



**EIAR Volume 4: Offshore Infrastructure
Technical Appendices
Appendix 4.3.5-5
IR0539 Boat Based Bird and Marine
Mammal Survey Report October
2020 – April 2021**

Kish Offshore Wind Ltd

RWE  **SLR** **GoBe**

APEM Group

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DUBLIN ARRAY OFFSHORE WIND FARM

IR0539 Boat Based Bird and Marine Mammal Survey Report October 2020 – April 2021

Prepared for: Kish Offshore Wind Ltd
& Bray Offshore Ltd

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Executive Summary

SLR Consulting Ltd (SLR) was appointed by RWE Renewables to carry out boat-based marine bird and mammal surveys to inform the Environmental Impact Assessment (EIA) and planning submission for the Dublin Array Offshore Windfarm. These surveys were to establish baseline information on seabird and marine mammal distributions within the proposed project area, while considering seasonal variations.

A substantial body of data is available for both seabirds and marine mammals in the western Irish Sea, including surveys previously undertaken for the Dublin Array project. Due to the natural variability in seabird distribution and abundance, additional baseline surveys were required to supplement the historical data and provide a robust account on the current baseline data.

The aim of the boat-based surveys was to collect data from Kish and Bray Banks with a 4 km buffer zone. Surveys have been carried out since June 2019, and are ongoing until April 2021, collecting data on species density, abundance, distribution, and patterns of behaviour within the study area. This report presents the findings of the surveys carried out over the period October 2020 to April 2021. The surveys between June 2019 and September 2020 have been addressed in a separate report.

1.0 Introduction

SLR Consulting Ltd (SLR) were commissioned in April 2019 to carry out boat-based marine bird and mammal surveys for the Dublin Array Offshore Wind Farm project. This report presents the findings of the surveys carried out between October 2020 and April 2021 with surveys between April 2019 and September 2020 addressed in a separate report.

1.1 Background

RWE Renewables Limited (formerly known as Innogy Renewables Ltd) proposes to develop and operate an offshore wind farm, known as the Dublin Array, offshore of County Wicklow, Dun Laoghaire-Rathdown County & the city of Dublin. The Dublin Array project in its entirety is comprised of the offshore wind turbine array, ancillary offshore structures, marine export cables and onshore infrastructure. The Dublin Array has a proposed electrical generating capacity of 600-900MW and is to be located within an area of 54 km².

1.2 Location and Setting

A 4km buffer around the Kish & Bray bank development areas has been used, based on guidance from the Department of Communications, Climate Action and Environment (DCCAE, 2018) and the Collaborative Offshore Wind Research Into The Environment (COWRIE), (Maclean et al 2009)¹.

The proposed offshore development area for Dublin Array overlaps with the Rockabill to Dalkey Island Special Area for Conservation (SAC). Other SACs² and designated areas such as Special Protected Areas³ (SPA), reasons for designations and proximity to the Dublin Array study area can be seen in Table 1 & Figure 1.

Table 1-1: Designated Areas & Reasons for Designation

Name	Designation	Reason for Designation
Rockabill to Dalkey Island	SAC	Reefs & Harbour Porpoise.
Codling Fault Zone	SAC	Submarine structures made from natural gases.
Bray Head	SAC	Vegetated sea cliffs of Atlantic and Baltic coasts & European dry heaths.
Murrough Wetlands	SAC	Annual vegetation of drift lines, perennial vegetation of stony banks, Atlantic salt meadows, Mediterranean salt meadows, calcareous and alkaline fens.
Wicklow Reef	SAC	Reefs.
Dalkey Islands	SPA	Roseate tern, Common tern & Arctic tern.
Rogerstown & Malahide Estuaries	SAC	Estuaries, mudflats, sandflats, Atlantic salt meadows, Mediterranean salt meadows,

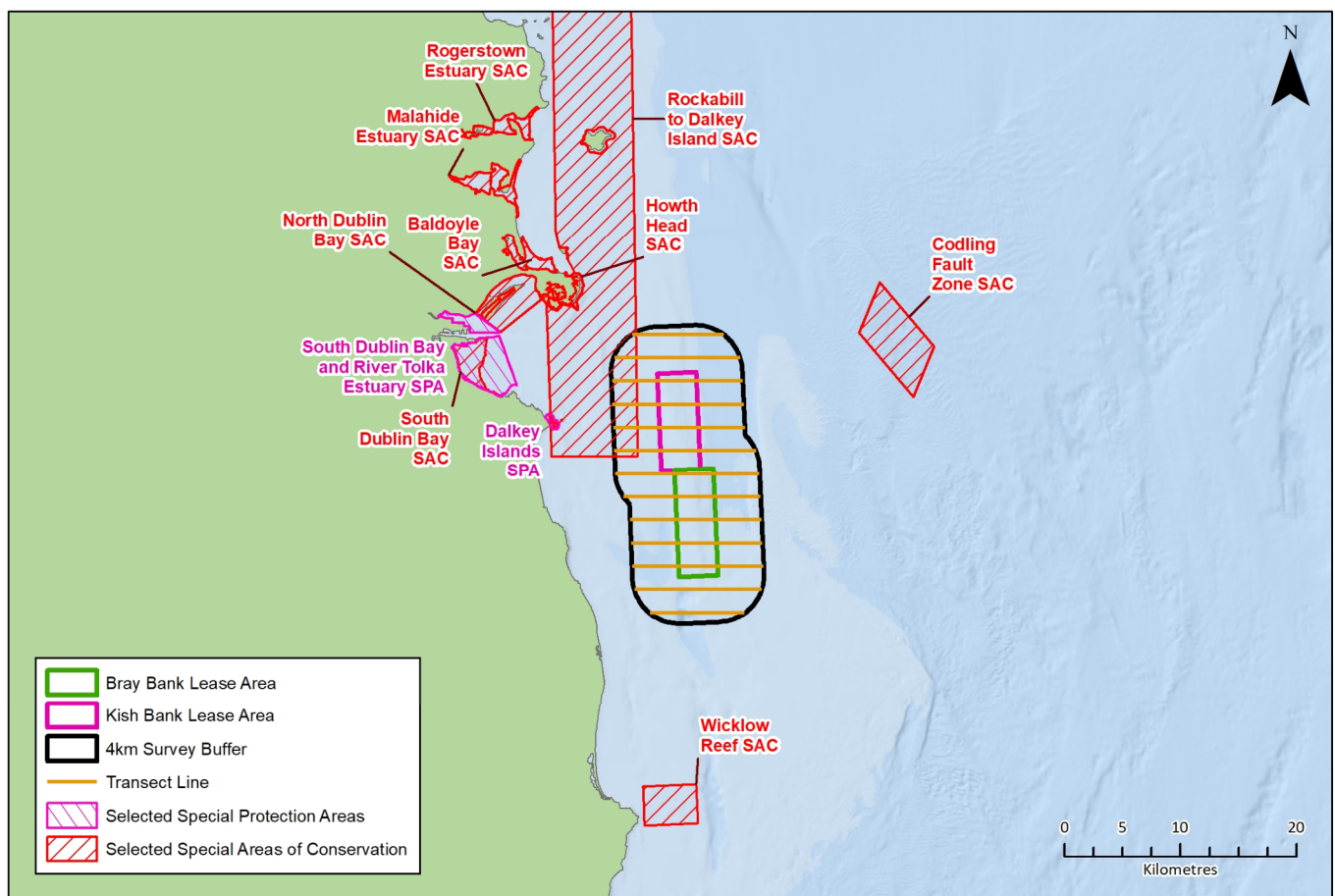
¹ <https://tethys.pnnl.gov/sites/default/files/publications/Maclean-et-al-2009.pdf>

² <https://www.npws.ie/protected-sites/sac>

³ <https://www.npws.ie/protected-sites/spa>

Name	Designation	Reason for Designation
		white dunes, fixed coastal dunes with herbaceous vegetation.
Baldoyle Bay, North Dublin Bay & South Dublin Bay	SAC	mudflats, sandflats, Atlantic salt meadows, Mediterranean salt meadows, white dunes, fixed coastal dunes with herbaceous vegetation.
South Dublin Bay and River Tolka Estuary	SPA	Light-bellied Brent goose, Oystercatcher, Ringed plover, Grey plover, Knot, Sanderling, Dunlin, Bar-tailed godwit, Redshank, Black-headed gull, Roseate Tern, Common tern, Arctic tern, wetland and waterbirds.

Figure 1: Designated Areas & Proximity to Dublin Array



Base Map: Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

1.3 Purpose of the Report

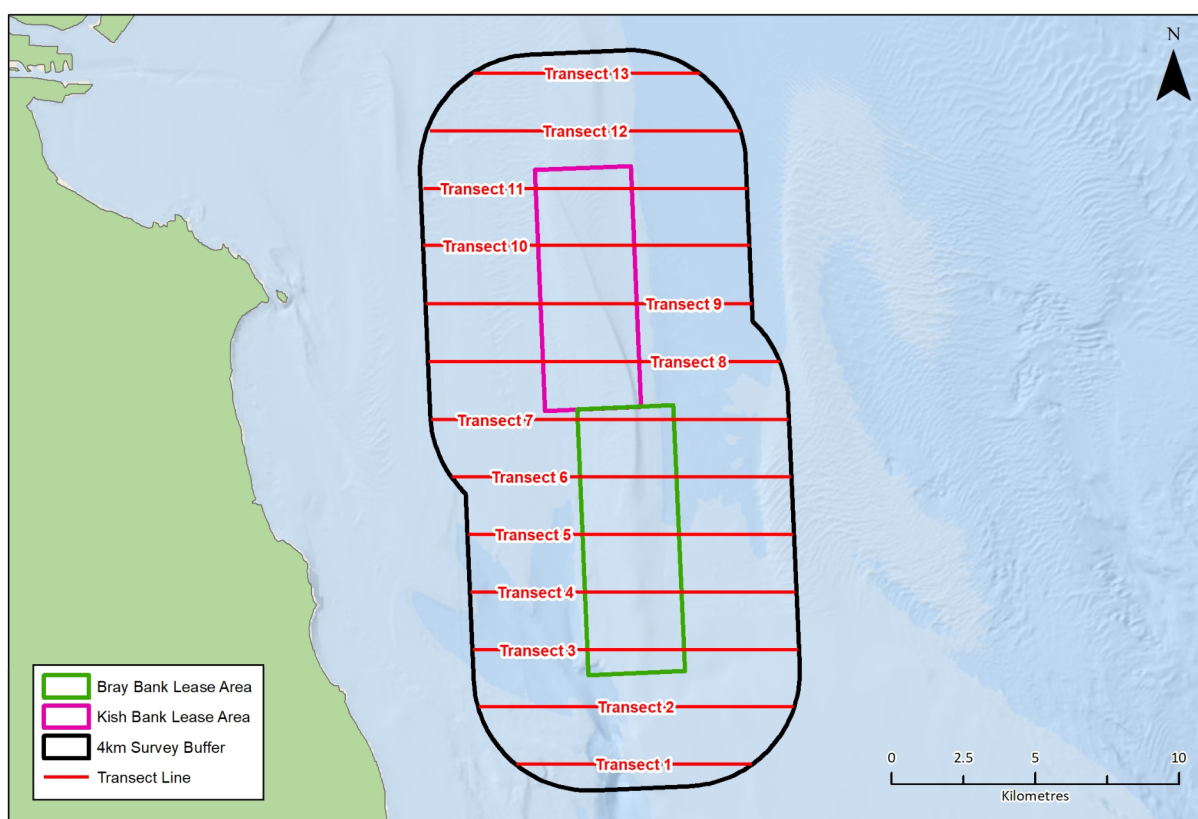
This survey report presents the findings of the boat-based seabird and marine mammal surveys carried out by SLR between October 2020 and April 2021 for the Dublin Array offshore project area. This report supplements the report prepared for the survey period June 2019 to September 2020. The assessment of impacts resulting from the proposed development and the development of mitigation measures, if required, are beyond the scope of this survey report.

2.0 Methodology

The DCCAE Guidance recommends that between two and three years of ornithological and marine mammal baseline survey should be undertaken (DCCAE, 2018) but that the requirement for this is dependent on the sensitivity of the survey area and availability of existing data.

Two dedicated teams of Seabird Observers (SBOs) and Marine Mammal Observers (MMOs) collected sightings data for the Dublin Array project between June 2019 and April 2021. The SBO and MMO were aboard the same survey vessel each month, when weather conditions were suitable, collecting data for future analysis. The vessel travelled at an average speed of 10 knots along each of the 13 predetermined transect lines spaced 2 km apart on an east-west course as shown in Figure 2. The transects coordinates are provided in Appendix 1.

Figure 2: Location of Study Area & Transects



Base Map: Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

AMS Panther was the only survey vessel used during the survey period October 2020 – April 2021 as set out in Table 2-1. AMS Panther, has an observer eye-height of greater than 5 m and birds were counted ahead of the ship and out to one side of the survey vessel in a 90° arc. A transect width of 300 m was used with two surveyors as recommended for ESAS and MMO surveys (Webb & Durinck 1992, Camphuysen et al., 2004). A summary of survey coverage can be found in table 2-1.

Table 2-1: Summary of Survey Effort & Vessels used

Survey Date	Vessel	Sea State Range	Maximum Sea State	% Coverage ⁴
22/10/2020	AMS Panther	3-5	5	65.3%
10/11/2020	AMS Panther	2-5	5	100%
06/12/2020	AMS Panther	3-4	4	100%
25/01/2021	AMS Panther	2-4	4	100%
February 2021 ⁵	No Survey	-	-	0%
04/03/2021	AMS Panther	3-4	4	100%
20/03/2021	AMS Panther	0-2	2	100%
14/04/2021	AMS Panther	0-1	1	100%
26/04/2021	AMS Panther	0-3	3	100%

2.1 Marine Bird Monitoring

Due to Covid-19 restrictions, there was space for only two ESAS accredited surveyors on all surveys between October 2020 and April 2021. At any one time, one surveyor was acting as the primary observer, with a second acting as scribe and secondary observer. Binoculars were used to confirm identifications as well as to scan ahead for easily disturbed species. As recommended in the DCCAE 2018 Guidance Part 2, the methods used to conduct the baseline seabird surveys followed standard COWRIE approved survey methodology (Camphuysen et al., 2004).

Birds on the water were assigned to distance bands (A = 300 m), according to their perpendicular distance from the ship's track. A snapshot method was used for flying birds, which considers the ship's speed and prevents overestimation of flying seabird densities. In addition, the estimated height of flying birds was also recorded in five height bands above sea level: 0-5 m, 5-10 m, 10-20 m, 20-30 m, >30 m.

The count interval for surveys was 1 minute intervals, and synchronised GPS recorders were used to record the vessel position every minute. Any uncommon bird species or large flocks of feeding birds seen on the 'non-survey' side of the vessel were also recorded. All terrestrial bird species seen were also recorded.

Environmental conditions such as wind direction and force, sea state, swell height and visibility were recorded every 15 minutes throughout survey days. Surveys were carried out in good weather where possible, to maximise detection rates of birds on the water. Surveys were halted if the sea state exceeded sea state 4, as recommended in Camphuysen et al., (2004).

Baseline surveys were conducted by the following team of ESAS accredited surveyors: Ciarán Cronin (Survey Leader), André Robinson, Laura Kavanagh, Niall Keogh, Nick Veale and Paul Connaughton. Seabird data was recorded on field sheets (found in Appendix 2) in preparation for future data entry and analysis in the ornithology technical baseline report.

⁴ Where coverage is less than 100% it is due to survey / part of survey being carried out in Sea State 5. Surveys in Sea State 5 were not included in the analysis.

⁵ Due to unsuitable weather conditions, it was not possible to survey in February of 2021 but to compensate for this surveys were carried out on two dates in March 2021.

2.2 Marine Mammal Monitoring

The marine mammal surveys were conducted simultaneously to the seabird surveys using boat-based line transect survey methodology as outlined by JNCC. Line-transect surveys are the most frequently used method for monitoring marine mammals in a predefined series of transects within a survey area. This survey technique provides information on abundance and distribution of species and requires favourable (sea state of 3 or less) weather conditions to minimise influence from environmental variables⁶.

Marine mammal sightings were collected from a single platform and to meet the requirements of the bird-survey protocol, the vessel did not deviate from the transect to collect additional data on species composition or group size. The survey team used GPS units to record the vessel position every 15 seconds and were also supported by the ship navigation systems.

Two MMOs were on watch simultaneously with one MMO on each side of the vessel for each transect, (survey forms can be found in Appendix 2). Sightings were recorded from perpendicular to the vessel (90° from the bow) to 10° from the bow to ensure survey effort did not overlap.

Observation effort was focused within 1km of the vessel, searching primarily with the naked eye and supplemented with binoculars. Binocular reticles were used to estimate distance, and a compass was used to determine angles. The presence of fishing vessels and static fishing gear was recorded on all surveys.

3.0 Results

Total survey counts of sightings, as opposed to a transect-by-transect analysis of sightings, has been displayed to allow easy visualisation of data for each survey. The seabird data presented in this report has been 'grouped' where appropriate, to allow visual representation of seabirds throughout the survey period (see Appendix 3 for bird species, total counts and assigned groups). Marine mammal total counts can be found in Appendix 04.

⁶ https://tethys.pnnl.gov/sites/default/files/publications/SMRU_2010_Monitoring.pdf

3.1 Grouped Seabird Abundance

Figure 3: Grouped Seabird Total Count October 2020 – April 2021

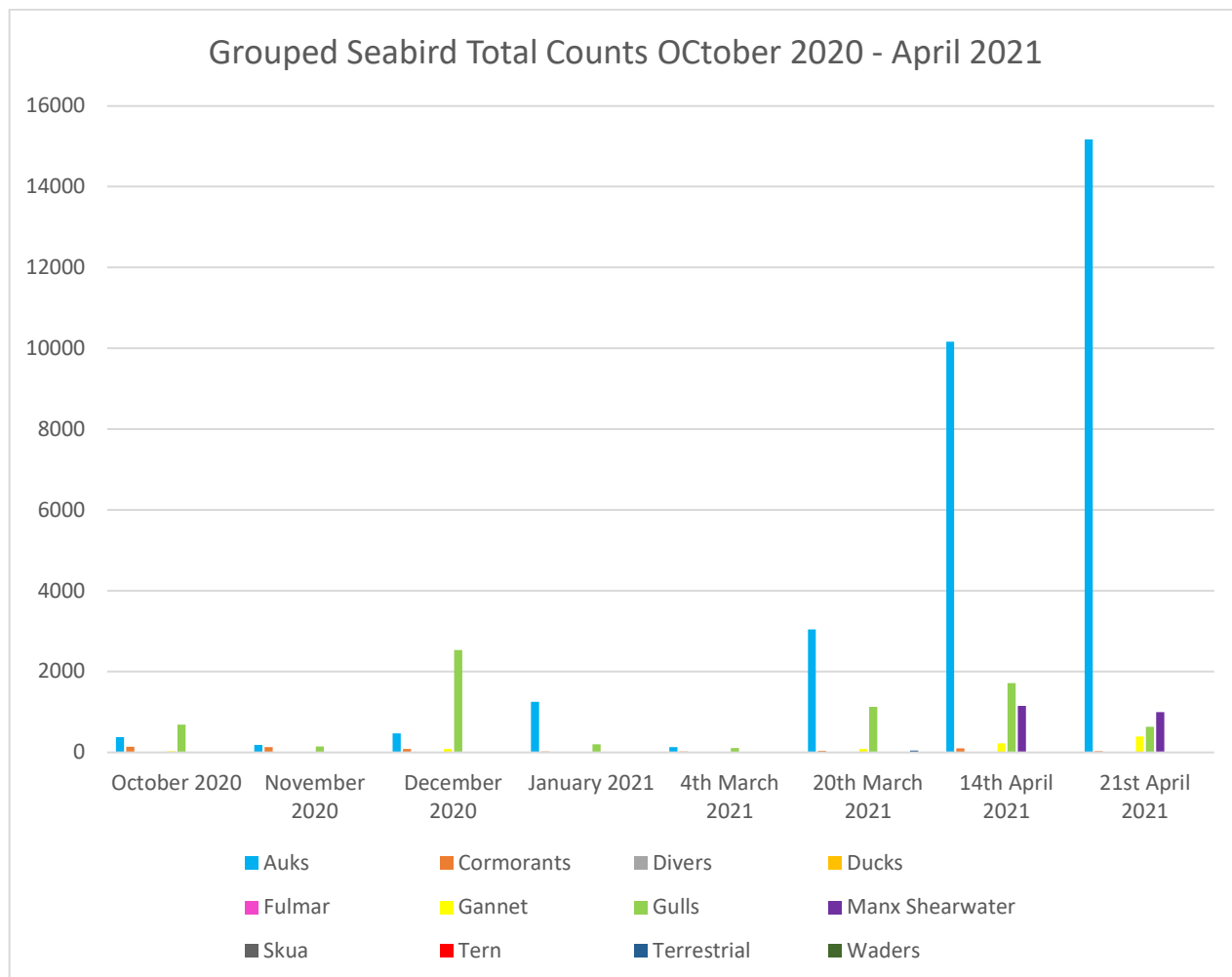
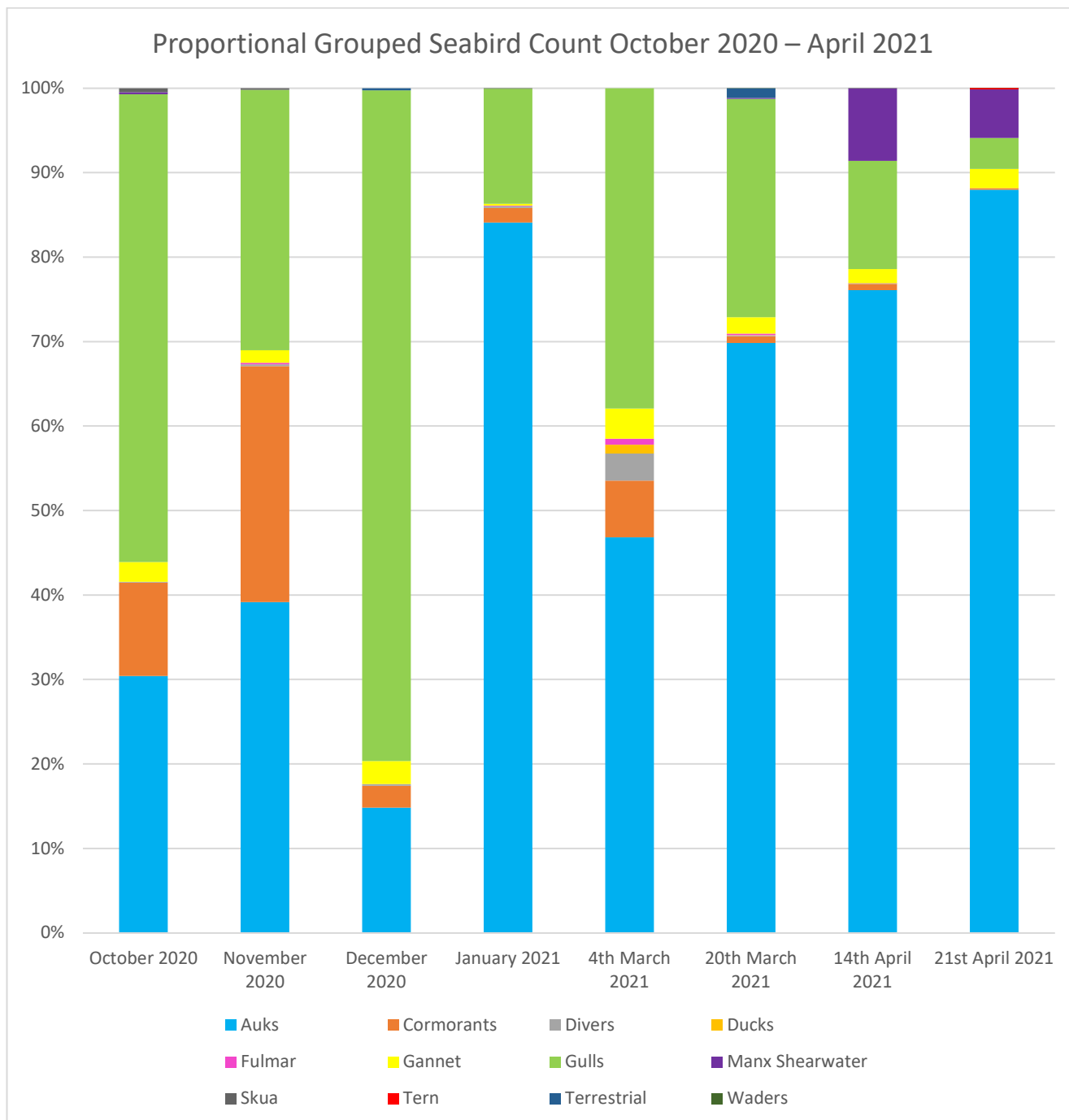


Figure 4: Proportional Grouped Seabird Count October 2020 – April 2021

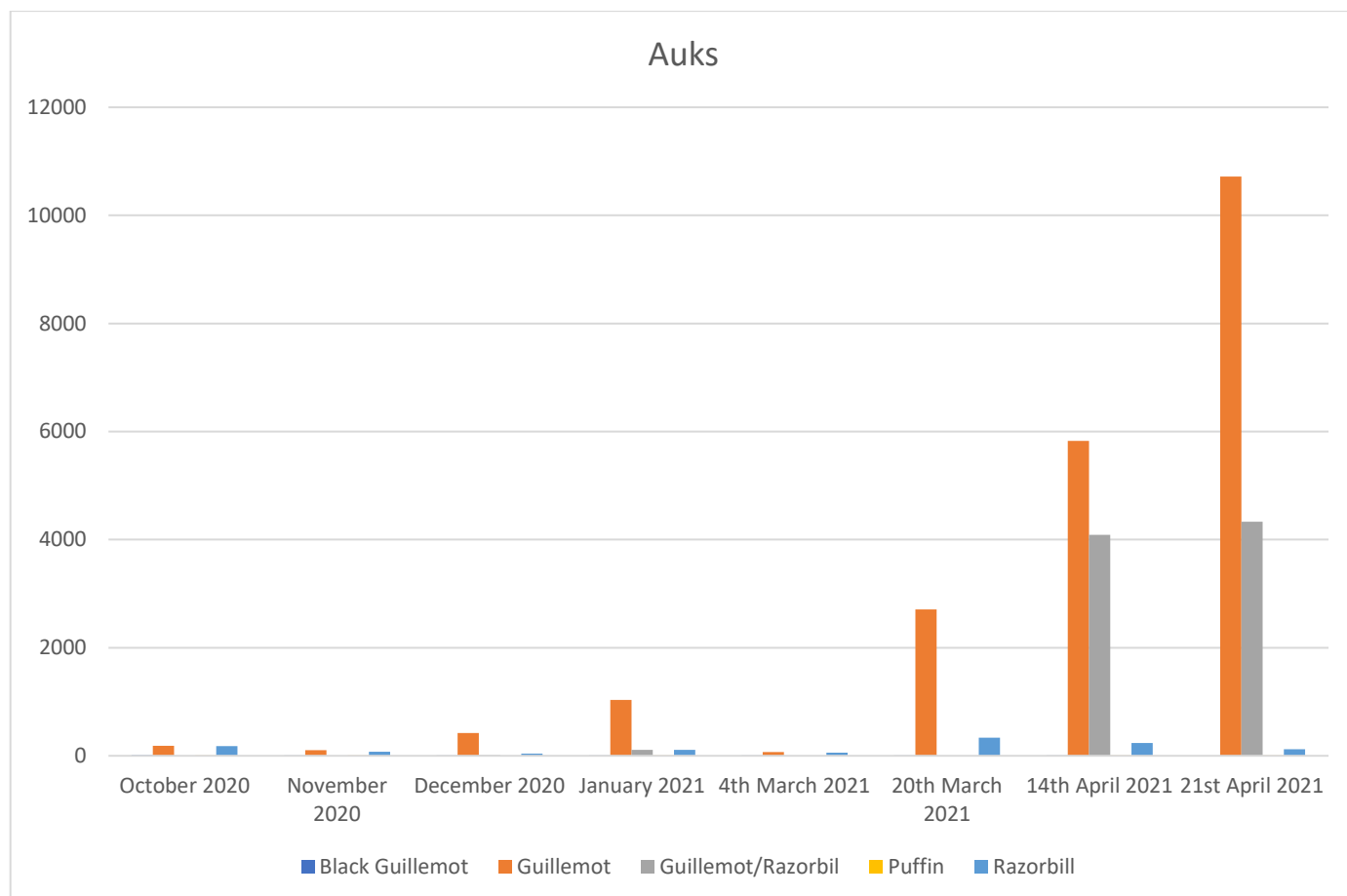


3.2 Marine Bird Summaries

3.2.1 Auks: Common guillemot, Black guillemot, Razorbill & Puffin

Auks are excellent swimmers and spend most of their time at sea, visiting cliffs to breed every spring⁷. Guillemots were seen on every survey but in particularly high numbers (10,000+) during the 21 April 2021 survey. Other Auk species were seen in consistently lower numbers throughout the survey period.

Figure 5: Auks Total Count & Species Composition

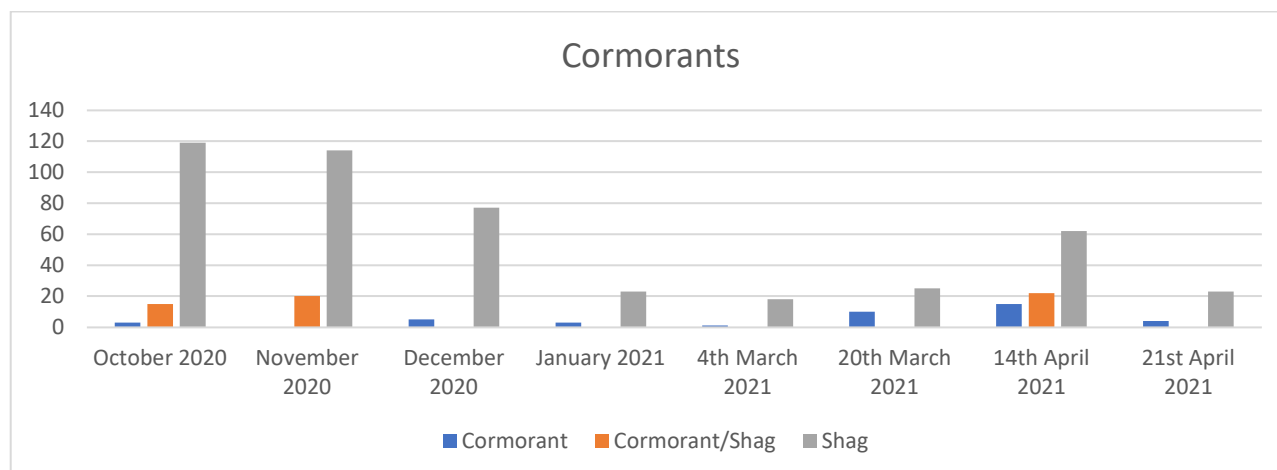


⁷ <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/auk-family/>

3.2.2 Cormorant & Shag

Cormorants are generally an inshore species, feeding in coastal waters.⁸ Shags are resident to Irish coastal environments and usually stay within 100-200km of their breeding colonies⁹. Shags were more abundant than cormorants on every survey and were seen in higher numbers (50+) in the winter surveys.

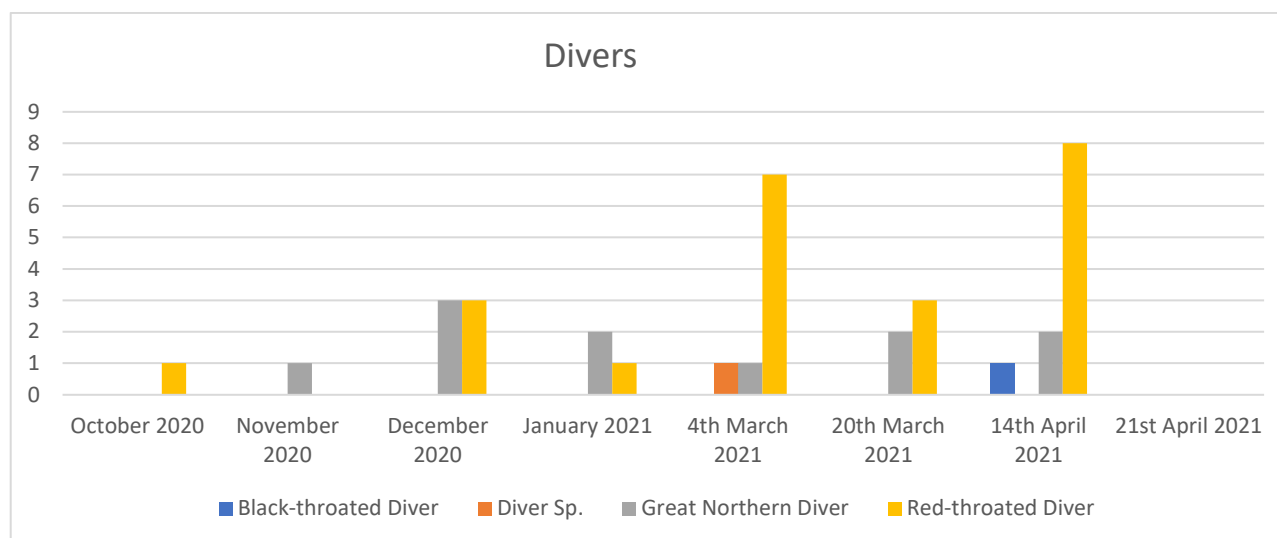
Figure 6: Cormorant & Shag Total Species Count



3.2.3 Divers: Great northern & Red-throated Diver

Great northern & Red and Black-throated divers are winter visitors to the Irish coasts¹⁰ and combined peak numbers appeared during the 14 April 2021 survey.

Figure 7: Divers Total Count & Species Composition



⁸ <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/cormorants-and-shags/>

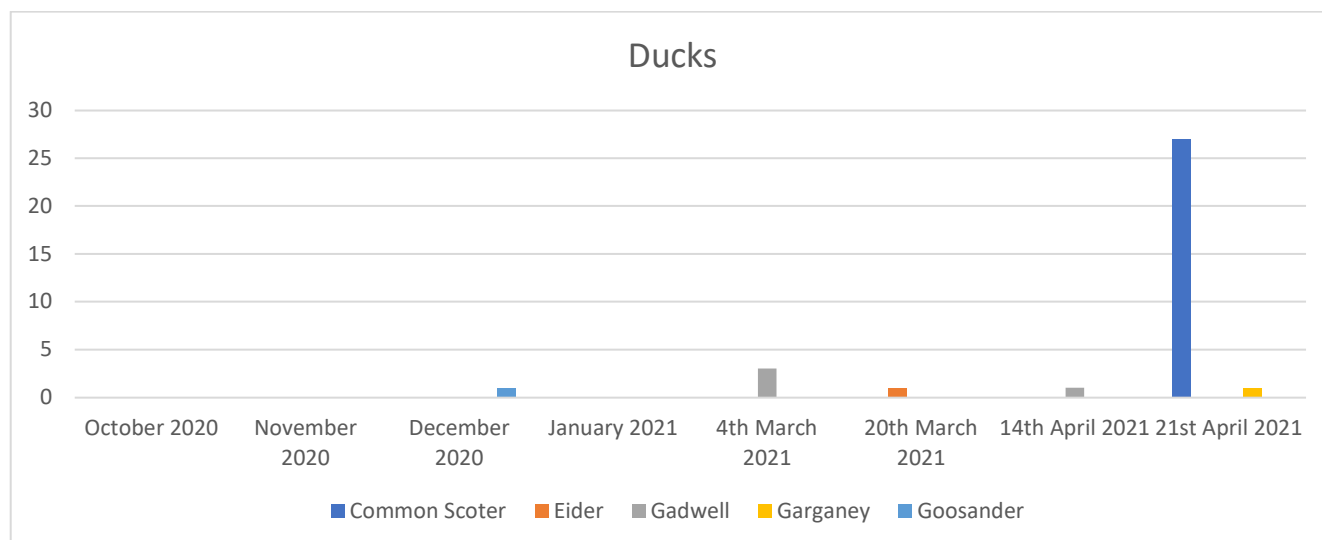
⁹ <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/shag/>

¹⁰ <https://www.wildlifetrusts.org/wildlife-explorer/birds/grebes-and-divers/red-throated-diver>

3.2.4 Ducks: Common scoter, Eider, Gadwell, Garganey & Goosander

Ducks were seen in consistently low numbers throughout the survey period with the exception of 27 Common scoter recorded during the 21 April 2021 survey.

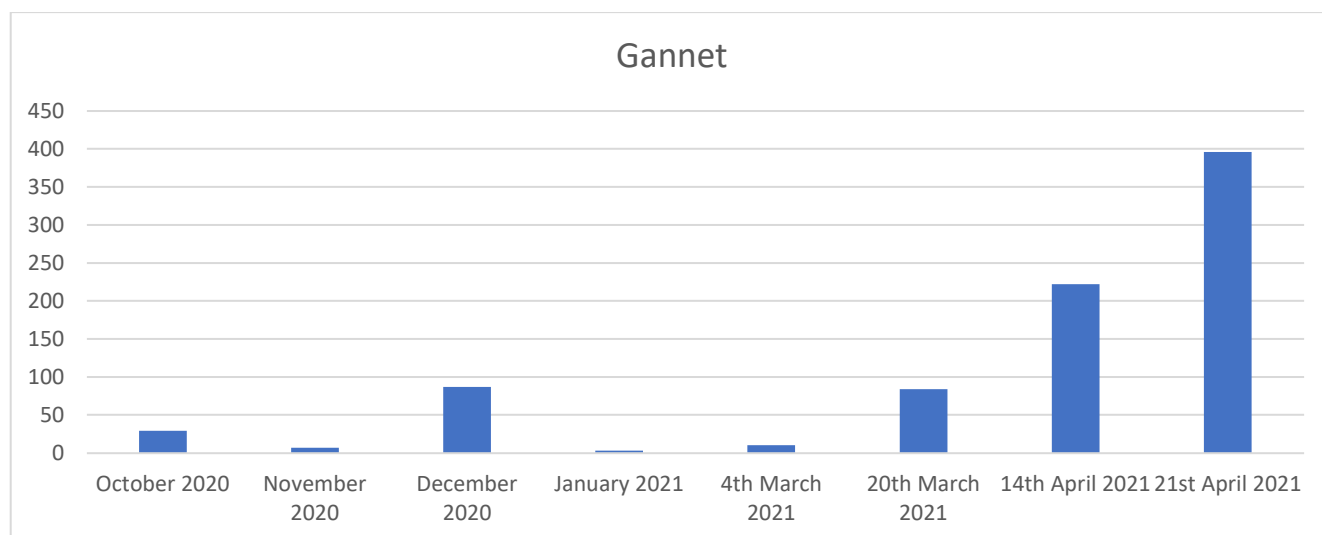
Figure 8: Ducks Total Count & Species Composition



3.2.5 Gannet

Gannets are common seabirds in Irish waters in summer, breeding at several large colonies around the coast. In winter, the majority of birds travel to more southern waters¹¹. Gannets were present on every survey with particularly high numbers recorded on the April 2021 surveys.

Figure 9: Gannet Total Count

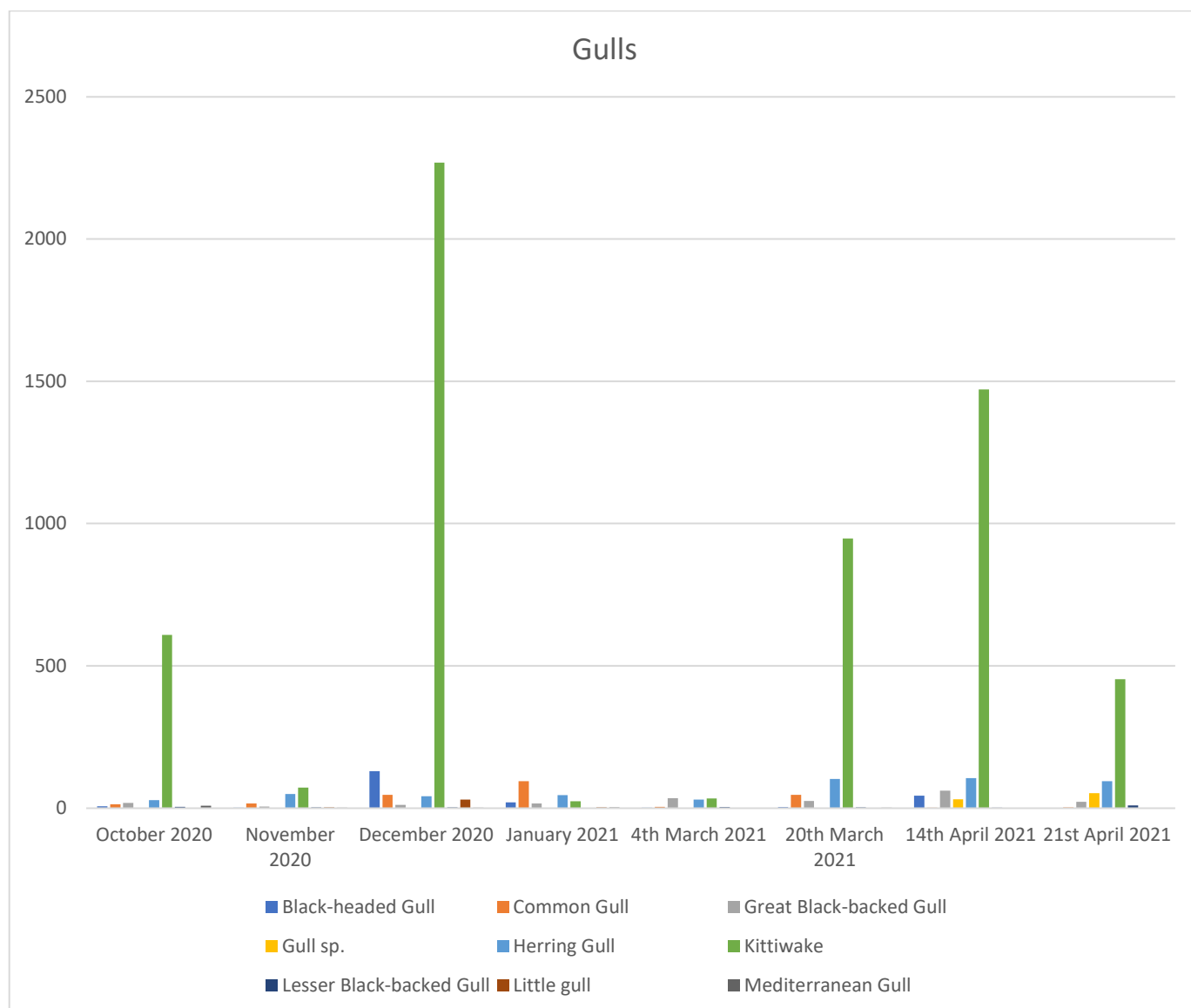


¹¹ <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/gannet/>

3.2.6 Gulls: Black-headed, Common, Great black-backed, Herring, Kittiwake, Lesser black-backed, Little & Mediterranean Gulls

Gulls are a diverse and opportunistic group of seabirds feeding in coastal and inland environments all year round. The species consistently making up the highest proportion of sightings were Kittiwakes with a peak of over 2000 recorded in the December 2020 survey.

Figure 10: Gull Total Count & Species Composition



3.2.7 Manx Shearwater

Manx shearwaters breed on offshore islands and leave their nests in July to migrate to South America where they spend winter¹², they were seen in high numbers (1000+) in both April surveys but otherwise were recorded in very low numbers or absent in the winter surveys.

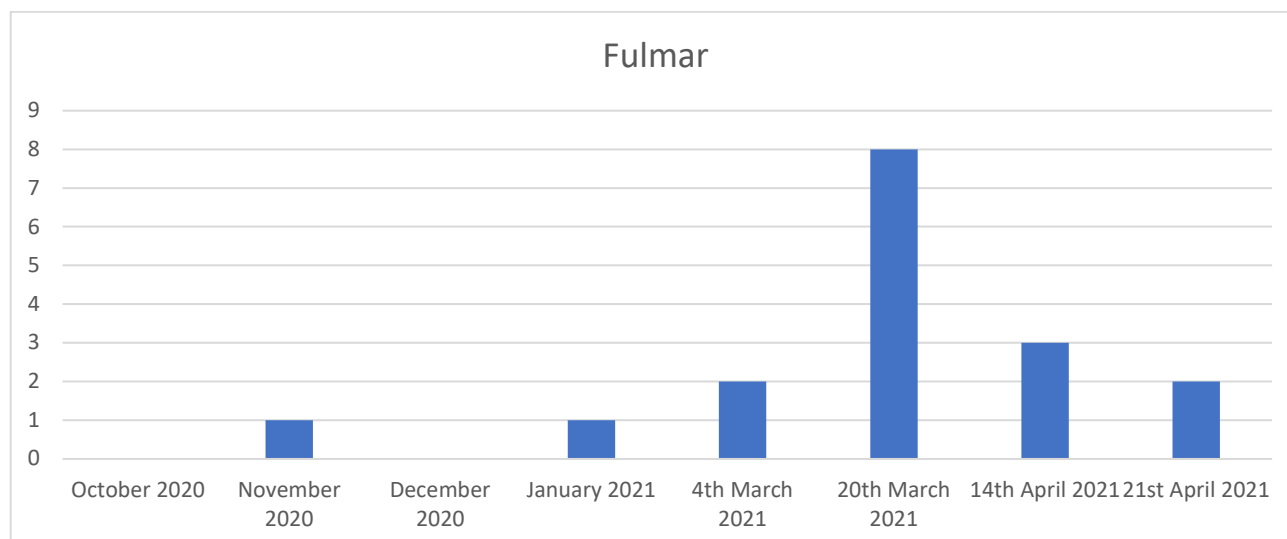
Figure 11: Manx Shearwater Total Count



3.2.8 Fulmar

Fulmars are resident to the Irish coasts all year round, breeding on cliff faces and can be found in flocks out at sea where they feed on fish & crustaceans. They were generally seen in small numbers with a peak of 8 on the 20 March 2021 survey.

Figure 12: Fulmar Total Count



¹²<https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/petrels-and-shearwaters/>

3.2.9 Arctic, Great & Pomarine Skua

Skuas are kleptoparasites, stealing catch from other seabirds. No skua species were seen between the survey in December 2020 and the 14 April 2021 survey. When they were recorded during surveys they were present in low numbers.

Figure 13: Skua Total Count & Species Composition



3.2.10 Common Tern

Terns are seasonal visitors to Irish coasts in summer months and spend winter in the southern hemisphere¹³. A single species of tern was recorded during the 21 April 2021 survey. Terns were otherwise not recorded during the October 2020 – April 2021 survey period.

Figure 14: Tern Total Count & Species Composition

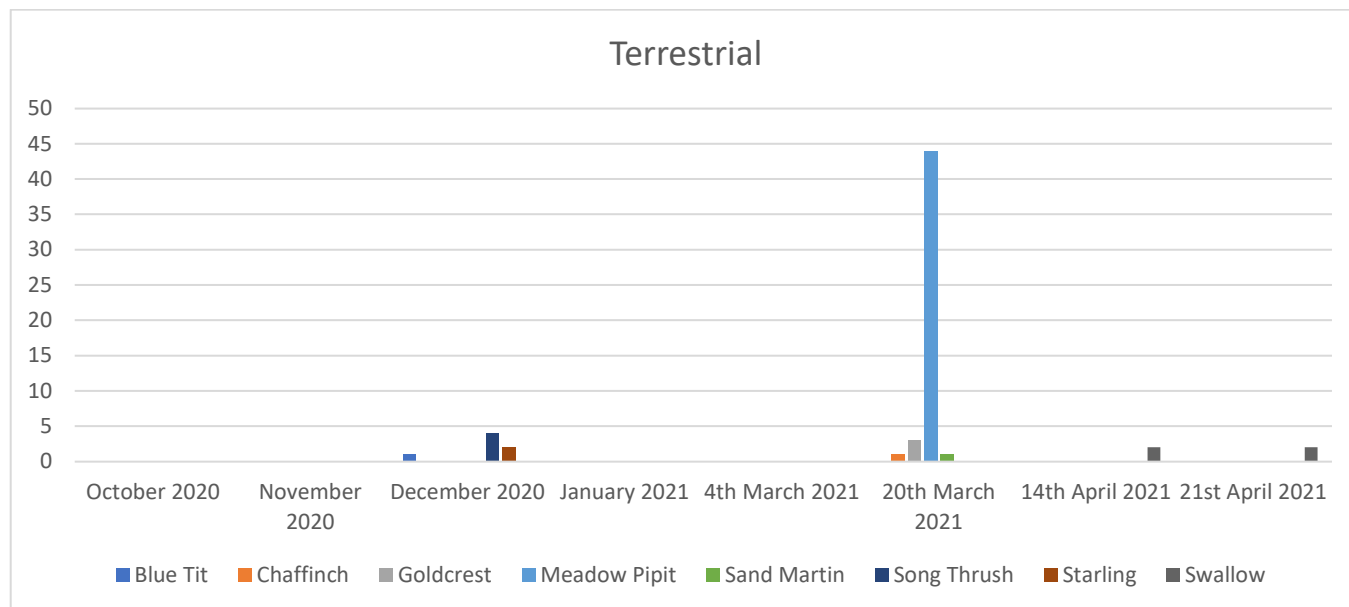


¹³ <https://www.rspb.org.uk/birds-and-wildlife/wildlife-guides/bird-a-z/gulls-and-terns/>

3.2.11 Terrestrial Species: Blue tit, Chaffinch, Goldcrest, Meadow Pipit, Sand Martin, Song Thrush, Starling, Swallow

Due to the proximity to the coast, terrestrial species were recorded as absent or in consistently low numbers with an exception to a large group of meadow pipits during the 20 March 2021 survey.

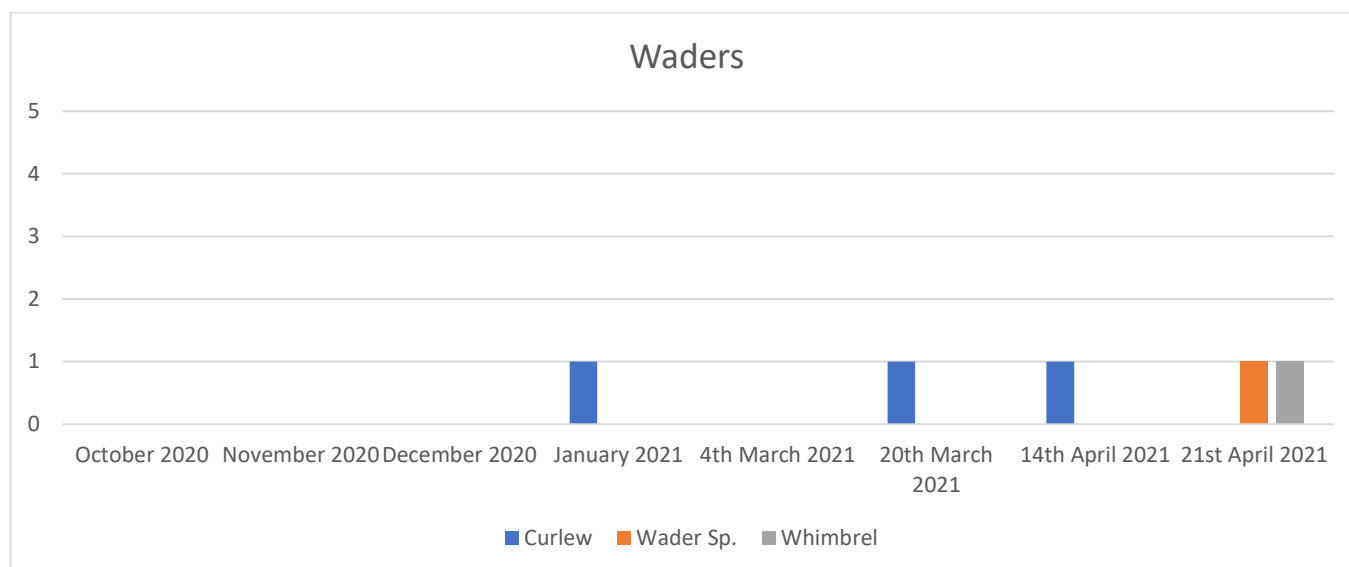
Figure 15: Terrestrial Total Count & Species Composition



3.2.12 Waders: Curlew & Whimbrel

Two different species of waders were recorded in low numbers on half of the surveys throughout the October 2020 – April 2021 survey period.

Figure 16: Waders Total Count & Species Composition



3.3 Marine Mammal Abundance & Species Composition

Figure 17: Marine Mammal Total Count October 2020 – April 2021

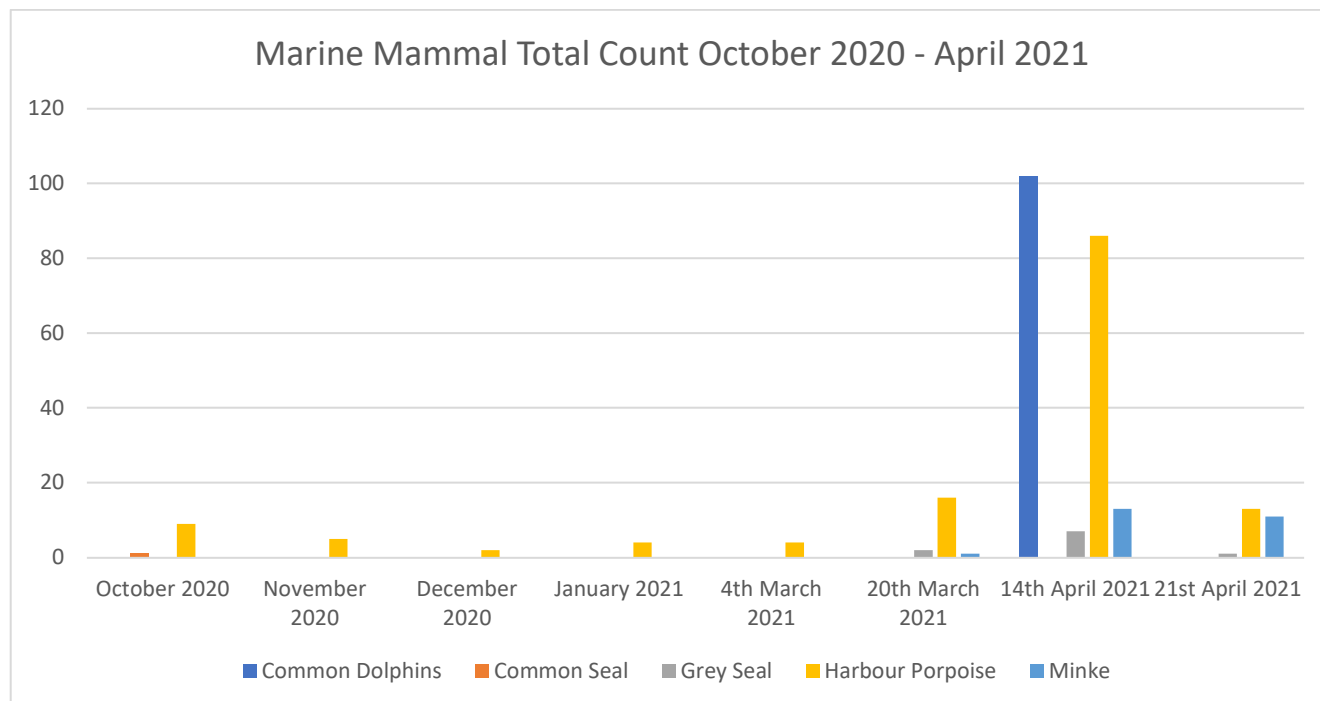
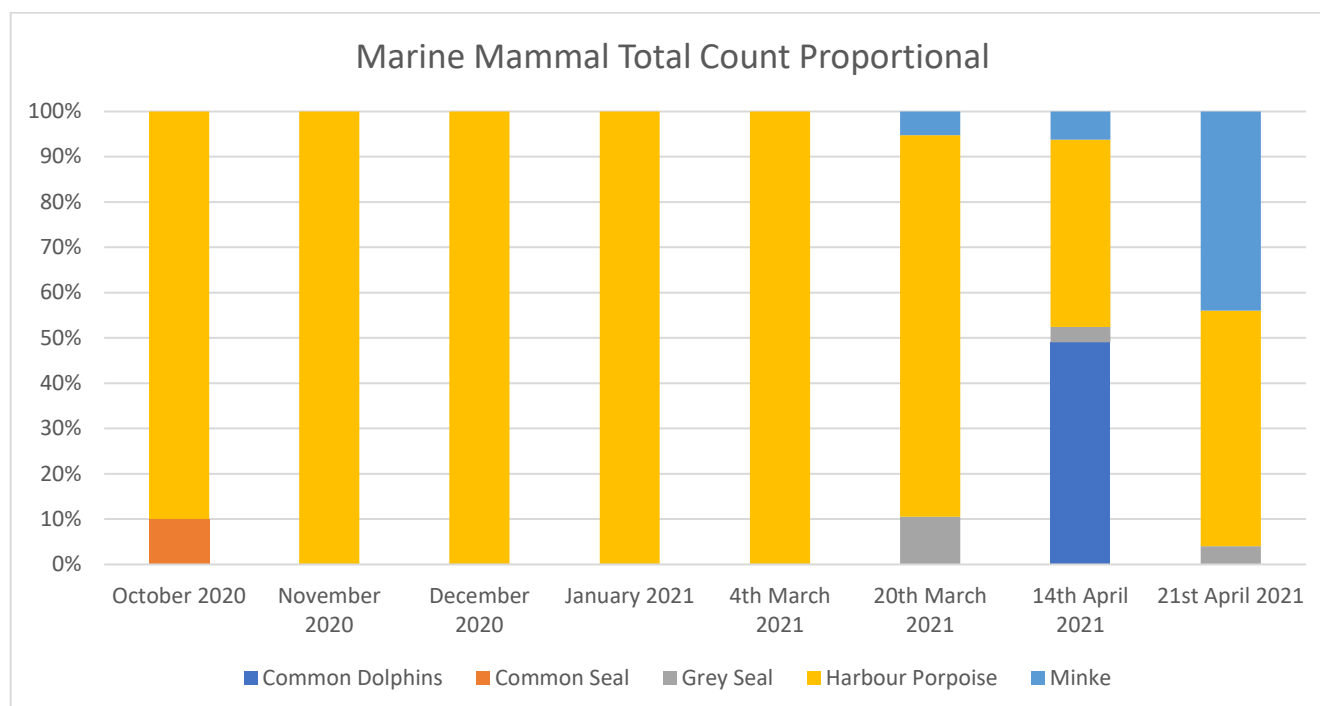


Figure 18: Marine Mammal Total Proportional Count October 2020 – April 2021



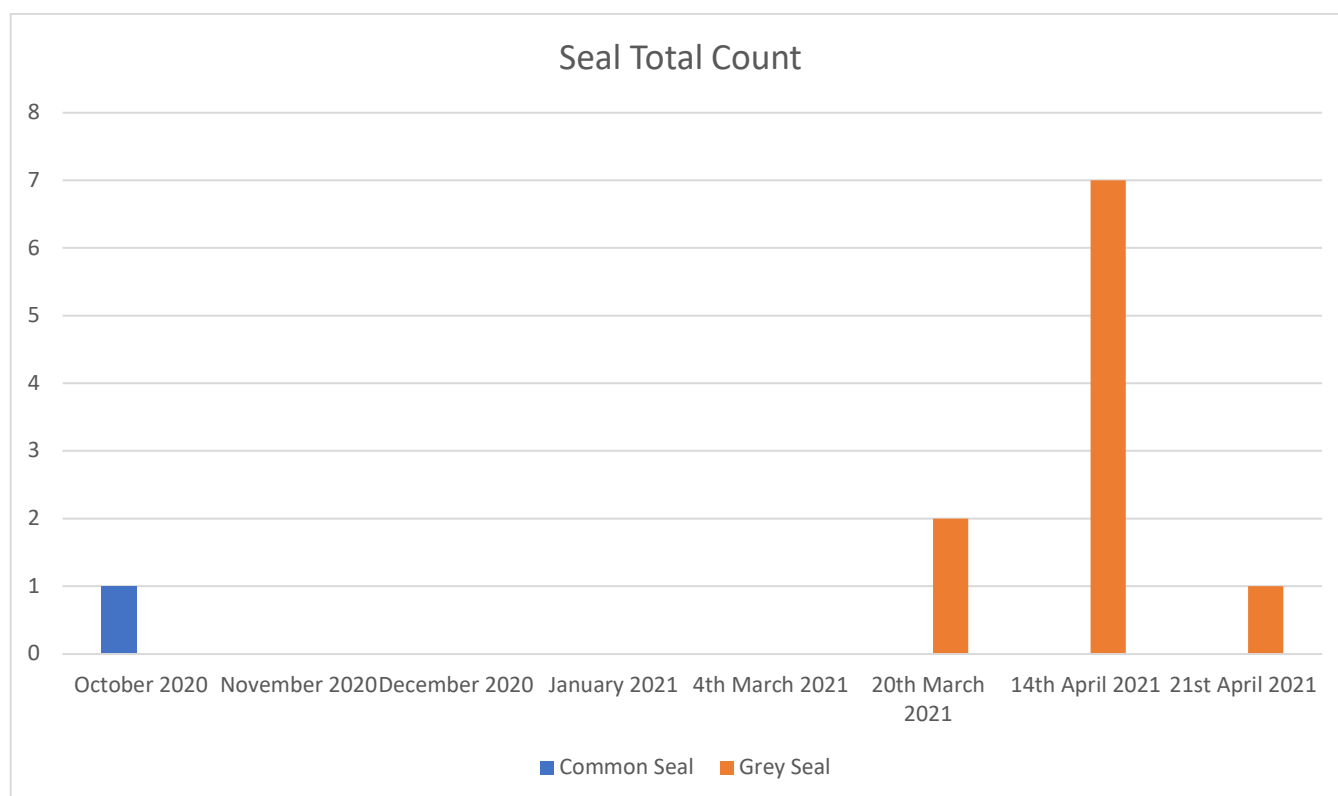
3.4 Marine Mammal Summaries

3.4.1 Seals

Both Grey & Harbour seals are resident to UK & Irish coasts and waters all year around. There were no seals recorded during surveys between November 2020 and 4 March 2021.

Common seal was recorded once, in October 2020, during the survey period October 2020 to April 2021. Grey seal was recorded in low numbers during surveys in March and April 2021 with a peak of count of 7 during the 14 April survey.

Figure 19: Seals Total Count & Species Composition

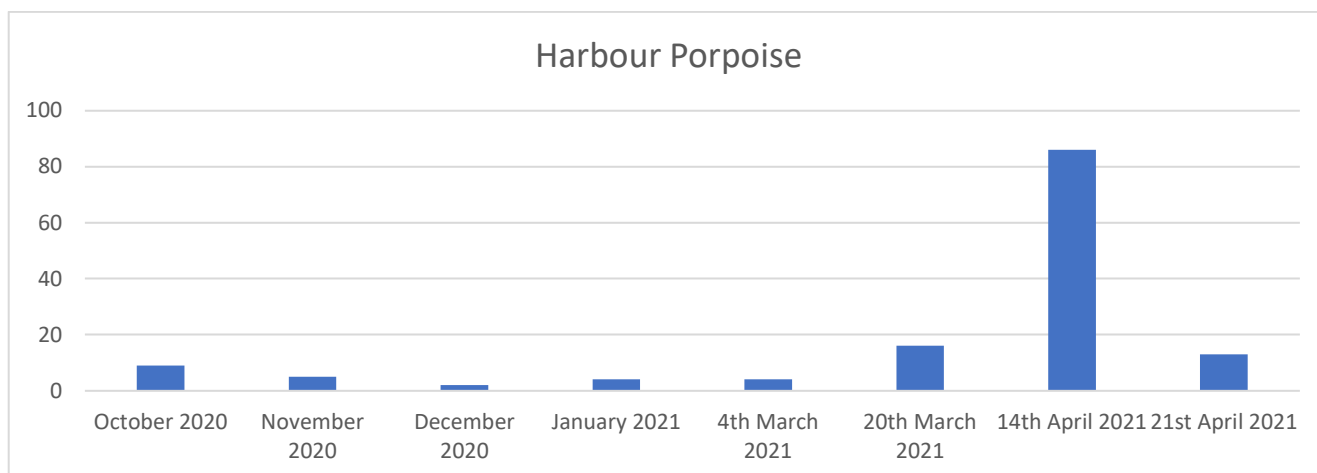


3.4.2 Harbour Porpoise

Harbour porpoise are widespread throughout cold and temperate seas of Europe favouring coastal areas of continental shelf and are usually seen in small groups of less than 5 individuals¹⁴. They were seen on every survey throughout the October 2020 and April 2021 survey period but seen in particularly high numbers (86) during the 14 April 2021 survey.

¹⁴ <https://sac.incc.gov.uk/species/S1351/>

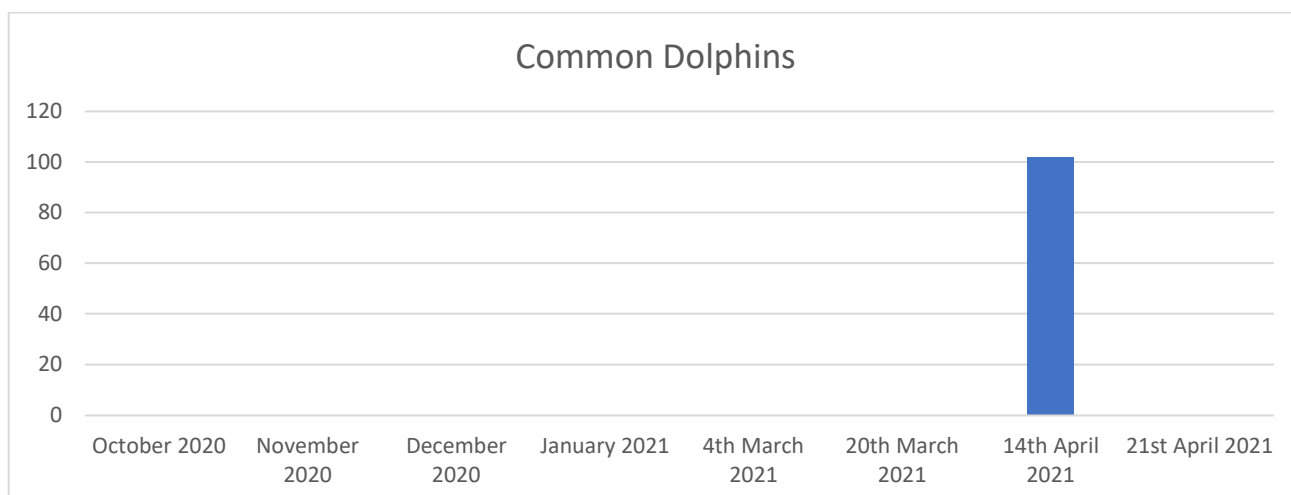
Figure 20: Harbour Porpoise Total Count



3.4.3 Dolphins

Dolphins were seen only on the 14 April survey and only one species, the Common dolphin, was present. Common dolphins are typically pelagic species and both are found in UK & Irish seas all year around¹⁵ and over 100 sightings of this species were recorded on the 14 April survey.

Figure 21: Dolphin Total Count & Species Composition



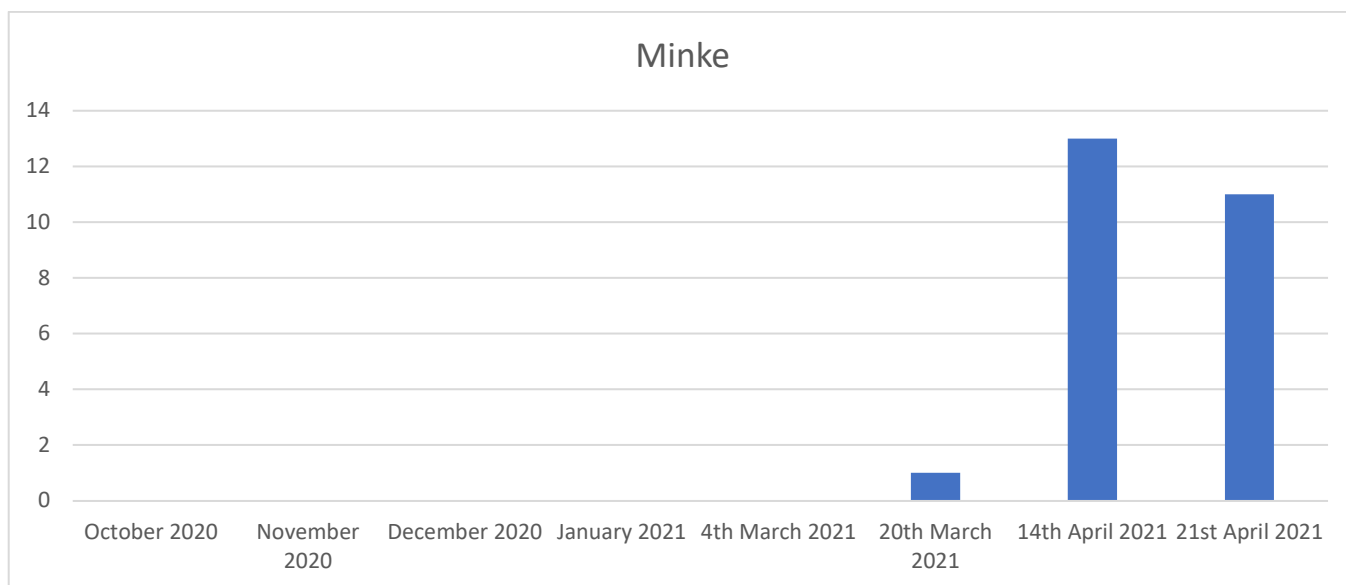
3.4.4 Minke Whale

Minke whales are usually solitary animals but can be seen in larger groups, particularly when feeding¹⁶. They were not seen during surveys between October 2020 and 4 March 2021 but were present in particularly high numbers (13) during the 14 April 2021 survey.

¹⁵ <https://uk.whales.org/whales-dolphins/species-guide/common-bottlenose-dolphin/>

¹⁶ <https://uk.whales.org/whales-dolphins/species-guide/common-minke-whale/>

Figure 22: Minke Whale



4.0 Summary & Limitations

Due to unsuitable weather conditions, it was not possible to survey in February of 2021 but to compensate for this 2 surveys were conducted in March. Due to the COVID-19 global pandemic and associated social distancing restrictions set out by the Irish government, it was not possible to have a full seabird survey team on board. Therefore, the survey team consisted of 2 seabird and 2 marine mammal observers throughout the survey period October 2020 – April 2021. At any one time, one seabird surveyor was acting as the primary observer, with a second acting as scribe and secondary observer, as specified in the COWRIE seabird survey method. When only two surveyors were on board, stops were made during the surveys to give surveyors a break.

Overall, a total of 5 marine mammal and 25 seabird species (excluding waders, ducks & typically terrestrial) were recorded on the boat-based surveys in the study area between October 2020 and April 2021 while a total of 6 marine mammal and 30 seabird species were recorded in the study area between June 2019 and September 2020.

5.0 References

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APPENDIX 01

Coordinates for Foreshore Lease Areas Kish and Bray Banks

Kish Bank		
Ref. Point	Latitude	Longitude
Upper left corner	53° 18' 29.978" N	5° 57' 0.025" W
Upper right corner	53° 18' 29.984" N	5° 54' 0.046" W
Lower left corner	53° 14' 0.000" N	5° 57' 0.000" W
Lower right corner	53° 13' 59.991" N	5° 54' 0.010" W
Bray Bank		
Ref. Point	Latitude	Longitude
Upper left corner	53° 14' 0.000" N	5° 56' 0.036" W
Upper right corner	53° 13' 59.975" N	5° 53' 0.000" W
Lower left corner	53° 08' 59.990" N	5° 56' 0.034" W
Lower right corner	53° 09' 0.000" N	5° 53' 0.018" W

Transect Start/End Coordinates

Transect Ref. Point	Latitude	Longitude
Transect 1 Start	53° 07' 23.519" N	5° 58' 21.613" W
Transect 1 End	53° 07' 12.110" N	5° 51' 02.200" W
Transect 2 Start	53° 08' 29.932" N	5° 59' 27.293" W
Transect 2 End	53° 08' 14.665" N	5° 49' 39.611" W
Transect 3 Start	53° 09' 34.846" N	5° 59' 33.867" W
Transect 3 End	53° 09' 19.065" N	5° 49' 26.474" W
Transect 4 Start	53° 10' 39.594" N	5° 59' 33.910" W
Transect 4 End	53° 10' 23.807" N	5° 49' 26.161" W
Transect 5 Start	53° 11' 44.342" N	5° 59' 33.958" W
Transect 5 End	53° 11' 28.548" N	5° 49' 25.836" W
Transect 6 Start	53° 12' 49.740" N	5° 59' 59.754" W
Transect 6 End	53° 12' 33.289" N	5° 49' 25.520" W
Transect 7 Start	53° 13' 55.345" N	6° 00' 33.886" W
Transect 7 End	53° 13' 38.031" N	5° 49' 25.197" W
Transect 8 Start	53° 15' 00.107" N	6° 00' 34.511" W
Transect 8 End	53° 14' 43.085" N	5° 49' 36.627" W
Transect 9 Start	53° 16' 04.863" N	6° 00' 34.919" W
Transect 9 End	53° 15' 49.063" N	5° 50' 22.840" W
Transect 10 Start	53° 17' 09.619" N	6° 00' 35.327" W
Transect 10 End	53° 16' 53.813" N	5° 50' 22.899" W
Transect 11 Start	53° 18' 14.233" N	6° 00' 30.069" W
Transect 11 End	53° 17' 58.564" N	5° 50' 22.962" W
Transect 12 Start	53° 19' 18.561" N	6° 00' 13.439" W
Transect 12 End	53° 19' 03.529" N	5° 50' 31.124" W
Transect 13 Start	53° 20' 21.136" N	5° 58' 47.375" W
Transect 13 End	53° 20' 10.176" N	5° 51' 43.022" W

APPENDIX 02

Marine Bird & Mammal Survey Forms

[illegible]

Trip Key	Time GMT	Wind dirn	Force (B'fort)	Sea State	Swell height (m)	Visibility	Glare	Rain	Notes

Vessel:		Eye height:		Transect width:	
Activity:		Time interval:	mins	Angle of view:	
Surveyors on board (full names):					

Trip Key	Leg No.	Time GMT	Observer	Scribe	No of Observers	Method	Direction of view	Species counted	Notes

SIGHTINGS FORM MARINE MAMMALS											
Survey Type:		Dublin Array 2019-20_Characterisation									
STG#	WPT	Date	Time start	Time end	Cue	Observer	Angle	Distance	Sighting heading (at first)	Species	Images (Y/N)

MARINE MAMMAL SIGHTING FORM – 2019_E.K.				
Regulatory reference number (e.g. DECC no., MMS permit no., OCS lease no., etc.)		Ship/ platform name: Port:		Sighting number (start at 1 for first sighting of survey)
Transect number:		Date:		Observer:
Operator:		Time at start of encounter (UTC, 24hr clock)		Time at end of encounter (UTC, 24hr clock)
Were animals detected visually and/ or acoustically? ☐ visual ☐ acoustic ☐ both		How were the animals first detected? ☐ visually detected by observer keeping a continuous watch ☐ visually spotted incidentally by observer or someone else ☐ acoustically detected by PAM ☐ both visually and acoustically before operators/ observers informed each other		
Weather conditions filled out: Yes No		Position (latitude and longitude)		Water depth (metres)
Species: (please circle) Cetaceans: HP (harbour porpoise), BND (bottlenose dolphin), CD (common dolphin), MW (minke whale)		Description (if unknown give species group, describe features such as overall size; shape of head; colour and pattern; size, shape and position of dorsal fin; height, direction and shape of blow)		

APPENDIX 03

Seabird Total Count Per Survey

Group	Species	October 2020	November 2020	December 2020	January 2021	4th March 2021	20th March 2021	14th April 2021	21st April 2021
Auk	Black Guillemot	10	1	2	5	4	1	1	
Auk	Guillemot	185	104	420	1031	69	2707	5829	10719
Auk	Guillemot/Razorbill			10	108			4090	4331
Auk	Puffin	1	6		1			7	2
Auk	Razorbill	180	77	40	107	59	334	234	119
Cormorant/Shag	Cormorant	3		5	3	1	10	15	4
Cormorant/Shag	Cormorant/Shag	15	20					22	
Cormorant/Shag	Shag	119	114	77	23	18	25	62	23
Diver	Black-throated Diver							1	
Diver	Diver Sp.					1			
Diver	Great Northern Diver		1	3	2	1	2	2	
Diver	Red-throated Diver	1		3	1	7	3	8	
Duck	Common Scoter								27
Duck	Eider						1		
Duck	Gadwell					3		1	
Duck	Garganey								1
Duck	Goosander			1					
Fulmar	Fulmar		1		1	2	8	3	2
Gannet	Gannet	29	7	87	3	10	84	222	396
Gull	Black-headed Gull	6	1	130	20	1	3	43	
Gull	Common Gull	13	16	46	94	4	46	1	2
Gull	Great Black-backed Gull	18	5	11	16	35	25	61	22

Group	Species	October 2020	November 2020	December 2020	January 2021	4th March 2021	20th March 2021	14th April 2021	21st April 2021
Gull	Gull sp.							31	52
Gull	Herring Gull	28	49	41	45	30	102	105	94
Gull	Kittiwake	608	72	2268	24	34	947	1471	453
Gull	Lesser Black-backed Gull	4	2	2		3	2	1	9
Gull	Little gull		2	30	2				
Gull	Mediterranean Gull	8	1	1	2		1		
Manx Shearwater	Manx Shearwater	3					6	1147	992
Skua	Arctic Skua		1						
Skua	Great Skua	3							1
Skua	Pomarine Skua	3							
Tern	Common Tern								22
Terrestrial	Blue Tit			1					
Terrestrial	Chaffinch						1		
Terrestrial	Goldcrest						3		
Terrestrial	Meadow Pipit						44		
Terrestrial	Sand Martin						1		
Terrestrial	Song Thrush			4					
Terrestrial	Starling			2					
Terrestrial	Swallow							2	2
Wader	Curlew				1		1	1	
Wader	Wader Sp.								1
Wader	Whimbrel								1

APPENDIX 04

Marine Mammal Total Count Per Survey

Species	October 2020	November 2020	December 2020	January 2021	4th March 2021	20th March 2021	14th April 2021	21st April 2021
Common Dolphins	0	0	0	0	0	0	102	0
Common Seal	1	0	0	0	0	0	0	0
Grey Seal	0	0	0	0	0	2	7	1
Harbour Porpoise	9	5	2	4	4	16	86	13
Minke	0	0	0	0	0	1	13	11

APPENDIX 05

List of Scientific Names of Species Mentioned in Report

Common name	Scientific name
Arctic skua	<i>Stercorarius parasiticus</i>
Black guillemot	<i>Cephus grylle</i>
Black-headed gull	<i>Chroicocephalus ridibundus</i>
Black-throated Diver	<i>Gavia arctica</i>
Blue tit	<i>Cyanistes caeruleus</i>
Chaffinch	<i>Fringilla coelebs</i>
Common guillemot	<i>Uria aalge</i>
Common gull	<i>Larus canus</i>
Common scoter	<i>Melanitta nigra</i>
Common tern	<i>Sterna hirundo</i>
Cormorant	<i>Phalacrocorax carbo</i>
Curlew	<i>Numenius arquata</i>
Eider	<i>Somateria mollissima</i>
Fulmar	<i>Fulmarus glacialis</i>
Gadwall	<i>Mareca strepera</i>
Gannet	<i>Morus bassanus</i>
Garganey	<i>Anas querquedula</i>
Goldcrest	<i>Regulus</i>
Goosander	<i>Mergus merganser</i>
Great black-backed gull	<i>Larus marinus</i>
Great northern diver	<i>Gavia immer</i>
Great skua	<i>Stercorarius skua</i>
Herring gull	<i>Larus argentatus</i>
Kittiwake	<i>Rissa tridactyla</i>
Lesser black-backed gull	<i>Larus fuscus</i>
Little gull	<i>Hydrocoleus minutus</i>
Manx shearwater	<i>Puffinus puffinus</i>

Common name	Scientific name
Meadow pipit	<i>Anthus pratensis</i>
Mediterranean gull	<i>Larus melanocephalus</i>
Pomarine skua	<i>Stercorarius pomarinus</i>
Puffin	<i>Fratercula arctica</i>
Razorbill	<i>Alca torda</i>
Red-throated diver	<i>Gavia stellata</i>
Sand martin	<i>Riparia</i>
Shag	<i>Phalacrocorax aristotelis</i>
Song thrush	<i>Turdus philomelos</i>
Starling	<i>Sturnus vulgaris</i>
Swallow	<i>Hirundo rustica</i>
Whimbrel	<i>Numenius phaeopus</i>
Common dolphin	<i>Delphinus delphis</i>
Grey seal	<i>Halichoerus grypus</i>
Harbour porpoise	<i>Phocoena phocoena</i>
Minke whale	<i>Balaenoptera acutorostrata</i>

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