LLŶR FLOATING OFFSHORE WIND PROJECT

Llŷr 1 Floating Offshore Wind Farm

Environmental Statement

Volume 6: Appendix 22B Marine Ornithology Colony Apportioning

August 2024

Prepared by: Llŷr Floating Wind Ltd

FLOVENTIS ENERGY

Document Status

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Acronyms and abbreviations

Acronym or Abbreviation	Definition	Acronym or Abbreviation	Definition
%	Percentage	JNCC	Join Nature Conservation Committee
AOB	Apparently Occupied Burrow	km	Kilometre
AON	Apparently Occupied Nest	Mean max	Mean maximum
AOS	Apparently Occupied Site	NRW (A)	Natural Resources Wales Advisory
AOT	Apparently Occupied Territory	SD	Standard Deviation
BDMPS	Biologically Defined Minimum Population Scales	SMP	Seabird Monitoring Programme
EIA	Environmental Impact Assessment	SNCB	Statutory Nature Conservation Body
HiDef	HiDef Aerial Surveying Ltd	SPA	Special Protection Area
HRA	Habitats Regulations Assessment	SSSI	Sites of Special Scientific Interest
IND	Individual		

Glossary of project terms

Term	Definition
The Applicant	The developer of the Project, Llŷr Floating Wind Limited
Apportioning	Proportions of birds present within an area estimated to derive from different colony populations.
Array	All wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure within the Array Area, as defined, when considered collectively, excluding the offshore export cable(s).
Array Area	The area within which the wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure will be located
BDMPS	"Biologically Defined Minimum Population Scales" are spatially distinct biogeographic populations of seabirds that are present in UK waters during the non-breeding period, as defined by Furness (2015).
Floventis Energy	A joint venture company between Cierco Ltd and SBM Offshore Ltd of which Llŷr Floating Wind Limited is a wholly owned subsidiary.
Landfall	The location where the offshore export cable(s) from the Array Area, as defined, are brought onshore and connected to the onshore export cables (as defined) via the transition joint bays (TJB).
Llŷr 1	The proposed Project, for which the Applicant is applying for Section 36 and Marine Licence consents. Including all offshore and onshore infrastructure and activities, and all project phases.
Marine Licence	A licence required under the Marine and Coastal Access Act 2009 for marine works which is administered by Natural Resources Wales (NRW) Marine Licensing Team (MLT) on behalf of the Welsh Ministers.

Term	Definition
Offshore Development Area	The footprint of the offshore infrastructure and associated temporary works, comprised of the Array Area and the Offshore Export Cable Corridor, as defined, that forms the offshore boundary for the S36 Consent and Marine Licence application
Offshore Export Cable	The cable(s) that transmit electricity produced by the WTGs to landfall.
Offshore Export Cable Corridor (OfECC)	The area within which the offshore export cable circuit(s) will be located, from the Array Area to the Landfall.
Onshore Development Area	The footprint of the onshore infrastructure and associated temporary works, comprised of the Onshore Export Cable Corridor and the Onshore Substation, as defined, and including new access routes and visibility splays, that forms the onshore boundary for the planning application.
Onshore Export Cable(s)	The cable(s) that transmit electricity from the landfall to the onshore substation
Onshore Export Cable Corridor (OnECC)	The area within which the onshore export cable circuit(s) will be located.
proposed Project	All aspects of the Llŷr 1 development (i.e. the onshore and offshore components).
Onshore Substation	Located within the Onshore Development Area, converts high voltage generated electricity into low voltage electricity that can be used for the grid and domestic consumption.
Section 36 consent	Consent to construct and operate an offshore generating station, under Section 36 (S.36) of the Electricity Act 1989. This includes deemed planning permission for onshore works.

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22. APPENDIX 22B: MARINE ORNITHOLOGY COLONY APPORTIONING

22.1 Introduction

1. Llŷr 1 Floating Offshore Wind Project (hereafter the proposed Project) is a proposed offshore floating wind demonstration project, located approximately 35 km off the south coast of Pembrokeshire, Wales and approximately 72 km from the north coast of Devon, England. The proposed Project is being developed by Llŷr Floating Wind Limited (the Applicant).
2. This **Technical Appendix 22B: Marine Ornithology Colony Apportioning** describes the colony apportioning process used to inform colony-specific assessments for relevant seabird species under Environmental Impact Assessment (EIA) for Sites of Special Scientific Interest (SSSIs) and Habitats Regulation Assessment (HRA) for Special Protection Areas (SPAs). Apportioning is used to estimate the proportions of birds present within the impacted area that derive from different colony populations, allowing the impacts of the proposed Project to be allocated across each of the relevant SPAs and SSSIs for assessment, including population modelling, where required.
3. **Section 22.5** of **Chapter 22: Marine Ornithology**, identifies the focal seabird species at the proposed Project for which colony apportioning is required as part of quantitative assessment:
    - black-legged kittiwake (*Rissa tridactyla*), hereafter 'kittiwake';
    - lesser black-backed gull (*Larus fuscus*);
    - common guillemot (*Uria aalge*), hereafter 'guillemot';
    - razorbill (*Alca torda*);
    - Atlantic puffin (*Fratercula arctica*), hereafter 'puffin';
    - Manx shearwater (*Puffinus puffinus*); and
    - northern gannet (*Morus bassanus*), hereafter 'gannet'.
4. **Section 22.2** below sets out the required process[1], comprising three stages:
    i. For each species determine which breeding seabird colonies (SPAs and SSSIs) are within foraging range of the wind farm to identify the 'long list' for inclusion in apportioning calculations (**Section 22.2.1**);
    ii. For the long list of colonies, carry out the breeding season apportioning calculation following the recommended guidance (NatureScot, 2018) to determine the apportioning weightings to apply to breeding season impacts (collision risk and / or displacement) (**Section 22.2.2**); and
    iii. For the resulting focal colonies, carry out a non-breeding season apportioning calculation (using the method agreed with Natural Resources Wales (A) (NRW (A)) and Joint Nature Conservation Committee (JNCC) during pre-application discussion[1]) to determine the apportioning weightings to apply to non-breeding season impacts (collision risk and / or displacement) (**Section 22.2.3**).

[1] *The process was outlined in the 'Llŷr Marine Ornithology Proposed Assessment Methodology' paper issued to NRW (A) on 22 February 2023, and to the JNCC on 12 May 2023. It was discussed and agreed with the two Statutory Nature Conservation Bodies (SNCBs) at the pre-application meetings held on 07 March 2023 and 24 May 2023 (**Table 22-5** of **Chapter 22: Marine Ornithology**).*

5. The resulting apportioning weightings to be applying to quantified impacts (collision risk and / or displacement) are presented in **Section 22.3** (breeding season) and **Section 22.4** (non-breeding season). Once these seasonal weightings are applied then the apportioned breeding and non-breeding impacts are summed, to determine the total annual impacts to be considered against each SPA / SSSI breeding (colony) population included in the long list. Where these impacts are greater than 1% of the baseline mortality for the population in question, this then triggers the requirement for further investigation of the population consequences of the impacts using population viability analysis (see **Appendix 22D: Marine Ornithology Displacement Assessment**).

6. Supporting information on seasonal definitions (breeding / non-breeding) for each species is presented in **Table 22A-4** of the **Appendix 22A: Marine Ornithology Baseline**.

22.2 Methods

22.2.1. Colony Screening

7. All colony SPAs and SSSIs within foraging range of the proposed Project (specifically the Array Area) are identified. This screening is undertaken on a species-by-species basis using the mean maximum ('mean max') foraging distance plus one standard deviation (SD) given in Woodward *et al.* (2019) (**Table 22B-1**).

8. The resulting long list of SPAs and SSSIs for each species forms the basis of **Table 22B-A1** presented in **Appendix 22B: Annex A – SPA Colony Counts** with the SPA long list also being presented in **Appendix 8D: HRA Screening**.

Table 22B-1. Mean maximum foraging ranges (km) and standard deviation (km) used for colony screening. These are the generic distances presented in Woodward et al. (2019) unless otherwise stated in the footnotes

Species	Mean maximum foraging range (km)	Standard deviation (SD; km)	Mean maximum foraging range + 1 SD (km)
Kittiwake	156.1	144.5	300.6
Lesser black-backed gull	127.0	109.0	236.0
Guillemot *	55.5	39.7	95.2
Razorbill *	73.8	48.4	122.2
Puffin	137.1	128.3	265.4
Manx shearwater	1,346.8	1,018.7	2,365.5
Gannet **	315.2	194.2	509.4

**For guillemots and razorbills this is the foraging range outside of the Northern Isles as recommended by JNCC.*

***Note that gannets at Grassholm SPA have been screened in on the basis of the site-specific foraging range recommended by JNCC (516.7 km), however, apportioning calculations across SPAs are based on the generic foraging range.*

22.2.2. Breeding Season Apportioning Methodology

9. The calculation of colony apportioning weightings to apply in the breeding season follows current guidance (NatureScot, 2018). The calculation is presented below and is based on population size, distance between the Array Area and the breeding colonies within foraging range, and area of sea included in the foraging range.

$$\text{Resulting weight} = \left(\frac{\text{Colony population}}{\text{Sum of populations}}\right) \times \left(\frac{\text{Sum of distance}^2}{\text{Colony distance}^2}\right) \times \left(\frac{\frac{1}{\text{Proportion of foraging range as sea}}}{\sum \frac{1}{\text{Proportion of foraging range as sea}}}\right)$$

10. This apportioning calculation has been coded by HiDef Aerial Surveying Ltd (HiDef) into the R programming language (Version 4.2.3, R Core Team, 2022) and a copy of the code can be provided upon request. The following sections provide further detail on each element used within the calculation.

Colony Population

11. The breeding (colony) seabird populations used in this apportioning calculation are presented in **Table 22B-A1** presented in **Appendix 22B: Annex A – SPA Colony Counts**. These were shared with NRW (A) and JNCC for agreement (**Table 22-5** of **Chapter 22**) and further to their advice are the counts which are most closely contemporaneous with the dates of the digital aerial survey programme (see this **Appendix 22B: Annex A** for further detail).

12. The total SPA (or SSSI) populations presented here are the populations which have been used within the assessment, and are based on summing the relevant, individual sub-site populations (the sub-sites where the species is present). All colony counts have been obtained from the Seabird Monitoring Programme (SMP) database (BTO, 2023), unless otherwise specified.

Colony Distance

13. Distances were measured on a precautionary basis from nearest boundary of the breeding population to nearest boundary of the Array Area. To be biologically meaningful, these are the 'at-sea' distances – the distance the bird flies across water between the breeding site and the Array Area. In the case of close vicinity island SPAs where the SPA boundary encompasses an area of water around the island or close vicinity SPAs with large marine areas, the distances were measured to the nearest land point. This was the case for the Grassholm SPA, Sgomer, Sgogwm a Moroedd Penfro / Skomer, Skokholm and the Seas off Pembrokeshire SPA, Glannau Aberdaron Ac Ynys Enlli / Aberdaron Coast and Bardsey Island SPA and Isles of Scilly SPA.

Proportion of Foraging Range At-Sea

14. The 'proportion of foraging range at-sea' equates to the proportion of a species' potential 360-degree foraging range that is at-sea.

22.2.3. Non-Breeding Season Apportioning Methodology

15. In the non-breeding season, seabirds are not tied to their breeding colonies, and many migrate to different regions or areas. Non-breeding season apportioning has been undertaken in order to apportion potential impacts back to the key SPA and SSSI populations identified in consultation with NRW (A) and JNCC (meeting held on 24 May 2023, see **Table 22-5** of **Chapter 22**). These are Skomer, Skokholm and the Seas Off Pembrokeshire SPA, Grassholm SPA, Castlemartin Range SSSI and Lundy SSSI.

16. Biologically defined minimum population scales (BDMPS) and their associated (non-breeding) populations are defined in Furness (2015). The non-breeding apportioning weighting for each focal SPA (as above) is derived by taking the SPA population of breeding adults occurring in the relevant BDMPS as a percentage of the 'total' BDMPS population (adults and immatures together).

17. For Castlemartin Range SSSI and Lundy SSSI, the non-breeding season apportioning weightings have been derived using the method advised by NRW (A) and JNCC in the meeting held on 24 May 2023 (**Table 22-5** of **Chapter 22)**. For each relevant species at each of these two SSSIs, the colony count (as given in **Table 22B-1**) presented in this **Appendix 22B: Annex A – SPA Colony Counts**) was multiplied by the proportion of adults in the non-breeding season (from Furness, 2015) using Skomer, Skokholm and the Seas off Pembrokeshire SPA as a nearby proxy

site. The resulting figure was then divided by the total number of birds (of the relevant species) within the relevant BDMPS region.

18. The relevant BDMPS regions used in this non-breeding season apportioning (both SPAs and SSSIs) are 'UK western waters & Channel' for kittiwake and Manx shearwater, and 'UK western waters' for lesser black-backed gull, guillemot, razorbill, puffin and gannet.

22.3 Breeding Season Apportioning Weightings

19. Outputs from the breeding season apportioning calculations for each species are provided in **Table 22B-2** to **Table 22B-8**.

22.3.1. Kittiwake

Table 22B-2. Apportionment of adult kittiwake on site to breeding colonies within foraging range, which include this species as a feature

SPA name	Count of adults	Distance to Array Area (km)	1/proportion foraging range as sea	Resulting weight	Apportioning weight
Skomer, Skokholm and the Seas Off Pembrokeshire	2,878	37.16	1.772	1.780	0.636
Saltee Islands	2,076	113.73	1.733	0.165	0.059
Lundy Island (SSSI)	568	56.00	1.595	0.158	0.056
Howth Head Coast	6,162	233.03	2.158	0.148	0.053
Lambay Island	6,640	241.24	2.191	0.140	0.050
Aberarth Carreg Wylan (SSSI)	664	103.87	2.008	0.083	0.030
Ireland's Eye	3,220	238.07	2.157	0.072	0.026
Wicklow Head	1,458	187.66	2.159	0.052	0.019
Carreg y Llam (SSSI)	1,228	203.28	2.879	0.053	0.019
Pen y Gogarth / Great Ormes Head (SSSI)	1,796	304.96	2.876	0.046	0.016
Ramsey Island (SSSI)	102	52.28	1.829	0.038	0.014
Old Head of Kinsale	1,580	223.23	1.324	0.026	0.009
Aberdaron Coast and Bardsey Island	242	156.11	2.619	0.013	0.005
Helvick Head to Ballyquin	336	172.00	1.516	0.011	0.004
Creigiau Rhiwledyn/Little Ormes Head (SSSI)	360	309.69	2.863	0.009	0.003
Rockabill	266	249.45	2.203	0.005	0.002
Isles of Scilly	22	170.49	1.195	0.000	0.000

22.3.2. *Lesser Black-Backed Gull*

Table 22B-3. Apportionment of adult lesser black-backed gull on site to breeding colonies within foraging range which include this species as a feature

SPA name	Count of adults	Distance to Array Area (km)	1/proportion foraging range as sea	Resulting weight	Apportioning weight
Skomer, Skokholm and the Seas Off Pembrokeshire	16,704	37.16	1.726	5.530	0.951
Flat Holm (SSSI)	4,524	158.14	2.070	0.115	0.020
Isles of Scilly	4,890	170.49	1.084	0.053	0.009
Aberarth Carreg Wylan (SSSI)	724	103.87	1.945	0.048	0.008
Ramsey Island (SSSI)	200	52.28	1.771	0.039	0.007
Saltee Islands	502	113.73	1.773	0.022	0.004
Aberdaron Coast and Bardsey Island	328	156.11	2.313	0.008	0.001

22.3.3. *Guillemot*

Table 22B-4. Apportionment of adult guillemot on site to breeding colonies within foraging range which include this species as a feature

SPA name	Count of adults	Distance to Array Area (km)	1/proportion foraging range as sea	Resulting weight	Apportioning weight
Skomer, Skokholm and the Seas Off Pembrokeshire	44,099.4	37.16	1.185	0.800	0.487
Castlemartin Range (SSSI)	22,591.1	34.55	1.319	0.592	0.360
Lundy Island (SSSI)	13,239.2	56.00	1.719	0.174	0.106
Ramsey Island (SSSI)	7,229.3	52.28	1.193	0.076	0.046
Gower Coast: Rhossili to Porteynon (SSSI)	226.5	77.44	2.068	0.002	0.001

22.3.4. *Razorbill*

Table 22B-5. Apportionment of adult razorbill on site to breeding colonies within foraging range which include this species as a feature

SPA name	Count of adults	Distance to Array Area (km)	1/proportion foraging range as sea	Resulting weight	Apportioning weight
Skomer, Skokholm and the Seas Off Pembrokeshire	16,900.1	37.16	1.265	1.141	0.639
Castlemartin Range (SSSI)	2,263.3	34.55	1.408	0.221	0.124
Lundy Island (SSSI)	4,734.2	56.00	1.683	0.212	0.119
Ramsey Island (SSSI)	2,894.4	52.28	1.267	0.113	0.063
Saltee Islands	8,735.5	113.73	1.558	0.096	0.054
Gower Coast: Rhossili to Porteynon (SSSI)	111.2	77.44	2.077	0.003	0.002

22.3.5. *Puffin*

Table 22B-6. Apportionment of adult puffin on site to breeding colonies within foraging range which include this species as a feature

SPA name	Count of adults	Distance to Array Area (km)	1/proportion foraging range as sea	Resulting weight	Apportioning weight
Skomer, Skokholm and the Seas Off Pembrokeshire	33,619	37.16	1.741	11.947	0.980
Lundy Island (SSSI)	848	56.00	1.550	0.134	0.011
Ynysoedd Y Gwylanod, Gwylan Islands (SSSI)	1,238	171.79	2.521	0.036	0.003
Saltee Islands	390	113.73	1.784	0.019	0.002
The Skerries (SSSI)	1,204	244.24	2.856	0.020	0.002
Aberdaron Coast and Bardsey Island	282	156.11	2.535	0.008	0.001
Ramsey Island (SSSI)	55	52.28	1.796	0.012	0.001
Lambay Island	144	241.24	2.305	0.002	0.000
Ireland’s Eye	127	238.07	2.264	0.002	0.000
Castlemartin Range (SSSI)	14	34.55	1.710	0.006	0.000
Isles of Scilly	170	170.49	1.133	0.002	0.000

22.3.6. *Manx Shearwater*

Table 22B-7. Apportionment of adult Manx shearwater on site to breeding colonies within foraging range which include this species as a feature

SPA name	Count of adults	Distance to Array Area (km)	1/proportion foraging range as sea	Resulting weight	Apportioning weight
Skomer, Skokholm and the Seas Off Pembrokeshire	910,312	37.16	1.146	55.423	0.983
Lundy Island (SSSI)	11,008	56.00	1.146	0.335	0.006
Ramsey Island (SSSI)	9,592	52.28	1.147	0.337	0.006
Aberdaron Coast and Bardsey Island	41,350	156.11	1.145	0.146	0.003
Rum	240,000	652.41	1.145	0.063	0.001
Copeland Islands	9,700	374.18	1.146	0.007	0.000
St Kilda	11,760	793.78	1.145	0.002	0.000
Saltee Islands	1,438	113.73	1.146	0.012	0.000
Puffin Island	6,329	374.69	1.142	0.005	0.000
Skelligs	1,476	371.52	1.142	0.001	0.000
Blasket Islands	39,068	411.85	1.142	0.028	0.000
Lambay Island	50	241.24	1.147	0.000	0.000
High Island, Inishshark and Davillaun	1,738	589.99	1.144	0.001	0.000
Cruagh Island	6,572	578.04	1.145	0.004	0.000
Deenish Island and Scariff Island	4,622	362.74	1.142	0.004	0.000
Isles of Scilly	1,230	170.49	1.143	0.004	0.000

22.3.7. *Gannet*

Table 22B-8. Apportionment of adult gannet on site to breeding colonies within foraging range which include this species as a feature

SPA name	Count of adults	Distance to Array Area (km)	1/proportion foraging range as sea	Resulting weight	Apportioning weight
Grassholm	72,022	37.29	1.589	21.393	0.969
Saltee Islands	9,446	113.73	1.500	0.317	0.014
Skelligs	70,588	371.52	1.160	0.171	0.008
Ailsa Craig	66,452	439.72	1.513	0.151	0.007
The Bull and the Cow Rocks	12,776	350.47	1.166	0.036	0.002

22.4 Non-Breeding Season Apportioning Weightings

20. The apportioning weightings to apply to impacts occurring in the non-breeding season are presented in **Table 22B-9**.

Table 22B-9. SPA and SSSI apportioning weightings in the non-breeding season

Species (BDMPS region)	BDMPS season*	SPA breeding adults in the BDMPS	BDMPS total population	Non-breeding apportioning weighting	Reference location in Furness (2015)
Skomer, Skokholm and Seas off Pembrokeshire SPA					
Kittiwake	Autumn migration	1,254	911,586	0.001	Table 48, page 349
	Spring migration	1,672	691,526	0.002	Table 50, page 353
Lesser black-backed gull	Autumn migration	13,496	163,304	0.083	Table 37, page 337
	Winter	3,856	41,159	0.094	Table 39, page 339
	Spring migration	13,496	163,305	0.083	Table 41, page 341
Guillemot	Non-breeding	29,340	1,139,220	0.026	Table 63, page 377
Razorbill	Autumn migration	11,762	606,914	0.019	Table 65, page 380
	Non-breeding	3,601	341,422	0.011	Table 67, page 384
	Spring migration	11,762	606,914	0.019	Table 65, page 380
Puffin	Non-breeding	8,681	304,557	0.029	Table 69, page 388
Manx shearwater	Autumn migration	700,000	1,580,895	0.443	Table 13, page 313
	Spring migration	700,000	1,580,895	0.443	Table 13, page 313
Grassholm SPA					
Gannet	Autumn migration	78,584	545,954	0.144	Table 15, page 315
	Spring migration	78,584	661,888	0.119	Table 17, page 317
Castlemartin Range SSSI					
Guillemot	Non-breeding	20,332*	1,139,220	0.018	Table 63, page 377**
Lundy Island SSSI					
Manx shearwater	Autumn migration	11,008*	1,580,895	0.007	Table 13, page 313**
	Spring migration	11,008*	1,580,895	0.007	Table 13, page 313**

Number of breeding adults collated from SMP, as presented in **Table 22B-A1 presented in **Appendix 22B: Annex A – SPA Colony Counts**, multiplied by the proportion of adults in the relevant BDMPS region and season, as presented in Furness (2015)*

***The weightings have been derived using the values presented in these referenced tables, as described in **Section 22.2** rather than copied directly. .*

22.5 Annex A: SPA Colony Counts

1. **Table 22B-A1** presents the long list of SPA and SSSI breeding seabird colonies within mean max foraging range of the proposed Project (specifically the Array Area).
2. Following NRW (A) recommendation (meeting 07 March 2023; letter 05 April 2023; as presented in **Table 22-5** of **Chapter 22**), the colony counts that are most contemporaneous with the proposed Project have been used in assessment (i.e., from 2020 and 2021 breeding seasons, where available). Where contemporaneous data were not available, the most recent available counts were used.
3. For the purposes of apportioning, all individuals from the key species which were recorded in the SMP at the SPA or SSSI have been considered in the apportioning calculations, regardless of whether they are listed as qualifying features or interest features of the site, as these birds still contribute to the wider population.
4. For the majority of species, counts of pairs were converted to individuals (IND) by multiplying by two. However, for guillemot and razorbill, a study at the Isle of May (Harris, 1989) has estimated that one individual at a colony is approximately equivalent to 0.67 pairs. Whilst this correction factor is specific to these colonies, it has also been used to indicate the breeding adult populations in previous applications, and NRW have agreed that it should be used for the proposed Project for these species (advice of 05 April 2023; **Table 22-5** of **Chapter 22**).
5. Therefore, counts of individual guillemot and razorbill have been converted to estimates of breeding adults by multiplying the number of individuals by a correction factor of 1.34 (equivalent to multiplying by 0.67 to obtain the corrected number of pairs, which is then multiplied by two to obtain the corrected number of individuals).
6. Where counts were provided as Apparently Occupied Nest (AON), Apparently Occupied Site (AOS), Apparently Occupied Territory (AOT) or Apparently Occupied Burrow (AOB), these were treated as equivalent to pairs and therefore, doubled to arrive at a number of individuals and then multiplied by the correction factor of 1.34.

Table 22B-A1. Key breeding seabird populations used in apportioning. All counts are from the SMP, unless otherwise indicated by the footnotes

Species	SPA / SSSI	SMP Sub-site	Year of count	Original count unit	Count (original count unit)	Total site count (corrected * breeding adults)
Kittiwake	Aberarth Carreg Wylan SSSI	Aberarth 1	2018	AON	332	**664**
	Aberdaron Coast and Bardsey Island SPA	Whole	2019	AON	121	**242**
	Helvick Head to Ballyquin SPA	Ballynamona	1999	AON	103	**336**
		Helvick Head 1	2018	AON	65	
	Howth Head Coast SPA	Howth Head	2015	AON	3,081	**6,162**
	Ireland's Eye SPA	Ireland's Eye	2015	AON	1,610	**3,220**
	Isles of Scilly SPA	Gugh	2022	AON	11	**22**
		Turk's Head (St Agnes)	2021	AOS	0	
	Lambay Island SPA	Lambay Island	2015	AON	3,320	**6,640**
	Lundy Island SSSI	Lundy	2021	AON	284	**568**
	Old Head of Kinsale SPA	Old Head of Kinsale	2015	AON	790	**1,580**
	Rockabill SPA	Rockabill	2018	AON	133	**266**
	Saltee Islands SPA[1]	Great Saltee Island	2015-2018	AON	1,038	**2,076**
	Skomer, Skokholm and the Seas off Pembrokeshire SPA	Skomer	2021	AON	1,439	**2,878**
	Wicklow Head SPA	Wicklow Head	2021	AON	729	**1,458**
	Carreg y Llam SSSI	Whole	2021	AON	614	**1,228**
	Great Ormes Head SSSI	Great Orme	2021	AON	898	**1,796**
	Little Ormes Head SSSI	Little Orme	2021	AON	180	**360**
	Ramsey Island SSSI	Whole	2021	AON	51	**102**
Lesser black-backed gull	Aberarth Carreg Wylan SSSI	Aberarth 1	2018-2019	AON	362	**724**
	Flat Holm SSSI	Flat Holm 1	2018	AON	2,262	**4,524**
	Aberdaron Coast and Bardsey Island SPA	Whole	2019	AON	164	**328**
	Isles of Scilly SPA	Annet	2021	AON	7	**4,890**
		Castle Bryher	2015	AON	1	
		Gorregan	1999	AON	1	

Species	SPA / SSSI	SMP Sub-site	Year of count	Original count unit	Count (original count unit)	Total site count (corrected * breeding adults)
		Great Arthur	2015	AON	76	
		Great Crebawethan	2017	AON	0	
		Great Ganilly	2015	AON	70	
		Great Ganinick	1999	AON	2	
		Gugh	2021	AON	397	
		Gweal	2015	AON	35	
		Little Gannelly	2015	AON	4	
		Little Innisvouls	2015	AON	2	
		Maiden Bower	2015	AON	1	
		Mincarlo	2006	AOT	5	
		Nornour	2015	AON	5	
		Norwethal	2015	AON	102	
		Puffin Island	2016	AON	35	
		Ragged Isle	2015	AON	2	
		Rosevean	2015	AON	5	
		Round Island	2015	AON	2	
		Samson	2015	AON	978	
		Scilly Rock	1999	AON	2	
		Shipman Head	2016	AON	8	
		St Helen's	2015	AON	448	
		Tean	2015	AON	136	
		Tresco	2015	AON	1	
		White Island (St Martin's)	2015	AON	106	
		White Islands (Samson)	2016	AON	14	
	Ramsey Island SSSI	Ramsey Island	2018	AON	100	**200**
	Saltee Islands SPA[1]	Great Saltee Island	2015-2018	AOT	251	**502**

Species	SPA / SSSI	SMP Sub-site	Year of count	Original count unit	Count (original count unit)	Total site count (corrected * breeding adults)
	Skomer, Skokholm and the Seas off Pembrokeshire SPA	Middleholm	2022	AON	5	**16,704**
		Skokholm	2021	AON	935	
		Skomer	2021	AON	7,412	
Guillemot	Castlemartin Range SSSI	Crickmail Point to The Castle	2021	IND	355	**22,591***
		Green Bridge of Wales to Flimston Bay	2021	IND	14,275	
		Mewsford Arches	2021	IND	742	
		Mewsford Arches to Crickmail Point	2021	IND	113	
		St Govan's Chapel to New Quay	2021	IND	7	
		The Castle	2021	IND	27	
		The Castle to Saddle Head	2022	IND	14	
		The Wash to Green Bridge of Wales	2021	IND	1,326	
	Lundy Island SSSI	Lundy	2021	IND	9,880	**13,239***
	Skomer, Skokholm and the Seas off Pembrokeshire SPA	Middleholm	2022	IND	788	**44,099***
		Skokholm	2021	IND	5,065	
		Skomer	2021	IND	27,057	
	Gower coast: Rhossili to Porteynon SSSI	Worms Head	2018	IND	169	**227***
	Ramsey Island SSSI	Whole	2021	IND	5,395	**7,229***
Razorbill	Castlemartin Range SSSI	Berry Slade to Wind Bay	2021	IND	16	**2,263***
		Cabin Door to The Wash	2021	IND	42	
		Crickmail Point to The Castle	2021	IND	55	
		Flimston Bay to Mewsford Arches	2021	IND	10	
		Green Bridge of Wales to Flimston Bay	2021	IND	989	
		Linney Head to Cabin Door	2021	IND	29	
		Mewsford Arches	2021	IND	19	
		Mewsford Arches to Crickmail Point	2021	IND	29	
		New Quay to Trevallen	2021	IND	71	

Species	SPA / SSSI	SMP Sub-site	Year of count	Original count unit	Count (original count unit)	Total site count (corrected * breeding adults)
		Saddle Head to St Govan's Chapel	2021	IND	6	
		The Castle	2021	IND	61	
		The Castle to Saddle Head	2021	IND	8	
		The Wash to Green Bridge of Wales	2021	IND	152	
		Wind Bay to Linney Head	2022	IND	7	
	Lundy Island SSSI	Lundy	2021	IND	3,533	**4,734***
	Saltee Islands SPA[1]	Great Saltee Island	2015-2018	IND	5,669	**8,736***
		Little Saltee Island	2015-2018	IND	850	
	Skomer, Skokholm and the Seas off Pembrokeshire SPA	Middleholm	2022	IND	1,088	**16,900***
		Skokholm	2021	IND	3,356	
		Skomer	2021	IND	8,168	
	Gower coast: Rhossili to Porteynon SSSI	Worms Head	2018	IND	83	**111***
	Ramsey Island SSSI	Whole	2021	IND	2,160	**2,894***
Puffin	Castlemartin Range SSSI	Stackpole Head	2021	IND	14	**14**
	Aberdaron Coast and Bardsey Island SPA	Whole	2019	AOB	141	**282**
	Ireland's Eye SPA	Ireland's Eye	2015	IND	127	**127**
	Isles of Scilly SPA	Annet	2015	IND	43	**170**
		Gorregan	2015	IND	2	
		Melledgan	2015	IND	13	
		Mincarlo	2015	IND	51	
		Rosevear	2015	IND	14	
		Round Island	2015	IND	1	
		Scilly Rock	2015	IND	35	
		St Helen's	2015	IND	11	
	Lambay Island SPA	Lambay	2015	IND	144	**144**
	Lundy Island SSSI	Lundy	2021	IND	848	**848**

Species	SPA / SSSI	SMP Sub-site	Year of count	Original count unit	Count (original count unit)	Total site count (corrected * breeding adults)
	Ramsey Island SSSI	Ramsey Island	2021	IND	55	**55**
	Saltee Islands SPA[2]	Great Saltee Island	2015-2017	IND	120	**390**
		Little Saltee Island	2015-2017	IND	270	
	Skomer, Skokholm and the Seas off Pembrokeshire SPA	Middleholm	2022	IND/SEA/ AIR	677	**33,619**
		Skokholm	2021	SEA	11,245	
		Skomer	2021	IND	21,697	
	Ynysoedd y Gwylanod, Gwylan Islands SSSI	Ynysoedd Gwylan	2019	AOB	619	**1,238**
	Skerries SSSI	Whole	2019	AOB	602	**1,204**
Manx shearwater	Blasket Islands SPA	Great Blasket	2001	AOS	3,584	**39,068**
		Inishnabro	2000	AOS	5,611	
		Inishtooskert	2000	AOS	9,696	
		Inishvickillane	2001	AOS	643	
	Copeland Islands SPA	Big Copeland Island	2007	AOS	1,406	**9,700**
		Lighthouse Island	2007	AOS	3,444	
	Cruagh Island SPA	Whole	2001	AON	3,286	**6,572**
	Deenish Island and Scariff Island SPA	Scariff Island	2000	AON	1,960	**4,622**
		Deenish	2000	AON	351	
	Aberdaron Coast and Bardsey Island SPA[3]	Bardsey Island	2014-2016	AOS	20,675	**41,350**
	Isles of Scilly SPA	Annet	2015	AOB	229	**1,230**
		Gugh	2022	AOB	80	
		Round Island	2015	AOB	78	
		Shipman Head	2015	AON	39	
		St Helen's	2022	AOS	124	
		St Agnes	2022	AOS	65	
	Lambay Island SPA	Whole	2002	IND	50	**50**

Species	SPA / SSSI	SMP Sub-site	Year of count	Original count unit	Count (original count unit)	Total site count (corrected * breeding adults)
	Lundy Island SSSI	Lundy	2017	AOB	5,504	**11,008**
	Puffin Island SPA	Whole	2000	IND	6,329	**6,329**
	Ramsey Island SSSI	Ramsey Island	2016	AOB	4,796	**9,592**
	Rum SPA	Whole	2001	AOS	120,000	**240,000**
	Saltee Islands SPA[2]	Little Saltee Island	2015-2017	AOB	719	**1,438**
	Skelligs SPA	Great Skellig	2001	AOS	738	**1,476**
	Skomer, Skokholm and the Seas off Pembrokeshire SPA[4]	Middleholm	2018	AOS	16,548	**910,312**
		Skokholm	2018	AOS	88,945	
		Skomer	2018	AOS	349,663	
	St Kilda SPA	Dun	1999	AOS	4,803	**11,760**
		Hirta	1999	AOS	1,077	
	High Island, Inishshark and Davillaun SPA	Inishshark	2001	AOS	51	**1,738**
		High Island	2015	AOS	818	
Gannet	Ailsa Craig SPA	Ailsa Craig	2014	AOS	33,226	**66,452**
	Grassholm SPA	Grassholm	2015	AOS	36,011	**72,022**
	Saltee Islands SPA[5]	Great Saltee Island	2014-16	AOS	4,723	**9,446**
	Skelligs SPA[5]	Little Skellig	2013-2014	AOS	35,294	**70,588**
	The Bull and The Cow Rocks SPA	Bull Rock	2014	AOS	6,388	**12,776**

**A correction factor (based on Harris, 1989) has been applied to the total site count for guillemot and razorbill. The original counts have not been corrected and are presented as available from SMP.*

[1]Cummins et al. (2019), [2]Arneill (2018), [3]JNCC (2021), [4]Perrins et al. (2020), [5]Newton et al. (2015).

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