

Appendix 11-3 Migratory Geese Survey Report





ORIEL WIND FARM PROJECT

Environmental Impact Assessment Report Appendix 11-3: Migratory Geese Survey Report

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Oriel Wind Farm Project – Migratory Geese Survey Report

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1 INTRODUCTION

RPS was commissioned by Oriel Windfarm Limited (OWL) to undertake an Ecological Survey for Birds at Cooley Point, County Louth for the Oriel Wind Farm Project (hereafter referred to as “the Project”). The proposed Project involves the construction of an offshore wind farm in the Irish Sea east of Dundalk Bay.

The target species for these surveys were light bellied brent geese *Branta bernicla hrota*, a fully migratory species that typically arrives at its wintering grounds in Ireland from mid-September, remaining until mid-March or early April. The surveys were commissioned in response to information provided by consultees which suggested that there may be some movement of this species across Dundalk Bay, particularly during the autumn.

This report includes data collected from the site-specific migratory geese vantage point (VP) surveys undertaken between November 2019 and December 2019 and in April 2020.

It is recommended that this appendix is read in-conjunction with volume 2A, chapter 11: Offshore Ornithology and appendix 11-1: Offshore Ornithology Technical Report.

1.1 Project location

The Project is located in the Irish Sea, off the coast of County Louth (approximately 22 km east of Dundalk town centre and 18 km east of Blackrock). The closest wind turbine will be approximately 6 km from the closest shore on the Cooley Peninsula. The offshore cable corridor extends approximately 11 km southwest from the wind farm area to the landfall south of Dunany Point.

1.2 Aim and structure

This report has been written in accordance with the Chartered Institute of Ecological and Environmental Management (CIEEM) Guidelines for Ecological Report Writing (CIEEM, 2017).

The aim of the report is to provide a description of the bird survey methods used and the results of bird surveys. The purpose of this report is to investigate the potential for interaction between migratory light-bellied brent geese and the Project turbines.

This report is structured as follows:

1. Introduction;
2. Methodology; and
3. Results.

2 METHODOLOGY

2.1 Statement of authority

The ornithological surveys were undertaken by Nick Veale (between November and December 2019) and Breffni Martin (April 2020) for and on behalf of RPS.

Nick Veale is a self-employed environmental consultant and holds a BSc (Hons) in Environmental Science and an MSc in Environmental Management. Nick has over 19 years' experience in the field of ecology and environmental consultancy. Nick has a wealth of experience in ornithology and extensive expertise in upland bird surveys, breeding bird surveys, vantage point surveys, wetland bird surveys and wintering bird surveys. Nick is also trained and accredited by the Field Studies Council (FSC) as a European Seabirds at Sea (ESAS) surveyor and has over 8 years' professional experience on offshore energy projects.

Breffni Martin is a local ornithologist who provided local information and has observed and photographed light-bellied brent geese on migration in the area over a period of 15 years, as well as participating in organised bird census surveys such as Irish Wetland Bird Survey (IWeBS). He holds a BSc in Biology from University College Dublin and is chairman and founder of the Louth Nature Trust.

The report author, Adam McClure, is a Senior Ecologist with RPS and holds a BSc (Hons) in Palaeoecology and Archaeology with over 10 years of experience in field of ornithology. Adam has extensive expertise in breeding bird surveys, vantage point surveys, wetland bird surveys, wintering bird surveys and is a licensed bird ringer. He is the County Antrim Regional Representative for the British Trust for Ornithology (BTO). Adam is also a Full member of CIEEM and is currently a member of the CIEEM Irish Section Committee.

The report has been reviewed Sam O'Hara, a Senior Ecologist with RPS who holds a BSc (Hons) in Ecology and has over five years of experience in the field of ecology. Sam has experience of ecological field survey including habitat, mammal and bird survey and is a protected species licence holder. Sam is an Associate member of CIEEM.

The information prepared and provided is true and accurate at the time of issue of this report and has been prepared and provided in accordance with the CIEEM Code of Professional Conduct (CIEEM, 2019). We confirm that the professional judgement expressed herein is the true and bona fide opinion of our professional ecologists.

2.2 Vantage point survey

Since there is no guidance on vantage point (VP) survey protocols for the Republic of Ireland, guidance developed by Scottish Natural Heritage (SNH) for onshore wind farm ornithology surveys was followed (SNH, 2017).

Surveys to record movements of migratory waterfowl during the autumn migration (November and December 2019) and spring migration (April 2020) were conducted from a single coastal VP at Cooley Point, County Louth (OS Grid Reference IJ 220 050).

The main objective is to record movements of primary target species, between the VP location across Dundalk Bay to the offshore wind farm area, 6-12 km offshore.

The protocol followed during coastal migration surveys was a systematic 180° scan (including overhead) for birds in flight.

The primary target species were geese and swans, with secondary target species being ducks, divers, waders, raptors and passerines.

Surveys were not undertaken in weather conditions which were likely to preclude migration.

Data collected for each observation included:

- Time of observation;

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- Species;
- Flock size;
- Flight height band(s) (1 = 0-20 m, 2 = 20-250 m, 3 = 250-300 m, 4 = >300 m);
- Flight direction;
- Distance from observer (to the nearest 100 m); and
- Flight lines drawn onto maps, which were later digitised via geographic information system (GIS) mapping.

During the autumn migration period, seven surveys totalling 42 hours of observation were undertaken between November and December 2019. Spring migration surveys totalling 40 hours of observation were undertaken in April 2020.

The timings of surveys are based on data provided in Fox *et al.* (2017), but these timings are also considered suitable for recording migrating brent geese which were the primary target species.

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3 RESULTS

3.1 Vantage point survey

A total of 42 survey hours for migratory species were conducted in November and December 2019, with 186 flights recorded. In April 2020, a total of 40 survey hours were undertaken, with 15 flights recorded. The survey date start and end times and weather conditions are provided for each of the VP surveys in Table 3-1 below. Full details of the species recorded during the surveys are provided in annex 1.

Table 3-1: Survey dates and weather conditions recorded for completed surveys: November / December 2019 and April 2020.

Date	Start Time	End Time	Cloud (Oktas)	Visibility (km)	Wind (Beaufort) / Direction	Temp (°C)	Precipitation	Sunset / Sunrise	Sea State at 5 km
12/11/19	08:00	15:00	6	Good (> 3-5)	3-4 / W-NW	3	None	07:47	3-4
25/11/19	09:00	15:30	8	Good (> 3-5)	2-3 / SE	9	Drizzle at times	08:05	2-3
26/11/19	08:15	14:45	8	Good (> 3-5)	3-4 / SE	9	Light showers	08:05	3
30/11/19	07:50	14:20	6	Good (> 3-5)	3-4 / ESE	6	None	08:20	3-4
02/12/19	09:00	15:30	4	Good (> 3-5)	1-2 / W	1	None	08:23	1-2
12/12/19	08:40	15:40	8	Good (> 3-5)	2 / SW	7	None	08:36 / 16:04	2
20/12/19	10:05	16:35	7	Good (> 3-5)	2-3 / WSW-W	5	Light drizzle at start	08:43 / 16:05	2-3
10/04/20	17:30	20:30	7	Good (> 3-5)	2 / SW	10	None	20:18	2-3
11/04/20	06:20	09:30	3	Good (> 3-5)	Nil	10	None	06:33	0-1
11/04/20	17:30	20:30	4	Good (> 3-5)	Nil	12	None	20:20	0-1
12/04/20	11:00	14:00	4	Good (> 3-5)	3 / NE	9	None	06:30	3-4
12/04/20	18:30	21:30	2	Good (> 3-5)	3 / NE	11	None	20:22	3-4
13/04/20	18:00	21:30	4	Good (> 3-5)	3 / NE	11	None	20:24	3-4
14/04/20	18:00	21:00	8	Good (> 3-5)	Nil	13	None	20:26	0-1
15/04/20	16:00	19:00	8	Good (> 3-5)	Nil	12	None	20:28	0-1
16/04/20	06:00	09:00	8	Good (> 3-5)	2 / NE	10	None	06:21	0-1
16/04/20	18:00	21:00	8	Good (> 3-5)	2 / NE	12	None	20:30	2-3
20/04/20	18:00	21:00	8	Good (> 3-5)	2 / E	12	None	20:37	2-3
23/04/20	18:30	21:30	5	Good (> 3-5)	1 / NE	13	None	20:43	1-2
24/04/20	14:00	17:00	8	Good (> 3-5)	1 / NE	12	None	20:45	1-2

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3.1.1 Target species

Light-bellied brent goose was the only target species observed, with 45 individual bird flights recorded across the 17 survey dates. Flocks were also observed feeding on the shoreline and sitting on the sea surface (Table 3-2). All records were within height-band 1 (i.e. 0-20 m).

Table 3-2: Light-bellied brent goose flights recorded during the surveys.

Date	No. of bird flights	No. birds observed on sea surface / shoreline	Total no. of birds
12/11/19	6	0	66
25/11/19	4	0	56
26/11/19	3	0	40
30/11/19	3	0	47
02/12/19	8	0	106
12/12/19	5	62	100
20/12/19	3	32	62
10/04/20	2	0	437
11/04/20	2	0	287
12/04/20	2	0	567
13/04/20	1	0	218
14/04/20	3	0	1,635
15/04/20	0	0	0
16/04/20	2	0	55
20/04/20	1	5	50
23/04/20	0	1	1
24/04/20	0	0	0
Total	45	100	3727

Between November and December 2019, the majority of light-bellied brent geese were observed flying east to west past the survey location. The majority of individual bird flights were observed between 100 m and 500 m offshore, with the exception of one flock of 22 individuals which were observed approximately 1.5 km offshore in November 2019. Flights of target species are shown in annex 2.

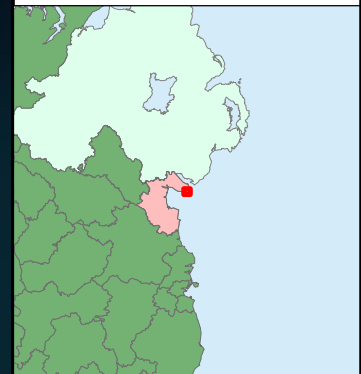
In April 2020, regular commuting of light-bellied brent geese was observed with birds flying low east to west past Cooley Point. These numbers increased until 14 April, following which numbers significantly dropped off, suggesting that a significant migratory move was made in the night or morning of 14/15 April. No geese were seen flying across Dundalk Bay from Dunany Point towards the mouth of Carlingford Lough; instead individuals were observed flying close to the shore, using the traditional roosting areas at Lurgangreen, Ballymascanlon Bay and Rockmarshal as bases for migration. These are shown in Figure 3-1 and Figure 3-2 below.



File: EOR0822_19522_FINAL_Fig3_1_FlightPath_260303

- Legend**
- Cooley Point vantage point survey location
 - Typical flight path of light-bellied brent geese

Data Sources: Client,



Project
Oriel Wind Farm Project

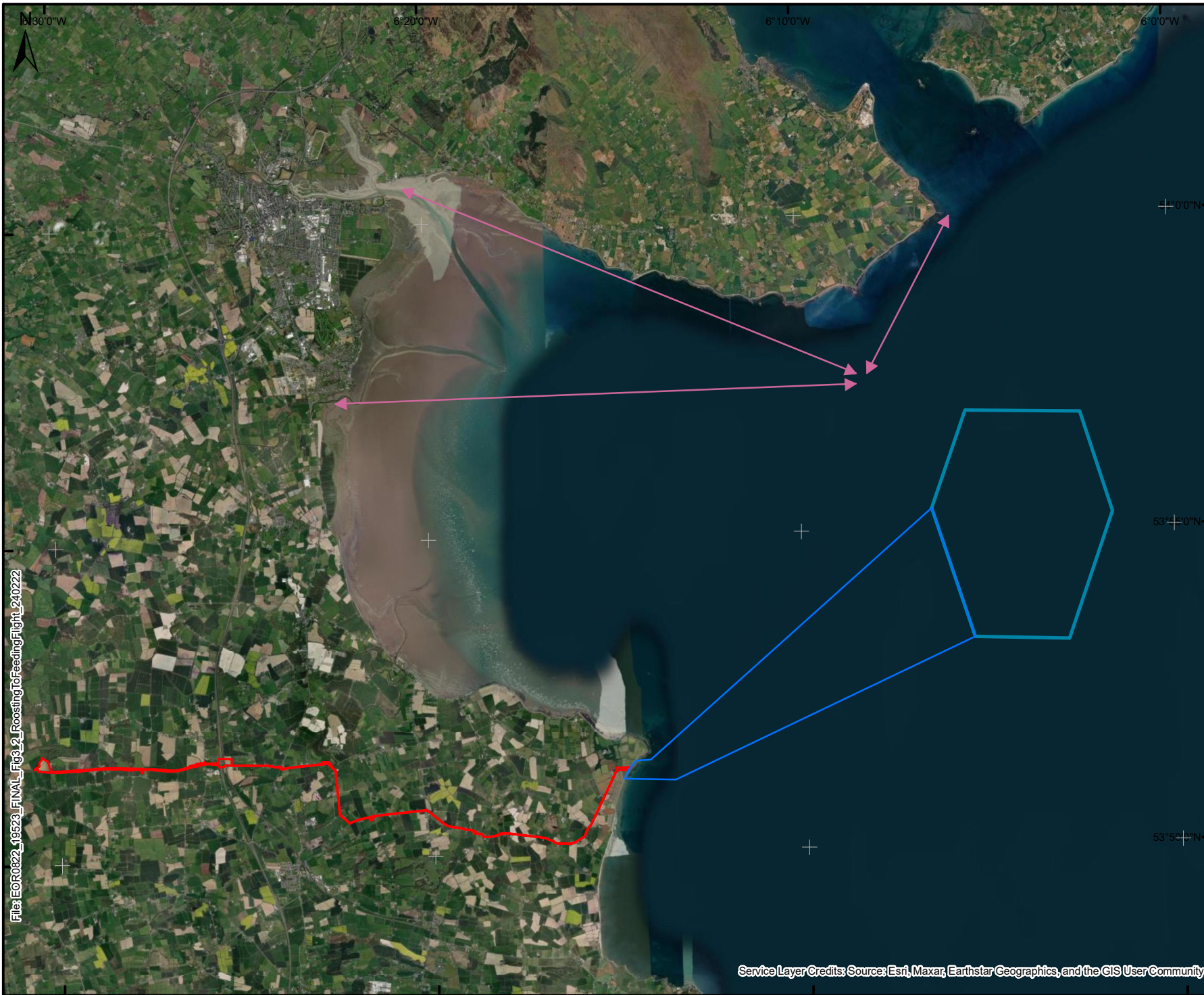
Title
Figure 3-1
Typical flight path of light-bellied brent geese commuting past Cooley Point.



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Issue Details	
Drawn By: NA	Project No. EOR0822 (MDR1520B)
Checked By: NA	File Ref: EOR0822_ORN_T_19522_FINAL
Approved By: AO	Projection: ITM (IRENET95) Geographic Co-ordinates: ETRS89
Scale: 1:21,074 @A4	Date: 08/03/23

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File: EOR0822_19523_FINAL_Fig 3-2_Roosting to Feeding Flight 24/02/22

Legend

- Offshore Wind Farm Area
- Offshore Cable Corridor
- Onshore Cable Route
- ↔ Typical roosting to feeding flight path

Data Sources: Client,



Client



Project

Oriel Wind Farm Project

Title

**Figure 3-2
Typical roosting to feeding flight path of light-bellied brent geese in Dundalk Bay**



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Issue Details

Drawn By: NG	Project No. EOR0822 (MDR1520B)
Checked By: NG	File Ref:
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Scale: 1:150,000 @A4	Projection: ITM (IRENET95) Geographic Co-ordinates: ETRS89
Date: 12/03/2024	

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3.1.2 Secondary species

A total of 154 flights, representing 23 secondary species were recorded (Table 3-3 below), of which 150 were in height-band 1 (i.e. 0-20 m) and four were within height-band 2 (i.e. 20-250 m).

The most commonly recorded species was common scoter *Melanitta nigra* with 37 flights and 1,448 individual birds observed over the survey period.

Table 3-3: Secondary species recorded during the surveys.

Secondary Species	Total No. of Flights	Total No. of Birds
Bar-tailed godwit <i>Limosa lapponica</i>	2	5
Black-tailed godwit <i>Limosa limosa</i>	2	34
Curlew <i>Numenius arquata</i>	16	33
Common scoter <i>Melanitta nigra</i>	37	1,448
Dunlin <i>Calidris alpina</i>	7	129
Eider <i>Somateria mollissima</i>	1	5
Great crested grebe <i>Podiceps cristatus</i>	7	12
Greenshank <i>Tringa nebularia</i>	1	2
Golden plover <i>Pluvialis apricaria</i>	1	28
Grey plover <i>Pluvialis squatarola</i>	1	3
Knot <i>Calidris canutus</i>	1	18
Lapwing <i>Vanellus vanellus</i>	1	21
Great northern diver <i>Gavia immer</i>	11	11
Oystercatcher <i>Haematopus ostralegus</i>	17	46
Peregrine <i>Falco peregrinus</i>	1	1
Red-throated diver <i>Gavia stellata</i>	21	33
Redshank <i>Tringa totanus</i>	1	2
Red-breasted merganser <i>Mergus serrator</i>	12	40
Ringed plover <i>Charadrius hiaticula</i>	4	24
Sanderling <i>Calidris alba</i>	2	34
Shelduck <i>Tadorna tadorna</i>	4	12
Turnstone <i>Arenaria interpres</i>	2	13
Whimbrel <i>Numenius phaeopus</i>	2	4

4 REFERENCES

CIEEM (2017) *Guidelines for Ecological Report*. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2019) *Code of Professional Conduct*. Chartered Institute of Ecology and Environmental Management, Winchester.

Fox, T., Francis, I., Norriss, D. & Walsh, A. (2017) *Report of the 2016/17 international census of Greenland White-fronted Geese*. Greenland White-fronted Goose Study, Rønde, Denmark and Wexford, Ireland.

SNH (2017) *Recommended bird survey methods to inform impact assessment of onshore wind farms*. SNH Guidance. SNH, Battleby.

Annex 1: Raw data

Site	Oriel Migration
Date	12/11/2019
Observer	N VEALE
Location	VP Cooley Point
Start Time	08:00
Finish Time	15:00
Sunrise/sunset	07:47

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations
Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	08:00	4	W	0	5/8	2	2	0	4	TEMP 3oc
Hr 2	09:00	4	W	0	7/8	2	2	0	4	
Hr 3	10:00	4	W	0	6/8	2	2	0	4	TEMP 4oc
Hr 4	12:00	3	WNW	0	6/8	2	2	0	4	
Hr 5	13:00	3	WNW	0	6/8	2	2	0	3	TEMP 6oc
Hr 6	14:00	3	WNW	0	6/8	2	2	0	3	

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

Primary target species: All geese and swans. Secondary target species: Seaduck, waders, raptors and migrant passerines

6 TARGET FLIGHTS

26 BRENT FEEDING ON THE INTERTIDAL SHORELINE AT THE POINT

Vantage Point Watch Recording Sheet

Sheet number /

Site: Cooley Point

Vantage Point Location:

Date:
12/11/2019

Observer:
NICK VEALE

For primary target species record details on this sheet plus draw flightlines on map
For secondary target species only record details on this sheet (no flightlines)

Start Time: 08:00

Finish Time: 15:00

Flight no.	Sp code/sex/age	Flock size	Nearest distance to flock (to 100m)	Start Time	Flight direction	Height bands: 1 = <20m, 2 = 20 – 250m, 3 = 250 - 300m, 4 = >300m. TICK AS APPROPRIATE				Notes
						1	2	3	4	
1	RH	2	400	08:12	S		2			SEASTATE 4
2	CX	90	2000	08:39	SW	1				LANDED WITH RAFT OF APROXIMATLY 900 cx
3	CX	29	800	09:27	SSW	1				
4	PB	15	300	09:49	SW	1				
5	DN	6	100	09:55	SW	1				
6	PB	23	800	10:23	NE	1				
7	ND	1	500	10:50	W	1				
8	CU	1	100	12:02	S	1				
9	CX	39	2500	12:24	SSW	1				
10	CU	2	100	12:26	SW	1				
11	TT	1	600	12:29	SW	1				
12	RH	1	500	12:42	SW	1				
13	PB	11	200	12:50	SW	1				LANDED IN POOL INFRONT OF VP 4AD 7JUV
14	OC	4	100	13:19	NNW	1				
15	RH	1	800	13:20	SW	1				
16	PB	6	100	13:28	SW					6 ADULTS
17	DN	16	100	13:49	SW	1				
18	ND	1	1000	14:04	NE	1				

Site	Oriel Migration
Date	25/11/2019
Observer	N VEALE
Location	VP Cooley Point
Start Time	09:00
Finish Time	15:30
Sunrise/sunset	08:05

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations
Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	09:00	3	ESE	1	8/8	2	2	0	3	TEMP 9oc
Hr 2	10:00	3	ESE	1	8/8	2	2	0	3	
Hr 3	11:00	3	SE	0	8/8	2	2	0	3	TEMP 10oc
Hr 4	12:30	2	SE	1	7/8	2	2	0	3	
Hr 5	13:30	2	SE	1	8/8	2	2	0	2	TEMP 9oc
Hr 6	14:30	2	SE	0	8/8	2	2	0	2	

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

Primary target species: All geese and swans. Secondary target species: Seaduck, waders, raptors and migrant passerines

4 TARGET FLIGHTS

Vantage Point Watch Recording Sheet

Sheet number 1 / 2

Site: Cooley Point

Vantage Point Location:

Date:
25/11/2019

Observer:
NICK VEALE

For primary target species record details on this sheet plus draw flightlines on map
For secondary target species only record details on this sheet (no flightlines)

Start Time: 09:00

Finish Time: 15:30

Flight no.	Sp code/sex/age	Flock size	Nearest distance to flock (to 100m)	Start Time	Flight direction	Height bands: 1 = <20m, 2 = 20 – 250m, 3 = 250 - 300m, 4 = >300m. TICK AS APPROPRIATE				Notes
						1	2	3	4	
1	13RP / 9TT / 3RK	14	>100	09:00	SW	1				ON SHORE JUST NORTH OF VP FLUSHED AND FLEW NE
2	OC	6	100	09:16	SW	1				
3	CX	54	1000	09:22	S	1				
4	PB	19	100	09:46	SW	1				
5	PB 2AD/ 4 JUV	6	100	09:59	SW	1				FAMILY GROUP
6	BA	2	100	10:15	SW	1				
7	PB	14	300	10:37	SW	1				
8	RH	2	300	10:46	SW	1				
9	CX	85	100	11:01	SW	1				
10	DN	12	100	11:14	SW	1				
11	CU	3	100	11:24	SW	1				
12	CX 10M/5F	15	500	11:26	NE	1				
13	CU	2	100	11:47	SW	1				
14	RH	1	400	13:03	NE	1				
15	PB	17	400	13:29	NE	1				
16	CX	7	100	13:50	SW	1				
17	CX	26	500	14:06	N	1				
18	BA	3	100	14:23	SW	1				

Site	Oriel Migration
Date	26/11/2019
Observer	NICK VEALE
Location	VP Cooley Point
Start Time	08:15
Finish Time	14:45
Sunrise/sunset	08:05

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations
Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	08:15	3	E	2	8/8	2	2	0	3	TEMP 9oc LIGHT RAIN
Hr 2	09:15	3	SE	2	8/8	2	2	0	3	LIGHT RAIN
Hr 3	10:15	4	ESE	2	8/8	2	2	0	3	TEMP 10oc LIGHT RAIN
Hr 4	11:45	4	ESE	1	7/8	2	2	0	3	DRIZZLE
Hr 5	12:45	4	SE	0	8/8	2	2	0	3	TEMP 9oc
Hr 6	13:45	3	SSE	0	8/8	2	2	0	3	

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

Primary target species: All geese and swans. Secondary target species: Seaduck, waders, raptors and migrant passerines

3 TARGET FLIGHTS

Vantage Point Watch Recording Sheet

Sheet number 1 / 2

Site: Cooley Point	Vantage Point Location:	Date: 26/11/2019	Observer: NICK VEALE
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For primary target species record details on this sheet plus draw flightlines on map For secondary target species only record details on this sheet (no flightlines)	Start Time: 08:15
	Finish Time: 14:45

Flight no.	Sp code/sex/age	Flock size	Nearest distance to flock (to 100m)	Start Time	Flight direction	Height bands: 1 = <20m, 2 = 20 – 250m, 3 = 250 - 300m, 4 = >300m. TICK AS APPROPRIATE				Notes
						1	2	3	4	
1	RH	2	100	08:15	N	1				
2	DN	31	100	08:17	SW	1				
3	PB	4	100	08:21	SW	1				1 ADULT 3 JUV
4	RH	2	300	08:44	SW	1				
5	GG	1	300	09:01	SW	1				
6	CU	1	100	09:26	SW	1				
7	CX	58	1000	09:32	S	1				
8	OC	2	100	09:38	SW	1				
9	ND	1	400	10:13	NW	1				
10	PB	22	1500	10:41	SW	1				FLIGHT PICKED UP IN SCOPE
11	ND	1	500	11:12	S	1				
12	PB	14	200	11:57	SW	1				4 AD / 10 JUV
13	RP	5	0	12:15	SW	1				ON SHORELINE NEAR VP WITH FLOCK OF TT
14	TT	12	0	12:16	SW	1				LANDED WITH RP
15	RK	2	100	12:34	SW	1				
16	CX	38	1000	12:53	SW	1				
17	RH	2	700	13:09	SW	1				
18	RM	4	300	13:20	SW	1				

Site	Oriel Migration
Date	30/11/2019
Observer	NICK VEALE
Location	VP Cooley Point
Start Time	07:50
Finish Time	14:20
Sunrise/sunset	08:20

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations
Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	07:50	3	ESE	0	6/8	2	2	0	3	TEMP 6oc
Hr 2	08:50	3	ESE	0	7/8	2	2	0	3	
Hr 3	09:50	4	ESE	0	6/8	2	2	0	3	TEMP 7oc
Hr 4	11:20	4	ESE	0	7/8	2	2	0	4	
Hr 5	12:20	4	ESE	0	5/8	2	2	0	4	TEMP 6oc
Hr 6	13:20	3	E	0	4/8	2	2	0	4	

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

Primary target species: All geese and swans. Secondary target species: Seaduck, waders, raptors and migrant passerines

3 TARGET FLIGHTS

QUIET

Site	Oriel Migration
Date	02/12/2019
Observer	NICK VEALE
Location	VP Cooley Point
Start Time	09:00
Finish Time	15:30
Sunrise/sunset	08:23

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	09:00	1	W	0	2/8	2	2	1	1	TEMP 0oc GROUND FROST
Hr 2	10:00	1	WNW	0	2/8	2	2	0	1	
Hr 3	11:00	2	WNW	0	4/8	2	2	0	1	TEMP 2oc
Hr 4	12:30	2	W	0	4/8	2	2	0	2	
Hr 5	13:30	2	W	0	5/8	2	2	0	2	TEMP 2oc
Hr 6	14:30	2	WSW	0	5/8	2	2	0	2	

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

Primary target species: All geese and swans. Secondary target species: Seaduck, waders, raptors and migrant passerines

8 TARGET FLIGHTS

Vantage Point Watch Recording Sheet

Sheet number 1 / 2

Site: Cooley Point

Vantage Point Location:

Date:
02/12/2019

Observer:
NICK VEALE

For primary target species record details on this sheet plus draw flightlines on map
For secondary target species only record details on this sheet (no flightlines)

Start Time: 09:00

Finish Time: 15:30

Flight no.	Sp code/sex/age	Flock size	Nearest distance to flock (to 100m)	Start Time	Flight direction	Height bands: 1 = <20m, 2 = 20 – 250m, 3 = 250 - 300m, 4 = >300m. TICK AS APPROPRIATE				Notes
						1	2	3	4	
1	CU	5	100	09:04	SW	1				
2	CX	9	500	09:07	NE	1				3M/7F
3	PB	26	500	09:15	SW	1				
4	CX	75	1000	09:16	NE	1				
5	OC	1	100	09:19	SW	1				
6	GG	3	300	09:34	SW	1				
7	RM	1	100	09:54	SW	1				
8	CX	45	800	09:55	SW	1				
9	PB	11	100	09:57	NE	1				FLUSHED FROM SHORE BY DOG AND WALKER
10	RH	2	100	10:25	SW	1				
11	OC	2	100	10:48	SW	1				
12	PB	13	100	11:02	SW	1				6 ADULTS 7 JUV HEADING SOUTH
13	SU	2	200	11:38	SW	1				
14	RH	2	100	11:56	SW	1				
15	ND	1	600	12:39	SW	1				
16	BW	18	200	12:56	NE	1				
17	PB	4	200	13:20	SW	1				ADULTS
18	RH	1	100	13:46	N	1				

Site	Oriel Migration
Date	12/12/2019
Observer	NICK VEALE
Location	VP
Start Time	08:40
Finish Time	15:40
Sunrise/sunset	08:36/16:04

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations
Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	08:40	3	SW	0	8/8	2	2	0	2	TEMP 6oc
Hr 2	09:40	2	SW	0	8/8	2	2	0	2	
Hr 3	10:40	2	WSW	0	8/8	2	2	0	2	TEMP 7oc
Hr 4	12:40	2	WSW	0	8/8	2	2	0	2	
Hr 5	13:40	2	WSW	0	8/8	2	2	0	2	TEMP 7oc
Hr 6	14:40	2	WSW	0	8/8	2	2	0	2	

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

Primary target species: All geese and swans. Secondary target species: Seaduck, waders, raptors and migrant passerines

5 TARGET FLIGHTS

62 BRENT FEEDING ON THE SHORELINE BETWEEN COOLEY AND BALLAGAN. OBSERVED DURING 1 HOUR BREAK.

Vantage Point Watch Recording Sheet

Sheet number 1 / 2

Site: Cooley Point

Vantage Point Location:

Date:
12/12/2019

Observer:
NICK VEALE

For primary target species record details on this sheet plus draw flightlines on map
For secondary target species only record details on this sheet (no flightlines)

Start Time: 08:40

Finish Time: 15:40

Flight no.	Sp code/sex/age	Flock size	Nearest distance to flock (to 100m)	Start Time	Flight direction	Height bands: 1 = <20m, 2 = 20 – 250m, 3 = 250 - 300m, 4 = >300m. TICK AS APPROPRIATE				Notes
						1	2	3	4	
1	CX	31	1000	08:41	SW	1				
2	SU	4	200	08:44	SW	1				
3	ND	1	500	08:52	SSW		2			
4	L	21	100	08:56	SW	1				
5	BW	16	200	08:59	SW	1				
6	GG	2	400	09:05	NE	1				
7	RH	2	300	09:11	SW	1				
8	DN	14	100	09:28	SW	1				
9	PB	3	400	10:06	SW	1				
10	CX	53	1200	10:28	SW	1				
11	OC	2	100	11:18	SW	1				
12	GG	2	400	11:35	SW	1				
13	PB	8	200	13:04	SW	1				3 ADULTS 5 YOUNG
14	PB	11	400	13:08	SW	1				LOOKED LIKE 2 FAMILY GROUPS 4 ADULTS
15	PB	3	100	13:31	SW	1				ADULTS
16	RH	1	500	13:54	SW	1				
17	GV	3	100	14:06	SW	1				
18	PB	13	700	14:23	NE	1				

Site	Oriel Migration
Date	20/12/2019
Observer	NICK VEALE
Location	VP
Start Time	10:05
Finish Time	16:35
Sunrise/sunset	08.43/16:05

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	10:05	3	WSW	1	8/8	2	2	0	2	TEMP 4oc Light drizzle
Hr 2	11:05	3	WSW	1	8/8	2	2	0	3	Light drizzle
Hr 3	12:05	3	W	0	7/8	2	2	0	3	TEMP 5oc
Hr 4	13:35	2	W	0	7/8	2	2	0	2	
Hr 5	14:35	2	W	0	6/8	2	2	0	2	TEMP 7oc
Hr 6	15:35	2	WSW	0	6/8	2	2	0	2	

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

Primary target species: All geese and swans. Secondary target species: Seaduck, waders, raptors and migrant passerines

3 TARGET FLIGHTS

32 BRENT FEEDING ON THE SHORELINE NORTH OF COOLEY POINT OBSERVED DURING BREAK

Vantage Point Watch Recording Sheet

Sheet number 1 / 2

Site: Cooley Point

Vantage Point Location:

Date:
20/12/2019

Observer:
NICK VEALE

For primary target species record details on this sheet plus draw flightlines on map
For secondary target species only record details on this sheet (no flightlines)

Start Time: 10:05

Finish Time: 16:35

Flight no.	Sp code/sex/age	Flock size	Nearest distance to flock (to 100m)	Start Time	Flight direction	Height bands: 1 = <20m, 2 = 20 – 250m, 3 = 250 - 300m, 4 = >300m. TICK AS APPROPRIATE				Notes
						1	2	3	4	
1	RH	1	200	10:07	NE	1				
2	ND	1	400	10:11	SW	1				
3	OC	2	100	10:12	SW	1				
4	CX	80	700	10:14	NE	1				
5	OC	2	100	10:37	SW	1				
6	OC	2	100	11:02	SW	1				
7	CX	48	800	11:24	NNE	1				
8	ND	1	500	11:46	S	1				
9	PB	14	200	13:09	SW	1				
10	CU	1	100	13:34	SW	1				
11	RM	2	300	13:53	SW	1				
12	RP	9	100	14:09	SW	1				
13	CX	16	1000	14:22	SW	1				4M,2F
14	OC	8	100	14:23	NE	1				
15	PB	6	100	14:47	SW	1				
16	PB	10	200	15:02	SW	1				
17	OC	3	100	15:06	NNE	1				
18	RM	2	300	15:09	NE	1				1M1F

Site	Oriel Migration
Date	10/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	1730
Finish Time	2030
Sunrise/sunset	2020

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	1730	2	SW	0	7 / 8	2	2	0	2-3	Temp: 10°C
Hr 2										
Hr 3										
Hr 4										
Hr 5										
Hr 6										

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

Two flocks passed westwards at dusk

Site	Oriel Migration
Date	11/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	0620 / 1730
Finish Time	0930 / 2030
Sunrise/sunset	0633 / 2020

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	0620	0	N/A	0	3 / 8	2	2	0	0-1	Temp: 10°C
Hr 2										
Hr 3										
Hr 4	1730	0	N/A	0	4 / 8	2	2	0	0-1	Temp: 12°C
Hr 5										
Hr 6										

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

One flock passed eastwards at dawn
One small flock passed westwards at dusk

Site	Oriel Migration
Date	12/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	1100 / 1830
Finish Time	1400 / 2130
Sunrise/sunset	0633 / 2020

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	1100	3	NE	0	4/8	2	2	0	3-4	Temp: 9°C
Hr 2										
Hr 3										
Hr 4	1830	3	NE	0	2/8	2	2	0	3-4	Temp: 11°C
Hr 5										
Hr 6										

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

One flock passed eastwards at dawn
One small flock passed westwards at dusk

Site	Oriel Migration
Date	13/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	1800
Finish Time	2130
Sunrise/sunset	2024

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	1800	3	NE	0	4 / 8	2	2	0	3-4	Temp: 11°C
Hr 2										
Hr 3										
Hr 4										
Hr 5										
Hr 6										

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

One flock passed eastwards in the evening

Site	Oriel Migration
Date	14/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	1800
Finish Time	2100
Sunrise/sunset	2040

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	<i>Start time</i>	<i>Wind speed</i>	<i>Wind direction</i>	<i>Rain</i>	<i>Cloud cover</i>	<i>Cloud height</i>	<i>Visibility</i>	<i>Frost</i>	<i>Seastate at 5km</i>	<i>Notes:</i>
Hr 1	1800	0	N/A	0	8 / 8	2	2	0	0-1	Temp: 13°C
Hr 2	1900	0	N/A	0	8 / 8	2	2	0	0-1	
Hr 3	2000	0	N/A	0	8 / 8	2	2	0	0-1	
Hr 4										
Hr 5										
Hr 6										

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

Three flocks passed westwards in the evening

Site	Oriel Migration
Date	15/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	1600
Finish Time	1900
Sunrise/sunset	2028

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	1600	0	N/A	0	8 / 8	2	2	0	0-1	Temp: 12°C
Hr 2										
Hr 3										
Hr 4										
Hr 5										
Hr 6										

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

No birds observed

Site	Oriel Migration
Date	16/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	0600 / 1800
Finish Time	0900 / 2100
Sunrise/sunset	0621 / 2030

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	0600	2	NE	0	8 / 8	2	2	0	0-1	Temp: 10°C
Hr 2										
Hr 3										
Hr 4	1800	2	NE	0	8 / 8	2	2	0	2-3	Temp: 12°C
Hr 5										
Hr 6										

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

One small flock passed east in morning and another west in evening

Site	Oriel Migration
Date	20/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	1800
Finish Time	2100
Sunrise/sunset	2037

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	1800	2	E	0	8 / 8	2	2	0	2-3	Temp: 12°C
Hr 2										
Hr 3										
Hr 4										
Hr 5										
Hr 6										

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

One small flock passed west in late evening; a party of five birds were feeding on the rocks and remained on the water after dusk

Site	Oriel Migration
Date	23/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	1830
Finish Time	2130
Sunrise/sunset	2043

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	1830	1	NE	0	5 / 8	2	2	0	1-2	Temp: 13°C
Hr 2										
Hr 3										
Hr 4										
Hr 5										
Hr 6										

Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

A single bird remained on the water throughout the watch, occasionally calling as though waiting for a flock.

Site	Oriel Migration
Date	24/04/20
Observer	Breffni Martin
Location	Cooley Point
Start Time	1400
Finish Time	1700
Sunrise/sunset	2042

W-Speed		W-Direction	Rain		Cloud Cover		Cloud Height		Visibility	
Calm	0	Use 16 point	None	0	In eighths		<150m	0	Poor (<1km)	0
Light air	1	Compass	Drizzle/Mist	1	e.g.	3/8	150-500m	1	Moderate (1-3km)	1
Light breeze	2	N	Light showers	2			>500m	2	Good (>3-5km)	2
Gentle breeze	3	NNE	Heavy showers	3						
Mod. breeze	4	NE	Heavy rain	4						
Fresh breeze	5	ENE								
Strong breeze	6	E	Snow		Frost					
Mod. gale	7	Etc	None	0	None	0				
Fresh gale	8		On site	1	Ground	1				
Strong gale	9		High ground	2	All day	2				
Whole gale	10									
Storm	11									
Hurricane	12									

VP Locations

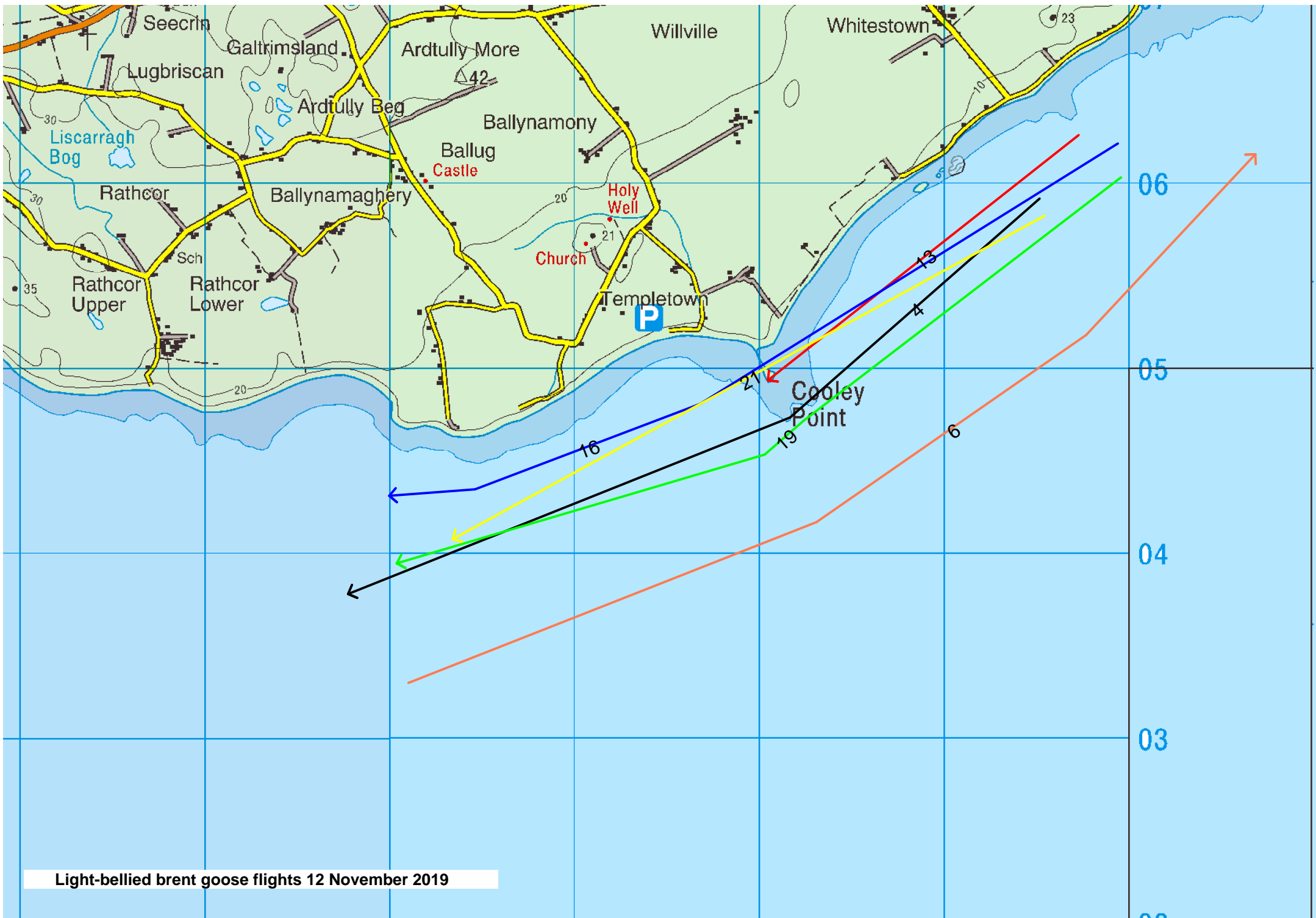
Cooley Point

Weather	Start time	Wind speed	Wind direction	Rain	Cloud cover	Cloud height	Visibility	Frost	Seastate at 5km	Notes:
Hr 1	1400	1	NE	0	8 / 8	2	2	0	1-2	Temp: 12°C
Hr 2										
Hr 3										
Hr 4										
Hr 5										
Hr 6										

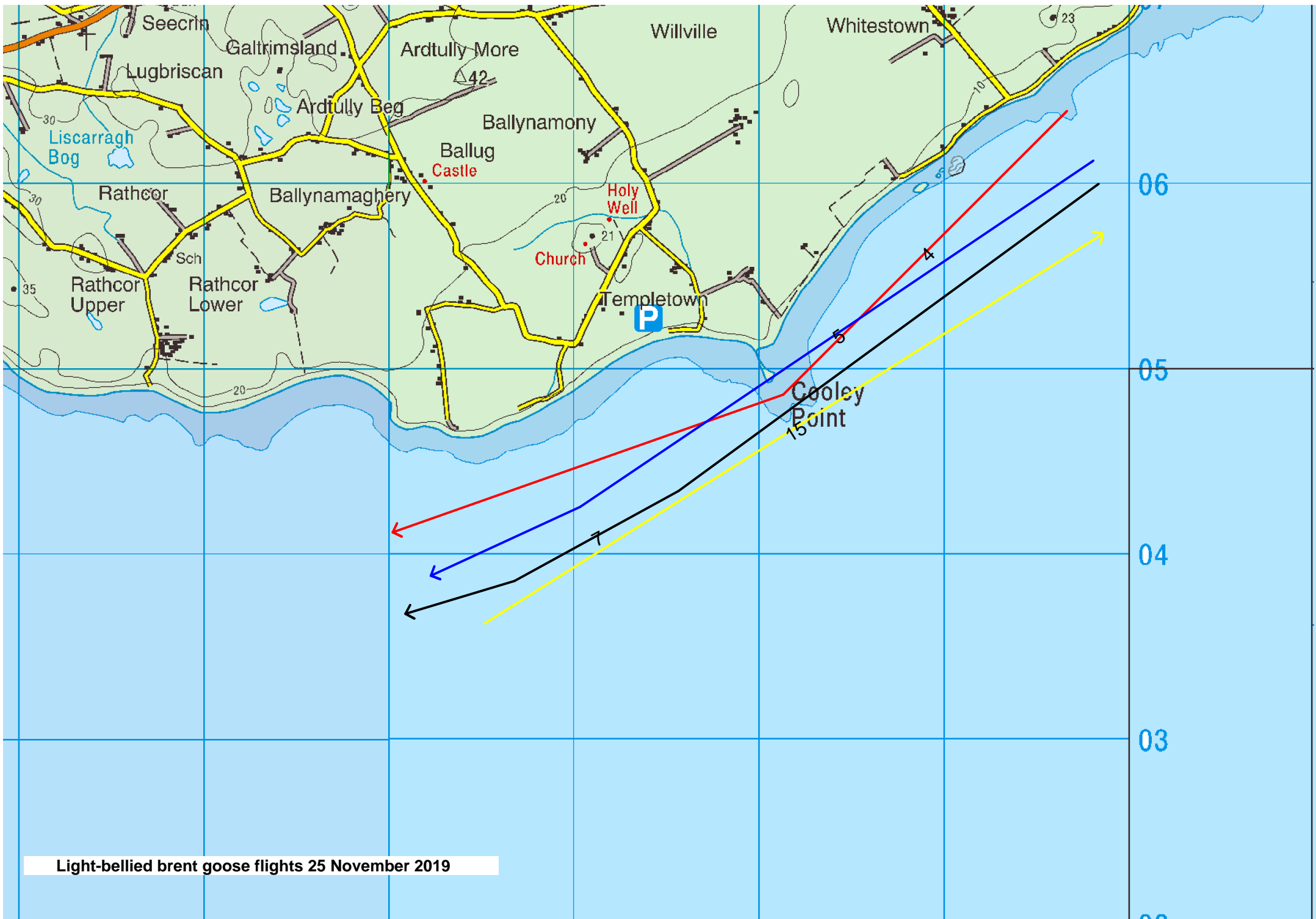
Field Notes (summaries of target and secondary species recorded, details of any disturbance, etc.)

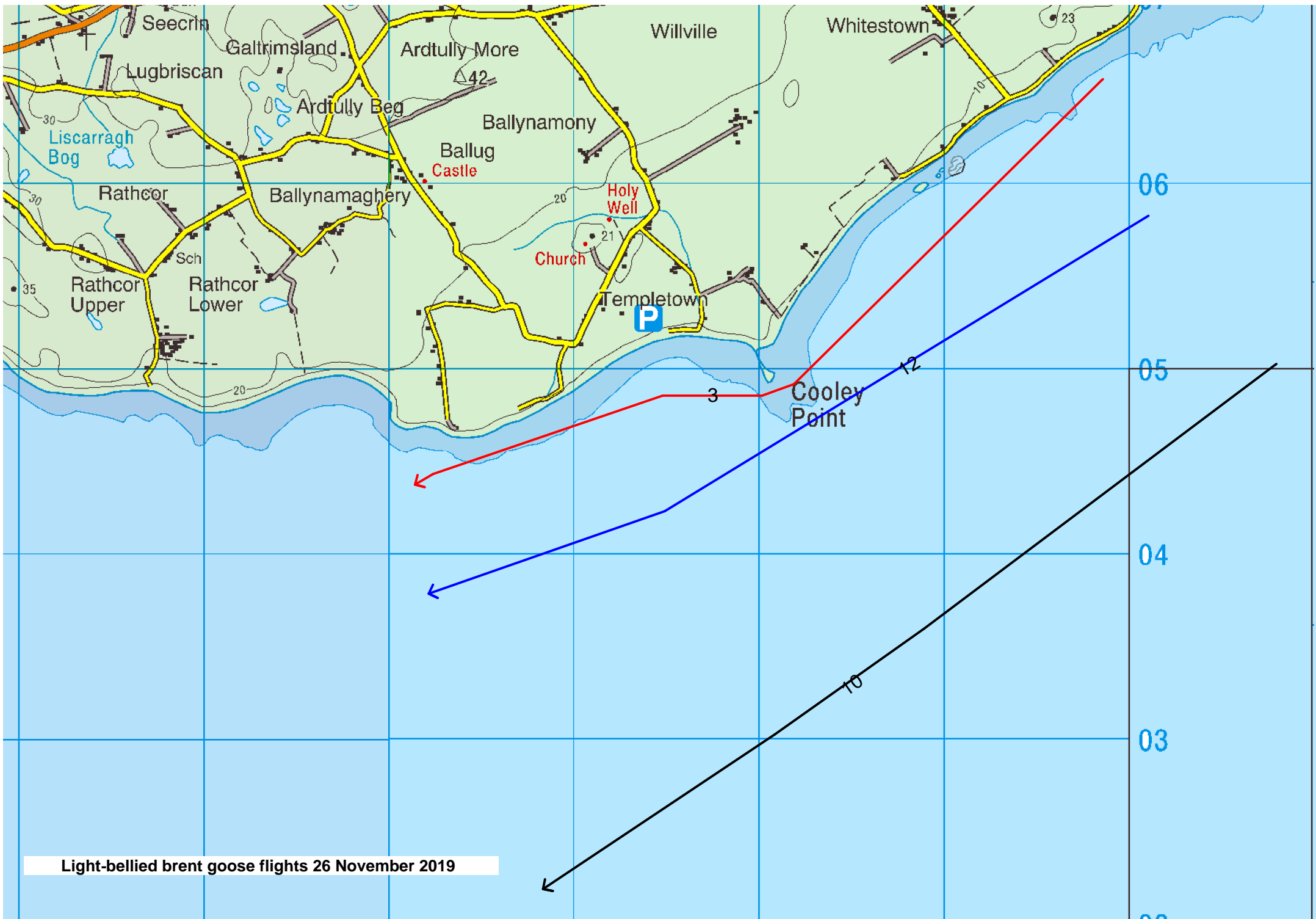
No birds observed

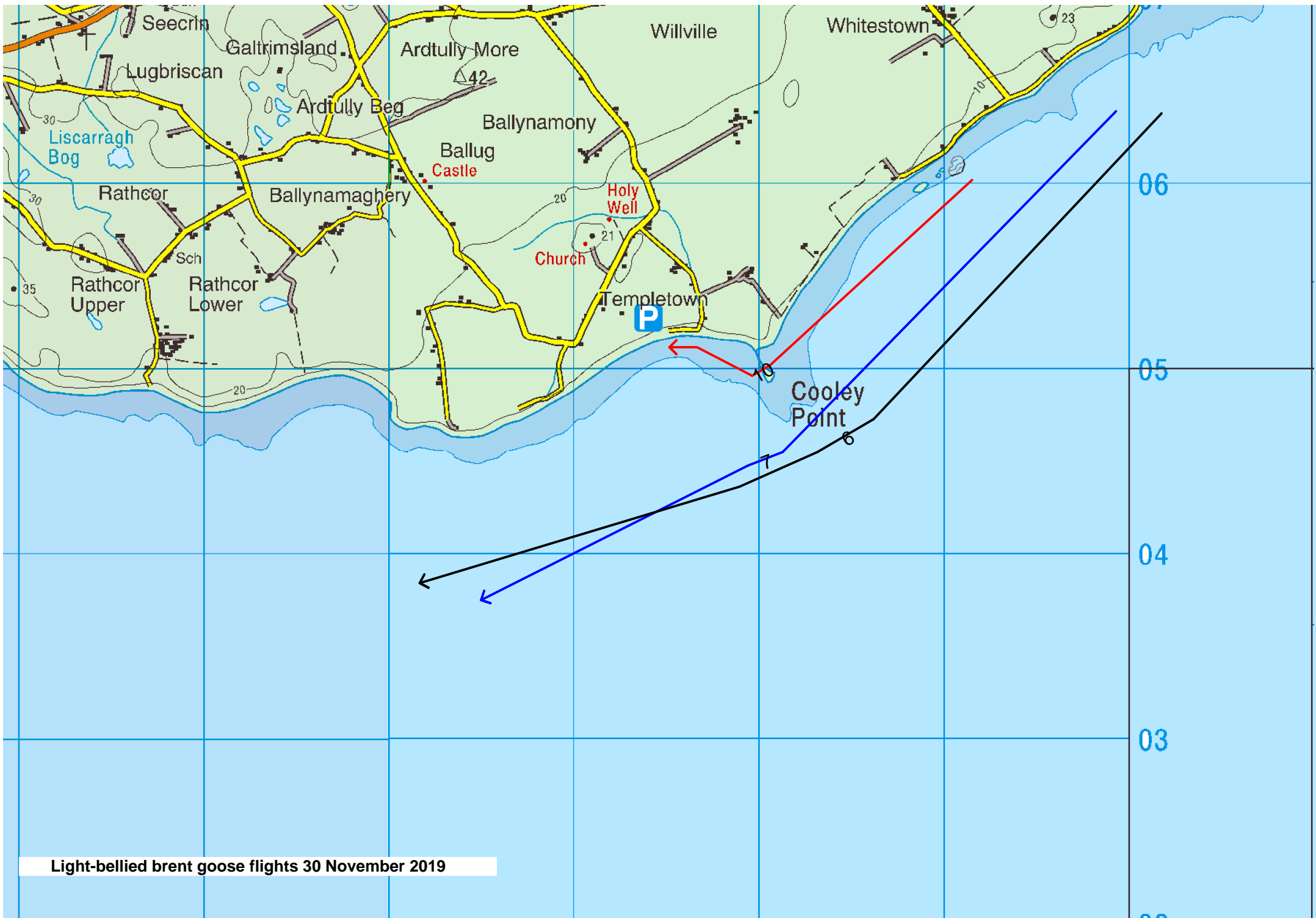
Annex 2: Flight Paths November - December 2019



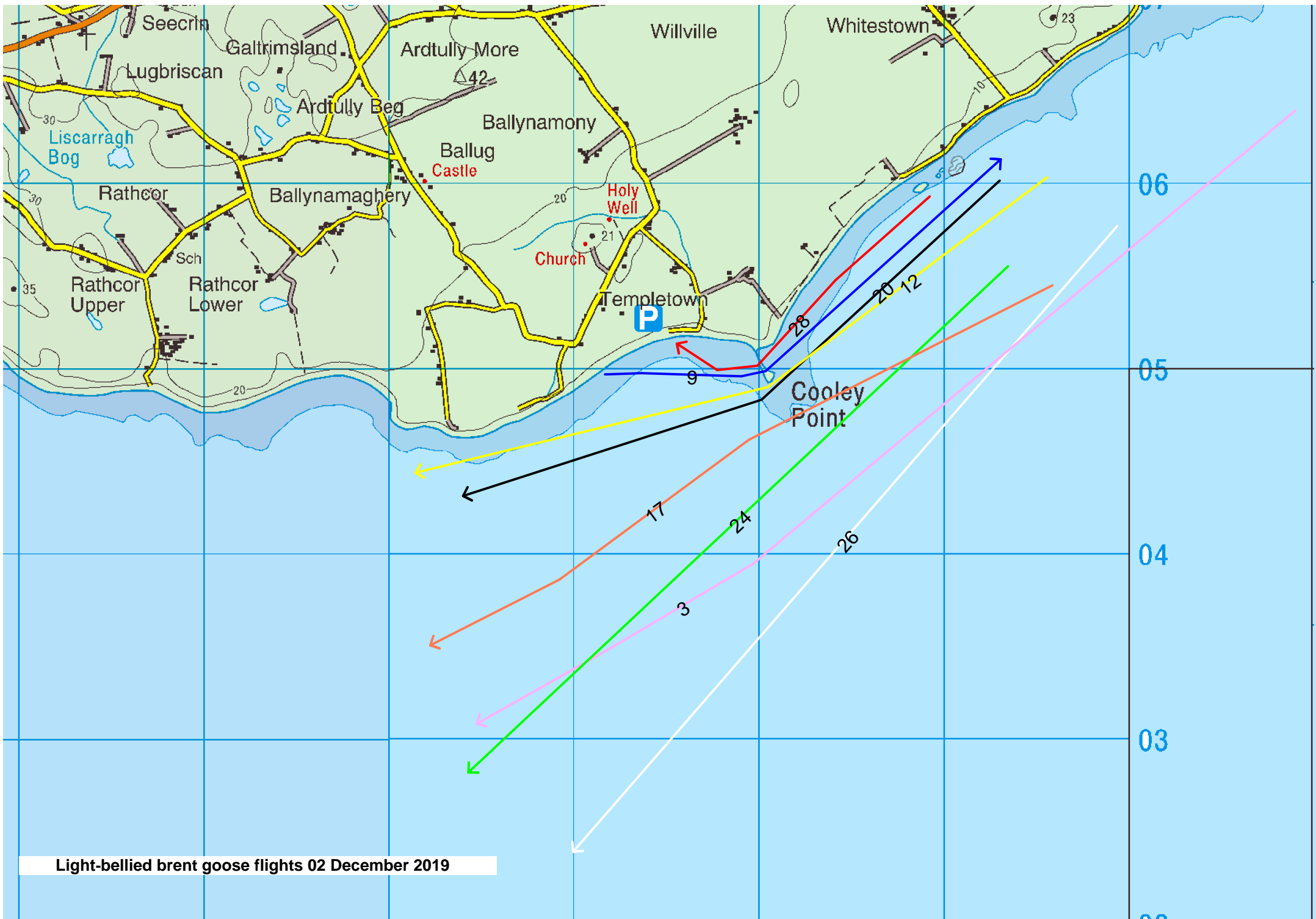
Light-bellied brent goose flights 12 November 2019



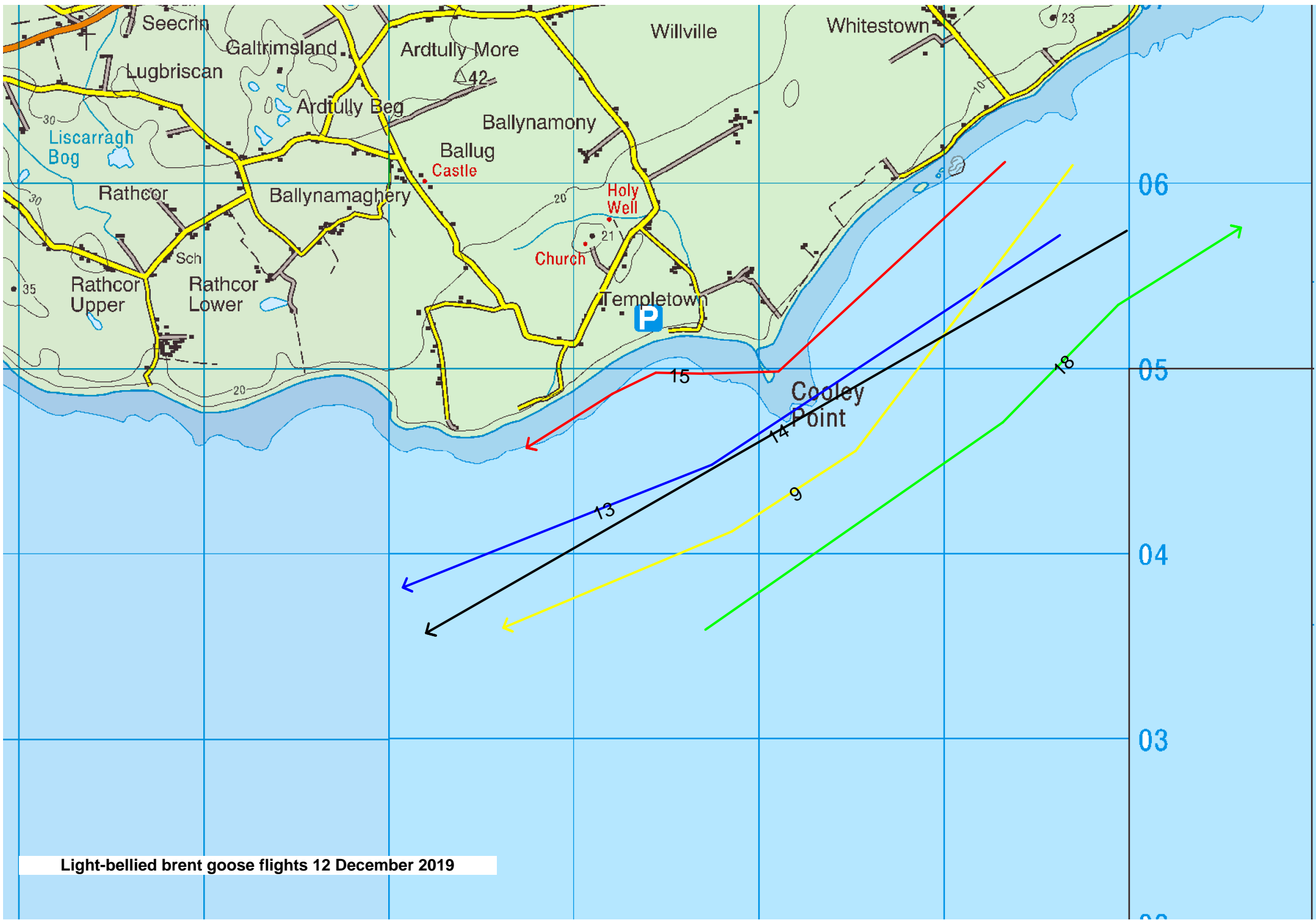




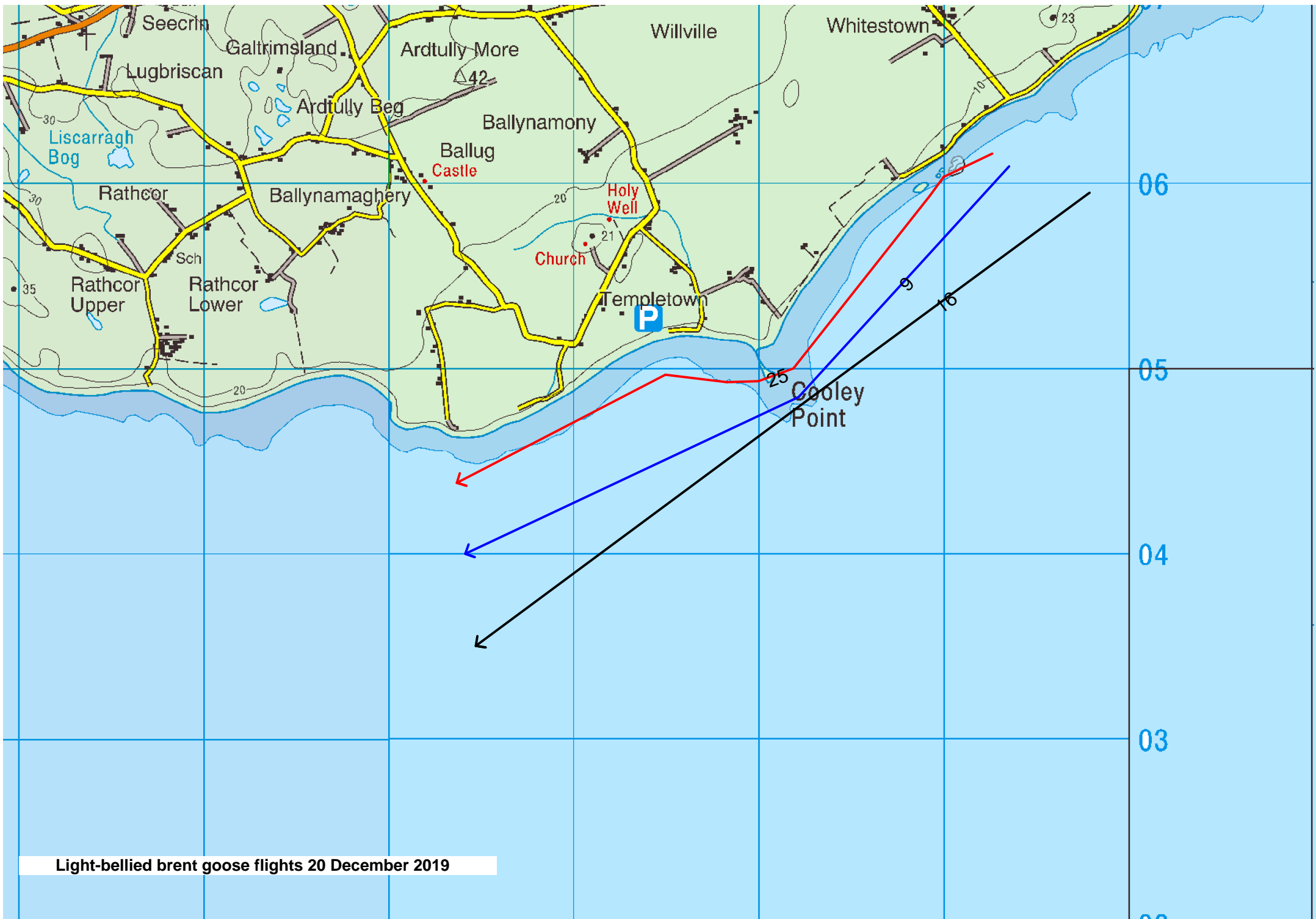
Light-bellied brent goose flights 30 November 2019



Light-bellied brent goose flights 02 December 2019



Light-bellied brent goose flights 12 December 2019



Light-bellied brent goose flights 20 December 2019