WESPAS 2022 Bird Survey Mini Report

Materials and Methods

The seabird survey was conducted from the 15th June to the 22nd July using a single seabird surveyor on each survey leg. The seabird observer conducted visual survey effort while simultaneously recording all data. The observer's survey effort was maximized and optimized during periods of sea state less than or equal to sea state 6 and with visibility of greater than 300m. Additional visual point sampling (e.g., at oceanographic sampling stations or fishing stations) and incidental recording were also employed; however line transect survey effort was prioritised by the observer. Seabird watches were conducted using a standard line transect survey design with sub-bands while the vessel was travelling at a consistent speed and heading. All observations for seabirds were conducted from the bridge or monkey island (deck height 10m and 12 m above sea level respectively).

The data collection methodology was based on that originally proposed by Tasker *et al.* (1984) with later adaptations applied to allow correction factors to be applied for missed birds (Camphuysen *et al.*, 2004). The method employed used a standard line transect survey design with sub-bands to survey birds associated with the water, while flying birds were surveyed without assigning distance bands. Observer effort was concentrated in a bow-beam arc of 90° to one side (i.e., to port or starboard) of the vessel's track-line, however, all seabirds observed outside this area were also recorded.

Survey effort for seabirds associating with the water were concentrated within a survey strip of 300m running parallel and adjacent to the vessels track-line and extending to the horizon. All birds surveyed within this region were be recorded as 'in-transect' and assigned to one of four distance sub-bands (A: 0-50m, B: 50-100m, C: 100-200m, D: 200-300m) according to their perpendicular distance from the track-line. This approach allows for the evaluation of biases caused by specific differences in detection probability with increasing distance from the trackline (Camphuysen *et al.* 2004). Seabirds occurring outside of this survey strip were recorded as 'off-transect' and assigned to a separate sub-band (E: >300m). The perpendicular distance to an animal was estimated using a fixed interval range finder (Heinemann, 1981), ensuring each animal is allocated to the correct distance sub-band. All flying birds were recorded as 'off-transect' with no distance data recorded.

Seabirds remaining with the vessel for more than 2 minutes were deemed to be associating with the vessel (Camphuysen *et al.* 2004) and were recorded as such. Seabirds seen associating with other vessels (i.e. fishing vessels) were also recorded as such.

Searching for seabirds was done with the naked eye, however, binoculars were used to confirm parameters such as species identification, age, moult, group size and behaviour (Mackey *et al.* 2004). A DSLR camera with telephoto lens was used to visually document other information of scientific interest. Data was also collected on all migratory/ transient waterfowl and terrestrial birds encountered.

The Cybertracker (http://www.cybertracker.org/) data collection software package (Version 3.522) was used to collect all positional, environmental and sightings data, and save it to a Microsoft Access database. Positional data was collected using the tablets internal GPS receiver and recorded every 5 seconds.

Each line transect was assigned a unique transect number, and a new transect was started anytime the vessel activity changed (i.e. changing from on-transect to inter-transect). Each subsequent bird observation was also assigned to this unique transect number.

Environmental data was timestamped and recorded with GPS data at the beginning and end of each line transect and also as soon as any change in environmental conditions occurred. Environmental data recorded included; wind speed, wind direction, sea state, swell, visibility, cloud cover and precipitation.

Each observation was timestamped and recorded with GPS data using Cybertracker. Sighting data such as; species identification, distance band, group size, composition, heading, age, moult, behaviour and any associations with cetaceans or other vessels were also recorded on the time stamped Cybertracker sighting record page. Where species identification could not be confirmed, sightings were recorded at an appropriate taxonomic level (i.e. large gull sp., Larus sp., Commic tern, etc.).

Ancillary data such as line changes, changes in survey activity (e.g. fishing/CTD cast) and fishing vessel activity were also recorded.

Results

In total, 161 hours and 8 minutes of survey effort were conducted over the course of WESPAS 2022. In total, 143 hours and 15 minutes of survey effort were conducted using a line transect methodology, while 5 hours and 19 minutes of effort were conducted using the point sampling methodology. A further 12 hour and 34 minutes of effort were conducted as a casual watch.

A total of 2632 seabird observations were recorded throughout the survey, totalling 7478 individuals (*Table 1*). In total, 1763 seabirds were recorded as "in transect", while 5715 were recorded "off transect". The species encountered included 21 species from seven families. A further 11 sightings of terrestrial/migratory birds were also recorded, comprising of 31 individuals (*Table 2*).

Gannet (*Morus bassanus*) were the most frequently encountered and most abundant species recorded on the survey. Gannet were encountered on 882 separate occasions, accounting for 33.5% of all records. Gannet records comprised of a total of 2248 individuals (30.1% of all individuals), of these, only 218 individuals were recorded as 'in transect'.

Fulmar (*Fulmarus glacialis*) were both the second most frequently encountered and the second most abundant species, accounting for 741 records (28.2% of all encounters) and comprising of 1613 individuals in total (21.6% of all encountered individuals.) Of these, 238 individuals were recorded as 'in transect'.

Guillemot (*Uria aalge*) were the third most frequently sighted and the thid most abundant species accounting for 171 sightings (6.5% of all sightings) and comprising of 893 individuals in total (11.9% of all encountered individuals.) Of these, 652 individuals were recorded as 'in transect'.

A number of terrestrial/ migratory birds were encountered during the survey. A total of 11 sightings of terrestrial/ migratory bird species were recorded during the survey (*Table 2*). These sightings comprised of 31 individuals from 7 species' or species groups. Species recorded included a pectoral

sandpiper (*Charadrius melanotos*), a collared dove (*Streptopelia decaocto*) and a juvenile white-tailed eagle (*Haliaeetus albicilla*).

Table 1*. Summary of seabird sightings during the survey.*

Common Name	Species name	No. of Sightings	No. of Seabirds	In Transect	Off Transect
Fulmar	*Fulmarus glacialis*	741	1613	238	1375
Great Shearwater	*Ardenna gravis*	2	2	0	2
Sooty Shearwater	*Ardenna grisea*	12	14	4	10
Manx Shearwater	*Puffinus*	122	520	17	503
Wilson's Storm Petrel	*Oceanites oceanicus*	1	1	0	1
European Storm Petrel	*Hydrobates pelagicus*	90	154	2	152
Storm Petrel sp.	*Hydrobatidae sp.*	47	102	19	83
Gannet	*Morus bassanus*	882	2248	218	2030
Pomarine Skua	*Stercorarius pomarinus*	2	3	0	3
Arctic Skua	*Stercorarius parasiticus*	1	1	0	1
Great Skua	*Stercorarius skua*	14	14	3	11
Common Gull	*Larus canus*	2	2	0	2
Black-headed Gull	*Chroicocephalus ridibundus*	1	1	0	1
Lesser Black-backed Gull	*Larus fuscus*	103	223	24	199
Herring Gull	*Larus argentatus*	16	38	1	37
Great Black-backed Gull	*Larus marinus*	20	24	0	24
Kittiwake	*Rissa tridactyla*	102	285	56	229
Gull sp.	*Laridae sp.*	4	28	0	28
Commic tern sp.	*Sterna hirundo/ paradisaea*	3	4	2	2
Guillemot	*Uria aalge*	171	893	652	241
Razorbill	*Alca torda*	62	172	72	100
Razorbill / Guillemot	*Alca torda/ Uria aalge*	18	155	151	4
Puffin	*Fratercula arctica*	105	271	117	154
Auk sp.	*Alcidae sp.*	33	504	179	325
Shag	*Gulosus aristotelis*	5	6	0	6
	Total	**2634**	**7478**	**1763**	**5715**

Table 2. *Summary of terrestrial bird sightings during the survey.*

Common Name	Species name	No. of Sightings	No. of Individuals
Collared Dove	*Streptopelia decaocto*	1	1
Feral/ racing pigeon	*Columba livia domesticus*	5	6
Oystercatcher	*Haematopus ostralegus*	1	1
Pectoral Sandpiper	*Calidris melanotos*	1	1
Unidentified Geese	*Anatidae sp.*	1	20
White-tailed Eagle	*Haliaeetus albicilla*	1	1
Woodpigeon	*Columba palumbus*	1	1
	Total	**11**	**31**

References

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