:10	02:40	10:05	Visited North stop twice as first visit shortened by the sea conditions.
20/06/25	N/A	N/A	21:55	04:58	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather
21/06/25	N/A	N/A	21:55	04:58	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather
22/06/25	N/A	N/A	21:55	04:58	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather
23/06/25	19:45	03:35	21:55	04:59	2	02:55	02:50	00:00	07:50	Wind speeds 25 kts, South stop avoided due to weather conditions.
24/06/25	19:40	06:20	21:55	04:59	3	03:10	02:00	03:15	10:40	-

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
25/06/25	19:40	21:30	21:55	04:59	1	00:25	00:00	00:00	01:50	Survey abandoned due to low visibility.
26/06/25	19:45	01:10	21:55	05:00	2	03:15	00:10	00:00	05:25	North done but the rest of the survey cancelled due to weather.
27/06/25	N/A	N/A	21:55	05:01	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
28/06/25	19:45	06:15	21:55	05:01	3	02:35	02:40	02:05	10:30	-
29/06/25	19:45	06:15	21:53	05:01	3	03:20	1:40	3:10	10:30	-
30/06/25	19:45	06:05	21:53	05:02	3	03:35	1:40	3:10	10:20	-
TOTALS	-	-	-	-	71	54:57	93:35	49:05	252:33	-

Table 5 Autumn Boat Survey Log with time at each location/length of each survey night given in hours and minutes (00:00)

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
08/09/25	19:45	22:45	19:57	06:48	1	00:00	00:00	00:45	03:00	Conditions onsite unsuitable for survey

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
										cancelled at South stop
09/09/25	N/A	N/A	19:54	06:50	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
10/09/25	N/A	N/A	19:52	06:52	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
11/09/25	N/A	N/A	19:49	06:53	0	00:00	00:00	00:00	00:00	Met Eireann weather warning in Effect for Irish Coastal waters. Survey cancelled.
12/09/25	N/A	N/A	19:47	06:55	0	00:00	00:00	00:00	00:00	Met Eireann weather warning in Effect for Irish Coastal waters. Survey cancelled.
13/09/25	20:10	07:40	19:45	06:57	3	03:05	02:50	03:35	11:30	-
14/09/25	N/A	N/A	19:42	06:58	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
15/09/25	N/A	N/A	19:40	07:00	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
16/09/25	N/A	N/A	19:37	07:02	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
17/09/25	N/A	N/A	19:35	07:04	0	00:00	00:00	00:00	00:00	Crew aboard troubleshooting

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
										breakdown 19:00-22:00. No survey.
18/09/25	N/A	N/A	19:32	07:05	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
19/09/25	19:50	08:00	19:30	07:07	3	03:01	04:05	03:05	12:10	-
20/09/25	N/A	N/A	19:27	07:09	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
21/09/25	N/A	N/A	19:25	07:11	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
22/09/25	20:17	07:45	19:23	07:12	3	00:00	03:12	06:20	11:28	-
23/09/25	19:30	07:55	19:20	07:14	3	03:10	03:10	03:20	12:25	-
24/09/25	20:00	08:00	19:18	07:16	3	03:10	03:10	03:25	12:00	-
25/09/25	20:00	08:00	19:15	07:18	3	02:45	02:40	03:57	12:00	-
26/09/25	N/A	N/A	19:13	07:19	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
27/09/25	23:30	08:05	19:10	07:21	2	00:00	03:46	03:05	08:35	-
28/09/25	20:15	08:05	19:08	07:23	3	03:00	02:40	04:03	11:50	-
29/09/25	20:15	08:05	19:06	07:25	3	02:45	03:38	03:05	11:50	-
30/09/25	N/A	N/A	19:03	07:26	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
01/10/25	N/A	N/A	19:01	07:28	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
02/10/25	N/A	N/A	18:58	07:30	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
03/10/25	N/A	N/A	18:56	07:32	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
04/10/25	N/A	N/A	18:54	07:34	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
05/10/25	20:35	08:40	18:51	07:35	3	04:00	03:00	02:40	12:05	-
06/10/25	N/A	N/A	18:49	07:37	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
07/10/25	20:35	08:45	18:46	07:39	3	04:02	03:00	02:40	12:10	-
08/10/25	20:35	08:30	18:44	07:41	3	02:50	02:57	04:02	11:55	-
09/10/25	20:35	08:30	18:42	07:43	3	02:13	04:25	03:00	11:55	-
10/10/25	20:15	08:30	18:39	07:44	3	02:53	02:45	04:35	12:15	-
11/10/25	20:45	08:40	18:37	07:46	3	03:00	04:10	02:38	11:55	-
12/10/25	20:45	08:40	18:35	07:48	3	02:53	03:00	03:50	11:55	-
13/10/25	20:50	08:35	18:32	07:50	3	02:40	04:15	02:30	11:45	-
14/10/25	20:55	08:35	18:30	07:52	3	02:40	02:25	04:17	11:40	-
15/10/25	20:55	08:30	18:28	07:53	3	02:27	02:45	04:18	11:35	-

Survey date (night of survey)	Time of vessel departure	Time of vessel return to harbour	Sunset time	Sunrise time	Number of stopping points attempted	Total time at north point	Total time at middle point	Total time at south point	Total survey time (out of harbour)	Notes
16/10/25	21:05	08:40	18:26	07:55	3	02:55	04:10	02:23	11:35	-
18/10/25	N/A	N/A	18:21	07:59	0	00:00	00:00	00:00	00:00	Survey cancelled due to weather.
19/10/25	21:00	01:45	18:19	08:01	1	00:00	02:55	00:00	04:45	Survey interrupted due to weather.
20/10/25	21:00	09:00	18:17	18:14	3	04:14	02:40	02:55	12:00	-
TOTAL	-	*	*	*	**64**	**57:43**	**71:38**	**74:28**	**254:18**	-

3.3 Weather Parameters

19. As with the 2022 surveys, peaks in bat activity have been reviewed for species which may be present offshore, looking for peaks in activity at different times of the night, throughout the year and under different weather conditions, including wind direction. The weather data for every hour the static detectors were deployed has been downloaded from visualcrossing.com, from the nearest weather station to each of the detectors as shown in **Table 6**. This was compared for each location to identify potential patterns indicative of migration.

Table 6 Weather station locations used for analysis of bat passes

Bat detector locations	Latitude / longitude	Weather Station Location
CWP Ireland 1 – 2 (Bray Head)	53.18859 / -6.07723	Bray Greystones Cliff Walk
CWP Ireland 3 – 4 (Wicklow golf course)	52.976698 / -6.0264333	Wicklow
CWP Wales	53.300487 / -4.683796	South Stack Road
Boat based surveys	53.15161 / -6.06407	Wicklow harbour

3.4 Migration Parameters

20. As with the analysis presented in EIAR **Volume 3**, **Chapter 13 Offshore Bats** the following parameters have been identified as suitable for migration and have been used in the results to indicate potentially migratory passes;

- Average overnight temperature above 13°C;
- Average wind speed below 5 m/s;
- Prevailing overnight wind direction either easterly or westerly; and
- Calls more than 103 minutes after sunset (or calls within 103 minutes of sunset during winds suitable for outwards migration from the country of detection).

21. The relative bat activity, using the Bat Activity Index (BAI) as outlined in Eurobats Guidance (Rodrigues et al., 2015), was calculated looking at the mean number of bat passes per night across the survey season, looking at the number of nights surveyed across all detectors over both Spring and Autumn. To assess the proportion of activity which was migratory the number of potentially migratory passes for each species was divided by the number of nights surveyed. For the 2025 surveys the number of nights surveyed as part of the headland surveys was 591 nights (sum of the number of nights from each detector across the deployments on one side of the coast). This is comparable to the 665 nights of survey effort in 2022.

4 Data Processing

22. Acoustic data analysis of the headland data was undertaken to bat species or genus level using Kaleidoscope automatic identification software. This software provides automatic identifications which are assumed to be correct for common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle

(*Pipistrellus pygmaeus*) bats (and for identifying noise). Identification of other bat species records is considered less reliable and manual identification was therefore performed on all other acoustic records. The analysis of the bat survey data was undertaken following the methodology outlined in guidance (Collins, 2016). Signal parameters were 16-120 kHz, 2-500 ms, 500 ms maximum inter-syllable gap and with a minimum of two pulses. Kaleidoscope provides an automatic identification and up to two alternative identifications depending on call parameters

23. *Myotis* sp. were not identified further than genus due to the overlap between species frequency calls. Pipistrelle bats (*Pipistrellus sp.)* and *Nyctalus* sp bats were classified to species when possible. Where it was not possible to distinguish call types to species level (due to overlaps in call frequencies between noctule (*Nyctalus noctule*) / Leisler's (*Nyctalus leisleri*), between Nathusius' pipistrelle (*Pipistrellus nathusii*) / common pipistrelle, and common pipistrelle / soprano pipistrelle), they were classified to species group. Overlaps in frequency typically only occurs in pipistrelle species either when multiple bats are present at once (and consequently bats need to adjust their own frequencies to avoid confusion) or for juvenile bats, in both instances the software typically flags the unusual calls due to too much variation.

24. A bat pass was defined as a sequence of bat pulses captured on a 15 second sound file. One sound file was counted as one bat pass. Different species within the same 15 second sound file were counted as separate bat passes. An individual bat can pass a particular feature on several occasions while foraging. It is therefore important to acknowledge that bat passes are an index of bat activity rather than a measure of number of individuals in a population. Bat activity indices are therefore indices of the amount of use bats make of an area.

25. The boat-based bat detector surveys were analysed using the British Trust for Ornithology (BTO) Acoustic Pipeline (AP) tool was used to identify bat passes. The BTO AP tool is an online resource which provides tools for automatic detection and identification of birds, bats and other wildlife. Ultrasonic sound recordings were uploaded to the AP using a small desktop program. Passes with a probability score of less than 0.5 were manually verified (as recommended by the BTO). As were all calls assigned No ID, a random subset of the identified passes (10%), as well as all calls classified as *Myotis* species or brown long-eared and a random subset (10%) of calls classified as non-bat species to determine if bat calls were likely to be missed among such classifications. Overall, this meant 3,218 passes were manually verified. Analysis for feeding buzzes and social calls was also included. The time of all recorded bat passes was then cross checked with the location records for the vessel to identify whether the pass was recorded while within the harbour, in transit or within the array site.

5 Limitations

26. Bat detection offshore is limited by the range of detection for bat calls by the bat detectors as well as the noise of the marine environment and the survey vessel. One reason for limited detection of bats in the offshore environment is the flight heights of the bats, with migratory bats crossing the English Channel being recorded as flying between 10 – 2500 m above sea level (asl), (Lagerveld *et al*, 2024), with one of the five tagged female Nathusius pipistrelles flying within collision height of the proposed offshore WTGs. As bat detectors record at most 100 m away but more typically a maximum of 30 m away (Wildcare, 2018) the chance of recording a bat offshore is limited to the individuals flying within 30 m of the detector. In addition, bat behaviour offshore remains under research, with studies indicating differing behaviours based on different weather conditions, including during conditions which are unsafe to survey.

27. The timing of bat migrations is undergoing continued research, in Lagerveld *et al* (2017) Nathusius pipistrelle passes were recorded in the southern North Sea in Spring from mid-March to the end of June and in Autumn in August – October, however, the timing of migration seems to vary depending on location and the gender of the bats and likely also varies by species, health of individuals and

weather conditions. A 2024 study identified that male Nathusius' pipistrelle bats departed on the Spring migration on average 25 days after females, with males recorded leaving the UK up to mid-June (Lagerveld *et al*, 2024). The Spring boat-based surveys were undertaken (19/05/2025 – 30/06/2025), therefore, based on the 2024 research the Spring survey would have recorded male Nathusius pipistrelle bats and any late departing female Nathusius pipistrelle bats. Additionally, the surveys would have detected any other bat species migrating during this period and offshore bat foraging activity.

28. The Autumn boat-based survey was well timed (08/09/2025 – 20/10/2025) for the migration period and activity levels recorded during autumn migration are higher than during spring migration, (Natural England, 2025) as juvenile bats would also be migrating. Bats would theoretically return to overwinter in Ireland from August - mid-November, with peaks in offshore activity recorded elsewhere in September and October (Natural England, 2025), the period which was covered by the survey.

29. The survey constraints are split into the following categories for ease of interpretation:

- Differences across the surveyed years;
- equipment downtime,
- extreme weather interruptions, and
- reduced detectability during long Autumn nights.

30. Overall, despite the limitations the survey complies with Eurobats guidance and represents a robust scientific characterisation for the purposes of EIA. The limitations are, therefore, not considered to affect the validity of the surveys or assessment, and a precautionary approach to the analysis and review of the data is taken throughout.

31. Despite the limitations, **Table 7** shows the final number of surveyed nights (effort) for the headland surveys.

Table 7 Summary of effort for the headland surveys per detector and season.

Detector	Intended (Spring)	Intended (Autumn)	Removed (Spring)	Removed (Autumn)	Total Intended	Total Removed	Resulting Effort
Ireland 1	73	85	0	8	158	8	150
Ireland 2	73	85	0	15	158	15	143
Ireland 3	73	85	0	0	158	0	158
Ireland 4	73	85	6	12	158	18	140
Wales 1	73	85	6	0	158	6	152
Wales 2	73	85	0	12	158	12	146
Wales 3	73	85	0	0	158	0	158
Wales 4	73	85	0	0	158	0	158

5.1 Differences across the surveyed years

32. The same types of bat detectors were deployed in the same locations along the headlands in 2022 and 2025. The deployment dates and locations were as close as possible across the surveyed years, the deployment dates are provided in **Table 1**. The recording parameters were unchanged excepting the recording time was set to one hour before sunset to one hour after sunrise in 2025 compared to recording from 30 minutes before sunset to 30 minutes after sunrise in 2022.

5.2 Equipment Downtime

33. Equipment downtime occurred due to battery depletion, unexpected microphone faults, and occasional SD card corruption. These issues resulted in short data gaps for the headland datasets at most eight nights were missing from Ireland 1 in October when it was unsafe to replace the batteries. The final number of surveyed nights for the different headland survey detector locations is provided in **Table 7.**

34. For the boat based survey, two SM4 bat detectors were deployed, one on either side of the vessel (with detector 6 on the starboard side and detector 9 on the port side), to allow for contingency and variation in noise levels at sea which may reduce distinguishability of bat passes. Given the proximity of the two detectors (less than 5 m apart), it is considered unlikely that individual bats would be recorded by one detector and not the other particularly as the detectors are omnidirectional. Therefore, combining the results of the two detector recordings would artificially inflate the level of bat activity and one detector was required at any given time, with the second detector providing back up. The starboard side detector only recorded noise during the spring deployment, compared with the port side detector which recorded 8,236 bat passes while at port (no passes were recorded while at sea). This recording of only noise was considered to be due to a fault with the microphone connection, subsequently a new microphone was used for the Autumn deployment when the detector recorded successfully. However, the portside detector recorded throughout all deployments, and it is considered that a full dataset was collected during each survey period..

35. Efforts were made to reduce noise levels from the vessel, with the vessel engine turned off when possible while at the stopping points to reduce the potential for noise interference. The use of the BTO AP tool also reduces the potential of missing bat passes within the noise however an additional visual check of 10% of noise files (categorised as NoID) was undertaken, no bat passes were found as part of this additional check.

5.3 Extreme Weather Interruptions

36. Both headland and vessel surveys were constrained by high winds, heavy rainfall, and fog, with the headlands surveys in Ireland this meant it was not safe to change the memory cards/batteries on one of the planned dates in October which resulted in two of the detectors running out of battery.

37. It was not possible to survey during unsafe conditions (e.g., above Beaufort 7 for offshore work). As shown in **Table 8**, for the vessel surveys this meant that on 32 of the 84 scheduled survey nights the survey vessel was unable to leave harbour and survey the array site. The bat detectors remained active even when in the harbour, therefore though the survey of the array site was reduced, to 52 nights, the detectors instead recorded bat activity in the harbour. This allowed for further analysis of coastal behaviour including potential foraging activity. In addition, the recording of bat passes in the harbour demonstrates that the equipment was functional and despite the level of noise, detected bats (in the harbour, no offshore bat activity was recorded).

Table 8 Summary of vessel survey nights

	Spring	Autumn	Total across the full survey
Fully surveyed	22	20	42
Partially Covered	7	3	10
Cancelled	13	19	32
Total attempted	42	42	84

5.4 Reduced Detectability During Long Autumn Nights

38. The night length exceeded 13–14 hours during parts of the Autumn survey. Longer nights dilute bat activity across extended timeframes, reducing proportional call density and complicating comparison with Spring datasets. Additionally, vessel crews cannot safely operate beyond 12 hours, therefore the 12-hour survey window was timed to allow for the safest weather conditions for survey and where possible to be undertaken later into the night to detect potential migration towards Ireland for Winter.

6 Results

39. Though the detailed survey results are provided within this section, it is worth noting that this report focuses on the following species which are known to be present on both sides of the Irish Sea:

- Common pipistrelle;
- Soprano pipistrelle;
- Nathusius' pipistrelle;
- Leisler's;
- Whiskered (*Myotis mystacinus*);
- Daubenton's (*Myotis daubentonii*);
- Natterer's (*Myotis nattereri*);
- Lesser horseshoe (*Rhinolophus hipposideros*); and
- Brown long-eared (*Plecotus auratus*).

6.1 2025 Headland Survey Results

40. In Wales nine different species / species groups were recorded, and seven species / species groups were recorded in Ireland, this includes the recording of Leisler's in Wales during the 2025 surveys. No Leisler's bats were recorded during the 2022 surveys, however Leisler's bats have previously been recorded in the area (Joint Nature Conservation Committee (JNCC), 2019). Leisler's bats were the second most common species in Ireland in 2025 (11,638 Leisler's passes in total), after being the third most commonly recorded species in 2022.

41. The same species were recorded in each country during both deployments (Spring and Autumn).

42. A brief summary of all the species recorded during the Spring deployments is shown in **Table 9.**

Table 9 Summary of bat passes recorded by each detector during the Spring deployment

Locations	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Pipistrellus sp.,	Noctule	Leisler' s	*Nyctalus sp.,*	*Myotis sp.,*	Brown long-eared	Total
Ireland 1	603	56	25	9	0	2,979	0	3	2	3,677
Ireland 2	387	52	17	41	0	127	0	0	1	625
Ireland 3	3,542	65	45	30	0	978	0	0	2	4,662
Ireland 4	31,494	4,185	108	150	0	1,039	0	22	1	36,999
Wales 1	875	10	83	20	278	1	38	60	10	1,375
Wales 2	3,849	8	174	85	427	1	7	26	0	4,577
Wales 3	992	2	66	63	79	3	6	13	6	1,230
Wales 4	2,116	3	9	21	82	4	22	9	5	2,271
Total passes per species in Ireland	36,026	4,358	195	230	0	5,123	0	25	6	45,963
Total passes per species in Wales	7,832	23	332	189	866	9	73	108	21	9,453

43. A brief summary of all the species recorded during the Autumn deployments is shown in **Table 10.**

Table 10 Summary of bat passes recorded by each detector during the Autumn deployment

Locations	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Pipistrellus sp.,	Noctule	Leisler' s	*Nyctalus sp.,*	*Myotis sp.,*	Brown long-eared	Total
Ireland 1	75	37	3	1	0	29	0	2	1	148
Ireland 2	212	106	4	15	0	3,501	0	11	35	3,884
Ireland 3	4,195	107	1	16	0	1,513	0	8	13	5,853
Ireland 4	38,822	6,891	5	26	0	1,472	0	19	16	47,251
Wales 1	613	7	1	3	5	11	8	82	50	780
Wales 2	1,273	15	3	0	13	19	8	57	64	1,452
Wales 3	947	2	4	0	27	36	13	5	77	1,111
Wales 4	2,188	7	2	1	23	48	21	4	51	2,345
Total passes per species in Ireland	43,304	7,141	13	58	0	6,515	0	40	65	57,136
Total passes per species in Wales	5,021	31	10	4	68	114	50	148	242	5,688

44. In terms of abundance Wales 2 and Ireland 4 recorded the highest number of passes at each coast in both surveyed years (2022 and 2025). As with 2022, significantly more bat activity was recorded in Ireland than in Wales in 2025, however more Nathusius' pipistrelle passes were recorded in Wales than Ireland in 2025 in contrast to the 2022 results. As with 2022 the majority of the recorded activity was by common pipistrelles in both Ireland and Wales.

45. To provide further information on the activity across the surveyed periods, **Plate 1** to **Plate 4** below show the number of bat passes per species per night during each deployment. This additional detail has been provided following the meeting with the National Parks and Wildlife Service (NPWS) on 27 November 2025 when the timing of passes by different species was discussed.

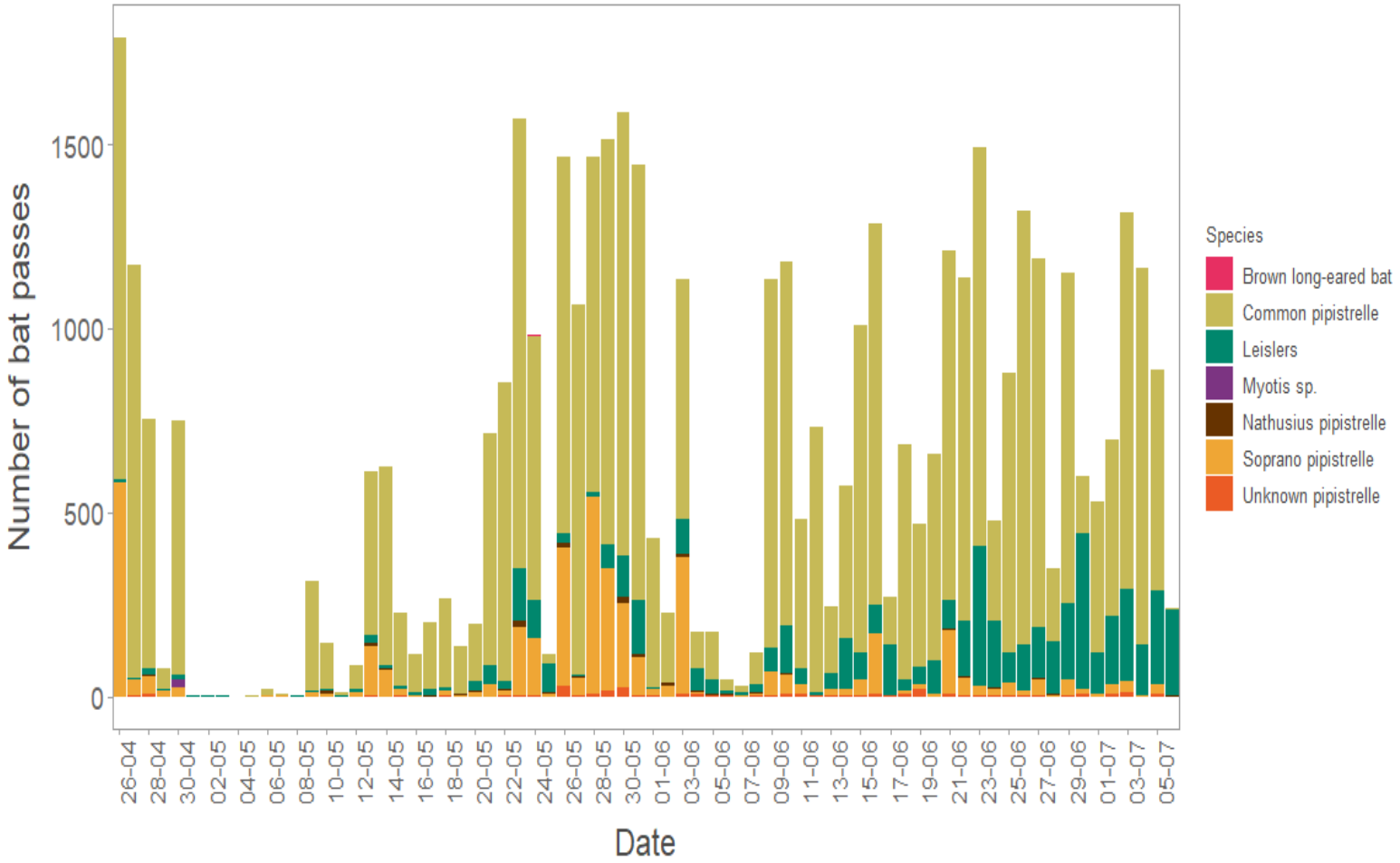


Plate 1 Number of bat passes per species per night across the Irish Detectors in Spring.

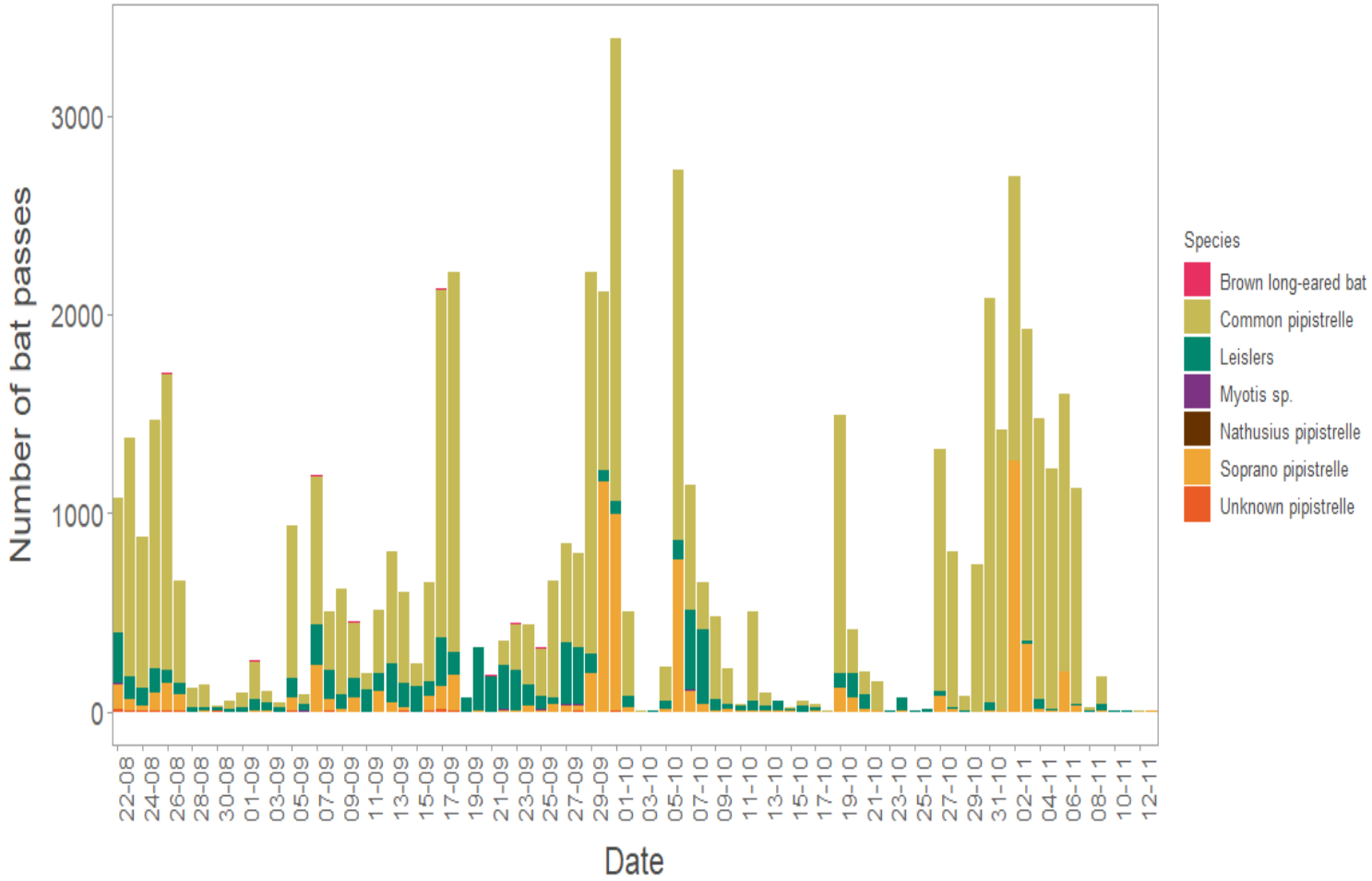


Plate 2 Number of bat passes per species per night across the Irish detectors in Autumn.

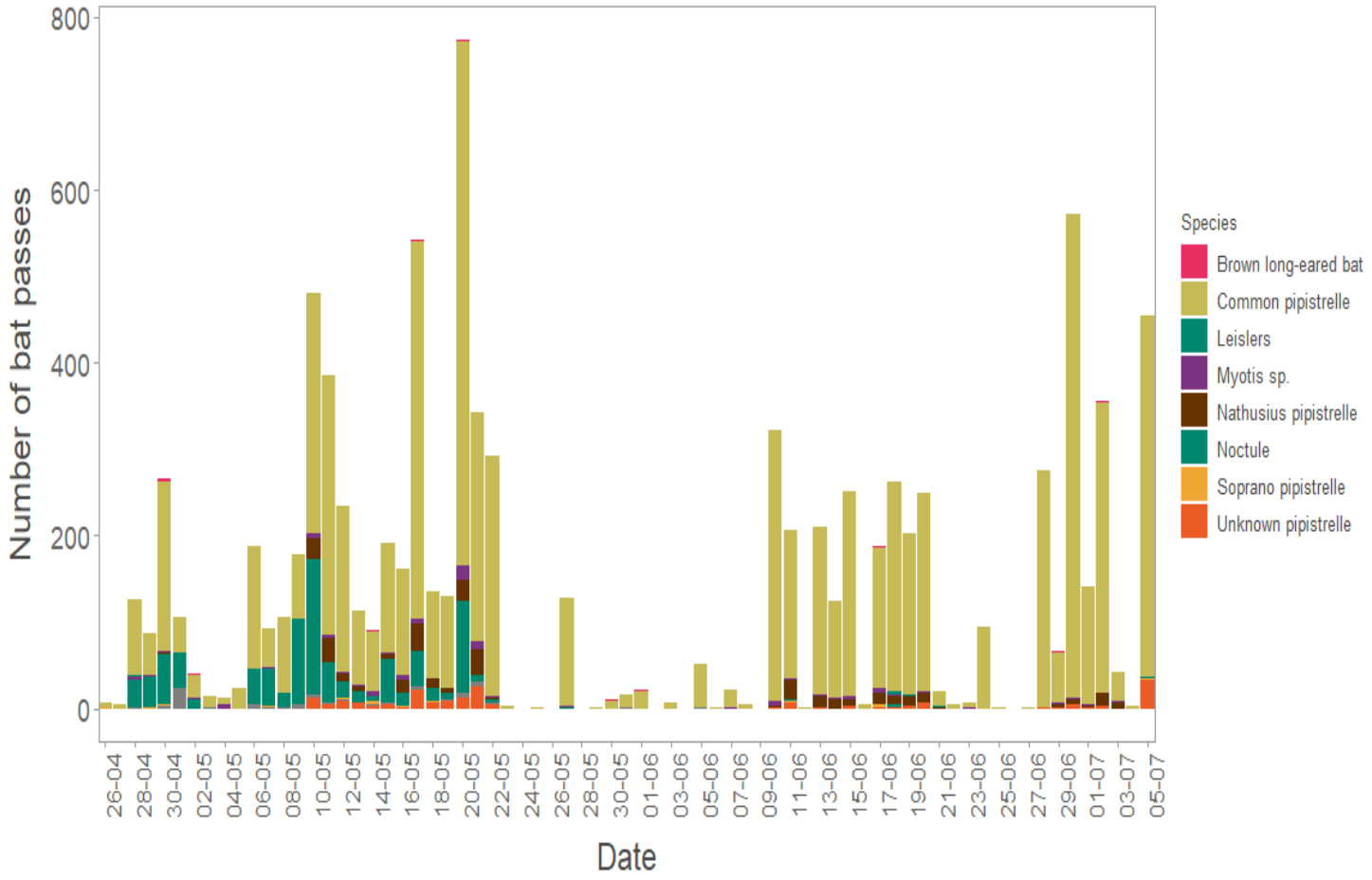


Plate 3 Number of bat passes per species per night across the Welsh detectors in Spring.

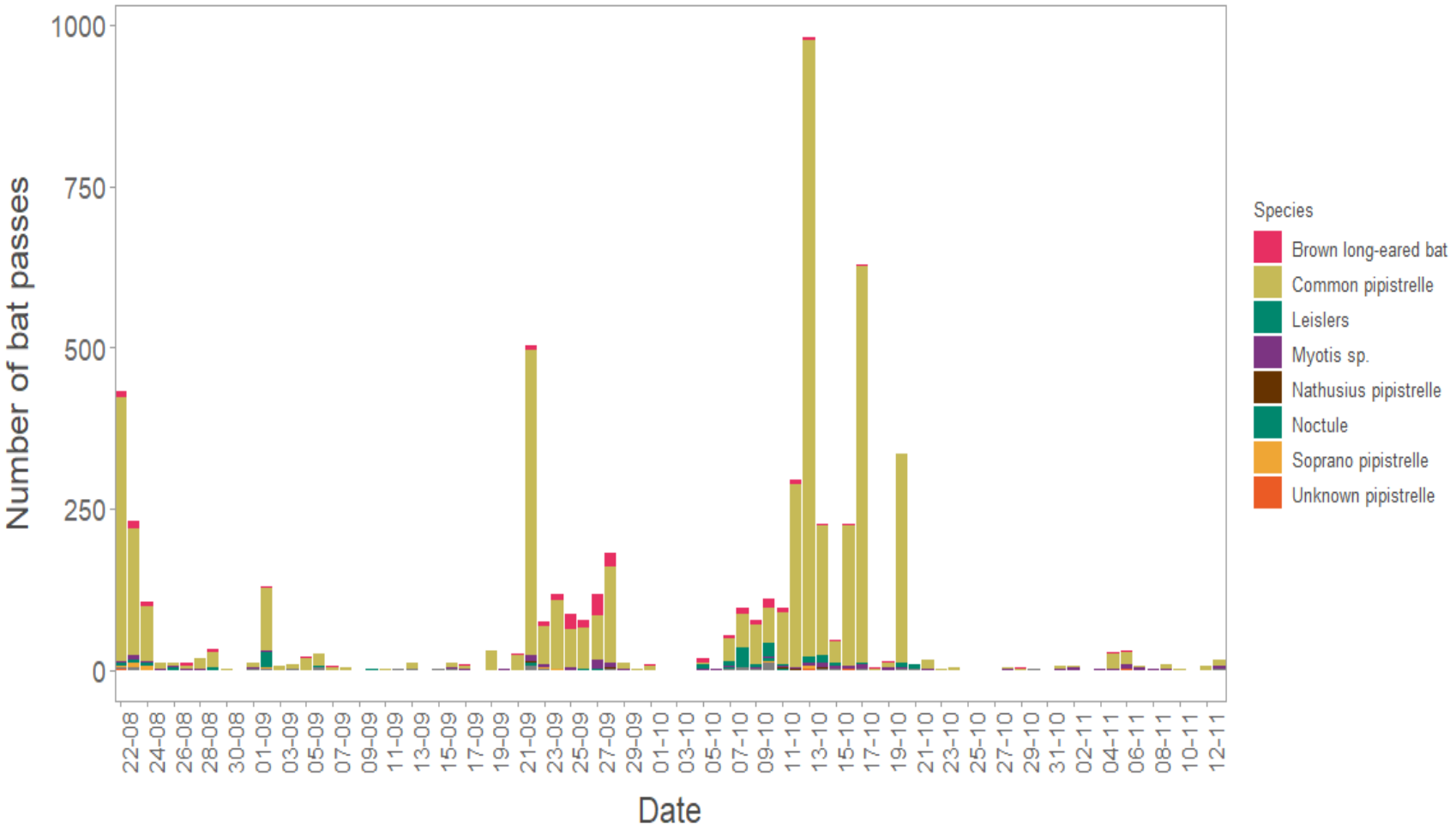


Plate 4 Number of bat passes per species per night across the Welsh detectors in Autumn.

46. The Natural England (2025) review highlights that Nathusius' pipistrelle bats would be leaving hibernation sites in Great Britian and possibly Ireland in Spring to travel towards continental Europe and Scandinavia, for maternity and breeding sites, and returning to Great Britain, and possibly Ireland, in Autumn. This would likely mean activity in Spring would be clustered towards the sunset and in Autumn activity would be recorded later in the night. While it is unknown, it is assumed that other potentially migratory species would move in a similar direction at a similar time due to similarities in seasonal behaviours (such as mating and hibernating). Therefore, the timing of recorded passes in relation to sunset is provided in **Plate 5** to **Plate 17** below. The plots visualise the distribution of bat activity across the night over the surveyed period. Timing of bat calls are plotted as hours after sunset, whereby 0 on the x axis is sunset and is represented by a grey dashed line. Sunrise throughout the survey period is represented by the orange line. The figures have been grouped by species for ease of comparison of the datasets from each coast.

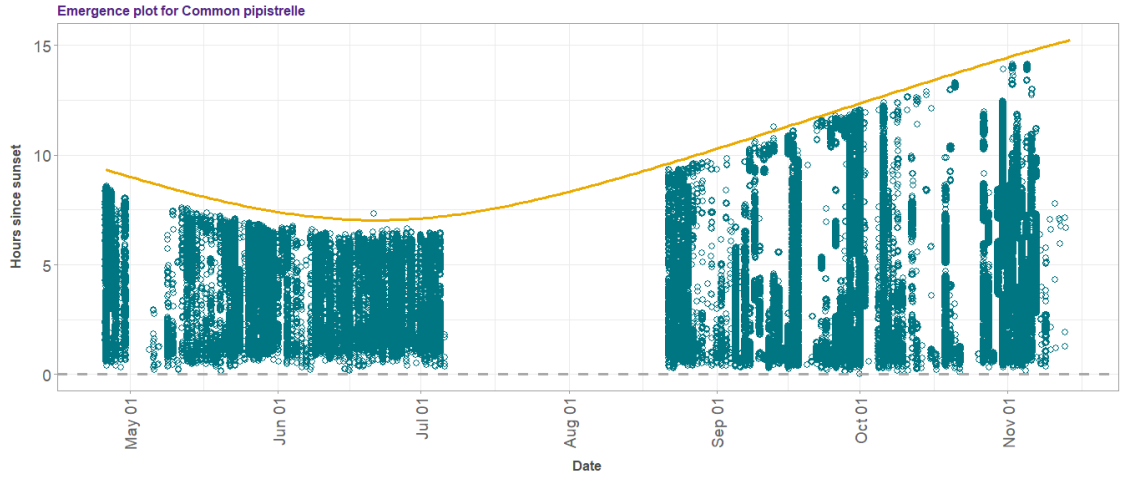


Plate 5 Common pipistrelle activity in Ireland in relation to sunset over the 2025 headlands surveys

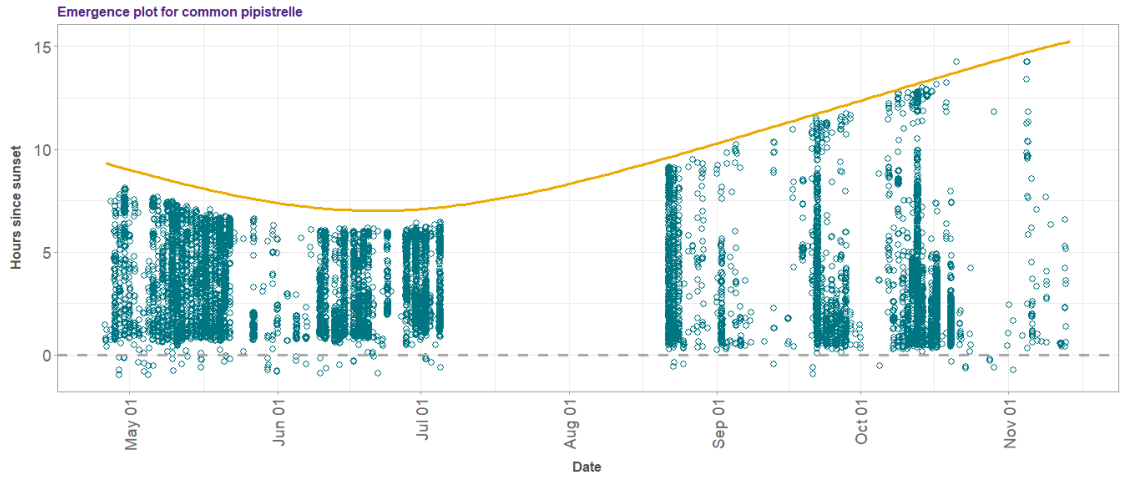


Plate 6 Common pipistrelle activity in Wales in relation to sunset over the 2025 headlands surveys

47. In Ireland no activity was recorded before sunset however activity was recorded close to sunrise in both survey periods as shown in **Plate 5**. Activity of common pipistrelles in Wales appears to be closer to sunset in Spring with 43 passes recorded before sunset while 14 passes were recorded before

sunset in Autumn. Notably all passes before sunset were recorded at Wales 2 across both survey periods in 2025. Activity near sunrise was limited to Autumn in Wales (as shown in **Plate 6**).

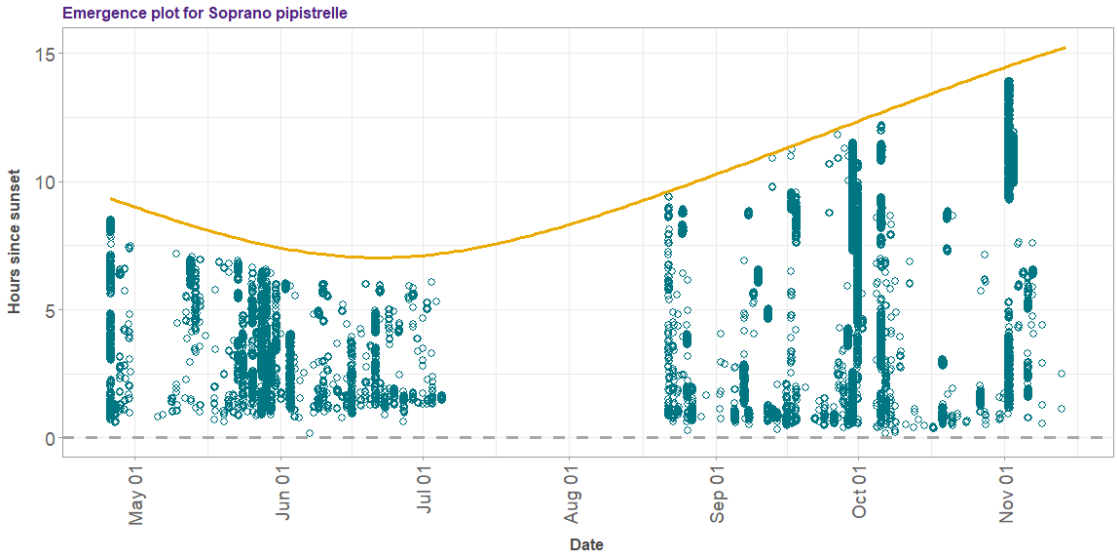


Plate 7 Soprano pipistrelle activity in Ireland in relation to sunset over the 2025 headlands surveys

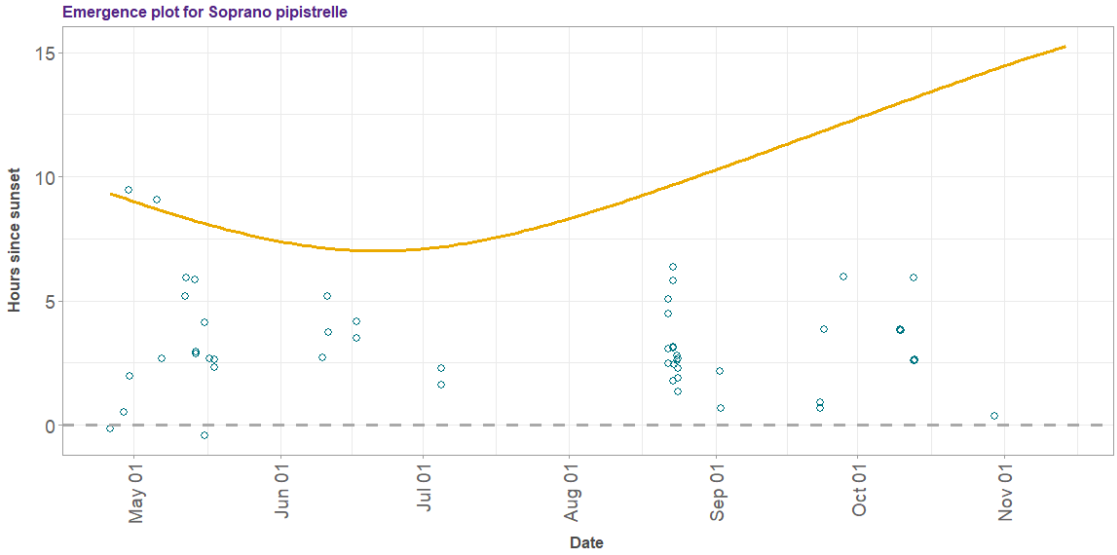


Plate 8 Soprano pipistrelle activity in Wales in relation to sunset over the 2025 headlands surveys

48. **Plate 7** and **Plate 8** show the difference in abundance of soprano pipistrelle bat passes recorded on the bat detectors in Ireland compared to those in Wales. In Wales two soprano pipistrelle passes were recorded after sunrise and two were recorded before sunset in Spring, while in Ireland no soprano pipistrelle activity was recorded before sunset or after sunrise. The soprano pipistrelle activity during the Autumn deployment in Wales was much less spread throughout the night.

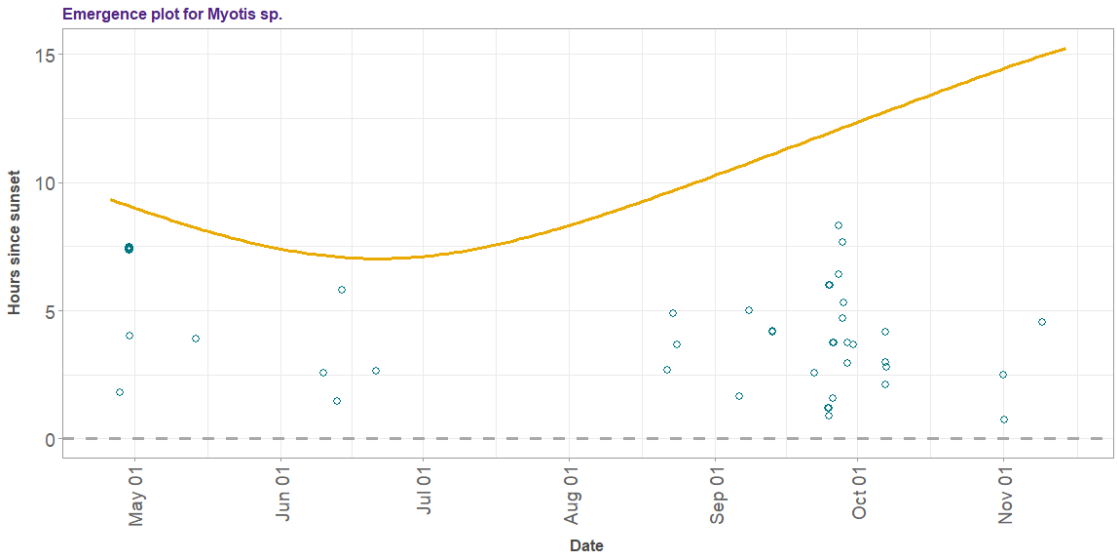


Plate 9 *Myotis* sp. activity in Ireland in relation to sunset over the 2025 headlands surveys

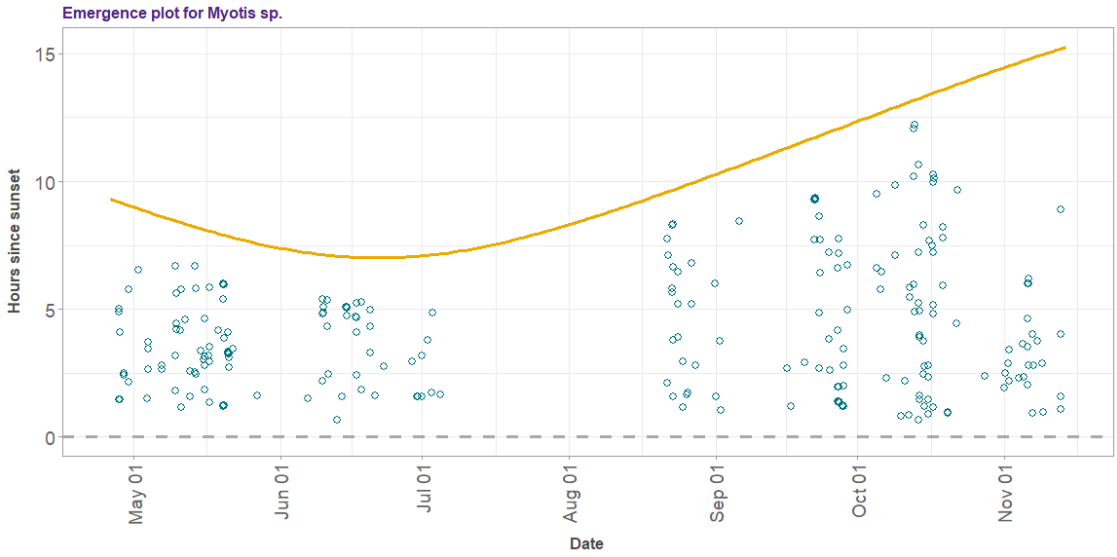


Plate 10 *Myotis* sp. activity in Wales relation to sunset over 2025 headlands surveys

49. **Plate 9** and **Plate 10** show the difference in abundance of *Myotis sp.* bat passes recorded on the bat detectors in Wales compared to those in Ireland. In Ireland the Autumn *Myotis* sp activity did not extend late into the night excepting while much later activity can be seen on the Wales detectors (**Plate 10**).

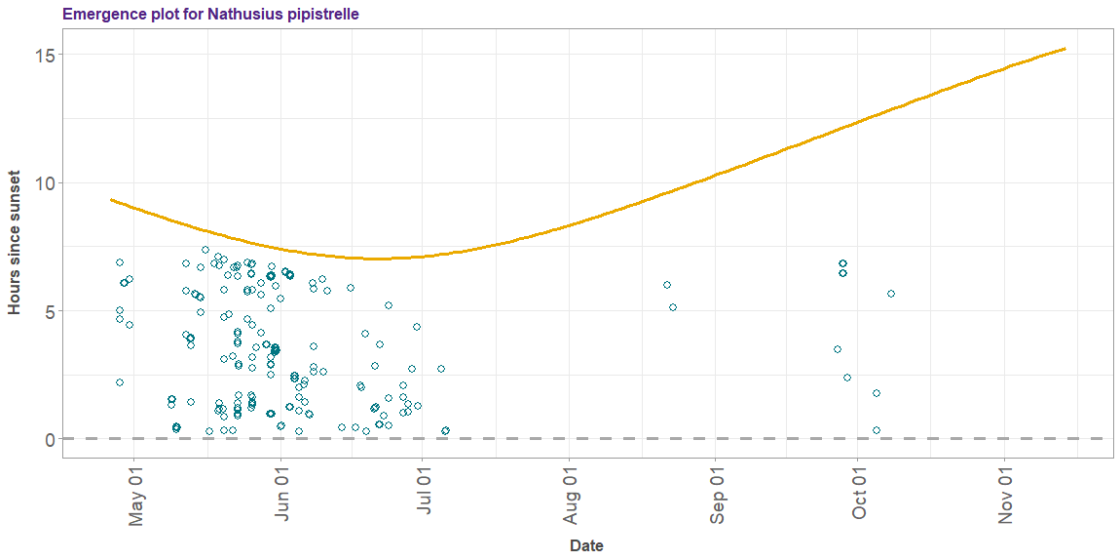


Plate 11 Nathusius' pipistrelle activity in Ireland in relation to sunset over the 2025 headlands surveys

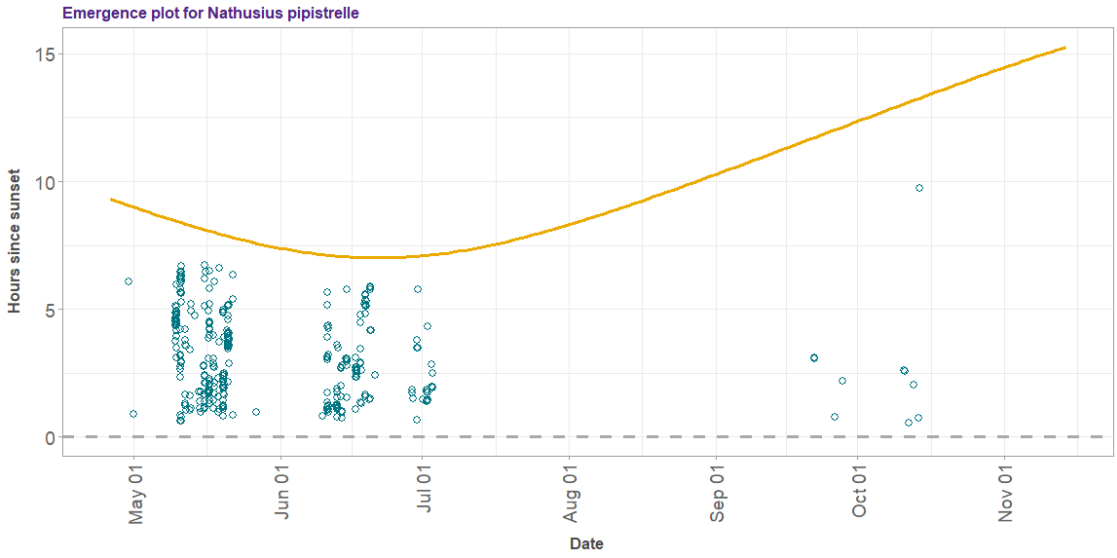


Plate 12 Nathusius' pipistrelle activity in Wales relation to sunset over the 2025 headlands surveys

50. As shown in **Plate 11** and **Plate 12**, both Ireland and Wales had higher levels of Nathusius pipistrelle passes in Spring than Autumn with the Spring activity spread through the night though reducing closer to sunrise. Nathusius pipistrelle bats migrating to Ireland for the winter would be expected to arrive in Autumn in the later portion of the night and more activity would be expected closer to sunrise than sunset to allow for travel time crossing the Irish Sea. While any outwards migrating bats would be expected to leave close to sunset. However, the Lagerveld *et al* (2024) research found female Nathusius' pipistrelles left the UK for continental Europe between 40 – 114 minutes after sunset in May, the minimum distances of the flights ranged from 157 – 205 km and took between 198 – 301 minutes. Suggesting that the shorter (93 km from Bray Head to South Stack) could be undertaken later in the night, particularly in autumn when the nights are longer.

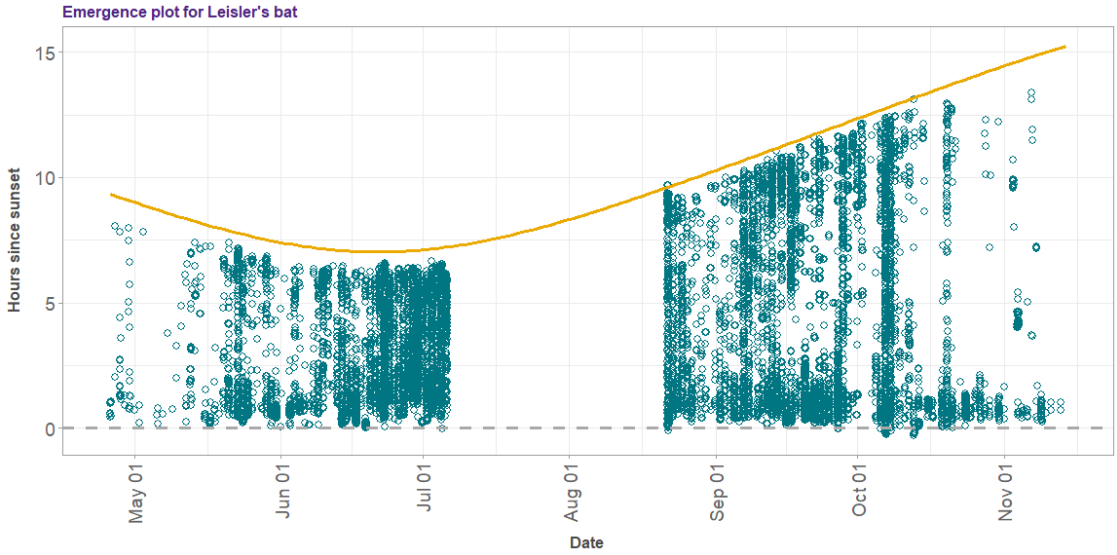


Plate 13 Leisler's bat activity in Ireland in relation to sunset over the 2025 headlands surveys

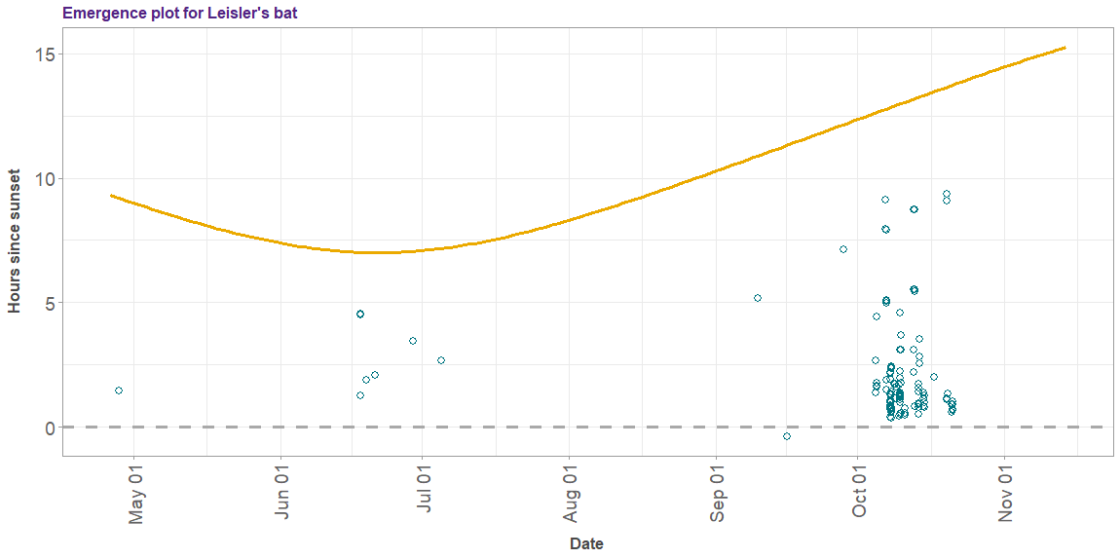


Plate 14 Leisler's bat activity in Wales in relation to sunset over the 2025 headlands surveys

51. **Plate 13** and **Plate 14** show the difference in abundance of Leisler's bat passes recorded on the bat detectors in Ireland compared to those in Wales with Leisler's passes in Ireland suggesting passes closer to sunrise in Autumn while passes within 30 minutes of sunset are shown in both survey seasons. The Leisler's bat activity recorded in Wales, as shown in **Plate 12** was predominantly recorded in the closer to sunset in Autumn with activity reducing overnight.

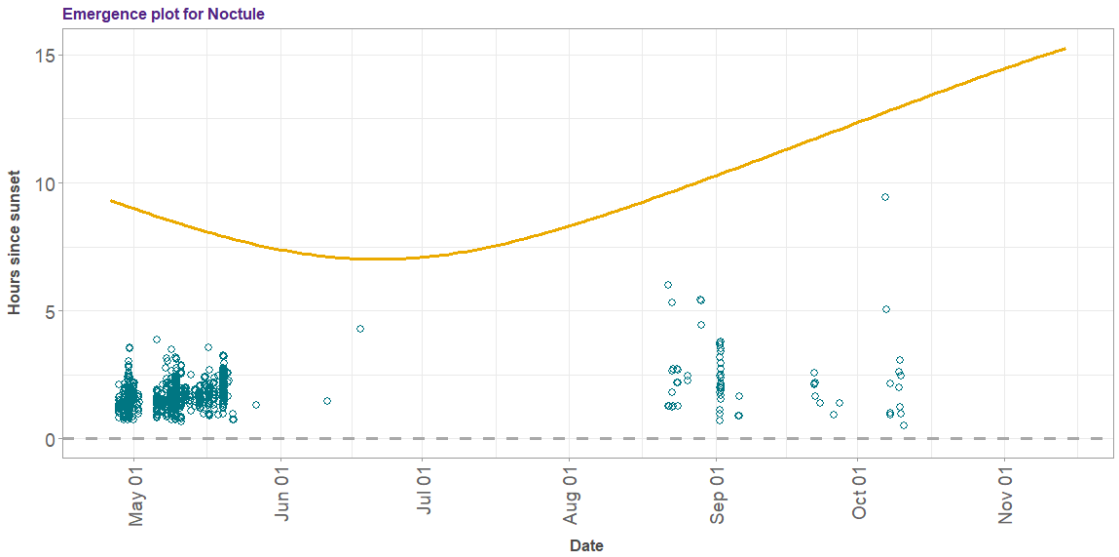


Plate 15 Activity in relation to sunset over the survey period (noctule) recorded in Wales as part of the 2025 headlands surveys

52. Noctule bats are not present in Ireland however the activity recorded in Wales, as shown in **Plate 15**, was clustered to within the first three hours following sunset particularly during the Spring survey.

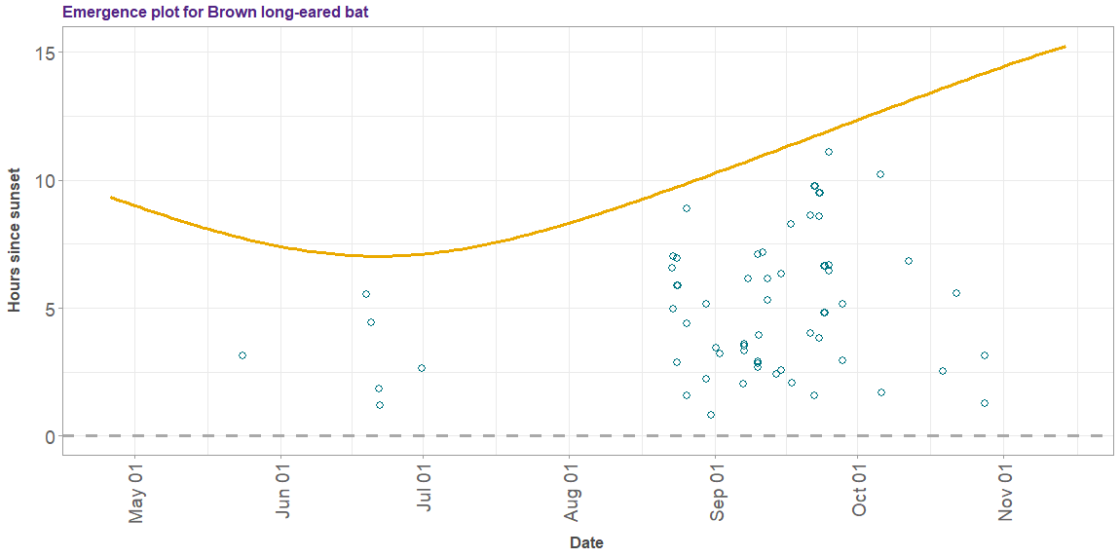


Plate 16 Activity in relation to sunset over the survey period (brown long-eared bat) recorded in Ireland as part of the 2025 headlands surveys

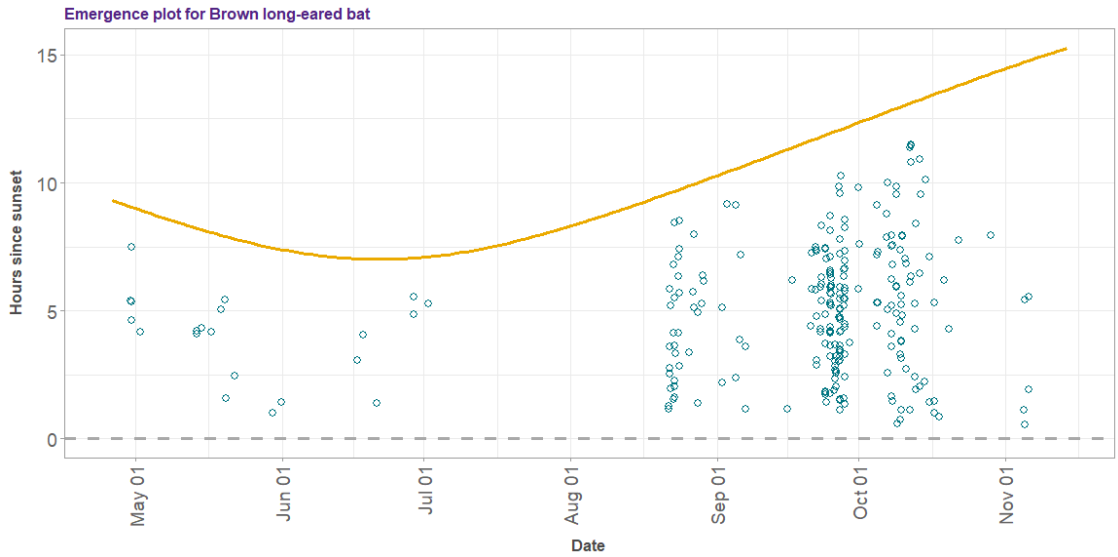


Plate 17 Activity in relation to sunset over the survey period (brown long-eared bat) recorded in Wales as part of the 2025 headlands surveys

53. **Plate 16** and **Plate 17** show that in both Ireland and Wales brown long-eared activity was more frequent in Autumn than Spring.

54. Though results for all species are presented above, the data has been further reviewed in line with the 2022 results to look for potential inference of offshore activity by focusing on the following species with potential to be present within the offshore environment as outlined in **Volume 3**, **Chapter 13 Offshore Bats** of the EIAR:

- Common pipistrelle (potentially migratory);
- Soprano pipistrelle (potentially migratory);
- Nathusius' pipistrelle (potentially migratory);
- Leisler's (potentially migratory); and
- Daubenton's (foraging only).

55. Overall, the comparative time graphs for the potentially migratory species; common pipistrelle (**Plate 5** and **Plate 6),** soprano pipistrelle (**Plate 7** and **Plate 8**), Nathusius pipistrelle (**Plate 9** and **Plate 10)** and Leisler's bats (**Plate 13** and **Plate 14**); do not show clear differences across the seasons suggestive of migration.

56. As with the 2022 dataset the parameters defined in **Section 3.4** have been used to identify which of the recorded bat passes may be associated with migratory behaviour. The results of this review are shown in **Table 11** with Spring migration potentially associated with travel towards Wales aided by westerly winds, and Autumn migration potentially associated with migration towards Ireland when easterly winds would aid migration. **Table 11** focuses on identified species which may be migratory only.

Table 11 Species passes by suitability for migration

Detector location	Suitability for migration	Wind direction	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Leisler's	Total potentially migratory passes
Spring							
Ireland	Suitable weather for migration	Winds towards Ireland (E-SE / NE-E)	919	24	3	93	1,039
		Winds towards Wales (W-NW / SW-W)	3,423	243	18	1,418	5,102
	Unsuitable weather / wind direction for migration		31,684	4,091	174	3,612	39,561
Wales	Suitable weather for migration	Winds towards Ireland (E-SE / NE-E)	341	3	31	0	375
		Winds towards Wales (W-NW / SW-W)	838	0	17	0	855
	Unsuitable weather / wind direction for migration		6,653	20	284	9	6,966
Autumn							
Ireland	Suitable weather for migration	Winds towards Ireland	1,148	46	0	57	1,251
		Winds towards Wales	2,422	316	1	462	3,201
	Unsuitable weather / wind direction for migration		39,734	6,779	12	5,996	52,521
Wales	Suitable weather for migration	Winds towards Ireland	266	8	0	0	274
		Winds towards Wales	275	0	0	8	283
	Unsuitable weather / wind direction for migration		4,480	23	10	106	4,619

57. **Table 12** below provides the BAI for all species recorded in Ireland, and has separated these out to provide the total BAI for the whole survey period, and the BAI for those calls that were considered to be migratory based on the previously defined criteria as set out in **Section 3.4**.

Table 12 BAI showing overall passes and potentially migratory passes in Ireland

Species potentially found offshore	Potentially migratory passes				Overall passes		
	BAI (mean bat activity per night)	Maximum bat passes per night	Ratio of recorded calls considered migratory	Number of passes	BAI (mean bat activity per night)	Maximum bat passes per night overall	Total number of passes
Common pipistrelle	71.279279	605	0.10	7,912	184.488372	2,225	79,330
Soprano Pipistrelle	12.333333	109	0.05	629	44.397683	1,262	11,499
Nathusius' pipistrelle	1.466667	3	0.11	22	2.390805	17	208
Leisler's bat	20.714286	242	0.17	2,030	29.841026	307	11,638
Nyctalus sp	-	-	-	0	-	-	0

58. **Table 13** below provides the BAI for all species recorded in Wales, and has separated these out to provide the total BAI for the whole survey period, and the BAI for those calls that were considered to be migratory based on the previously defined criteria as set out in **Section 3.4**.

Table 13 BAI showing overall passes and potentially migratory passes in Wales

Species potentially found offshore	Potentially migratory passes				Overall passes		
	BAI (mean bat activity per night)	Maximum bat passes per night	Ratio of recorded calls considered migratory	Number of passes	BAI (mean bat activity per night)	Maximum bat passes per night overall	Total number of passes
Common pipistrelle	18.695652	215	0.13	1,720	31.50245	758	12,853
Soprano Pipistrelle	1.571429	4	0.20	11	1.5	5	54
Nathusius' pipistrelle	3.2	7	0.14	48	4.56	21	342
Leisler's bat	2	3	0.07	8	3.075	12	123
Nyctalus sp	1.00	1	0.04878049	6	1.662162	23	123

6.2 Offshore Boat Survey Results

59. No bat passes were recorded within the array site. However, as shown in **Table 14**, 10,741 passes by six different species/species groups were recorded in the harbour on nights when the vessel could not sail due to the weather or after the vessel had returned.

Table 14 Bat species recorded during the vessel surveys

Detector details	Common pipistrelle	Soprano pipistrelle	Nathusius' pipistrelle	Pipistrellus sp.	Leisler's	Myotis sp.	Total bat passes per detector
Spring							
Starboard side*	0	0	0	0	0	0	0
Port side	1,483	4	314	13	6,422	0	8,236
Spring Total	1,483	4	314	13	6,422	0	8,236
Autumn							
Starboard side*	428	7	40	7	1,048	1	1,531
Port side	180	3	23	3	762	3	974
Autumn Total	608	10	63	10	1,810	4	2,505
Total	2,091	14	377	23	8,232	4	10,741

*The starboard side bat detector recorded in Autumn only.

60. As with the headland analysis a review of the time of bat activity by each species was undertaken for the activity recorded on the survey vessel and is provided in **Plate 18** to **Plate 22** below. The plots visualise the distribution of bat activity across the night over the surveyed period. Timing of bat calls are plotted as hours after sunset, whereby 0 on the x axis is sunset and is represented by a grey dashed line. Sunrise throughout the survey period is represented by the orange line.

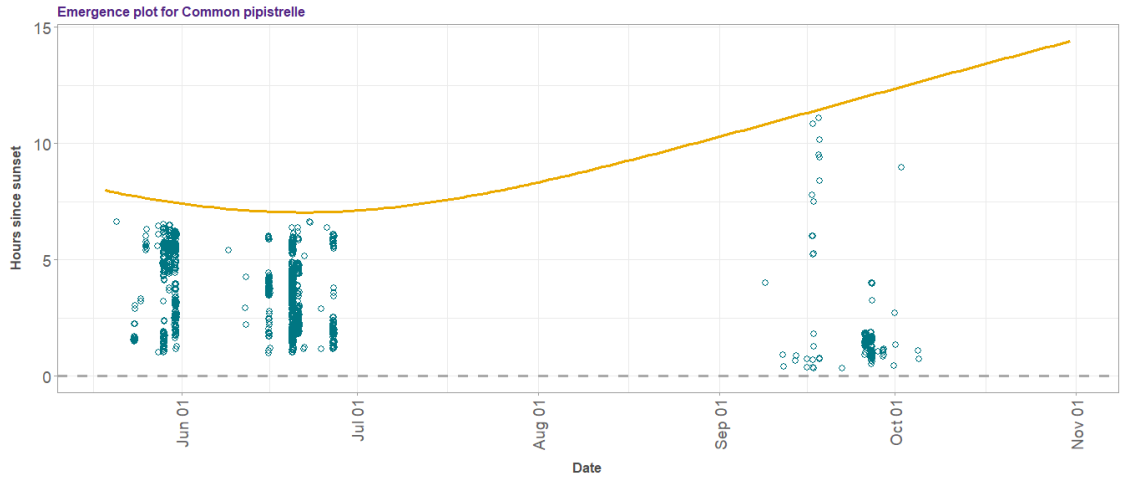


Plate 18 Common pipistrelle activity recorded during the vessel surveys in relation to sunset

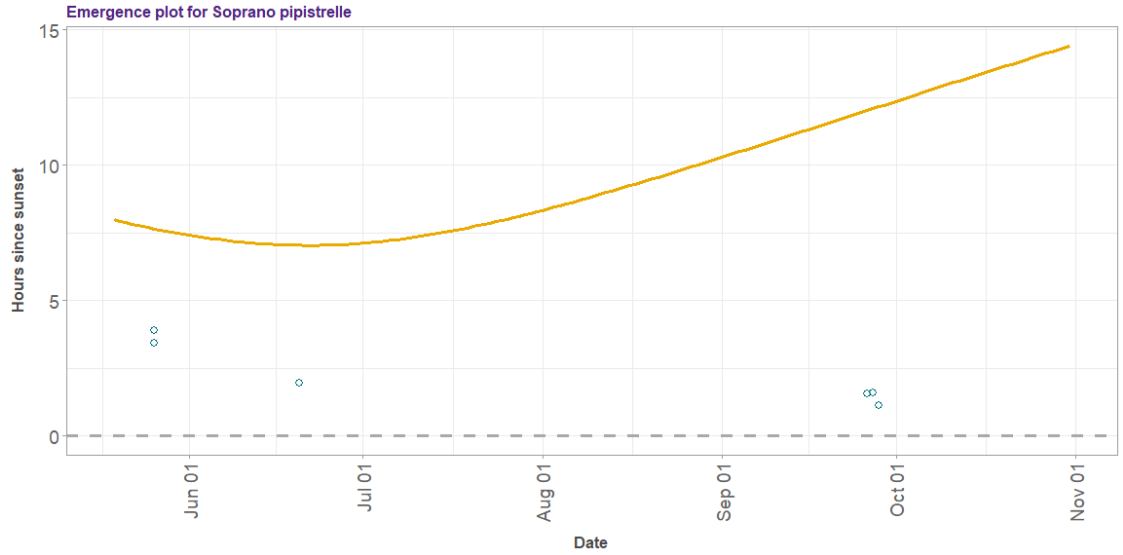


Plate 19 Soprano pipistrelle activity recorded during the vessel surveys in relation to sunset

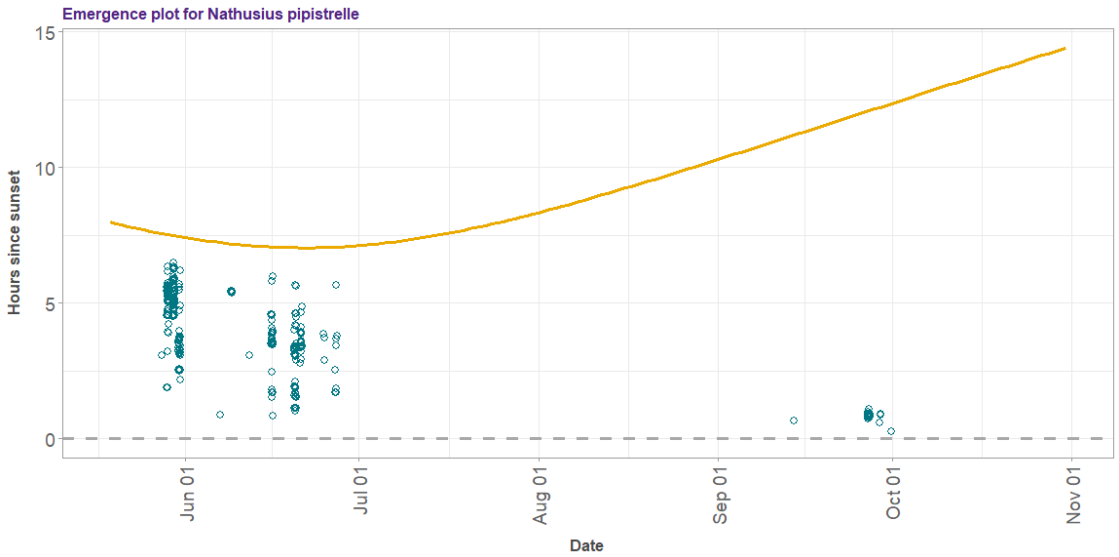


Plate 20 Nathusius' pipistrelle activity recorded during the vessel surveys in relation to sunset over the survey period

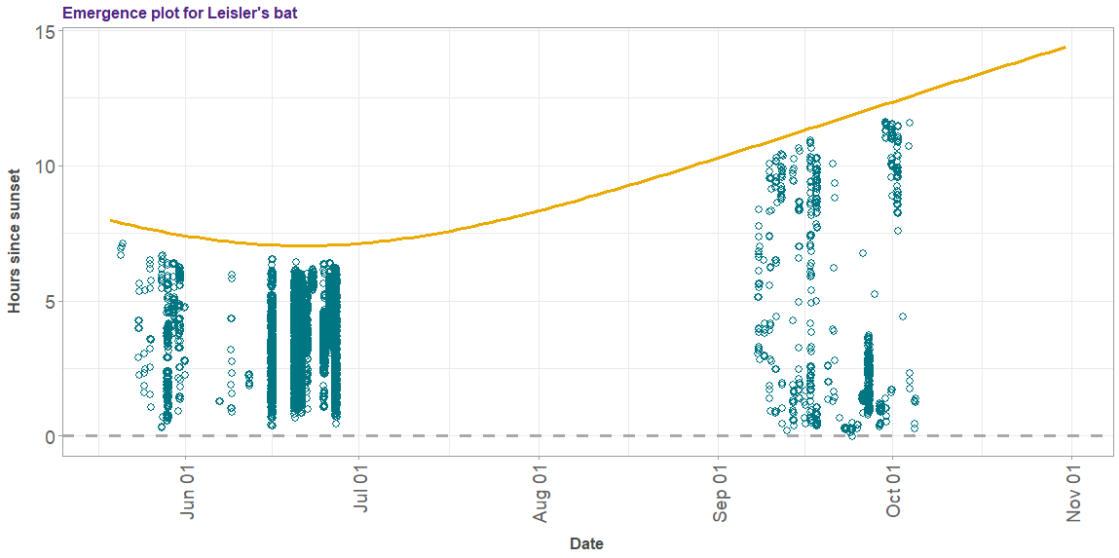


Plate 21 Leisler's bat activity recorded during the vessel surveys in relation to sunset

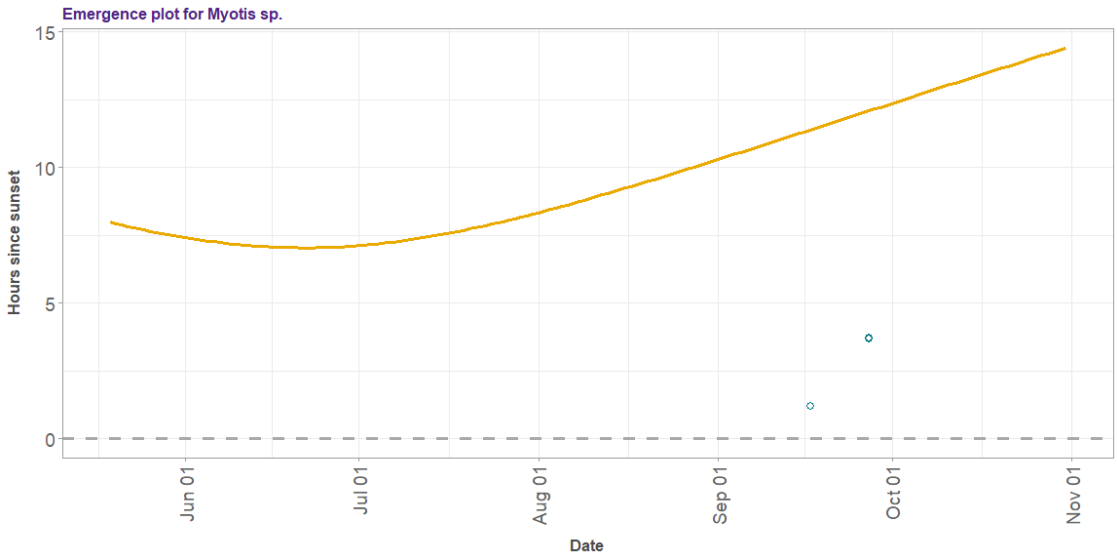


Plate 22 *Myotis sp*. activity recorded during the vessel surveys in relation to sunset

61. No clear difference in the times of bat activity suggestive of migration can be seen in **Plate 18** to **Plate 22**.

6.3 Comparison of 2022 and 2025 survey results

62. Comparisons between 2022 and 2025 highlight that the headlands detectors recorded similar levels of activity across the different species, however Leisler's were first recorded in Wales during the 2025 surveys. The locations with the highest numbers of recorded passes on each coast was Ireland 4 and Wales 2 in both surveyed years. As with 2022, significantly more bat activity was recorded in Ireland than in Wales in 2025, however more Nathusius' pipistrelle passes were recorded in Wales than Ireland in 2025 in contrast to the 2022 results. As with 2022 the majority of the recorded activity was by common pipistrelles in both Ireland and Wales.

63. To aid in the comparison of potentially migratory activity the number of nights containing conditions suitable for migration across the different deployments (countries and years) is provided in **Table 15**. This table shows the number of nights within the deployment with any weather record of above 13°C and winds below 5 m/s in favourable directions for migration. While "Both" refers to suitable conditions for migration being recorded on both sides of the Irish sea.

64. This does not account for the average temperatures or wind speeds, which would further reduce this number, or any other external variables which may be potential indicators of bat migration, such as cloud cover or lunar phase.

Table 15 Nights containing conditions suitable for migration across the different deployments.

	Ireland	Wales	Both deployment locations
Spring 2022	17	18	5
Autumn 2022	26	13	2
2022 total	43	31	7

Spring 2025	22	16	15
Autumn 2025	18	14	8
2025 total	40	30	23

65. As shown in **Table 16** more potential migratory activity was recorded in 2025 compared to 2022 despite there being slightly more nights containing suitable migratory conditions in 2022 compared to 2025.

Table 16 Potentially migratory and overall bat activity (passes and BAI) across the surveyed years

Species potentially found offshore		2022					2025				
		Potentially migratory BAI	Ratio of recorded calls considered migratory	Number of passes in migratory conditions	Overall BAI	Total number of recorded passes	Potentially migratory BAI	Ratio of recorded calls considered migratory	Number of passes in migratory conditions	Overall BAI	Total number of recorded passes
Ireland	Common pipistrelle	8.342857	0.074283	5,548	112.3113	74,687	71.279279	0.09973528	7,912	184.488372	79,330
	Soprano pipistrelle	0.998496	0.035768	664	27.91579	18,564	12.333333	0.05470041	629	44.397683	11,499
	Nathusius' pipistrelle	0.019549	0.106557	13	0.183459	122	1.466667	0.10576923	22	2.390805	208
	Leisler's bat	4.12782	0.183147	2,745	22.53835	14,988	20.714286	0.1744286	2,030	29.841026	11,638
	Nyctalus sp.	0.242105	0.14375	13	1.684211	1,120	-	-	0	-	0
Wales	Common pipistrelle	0.918797	0.087523	611	10.49774	6,981	18.695652	0.1338209	1,720	31.50245	12,853
	Soprano pipistrelle	0.01203	0.5	8	0.02406	16	1.571429	0.2037037	11	1.5	54
	Nathusius' pipistrelle	0.015038	0.25641	10	0.058647	39	3.2	0.14035088	48	4.56	342
	Leisler's bat	-	-	0	-	0	2	0.06504065	8	3.075	123
	Nyctalus sp.	0.019549	0.19697	13	0.099248	66	1.00	0.04878049	6	1.662162	123

66. There was no indication within the timing of the recordings that bats were leaving one country and arriving at the other.

67. Though not migratory Daubenton's bats are known to forage offshore, therefore bats recorded in Ireland could potentially forage within the array site. As detailed in **Table 13-2** of **Volume 3**, **Chapter 13 Offshore Bats** of the EIAR, any Daubenton's bats recorded in Wales would be too far from the array site to forage in the array site. In line with **Volume 3**, **Chapter 13 Offshore Bats**, all *Myotis* sp, passes recorded in Ireland have been assumed to be Daubenton's to enable a precautionary assessment of potential use of the array site by foraging Daubenton's bats. **Table 17** provides a the number, and mean BAI, of *Myotis* sp passes recorded in Ireland as part of the headlands and boat based surveys.

Table 17 *Myotis* sp, passes recorded in Ireland across the different surveys.

Survey type	Spring passes	Autumn passes	Mean BAI
Headlands 2022	10	25	0.29
Headlands 2025	25	40	0.42
Boat based survey	0	4	0.03

7 Conclusions

68. The absence of recordings within the array site do not disprove offshore bat migration, nor do the findings of the headland surveys. Therefore, the potential for migration, and other offshore activity, remains as described within **Volume 3**, **Chapter 13 Offshore Bats** of the EIAR. The supplementary surveys undertaken in 2025 to support the FIR enhance the overall robustness of the dataset and do not indicate any new or intensified offshore bat risks beyond what was already assessed.

8 References

69. Hooker, J., Lintott, P., Boughey, K., Worledge, L., Park, K. and Collins, J. (2025) Assessing migration of bat species and interactions with Offshore Wind Farms in British Waters. Natural England Commissioned Report, NECR562. Natural England, York.

70. JNCC (2019) European Community Directive on the Conservation of Natural Habitats and of Wild Faune and Flora (92/43/EEC) - Fourth Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2013 to December 2018. Supporting documentation for the conservation status assessment for the species: S1331 - Leisler's bat(*Nyctalus leisleri*). Available https://jncc.gov.uk/jncc-assets/Art17/S1331-EN-Habitats-Directive-Art17-2019.pdf Accessed 26/02/2026.

71. Lagerveld S, Gerla D, van der Wal JT, de Vries P, Brabant R, Stienen E, Deneudt K, Manshanden & Scholl M (2017). Spatial and temporal occurrence of bats in the southern North Sea area. Wageningen Research Report C090/17, Wageningen Marine Research (University & Research Centre), 52pp.

72. Lagerveld S, de Vries P, Harris J, Parsons S, Debusschere E, Hüppop O, Brust V, Schmaljohann H. (2024) Migratory movements of bats are shaped by barrier effects, sex-biased timing and the adaptive use of winds. Mov Ecol. 2024 Dec 18;12(1):81. doi: 10.1186/s40462-024-00520-7. PMID: 39696652; PMCID: PMC11657297.

73. Rodrigues, L., Bach, L., Dubourg-Savage, M-J., Karapandža, B., Kovač, D., Kervyn, T., Dekker, J., Kepel, A., Bach, P., Collins, J., Harbusch, C., Park, K., Micevski, B. and Minderman, J. (2015). Guidelines for Consideration of Bats in Wind Farm Projects – Revision 2014. Eurobats Publication Series No. 6. UNEP / Eurobats Secretariat, Bonn, Germany. Department of Communications, Energy and Natural Resources.