

**AGHADA GENERATING STATION:  
WATERBIRD MONITORING, WINTER  
2024/25**

**Tom Gittings BSc, PhD, MCIEEM  
Ecological Consultant  
3 Coastguard Cottages  
Roches Point  
Whitegate  
CO. CORK  
[www.gittings.ie](http://www.gittings.ie)**

**REPORT NUMBER: 2418-F1  
STATUS OF REPORT: Revision 2  
DATE OF REPORT: 12 May 2025**

## CONTENTS

	Page
<b>SUMMARY .....</b>	<b>2</b>
<b>1. INTRODUCTION.....</b>	<b>3</b>
1.1. Scope .....	3
1.2. Aghada Generating Unit AD1 .....	3
1.3. Survey data .....	3
1.4. Statement of competence .....	3
<b>2. METHODOLOGY.....</b>	<b>4</b>
2.1. Overview .....	4
2.2. Desk review .....	4
2.3. Count dates and timings .....	4
2.4. Survey area .....	5
2.5. Count methods.....	5
2.6. Data analysis .....	6
2.6.1. Irish Wetland Bird Survey data review.....	6
2.6.2. Monitoring results .....	6
<b>3. RESULTS.....</b>	<b>8</b>
3.1. Irish Wetland Bird Survey data review.....	8
3.2. Monitoring results .....	9
3.2.1. Tidal exposure.....	9
3.2.2. Waterbird numbers .....	10
3.2.3. Waterbird distribution .....	11
<b>4. CONCLUSIONS.....</b>	<b>23</b>
<b>REFERENCES .....</b>	<b>24</b>
<b>APPENDIX 1 WATERBIRD SURVEY DATASETS.....</b>	<b>25</b>
<b>APPENDIX 2 AREA COUNTS .....</b>	<b>27</b>
<b>LIST OF FIGURES</b>	
Figure 3.1. Annual peak counts for Mallard in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25. ....	15
Figure 3.2. Annual peak counts for Black-tailed Godwit in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25. ....	16
Figure 3.3. Annual peak counts for Dunlin in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25. ....	17
Figure 3.4. Annual peak counts for Redshank in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25. ....	18
Figure 3.5. Annual peak counts for Great Crested Grebe in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25. ....	19
Figure 3.6. Area distribution of selected waterbird species on low tide and mid tide counts, winter 2024/25.....	20
Figure 3.7. Overall area distribution of selected waterbird species on low tide and mid tide counts, winters 2006/07 – 2024/25. ....	21
<b>LIST OF MAPS</b>	
Map 2.1. Vantage point location and count areas.....	7
Map 2.2. Roost sites in Whitegate Bay.....	7
Map 3.1. Tidelines mapped on each count.....	22

## SUMMARY

This report presents the results of waterbird monitoring of Whitegate Bay in the winter of 2024/25. This monitoring was carried out as part of the monitoring required under Condition 3.17. of the IEL Licence P0561-05 for Aghada Generating Station. This work follows on from previous monitoring carried out by in the winters of 2003/04, 2006/07, 2008/09, 2010/11, 2012/13, 2016/17 and 2020/21.

Monthly waterbird counts of Whitegate Bay were carried out at mid and low tide under spring tide conditions between November 2024 and February 2025 and bird distribution was recorded in relation to six count areas. Irish Wetland Bird Survey data for Whitegate Bay and Cork Harbour was also reviewed.

There have been long-term declines in the numbers of several waterbird species in Whitegate Bay, while a few species have increased. The population trends of most species in Whitegate Bay broadly matched those for Cork Harbour overall. However, there were a few exceptions.

The numbers of Redshank in Whitegate Bay have more than halved since the early 2000s, while their overall numbers in Cork Harbour have remained more or less stable over the same period. The numbers of Black-tailed Godwit have not increased in Whitegate Bay despite a large increase in the overall Cork Harbour population. There were increased Dunlin numbers in Whitegate Bay in the mid-2010s, which were not matched by the overall Cork Harbour population. Therefore, the populations of some waterbird species in Whitegate Bay appear to have been affected by site-specific factors. However, given the timings of the changes, and the ecologies of the species involved, it is unlikely that these site-specific factors were related to the operation and subsequent decommissioning of Aghada Generating Unit AD1.

The distribution patterns of the waterbird species associated with intertidal habitat between the areas used for the monitoring generally reflected the distribution of the tideline and the intertidal habitat exposed above the tideline. However, Shelduck seems to show a particular association with the southern section of the bay that is probably related to the distribution of the mud snail *Peringia ulvae*, which is one of its main prey species. Oystercatcher distribution at low tide seems to have shifted over the course of the monitoring period with a more even split between the three areas holding the majority of intertidal habitat in recent winters, compared to a concentration in one of these areas in the earlier winters.

The shoreline immediately to the east of the cooling water discharge only has intertidal habitat exposed on the lowest spring tides and generally supports few waterbirds.

In previous winters, Red-breasted Merganser and Great Crested Grebe were reported to occur in the vicinity of the cooling water discharge point, but no obvious aggregation of either species occurred in this area in the monitoring counts in the winter of 2024/25.

## **1. INTRODUCTION**

### **1.1. SCOPE**

This report presents the results of waterbird monitoring of Whitegate Bay in the winter of 2024/25. This monitoring was carried out as part of the monitoring required under Condition 3.17. of the IEL Licence P0561-05 for Aghada Generating Station. This work follows on from previous monitoring carried out by Eleanor Mayes in the winters of 2003/04, 2006/07, 2008/09, 2010/11, 2012/13, 2016/17 and 2020/21 (Mayes, 2007, 2009, 2011, 2013, 2017 and 2021).

This work was commissioned by ESB Power Generation. All the survey work, data analysis and reporting were carried out by Tom Gittings.

### **1.2. AGHADA GENERATING UNIT AD1**

Aghada Generating Unit AD1 used to discharge cooling water to Whitegate Bay under IEL Licence P0561-05. It was used as a back-up generating plant during the first six waterbird monitoring surveys (2003/04 – 2016/17). It was decommissioned in September 2018 and was not in use during the waterbird surveys carried out in 2020/21 and 2024/25.

### **1.3. SURVEY DATA**

The full survey data is included in the database that accompanies this report. Details of this database are provided in Appendix 1.

### **1.4. STATEMENT OF COMPETENCE**

Tom Gittings holds a BSc (Hons) in Ecology from the University of East Anglia and a PhD in Ecology from University College Cork. Tom is a member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). He has over 29 years' experience as a professional ecologist. From 1995-2001, he worked full time as an ecological consultant with RPS Group in their Cork office. From 2001-2009, he was employed as a postdoctoral researcher in the Department of Zoology, Ecology and Plant Science, University College Cork where he carried out research into biodiversity and land use. During this period, he also worked as an independent ecological consultant. Since 2010, he has worked full-time as an independent ecological consultant.

Tom has specific expertise in waterbird and estuarine ecology. Since 2010, he has been working with Atkins and the Marine Institute on the Appropriate Assessment of aquaculture and shellfisheries in coastal SPAs. During this time, he has designed, coordinated and analysed a number of specialist studies on waterbird ecology, which were carried out to provide the information base required for the assessments, and written the Appropriate Assessment reports for nine SPAs. Tom has detailed knowledge of the ecology of Cork Harbour and its waterbird populations. He has been involved in I-WeBS counts of Cork Harbour since 1996 and has been the coordinator of the I-WeBS counts since 2002. He has also been involved in a wide variety of ecological consultancy work in Cork Harbour.

## **2. METHODOLOGY**

### **2.1. OVERVIEW**

The methodology followed that of the waterbird monitoring carried out in the winters of 2016/17 and 2020/21 for Condition 3.17. of the IEL Licence P0561-05 for Aghada Generating Station (Mayes 2017 and 2021). This involved carrying out monthly waterbird counts of Whitegate Bay at mid and low tide under spring tide conditions between November 2024 and February 2025 and recording bird distribution in relation to six count areas. The earlier waterbird monitoring (2003/04 – 2021/13) followed a similar methodology and also comprised four sets of counts per winter. However, the counts were not distributed monthly with two sets of counts carried out in some months and with some counts carried out in March (Mayes, 2007, 2009, 2011 and 2013).

### **2.2. DESK REVIEW**

I reviewed the Irish Wetland Bird Survey data for the Whitegate Bay subsite and Cork Harbour overall for the monitoring period (2003/04 – 2024/25). There was poor overall coverage of Cork Harbour during the winter of 2020/21, due to COVID-19 restrictions, but the Whitegate Bay subsite was counted each month. The Irish Wetland Bird Survey dataset for Cork Harbour for the winter of 2024/25 has not been compiled yet, but the data for the Whitegate Bay subsite was available.

I also reviewed the benthic and waterbird monitoring reports (Aquatic Services Unit 2007, 2009, 2011, 2013, 2017 and 2021; Mayes, 2007, 2009, 2011, 2013, 2017 and 2021).

### **2.3. COUNT DATES AND TIMINGS**

The count dates and timings are shown in Table 2.1.

The low tide counts were carried out in one-hour windows centred on the predicted time of low tide at Cobh.

I initially timed the mid tide counts to be carried out in one-hour windows centred on the time that is halfway between the predicted times of high and low tide. However, when I carried out the first mid tide count on 16 November, most of the intertidal habitat had already flooded by the time I started the count. Therefore, I adjusted the timing of the mid tide counts. The subsequent mid tide counts (including a repeat count on 17 November) were carried out on flood tides in one-hour windows starting one hour before the predicted time of mid tide. This timing meant that the tideline was around 100-200 m out from the eastern shoreline at the start of the count, and I was able to complete the counts of the sections along the eastern and southern sides of the bay before the intertidal habitat was completely flooded.

For the analyses in this report, I have used the data from the repeat mid tide count on 17 November. The data from the initial mid tide count on 16 November is included in the dataset accompanying this report but was not used for any of the analyses.

Table 2.1. Dates and timings of the counts.

Date	Tide	Start time	Finish time	High tide		Low tide	
				time	height	time	height
16/11/2024	Low tide	11:29	12:13	17:30	4.27	11:40	0.34
16/11/2024	Mid tide	14:04	14:42	17:30	4.27	11:40	0.34
17/11/2024	Mid tide	14:19	14:54	18:14	4.20	12:25	0.39
15/12/2024	Low tide	11:05	11:48	17:17	4.10	11:29	0.60
15/12/2024	Mid tide	13:20	13:54	17:17	4.10	11:29	0.60
15/01/2025	Low tide	12:16	13:09	18:34	3.98	12:49	0.62
15/01/2025	Mid tide	14:43	15:17	18:34	3.98	12:49	0.62
12/02/2025	Low tide	11:34	12:20	17:42	3.93	11:59	0.55
12/02/2025	Mid tide	13:50	14:23	17:42	3.93	11:59	0.55

All the mid tide counts were carried out on flood tides. The mid tide count on 16/11/2024 was carried out after most of the intertidal habitat had flooded and the data from this count is not used for the analyses presented in this report. Tide heights and times are from UKHO tide tables for Cobh.

## 2.4. SURVEY AREA

The survey area comprised the six count areas that were defined in the previous surveys (Map 2.1). The outer limit of the survey area was not defined in Mayes (2021), but I took it to be a line from the northern side of the Long Point to the northern end of the refinery jetty (Map 2.1).

During previous work at Whitegate Bay, I have defined five discrete high tide roost sites (Map 2.2). While the present survey did not include high tide counts, knowledge of these roost sites is useful for the interpretation of the distribution patterns. The main roost occurs along the rock-armoured shoreline of Corkbeg Island (WH1). A secondary roost, which occurs along the adjacent section of the southern shoreline (WH2), is mainly used on neap high tides or for pre-roost assembly. Another, less frequently used, secondary roost occurs further east along the southern shoreline (WH3). The intertidal reef at Long Point remains exposed on neap high tides (WH4). A new roost site has developed on the shoreline of Corkbeg Island to the north of the quay (WH5), possibly in response to construction work adjacent to the WH1 roost.

A small tidal creek occurs in the south-eastern corner of Whitegate Bay (Map 2.2). At low tide, there are usually flocks of gulls roosting and bathing along this creek. Wader flocks also sometimes roost here at low tide. On flood tides, the roosting birds are pushed into the corner as the tide rises.

## 2.5. COUNT METHODS

I carried out all the counts from the same vantage point as used for the previous surveys. This is located at the northern end of Whitegate village (Map 2.1).

I counted all waterbirds and seabirds separately within each count area. I also classified birds by the tidal zone in which they occurred (subtidal, intertidal, supratidal, or terrestrial; see Lewis and Tierney, 2014) and behaviour (Table 2.3).

I mapped the locations of significant flocks and the approximate position of the tideline.

Table 2.2. Behavioural categories used for the waterbird counts.

Category	Behaviour
F	Feeding
R	Non-feeding behaviour, excluding Y1, Y2 and H categories
Y1	Flying bird that was using the survey area: e.g., a bird that was present in the site, but flew off before its behaviour could be categorised
Y2	Flying bird that was not using the survey area: e.g., a bird commuting across the survey area
H	Bird flushed by the observer before its behaviour was categorised

## 2.6. DATA ANALYSIS

### 2.6.1. Irish Wetland Bird Survey data review

I assessed the waterbird populations of Whitegate Bay by calculating the mean annual peak counts for sets of five-winter periods covering the monitoring period: 1999/00-2003/04, 2004/05-2008/09, 2009/10-2013/14, 2014/15- 2018/19 and 2019/20-2023/24.

I compared the waterbird populations of Whitegate Bay to their overall Cork Harbour populations by calculating the five-winter mean peak count for Whitegate Bay as a percentage of the five-winter mean peak count for Cork Harbour, using the data from the most recent five-winter period (2019/20-2023/24). These calculations excluded data from the winter of 2020/21, due to poor overall coverage of Cork Harbour in that winter (see Section 2.2).

### 2.6.2. Monitoring results

#### ***Waterbird numbers***

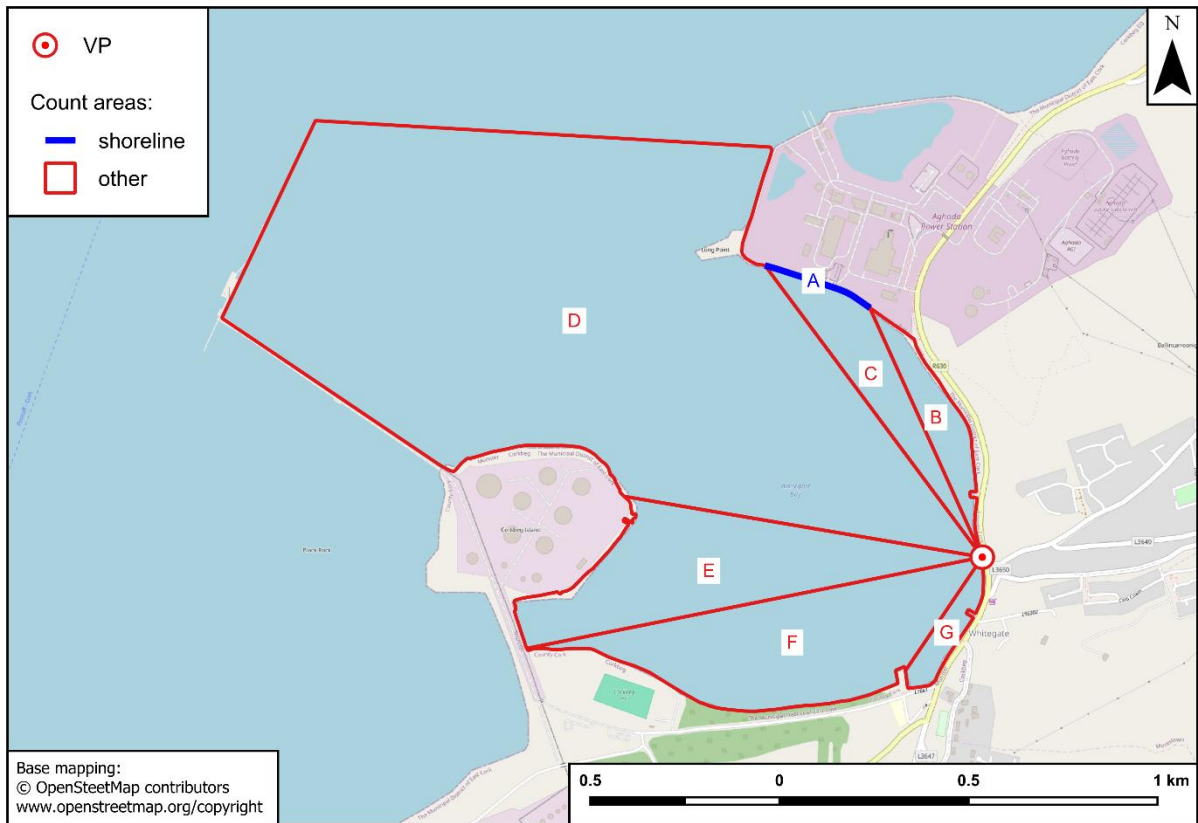
I used the peak counts across all low tide and mid tide counts to compare waterbird numbers in the winter of 2024/25 with numbers in the previous monitoring winters.

Where species appeared to show significant changes in numbers across the monitoring period, I compared the peak counts from the monitoring programme with peak Irish Wetland Bird Survey counts for Cork Harbour and Whitegate Bay. This helped to assess whether the apparent trends from the monitoring counts were real trends and whether these were site-specific to Whitegate Bay or reflected larger-scale trends in the Cork Harbour populations. For these comparisons, I only used Irish Wetland Bird Survey data for the months covered by the monitoring programme (November – March). Therefore, the Irish Wetland Bird Survey peak counts in these analyses may differ from those in the data review; the latter also included the data from the September and October counts.

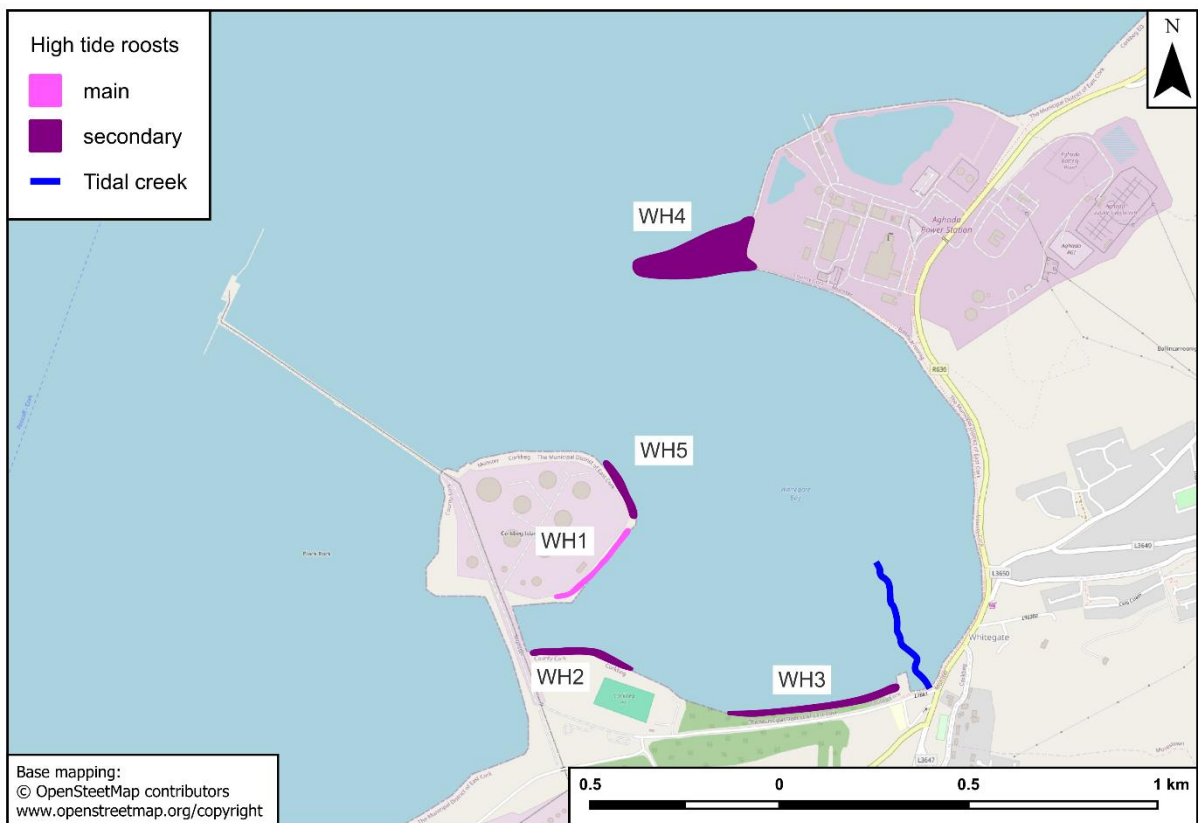
#### ***Waterbird distribution***

The previous reports analysed the distribution patterns of six waterbird species: Shelduck, Wigeon, Oystercatcher, Black-tailed Godwit, Curlew and Redshank. However, Wigeon and Black-tailed Godwit did not occur in sufficient numbers for meaningful analyses of distribution patterns in the winter of 2024/25. Therefore, I excluded those two species from the analyses. However, I included two additional species: Black-headed Gull and Herring Gull.

I followed the methodology of the previous monitoring reports. This used the summed totals across all four counts to calculate the percentages recorded in each area at low tide and mid tide.



Map 2.1. Vantage point location and count areas.



Map 2.2. Roost sites in Whitegate Bay.

### 3. RESULTS

#### 3.1. IRISH WETLAND BIRD SURVEY DATA REVIEW

The Irish Wetland Bird Survey counts for Whitegate Bay across the monitoring period are summarised in Table 3.1. This table shows the mean peak counts over the five-winter periods from 1999/00-2003/04 to 2019/20-2023/34.

Most Irish Wetland Bird Survey counts of Whitegate Bay are carried out around high tide, so the numbers recorded on these counts do not necessarily reflect those that occur at low tide.

Shelduck, Wigeon, Mallard, Shoveler, Red-breasted Merganser and Oystercatcher, Curlew and Redshank have all shown large declines although most of the declines occurred across the first three five-winter periods. Light-bellied Brent Goose and Mediterranean Gull have shown increases across the monitoring period.

Table 3.1. Five-winter mean peak counts for Whitegate Bay, 1999/00-2003/04 to 2019/20-2023/24.

Species	5-winter mean peak counts				
	1999/00-2003/04	2004/05-2008/09	2009/10-2013/14	2014/15-2018/19	2019/20-2023/24
Mute Swan	0	0	1	4	7
Light-bellied Brent Goose	2	2	7	16	27
Shelduck	66	62	57	27	23
Wigeon	179	182	39	28	44
Mallard	163	99	61	66	64
Shoveler	64	23	6	9	5
Red-breasted Merganser	27	14	4	5	2
Cormorant	54	45	28	20	50
Little Egret	2	6	3	6	11
Grey Heron	11	10	5	10	8
Great Crested Grebe	93	31	30	18	45
Oystercatcher	136	99	59	58	47
Curlew	150	117	76	97	96
Black-tailed Godwit	135	133	99	131	94
Turnstone	15	12	16	16	13
Dunlin	156	42	231	363	76
Greenshank	5	8	4	2	3
Redshank	243	210	130	172	138
Black-headed Gull	418	256		615	257
Mediterranean Gull	4	25		89	135
Common Gull	498	37		45	114
Herring Gull	32	19		15	17
Great Black-backed Gull	96	61		19	6

Gulls were not covered on all Irish Wetland Bird Survey counts during the 2009/10-2013/14 period. Additional waterbird species recorded: Gadwall, Teal, Pintail, Long-tailed Duck, Common Scoter, Great Northern Diver, Gannet, Shag, Grey Plover, Lapwing, Whimbrel, Bar-tailed Godwit, Knot, Curlew Sandpiper, Snipe, Black Guillemot, Sandwich Tern, Common Tern, Kittiwake, Lesser Black-backed Gull, and Glaucous Gull. Data were supplied by the Irish Wetland Bird Survey (I-WeBS), a scheme coordinated by BirdWatch Ireland under contract to the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage.

The conservation significance of the most recent five-winter mean peak counts for Whitegate Bay are assessed against various parameters in Table 3.2. Great Crested Grebe was the only species to occur in numbers of national importance, while no species occurred in internationally important

numbers. Whitegate Bay is the most important site in Cork Harbour for Mediterranean Gull with over 75% of the Cork Harbour Irish Wetland Bird Survey mean peak count. Other species with high percentages in Whitegate Bay included Light-bellied Brent Goose, Mallard, Shoveler, Great Crested Grebe, Turnstone and Common Gull. The numbers of most waders in Whitegate Bay were relatively low compared to their Cork Harbour populations. However, Whitegate Bay holds less than 10% of the total amount of intertidal habitat in Cork Harbour.

Table 3.2. Mean peak counts of the waterbird species recorded during high tide Irish Wetland Bird Survey counts in Whitegate Bay, in comparison with the Cork Harbour population, 2019/20-2023/24.

Species	1% thresholds		SPA Qualifying Interest	Mean peak counts, 2019/20-2023/24		
	National	International		Whitegate Bay	Cork Harbour	% in Whitegate Bay
Mute Swan	90	100		8	60	13%
Light-bellied Brent Goose	350	400		33	103	32%
Shelduck	100	2500	Yes	24	697	3%
Wigeon	560	14000	Yes	51	1098	5%
Mallard	280	5300		66	395	17%
Shoveler	20	650	Yes	6	29	21%
Red-breasted Merganser	25	860	Yes	1	42	2%
Cormorant	110	1200	Yes	50	492	10%
Little Egret	20	1100		11	156	7%
Grey Heron	25	5000	Yes	8	112	7%
Great Crested Grebe	30	6300	Yes	51	162	31%
Oystercatcher	610	8200	Yes	49	1300	4%
Curlew	350	7600	Yes	100	1037	10%
Black-tailed Godwit	200	1100	Yes	67	3037	2%
Turnstone	95	1400		15	96	16%
Dunlin	460	13300	Yes	70	5396	1%
Greenshank	20	3300		3	149	2%
Redshank	240	2400	Yes	142	1828	8%
Black-headed Gull			Yes	276	4086	7%
Mediterranean Gull				114	153	75%
Common Gull			Yes	137	581	24%
Herring Gull				18	195	9%
Great Black- backed Gull				6	114	5%

The mean peak counts exclude the data for the winter of 2020/21 due to poor coverage of Cork Harbour in that winter. Therefore, the mean peak counts for Whitegate Bay in 2019/20-2023/24 in this table differ from those in Table 3.1. Data were supplied by the Irish Wetland Bird Survey (I-WeBS), a scheme coordinated by BirdWatch Ireland under contract to the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage.

## 3.2. MONITORING RESULTS

### 3.2.1. Tidal exposure

The tidelines mapped during each count are shown in Map 3.1. There was some degree of approximation involved in the mapping, particularly at low tide.

At low tide, most of the tideline was in Area D, while Areas D, E and F all held large amounts of exposed intertidal habitat. By mid tide, the rising tide had flooded most of the intertidal habitat in Area D, with the remaining exposed intertidal habitat concentrated in Areas E and F.

On the mid tide counts, I mapped the tidelines at the start of the count. The tideline advanced rapidly during the count and by the end of the count it was within 100 m of most of the shoreline. On the February mid tide count, the tideline was more advanced at the start of the count and already within 100 m of the shoreline at that stage.

### 3.2.2. Waterbird numbers

I recorded 25 waterbird species during the low tide and mid tide counts (Table 3.3). The only regularly occurring species that I didn't record was Turnstone. This species mainly occurs along the rocky shoreline of Corkbeg Island so it may be missed in counts carried out from the vantage point used for these surveys.

The peak counts for Shelduck, Wigeon, Mallard and Redshank showed a continuation of the apparent long-term decline in the numbers of these species in Whitegate Bay that is evident from the previous monitoring data (Table 3.4). For Shelduck and Wigeon, this reflects an overall decline in the Cork Harbour populations over the same period. However, the situation is more complex for Mallard and Redshank.

For Mallard, the most recent three monitoring winters (2016/17, 2020/21 and 2024/25) happened to coincide with winters when Irish Wetland Bird Survey counts indicated low mid-winter Mallard numbers in Whitegate Bay (Figure 3.1). However, the full Irish Wetland Bird Survey dataset shows fluctuations between winters and does not indicate any obvious long-term trends in mid-winter Mallard numbers in Whitegate Bay across the monitoring period (Figure 3.1).

For Redshank, the peak counts from the monitoring dataset closely matched the mid-winter peak Irish Wetland Bird Survey counts for Whitegate Bay (Figure 3.4). However, the overall Cork Harbour mid-winter peak counts do not show any long-term trend over the monitoring period (Figure 3.4).

The numbers of Black-tailed Godwits recorded on the low tide and mid tide counts were very low. Birds were only present on three out of the eight counts (Table 3.3) while the peak count of eight birds was much lower than the previous lowest peak count of 71 in the winter of 2016/17 (Table 3.4). Black-tailed Godwits were also scarce in the Irish Wetland Bird Survey counts at Whitegate Bay and were not recorded in the December – March counts. There has been an increase in the mid-winter Cork Harbour Irish Wetland Bird Survey counts across the monitoring period, but this is not reflected in the count data from Whitegate Bay (Figure 3.2).

Dunlin were also recorded in very low numbers, matching the Irish Wetland Bird Survey counts, although similarly low numbers were recorded in the winter of 2010/11 (Table 3.4). The Irish Wetland Bird Survey counts for Whitegate Bay show that there was a period of high mid-winter numbers from 2012/13 – 2017/18, which was matched by the high numbers recorded in the monitoring counts in the winters of 2012/13 and 2016/17 (Figure 3.3). However, the overall Irish Wetland Bird Survey counts for Cork Harbour did not show similarly increased numbers during this period.

The peak Cormorant and Common Gull counts were the highest recorded across the monitored winters (Table 3.4). The Cormorants were mainly roosting on Long Point and the numbers recorded were not atypical for recent winters. The high Common Gull numbers occurred in January and February and reflect increasing late winter numbers of this species in Cork Harbour in recent years.

Apart from Cormorant, Red-breasted Merganser and Great Crested Grebe are the main species associated with subtidal habitat in Whitegate Bay. Red-breasted Merganser numbers in Whitegate Bay have declined in tandem with the severe decline of their overall Cork Harbour population. Great Crested Grebe numbers have fluctuated across the monitoring period (Figure 3.5). The Irish Wetland Bird Survey counts are not very effective at monitoring the overall numbers of Great

Crested Grebe in Cork Harbour (Gittings, 2017), although the counts for Whitegate Bay are likely to be fairly accurate due to the limited size of the subsite. However, there is a lot of movement between Whitegate Bay and the open water off Aghada: e.g., birds often commute from Whitegate Bay to nocturnal roosts off Aghada (Gittings, 2017). Therefore, the numbers recorded in Whitegate Bay are highly variable.

### 3.2.3. Waterbird distribution

The numbers of each species recorded in each count area on each count are shown in Table A2.1 in Appendix 2.

#### **Shelduck**

As in most previous winters, Shelduck mainly occurred along the southern shoreline of Whitegate Bay in Area F (Figure 3.6 and Figure 3.7). In the benthic surveys, sample sites from this area generally had large numbers of the mud snail *Peringia ulvae*. This invertebrate is usually an important component of the Shelduck diet. Interestingly, in the surveys preceding the two winters when Shelduck occurred in lower relative numbers in Area F (2012/13 and 2016/17), *Peringia ulvae* was not recorded (2012), or recorded in very low numbers (2016) from the stations in Area F (Aquatic Services Unit, 2013, 2017).

#### **Oystercatcher**

Oystercatcher distribution was split between the three areas comprising the majority of intertidal habitat at low tide (Areas D, E and F; Figure 3.6). At mid tide, they were more concentrated in Area E (Figure 3.6). This area is adjacent to the main high tide roost along the shoreline of Corkbeg Island. On three of the mid tide counts, some Oystercatchers assembled at the WH5 roost during the count. While Area F contained a longer tideline at mid tide, it generally supported fewer Oystercatchers. Very little intertidal habitat was exposed in Area D at mid tide so the low numbers of Oystercatchers in this area were not surprising. Some Oystercatchers also occurred in Area G. These included birds roosting along the small creek that were pushed into the south-east corner of the bay by the rising tide.

The distribution pattern of Oystercatchers at low tide seems to have shifted over the course of the monitoring period (Figure 3.7). In the first three winters (2006/07 – 2010/11), Area E supported the most birds, with some in Area D and very few in Area F. The distribution in the most recent three winters (2016/17 – 2024/25) was much more evenly split between these three areas. The distribution in 2012/13 was atypical with high numbers in Area A.

#### **Curlew**

At low tide, Curlews were concentrated in Area D on the first two counts, but more evenly distributed between Areas D, E and F on the final two counts (Figure 3.6). Most of the tideline at low tide is in Area D and Curlew often fed in subtidal water just below the tideline. However, they were also widely distributed across the intertidal habitat above the tideline. At mid tide, they mainly occurred in Areas E and F (Figure 3.6). As with Oystercatcher, the low numbers in Area D at mid tide reflected the very limited availability of intertidal habitat in this area.

On two mid tide counts, I noted small numbers of Curlew flying into the intertidal reef at the Long Point. They settled on the far side of the reef, which was largely hidden from my vantage point, and there may have been more birds present that were not visible. The Long Point is flooded on most high tides, including all spring high tides. It seems to be used as a staging area for birds that are commuting into / out of the bay on ebb and flood tides.

Curlew distribution seems to have remained broadly the same across the monitored winters (Figure 3.7).

#### **Redshank**

Redshank distribution was quite variable between counts (Figure 3.6) reflecting the frequent occurrence of a single flock comprising the majority of the birds present in the bay. Therefore, their

distribution patterns are less predictable than species like Oystercatcher and Curlew that mainly occur as dispersed individuals. At low tide, they mainly occurred close to the tideline in Area E or along the small tidal creek in Area F. At mid tide, they were concentrated in either Area E, F, or G. On the November mid tide count, 53 Redshank had assembled at the WH1 roost by the end of the count.

The low numbers recorded in Area E at low tide were atypical in my experience from previous low tide counts of Whitegate Bay and also in contrast to the distribution patterns from the previous monitored winters (Figure 3.7).

### ***Black-headed Gull***

On three of the low tide counts, Black-headed Gulls mainly occurred in Area D (Figure 3.6). These involved birds feeding on intertidal habitat along the tideline and in subtidal habitat just below the tideline. A roosting flock was present along the small tidal creek in Area F on all of the counts, and on one of the counts this flock held most of the birds present in the bay. At mid tide, the rising tide pushed the roosting flock into Area G, and on two counts most of the birds were concentrated there (Figure 3.6).

### ***Herring Gull***

On all low tide and mid tide counts, Herring Gulls were concentrated in Area D (Figure 3.6). This was due to birds roosting on the intertidal reef at the Long Point.

### ***Red-breasted Merganser and Great Crested Grebe***

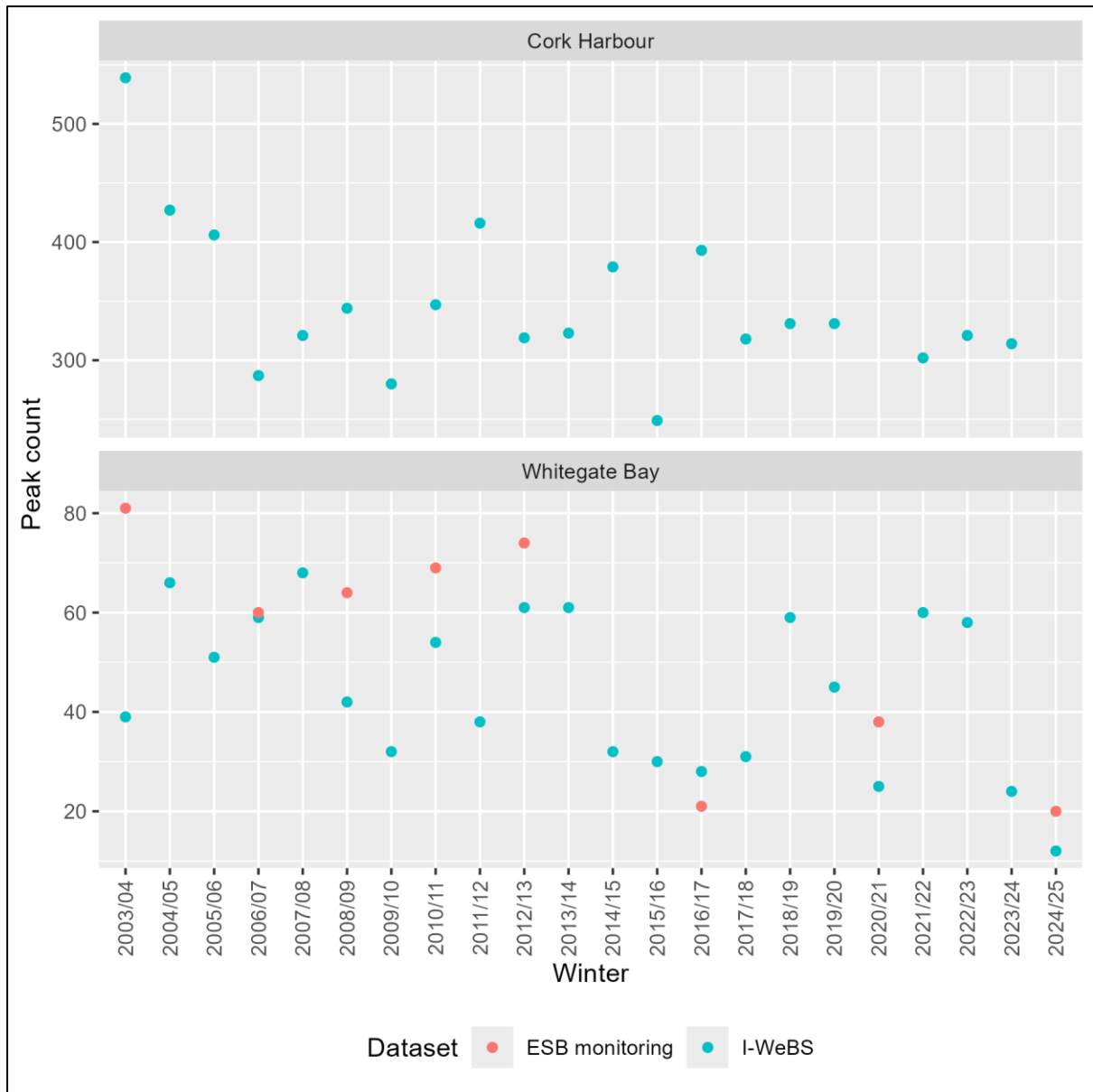
In previous winters these species were reported to occur in the immediate vicinity of the cooling water discharge point (Mayes, 2021). In the 2024/25 counts, neither species occurred in the small sliver of subtidal habitat in Area C. Red-breasted Merganser and Great Crested Grebe roosting flocks, when they occurred, were in Area D more than 100 m out from the northern shoreline. Feeding birds were widely distributed across the available subtidal habitat. A few birds occurred close to the northern shoreline, but there was no obvious aggregation here.

Table 3.3. Waterbird numbers recorded at mid tide and low tide in Whitegate Bay, winter 2024/25.

Species	Nov		Dec		Jan		Feb		Peak count
	LT	MT	LT	MT	LT	MT	LT	MT	
Mute Swan	0	0	0	0	0	0	0	1	1
Light-bellied Brent Goose	0	0	0	0	0	0	10	8	10
Shelduck	5	6	24	17	31	26	35	37	37
Wigeon	0	0	1	0	0	0	1	2	2
Teal	1	0	2	0	0	0	0	0	2
Mallard	20	14	10	6	0	4	2	0	20
Red-breasted Merganser	2	0	0	0	8	8	0	2	8
Great Northern Diver	0	0	0	0	1	1	1	1	1
Cormorant	29	57	106	59	219	18	158	88	219
Shag	0	0	0	4	5	2	3	5	5
Little Egret	2	4	9	3	1	2	0	0	9
Grey Heron	4	1	2	1	5	2	1	2	5
Great Crested Grebe	14	22	16	21	10	10	15	12	22
Oystercatcher	49	40	46	53	53	52	39	36	53
Curlew	90	49	74	48	87	37	47	24	90
Black-tailed Godwit	6	8	5	0	0	0	0	0	8
Dunlin	0	0	10	0	1	2	25	20	25
Greenshank	0	0	1	2	1	0	2	0	2
Redshank	58	55	69	69	66	66	64	49	69
Black-headed Gull	189	68	191	73	234	31	149	173	234
Mediterranean Gull	19	19	5	2	17	0	2	1	19
Common Gull	10	13	14	5	174	7	132	57	174
Lesser Black-backed Gull	1	1	1	1	1	3	4	8	8
Herring Gull	29	31	11	15	19	9	21	52	52
Great Black-backed Gull	25	21	6	7	23	11	19	7	25

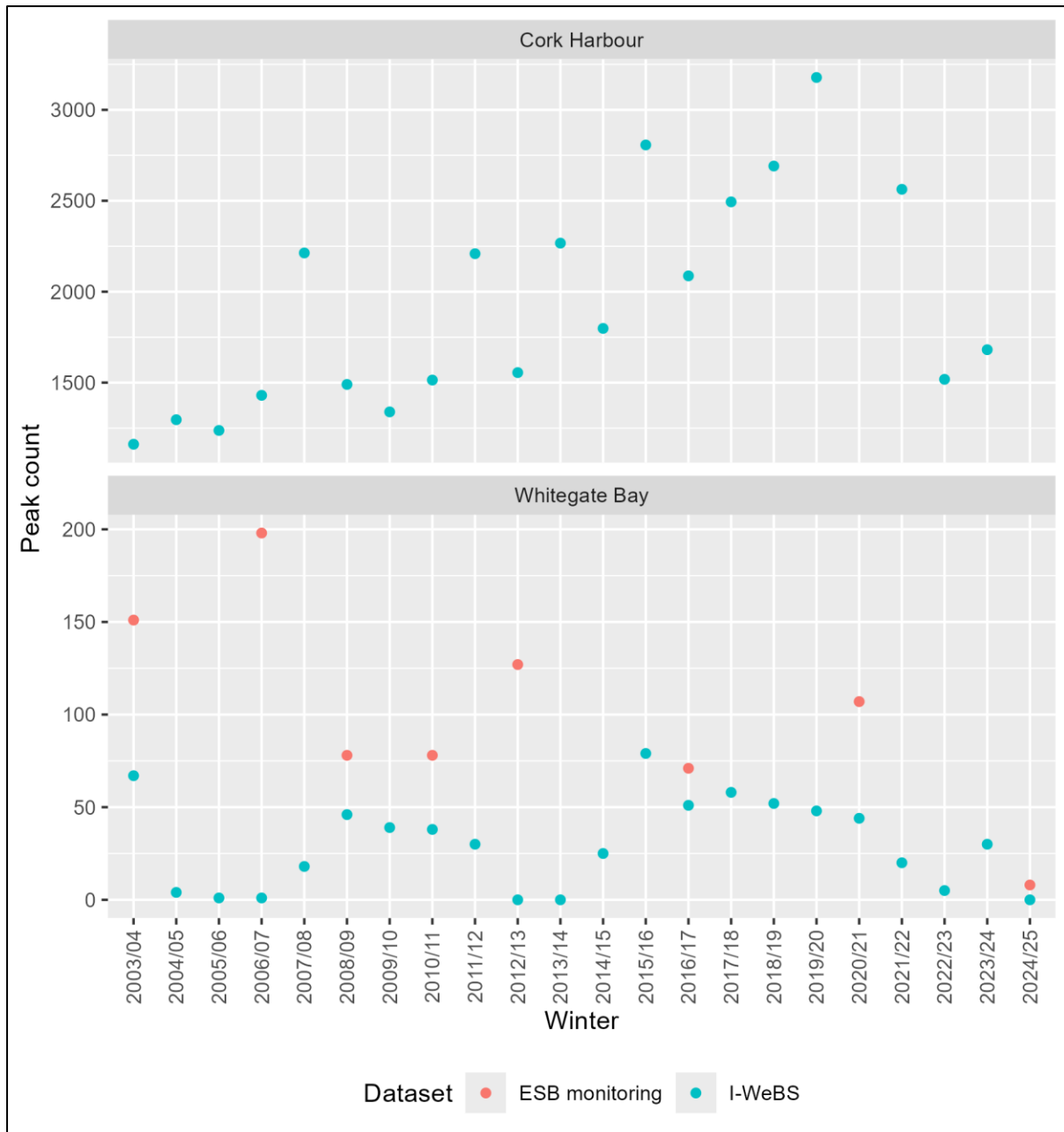
Table 3.4. Peak waterbird mid and low tide count data for Whitegate Bay, winter 2003/04 – winter 2024/25.

Species	2003/04	2006/07	2008/09	2010/11	2012/13	2016/17	2020/21	2024/25
Mute Swan	0	0	0	0	0	0	0	1
Light-bellied Brent Goose	12	3	25	4	21	0	73	10
Shelduck	109	55	92	125	59	33	20	37
Wigeon	165	193	140	70	62	26	41	2
Teal	0	0	0	5	0	0	3	2
Mallard	81	60	64	69	74	21	38	20
Pintail	0	0	0	0	1	0	0	0
Shoveler	7	0	8	9	14	4	6	0
Red-breasted Merganser	8	5	8	12	3	1	2	8
Red-throated Diver	0	0	2	0	0	0	0	0
Great Northern Diver	0	0	0	0	0	0	0	1
Cormorant	37	9	15	11	9	126	66	219
Shag	0	0	0	0	0	0	0	5
Little Egret	10	14	15	9	4	3	6	9
Grey Heron	11	14	7	3	6	5	9	5
Great Crested Grebe	45	12	41	19	34	24	38	22
Oystercatcher	132	99	96	60	32	46	31	53
Ringed Plover	0	3	0	0	0	0	0	0
Whimbrel	0	0	0	0	0	0	1	0
Curlew	87	66	67	91	62	57	80	90
Black-tailed Godwit	151	198	78	78	127	71	107	8
Bar-tailed Godwit	36	0	0	2	14	0	0	0
Turnstone	0	3	18	7	28	1	4	0
Knot	11	0	35	0	0	0	0	0
Dunlin	225	72	140	28	794	735	94	25
Greenshank	2	4	7	2	3	2	1	2
Redshank	299	146	200	120	113	121	88	69
Black Guillemot	0	0	0	0	0	0	3	0
Black-headed Gull	206	233	390	326	241	329	250	234
Mediterranean Gull	0	0	65	0	23	0	1	19
Common Gull	55	33	21	128	27	39	22	174
Lesser Black-backed Gull	64	3	10	14	5	14	5	8
Herring Gull	10	3	4	14	28	112	36	52
Great Black-backed Gull	6	0	44	13	14	9	15	25



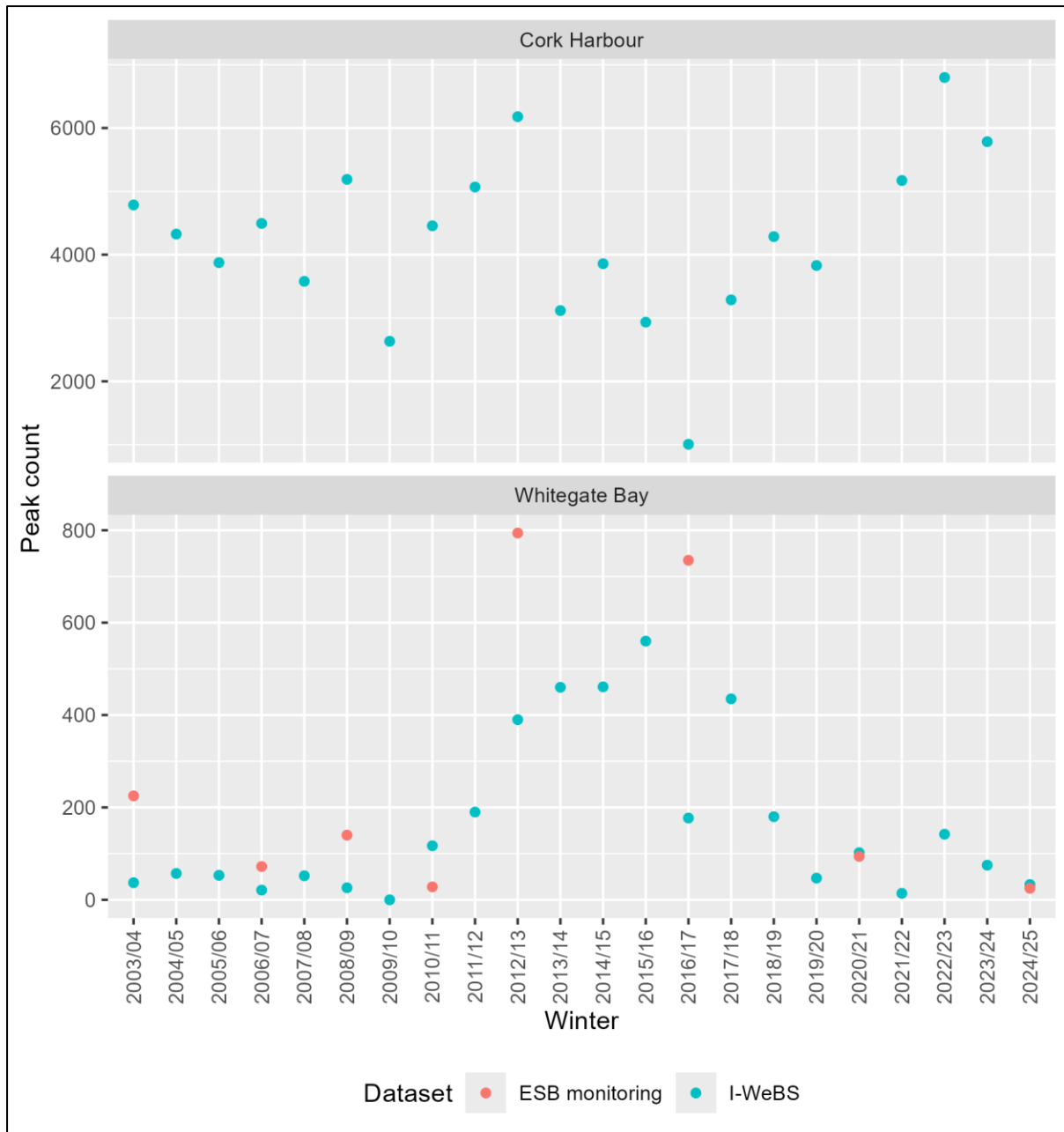
Note that there was poor coverage of Cork Harbour in the winter of 2020/21 due to COVID-19 so no peak counts are shown for Cork Harbour for that winter. Overall Cork Harbour counts are not available yet for the winter of 2024/25. Data were supplied by the Irish Wetland Bird Survey (I-WeBS), a scheme coordinated by BirdWatch Ireland under contract to the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage.

Figure 3.1. Annual peak counts for Mallard in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25.



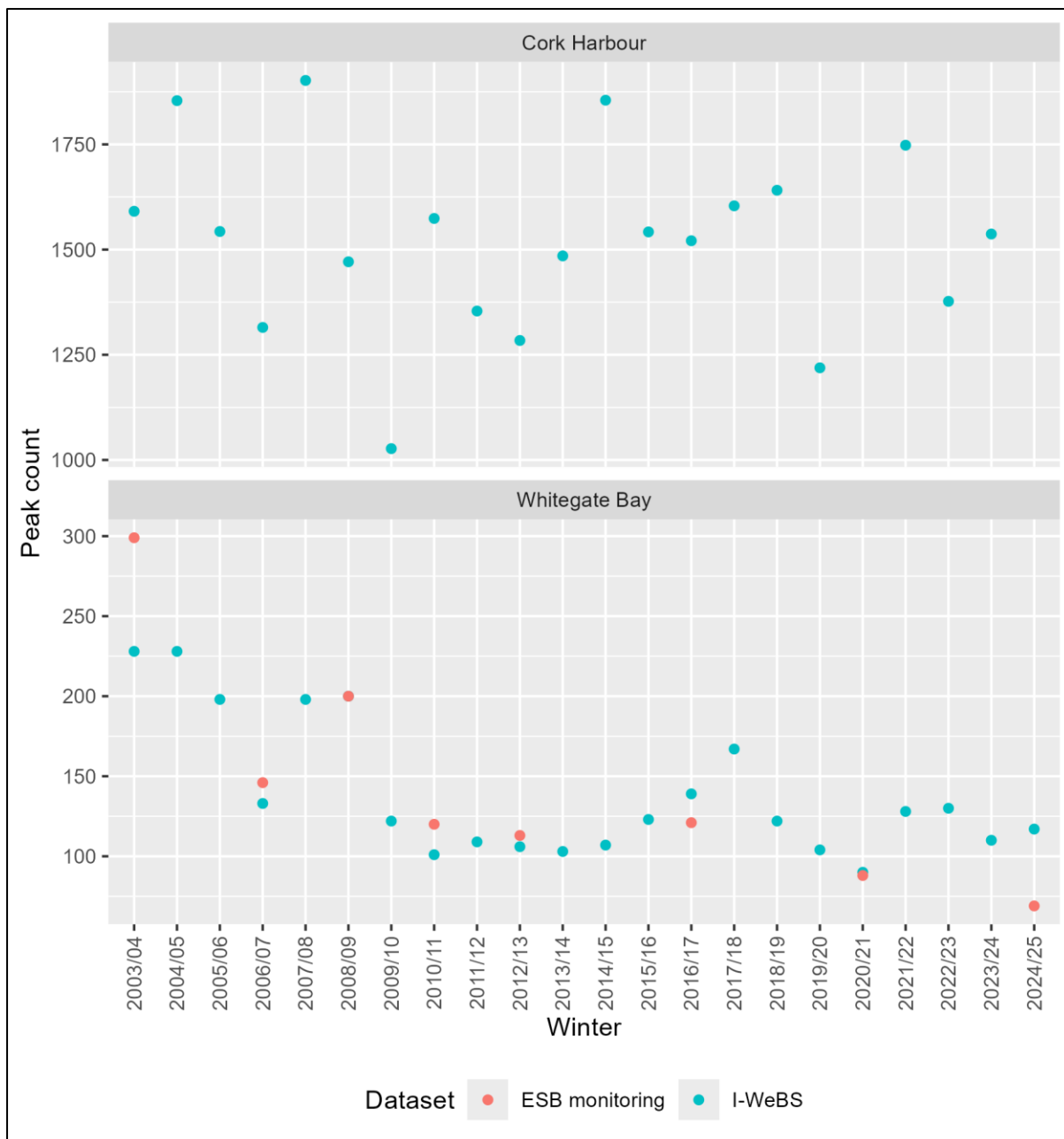
Note that there was poor coverage of Cork Harbour in the winter of 2020/21 due to COVID-19 so no peak counts are shown for Cork Harbour for that winter. Overall Cork Harbour counts are not available yet for the winter of 2024/25. Data were supplied by the Irish Wetland Bird Survey (I-WeBS), a scheme coordinated by BirdWatch Ireland under contract to the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage.

Figure 3.2. Annual peak counts for Black-tailed Godwit in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25.



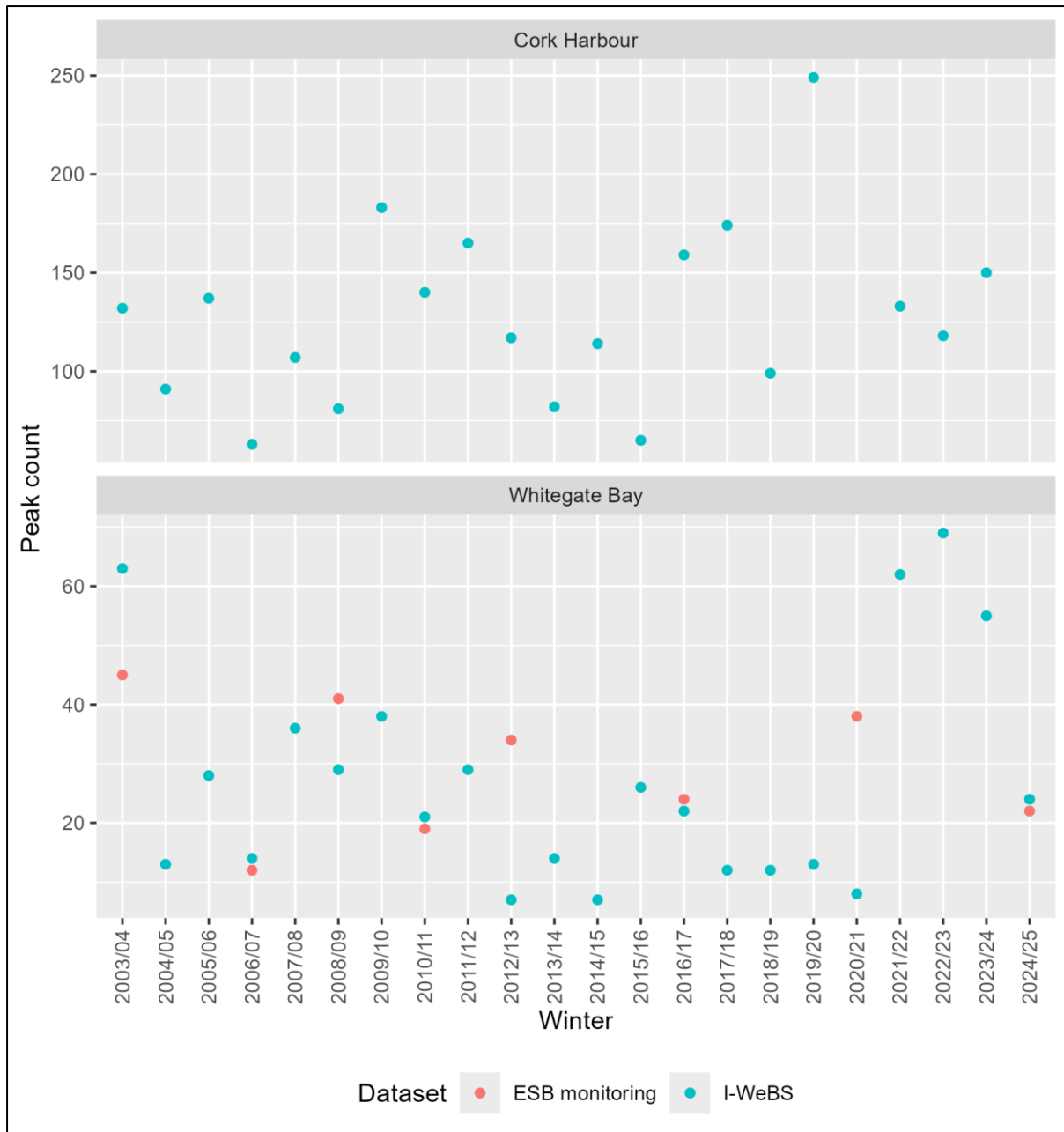
Note that there was poor coverage of Cork Harbour in the winter of 2020/21 due to COVID-19 so no peak counts are shown for Cork Harbour for that winter. Overall Cork Harbour counts are not available yet for the winter of 2024/25. Data were supplied by the Irish Wetland Bird Survey (I-WeBS), a scheme coordinated by BirdWatch Ireland under contract to the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage.

Figure 3.3. Annual peak counts for Dunlin in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25.



Note that there was poor coverage of Cork Harbour in the winter of 2020/21 due to COVID-19 so no peak counts are shown for Cork Harbour for that winter. Overall Cork Harbour counts are not available yet for the winter of 2024/25. Data were supplied by the Irish Wetland Bird Survey (I-WeBS), a scheme coordinated by BirdWatch Ireland under contract to the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage.

Figure 3.4. Annual peak counts for Redshank in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25.



Note that there was poor coverage of Cork Harbour in the winter of 2020/21 due to COVID-19 so no peak counts are shown for Cork Harbour for that winter. Overall Cork Harbour counts are not available yet for the winter of 2024/25. Data were supplied by the Irish Wetland Bird Survey (I-WeBS), a scheme coordinated by BirdWatch Ireland under contract to the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage.

Figure 3.5. Annual peak counts for Great Crested Grebe in Cork Harbour and Whitegate Bay, November – March, winter 2003/04 – winter 2024/25.

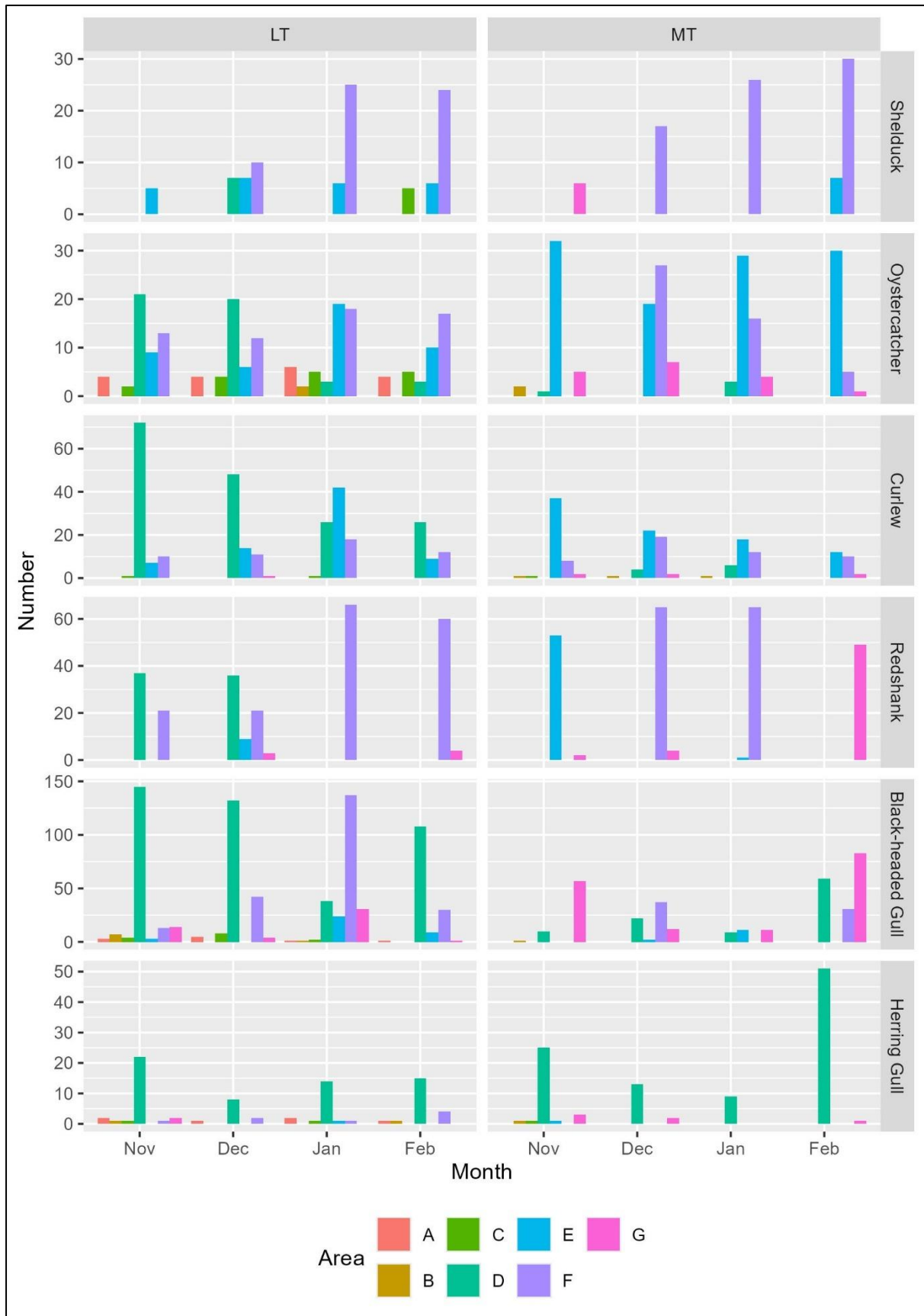
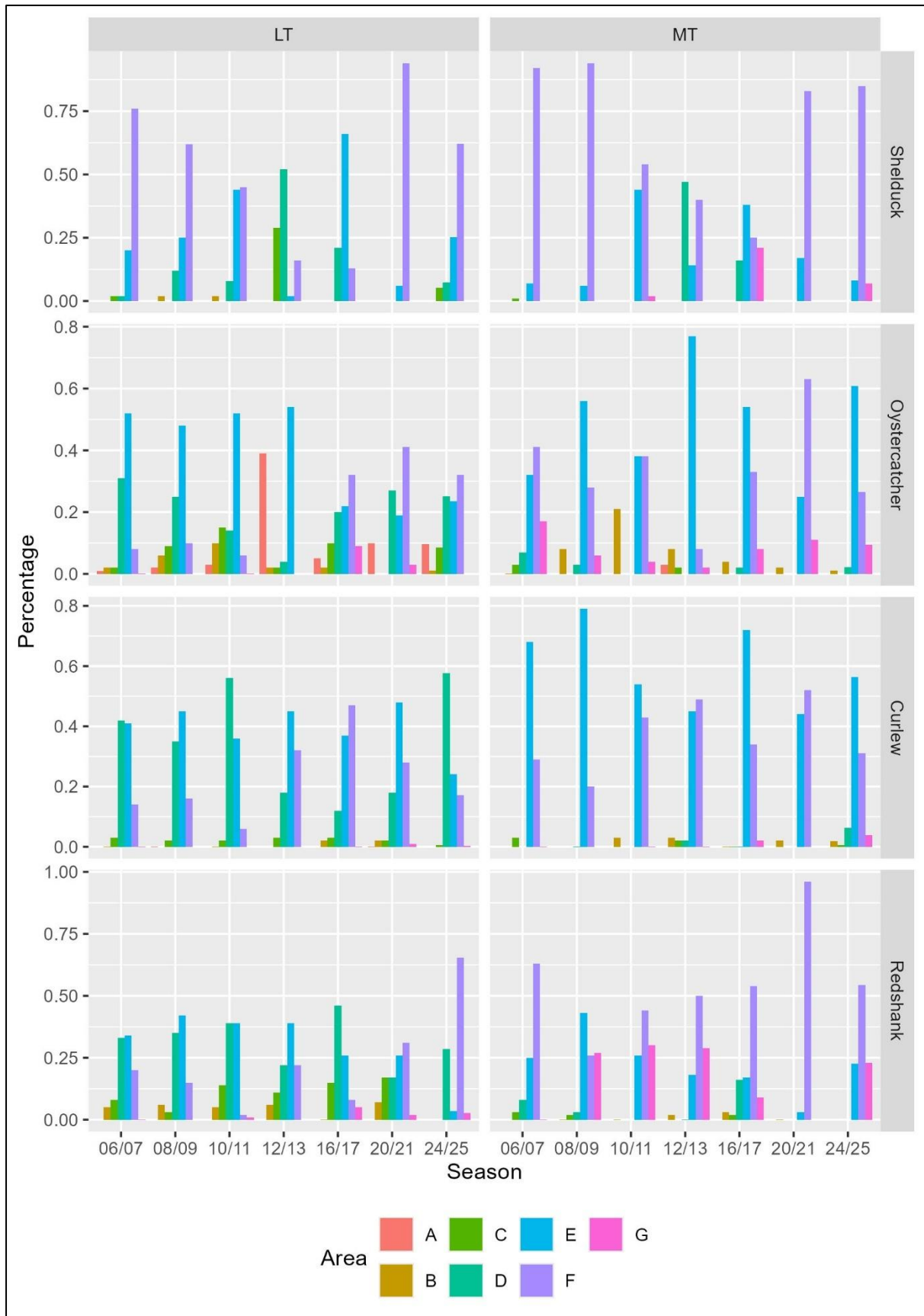
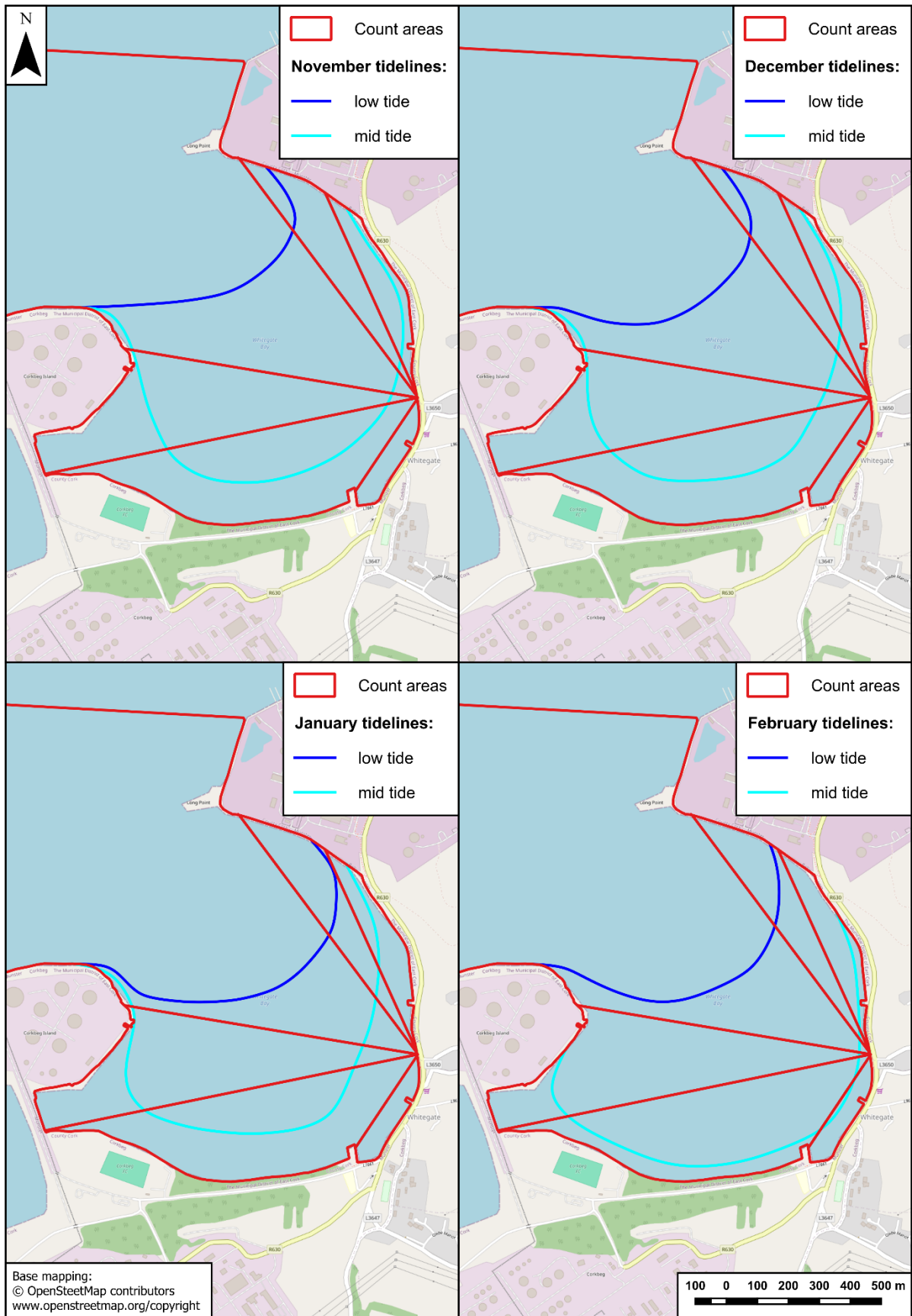


Figure 3.6. Area distribution of selected waterbird species on low tide and mid tide counts, winter 2024/25.



Area distribution data is not available for the 2003/04 monitoring counts.

Figure 3.7. Overall area distribution of selected waterbird species on low tide and mid tide counts, winters 2006/07 – 2024/25.



Map 3.1. Tidelines mapped on each count.

## 4. CONCLUSIONS

There have been long-term declines in the numbers of several waterbird species in Whitegate Bay, while a few species have increased. The population trends of most species in Whitegate Bay broadly matched those for Cork Harbour overall. However, there were a few exceptions.

The numbers of Redshank in Whitegate Bay have more than halved since the early 2000s, while their overall numbers in Cork Harbour have remained more or less stable over the same period. The numbers of Black-tailed Godwit have not increased in Whitegate Bay despite a large increase in the overall Cork Harbour population. There were increased Dunlin numbers in Whitegate Bay in the mid-2010s, which were not matched by the overall Cork Harbour population. Therefore, the populations of some waterbird species in Whitegate Bay appear to have been affected by site-specific factors. However, given the timings of the changes, and the ecologies of the species involved, it is unlikely that these site-specific factors were related to the operation and subsequent decommissioning of Aghada Generating Unit AD1.

The distribution patterns of the waterbird species associated with intertidal habitat between the areas used for the monitoring generally reflected the distribution of the tideline and the intertidal habitat exposed above the tideline. However, Shelduck seems to show a particular association with the southern section of the bay that is probably related to the distribution of the mud snail *Peringia ulvae*, which is one of its main prey species. Oystercatcher distribution at low tide seems to have shifted over the course of the monitoring period with a more even split between the three areas holding the majority of intertidal habitat in recent winters, compared to a concentration in one of these areas in the earlier winters.

The shoreline immediately to the east of the cooling water discharge only has intertidal habitat exposed on the lowest spring tides and generally supports few waterbirds.

In previous winters, Red-breasted Merganser and Great Crested Grebe were reported to occur in the vicinity of the cooling water discharge point, but no obvious aggregation of either species occurred in this area in the monitoring counts in the winter of 2024/25.

## REFERENCES

- Aquatic Services Unit (2007). Assessment of the Whitegate Bay Intertidal and Subtidal habitats as part of the Monitoring Conditions for the Aghada Generating Station IPPC Licence.
- Aquatic Services Unit (2009). Assessment of the Whitegate Bay Intertidal and Subtidal habitats as part of the Monitoring Conditions for the Aghada Generating Station IPPC Licence.
- Aquatic Services Unit (2011). Assessment of the Whitegate Bay Intertidal and Subtidal habitats as part of the Monitoring Conditions for the Aghada Generating Station IPPC Licence.
- Aquatic Services Unit (2013). Assessment of the Whitegate Bay Intertidal and Subtidal habitats as part of the Monitoring Conditions for the Aghada Generating Station IPPC Licence.
- Aquatic Services Unit (2017). Assessment of the Whitegate Bay Intertidal and Subtidal habitats as part of the Monitoring Conditions for the Aghada Generating Station IPPC Licence.
- Aquatic Services Unit (2021). Assessment of the Whitegate Bay Intertidal and Subtidal habitats as part of the Monitoring Conditions for the Aghada Generating Station IPPC Licence.
- Gittings, T. (2017). Nocturnal communal roosting behaviour in Great Crested Grebes *Podiceps cristatus*. *Irish Birds*, 10, 483–492.
- Lewis, L. J., & Tierney, T. D. (2014). Low tide waterbird surveys: Survey methods and guidance notes. *Irish Wildlife Manuals*, No. 80. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.
- Mayes, Eleanor (2007). Assessment of wintering waterfowl populations and their feeding use of Whitegate Bay. IPPC Licence 743 – Condition 6.8. Report to ESB International.
- Mayes, Eleanor (2009). Assessment of wintering waterfowl populations and their feeding use of Whitegate Bay. IPPC Licence 743 – Condition 6.8. Report to ESB International.
- Mayes, Eleanor (2011). Assessment of wintering waterfowl populations and their feeding use of Whitegate Bay. IPPC Licence 743 – Condition 6.8. Report to ESB International.
- Mayes, Eleanor (2013). Assessment of wintering waterfowl populations and their feeding use of Whitegate Bay. IPPC Licence 743 – Condition 6.8. Report to ESB Aghada Generating Station.
- Mayes, Eleanor (2017). Assessment of wintering waterfowl populations and their feeding use of Whitegate Bay. IPPC Licence 743 – Condition 6.8. Report to ESB Aghada Generating Station.
- Mayes, Eleanor (2021). Assessment of wintering waterfowl populations and their feeding use of Whitegate Bay. IPPC Licence 743 – Condition 6.8. Report to ESB Aghada Generating Station.

## Appendix 1 Waterbird survey datasets

Filename: ESB_2024_25_count_data.csv		
Contents: Waterbird count data		
Field	Data type	Details
Date	Date	Count date
Tide	Text	LT = low tide FL = flood tide
Area	Text	Count area
Zone	Text	INT = intertidal SUB = subtidal SUP = supratidal TERR = terrestrial TAQU = terrestrial (aquatic) See Lewis and Tierney (2014) for definitions
Roost	Text	Code identifying high tide roost locations NA = not applicable
Species	Text	BTO species code
Number	Integer	Species count
Behaviour	Text	F = feeding R = roosting H = flushed Y1 = flying (included in count totals) Y2 = flying (not included in count totals)
Quality	Text	Count quality: OK, EST (estimated), or UNDER (under-counted)
DC_count	Text	Overall count double-count: YES or NO
DC_area	Text	Sector double count: YES or NO
Notes	Text	Free-form field for any additional notes: e.g., location details, movements, behaviour, etc.

Filename: ESB_2024_25_count_details.csv		
Contents: Waterbird count timings and conditions		
Field	Data type	Details
Date	Date	Count date
Tide	Text	HT = high tide FL = flood tide
Time_start	Date-time	Start time of count
Time_finish	Date-time	End time of count
Waterbirds	Text	YES = waterbirds recorded NO = no waterbirds recorded
Cloud	Integer	Cloud cover during count: 1 = 0-33% 2 = 34-66% 3 = 67-100%
Rain	Integer	Rainfall during count: 1 = no rain 2 = light showers/drizzle 3 = heavy shows/rain 4 = heavy rain
Wind	Text	Compass bearing and Beaufort scale

<b>Filename: ESB_2024_25_count_details.csv</b>		
<b>Contents: Waterbird count timings and conditions</b>		
<b>Field</b>	<b>Data type</b>	<b>Details</b>
Visibility	Integer	Visibility during count: 1 = good 2 = moderate 3 = poor 4 = very poor
Notes	Text	Free-form field for any relevant additional details: e.g., further details when reduced visibility was recorded

## Appendix 2 Area counts

Table A2.1. Waterbird numbers recorded in each count area on each count, winter 2024/25.

Species	Area	Nov		Dec		Jan		Feb	
		LT	MT	LT	MT	LT	MT	LT	MT
Mute Swan	E	0	0	0	0	0	0	0	1
Light-bellied Brent Goose	D	0	0	0	0	0	0	10	0
	F	0	0	0	0	0	0	0	7
	G	0	0	0	0	0	0	0	1
Shelduck	C	0	0	0	0	0	0	5	0
	D	0	0	7	0	0	0	0	0
	E	5	0	7	0	6	0	6	7
	F	0	0	10	17	25	26	24	30
	G	0	6	0	0	0	0	0	0
Wigeon	D	0	0	1	0	0	0	1	0
	G	0	0	0	0	0	0	0	2
Teal	F	0	0	2	0	0	0	0	0
	G	1	0	0	0	0	0	0	0
Mallard	A	1	0	0	0	0	0	0	0
	B	0	0	0	0	0	2	0	0
	D	19	0	10	0	0	2	2	0
	F	0	0	0	4	0	0	0	0
	G	0	14	0	2	0	0	0	0
Red-breasted Merganser	D	2	0	0	0	8	8	0	2
Great Northern Diver	D	0	0	0	0	1	1	1	1
Cormorant	D	29	57	106	59	219	18	158	88
Shag	C	0	0	0	0	0	0	1	0
	D	0	0	0	4	5	2	2	5
Little Egret	A	2	0	3	0	1	0	0	0
	D	0	0	6	1	0	1	0	0
	E	0	4	0	1	0	1	0	0
	F	0	0	0	1	0	0	0	0
Grey Heron	A	2	0	1	0	2	0	1	0
	B	1	0	0	0	0	1	0	1
	D	1	0	1	1	3	1	0	1
	E	0	1	0	0	0	0	0	0
Great Crested Grebe	D	14	21	16	20	10	10	15	9
	E	0	1	0	1	0	0	0	3
Oystercatcher	A	4	0	4	0	6	0	4	0
	B	0	2	0	0	2	0	0	0
	C	2	0	4	0	5	0	5	0
	D	21	1	20	0	3	3	3	0
	E	9	32	6	0	19	29	10	30
	F	13	0	12	27	18	16	17	5
	G	0	5	0	7	0	4	0	1

Species	Area	Nov		Dec		Jan		Feb	
		LT	MT	LT	MT	LT	MT	LT	MT
Curlew	B	0	1	0	1	0	1	0	0
	C	1	1	0	0	1	0	0	0
	D	72	0	48	4	26	6	26	0
	E	7	37	14	22	42	18	9	12
	F	10	8	11	19	18	12	12	10
	G	0	2	1	2	0	0	0	2
	Black-tailed Godwit	D	3	0	5	0	0	0	0
E		0	1	0	0	0	0	0	0
G		3	7	0	0	0	0	0	0
Dunlin	D	0	0	10	0	0	0	0	0
	E	0	0	0	0	0	2	0	0
	F	0	0	0	0	1	0	25	0
	G	0	0	0	0	0	0	0	20
Greenshank	A	0	0	1	0	0	0	0	0
	D	0	0	0	0	0	0	2	0
	E	0	0	0	2	1	0	0	0
Redshank	D	37	0	36	0	0	0	0	0
	E	0	53	9	0	0	1	0	0
	F	21	0	21	65	66	65	60	0
	G	0	2	3	4	0	0	4	49
Black-headed Gull	A	3	0	5	0	1	0	1	0
	B	7	1	0	0	1	0	0	0
	C	4	0	8	0	2	0	0	0
	D	145	10	132	22	38	9	108	59
	E	3	0	0	2	24	11	9	0
	F	13	0	42	37	137	0	30	31
	G	14	57	4	12	31	11	1	83
Mediterranean Gull	D	9	0	2	0	0	0	0	0
	E	0	0	0	0	1	0	0	0
	F	10	0	3	1	16	0	2	0
	G	0	19	0	1	0	0	0	1
Common Gull	C	0	0	0	0	2	0	0	0
	D	4	0	2	0	0	6	1	0
	E	0	0	0	0	10	0	2	0
	F	6	0	12	5	161	1	129	37
	G	0	13	0	0	1	0	0	20
Lesser Black-backed Gull	D	1	1	0	0	0	3	2	1
	F	0	0	1	0	1	0	2	2
	G	0	0	0	1	0	0	0	5
Herring Gull	A	2	0	1	0	2	0	1	0
	B	1	1	0	0	0	0	1	0
	C	1	1	0	0	1	0	0	0
	D	22	25	8	13	14	9	15	51
	E	0	1	0	0	1	0	0	0
	F	1	0	2	0	1	0	4	0
	G	2	3	0	2	0	0	0	1

Species	Area	Nov		Dec		Jan		Feb	
		LT	MT	LT	MT	LT	MT	LT	MT
Great Black-backed Gull	A	1	0	0	0	0	0	0	0
	B	1	0	0	0	0	0	0	0
	D	23	20	6	4	17	10	15	5
	E	0	0	0	0	2	0	0	0
	F	0	0	0	2	3	1	3	0
	G	0	1	0	1	1	0	1	2