codling wind park

Environmental Impact Assessment Report

Volume 4

Appendix 10.10 Black Guillemot Survey 2023


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ALCnature
Wildlife research and management projects

Black Guillemot Survey 2023 (proposed onshore substation area)

Report to Codling Wind Park Ltd.

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Version control

Version	Date	Changes	Confidentiality	Prep	Rev	Auth
V1	10/01/2024		Not confidential	AL		AL
Final	26/03/2024	AL	Not confidential	AL	Client	AL

Contents

Summary

1. Study aim was to examine the population size and distribution of Black Guillemots *Cepphus grylle* in a study area on and close to the proposed site for a substation development.
2. Findings are presented, potential impacts considered and recommendations for mitigation made.
3. Field survey consisted of three survey visits. Two visits in early spring to determine population size of Black Guillemots and one visit in June to determine nest site usage.
4. A population of 26 individuals was recorded using the site.
5. Nine occupied nests sites were identified in the study area.
6. The site is of local importance for Black Guillemots and is significant as a contribution to the population on the wider Dublin Port area.
7. The population is unlikely to be significantly affected by the development as much of the development activity is not coincidental with existing nest sites
8. Some disturbance to nesting areas is likely and while Black Guillemots may be tolerant to human disturbance in the wider are, screening of the main activities during the breeding period would be advantageous to reduce the likelihood of displacement beyond the immediate area of the development works
9. Two nest sites are identified which may be affected by direct loss as a result of development. This is unlikely to be significant due to the wide availability of alternative nest sites and, while not significant, can be mitigated for by provision of artificial sites.

1. Introduction

1.1 Background

The proposed substation site for Codling Wind Park lies within and close to former boat docks and related structures. The area supports a population of Black Guillemot *Cepphus grille*. In light of the potential development of the area, an assessment of the population size, and the distribution of nest sites, is of value in assessing risk of potential impacts on the population and in determining any mitigation that may be appropriate to reduce or prevent impacts.

Figure 1 indicates the extent of the study area.

1.2 Study aims

The aim of this study are to:

a. Determine the Black Guillemot population size within the study area
b. Determine the distribution and character of Black Guillemot nest sites in the study area
c. Make recommendations as to the likely impact of proposed development and the potential need for mitigation measures

2. Methods

2.1 Population size

Population size was determined by applying standard methods, laid out by in the Seabird Monitoring Handbook[1]. This entailed visiting the full extent of the survey area and counting all adult birds seen on water and on shore and structures, within the extent of the study area, on two visits in April at least one week apart and in fine weather. The shoreline and offshore areas were allocated sections to provide geographical reference points for population size (Figure 1) .

Surveys were carried out on 14th and 24th April 2023 in light, offshore, winds by experienced/trained personnel with good familiarity of the species and area (table 1).

2.2 Nest site distribution

Locations of crevices and holes observed to be visited by Black Guillemots were recorded on all survey visits. An additional visit, on 13 June 2023, was carried out and included a walkover nest site search and a 3-hour watch of all likely sites from a key vantage point (Figure1). Nest sites were recorded as occupied if visited and entered by adults (probable or confirmed breeding status). Timing and duration of this survey visited was planned to ensure likely visiting of all occupied nest sites by adults during the observation period, as fish delivery is known to be highest during the morning and evening[2], to avoid under recording of sites where foraging adults were absent (e.g. in early morning).

Sites were mapped and images of all sections taken and annotated with locations of nest sites.

2.3 Survey limitations and assumptions

This survey estimates population size of "adults associating with the colony". Various correction factors to counts of individuals, in order to estimate number of pairs, have been suggested by several authors (e.g. Cairns, 1979 ; Ewins

[1] Walsh, P.M., Halley, D.J., Harris, M.P., del Nevo, A., Sim, I.M.W., & Tasker, M.L. 1995. Seabird monitoring handbook for Britain and Ireland. JNCC / RSPB / ITE / Seabird Group, Peterborough. Available from: https://data.jncc.gov.uk/data/bf4516ad-ecde-4831-a2cb-d10d89128497/seabird-monitoring-handbook.pdf (last accessed 31 August 2023)

[2] Shoji, K., Elliott, K.H., Greenwood, J.G., McClean, L., Leonard, K., Perrins, C.M., Fayet, A. & Guilford, T. (2015) Diving behaviour of benthic feeding Black Guillemots, *Bird Study*, 62:2, 217-222, DOI: 10.1080/00063657.2015.1017800

1985) but due to the wide variation, between colonies, in the number of non-breeding birds present, this is rarely feasible without intensive study.

Figure 1 Study area location, extent and Black Guillemot (TY) survey sections

Table 1 Survey schedule and conditions

Date	Survey type	Start time	End time	Wind (force/ direction)	General weather conditions	Comments
14/04/2023	Census (& ad hoc nest site records)	06:15	07:45	2W	Good visibility, no rain, part cloud, sunny, light wind	Early morning survey over and after sunrise
28/04/2023	Census (& ad hoc nest site records)	06:12	07:26	2WSW	Good visibility, overcast, no rain, light wind	Early morning survey over and after sunrise
13/06/2023	Nest occupancy survey	07:00	10:00	1NE	Good visibility, part cloud, warm	n/a

Figure 2 Black Guillemot at a nest site entrance in the study area, two birds on sea

In this case, the number of individuals present provides a good baseline for the total population associating with the study area.

The number of nest sites recorded in subsequent visits is felt to be an accurate representation of the overall breeding population size and distribution albeit may represent an underestimate, as pairs can at times share site entrances. A single entrance hole has been recorded holding up to three pairs[3][4] and "nearest neighbour distances" typically recorded vary from tens of centimetres to several metres, suggest variable nest site competition and site availability may partly limit colony size in some cases. There can be significant interannual variance in occupancy rates of nest sites by Black Guillemot[5].

3. Results

3.1 Population census

Table 2 outlines findings of the two population census survey visits. Applying the standard methods, the population size for the site should be recorded as **26 Individuals for 2023**.

Comparing this to published population figures in *Seabirds Count*[6], this population equates to 8.6% of the County Dublin population (303) and 0.6% of the National (Republic of Ireland) population. Thus the population can be regarded of **local importance**.

[3] Cairns, D. 1980. Nesting density, habitat structure, and human disturbance as factors in black guillemot reproduction. *Wilson Bull*. 92(3):352–361. https://sora.unm.edu/sites/default/files/journals/wilson/v092n03/p0352-p0361.pdf.

[4] Petersen, A. (1981) *Breeding Biology and Feeding Ecology of Black Guillemots*. D. Phil. thesis, University of Oxford.

[5] Harris, M.P., and T.R. Birkhead. 1985. Breeding ecology of the Atlantic Alcidae. In: D.N. Nettleship, T. Birkhead, and J. Bédard. *The Atlantic Alcidae*. London, United Kingdom: Academic Press.

[6] Burnell, D. *et al*. (2023) *Seabirds Count: A census of breeding seabirds in Britain and Ireland (2015-2021)*. Lynx Nature Books, Barcelona

3.2 Nest site distribution

The primary nest distribution survey visits was carried out in mid June and this was augmented and informed by earlier population census visits , when apparent nest site locations were also recorded.

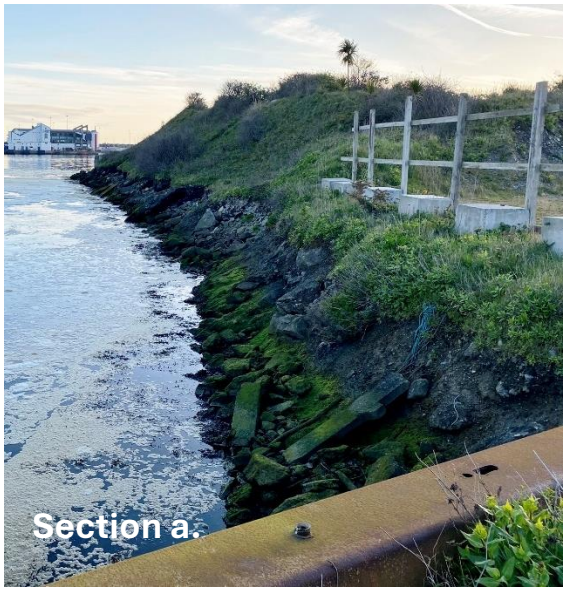
Nine unique nest locations were located (Table 3) with probable or confirmed breeding. The distribution of nest sites is indicated in Figure 3 and annotated images of all locations shown in Figure 4a-4i.

There was some limited evidence of competition for nest sites with extra-pair interactions at or around at least two nest site entrances (e.g. Figure 5).

Table 2 Black Guillemot population census in proposed substation area in 2023

	Visit 1 (13/04/23)	Visit 2 (28/04/23)
Section	**No. of Individuals**	**No. of Individuals**
A	0	0
B	0	0
C	0	0
D	0	0
E	6	5
F	1	1
G	0	0
H	2	4
I	3	2
J	14	13
TOTAL	**26**	**25**

Figure 3 Black Guillemot (TY) Nest site locations



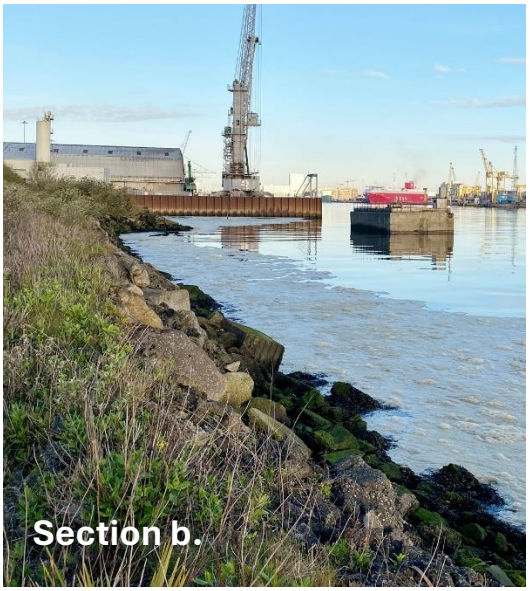
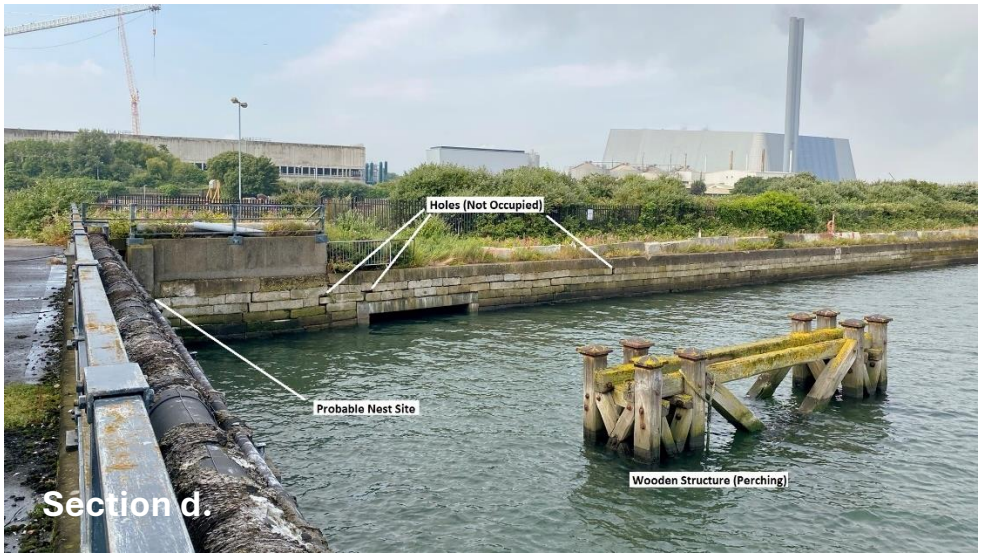
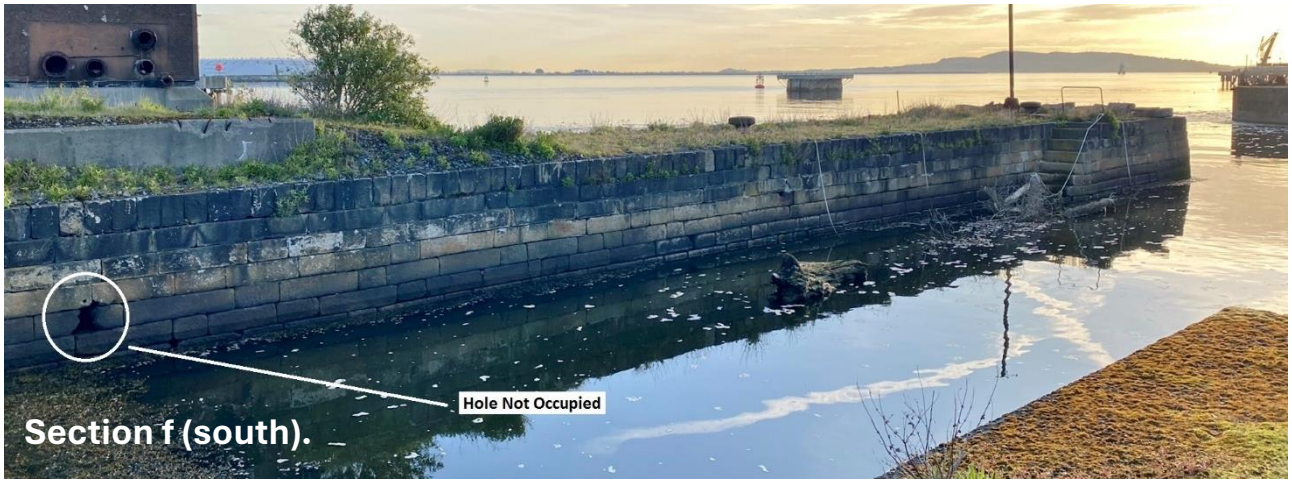


Figure 4 (a-i) Views of potentially suitable TY nesting habitat in each survey section and nest site locations




IRISH FERRIES
Probable Nest Site
Section e.

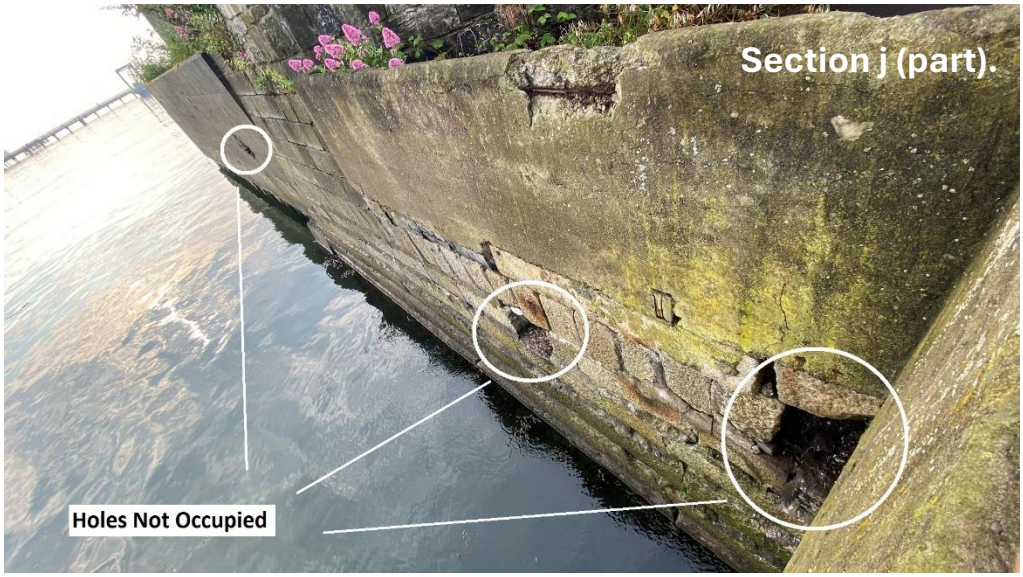

Hole Not Occupied
Section f (south).


One Confirmed Nest in F and one Probable Nest in D
Section f.


Section g.


Section h.
Confirmed Nest


Section I (and h).
Confirmed Nests


Section j (part).
Holes Not Occupied

3.3 Nest site habitats

All nest sites in the area were in artificial structures – walls, pier pier structures and similar. There was limited occupancy of apparently suitable nest holes though clarity on site suitability was not feasible given the scope of the survey. It is unknown as to the complexity of the internal voids within the structures, but there appears to be a wide range of suitable sites. With a "by eye" estimate of c. 40-50% occupancy of apparently suitable sites in pier structures.

The boulder slopes around the immediate vicinity of the proposed substation site, showed no evidence of occupancy by nesting Black Guillemot. While this are is ostensibly suitable in habitat terms, the ready access to these slopes by mammalian predators is likely a key limitation.

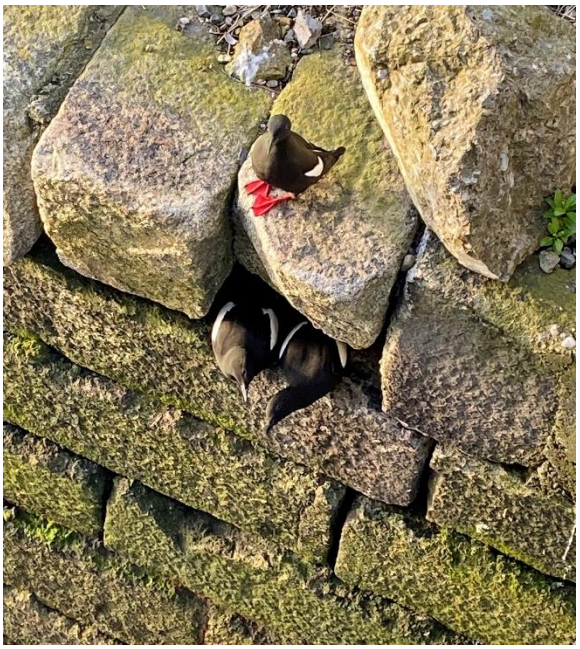


Figure 5 Apparent competition for, or potential shared occupancy, of a nest site

3.4 Observations on behaviour

Black Guillemots were observed to be highly tolerant of close approach by humans, Flight Initiation distances, while not formally tested, have consistently been observed down to as little as 3 metres in parts of the site, where approach is partly obscured. Pier-side activity by humans is generally ignored by the birds except in cases of direct approach to nest sites.

4. Discussion and recommendations

4.1 Population size and importance

At 26 individuals, the population constitutes around 8% of the County population and is one of the most southerly sites on the Irish east coast. It forms c. 0.6% of the national population and thus falls below the 1% threshold for national importance.

The habitats utilised by the birds are entirely man-made. For the population to persist, this would require the maintenance of, or provision of suitable alternative, nest sites at a similar level and distribution. Nest occupancy at around 50% compares with published figures for other colonies [cf. 3,5].

Current levels of nest site occupancy suggest there is a wide range of nest site options available

4.2 Assessing likely impacts of proposed development

The proposed development consists of construction works to create a substation, indicatively, within the area approximately bounded blue in Figure 6. Associated works may extend beyond this area.

Figure 6 Coincidence of indicative substation development area and Black Guillemot nest sites

Much of the area proposed for development is currently unsuitable for nesting Black Guillemots. Notably, the habitat in surveys sections A-C (Figure 6), while appearing broadly suitable (boulder/rubble shoreline is likely to contain many suitably sized crevices), the presence of mammalian predators with easy access to this area (notably Rats *Rattus*

norvegicus and Otter *Lutra lutra*) effectively rules out the value of this habitat for Black Guillemots. As a result, no nests were detected during the survey, and no use was made of the water area within these sections during population census visits (see Table 2).

Sections D and F contain one nest each, very close to the indicative boundary of the development area. It is unknown as to how these sites will be affected directly but proximity to development may mean some level of displacement. Greenwood (2002[7]) suggests that nest site selection by Black Guillemots in human environments, such as piers, is partly determined by the avoidance human disturbance. In this case, the study area has had low levels of human disturbance historically and an increase in this may see some avoidance. The general level of habituation to human traffic, vehicles and boats though is likely to be high for this species in the general area and close approach is largely tolerated (author pers. obs.) in the vicinity of the docks and piers in the area. Assuming a modest level of avoidance and a displacement to alternative sites rather than loss of the breeding pairs completely may be expected. If physical screening is deployed to screen most movement in close proximity during the breeding season, displacement is likely to be minimised.

While the likely direct loss of nest sites to development is uncertain, the propensity for Black Guillemot to readily use artificial nest sites provides a simple and effective means of mitigation[8,9], and is already used in the wider Dublin Port area effectively. Mitigation should therefore be planned where potential nest site loss (active or potential sites) is most likely. This should take the form of the provision of in-built or "bolt-on" nestboxes, suitable for Black Guillemots, and provided at a rate commensurate with the c. 50% nest site uptake estimated. For example, if 5 sites/potential sites were lost, then ten artificial sites should be provided and maintained, upon construction, in a comparable area, and sited with ecological supervision, and to best practice.

4.3 Recommendations

In response to the analysis above the following recommendations are made:

Recommendation 1: Consider physical screening to reduce risk of disturbance effects during the breeding season.

Recommendation 2: Provision of Black Guillemot nestboxes at a prescribed rate to replace the direct loss of existing or potential nest sites from development.

[7] Greenwood, J.G. (2002) Nest cavity choice by black guillemots *Cepphus grylle*. *Atlantic Seabirds*, 4: 119–122.
[8] Greenwood, J G 1998 Breeding biology of Black Guillemots *Cepphus grylle* at Bangor, Co. Down. Irish Birds 6: 191-200
[9] https://www.dublinport.ie/black-guillemots-using-nest-boxes-dublin-port-april-2017/